BODY ELECTRICAL SYSTEM

BE0DC-07

PRECAUTION

Take care to observe the following precautions when performing inspections or removal and replacement of body electrical related parts.

1. HEADLIGHT SYSTEM (Halogen bulb)

Halogen bulbs have pressurized gas inside and require special handling. They can burst if scratched or dropped. Hold a bulb only by its plastic or metal case. Don't touch the glass part of a bulb with bare hands.

2. HEADLIGHT SYSTEM (HID bulb)

- HID bulbs have pressurized gas inside and require special handling. They can burst or scatter if scratched or dropped. Hold a bulb only by its plastic or metal case. Don't touch the glass part of a bulb with bare hands.
- When high voltage socket of discharge headlight is touched with the light control switch HEAD, high voltage of 20,000 V is momentarily generated. This might lead to a serious accident.
- Never connect the tester to the high voltage socket of discharge headlight for measurement, as this leads to a serious because of high voltage.
- When performing operation related to the discharge headlight, make sure to do it in the place with no water of rain to prevent electric shock, with light control switch OFF, battery terminal removed, connector of light control ECU disconnected.
- When performing operation related to the discharge headlight, make sure to do it after assembling has been completely over and never light up without a bulb installed.

3. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The LEXUS RX300 is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag. failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deployed during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary codices in the RS section.

4. COMBINATION METER SYSTEM

The cold cathode tube connectors (Connectors "N", "P" and "Q") in the combination meter are charged with high voltage AC current when power is supplied, so do not touch them when they are charged.

5. Power Seat Control System:
MICRO COMPUTER PRESET DRIVING POSITION SYSTEM

If the battery negative (-) terminal is disconnected, the preset driving positions stored in memory are erased, so be sure to note the positions and reset them after the battery terminal is reconnected.

6. AUDIO SYSTEM

If the battery negative (-) terminal is disconnected, the preset AM, FM 1 and FM 2 stations stored in memory are erased, so be sure to not the stations and reset them after the battery terminal is reconnected.

7. MOBILE COMMUNICATION SYSTEM

If the vehicle is equipped with a mobile communication system, refer to precautions in the IN section.

TROUBLESHOOTING

BE1AT-04

PROBLEM SYMPTOMS TABLE

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

IGNITION SWITCH:

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
Ignition switch is not set to each position.	1. Ignition switch 2. Power source circuit	BE-28 BE-20

KEY UNLOCK WARNING SWITCH:

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
Key unlock warning system does not operate. (The buzzer does not sound when the driver's door is opened with the ignition OFF and key inserted)	1. Key Unlock Warning Switch 2. Door Courtesy Switch 3. Driver Door ECU 4. Multiplex Communication Circuit 5. Body ECU 6. Wire Harness	BE-28 BE-54 DI-679 DI-757 DI-632 -
Key unlock warning system does not operate. (The buzzer sounds when the ignition key is ACC or ON)	1. Ignition Switch 2. RADIO No. 2 Fuse (Instrument Panel J/B) 3. GAUGE Fuse (Instrument Panel J/B) 4. Wire Harness	BE-28 - - -

HEADLIGHT AND TAILLIGHT SYSTEM:

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

HINT:

To inspect the bulb and light control ECU, replace them with the ones working normally and judge whether they work normally or not.

Symptom	Suspect Area	See page
Only one headlight comes on.	1. Daytime Running Light No. 2, 3, 4 Relay 2. Daytime Running Light Main Relay 3. Bulb 4. *Headlight (Light Control ECU) 5. Wire Harness	BE-33 BE-33 - - -
"LO-Beam" does not light (All).	1. Headlight Control Relay 2. *Headlight (Light Control ECU) 3. Wire Harness	BE-33 - -
"LO-Beam" does not light (One side).	1. Bulb 2. HEAD LH(LWR) Fuse 3. HEAD RH(LWR) Fuse 4. *Headlight (Light Control ECU) 5. Wire Harness	- BE-20 BE-20 - -
"HI-Beam" does not light (All).	1. Headlight Dimmer Switch 2. Daytime Running Light Main Relay 3. Wire Harness	BE-33 BE-33 -

"HI-Beam" does not light (One side).	1. Bulb 2. HEAD LH(UPR) Fuse 3. HEAD RH(UPR) Fuse 4. Daytime Running Light No. 3 Relay 5. Wire Harness	- BE-20 BE-20 BE-33 -
"Flash" does not light.	1. Headlight Dimmer Switch 2. Daytime Running Light Main Relay 3. Wire Harness	BE-33 BE-33 -
Headlight does not come on.	1. Headlight Control Relay 2. Daytime Running Light Main Relay 3. Daytime Running Light No. 2, 3, 4 Relay 4. Headlight Dimmer Switch 5. Light Control Switch 6. Wire Harness 7. *Headlight (Light Control ECU) 8. Bulb	BE-33 BE-33 BE-33 BE-33 BE-33 - - -
Headlight does not come on with light control switch in HEAD.	1. Light Control Switch 2. *Headlight (Light Control ECU) 3. Wire Harness	BE-33 - -
Headlight does not go out with light control switch in OFF.	1. Headlight Control Relay 2. *Headlight (Light Control ECU) 3. Wire Harness	BE-33 - -
Headlight flickers.	1. Bulb 2. *Headlight (Light Control ECU) 3. Wire Harness	- BE-33 -
Headlight is dark.	1. Bulb 2. *Headlight (Light Control ECU) 3. Wire Harness	- - -
Taillight does not come on with light control switch in TAIL.	1. Taillight Control Relay (Instrument Panel J/B) 2. Light Control Switch 3. Wire Harness	BE-33 - -
Taillight does not go out with light control switch in OFF.	1. Taillight Control Relay 2. Light Control Switch 3. Wire Harness	BE-33 BE-33 -
Headlight does not come on with engine running and light control switch in OFF.	1. ECU-B Fuse 2. GAUGE Fuse 3. Daytime Running Light Main Relay 4. Daytime Running Light No. 2, 3, 4 Relay 5. Generator L Terminal 6. Parking Brake Switch 7. Wire Harness	BE-20 BE-20 BE-33 BE-33 CH-1 BE-76 -

*: HID Type

HEADLIGHT BEAM LEVEL CONTROL SYSTEM

HINT:

This system fails, the warning light in the instrument cluster comes on.

Symptom	Suspect Area	See page
Beam axis is not controlled. (It is not initialized.) Headlight Beam Level Control System does not operate.	1. PWR-IG Fuse 2. Headlight Beam Level Control Actuator 3. Headlight Beam Level Control ECU 4. Wire Harness Side	- BE-42 BE-42 -

Beam axis is not controlled. (It is initialized.) Headlight Beam Level Control System does not operate.	1. Headlight Beam Level Control ECU 2. Power Source Circuit 3. Height Control Sensor 4. Suspension ECU 5. Headlight Beam Level Control ECU 6. Wire Harness Side	BE-42 BE-42 BE-42 IN-34 BE-42 -
Controlled angle of head light is unusual. (The angle is controlled.)	1. Height Control Sensor 2. Suspension ECU 3. Headlights 4. Wire Harness Side	BE-42 IN-34 - -
Beam axis position is not stable during driving.	1. ABS System 2. Headlights 3. Wire Harness Side	- - -

AUTOMATIC LIGHT CONTROL SYSTEM:

Symptom	Suspect Area	See page
”Automatic light control system” does not operate.	1. ECU-IG Fuse (Instrument Panel J/B) 2. DOME Fuse (Engine Room J/B) 3. Automatic Light Control Sensor 4. Light Control Switch 5. Door Courtesy Switch 6. Body ECU 7. Driver Door ECU 8. Wire Harness	- - BE-33 BE-33 BE-54 DI-632 DI-679 -

AUTO TURN OFF SYSTEM:

Symptom	Suspect Area	See page
Auto turn-off system does not operate when the driver’s door is opened.	1. Drivers Door Courtesy Switch 2. Driver Door ECU 3. Multiplex Communication Circuit 4. Body ECU	BE-54 DI-679 DI-757 DI-632
Headlight and taillight does not come on.	1. Body ECU 2. Wire Harness	DI-632 -
Headlight and taillight stays on.	1. Body ECU 2. Wire Harness	DI-632 -

FOG LIGHT SYSTEM

Symptom	Suspect Area	See page
Fog light does not light up with light control SW HEAD (Headlight is normal.)	1. FR FOG Fuse (Instrument Panel J/B) 2. Fog Light Relay (Instrument Panel J/B) 3. Fog Light Switch 4. Wire Harness	- BE-46 BE-33 -
Fog light does not light up with light control SW HEAD (Headlight does not light).	1. *1 Other Parts 2. Wire Harness	- -
Only one light does not light up.	1. Bulb 2. Wire Harness	- -

*1: Inspect Headlight System

TURN SIGNAL AND HAZARD WARNING SYSTEM

Symptom	Suspect Area	See page
”Hazard” and ”Turn” do not light up.	1. Hazard Warning Switch 2. Turn Signal Switch 3. Turn Signal Flasher 4. Wire Harness	BE-50 BE-33 BE-50 -
The flashing frequency is abnormal.	1. Bulb 2. Turn Signal Switch 3. Wire Harness	- BE-33 -
Hazard warning light does not light up. (Turn is normal)	1. HAZARD Fuse (Engine Room J/B) 2. Wire Harness	- -
Hazard warning light does not light up in one direction.	1. Hazard Warning Switch 2. Wire Harness	BE-50 -
*1 Turn signal does not light up.	1. Ignition Switch 2. GAUGE Fuse (Instrument Panel J/B) 3. Turn Signal Switch 4. Wire Harness	BE-28 - BE-33 -
*2 Turn signal does not light up.	1. GAUGE Fuse (Instrument Panel J/B) 2. Turn Signal Switch 3. Wire Harness	- BE-33 -
Turn signal does not light up in one direction.	1. Turn Signal Switch 2. Wire Harness	BE-33 -
Only one bulb does not light up.	1. Bulb 2. Wire Harness	- -

*1: Combination Meter, Wiper and Washer do not operate.
*2: Combination Meter, Wiper and Washer are normal.

ILLUMINATION LIGHT SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
Illumination light do not light. (Taillight is normal)	1. PANEL Fuse (Instrument Panel J/B) 2. Rheostat Light Control 3. Wire Harness	- BE-76 -
Illumination light do not light. (Taillight does not light)	1. Taillight Control Relay (Instrument Panel J/B) 2. Taillight System 3. Rheostat Light Control 4. Wire Harness 5. PANEL Fuse (Instrument Panel J/B)	BE-33 BE-33 BE-76 - -
Only one light does not light.	1. Bulb 2. Wire Harness	- -

INTERIOR LIGHT SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
All the lights do not come ON.	1. DOME Fuse (Engine Room J/B) 2. Body ECU	- DI-632
The light does not come ON when the driver's door is opened.	1. Driver's Door Courtesy Switch 2. Driver Door ECU 3. Multiplex Communication Circuit 4. Body ECU 5. Wire Harness	BE-54 DI-679 DI-757 DI-632 -
The light does not come ON when the passenger's door is opened.	1. Passenger's Door Courtesy Switch 2. Front Passenger Door ECU 3. Multiplex Communication Circuit 4. Body ECU 5. Wire Harness	BE-54 DI-701 DI-757 DI-632 -
The light does not come on when the rear-right door is opened.	1. Rear-Right Door Courtesy Switch 2. Body ECU 3. Wire Harness	BE-54 DI-632 -
The light does not come on when the rear-left door is opened.	1. Rear-Left Door Courtesy Switch 2. Body ECU 3. Wire Harness	BE-54 DI-632 -
Only one of the bulbs comes ON.	1. Bulb	-
The illumination does not fade out when all the doors are closed.	1. Courtesy Switch 2. Driver Door ECU 3. Front Passenger Door ECU 4. Multiplex Communication Circuit 5. Body ECU 6. Wire Harness	BE-54 DI-679 DI-701 DI-757 DI-632 -
The illumination does not fade out immediately when the ignition switch is turned to ACC or ON within 15 seconds after all the doors are closed.	1. Ignition Switch 2. RADIO NO. 2 Fuse (Instrument Panel J/B) 3. GAUGE Fuse (Instrument Panel J/B) 4. Body ECU 5. Wire Harness	BE-28 - - DI-632 -
The illumination does not fade out immediately when all the doors are locked within 15 seconds after they are closed.	1. Door Unlock Detection Switch 2. Driver Door ECU 3. Front Passenger Door ECU 4. Multiplex Communication Circuit 5. Body ECU 6. Wire Harness	BE-110 DI-679 DI-701 DI-757 DI-632 -
Interior light does not light up. (in front personal light)	1. Bulb 2. Front Personal Light 3. Wire Harness	- BE-54 -
Front personal light does not light up.	1. Bulb 2. Front Personal Light 3. Wire Harness	- BE-54 -
Rear personal light does not light up.	1. Bulb 2. Rear Personal Light 3. Wire Harness	- BE-54 -
Vanity light does not light up.	1. Bulb 2. Vanity Light 3. Wire Harness	- BE-54 -

Luggage compartment light does not light up.	1. Bulb 2. Luggage Compartment Door Courtesy Switch 3. Wire Harness	- BE-54 -
Courtesy light does not light up.	1. Bulb 2. Door Courtesy Switch 3. Wire Harness	- BE-54 -

STOP LIGHT SYSTEM

Symptom	Suspect Area	See page
Stop light does not light up.	1. STOP Fuse (Instrument Panel J/B) 2. Stop Light Switch 3. Light Failure Sensor 4. Wire Harness	- BE-59 BE-59 -
Stop light always lights up.	1. Stop Light Switch 2. Wire Harness	BE-59 -
Only one light always lights up.	1. Wire Harness	-
Only one light does not light up.	1. Bulb 2. Wire Harness	- -

WIPER AND WASHER SYSTEM

Symptom	Suspect Area	See page
Wiper and washers do not operate.	1. WIPER Fuse (Instrument Panel J/B) 2. Wiper Switch 3. Wiper Motor 4. Body ECU 5. Wire Harness	- BE-62 BE-62 DI-632 -
Wipers do not operate in LO, HI or MIST.	1. Wiper Switch 2. Wiper Motor 3. Wire Harness	BE-62 BE-62 -
Wipers do not operate in INT.	1. Wiper Switch 2. Wiper Motor 3. Body ECU 4. Wire Harness	BE-62 BE-62 DI-632 -
Washer motor does not operate.	1. Washer Switch 2. Washer Motor 3. Wire Harness	BE-62 BE-62 -
Wipers do not operate when washer switch in ON.	1. Washer Motor 2. Body ECU 3. Wire Harness	BE-62 DI-632 -
Washer fluid does not operate.	1. Washer Hose and Nozzle	-
● When wiper switch is at HI position, the wiper blade is in contact with the body. ● When the wiper switch is OFF, the wiper blade does not retract or the retract position wrong.	1. Wiper Motor * 2. Wire harness * 3. Body ECU	BE-62 - DI-632

*: Inspect wiper arm and blade set position.

COMBINATION METER

Symptom	Suspect Area	See page
SRS warning light does not light up.	1. HEATER Fuse (Instrument Panel J/B) 2. Bulb 3. Meter Circuit Plate 4. Wire Harness 5. Airbag Sensor Assembly	- - BE-68 - DI-509
Hi-beam indicator light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. Headlight System	- BE-68 - BE-31
Turn indicator light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. Turn Signal and Hazard Warning System	- BE-68 - BE-49
ABS warning light does not light up.	1. GAUGE Fuse (Instrument Panel J/B) 2. Bulb 3. Meter Circuit Plate 4. Wire Harness 5. ABS (& TRAC) ECU	- - BE-68 - DI-363
TRAC warning light does not light up.	1. GAUGE Fuse 2. Bulb 3. Meter Circuit Plate 4. Wire Harness 5. ABS (& TRAC) ECU	- - BE-68 - DI-366
AIRSUS warning light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. Suspension ECU	- BE-68 - IN-34
Malfunction indicator light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. ECM	- BE-68 - -
Fuel level warning light does not light up.	1. Bulb 2. Fuel level warning switch 3. Meter Circuit Plate 4. Wire Harness	- BE-76 BE-68 -

DEFOGGER SYSTEM

Symptom	Suspect Area	See page
All defogger systems do not operate.	1. HEATER Fuse (Instrument Panel J/B) 2. Defogger Switch 3. Wire Harness 4. Body ECU	- BE-92 - -
Rear window defogger does not operate.	1. DR DEF Fuse 2. Defogger Wire 3. Wire Harness	- BE-92 -
Mirror defogger does not operate.	1. FR DEF Fuse (Instrument Panel J/B) 2. Mirror Defogger 3. Wire Harness	- BE-92 -

POWER WINDOW CONTROL SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
All the power windows do not operate. (Power Door Lock System is normal.)	1. Power Window Master Switch 2. Wire Harness	BE-97 -
Only the driver's window does not operate.	1. Power Window Master Switch 2. Power WIndow Switch 3. Power Window Motor 4. Wire Harness	BE-97 BE-97 BE-97 -
"Window lock function" does not operate.	1. Power Window Master Switch	BE-97
Window does not operate with power window master switch. (Manual or Automatic operation can be performed.)	TROUBLESHOOTING NO. 1	BE-94
Remove control of all windows (Except driver's) does not functions with master switch. (Window operate normally with each of master switch.)	TROUBLESHOOTING NO. 2	BE-94
The Key related power window operations does not operate with driver side door key cylinder. (Master switch operation is normal.)	TROUBLESHOOTING NO. 3	BE-94
Power window does not operate with multi-function transmitter. (Windows operate normally with master switch.)	TROUBLESHOOTING NO. 4	BE-94
Window moves down without being ordered during the up operation.	TROUBLESHOOTING NO. 5	BE-94

POWER DOOR LOCK CONTROL SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
All the doors cannot be locked or unlocked.	1. Door Lock Control Switch 2. Driver Door ECU 3. Front Passenger Door ECU 4. Multiplex Communication Circuit 5. Body ECU 6. Wire Harness	BE-110 DI-679 DI-701 DI-757 DI-632 -
Only driver's side door lock control does not operate.	1. Driver Door ECU 2. Driver's Door Lock Motor 3. Wire Harness	DI-679 BE-110 -
Other doors than the driver's side door do not operate.	1. Driver Door ECU 2. Multiplex Communication Circuit 3. Body ECU 4. Wire Harness 5. Door Lock Motor	DI-679 DI-757 DI-632 - BE-110
Door key related function does not operate.	1. Door Key Lock and Unlock Switch 2. Wire Harness	BE-110 -
Key confinement prevention function does not operate.	1. Key Unlock Warning Switch 2. Wire Harness 3. Body ECU	BE-28 - DI-632
Luggage compartment door opener function does not operate.	1. Luggage Compartment Door Opener Switch 2. Luggage Compartment Door Key Lock and Unlock Switch 3. Luggage Compartment Door Opener Motor 4. Wire Harness 5. Body ECU	BE-110 BE-110 - BE-110 - DI-632

THEFT DETERRENT SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

Symptom	Suspect Area	See page
The system cannot be set.	1. Indicator Light	BE-128
	2. Key Unlock Warning Switch	BE-28
	3. Door Unlock Detection Switch	BE-110
	4. Engine Hood Courtesy Switch	BE-128
	5. Luggage Room Door Courtesy Switch	BE-54
	6. Wire Harness	-
	7. Body ECU	DI-632
	8. Driver Door ECU	DI-679
	9. Multiplex Communication Circuit	DI-757
	10. Transmitter	-
The system cannot be canceled when the ignition switch is turned to ACC with key.	1. Key Unlock Warning Switch	BE-28
	2. Ignition Switch	BE-28
	3. Body ECU	DI-632
	4. RADIO NO. 2 Fuse (Instrument panel J/B)	-
	5. Wire Harness	-
The system cannot be canceled when the luggage compartment door is unlocked with key.	1. Luggage Room Door Courtesy Switch	BE-54
	2. Body ECU	DI-632
	3. Wire Harness	-
The system does not operate when the engine hood is opened.	1. Engine Hood Courtesy Switch	BE-128
	2. Body ECU	DI-632
	3. Wire Harness	-
The system does not operate when the door is opened or unlocked without using a key or transmitter.	1. Door Courtesy Switch	BE-54
	2. Driver Door ECU	DI-679
	3. Front Passenger Door ECU	DI-701
	4. Body ECU	DI-632
	5. Multiplex Communication Circuit	DI-757
	6. Door Unlock Detection Switch	BE-110
	7. Wire Harness	-
	8. Transmitter	-
The system does not operate when the ignition switch is turned to ACC without using a key or transmitter.	1. Ignition Switch	BE-28
	2. Key Unlock Warning Switch	BE-28
	3. Body ECU	DI-632
	4. Wire Harness	-
	5. Transmitter	-
Some of the does not operate. (Headlight does not light up)	1. Headlight System	BE-31
	2. Wire Harness	-
	3. Body ECU	DI-632
Some of the system does not operate. (Taillight does not light up)	1. Taillight System	BE-31
	2. Wire Harness	-
	3. Body ECU	DI-632
Some of the system does not operate. (Theft deterrent horn or horn does not sound)	1. Theft Deterrent Horn	BE-128
	2. Horn	BE-229
	3. Horn Relay	BE-229
	4. HORN Fuse (Engine Room J/B)	-
	5. Wire Harness	-
	6. Body ECU	DI-632

While the warning is given, the system cannot be canceled by unlocking the door with key or transmitter.	1. Door Key Lock and Unlock Switch 2. Body ECU 3. Wire Harness 4. Driver Door ECU 5. Front Passenger Door ECU 6. Multiplex Communication Circuit 7. Transmitter	BE-110 DI-632 - DI-679 DI-701 DI-757 -
While the warning is given, the system cannot be canceled by turning the ignition switch to ON with key.	1. Ignition Switch 2. Key Unlock Warning Switch 3. RADIO NO. 2 Fuse (Instrument Panel J/B) 4. GAUGE Fuse (Instrument Panel J/B) 5. Body ECU 6. Wire Harness	BE-28 BE-28 - - DI-632 -
The system operates for more then 60 seconds.	1. Body ECU	BE-28

WIRELESS DOOR LOCK CONTROL SYSTEM

This system uses the multiplex communication system, so check diagnosis system of the multiplex communication system before you proceed with troubleshooting.

HINT:

Troubleshooting of the wireless door lock control system is based on the premise that the door lock control system is operating normally. Accordingly, before troubleshooting the wireless door lock control system, first make certain that the door lock control system is operating normally.

If the trouble still reappears even though there are no abnormalities in any of the other circuits, then check and replace the Wireless Door Lock Control Receiver as the last step.

Symptom	Suspect Area	See page
All functions of wireless door lock control system do not operate.	1. Wireless Door Lock Control Receiver 2. Wire Harness	BE-136 -
Wireless door lock operates, but the buzzer does not sound.	1. Wireless Door Lock Buzzer 2. Wireless Door Lock Control Receiver 3. Wire Harness	BE-136 BE-136 -

POWER SEAT CONTROL SYSTEM

Symptom	Suspect Area	See page
Power seat does not operate. (Door lock does not operate.)	1. Wire Harness 2. Power Seat Switch (D) 3. Power Seat Switch (P)	- BE-146 BE-146
Power seat does not operate. (Door lock is normal.)	1. Wire Harness 2. Power Seat Switch (D) 3. Power Seat Switch (P)	- BE-146 BE-146
Driver's seat does not operate.	1. Power Seat Switch (D) 2. Wire Harness	BE-146 -
Passenger's seat does not operate.	1. Power Seat Switch (P) 2. Wire Harness	BE-146 -
"Slide operation" does not operate.	1. Power Seat Switch (D) 2. Power Seat Switch (P) 3. Wire Harness 4. Slide Motor (D, P)	BE-146 BE-146 - BE-146
"Front Vertical Operation" does not operate.	1. Power Seat Switch (D) 2. Power Seat Switch (P) 3. Wire Harness 4. Front Vertical Motor (D, P)	BE-146 BE-146 - BE-146
"Rear Vertical Operation" does not operate.	1. Power Seat Switch (D) 2. Wire Harness 3. Rear Vertical Motor (D, P)	BE-146 - BE-146

”Reclining Operation” does not operate.	1. Power Seat Switch (D) 2. Power Seat Switch (P) 3. Wire Harness 4. Reclining Motor (D, P)	BE-146 BE-146 - BE-146
”Lumbar Support Operation” does not operate.	1. Power Seat Switch (D, P) 2. Wire Harness 3. Lumbar Support Motor (D, P)	BE-146 - BE-146

(D): Driver’s Seat
(P): Passenger’s Seat

POWER MIRROR CONTROL SYSTEM

Symptom	Suspect Area	See page
Mirror does not operate.	1. RADIO NO. 2 Fuse (Instrument Panel J/B) 2. Mirror Switch 3. Mirror Motor 4. Wire Harness	 DI-679 DI-679
Mirror operates abnormally.	1. Mirror Switch 2. Mirror Motor 3. Wire Harness	DI-679 DI-679

ELECTRO CHROMIC MIRROR SYSTEM

Symptom	Suspect Area	See page
Electro Chromic Inner Mirror does not operate.	1. ECU-IG Fuse (Instrument Panel J/B) 2. Elector Chromic Inner Mirror 3. Wire Harness	- BE-157 -
Electro Chromic Outer Mirror does not operate.	1. ECU-IG Fuse (Instrument Panel J/B) 2. Electro Chromic Outer Mirror 3. Elector Chromic Inner Mirror 4. Wire Harness	- BE-157 BE-157 -

SEAT HEATER SYSTEM

Symptom	Suspect Area	See page
Seat heaters do not operate. (Driver’s and Passenger’s)	1. SEAT HTR Fuse (Instrument Panel J/B) 2. Engine Main Relay (R/B No. 1) 3. Seat Heater Switch 4. Wire Harness 5. Seat Heater	- BE-160 BE-160 - BE-160
Driver’s seat heater does not operate.	1. Seat Heater Switch 2. Wire Harness	BE-160 -
Passenger’s seat heater does not operate.	1. Seat Heater Switch 2. Wire Harness	BE-160 -
Seat heater temperature is too hot.	1. Seat Heater	BE-160

GARAGE DOOR OPENER SYSTEM

Symptom	Suspect Area	See page
The equipment of which code has been registered does not operate.	1. Garage Door Opener 2. Wire Harness 3. *	BE-214 - -
LED does not light up. (Even though either switch is pressed.)	1. Garage Door Opener 2. Wire Harness	BE-214 -
LED does not light up. (Only one switch is pressed.)	1. Garage Door Opener	BE-214

* As the GARAGE DOOR OPENER on the vehicle side seems to be normal, check the OPENER on the equipment side, of which code has been registered.

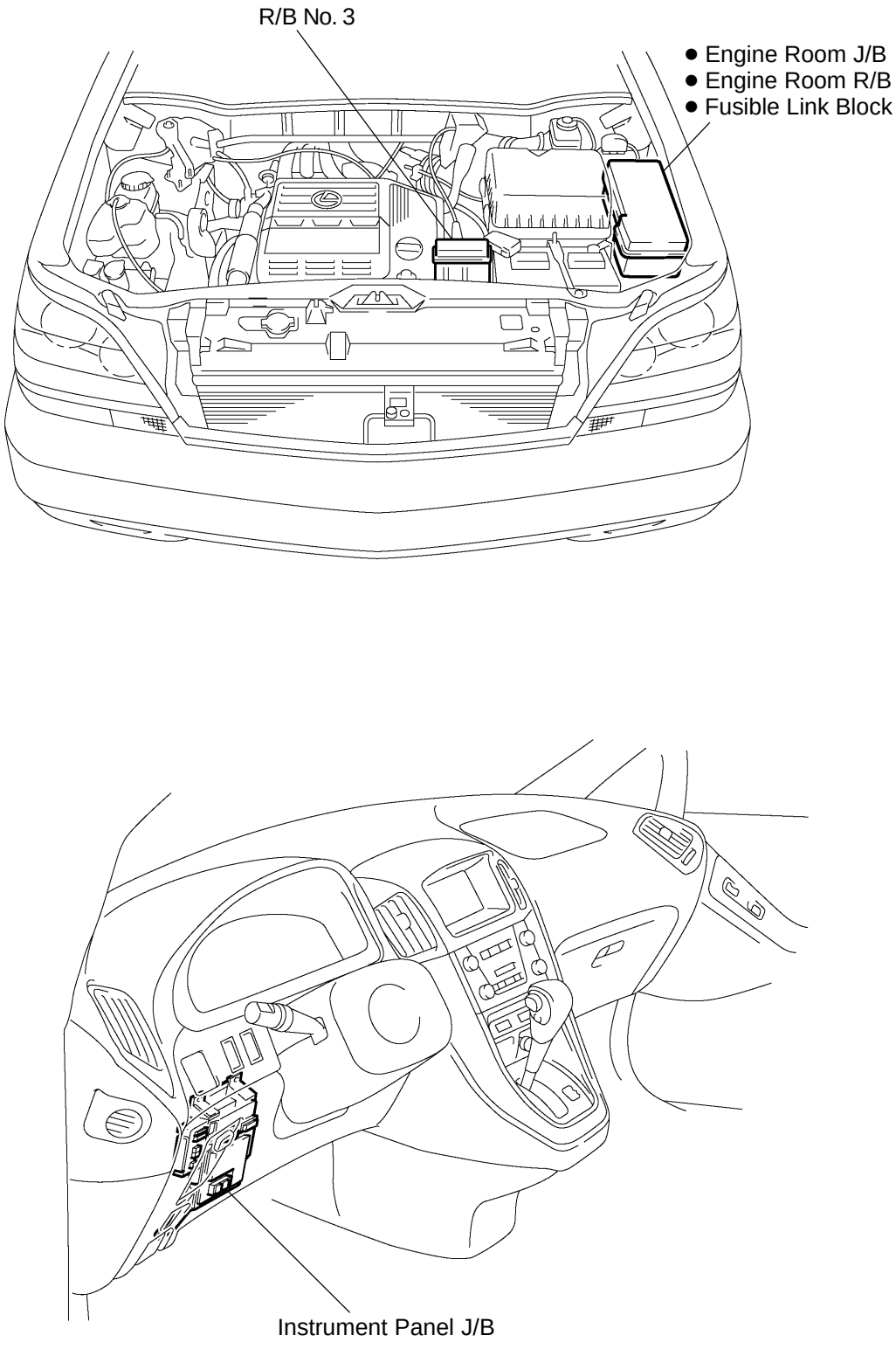
HORN SYSTEM

Symptom	Suspect Area	See page
Horn system does not operate.	1. HORN Fuse (Engine Room J/B) 2. Horn Relay (Engine Room J/B) 3. Horn Switch 4. Horn 5. Wire Harness	- BE-229 BE-229 BE-229 -
Horns blow all the time.	1. Horn Relay (Engine Room J/B) 2. Horn Switch 3. Wire Harness	BE-229 BE-229 -
One horn operates but other horn does not operate.	1. Horn 2. Wire Harness	BE-229 -
Horns operate abnormally.	1. Horn Relay (Engine Room J/B) 2. Horn 3. Wire Harness	BE-229 BE-229 -

POWER SOURCE

LOCATION

BE0B6-06



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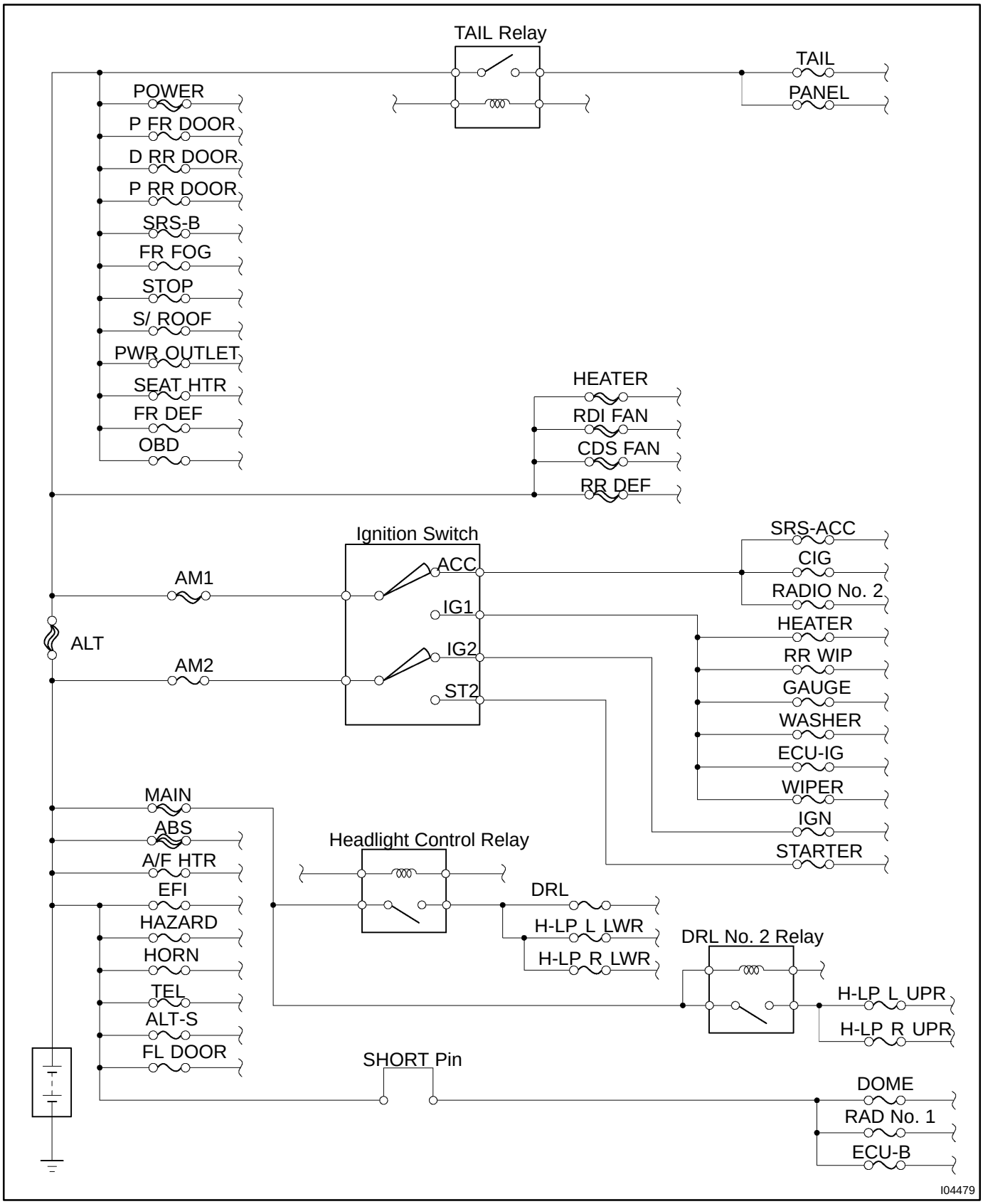
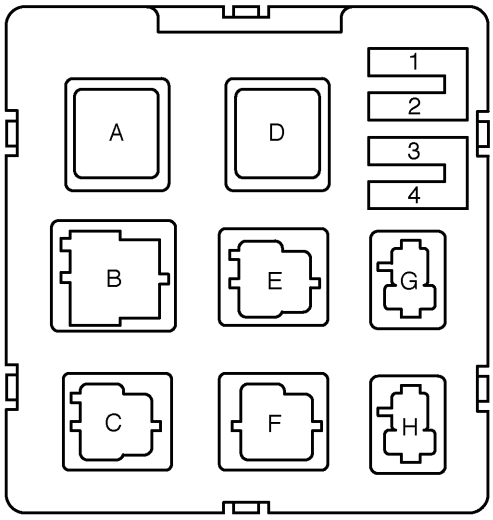
BE0U7-02

CIRCUIT



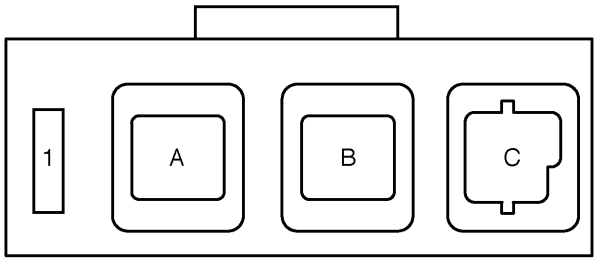
●Relay Block No. 2 (Inside Engine Room Junction Block)



Fuse
1. H-LP R UPR Fuse
2. H-LP L UPR Fuse
3. A/F HTR Fuse

Relay
A. -
B. ABS SOL Relay
C. FAN No. 3 Relay
D. FAN No. 1 Relay
E. ABS MOTOR Relay
F. FAN No. 2 Relay
G. A/F HEATER Relay

●Engine Room Relay Block No. 3

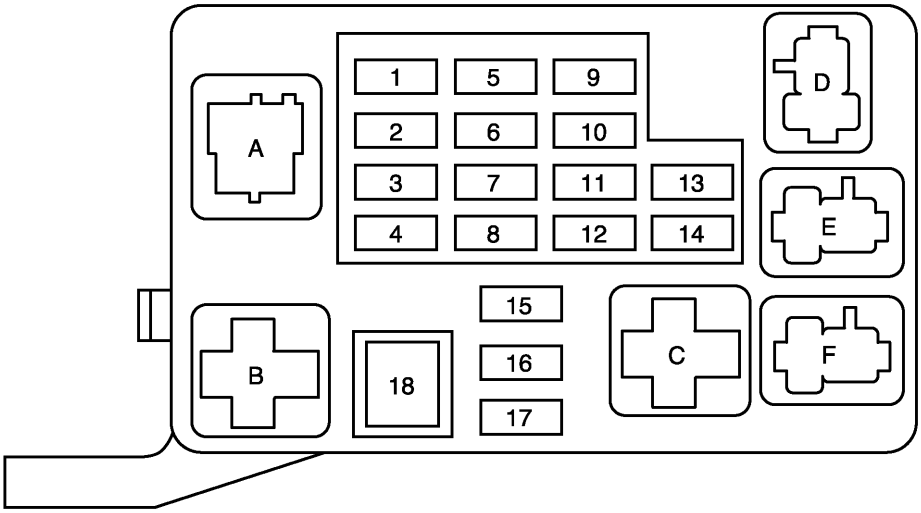


Fuse
1. DRL Fuse

Relay
A. DRL No. 2 Relay
B. DRL No. 4 Relay
C. DRL No. 3 Relay

I04482

● **Engine Room Junction Block**



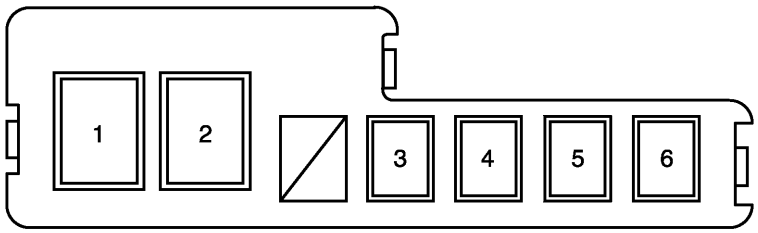
Fuse

1. -
2. H-LP R LWR Fuse
3. H-LP L LWR Fuse
4. HAZARD Fuse
5. AM2 Fuse
6. TEL Fuse
7. FL DOOR Fuse
8. SHORT PIN
9. ALT-S Fuse
10. HORN Fuse
11. EFI Fuse
12. DOME Fuse
13. ECU-B Fuse
14. RAD No. 1 Fuse
15. -
16. -
17. -
18. MAIN M-Fuse

Relay

A. Headlight Control Relay
B. Starter Relay
C. RR DEF Relay
D. MG CLT Relay
E. HORN Relay
F. EFI Relay

● **Fusible Link Block (Inside Engine Room Junction Block)**



Fuse

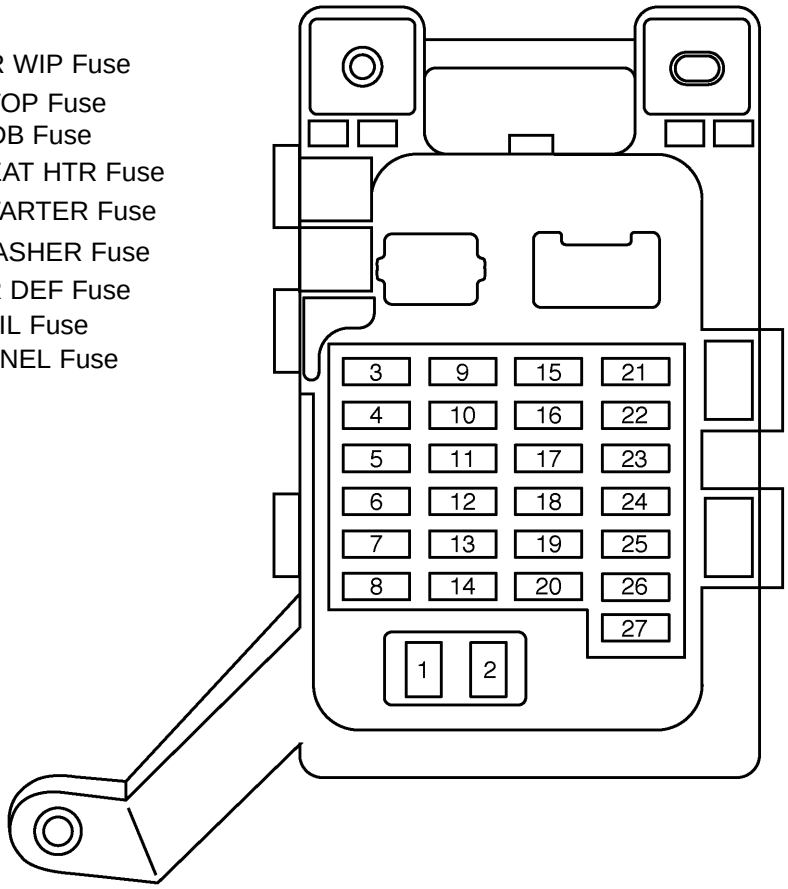
1. ABS H-Fuse
2. ALT H-Fuse
3. RDI FAN M-Fuse
4. CDS FAN M-Fuse
5. RR DEF Fuse
6. HEATER M-Fuse

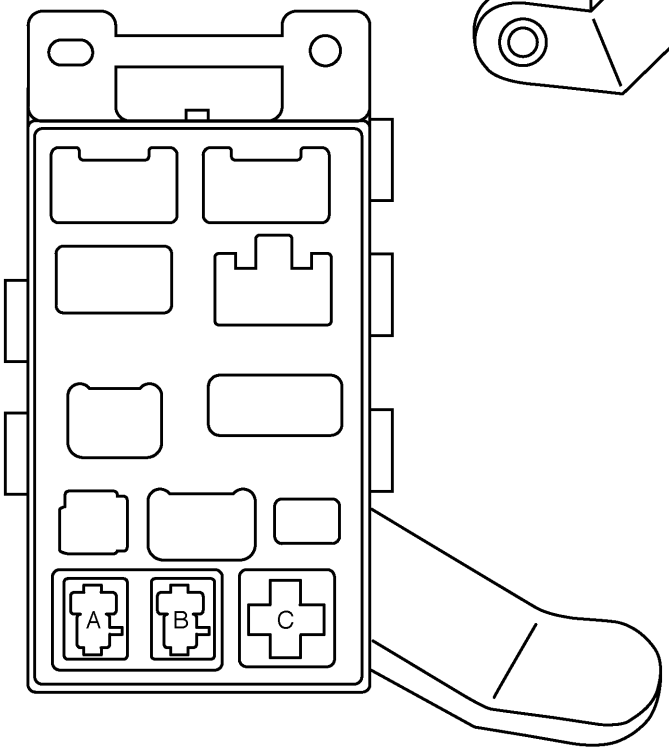
I04481

● **Instrument Panel Junction Block**

Fuse

1. AM1 M-Fuse
2. POWER M-Fuse
3. IGN Fuse
4. RADIO No. 2 Fuse
5. CIG Fuse
6. D RR DOOR Fuse
7. PWR OUTLET Fuse
8. FR FOG Fuse
9. SRS-ACC Fuse
10. ECU IG Fuse
11. WIPER Fuse
12. P RR DOOR Fuse
13. P FR DOOR Fuse
14. S/ROOF Fuse
15. HEATER Fuse
16. GAUGE Fuse
17. RR WIP Fuse
18. STOP Fuse
19. ODB Fuse
20. SEAT HTR Fuse
21. STARTER Fuse
22. WASHER Fuse
24. FR DEF Fuse
25. TAIL Fuse
26. PANEL Fuse



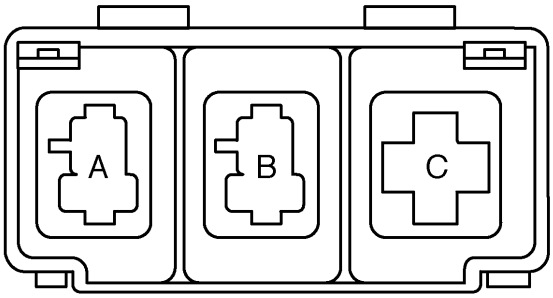


Relay

A. Taillight Control Relay
B. Fog Light Relay
C. ACC Relay

I04480

● **Relay Block No. 1**



Relay

A. Circuit Opening Relay
B. Engine Main Relay
C. Mirror Heater Relay

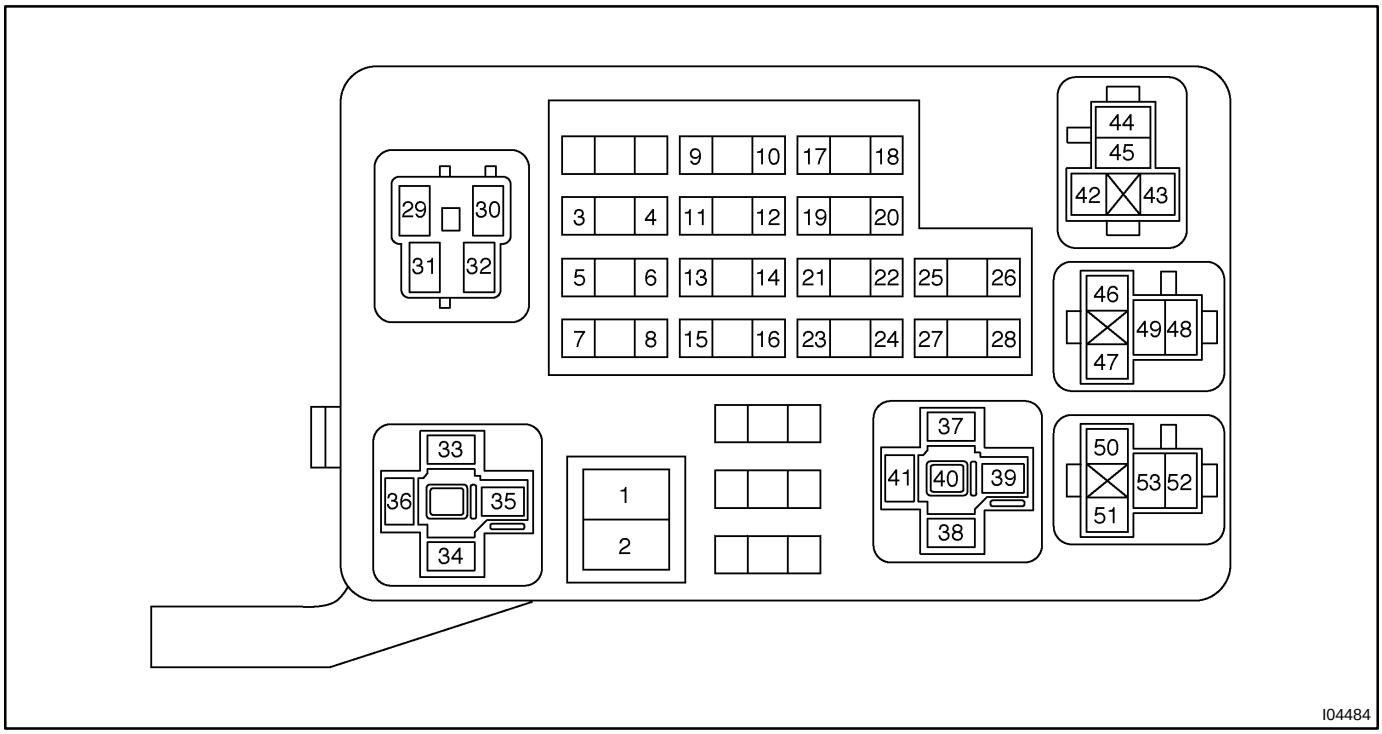
I04483

The power source supplies power to each of the vehicle's electrical devices. It is composed of the battery, fuses and relays, which are located centrally at engine room junction block, engine room No. 1 relay block, fusible link block and engine room No. 2 relay block in the engine compartment, and instrument panel junction block in the cabin near the driver's feet.

BE0U8-03

INSPECTION

1. INSPECT ENGINE ROOM JUNCTION BLOCK CIRCUIT



(a) Remove the fuse from the junction block and inspect the connection on the junction block side.

Fuse	Tester connection	Condition	Specified condition
MAIN	2 - Ground	Constant	Battery positive voltage
H-LP R LWR	3 - Ground	Light control switch HEAD and headlight dimmer switch LOW beam	Battery positive voltage
H-LP L LWR	6 - Ground	Light control switch HEAD and headlight dimmer switch LOW beam	Battery positive voltage
HAZARD	8 - Ground	Constant	Battery positive voltage
AM2	9 - Ground	Constant	Battery positive voltage
TEL	12 - Ground	Constant	Battery positive voltage
FL DOOR	13 - Ground	Constant	Battery positive voltage
ALT-S	17 - Ground	Constant	Battery positive voltage
HORN	20 - Ground	Constant	Battery positive voltage
EFI	21 - Ground	Constant	Battery positive voltage
DOME	24 - Ground	Constant	Battery positive voltage
ECU-B	26 - Ground	Constant	Battery positive voltage
RAD No. 1	27 - Ground	Constant	Battery positive voltage

If the circuit is as specified, inspect the circuits connected to other parts.

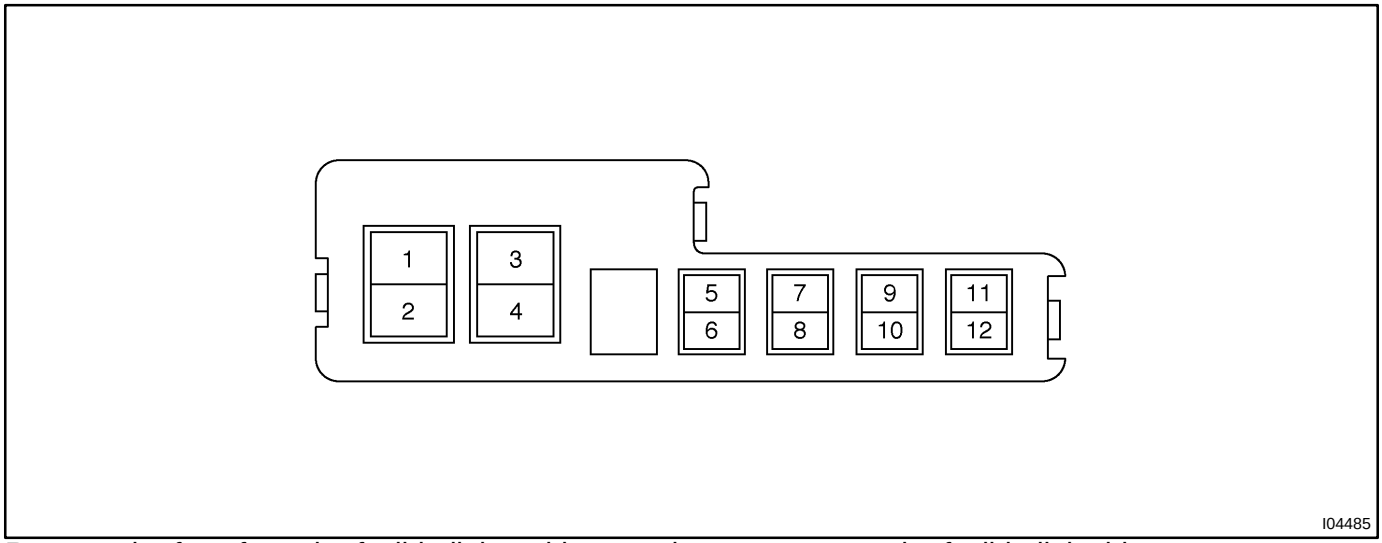
(b) Remove the relay from the junction block and inspect the connector on the junction block side.

Relay	Tester connection	Condition	Specified condition
HEAD LAMP	29 - Ground	Constant	Battery positive voltage
	31 - Ground	Light control switch HEAD	Continuity
	32 - Ground	Constant	Battery positive voltage
Starter	33 - Ground	IG switch START and PNP switch P or N position	Battery positive voltage
	34 - Ground	Constant	Continuity
Starter	36 - Ground	Constant	Battery positive voltage

RR DEF	37 - Ground	IG switch ON	Battery positive voltage
	39 - Ground	Constant	Continuity
	40 - Ground	Constant	Continuity
	41 - Ground	Constant	Battery positive voltage
MG CLT	42 - Ground	IG switch ON	Battery positive voltage
	45 - Ground	IG switch ON	Battery positive voltage
HORN	46 - Ground	Constant	Battery positive voltage
	47 - Ground	Horn switch ON	Continuity
	49 - Ground	Constant	Battery positive voltage
EFI	51 - Ground	Constant	Continuity
	53 - Ground	Constant	Battery positive voltage

If the circuit is as specified, inspect the circuits connected to other parts.

2. INSPECT FUSIBLE LINK BLOCK CIRCUIT

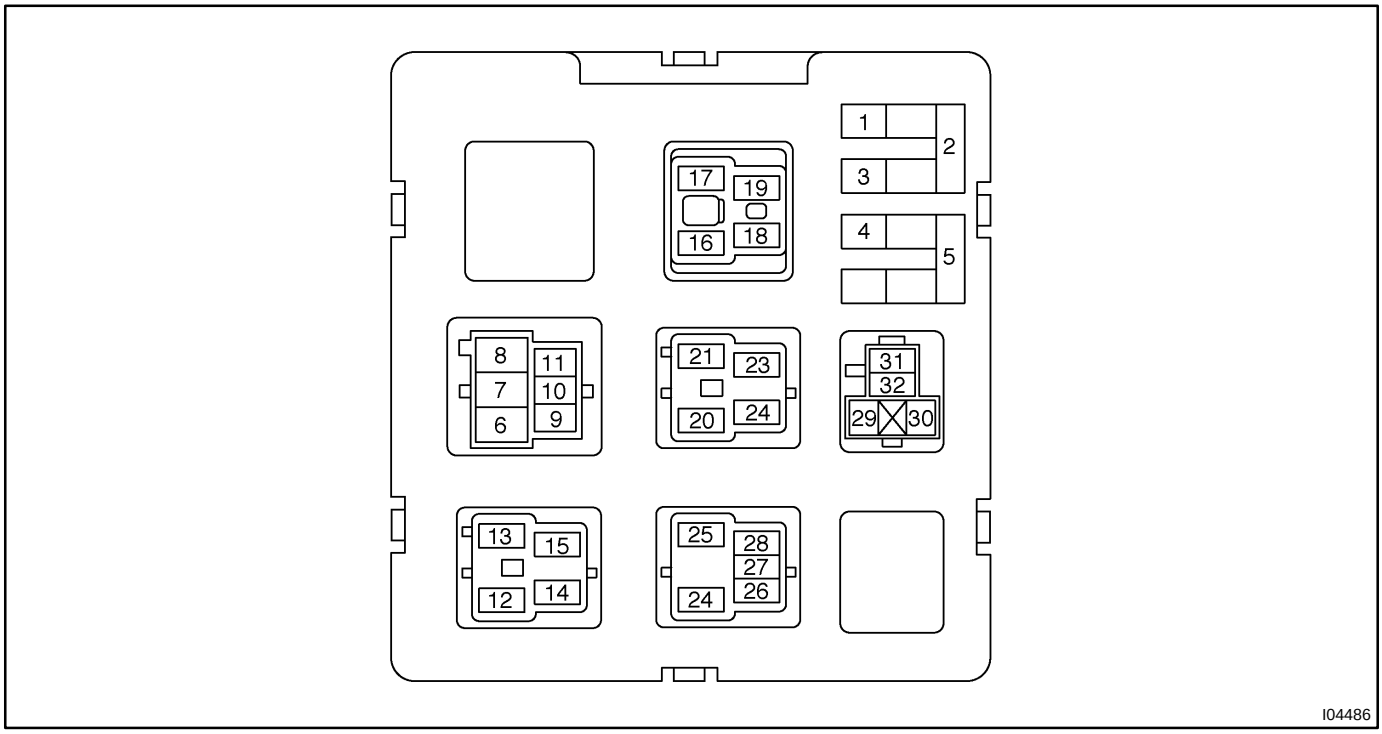


Remove the fuse from the fusible link and inspect the connector on the fusible link side.

Fuse	Tester connection	Condition	Specified condition
ABS	2 - Ground	Constant	Battery positive voltage
ALT	4 - Ground	Constant	Battery positive voltage
RDI FAN	5 - Ground	Constant	Battery positive voltage
CDS FAN	7 - Ground	Constant	Battery positive voltage
RR DEF	9 - Ground	Constant	Battery positive voltage
HEATER	11 - Ground	Constant	Battery positive voltage

If the circuit is as specified, inspect the circuits connected to other parts.

3. INSPECT RELAY BLOCK NO. 2 (Inside Engine Room Junction Block) CIRCUIT



(a) Remove the fuse from the relay block No. 2 and inspect the connector on the relay block side.

Fuse	Tester connection	Condition	Specified condition
H-LP R UPR H-LP L UPR	2 - Ground	Light control switch HEAD and headlight dimmer switch HIGH beam	Battery positive voltage
A/F HTR	5 - Ground	Constant	Battery positive voltage

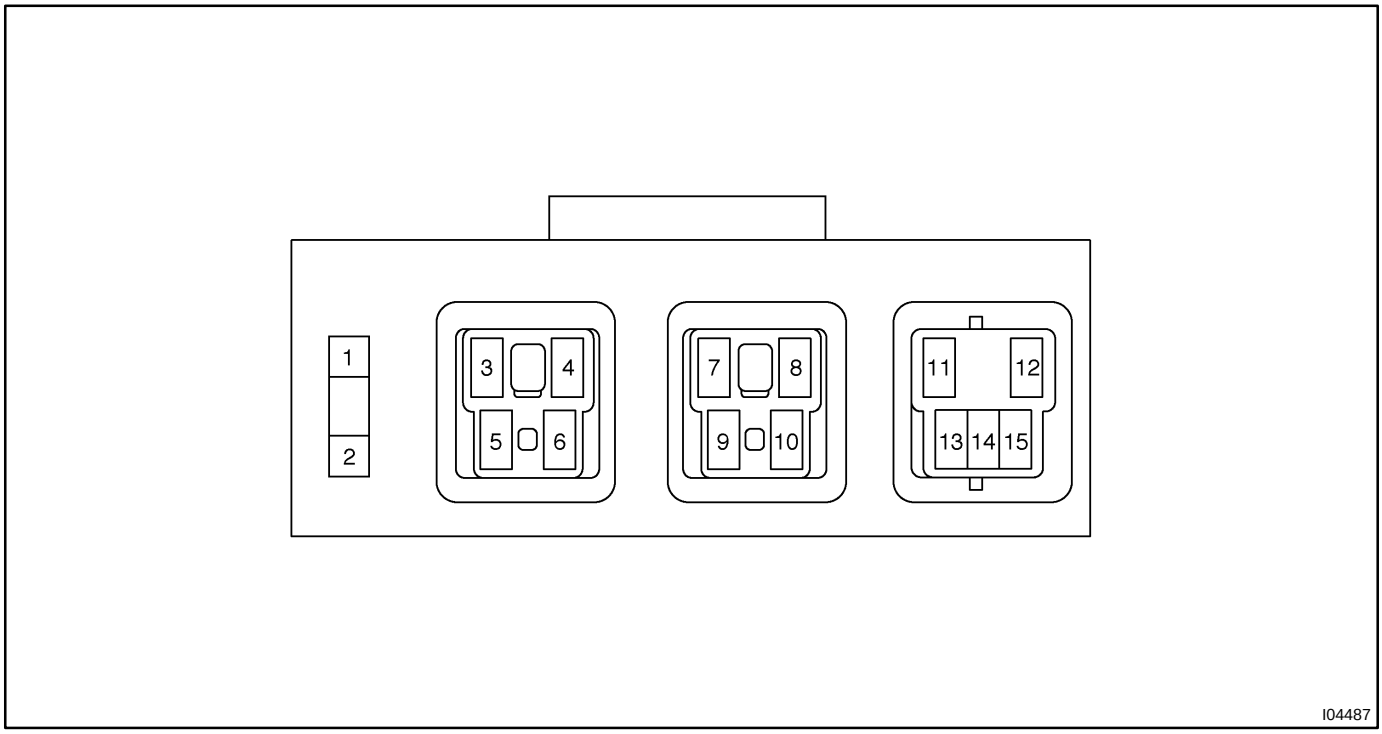
If the circuit is as specified, inspect the circuit connected to other parts.

(b) Remove the relay from the relay block No. 2 and inspect the connector on the relay block side.

Relay	Tester connection	Condition	Specified condition
ABS SOL	6 - Ground 7 - Ground	Constant Constant	Battery positive voltage Continuity
FAN No. 3	12 - Ground 15 - Ground	Constant IG switch ON	Battery positive voltage Battery positive voltage
FAN No. 1	16 - Ground 19 - Ground	Constant IG switch ON	Battery positive voltage Battery positive voltage
ABS MOTOR	20 - Ground	Constant	Battery positive voltage
FAN No. 2	24 - Ground 28 - Ground	Constant IG switch START	Continuity Battery positive voltage
A/F HEATER	30 - Ground 32 - Ground	Constant Constant	Continuity Battery positive voltage

If the circuit is as specified, inspect the circuit connected to other parts.

4. INSPECT ENGINE ROOM RELAY BLOCK NO. 3 CIRCUIT



(a) Remove the fuse from the engine room relay block No. 3 and inspect the connector on the relay block side.

Fuse	Tester connection	Condition	Specified condition
	1 - Ground	Light control switch HEAD	Battery positive voltage

If the circuit is as specified, inspect the circuit connected to other parts.

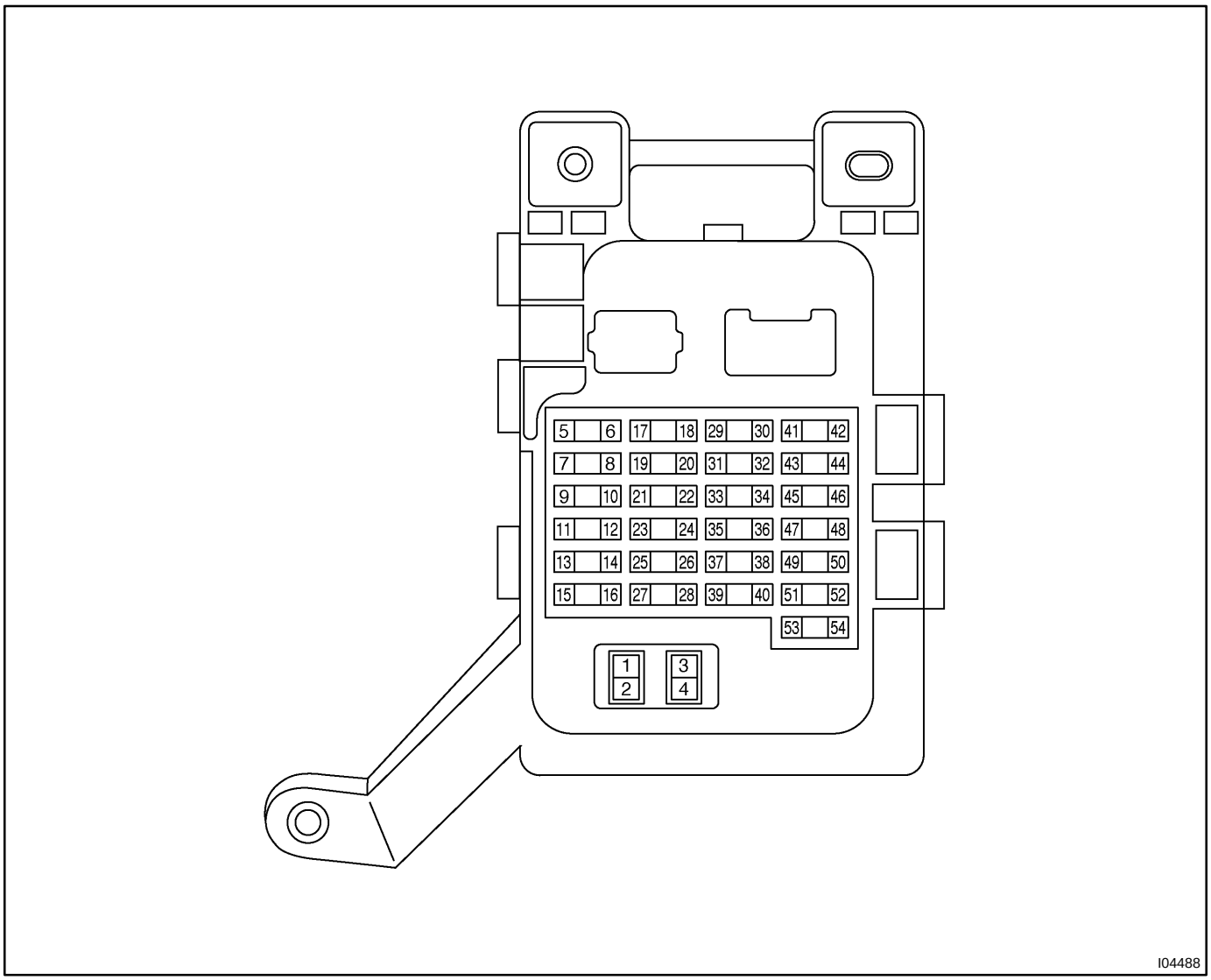
(b) Remove the relay from the engine room relay block No. 3 and inspect the connector on the relay block side.

Relay	Tester connection	Condition	Specified condition
DRL No. 2	3 - Ground	Constant	Battery positive voltage
	5 - Ground	Constant	Battery positive voltage
DRL No. 4	8 - Ground	Constant	Continuity
	9 - Ground	Light control switch HEAD	Battery positive voltage
	10 - Ground	Constant	Continuity
DRL No. 3	11 - Ground	Light control switch HEAD and headlight dimmer switch HIGH	Battery positive voltage
	13 - Ground	Light control switch HEAD	Battery positive voltage
	14 - Ground	Constant	Continuity
	15 - Ground	Constant	Continuity

If the circuit is as specified, inspect the circuit connected to other parts.

5. INSPECT INSTRUMENT PANEL JUNCTION BLOCK CIRCUIT

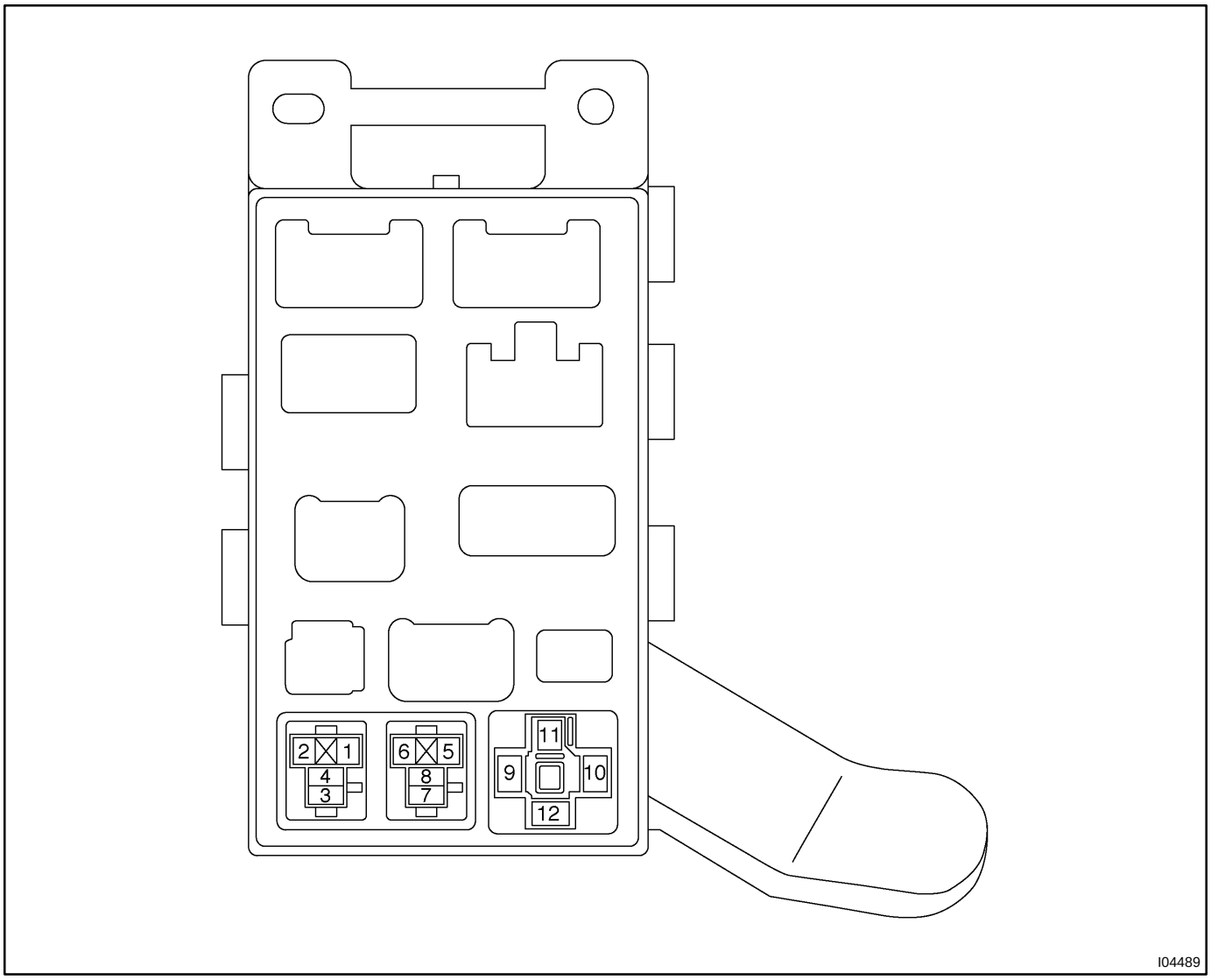
(a) Remove the fuse from the instrument panel junction block and inspect the connector on the junction block side.



Fuse	Tester connection	Condition	Specified condition
AM1	1 - Ground	Constant	Battery positive voltage
POWER	3 - Ground	Constant	Battery positive voltage
IGN	5 - Ground	IG switch ON	Battery positive voltage
RADIO No. 2	8 - Ground	IG switch ON	Battery positive voltage
CIG	10 - Ground	IG switch ACC	Battery positive voltage
PWR OUTLET	14 - Ground	Constant	Battery positive voltage
FR FOG	15 - Ground	Constant	Battery positive voltage
SRS-ACC	17 - Ground	IG switch ACC	Battery positive voltage
ECU-IG	20 - Ground	IG switch ON	Battery positive voltage
WIPER	21 - Ground	IG switch ON	Battery positive voltage
P RR DOOR	24 - Ground	Constant	Battery positive voltage
P FR DOOR	25 - Ground	Constant	Battery positive voltage
S/ROOF	27 - Ground	Constant	Battery positive voltage
HEATER	29 - Ground	IG switch ON	Battery positive voltage

GAUGE	32 - Ground	IG switch ON	Battery positive voltage
RR WIP	33 - Ground	IG switch ON	Battery positive voltage
STOP	36 - Ground	Constant	Battery positive voltage
DBD	37 - Ground	Constant	Battery positive voltage
SEAT HTR	39 - Ground	Constant	Battery positive voltage
STARTER	41 - Ground	IG switch START	Battery positive voltage
WASHER	43 - Ground	IG switch ON	Battery positive voltage
FR DEF	48 - Ground	Constant	Battery positive voltage
SRS-B	49 - Ground	Constant	Battery positive voltage
TAIL	52 - Ground	Light control switch TAIL or HEAD	Battery positive voltage
PANEL	54 - Ground	Light control switch TAIL or HEAD	Battery positive voltage

(b) Remove the relay from the instrument junction block and inspect the connector on the junction block side.

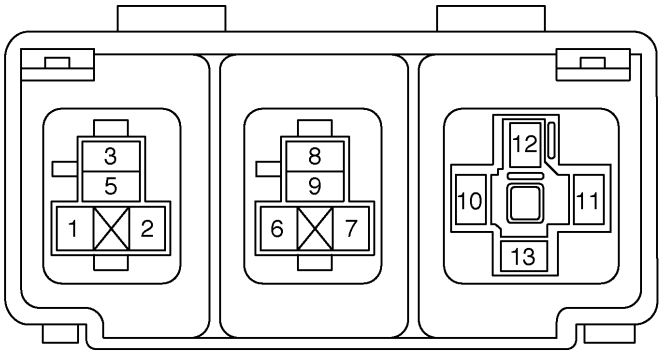


Relay	Tester connection	Condition	Specified condition
TAILLIGHT	1 - Ground	Constant	Battery positive voltage
	2 - Ground	Light Control switch TAIL or HEAD	Continuity
	4 - Ground	Constant	Battery positive voltage

FOG	5 - Ground	Light control switch HEAD	Battery positive voltage
	7 - Ground	Constant	Battery positive voltage
ACC	9 - Ground	IG switch ACC or ON	Battery positive voltage
	10 - Ground	Constant	Continuity
	11 - Ground	Constant	Continuity
	12 - Ground	Constant	Battery positive voltage

If the circuit is as specified, inspect the circuit connected to other parts.

6. INSPECT RELAY BLOCK NO. 1 CIRCUIT



I04490

Remove the relay from the relay block No. 1 and inspect the connector on the relay block side.

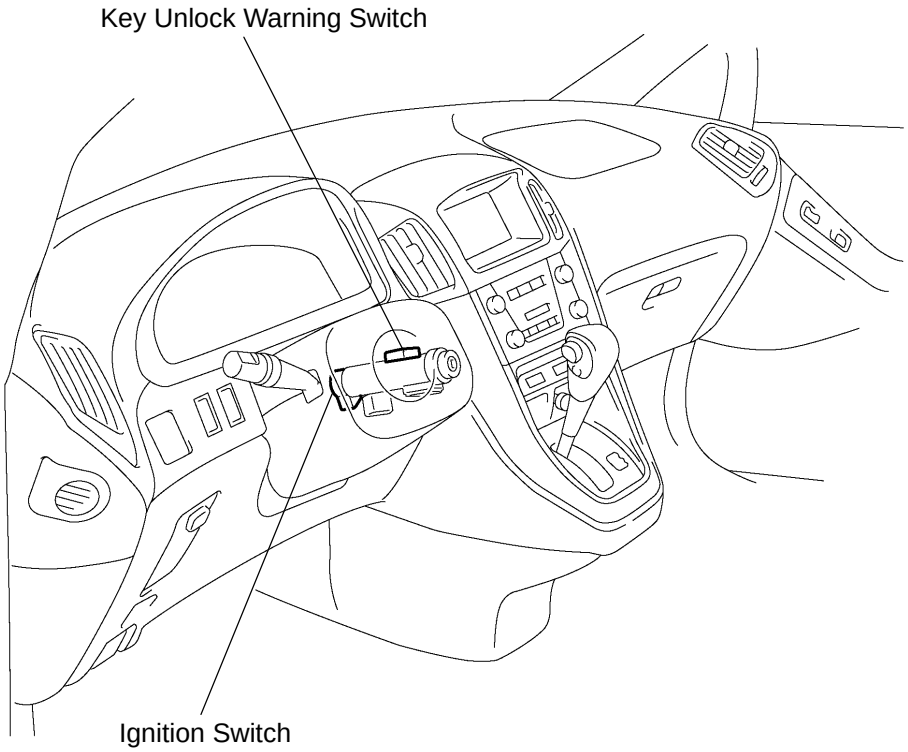
Relay	Tester connection	Condition	Specified condition
CIRCUIT OPENING	1 - Ground	IG switch ON	Battery positive voltage
	5 - Ground	IG switch ON	Battery positive voltage
MIRROR HEATER	10- Ground	IG switch ON	Battery positive voltage
	12 - Ground	Constant	Battery positive voltage

If the circuit is as specified, inspect the circuit connected to other parts.

IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH

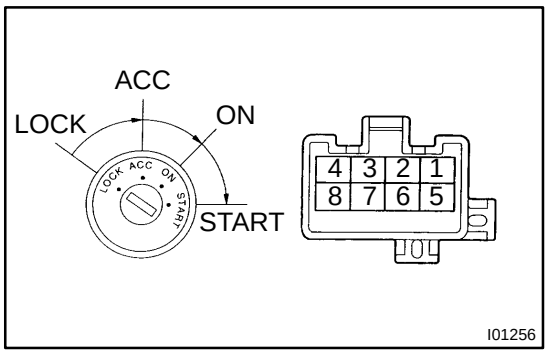
BE01L-06

LOCATION



I07352

BE0H4-03

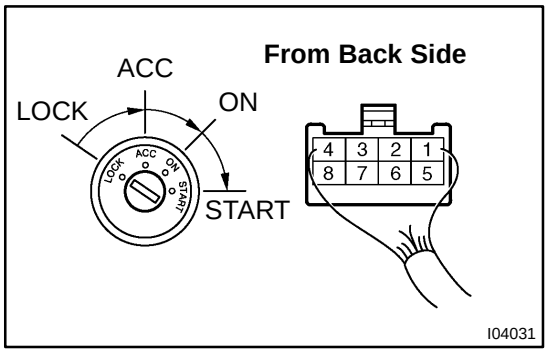


INSPECTION

1. INSPECT IGNITION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	-	No continuity
ACC	2 - 3	Continuity
ON	2 - 3 - 4 6 - 7	Continuity
START	1 - 2 - 4 6 - 7 - 8	Continuity

If continuity is not as specified, replace the switch.

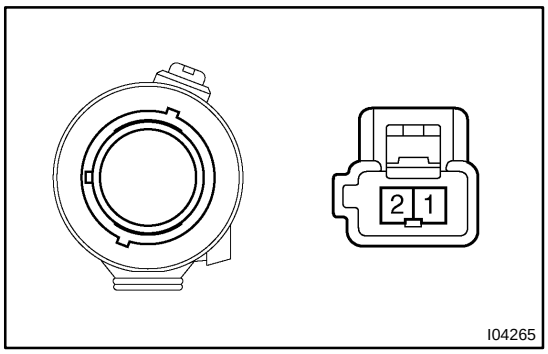


2. INSPECT IGNITION SWITCH CIRCUIT

Connect the switch connector and inspect the connector on wire harness side from the back side, as shown.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Battery positive voltage
3 - Ground	Ignition switch ACC or ON	Battery positive voltage
4 - Ground	Ignition switch ON	Battery positive voltage
6 - Ground	Ignition switch ON or START	Battery positive voltage
7 - Ground	Constant	Battery positive voltage
8 - Ground	Ignition switch START	Battery positive voltage

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

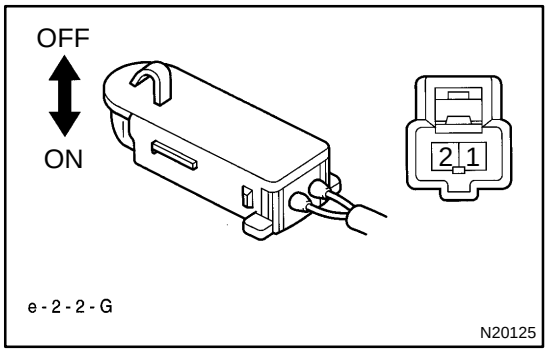


3. INSPECT IGNITION KEY ILLUMINATION OPERATION

Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the indicator light lights up.

If operation is not as specified, replace the switch.

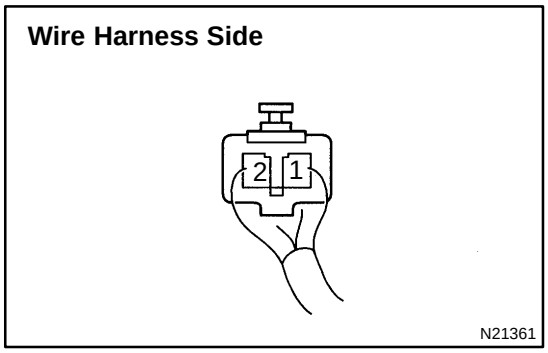
4. INSPECT IGNITION KEY ILLUMINATION CIRCUIT (See page DI-659)



5. INSPECT KEY UNLOCK WARNING SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Key removed)	-	No continuity
ON (Key set)	1 - 2	Continuity

If continuity is not as specified, replace the switch.



6. INSPECT KEY UNLOCK WARNING SWITCH CIRCUIT (See page DI-661)

Connect the switch connector and inspect the connector on wire harness side from the back side, as shown.

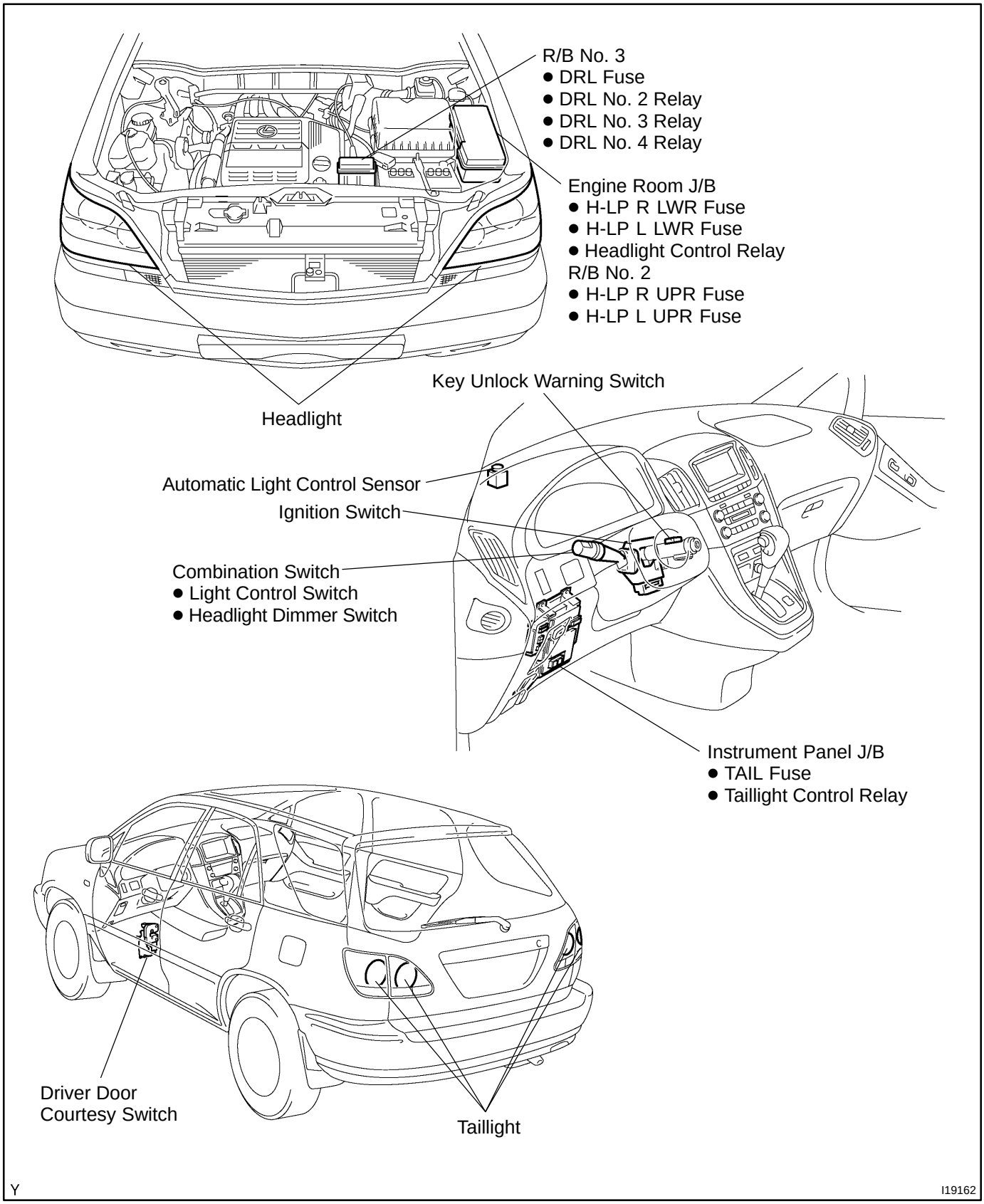
Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity

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

HEADLIGHT AND TAILLIGHT SYSTEM

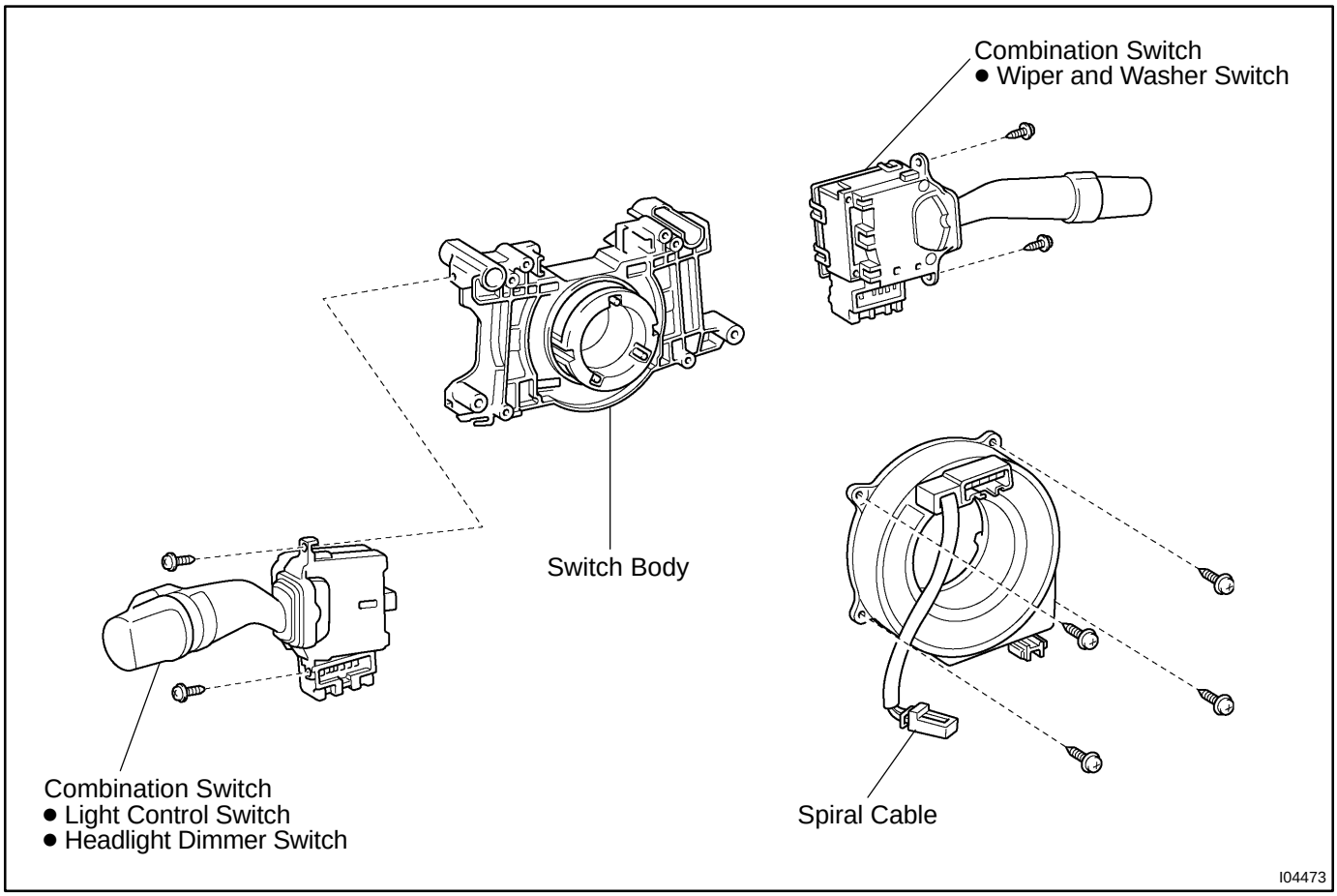
BE04W-12

LOCATION



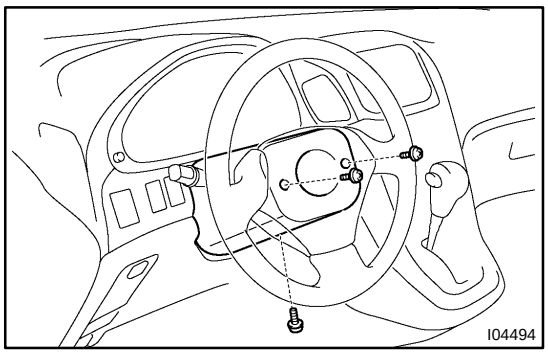
BE04X-08

COMPONENTS



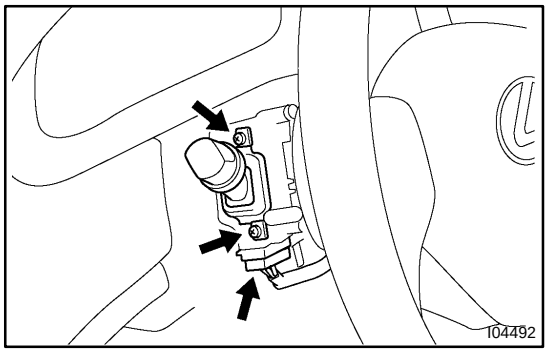
BE0U9-03

REMOVAL



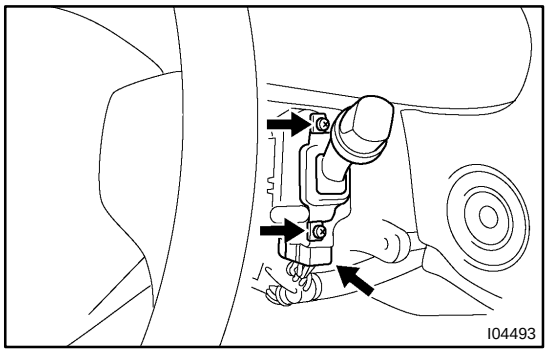
1. REMOVE COLUMN COVER

(a) Remove the 3 screws.
(b) Remove the column cover.



