BODY ELECTRICAL SYSTEM

BE0OM-17

PRECAUTION

HINT:

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

1. PRECAUTION OF DISCHARGE HEADLIGHT SYSTEM

(a) Disconnect the connector of the light control computer after disconnecting the battery negative terminal or turn off the light control switch off.

(b) When any defects such as deformation, crack, dent, chipping, etc. are identified on the discharge headlight (especially on the light control ECU) and headlight is damaged by collision, replace the discharge headlight with a new one.

(c) Even if the discharging operation seems to be normal, the fail–safe function may be defective.

(d) Touching the high voltage socket of the discharge headlight with the headlight dimmer switch ON could generate momentary high voltage of 20, 000 V and lead to a serious accident.

(e) Never connect a tester to the high voltage socket of the discharge headlight for measurement, as this leads to a serious accident because of high voltage.

(f) When performing operation related to the discharge headlight, keep it away from water such as rain, turn off the light control switch, and disconnect the battery terminal and connector of the light control ECU in advance to avoid electric shock.

(g) When performing operation related to the discharge headlight, start operation after assembling is completely over and never turn on the light without a bulb installed.

(h) Do not turn on the discharge headlight using another power source except vehicle's.

2. HEADLIGHT BULB REPLACEMENT

(a) If the adhered oil is left on the halogen lamp surface, the lamp service life is shortened as it becomes hot when it is turned on.

(b) Since the internal pressure of a discharge headlight and halogen bulbs is high, dropping, hitting or damaging the bulb may cause the glass to scatter. Therefore, handle the headlight bulb with great care.

(c) When replacing bulb, prepare a new bulb before starting operation.

(d) A bulb of the same watt must be used for bulb replacement.

(e) Firmly reinstall the socket in bulb replacement. Otherwise, cloudy lens or invasion by water will be caused.

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.

3. SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

The CELICA is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag and side airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy 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 notices in the RS section.

4. AUDIO SYSTEM

If the negative (–) terminal cable is disconnected from the battery, the preset AM, FM 1 and FM 2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.

5. MOBILE COMMUNICATION SYSTEM

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

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TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BE0ON–24

IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH

Symptom	Suspect Area	See page
Ignition switch is not set to each position.	11. Ignition Switch	BE–10
"Key unlock warning system" does not operate.	1. Key Unlock Warning Switch 2. Door Courtesy Switch 3. Body Control System 4. Combination Meter 5. Wire Harness	BE–10 BE–32 DI–1117 – –

HEADLIGHT (HALOGEN) AND TAILLIGHT SYSTEM

Symptom	Suspect Area	See page
"Lo–Beam" and "Hi–Beam" of both sides do not come on. (Taillights do come on.)	1. Light Control Switch 2. Body Control System	BE–18 DI–1117
"Lo–Beam" and "Hi–Beam" of both sides do not come on. (Taillights do not come on neither.)	1. Light Control Switch 2. Body Control System 3. Headlight Bulb	BE–18 DI–1117 –
"Lo–Beams" do not come on. (Both sides)	1. HEAD Relay 2. Headlight Dimmer Switch 3. Body Control System 4. Wire Harness	BE–18 BE–18 DI–1117 –
"Lo–Beam" does not come on. (One side)	1. HEAD LH LWR Fuse 2. HEAD RH LWR Fuse 3. Headlight Bulb 4. Wire Harness	BE–10 BE–10 – –
"Hi–Beams" do not come on. (Both sides)	1. DRL NO. 2 DIMMER Relay 2. MAIN Fuse 3. HEAD LVL DRL NO. 1 Fuse 4. Headlight Dimmer Switch 5. Body Control System 6. Wire Harness	BE–18 BE–10 BE–24 BE–18 DI–1117 –
"Hi–Beam" does not come on. (ONE SIDE)	1. HEAD LH UPR Fuse 2. HEAD RH UPR Fuse 3. DRL NO. 3 Relay 4. DRL NO. 4 Relay 5. Headlight Bulb 6. Wire Harness	BE–10 BE–10 BE–18 BE–18 – –
"Flash" does not operate.	1. Headlight Dimmer Switch 2. Body Control System 3. Wire Harness	BE–18 DI–1117 –
"Light–on warning System" does not operate.	1. Door courtesy Switch (Driver's) 2. Body Control System 3. Combination Meter 4. Wire Harness	BE–32 DI–1117 – –
"Automatic light control system" does not operate.	1. Automatic Light Control Sensor 2. Light Control Switch 3. Door Courtesy Switch 4. Body Control System 5. Wire Harness	BE–18 BE–18 BE–18 DI–1117 –
Headlight does not come on with light control SW in HEAD.	1. Light Control Switch 2. Body Control System 3. Wire Harness	BE–18 DI–1117 –

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Headlight does not go off with light control SW in OFF.	1. Headlight Relay 2. Body Control System 3. Wire Harness	BE–18 DI–1117 –
Taillight does not come on with light control SW in TAIL.	1. Taillight Relay 2. Light Control Switch 3. Body Control System	BE–18 BE–18 DI–1117
Taillight does not go off with light up control SW in OFF.	1. Taillight Relay 2. Light Control Switch 3. Body Control System 4. Wire Harness	BE–18 BE–18 DI–1117 –
Headlight does not come on with engine running and light control SW in OFF.	1. Generator L Terminal 2. Parking Brake Switch 3. Body Control System 4. Wire Harness	CH–10 BE–50 DI–1117 –

DISCHARGE HEADLIGHT

Symptom	Suspect Area	See page
"Lo–Beam" and "Hi–Beam" of both sides do not come on. (Taillights do not come on.)	1. HEAD Relay 2. DRL NO. 2 DIMMER Relay 3. Headlight Dimmer Switch 4. Light Control Switch 5. Body Control System 6. Headlight Bulb 7. HEAD RH UPR or HEAD LH UPR Fuse 8. Wire Harness	BE–18 BE–18 BE–18 BE–18 DI–1117 – BE–10 –
"Lo–Beam" and "Hi–Beam" of both sides do not come on. (Taillights do come on neither.)	1. Light Control Switch 2. Body Control System 3. Wire Harness	BE–18 DI–1117 –
"Lo–Beam" and "Hi–Beam" of only one side do not come on.	1. HEAD RH LWR and HEAD RH UPR Fuse (Both) or HEAD LH LWR and HEAD LH UPR Fuse (Both) 2. Headlight Bulb 3. Wire Harness	BE–10 – –
"Lo–Beams" do not come on. (Both sides)	1. Head Relay 2. Headlight Dimmer Switch 3. Body Control System 4. Wire Harness	BE–18 BE–18 DI–1117 –
"Lo–Beam" does not come on. (ONE SIDE)	1. HEAD LH LWR Fuse 2. HEAD RH LWR Fuse 3. Headlight Bulb 4. Wire Harness	BE–10 BE–10 – –
"Hi–Beams" do not come on. (Both sides)	1. DRL NO. 2 DIMMER Relay 2. HEAD RH UPR Fuse (Engine Room J/B) 3. Headlight Dimmer Switch 4. Body Control System 5. Wire Harness	BE–18 BE–10 BE–18 DI–1117 –
"Hi–Beam" does not come on. (ONE SIDE)	1. HEAD LH UPR Fuse 2. HEAD RH UPR Fuse 3. Headlight Bulb 4. Wire Harness	BE–10 BE–10 – –

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FOG LIGHT SYSTEM

Symptom	Suspect Area	See page
Front fog light does not come on with light control switch at HEAD. (Headlights do come on.)	1. FR FOG Fuse 2. Front Fog Light Relay 3. Front Fog Light Switch 4. Wire Harness	BE–10 BE–27 BE–27 –
Front fog light does not come on with light control switch at HEAD. (Headlights do not come on neither.)	1. Headlight and Taillight System 2. Wire Harness	BE–2 –
Only one light does not come on.	1. Bulb 2. Wire Harness	– –

TURN SIGNAL AND HAZARD WARNING SYSTEM

Symptom	Suspect Area	See page
"Hazard" and "Turn" do not come on.	1. Hazard Warning Switch 2. Turn Signal Flasher 3. Wire Harness	BE–30 BE–30 –
The flashing frequency is abnormal.	1. Bulb 2. Turn Signal Flasher 3. Wire Harness	– BE–30 –
Hazard warning light does not come on. (Turn is normal.)	1. HAZ Fuse 2. Wire Harness	BE–10 –
Hazard warning light does not come on in one direction.	1. Hazard Warning Switch 2. Wire Harness	BE–30 –
Turn signal does not come on. (Combination meter, wiper and washer do not operate.)	1. Ignition Switch 2. TURN Fuse 3. Turn Signal Switch 4. Wire Harness	BE–15 BE–10 BE–30 –
Turn signal does not come on. (Combination meter, wiper and washer are normal.)	1. TURN Fuse 2. Turn Signal Switch 3. Wire Harness	BE–10 BE–30 –
Turn signal does not come on in one direction.	1. Turn Signal Switch 2. Wire Harness	BE–30 –
Only one bulb does not come on.	1. Bulb 2. Wire Harness	– –

INTERIOR LIGHT SYSTEM

Symptom	Suspect Area	See page
Only one light does not come on.	1. Bulb 2. Wire Harness	– –
Front interior light does not come on.	1. Bulb 2. Map Light Assembly 3. Wire Harness	– BE–32 –
Rear interior light does not come on.	1. Bulb 2. DOME Fuse 3. Luggage compartment courtesy switch 4. Wire Harness	– BE–10 BE–32 –
The illumination does not fade out when all the doors are closed.	1. Courtesy Switch 2. Body Control System 3. Wire Harness	BE–32 DI–1117 –

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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 3. BK/UP LP Fuse 4. Body Control System 5. Wire Harness	BE–15 BE–10 BE–10 DI–1117 –
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. Body Control System 3. Wire Harness	BE–66 DI–1117 –

BACK–UP LIGHT SYSTEM

Symptom	Suspect Area	See page
Back–up lights do not come on.	1. BK/UP LP Fuse 2. Back–up Light Switch (M/T) 3. Park/Neutral Position Switch (A/T) 4. Bulb 5. Wire Harness	BE–10 BE–35 DI–701 DI–789 – –
Back–up lights remain ON.	1. Wire Harness	–
Only one light does not come on.	1. Bulb 2. Wire Harness	– –

STOP LIGHT SYSTEM

Symptom	Suspect Area	See page
Stop lights do not come on.	1. STOP Fuse 2. Stop Light Switch 3. Bulb 4. Wire Harness	BE–10 BE–37 – –
Stop lights remain ON.	1. Stop Light Switch 2. Wire Harness	BE–37 –
Only one light does not come on.	1. Bulb 2. Wire Harness	– –

WIPER AND WASHER SYSTEM

Symptom	Suspect Area	See page
Wipers and washers do not operate.	1. WIPER Fuse and WASHER Fuse 2. Ignition Switch 3. Wiper and Washer Switch 4. Wire Harness	BE–10 BE–15 BE–39 –
Front wiper does not operate.	1. Front Wiper and Washer Switch 2. Front Wiper Motor 3. WIPER Fuse 4. Wire Harness	BE–39 BE–39 BE–10 –
Rear wiper does not operate.	1. Rear wiper and Washer Switch 2. Rear Wiper Motor and Relay 3. RR WIPER Fuse 4. Wire Harness	BE–39 BE–39 BE–10 –
Front washer does not operate.	1. Front Wiper and Washer Switch 2. Washer Motor 3. WASHER Fuse 4. Wire Harness	BE–39 BE–39 BE–10 –
Rear washer does not operate.	1. Rear Wiper and Washer Switch 2. Washer Motor 3. WASHER Fuse 4. Wire Harness	BE–39 BE–39 –

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Meter, Gauges and Illumination:
COMBINATION METER

Symptom	Suspect Area	See page
Tachometer, fuel gauge and engine coolant temperature gauge do not operate.	1. Meter Circuit 2. Wire Harness	BE–46 –
Speedometer does not operate.	1. Vehicle Speed Sensor 2. Meter Circuit 3. Wire Harness	BE–50 BE–46 –
Tachometer does not operate.	1. Igniter 2. ECM 3. Meter Circuit 4. Wire Harness	 DI–1 BE–46 –
Fuel gauge does not operate or operates abnormally.	1. Fuel Receiver Gauge 2. Fuel Sender Gauge 3. Meter Circuit 4. Wire Harness	BE–50 BE–50 BE–46 –
Engine coolant temperature gauge does not operate or operates abnormally.	1. Engine Coolant Temperature Receiver Gauge 2. Engine Coolant Temperature Sender Gauge 3. Meter Circuit 4. Wire Harness	BE–50 BE–50 BE–46 –
All illumination lights do not come on.	1. TAIL Fuse (I/P J/B) 2. Light Control Rheostat 3. Meter Circuit 4. Wire Harness	BE–10 BE–50 BE–46 –
Only one illumination light does not come on.	1. LED 2. Meter Circuit	– BE–46

Warning Lights:
COMBINATION METER

Symptom	Suspect Area	See page
Warning lights do not come on. (Except discharge and door open.)	1. Bulb or LED 2. ECU–B Fuse 3. Ignition Switch 4. Meter Circuit 5. Generator 6. Wire Harness	– BE–10 BE–15 BE–46 BE–10 –
Brake warning Light does not come on.	1. LED 2. Brake Fluid Level Warning Switch 3. Parking Brake Switch 4. Meter Circuit 5. Wire Harness	– BE–50 BE–50 BE–46 –
Seat belt warning light does not come on.	1. LED 2. Seat Belt Buckle Switch 3. Body Control System 4. Meter Circuit 5. Wire Harness	– BE–50 DI–1117 BE–46 –

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Low oil pressure warning light does not come on.	1. LED 2. Low Oil Pressure Warning Switch 3. Meter Circuit 4. Wire Harness	– BE–50 BE–46 –
Door open warning light does not come on.	1. LED 2. DOME Fuse 3. Door Courtesy Switch 4. Luggage Room Light Switch 5. Body Control System 6. Meter Circuit 7. Wire Harness	– BE–10 BE–32 BE–32 DI–1117 BE–46 –

Indicator Lights:
COMBINATION METER

Symptom	Suspect Area	See page
SRS indicator light does not come on.	1. LED 2. Airbag Sensor Assembly 3. Wire Harness	– DI–980 –
ABS indicator light does not come on.	1. LED 2. Wire Harness	– –
Malfunction indicator light does not come on.	1. LED 2. ECM 3. Wire Harness	– DI–1 –
A/T shift position indicator light does not come on.	1. LED or LCD 2. Park/Neutral Position Switch 3. Light Control Rheostat 4. Meter Circuit 5. Wire Harness	– DI–701 DI–789 BE–50 BE–46 –
O/D OFF indicator light does not come on.	1. LED or LCD 2. O/D Main Switch 3. ECM 4. Meter Circuit 5. Wire Harness	– DI–746 DI–829 DI–1 BE–46 –
Turn indicator light does not come on.	1. Bulb 2. Turn Signal and Hazard Warning System 3. Meter Circuit 4. Wire Harness	– BE–2 BE–46 –
High beam indicator light does not come on.	1. Bulb 2. Headlight and Taillight System 3. Meter Circuit 4. Wire Harness	– BE–2 BE–46 –
CRUISE indicator light does not come on.	1. LED 2. Cruise Control ECU (1ZZ–FE) 3. Cruise Control ECU (2ZZ–GE) 4. Meter Circuit 5. Wire Harness	– DI–1083 BE–46 DI–1109 –

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DEFOGGER SYSTEM

Symptom	Suspect Area	See page
All defogger systems do not operate.	1. HTR Fuse (I/P J/B) 2. DEF Fuse (I/P J/B) 3. DEF Relay (I/P J/B) 4. Defogger Switch 5. Wire Harness	BE–10 BE–10 BE–58 BE–58 –
Rear window defogger does not operate.	1. Defogger Wires 2. Wire Harness	BE–58 –

ELECTRIC TENSION REDUCER SYSTEM

Symptom	Suspect Area	See page
Tension reducer does not operate. (Driver's and Passenger's.)	1. TENS RDC Fuse 2. Wire Harness	BE–10 –
Tension reducer does not operate. (Only one side.)	1. Buckle Switch 2. Tension Reducer Solenoid 3. Wire Harness	BE–56 BE–56 –

POWER WINDOW CONTROL SYSTEM

Symptom	Suspect Area	See page
Power window does not operate.	1. FR P/W Fuse 2. FR P/W Fuse 3. Ignition Switch 4. Power Window Master Switch 5. Wire Harness	BE–10 BE–10 BE–15 BE–62 –
"One touch power window system" does not operate.	1. Power Window Master Switch	BE–62
Only one window glass does not move.	1. Power Window Master Switch 2. Power Window Motor 3. Wire Harness	BE–62 BE–62 –
"Window lock system" does not operate.	1. Power Window Master Switch	BE–62
Illumination does not come on.	1. Power Window Master Switch	BE–62

POWER DOOR LOCK CONTROL SYSTEM

Symptom	Suspect Area	See page
"Door lock control system" does not operate.(ALL)	1. Body Control System 2. DOOR Fuse 3. Wire Harness 4. Other Parts	DI–1117 BE–10 – –
Malfunction in Door Lock / Unlock. (Using door manual switch.)	1. Door Lock Control Switch 2. Body Control System 3. Wire Harness 4. Other Parts	BE–66 DI–1117 – –
Malfunction in Door Lock / Unlock. (Using door manual switch and key.)	1. Wire Harness 2. Other Parts	– –
Malfunction in Door Lock / Unlock. (Using key.)	1. Door Unlock Detection Switch 2. Body Control System 3. Wire Harness 4. Other Parts	BE–66 DI–1117 – –
Fault in 2 – Operation unlock function of driver's side door key lock and unlock switch.	1. Door Unlock Detection Switch 2. Body Control System 3. Wire Harness 4. Other Parts	BE–66 DI–1117 – –

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Fault in key confine prevention operation.	1. Door Unlock Detection Switch 2. Door Courtesy Switch 3. Door Lock Control Switch 4. Body Control System 5. Wire Harness 6. Other Parts	BE–66 BE–32 BE–66 DI–1117 – –
Only one door lock does not operate.	1. Door Lock Motor 2. Wire Harness	BE–66 –

WIRELESS DOOR LOCK CONTROL SYSTEM

HINT:

- Troubleshooting of the wireless door lock control system is based on the premise that the door lock control system operates normally. Accordingly, before troubleshooting the wireless door lock control system, first make certain that the door lock control system operates normally.
- If the trouble still reappears even though there are no abnormalities in any of the other circuits, check and replace the Wireless Door Lock Receiver as the last step.

Symptom	Suspect Area	See page
All functions of wireless door lock control system do not operate.	1. Transmitter 2. Wireless Door Lock Receiver 3. Body ECU 4. Wire Harness	BE–66 BE–66 DI–1117 –
Wireless door lock operates, but the buzzer does not sound. (The buzzer does not sound when the customize function prohibits.)	1. Wireless Door Lock Buzzer 2. Wireless Door Lock Receiver 3. Wire Harness	– BE–66 –

SLIDING ROOF SYSTEM

Symptom	Suspect Area	See page
Sliding roof system does not operate.	1. S/ROOF Fuse (I/P J/B) 2. TENS RDC Fuse (I/P J/B) 3. Sliding Roof Control Assembly 4. Sliding Roof Switch 5. Wire Harness	BE–10 BE–10 BE–86 BE–86 –
Sliding roof system operates abnormally.	1. Sliding Roof Control Assembly 2. Sliding Roof Switch 3. Wire Harness	BE–86 BE–86 –
Sliding roof system stops operation halfway.	1. Sliding Roof Control Assembly 2. Sliding Roof Switch	BE–86 BE–86
"Key–off Sliding Roof" operation does not operate.	1. S/ROOF Fuse 2. TENS RDC Fuse 3. Ignition Switch 4. Door Courtesy Switch 5. Body Control System 6. Wire Harness	BE–10 BE–10 BE–15 BE–32 DI–1117 –

POWER MIRROR CONTROL SYSTEM

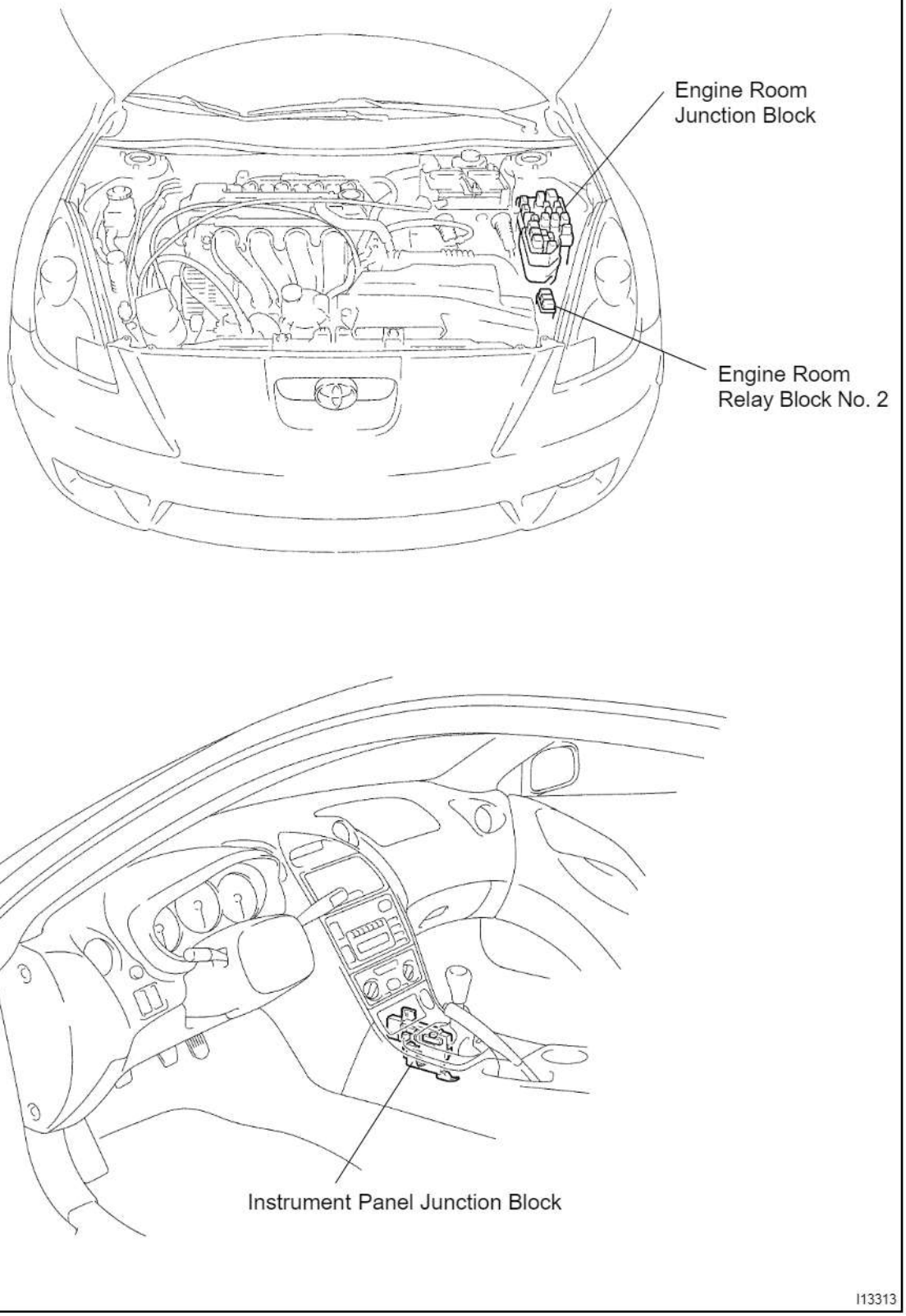
Symptom	Suspect Area	See page
Mirror does not operate.	1. ECU–ACC Fuse 2. Mirror Switch 3. Mirror Motor	BE–10 BE–88 BE–88
Mirror operates abnormally.	1. Mirror Switch 2. Mirror Motor 3. Wire Harness	BE–88 BE–88 –

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POWER SOURCE

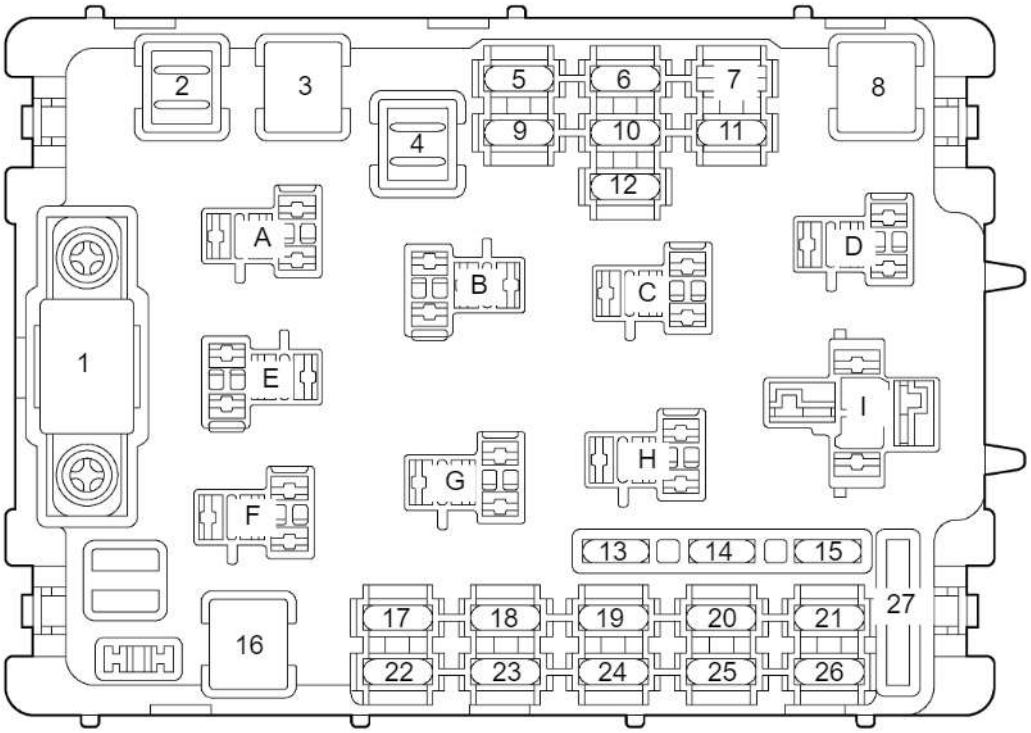
LOCATION

BE2FH-03



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ENGINE ROOM JUNCTION BLOCK



FUSES

1. FL ALT	120 A
2. CDS	30 A
3. ABS NO. 1	50 A
4. RDI	30 A
5. HEAD LH LWR	15 A
6. HEAD RH UPR	20 A
7. AUTO ANTENNA	15 A
8. HTR	50 A
9. ABS NO. 2	25 A
10. LVL DRL NO.1	7.5 A
11. HEAD LH LWR	10 A
12. HEAD RH LWR	15 A
13. SPARE	10 A
14. SPARE	15 A
15. SPARE	30 A
16. MAIN	40 A
17. IG2	15 A
18. ST	7.5 A
19. EFI NO. 2	10 A
20. EFI NO. 1	10 A
21. HORN	10 A
22. HAZ	10 A
23. AM2	7.5 A
24. EFI	20 A
25. DCC	25 A
26. ALT–S	7.5 A
27. SPARE	7.5 A

RELAYS

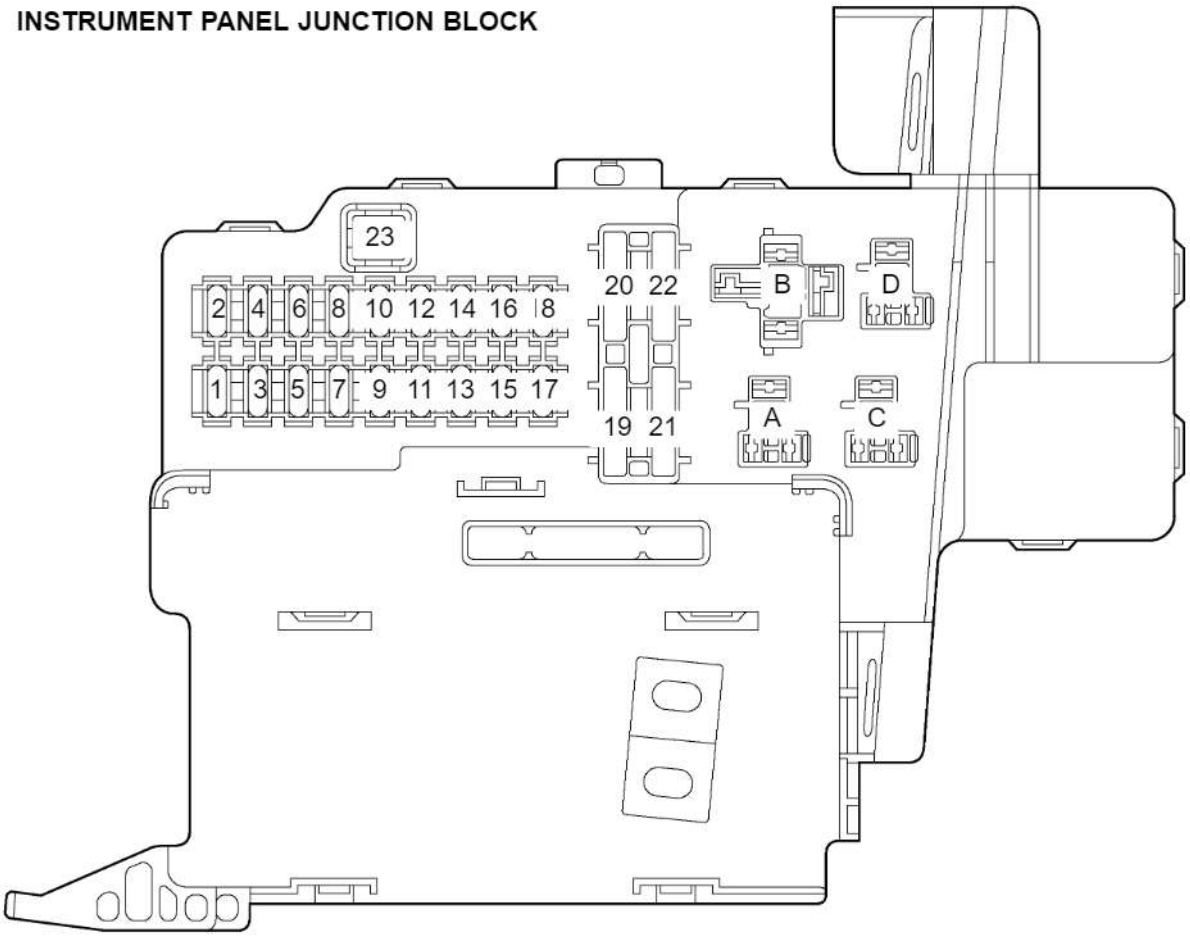
A. FAN NO. 2 Relay
B. FAN NO. 1 Relay
C. Circuit Opening Relay
D. Horn Relay
E. FAN NO. 3 Relay
F. Magnetic Clutch Relay
G. IG2 Relay
H. EFI Relay
I. Headlight Control Relay

N

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INSTRUMENT PANEL JUNCTION BLOCK



FUSES

1. CIG	15 A
2. S/ROOF	15 A
3. AM1	25 A
4. FL P/W	20 A
5. DOOR	20 A
6. STOP	10 A
7. FR FOG	15 A
8. SRS–IG	7.5 A
9. OBD	7.5 A
10. WASHER	15 A
11. WIPER	25 A
12. RADIO	15 A
13. –	–
14. TURN	7.5 A
15. RR WIPER	10 A
16. HTR	10 A
17. FR R/W	20 A
18. TAIL	10 A
19. MULTI–FUSE	5 A (ABS–IG, WARNING, FAN RLY, ECU–IG)
20. MULTI–FUSE	7.5 A (DOME, MPX–B, ECU–B)
21. MULTI–FUSE	5 A (BODY ECU–IG, BK/UP LP, TENS RDC, DEF RLY)
22. MULTI–FUSE	7.5 A (ECU – ACC, PANEL2, PANEL1)
23.DEF	30 A

RELAYS

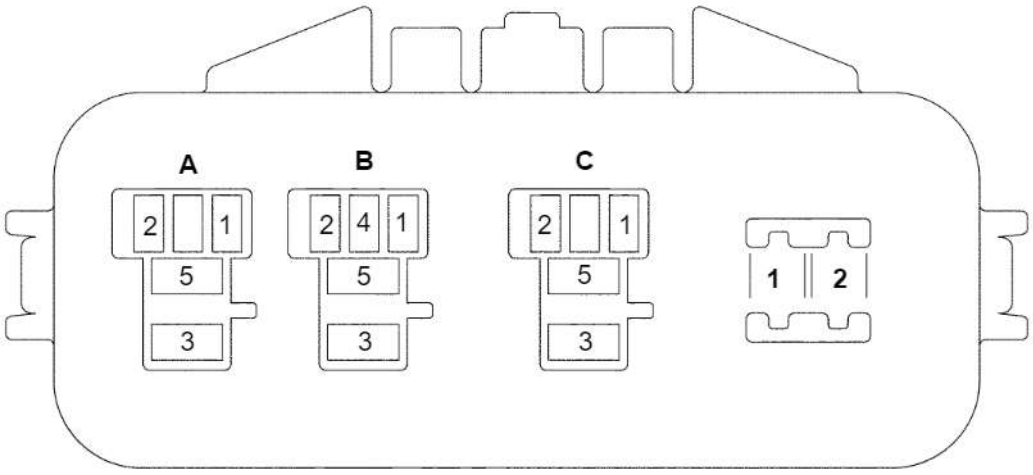
A. –
B. IG1 Relay
C. Defogger Relay
D. Taillight Control Relay

N

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ENGINE ROOM RELAY BLOCK NO. 2



FUSES

1. HEAD LH UPR 10A
2. HEAD RH UPR 10A

RELAYS

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

P

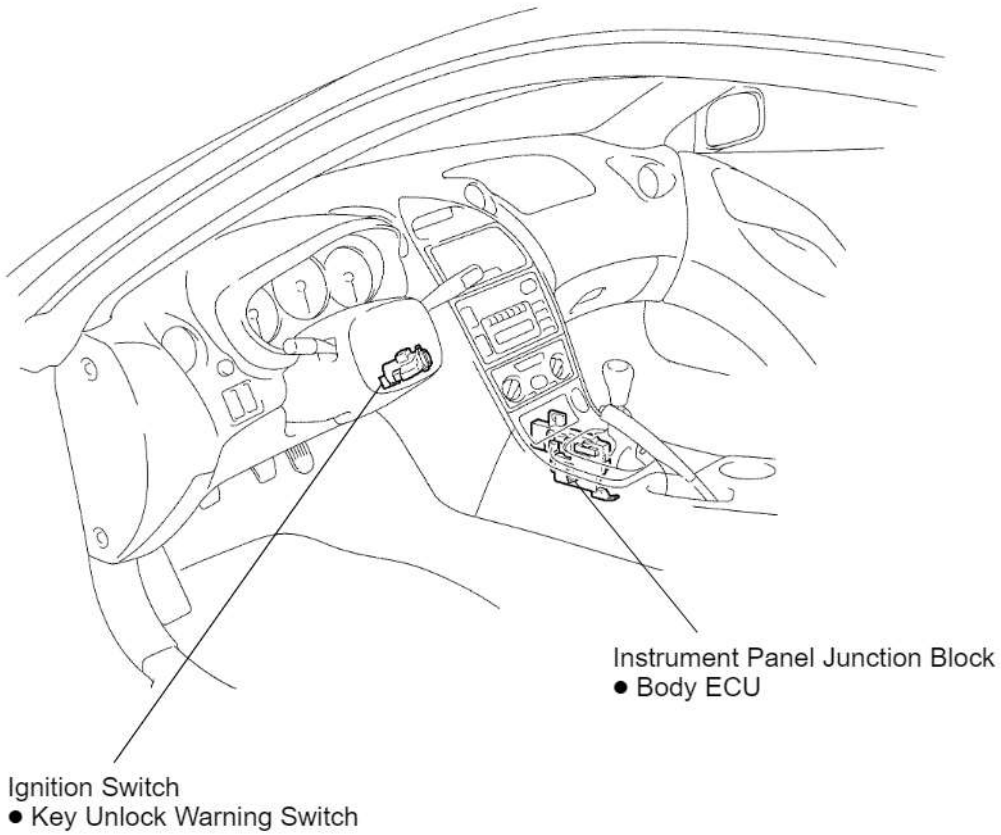
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IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH

BE00P-19

LOCATION

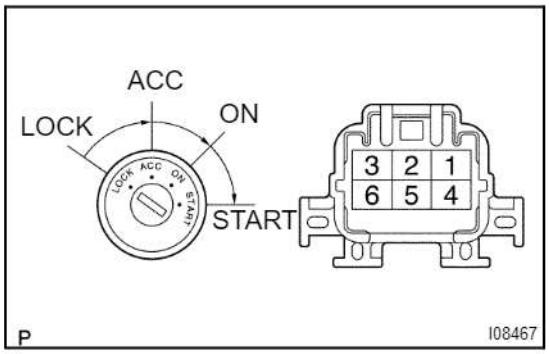


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BE0OQ–09

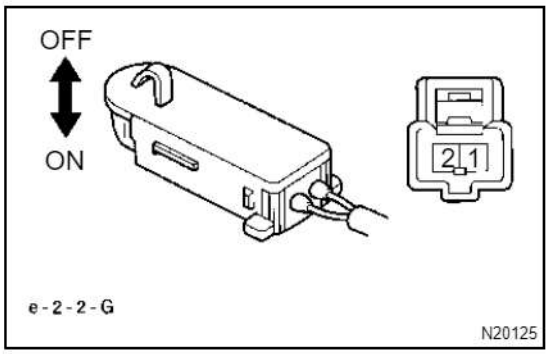


INSPECTION

1. INSPECT IGNITION SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	–	No continuity
ACC	1 – 3	Continuity
ON	1 – 2 – 3 5 – 6	Continuity
START	1 – 2 4 – 5 – 6	Continuity

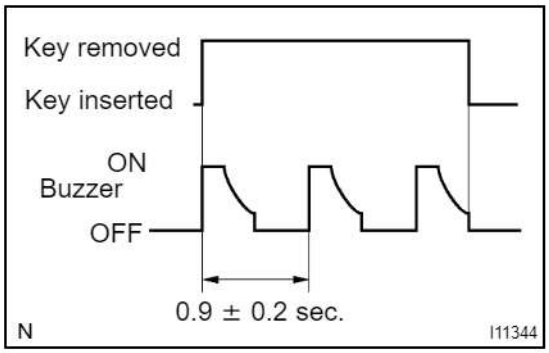
If continuity is not as specified, replace the switch.



2. 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.



3. INSPECT KEY UNLOCK WARNING BUZZER

Check that the buzzer sounds when driver's door is opened and the key is inserted.

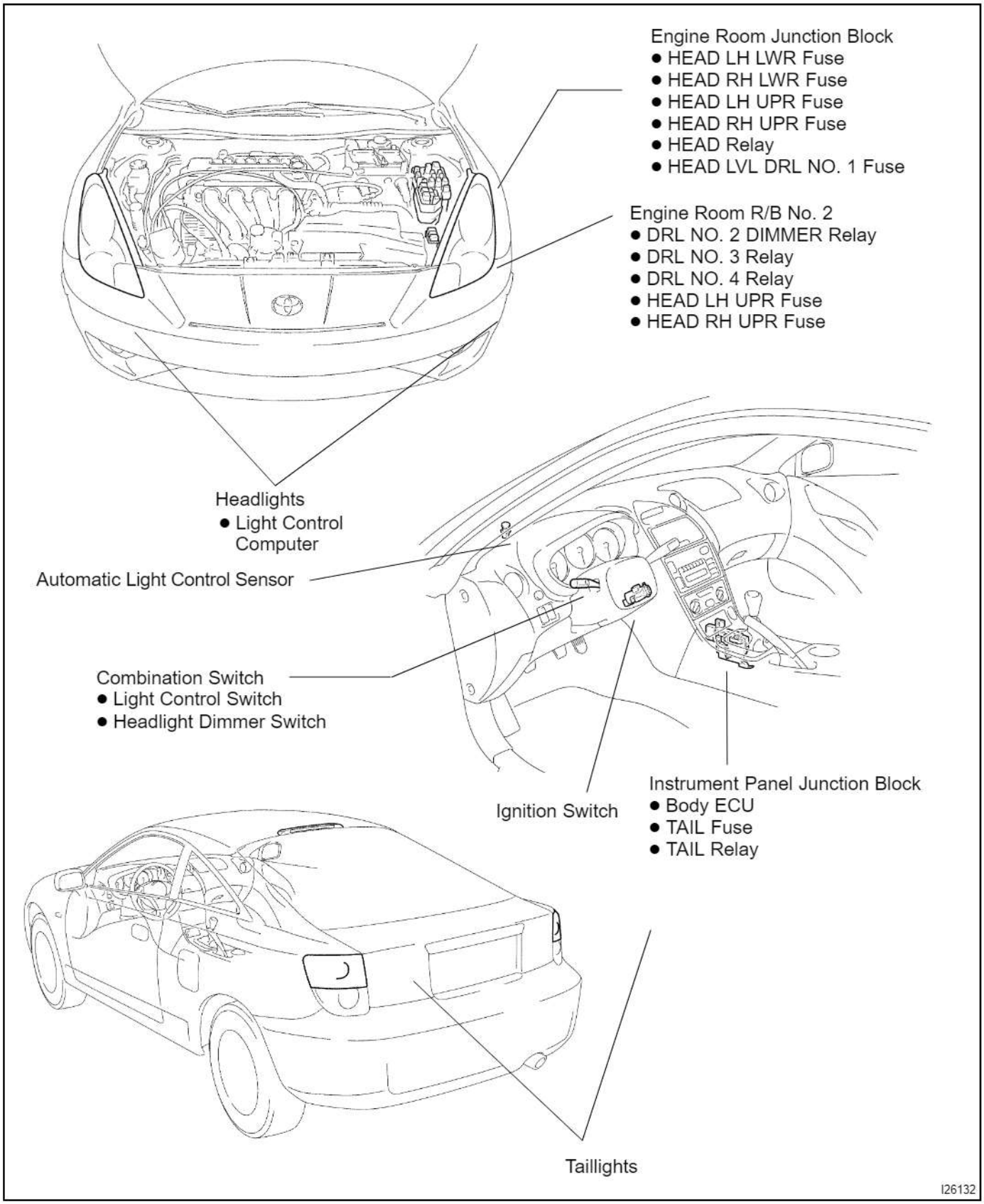
If operation is not as specified, replace the combination meter. (See page BE–46)

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HEADLIGHT AND TAILLIGHT SYSTEM

BE0OR-18

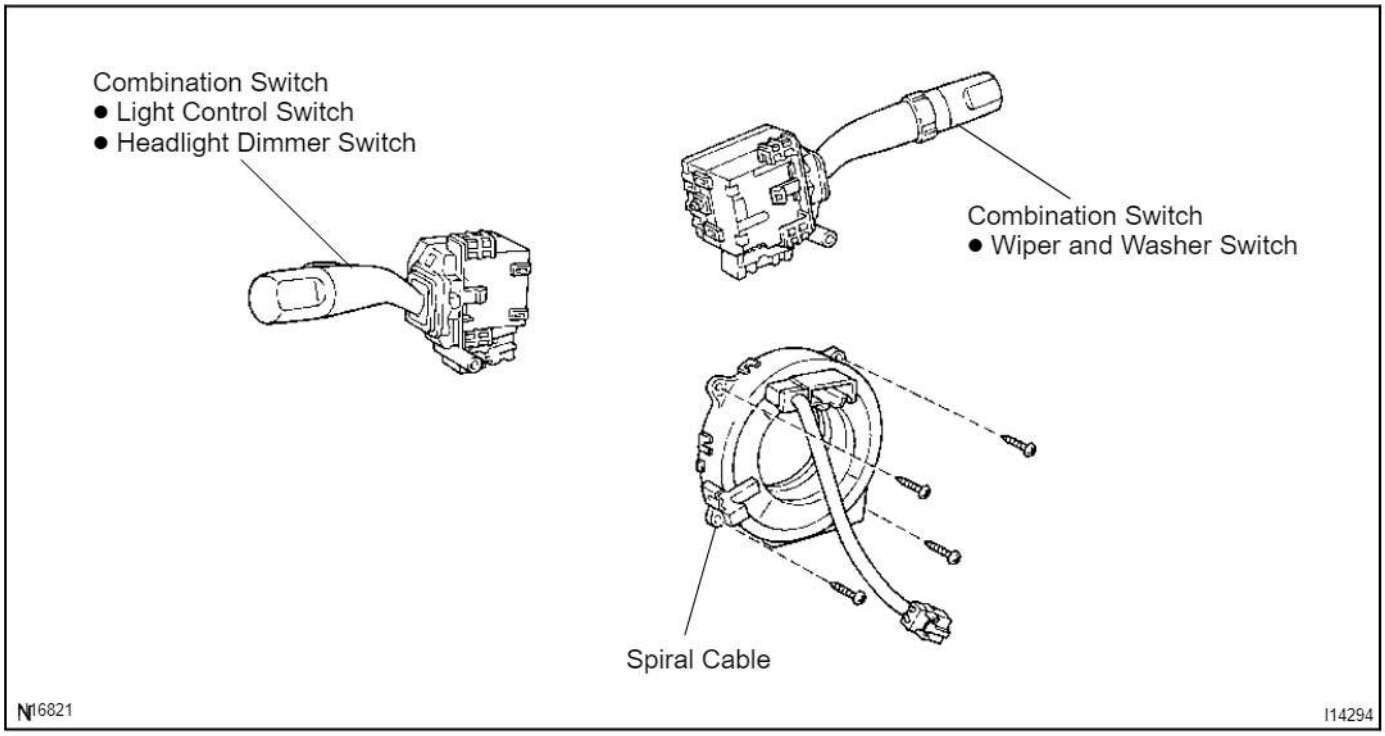
LOCATION



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BE00S-07

COMPONENTS



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BE2FG-02

INSPECTION

1. INSPECT LIGHT CONTROL SWITCH CONTINUITY

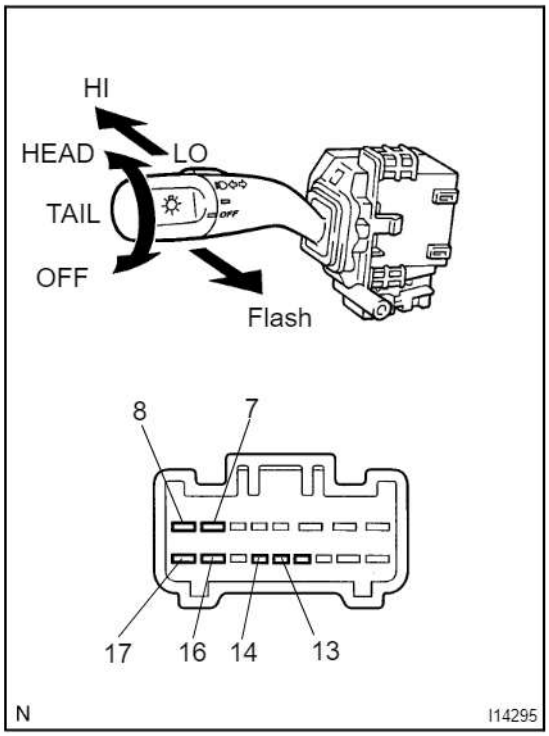
Switch position	Tester connection	Specified condition
OFF	–	No continuity
TAIL	14 – 16	Continuity
HEAD	13 – 14 – 16	Continuity

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

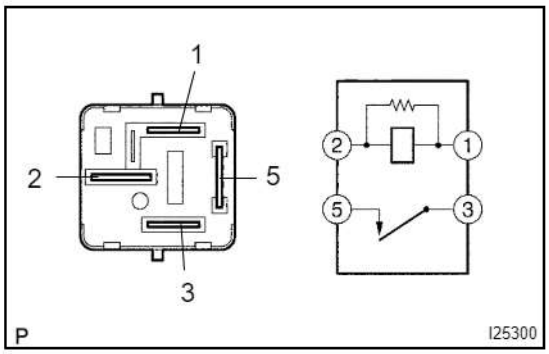
If continuity is not as specified, replace the switch.



3. INSPECT HEAD RELAY CONTINUITY

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

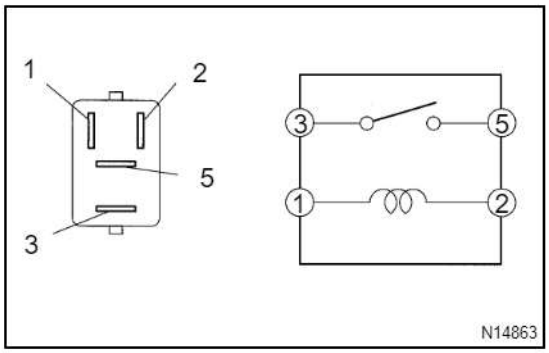
If continuity is not as specified, replace the relay.



4. INSPECT DAYTIME RUNNING LIGHT NO. 2 DIMMER RELAY CONTINUITY

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

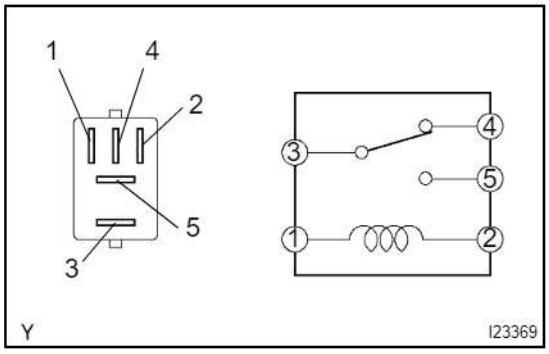
If continuity is not as specified, replace the relay.



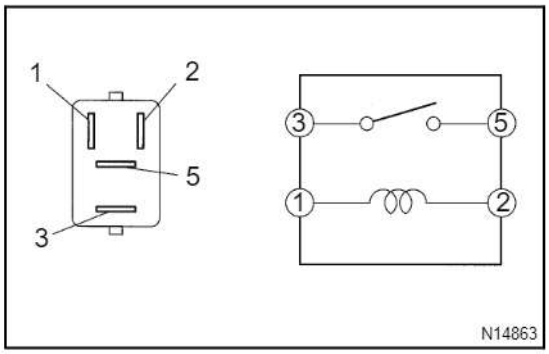
5. INSPECT DAYTIME RUNNING LIGHT NO. 3 RELAY CONTINUITY

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

If continuity is not as specified, replace the relay.



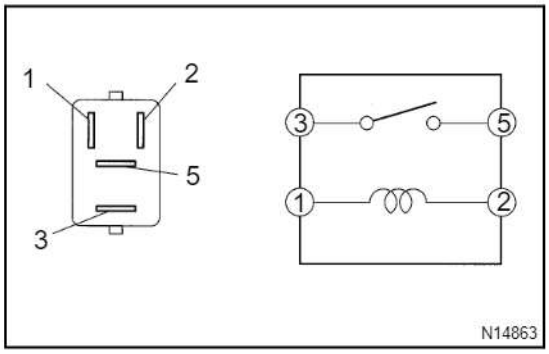
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6. INSPECT DAYTIME RUNNING LIGHT NO. 4 RELAY CONTINUITY

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

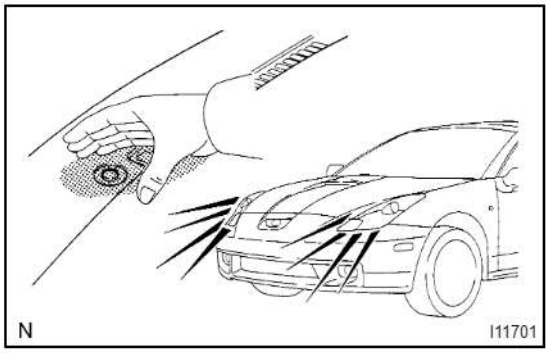
If continuity is not as specified, replace the relay.



7. INSPECT TAIL RELAY CONTINUITY

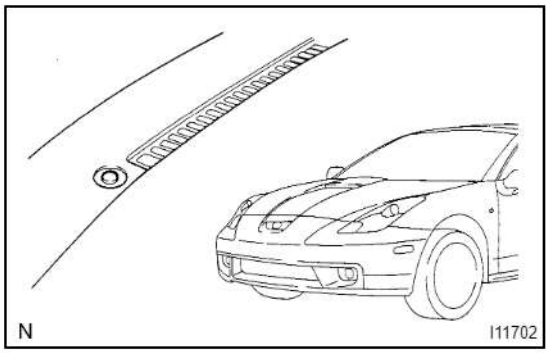
Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the relay.



8. w/ Automatic light control system: INSPECT AUTOMATIC LIGHT CONTROL

(a) Turn the ignition switch to 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 comes on. (Daytime running light ON)



9. w/ Automatic light control system: INSPECT AUTOMATIC LIGHT CONTROL

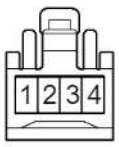
(a) Gradually expose the sensor.
(b) Verify that the headlights and the accessory lights go off.

10. w/ Automatic light control system: INSPECT LIGHT–OFF CONDITION

(a) Turn the ignition switch to ON.
(b) Turn the light control switch to AUTO.
(c) Gradually cover the top of the sensor to turn on the light.
(d) Verify that the lights will go off when light control switch position is OFF or the area surrounding the sensor gets light.

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Wire Harness Side:



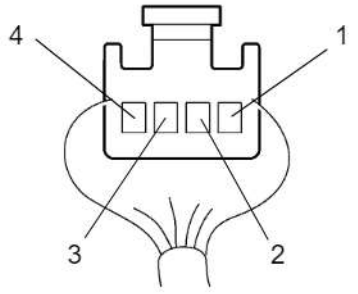
I01254

11. w/ Automatic light control system:
INSPECT AUTOMATIC LIGHT CONTROL SENSOR CIRCUIT

(a) Disconnect the connector from the automatic light control sensor and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
3 – Ground	Constant	Continuity
1 – Ground	Ignition switch LOCK or ACC	No voltage
1 – Ground	Ignition switch ON	Battery positive voltage
4 – Ground	Ignition switch LOCK or ACC	No voltage
4 – Ground	Ignition switch ON	5.2 – 9.0 V

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.



I01255

(b) Connect the wire harness side connector to the sensor and inspect wire harness side connector from the back side.

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

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12. FAIL–SAFE FUNCTION

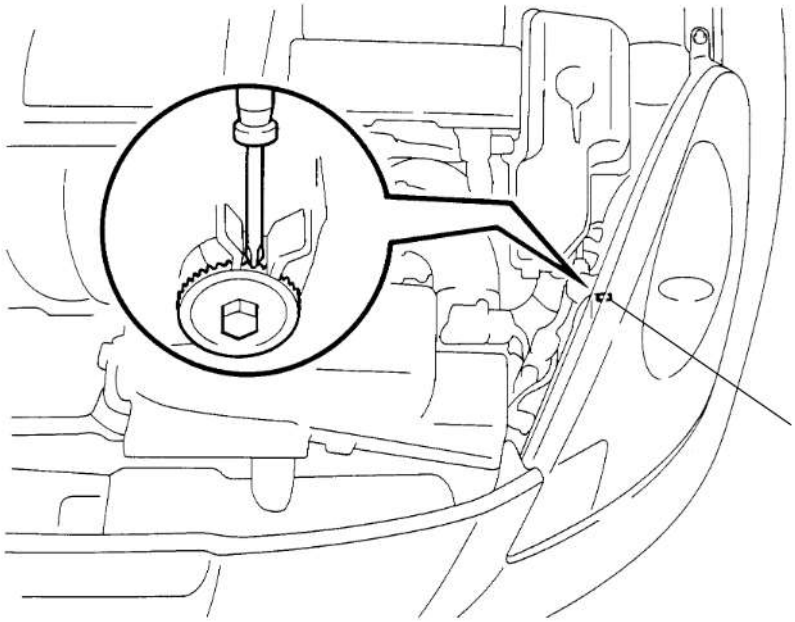
Light Control Computer

Condition	Content
Output open	Lighting of the headlight stops, and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
Short between output terminals	Lighting of the headlight stops within 1 second and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
Leakage between output terminal and body ground	Lighting of the headlight stops, and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
Low lamp voltage	Lighting of the headlight stops, and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
High lamp voltage	Lighting of the headlight stops, and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
Bulb flushing	• The condition is maintained more than 60 seconds. • Lighting of the headlight stops, and the condition is maintained until power is turned ON again (headlight dimmer switch OFF → ON).
High input voltage	As soon as the voltage comes within the range of operation voltage (9 – 16 V), it come on again.
Low input voltage	When voltage become 9.5 V → 7.5 V, lighting condition is maintained until possible voltage (Below 6 V) to keep lighting and lighting of the headlight stops. As soon as the voltage becomes within the range of operation voltage (more than 9 V), it comes on again.