2. REMOVE LIGHT CONTROL SWITCH

(a) Disconnect the light control switch connector.
(b) Remove the 2 screws.
(c) Remove the switch.

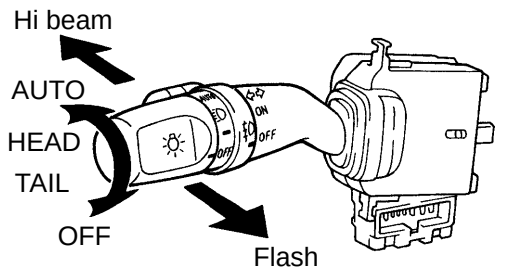


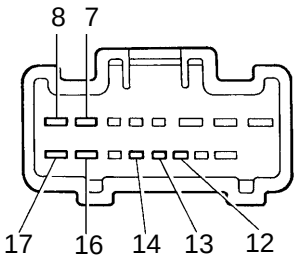
3. REMOVE WIPER AND WASHER SWITCH

(a) Disconnect the wiper and washer switch connector.
(b) Remove the 2 screws.
(c) Remove the switch.

BE0UA-03

INSPECTION





N21562

1. INSPECT LIGHT CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	-	No continuity
TAIL	14 - 16	Continuity
HEAD	13 - 14 - 16	Continuity
AUTO	12 - 16	Continuity

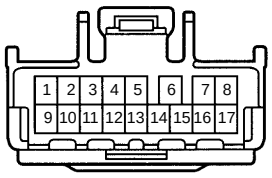
If continuity is not as specified, replace the switch.

2. INSPECT HEADLIGHT DIMMER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Low beam	16 - 17	Continuity
High beam	7 - 16	Continuity
Flash	7 - 8 - 16	Continuity

If continuity is not as specified, replace the switch.

Wire Harness Side



N21563

3. INSPECT COMBINATION SWITCH CIRCUIT

Connect the wire harness side connector to the combination switch and inspect wire harness side connector from the back side.

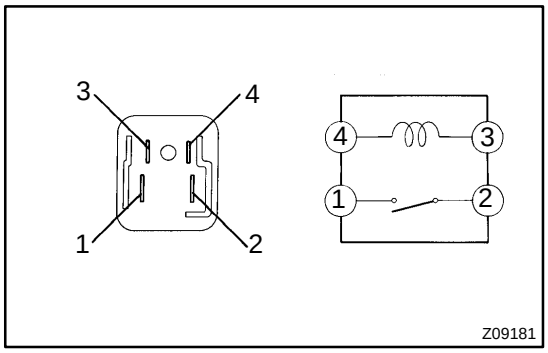
Light Control Switch:

Tester connection	Condition	Specified condition
16 - Ground	Constant	Continuity
12 - Ground	Light control switch OFF, TAIL or HEAD	No voltage
12 - Ground	Light control switch AUTO	Battery positive voltage
13 - Ground	Light control switch OFF or TAIL	No voltage
13 - Ground	Light control switch HEAD	Battery positive voltage
14 - Ground	Light control switch OFF	No voltage
14 - Ground	Light control switch TAIL or HEAD	Battery positive voltage

Headlight Dimmer Switch:

Tester connection	Condition	Specified condition
7 - Ground	Headlight dimmer switch Low Beam	No voltage
7 - Ground	Headlight dimmer switch High Beam or Flash	Battery positive voltage
8 - Ground	Headlight dimmer switch Low Beam or High Beam	No voltage
8 - Ground	Headlight dimmer switch Flash	Battery positive voltage
17- Ground	Headlight dimmer switch High Beam or Flash	No voltage
17- Ground	Headlight dimmer switch Low Beam	Battery positive voltage

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

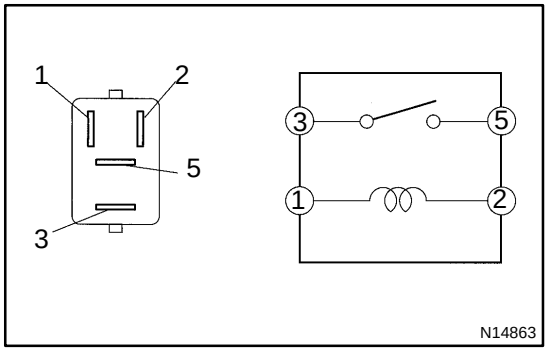


4. INSPECT HEADLIGHT CONTROL RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	3 - 4	Continuity
Apply B+ between terminals 3 and 4.	1 - 2	Continuity

If continuity is not as specified, replace the relay.

5. INSPECT HEADLIGHT CONTROL RELAY CIRCUIT (See page BE-20)

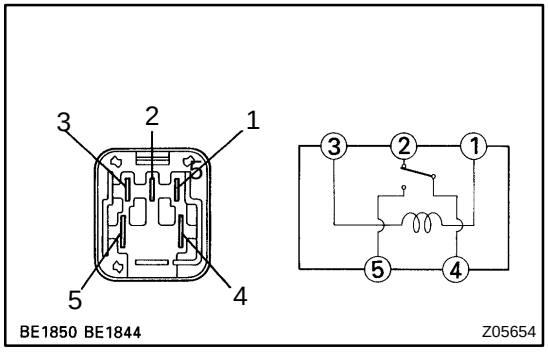


6. INSPECT TAILLIGHT CONTROL RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.

7. INSPECT TAILLIGHT CONTROL RELAY CIRCUIT (See page BE-33)

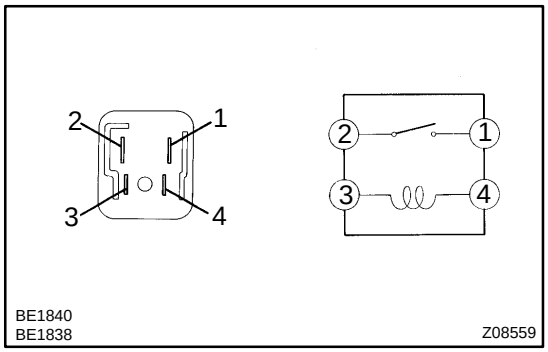


8. INSPECT DRL NO. 3 RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 3, 2 - 4	Continuity
Apply B+ between terminals 1 and 3.	4 - 5	Continuity

If continuity is not as specified, replace the relay.

9. INSPECT DRL NO. 3 RELAY CIRCUIT (See page BE-20)



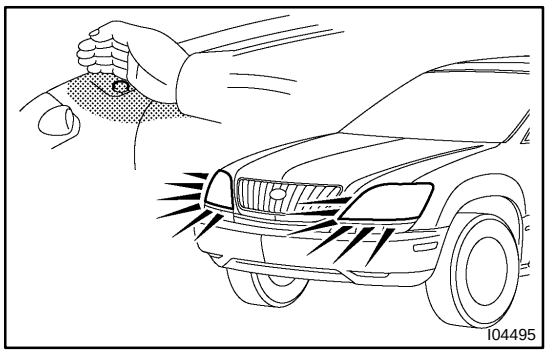
10. INSPECT DRL NO. 2 AND NO. 4 RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	3 - 4	Continuity
Apply B+ between terminals 3 and 4.	1 - 2	Continuity

If continuity is not as specified, replace the relay.

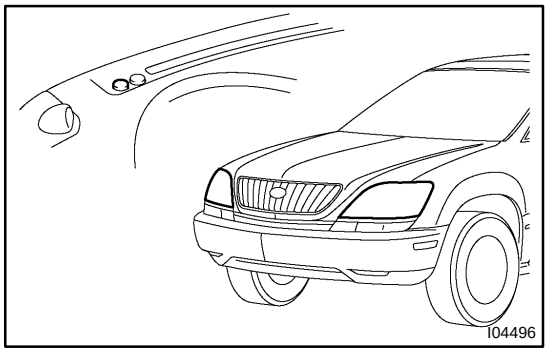
11. INSPECT DRL NO. 2 AND NO. 4 RELAY CIRCUIT (See page BE-20)

12. INSPECT LIGHT AUTO TURN OFF SYSTEM (See Integration relay circuit on page BE-28)



13. Auto ON:
INSPECT AUTOMATIC LIGHT CONTROL

(a) Turn the ignition switch ON.
(b) Turn the light control switch to AUTO.
(c) Gradually cover the top of the sensor.
(d) Verify that the accessory lights and the headlights turn ON.



14. Auto OFF:
INSPECT AUTOMATIC LIGHT CONTROL

(a) Gradually expose the sensor.
(b) Verify that the headlights and the accessory lights turn OFF.

15. INSPECT LIGHT-OFF CONDITION

(a) Turn the ignition switch ON.

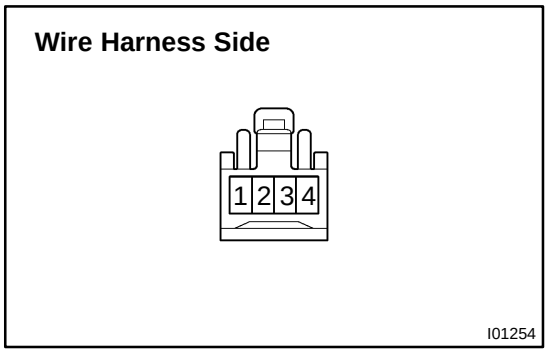
(b) Lights auto ON:
Gradually cover the top of the sensor.

(c) Verify that the lights will go out when light control switch position is OFF or the area surrounding the sensor gets bright or open the driver's door while the ignition switch is OFF.

16. INSPECT LIGHTS-ON CONDITION

(a) Open the driver's door while the ignition switch is OFF.

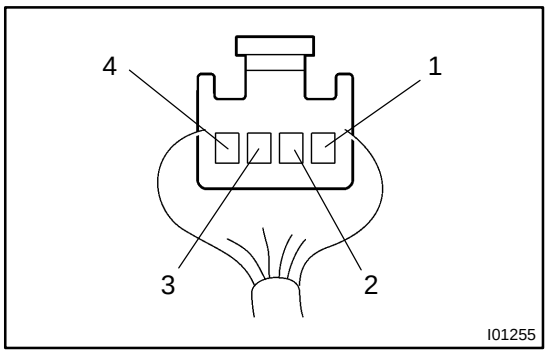
(b) Turn the light control switch to AUTO leaving the door open and cover the top of the sensor, and verify that the lights go on when the ignition switch is turned ON.



17. Connector disconnected:
INSPECT AUTOMATIC LIGHT CONTROL SENSOR CIRCUIT

Disconnect the connector from the sensor and inspect the connector on the wire harness side, as shown in the chart.

If circuit is as specified, perform the inspection on the following page.
If the circuit is not as specified, inspect the circuit connected to other parts.



18. Connector connected:
INSPECT AUTOMATIC LIGHT CONTROL SENSOR CIRCUIT

Connect the wire harness side connector to the sensor and inspect wire harness side connector from the back side, as shown.

HINT:

- Ignition switch ON.
- Light control switch OFF.
- Vehicle's surroundings are bright.

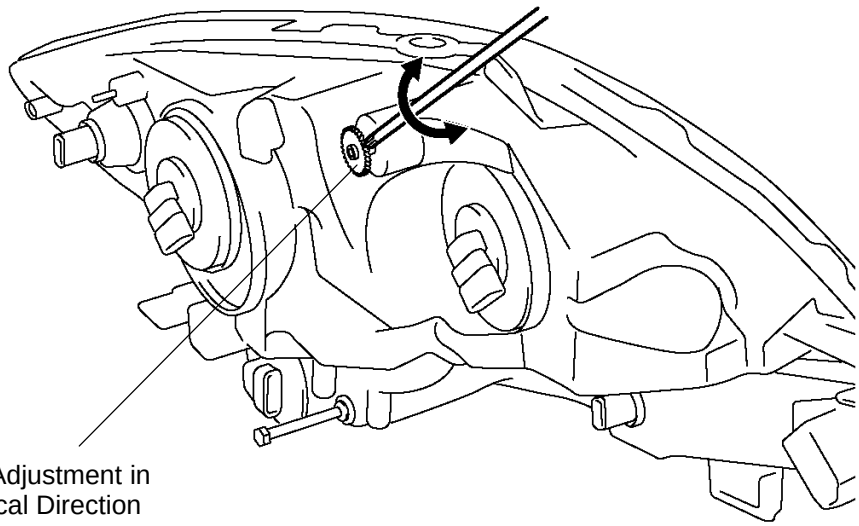
Tester connection	Condition	Specified condition
3 - Ground	Constant	Continuity
1 - Ground	Ignition switch LOCK or ACC	No voltage
1 - Ground	Ignition switch ON	9.5 V or more
Vehicle is under the direct sun light. (Sensor is not covered)		Taillight and Headlight are ON.

If circuit is as specified, try replacing the sensor with a new one.
If the circuit is not as specified, inspect the circuit connected to other parts.

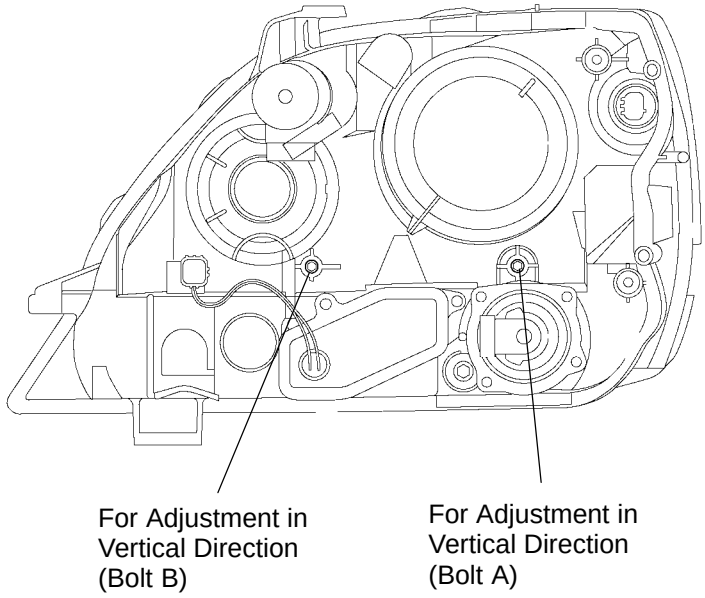
BE0UB-04

ADJUSTMENT

Halogen Bulb Type:

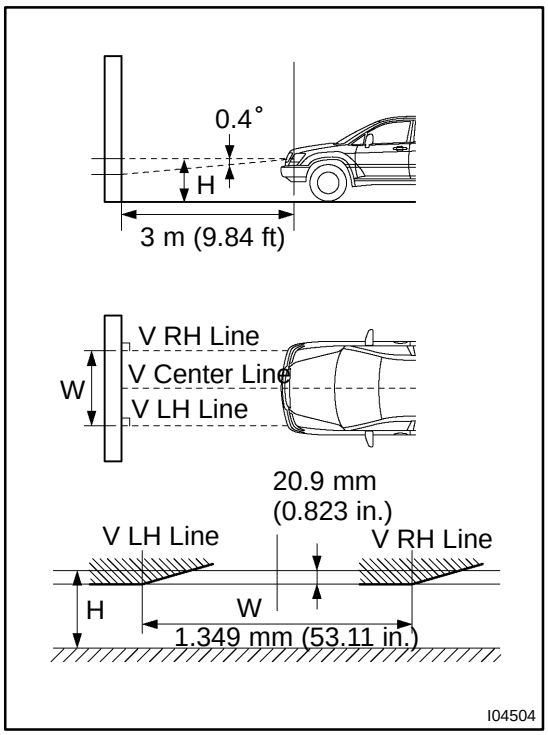


HID Type:



I04497
I19236

I21293



ADJUST HEADLIGHT AIM ONLY

(a) Put the vehicle below conditions.
- Make sure the body around the headlight is not deformed.
- Park the vehicle on a level spot.
- The driver gets into the driver's seat and puts the vehicle in a state ready for driving (with a full tank).
- Bounce the vehicle several times.
- Tire inflation pressure is the specified value.

(b) Prepare the thick white colored paper.

(c) Stand the paper perpendicularly and ensure the distance from it to the head lights is 9.84 ft.

(d) Ensure that the center line of vehicle and the paper are at a 90 degree angle as shown in the illustration (H line).

(e) Draw a horizontal line on the paper where the head lights (low beam center mark) of the vehicle are to be.

(f) Draw a vertical line on the paper where the center line of the vehicle is to be (V center line).

(g) Draw the vertical lines on the paper where the headlights (low beam center marks) of the vehicle are to be (V RH and LH lines).

(h) Turn the headlights ON.

(i) Check that the head lights light up the paper as shown in the illustration.

HINT:

As shown in the illustration, adjust aiming of the LH and RH lights respectively.

(j) Halogen Bulb Type:
Using screwdriver, adjust the headlight in the vertical direction.

(k) HID Type:
Adjust the headlight in the vertical direction.
(1) Turn the vertical movement adjusting bolt A in either direction. At this time, keep the turning direction and number of turns in mind.
(2) Turn the vertical movement adjusting bolt B the same number of turns and in the same direction at step (1).

BE0UC-01

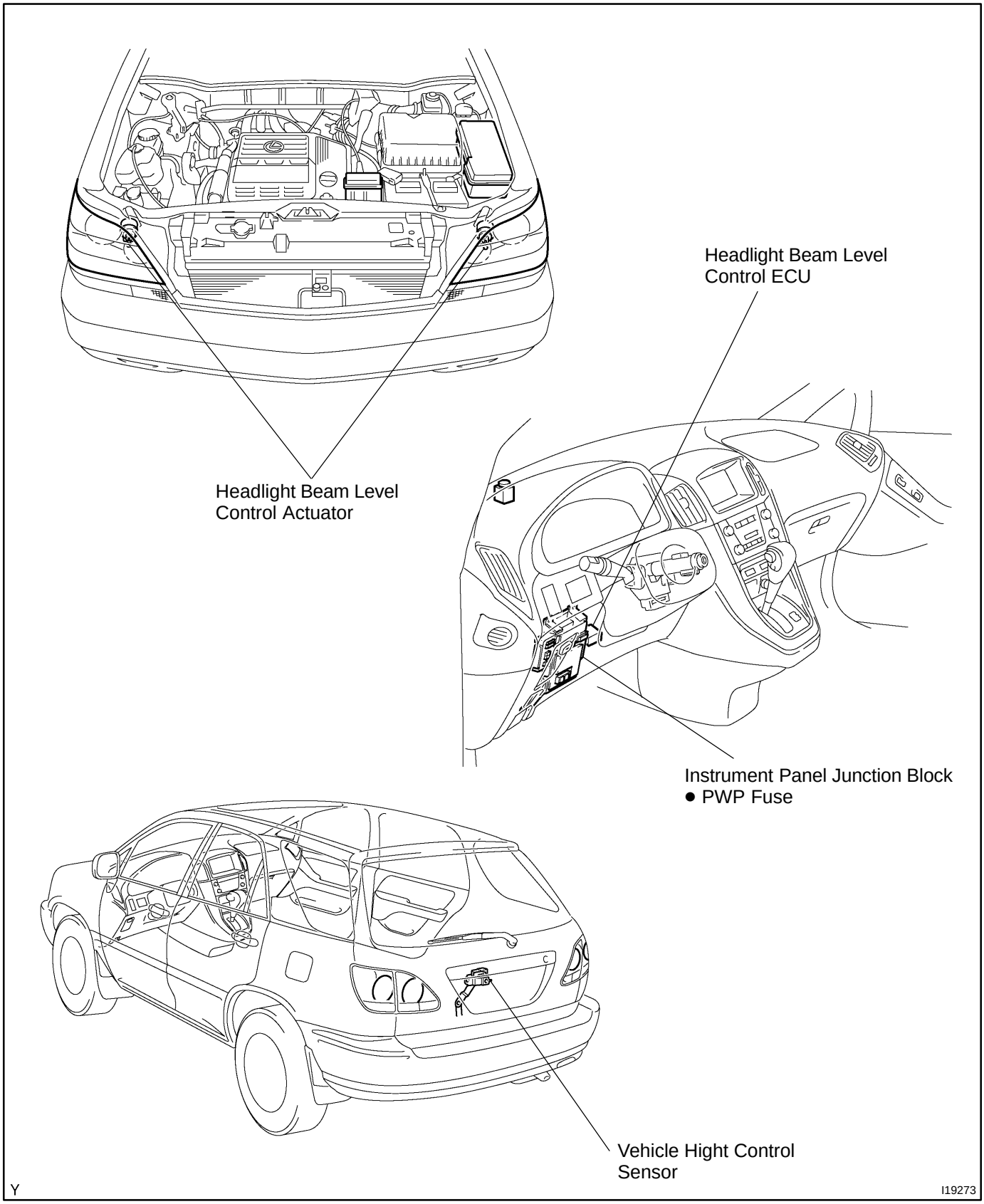
INSTALLATION

Installation is in the revers order of removal (See page BE-32).

HEADLIGHT BEAM LEVEL CONTROL SYSTEM (HID Type)

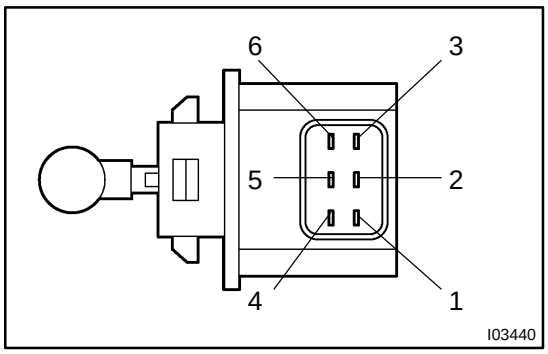
BE1BI-03

LOCATION



BE1BJ-04

INSPECTION



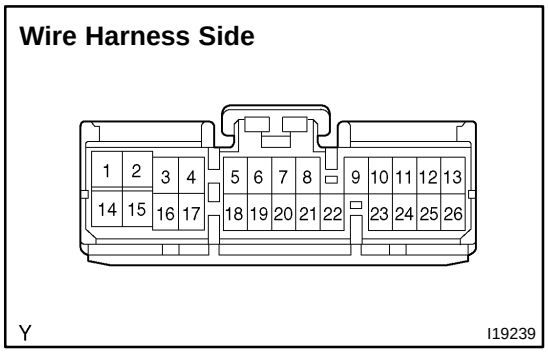
1. INSPECT HEADLIGHT BEAM LEVEL CONTROL ACTUATOR RESISTANCE

(a) Check that continuity exists between terminals 2 and 5.

(b) Check that resistance exists between terminals, as shown in the chart.

Terminal	Resistance (Ω)
2 - 1	26 - 30
2 - 3	26 - 30
2 - 4	26 - 30
2 - 6	26 - 30
5 - 1	26 - 30
5 - 3	26 - 30
5 - 4	26 - 30
5 - 6	26 - 30

If resistance value is not as specified, replace the actuator.

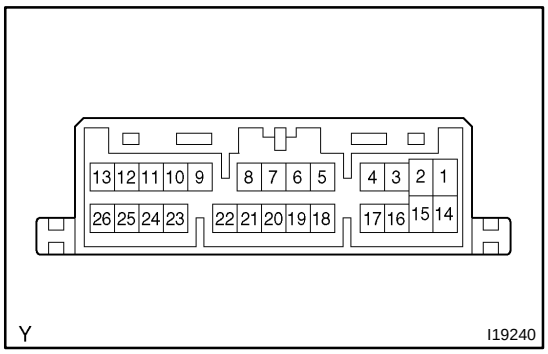


2. INSPECT HEADLIGHT BEAM LEVEL CONTROL ECU CIRCUIT

(a) Disconnect the connector from the ECU and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
RHG(9) - RH4(12)	Ignition switch OFF	26 - 30 Ω
LHG(22) - LH4(25)	Ignition switch OFF	26 - 30 Ω
RHG(9) - RH2(13)	Ignition switch OFF	26 - 30 Ω
LHG(22) - LH3(23)	Ignition switch OFF	26 - 30 Ω
LHG(22) - LH2(26)	Ignition switch OFF	26 - 30 Ω
RHG(9) - RH1(11)	Ignition switch OFF	26 - 30 Ω
LHG(22) - LH1(24)	Ignition switch OFF	26 - 30 Ω
RHG(9) - RH3(10)	Ignition switch OFF	26 - 30 Ω
HDLP(7) - GND(1)	Ignition switch ON and light control switch HEAD	Below 1.5 V
SHR(18) - SGF(16)	Ignition switch OFF	3.5 - 6.5 kΩ
SBR(20) - SGF(16)	Ignition switch OFF	3.5 - 6.5 kΩ
GND(1) - Body ground	Constant	Continuity

If circuit is not as specified, perform the inspection on the following pages.



(b) Connect the connector to the ECU and inspect the connector, as shown in the table.

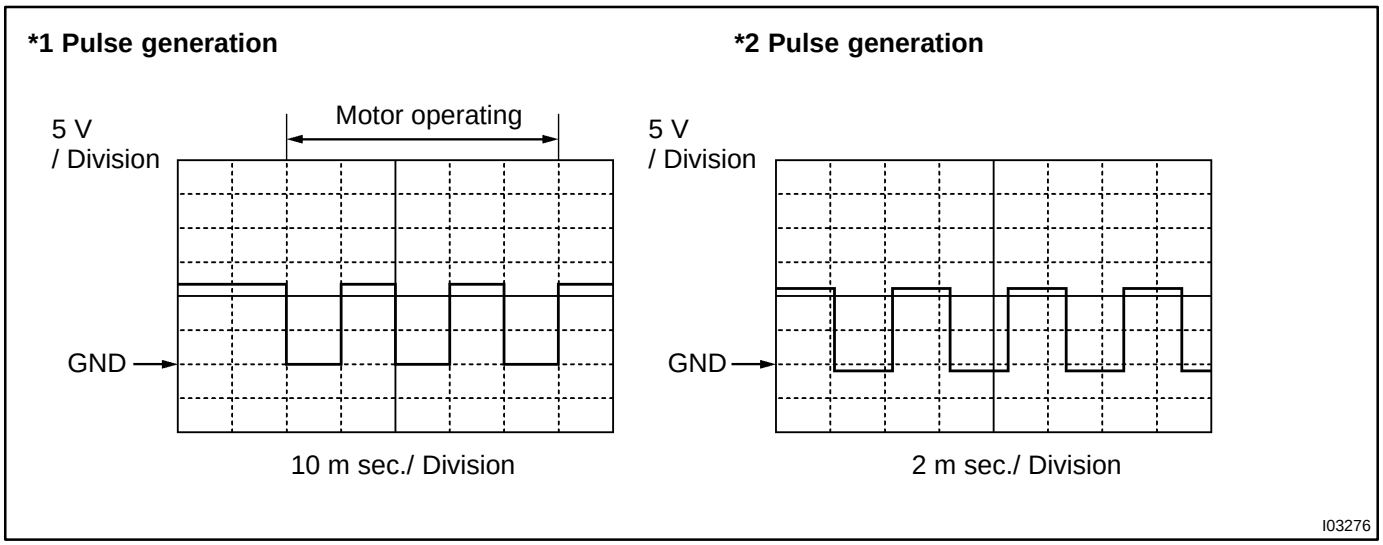
Tester connection	Condition	Specified condition
IG(14) - GND(1)	Ignition switch ON	Battery positive voltage
RH4(12) - RHG(9)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
LH4(25) - LHG(22)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
RH2(13) - RHG(9)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
LH3(23) - LHG(22)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
SHR(18) - SGF(16)	Ignition switch ON	Approx. 2.5 V
SBR(20) - SGF(16)	Ignition switch ON	5 V
SGF(16) - GND(1)	Ignition switch OFF	Continuity
HDLP(7) - GND(1)	Ignition switch ON and light control switch HEAD	Below 1.5 V
LH2(26) - LHG(22)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
RH1(11) - RHG(9)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
LH1(24) - LHG(22)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
RH3(10) - RHG(9)	Ignition switch ON, when keep and bounce the vehicle	*1 Pulse generation
WNG(18) - E1(20)	Ignition switch ON	No continuity
SPDR(6) - GND(1) SPDL(5) - GND(1)	Vehicle driving at about 30 km (18 mph)	*2 Pulse generation
GND(1) - Body ground	Ignition switch OFF	Continuity

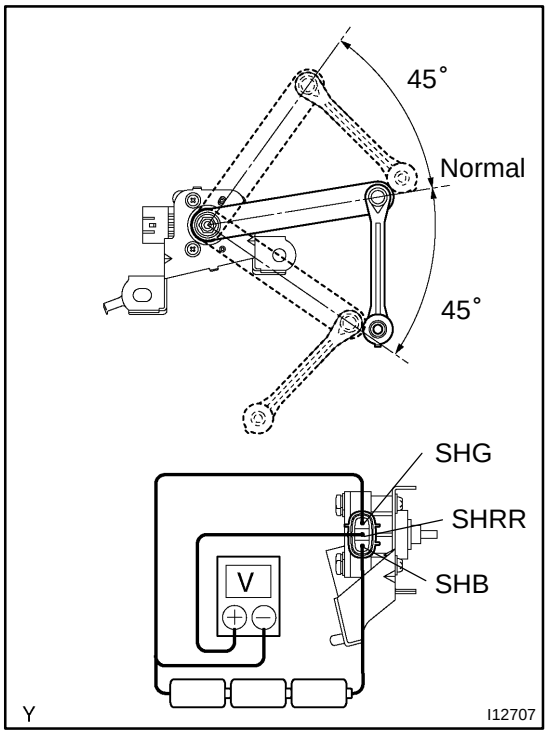
If the circuit is not as specified, replace the ECU.

Reference INSPECTION USING OSCILLOSCOPE

HINT:

The correct waveform is as shown in the illustration.





3. INSPECT VEHICLE HIGHT CONTROL SENSOR

(a) Connect 3 dry batteries of 1.5 V in series.

(b) Connect SHB terminal to the batteries' positive (+) terminal, and SHG terminal to the batteries' negative (-) terminal, apply about 4.5 V between SHB - SHG terminals.

NOTICE:

Do not apply voltage of 6 V or more to terminals VGS and GND.

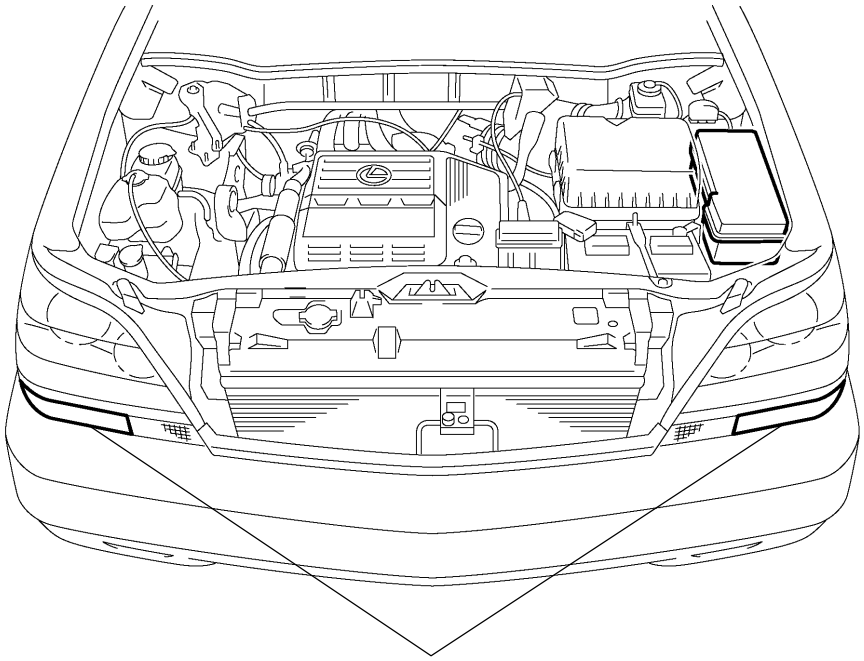
(c) Check the output voltage of SHRR and SHG terminals.

Symbols	Condition	Standard Value
SHRR - SHG	+ 45˚	4.1 V
	Normal position	2.25 V
	- 45˚	0.5 V

FOG LIGHT SYSTEM

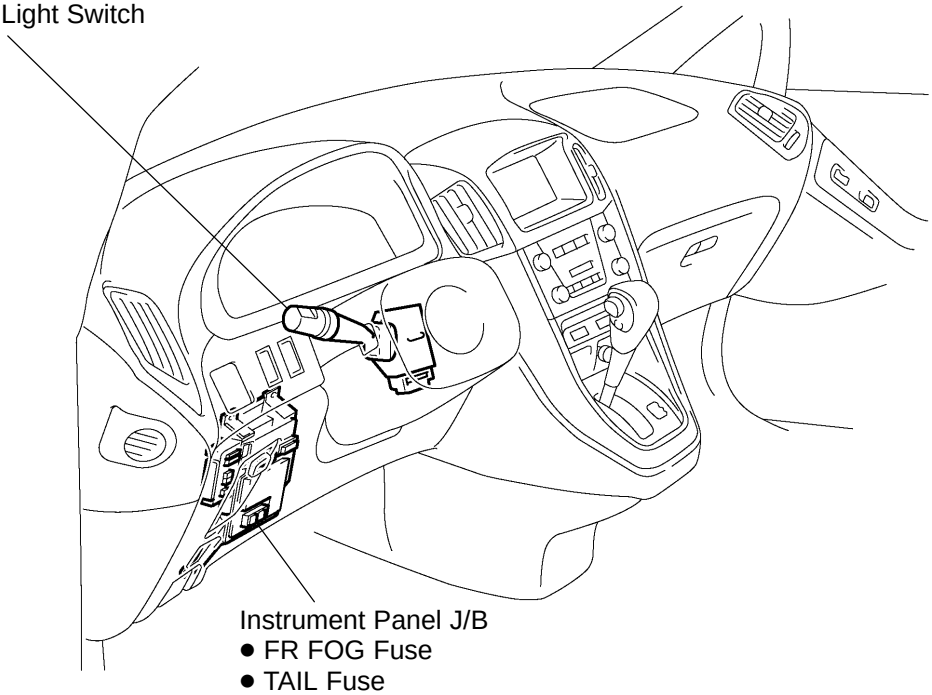
LOCATION

BE050-03



Front Fog Light

Combination Switch
- Front Fog Light Switch



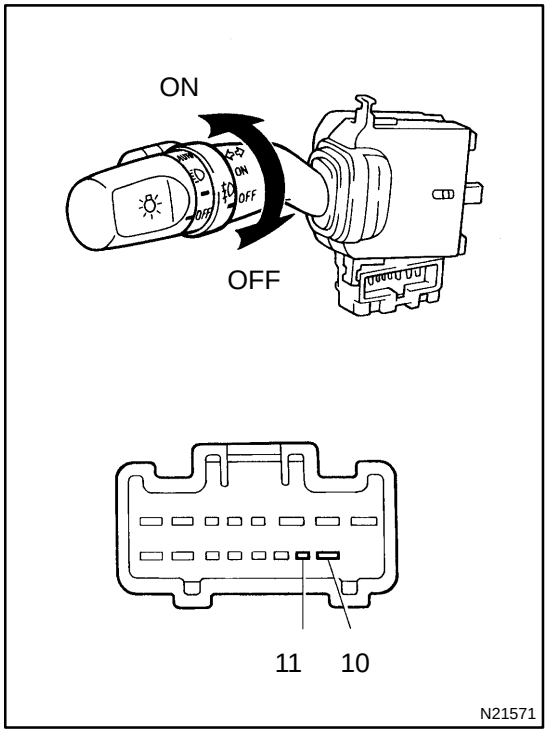
Instrument Panel J/B
- FR FOG Fuse
- TAIL Fuse
- Taillight Control Relay
- Fog Light Relay

I07355

BE051-02

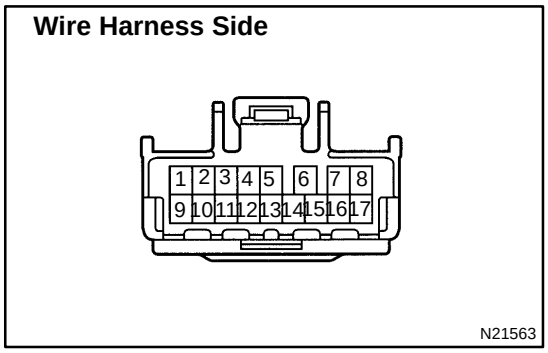
INSPECTION

1. INSPECT FOG LIGHT SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OFF	-	No continuity
ON	10 - 11	Continuity

If continuity is not as specified, replace the switch.

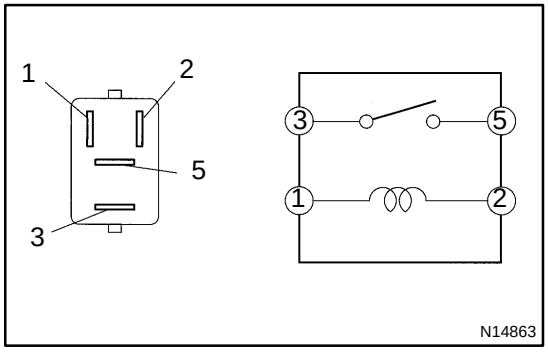


2. INSPECT COMBINATION SWITCH CIRCUIT

Connect the wire harness side connector to the combination switch and inspect wire harness side connector from the back side.

Tester connection	Condition	Specified condition
10- Ground	Headlight dimmer switch High Beam or Flash	No continuity
10- Ground	Headlight dimmer switch Low Beam	Continuity
11 - Ground	Light control switch OFF or TAIL	No voltage
11 - Ground	Light control switch HEAD	Battery positive voltage

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



3. INSPECT FOG LIGHT RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.

4. INSPECT FOG LIGHT RELAY CIRCUIT

Remove the relay from the driver's side relay block and inspect the connector on relay block side.

Tester connection	Condition	Specified condition
3 - Ground	Constant	Continuity
1 - Ground	Light control switch HEAD	Battery positive voltage
5 - Ground	Constant	Battery positive voltage

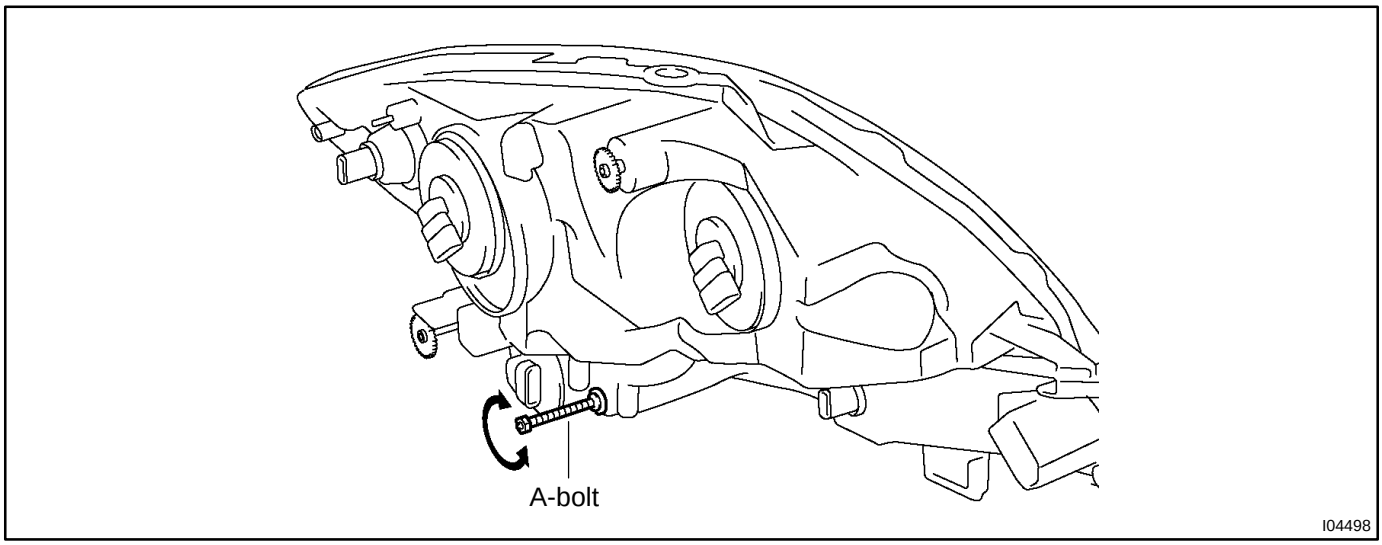
If the circuit is not as specified, inspect the circuit connected to other parts.

BE052-03

ADJUSTMENT

ADJUST FOG LIGHT AIM

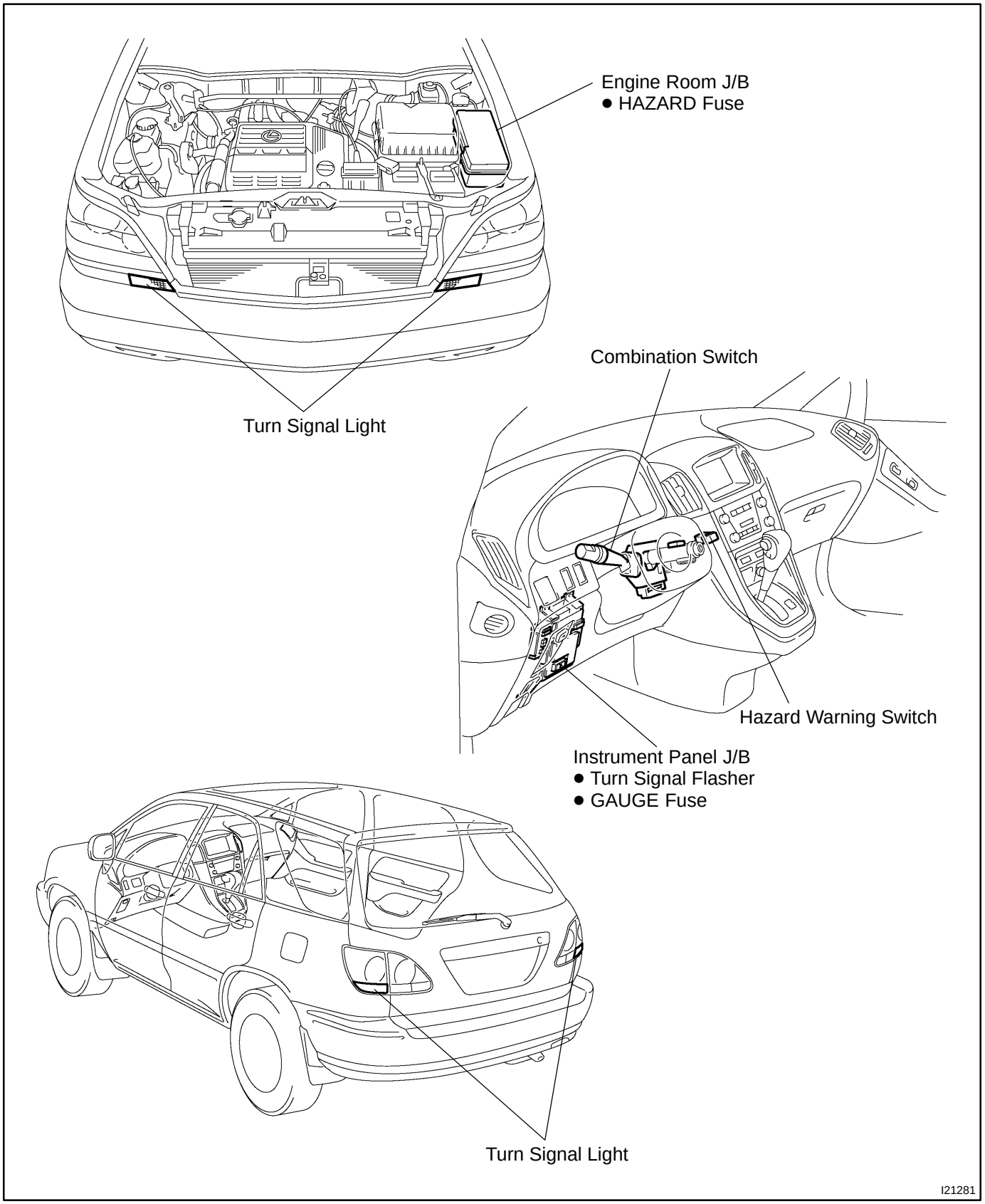
A-bolt: Vertical Direction



TURN SIGNAL AND HAZARD WARNING SYSTEM

LOCATION

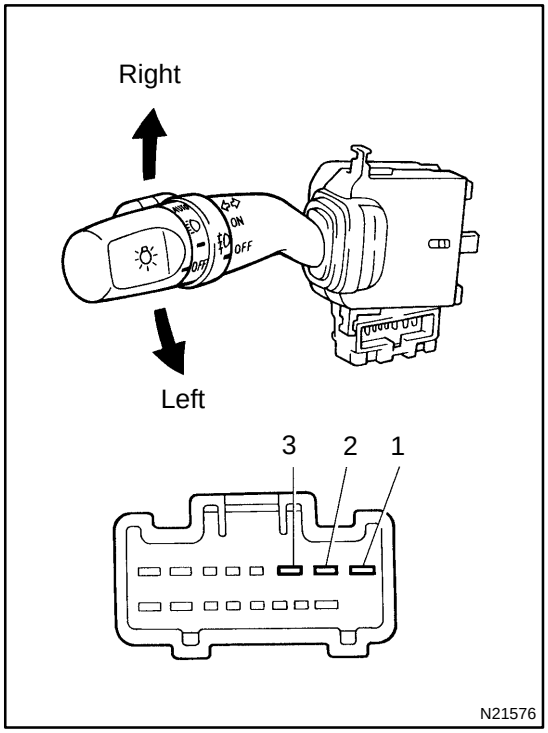
BE053-06



BE0UD-01

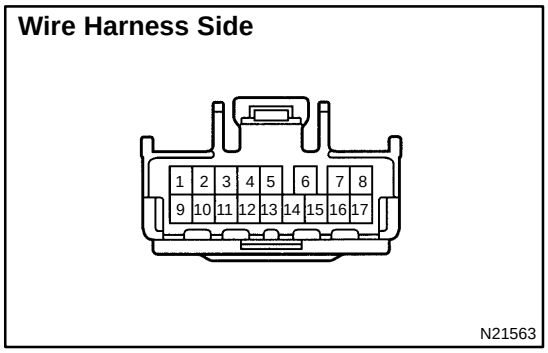
INSPECTION

1. INSPECT TURN SIGNAL SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
Left turn	1 - 2	Continuity
Neutral	-	No continuity
Right turn	2 - 3	Continuity

If continuity is not as specified, replace the switch.



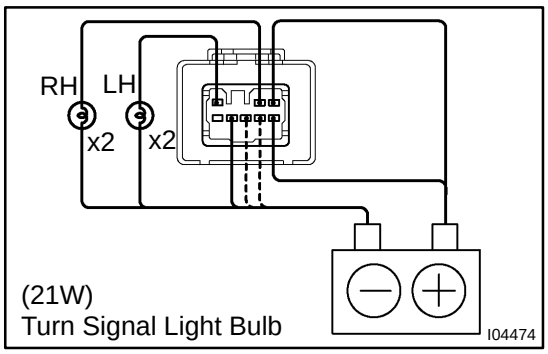
2. INSPECT COMBINATION SWITCH CIRCUIT

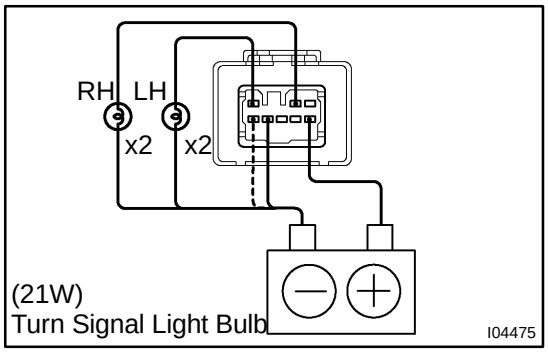
Connect the wire harness side connector to the combination switch and inspect wire harness side connector from the back side.

Tester connection	Condition	Specified condition
1 - Ground	Constant	*Continuity
3 - Ground	Constant	*Continuity
2 - Ground	Ignition switch ON and turn signal switch position Neutral	No voltage
2 - Ground	Hazard warning switch ON	Battery positive voltage
2 - Ground	Ignition switch ON and turn signal switch position Left or Right	Battery positive voltage

*There is resistance because this circuit is grounded through the bulb.

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





3. INSPECT TURN SIGNAL FLASHER OPERATION

(a) Connect the positive (+) lead from the battery to terminals 1 and 4, and the negative (-) lead to terminal 7.

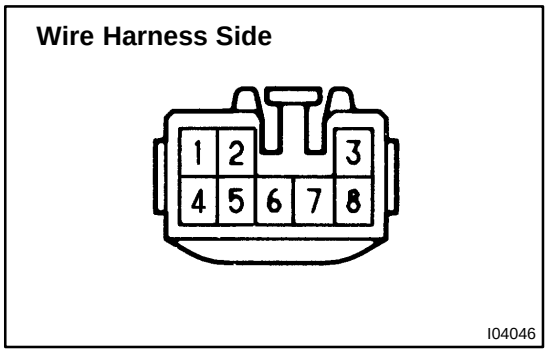
(b) Connect 2 turn signal bulbs to terminal 2 and 3 each and connector the other side of them to negative (-) battery terminal.

(c) Check that the LH bulbs flushes when terminal 5 is connected to the negative (-) battery terminal.

(d) Check that the RH bulbs flushes when terminal 6 is connected to the negative (-) battery terminal.

(e) Disconnect the terminal 1 from the positive (+) battery terminal.

(f) Check that LH and RH bulbs flush when terminal 8 is connected to the negative (-) battery terminal.



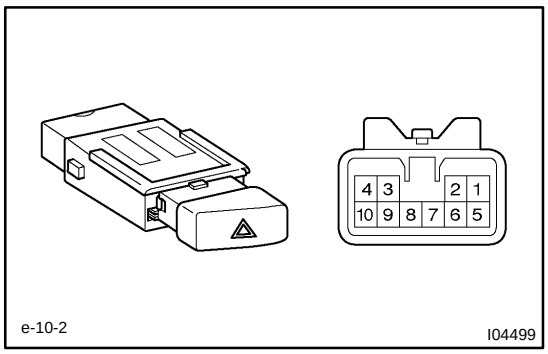
4. INSPECT TURN SIGNAL FLASHER CIRCUIT

Disconnect the connector from the combination switch and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Continuity
3 - Ground	Constant	Continuity
5 - Ground	Turn signal switch RIGHT or OFF	No continuity
5 - Ground	Turn signal switch LEFT	Continuity
6 - Ground	Turn signal switch LEFT or OFF	No continuity
6 - Ground	Turn signal switch RIGHT	Continuity
7 - Ground	Constant	Continuity
8 - Ground	Hazard warning switch OFF	No continuity
8 - Ground	Hazard warning switch ON	Continuity
1 - Ground	Ignition switch LOCK or ACC	No voltage
1 - Ground	Ignition switch ON	Battery voltage
4 - Ground	Constant	Battery voltage

If circuit is as specified, replace the relay.

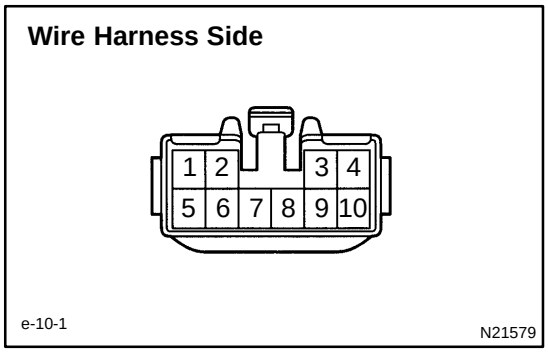
If circuit is not as specified, inspect the circuits connected to other parts.



5. INSPECT HAZARD WARNING SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Switch OFF	5 - 6	No continuity
Switch ON	5 - 6	Continuity
Illumination circuit	8 - 9	Continuity

If continuity is not as specified, replace the switch.



6. INSPECT HAZARD WARNING SWITCH CIRCUIT

Disconnect the switch connector and inspect the connection on the wire harness side.

Tester connection	Condition	Specified condition
*1 8 - Ground	Light control switch position OFF	No voltage
*1 8 - Ground	Light control switch position TAIL or HEAD	Battery positive voltage

*1: Illumination

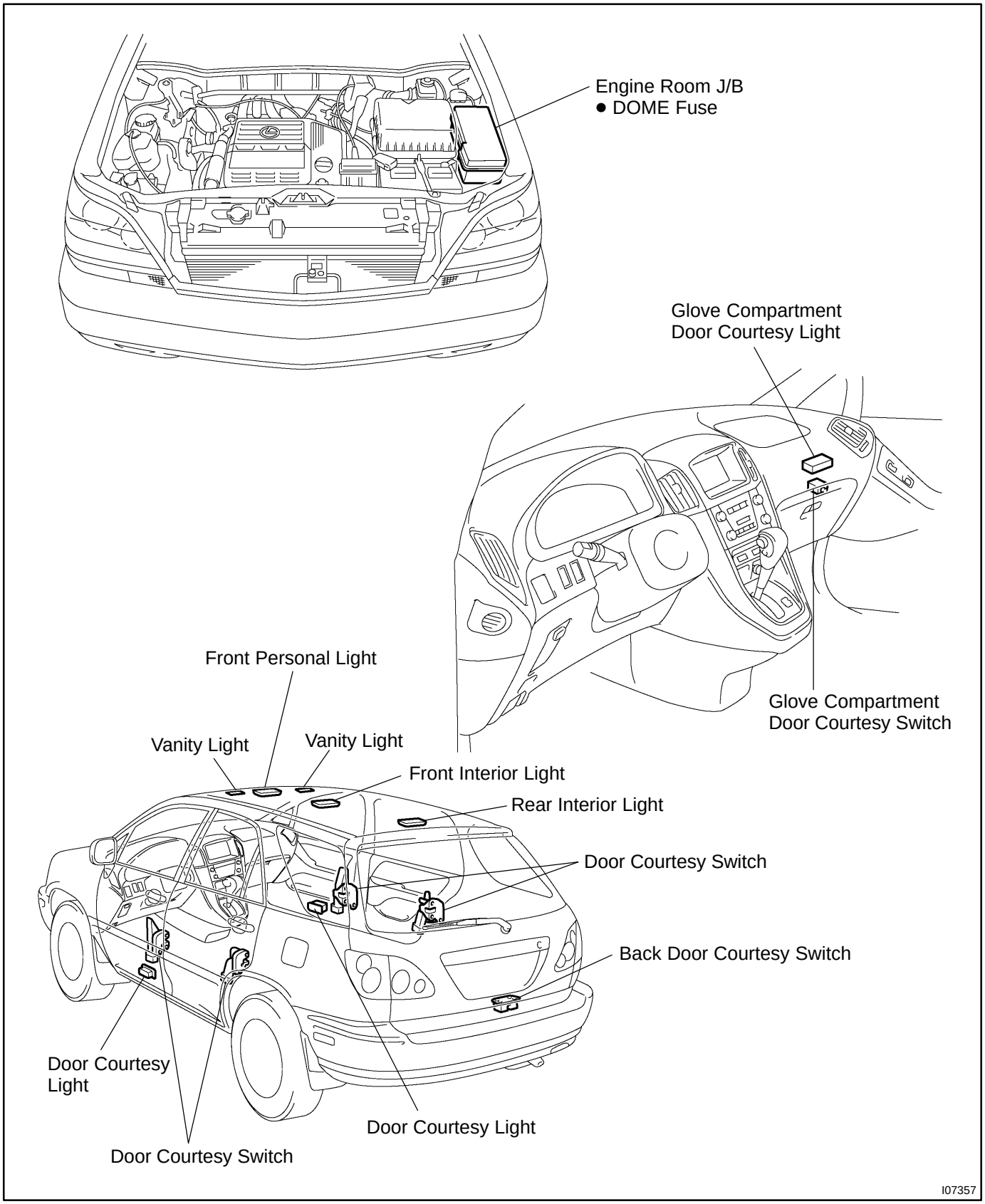
*2: There is resistance because this circuit is grounded through the bulb.

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

INTERIOR LIGHT SYSTEM

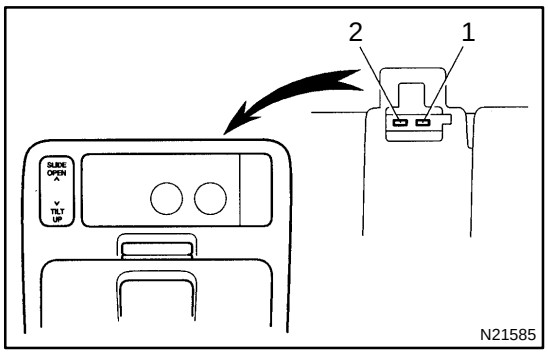
LOCATION

BE057-02



BE0UI-01

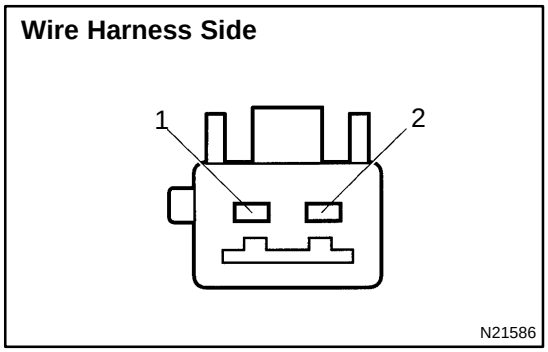
INSPECTION



1. INSPECT PERSONAL LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	-	No continuity
ON	1 - 2	Continuity

If continuity is not as specified, replace the light assembly or bulb.

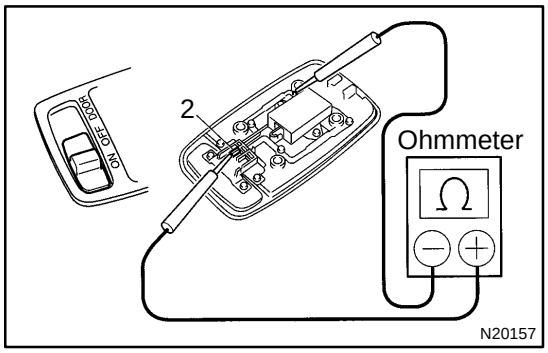


2. INSPECT PERSONAL LIGHT SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Continuity
1 - Ground	Constant	Battery positive voltage

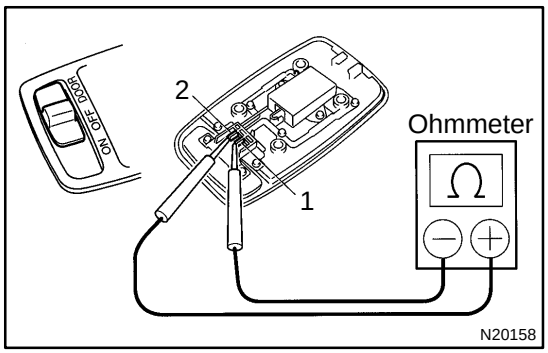
If the circuit is as specified, inspect power source or wire harness.



3. INSPECT INTERIOR LIGHT SWITCH

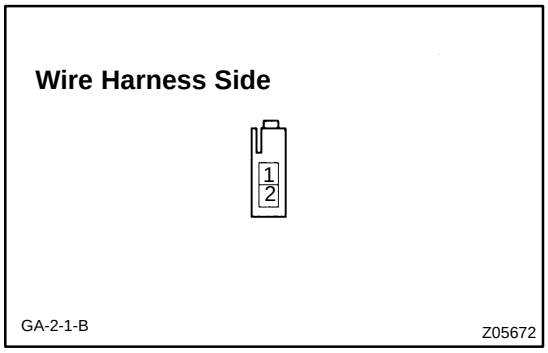
(a) Disconnect the connector from the dome lamp.

(b) Turn the dome lamp switch ON, check that continuity exists between terminal 2 and body ground.



(c) Turn the dome lamp switch DOOR, check that there is continuity exists between terminal 1 and 2.

If operation is not as specified, replace the switch.

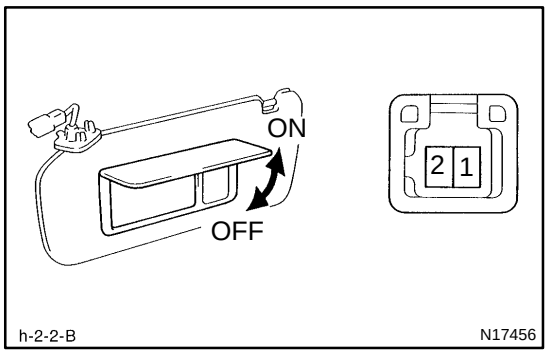


4. INSPECT INTERIOR LIGHT SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Battery positive voltage

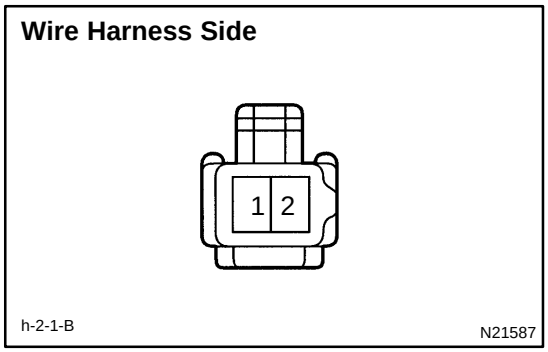
If the circuit is not as specified, inspect power source or wire harness.



5. INSPECT VANITY LIGHT CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Closed)	-	No continuity
ON (Opened)	1 - 2	Continuity

If continuity is not as specified, replace the bulb or vanity light.

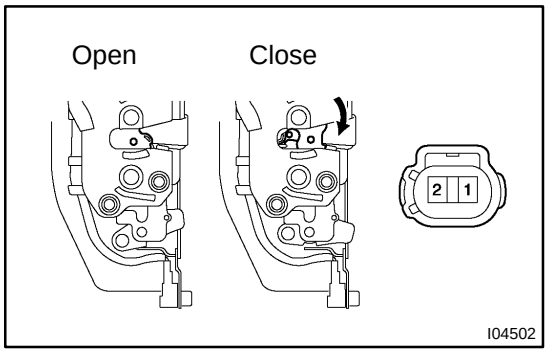


6. INSPECT VANITY LIGHT SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Continuity
1 - Ground	Constant	Battery positive voltage

If the circuit is not as specified, inspect power source or wire harness.



7. INSPECT FRONT DOOR COURTESY SWITCH CONTINUITY

(a) Check that continuity exists between terminals 1 and 2 with the door lock open.

(b) Check that no continuity exists between terminals 1 and 2 with the door lock closed.

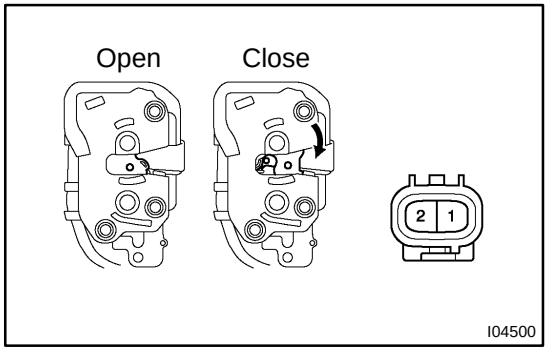
If operation is not as specified, replace the door lock.

8. INSPECT FRONT DOOR COURTESY SWITCH CIRCUIT

Disconnect the connector from the door lock assembly and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Battery positive voltage

If the circuit is not as specified, inspect power source or wire harness.

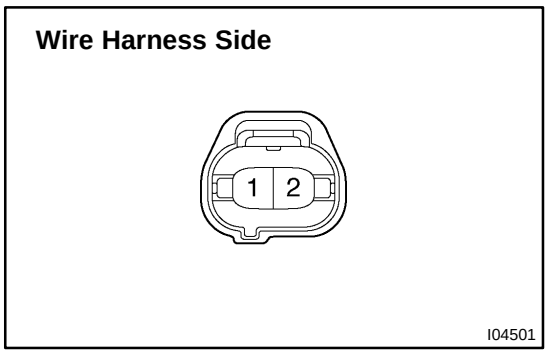


9. INSPECT REAR DOOR COURTESY SWITCH CONTINUITY

(a) Check that continuity exists between terminals 1 and 2 with the door lock open.

(b) Check that no continuity exists between terminals 1 and 2 with the door lock closed.

If operation is not as specified, replace the door lock.

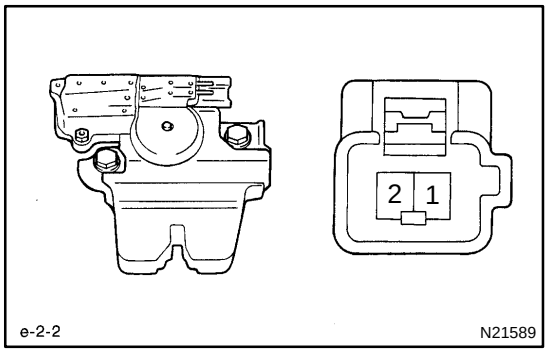


10. INSPECT REAR DOOR COURTESY SWITCH CIRCUIT

Disconnect the connector from the door lock assembly and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Battery positive voltage

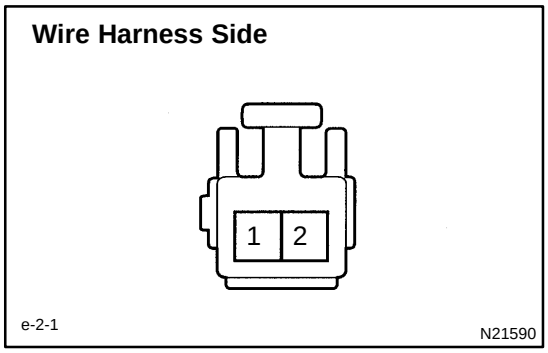
If the circuit is not as specified, inspect power source or wire harness.



11. INSPECT BACK DOOR COURTESY SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Switch OFF	-	No continuity
Switch ON	2 - Body Ground	Continuity

If continuity is not as specified, replace the switch and motor.



12. INSPECT BACK DOOR COURTESY SWITCH CIRCUIT

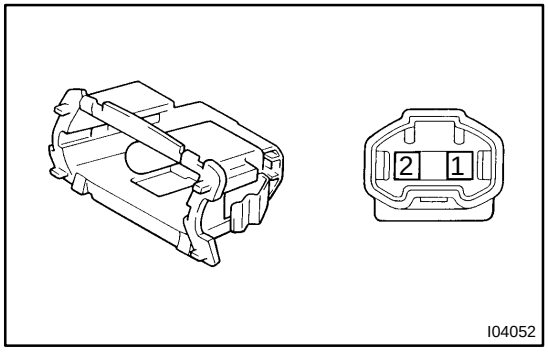
Disconnect the connector from the switch and opener motor, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
1 - Ground	Luggage compartment door opener switch OFF	No voltage
1 - Ground	Luggage compartment door opener switch ON	Battery positive voltage
2 - Ground	Constant	Battery positive voltage

If the circuit is not as specified, inspect power source or wire harness.

13. INSPECT ILLUMINATED ENTRY SYSTEM

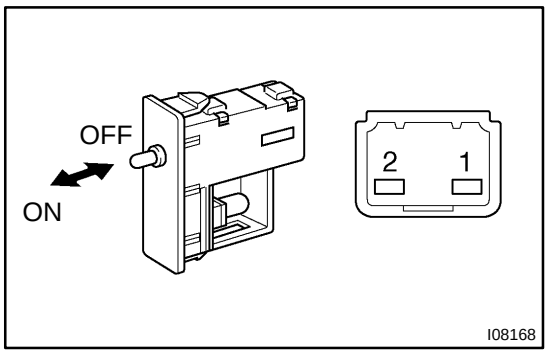
(See integration relay circuit on page BE-28)



14. INSPECT DOOR COURTESY LIGHT CONTINUITY

Using the ohmmeter, check that there is continuity between terminals.

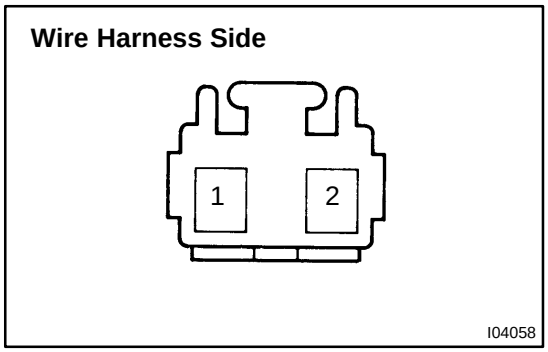
If continuity is not as specified, replace the light assembly or bulb.



15. INSPECT GLOVE COMPARTMENT DOOR LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (closed)	-	No continuity
ON (opened)	1 - 2	Continuity

If continuity is not as specified, replace the switch.



16. INSPECT GLOVE COMPARTMENT DOOR LIGHT CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side, as shown.

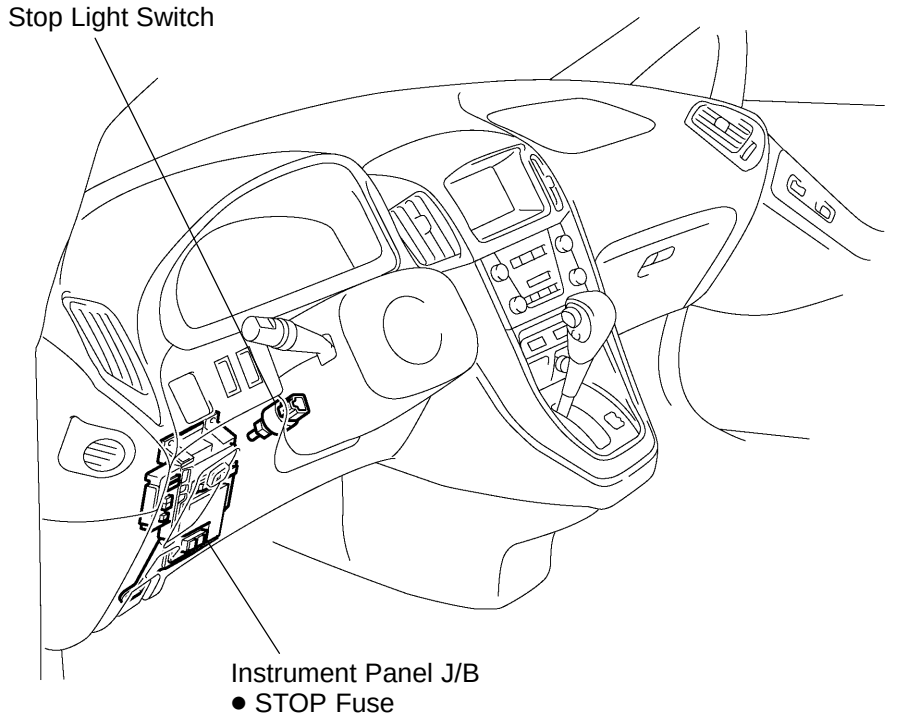
Tester connection	Condition	Specified condition
2 - Ground	Constant	Continuity
1 - Ground	Light control switch OFF	No voltage
1 - Ground	Light control switch TAIL or HEAD	Battery positive voltage

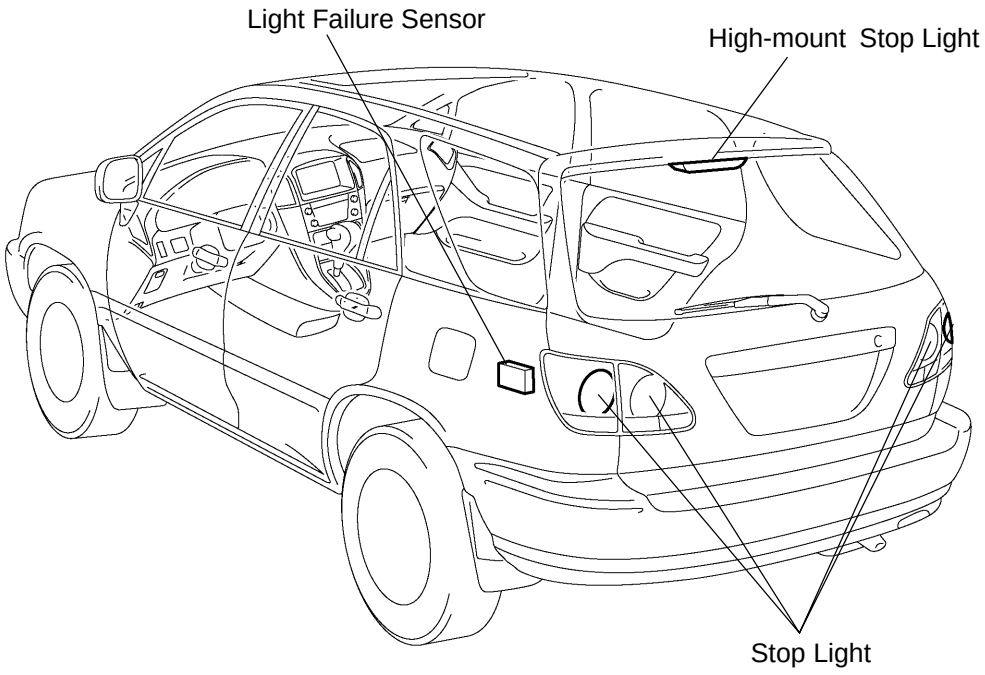
If circuit is not as specified, inspect power source or wire harness.

STOP LIGHT SYSTEM

LOCATION

BE059-06





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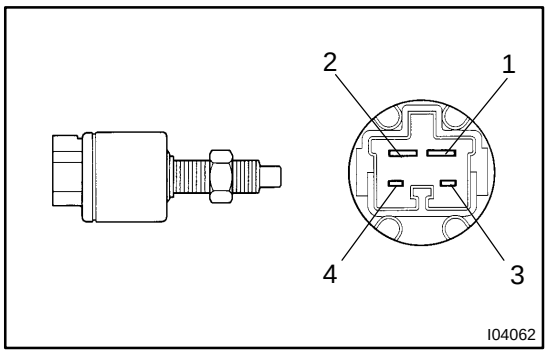
BE05A-02

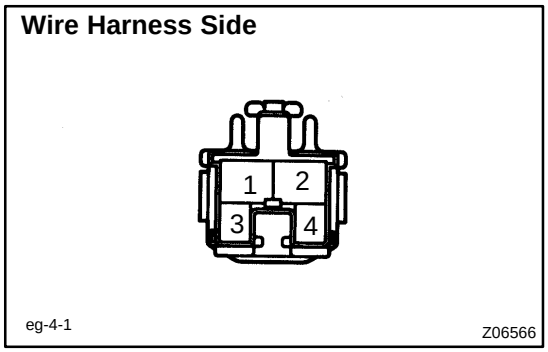
INSPECTION



1. INSPECT STOP LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Switch pin free	1 - 2	Continuity
Switch pin pushed in	3 - 4	Continuity

If continuity is not as specified, replace the switch.

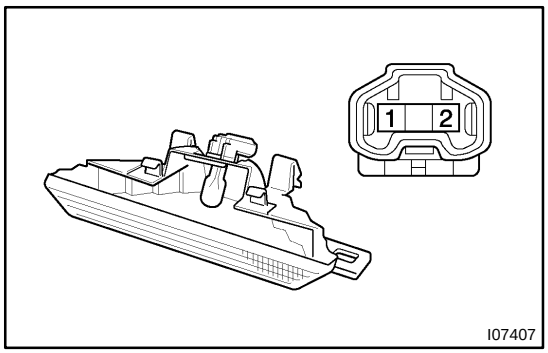


2. INSPECT STOP LIGHT SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Battery positive voltage

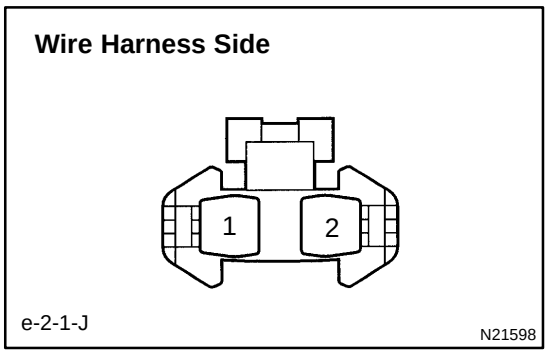
If circuit is not as specified, inspect the power source or wire harness.



3. INSPECT HIGH-MOUNTED STOP LIGHT ASSEMBLY CONTINUITY

Using the ohmmeter, check that continuity exists between terminals.

If continuity is not as specified, replace the bulb or light assembly.

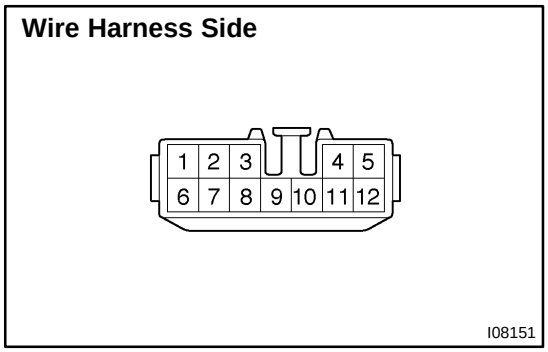


4. INSPECT HIGH-MOUNTED STOP LIGHT ASSEMBLY CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
1 - Ground	Constant	Battery positive voltage

If circuit is not as specified, inspect the power source or wire harness.



5. INSPECT LIGHT FAILURE SENSOR CIRCUIT

Disconnect the connector from the sensor and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity*
2 - Ground	Constant	Continuity*
9 - Ground	Constant	Continuity*
11 - Ground	Constant	Continuity
3 - Ground	Light control switch OFF	No voltage
3 - Ground	Light control switch TAIL or HEAD	Battery positive voltage
4 - Ground	Ignition switch LOCK or ACC	No voltage
4 - Ground	Ignition switch ON	Battery positive voltage
7 - Ground	Stop light switch OFF	No voltage
7 - Ground	Stop light switch ON	Battery positive voltage
8 - Ground	Ignition switch LOCK or ACC	No voltage
8 - Ground	Ignition switch ON	Battery positive voltage

*: There is resistance because this circuit is grounded through the bulb.

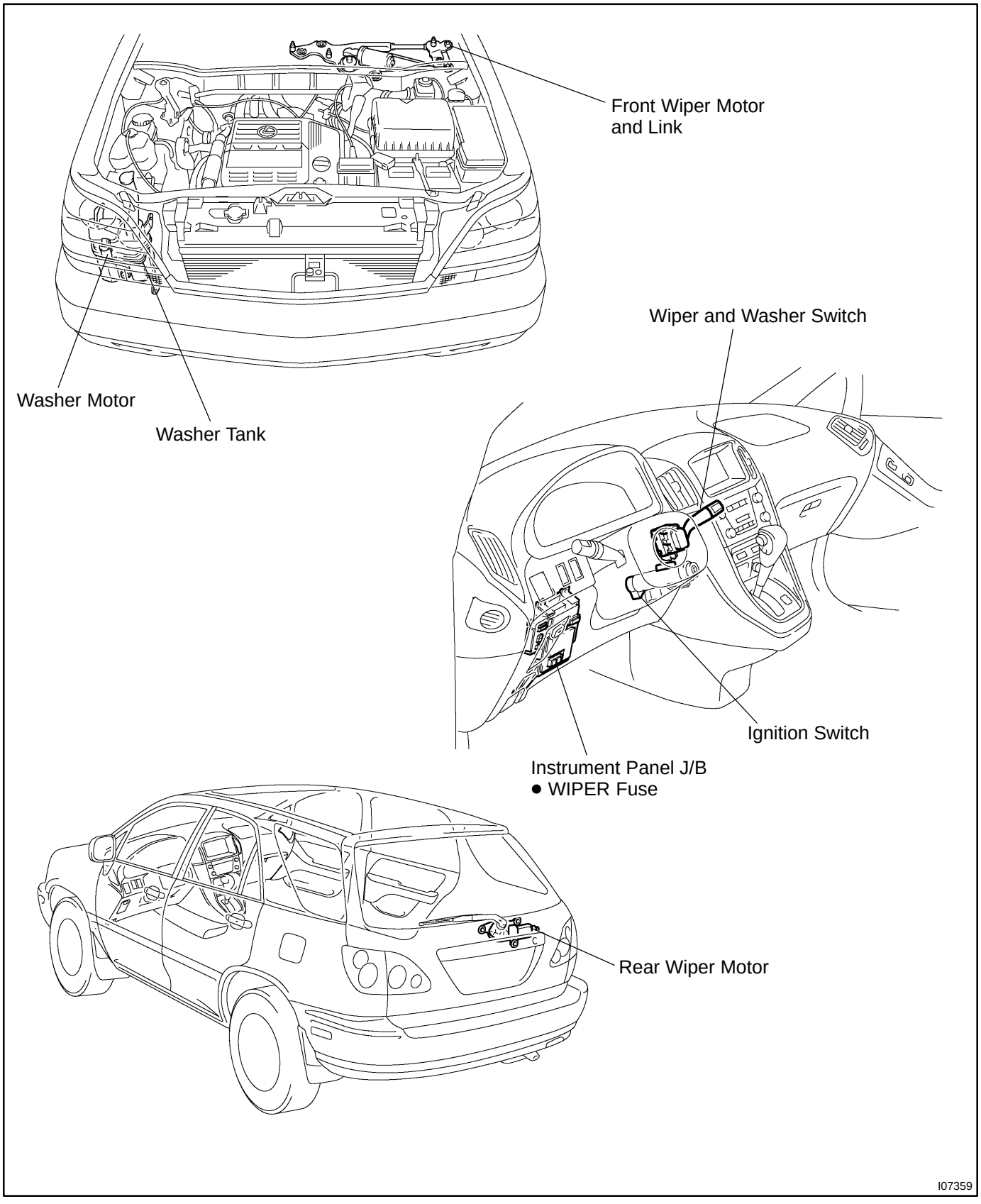
If the circuit is as specified, replace the sensor.