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BE1CY–16

ADJUSTMENT



N

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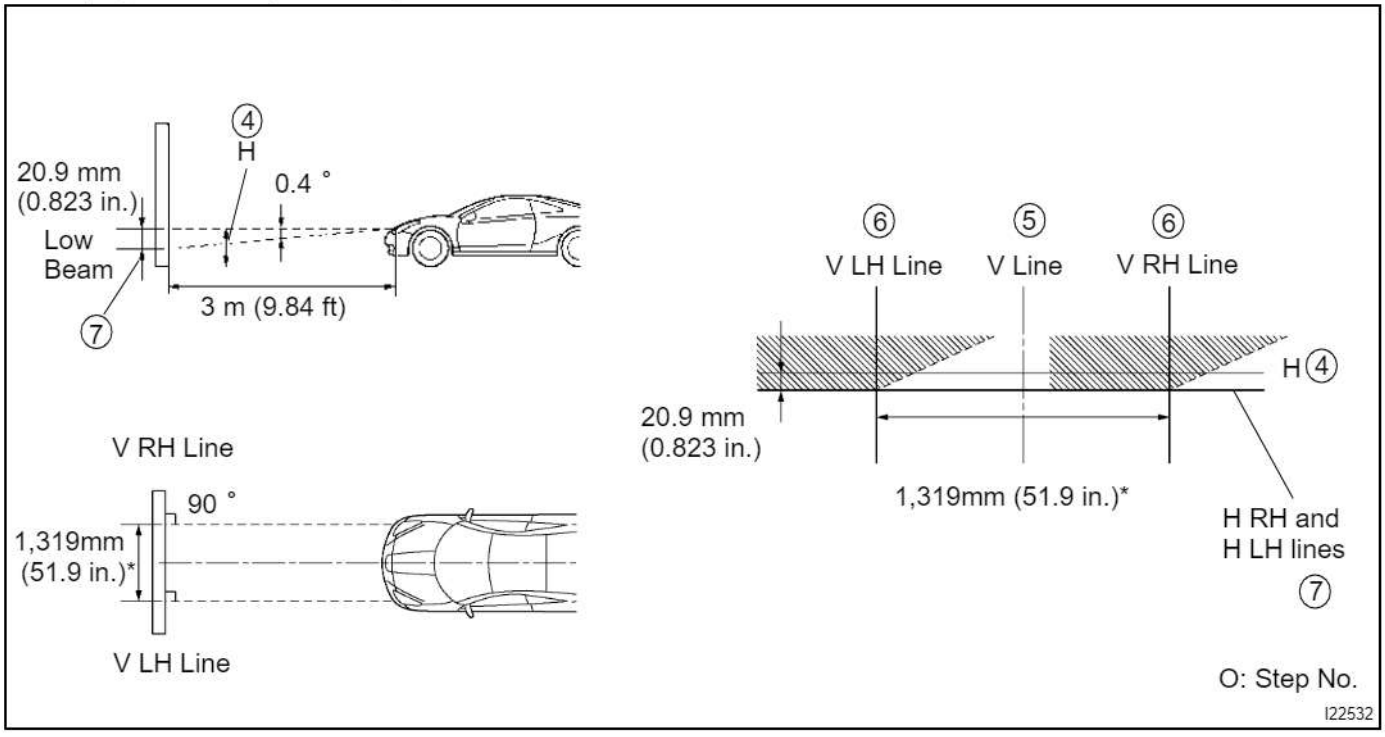
ADJUSTING HEADLIGHT AIM

(a) Place the vehicle in the following conditions.
- The body around the headlight is not deformed.
- The vehicle is parked on a level surface.
- Tire inflation pressure is the specified value.
- A driver is in the driver's seat and the vehicle is ready for driving anytime (with a tank full).
- The vehicle is bounced for several times.

(b) Check the headlight aiming.
(1) Prepare a thick white paper.
(2) Stand the paper perpendicularly to the ground at the position 9.84 ft away from the headlights.
(3) Ensure that the center line of the vehicle and the paper face forms a 90–degree angle as shown in the illustration.
(4) Draw a horizontal line (H line) on the paper, showing where the headlights should strike.
(5) Draw a vertical line (V line) to where the center line of the vehicle is to be.
(6) Draw 2 vertical lines to where the both headlights should strike (V RH and V LH lines).
(7) Draw a horizontal line by connecting the both low beam center marks to where the headlights should strike (H RH and H LH lines).

HINT:
The H RH and H LH line is 0.4° below the horizontal line (H line) of the light axis.

(8) Start the engine.
(9) Turn the headlights to ON.
(10) Check that the headlights properly strike the position shown in the illustration.
(11) If not, adjust the lights in the vertical or the horizontal direction.



HINT:
- As shown in the illustration, adjust each aim of the RH and LH lights.
- Since the horizontal direction is impossible to adjust, the value * of the "Low Beam" aim is merely a reference.

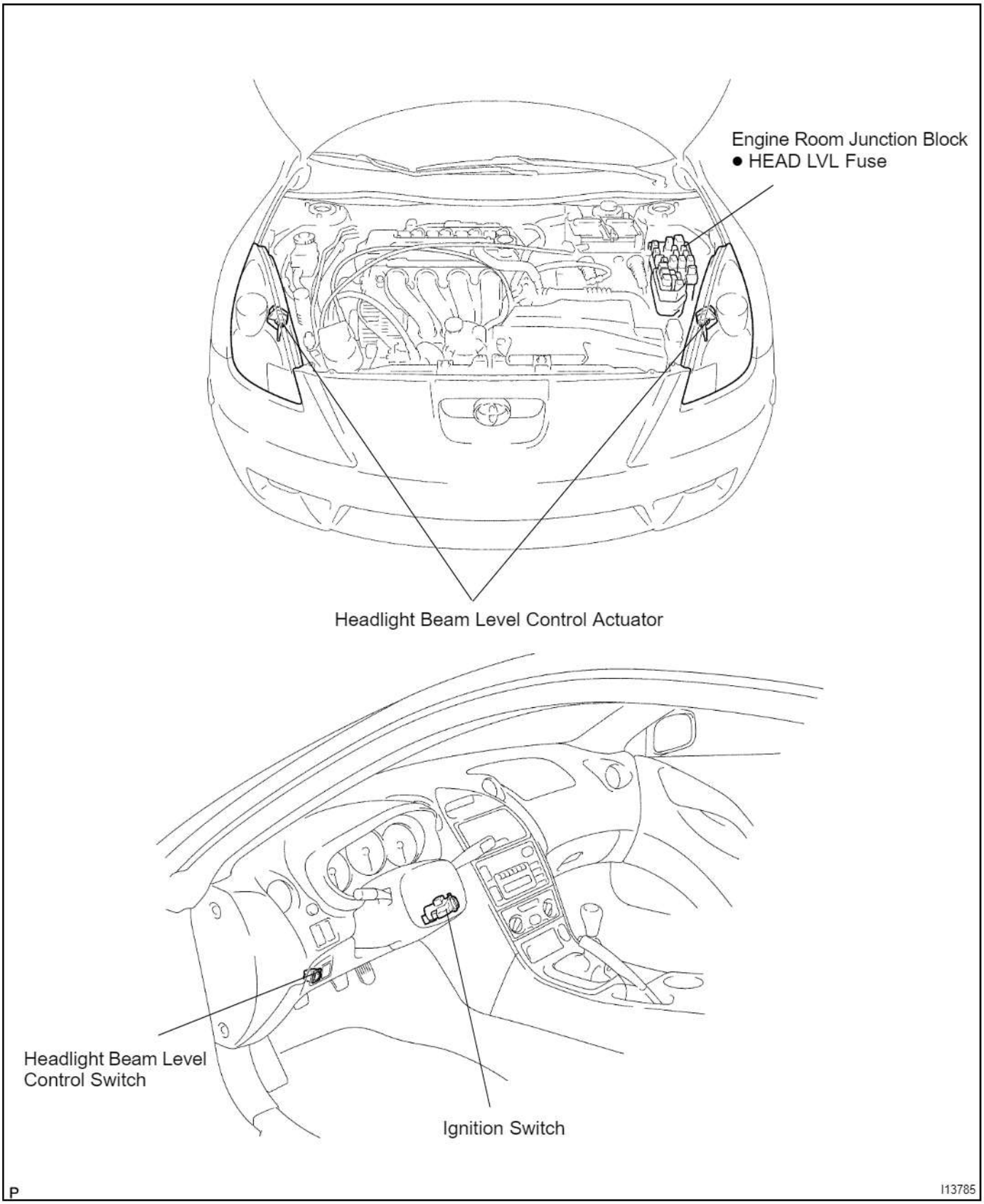
(c) When adjusting the headlight aim in the vertical direction:
Use an adjusting bolt to adjust the headlight aim to within the specified range.

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HEADLIGHT BEAM LEVEL CONTROL SYSTEM

BE1EM–04

LOCATION



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BE1EN-06

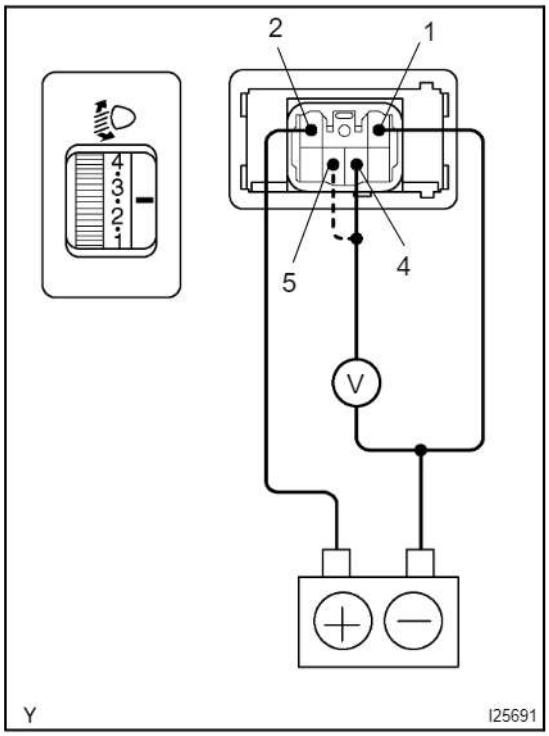
INSPECTION

1. INSPECT HEADLIGHT BEAM LEVEL CONTROL SWITCH CURRENT

NOTICE:

If a resister is not placed, switch may be damaged.

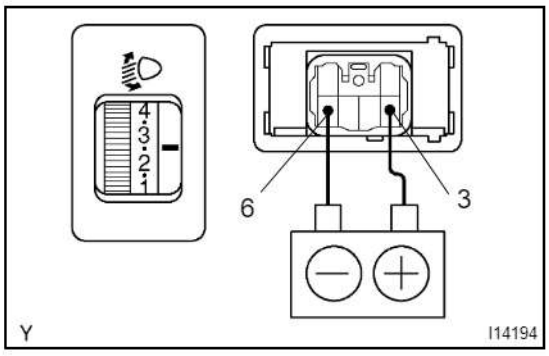
Measure the voltage between terminals 4 and 5.



Switch position	voltage
0	Approx. 10.8 V
1	Approx. 9.5 V
2	Approx. 8.2 V
3	Approx. 7.0 V
4	Approx. 5.7 V
5	Approx. 4.4 V

If current value is not as specified, replace the switch.

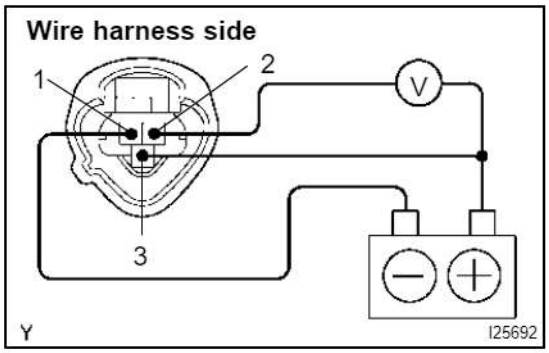
2. INSPECT HEADLIGHT BEAM LEVEL CONTROL SWITCH ILLUMINATION



Connect the battery positive (+) lead to terminal 3 and the battery negative (–) lead to terminal 6, and check that the illumination light comes on.

If operation is not as specified, replace the switch.

3. INSPECT HEADLIGHT BEAM LEVEL CONTROL ACTUATOR OPERATION



NOTICE:

If a resister is not placed, switch may be damaged.

Disconnect the connector and inspect the connector on the wire harness as shown in the chart.

Switch position	voltage
0	Approx. 10.8 V
1	Approx. 9.5 V
2	Approx. 8.2 V
3	Approx. 7.0 V
4	Approx. 5.7 V
5	Approx. 4.4 V

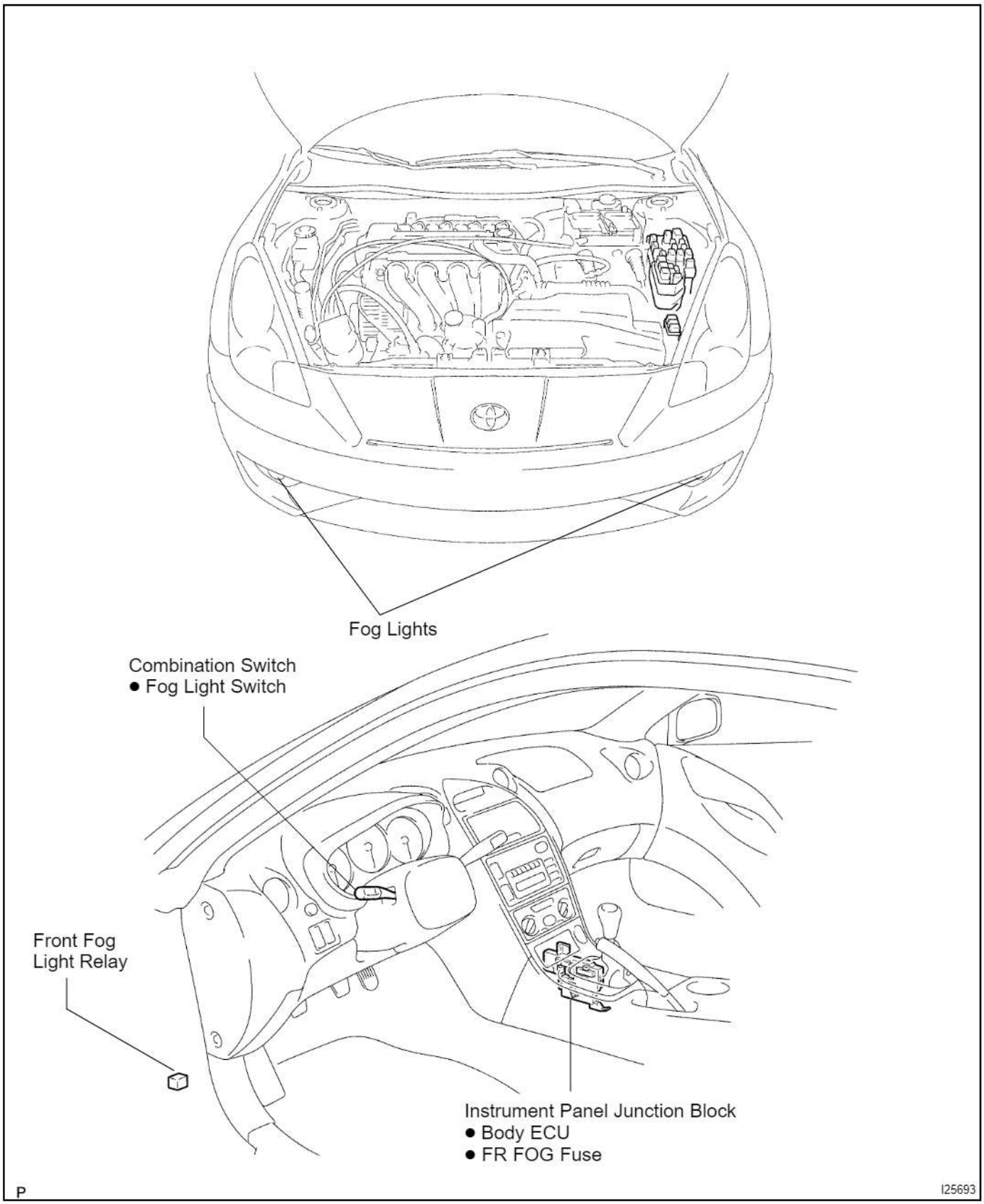
If current value is not as specified, replace the actuator.

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FOG LIGHT SYSTEM

LOCATION

BE0OV-03

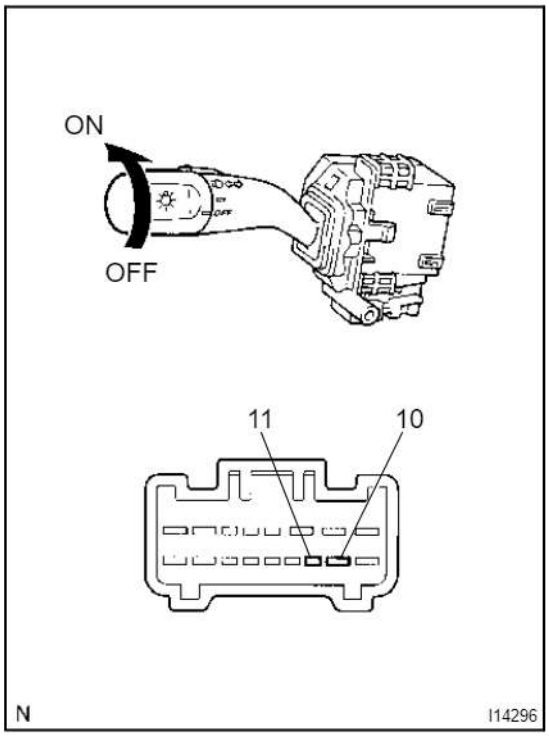


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BE0OW-04

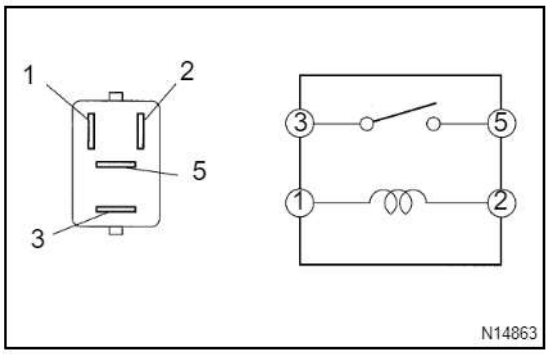
INSPECTION

1. INSPECT FRONT 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.



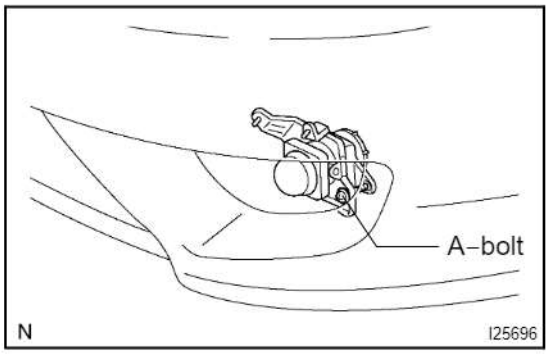
2. INSPECT FRONT FOG LIGHT RELAY CONTINUITY

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.

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BE0OX–04



ADJUSTMENT

ADJUST FOG LIGHT AIM

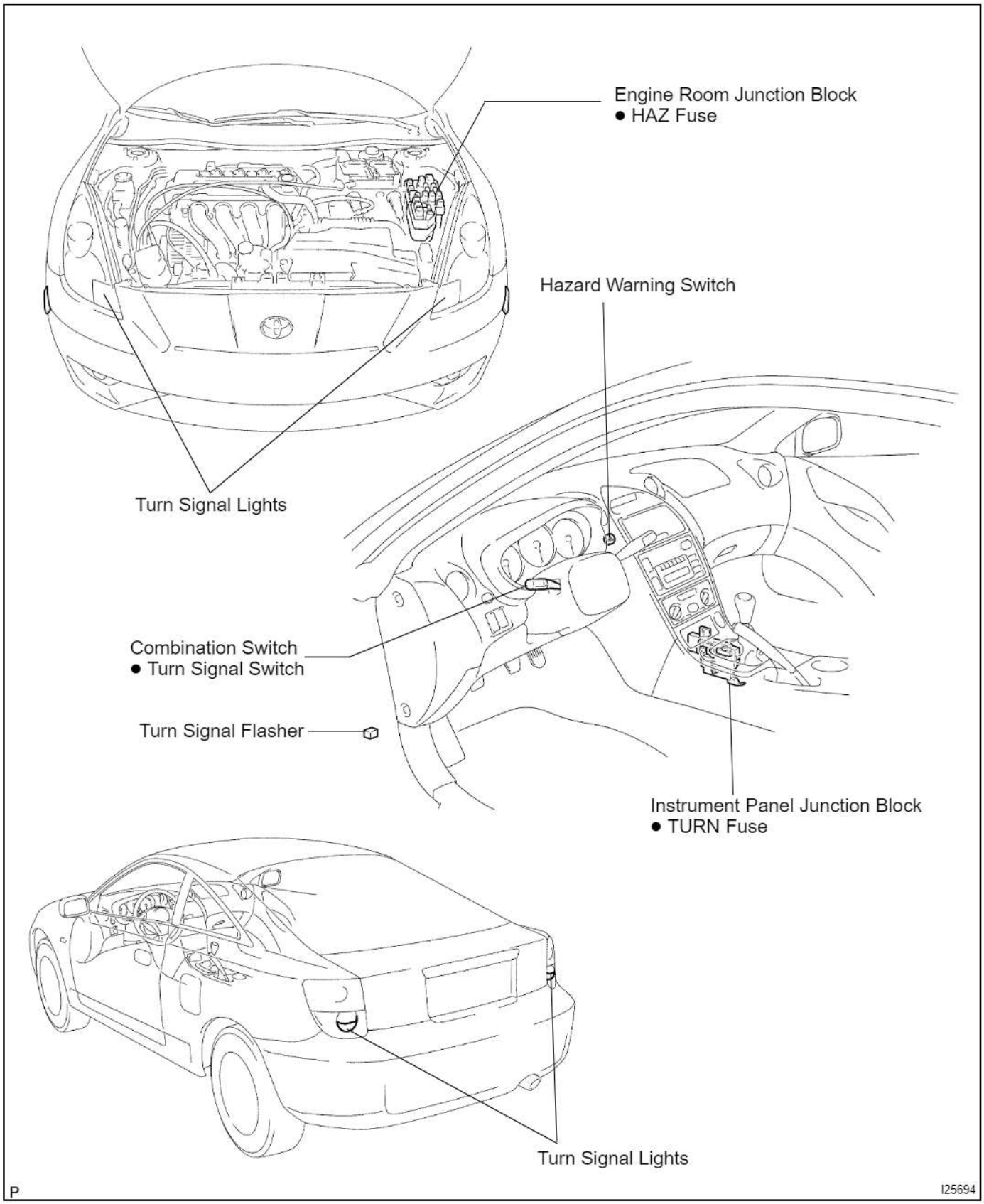
A–bolt: Vertical Direction

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TURN SIGNAL AND HAZARD WARNING SYSTEM

BE0OY-14

LOCATION

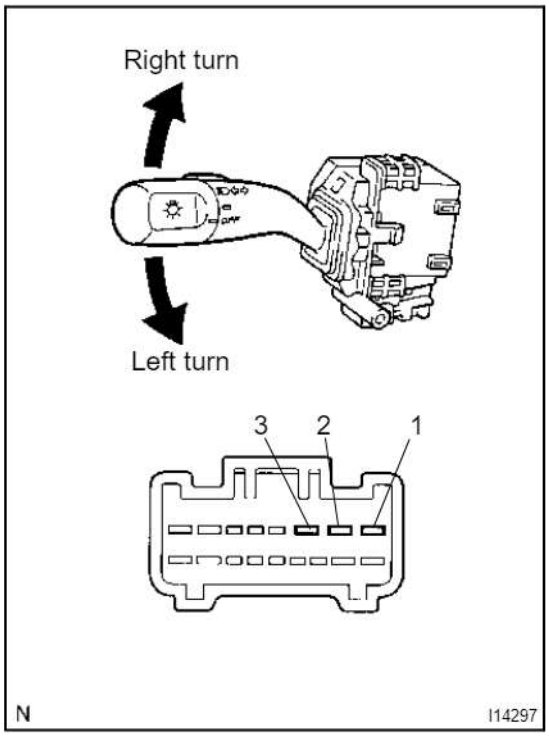


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BE00Z-11

INSPECTION

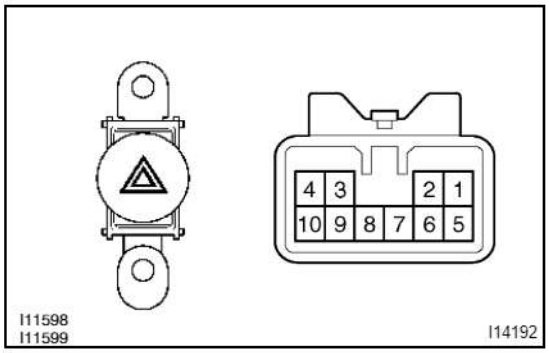
1. INSPECT TURN SIGNAL SWITCH CONTINUITY



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.

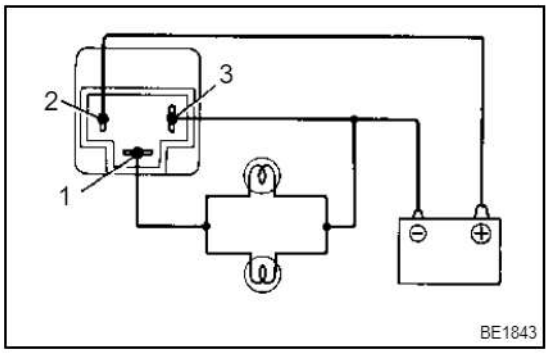
2. INSPECT HAZARD WARNING SWITCH CONTINUITY



Condition	Tester connection	Specified condition
OFF	5 – 7	Continuity
ON	5 – 6, 1 – 2 – 4	Continuity
Illumination circuit	8 – 9	Continuity

If continuity is not as specified, replace the switch.

3. INSPECT TURN SIGNAL FLASHER OPERATION



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

(b) Connect the 2 turn signal light bulbs parallel to each other to terminals 1 and 3, then check that the bulbs flash.

HINT:

- The turn signal lights should flash 60 or 120 times per minute.
- If one of the front or rear turn signal lights has an open circuit, the number of flashers will be more than 140 per minute.

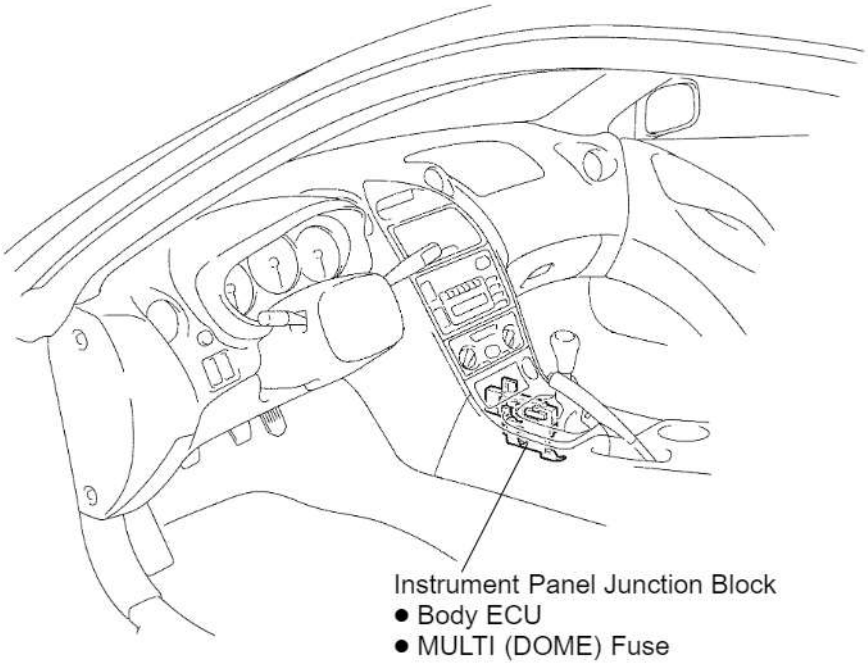
If operation is not as specified, replace the flasher.