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

WIPER AND WASHER SYSTEM

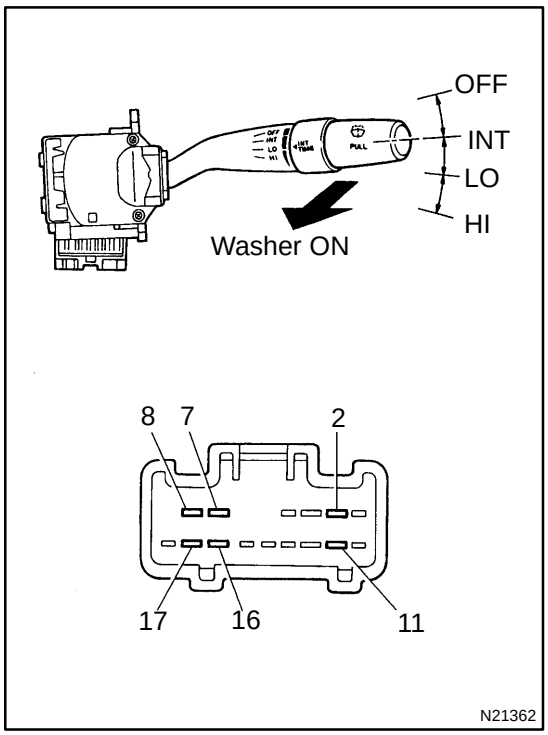
LOCATION

BE05B-02



BE0UE-01

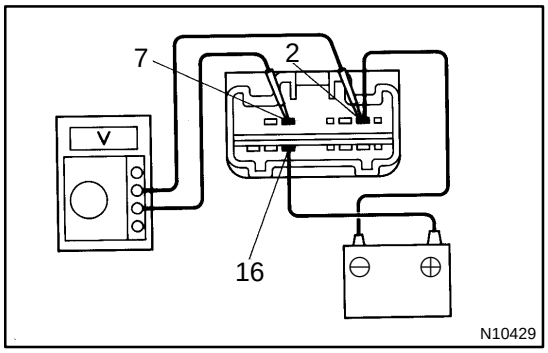
INSPECTION



1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	7 - 16	Continuity
INT	7 - 16	Continuity
LO	7 - 17	Continuity
HI	8 - 17	Continuity
Washer ON	2 - 11	Continuity

If continuity is not as specified, replace the switch.



2. INSPECT INTERMITTENT OPERATION

(a) Turn the wiper switch to INT position.

(b) Turn the intermittent time control switch to FAST position.

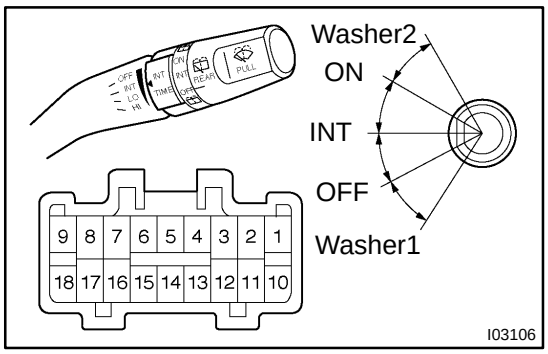
(c) Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.

(d) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2, check that the meter needle indicates battery positive voltage.

INT time control switch position	Voltage
FAST	Approx. 1-3 secs. Battery positive voltage 0 volt
SLOW	Approx. 10-15 secs. Battery positive voltage 0 volt

V03883

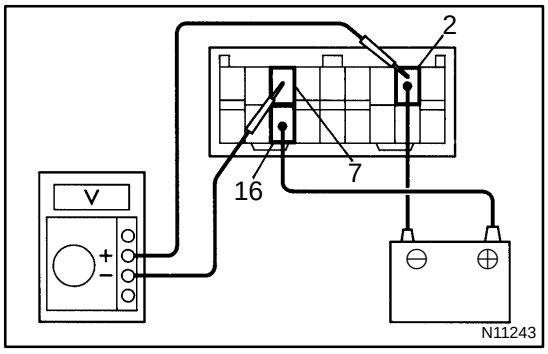
If operation is not as specified, replace the wiper and washer switch.



3. INSPECT REAR WIPER AND WASHER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Washer 1	2 - 12	Continuity
Wiper OFF	-	No continuity
Wiper INT	2 - 13	Continuity
Wiper ON	2 - 10	Continuity
Washer 2	2 - 10 - 12	Continuity

If continuity is not as specified, replace the switch.

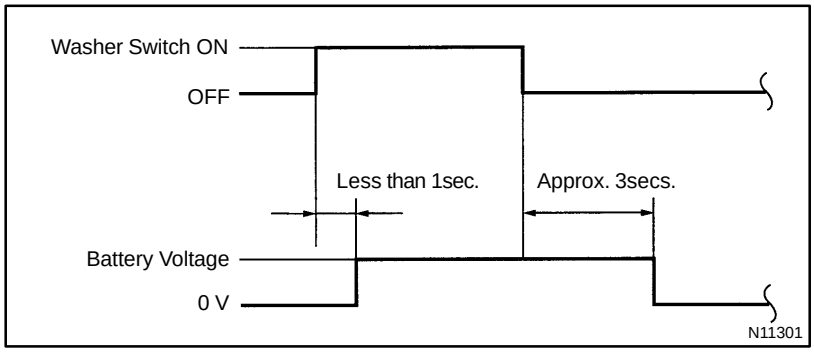


4. INSPECT WASHER LINKED OPERATION

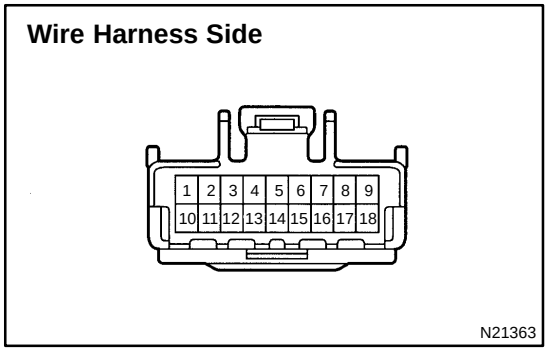
(a) Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.

(b) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2.

(c) Push in the washer switch, and check that the voltage changes as shown in the chart.



If operation is not as specified, replace the wiper and washer switch.

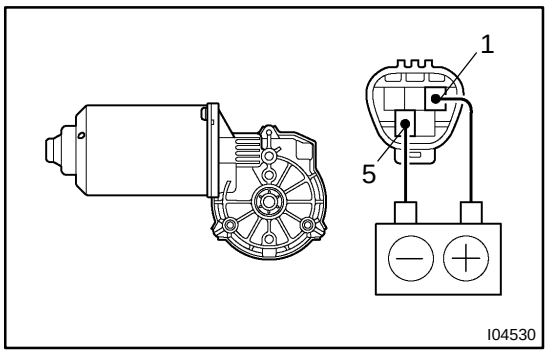


5. INSPECT WIPER SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
2 - Ground	Constant	Continuity
11 - Ground	Ignition switch LOCK or ACC	No voltage
11 - Ground	Ignition switch ON	Battery positive voltage

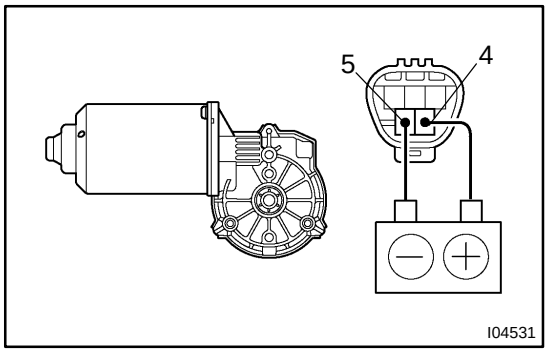
If circuit is not as specified, inspect the circuits connected to other parts.



6. Low Speed:
INSPECT FRONT WIPER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 5, check that the motor operates at low speed.

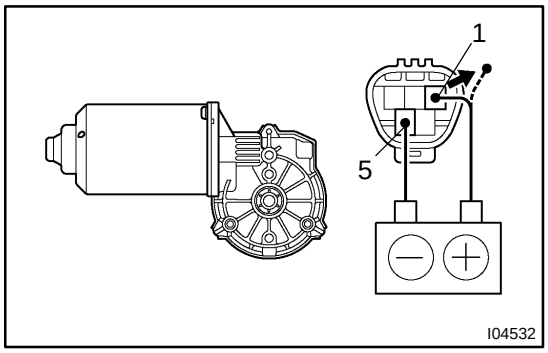
If operation is not as specified, replace the motor.



7. High Speed:
INSPECT FRONT WIPER MOTOR OPERATION

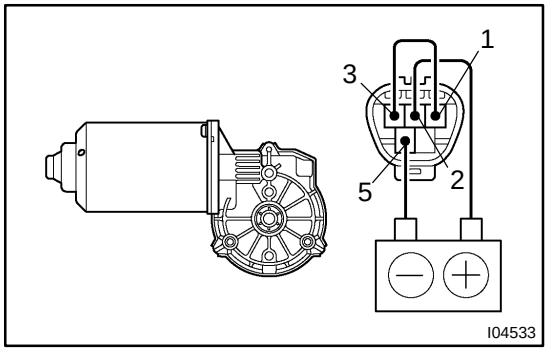
Connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 5, check that the motor operates at high speed.

If operation is not as specified, replace the motor.



8. Stopping at Stop Position:
INSPECT FRONT WIPER MOTOR OPERATION

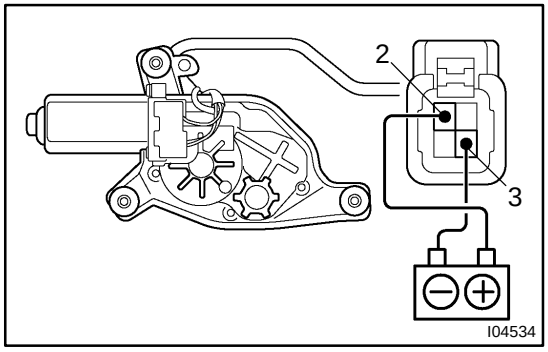
(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 1.



(b) Connect terminals 1 and 3.

(c) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 5, check that the motor stops running at the stop position after the motor operates again.

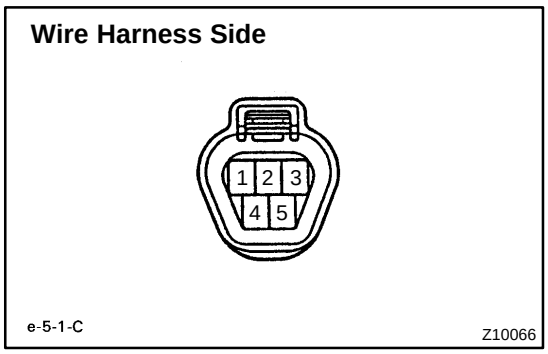
If operation is not as specified, replace the motor.



9. INSPECT REAR WIPER OPERATION

Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3, check that the motor operates.

If operation is not as specified, replace the motor.



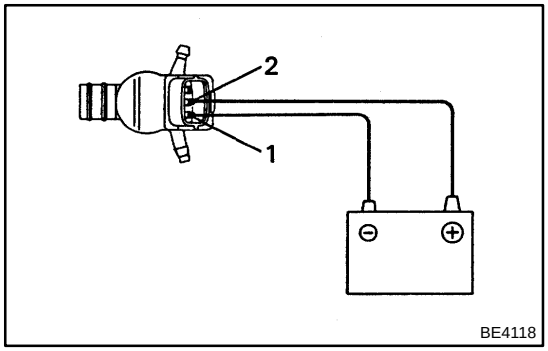
10. INSPECT WIPER MOTOR CIRCUIT

Disconnect the connector from the motor and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
5 - Ground	Constant	Continuity
1 - Ground	* Wiper switch OFF or INT, HIGH	No voltage
1 - Ground	* Wiper switch LOW	Battery positive voltage
2 - Ground	Ignition switch LOCK or ACC	No voltage
2 - Ground	Ignition switch ON	Battery positive voltage
4 - Ground	* Wiper switch OFF or INT, LOW	No voltage
4 - Ground	* Wiper switch HIGH	Battery positive voltage

*: Turn ignition switch ON

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



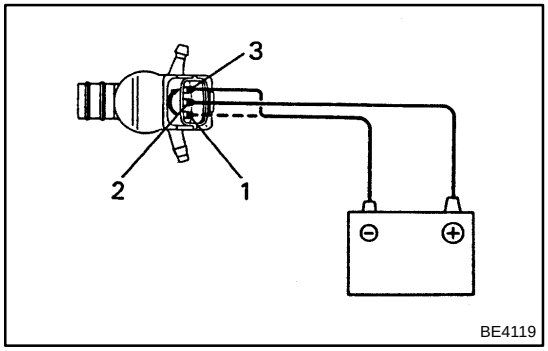
11. Front Washer:
INSPECT WASHER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, check that the motor operates.

NOTICE:

These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.



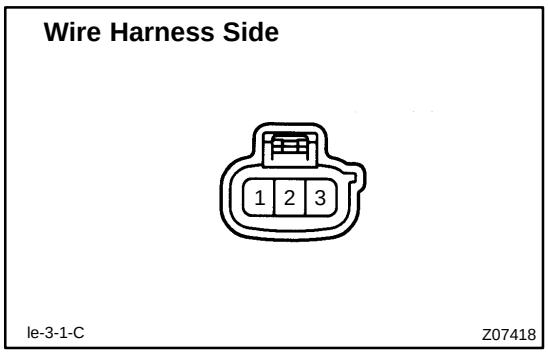
12. Rear Washer:
INSPECT WASHER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3, check that the motor operates.

NOTICE:

These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.



13. INSPECT WASHER MOTOR CIRCUIT

Disconnect the connector from the washer motor and inspect the connector on harness side.

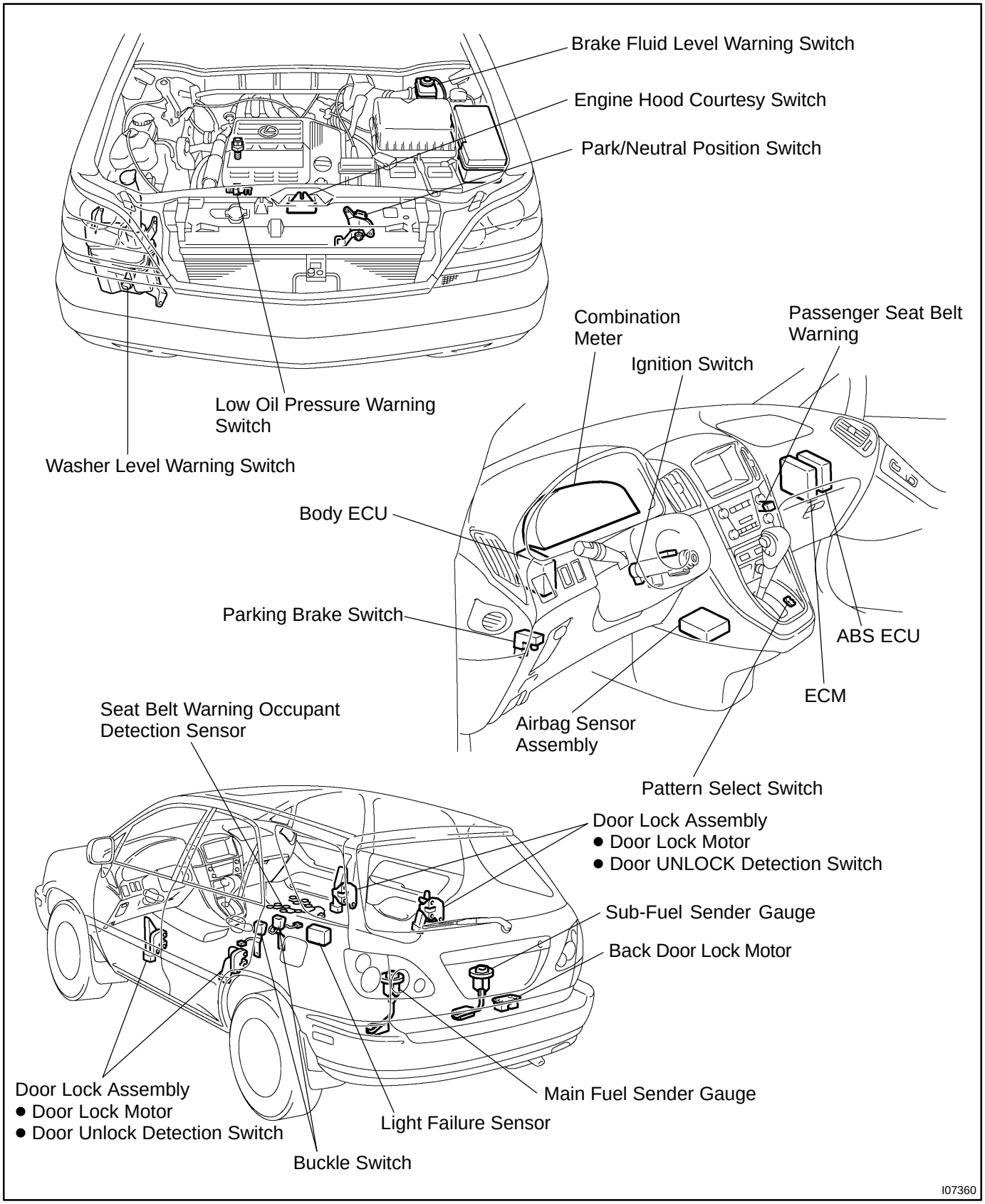
Tester connection	Condition	Specified condition
1 - Ground	Washer switch OFF (released)	No continuity
1 - Ground	Washer switch ON (pushed in)	Continuity
2 - Ground	Ignition switch LOCK or ACC	No voltage
2 - Ground	Ignition switch ON	Battery positive voltage

If circuit is not as specified, inspect wire harness, power source or wiper switch.

COMBINATION METER

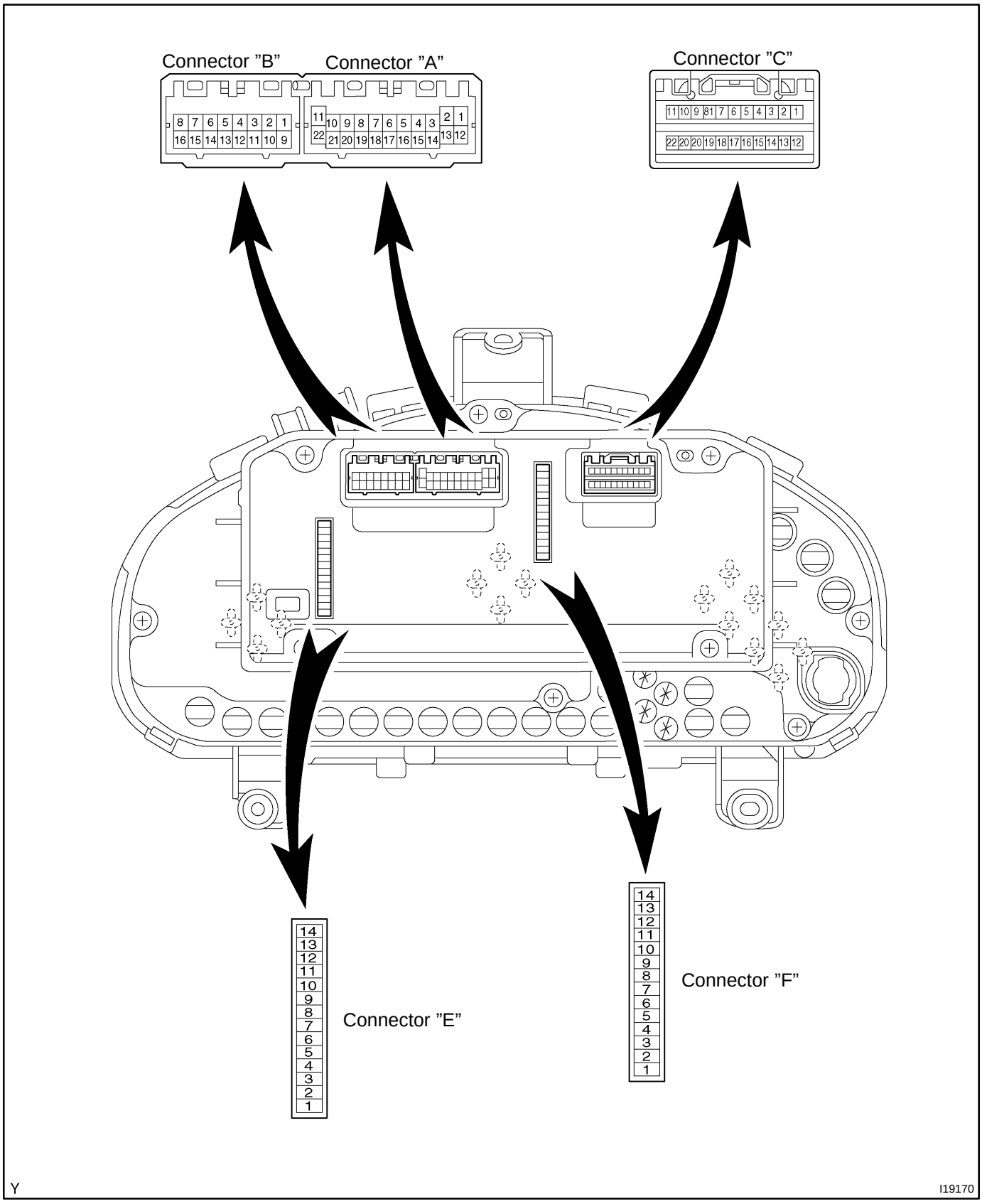
LOCATION

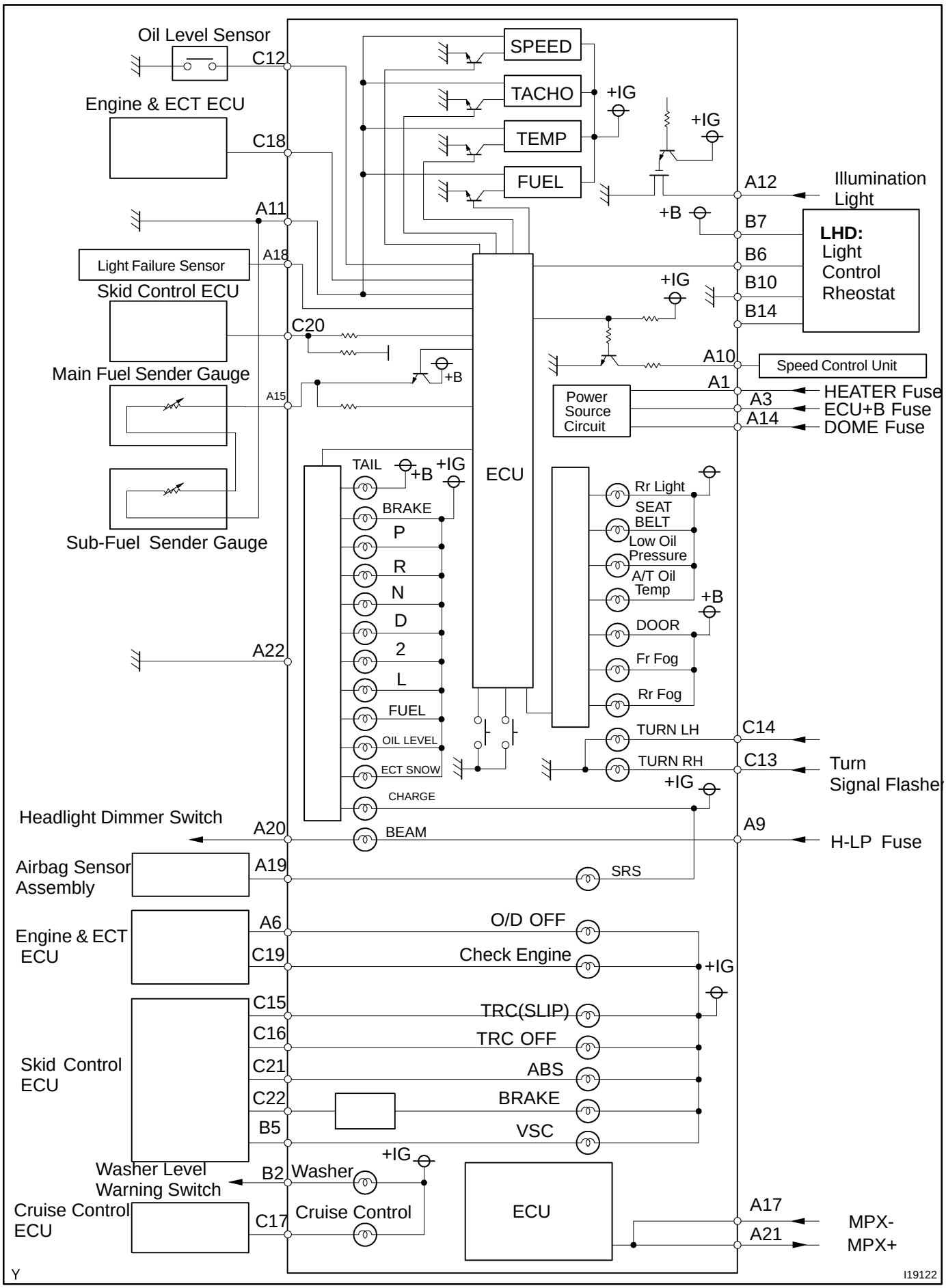
BE0BZ-05



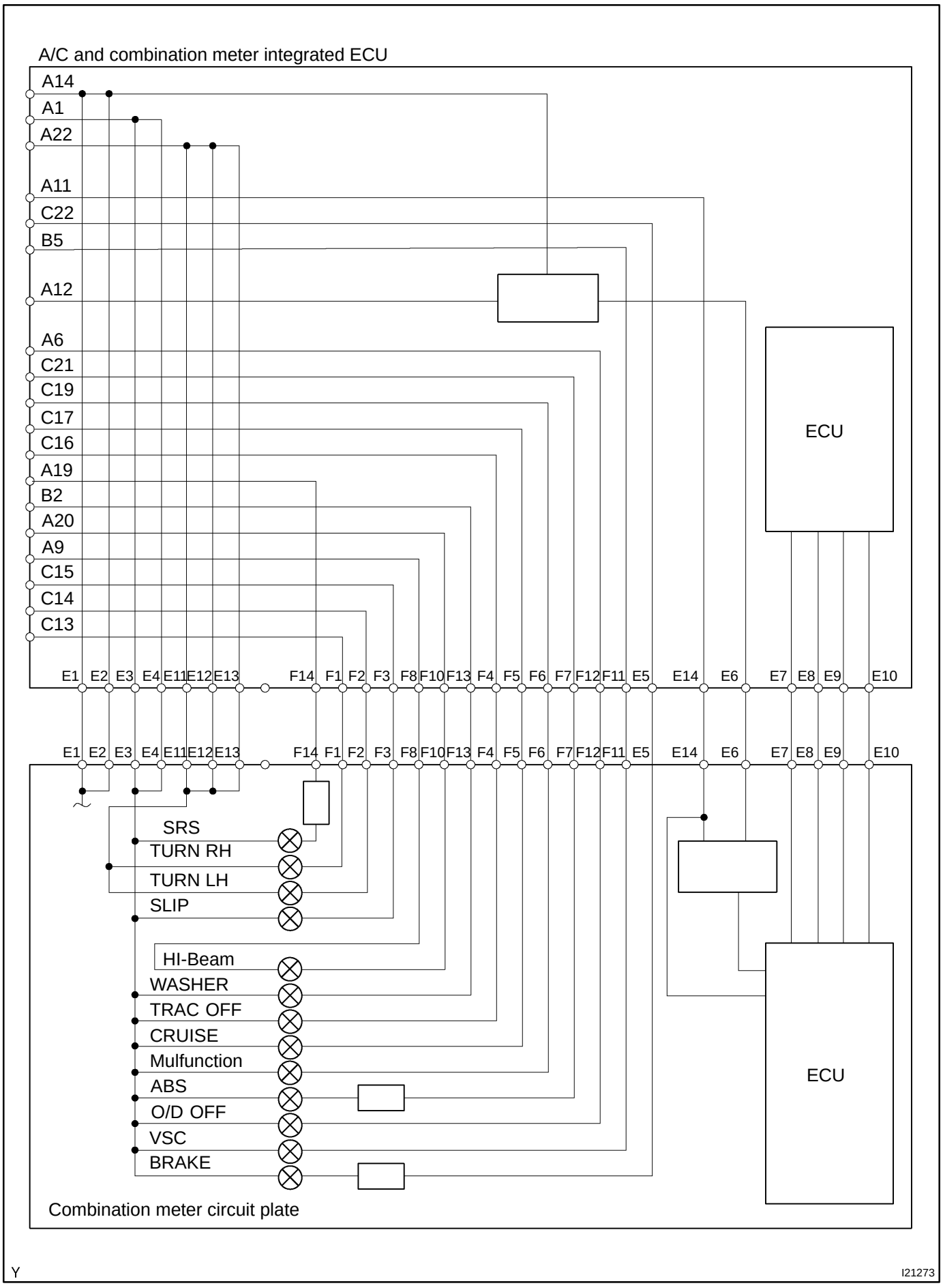
BE20J-02

CIRCUIT

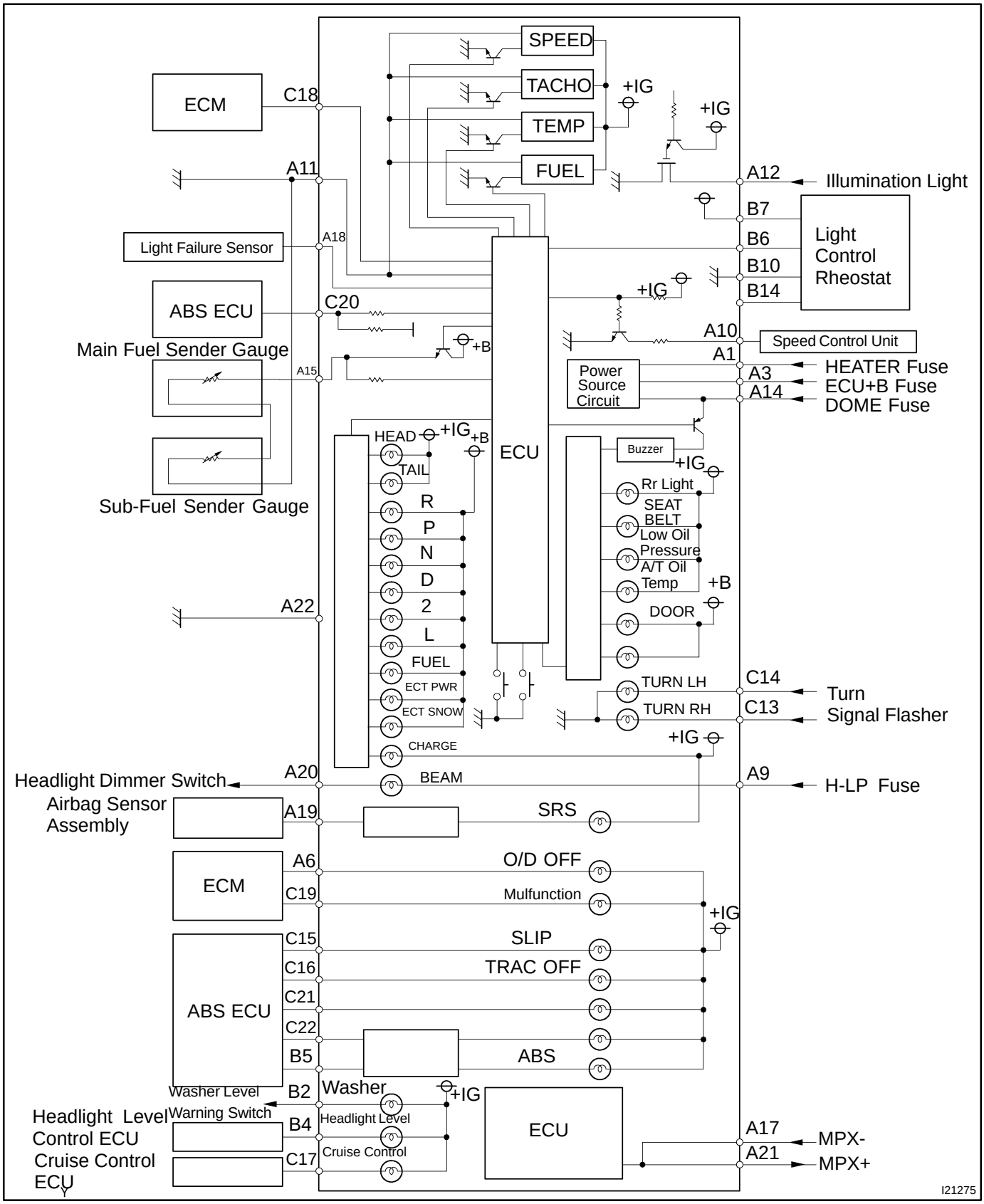


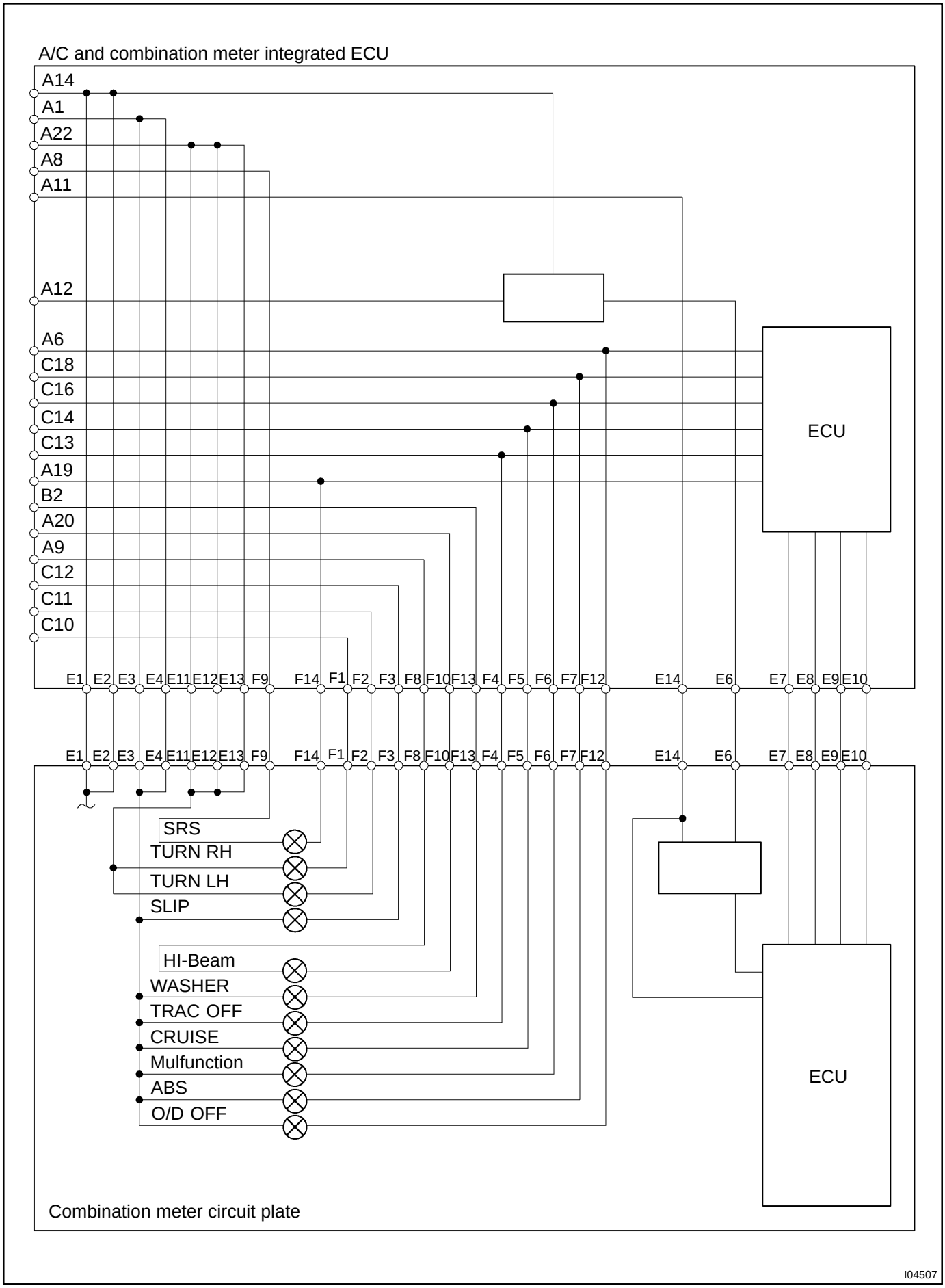


2003 LEXUS RX300 (RM961U)


A/C and combination meter integrated ECU
A14
A1
A22
A11
C22
B5
A12
A6
C21
C19
C17
C16
A19
B2
A20
A9
C15
C14
C13
ECU
E1 E2 E3 E4 E11 E12 E13 F14 F1 F2 F3 F8 F10 F13 F4 F5 F6 F7 F12 F11 E5 E14 E6 E7 E8 E9 E10
SRS
TURN RH
TURN LH
SLIP
HI-Beam
WASHER
TRAC OFF
CRUISE
Mulfunction
ABS
O/D OFF
VSC
BRAKE
ECU
Combination meter circuit plate
Y
I21273

CONNECTOR DIAGRAMS



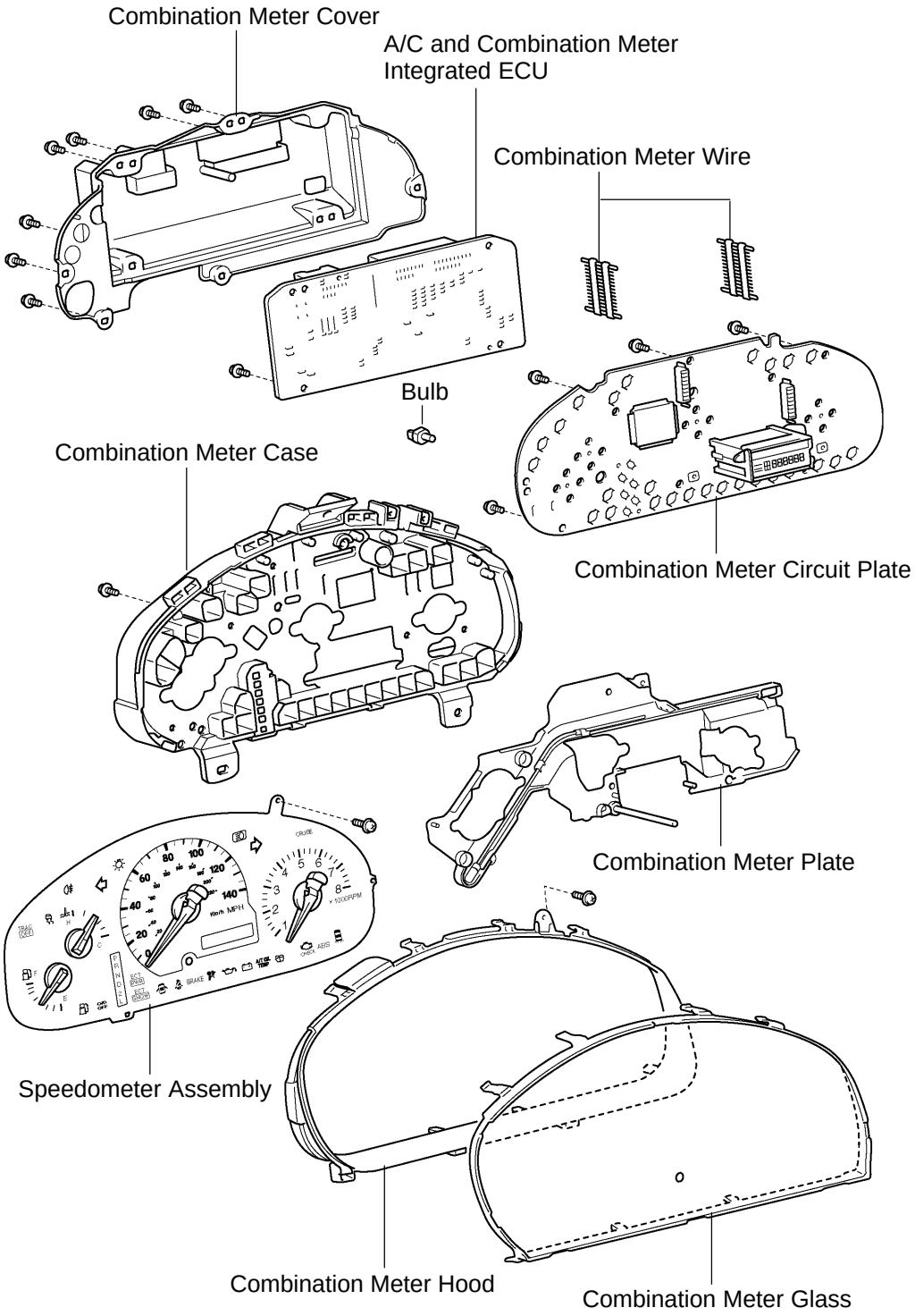

A/C and combination meter integrated ECU
A14
A1
A22
A8
A11
A12
A6
C18
C16
C14
C13
A19
B2
A20
A9
C12
C11
C10
ECU
E1 E2 E3 E4 E11 E12 E13 F9 F14 F1 F2 F3 F8 F10 F13 F4 F5 F6 F7 F12 E14 E6 E7 E8 E9 E10
SRS
TURN RH
TURN LH
SLIP
HI-Beam
WASHER
TRAC OFF
CRUISE
Mulfunction
ABS
O/D OFF
ECU
Combination meter circuit plate
I04507

No.		Wire Harness Side (Terminal name)
A	1	HEATER Fuse
	3	ECU+B Fuse
	6	ECM
	8	SRS Fuse
	9	H-LP Fuse
	10	Speed Control Unit
	11	Ground
	12	Interior LIght
	14	DOME Fuse
	15	Main Fuel Sender Gauge
	17	Multiplex Communication Circuit (MPX-)
	18	Light Failure Sensor
	19	Airbag Sensor Assembly
	20	Headlight Dimmer Switch
	21	Multiplex Communication Circuit (MPX+)
	22	Ground
B	2	Washer Level Warning Switch
	6	Light Control Rheostat (RHCL)
	7	Light Control Rheostat (ILL+)
	10	Light Control Rheostat (ET)
	14	Light Control Rheostat (TC)
C	10	Turn Signal Switch (RH)
	11	Turn Signal Switch (LH)
	12	ABS & BA & TRAC (& VSC) ECU
	13	ABS & BA & TRAC (& VSC) ECU
	14	Cruise Control ECU
	15	ECM
	16	ECM
	17	ABS ECU
	18	ABS (& TRAC) ECU

No.		Wire Harness Side (Terminal name)
E	1	DOME +B Terminal
	2	DOME +B Terminal
	3	IG + Terminal
	4	IG + Terminal
	6	Light Control Rheostat (RHOO)
	7	CS Terminal
	8	CLK Terminal
	9	DOUT Terminal
	10	DIN Terminal
	11	Ground (P/GND)
	12	Ground (P/GND)
	13	Ground (P/GND)
	14	Ground (S/GND)
F	1	Right Turn Indicator Light
	2	Left Turn Indicator Light
	3	SLIP Indicator Light
	4	TRAC OFF Indicator Light
	5	CRUISE MAIN Indicator Light
	6	Mulfunction Indicator Light
	7	ABS Warning Light
	8	HI-Beam Indicator Light (BEAM +)
	9	Airbag Warning Light (SRS + B)
	10	HI-Beam Indicator Light (BEAM -)
	11	O/D OFF Indicator Light
	12	Window Washer Level Warning Light
	14	Airbag Warning Light

BE0C1-07

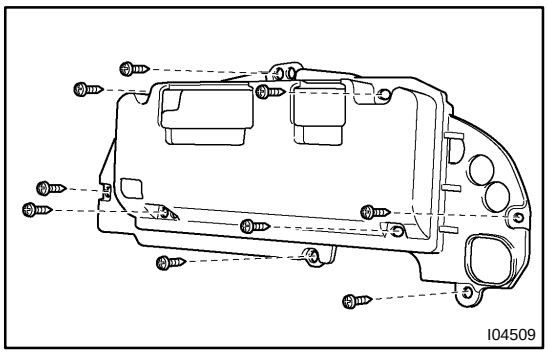
COMPONENTS



I04508

BE0UK-04

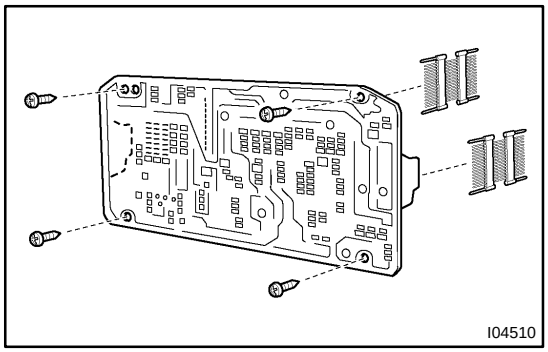
DISASSEMBLY



1. REMOVE COMBINATION METER COVER

(a) Remove the 9 screws.

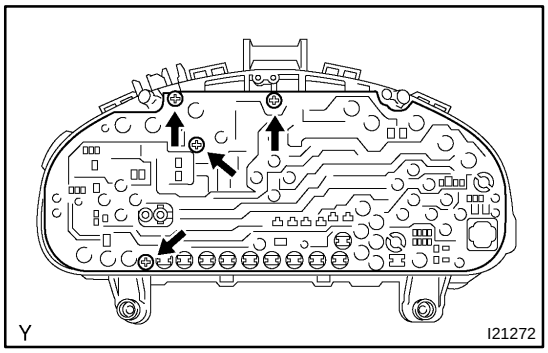
(b) Remove the combination meter cover.



2. REMOVE A/C AND COMBINATION METER INTEGRATED ECU

(a) Remove the 4 screws.

(b) Remove the A/C and combination meter integrated ECU and 2 combination meter wire.



3. REMOVE COMBINATION METER CIRCUIT PLATE

(a) Remove the 4 screws and 6 connectors.

(b) Remove the combination meter circuit plate from the meter case.

4. REMOVE METER HOOD

5. REMOVE COMBINATION METER GLASS

6. REMOVE COMBINATION METER PLATE

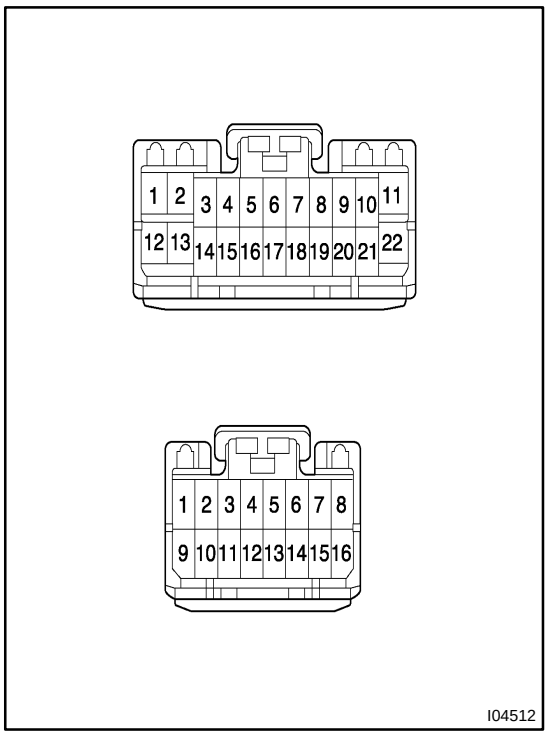
Remove the screw and mater plate.

7. REMOVE SPEEDOMETER ASSEMBLY

(a) Remove the 2 screws and speedometer assembly.

(b) Remove the No. 4 combination meter plate.

BE0UL-04



INSPECTION

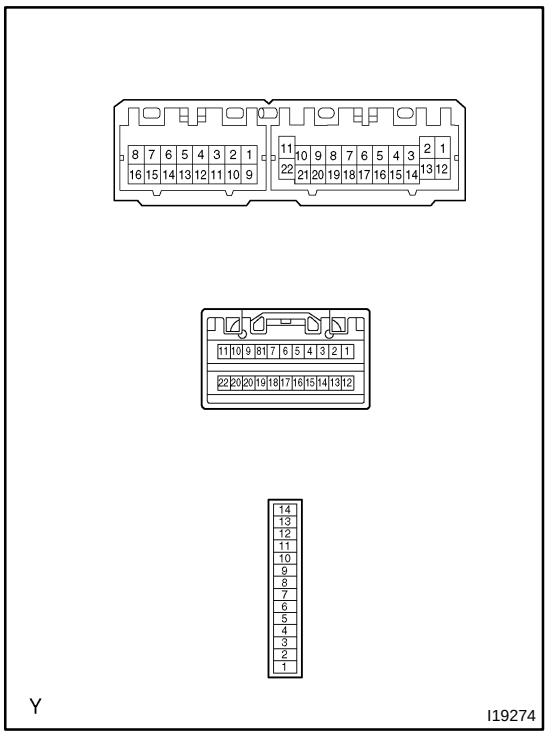
1. Connector disconnected:

INSPECT COMBINATION METER CIRCUIT

Disconnect connector ”A” and ”B” from the combination meter and inspect the connectors on the wire harness side as shown in the table.

Tester connection	Condition	Specified condition
A1 - Ground	Ignition switch OFF or ACC	No voltage
	Ignition switch ON	Battery positive voltage
A3 - Ground	Constant	Battery positive voltage
A8 - Ground	Constant	Battery positive voltage
A9 - Ground	Light control switch HI or FLASH	Battery positive voltage
A11 - Ground	Constant	Continuity
A12 - Ground	Light control switch TAIL or HEAD	Battery positive voltage
A14 - Ground	Constant	Battery positive voltage
A15 - Ground	Float position of fuel sender gauge Full	Resistance 4.0 Ω
	Float position of fuel sender gauge 2/1	Resistance Ω
	Float position of fuel sender gauge Empty	Resistance 107.0 Ω
A20 - Ground	Light control switch HI or FLASH	Continuity
A22 - Ground	Constant	Continuity
B2 - Ground	Window washer level warning switch ON	Continuity
B6 - B7	Rheostat nob fully right turn	Resistance 8 - 12 κΩ
	Light control rheostat nob fully left turn	Resistance 0 Ω
B10 - B7	Constant	Resistance 8 - 12 κΩ
B14 - B7	Light control rheostat nob fully left turn	No continuity

If circuit is not as specified, wiring diagram and inspect the circuits connected to other parts.



2. INSPECT INSTRUMENT PANEL INTEGRATION ECU CIRCUIT

(a) Remove the combination meter cover.

(b) Inspect the connectors on the ECU as follows.

Tester connection	Specified condition
E1 - A14	Continuity
E2 - A14	Continuity
E3 - A1	Continuity
E4 - A1	Continuity
E11 - A22	Continuity
E12 - A22	Continuity
E13 - A22	Continuity
E14 - A11	Continuity
F1 - C10	Continuity
F2 - C11	Continuity
F3 - C12	Continuity
F4 - C13	Continuity
F5 - C14	Continuity
F6 - C16	Continuity
F7 - C18	Continuity
F8 - A9	Continuity
F10 - A20	Continuity
F9 - A8	Continuity
F12 - A6	Continuity
F13 - B2	Continuity
F14 - A19	Continuity

If circuit is not as specified, replace the circuit plate.

3. INSPECT COMBINATION METER ECU CIRCUIT

(a) Remove the combination meter cover.

(b) Inspect the connectors on the instrument panel integration ECU as follows.

Tester connection	Check indicator light circuit	Specified condition
F1 - E11, E12, E13	Right turn signal indicator light	Continuity
F2 - E11, E12, E13	Left turn signal indicator light	Continuity
F3 - E3, E4	SLIP indicator light	Continuity
F4 - E3, E4	TRAC OFF indicator light	Continuity
F5 - E3, E4	CRUISE MAIN indicator light	Continuity
F6 - E3, E4	Malfunction indicator light	Continuity
F7 - E3, E4	ABS warning light	Continuity
F8 - F10	HI-Beam indicator light	Continuity
F9 - F14	SRS indicator light	Continuity
F12 - E3, E4	O/D OFF indicator light	Continuity
F13 - E3, E4	Washer level warning light	Continuity

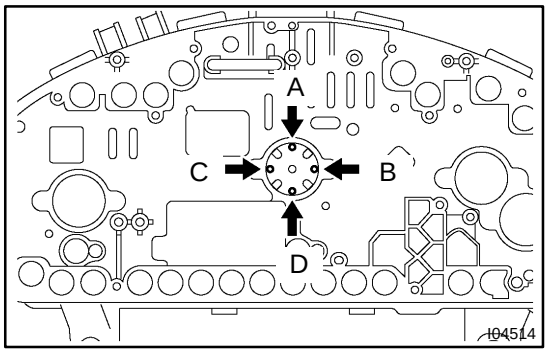
If circuit is not as specified, replace bulb or combination meter ECU.

4. INSPECT SPEEDOMETER ON-VEHICLE

Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.
HINT:
Tire wear and tire over or under inflation will increase the indication error.

USA (mph)		CANADA (km/h)	
Standard indication	Allowable range	Standard indication	Allowable range
20	18 - 24	20	17 - 24
40	38 - 44	40	38 - 46
60	56 - 66	60	57.5 - 67
80	78 - 88	80	77 - 88
100	98 - 110	100	96 - 109
120	118 - 132	120	115 - 130
		140	134 - 151.5
		160	153 - 173

If error is excessive, replace the speedometer.



5. INSPECT SPEEDOMETER RESISTANCE

(a) Remove the meter cover, A/C and combination meter integrated ECU and combination meter circuit plate.
(b) Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A - B	140 - 185
C - D	130 - 175

If resistance value is not as the specified, replace the meter.

6. INSPECT TACHOMETER ON-VEHICLE

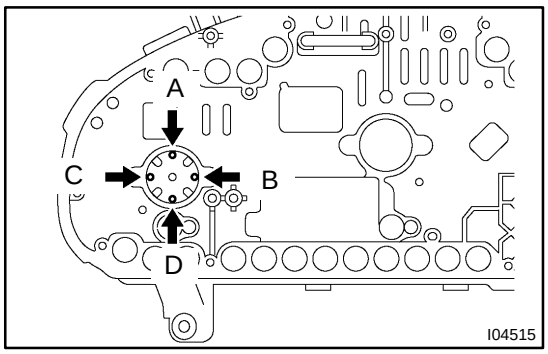
(a) Connect a tune-up test tachometer, and start the engine.

NOTICE:

- **Reversing the connection of the tachometer will damage the transistors and diodes inside.**
- **When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.**

(b) Compare the tester and tachometer indications.
DC 13.5 V 25 ˚C at (77˚F)

Standard indication	Allowable range
700	630 - 770
1,000	900 - 1,100
2,000	1,850 - 2,150
3,000	2,800 - 3,200
4,000	3,800 - 4,200
5,000	4,800 - 5,200
6,000	5,750 - 6,250
7,000	6,700 - 7,300



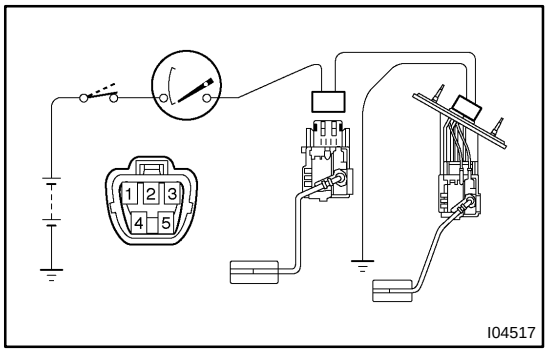
7. INSPECT TACHOMETER RESISTANCE

(a) Remove the meter cover, A/C and combination meter integrated ECU and combination meter circuit plate.

(b) Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A - B	140 - 185
C - D	130 - 175

If resistance value is not as specified, replace the meter.



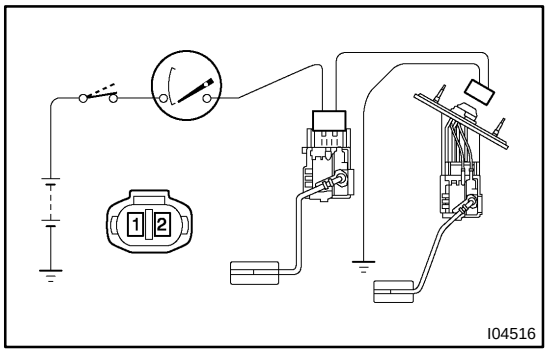
8. INSPECT FUEL RECEIVER GAUGE OPERATION (See page DI-612)

(a) Disconnect the connector from the main sender gauge.

(b) Disconnect the battery terminal once then after 30 secs., reconnect the terminal.

(c) Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.

(d) Connect the main sender gauge.



(e) Disconnect the connector from the sub sender gauge.

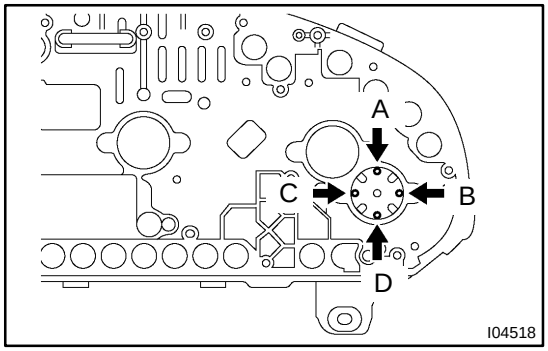
(f) Disconnect the battery terminal once then after 30 secs., reconnect the terminal.

(g) Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.

HINT:

Because of the silicon oil in the gauge, it will take a short time for needle to stabilize.

If operation is not as specified, inspect the receiver gauge resistance.



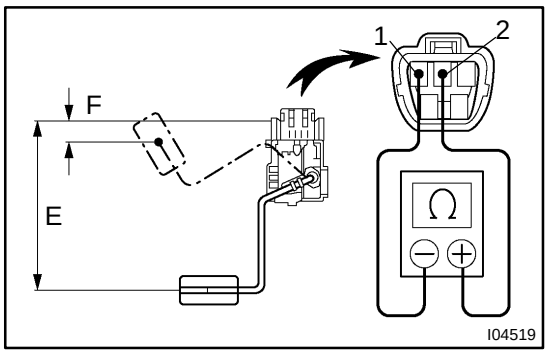
9. INSPECT FUEL RECEIVER GAUGE RESISTANCE

(a) Remove the meter cover, A/C and combination meter integrated ECU and combination meter circuit plate.

(b) Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A - B	140 - 185
C - D	130 - 175

If resistance value is not as specified, replace the receiver gauge.

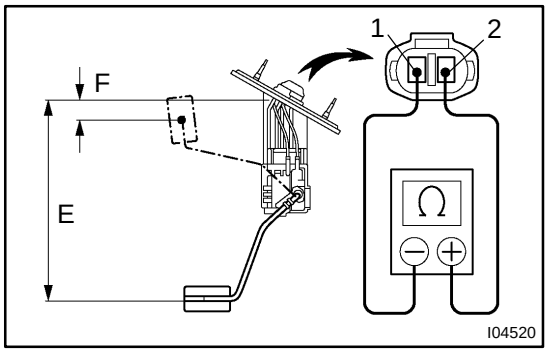


10. INSPECT FUEL MAIN SENDER GAUGE RESISTANCE

Measure the resistance between terminals 1 and 2 for each float position.

Float position mm (in.)	Resistance (Ω)
F: Approx. 26.6 (1.047) ± 3 (0.12)	Approx. 2.0 ± 1.0
E: Approx. 138.9 (5.468) ± 3 (0.12)	Approx. 38.7 ± 1.0

If resistance value is not as specified, replace the main sender gauge.

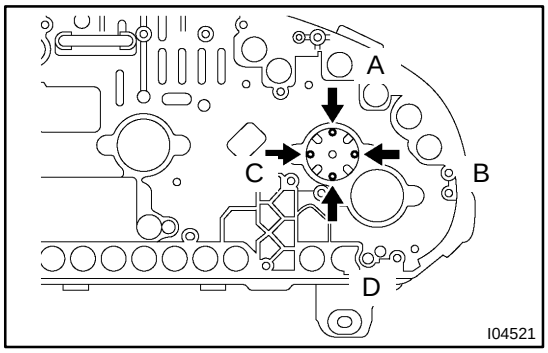


11. INSPECT FUEL SUB SENDER GAUGE RESISTANCE

Measure the resistance between terminals 1 and 2 for each float position.

Float position mm (in.)	Resistance (Ω)
F: Approx. 2.4 (0.094) ± 3 (0.12)	Approx. 2.0 ± 1.0
E: Approx. 177.2 (6.976) ± 3 (0.12)	Approx. 71.3 ± 1.0

If resistance value is not as specified, replace the sub sender gauge.



12. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE RESISTANCE

(a) Remove the meter cover, A/C and combination meter integrated ECU and combination meter circuit plate.

(b) Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A - B	140 - 185
C - D	130 - 175

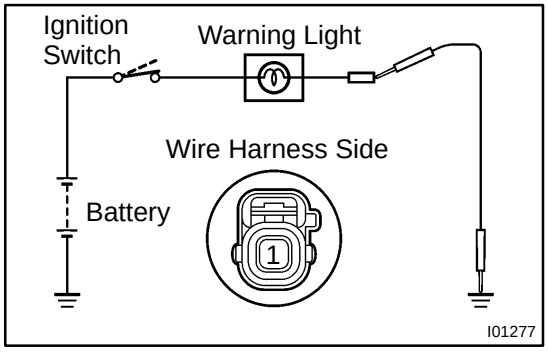
If resistance value is not as specified, replace the receiver gauge.

HINT:

This circuit includes the diode.

If resistance value is not as specified, replace the receiver gauge.

If resistance value is not as specified, replace the engine coolant temperature sender gauge.

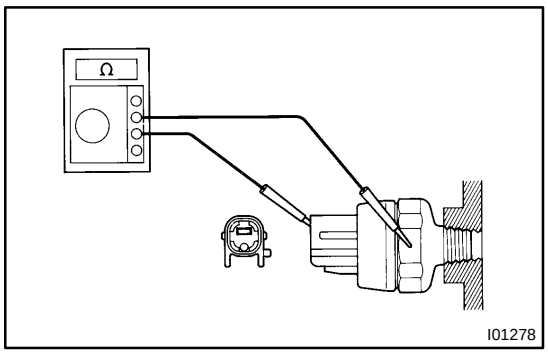


13. INSPECT LOW OIL PRESSURE WARNING LIGHT

(a) Disconnect the connector from the warning switch and ground terminal on the wire harness side connector.

(b) Turn the ignition switch ON and check that the warning light lights up.

If the warning light does not light up, check the bulb circuit (See page DI-619).



14. INSPECT LOW OIL PRESSURE SWITCH CONTINUITY

(a) Disconnect the connector from the switch.

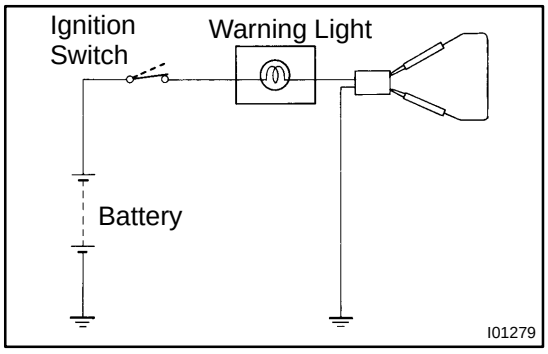
(b) Check that continuity exists between terminal and ground with the engine stopped.

(c) Check that no continuity exists between terminal and ground with the engine running.

HINT:

Oil pressure should be over 24.5 kPa (0.25 kgf/cm^2, 3.55 psi).

If operation is not as specified, replace the switch.



15. INSPECT BRAKE WARNING LIGHT

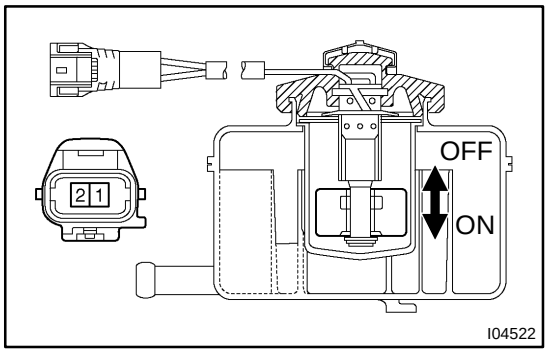
(a) Disconnect the connector from the brake fluid warning switch.

(b) Release the parking brake pedal.

(c) Connect the terminals on the wire harness side of the level warning switch connector.

(d) Start the engine, check that the warning light lights up.

If the warning light does not light up, check the bulb circuit (See page DI-619).



16. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

(a) Remove the reservoir tank cap and strainer.

(b) Disconnect the connector.

(c) Check that no continuity exists between the terminals with the switch OFF (float up).

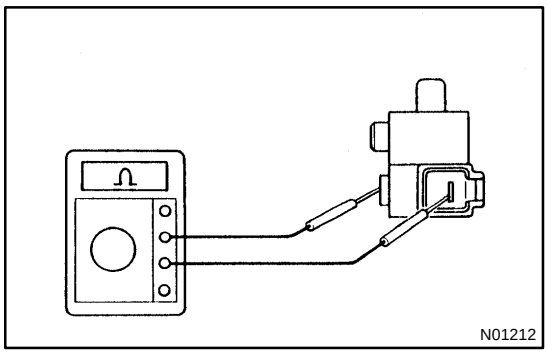
(d) Use siphon, etc. to take fluid out of the reservoir tank.

(e) Check that continuity exists between the terminals with the switch ON (float down)

(f) Pour the fluid back in the reservoir.

If operation is not as specified, replace the switch.

17. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CIRCUIT



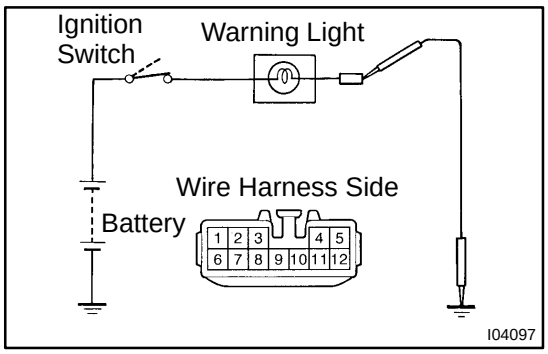
18. INSPECT PARKING BRAKE SWITCH CONTINUITY

(a) Check that continuity exists between the terminal and switch body with the switch ON (switch pin released).

(b) Check that no continuity exists between the terminal and switch body with the switch OFF (switch pin pushed in).

If operation is not as specified, replace the switch or inspect ground point.

19. INSPECT PARKING BRAKE SWITCH CIRCUIT (See page DI-677)

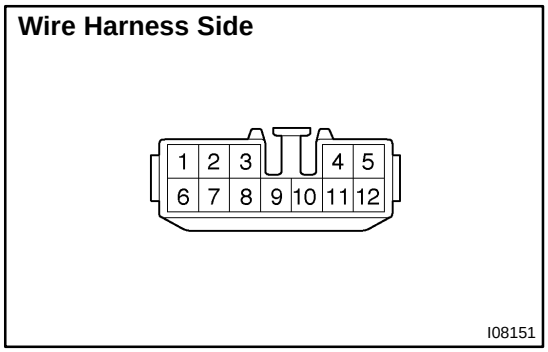


20. INSPECT REAR LIGHTS WARNING LIGHT

(a) Disconnect the connector from the light failure sensor and ground terminal 3 on the wire harness side connector.

(b) Start the engine, check that the warning light lights up.

If the warning light does not light up, inspect the bulb or wire harness.



21. INSPECT LIGHT FAILURE RELAY CIRCUIT

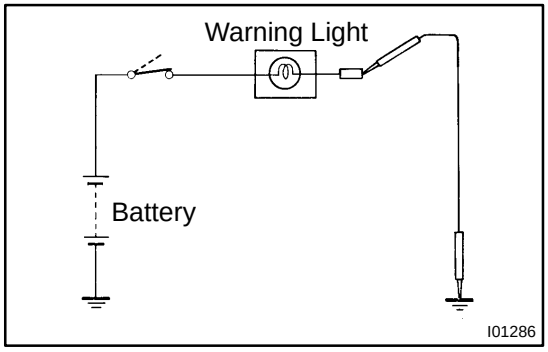
Disconnect the connector from the relay and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity*
2 - Ground	Constant	Continuity*
9 - Ground	Constant	Continuity*
11 - Ground	Constant	Continuity
3 - Ground	Light control switch OFF	No voltage
3 - Ground	Light control switch TAIL or HEAD	Battery positive voltage
4 - Ground	Ignition switch LOCK or ACC	No voltage
4 - Ground	Ignition switch ON	Battery positive voltage
7 - Ground	Stop light switch OFF	No voltage
7 - Ground	Stop light switch ON	Battery positive voltage
8 - Ground	Ignition switch LOCK or ACC	No voltage
8 - Ground	Ignition switch ON	Battery positive voltage

*: There is resistance because this circuit is grounded through the bulb.

If the circuit is as specified, replace the relay.

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

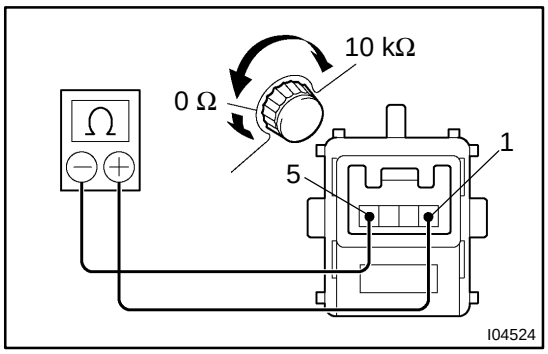


22. INSPECT OPEN DOOR WARNING LIGHT

Disconnect the connector from the door courtesy switch and ground terminal 1 on the wire harness side, and check that the warning light lights up.

If the warning light does not light up, check the bulb circuit (See page DI-619).

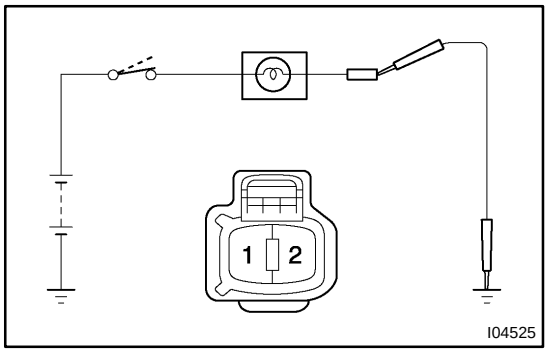
23. INSPECT DOOR COURTESY SWITCH CONTINUITY AND CIRCUIT (See page BE-54)



24. INSPECT LIGHT CONTROL RHEOSTAT OPERATION

Gradually, turn the rheostat knob from the bright side to dark side and check that the resistance decreases from 10 kΩ to 0 Ω between terminal 4 and 5. (Rheostat knob turned to clockwise)

If operation is not as specified, replace the rheostat light control.

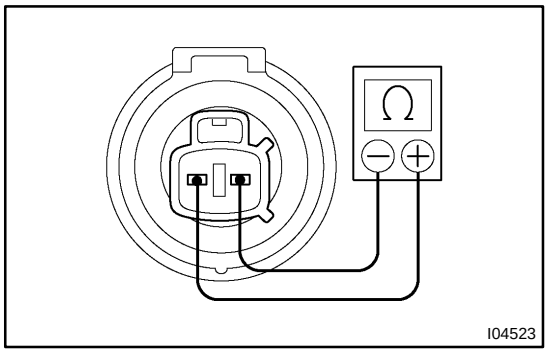


25. INSPECT WINDOW WASHER LEVEL WARNING LIGHT

(a) Disconnect the connector from the warning switch and ground terminal on the wire harness side connector.

(b) Engine running and check that the warning light lights up.

If the warning light does not light up, inspect the bulb or wire harness.

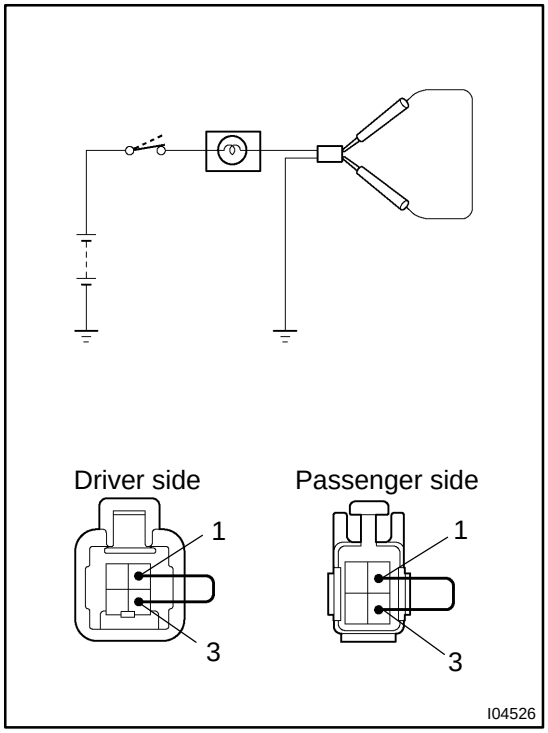


26. INSPECT WINDOW WASHER LEVEL WARNING SWITCH CONTINUITY

(a) Check that no continuity exists between the terminals with the switch OFF (float up).

(b) Check that continuity exists between the terminals with the switch ON (float down).

If operation is not as specified, replace the switch or inspect ground point.

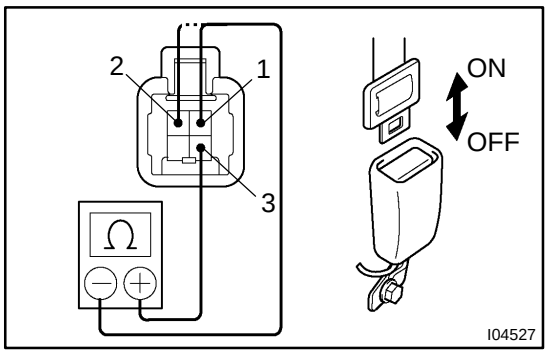


27. INSPECT SEAT BELT WARNING LIGHT

(a) Disconnect the connector from the buckle switch and ground terminal on the wire harness side connector as shown in the illustration.

(b) Turn the ignition switch ON and check that the warning light lights up.

If the warning light does not light up, check the bulb circuit (See page DI-619).

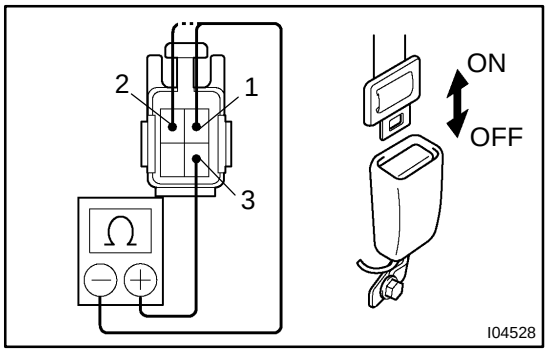


28. Driver's side:
INSPECT SEAT BELT BUCKLE SWITCH CONTINUITY

(a) Check that continuity exists between the terminals 2 and 3 on the switch side connector with the switch ON (belt fastened).

(b) Check that continuity exists between the terminals 1 and 3 on the switch side connector with the switch OFF (belt unfastened).

If operation is not as specified, replace the switch.



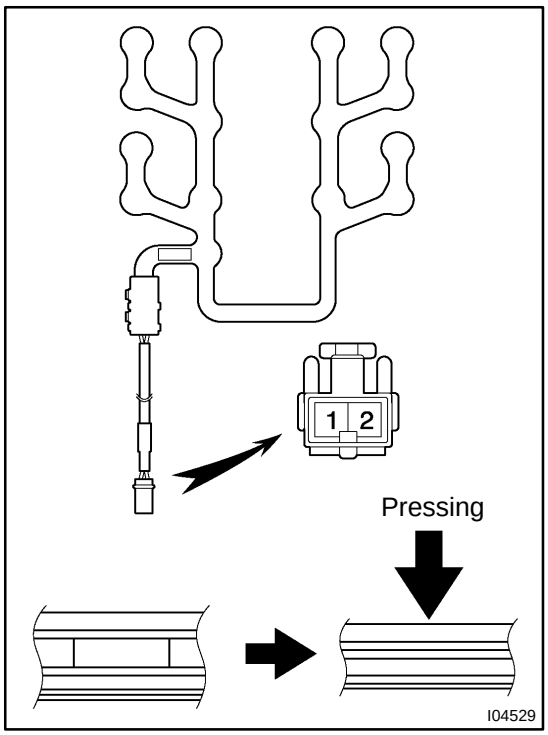
29. Passenger's side:
INSPECT SEAT BELT BUCKLE SWITCH CONTINUITY

(a) Check that continuity exists between the terminals 1 and 3 on the switch side connector with the switch ON (belt fastened).

(b) Check that continuity exists between the terminals 2 and 3 on the switch side connector with the switch OFF (belt unfastened).

If operation is not as specified, replace the switch.

30. Driver side:
INSPECT SEAT BELT BUCKLE SWITCH CIRCUIT (See page DI-657)



31. Passenger seat only:
INSPECT SEAT BELT WARNING OCCUPANT DETECTION SENSOR CONTINUITY

Check that continuity exists between the terminals 1 and 2 when pressing the sensing part.

If operation is not as specified, replace the sensor.

BE0C4-01

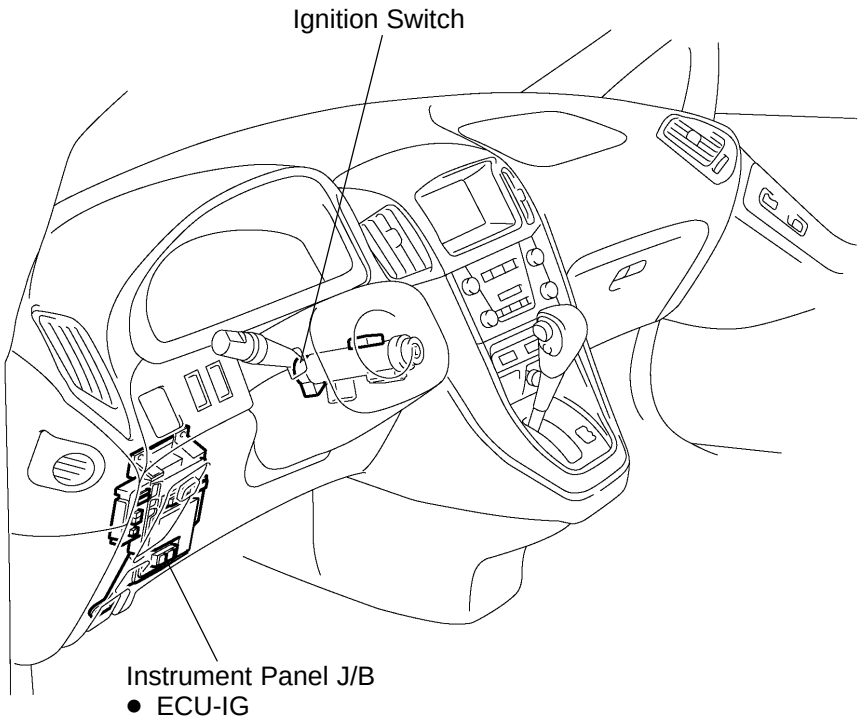
REASSEMBLY

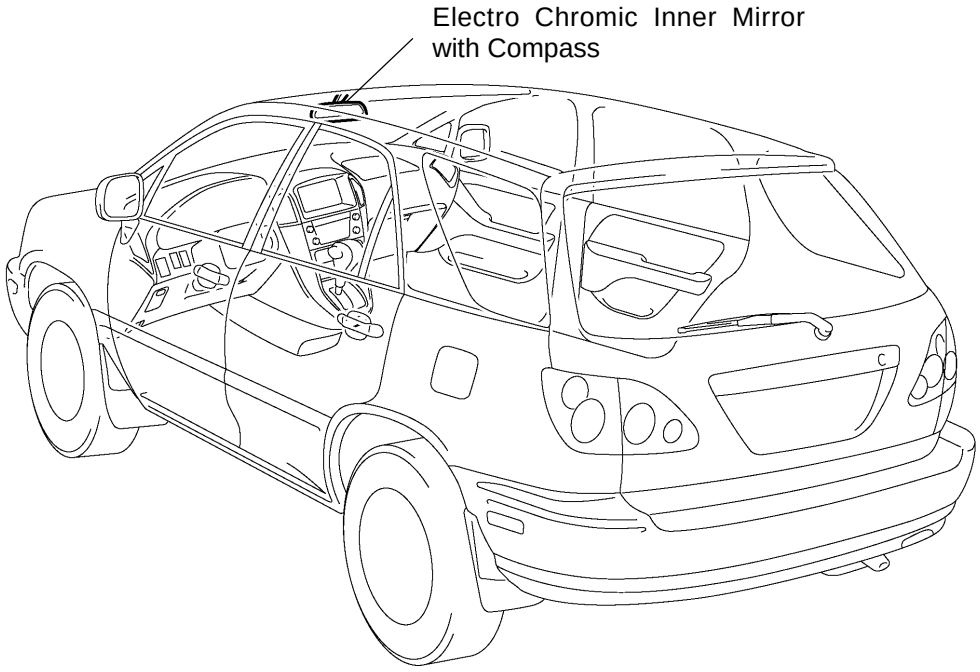
Installation is in the reverse order of disassembly. (See page BE-75)

COMPASS

LOCATION

BE0HC-09





Y

I21276

BE20K-01

PRE-CHECK

SETTING COMPASS

1. SELECTING COMPASS DISPLAY MODE

The mode select switch allows you to select a Display or Non-display mode of the compass.
The mode select is operated by the automatic glare-proof / non-glare proof switch on the inner mirror.

2. SETTING ZONE

Deviation between the magnetic north and ”actual north” differs depending on the terrestrial location, therefore, an adjustment in magnetism is required. Since the magnetic condition differs according to the area where the vehicle will be used, it is necessary for each user to set the zone. (Refer to ”Compass Zone Map”).
The zone setting can be changed using the mode select switch of the inner mirror.

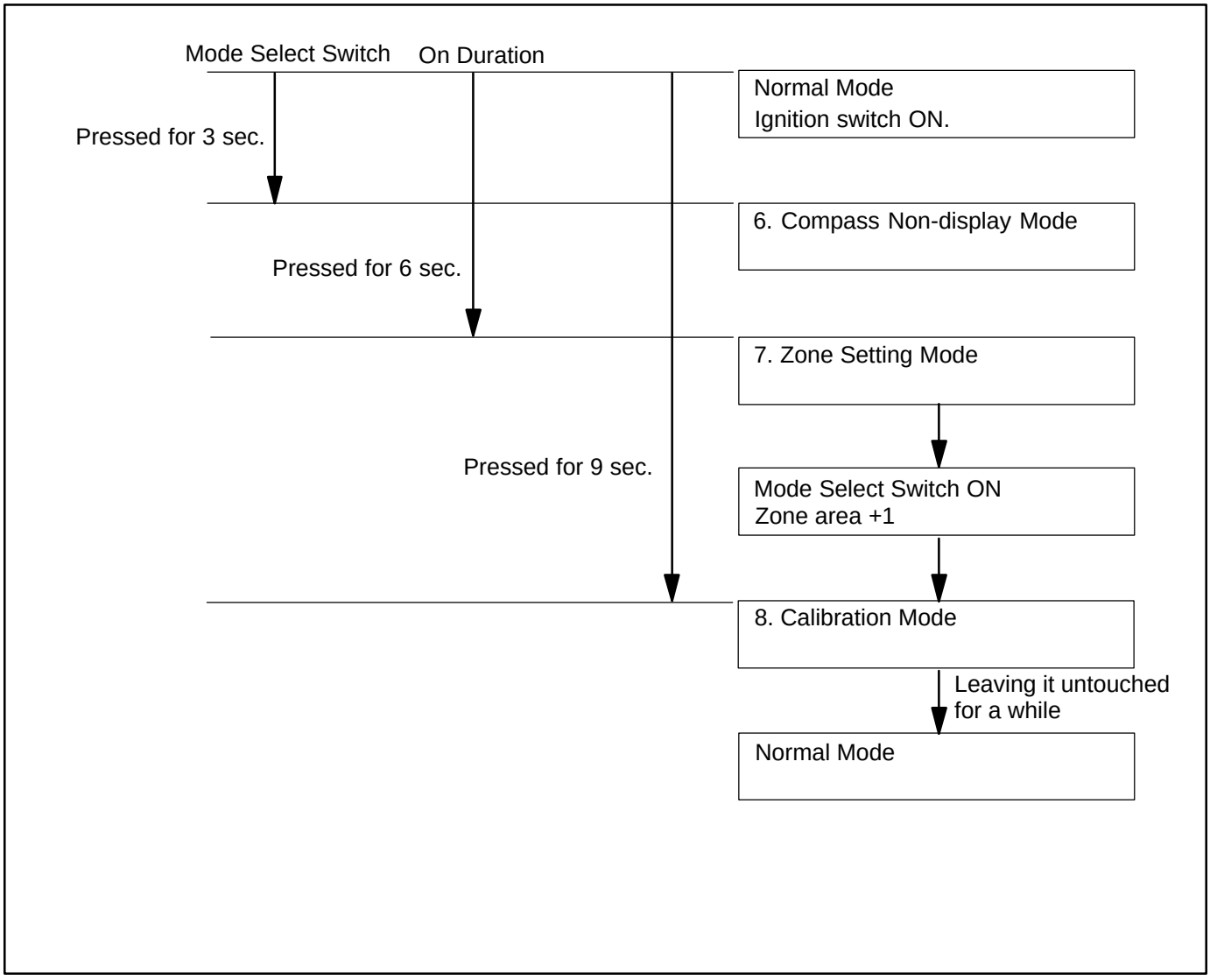
3. PERFORMING CALIBRATION

Because each vehicle has its own magnetized condition, calibration should be performed for each vehicle. This compass function is used when storing the record of the vehicle’s magnetized condition.