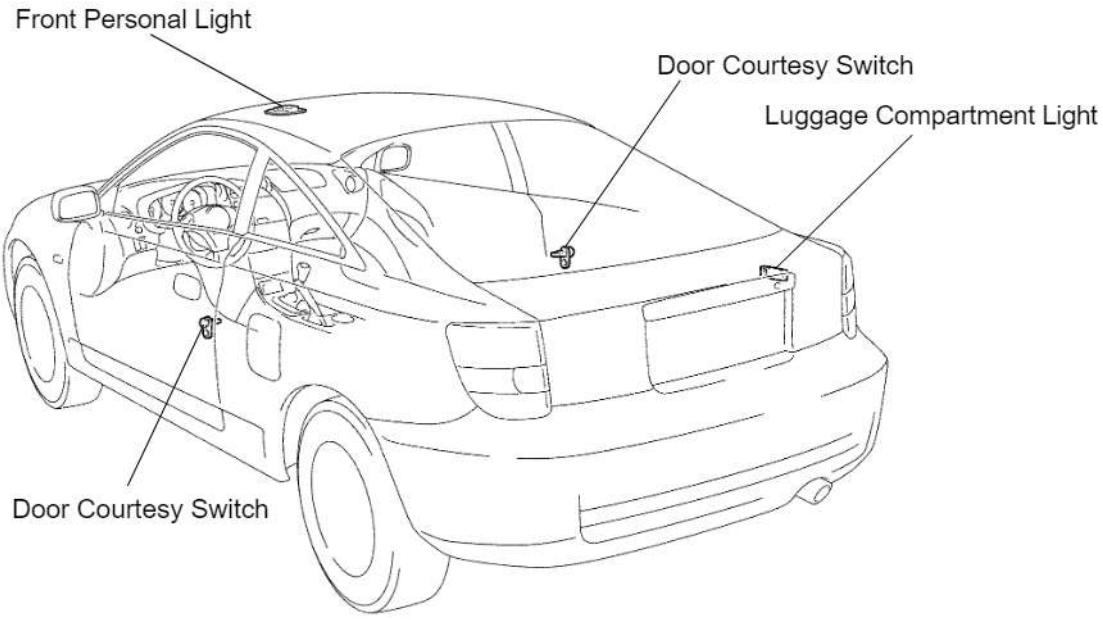
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INTERIOR LIGHT SYSTEM

LOCATION

BE0P6-14



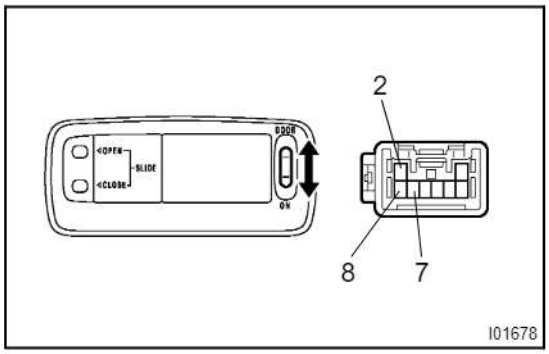


I13603

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BE1CZ-04

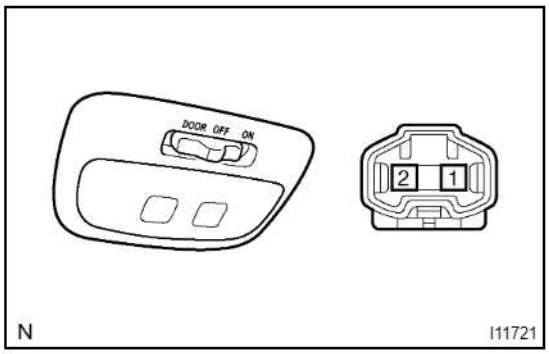
INSPECTION



1. w/ Sliding roof:
INSPECT FRONT PERSONAL LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
DOOR	2 – 7	Continuity
ON	2 – 8	Continuity

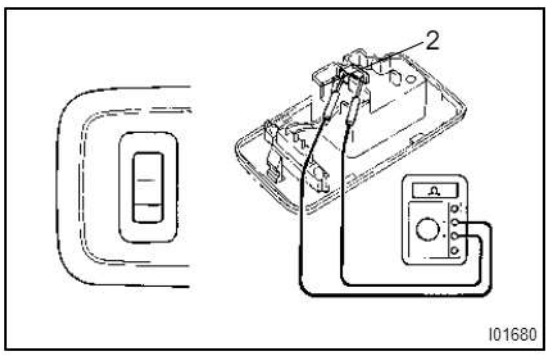
If continuity is not as specified, replace the light assembly or the bulb.



2. w/o Sliding roof:
INSPECT FRONT PERSONAL LIGHT CONTINUITY

Using an ohmmeter, check that there is a continuity between terminals.

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

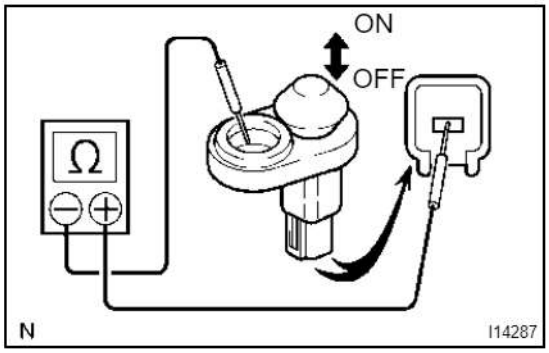


3. INSPECT REAR ROOM LIGHT CONTINUITY

(a) Disconnect the connector from the room light.

(b) Turn the room light switch to ON, check that there is a continuity between terminal 1 and 2.

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



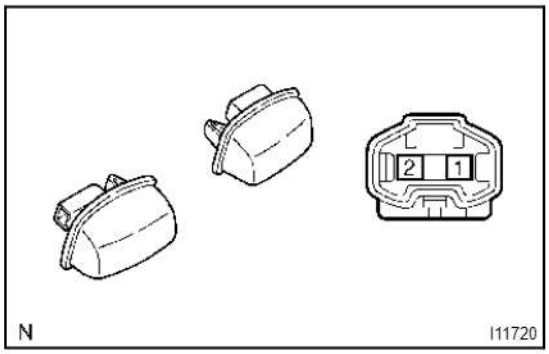
4. INSPECT DOOR COURTESY SWITCH CONTINUITY

(a) Check that there is a continuity between terminals and the switch body with the switch ON (Switch pin released: opened door).

(b) Check that there is no continuity between terminals and the switch body with the switch OFF (Switch pin pushed in: closed door).

If operation is not as specified, replace the switch.

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5. INSPECT LICENCE PLATE LIGHT CONTINUITY

Using an ohmmeter, check that there is a continuity between terminals.

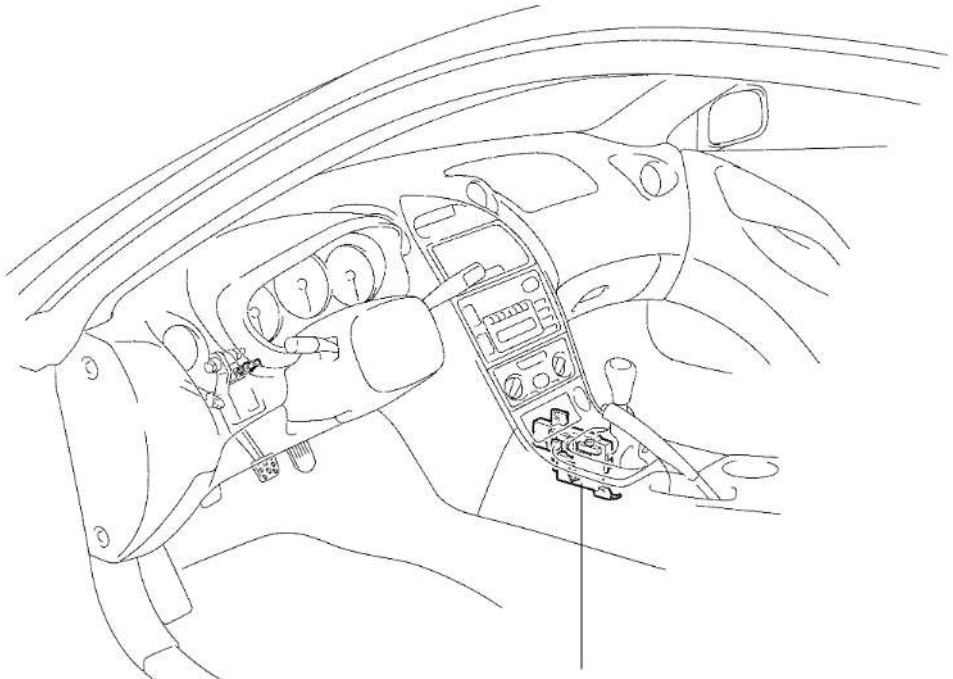
If continuity is not as specified, replace the light assembly or the bulb.

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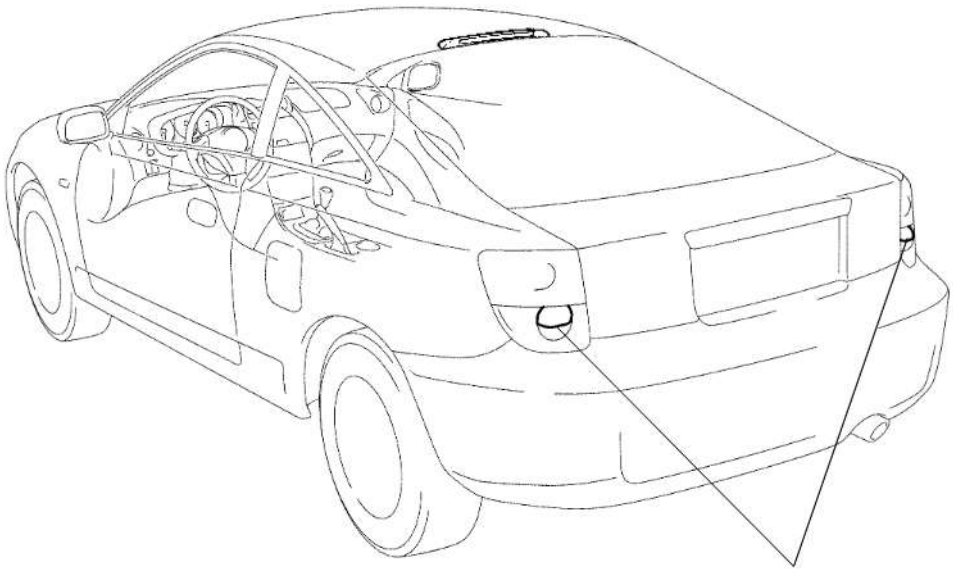
BACK–UP LIGHT SYSTEM

LOCATION

BE0P2–17



Instrument Panel Junction Block
- MULTI (BK/UP LP) Fuse



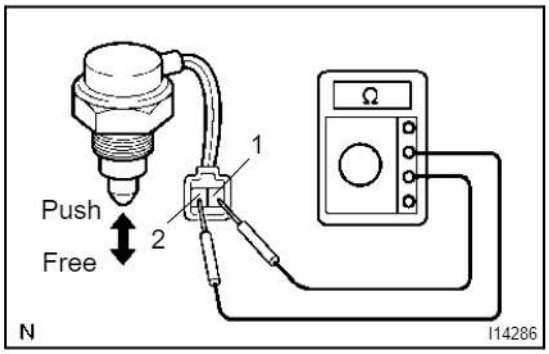
Back–Up Lights

P

I25690

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BE0P3–14



INSPECTION

1. M/X:

INSPECT BACK–UP LIGHT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Free	1 – 2	No continuity
Push	1 – 2	Continuity

If continuity is not as specified, replace the switch.

2. A/X:

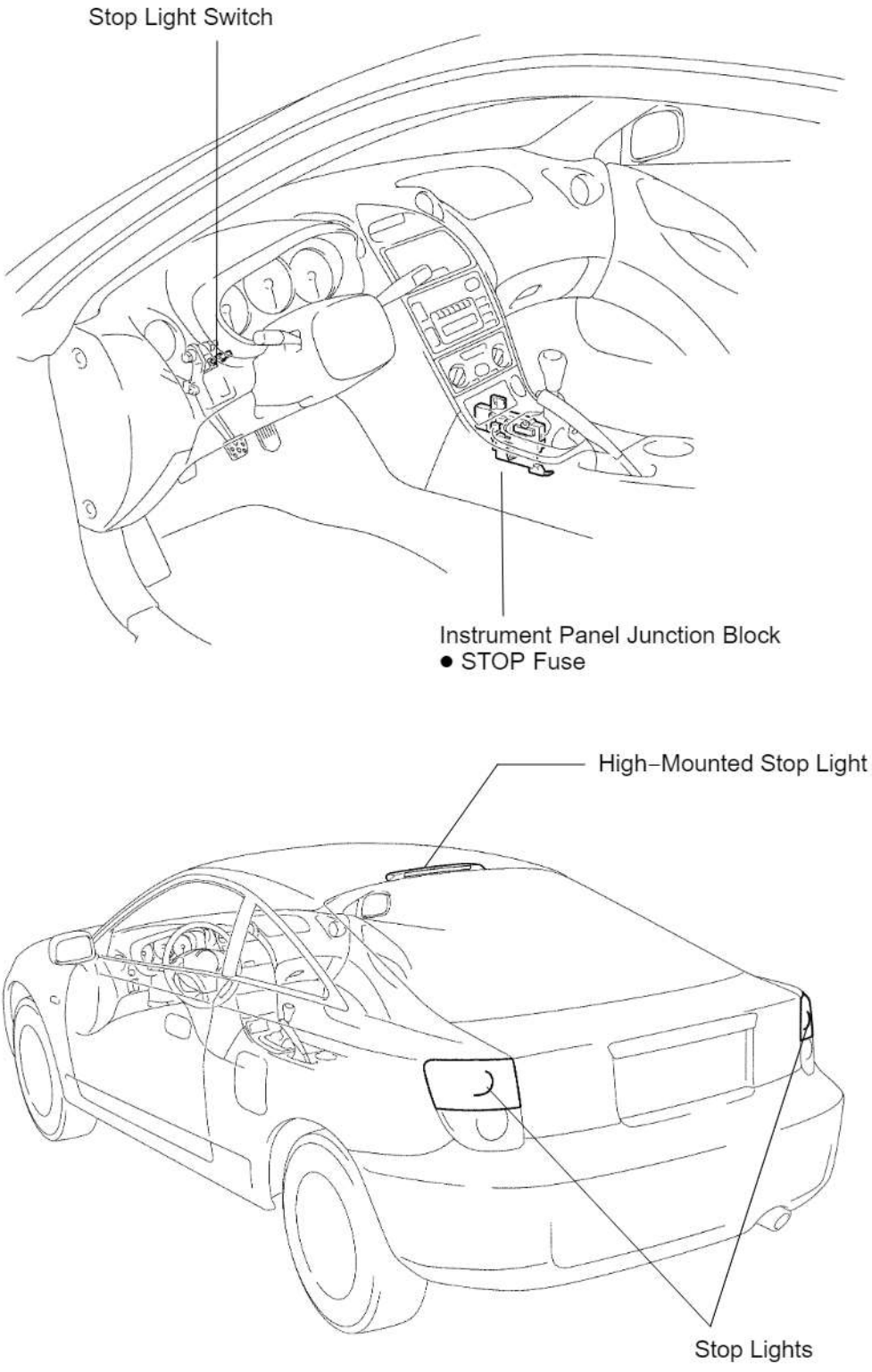
INSPECT PARK/NEUTRAL POSITION SWITCH CONTINUITY (See page DI–701 or DI–789)

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STOP LIGHT SYSTEM

LOCATION

BE0P4-14



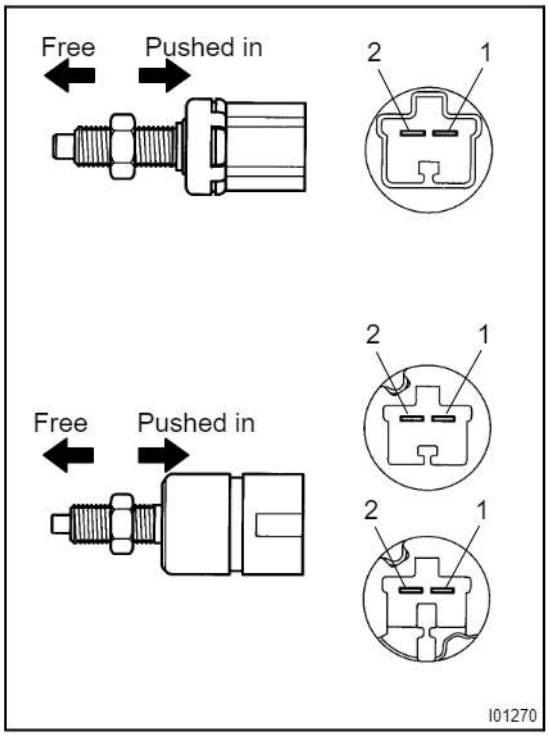
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BE1D0-06

INSPECTION

INSPECT STOP LIGHT SWITCH CONTINUITY

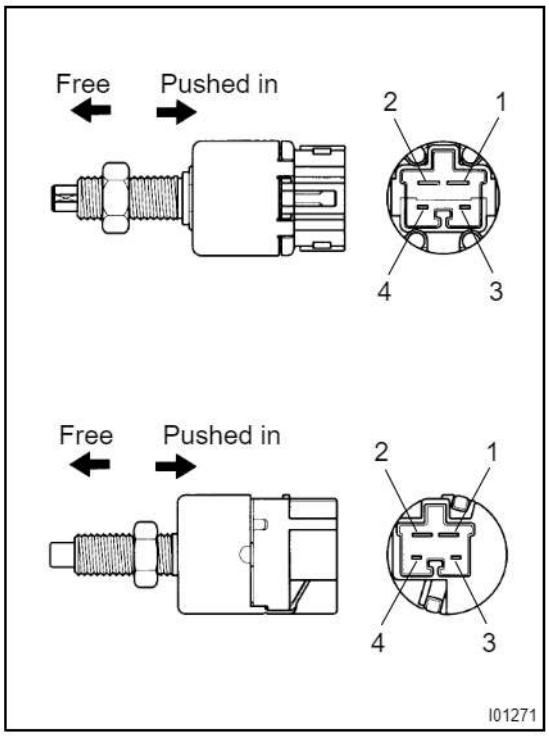
w/o cruise control system:



Switch position	Tester connection	Specified condition
Switch pin pushed in (Pedal released)	–	No continuity
Switch pin free (Pedal depressed)	1 – 2	Continuity

If continuity is not as specified, replace the switch.

w/ cruise control system:



Switch position	Tester connection	Specified condition
Switch pin pushed in (Pedal released)	–	No continuity
Switch pin free (Pedal depressed)	1 – 2	Continuity

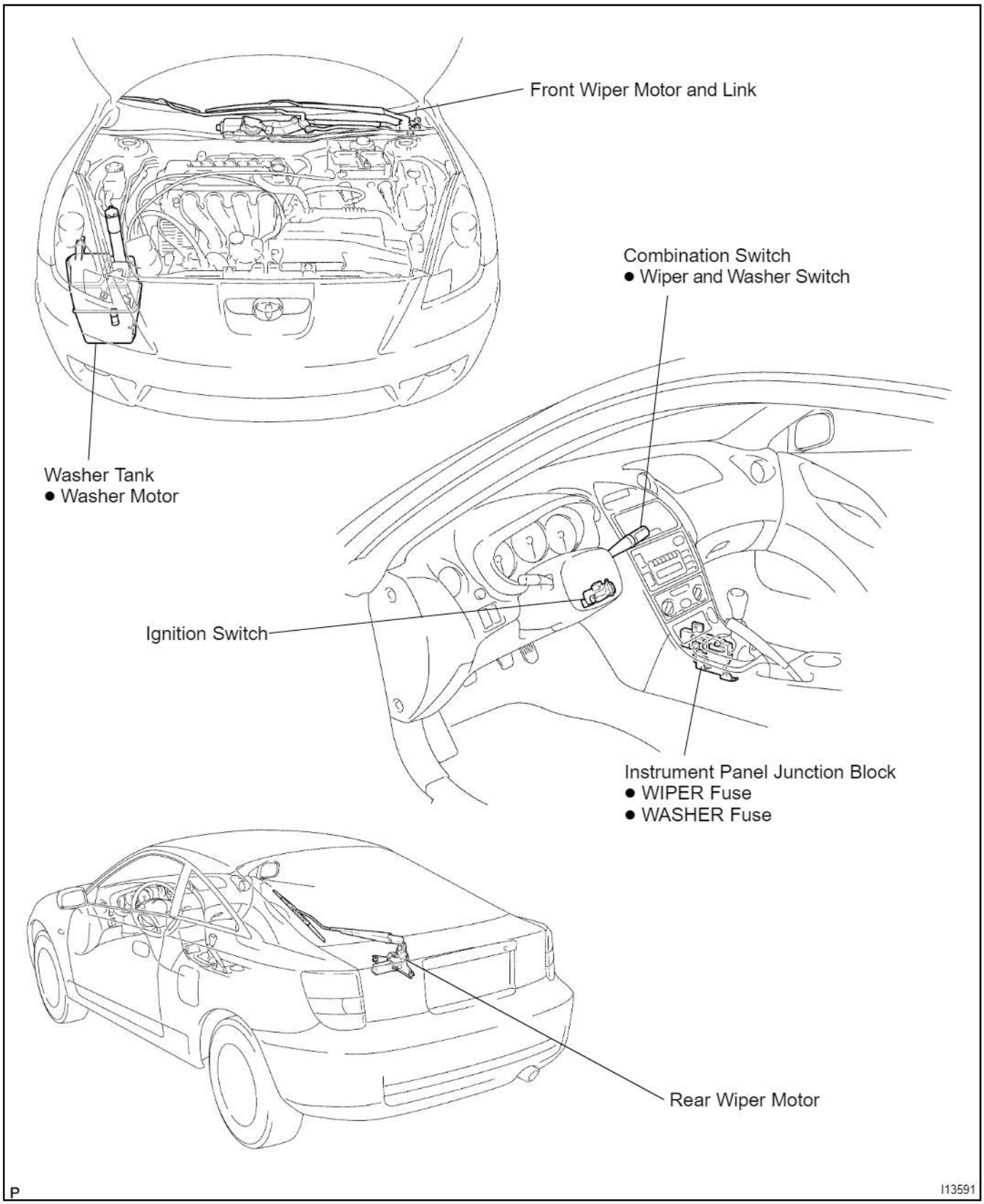
If continuity is not as specified, replace the switch.

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WIPER AND WASHER SYSTEM

LOCATION

BE0P6-14



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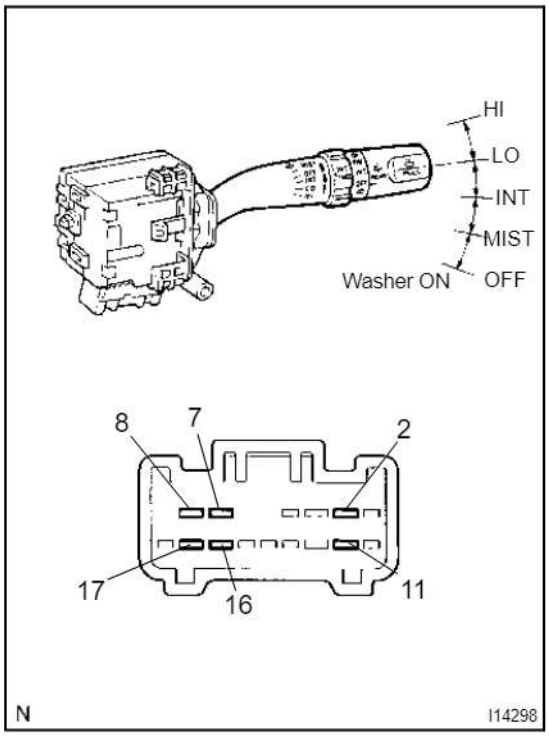
BE2FF-02

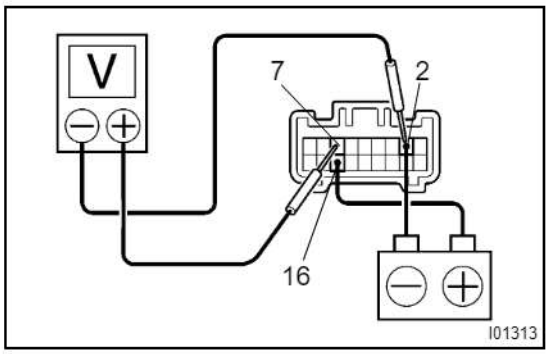
INSPECTION

1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	7 – 16	Continuity
MIST (w/ Mist wiper)	7 – 17	Continuity
INT (w/ Intermittent wiper)	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.





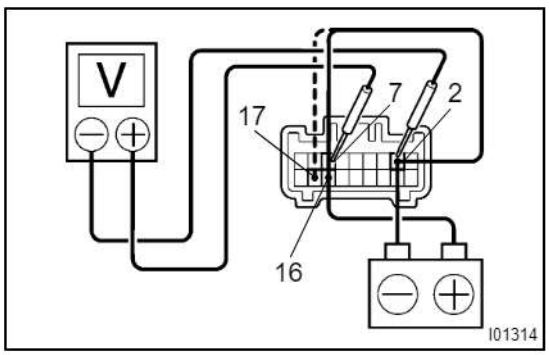
2. INSPECT FRONT WIPER INTERMITTENT OPERATION

(a) Turn the wiper switch to the INT position.

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

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

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

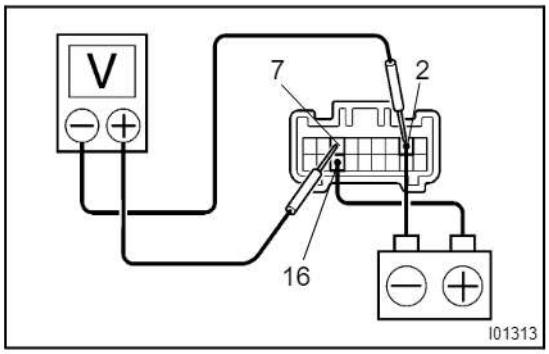


(e) After connecting terminal 16 to terminal 17, connect to terminal 2 to terminal 17, check the voltage rises from 0 volts to the battery voltage within the times as shown in the table.

INT time control switch position	Voltage
FAST	Approx. 0.6 – 2.6 secs. Battery voltage 0 Volt
SLOW	Approx. 5.2 – 15.7 secs. Battery voltage 0 Volt

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

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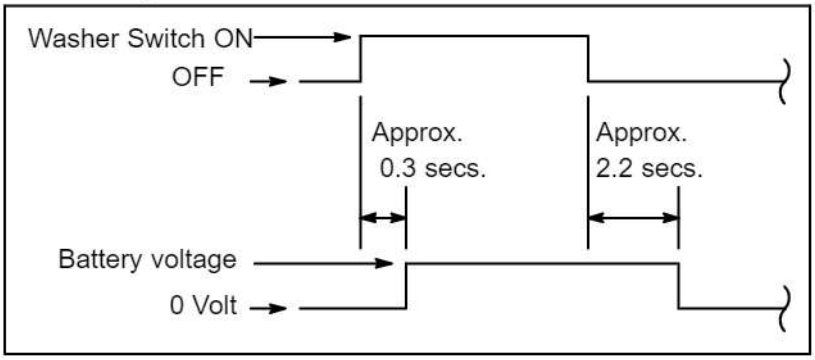


3. INSPECT FRONT WASHER LINKED OPERATION

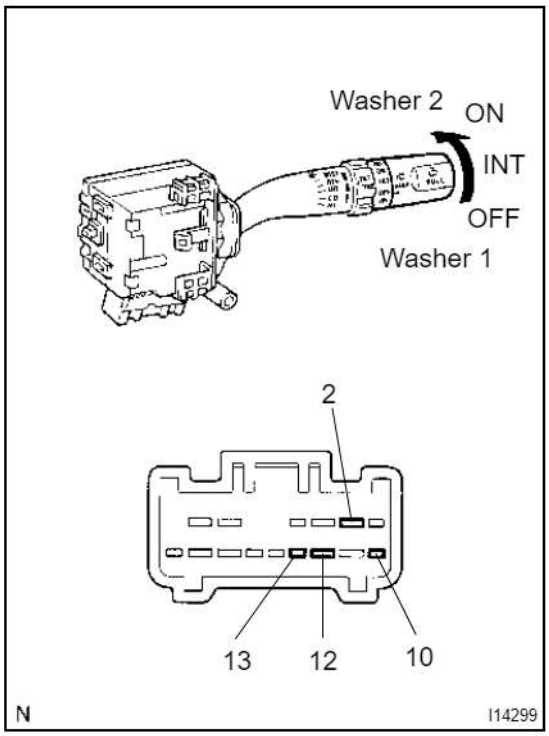
(a) Connect the battery positive (+) lead to terminal 16 and the battery negative (–) lead to terminal 2.

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

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



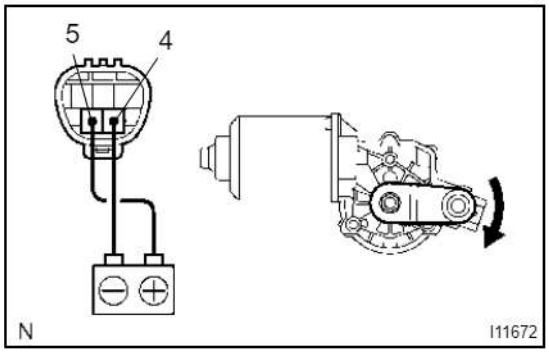
If operation is not as specified, replace the wiper and washer switch.



4. INSPECT REAR WIPER AND WASHER SWITCH CONTINUITY

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

If continuity is not as specified, replace the switch.