4. WHEN COMPASS MAGNETIZED:

A vehicle could be magnetized too much during shipping by vessels or freight cars. Before delivery, therefore, make sure to perform calibration and ensure that calibration can be done. If it cannot be done (cannot complete in spite of driving round several times), it may be caused by too much of magnetization. Demagnetize the vehicle using a demagnetizer and perform calibration again.

5. SETTING COMPASS



6. SELECTING DISPLAY MODE

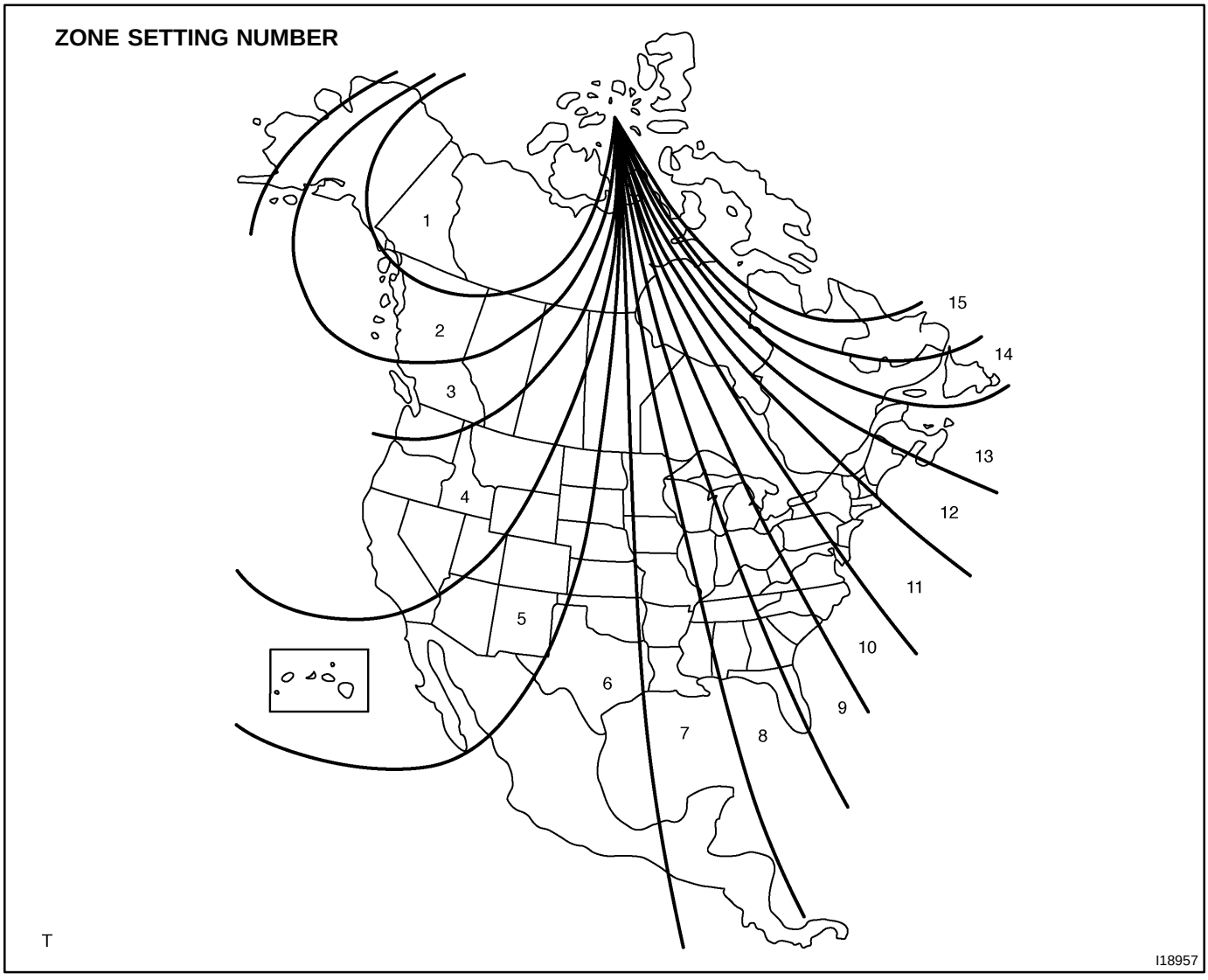
(a) Turn the ignition switch ON.
(b) Check that the LED on the inner mirror is lit (green).
(c) Check that the compass display indicates an azimuthal direction (N, NE, E, SE, S, SW, W, or NW) or "C".
(d) Pressing the mode select switch on the inner mirror for 3 sec. or more and less than 6 sec. erases the above mentioned display and activates the Non-display mode.

HINT:

- Immediately after pressing the mode select switch, the LED goes off activating the Non-glare-proof mode. However, when the switch remains pressed, the LED is lit again after 3 sec. and the system enters the automatic glare-proof mode.
- Keep pressing the mode select switch for 6 sec. or more and less than 9 sec. after selection of the compass display mode will activate the zone setting mode, showing a number (1-15) on the compass display.

7. ZONE SETTING MODE

(a) Pressing the mode select switch for 6 sec. or more and less than 9 sec. from the normal mode will activate the zone setting mode, showing a number (1-15) on the compass display.



HINT:

In the initial status, ”8” is displayed.

(b) The displayed number increases +1 every time the mode select switch is pressed. Referring to the map, check the number for the area where the vehicle will be used and set the zone number.

(c) Leave it untouched for several seconds after setting and check that the compass display shows an azimuthal direction (N, NE, E, SE, S, SW, W, or NW) or ”C”.

8. CALIBRATION SETTING MODE

(a) After the set zone is displayed, if the switch remains pressed another 3 sec. will activate the calibration setting mode.

(b) Pressing the switch for 9 sec. or more from the normal mode will also activate this mode.

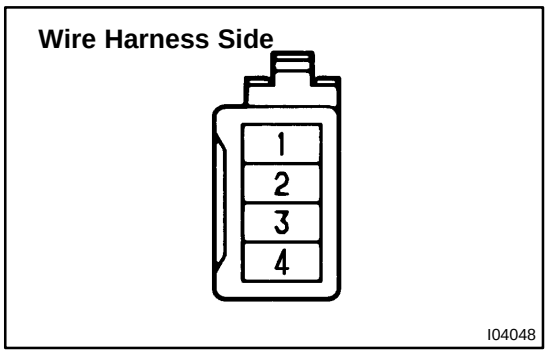
(c) Drive the vehicle at a slow speed of 8 km/h (5 MPH) or less in the circular direction.

(d) Driving round the circle 1 to 3 times will display the azimuthal direction on the display, completing the calibration.

HINT:

Once calibration is completed, it is not necessary to perform the above procedures unless the magnetic field strength is drastically changed. If this happens, the azimuthal display will be changed to ”C”.

BE20L-02



INSPECTION

INSPECT COMPASS CIRCUIT

Disconnect the connector from the mirror and inspect the connector on the wire harness side, as shown.

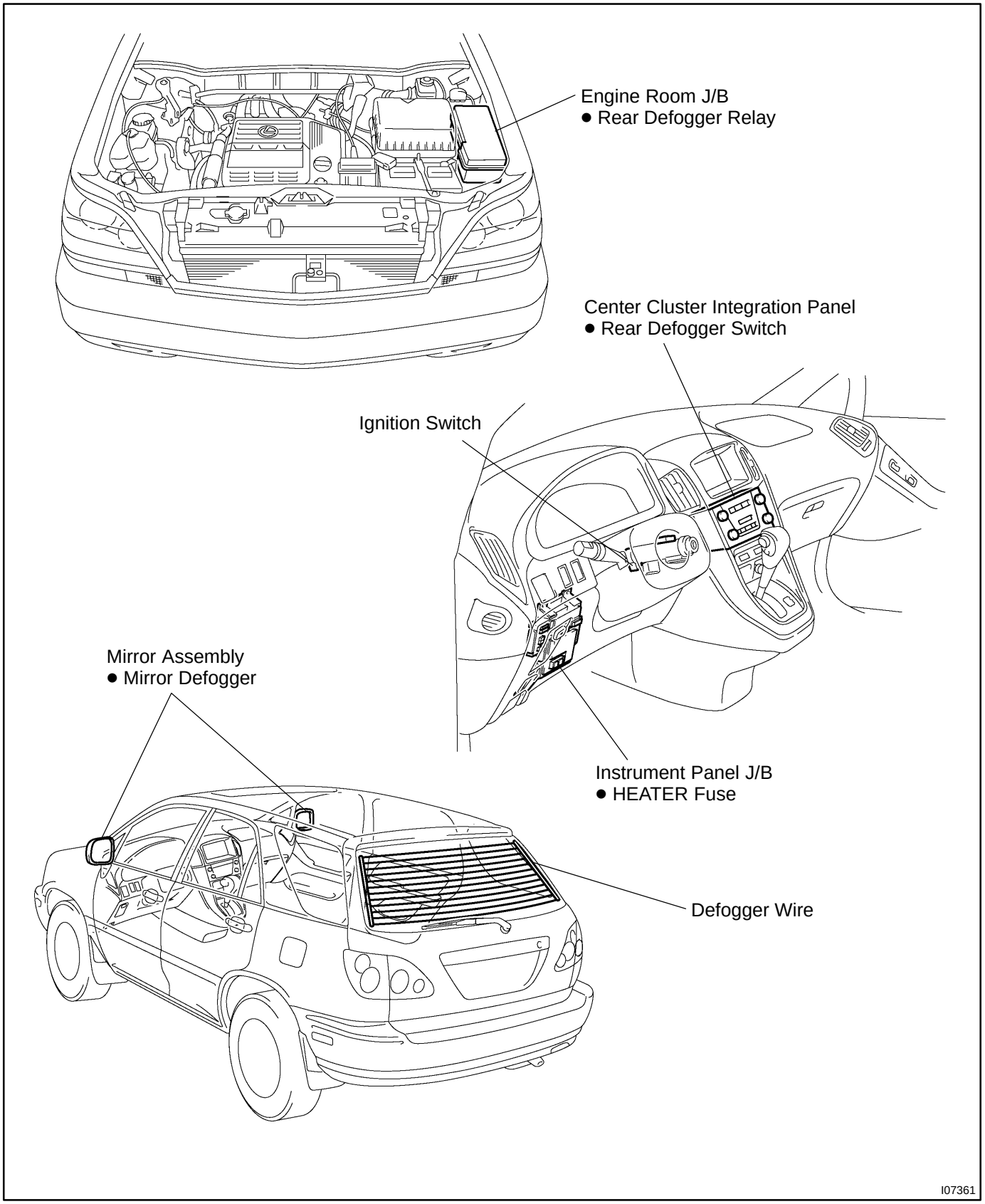
Tester connection	Condition	Specified condition
4 - Ground	Constant	Continuity
1 - Ground	Ignition switch LOCK or ACC	No voltage
1 - Ground	Ignition switch ON	Battery positive voltage

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

DEFOGGER SYSTEM

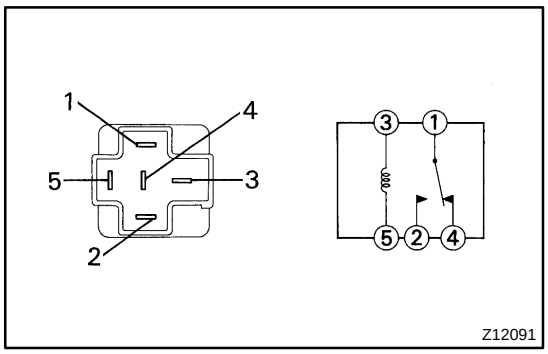
BE0GS-17

LOCATION



BE2BB-01

INSPECTION



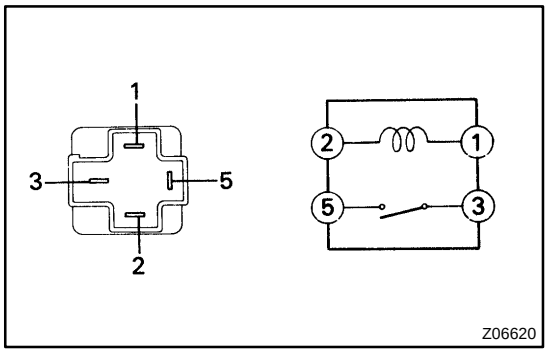
1. INSPECT REAR DEFOGGER RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 4 3 - 5	Continuity
Apply B+ between terminals 3 and 5.	1 - 2	Continuity

If continuity is not as specified, replace the relay.

2. INSPECT REAR DEFOGGER RELAY CIRCUIT

(See page BE-20)



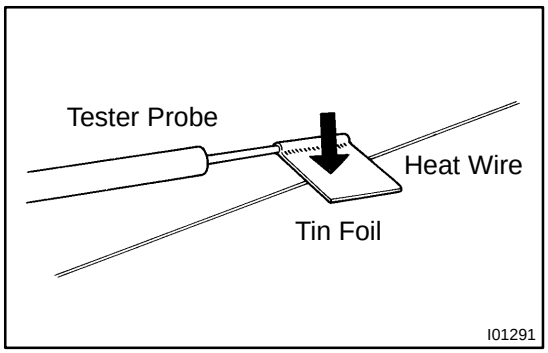
3. INSPECT MIRROR DEFOGGER RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.

4. INSPECT MIRROR DEFOGGER RELAY CIRCUIT

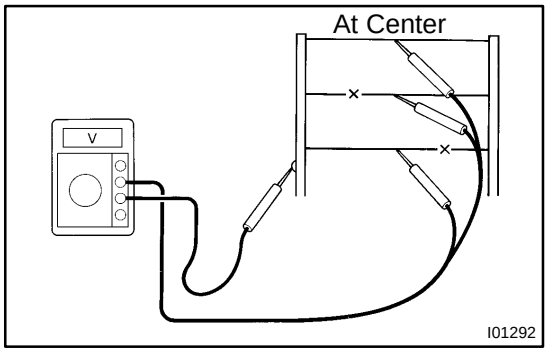
(See page BE-20)



5. INSPECT DEFOGGER WIRE

NOTICE:

- **When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.**
- **Do not use detergents or glass cleaners with abrasive ingredients.**
- **When measuring voltage, wrap a piece of tin foil around the tip of the negative probe and press the foil against the wire with your finger, as shown.**

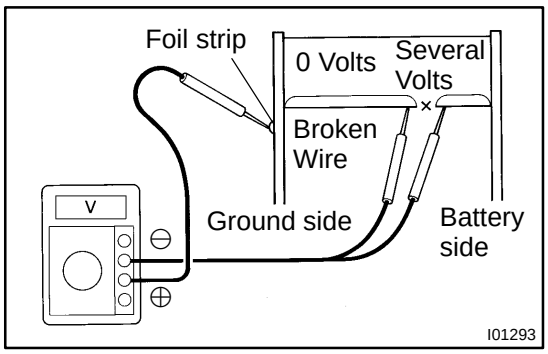


(a) Turn the ignition switch ON.

(b) Turn the defogger switch ON.

(c) Inspect the voltage at the center of each heat wire, as shown.

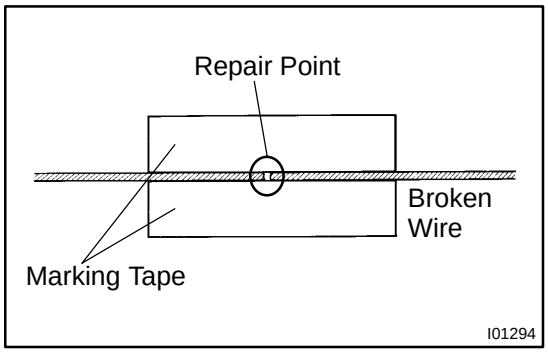
Voltage	Criteria
Approx. 5V	Okay (No break in wire)
Approx. 10V or 0V	Broken wire



HINT:
If there is approximately 10 V, the wire is broken between the center of the wire and the positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.

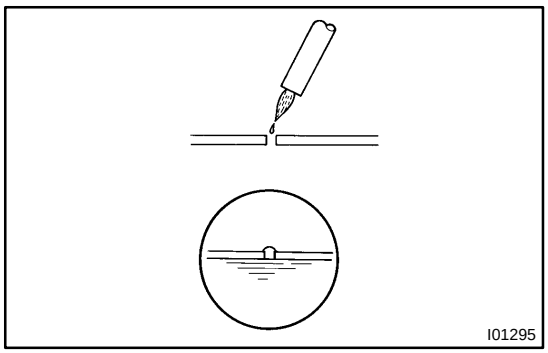
(d) Place the voltmeter positive (+) lead against the defogger wire on the battery side.
(e) Place the voltmeter negative (-) lead with the foil strip against the wire on the ground side.
(f) Slide the positive (+) lead from battery to ground side.
(g) The point where the voltmeter deflects from several V to zero V is the place where the defogger wire is broken.

HINT:
If the heat wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the heat wire but gradually increases to about 12 V as the meter probe moves to the other end.

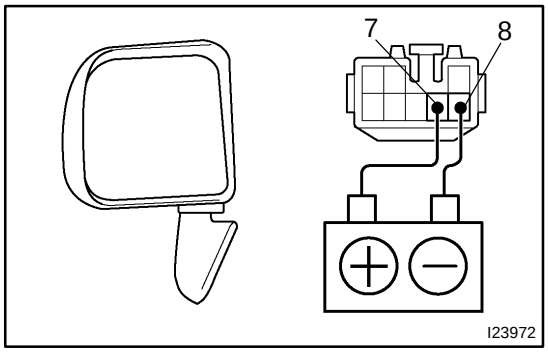


6. IF NECESSARY, REPAIR DEFOGGER WIRE

(a) Clean the broken wire tips with grease, wax and silicone remover.
(b) Place the masking tape along both sides of the wire for repair.
(c) Thoroughly mix the repair agent (Dupont paste No. 4817).



(d) Using a fine tip brush, apply a small amount of the agent to the wire.
(e) After a few minutes, remove the masking tape.
(f) Do not repair the defogger wire for at least 24 hours.



7. INSPECT MIRROR DEFOGGER OPERATION

(a) Connect the positive (+) lead from the battery to terminal 7 and the negative (-) lead to terminal 8.
(b) Check that the mirror becomes warm.

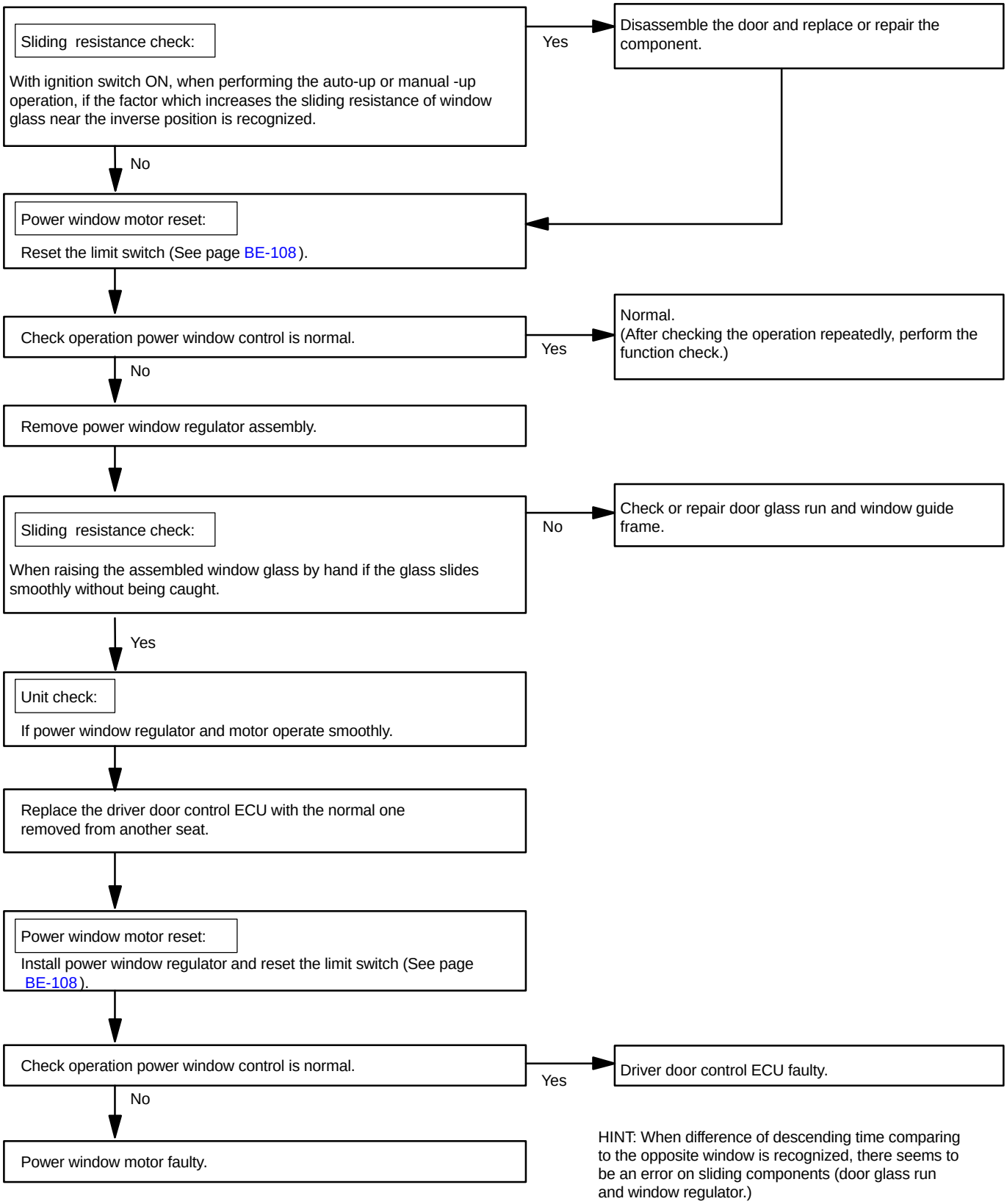
HINT:
It will take a short time for the mirror to become warm.

POWER WINDOW CONTROL SYSTEM

TROUBLESHOOTING

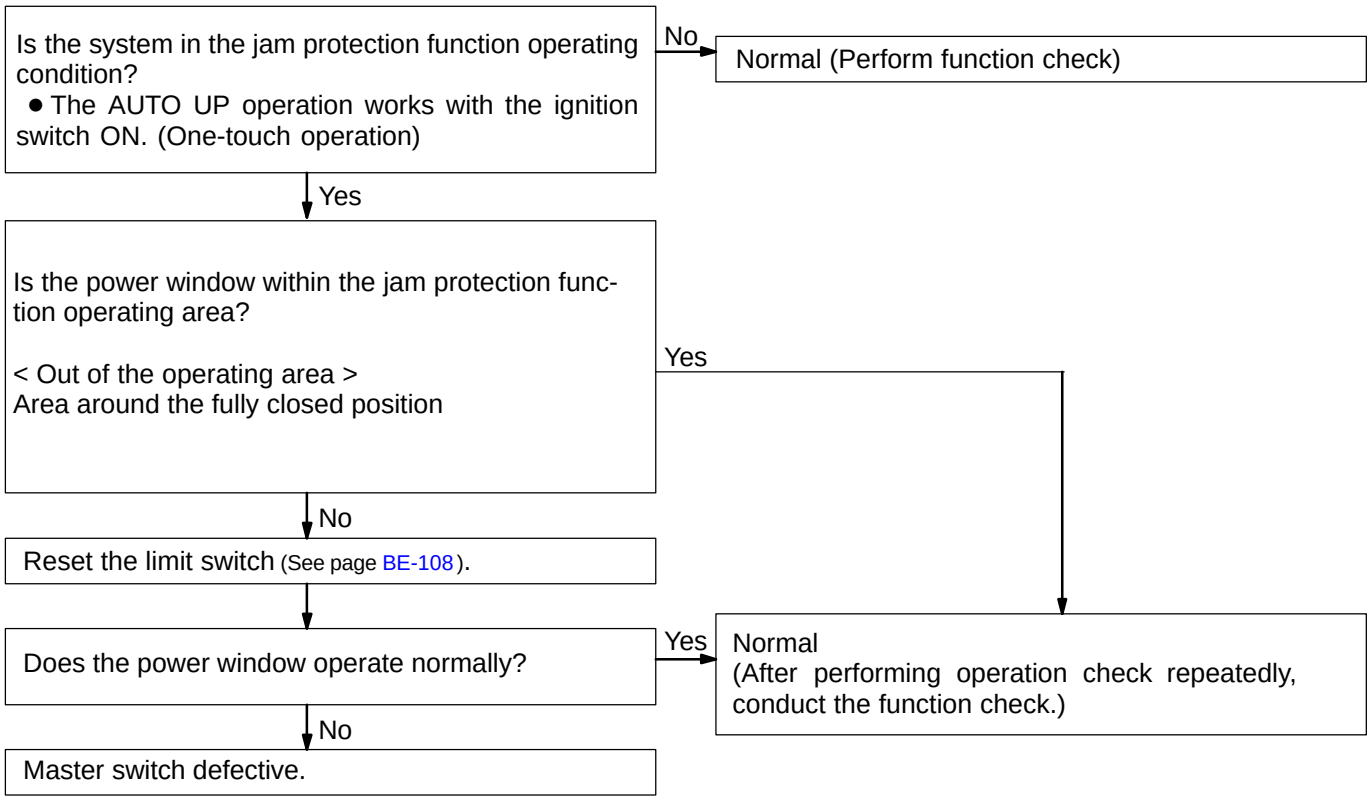
BE02C-13

1	The window moves down during the up operation.



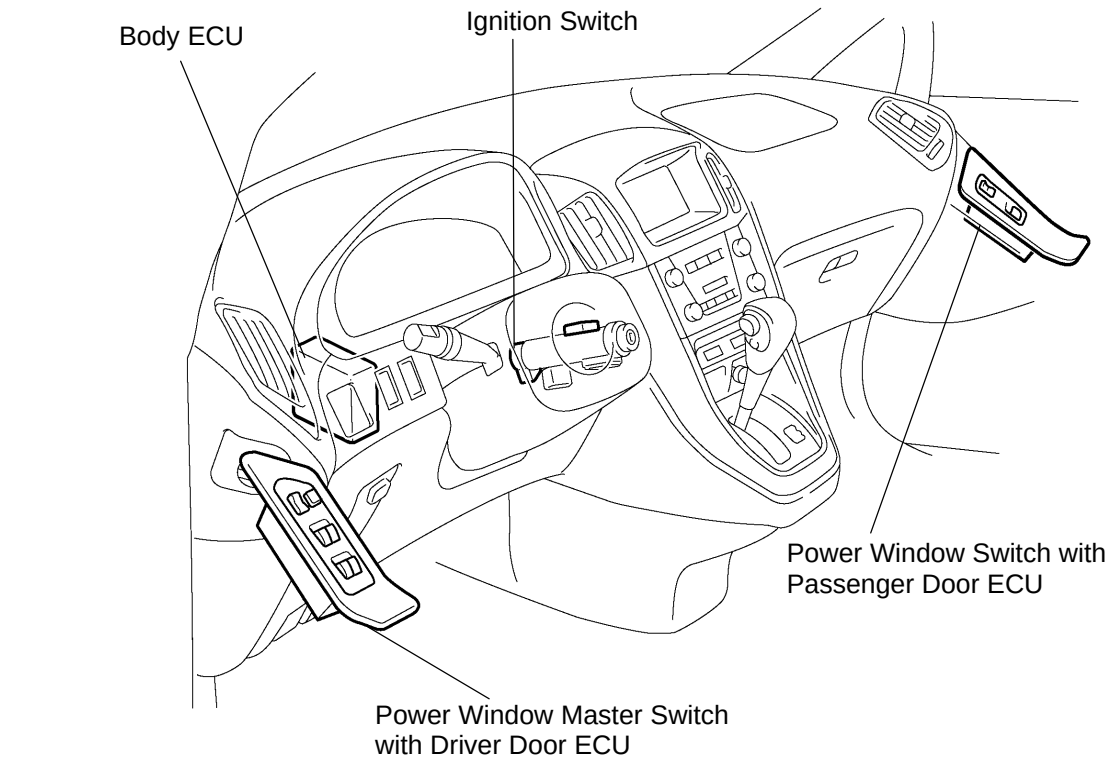
HINT: When difference of descending time comparing to the opposite window is recognized, there seems to be an error on sliding components (door glass run and window regulator.)

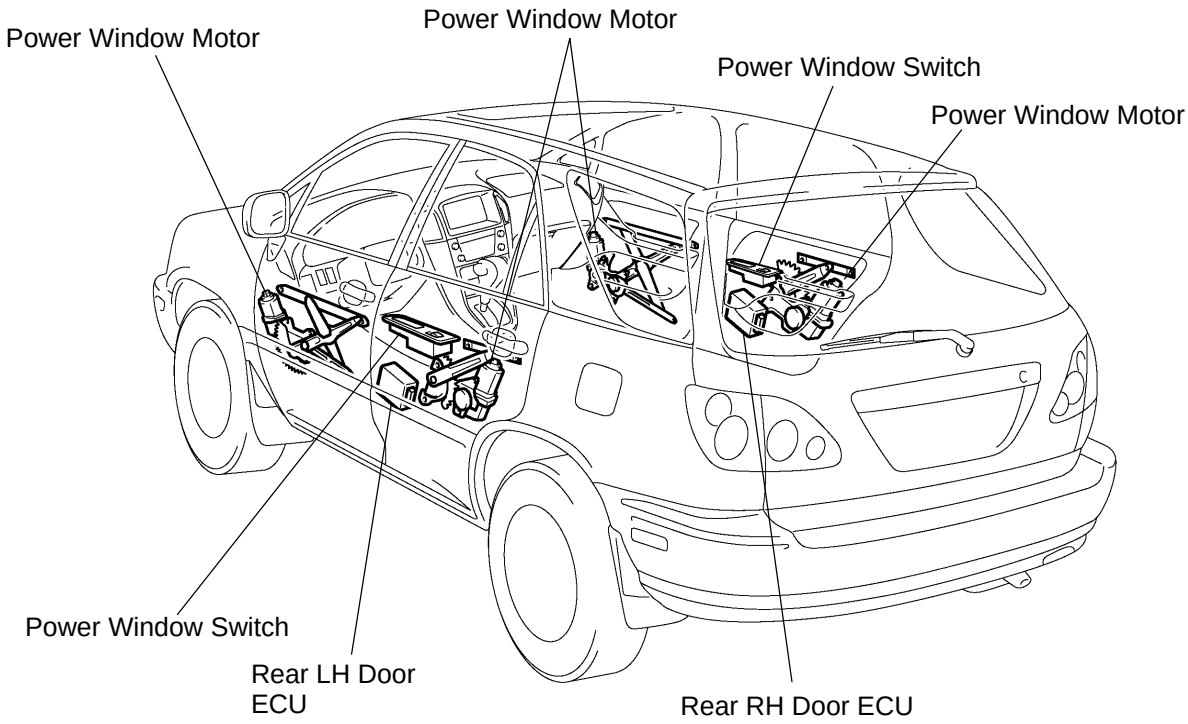
2	**The DOWN function does not work though some other objects are caught in the power window glass.**



BE0HE-14

LOCATION

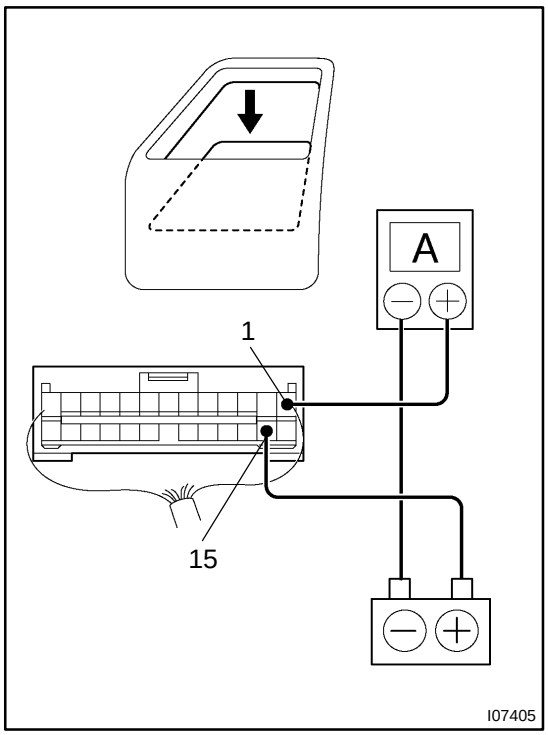




I07362

BE0UG-05

INSPECTION



1. INSPECT ONE TOUCH POWER WINDOW SYSTEM/ CURRENT OF CIRCUIT (Using an ammeter)

(a) Disconnect the connector from the power window master switch.

(b) Connect the positive (+) lead from the ammeter to terminal 1 on the wire harness side connector and the negative (-) lead to negative (-) terminal of the battery.

(c) Connect the positive (+) lead from the battery to terminal 15 on the wire harness side connector.

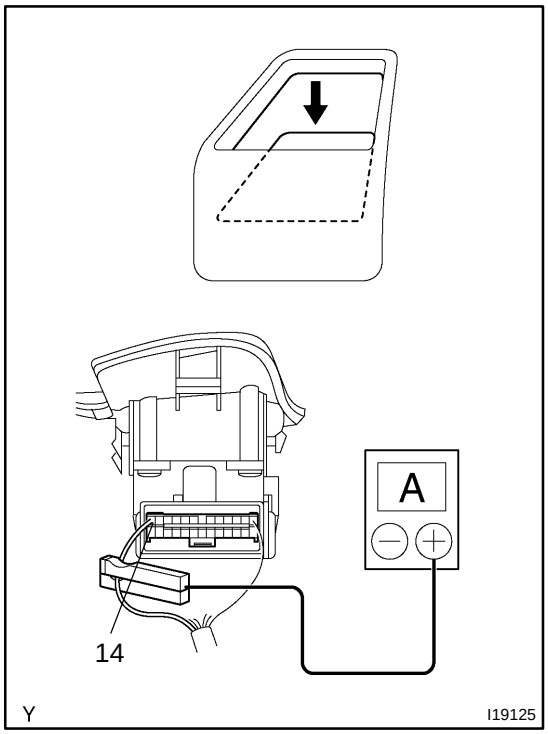
(d) As the window goes down, check that the current flow is approximately 7 A.

(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

HINT:

The PTC opens some 4 - 90 seconds after the window stops going down, so that check must be made before the PTC operates.

If the operation is as specified, replace the master switch.



2. INSPECT ONE TOUCH POWER WINDOW SYSTEM/ CURRENT OF CIRCUIT (Using an ammeter with a current-measuring probe)

(a) Remove the power window master switch with connectors connected.

(b) Attach a current-measuring probe to terminal 14 of the wire harness.

(c) Turn the ignition switch ON and set the power window switch in the down position.

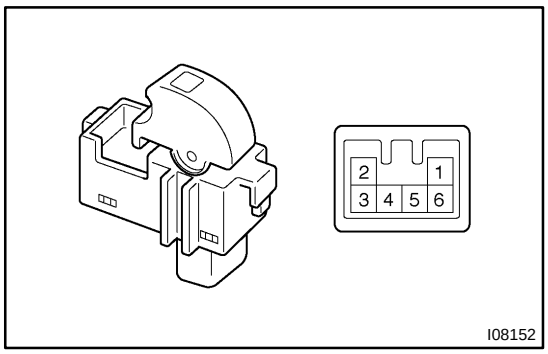
(d) As the window goes down, check that the current flow is approximately 7 A.

(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

HINT:

The PTC opens some 4 - 90 seconds after the window stops going down, so that check must be made before the PTC operates.

If operation is as specified, replace the master switch.



3. INSPECT POWER WINDOW SWITCH CONTINUITY

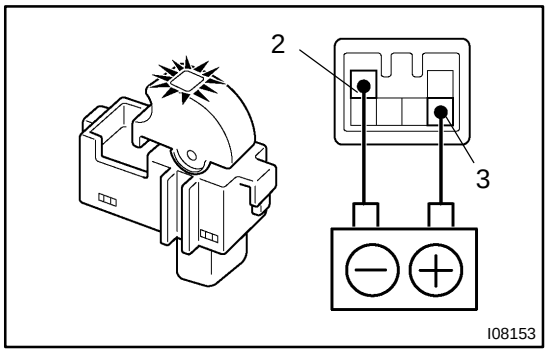
Switch position	Tester connection	Specified condition
UP AUTO	3 - 4, 3 - 6	Continuity
UP	3 - 6	Continuity
OFF	-	No continuity
DOWN	5 - 6	Continuity
DOWN AUTO	4 - 6, 5 - 6	Continuity

If continuity is not as specified, replace the switch.

4. INSPECT POWER WINDOW SWITCH CIRCUIT

Rear LH: (See page DI-738)

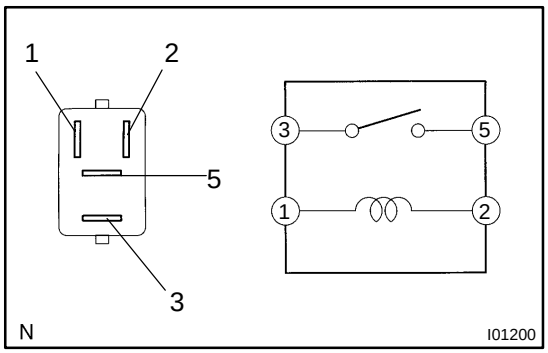
Rear RH: (See page DI-755)



5. INSPECT POWER WINDOW SWITCH ILLUMINATION

Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 2, and check that the indicator light lights up.

If operation is not as specified, replace the switch.



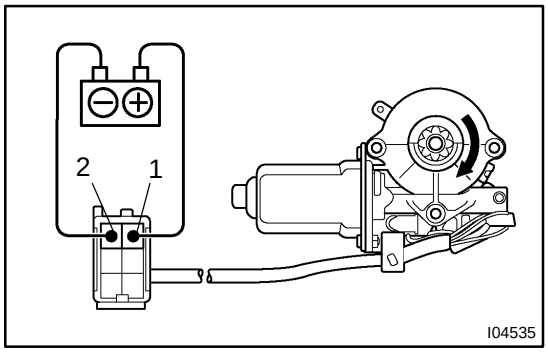
6. INSPECT POWER MAIN RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.

7. INSPECT POWER MAIN RELAY CIRCUIT

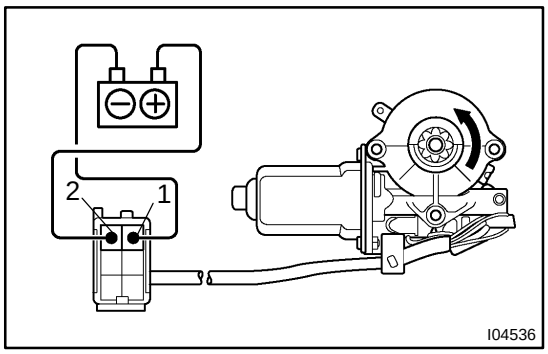
(See page BE-20)



8. Driver's door:

INSPECT POWER WINDOW MOTOR OPERATION

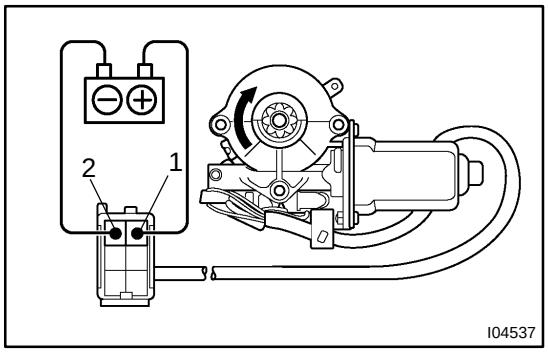
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the motor turns clockwise.



(b) Reverse the polarity, check that the motor turns counter-clockwise.

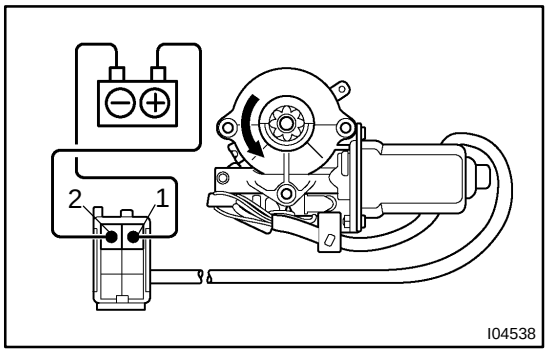
If operation is not as specified, replace the motor.

9. Driver's door:
INSPECT POWER WINDOW MOTOR CIRCUIT
(See page DI-695)



10. Front passenger's door:
INSPECT POWER WINDOW MOTOR OPERATION

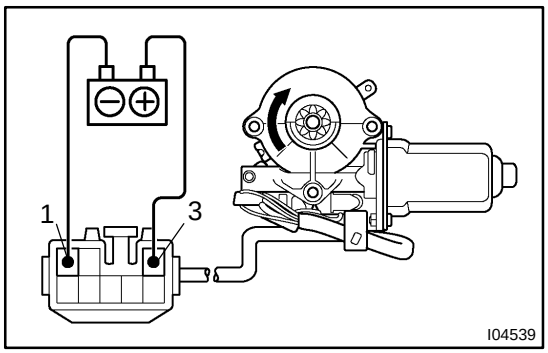
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the motor turns clockwise.



(b) Reverse the polarity, check that the motor turns counter-clockwise.

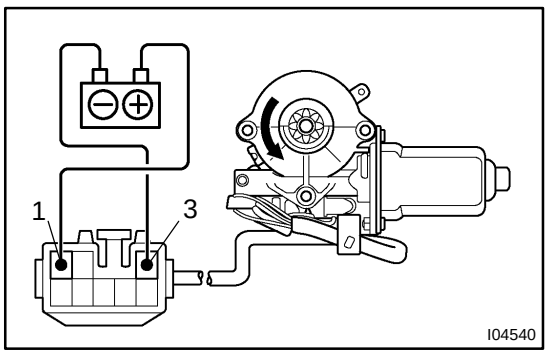
If operation is not as specified, replace the motor.

11. Front passenger's door:
INSPECT POWER WINDOW MOTOR CIRCUIT
(See page DI-717)



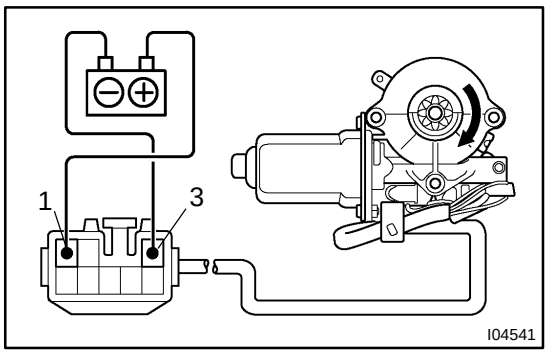
12. Rear LH door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1, and check that the motor turns clockwise.



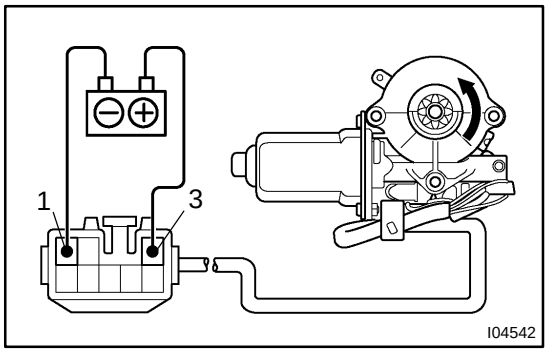
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



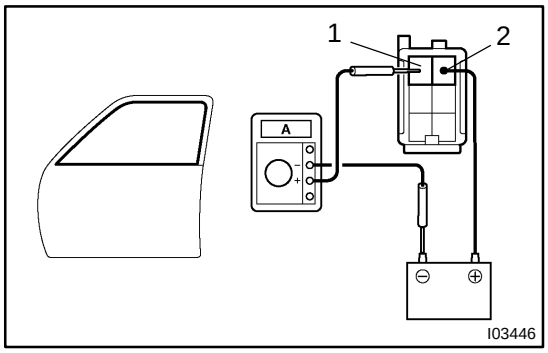
13. Rear RH door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 3, and check that the motor turns clockwise.



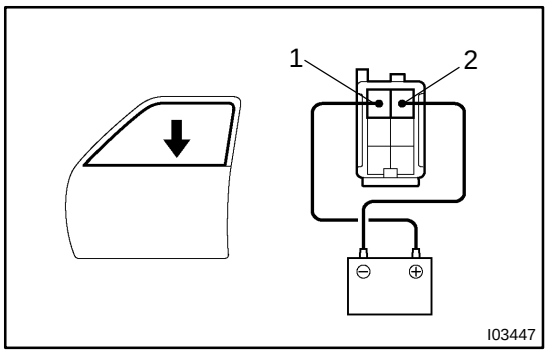
(b) Reverse the polarity, check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.



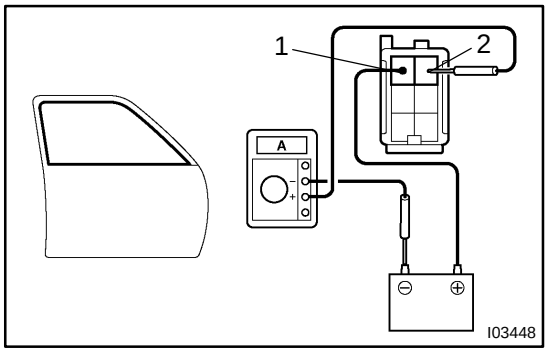
14. INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION
Driver's door:

(a) Disconnect the connector from the power window motor.
(b) Connect the positive (+) lead from the ammeter to terminal 1 on the wire harness side connector and the negative (-) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 2 on the wire harness side connector, and raise the window to the fully position.



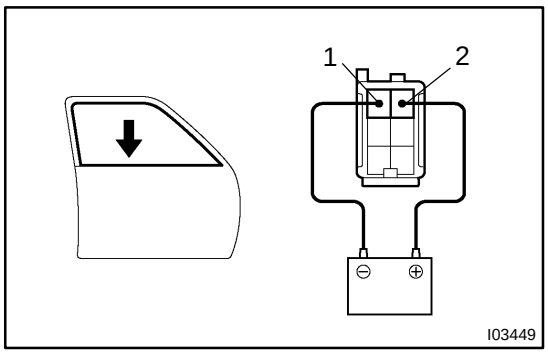
(d) Continue to apply voltage, and check that the current changes to less than 1 A with 4 to 90 seconds.
(e) Disconnect the leads from terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 2, and check that the window begins to descended.

If operation is not as specified, replace the motor.



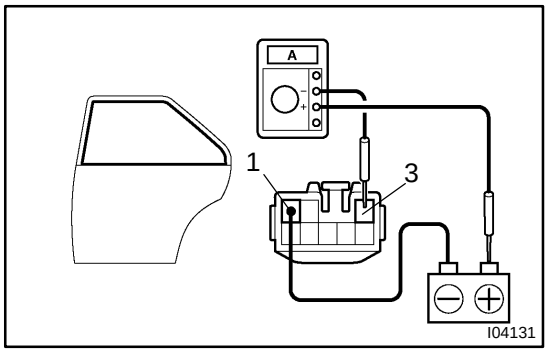
15. INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION
Front passenger's door:

(a) Disconnect the connector from the power window motor.
(b) Connect the positive (+) lead from the ammeter to terminal 2 on the wire harness side connector and the negative (-) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 1 on the wire harness side connector, and raise the window to the fully position.



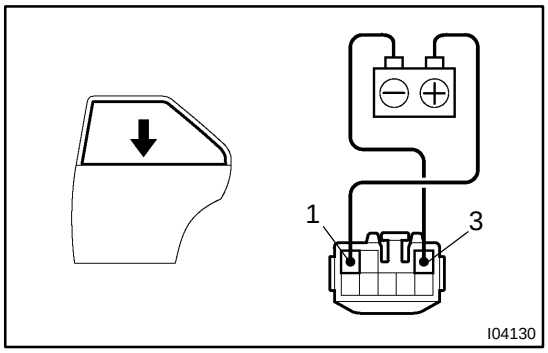
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.



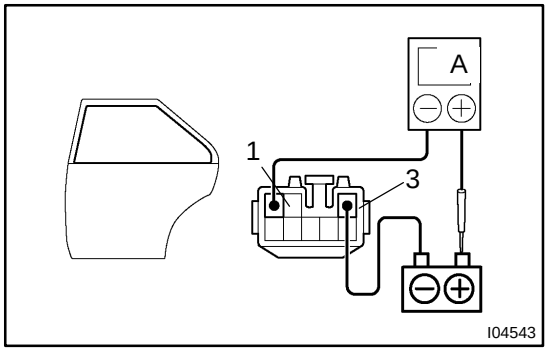
16. Rear LH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the power window motor.
(b) Connect the negative (-) lead from the ammeter to terminal 3 on the wire harness side connector and the positive (+) lead to positive terminal of the battery.
(c) Connect the negative (-) lead from the battery to terminal 1 on the wire harness side connector, and raise the window to the fully position.



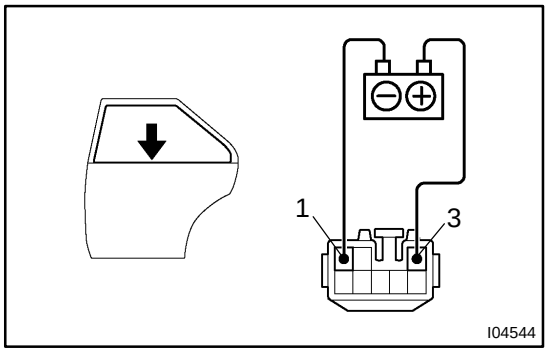
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 3, and check that the window begins to descend.

If operation is not as specified, replace the motor.



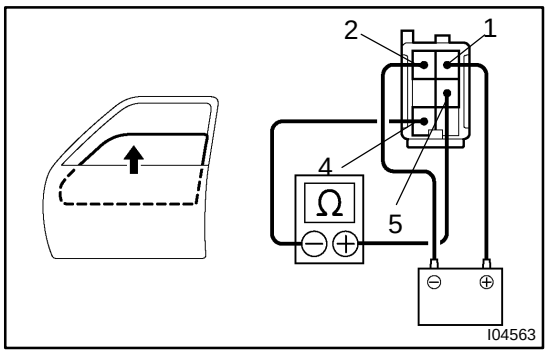
17. INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION
Rear RH door:

(a) Disconnect the connector from the power window motor.
(b) Connect the negative (-) lead from the ammeter to terminal 1 on the wire harness side connector and the positive (+) lead to positive terminal of the battery.
(c) Connect the negative (-) lead from the battery to terminal 3 on the wire harness side connector, and raise the window to the fully position.



(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.

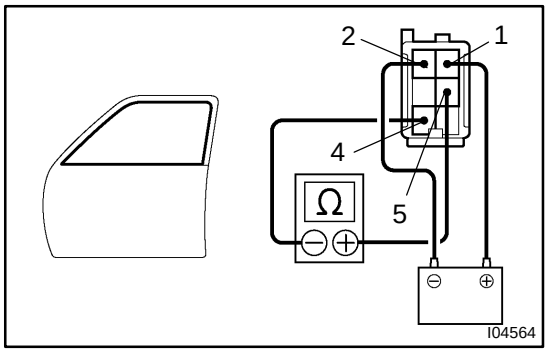


18. Driver's door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (-) lead from the ohmmeter to terminal 4 and the positive (+) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

(c) Check that the continuity exists when the window goes up.

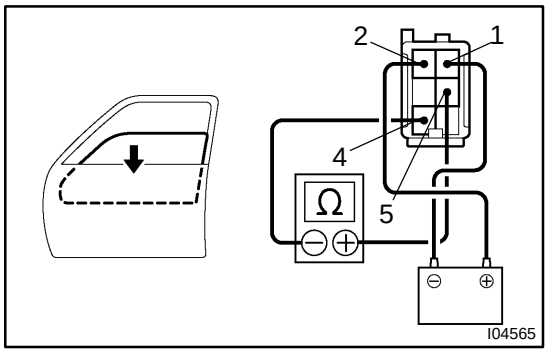


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

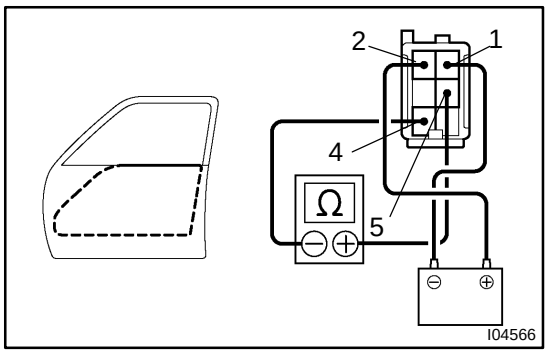


19. Driver's door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (-) lead from the ohmmeter to terminal 4 and the positive (+) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1.

(c) Check that the continuity exists when the window goes down.



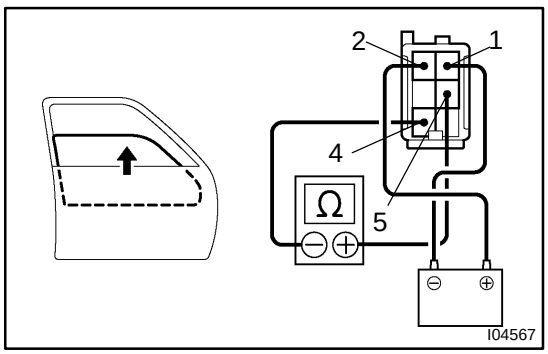
(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

20. Driver's door:
INSPECT JAM PROTECTION LIMIT SWITCH CIRCUIT
(See page DI-697)

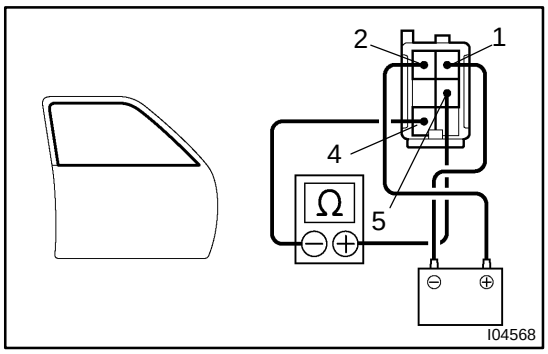


21. Front passenger's door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (-) lead from the ohmmeter to terminal 4 and the positive (+) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1.

(c) Check that the continuity exists when the window goes up.

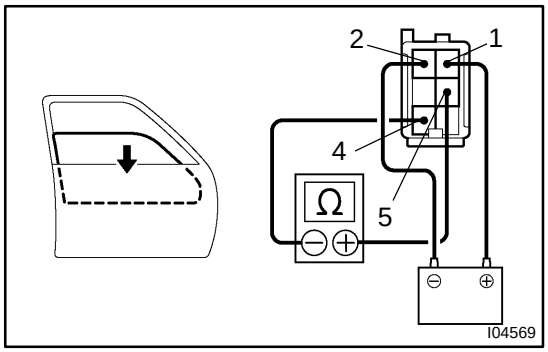


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

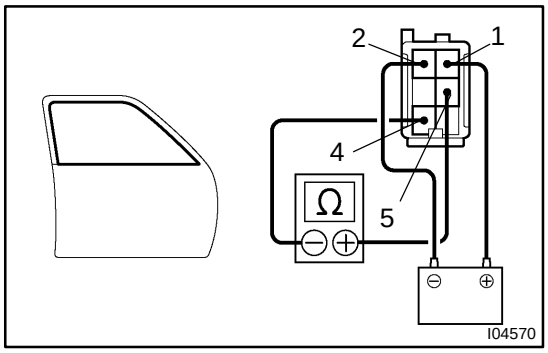


22. Front passenger's door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (-) lead from the ohmmeter to terminal 4 and the positive (+) lead to terminal 5.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

(c) Check that the continuity exists when the window goes down.



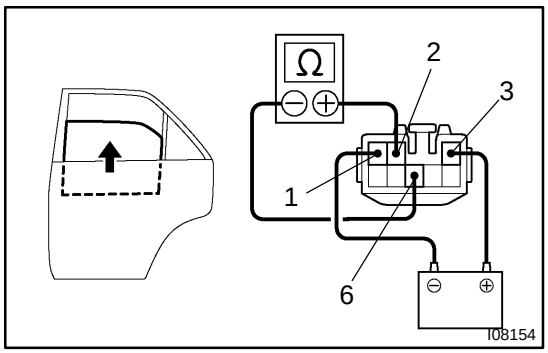
(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

23. Passenger's door:
INSPECT JAM PROTECTION LIMIT SWITCH CIRCUIT
(See page DI-719)

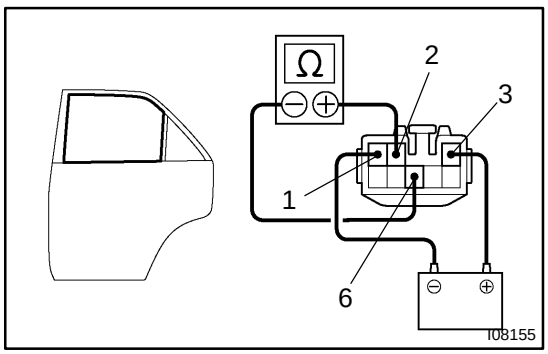


24. Rear LH door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1.

(c) Check that the continuity exists when the window goes up.

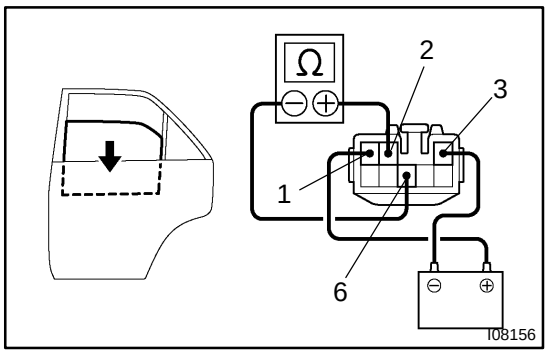


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

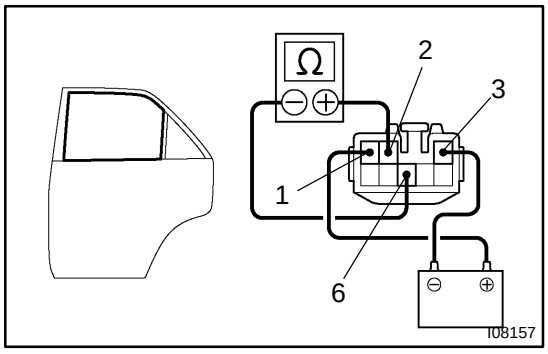


25. Rear LH door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 3.

(c) Check that the continuity exists when the window goes down.

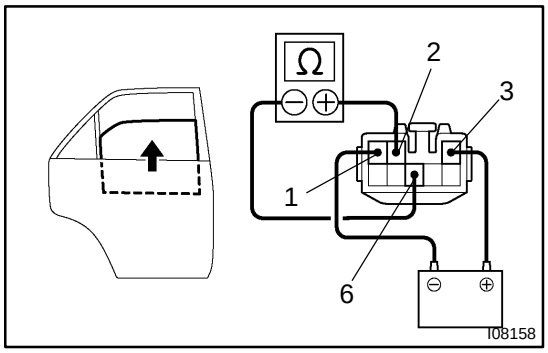


(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

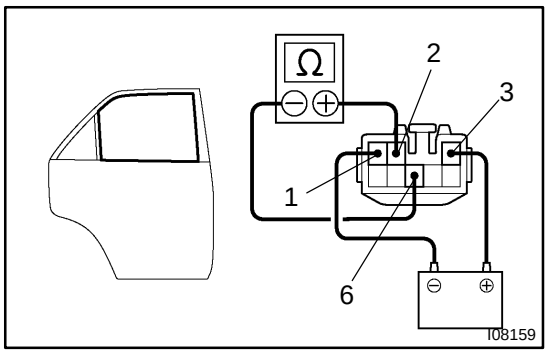


26. Rear RH door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1.

(c) Check that the continuity exists when the window goes up.

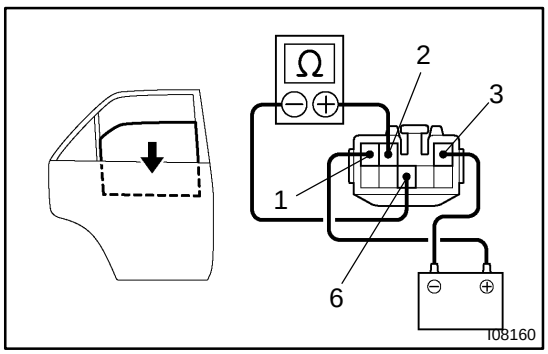


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

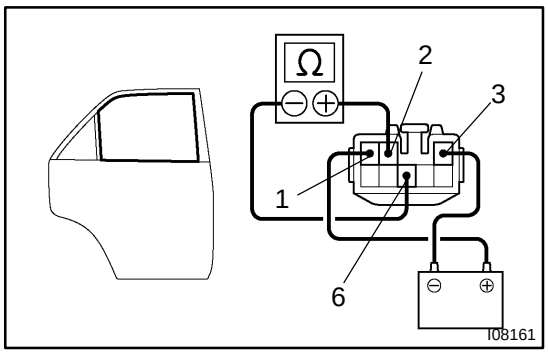


27. Rear RH door (Window Down):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 3.

(c) Check that the continuity exists when the window goes down.

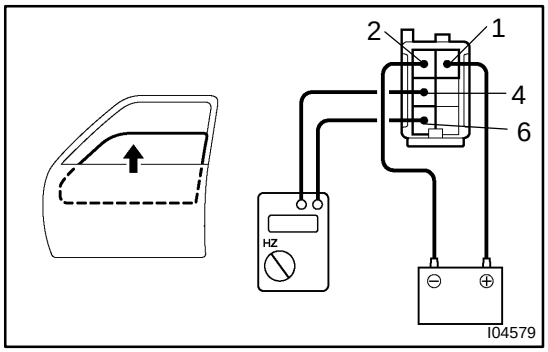


(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.



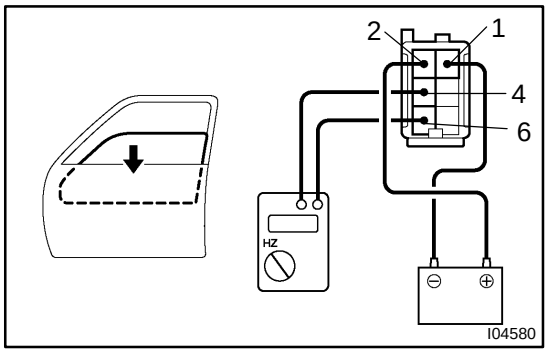
28. Driver's door:

INSPECT JAM PROTECTION PULSE SWITCH OPERATION

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 4 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

(c) Check that pulse is generated during the motor running.



(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

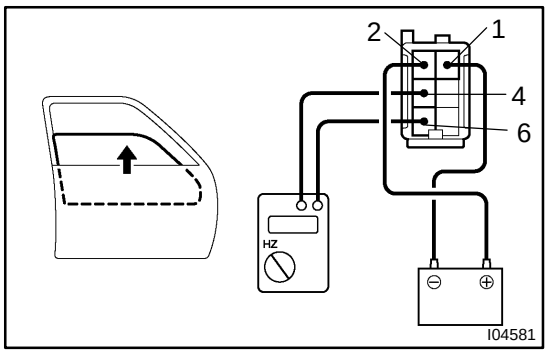
NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

29. Driver's door:

INSPECT JAM PROTECTION PULSE SWITCH CIRCUIT

(See page DI-699)



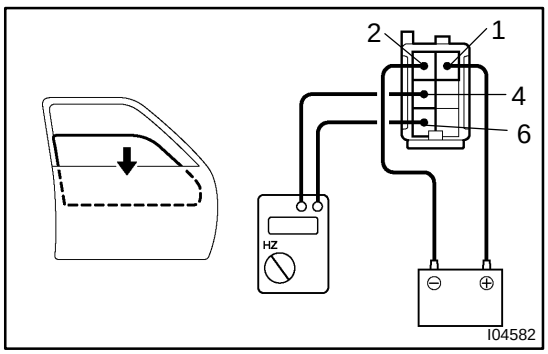
30. Front passenger's door:

INSPECT JAM PROTECTION PULSE SWITCH OPERATION

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 4 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1.

(c) Check that pulse is generated during the motor running.



(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

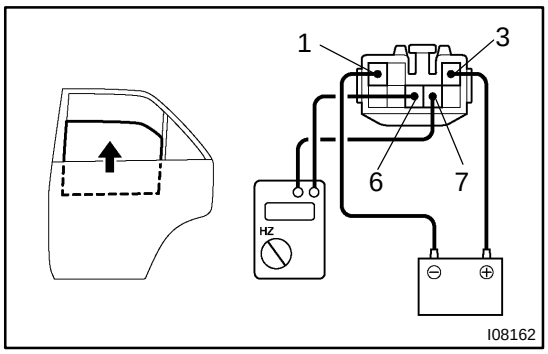
NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

31. Front passenger's door:

INSPECT JAM PROTECTION PULSE SWITCH CIRCUIT

(See page DI-721)

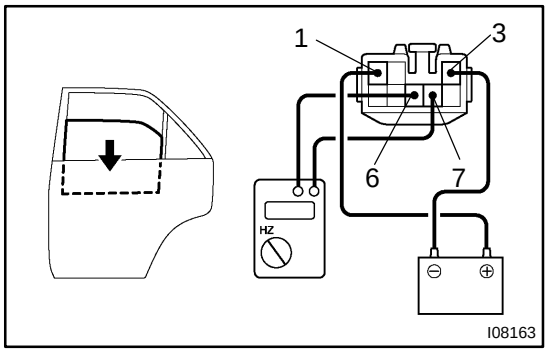


32. Rear LH door:
INSPECT JAM PROTECTION PULSE SWITCH

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 7 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1.

(c) Check that pulse is generated during the motor running.

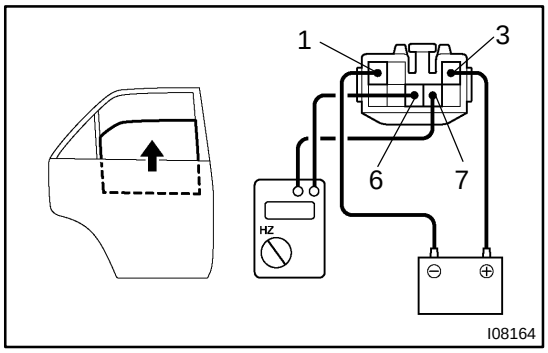


(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

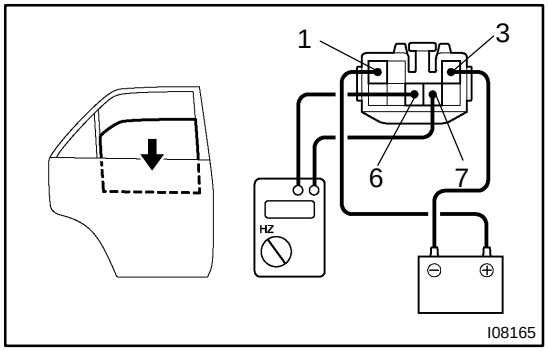


33. Rear RH door:
INSPECT JAM PROTECTION PULSE SWITCH

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 7 and the negative (-) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1.

(c) Check that pulse is generated during the motor running.



(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

NOTICE:

If connecting the wire harness wrongly, the sensor might be damaged so caution is necessary.

34. CHECKING OF THE JAM PROTECTION FUNCTION

NOTICE:

Never, ever be caught any part of your body when checking.

HINT:

In case of performing resetting of the limit switch, do checking after repeating up and down of the glass with automatic operation.

(a) Confirmation of AUTO up operation:
Confirm that the window will be fully close with AUTO up operation.

(b) Checking of the operation of the jam protection function:

(1) Move up the window with AUTO up operation and check that the window will go down when it touches the handle of the hammer stetted.

(2) Confirm that the window will then stop going down about 200 mm.

HINT:

In case of removing the glass, glass guide, regulator and etc. be sure to perform checking of the jam protection function.

If the jam protection is not function properly, adjust power window motor reset switch and pulse switch.

BE0HG-24

ADJUSTMENT

HOW TO RESET POWER WINDOW MOTOR (RESET LIMIT SWITCH AND PULSE SWITCH)

If the jam protection is not functioned properly, perform the following procedure.

HINT:

If is necessary to reset the power window motor (in initial position for the limit switch) when separating the window regulator from the power window motor or operating the window regulator with the door glass not installed.

(a) Remove the power window motor. (See page BO-15 , BO-24)

HINT:

Place the matchmarks on the power window motor and window regulator gear.

(b) Connect the power window motor an power window switch to wire harness of the vehicle.

(c) Turn the ignition switch ON and operate the power window switch to idle the power window motor in UP side direction for more than 6 rotations or less than 10 rotates (4 seconds or more).

(d) Assemble the power window motor and regulator.

HINT:

- Install the motor when the regulator arm is below the middle point.
- Align the matchmarks on the power window motor and window regulator gear when install the power window motor.

(e) Assemble the power window regulator and door glass.

HINT:

Never rotate the motor to the down direction until the completion of the window glass installation.

(f) Connect power window switch to wire harness and turn the ignition switch ON.

(g) Repeat UP and DOWN operation several times manually.

(h) Check if AUTO UP → AUTO DOWN operates in automatic operation.

HINT:

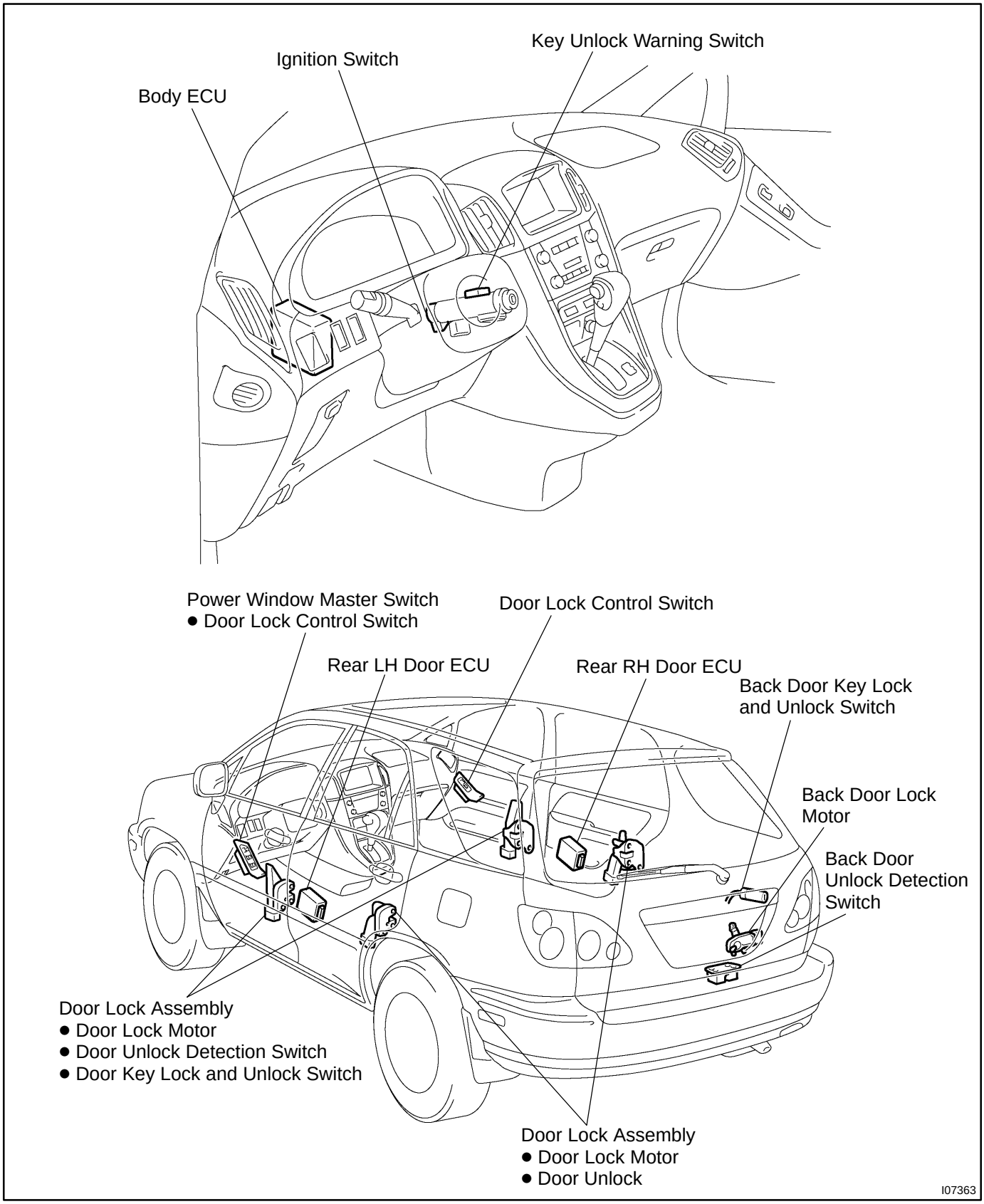
- Take care that the jam protection function does not operate just after resetting.
- Reset the regulator again when performing the reverse operating after closing the window fully by AUTO UP operation.

(i) Check the power window function.

POWER DOOR LOCK CONTROL SYSTEM

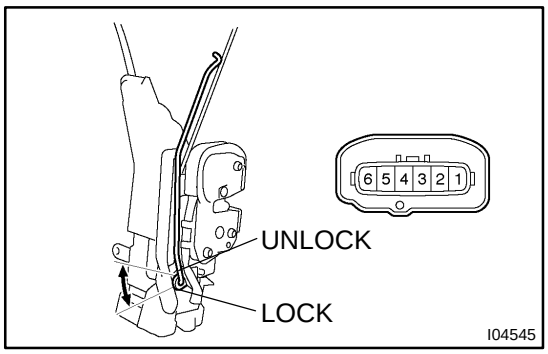
LOCATION

BE0HQ-04



BE0UH-04

INSPECTION

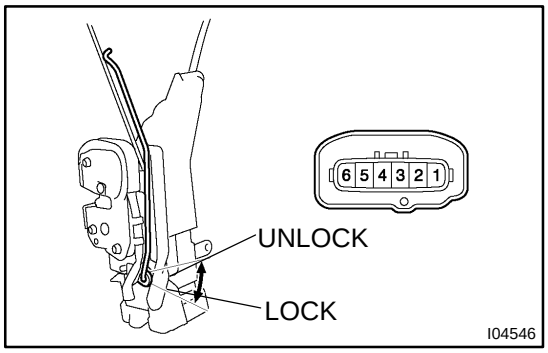


1. Driver's door:
INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	3 - 5	Continuity
OFF	-	No continuity
UNLOCK	3 - 6	Continuity

If continuity is not as specified, replace the switch.

2. Driver's door:
INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CIRCUIT
(See page DI-691)

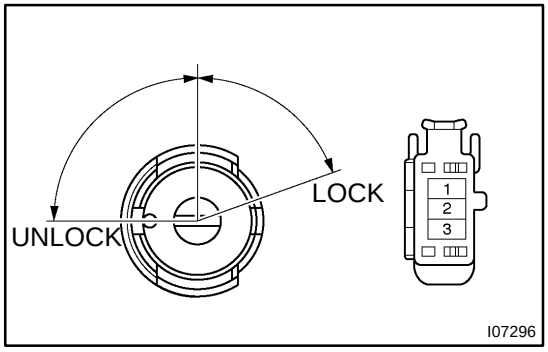


3. Passenger's door:
INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	2 - 4	Continuity
OFF	-	No continuity
UNLOCK	1 - 4	Continuity

If continuity is not as specified, replace the switch.

4. Passenger's door:
INSPECT DOOR KEY LOCK AND UNLOCK SWITCH CIRCUIT
(See page DI-713)

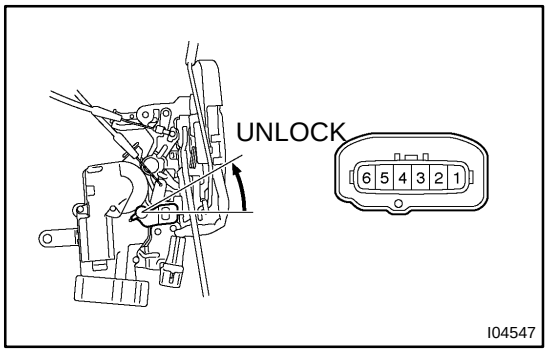


5. INSPECT BACK DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 - 2	Continuity
OFF	-	No continuity
UNLOCK	1 - 3	Continuity

If continuity is not as specified, replace the switch.
If continuity is as specified, inspect the switch circuit.

6. INSPECT BACK DOOR KEY LOCK AND UNLOCK SWITCH CIRCUIT (See page DI-667)

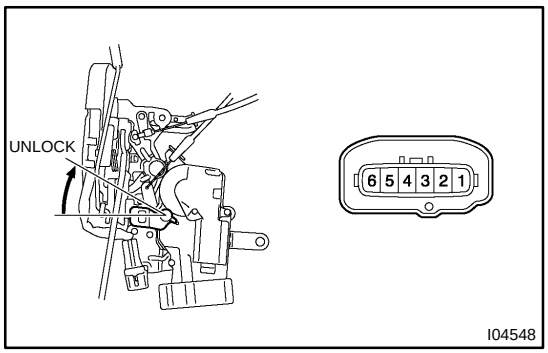


7. Driver's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	-	No continuity
ON (Door Lock set to UNLOCK)	3 - 4	Continuity

If continuity is not as specified, replace the switch.

8. Driver's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CIRCUIT
Driver side: (See page DI-689)

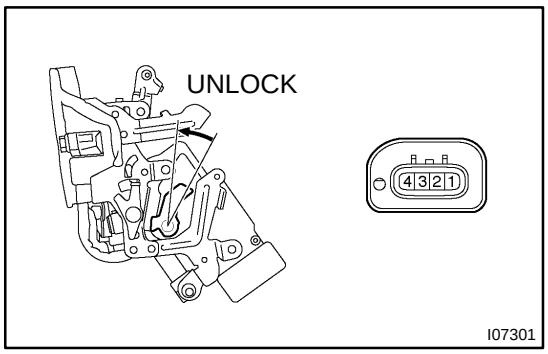


9. Passenger's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	-	No continuity
ON (Door Lock set to UNLOCK)	3 - 4	Continuity

If continuity is not as specified, replace the switch.

10. Passenger's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CIRCUIT
Passenger side (See page DI-71 1)

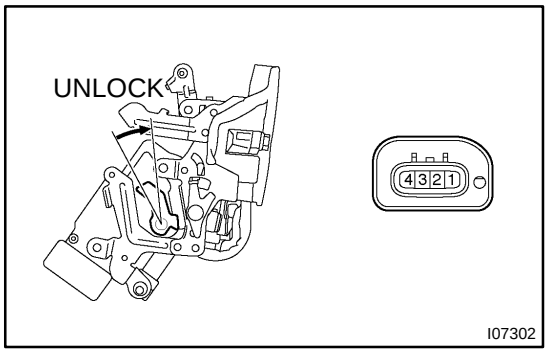


11. Rear LH door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	-	No continuity
ON (Door Lock set to UNLOCK)	1 - 2	Continuity

If continuity is not as specified, replace the switch.

12. Rear LH door:
INSPECT DOOR UNLOCK DETECTION SWITCH CIRCUIT (See page DI-734)

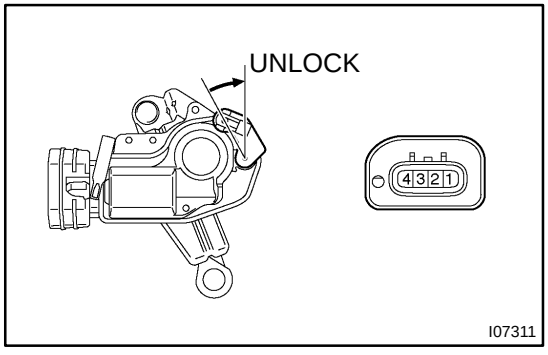


13. Rear RH door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	-	No continuity
ON (Door Lock set to UNLOCK)	3 - 4	Continuity

If continuity is not as specified, replace the switch.

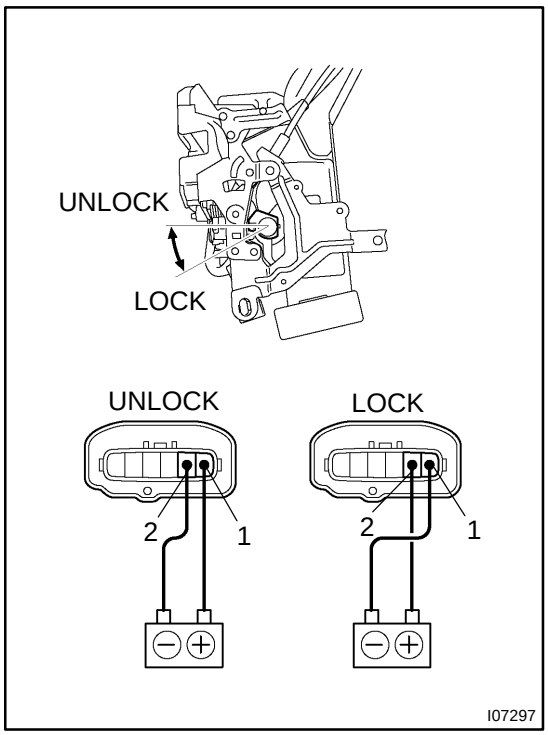
14. Rear RH door:
INSPECT DOOR UNLOCK DETECTION SWITCH CIRCUIT (See page DI-751)



15. Back door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	-	No continuity
ON (Door Lock set to UNLOCK)	1 - 4	Continuity

If continuity is not as specified, replace the switch.



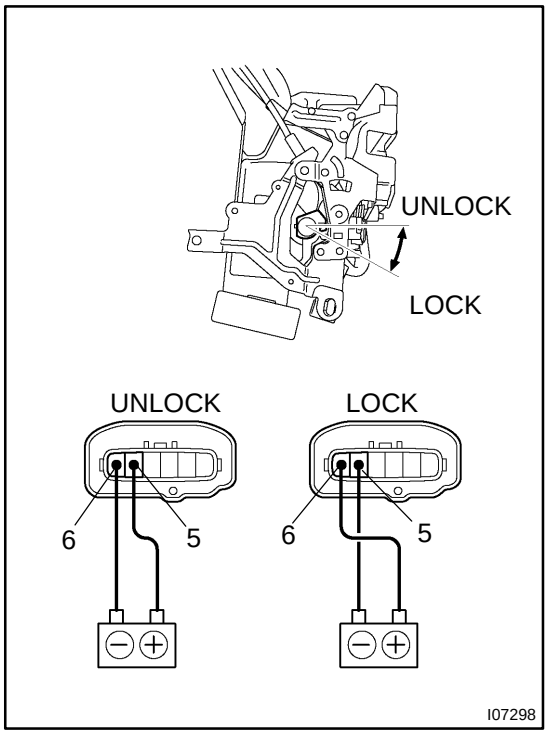
16. Driver's door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the door lock link moves to UNLOCK position.

(b) Reverse the polarity and check that the door lock link moves to LOCK position.

If operation is not as specified, replace the door lock assembly.

17. Passenger's door
INSPECT DOOR LOCK MOTOR CIRCUIT
(See page DI-687)



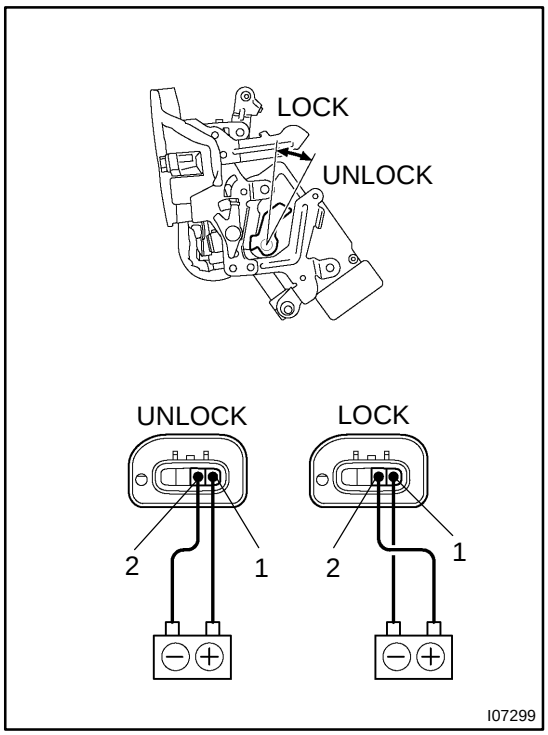
18. Passenger's door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6, and check that the door lock link moves to UNLOCK position.

(b) Reverse the polarity and check that the door lock link moves to LOCK position.

If operation is not as specified, replace the door lock assembly.

19. Front right side door:
INSPECT DOOR LOCK MOTOR CIRCUIT
(See page DI-709)



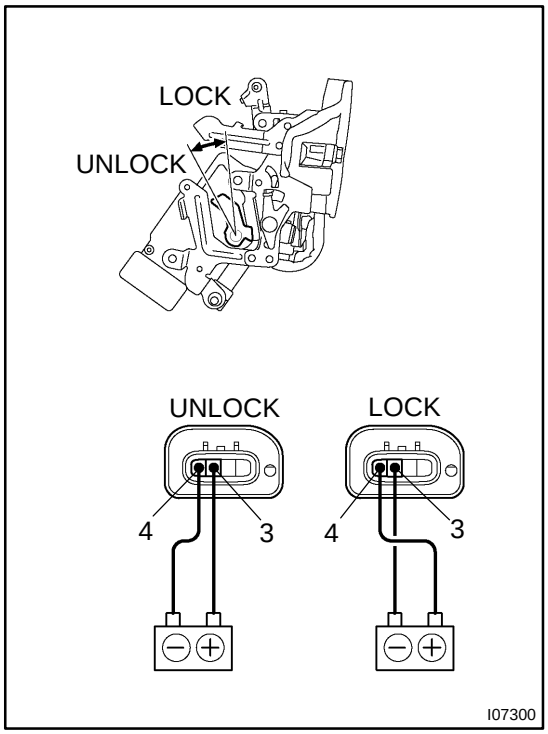
20. Rear LH door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the door lock link moves to UNLOCK position.

(b) Reverse the polarity and check that the door lock link moves to LOCK position.

If operation is not as specified, replace the door lock assembly.

21. Rear left side door:
INSPECT DOOR LOCK MOTOR CIRCUIT
(See page DI-732)



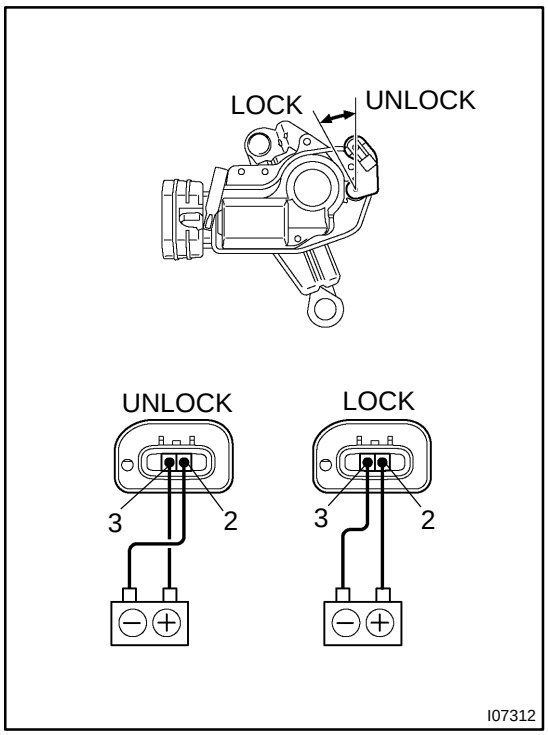
22. Rear RH door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 5, and check that the door lock link moves to UNLOCK position.

(b) Reverse the polarity and check that the door lock link moves to LOCK position.

If operation is not as specified, replace the door lock assembly.

23. Rear right side door:
INSPECT DOOR LOCK MOTOR CIRCUIT
(See page DI-749)

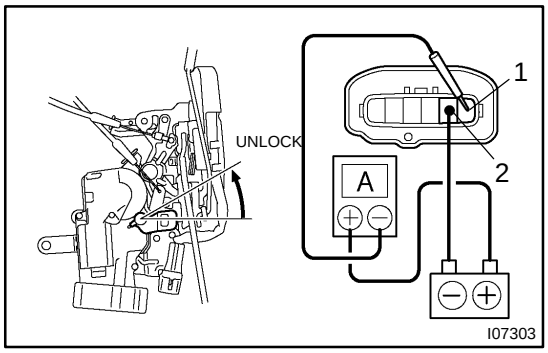


24. Back door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 3, and check that the door lock link moves to UNLOCK position.

(b) Reverse the polarity and check that the door lock link moves to LOCK position.

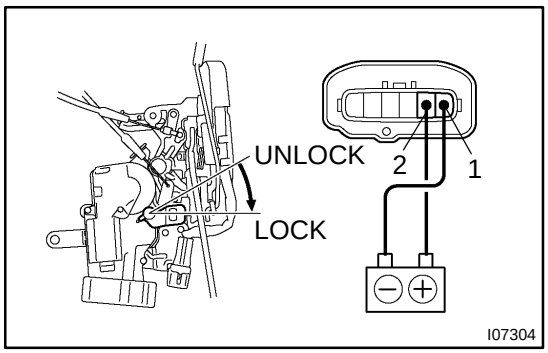
If operation is not as specified, replace the door lock assembly.



25. Using an ammeter:
INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

(a) Connect the negative (-) lead from the battery to terminal 2.

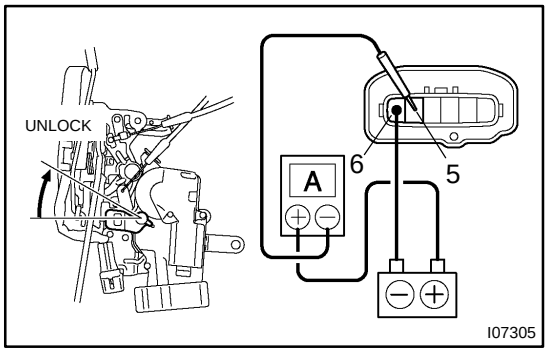
(b) Connect the negative (-) lead from the ammeter to terminal 1 and the positive (+) lead to battery positive (+) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.

(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, and check that the door lock moves to the LOCK position.

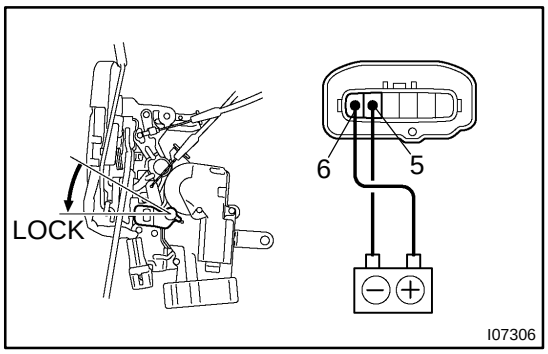
If operation is not as specified, replace the door lock assembly.



26. Using an ammeter:
INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

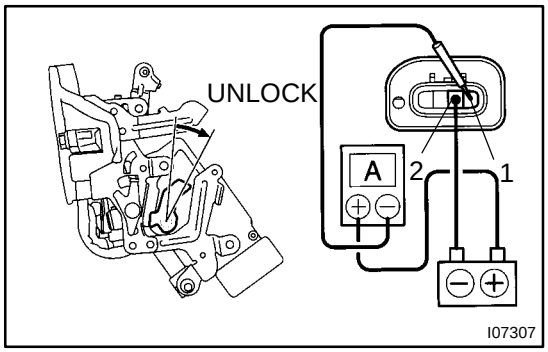
(a) Connect the negative (-) lead from the battery to terminal 6.

(b) Connect the negative (-) lead from the ammeter to terminal 5 and the positive (+) lead to battery positive (+) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



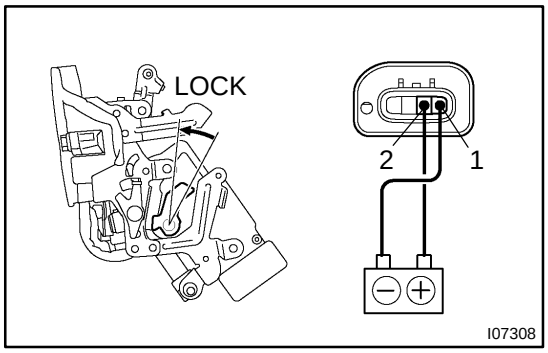
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 5, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.



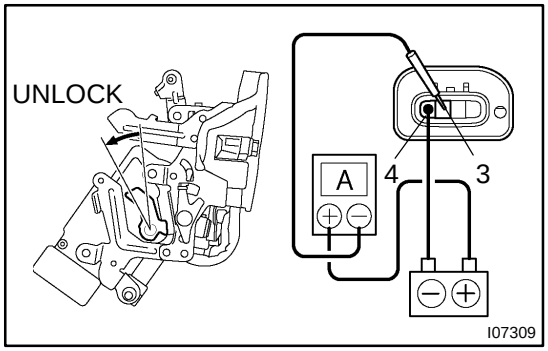
27. Using an ammeter:
INSPECT REAR LH DOOR PTC THERMISTOR OPERATION

(a) Connect the negative (-) lead from the battery to terminal 2.
(b) Connect the negative (-) lead from the ammeter to terminal 1 and the positive (+) lead to battery positive (+) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



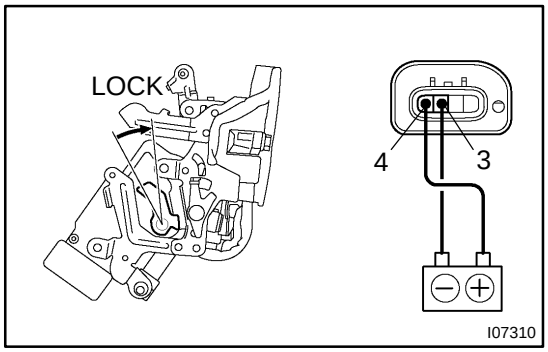
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.



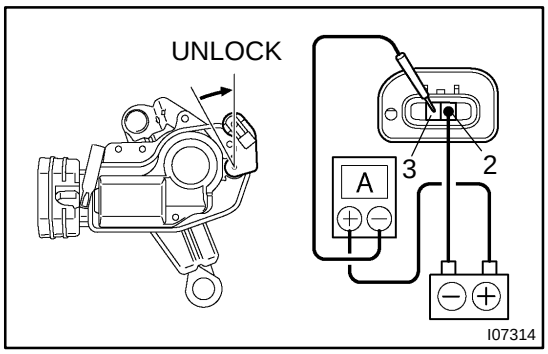
28. Using an ammeter:
INSPECT REAR RH PTC THERMISTOR OPERATION

(a) Connect the negative (-) lead from the battery to terminal 4.
(b) Connect the negative (-) lead from the ammeter to terminal 3 and the positive (+) lead to battery positive (+) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 3, and check that the door lock moves to the LOCK position.

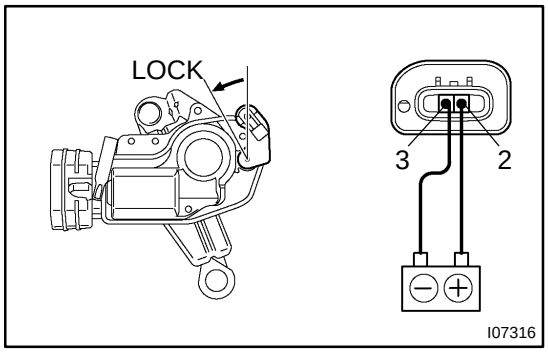
If operation is not as specified, replace the door lock assembly.



29. Using an ammeter:
INSPECT BACK DOOR PTC THERMISTOR OPERATION

(a) Connect the negative (-) lead from the battery to terminal 2.

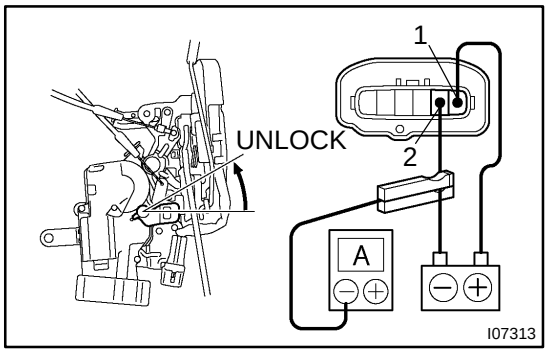
(b) Connect the negative (-) lead from the ammeter to terminal 3 and the positive (+) lead to battery positive (+) terminal, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.

(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3, and check that the door lock moves to the LOCK position.

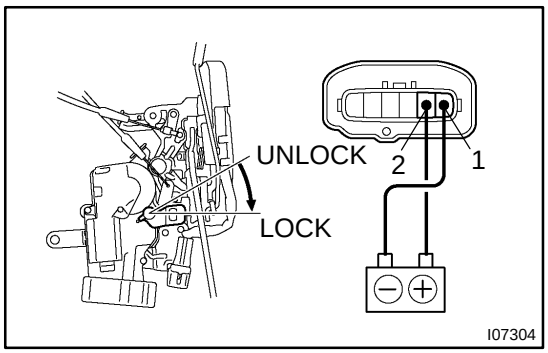
If operation is not as specified, replace the door lock assembly.



30. Using an ammeter with a current-measuring probe:
INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

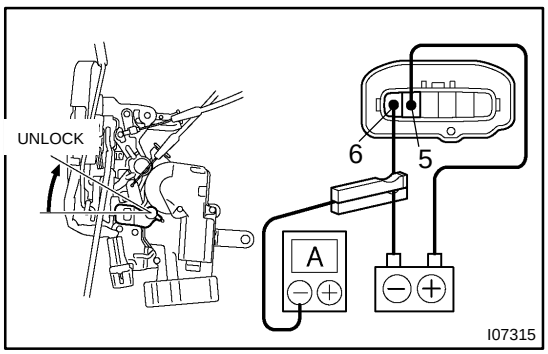
(b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.

(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

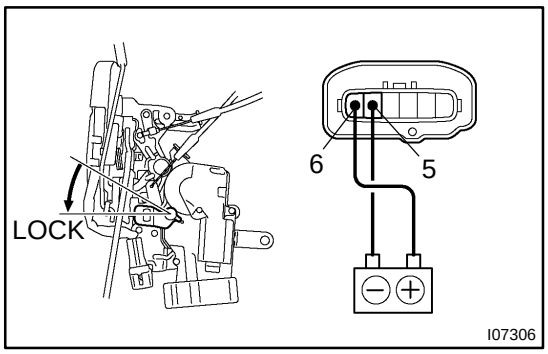
If operation is not as specified, replace the door lock assembly.



31. Using an ammeter with a current-measuring probe:
INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

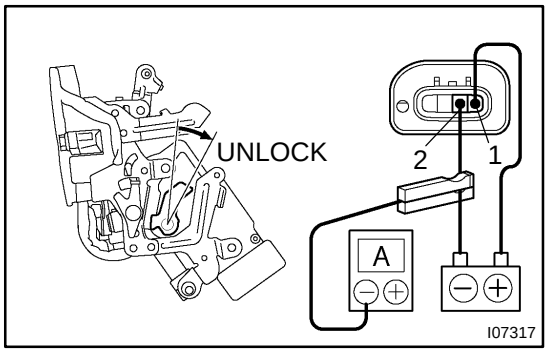
(a) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6.

(b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



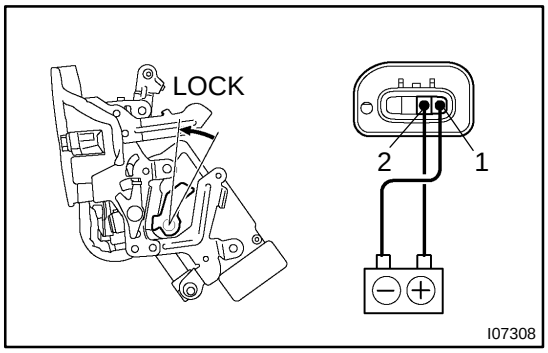
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.



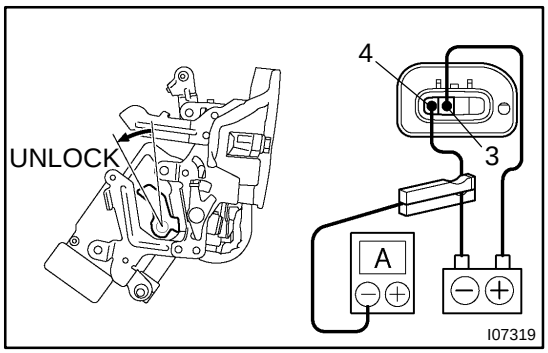
32. Using an ammeter with a current-measuring probe: INSPECT REAR LH DOOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
(b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



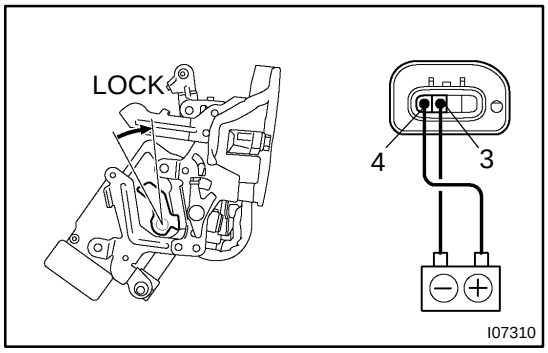
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.



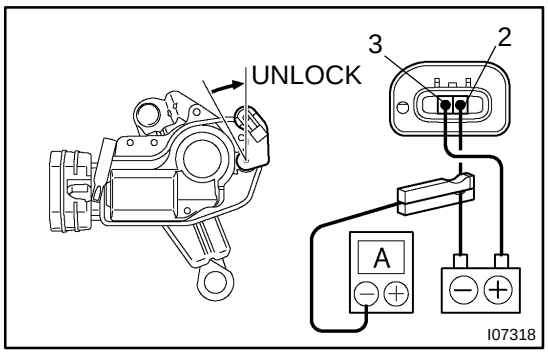
33. Using an ammeter with a current-measuring probe: INSPECT REAR RH DOOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 4.
(b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

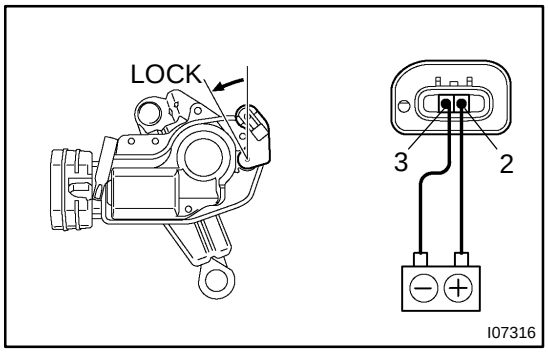
If operation is not as specified, replace the door lock assembly.



34. Using an ammeter with a current-measuring probe: INSPECT BACK DOOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 2.

(b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.



(c) Disconnect the leads from terminals.

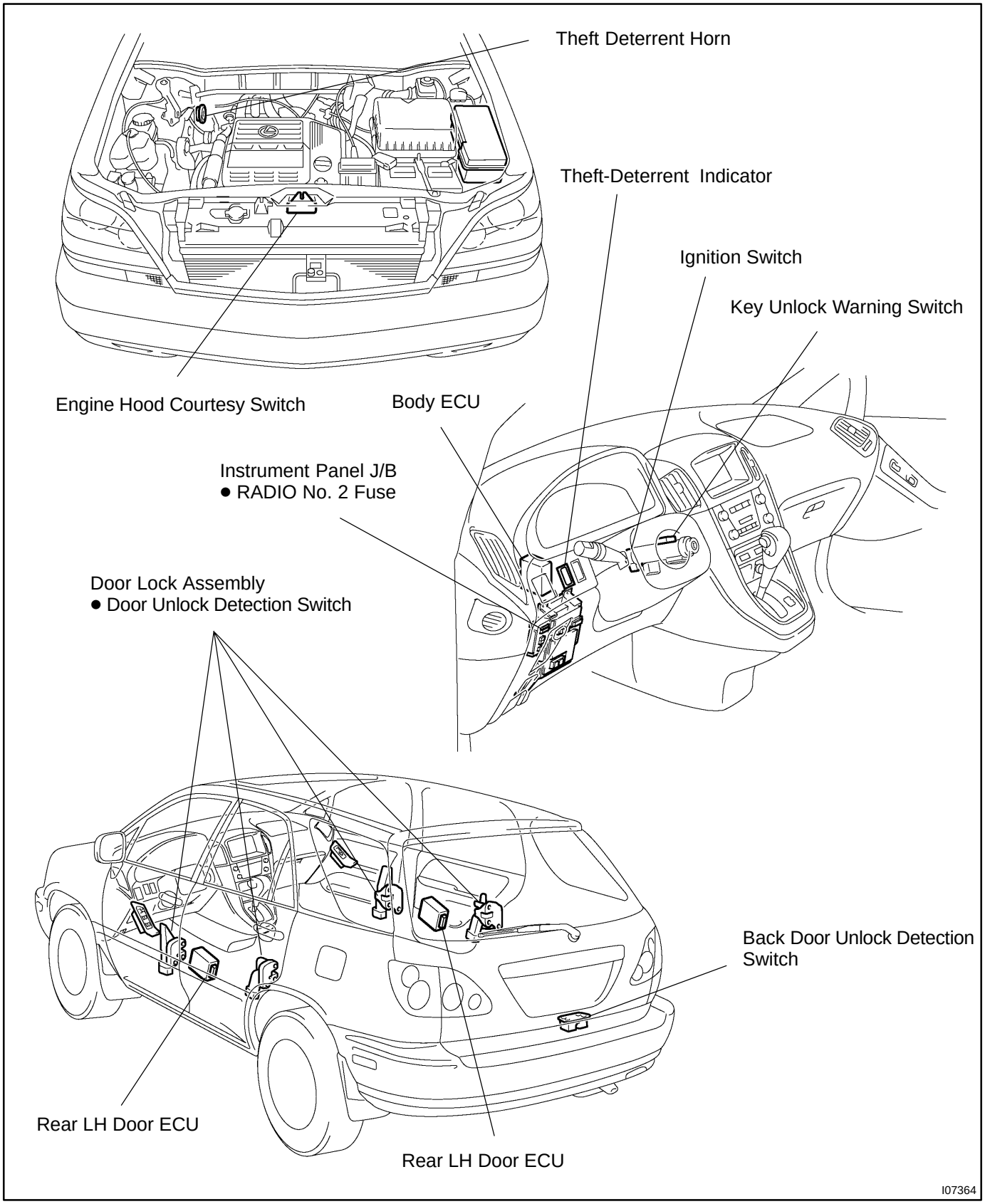
(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

If operation is not as specified, replace the door lock assembly.

THEFT DETERRENT SYSTEM

BE0GQ-06

LOCATION



DI3JD-02

PRE-CHECK

1. THEFT DETERRENT SYSTEM

When the system is set to the theft deterrent mode and any of the following conditions are met, the system sounds the horns and flashes the headlights and the taillights for approx. 1 minute.

At the same time the system locks all doors (If all door are not locked at once, the system repeats door locking operation every 0.55 seconds during the one minute alarm time).

There are 2 modes in this system, which are active mode and passive mode.

All initial setting are performed in active mode. It can be switched to passive mode by specified operation.

Condition:

Any of the doors (Including the engine hood and luggage compartment door) is unlocked or opened without the key. *1

The battery terminal is disconnected and reconnected.

The system receives panic signal from remote keyless entry. *2

*1: Only active arming mode.

*2: When the ignition key is not inserted in the key cylinder.

There are 4 conditions in this system which are disarming condition, disarming preparation condition, arming condition and alarming condition.

(a) Disarming condition:
  (1) When a user is near the vehicle.
  (2) When the alarming function does not operate.
  (3) When theft deterrent function is not performed.

(b) Disarming preparation condition:
  (1) Time from a user locks a door to be leaves the vehicle.
  (2) Time until transferring to disarming condition.
  (3) Theft deterrent function is not performed.

(c) Arming condition:
  (1) When a user leaves the vehicle completely.
  (2) When theft deterrent function is possible.

(d) Alarming condition:
Is this condition, once theft is detected, it is informed using light and sound to people around the vehicle.
Refer to the table for alarming method or time.

Alarming method	Horn
	Security horn
	Headlight
	Taillight
Alarming time	60 seconds
Alarming output	Continuous 0.25 secs. (ON) 0.25 secs. (OFF)

In the arming condition when either of doors is unlocked and with not key in the key cylinder, force lock signal is output.

2. ACTIVE ARMING MODE

Disarming condition (Key not inserted in ignition cylinder.)

Any of the following conditions is met
- When all doors and engine hood are closed, lock all the doors using a key.
- When all doors and engine hood are closed, lock all the doors using wireless remote function.
- When all doors and engine hood are closed, open and close either of doors and engine hood then close and lock all doors and engine hood.

Disarming preparation condition

Any of the following conditions is met ● Close and open either of all doors and engine hood. ● Lock and unlock either of doors. ● Insert a key into the ignition key cylinder. ● Reconnect the battery.	Any of the following conditions is met ● 30 seconds elapse when the engine hood is closed and all doors are locked.

Arming condition

Any of the following conditions is met ● Unlock the locked doors using the wireless remote function. ● Unlock the locked doors using the key. ● Insert the key into the ignition key cylinder and turn the ignition key ON.	Any of the following conditions is met ● Either of closed doors opens. ● Either of locked doors is unlocked by any operation other than key or wireless remote function. ● The closed engine hood is opened. ● The battery is reconnected.

Alarming condition

In this mode, once theft is detected, it is informed using light and sound to people around the vehicle. The alarming time described above passes.	Any of the following conditions is met ● Unlock the locked doors using the wireless remote function. ● Unlock the locked doors using the key. ● Insert the key into the ignition key cylinder and turn the ignition key ON.

Indicator light output:

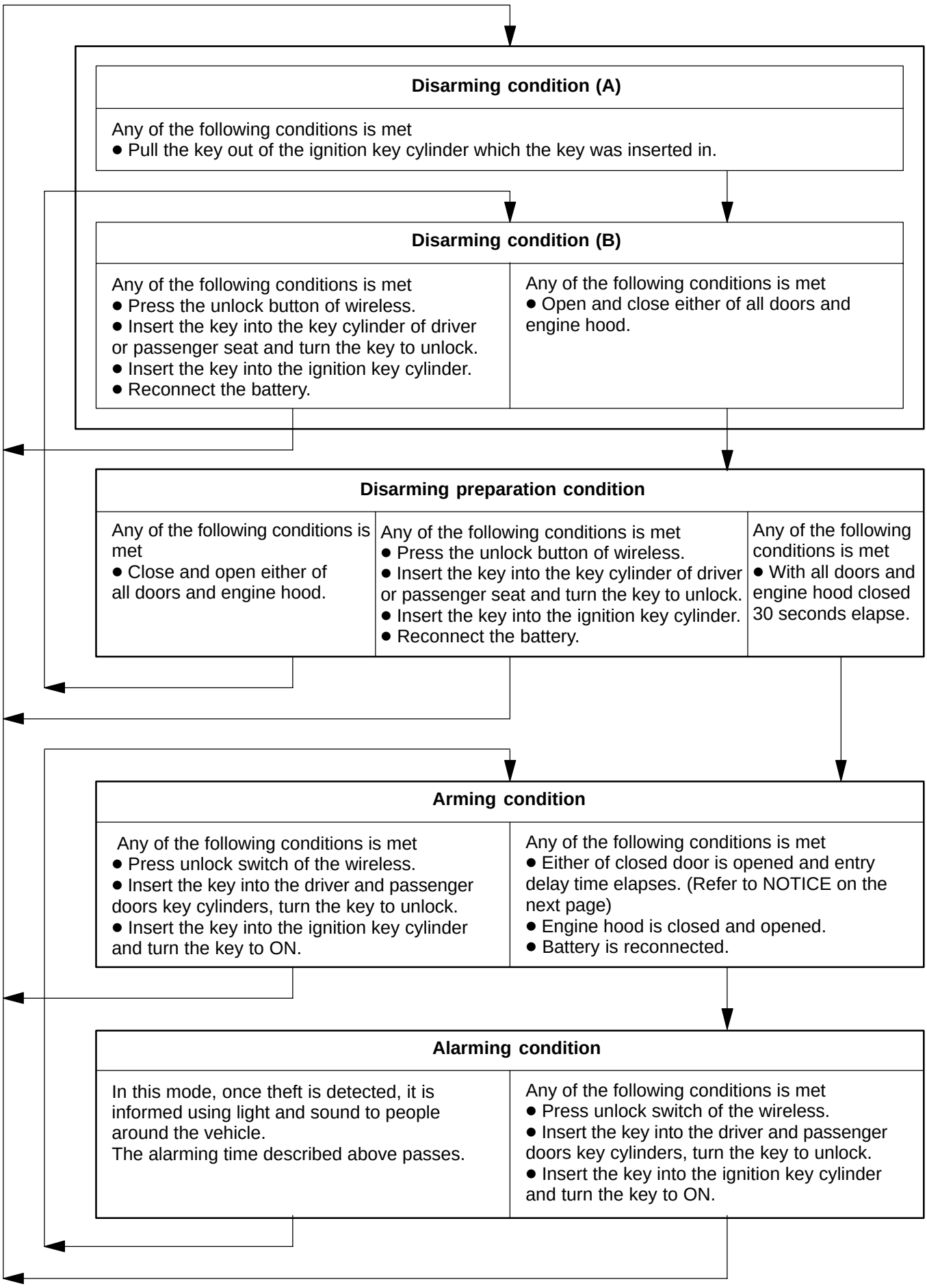
Condition	Indicator light
Disarming condition	OFF
Arming preparation condition	ON
Arming condition	OFF
Alarming condition	ON

HINT:
Even in disarming condition, the indicator light flash. (Due to the signal output form immobilizer system). The indicator always flashes receiving the signal from the immobilizer system at any time in the arming condition.

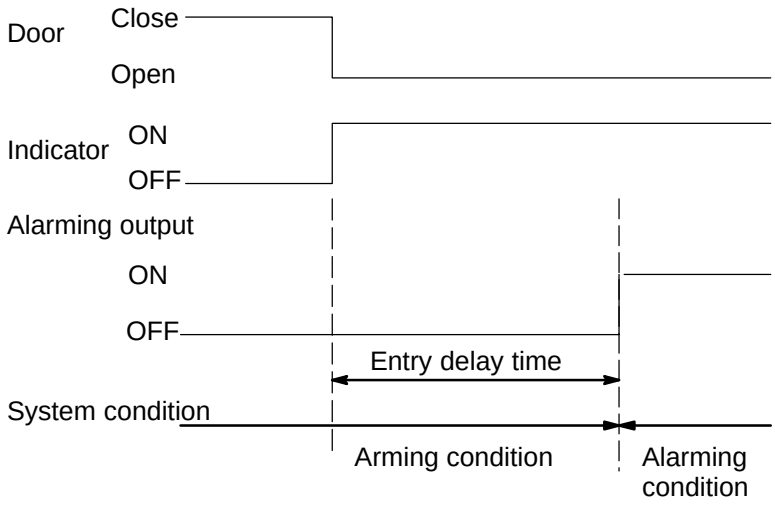
Flashing frequency:
0.75 seconds (ON)
1.25 seconds (OFF)

3. PASSIVE ARMING MODE

This mode can be switched according to the specified operation.
All initially set modes (when shipped from factory) are active mode. (No passive mode)


Disarming condition (A)
Any of the following conditions is met
● Pull the key out of the ignition key cylinder which the key was inserted in.
Disarming condition (B)
Any of the following conditions is met
● Press the unlock button of wireless.
● Insert the key into the key cylinder of driver or passenger seat and turn the key to unlock.
● Insert the key into the ignition key cylinder.
● Reconnect the battery.
Any of the following conditions is met
● Open and close either of all doors and engine hood.
Disarming preparation condition
Any of the following conditions is met
● Close and open either of all doors and engine hood.
Any of the following conditions is met
● Press the unlock button of wireless.
● Insert the key into the key cylinder of driver or passenger seat and turn the key to unlock.
● Insert the key into the ignition key cylinder.
● Reconnect the battery.
Any of the following conditions is met
● With all doors and engine hood closed 30 seconds elapse.
Arming condition
Any of the following conditions is met
● Press unlock switch of the wireless.
● Insert the key into the driver and passenger doors key cylinders, turn the key to unlock.
● Insert the key into the ignition key cylinder and turn the key to ON.
Any of the following conditions is met
● Either of closed door is opened and entry delay time elapses. (Refer to NOTICE on the next page)
● Engine hood is closed and opened.
● Battery is reconnected.
Alarming condition
In this mode, once theft is detected, it is informed using light and sound to people around the vehicle.
The alarming time described above passes.
Any of the following conditions is met
● Press unlock switch of the wireless.
● Insert the key into the driver and passenger doors key cylinders, turn the key to unlock.
● Insert the key into the ignition key cylinder and turn the key to ON.

HINT:
In arming condition either closed door is opened, entry delay occurs. (15 secs.)
During this time, the mode transfers to disarming condition when the condition described above *2 is met.
When the condition is not met, the system judges theft occurs, the mode transfers to alarming condition.



(a) Indicator light output:

Condition	Indicator light
Disarming condition	OFF
Arming preparation condition	ON
Arming condition (Entry delay time)	OFF (ON)
Alarming condition	ON

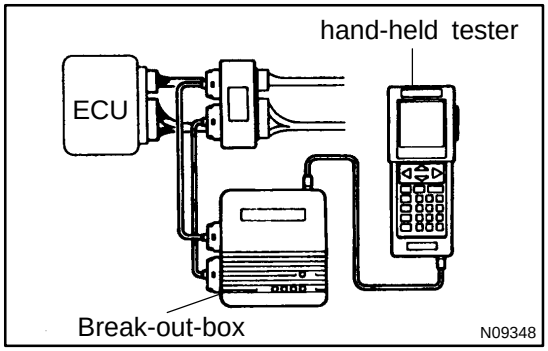
HINT:
Even in disarming condition, the indicator light flash. (Due to the signal output form immobilizer system). The indicator always flashes receiving the signal from the immobilizer system at any time in the arming condition.

Flashing frequency:
0.75 seconds (ON)
1.25 seconds (OFF)

(b) Transfer to active mode:
In each passive mode, when ”disarming condition of active mode → arming preparation transfer condition” is met, the active mode transfers to each condition. In this case, active mode continues till disarming condition.

Passive mode when transfer condition is met.	Active mode transfer condition
Disarming condition	Arming preparation condition
Arming preparation condition	Arming preparation condition
Arming condition (During entry delay time)	Arming condition (After alarming time has elapsed, arming condition)
Alarming condition	After alarming time has elapsed, arming condition

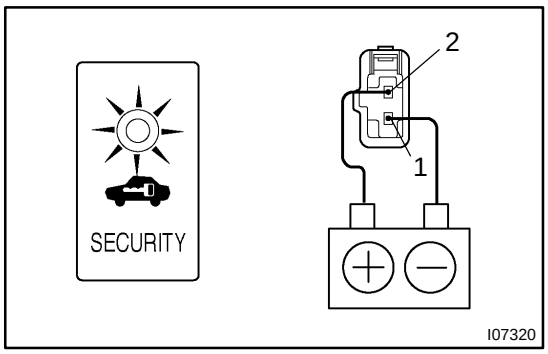
(c) Hook up the break-out-box and hand-held tester to the vehicle.
(d) Read the ECU input/ output values by following the prompts on the tester screen.
(e) Please refer to the hand-held tester has a ”Snapshot” function. This records the measured data and is effective in the diagnosis of intermittent problems.



4. ECU TERMINAL VALUES MEASUREMENT BY USING BREAK-OUT-BOX AND HAND-HELD TESTER

BE0GR-07

INSPECTION



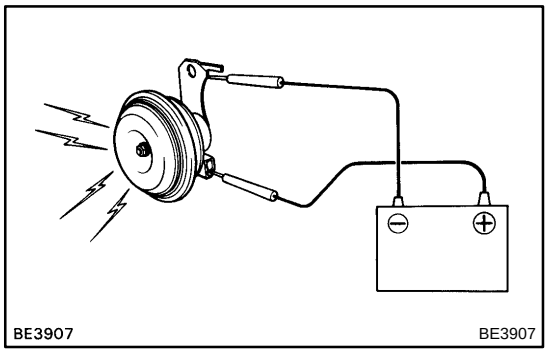
1. INSPECT THEFT DETERRENT INDICATOR LIGHT OPERATION

Connect the positive (+) lead from the battery terminal 2 and negative (-) lead to terminal 1, and check that the warning light lights up.

If operation is not as specified, replace the light control rheostat.

2. INSPECT THEFT DETERRENT INDICATOR LIGHT CIRCUIT

(See page DI-669)



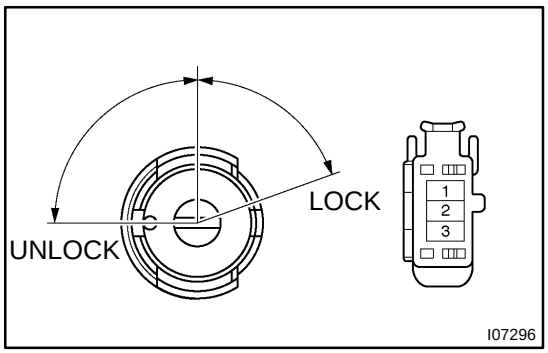
3. INSPECT THEFT DETERRENT HORN OPERATION

Connect the positive (+) lead from the battery to the terminal 1 and negative (-) lead to theft deterrent horn body, and check that the theft deterrent horn blows.

If operation is not as specified, replace the horn.

4. INSPECT THEFT DETERRENT HORN CIRCUIT

(See page DI-671)



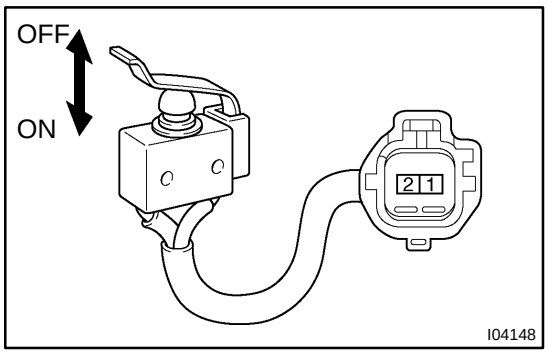
5. INSPECT BACK DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 - 2	Continuity
Not turned	-	No continuity
UNLOCK	1 - 3	Continuity

If continuity is not as specified, replace the switch.

6. INSPECT BACK DOOR KEY LOCK AND UNLOCK SWITCH CIRCUIT

(See page DI-667)



7. INSPECT ENGINE HOOD COURTESY SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	-	No continuity
UNLOCK	1 - 2	Continuity

If continuity is not as specified, replace the switch.

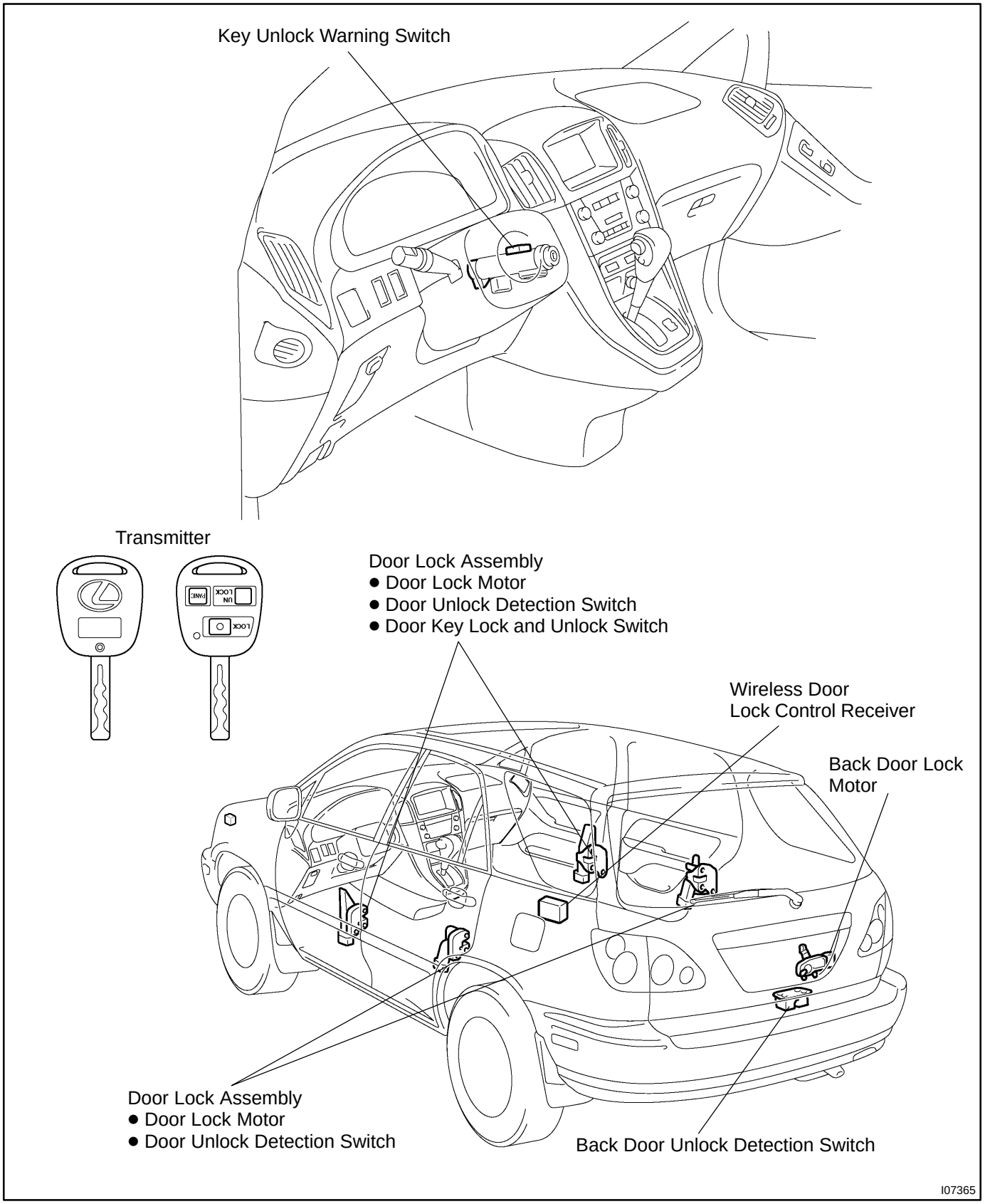
8. INSPECT ENGINE HOOD COURTESY SWITCH CIRCUIT

(See page DI-663)

WIRELESS DOOR LOCK CONTROL SYSTEM

BE0GM-03

LOCATION



BE0GN-12

PRE-CHECK

Only wireless function (Remote control) will not operate.
(If a new transmitter or a transmitter of the same type that works properly with the vehicle is not available.)

Make the vehicle in the initialized condition:
The initialized condition is the condition when the following conditions are satisfied.
(1) Key plate has not been inserted in the ignition key cylinder.
(2) All the doors are closed. (Door warning light is OFF.)
(3) All the doors are locked.

Basic function check:

Under the standard operation, when repeating UNLOCK and LOCK switch 3 times or more alternately, check the UNLOCK-LOCK operation from 3rd time onward.
● Following procedures are standard operation.
(1) Keep about 1 M away to the right direction from the outside handle of a driver's seat.
(2) Face the transmitter toward the vehicle and press one of transmitter switches for about 1 sec.
<Reference>
● As of the security function, even the wireless function is normal, there may be the case that only UNLOCK operation will not work.
● As of the body customize function, if "operation twice" has been set using hand-held tester, only driver's seat is unlocked by unlock operation performed once.

No

Yes

Transmitter LED inspection:

Check when pressing UNLOCK switch and LOCK switch under standard operation, that the transmitter LED lights up once more.

No

Yes

Normal
<Reference>
● Operative distance may differ according to an operator, the way of holding the transmitter or position.
● Because weak electric wave is used, when there is strong wave or noise in the used frequency ,operation distance might be shortened.

Transmitter battery check:

Replace the transmitter battery with a new or normal one and check UNLOCK-LOCK function works under the standard operation.
<Reference>
● The battery should be replaced by only the shops with sufficient skill as new or normal battery is necessary.
● Battery quality can be judged by checking the remnant volume of the battery.

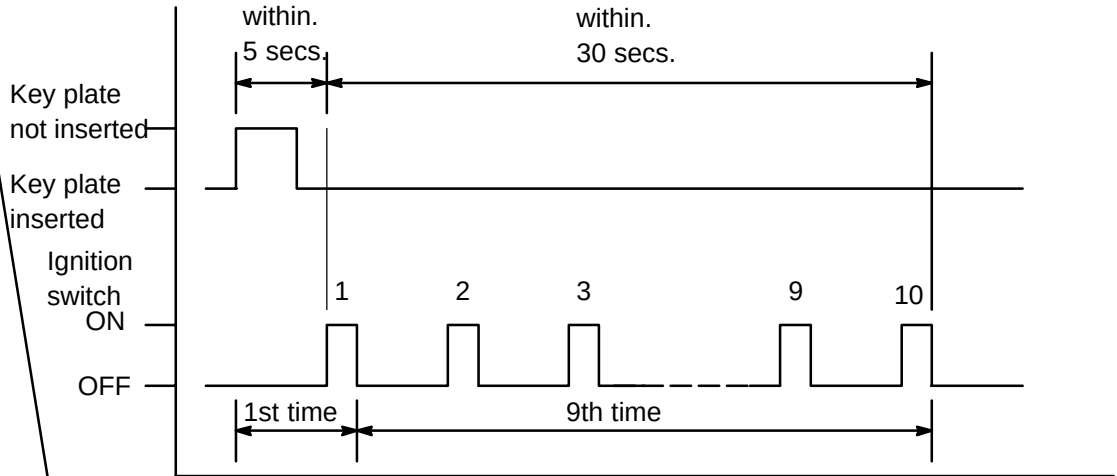
Yes → Battery faulty.

No

Make the vehicle be in the initialized condition.

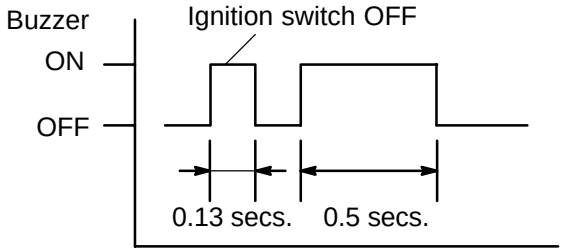
Inspection start by using self diagnostic mode:

Enter into the self diagnostic mode.
If operating door control receiver in the order of 1 through 2, the mode turns to diagnostic mode.
(1) Insert the key plate in the ignition key cylinder and pull out, then insert it again and turn ignition switch OFF → ON → OFF once within 5 seconds after pulling out.
(2) After completing the procedure within 30 seconds, turn the ignition switch OFF → ON → OFF 9 times.
HINT:
In the case that either (1) or (2) condition is not satisfied, transfer to normal mode.
<Reference>
When completing self diagnostic mode, turn the ignition switch ON.
LOCK and UNLOCK operation and output of luggage door opener signal are not performed under the self diagnostic mode.



Self diagnostic mode operation check:

After the self diagnostic mode input operation has been performed, check that the buzzer chirps.



No
(Not entered in self diagnostic mode)

Is the method to enter into the diagnostic mode correct?

No

Yes

Is the chirping function of operation confirmation buzzer normal?

No

Check door control buzzer.

Yes

Yes
(Entered in self diagnostic mode)

Key unlock warning switch inspection:

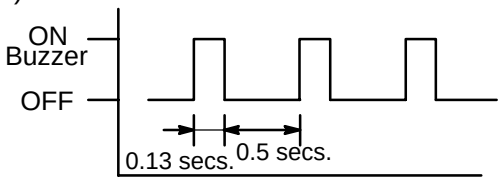
Check that continuity exists between connector terminal A3 of MPX body ECU on the vehicle side and ground by inserting the key plate into the ignition key cylinder.

Check key unlock warning switch.

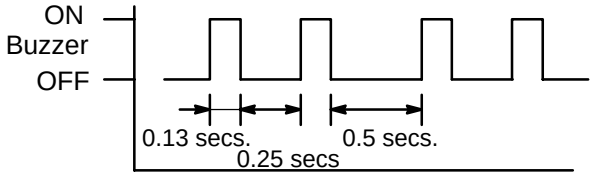
Self diagnostic mode check:

Check that how the buzzer chirps when pressing each transmitter switch.

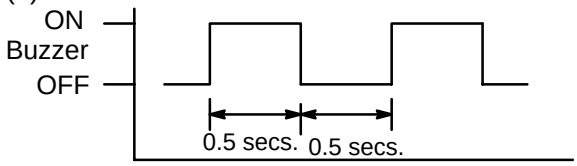
(1) Receiver normal wave of LOCK switch.



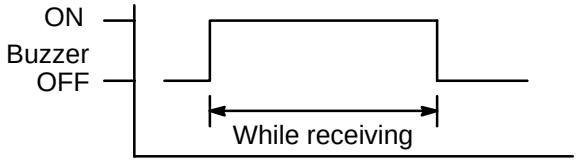
(2) Receiver normal wave of UNLOCK switch.



(3) Receiver normal wave of PANIC switch.



(4) Incompatibility of the recognition code or out from synchronization of rolling code.



<Reference>:
While turning the ignition switch ON in the self diagnostic mode, the mode returns to normal mode.

(1), (2) or (3) are output.

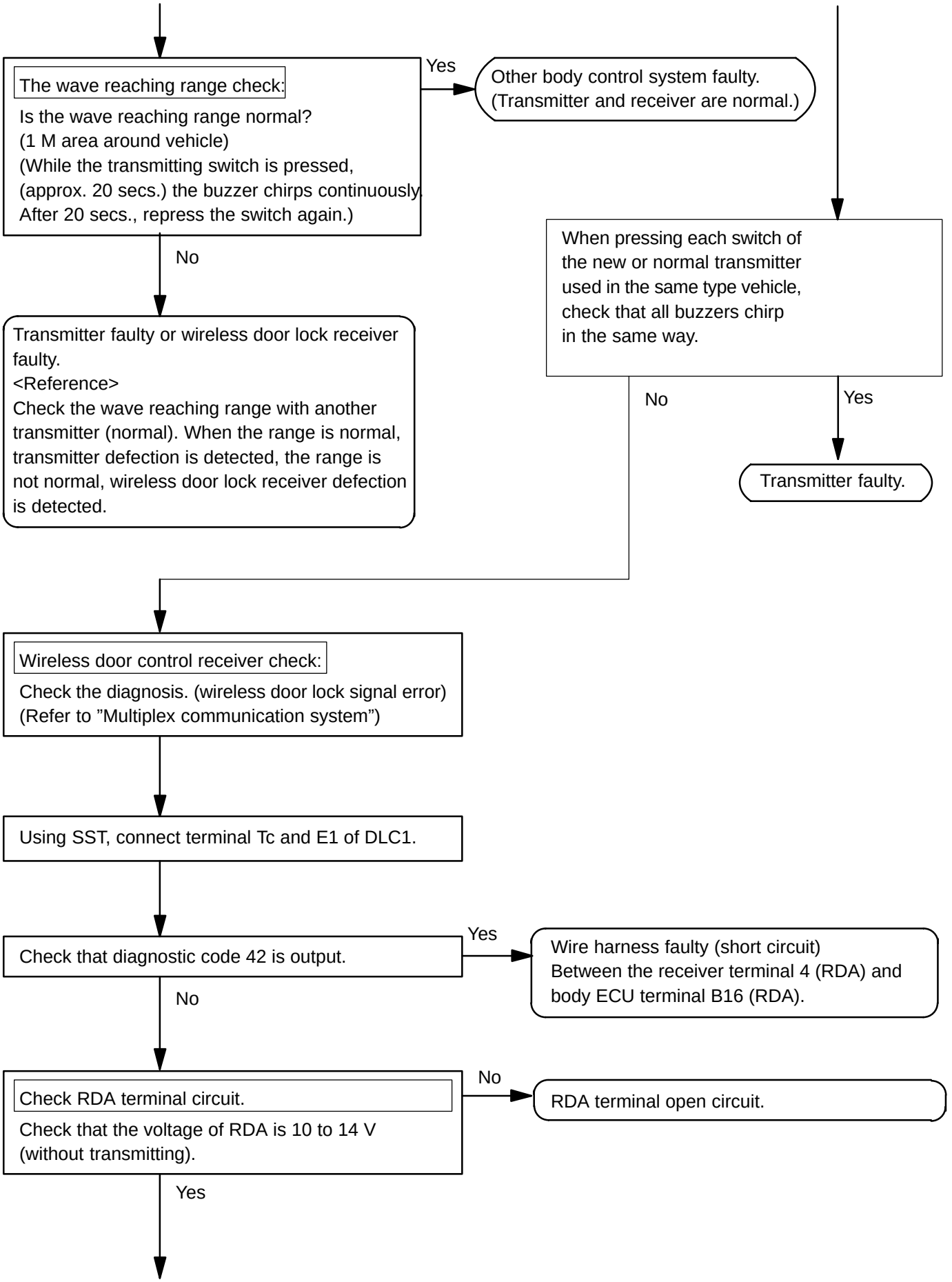
(4) is output.
(All buzzer's response is same.)

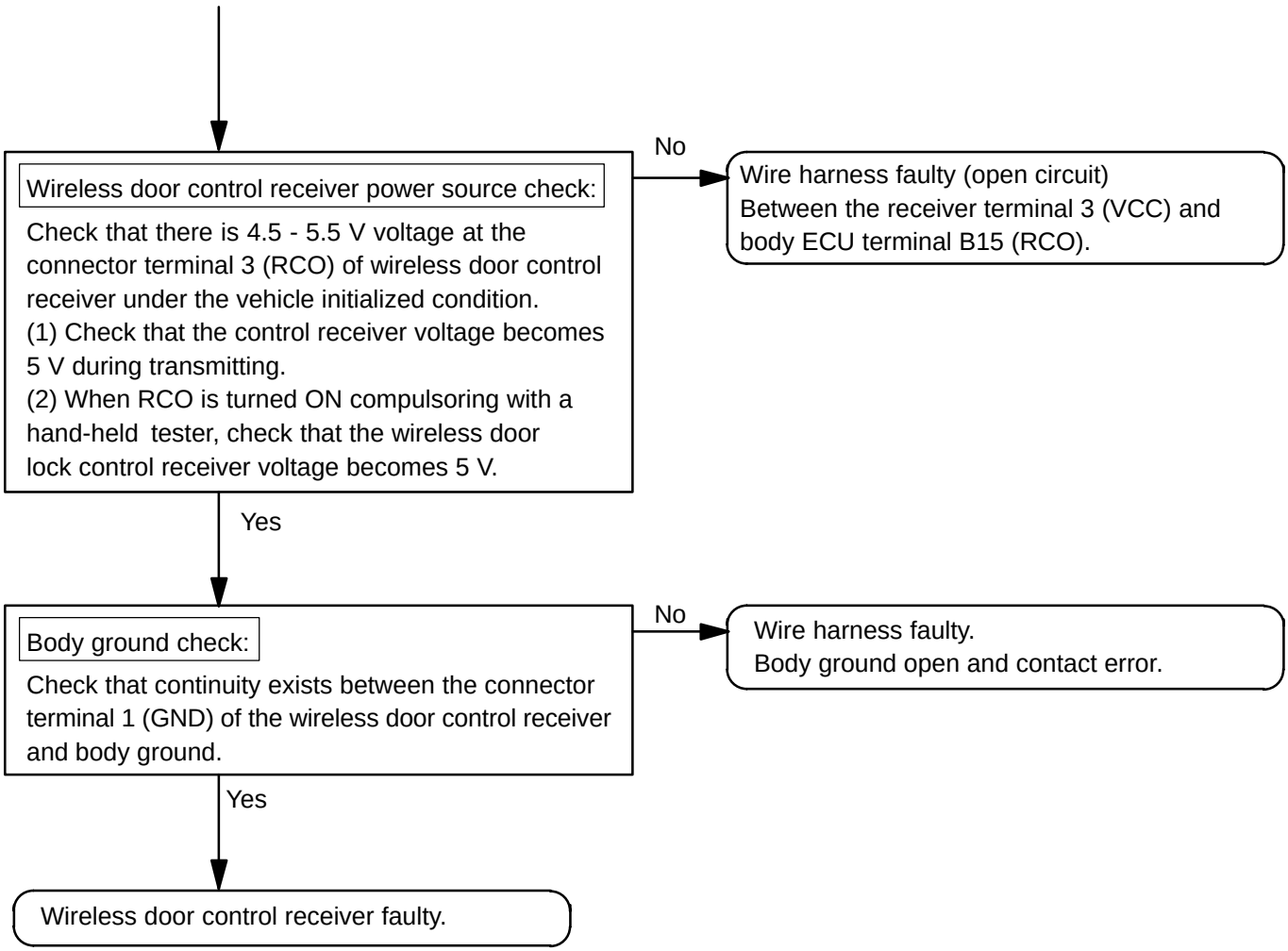
Recognition code registration function check:

Check that it is possible to enter into rewrite mode or add mode.
(Refer to "Wireless door lock receiver and transmitter" - "Recognition code registration".)

Wireless door lock operates normally when recognition code is registered.

No response from buzzer


The wave reaching range check:
Is the wave reaching range normal?
(1 M area around vehicle)
(While the transmitting switch is pressed,
(approx. 20 secs.) the buzzer chirps continuously.
After 20 secs., repress the switch again.)
Yes
Other body control system faulty.
(Transmitter and receiver are normal.)
No
Transmitter faulty or wireless door lock receiver faulty.
<Reference>
Check the wave reaching range with another transmitter (normal). When the range is normal, transmitter defection is detected, the range is not normal, wireless door lock receiver defection is detected.
When pressing each switch of the new or normal transmitter used in the same type vehicle, check that all buzzers chirp in the same way.
No
Yes
Transmitter faulty.
Wireless door control receiver check:
Check the diagnosis. (wireless door lock signal error)
(Refer to ”Multiplex communication system”)
Using SST, connect terminal Tc and E1 of DLC1.
Check that diagnostic code 42 is output.
Yes
Wire harness faulty (short circuit)
Between the receiver terminal 4 (RDA) and body ECU terminal B16 (RDA).
No
Check RDA terminal circuit.
Check that the voltage of RDA is 10 to 14 V (without transmitting).
No
RDA terminal open circuit.
Yes


Wireless door control receiver power source check:
Check that there is 4.5 - 5.5 V voltage at the connector terminal 3 (RCO) of wireless door control receiver under the vehicle initialized condition.
(1) Check that the control receiver voltage becomes 5 V during transmitting.
(2) When RCO is turned ON compulsoring with a hand-held tester, check that the wireless door lock control receiver voltage becomes 5 V.
No
Wire harness faulty (open circuit)
Between the receiver terminal 3 (VCC) and body ECU terminal B15 (RCO).
Yes
Body ground check:
Check that continuity exists between the connector terminal 1 (GND) of the wireless door control receiver and body ground.
No
Wire harness faulty.
Body ground open and contact error.
Yes
Wireless door control receiver faulty.

BE0GO-07

INSPECTION

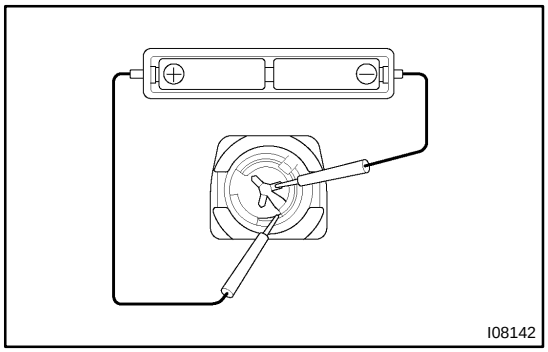
1. INSPECT WIRELESS DOOR LOCK TRANSMITTER OPERATION

HINT:

Refer to "Wireless door lock control transmitter battery replacement" on page BE-140 .

(a) Using a screwdriver, remove the screw and cover.

(b) Remove the battery (lithium battery).



(c) Install a new or normal battery (lithium battery).

HINT:

When a new or normal battery can not be obtained, connect 2 new 1.5 V batteries in series, connect the battery (+) to the battery receptacle side terminal and battery (-) to the bottom terminal, then apply 3 V voltage to the transmitter.

(d) In the location where is approx. 1 M away from driver's outside handle in the right direction, face the key plate of the transmitter to the vehicle, and check the transmitter operation when pressing transmission switch on the side of the transmitter body.

Standard:

- **Remote control of vehicle door lock can be operated.**
- **LED lights up more than once.**

HINT:

- The minimum operation distance differs according to operator, the way of holding the transmitter, and location.
- As weak wave is used, operation distance might be shortened when noise is detected in strong wave or used frequency.

(e) Install the battery (lithium battery).

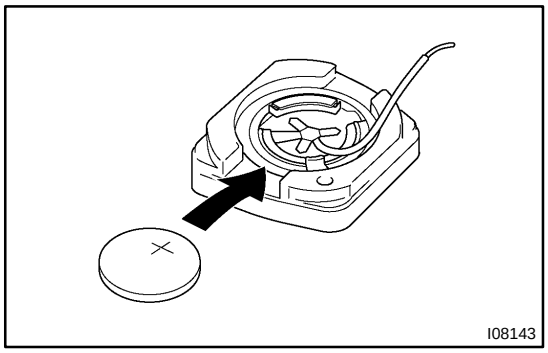
(f) Install a cover so that O-ring is not distorted or slipped off.

(g) Using a screwdriver, tighten the screw.

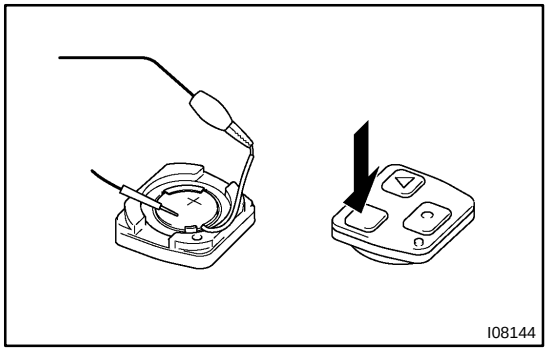
2. CHECK BATTERY CAPACITY

HINT:

- Make sure to use the electrical tester.
- With the battery unloaded, judge can not be made whether the battery is available or not on the test.
- When the transmitter is faulty, the energy amount left in the battery might not be checked correctly.
- On the lithium battery used for the transmitter, the voltage more than 2.5 V with the battery unloaded is shown on the tester until the energy is completely consumed.
  Accordingly when inspecting the energy amount left in the battery, it is necessary to measure the voltage when the battery is loaded. (1.2 kΩ).



(a) Remove the screws and cover using a (-) driver.
(b) Remove the battery (lithium battery) from the transmitter.
(c) Connect the lead to the (-) terminal of the transmitter and install the battery.

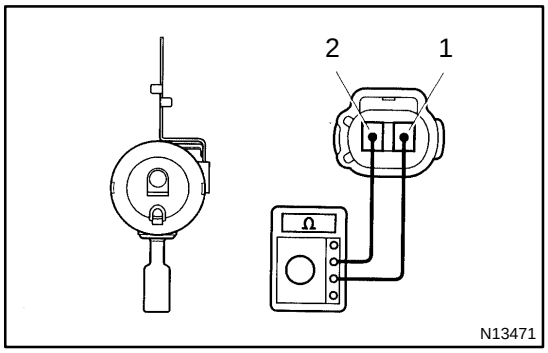


(d) Connect the (+) tester to the (+) battery (lithium battery), and (-) tester to the lead respectively.
(e) Press one of the transmitting switches on the transmitter for approx. 1 second.
(f) Press the transmitting switch on the transmitter again to check the voltage.
Standard: 2.1 V or more

HINT:

- When the temperature of the battery is low, the judge can not be made correctly.
  When the outcome of the test is less than 2.1 V, conduct the test again after leaving the battery in the place at 18 °C for more than 30 minutes.
- By auto power off function, the voltage becomes no load voltage (more than 2.5 V) condition 0.8 seconds after the switch was pressed.
  Make sure to read the voltage before of it.
- High voltage might be shown 1 to 2 times after leaving the battery, judge should be made with the voltage shown at the 3rd time or later.

(g) Disconnect the lead.
(h) Set the battery (lithium battery) in the transmitter.
(i) Install the cover, so that the O-ring is not distorted or slipped off.
(j) Using a screwdriver, tighten the screws.

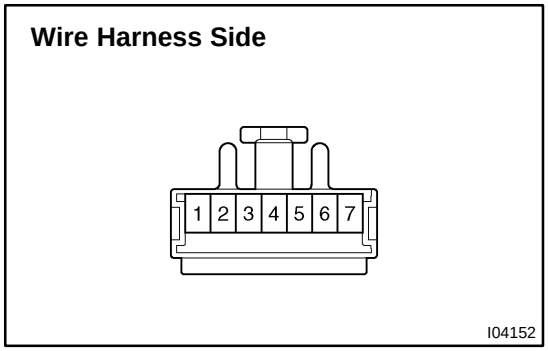


3. INSPECT WIRELESS DOOR LOCK BUZZER OPERATION

Connect the positive (+) lead from the ohmmeter to terminal 1 and the negative (-) lead to terminal 2, and measure resistance of approx. 1 kΩ.

If resistance is not as specified, replace the buzzer.

4. INSPECT WIRELESS DOOR LOCK BUZZER CIRCUIT (See page DI-655)



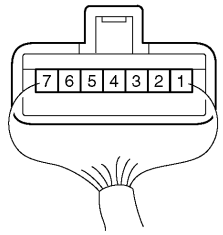
5. Connector disconnected:
INSPECT WIRELESS DOOR LOCK CONTROL RECEIVER CIRCUIT (See page DI-653)

Disconnect the connector from the receiver and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity

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

From Back Side



I04153

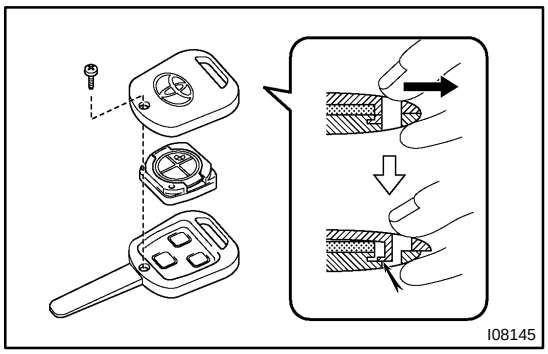
6. Connector connected:
INSPECT WIRELESS DOOR LOCK CONTROL RECEIVER CIRCUIT

Connect the wire harness side connector to the receiver and inspect the wire harness side connector from the back side, as shown.

Tester connection	Condition	Specified condition
3 - Ground	All doors are closed Key removed	5V Intermittently
4 - Ground	All doors are closed Key removed Transmitter OFF/ON	Transmitter ON: Changes between 0 - 5 V Transmitter OFF: Below 1 V

BE0GP-15

REPLACEMENT



1. REPLACE TRANSMITTER (LITHIUM) BATTERY

NOTICE:

Special caution should be taken for handling each component as they are precision electronic components.

(a) Using a screwdriver, remove the screw and cover.

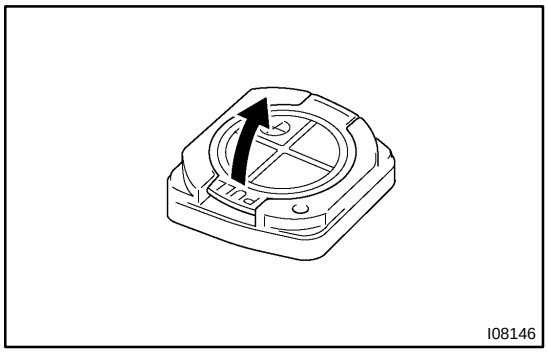
NOTICE:

Do not pry out the cover forcibly.

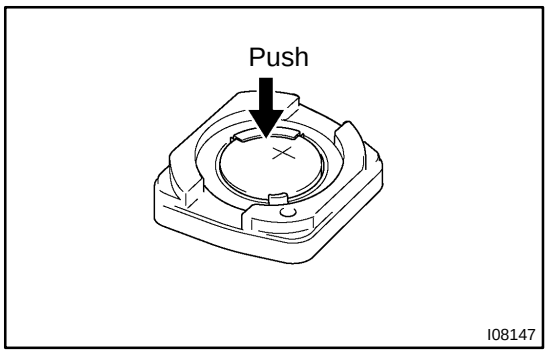
HINT:

Push the cover with a finger as shown in the illustration, so that there becomes clearance, then pry out the cover from that clearance.

(b) Remove the transmitter.



(c) Pull out the battery cover.



(d) Remove the battery (lithium battery) as shown in the illustration.

NOTICE:

Do not push the terminals with a finger.

If prying up the battery (lithium battery) forcibly to remove, the terminals are deformed.

(e) Install a battery (lithium battery).

NOTICE:

Face the battery upward. Take care not to deform the terminals.

(f) Check that O-ring is not distorted or slipped off, and install the cover.

(g) Using a screwdriver, tighten the 2 screws.

NOTICE:

When the shrews are tightened loosely, it might cause faulty contact of battery (lithium battery) and terminals.

(h) Assemble the transmitter to the key plate and the cover.

(i) Using a screwdriver, tighten the screw.

2. REPLACE DOOR CONTROL RECEIVER AND TRANSMITTER

NOTICE:

When replacing the door control receiver and transmitter, registration of recongnition code is necessary because they are provided as single components.

(a) Select which operation mode should be performed from the following modes.

Add mode
Rewrite mode
Prohibition mode
Confirmation mode

HINT:

The add mode is used to retain codes already registered while you register new recongnition codes. This mode is used when adding a transmitter. However, if the number of registered codes exceeds 4 codes, previously registered codes are correspondingly erased in order, starting from the first registered code.

The rewrite mode is used to erase all previously registered codes and register only new recognition codes.

The prohibition mode is used to erase all registered codes and cancels the wireless door lock function. Use this mode when the transmitter is lost.

The confirmation mode is for confirming how many recongnition codes are already registered before you register additional recognition codes.

(b) Follow the chart on the following pages to register the transmitter recongnition code at the wireless door lock control receiver.

HINT:

When procedure is out of the specified, the operation returns to normal operation.

Maximum 4 recognition codes can be registered.

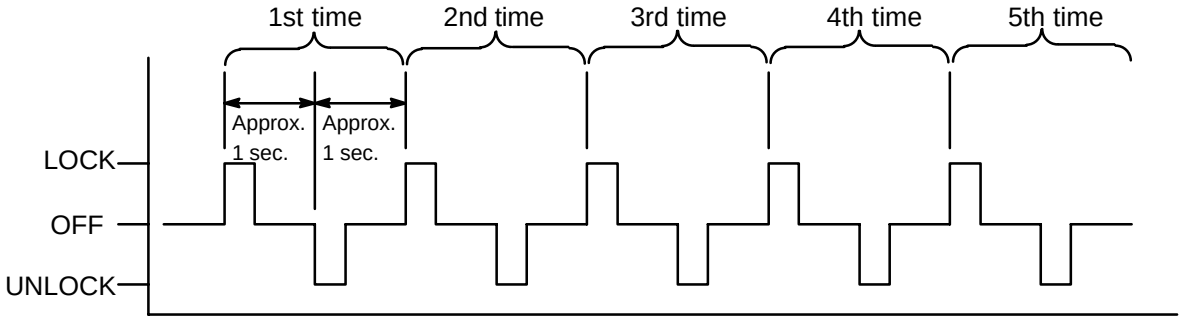
Start registration of recognition code

The vehicle should be in the following conditions.
- The key is not inserted in the ignition key cylinder.
- Driver's door is OPEN. (Other doors are CLOSED)
- Driver's door is UNLOCKED.

Insert the key into the ignition key cylinder, then pull it out.

Within 40 secs.

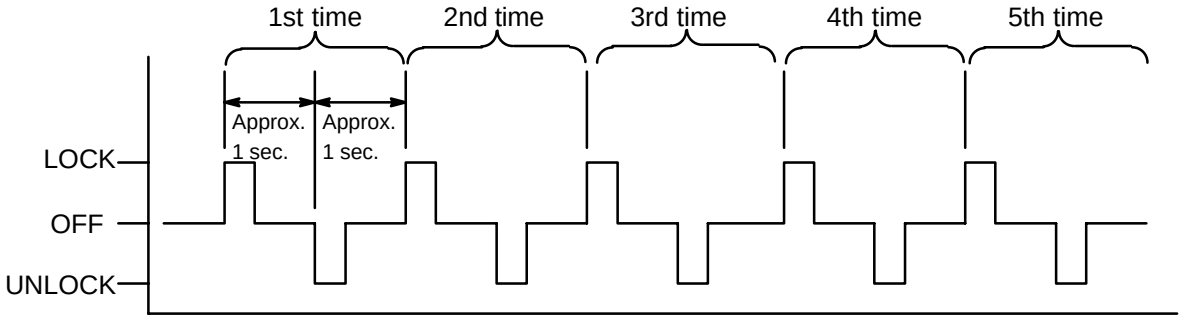
Press the door lock control switch (for manual operation) 5 times to LOCK/UNLOCK at approx. 1 sec. interval.



Close the driver's door, then open it.

Within 40 secs.

Again press the door lock control switch (for manual operation) 5 times to LOCK/UNLOCK at approx. 1 sec. interval.

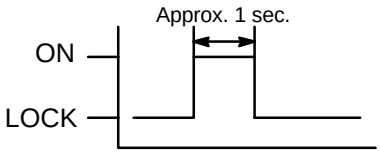


Insert the key into the ignition key cylinder.

Turn the ignition switch from ON to LOCK at approx. 1 sec. interval 1 to 5 times to select the mode.

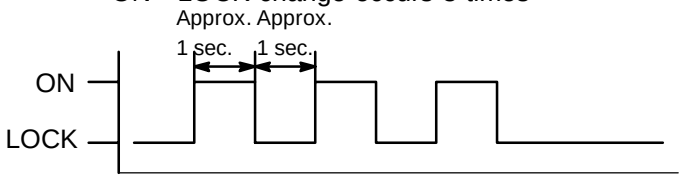
Add mode

ON - LOCK change occurs 1 time



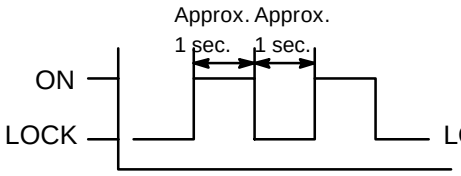
Confirmation mode

ON - LOCK change occurs 3 times



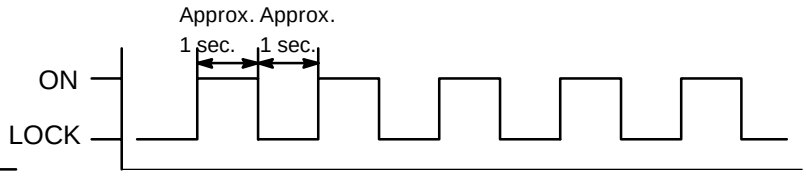
Rewrite mode

ON - LOCK change occurs 2 times



Prohibition mode

ON - LOCK change occurs 5 times



Pull out the key plate from the ignition key cylinder.

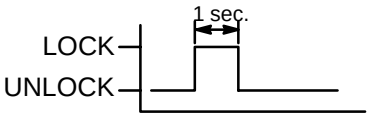
When add mode or rewrite mode is selected.

MPX body ECU automatically performs the LOCK-UNLOCK operation once or twice at 1 sec. interval to inform the operator that either the add mode or rewrite mode has been selected.

Within 3 secs.

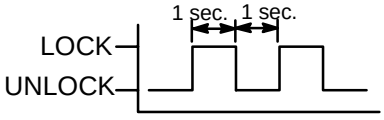
LOCK-UNLOCK occurs once

Indicates that add mode has been selected.



LOCK-UNLOCK occurs twice

Indicates that rewrite mode has been selected.

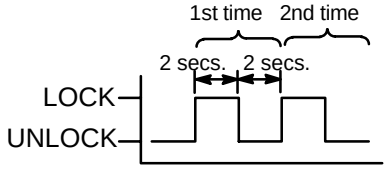


When prohibition mode is selected.

When confirmation mode is selected.

MPX body ECU automatically performs the LOCK-UNLOCK operation 1 to 4 times at 2 sec. interval to inform the operator of the number of the registered codes.
HINT:
When the number of the registered code is 0, the operation is automatically performed 5 times.

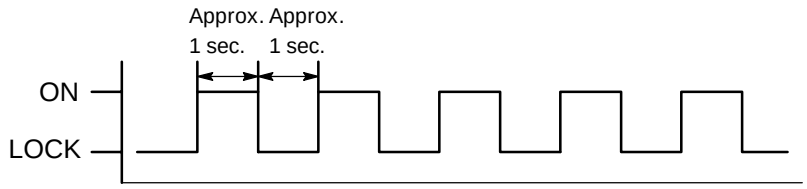
Example:
When the operation is performed twice, it directs that 2 types of recognition code have been registered.



Registration of recognition code (Confirmation mode and prohibition mode) is completed.

When prohibition mode is selected.

MPX body performs LOCK-UNLOCK operation 5 times at a 1 sec. interval to inform the operator that prohibition mode has been selected.



Within 40 secs.

Press the lock and unlock switches on the transmitter simultaneously within 1.5 sec.

Within 3 secs.

Press again either of switches on the transmitter for more than 1 sec.

Within 3 secs.

MPX body ECU automatically performs LOCK-UNLOCK operation once or twice at a 1 sec. interval to inform the operator that the receiver has received the signal from the transmitter.

LOCK-UNLOCK occurs once

Registration of recognition code is completed

LOCK-UNLOCK occurs twice

Registration of recognition code has not been completed.

- Recognition code received first time and second time did not match.

If LOCK-UNLOCK operation can not be performed at all, the mode returns to the normal mode, then start with ”Start registration of recognition code”.

Proceed to finish registration

Proceed to continue registration

Within 40 secs.

If even one of the following conditions is satisfied, registration of recognition codes is completed.

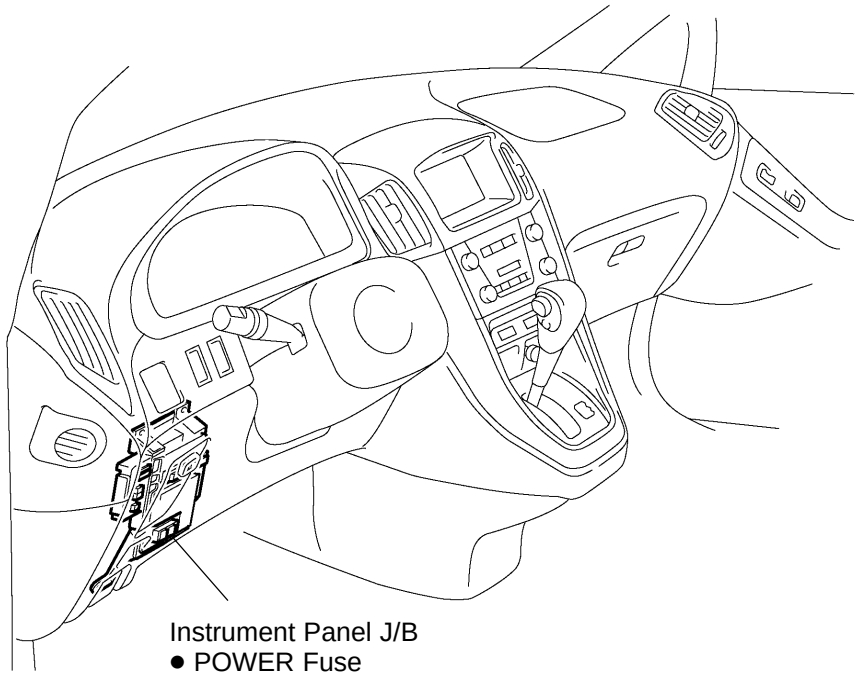
- 40 secs. elapses since the MPX body ECU response.
- The driver’s door is closed.
- The key plate is inserted in the ignition key cylinder.
- 4 type recognition codes are registration at one time.

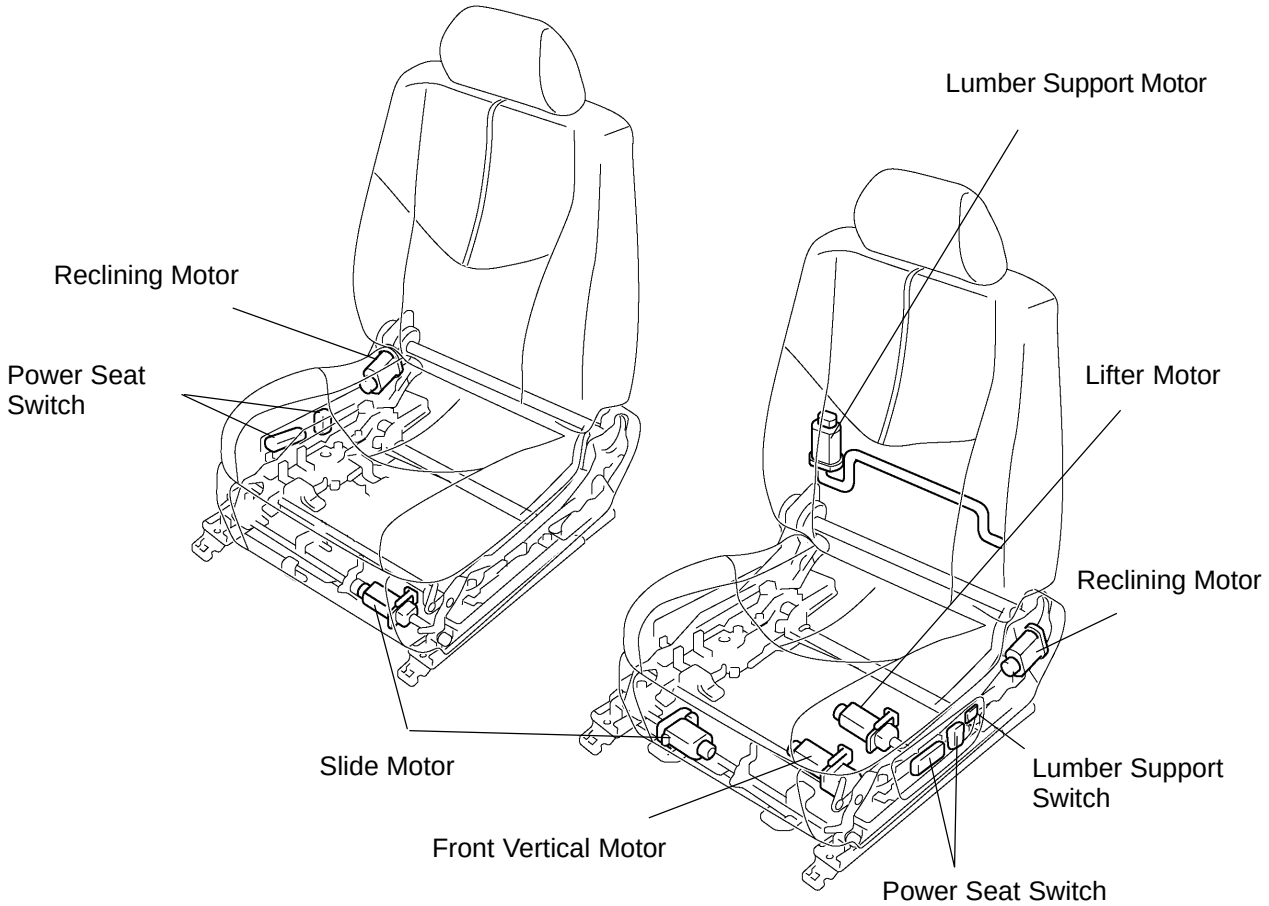
Registration of recognition codes (add mode or rewrite mode) is completed.

POWER SEAT CONTROL SYSTEM

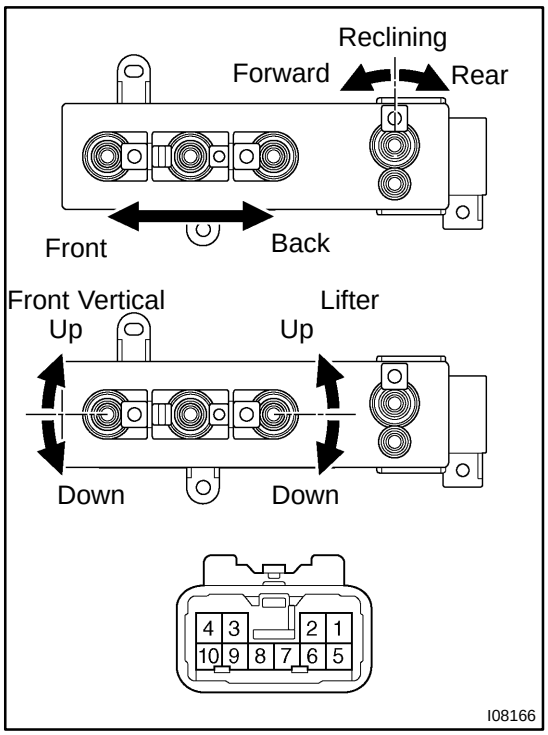
BE0GK-03

LOCATION





BE0UM-03



INSPECTION

1. INSPECT DRIVER'S POWER SEAT SWITCH CONTINUITY

Slide switch:

Switch position	Tester connection	Specified condition
FRONT	1 - 9 4 - 6	Continuity
OFF	4 - 6 4 - 9	Continuity
BACK	1 - 6 4 - 9	Continuity

Front vertical switch:

Switch position	Tester connection	Specified condition
UP	1 - 10 4 - 5	Continuity
OFF	4 - 5 4 - 10	Continuity
DOWN	1 - 5 4 - 10	Continuity

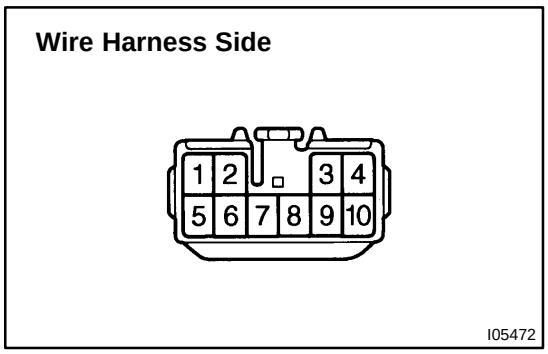
Lifter switch:

Switch position	Tester connection	Specified condition
UP	1 - 7 4 - 8	Continuity
OFF	4 - 7 4 - 8	Continuity
DOWN	1 - 8 4 - 7	Continuity

Reclining switch:

Switch position	Tester connection	Specified condition
FORWARD	1 - 3 2 - 4	Continuity
OFF	2 - 4 3 - 4	Continuity
REAR	1 - 2 3 - 4	Continuity

If continuity is not as specified, replace the switch.



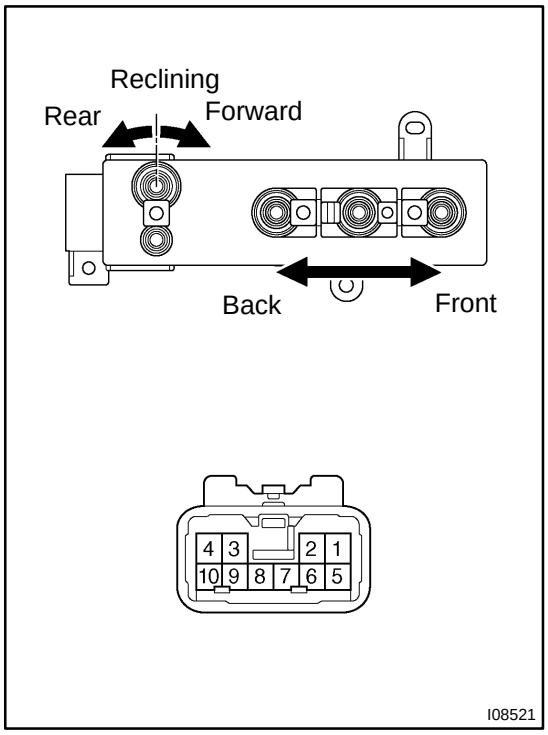
2. INSPECT DRIVER'S POWER SEAT SWITCH CIRCUIT

(a) Disconnect the switch connector and connect the seat wire harness to the floor wire harness.