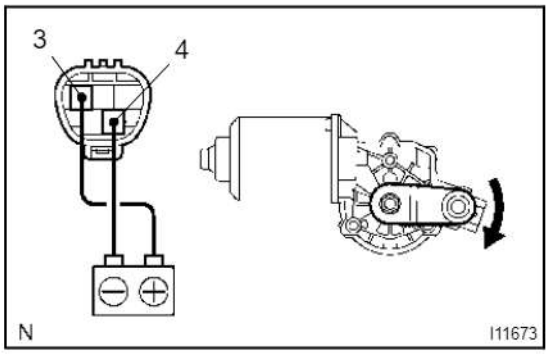


5. Low Speed: INSPECT FRONT WIPER MOTOR OPERATION

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

If operation is not as specified, replace the motor with a new one.

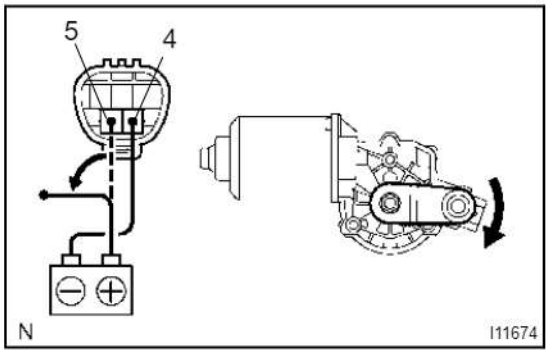
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6. High Speed:
INSPECT FRONT WIPER MOTOR OPERATION

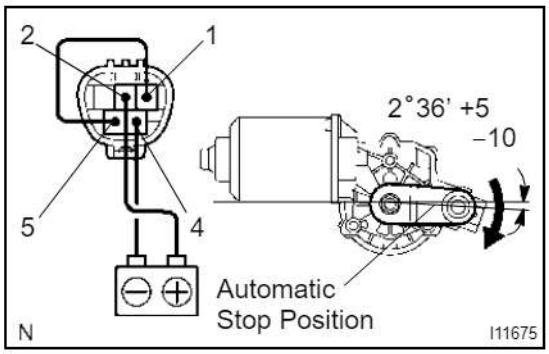
Connect the battery positive (+) lead to terminal 3 and the battery negative (–) lead to terminal 4, then check that the motor operates at high speed.

If operation is not as specified, replace the motor with a new one.



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

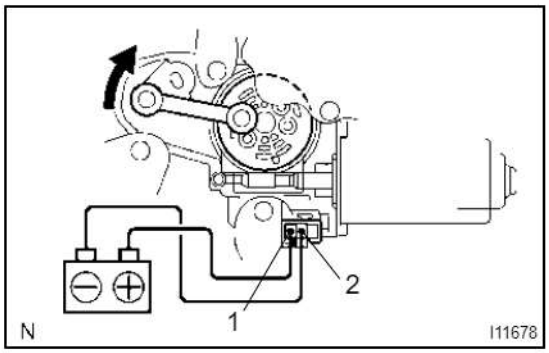
(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting the positive (+) lead from terminal 5.



(b) Connect terminal 1 and 5.

(c) Connect the battery positive (+) lead to terminal 2 and battery negative (–) lead to terminal 4, then check that the motor stops running at the stop position after the motor operates again.

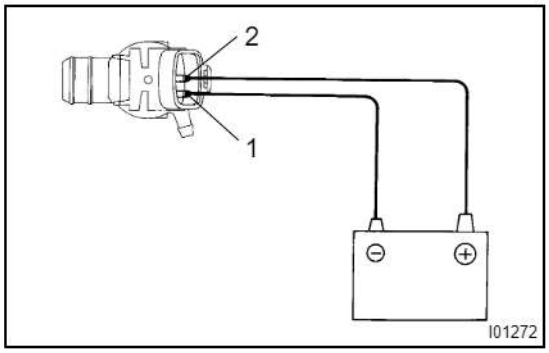
If operation is not as specified, replace the motor.



8. Intermittent:
INSPECT REAR WIPER MOTOR AND RELAY OPERATION

Connect the battery positive (+) lead to terminal 1, and the battery negative (–) lead to terminal 2 and the motor body, then check that the motor operates intermittently for 9 – 15 seconds.

If operation is not as specified, replace the motor and relay with new ones.



9. w/o Rear wiper:
INSPECT WASHER MOTOR OPERATION

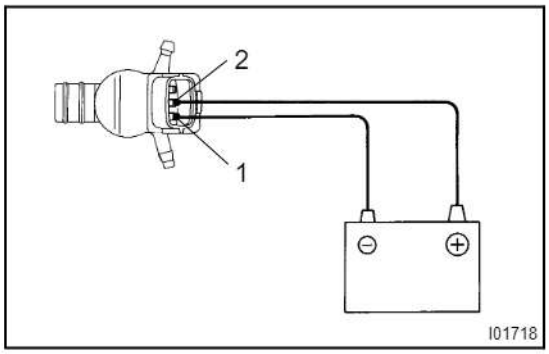
Connect the battery positive (+) lead to terminal 2 and the battery negative (–) lead to terminal 1, then check that the motor operates.

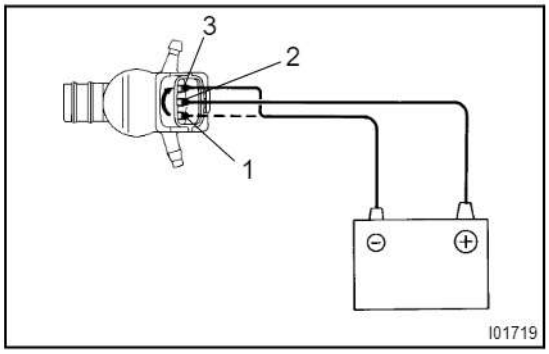
NOTICE:

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 with a new one.

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10. w/ Rear wiper:
INSPECT FRONT WASHER MOTOR OPERATION

Connect the battery positive (+) lead to terminal 2 and the battery negative (–) lead to terminal 1, then 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 with a new one.

11. w/ Rear wiper:
INSPECT REAR WASHER MOTOR OPERATION

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

NOTICE:

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

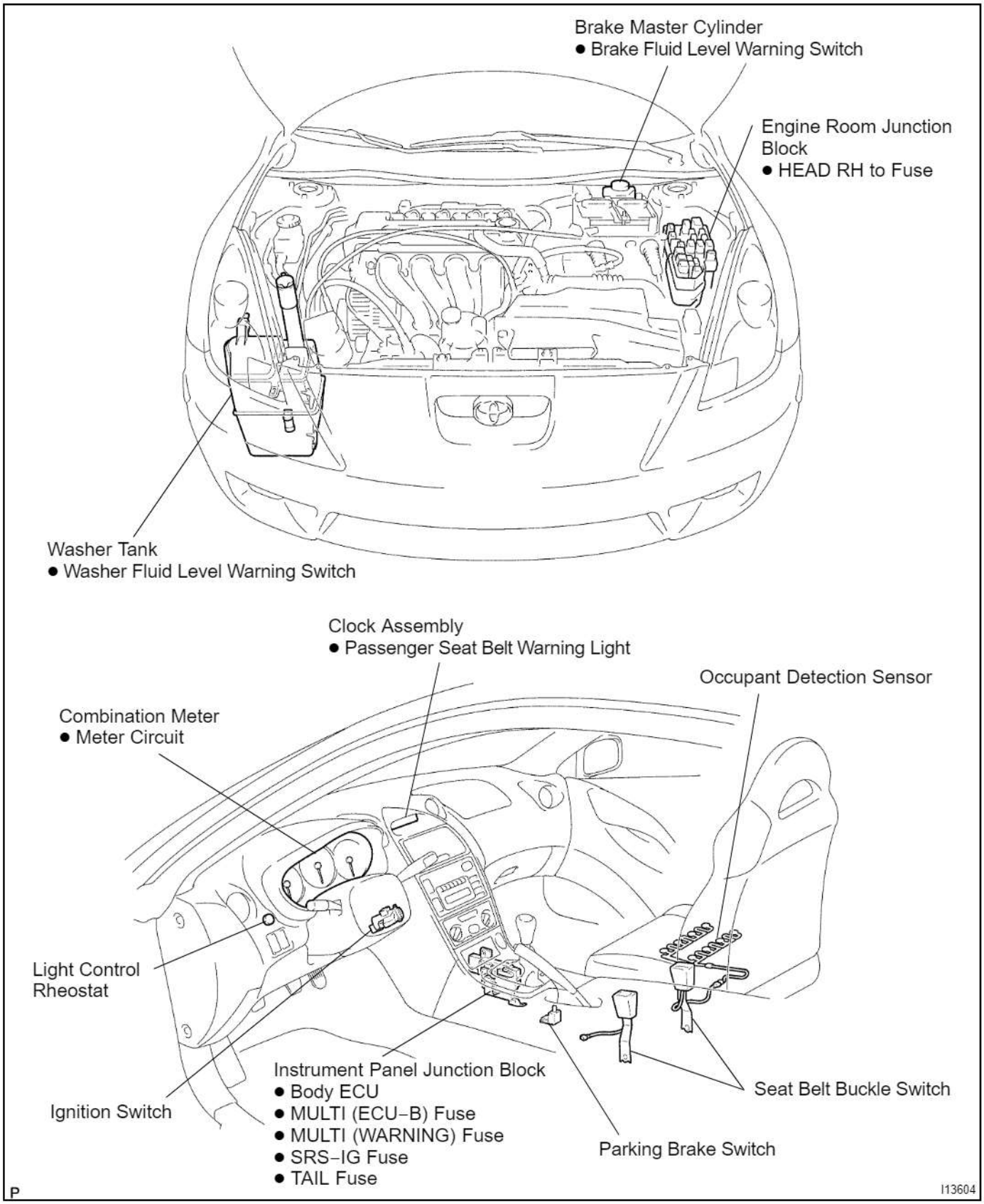
If operation is not as specified, replace the motor with a new one.

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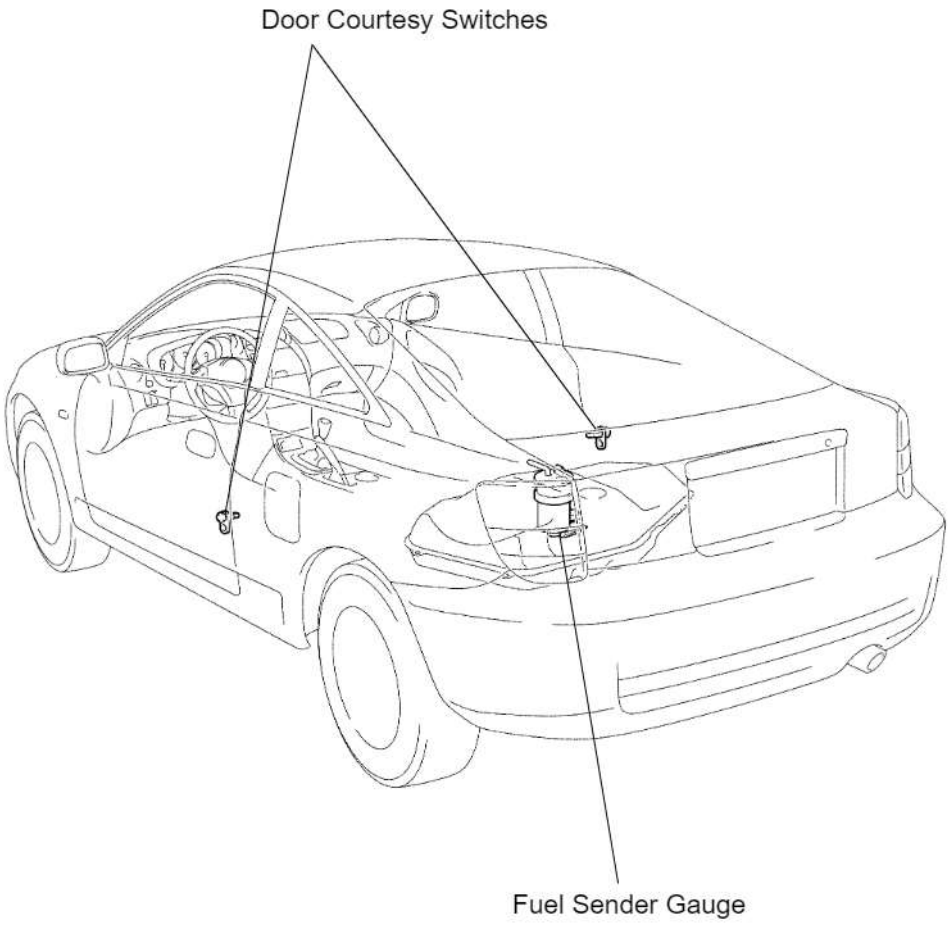
COMBINATION METER

LOCATION

BE1D1-11



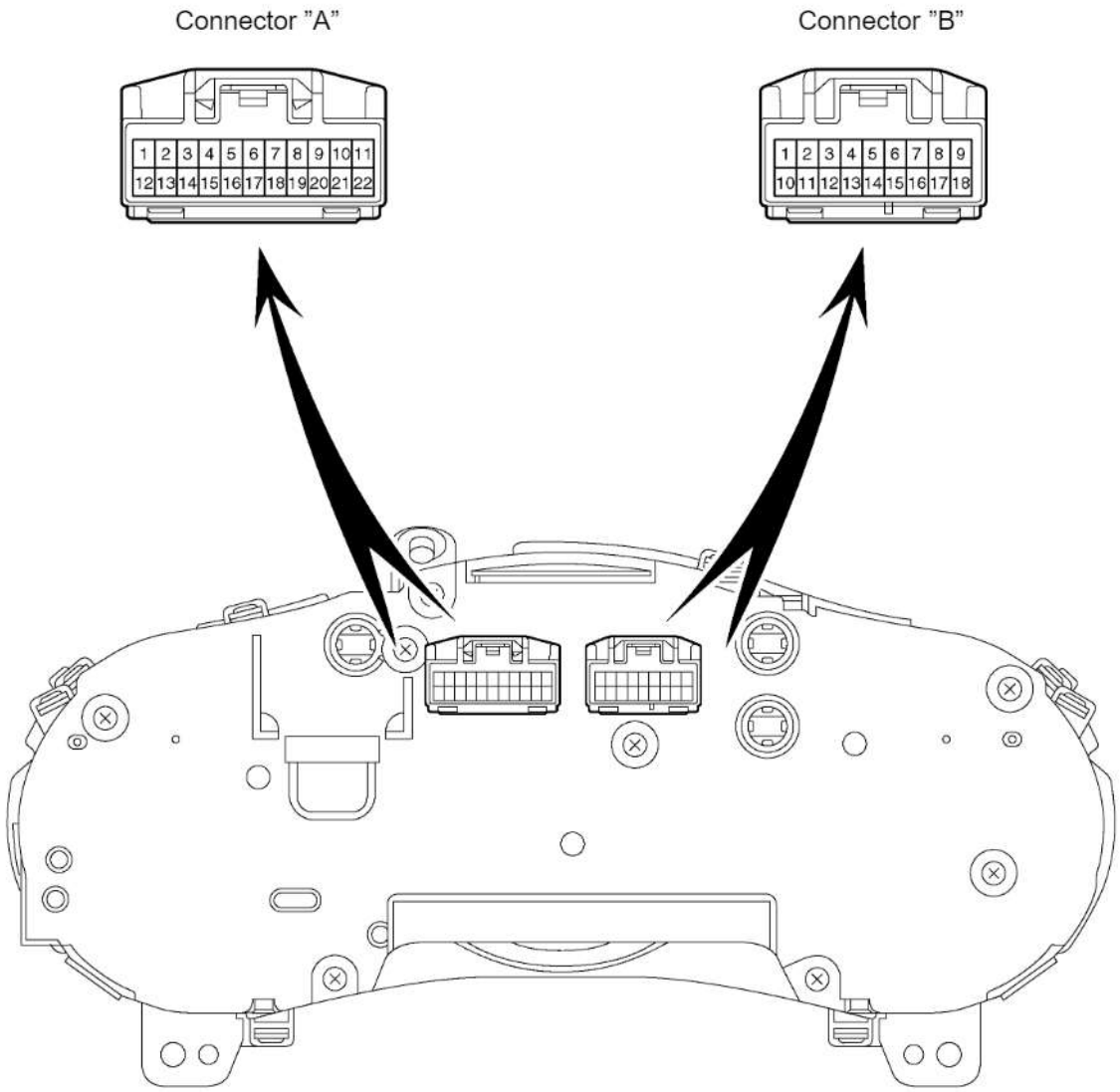
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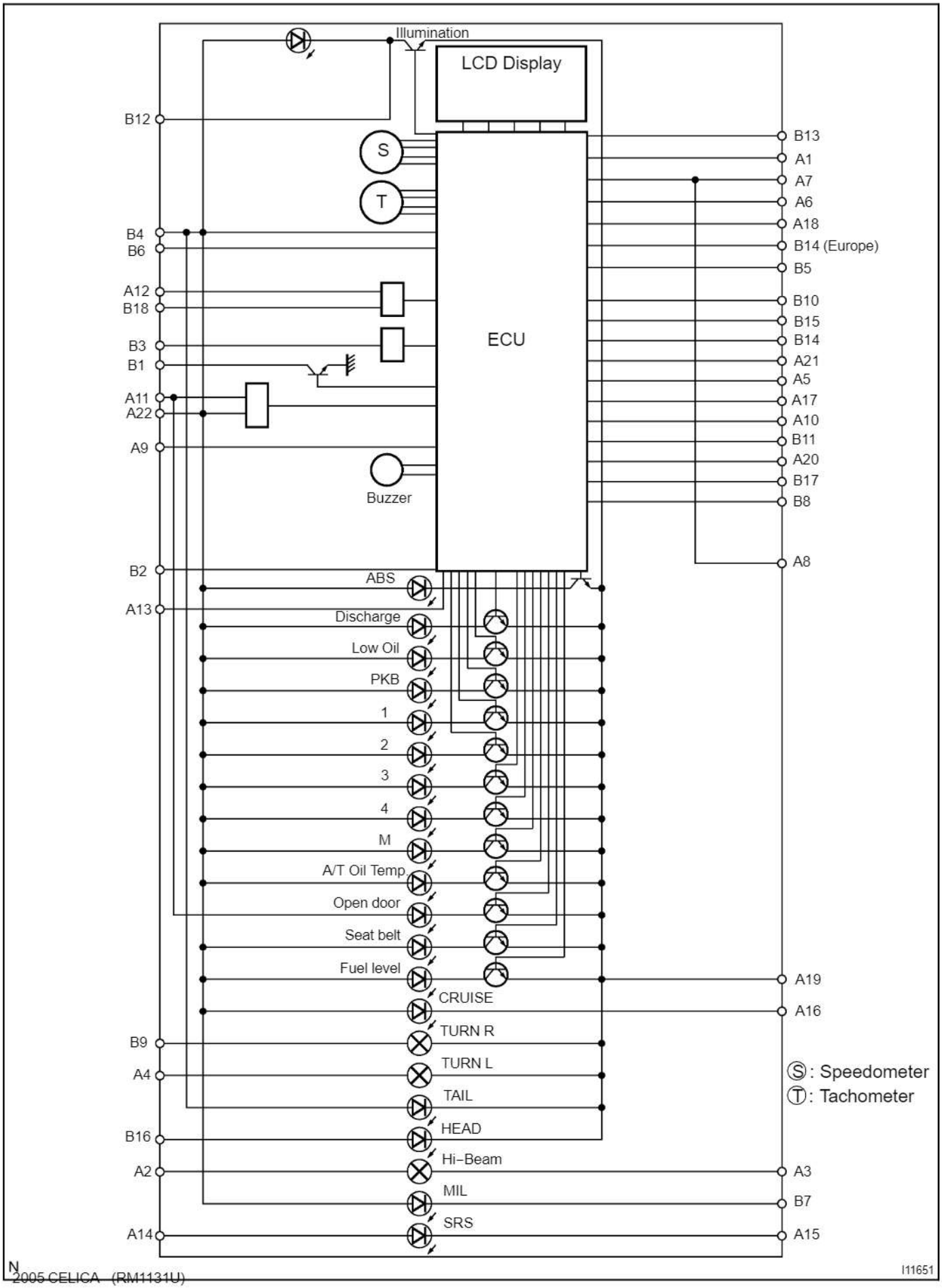
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BE0P9-10

CIRCUIT



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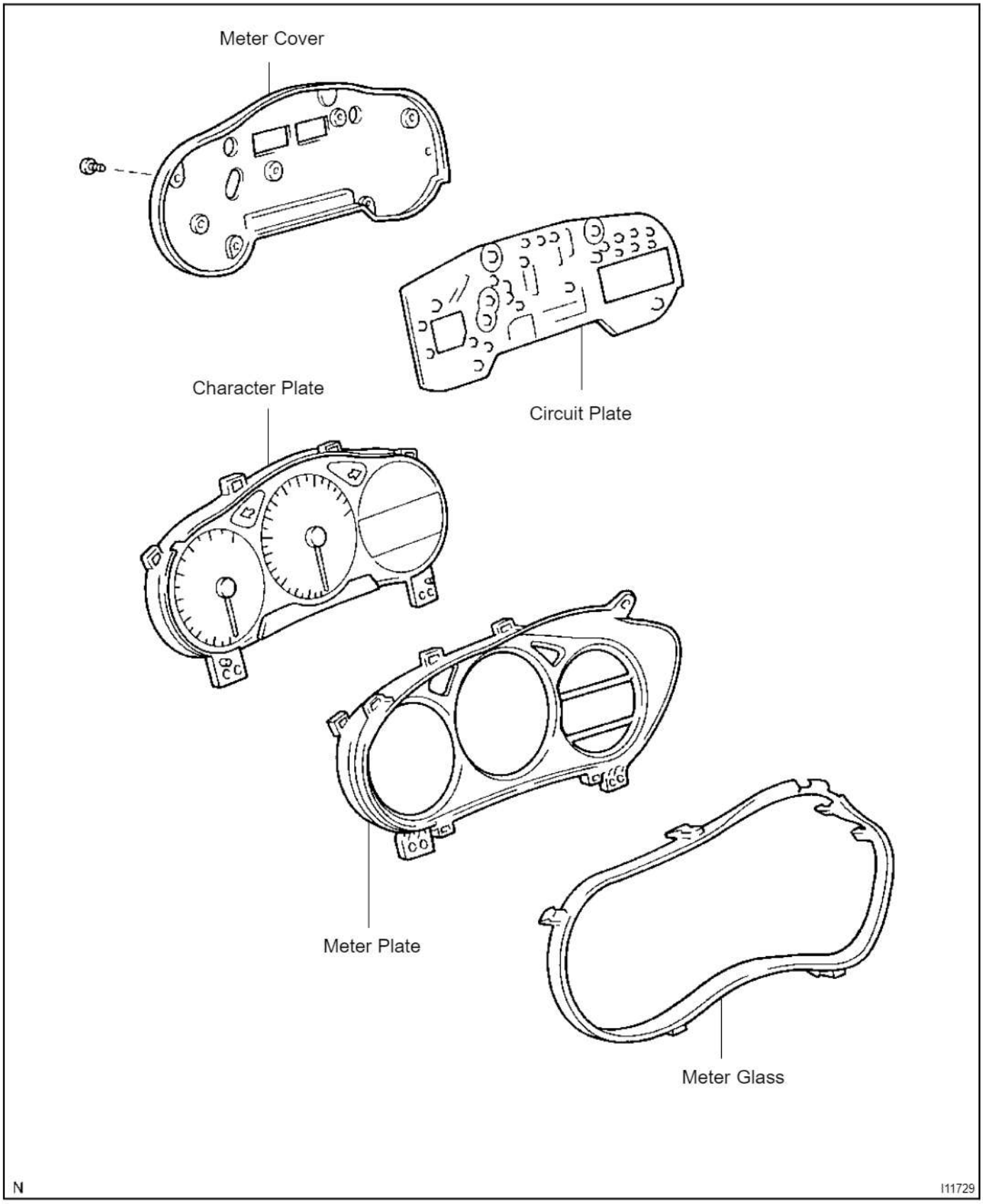
No.		Wiring connector side
A	1	Sport mode switch
	2	Headlight dimmer switch
	3	Headlight
	4	Turn signal switch (Left side)
	5	Light control rheostat
	6	Evaporator temp. sensor
	7	Ground
	8	Ground
	9	Speed control unit
	10	Ground
	11	ECU–B Fuse
	12	ECM (MPX circuit)
	13	Heater main relay
	14	SRS Fuse
	15	Airbag sensor assembly
	16	Cruise control ECU
	17	Light control rheostat
	18	Evaporator temp. sensor
	19	Ground
	20	Speed sensor (SI terminal)
	21	Back–up light switch
	22	WARNING Fuse
B	1	Generator
	2	Clock (Passenger seat belt warning)
	3	Body ECU
	4	TAIL Fuse
	5	A/C ECU
	6	ECM (Tacho signal)
	7	ECM
	8	ABS ECU (Parking brake switch signal)
	9	Turn signal switch (Right side)
	10	A/C control panel (A/C switch indicator)
	11	ABS ECU
	12	Automatic light control sensor
	13	O/D off switch
	14	Front defogger switch
	15	A/C switch
	16	HEAD RH–LO Fuse
	17	ABS ECU
	18	ECM (MPX circuit)

MPX: Multiplex communication
Temp. : Temperature

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BE1D2–04

COMPONENTS



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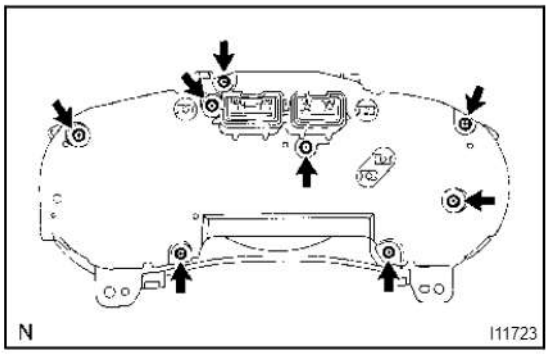
BE1D3–04

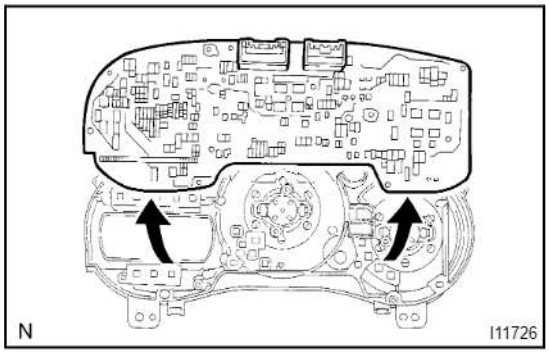
DISASSEMBLY

COMBINATION METER COVER:

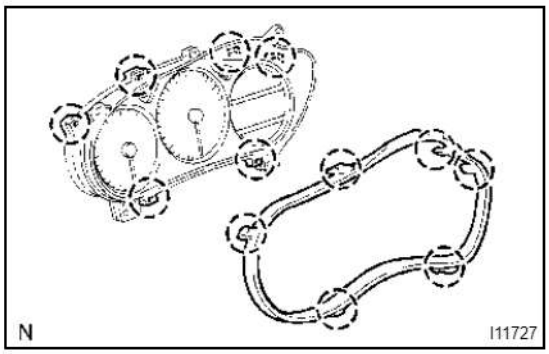
(a) Remove the 8 screws.

(b) Remove the combination meter cover.

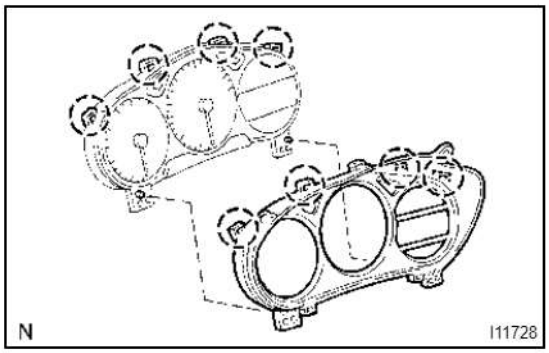




(c) Remove the meter circuit plate.



(d) Remove the 6 clips and the meter glass.



(e) Remove the 4 clips and the meter plate.

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BE1D4–04

INSPECTION

1. INSPECT SPEEDOMETER ON–VEHICLE

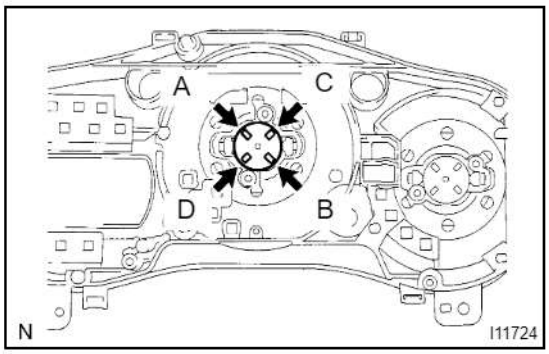
Using a speedometer tester, inspect the speedometer and check the operation of the odometer.