(b) Inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
4 - Ground	Constant	Continuity
1 - Ground	Constant	Battery positive voltage

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



3. INSPECT PASSENGER'S POWER SEAT SWITCH CONTINUITY

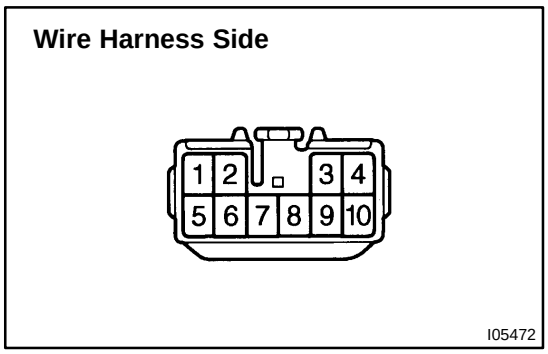
Slide switch:

Switch position	Tester connection	Specified condition
FRONT	1 - 9 4 - 6	Continuity
OFF	4 - 6 4 - 9	Continuity
BACK	1 - 6 4 - 9	Continuity

Reclining switch:

Switch position	Tester connection	Specified condition
FORWARD	1 - 3 2 - 4	Continuity
OFF	2 - 4 3 - 4	Continuity
REAR	1 - 2 3 - 4	Continuity

If continuity is not as specified, replace the switch.



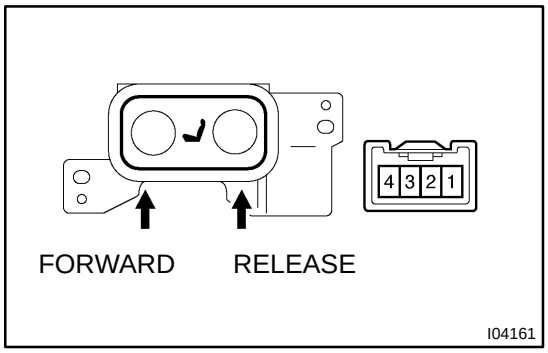
4. INSPECT PASSENGER'S POWER SEAT SWITCH CIRCUIT

(a) Disconnect the switch connector and connect the seat wire harness to the floor wire harness.

(b) Inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
4 - Ground	Constant	Continuity
1 - Ground	Constant	Battery positive voltage

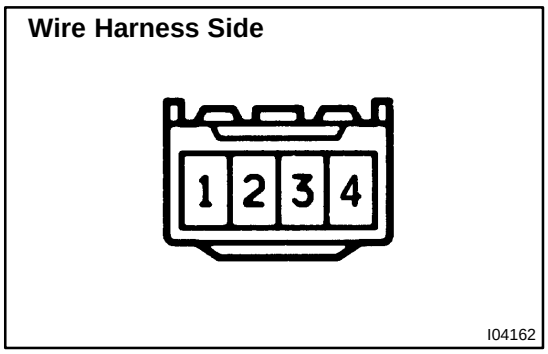
If circuit is not as specified, inspect the circuits connected to other parts.



5. INSPECT DRIVER'S LUMBAR SUPPORT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
FORWARD	1 - 4 2 - 3	Continuity
OFF	1 - 3 2 - 3	Continuity
RELEASE	1 - 3 2 - 4	Continuity

If continuity is not as specified, replace the switch.



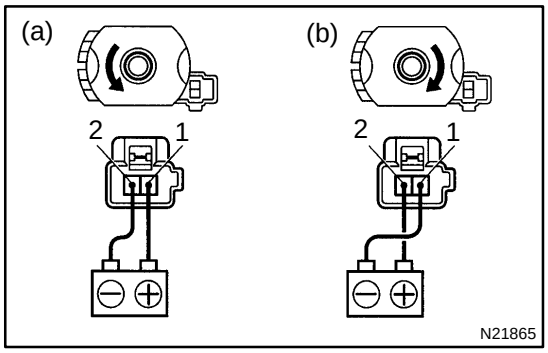
6. INSPECT DRIVER'S LUMBAR SUPPORT SWITCH CIRCUIT

(a) Disconnect the switch connector and connect the seat wire harness to the floor wire harness.

(b) Inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
3 - Ground	Constant	Continuity
4 - Ground	Constant	Battery positive voltage

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

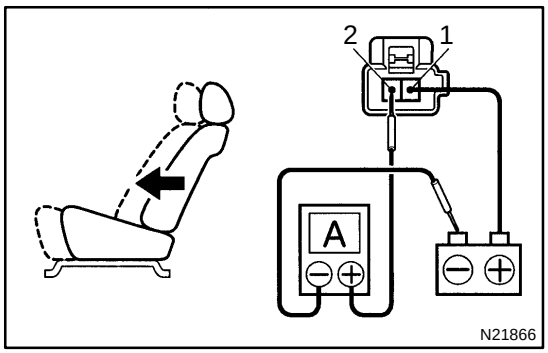


7. INSPECT SLIDE MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns counterclockwise.

(b) Reverse the polarity, check that the motor turns clockwise.

If operation is not as specified, replace the seat adjuster.

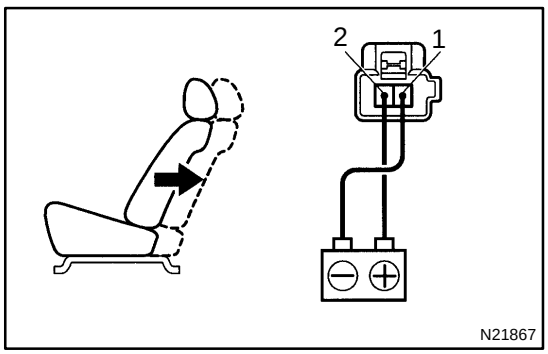


8. INSPECT SLIDE MOTOR PTC THERMISTOR OPERATION

( ): Passenger side

(a) Connect the positive (+) lead from the battery to terminal 1 (2), the positive (+) lead from the ammeter to terminal 2 (1) and the negative (-) lead to the battery negative (-) terminal, then move the seat cushion to the front position.

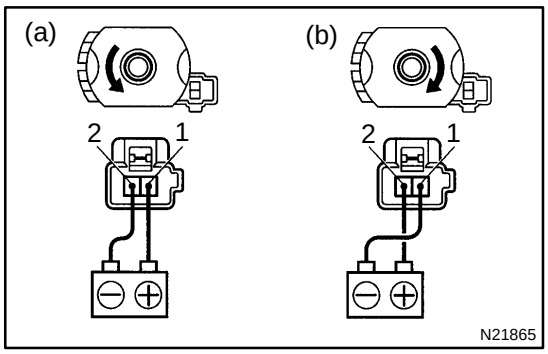
(b) Continue to apply voltage, check that current changes to less than 1 ampere within 4 to 90 seconds.



(c) Disconnect the leads from terminals.

(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 (1) and the negative (-) lead to terminal 1 (2), check that the seat cushion begins to move backwards.

If operation is not as specified, replace the seat adjuster.

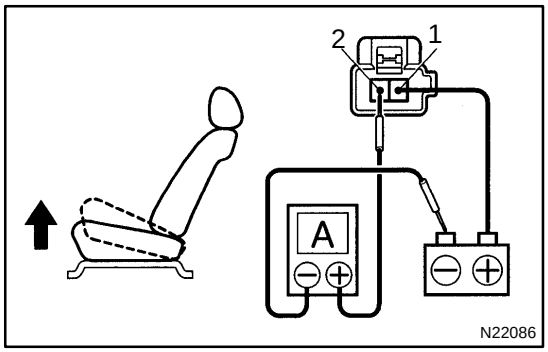


9. INSPECT FRONT VERTICAL MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns counterclockwise.

(b) Reverse the polarity, check that the motor turns clockwise.

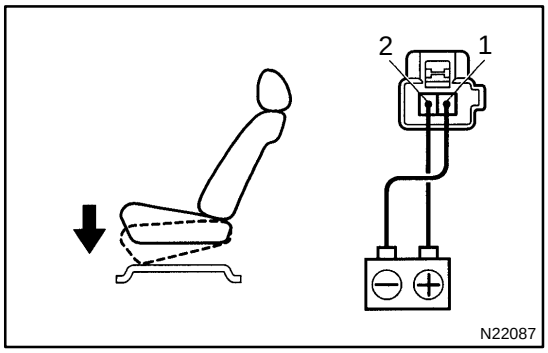
If operation is not as specified, replace the seat adjuster.



10. INSPECT FRONT VERTICAL MOTOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1, the positive (+) lead from the ammeter to terminal 2 and the negative (-) lead to the battery negative (-) terminal, then move the seat cushion to the highest position.

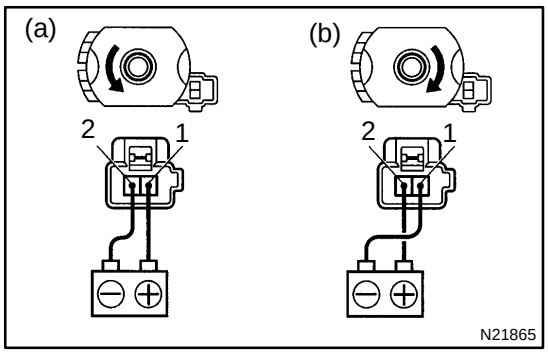
(b) Continue to apply voltage, check that the current changes to less than 1 ampere within 4 to 90 seconds.



(c) Disconnect the leads from the terminals.

(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, check that the seat cushion begins to descend.

If operation is not as specified, replace the seat adjuster.

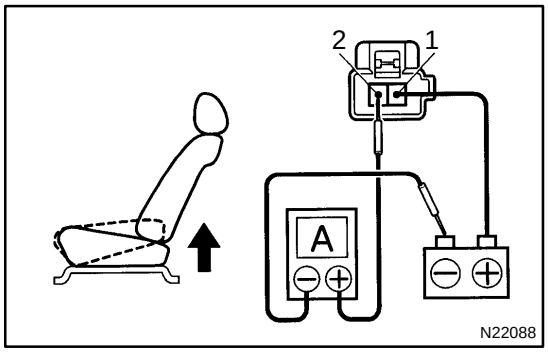


11. INSPECT LIFTER MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns counterclockwise.

(b) Reverse the polarity, check that the motor turns clockwise.

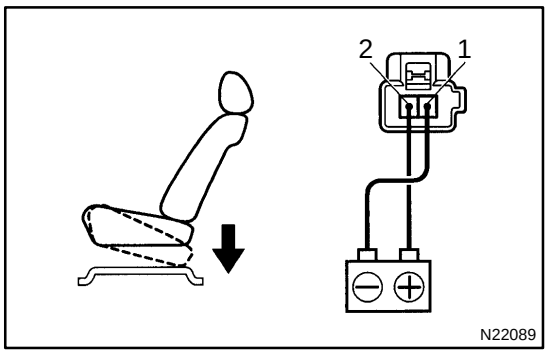
If operation is not as specified, replace the seat adjuster.



12. INSPECT LIFTER MOTOR PTC THERMISTOR OPERATION

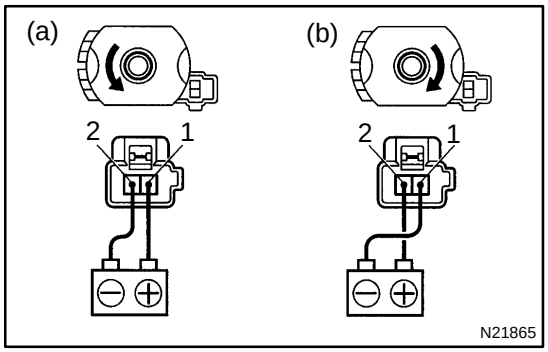
(a) Connect the positive (+) lead from the battery to terminal 2, the positive (+) lead from the ammeter to terminal 1 and the negative (-) lead to the battery negative (-) terminal, then move the seat cushion to the highest position.

(b) Continue to apply voltage, check that the current changes to less than 1 ampere within 4 to 90 seconds.



(c) Disconnect the leads from the terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the seat cushion begins to descend.

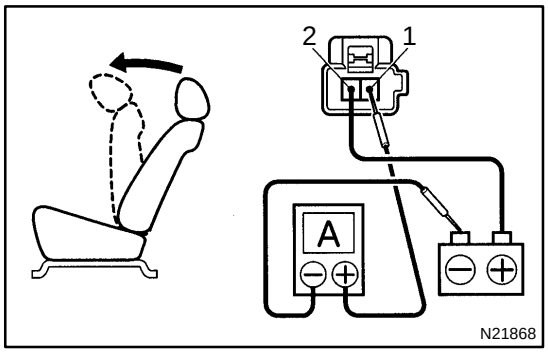
If operation is not as specified, replace the seat adjuster.



13. INSPECT RECLINING MOTOR OPERATION

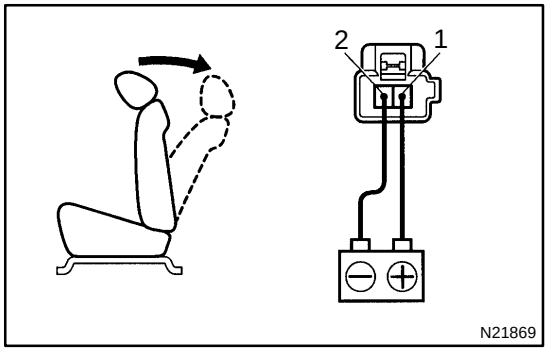
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the motor turns counterclockwise.
(b) Reverse the polarity, check that the motor turns clockwise.

If operation is not as specified, replace the seat adjuster.



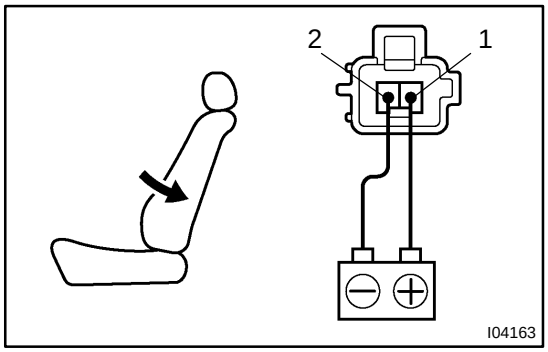
14. INSPECT RECLINING MOTOR PTC THERMISTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2, the positive (+) lead from the ammeter to terminal 1 and the negative (-) lead to the battery negative (-) terminal, then recline the seat back to the most forward position.
(b) Continue to apply voltage, check that the current changes to less than 1 ampere within 4 to 90 seconds.



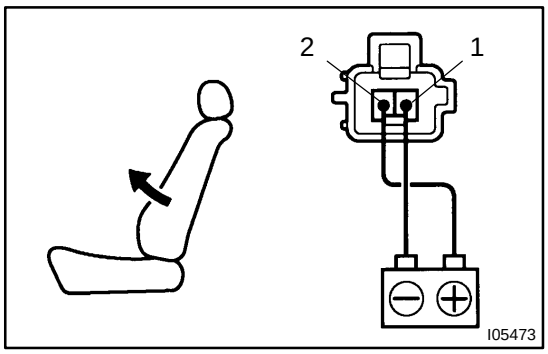
(c) Disconnect the leads from the terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the seat back begins to fall backward.

If operation is not as specified, replace the seat adjuster.



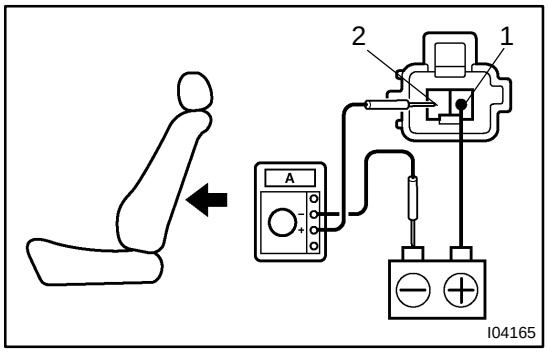
15. INSPECT LUMBAR SUPPORT MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, check that the lumbar support moves to release side.



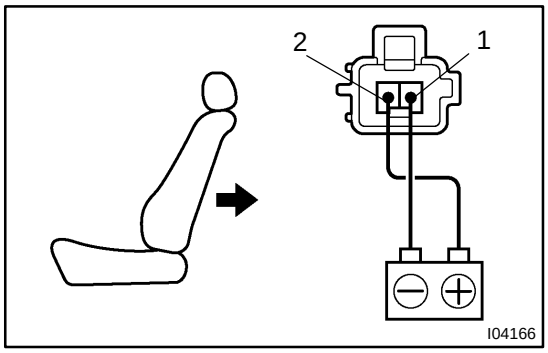
(b) Reverse the polarity, check that the lumbar support moves forward.

If operation is not as specified, replace the seat adjuster.



16. INSPECT LUMBAR SUPPORT MOTOR CIRCUIT BREAKER OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1 on the lumbar support motor connector and move the lumbar support to front end position.



(b) Continue to apply voltage, check that a circuit breaker operation noise can be heard within 4 to 60 seconds.

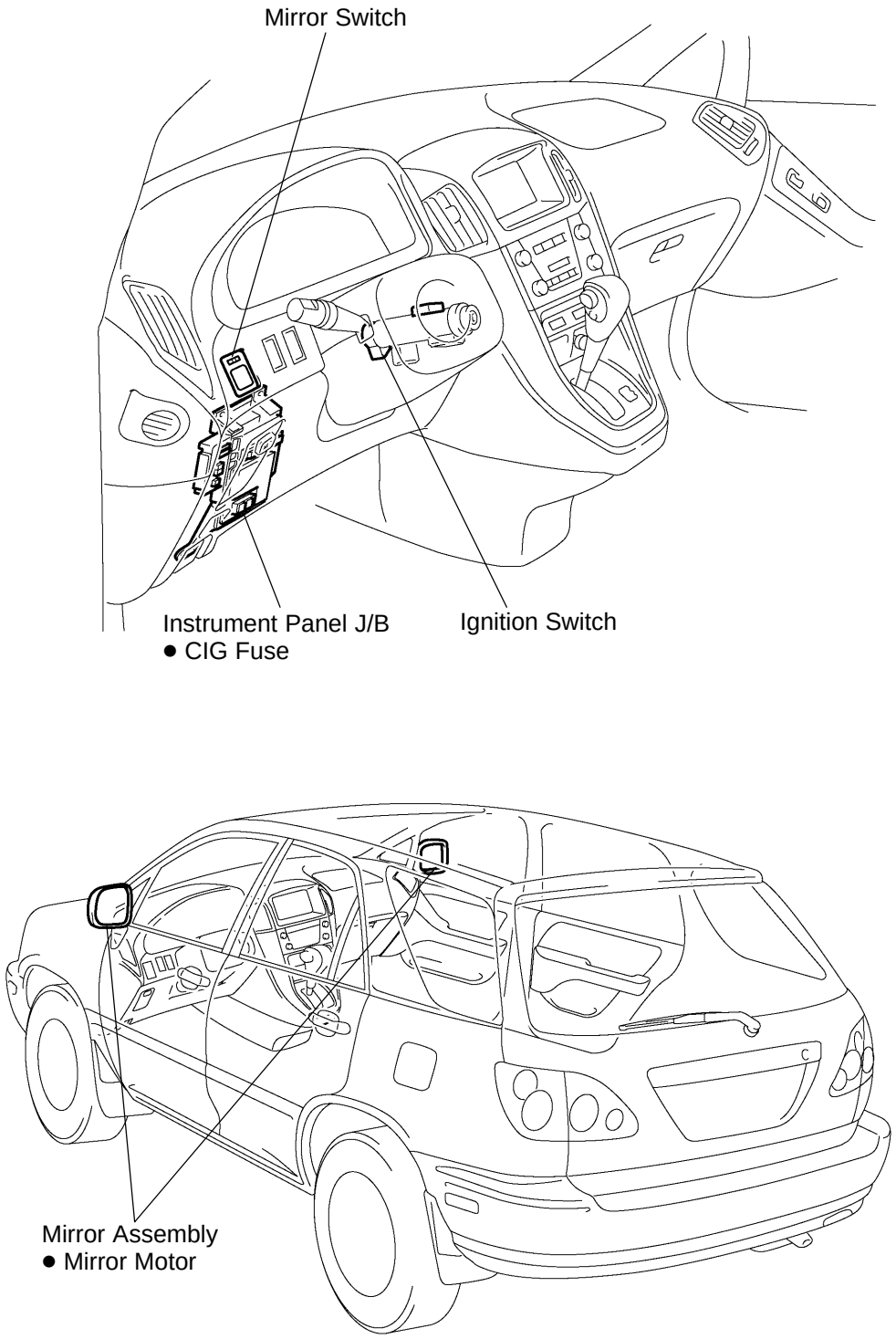
(c) Reverse the polarity, check that the lumbar support begins to move release side with in approximately 60 seconds.

If operation is not as specified, replace the motor.

POWER MIRROR CONTROL SYSTEM

BE0FP-02

LOCATION



BE0FQ-02

INSPECTION

1. INSPECT MIRROR CONTROL SWITCH CONTINUITY

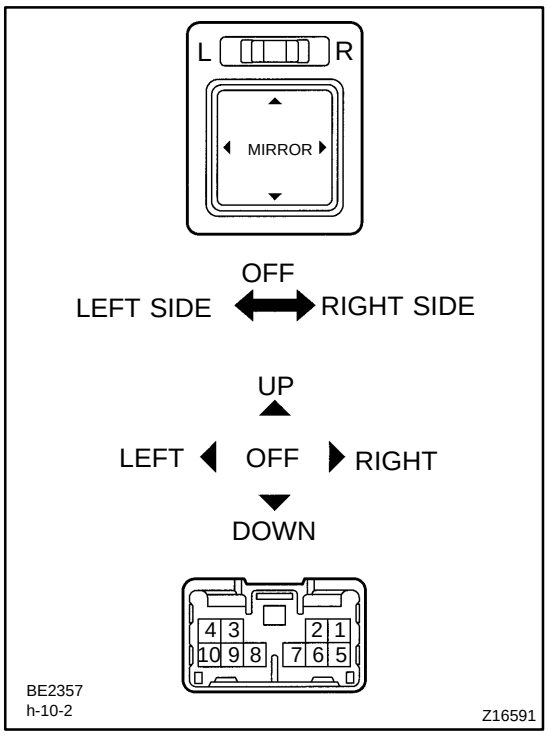
Left side:

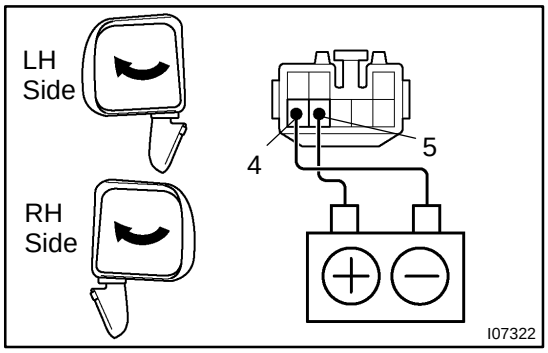
Switch position	Tester connection	Specified condition
OFF	-	No continuity
UP	1 - 9, 6 - 10	Continuity
DOWN	1 - 10, 6 - 9	Continuity
LEFT	5 - 9, 6 - 10	Continuity
RIGHT	5 - 10, 6 - 9	Continuity

Right side:

Switch position	Tester connection	Specified condition
OFF	-	No continuity
UP	6 - 10, 7 - 9	Continuity
DOWN	6 - 9, 7 - 10	Continuity
LEFT	6 - 10, 8 - 9	Continuity
RIGHT	6 - 9, 8 - 10	Continuity

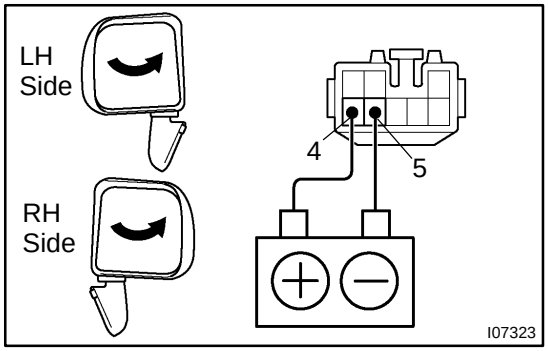
If continuity is not as specified, replace the switch.



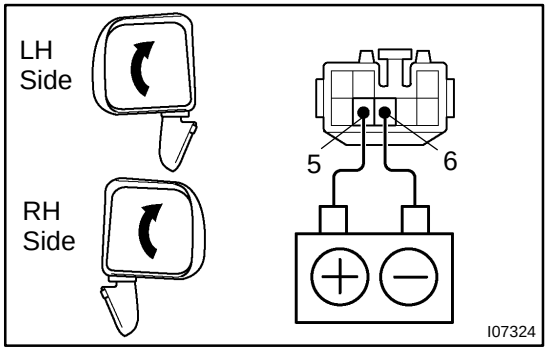


2. INSPECT MIRROR MOTOR OPERATION

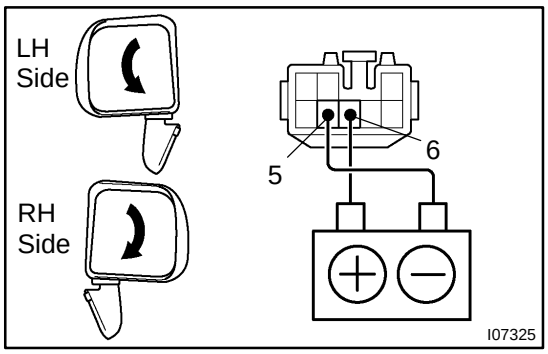
(a) Connect the positive (+) lead from the battery to terminal 5 and negative (-) lead to terminal 4, check that the mirror turns to left side.



(b) Reverse the polarity, check that the mirror turns to right side.



(c) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6, check that the mirror turns upward.



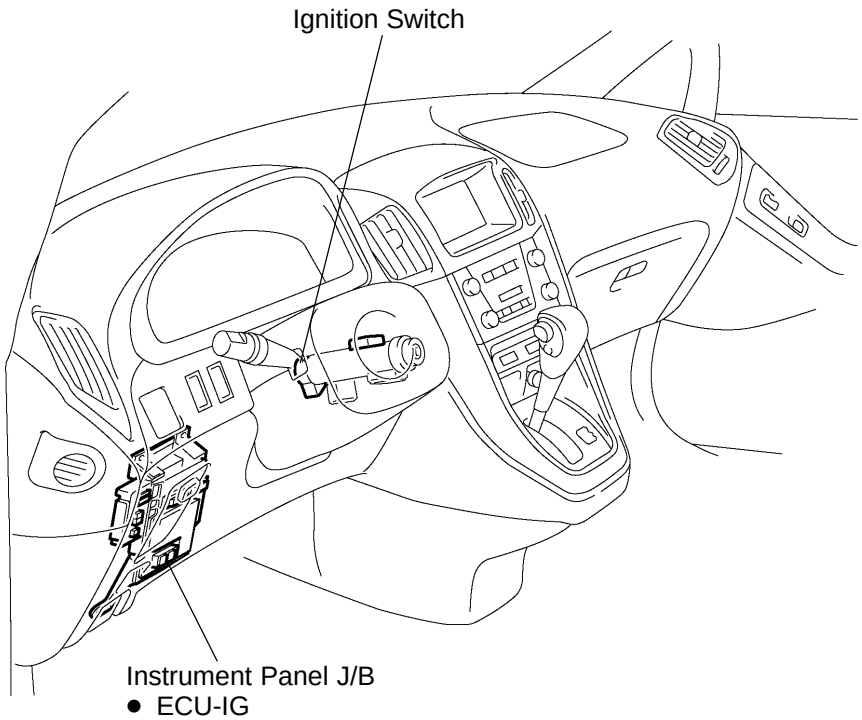
(d) Reverse the polarity, check that the mirror turns down ward.

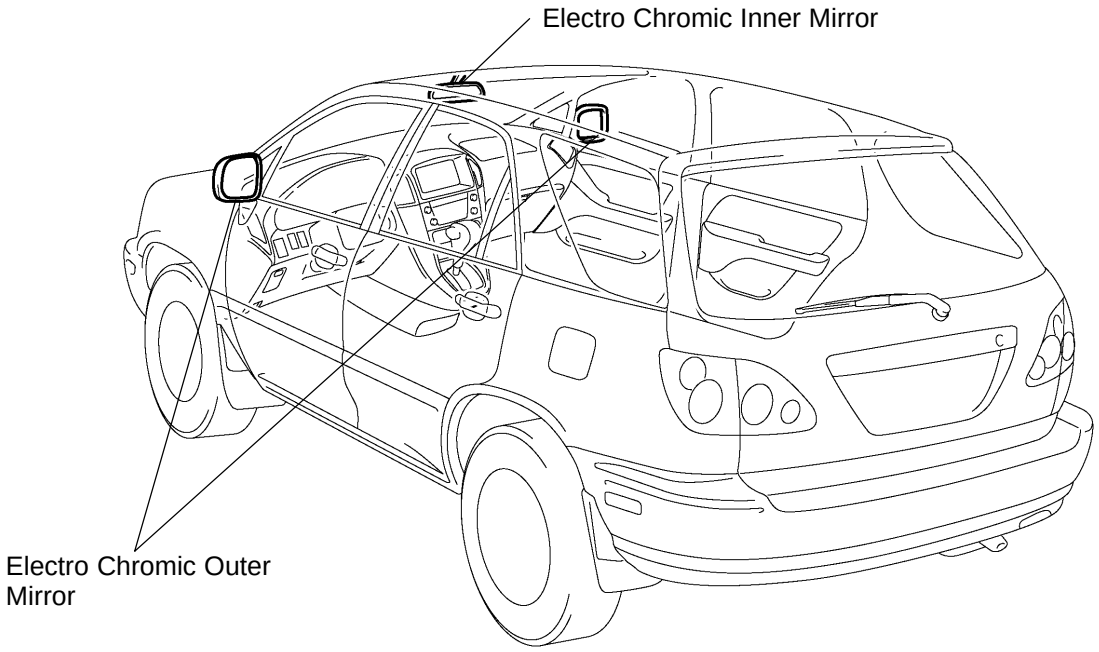
If operation is not as specified, replace the mirror assembly.

ELECTRO CHROMIC MIRROR SYSTEM

BE0HC-03

LOCATION

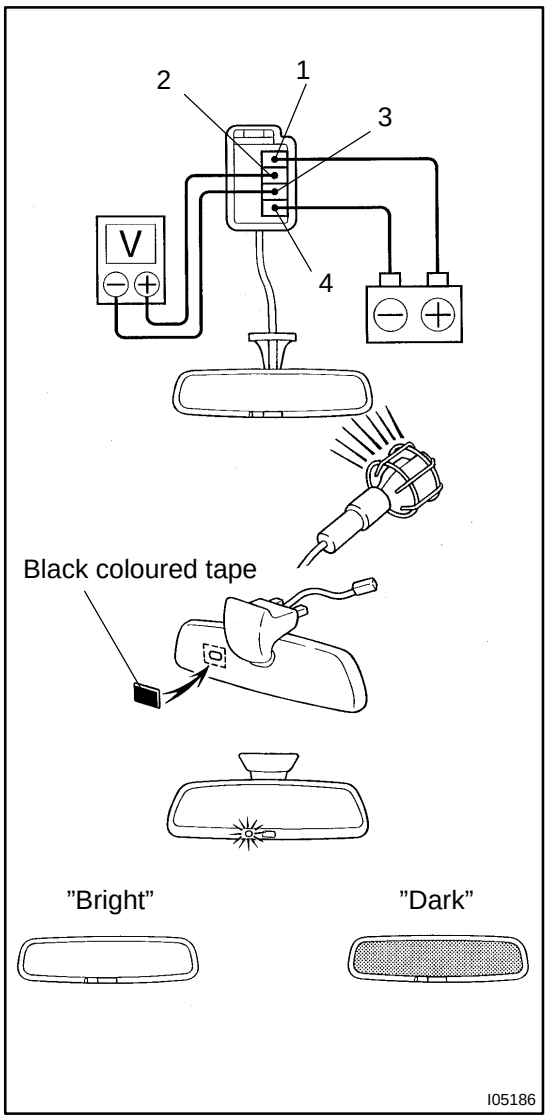




I07367

BE0UN-03

INSPECTION



1. INSPECT ELECTRO CHROMIC INNER MIRROR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 4.

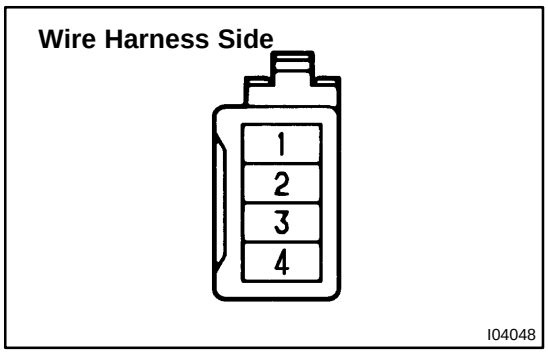
(b) Connect the positive (+) lead from the voltmeter to terminal 2 and the negative (-) lead to terminal 3.

(c) Attach a black coloured tape to forward sensor to prevent it from sensing.

(d) When the mode is turned to AUTO, check that indicator light lights up.

(e) Light up the mirror with an electric light, and check that there is battery positive voltage and mirror surface changes ”bright” to ”dark”.

If operation is not as specified, replace the inner mirror.

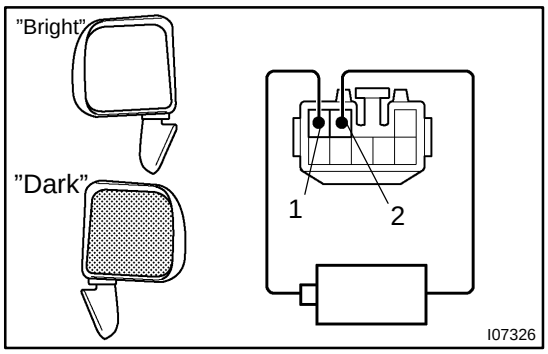


2. INSPECT ELECTRO CHROMIC INNER MIRROR CIRCUIT

Disconnect the connector from the mirror and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
4 - Ground	Constant	Continuity
1 - Ground	Ignition switch LOCK or ACC	No voltage
1 - Ground	Ignition switch ON	Battery positive voltage

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



3. INSPECT ELECTRO CHROMIC OUTER MIRROR OPERATION

(a) Disconnect the outer mirror connector.

(b) Connect the positive (+) lead from the dry cell battery to terminal 2 and the negative (-) lead to terminal 1, then check that the mirror surface changes to ”dark”.

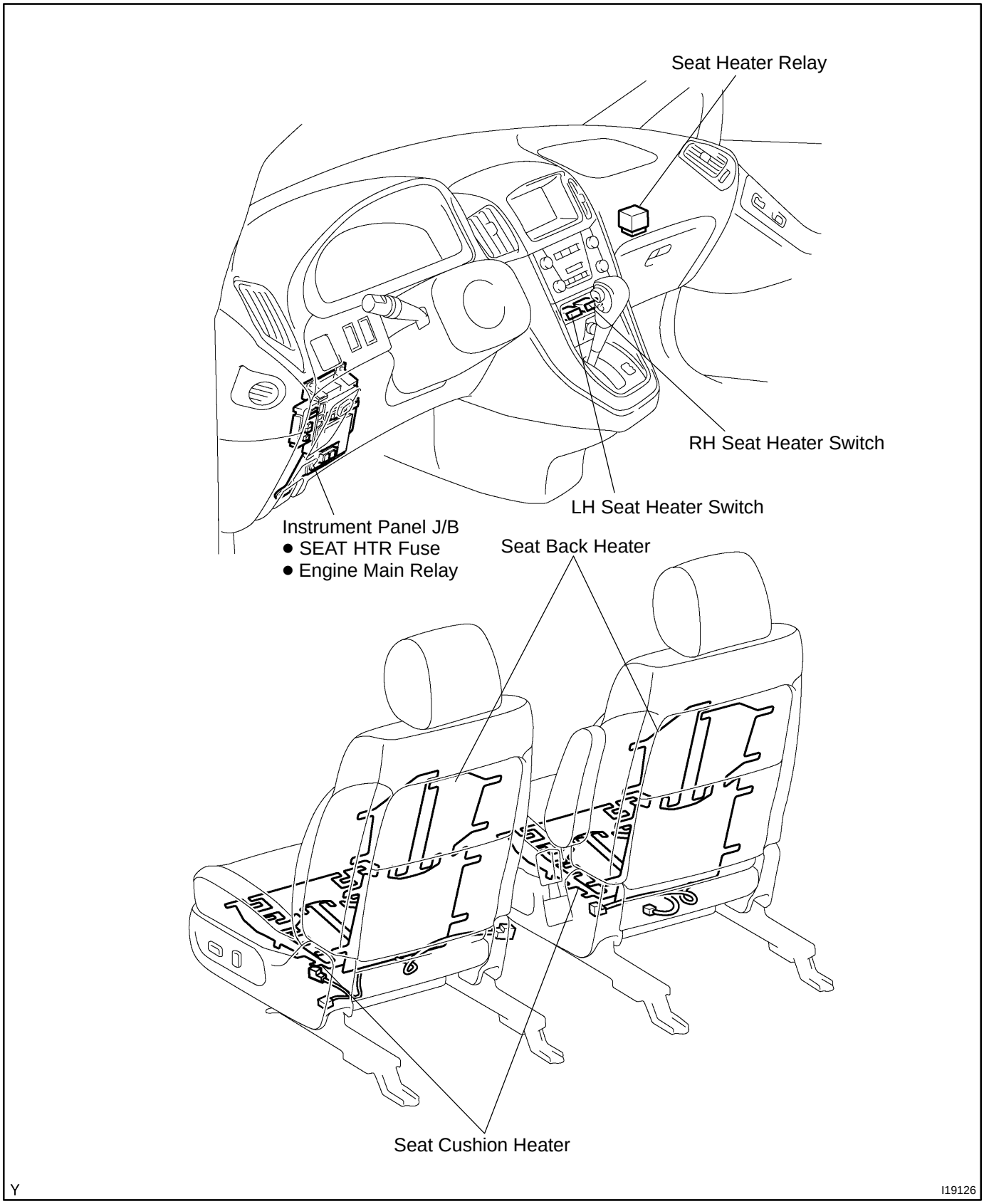
(c) Check the mirror turns to ”bright” after disconnecting the battery.

If operation is not as specified, replace the mirror assembly.

SEAT HEATER SYSTEM

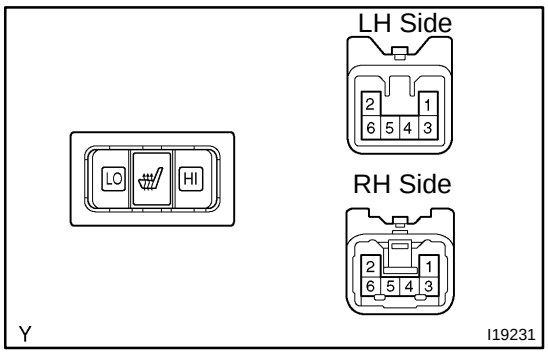
LOCATION

BE0GH-15



BE20M-02

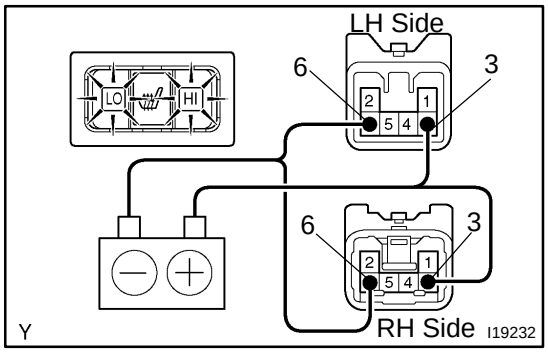
INSPECTION



1. INSPECT SEAT HEATER SWITCH CONTINUITY

Condition	Tester connection	Specified condition
OFF	-	No continuity
HI	2 - 4, 3 - 6	Continuity
LO	3 - 4	Continuity
Illumination circuit	1 - 5	Continuity

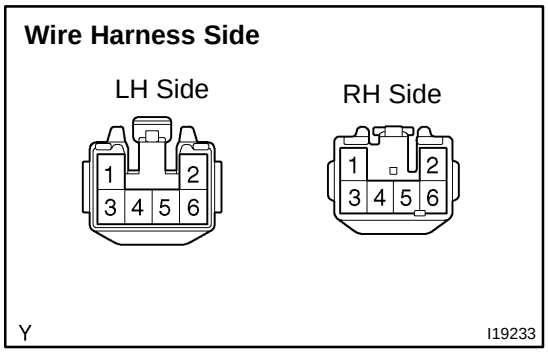
If continuity is not as specified, replace the switch or bulb.



2. INSPECT SEAT HEATER SWITCH INDICATOR

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 6.
(b) Push the switches ”HI” position, check that the indicator of ”HI” position lights up.
(c) Push the switches ”LO” position, check that the indicator of ”LO” position lights up.

If operation is not as specified, replace the switch and inspect the circuits connected to other parts.

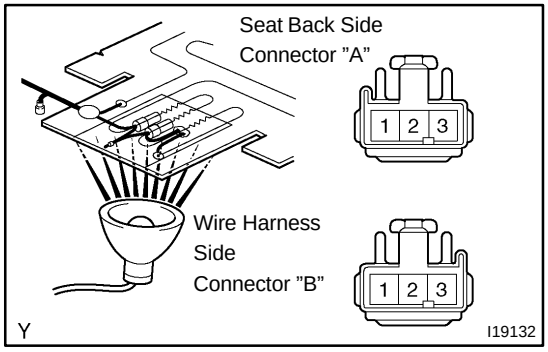


3. INSPECT SEAT HEATER SWITCH CIRCUIT

Disconnect the switch connector and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
6 - Ground	Constant	Continuity
4 - Ground	Ignition switch position LOCK or ACC	No voltage
	Ignition switch position ON	Battery positive voltage
1 - Ground	Light control switch OFF	No voltage
	Light control switch TAIL or HEAD	Battery positive voltage

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

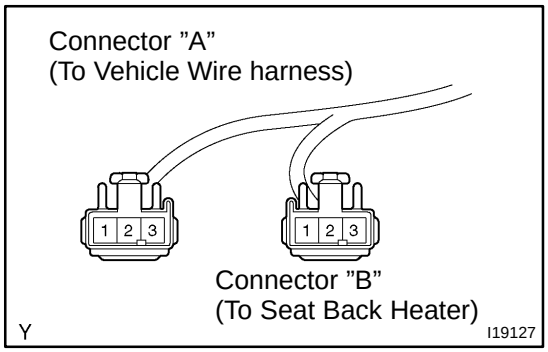


4. INSPECT SEAT HEATER CUSHION CONTINUITY

(a) Disconnect the seat back heater from the seat cushion heater.
(b) Heat the thermostat with a light.
(c) Inspect the seat cushion heater continuity between terminals, as shown.

Tester connection	Condition	Specified condition
A1 - B3	Constant	Continuity
A2 - B4, A3 - B2	Seat heater temp. below 25 – 35 ˚C (77 - 95 ˚F)	Continuity
A3 - B2	Seat heater temp. 46 - 54 ˚C (115 - 129 ˚F) or more	No continuity
A2 - B1	Seat heater temp. 36 - 44 ˚C (97 - 111 ˚F) or more	No continuity

If continuity is not as specified, replace the seat cushion hearer.

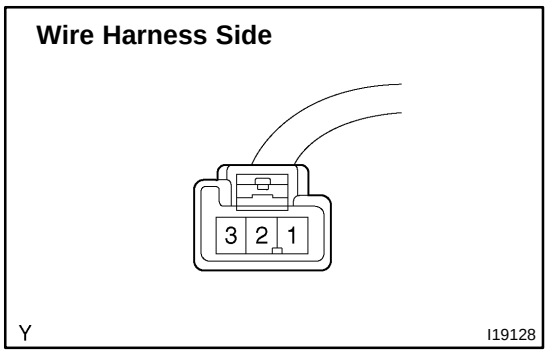


5. INSPECT SEAT HEATER CUSHION CONTINUITY

Inspect the seat heater inner cushion and front cushion continuity between terminals, as shown.

Tester connection	Condition	Specified condition
A1 - B3, A2 - B1	Seat heater temp. below 25 ˚C (77 ˚F)	Continuity

If continuity is not as specified, replace the seat cushion heater.



6. INSPECT SEAT BACK CONTINUITY

Inspect the seat back continuity between terminals, as shown.

Tester connection	Condition	Specified condition
1 - 3, 2 - 3	Seat heater temp. below 25 ˚C (77 ˚F)	Continuity

If continuity is not as specified, replace the seat back heater.

AUDIO SYSTEM (w/ LEXUS Navigation System)

BE1VH-03

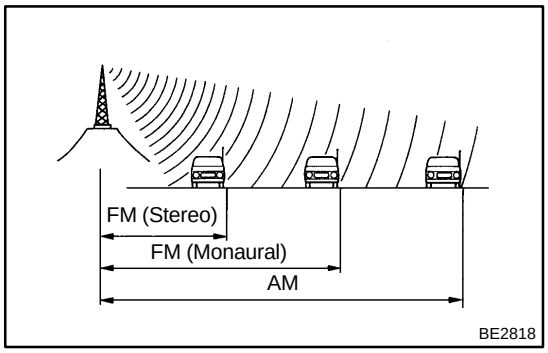
DESCRIPTION

1. RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30 kHz	300 kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave		AM ⟷		FM ⟷	
Modulation method	Amplitude modulation			Frequency modulation	

LF: Low frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

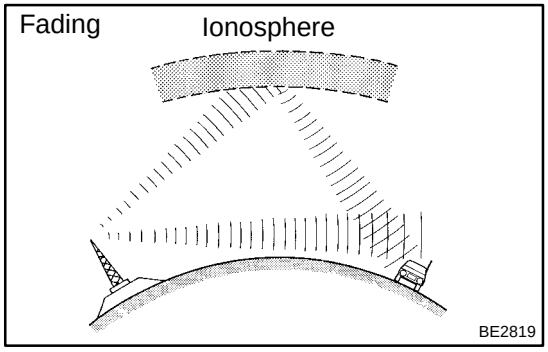


2. SERVICE AREA

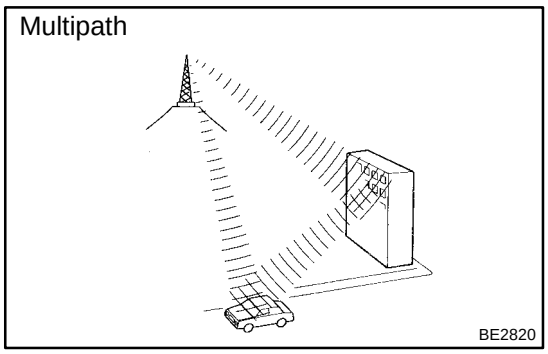
There are great differences in the size of the service area for AM and FM monaural. Sometimes FM stereo broadcasts cannot be received even through AM comes in very clearly.
Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference (”noise”) easily.

3. RECEPTION PROBLEMS

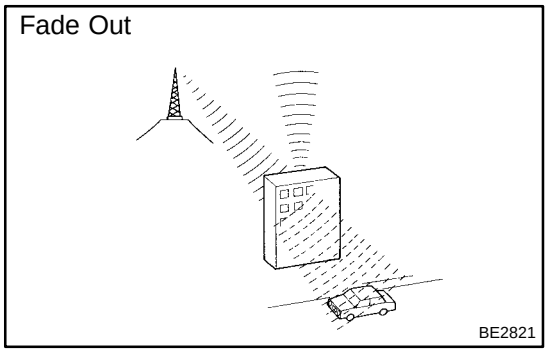
Besides the problem of static, there are also the problems called ”fading”, ”multipath” and ”fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.



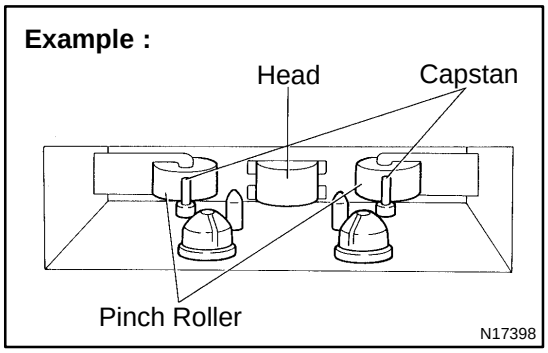
- Fading
  Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle’s antenna directly. This type of interference is called ”fading”.



- Multipath
  One type of interference caused by bouncing of radio waves off obstructions is called ”multipath”. Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly.



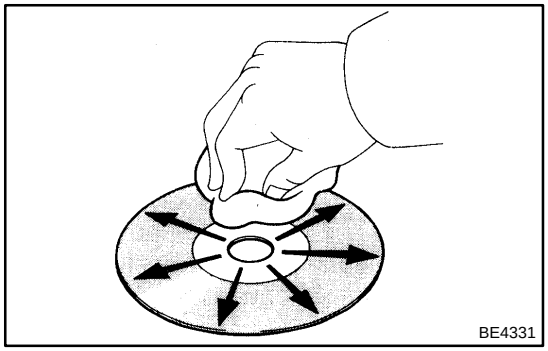
- Fade Out
  Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstructions. This is called ”fade out”.



4. Tape Player/Head Cleaning:
MAINTENANCE

(a) Raise the cassette door with your finger.
Next, using a pencil or similar object, push in the guide.

(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



5. CD Player/Disc Cleaning:
MAINTENANCE

If the disc gets dirty, clean the disc by wiping the surface from the center to outside in the radial directions with a soft cloth.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

BE1VI-03

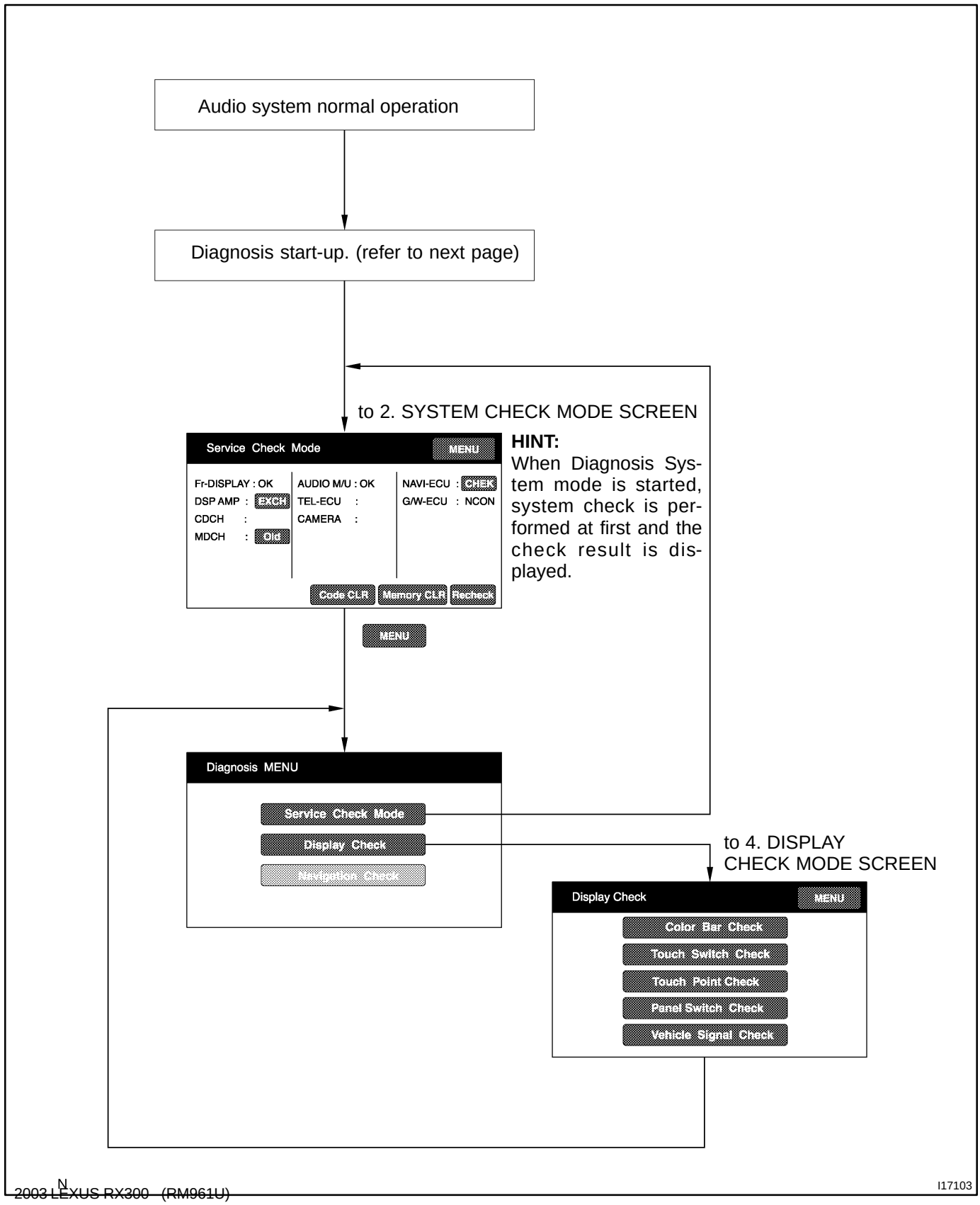
TROUBLESHOOTING

1. DIAGNOSIS SYSTEM MODE (w/o Navigation system)

HINT:

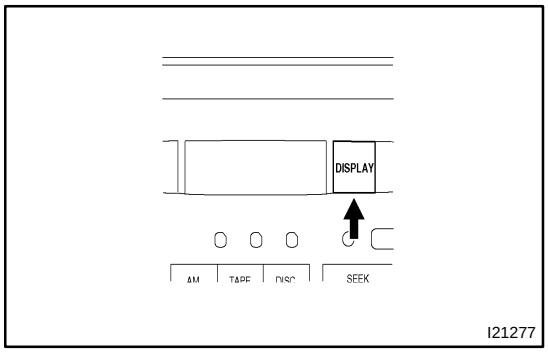
Diagnosis System Mode is operated as follows.

In case of a vehicle without navigation system, there is no navigation check mode. However, other modes except for this are same as a vehicle with navigation system.

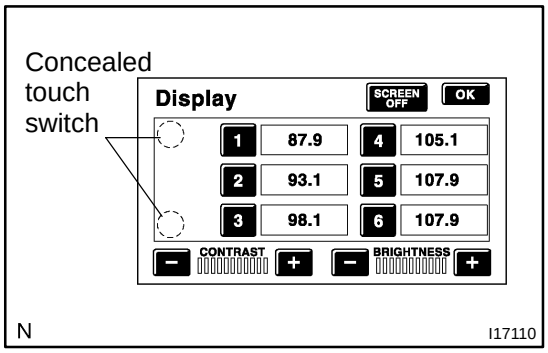


I17103

(a) DIAGNOSIS START-UP
To start the diagnosis menu, there are 2 ways: using a diagnosis check wire and using a switch.



(b) START-UP BY SWITCH OPERATION
(1) Vehicle speed is 0 km/h (0 mph).
(2) Parking brake switch is pressed.
(3) Press the Display switch to display the Screen Adjustment screen.



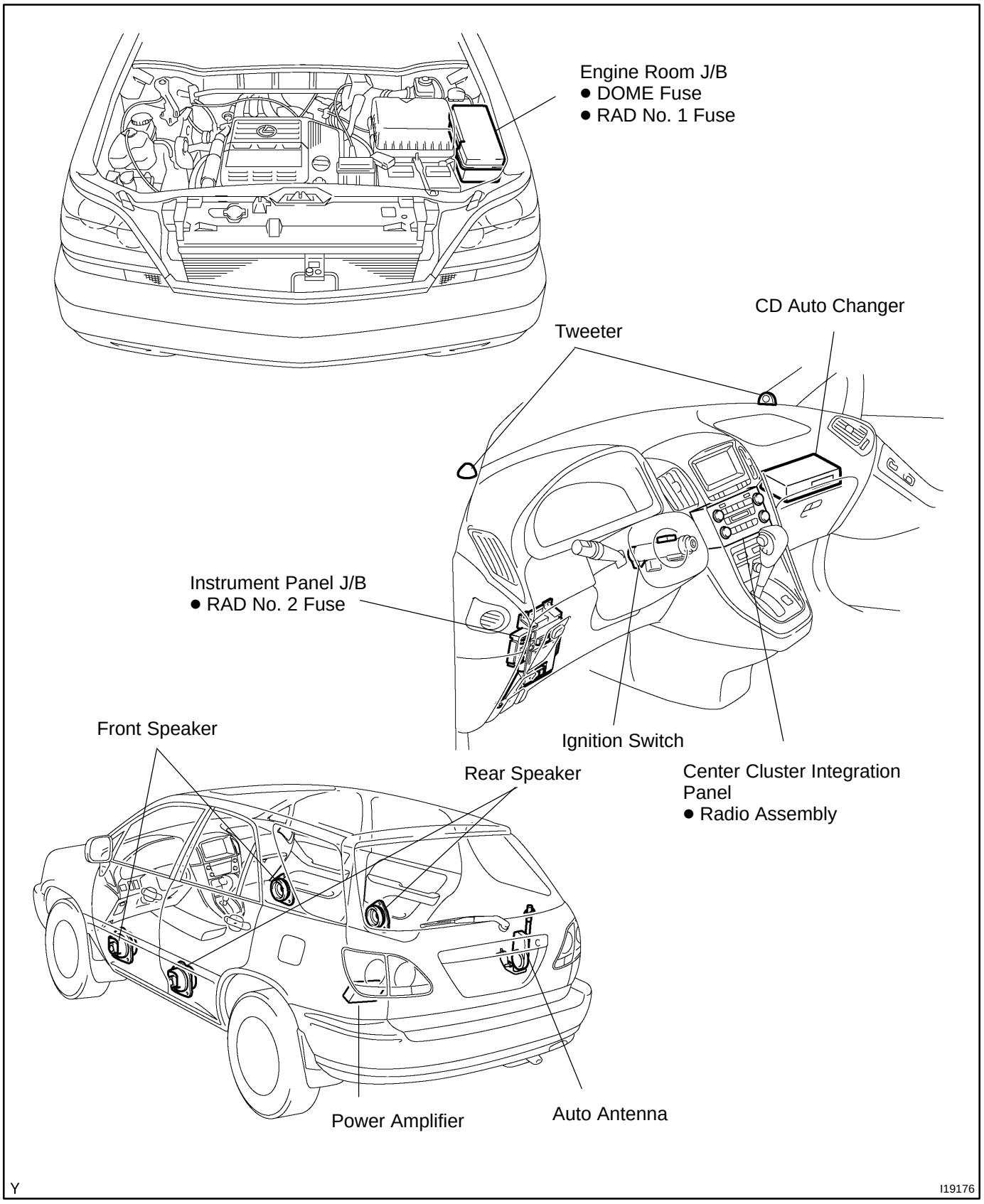
(4) Repeatedly touch the upper and lower bottom parts of the left end of the screen 3 times.

(c) FINISHING DIAGNOSIS SYSTEM MODE
Turn the ignition switch from ACC to OFF to finish the mode. If it is started by switch operation.

2. DIAGNOSIS SYSTEM MODE (w/ Navigation system)
(See page DI-803)

BE1VJ-04

LOCATION

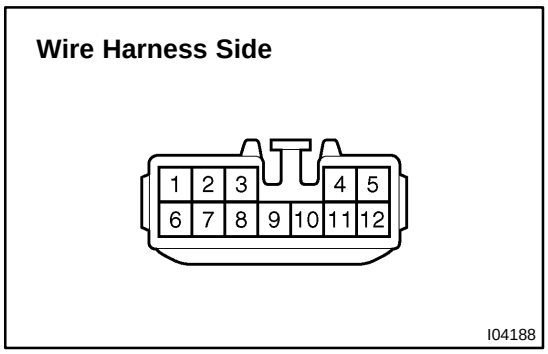


BE1YN-02

INSPECTION

1. INSPECT CD AUTO CHANGER CIRCUIT

Disconnect connectors from CD auto changer and inspect the connector on the wire harness side.



Tester connection	Condition	Specified condition
8 - Ground	Constant	Continuity
12 - Ground	Ignition switch LOCK	No voltage
12 - Ground	Ignition switch ACC or ON	Battery positive voltage
5 - Ground	Constant	Battery positive voltage

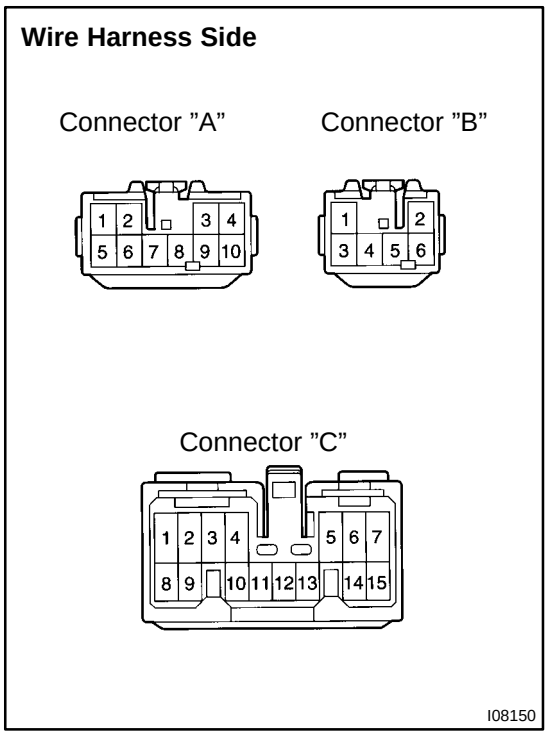
If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

- Check the wire harness between the radio receiver assembly and the CD auto changer.
- Since the signals to and from the MUTE, R^-, R^+, L^-, L^+, TX^- and TX^+ terminals are serial signals, they cannot ordinarily be measured with a tester.

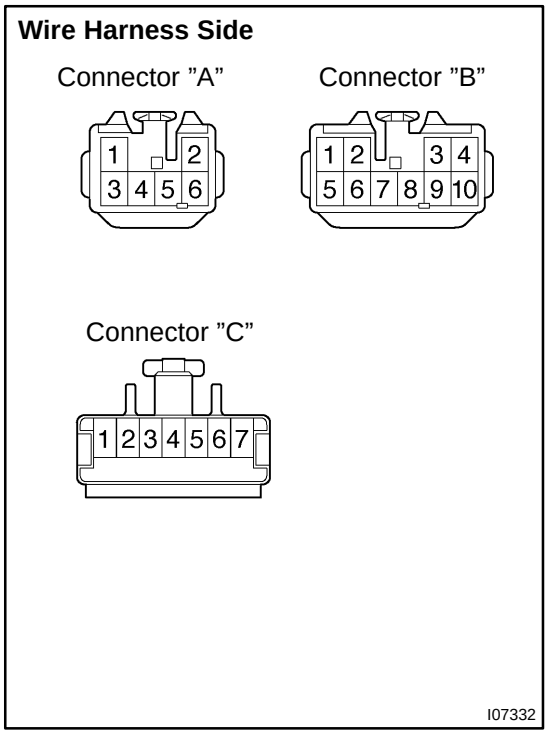
2. INSPECT POWER AMPLIFIER CIRCUIT

Disconnect the connector from power amplifier and inspect the connector on the wire harness side.



Tester connection	Condition	Specified condition
A6 - Ground	Constant	Continuity
A3 - Ground	Ignition switch LOCK and radio switch ON	No voltage
A3 - Ground	Ignition switch ACC or ON and radio switch ON	Battery positive voltage
A4 - Ground	Constant	Battery positive voltage

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



3. INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT

Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
A2 - Ground	Constant	Continuity
A4 - Ground	Constant	Battery positive voltage
A1 - Ground	Ignition switch LOCK	No voltage
A1 - Ground	Ignition switch ACC or ON	Battery positive voltage

HINT:

Check the wire harness between radio receiver assembly and the CD auto changer, between radio receiver assembly and power amplifier.

AUDIO SYSTEM (w/o LEXUS Navigation System)

BE1AO-03

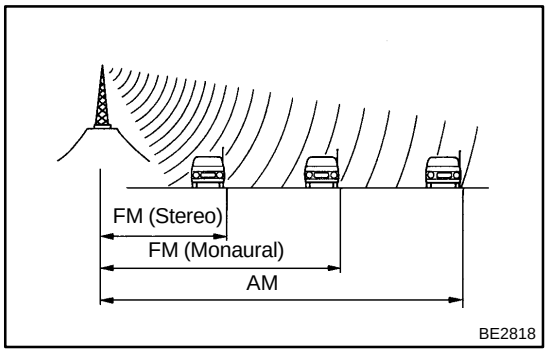
DESCRIPTION

1. RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30 kHz	300 kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave		AM ⟷		FM ⟷	
Modulation	Amplitude modulation			Frequency modulation	

LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency

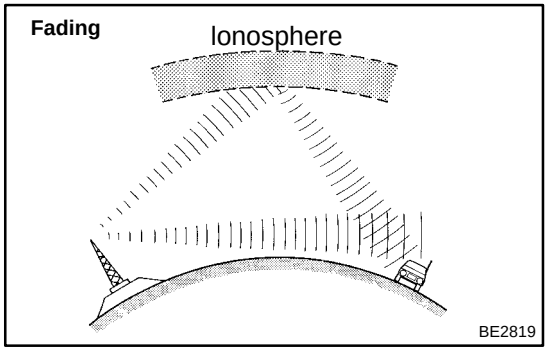


2. SERVICE AREA

There are great differences in the size of the service area for AM and FM monaural. Sometimes FM stereo broadcasts cannot be received even through AM can be received in very clearly.
Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference (”noise”) easily.

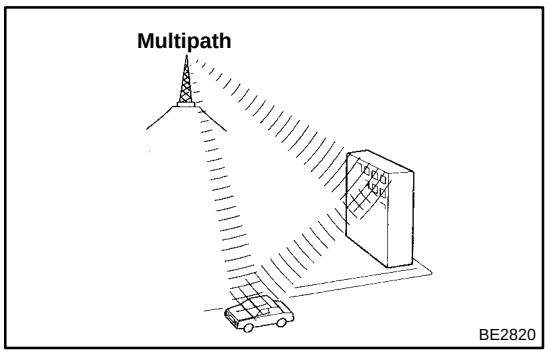
3. RECEPTION PROBLEMS

Besides the problem of static, there are also the problems called ”fading”, ”multipath” and ”fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.

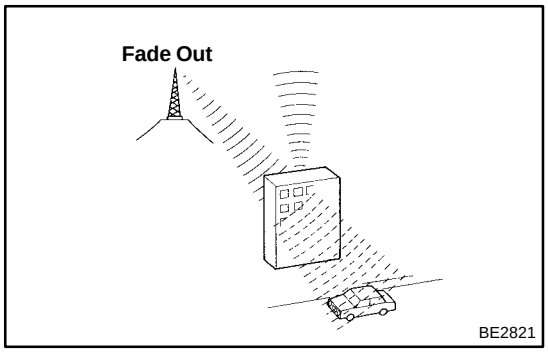


(1) Fading

Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle’s antenna directly. This type of interference is called ”fading”.



(2) Multipath
One type of interference caused by the bounce of radio waves off of obstructions is called ”multipath”. Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly.



(3) Fade Out
Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstruction. This is called ”fade out”.

4. NOISE PROBLEMS

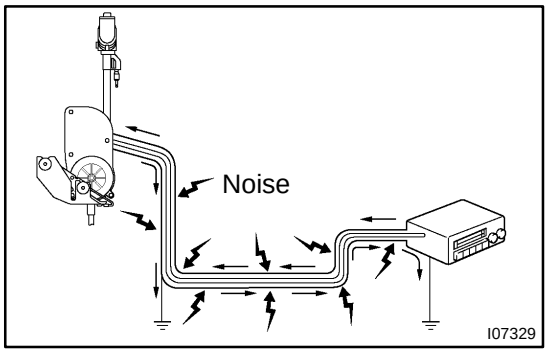
(a) Questionnaire for noise:
It is very important for noise troubleshooting to have good understanding of the claims from the customers, so make the best use of following questionnaire and diagnose the problem accurately.

AM	Noise occurs at a specific place.	Strong possibility of foreign noise.
	Noise occurs when listening to faint broadcasting.	There is a case that the same program is broadcasted from each local station and that may be the case you are listening different station if the program is the same.
	Noise occurs only at night.	Strong possibility of the beat from a distant broadcasting.
FM	Noise occurs while driving and at a specific place.	Strong possibility of multipath noise and fading noise caused by the changes of FM waves.

HINT:
In the case that the noise occurrence condition does not meet any of the above questionnaire, check based on the ”Reception problems”.
Refer to above descriptions for multipath and fading.

(b) Matters that require attention when checking:

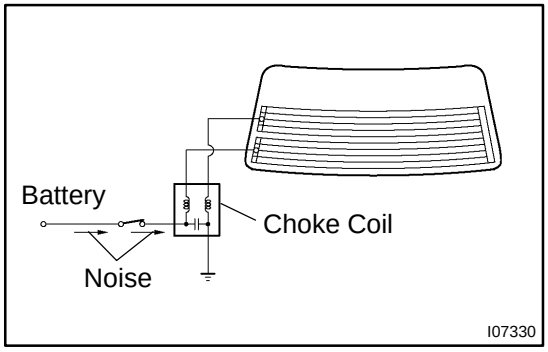
- Noise coming into the radio usually has no harm for practical use as the noise protection is taken and it is hardly thinkable for an extremely loud noise to come in. When extremely loud noise comes into the radio, check if the grounding is normal where the antenna is installed.
- Check if all the regular noise prevention parts are properly installed and if there is any installation of non-authorized parts and non-authorized wiring.
- If you leave the radio under out of tune (not tuning), it is easy to diagnose the phenomenon as noise occurs frequently.



(c) Antenna and noise:

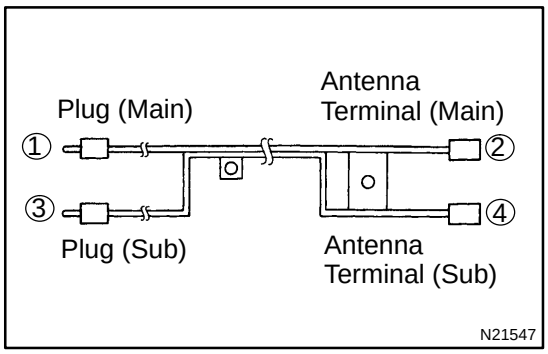
Electronic signal received by the antenna will reach to the radio transmitting through the core wire of the coaxial cable. Any noise wave other than radio wave is mixed into this core wire, that naturally causes noise in the radio and poor sound quality. In order to prevent these noises from mixing into the radio, the core wire inside the coaxial cable is covered with a mesh wire called shield wire. This shield wire shelters the noise and transmits it to the ground, thus preventing noise from mixing in.

If this shield wire has grounding failure, that causes noise.



(d) Choke coil and noise:

The choke coil is connected in the rear window defogger circuit. This is connected so to prevent noise from mixing into the radio by making the noise current included in the power source of the rear window defogger flow to the ground.

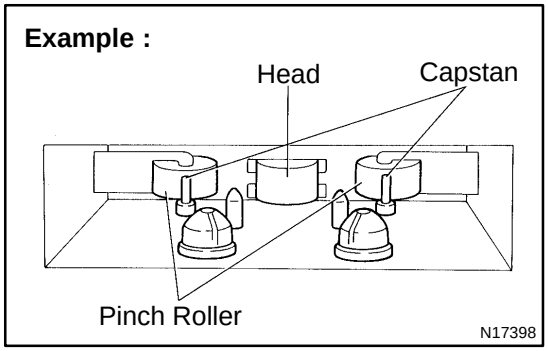


(e) Antenna code continuity check and grounding point:
HINT:
During troubleshooting, in case that the antenna code continuity check, grounding check and grounding check of the choke coil are needed.

Terminal connection	Normal condition
(1) ↔ (2)	Continuity
(3) ↔ (4)	No continuity

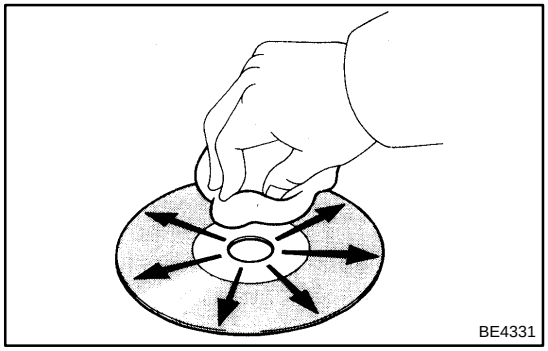
5. COMPACT DISC PLAYER

Compact Disc (hereafter called ”CD”) Players use a laser beam pick-up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc. There are 4.7 in. (12 cm) and 3.2 in. (8 cm) discs in the CD player.
HINT:
Never attempt to disassemble or oil any part of the player unit.
Do not insert any object other than a disc into the magazine.
NOTICE:
CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.



6. Tape Player/Head Cleaning:
MAINTENANCE

(a) Raise the cassette door with your finger.
Next, using a pencil or similar object, push in the guide.
(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



7. CD Player/Disc Cleaning:
MAINTENANCE

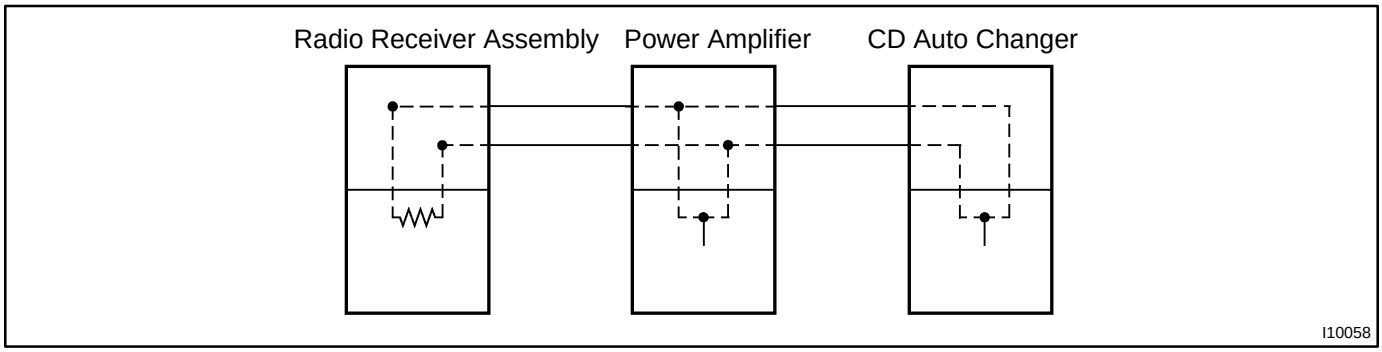
If the disc gets dirty, clean the disc by wiping the surface from the center to outside in the radial directions with a soft cloth.
NOTICE:
Do not use a conventional record cleaner or anti-static preservative.

8. OUTLINE OF AVC-LAN

(a) What is AVC-LAN?

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.



(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

(1) When products by different manufactures were combined together, there used to be a case that malfunction occurred such as sound did not come out. This problem has been resolved by standardization of signals.

(2) Various types of after market products have been able to add or replace freely.

(3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.

(4) Conventionally, a new product developed by a manufacture could not be used due to a lack of compatibility with other manufactures products. Because of this new standard, users can enjoy compatible products provided for them timely.

(c) The above descriptions are the objectives to introduce AVC-LAN. By this standardization, development of new products will no longer cause systematic errors. Thus, this is very effective standard for a product in the future.

HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops. Accordingly the audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. (When audio system is equipped with a navigation system, navigation ECU is the master unit.)
- The car audio system using AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical address. Numbers are also allotted to each function in one product, which are called logical address.

BE1AP-03

TROUBLESHOOTING

NOTICE:

When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

HINT:

This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

Open or short circuit of the wire harness

Connector or terminal connection fault

	Problem	No.
Radio	Radio not operating when power switch turned to 'ON'.	1
	Display indicates when power switch turned to 'ON', but no sound (including 'noise') is produced.	2
	Noise present, but AM - FM not operating.	3
	Any speaker does not work.	4
	Any AM or FM does not work.	5
	Few preset turning bands.	5
	Reception poor.	6
	Sound quality poor.	7
	Preset memory disappears.	8
Tape Player	Cassette tape cannot be inserted.	9
	Cassette tape inserted, but no power.	10
	Power coming in, but tape player not operating.	11
	Any speaker does not work.	12
	Sound quality poor.	13
	Tape jammed, malfunction with tape speed or auto-reverse.	14
	Cassette tape will not eject.	15
CD Auto Changer	CD magazine cannot be inserted.	16
	CD magazine inserted, but no power.	17
	Power coming in, but CD player not operating.	18
	Sound jumps.	19
	Sound quality poor (Volume faint).	20
	Any speaker does not work.	21
	CD magazine will not be ejected.	22
Power Amplifier	No power coming in.	23
	Power coming in, but power amplifier not operating.	24
	Any speaker does not work.	25
Noise	Noise occurs	26
	Noise produced by vibration or shock while driving.	27
	Noise produced when engine starts.	28

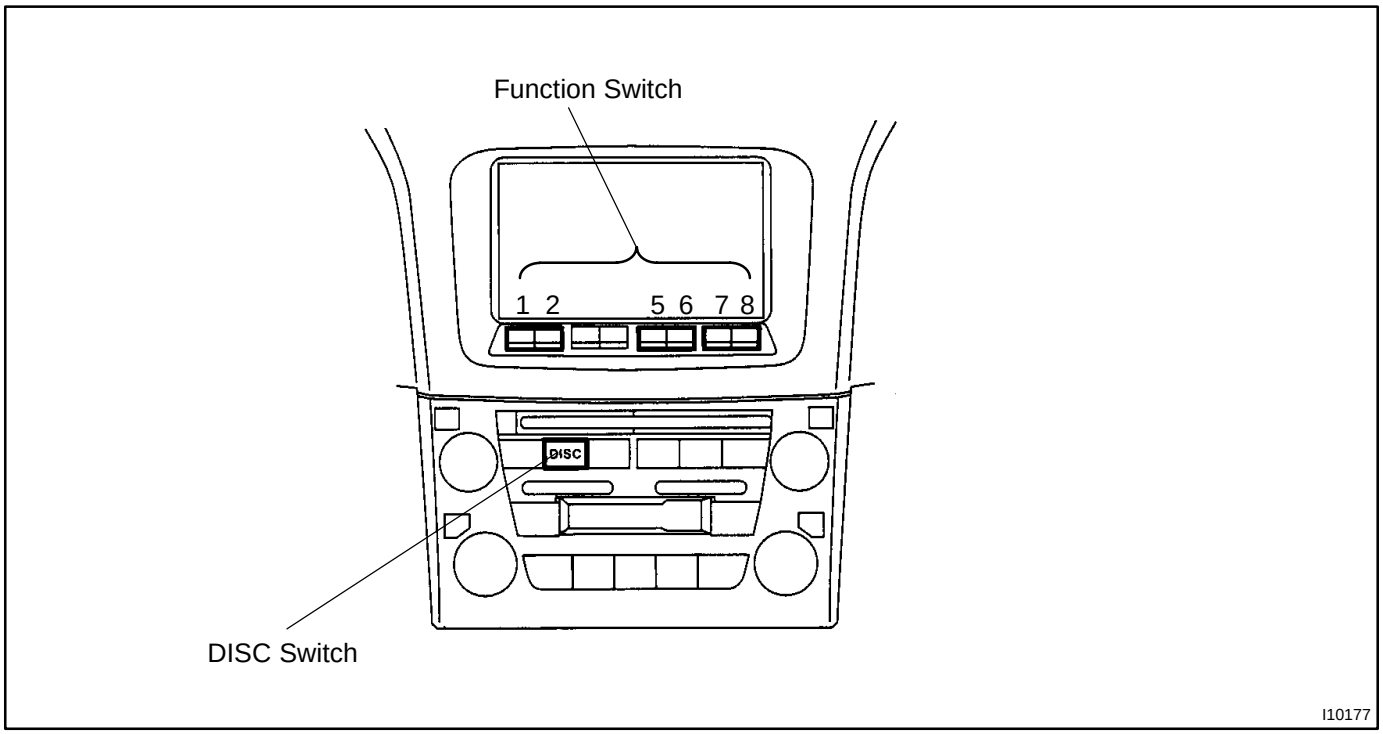
The term "AM" includes LW,MW and SW, and the term "FW" includes UKW.

1. DIAGNOSIS FUNCTION

Error codes over tuner and connected equipment are displayed on the screen of tuner.
HINT:
For LEXUS RX300, press the function switch instead of TRACK TUNE APS switch.

(a) Diagnosis start-up
For shifting to diagnosis mode, push ”DISC” switch 3 times with pressing ”1” and ”6”,”7” or ”8” of function switch at the same time while the audio power is OFF and ACC is ON.
To exit from diagnosis mode, press ”DISC” switch for 2 seconds or turn the ignition key OFF.
(When ”1-190” is displayed, the mode is transferred to LAN check mode.)

(b) LAN check
When starting up the diagnosis mode, the mode turns to LAN check mode, the screen displays the code numbers (physical address) of tuner and connected equipment. Smaller codes are displayed in order, displayed code numbers are switched by operating TUNE ”UP” or ”DOWN” switch. In LAN check mode, by pressing ”5” of function switch for more than 2 secs., diagnosis memory of each equipment can be deleted, when deletion is completed, the mode returns to LAN check mode.



Code No. (physical address) List

Code No. (physical address)	Equipment name
190	Radio receiver assembly (Audio head unit)
1c4 (RX300)	Center Cluster Integration Switch
1d4 (RX300)	Multi Display
240	CD changer (in Luggage room)
360	CD changer(in center console and glove compartment box)
440	Power amplifier

(c) System check

When pressing ”1” of function switch in LAN check mode, the mode turns to the system check mode, the system performs self diagnosis of connected equipment and displays the results.(”SYS” (showing the system is under detection) is displayed.)

(d) Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

It sometimes takes approx. 40 secs. till the system inspection is completed.

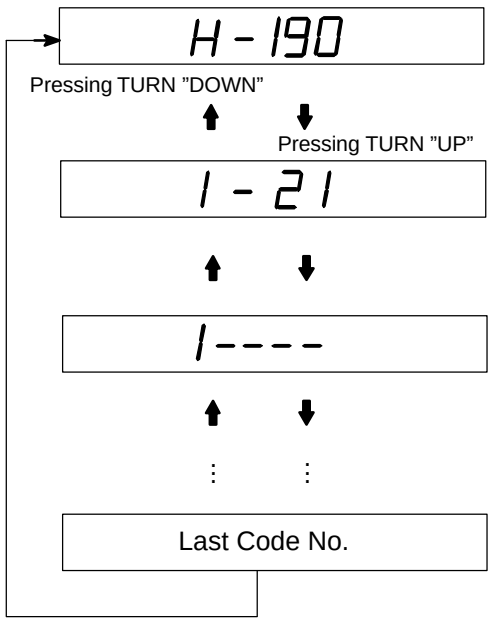
The chart below is an example of when diagnosis code ”21” appears on the physical address (190) equipment. (ROM error occurs on the radio receiver.)

The smaller code numbers (physical address) are displayed in order (code No., diagnosis code, support code of diagnosis code (object equipment)).

When no error is detected in the system, ”00” is displayed.

When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE ”UP” or ”DOWN” switches the display.

In the system check mode, when pressing ”8” of function switch the mode returns to LAN check mode.



H: This shows the equipment has a diagnosis code.
190: Physical address

1: This is the number allotted to the diagnosis code that occurred.
21: DTC No.

1: This is the number allotted to the diagnosis code that occurred.
--- : NO DTC No.

(e) Diagnosis memory

(1) In LAN check mode, when pressing ”2” of TRACK TUNE APS switch the mode turns to the diagnosis memory mode. (”CODE” is displayed.)

The results of self diagnosis performed over tuner and connected equipment are memorized and displayed.

(2) Perform the operation shown in the following illustration, then read the result of the inspection.

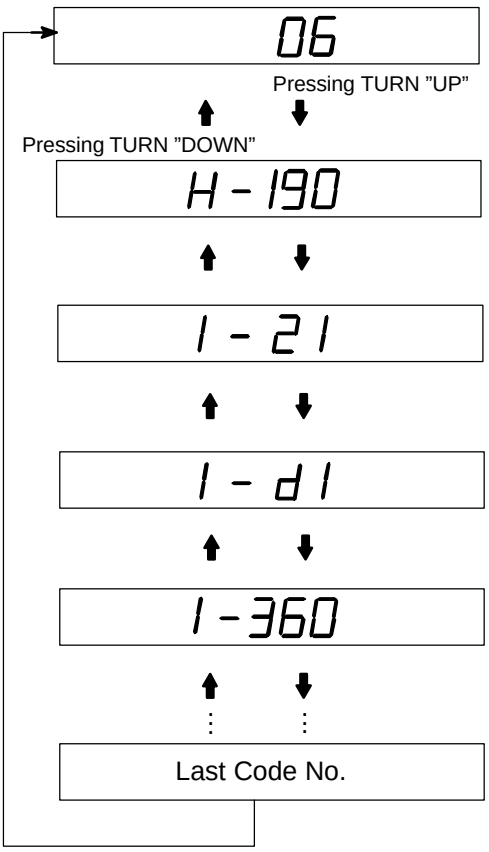
HINT:

The smaller code numbers (physical address) are displayed in order (code No. , periodic communication number when error occurs, diagnosis code, and support code of diagnosis code (object equipment)).

When no error is detected in the system, ”00” is displayed. When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE ”UP” or ”DOWN” switches the display. Each diagnosis code is same as code in the system check mode.

When pressing ”8” of function switch, the mode returns to LAN check mode.

The following illustration below is an example of when diagnosis code ”D1” appears on the code (190) and (240 or 360) equipment. (Communication error occurs between the radio receiver and CD changer.)



06: Periodic communication number of when occurring in the diagnosis memory code.

H: This shows the equipment has a diagnosis code.
190: Physical address

1: This is the number allotted to the diagnosis code that occurred.
21: Periodic communication number of when occurring in the diagnosis memory code.

1: This is the number allotted to the diagnosis code that occurred.
d1: DTC No.

1: This is the number allotted to the diagnosis code that occurred.
360: Physical address
(Equipment that is communicating code)

(f) Diagnosis memory clear
(1) After error is fixed, start up the diagnosis mode.
(2) Continue pressing TRACK TURN APS switch ”5” for 2 secs. (CLr is displayed.)
(3) Press the TRACK TURN APS switch ”2” and transfer to the diagnosis memory mode and check that the normal code (00) is output.

2. DIAGNOSIS CODE LIST

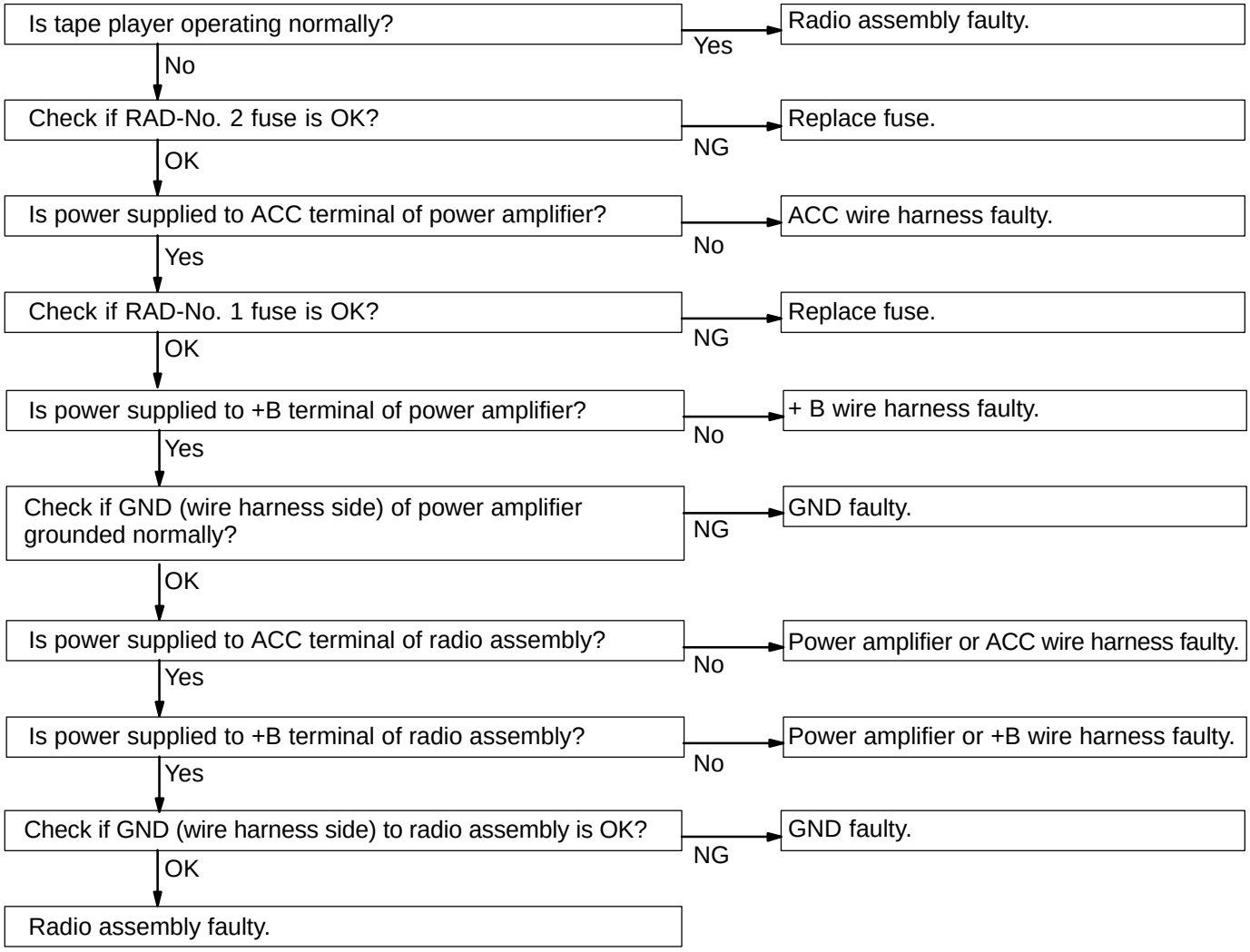
If there is "O" in the column of system check, an error can be detected when the mode is switched to the system check mode.
If there is "O" in the column of diagnosis mode, each unit is monitoring whether or not it has failure. In case of detecting failure, it memorizes DTC.

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
Head Unit (190)	21	ROM error	There is an error on internal ROM.	Radio receiver check.	○	X
	22	RAM error	There is an error on internal RAM.		○	X
	41	AM tuner error	There is an error in AM tuner.		X	○
	42	FM tuner error	There is an error in FM tuner.		X	○
	50	Cassette error	There is an error in cassette deck.		X	○
	51	Cassette eject error	Cassette can not be ejected from Head Unit.		X	○
	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Radio receiver check. Wire harness and connecter check.	○	○
	D2	Periodic communication no response	Error in periodic communication.	● Wire harness and connector	X	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish.	Radio receiver check.	○	X
CD (240) (360)	21	ROM error	There is an error on internal ROM.	CD changer check.	○	X
	22	RAM error	There is an error on internal RAM.		○	X
	60	CD error	Error codes other than 61-69 are detected.		X	○
	61	EJECT error	CD is not ejected.	CD changer check. Magazine check.	X	○
	62	DISC inside out/flaw	CD is inserted inside out or it has a flaw.	CD check.	X	○
	63	Pickup temperature detection	High temperature of CD changer is detected.	CD changer check.	X	○
	64	Excessive current detection	Excessive current to CD changer is detected.		X	○
	67	Tray insertion/ discharging error	An error occurs in insertion and discharging operation of CD changer tray.	CD changer check. Magazine check.	X	○

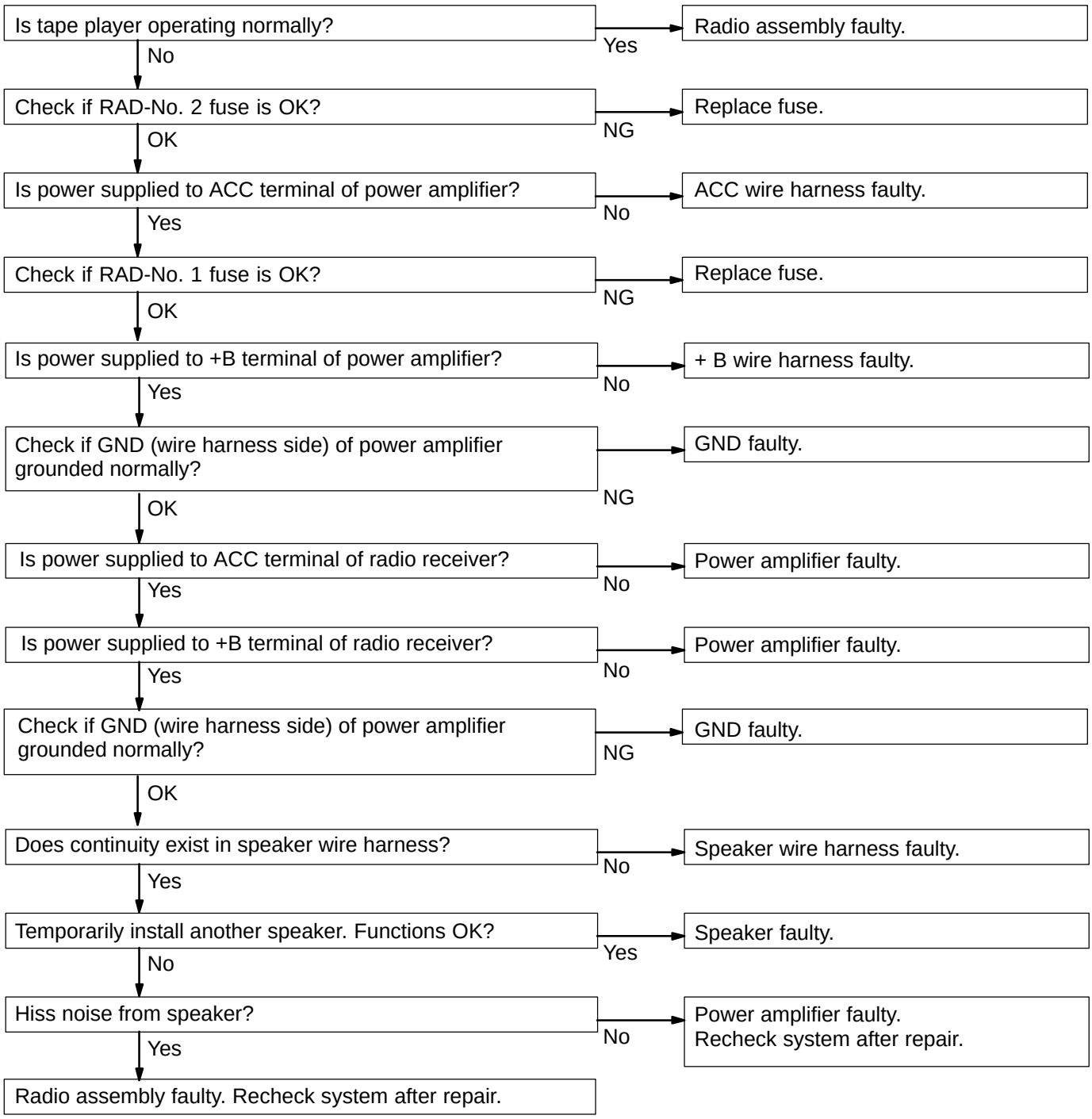
Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
CD (240) (360)	68	Elevator error	An error occurs in elevator of CD changer elevator.	CD changer check.	X	○
	69	Clamp error	An error occurs in CD changer clamp.		X	○
	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.		○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish.	CD changer check.	○	X
AMP (440)	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Stereo component amplifier check.	○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish.	Stereo component amplifier check.	○	X
Center Cluster (1c4)	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Center Cluster Check	○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○
Multi Display (1d4)	D1	Transmitter error	Communication with the equipment that is communicating has failed successively.	Multi-Display Check	○	○
	D4	Periodic communication error	Connection confirmation has not come from the equipment that is communicating	● Radio receiver check. ● Wire harness check.	X	○
	21	ROM error	There is an error on internal ROM.	Multi-Display Check	○	X
	22	RAM error	There is an error on internal RAM.		○	X

( ): w/ Navigation system

1	Radio	RADIO NOT OPERATING WHEN POWER SWITCH TURNED TO ”ON”



2	Radio	DISPLAY INDICATES WHEN POWER SWITCH TURNED TO ”ON”, BUT NO SOUND (INCLUDING ”NOISE”) IS PRODUCED



3	Radio	NOISE PRESENT, BUT AM-FM NOT OPERATING

Go to No. 25

If radio side faulty. → Radio faulty.

4	Radio	ANY SPEAKER DOSE NOT WORK

Is tape player operating normally?
- Yes → Radio assembly faulty.
- No ↓

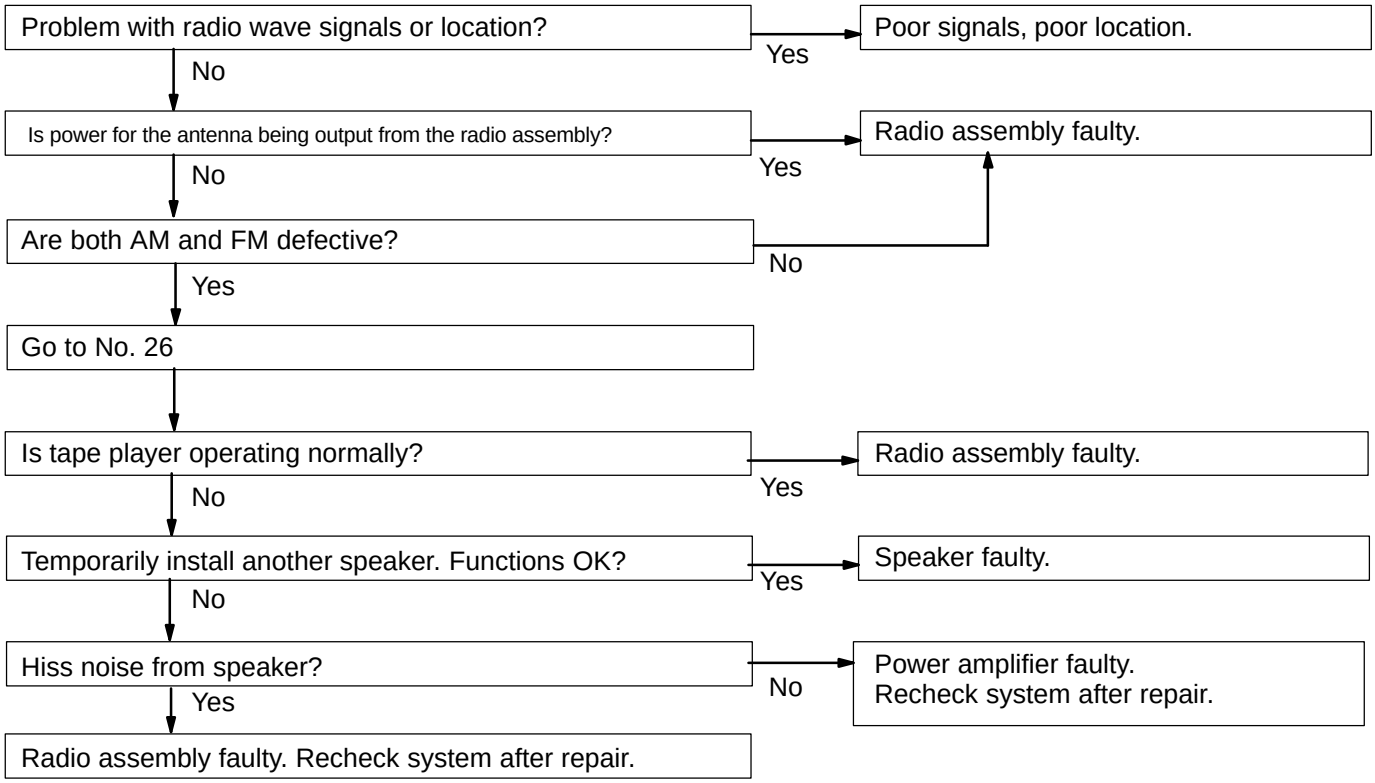
Is hiss noise produced by non-functioning speaker?
- Yes → Radio assembly faulty. Recheck system after repair.
- No ↓

Does continuity exist in speaker wire harness?
- No → Speaker wire harness faulty.
- Yes ↓

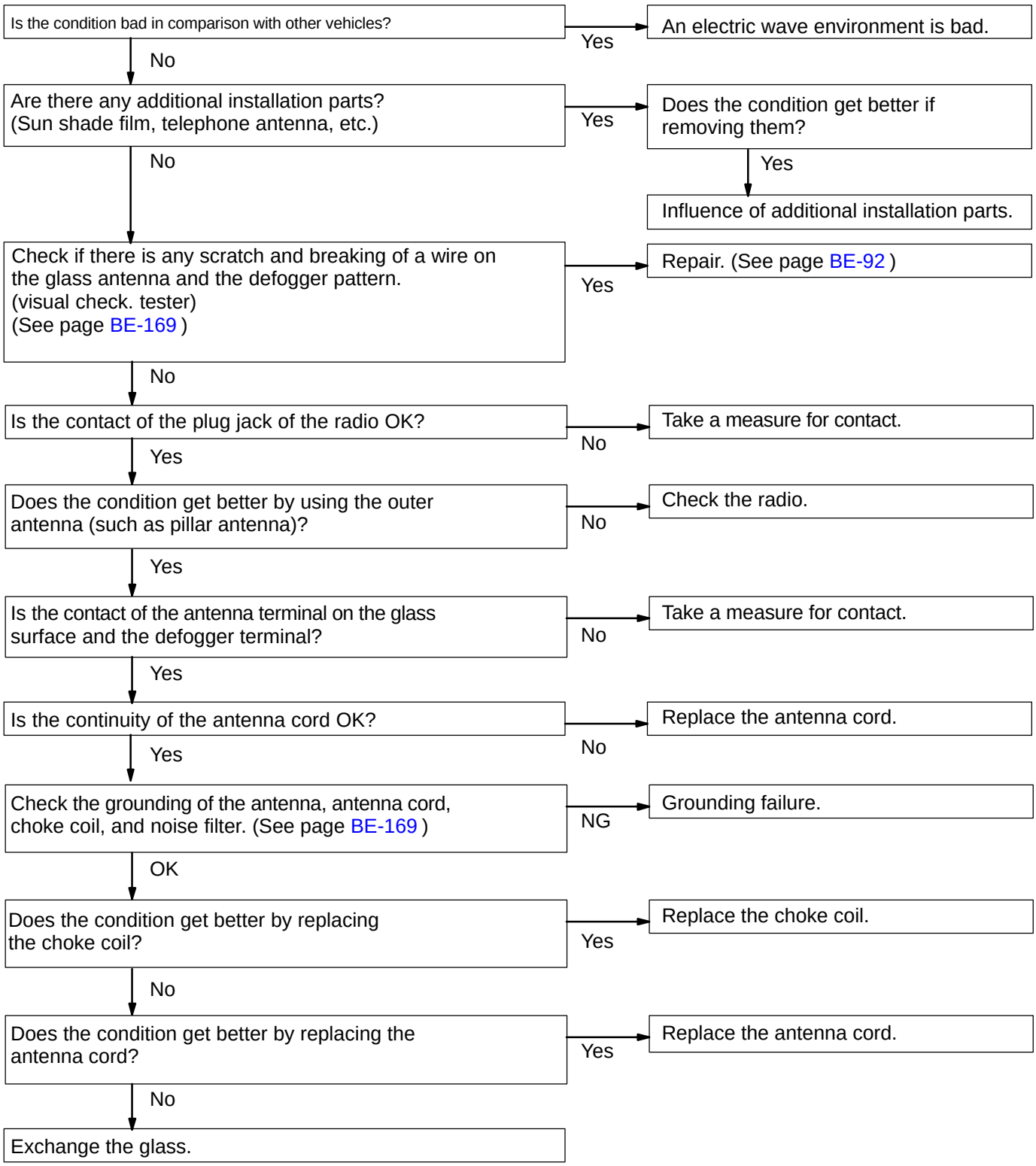
Temporarily install another speaker? Functions OK?
- Yes → Speaker faulty.
- No ↓

Power amplifier faulty. Recheck system after repair.

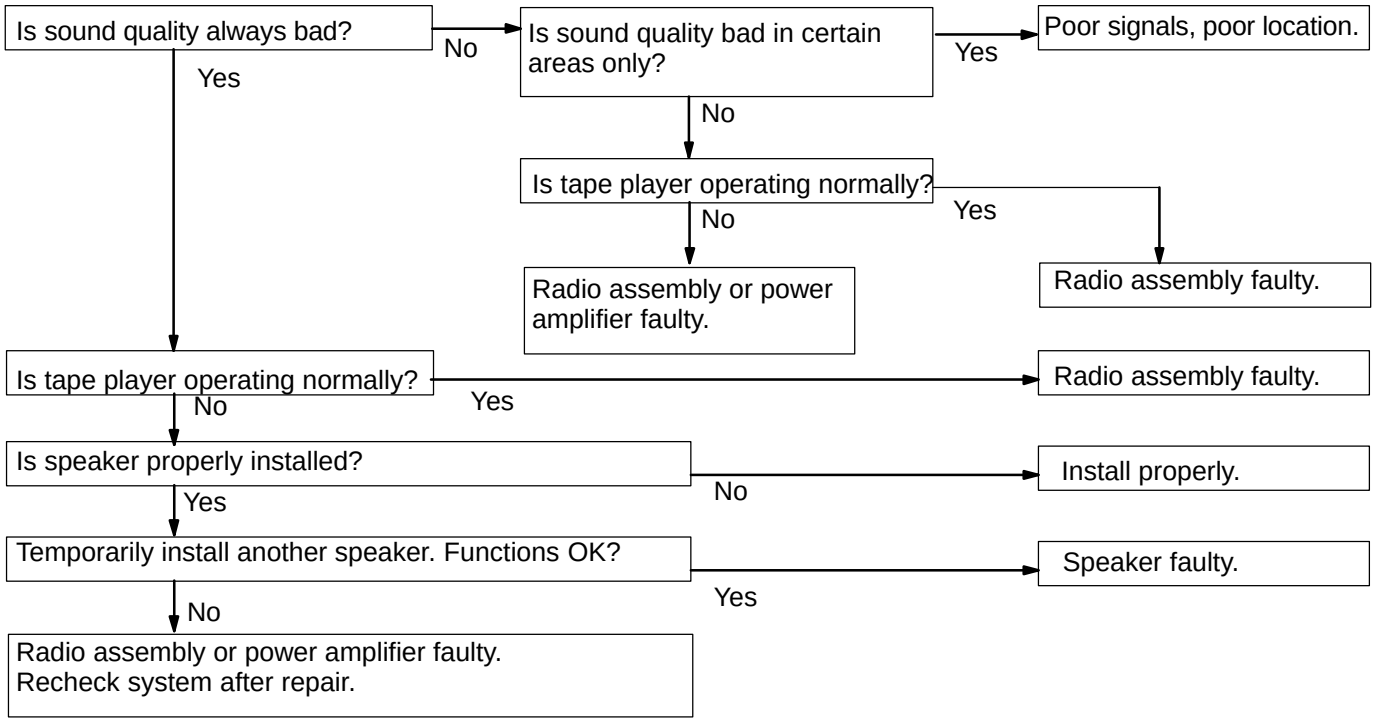
5	Radio	**ANY AM OR FM DOES NOR WORK FEW PRESET TUNING BANDS**



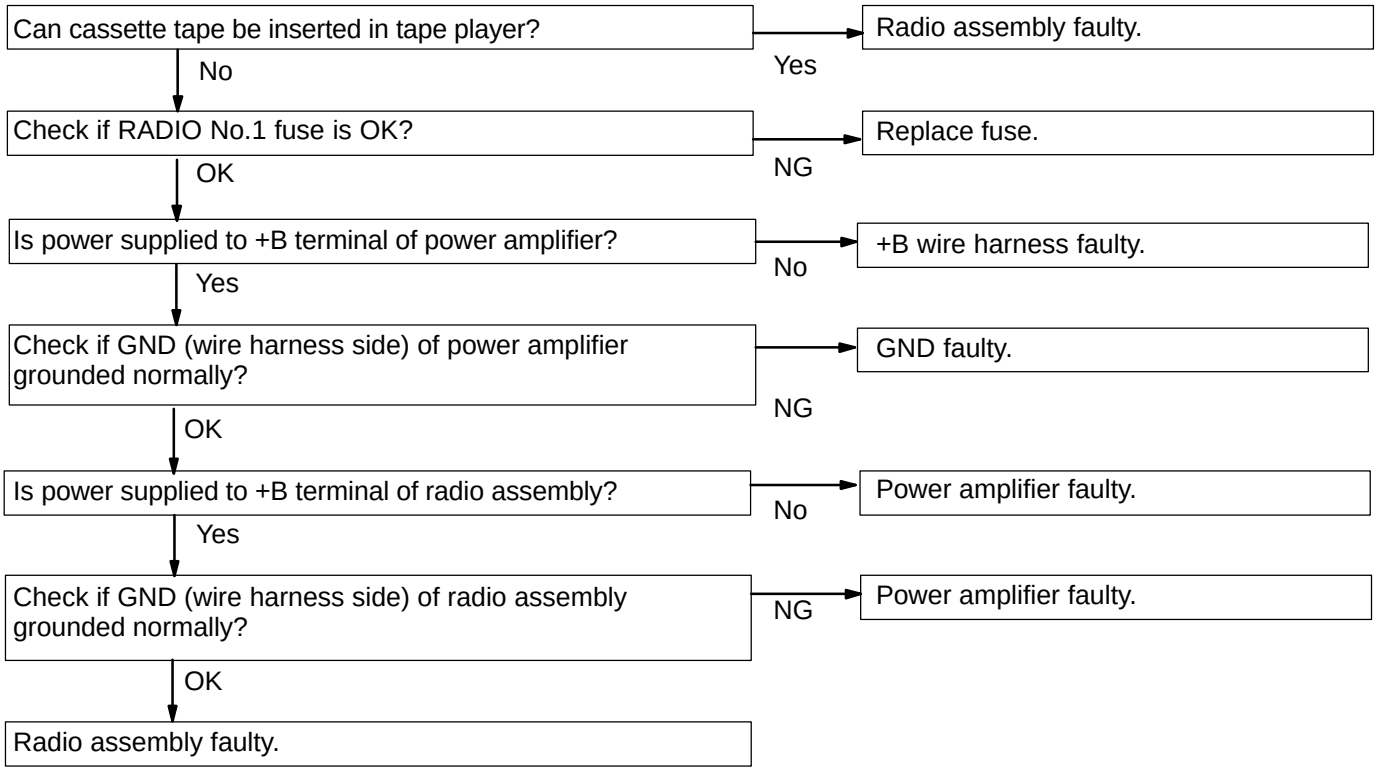
6	Radio	POOR RECEPTION



7	Radio	SOUND QUALITY POOR

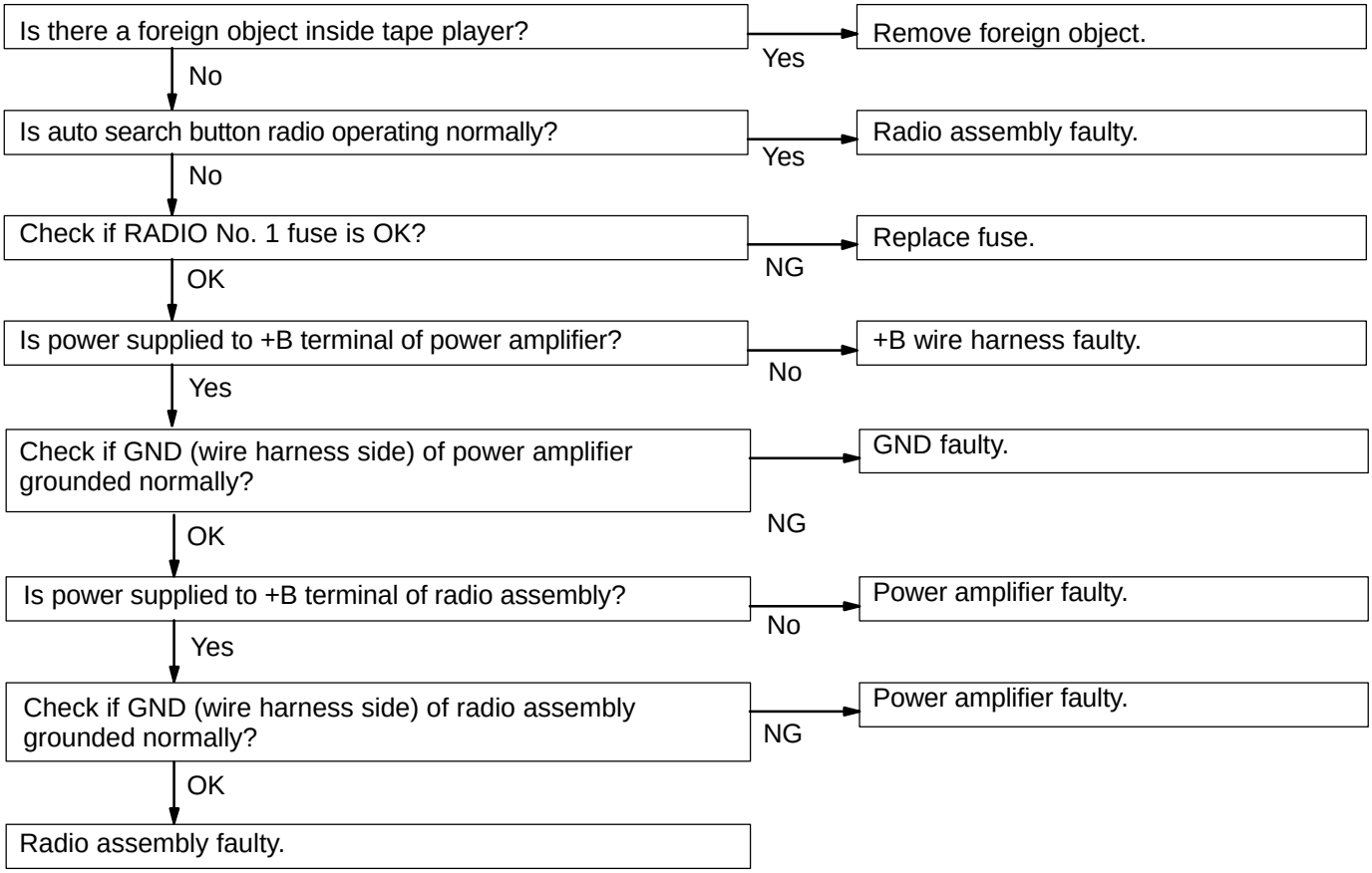


8	Radio	PRESET MEMORY DISAPPEARS

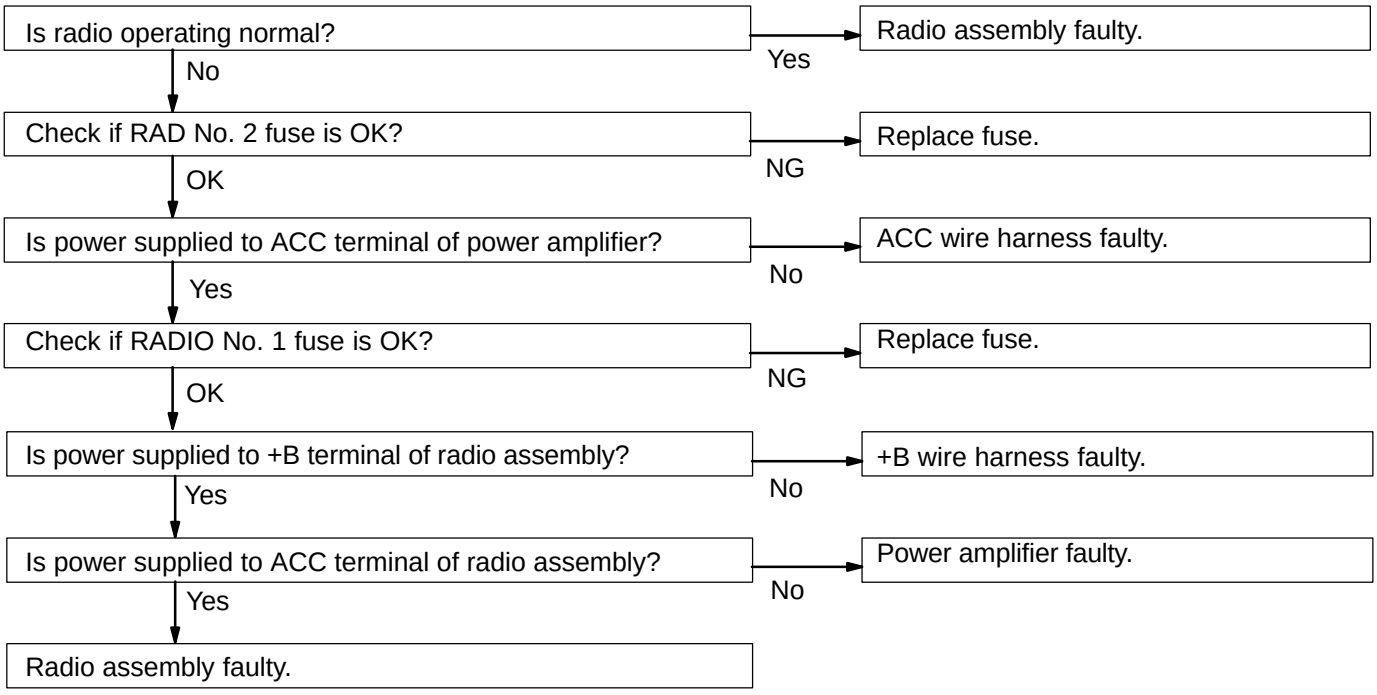


Author : Date : 1969

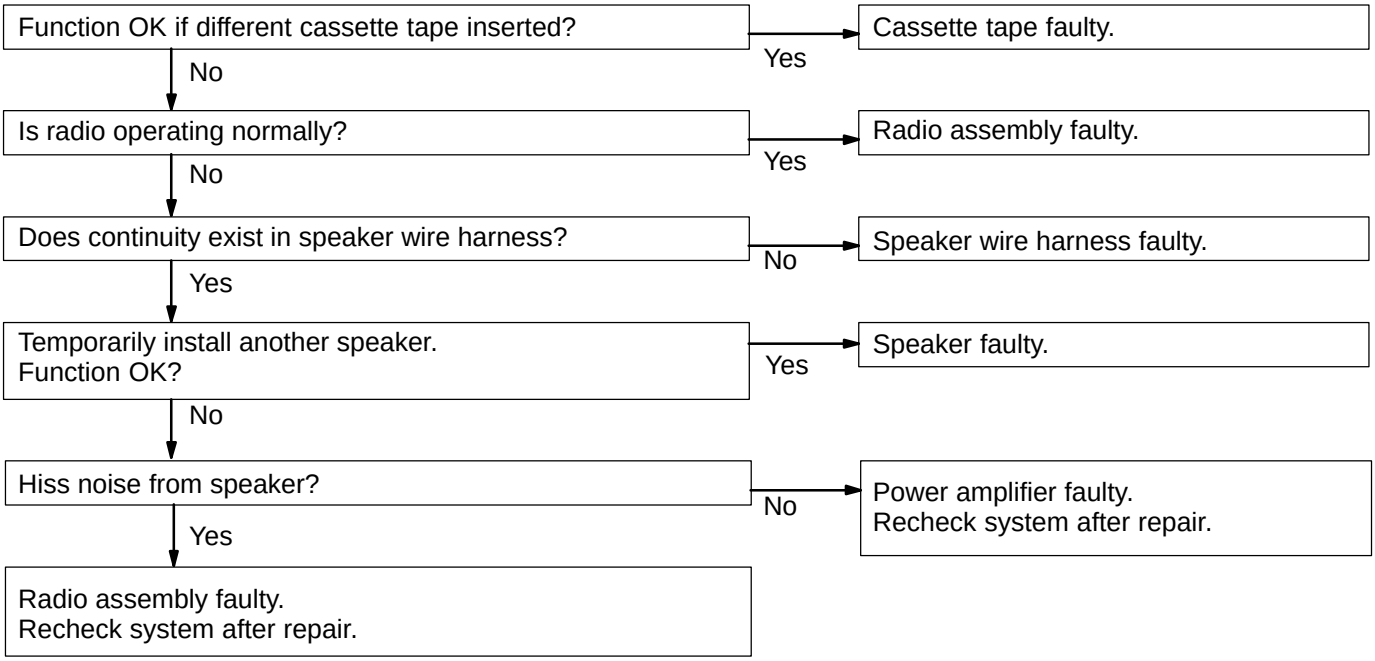
9	Tape Player	CASSETTE TAPE CANNOT BE INSERTED



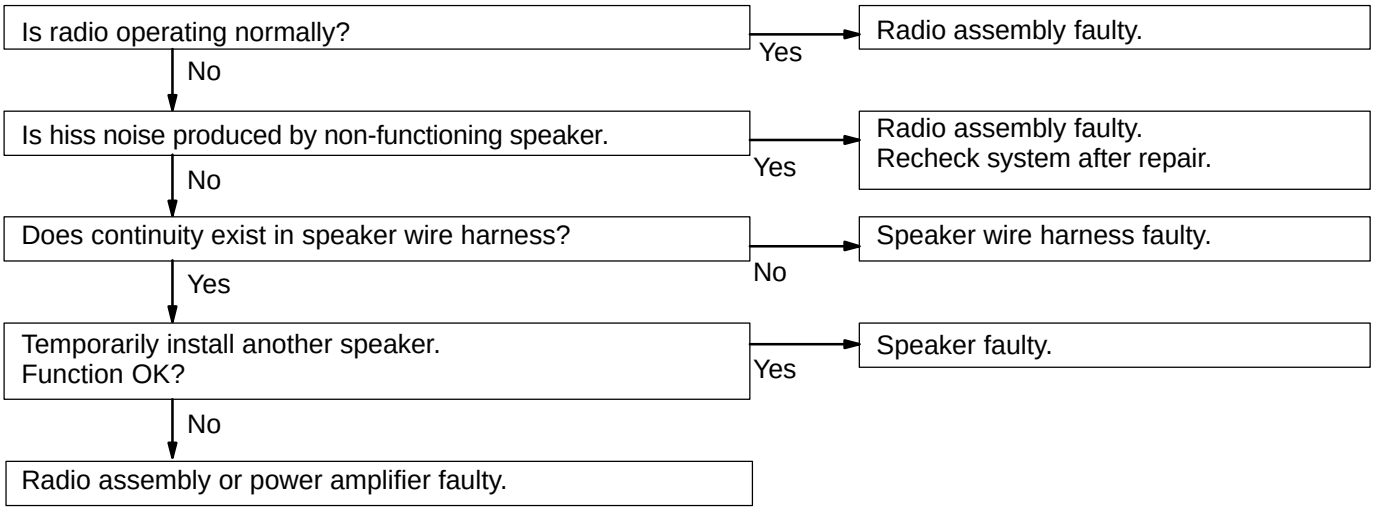
10	Tape Player	CASSETTE TAPE INSERTED, BUT NO POWER



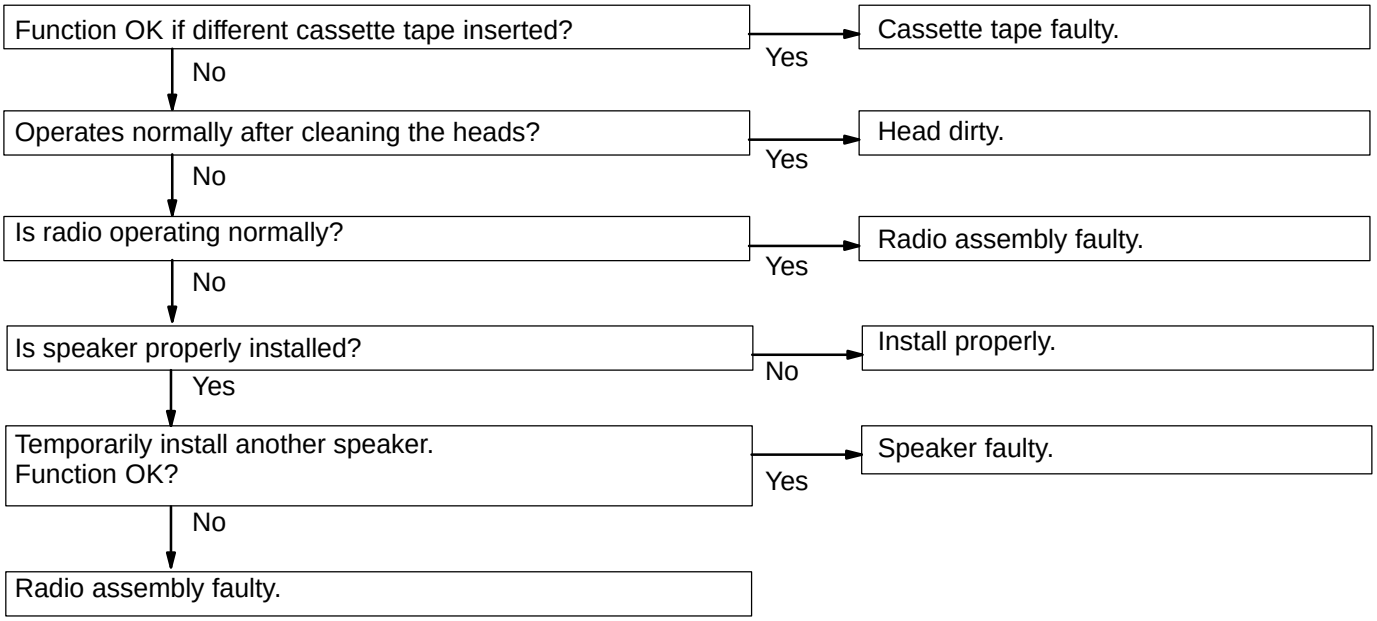
11	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING



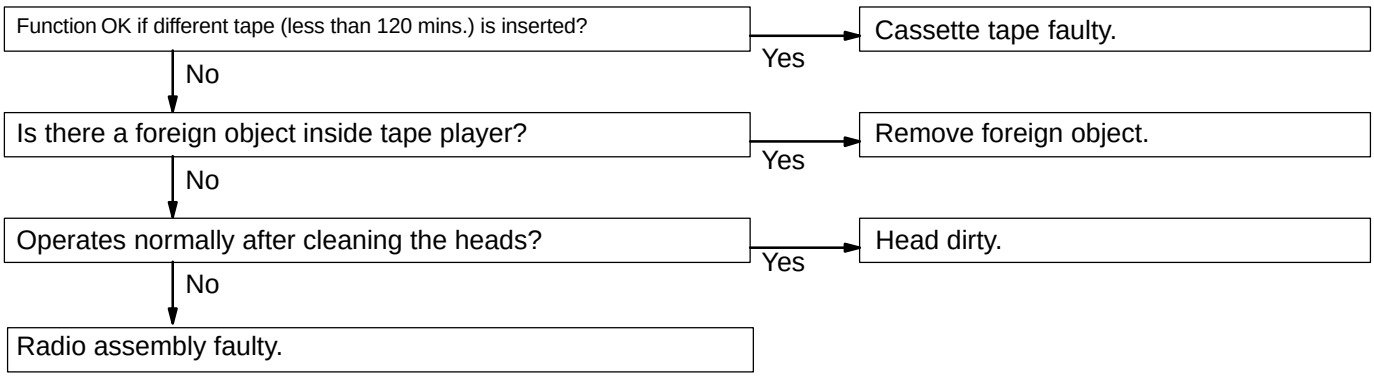
12	Tape Player	ANY SPEAKER DOES NOT WORK



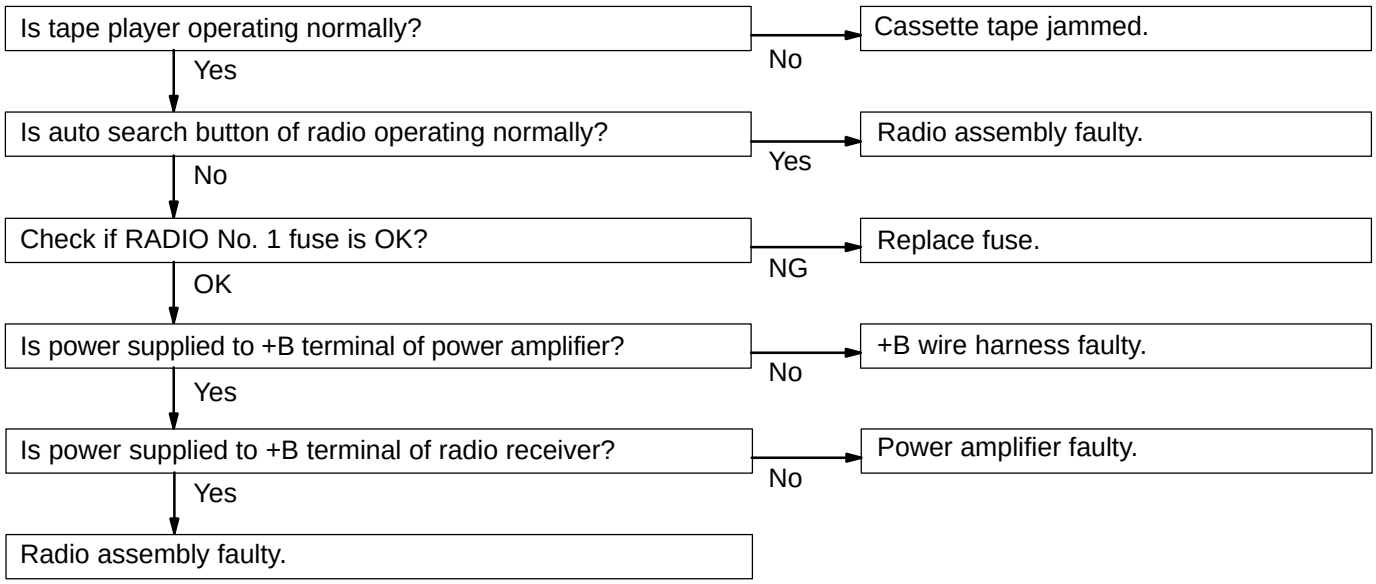
13	Tape Player	SOUND QUALITY POOR (VOLUME FAINT)



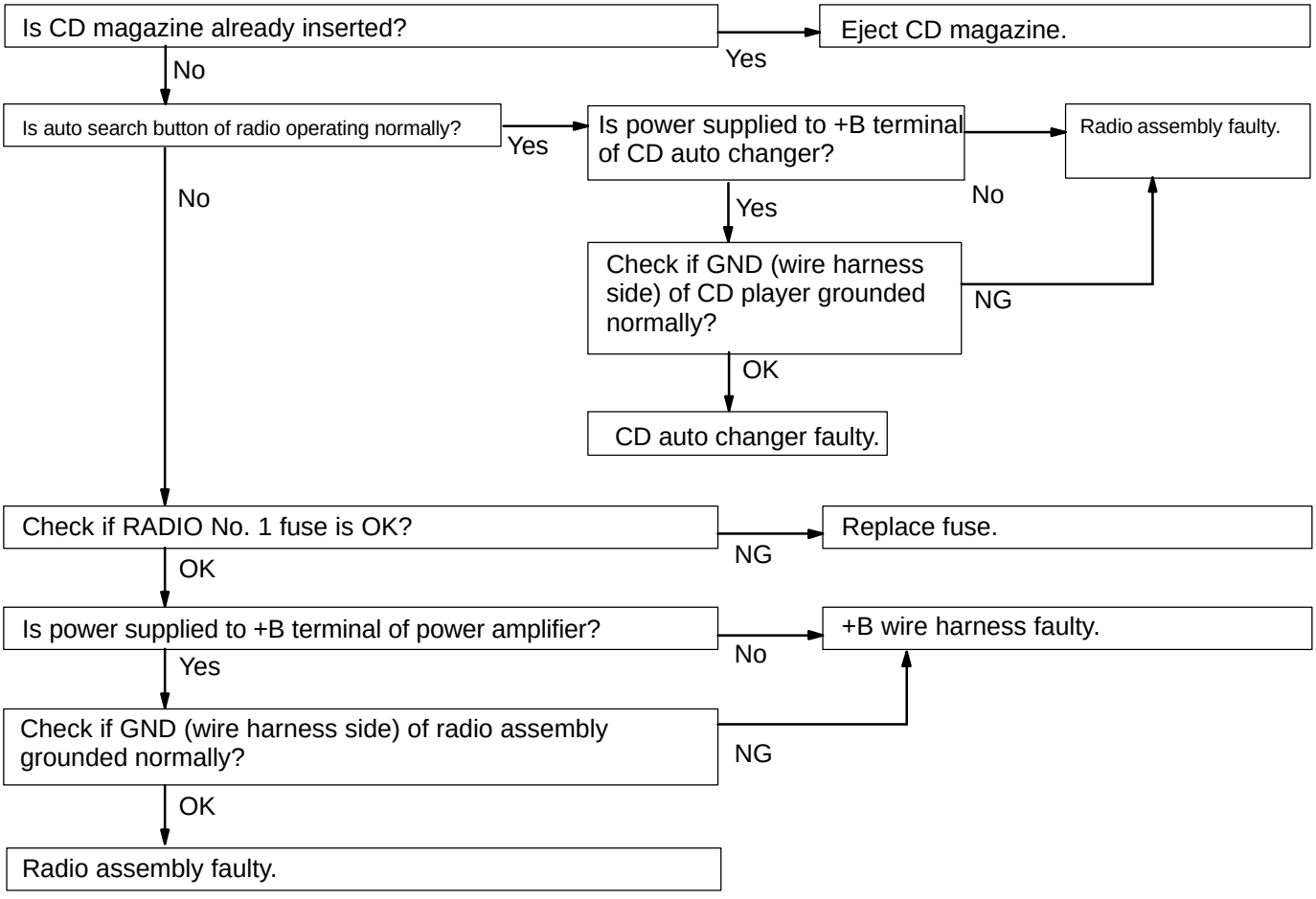
14	Tape Player	TAPE JAMMED MALFUNCTION WITH TAPE SPEED OR AUTO-REVERSE



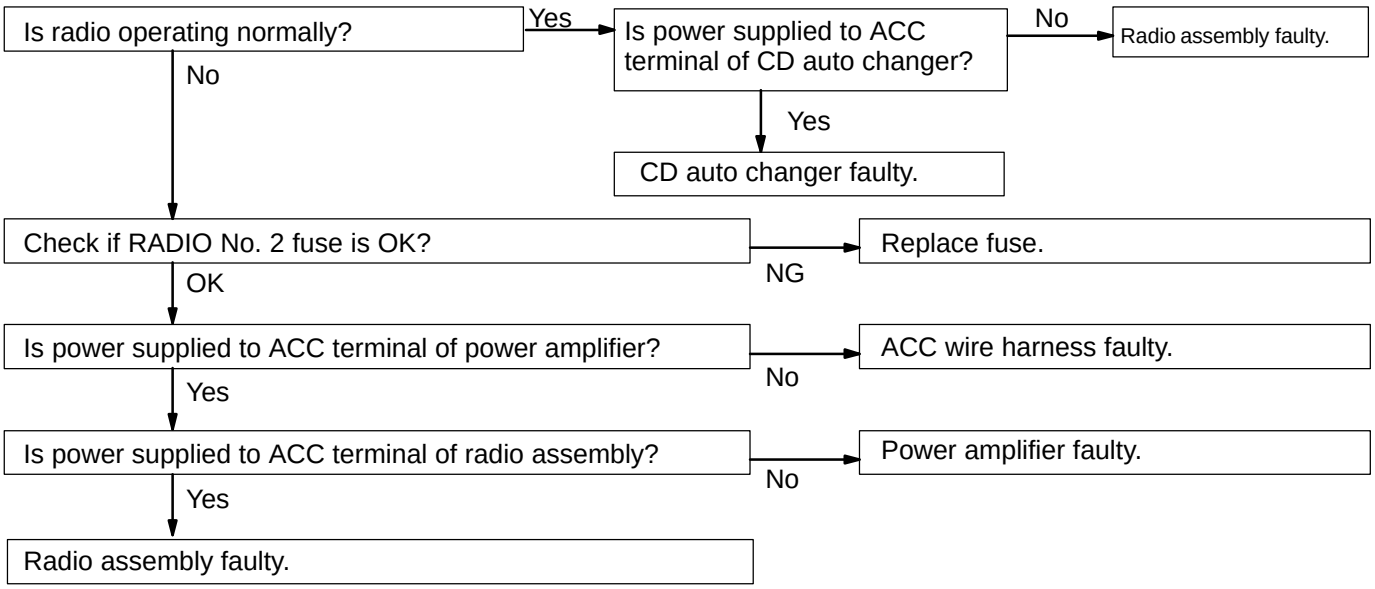
15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED



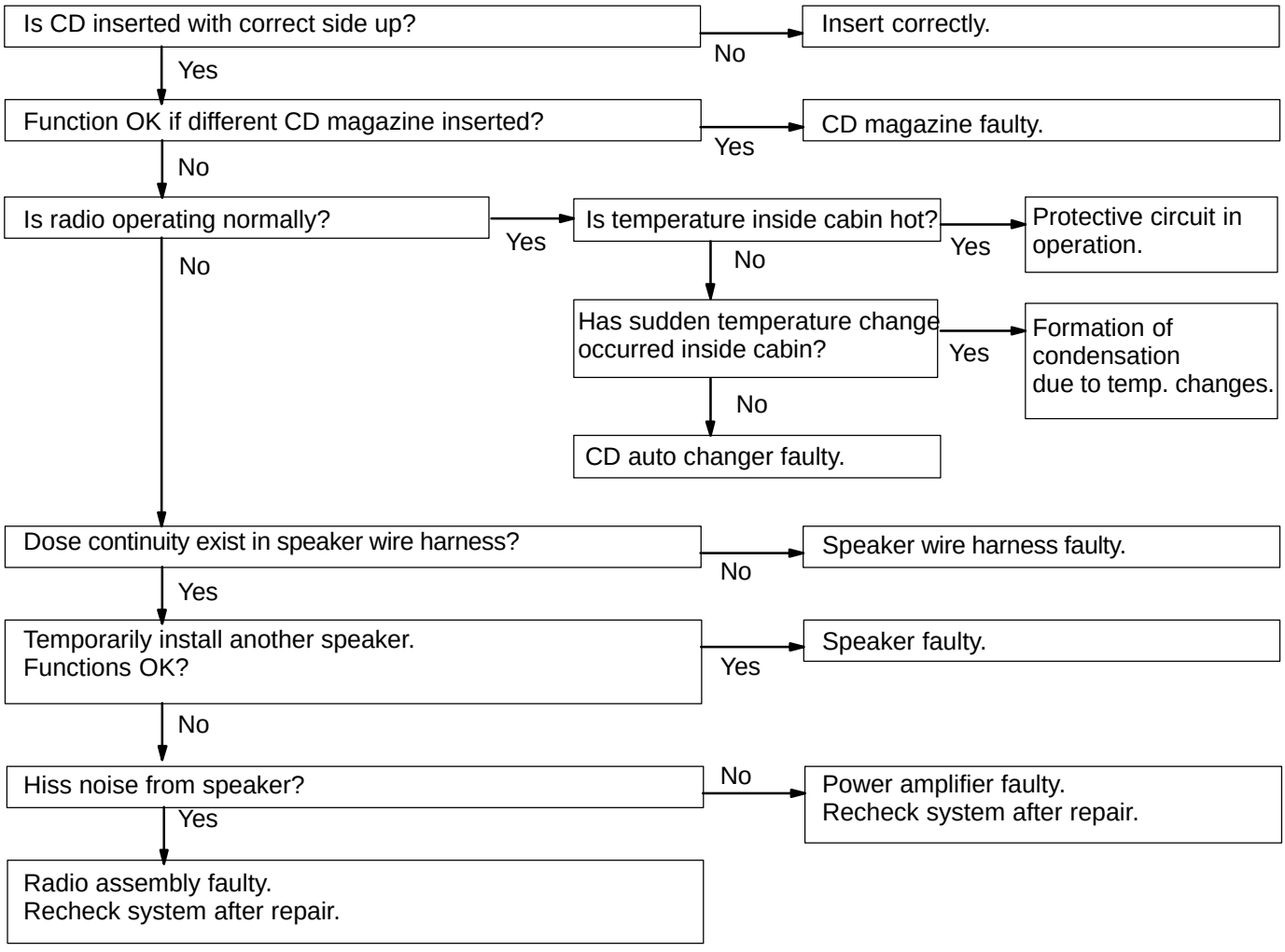
16	CD Auto Changer	CD MAGAZINE CANNOT BE INSERTED



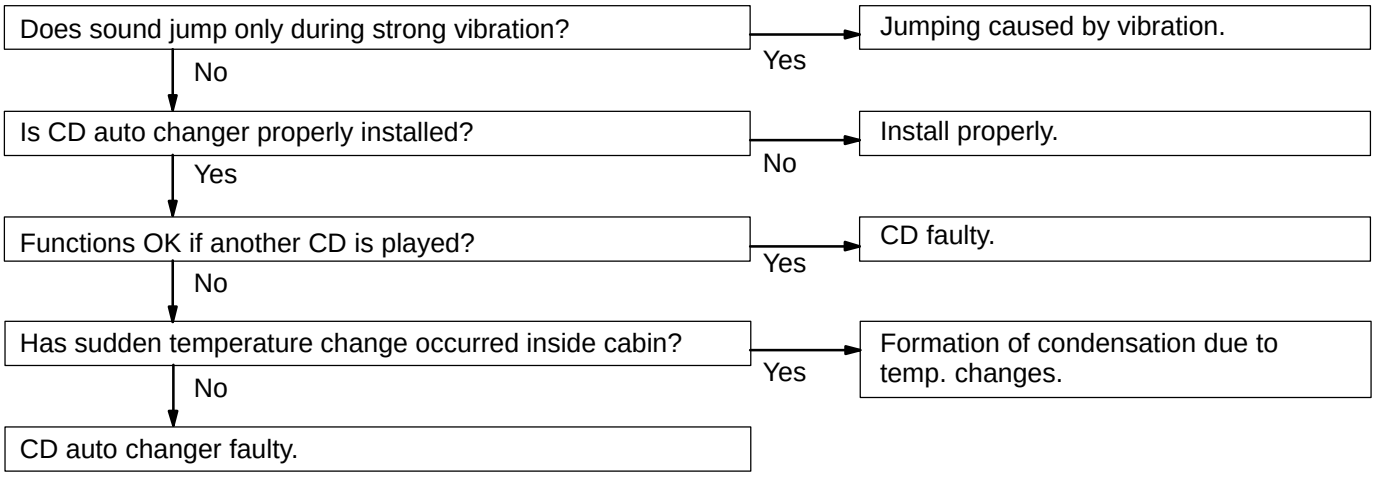
17	CD Auto Changer	CD MAGAZINE INSERTED, BUT NO POWER



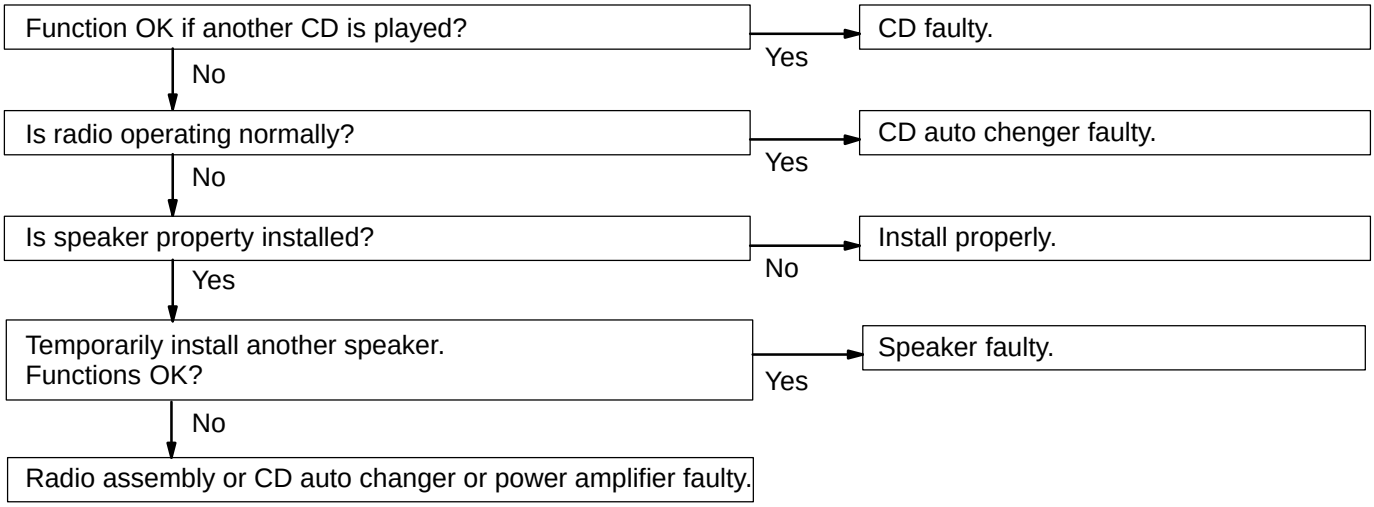
18	CD Auto Changer	POWER COMING IN, BUT CD AUTO CHANGER NOT OPERATING



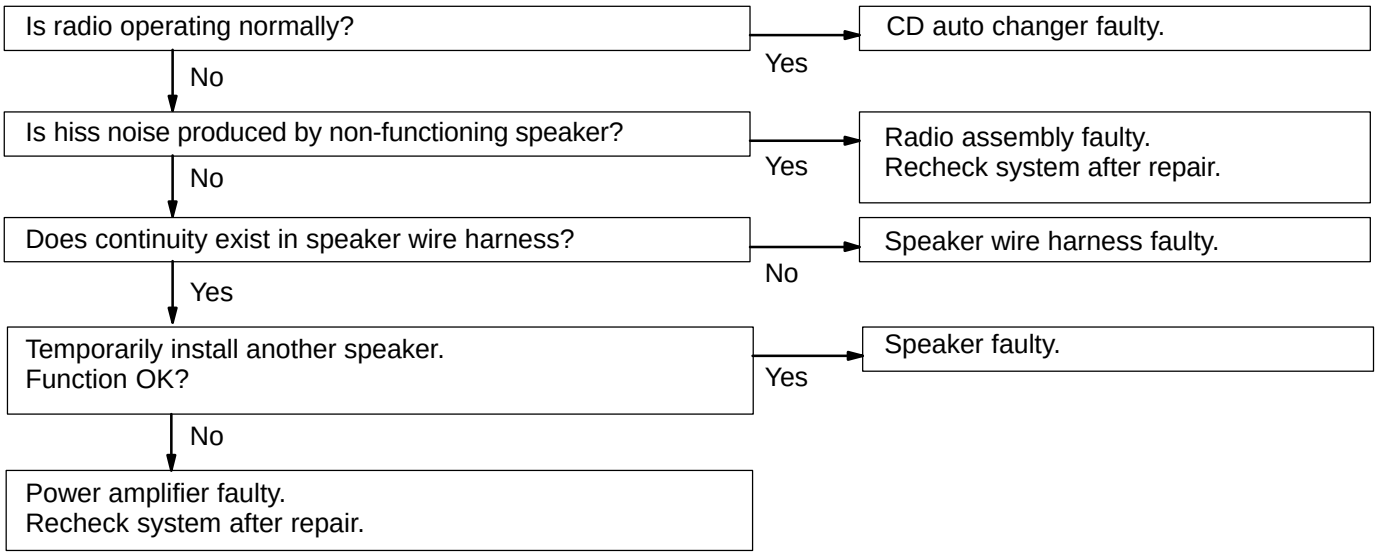
19	CD Auto Changer	SOUND JUMPS



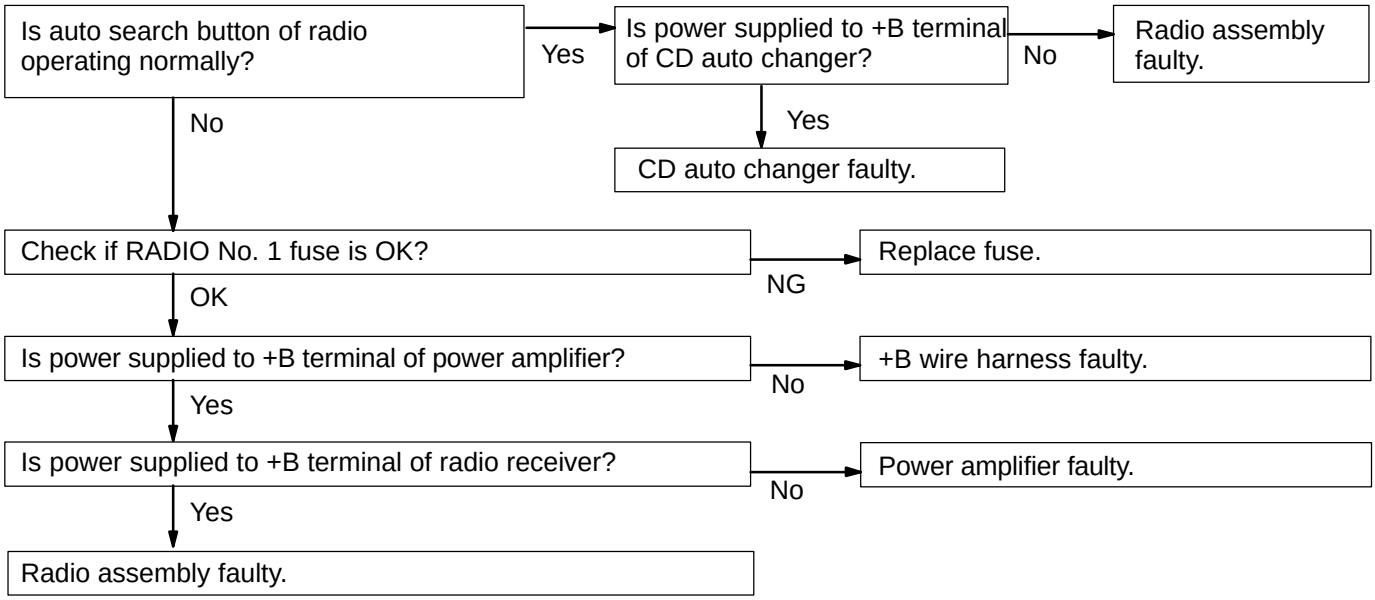
20	CD Auto Changer	SOUND QUALITY POOR (VOLUME FAINT)



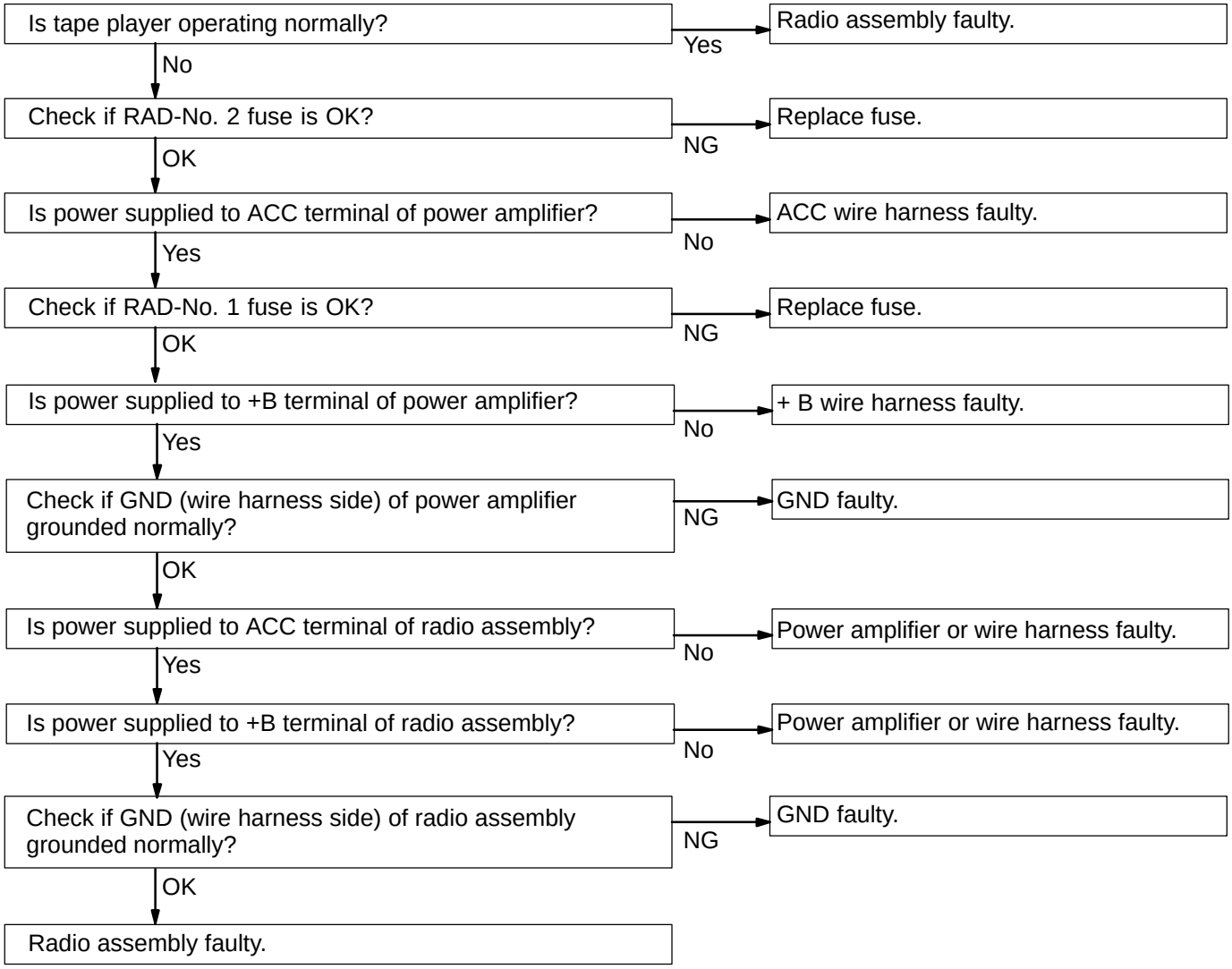
21	CD Auto Changer	ANY SPEAKER DOES NOT WORK



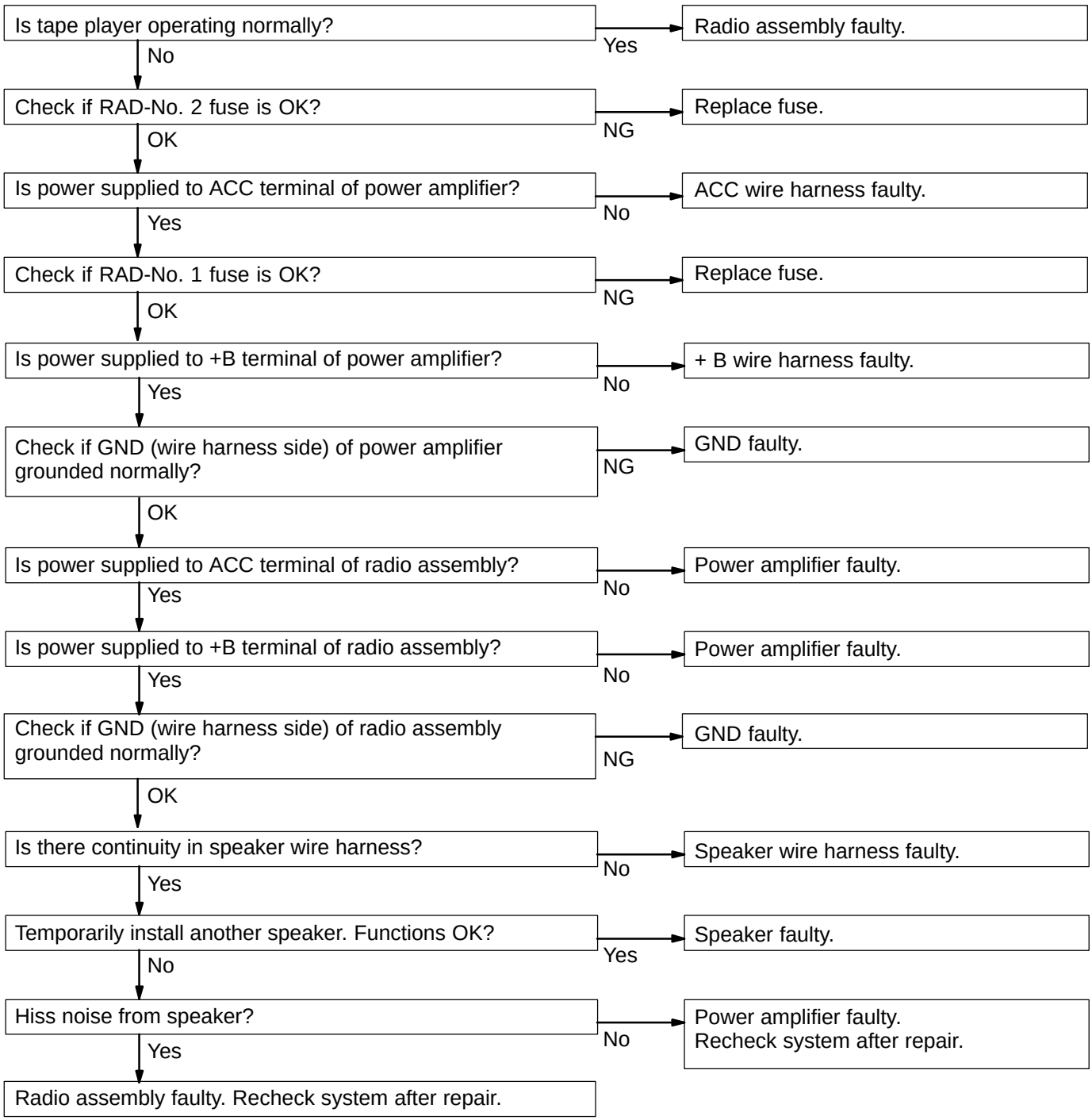
22	CD Auto Changer	CD MAGAZINE WILL NOT BE EJECTED



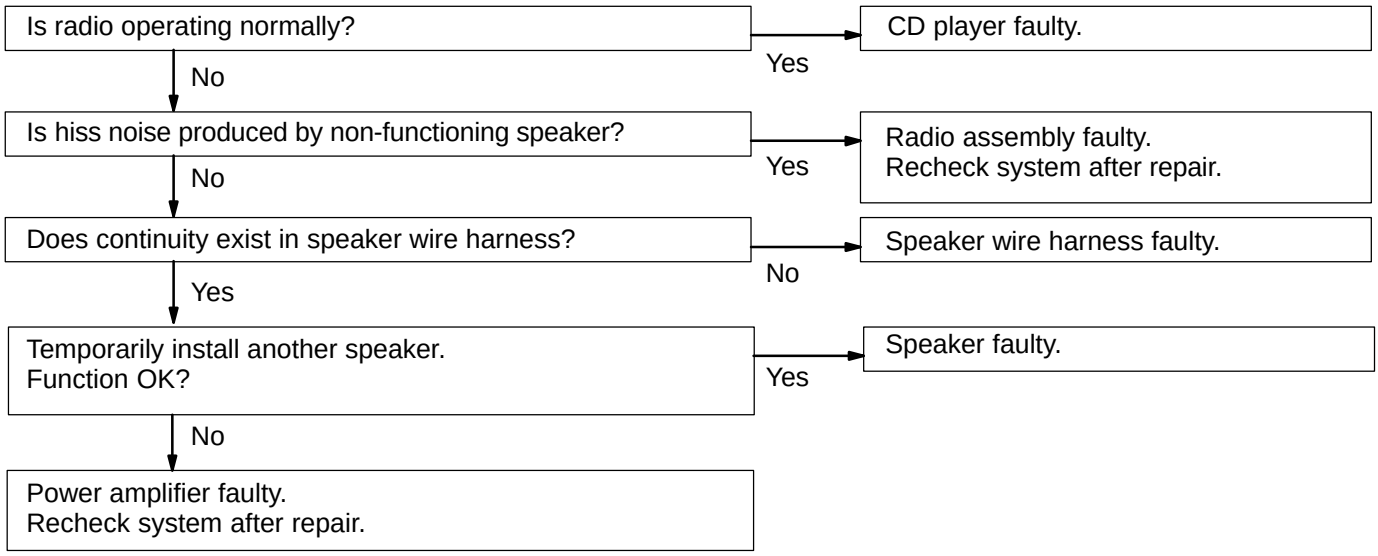
23	Power Amplifier	NO POWER COMING IN



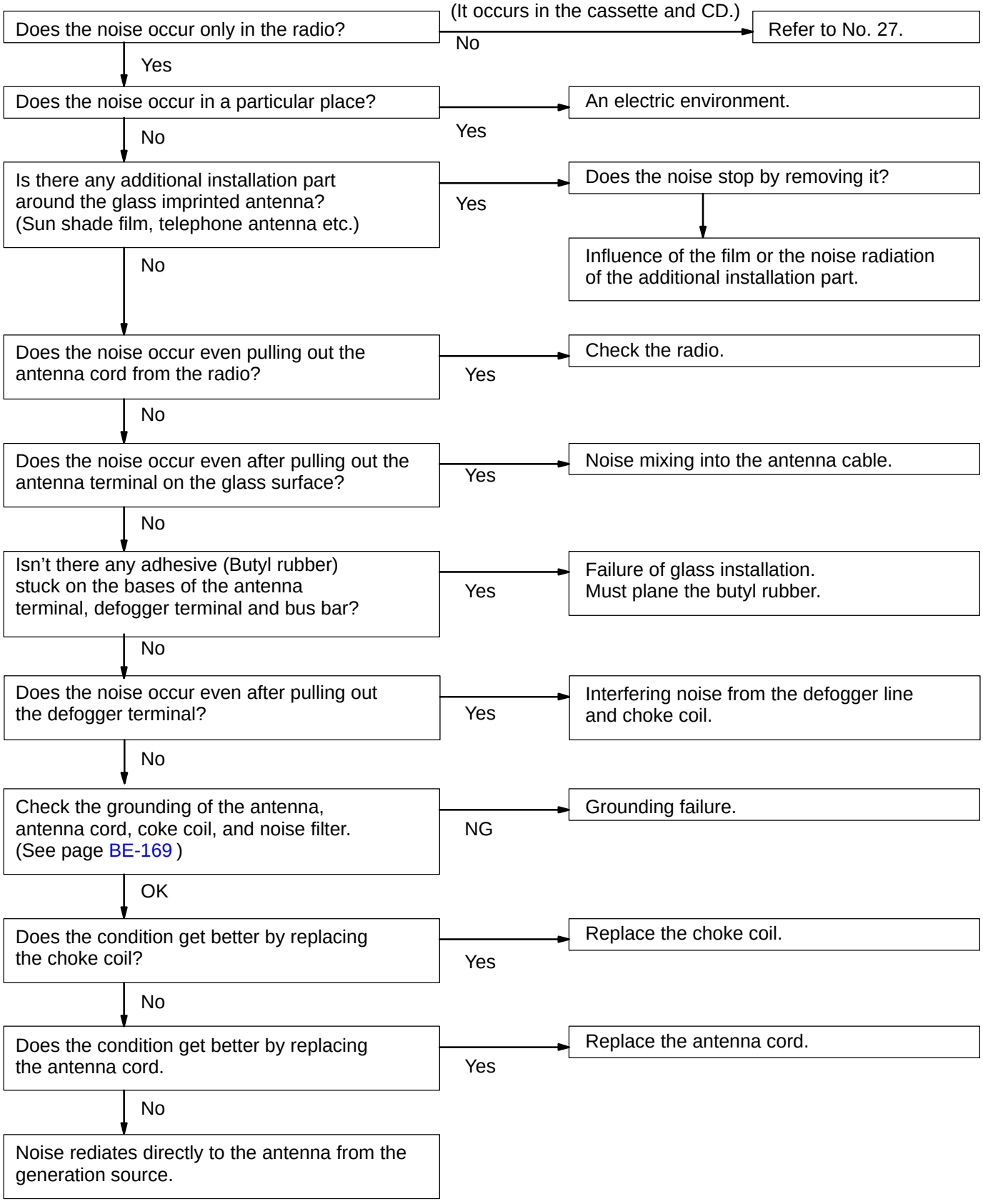
24	Power Amplifier	POWER COMING IN, BUT WOOFER (POWER) AMPLIFIER NOT OPERATING



25	Power Amplifier	ANY SPEAKER DOES NOT WORK

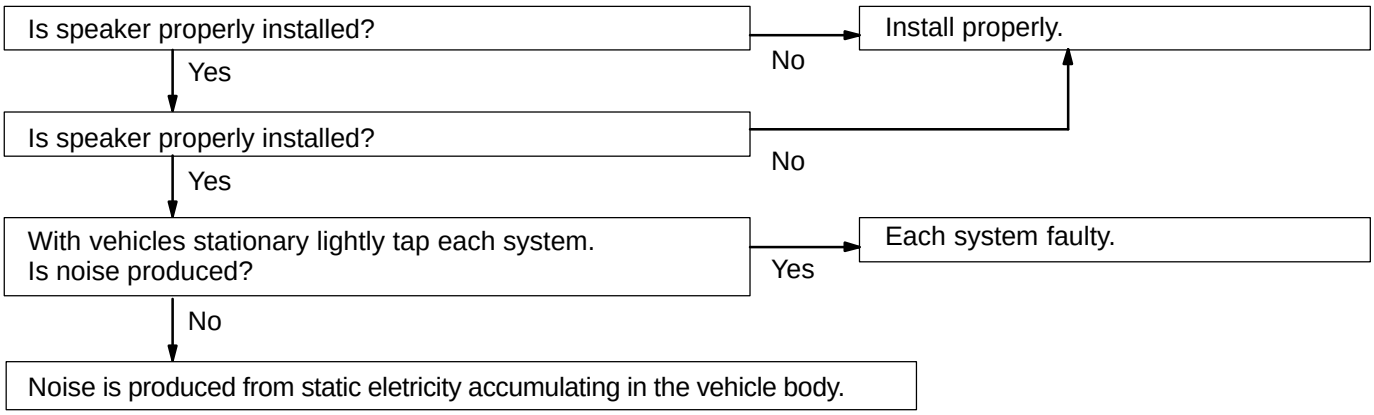


26	Noise	NOISE OCCURS

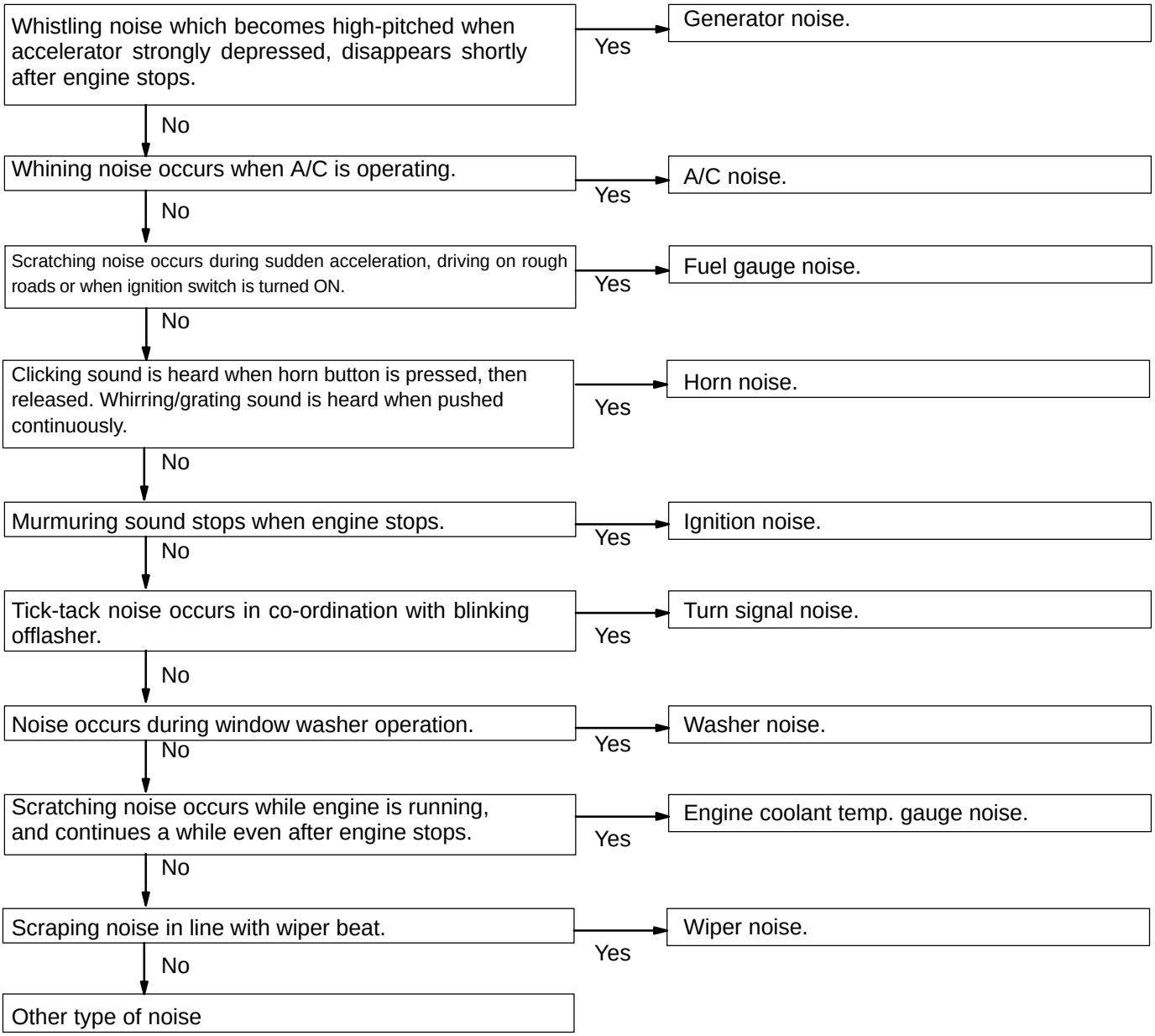


Author : Date : 1980

27	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING



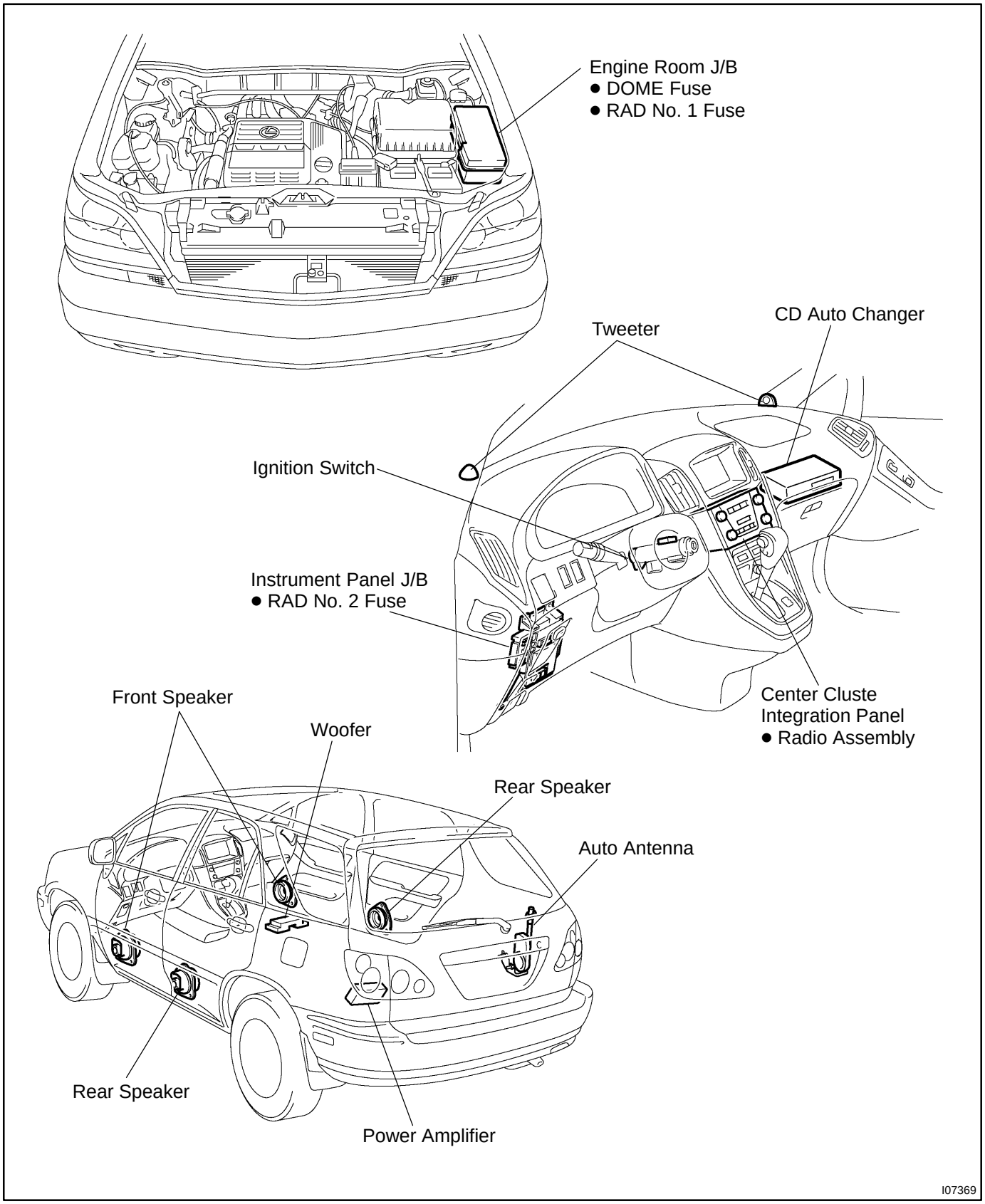
28	Noise	NOISE PRODUCED WHEN ENGINE STARTS



Author : Date : 1981

BE0GD-20

LOCATION

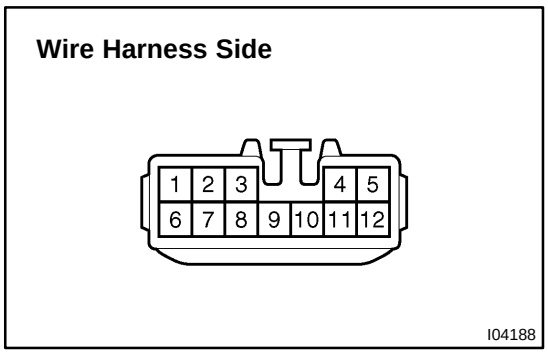


BE0UP-02

INSPECTION

1. INSPECT CD AUTO CHANGER CIRCUIT

Disconnect connectors from CD auto changer and inspect the connector on the wire harness side.