HINT:

Tire wear and tire over or under inflation will increase the indication error.

If error is excessive, replace the speedometer.

USA (mph)		CANADA (km/h)	
Standard indication	Allowable range	Standard indication	Allowable range
20	19– 22	20	18 – 23
40	39 – 42.5	40	40 – 44
60	59.5 – 63.5	60	60 – 64.5
80	80 – 85	80	80 – 85
100	100 – 105.5	100	100 – 105
120	120 – 125.5	120	120 – 125.5
		140	140 – 146
		160	160 – 167

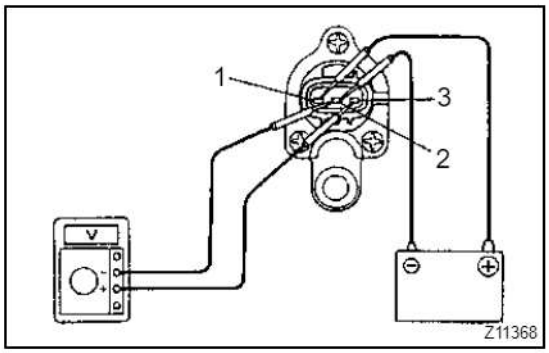


2. INSPECT SPEEDOMETER RESISTANCE

Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A – B	250
C – D	250

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



3. INSPECT VEHICLE SPEED SENSOR OPERATION

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

(b) Connect the tester positive (+) lead to terminal 3 and the tester negative (–) lead to terminal 2.

(c) Rotate the shaft.

(d) Check that there is voltage change from approx. 0 V to 11 V between terminals 2 and 3.

HINT:

The voltage change should be 4 times for every revolution of the speed sensor shaft.

If operation is not as specified, replace the sensor.

4. 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 the diodes inside.

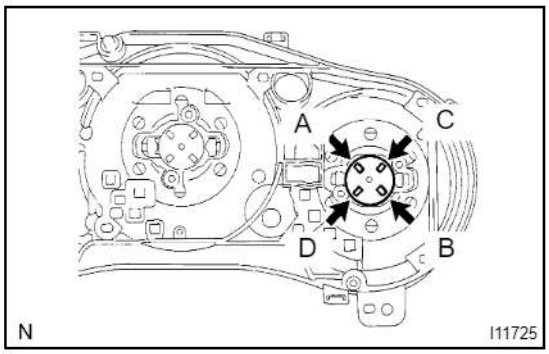
(b) Compare the tester indications with the tachometer indications.

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RPM (DC 13.5 V, 25 °C (77 °F))

Standard indication	Allowable range
700	700 – 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	5,800 – 6,200
7,000	6,800 – 7,200

If error is excessive, replace the tachometer.

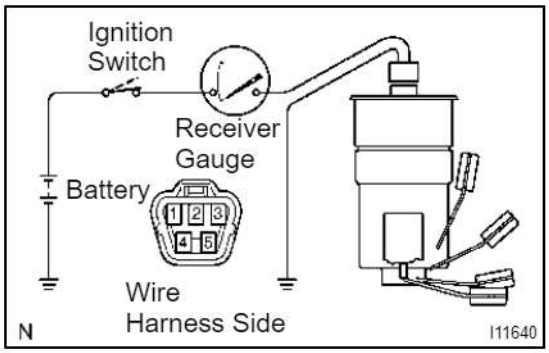


5. INSPECT TACHOMETER RESISTANCE

Measure the resistance between terminals with fixing the pointer to the stopper.

Tester connection	Resistance (Ω)
A – B	250
C – D	250

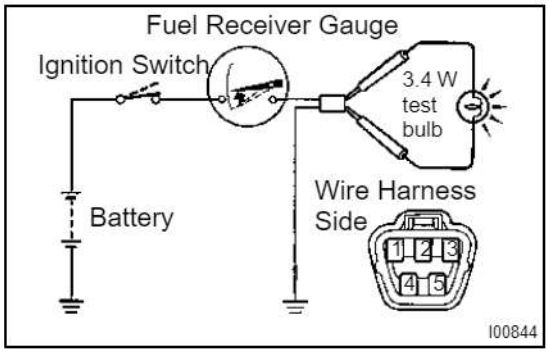
If resistance value is not as specified, replace the meter.



6. INSPECT FUEL RECEIVER GAUGE OPERATION

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

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

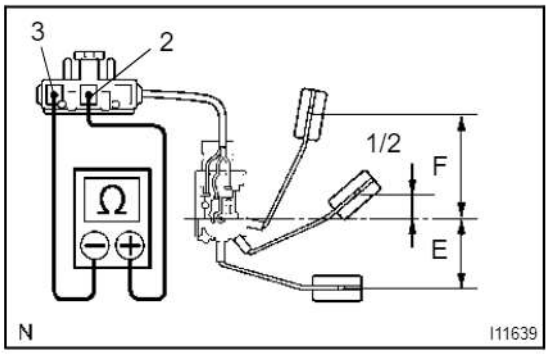


(c) Connect terminal 2 and 3 of the wire harness side connector through a 3.4 W test bulb.

(d) Turn the ignition switch ON, check that the bulb lights up and receiver gauge needle moves upper side.

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

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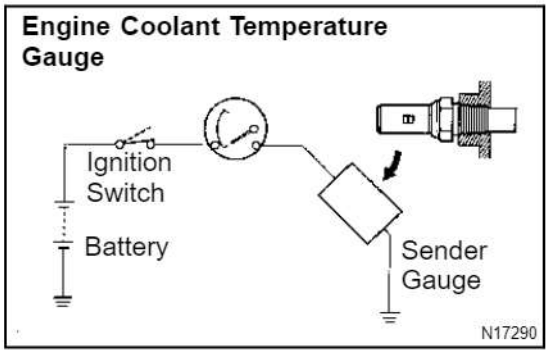


7. INSPECT FUEL SENDER GAUGE RESISTANCE

Measure the resistance between terminals 2 and 3 for each float position.

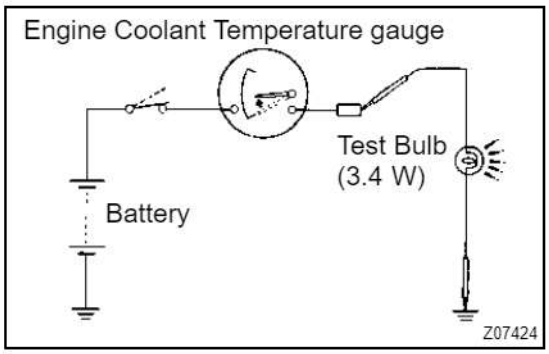
Float position: mm (in.)	Resistance (Ω)
F: Approx. 75.9 (2.99)	Approx. 3.0
1/2: Approx. 17.2 (0.68)	Approx. 31.6
E: Approx. 50.8 (2.00)	Approx. 110.0

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



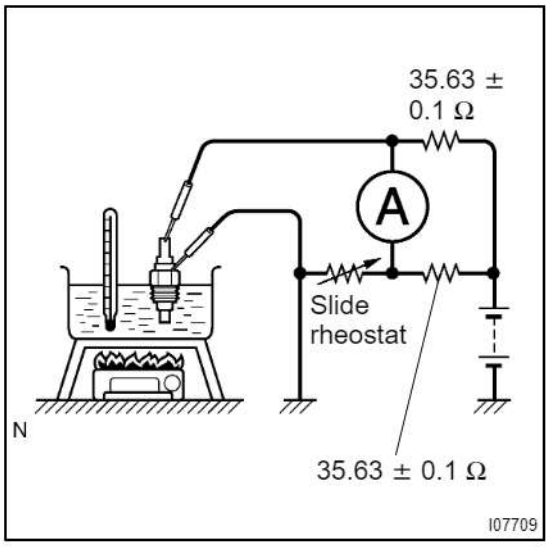
8. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE OPERATION

(a) Disconnect the connector from the sender gauge.
(b) Turn the ignition switch ON, then check that the receiver gauge needle indicates COOL.



(c) Ground the terminal of the wire harness side connector through a 3.4 W test bulb.
(d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves toward the hot side.

If operation is not as specified, inspect the sender gauge.
Then recheck the system.



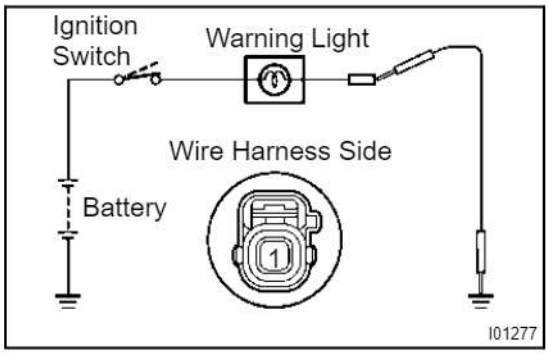
9. INSPECT ENGINE COOLANT TEMPERATURE SENDER GAUGE RESISTANCE

Connect the wire harness as shown in the illustration, and adjust the ammeter pointer to indicate ”0” using the slide rheostat, then read the rheostat indication.

Temperature °C (°F)	Resistance (Ω)
50 (122.0)	160 – 240
120 (248.0)	17.1 – 21.2

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

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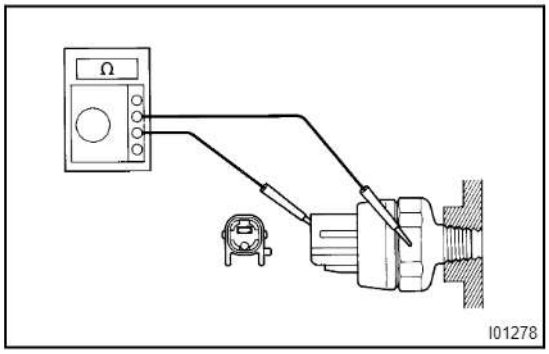


10. INSPECT LOW OIL PRESSURE WARNING LIGHT

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

(b) Turn the ignition switch ON, check that the warning light comes on.

If the warning light does not come on, test the bulb or inspect the wire harness.



11. INSPECT LOW OIL PRESSURE SWITCH CONTINUITY

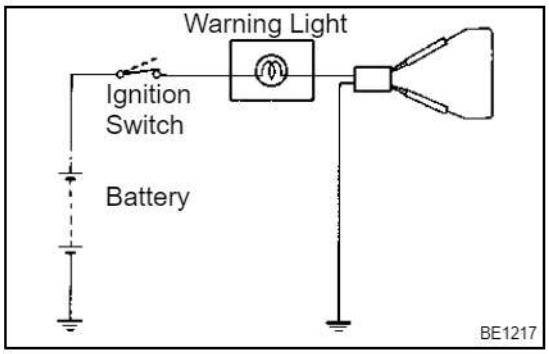
(a) Check that there is a continuity between terminal and ground with the engine stopped.

(b) Check that there is no continuity 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.



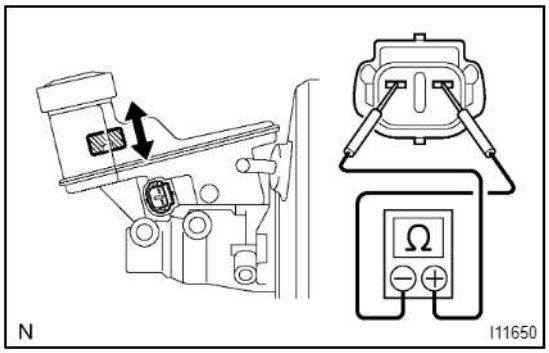
12. INSPECT BRAKE WARNING SYSTEM LIGHT

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

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

(c) Start the engine, then check that the brake warning light comes on.

If the warning light does not come on, test the bulb or wire harness.



13. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

(a) Remove the reservoir tank cap and the strainer.

(b) Disconnect the connector.

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

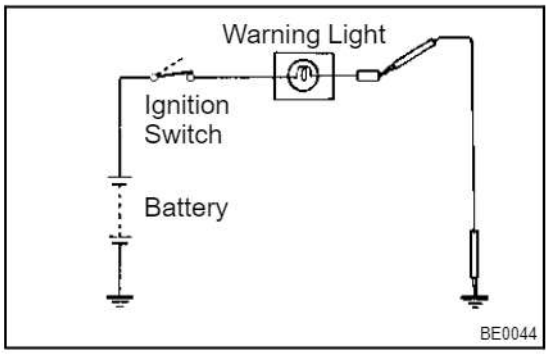
(d) Use a syphon, etc. to take fluid out of the reservoir tank.

(e) Check that there is a continuity between terminals with the switch ON (float down).

(f) Pour the fluid back in the reservoir tank.

If operation is not as specified, replace the switch.

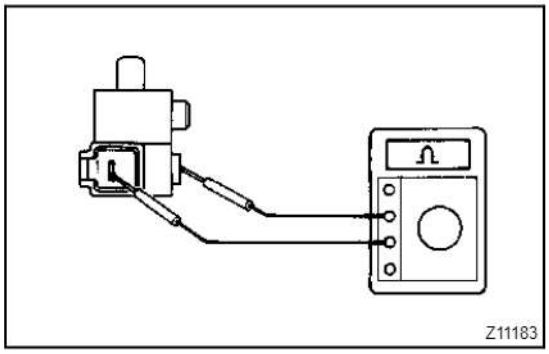
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14. INSPECT PARKING BRAKE WARNING LIGHT

(a) Disconnect the connector from the parking brake switch.
(b) Ground terminal of the wire harness side connector.
(c) Start the engine and check that the warning light comes on.

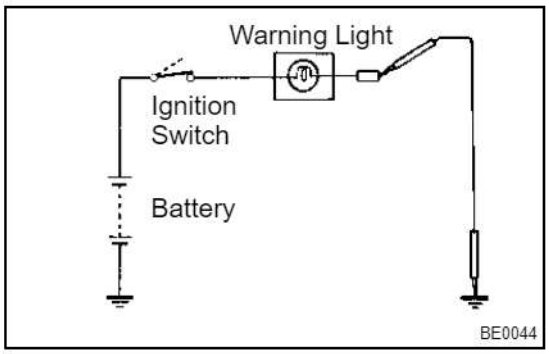
If the warning light does not come on, test the bulb or inspect the wire harness.



15. INSPECT PARKING BRAKE SWITCH CONTINUITY

(a) Check that there is a continuity between terminal and switch body with the switch ON (switch pin released).
(b) Check that there is no continuity between terminal and switch body with the switch OFF (switch pin pushed in).

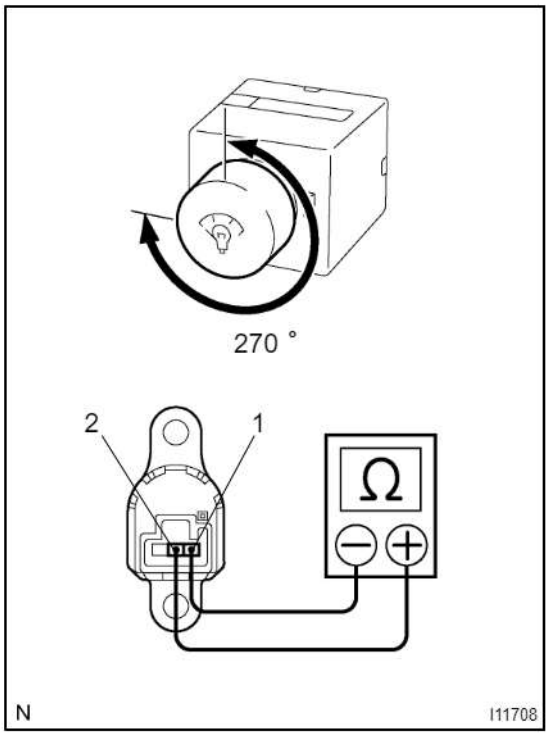
If operation is not as specified, replace the switch or inspect ground point.



16. INSPECT OPEN DOOR WARNING LIGHT

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

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



17. 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 terminals 2 and 1. (Turn the rheostat knob clockwise)

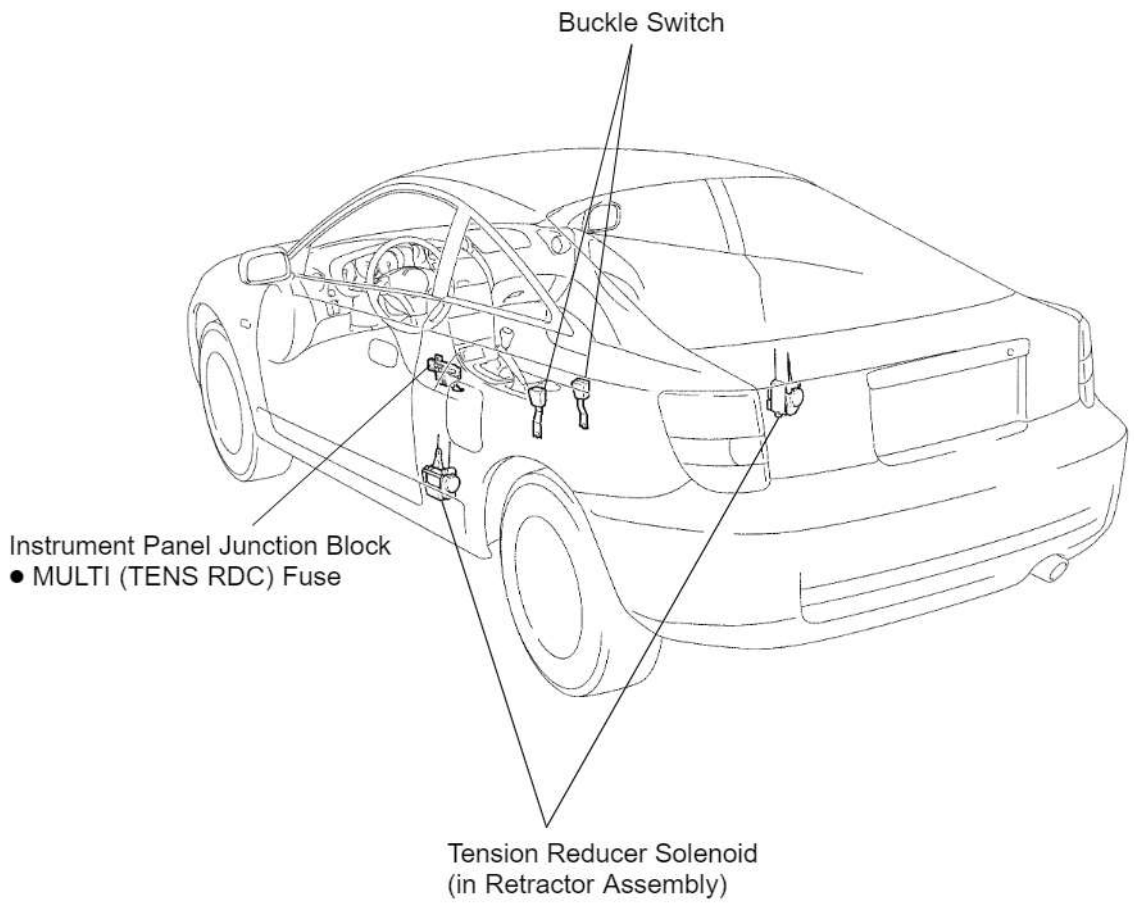
If operation is not as specified, replace the rheostat light control.

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ELECTRIC TENSION REDUCER SYSTEM

LOCATION

BE0PB-04



P

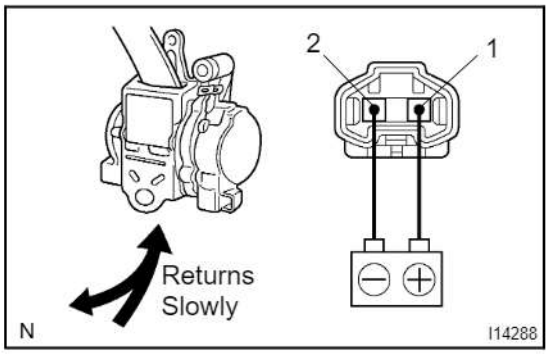
I13594

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BE0PC-04

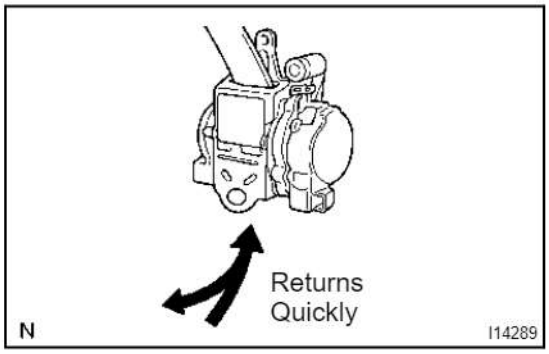
INSPECTION

1. INSPECT TENSION REDUCER SOLENOID OPERATION



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

(b) Pull the belt upward and check that the belt is slowly retracted when released.



(c) Disconnect the lead from the battery.

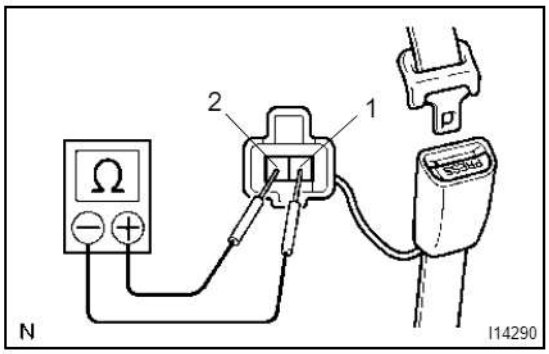
(d) Pull the belt upward and check that the belt is retracted quicker than in (b) when released.

HINT:

Do not tilt the retractor.

If the operation is not as specified, replace the front seat outer belt assembly.

2. INSPECT BUCKLE SWITCH CONTINUITY



(a) Check that there is a continuity between terminals of the switch side connector with the switch ON (belt fastened).

(b) Check that there is no continuity between terminals of the switch side connector with the switch OFF (belt unfastened).

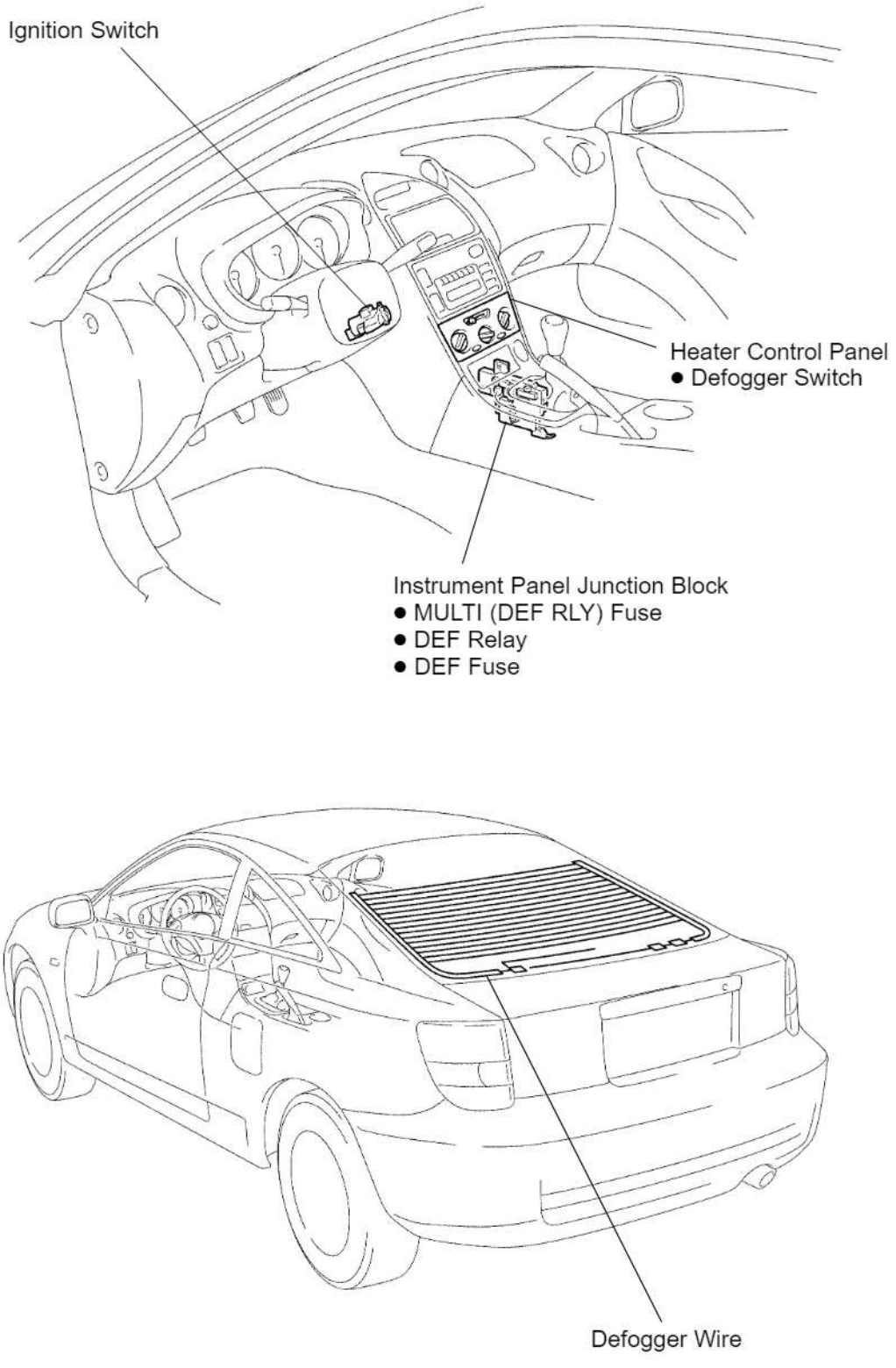
If operation is not as specified, replace the seat belt inner.

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DEFOGGER SYSTEM

LOCATION

BE0PD-14

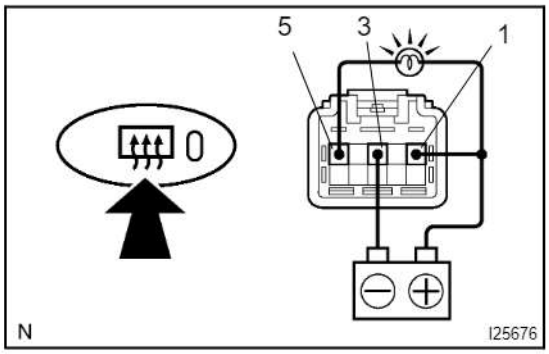


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BE1D5-06



INSPECTION

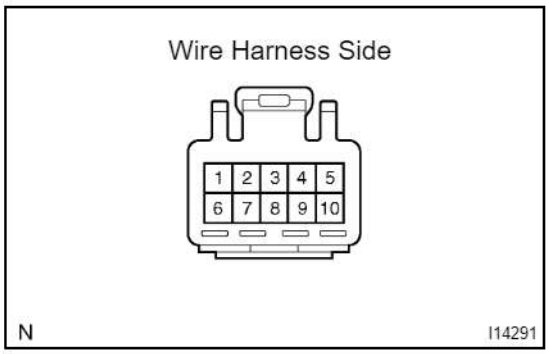
1. INSPECT DEFOGGER TIMER OPERATION

(a) Connect the battery positive (+) lead to terminal 1 and the battery negative (–) lead to terminal 3.

(b) Connect the battery positive (+) lead to terminal 5 through a 3.4 W test bulb.

(c) Turn the defogger switch ON and check that the indicator light and the test bulb light for 12 to 18 minutes, and go off afterward.

If operation is not as specified, replace the switch.



2. Connector disconnected: INSPECT DEFOGGER SWITCH CIRCUIT

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

Tester connection	Condition	Specified condition
3 – Ground	Constant	Continuity
5 – Ground	Ignition switch LOCK or ACC	No voltage
5 – Ground	Ignition switch ON	Battery positive voltage

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

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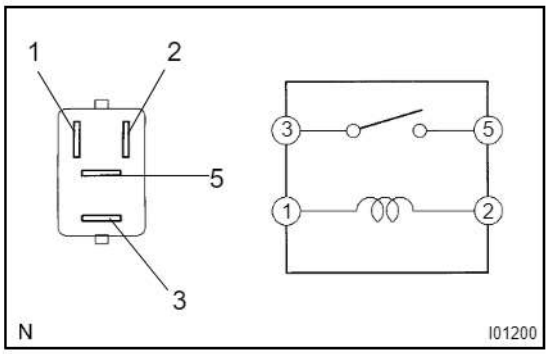
3. Connector connected: INSPECT DEFOGGER SWITCH CIRCUIT

Connect the connector from the switch and inspect the wire harness side connector from the back side as shown in the chart.

Tester connection	Condition	Specified condition
5 – Ground	Ignition switch ON and defogger switch OFF	Battery positive voltage
5 – Ground	Ignition switch ON and defogger switch ON	No voltage

If the circuit is not as specified, try replace the switch with a new one.