Tester connection	Condition	Specified condition
8 - Ground	Constant	Continuity
12 - Ground	Ignition switch LOCK	No voltage
12 - Ground	Ignition switch ACC or ON	Battery positive voltage
5 - Ground	Constant	Battery positive voltage

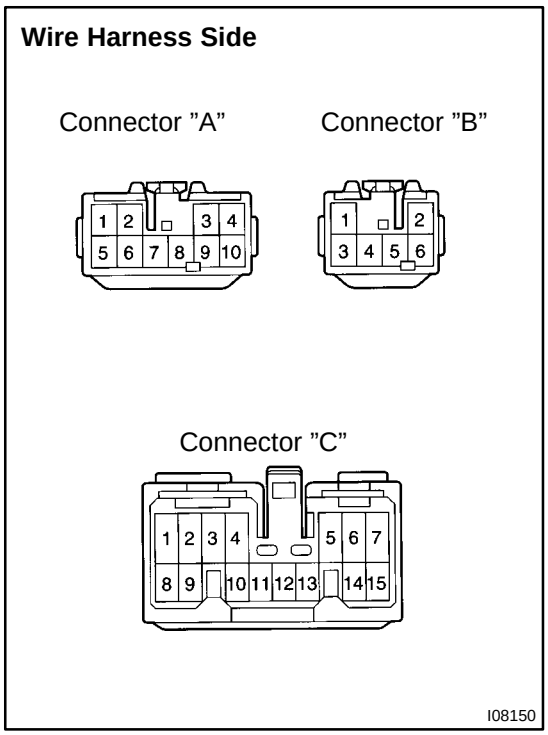
If the circuit is not as specified, inspect the circuits connected to other parts.

HINT:

- Check the wire harness between the radio receiver assembly and the CD auto changer.
- Since the signals to and from the MUTE, R^-, R^+, L^-, L^+, TX^- and TX^+ terminals are serial signals, they cannot ordinarily be measured with a tester.

2. INSPECT POWER AMPLIFIER CIRCUIT

Disconnect the connector from power amplifier and inspect the connector on the wire harness side.

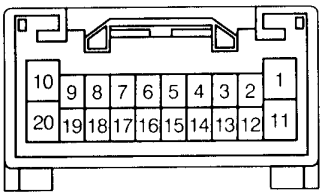


Tester connection	Condition	Specified condition
A6 - Ground	Constant	Continuity
A3 - Ground	Ignition switch LOCK and radio switch ON	No voltage
A3 - Ground	Ignition switch ACC or ON and radio switch ON	Battery positive voltage
A4 - Ground	Constant	Battery positive voltage

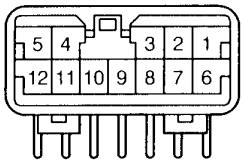
If the circuit is not as specified, inspect the circuits connected to other parts.

Wire Harness Side

Connector "A"



Connector "B"



I21289

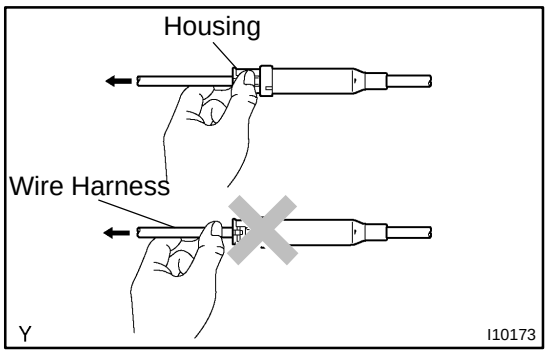
3. INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT

Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
A2 - Ground	Constant	Continuity
A4 - Ground	Constant	Battery positive voltage
A1 - Ground	Ignition switch LOCK	No voltage
A1 - Ground	Ignition switch ACC or ON	Battery positive voltage

HINT:

Check the wire harness between radio receiver assembly and the CD auto changer, between radio receiver assembly and power amplifier.



ANTENNA

BE1AQ-01

PRECAUTION

1. DISCONNECT ANTENNA CABLE

Hold the connector housing and pull it out.

NOTICE:

Do not pull the wire harness itself.

2. CONNECT ANTENNA CABLE

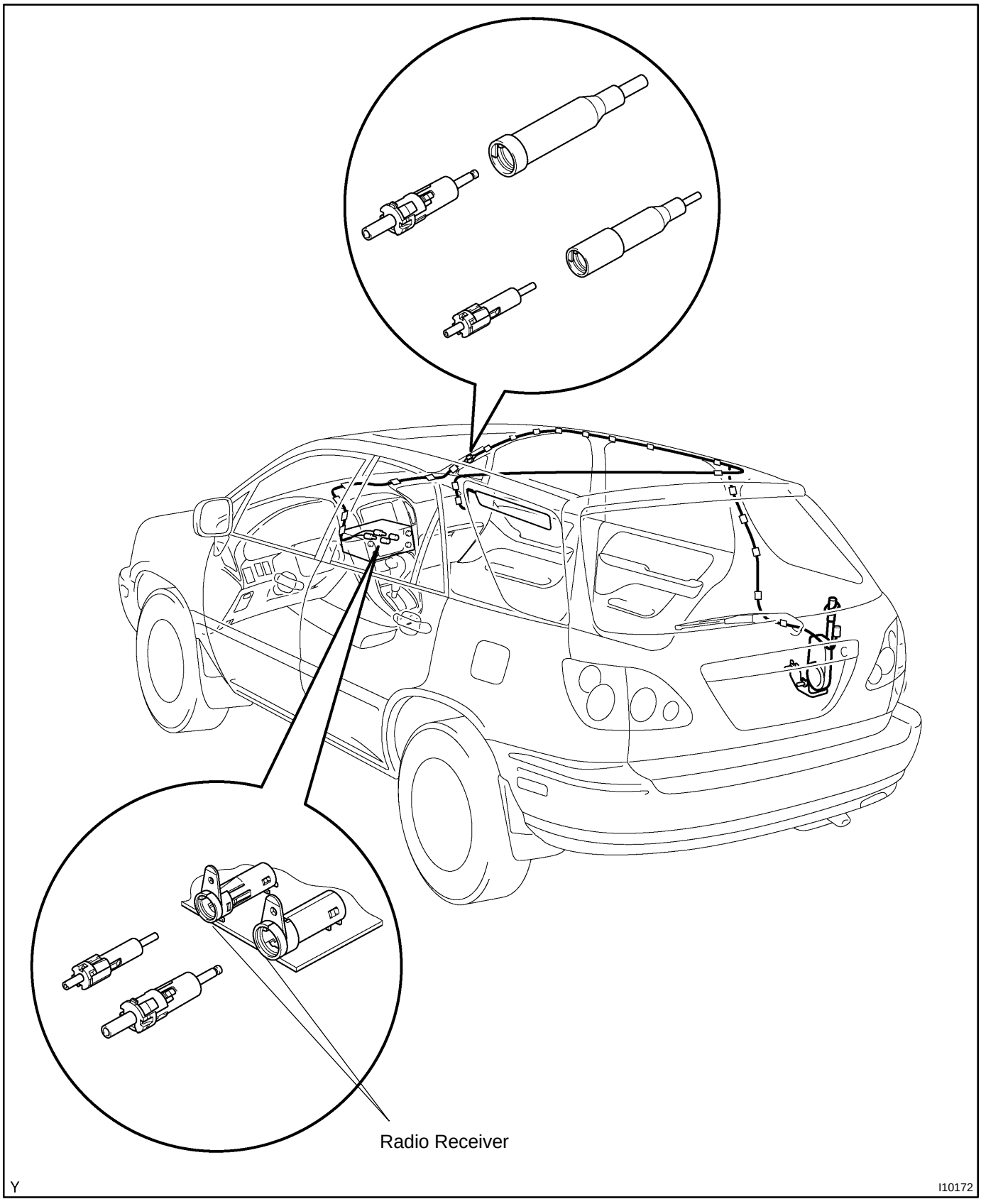
Hold the connector housing and fully insert the connector until it stops with a click.

HINT:

After connection, slightly pull the wire harness to check that it is locked.

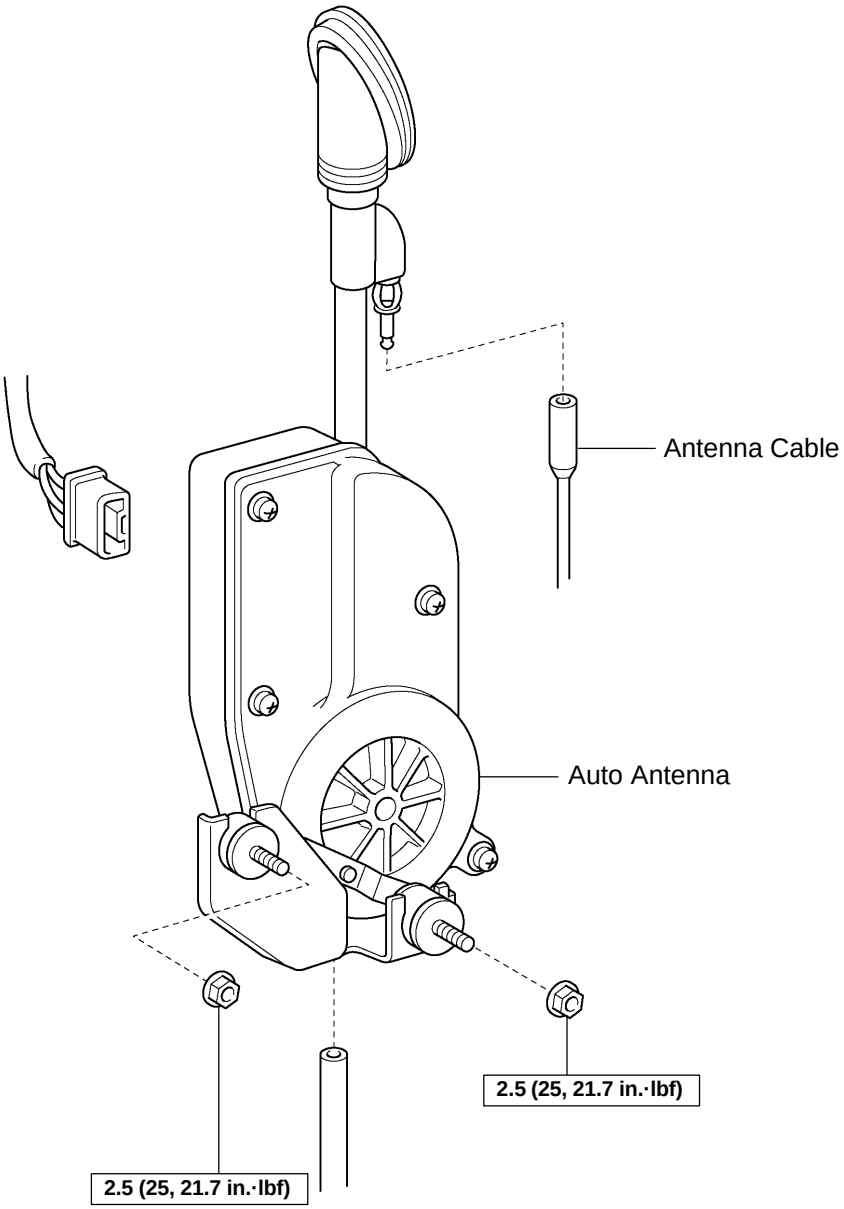
BE1AR-01

LOCATION



BE0UQ-02

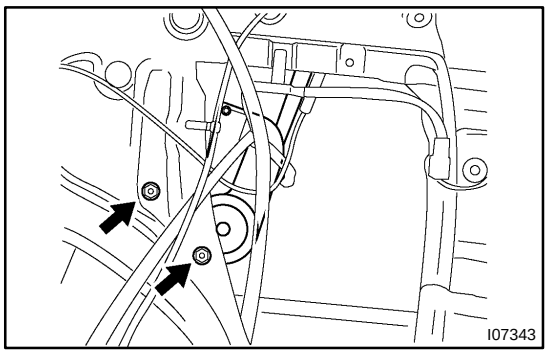
COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque

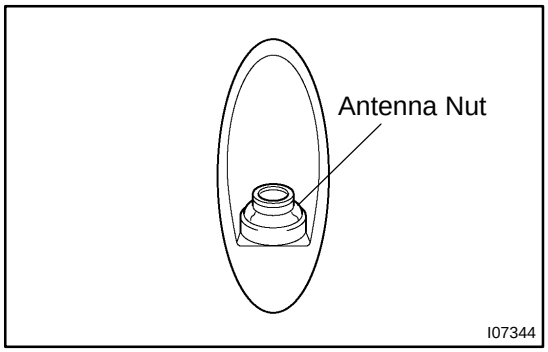
I07333

BE0UR-02



REMOVAL

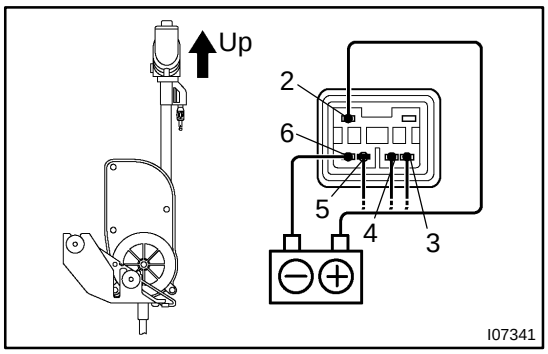
1. REMOVE SIDE WINDOW INNER GARNISH
   (See page BO-141)
2. REMOVE 2 NUTS



3. REMOVE ANTENNA NUT AND ORNAMENT
4. DISCONNECT ANTENNA CODE AND WIRE HARNESS

BE0US-02

INSPECTION



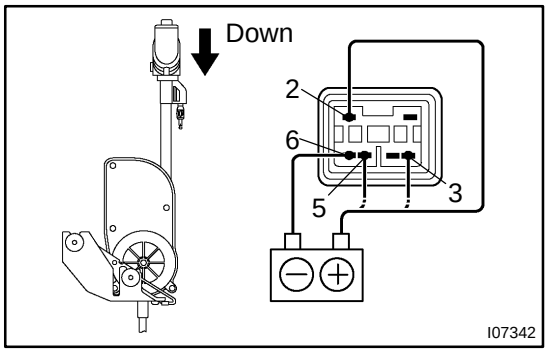
1. INSPECT ANTENNA MOTOR

(a) Connect the positive (+) lead from the battery to terminal 2, 3, 4 and 5 and the negative (-) lead to terminal 6.

(b) Check that the motor turns (moves upward).

NOTICE:

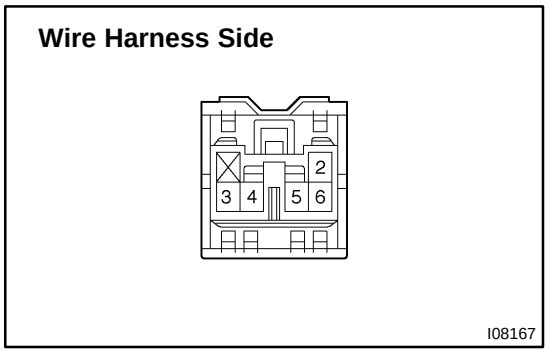
These tests must be done quickly (within 3 - 5 seconds) to prevent the coil from burning out.



(c) Disconnect the positive (+) lead from the battery from the terminal 4.

NOTICE:

These tests must be done quickly (within 3 - 5 seconds) to prevent the coil from burning out.

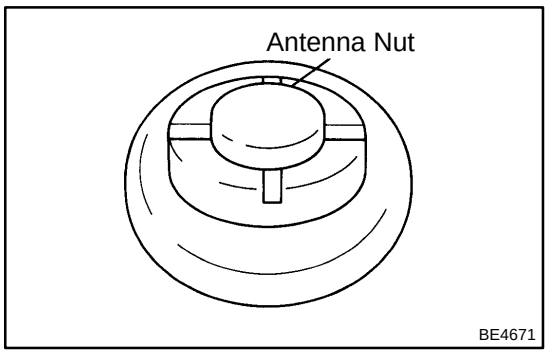


2. INSPECT ANTENNA MOTOR CONTROL RELAY CIRCUIT

Disconnect the connector from the relay and inspect the connector on wire harness side, as shown in the chart below.

Tester connection	Condition	Specified condition
6 - Ground	Constant	Continuity
2 - Ground	Ignition switch OFF	No voltage
2 - Ground	Ignition switch ACC or ON	Battery positive voltage
3 - Ground	Constant	Battery positive voltage
4 - Ground	Ignition switch ACC or ON, and radio switch OFF	No voltage
4 - Ground	Ignition switch ACC or ON, and radio switch ON	Battery positive voltage
5 - Ground	Ignition switch LOCK or ACC	No voltage
5 - Ground	Ignition switch ON	Battery positive voltage

BE0UT-02



REPLACEMENT

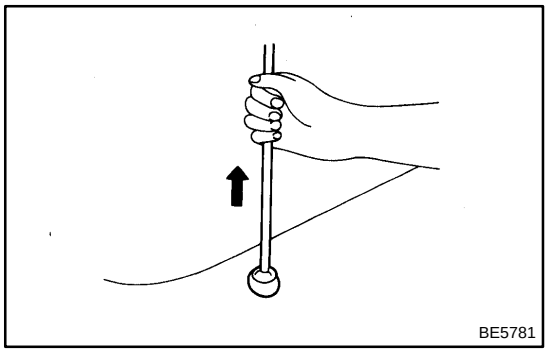
1. Auto Antenna Models:
REMOVE ANTENNA ROD

HINT:

Do this operation with the battery negative (-) cable connected to the battery terminal.

(a) Turn the ignition switch to ”LOCK” position.

(b) Remove the antenna nut.



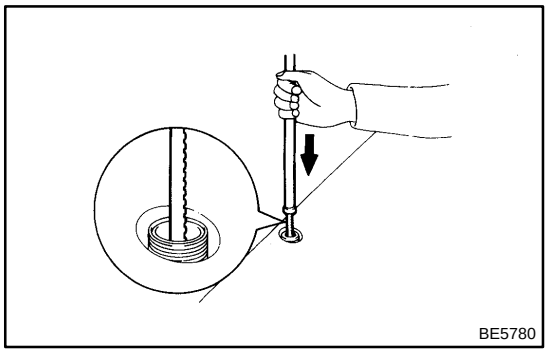
(c) Press the ”AM, FM” buttons on the radio receiver, and simultaneously turn the ignition switch to ”ACC” position.

HINT:

- The rod will extend fully and be released form the motor antenna.
- After removing the antenna rod, leave the ignition switch as ”ACC”.

NOTICE:

To prevent body damage when the antenna rod is released, hold the rod while it comes out.



2. Auto Antenna Models:
INSTALL ANTENNA ROD

(a) Insert the cable of the rod until it reaches the bottom.

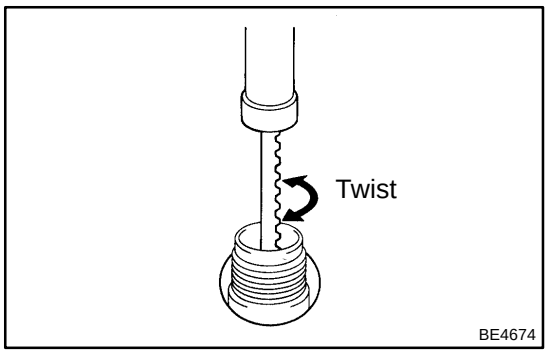
HINT:

- When inserting the cable, the teeth on the cable must face toward the rear of the vehicle.
- Insert the antenna approx. 300 mm (11.8 in.).

(b) Wind the cable to retract the rod by turning the ignition switch to ”LOCK” position.

HINT:

- If the ignition switch is already in ”LOCK” position, do step 1 (c) first, then turn the ignition switch to ”ACC” position.
- In case the cable is not wound, twist it, as shown in the illustration.
- Even if the rod has not retracted fully, install the antenna nut and inspect the antenna rod operation. It will finally retract fully.



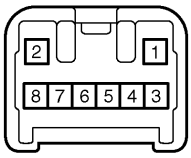
(c) Inspect the antenna rod operation by pushing the radio wave band select buttons.

BE0UU-01

INSTALLATION

Installation is in the reverse order of removal. (See page BE-204)

Wire Harness Side:



N I10786

MULTI DISPLAY

INSPECTION

BE1AS-01

INSPECT MULTI DISPLAY ASSEMBLY CIRCUIT

Disconnect the connector from the multi display assembly and inspect the connector on the wire harness side, as shown in the table.

Tester connection	Condition	Specified condition
8 - Ground	Constant	Continuity
1 - Ground	Constant	Battery positive voltage
3 - Ground	Ignition switch LOCK	No voltage
3 - Ground	Ignition switch ACC or ON	Battery positive voltage

If the circuit is as specified, replace the multi display assembly.
If the circuit is not as specified, inspect the circuits connected to other parts.

GARAGE DOOR OPENER SYSTEM

BE0G2-02

REGISTRATION PROCEDURE

1. NEW CODE REGISTRATION

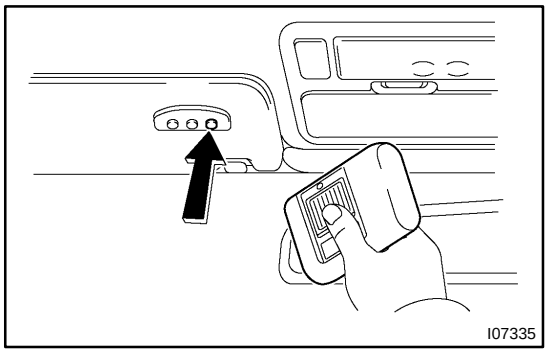
NOTICE:

- **If pressing the switch of the original transmitter to register the code, the system might operate.**
- **When registering the transmitter codes such as for garage or gate, check that there is nobody around those places then register.**

(a) Press the switch for the item to be registered for 20 seconds

HINT:

When transferring to registration mode, LED (red) blinks in 1 Hz cycle.

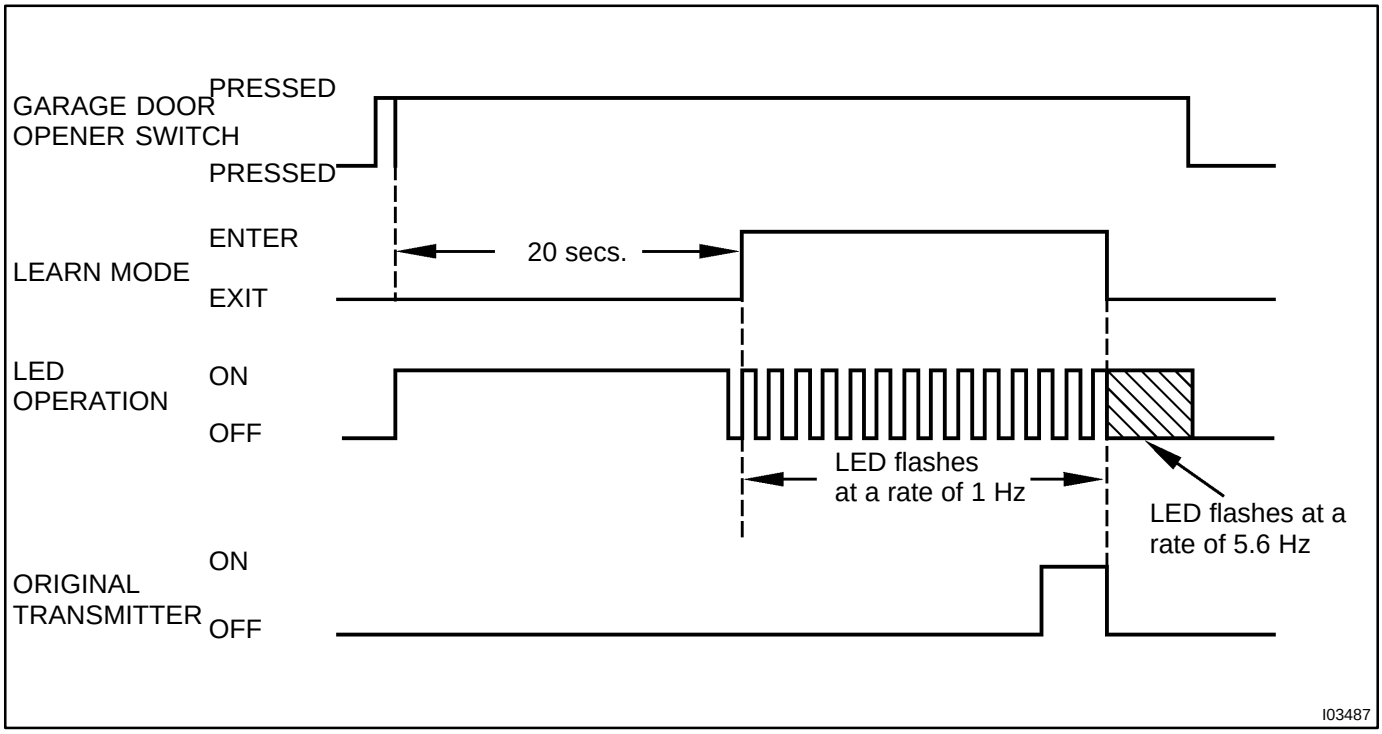


(b) In the condition of (a), bring the original transmitter to within 1-inch area around the garage door opener and press the switch. (code transmitting).

HINT:

When code registration completes correctly, LED (red) blinks in 5.6 Hz cycle.

New code registration timing chart



If a code can not be registered, observe the following conditions.

HINT:

- If the battery of original transmitter is consumed.
- Press the switch of the transmitter repeatedly in registration mode, as some transmitters stop transmitting for 1 to 2 seconds.
- This system is not applicable to the garage door opener which had been made before 1982.

2. CODE DELETION

(a) Press the switches at both ends of garage door opener simultaneously for 20 seconds.

HINT:

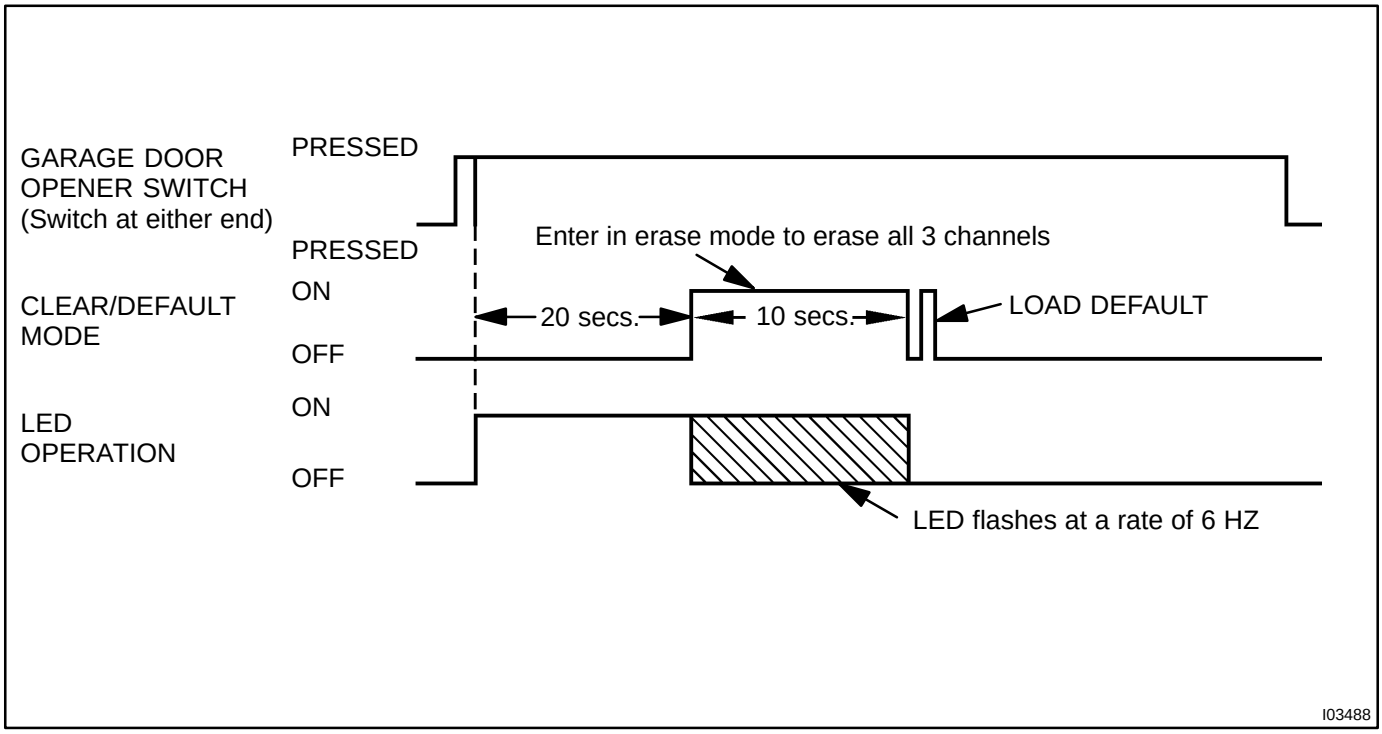
When transferring to deletion mode, LED (red) blinks in 6 Hz cycle.

(b) When releasing the switch within 10 seconds after transferring to deletion mode, all the registered codes will be erased.

HINT:

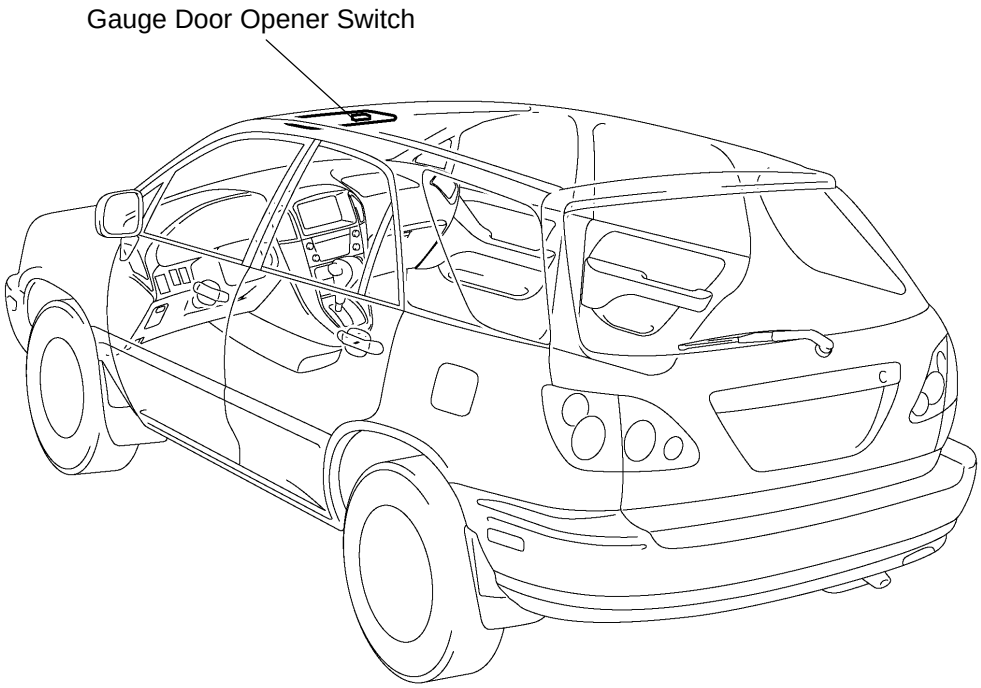
Press the switch until blinking in 6 Hz cycle stops, so that the default code for check is set.

Code deletion timing chart



BE0G3-02

LOCATION



I07370

BE0G4-03

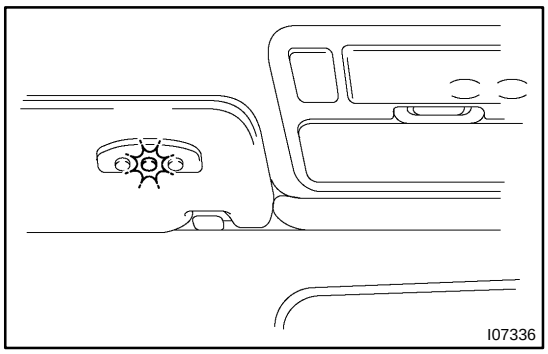
REMOVAL

REMOVE SUN VISOR

(a) Remove the 2 screws.

(b) Disconnect the garage door opener switch connector.

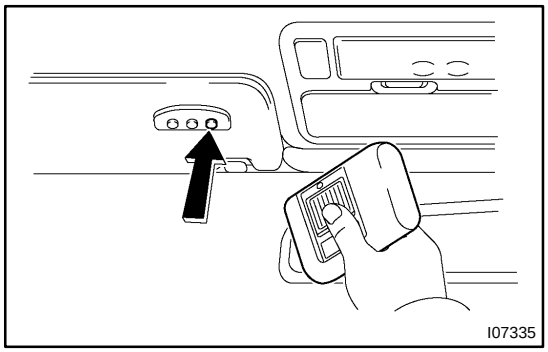
BE0G5-02



INSPECTION

1. INSPECT GARAGE DOOR OPENER SWITCH

Press the switch and check that each LED (red) lights up.
Even if only one switch is found not to light up, replace it.

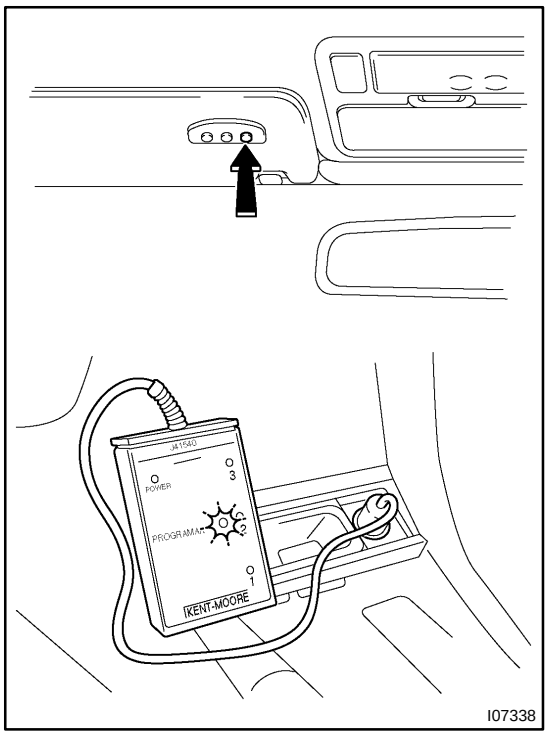


2. INSPECT GARAGE DOOR OPENER REGISTRATION AND TRANSMITTING

HINT:
Use the home link tester made by KENT MORE for this test.
As it is necessary to record the code of the hand held transmitter, customer's code will be erased. When the inspection completes, please register the customer's again.

(a) Check that the code of hand held transmitter for inspection can be recorded.
(See page

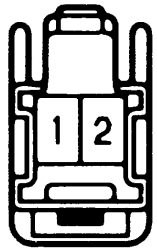
If the code can not be registered, replace garage door opener.



(b) Press the switch which an inspection code has been registered for and check that LED (green) of the home link tester lights up.

If the LED (green) does not light up, replace the garage door opener.

Wire Harness Side



I04194

3. INSPECT GARAGE DOOR OPENER SWITCH CIRCUIT

Disconnect the connector from the switch and inspect the connector on the wire harness side, as shown.

Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity
2 - Ground	Constant	Battery positive voltage

If the circuit is not as specified, inspect the power source or wire harness.

BE0G6-04

INSTALLATION

INSTALL SUN VISOR

(a) Connect the garage door opener switch connector.
(b) Install the screws and sun visor.

ENGINE IMMOBILISER SYSTEM

BE0G7-10

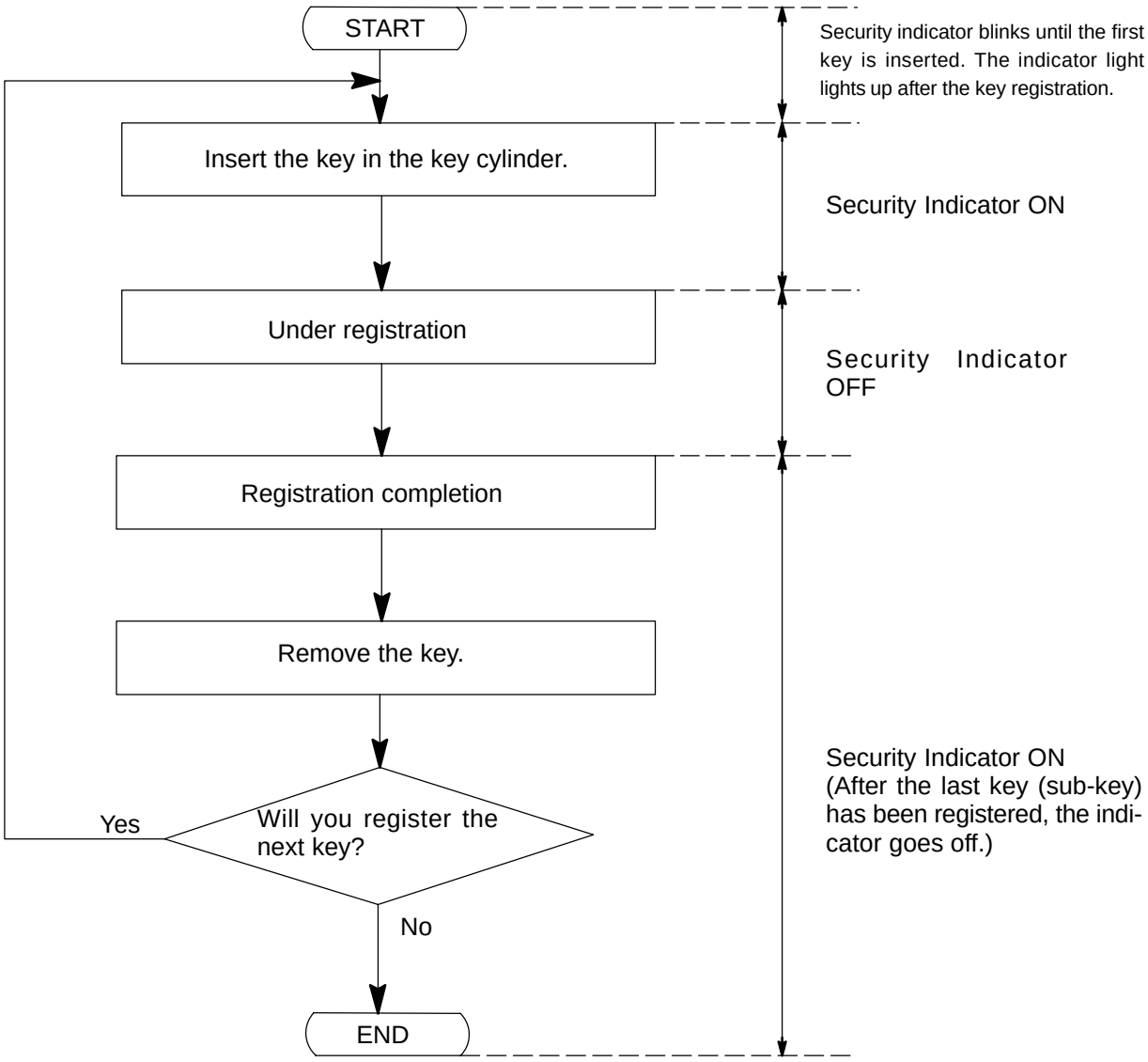
REGISTRATION PROCEDURE

1. KEY REGISTRATION IN AUTOMATIC REGISTRATION MODE

(a) Registration of a new transponder key.

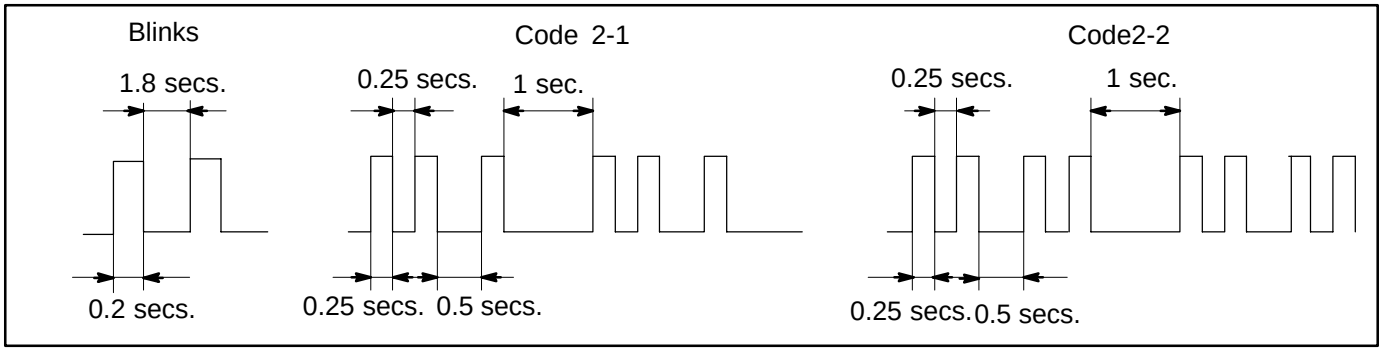
HINT:

- This must be done when you install a new ECM.
- The new ECM is in the automatic key code registration mode. The already fixed number of key codes for this ECM can be registered.
  On this type of vehicle, up to 3 key codes can be registered.
- In the automatic registration mode, the key registered last becomes the sub-key.



HINT:

- When a key is not inserted in the key cylinder in the automatic registration mode, the security indicator always lights on.
- When the immobiliser system operates normally and the key is pulled out, the security indicator blinks.
- When key code registration could not be performed in the automatic registration mode, code 2-1 is output from the security indicator and when inserting the already registered key, code 2-2 is output.



(b) Automatic registration mode completion

If completing the mode forcibly when more than 1 key code have been registered in the automatic registration mode, perform the following procedures.

After 1 more key code have been registered with master key, perform step (1) or (2) without pulling the key out or inserting the already registered key.

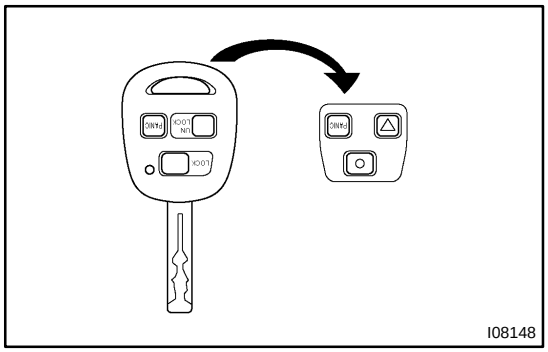
(1) Depress and release brake pedal 5 times or more within 15 secs.

(2) With the hand-held tester, require automatic registration mode completion.

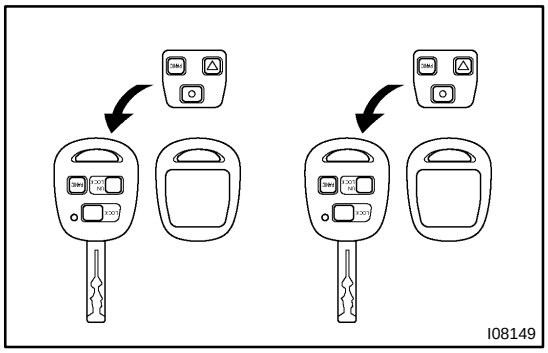
2. KEY REGISTRATION PROCEDURE WHEN KEY OR KEY CYLINDER HAS BEEN REPLACED

HINT:

Key registration procedure of new master key and new sub-key on this vehicle when new ignition cylinder and key set, and new lock cylinder set including ignition key cylinder are installed is described below.



(a) Removing wire-less and immobiliser module from original master key.



(b) Making new master key.
After replacing and installing new ignition cylinder, install the removed original modules into new 2 key housings as supply parts.

(c) Registration of supplied new sub-key and /or master key
Register supplied new sub-key and /or master key by using new master key (See step 3 and 4).

NOTICE:

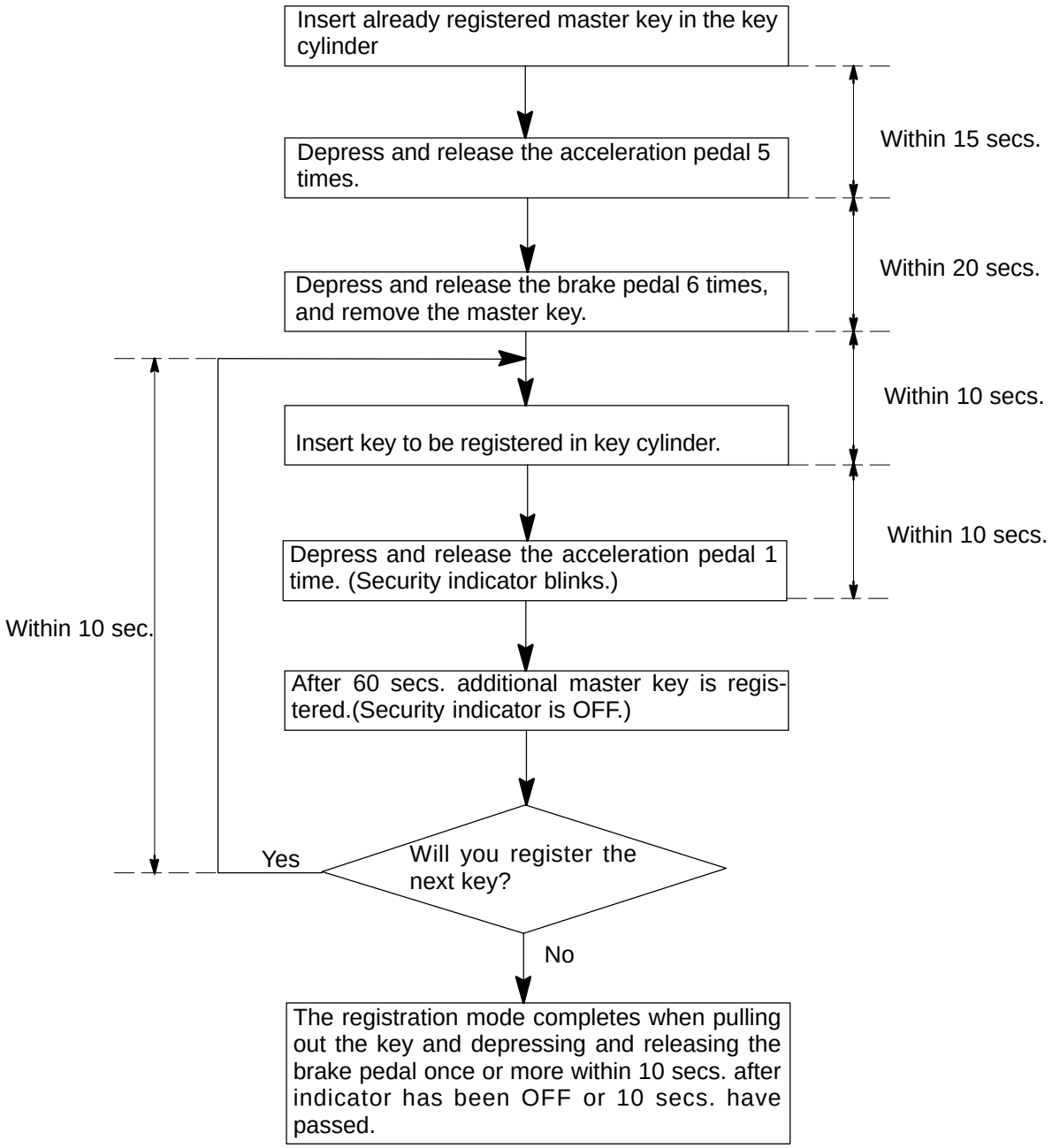
In case of replacing ignition cylinder and key set, door locks cannot be opened with new ignition keys. Therefore, to avoid any trouble caused by empty battery of transmitter of new ignition key, please bring the original key while driving.

(d) There are 2 ways for registration of additional master key, one way is depressing brake pedal and acceleration pedal and the other way is using hand-held tester.

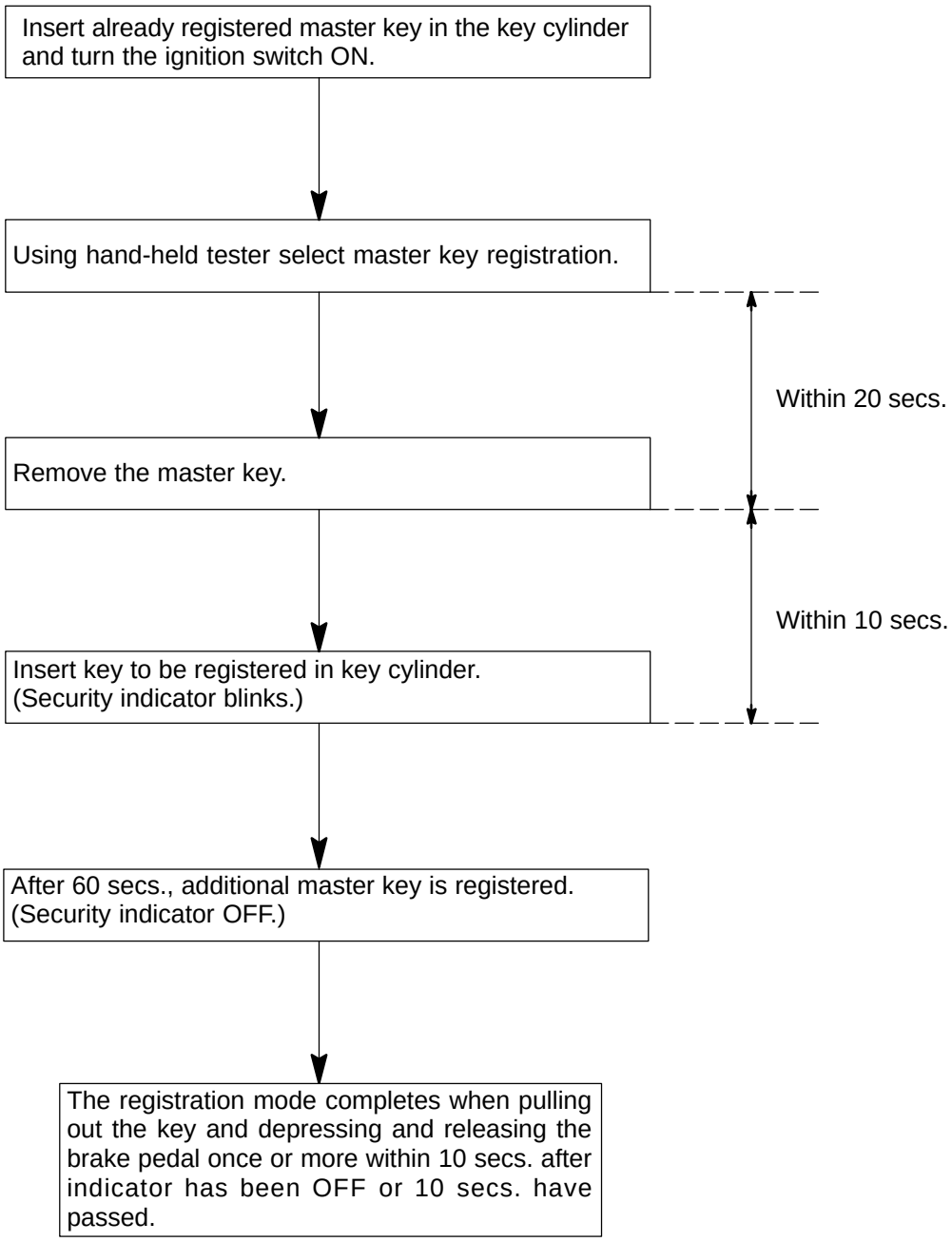
HINT:

- It is possible to register up to 7 master key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.
- When replacing "Ignition Cylinder Key Set" or "Lock Cylinder Set" register according to the following procedure using the original master key. However, after the registration of the additional master key, as the original master key and the original sub-key are not necessary any more, erase registered of those key codes.

(1) Depressing brake pedal and acceleration pedal:



(2) Using hand-held tester:



HINT:
Please follow the screen of the hand-held tester for more detailed procedure.

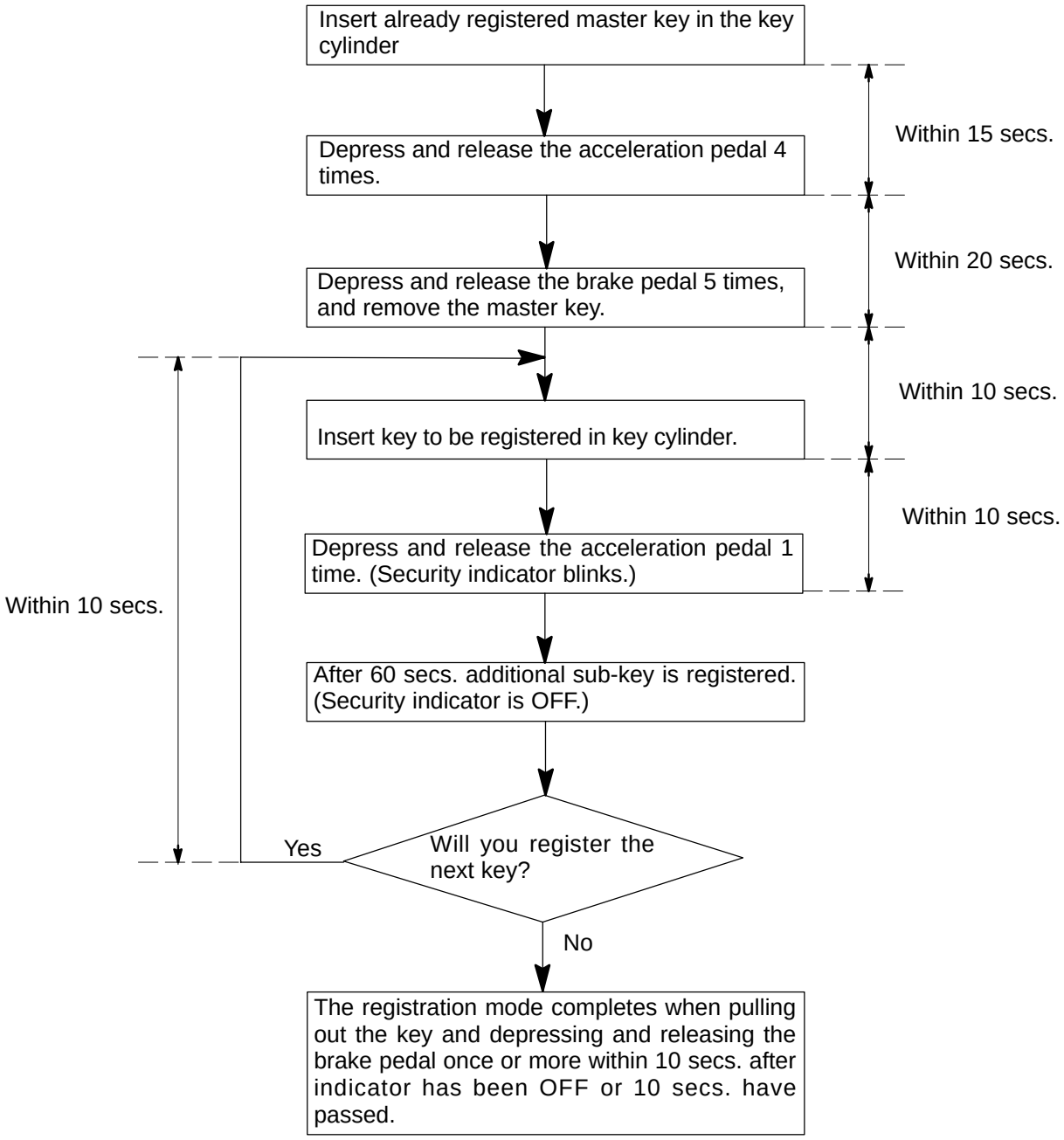
3. REGISTRATION OF ADDITIONAL SUB-KEY

There are 2 ways for registration of additional sub-key, one way is depressing brake pedal and acceleration pedal and the other way is using hand-held tester.

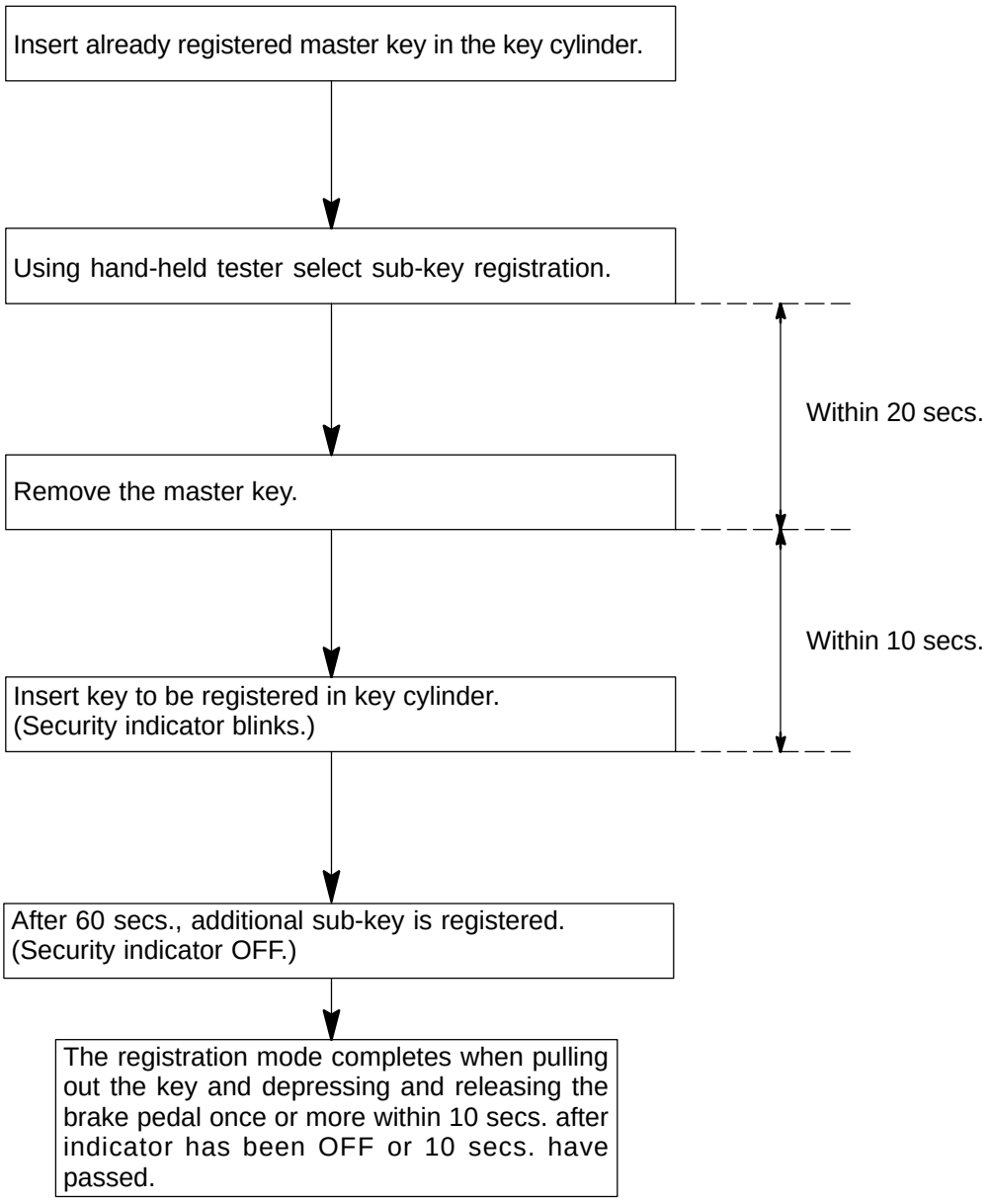
HINT:

- It is possible to register up to 3 sub-key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

(1) Depressing brake pedal and acceleration pedal:



(2) Using hand-held tester:



HINT:
Please follow the screen of the hand-held tester for more detailed procedure.

4. ERASURE OF TRANSPONDER KEY CODE

There are 2 ways for erasure of transponder key code, one way is depressing brake pedal and acceleration pedal and the other way is using hand-held tester.

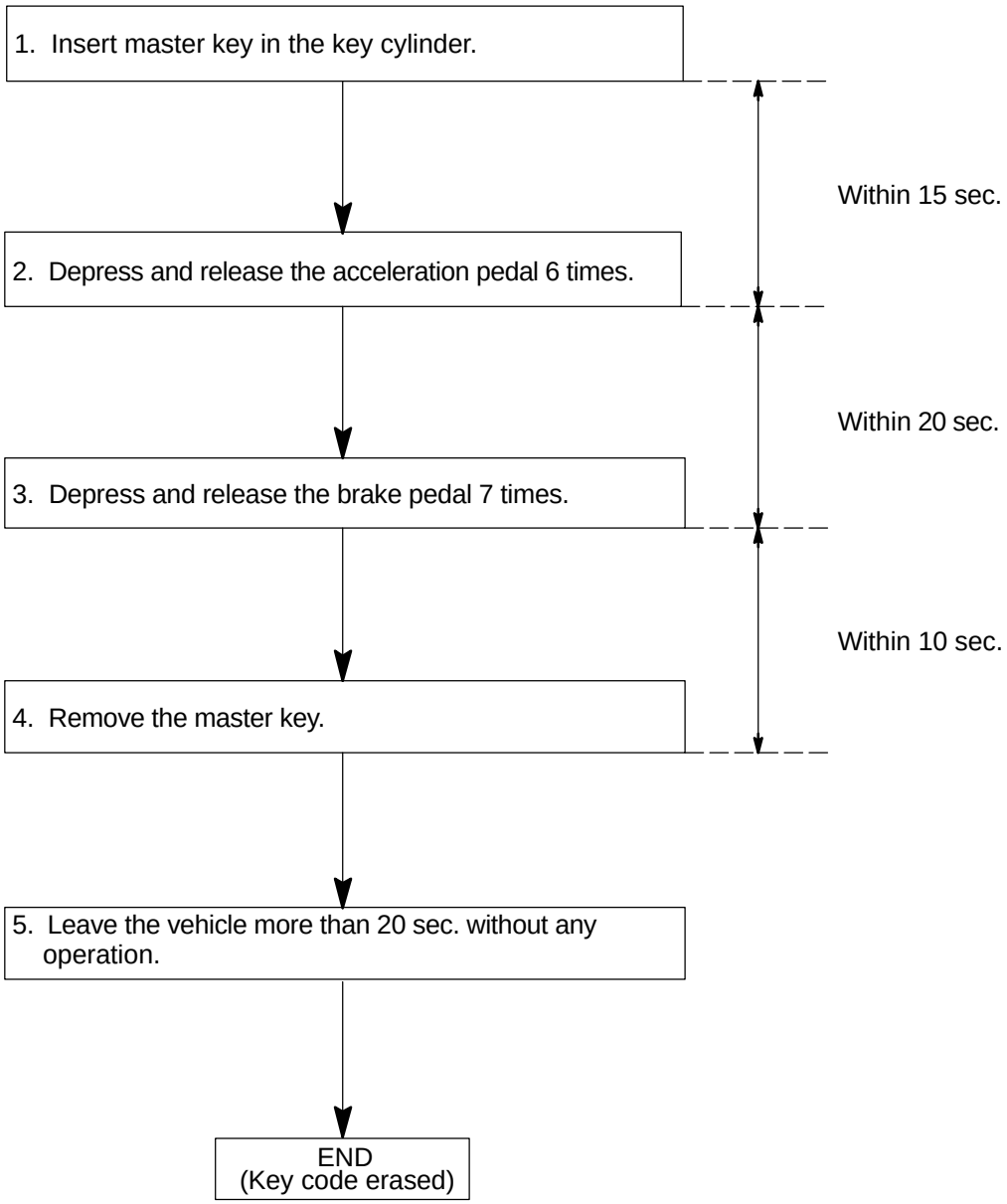
NOTICE:

Delete all other master and sub-key codes leaving the master key code to use the operation. When using the key which was used before deletion, it is necessary to register the code again.

HINT:

- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

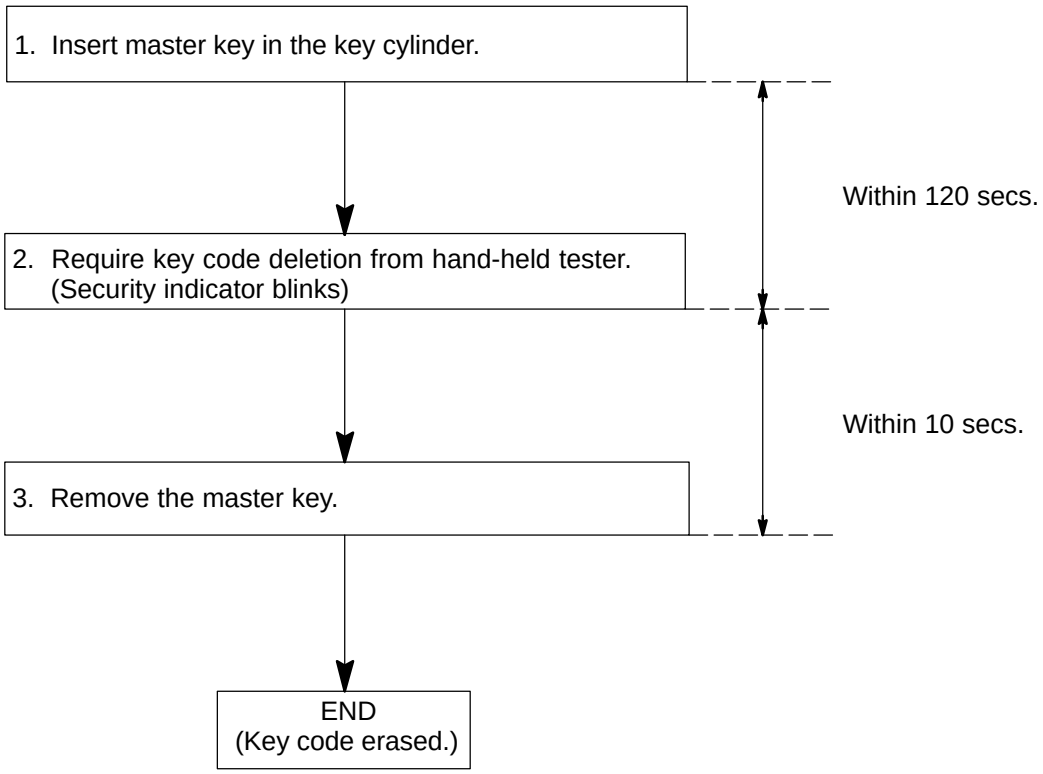
(1) Depressing brake pedal and acceleration pedal:



HINT:

If the key cannot be pulled out within 30 sec. from the first brake depression in the step 3, the key code deletion is canceled.

(2) Using hand-held tester:

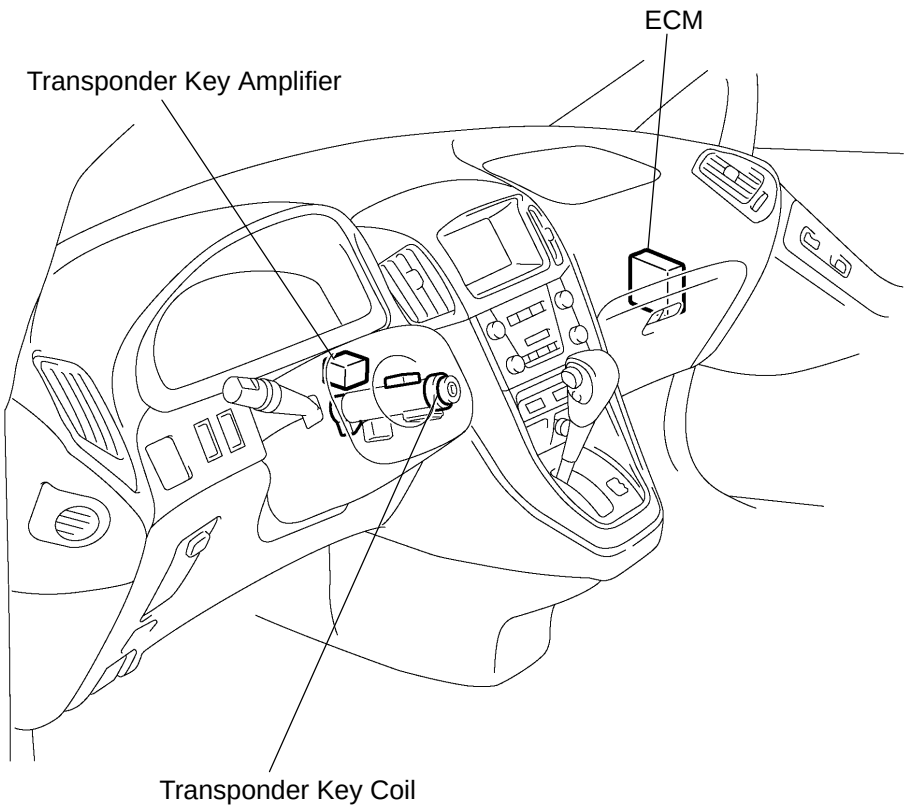


HINT:

When the key cannot be pulled out in the step 3, key code deletion is canceled.
(Security indicator is OFF.)

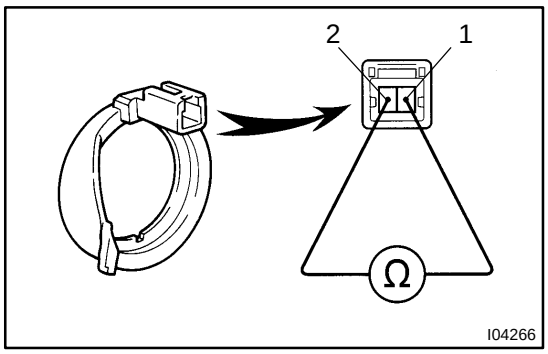
BE02Q-06

LOCATION



I07371

BE0G8-04



INSPECTION

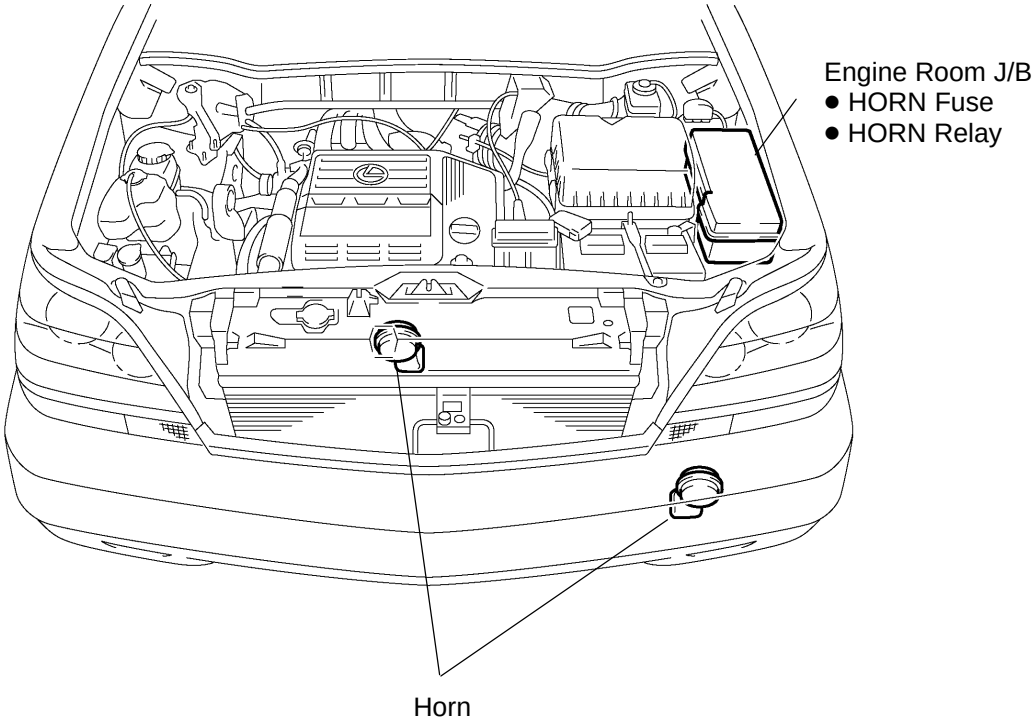
INSPECTION TRANSPONDER KEY COIL CONTINUITY

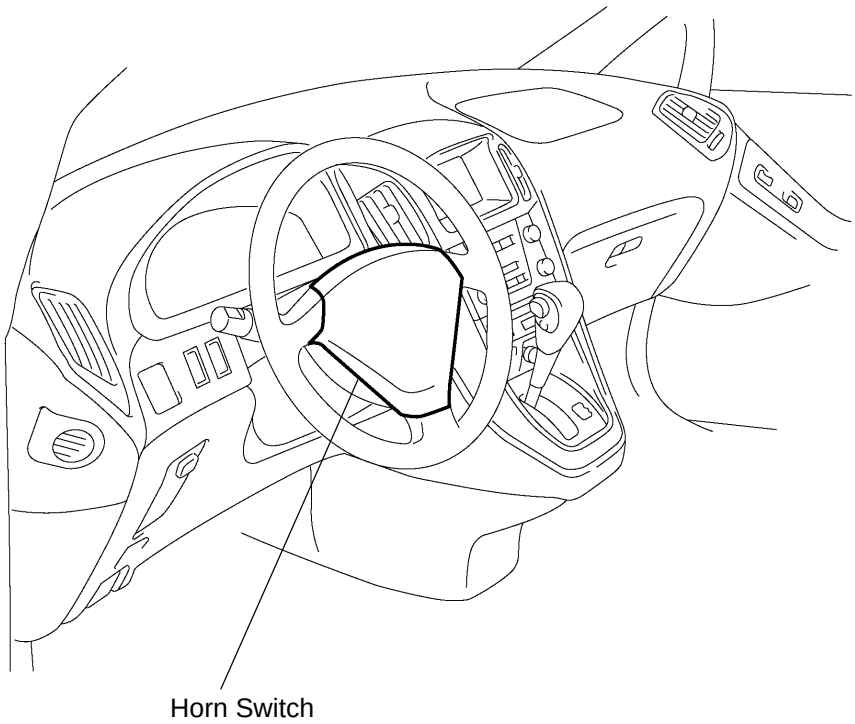
Check that continuity exists between terminals 1 and 2.
If continuity is not as specified, replace the coil.

HORN SYSTEM

LOCATION

BE0FY-04





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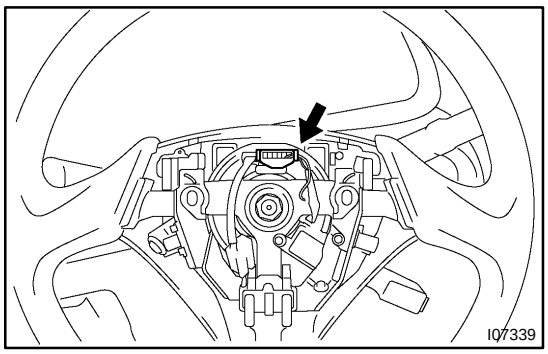
INSPECTION

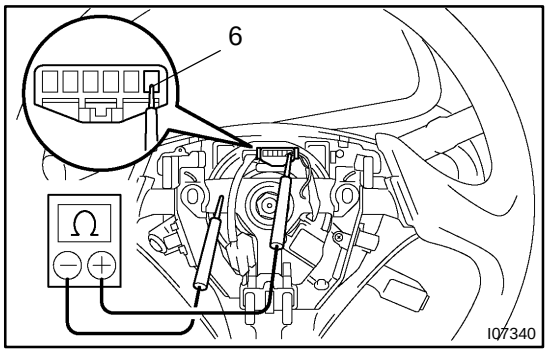


1. INSPECT HORN SWITCH

(a) Disconnect the negative (-) terminal from the battery.
(b) Remove the left and right covers from the steering wheel.
(c) Using a torx socket wrench, loosen the 2 bolts.
(d) Pull up the horn pad and place it on the steering column, as shown.

HINT:
Do not disconnect the connector from the horn pad.

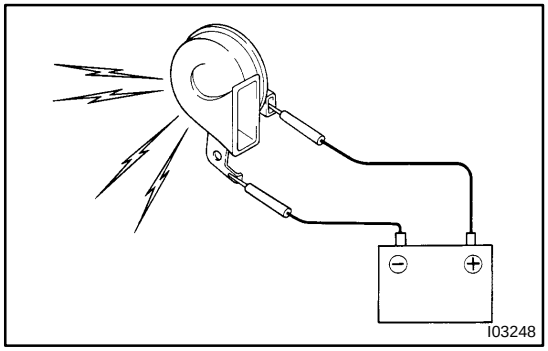
(e) Disconnect the connector from the slip ring.



(f) Check that no continuity exists between terminal 6 of the connector and body ground.
(g) Check that continuity exists between terminal 6 of the connector and body ground when the horn contact plate is pressed against the steering spoke assembly.

If continuity is not as specified, repair or replace the steering wheel or wire harness as necessary.

(h) Install the horn pad in place and using a torx socket wrench, torque the 2 bolts.
Torque: 7.1 N·m (72 kgf·cm, 62 in.·lbf)
(i) Install the left and right covers.
(j) Connect the negative (-) terminal to the battery.

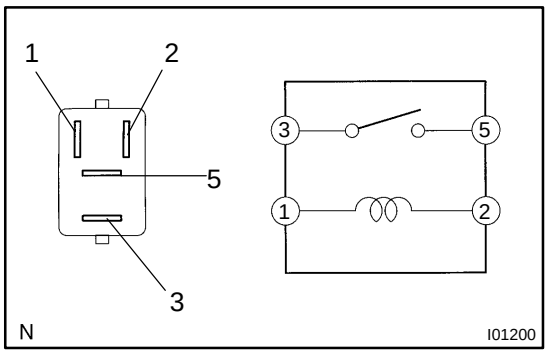


2. INSPECT HORN OPERATION

Connect the positive (+) lead from the battery to the terminal and negative (-) lead to the horn body and check that the horn blows.

If operation is not as specified, replace the horn.

3. INSPECT HORN SWITCH CIRCUIT
(See page DI-673)



4. INSPECT HORN RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2	Continuity
Apply B+ between terminals 1 and 2.	3 - 5	Continuity

If continuity is not as specified, replace the relay.

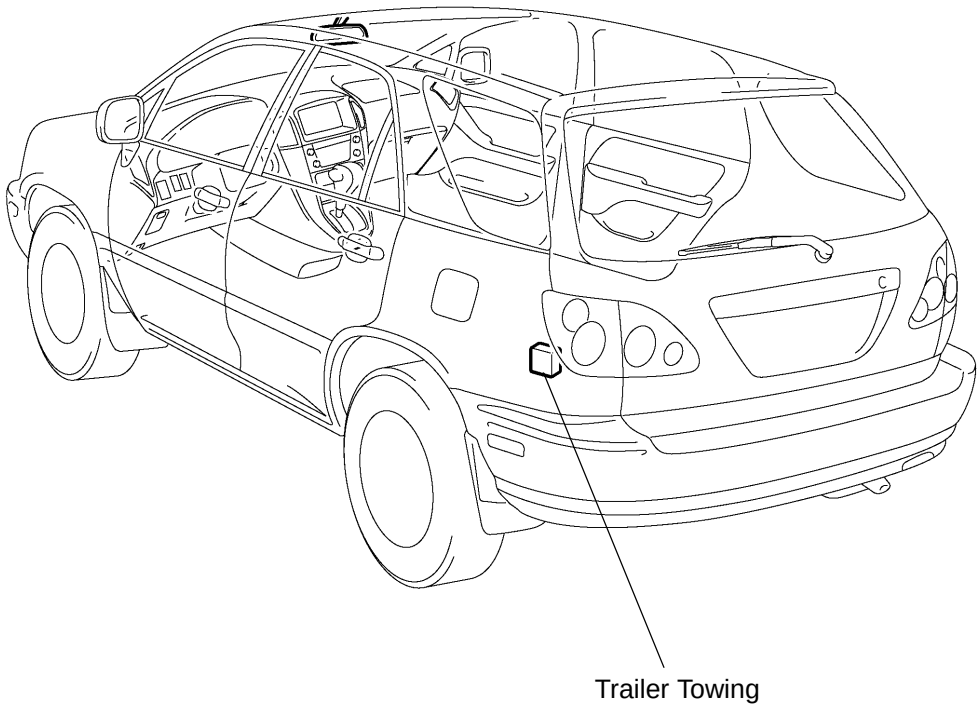
5. INSPECT HORN RELAY CIRCUIT

(See page BE-20)

TRAILER TOWING

BE20N-01

LOCATION



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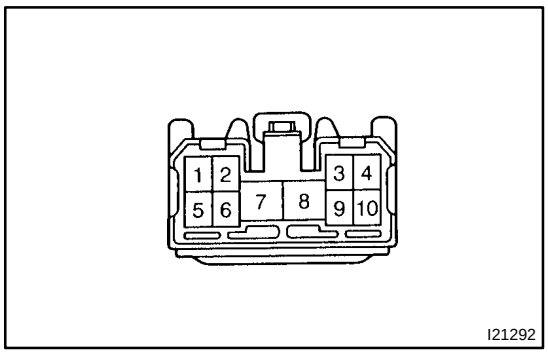

INSPECTION

INSPECT TOWING CONVERTER CIRCUIT

Remove the towing converter with connector still connected and inspect the wire harness side connector from the back side.

Tester connection	Condition	Specified condition
1 - 5	Light control switch TAIL or HEAD	10 - 14 V
	Light control switch OFF	0 V
2 - 5	Turn signal switch LEFT or hazard warning switch ON	10 - 14 V ↔ 0 V
	Turn signal switch OFF and hazard warning switch OFF	0 V
3 - 5	Light control switch TAIL or HEAD	10 - 14 V ↔ 0 V
	Light control switch OFF	0 V
4 - 5	Turn signal switch LEFT or hazard warning switch ON	10 - 14 V ↔ 0 V
	Turn signal switch OFF or RIGHT and hazard warning switch OFF	0 V
5 - Body ground	Constant	Continuity
6 - 5	Turn signal switch RIGHT or hazard warning switch ON	10 - 14 V ↔ 0 V
	Turn signal switch OFF or LEFT and hazard warning switch OFF	0 V
8 - 5	Constant	10 - 14 V
9 - 5	Stop light switch ON (Brake pedal depressed)	10 - 14 V
	Stop light switch OFF (Brake pedal released)	0 V
10 - 5	Turn signal switch RIGHT or hazard warning switch ON	10 - 14 V ↔ 0 V
	Turn signal switch OFF or LEFT and hazard warning switch OFF	0 V