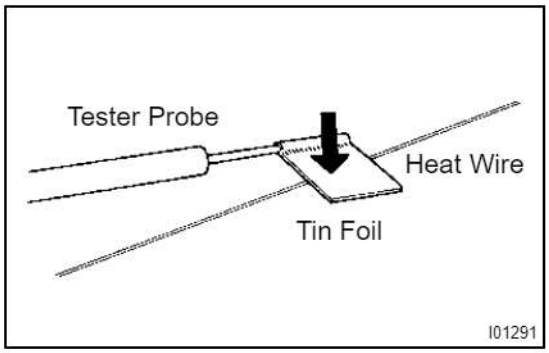
If the circuit is not as specified, inspect the circuit connected to other parts.



4. INSPECT 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.



5. INSPECT DEFOGGER WIRE

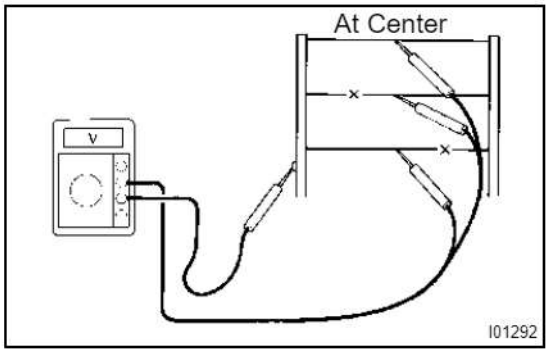
NOTICE:

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

(a) Turn the ignition switch ON.

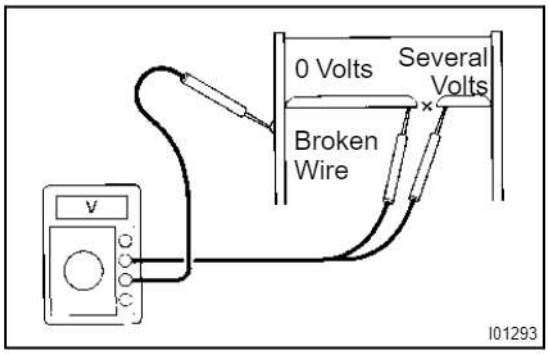
(b) Turn the defogger switch ON.

(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

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HINT:

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

(d) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.

(e) Place the voltmeter negative (–) lead with the foil strip against the heat wire at the positive (+) terminal end, and slide it toward the negative (–) terminal end.

(f) The point where the voltmeter deflects from zero to several V is the place where the heat wire is broken.

HINT:

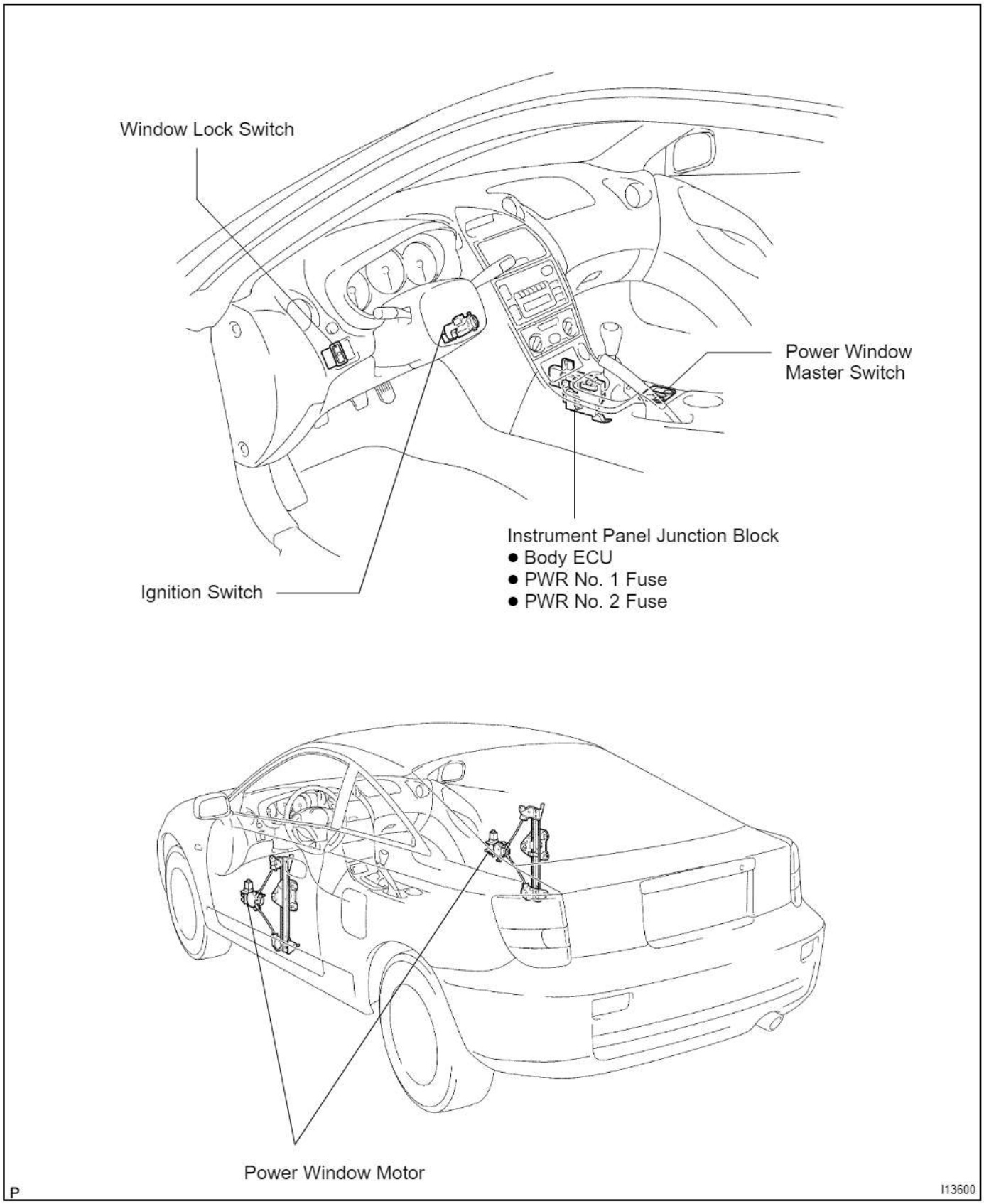
If the heat wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the heat wire but gradually increases to about 12 V as the meter probe is moved to the other end.

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POWER WINDOW CONTROL SYSTEM

LOCATION

BE0PF-12

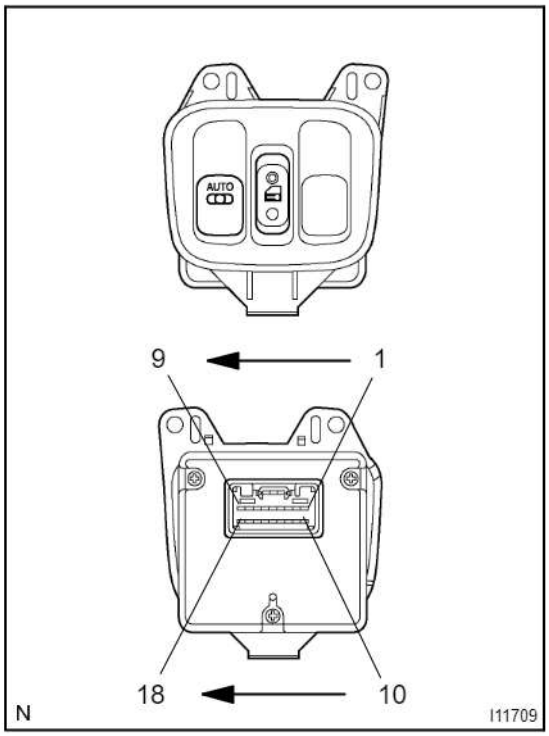


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BE1D6-03

INSPECTION

1. INSPECT POWER WINDOW MASTER SWITCH CONTINUITY



Driver's switch:

Switch position	Tester connection	Specified condition
UP	2 – 9, 17 – 18	Continuity
OFF	9 – 17, 17 – 18	Continuity
DOWN	2 – 18, 9 – 17	Continuity
DOWN AUTO	2 – 18, 9 – 17	Continuity

Passenger's switch (Window unlock):

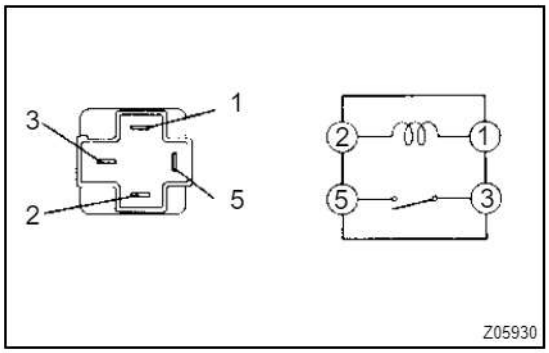
Switch position	Tester connection	Specified condition
UP	1 – 11, 10 – 17	Continuity
OFF	1 – 17, 10 – 17	Continuity
DOWN	10 – 11, 1 – 17	Continuity

Passenger's switch (Window lock):

Switch position	Tester connection	Specified condition
UP	1 – 11	Continuity
OFF	1 – 10	Continuity
DOWN	10 – 11	Continuity

If continuity is not as specified, replace the switch.

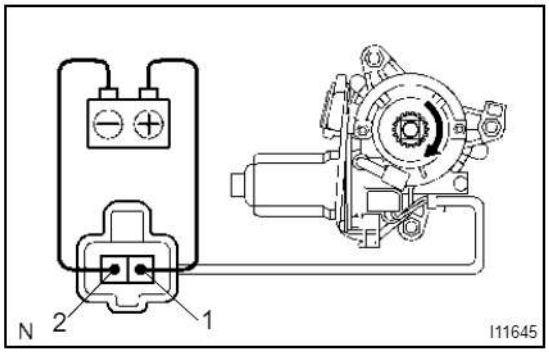
2. INSPECT POWER MAIN RELAY CONTINUITY



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

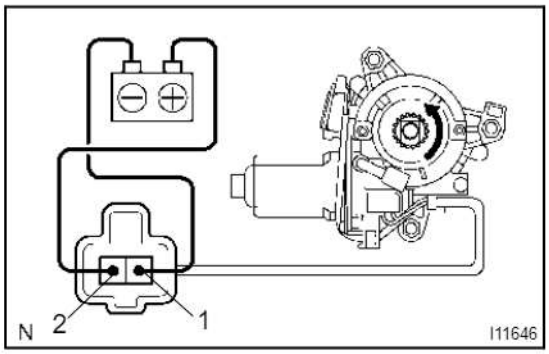
If continuity is not as specified, replace the relay.

3. Driver's door: INSPECT POWER WINDOW MOTOR OPERATION



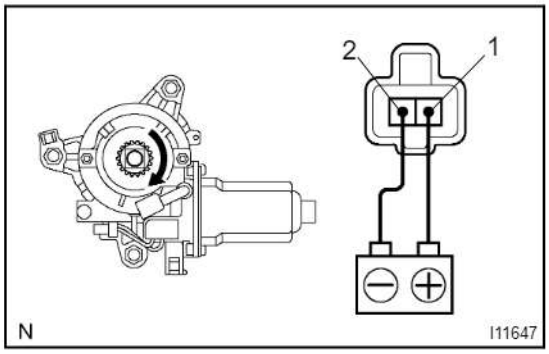
(a) Connect the battery positive (+) lead to terminal 1 and the battery negative (–) lead to terminal 2, then check that the motor turns clockwise.

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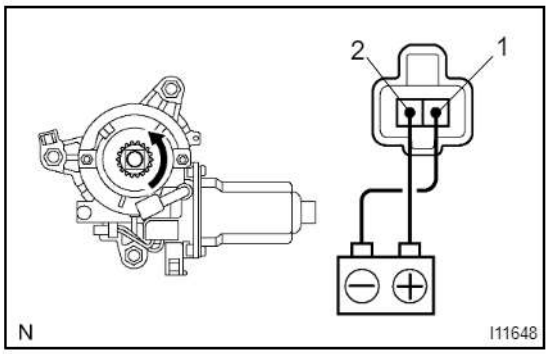
(b) Reverse the polarity, check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.



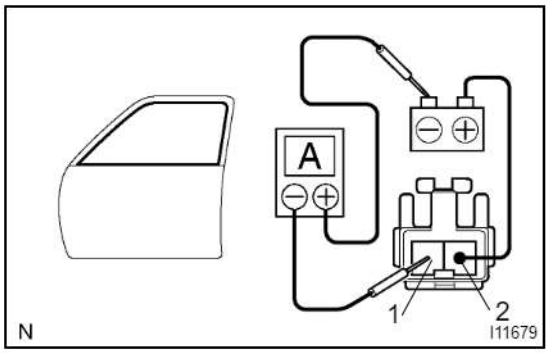
4. Passenger's door:
INSPECT POWER WINDOW MOTOR OPERATION

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



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

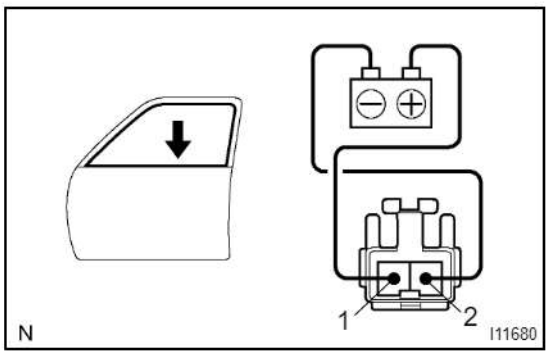
If operation is not as specified, replace the motor.



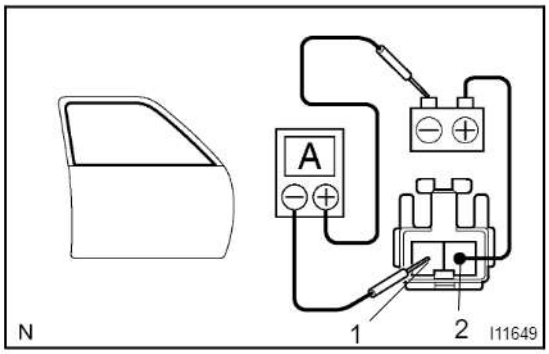
5. Driver's door:
INSPECT PTC OPERATION

(a) Disconnect the connector from the window motor.
(b) Connect the ammeter positive (+) lead to terminal 1 of the wire harness side connector and the negative (–) lead to ammeter negative terminal of the battery.
(c) Connect the battery positive (+) lead to terminal 2 of the wire harness side connector, and raise the window to the fully closed position.
(d) Continue to apply voltage, and check that the current changes from approximately 14 A to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from terminals.
(f) Approximately 90 seconds later, connect the battery positive (+) lead to terminal 1 and battery negative (–) lead to terminal 2, then check that the window begins to descend.

If operation is not as specified, replace the motor.

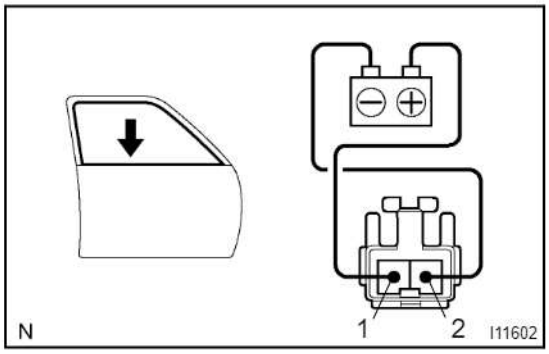


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6. Passenger's door:
INSPECT PTC OPERATION

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



(d) Continue to apply voltage, and check that the current changes from approximately 14 A to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from terminals.
(f) Approximately 90 seconds later, connect the battery positive (+) lead to terminal 1 and the battery negative (–) lead to terminal 2, then check that the window begins to descend.

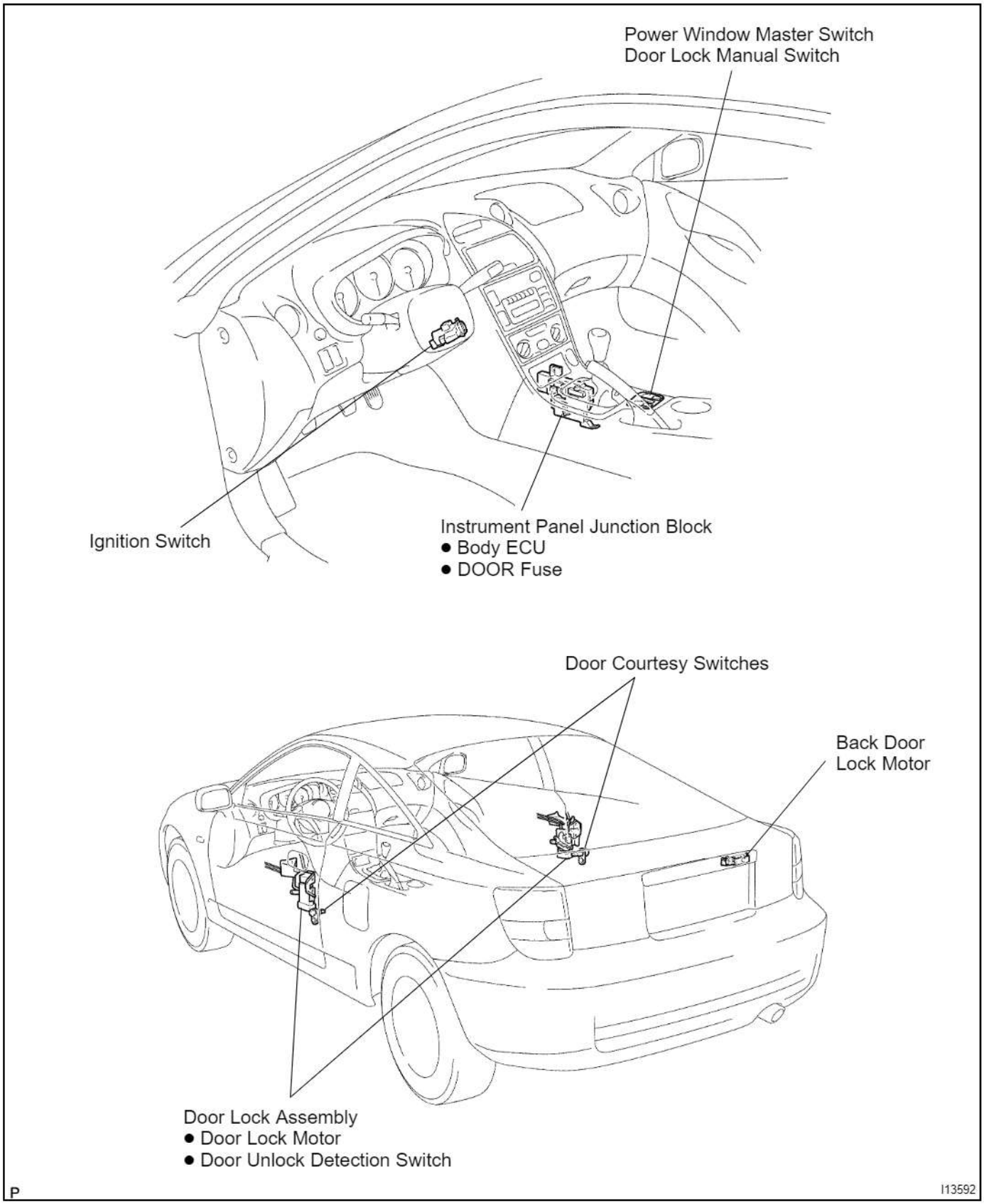
If operation is not as specified, replace the motor.

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POWER DOOR LOCK CONTROL SYSTEM

LOCATION

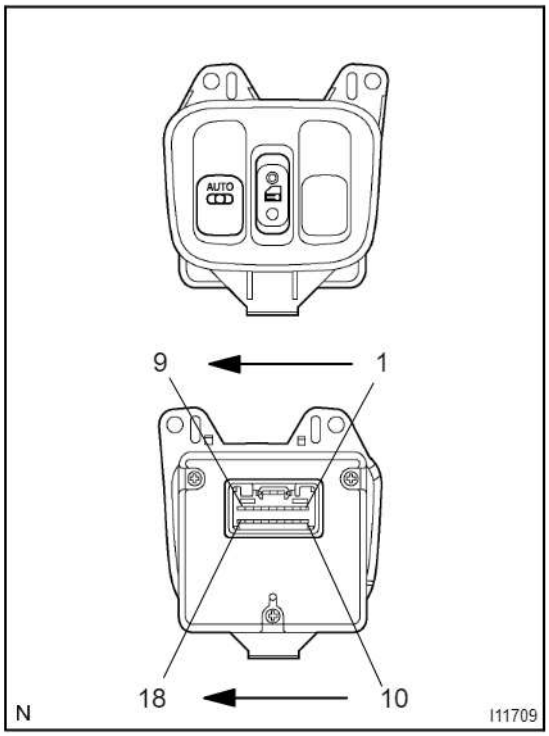
BE0PH-14



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BE1D7-03

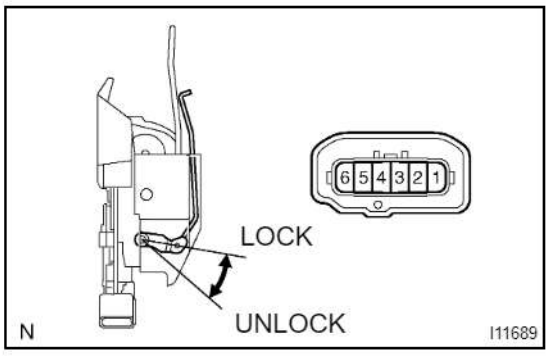
INSPECTION



1. Master switch:
INSPECT DRIVER'S DOOR LOCK CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	5 – 17	Continuity
OFF	–	No continuity
UNLOCK	6 – 17	Continuity

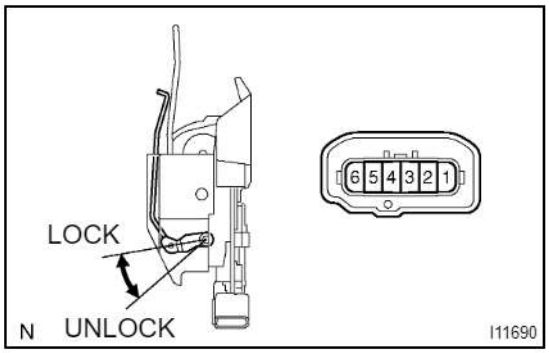
If continuity is not as specified, replace the switch.



2. 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

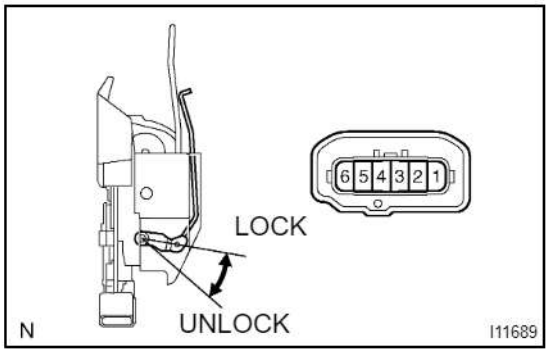
If continuity is not as specified, replace the switch.



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.

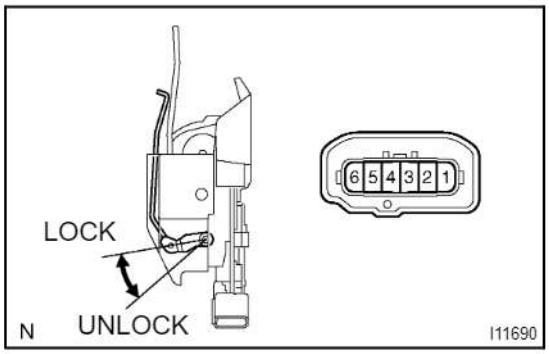


4. Driver's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

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.

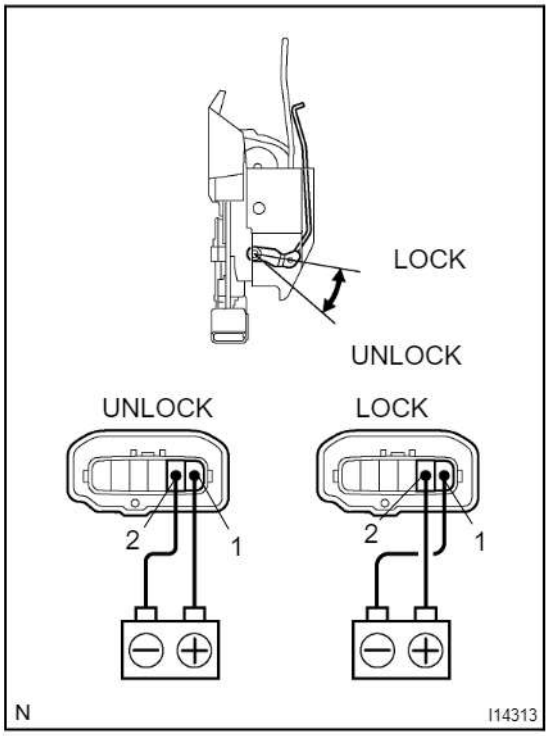
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5. Passenger's door:
INSPECT DOOR UNLOCK DETECTION SWITCH CONTINUITY

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.

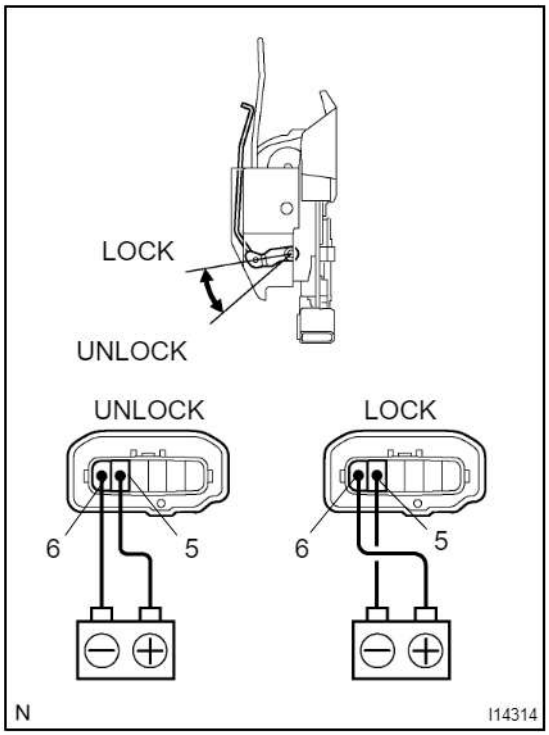


6. Driver's door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the battery positive (+) lead to terminal 1 and the battery 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.



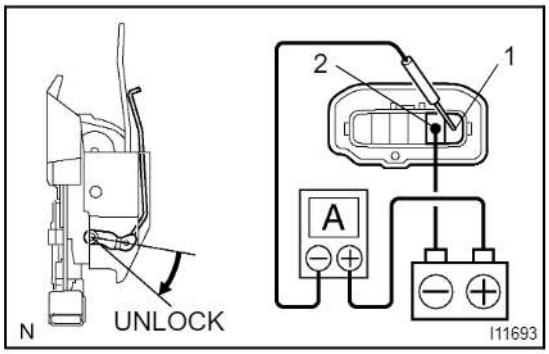
7. Passenger's door:
INSPECT DOOR LOCK MOTOR OPERATION

(a) Connect the battery positive (+) lead to terminal 5 and the battery 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.

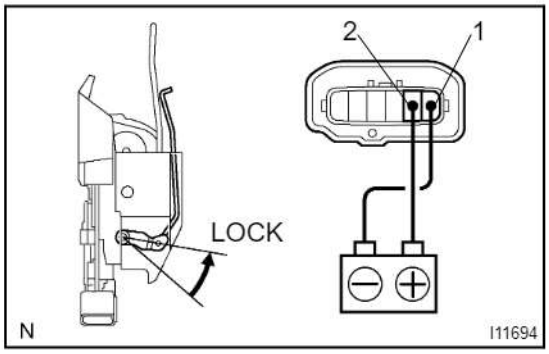
If operation is not as specified, replace the door lock assembly.

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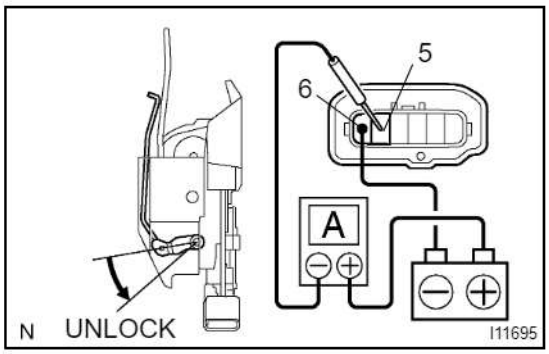
8. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

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



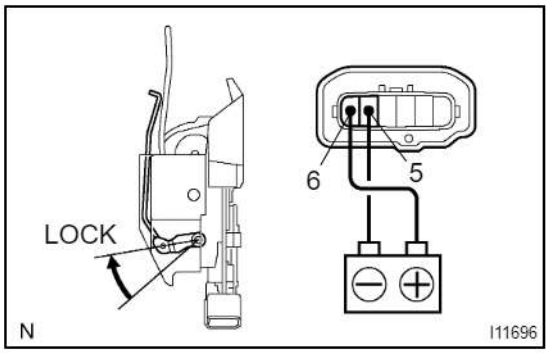
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the battery positive (+) lead to terminal 2 and the battery negative (–) lead to terminal 1, and check that the door lock moves to the LOCK position.

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



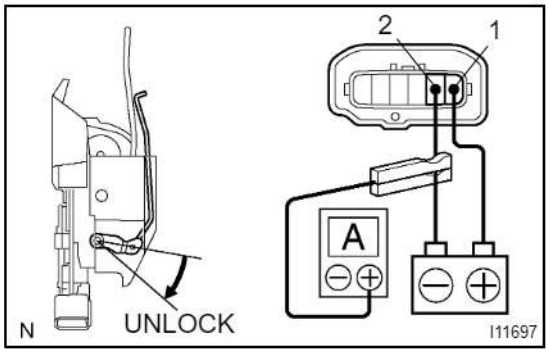
9. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

(a) Connect the battery negative (–) lead to terminal 6.
(b) Connect the ammeter positive (+) lead to terminal 5 and the ammeter negative (–) lead to the battery negative (–) 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 battery positive (+) lead to terminal 6 and the battery negative (–) lead to terminal 5, and check that the door lock moves to the LOCK position.

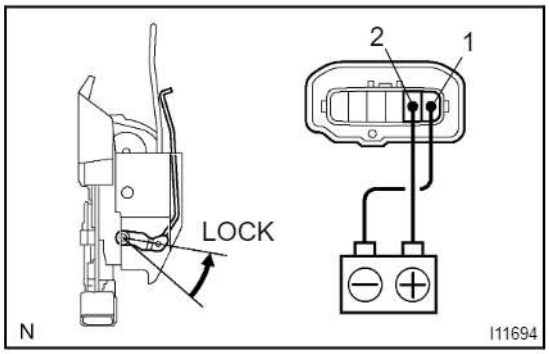
If operation is not as specified, replace the door lock assembly.



10. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

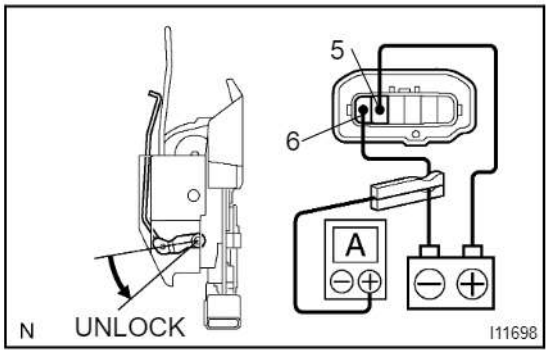
(a) Connect the battery positive (+) lead to terminal 1 and the battery negative (–) lead to terminal 2.
(b) Attach a current–measuring probe to either the positive (+) lead or the negative (–) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

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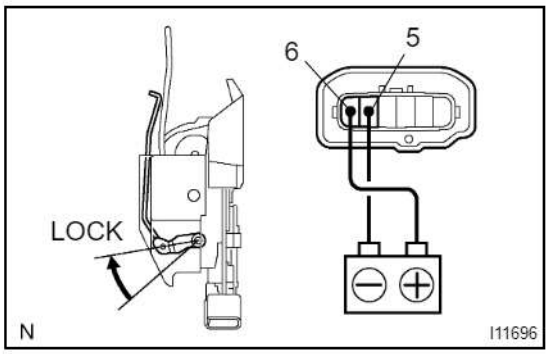
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.

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



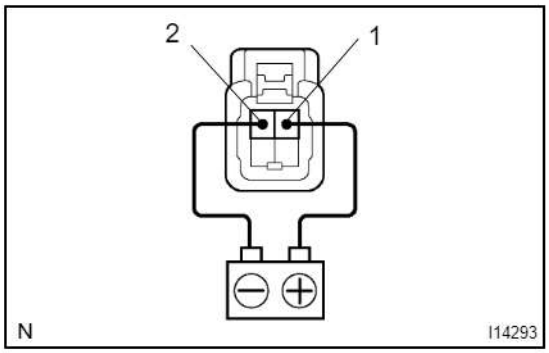
11. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

(a) Connect the battery positive (+) lead to terminal 5 and the battery 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.



12. INSPECT BACK DOOR LOCK MOTOR OPERATION

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

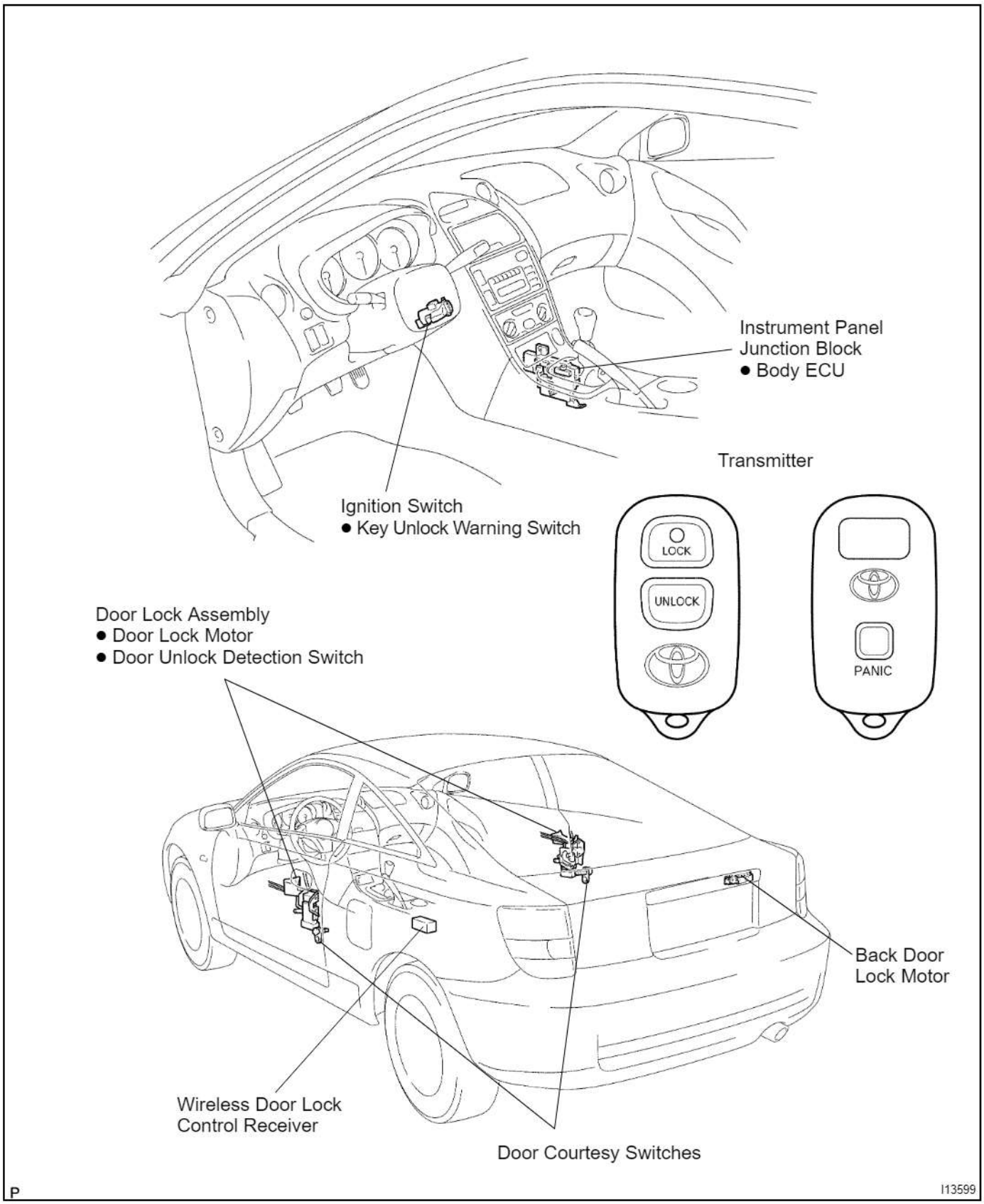
If operation is not as specified, replace the door lock assembly.

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WIRELESS DOOR LOCK CONTROL SYSTEM

LOCATION

BE1D6-05



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BE0IM–21

PRE–CHECK

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

Set the vehicle in the initialized condition:
The initialized condition is satisfied when the following conditions are met.
(1) The key plate is not 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, check the UNLOCK–LOCK operation as operating the UNLOCK and LOCK switch 3 times or more alternately, check the UNLOCK–LOCK operation from 3rd time onward.
● Follow the procedure below to perform the standard operation.
(1) Keep about 1 M away from the outside handle of a driver's seat in the right direction.
(2) Face the transmitter toward the vehicle and press one of transmitter switches for about 1 sec.

Yes

Normal
<Reference>
● Operative distance may differ depending on the operator, the way of holding the transmitter or its position.
● As the transmitter uses weak wave, its operating range becomes narrowed when the weak wave is interrupted by noise.

No

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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 when new normal battery is necessary.
● Battery quality can be judged by checking the remnant volume of the battery.

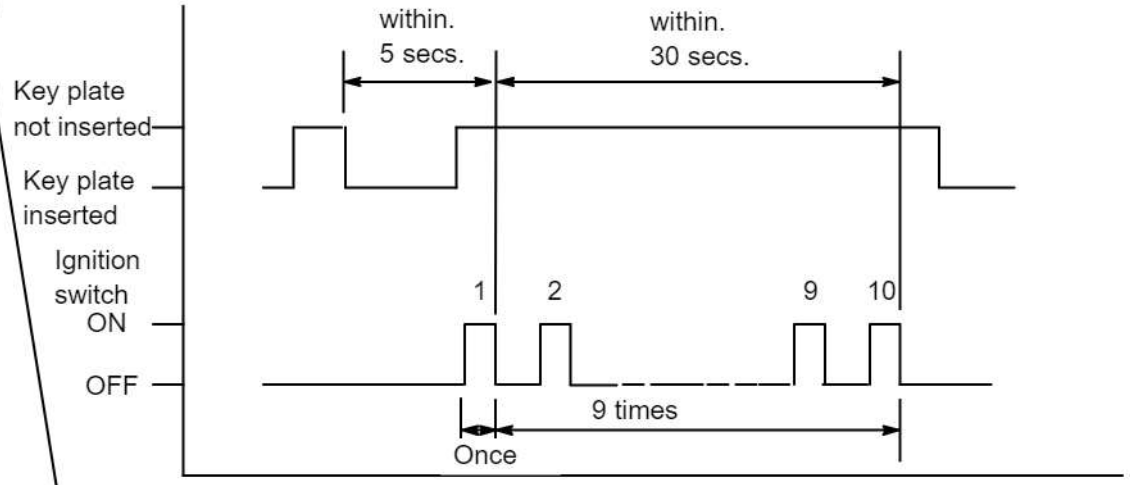
Yes → Battery faulty.

No

Set the vehicle in the initialized condition.

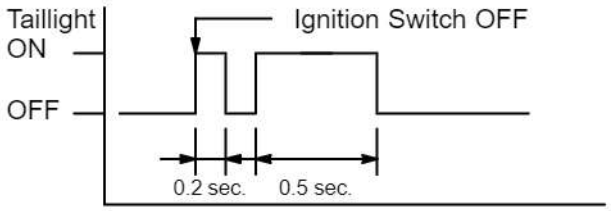
Inspection start by using self diagnostic mode:

Enter into the self diagnostic mode.
If operating door control receiver in the order of 1 to 2, the mode turns to diagnostic mode.
(1) Insert the key plate in the ignition key cylinder and then pull it out, then insert it again and turn the 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 of (1) and (2) conditions is not satisfied, transfer to normal mode.
<Reference>
When completing self diagnostic mode, turn the ignition switch ON.
LOCK and UNLOCK operation cannot be performed under the self diagnostic mode.



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Diagnostic mode operation confirmation:
Check the taillight comes on soon after the input operation of self diagnostic mode.



No → Is the method to input the diagnostic mode correct?

(Not enter in diagnostic mode)

No → Yes

Is the function of operation confirmation taillight normal?

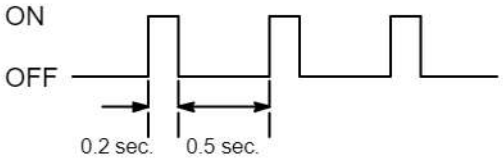
No → Taillight faulty.

Yes

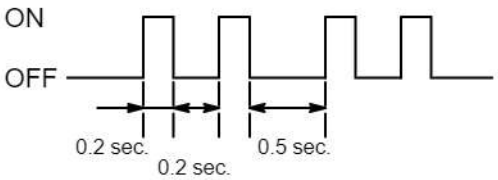
Yes

Confirmation of diagnostic mode:
Check the taillight comes on when pressing on each switch of the transmitter.

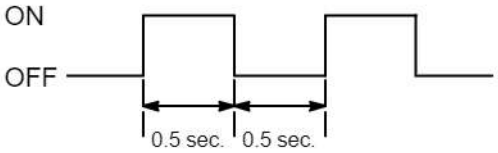
(1) Received normal wave of LOCK switch.



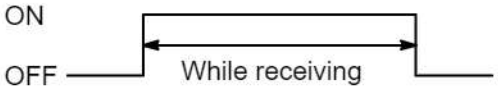
(2) Received normal wave of UNLOCK switch.



(3) Received normal wave of PANIC switch.



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

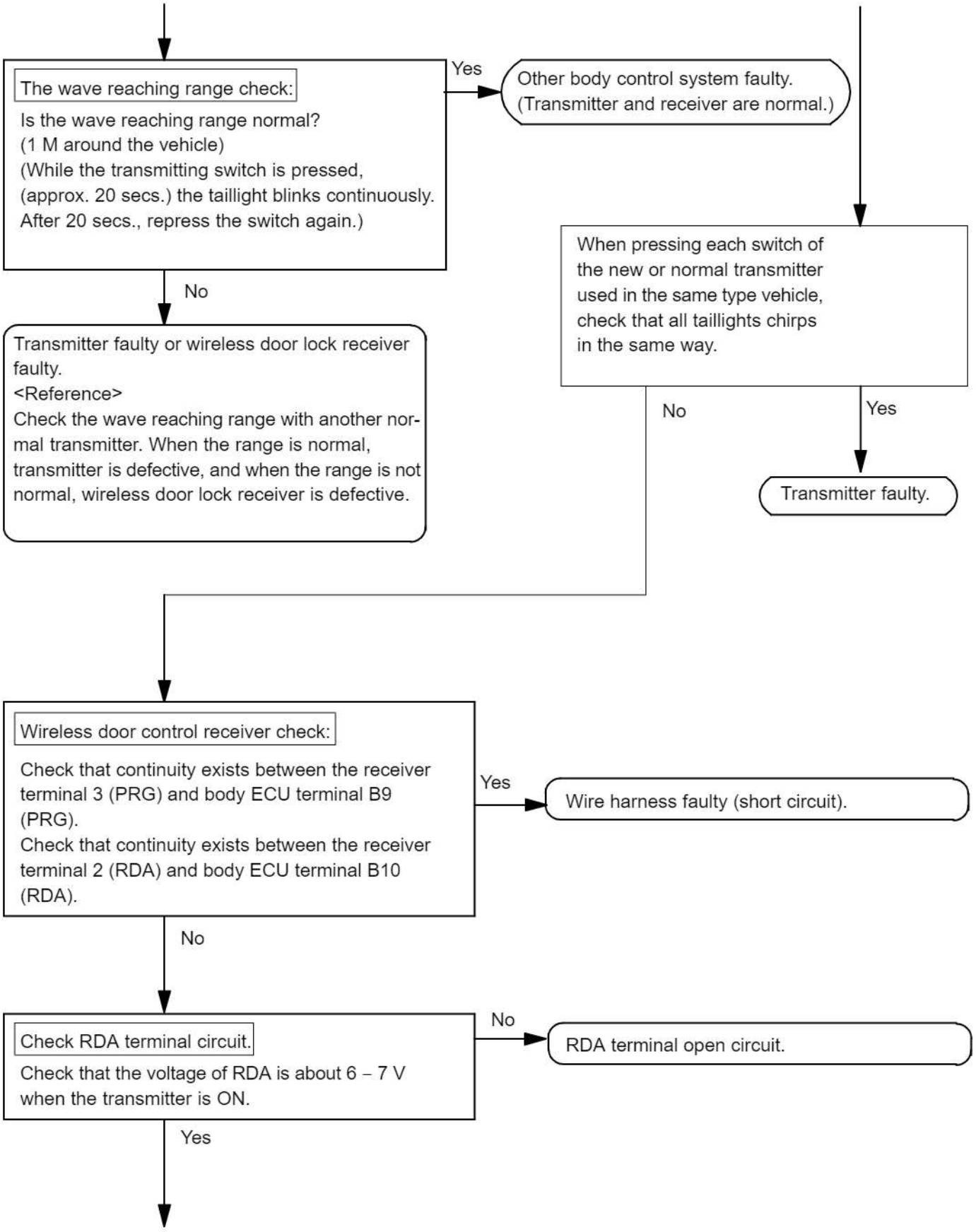


No response → Transmitter faulty or wireless door lock receiver faulty.
<Reference>
● Use another (normal) transmitter and check with the diagnostic mode, and if the check result shows the transmitter faulty, the wireless door lock receiver can be judged normal.

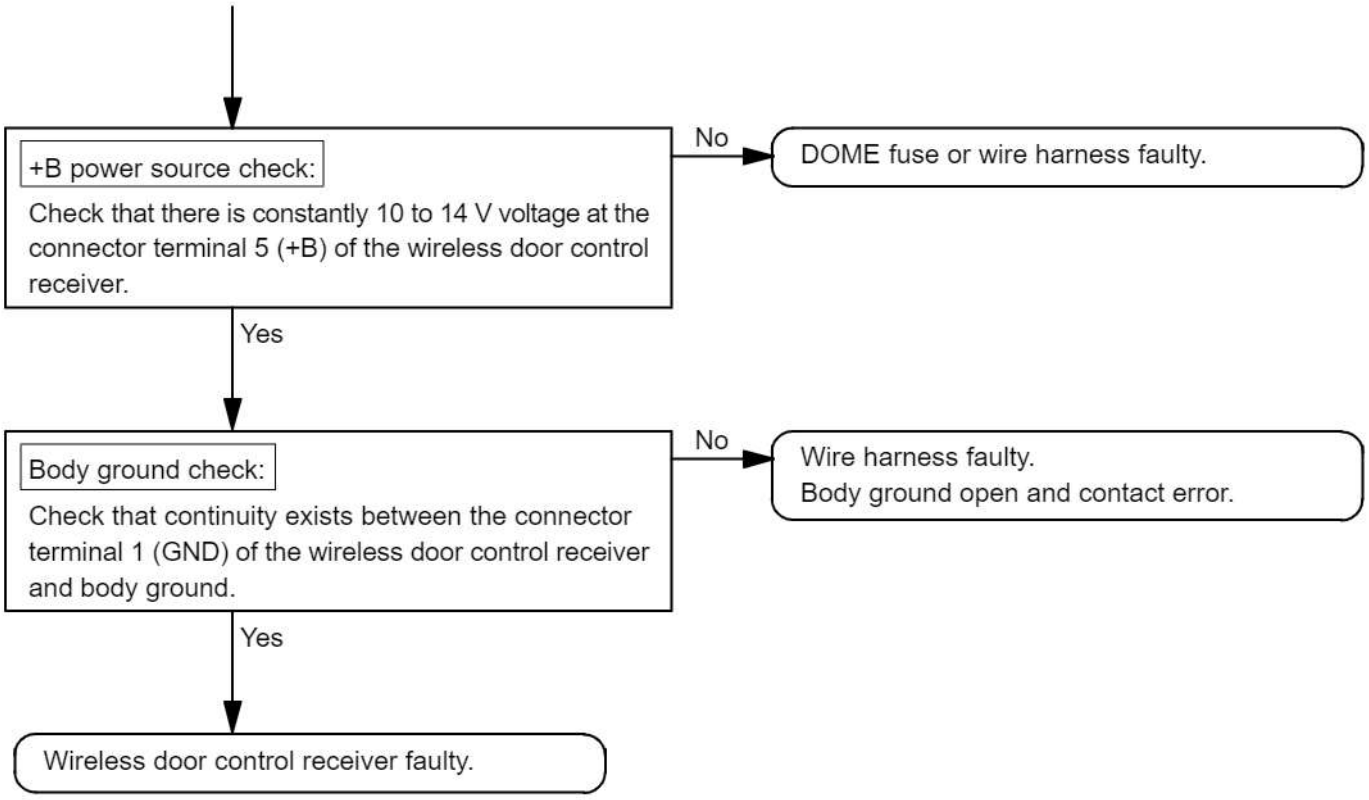
In the case of taillight outputs from (1) – (3)

In the case of taillight outputs of (4)

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BE0OJ–15

INSPECTION

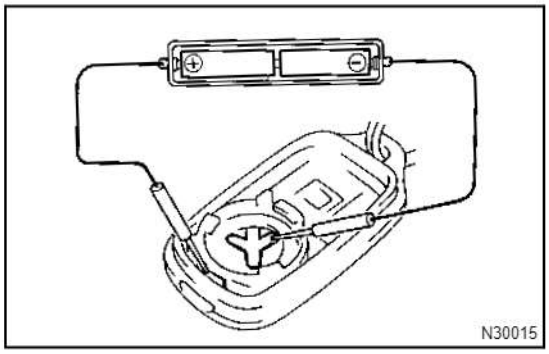
1. INSPECT WIRELESS DOOR LOCK TRANSMITTER OPERATION

HINT:

Refer to "Wireless door lock control receiver and transmitter replacement" on page BE–79.

(a) Using a screwdriver, remove the screw and the 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, and 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 approx. 1 M away from driver's outside handle in the right direction, check the transmitter operation as pressing transmission switch on the surface of the transmitter body.

Standard:

Remote control of the vehicle door lock can be operated.

HINT:

- The minimum operation distance differs depending on the operator, the way of holding the transmitter, and location.
- As the transmitter uses weak wave, its operating range becomes narrowed when the weak wave is interrupted by noise.

(e) Install the battery (lithium battery).

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

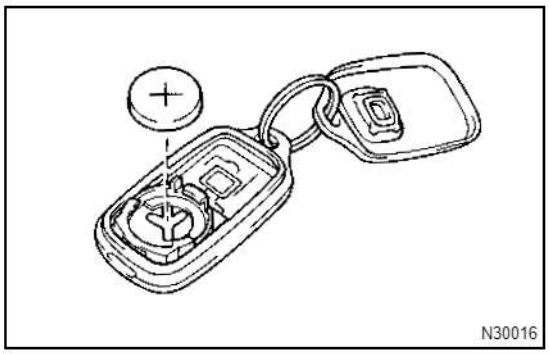
(g) Using a screwdriver, tighten the screw.

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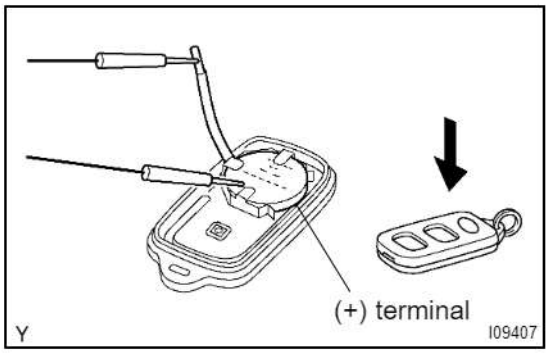
2. CHECK BATTERY CAPACITY

HINT:

- Make sure to use the TOYOTA electrical tester.
- Without loading the battery, 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 screw and the 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.



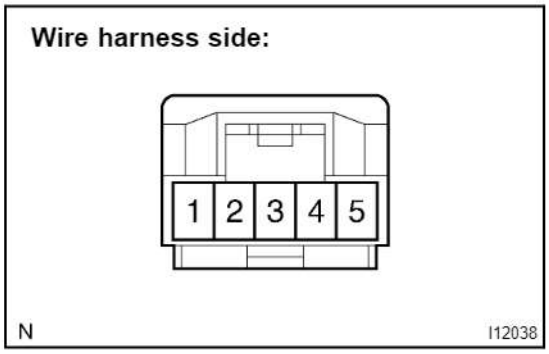
(d) Connect (+) tester to the (+) battery (lithium battery), and (–) tester to the lead respectively.
(e) Press one of the transmitting switches on the transmitter for approx. 1 second.
(f) Press the transmitting switch on the transmitter again to check the voltage.
Standard: 2.1 V or more

HINT:

- When the temperature of the battery is low, the judgement 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 the auto power off function, the voltage becomes no load voltage (more than 2.5 V) condition after 20 seconds from the switch was pressed.
  Make sure to read the voltage beforehand.
- High voltage might be shown 1 to 2 times after leaving the battery, and the judgement should be made with the voltage shown at the 3rd time or later.

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(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 screw.

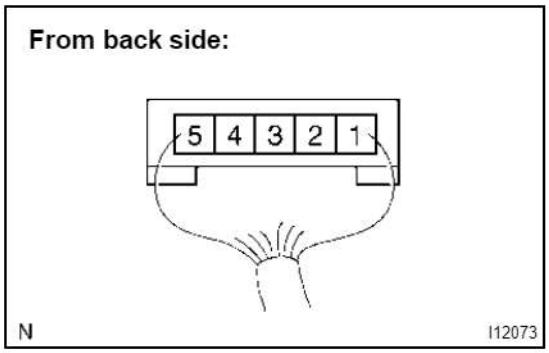


3. INSPECT WIRELESS DOOR LOCK CONTROL RECEIVER CIRCUIT

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

Tester connection	Condition	Specified condition
1 – Ground	Always	Continuity
5 – Ground	Always	Battery voltage

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



(b) Connect the wire harness side connector to the receiver and inspect the wire harness side connector from the back side as shown below.

Tester connection	Condition	Specified condition
3 – Ground	Normal mode	10 – 14 V
2 – Ground	Ignition switch position OFF Key removed Transmitter ON	About 6 – 7 V

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

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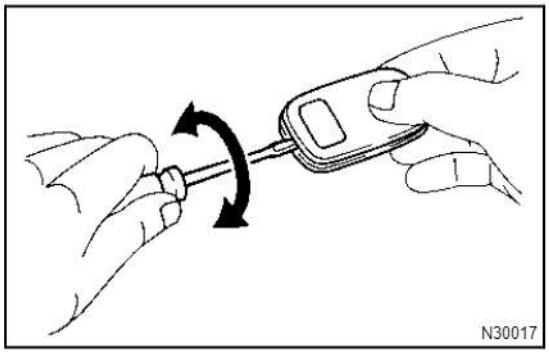
BE1D9–04

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 cover.

NOTICE:

Do not pry out the cover forcibly.

HINT:

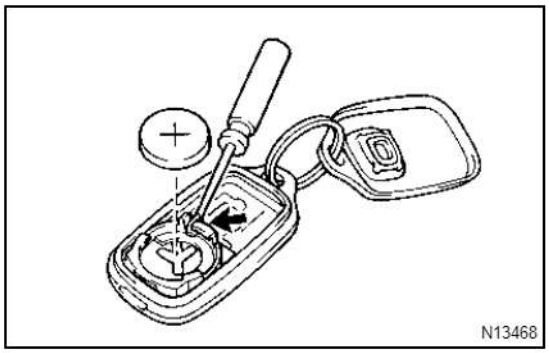
Push the cover with fingers as shown in the illustration, to make a chink, and then pry out the cover from that chink using a screwdriver.

(b) Remove the transmitter.

(c) Remove the battery (lithium battery).

NOTICE:

- **Do not push the terminals with fingers.**
- **If prying up the battery (lithium battery) forcibly to remove, the terminals are deformed.**



(d) Install a battery (lithium battery) as shown in the illustration.

NOTICE:

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

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

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2. REPLACE DOOR CONTROL RECEIVER AND TRANSMITTER

NOTICE:

When replacing the door control receiver and the transmitter, registration of the recognition code is necessary because they are provided as a 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 recognition codes. This mode is used when adding a transmitter. However, if the number of registered codes exceeds 4 codes, previously registered codes are 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 recognition codes are already registered before you register additional recognition codes.

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

HINT:
- When procedure is out of the specified, the operation returns to normal operation.
- Maximum of 4 recognition codes can be registered.

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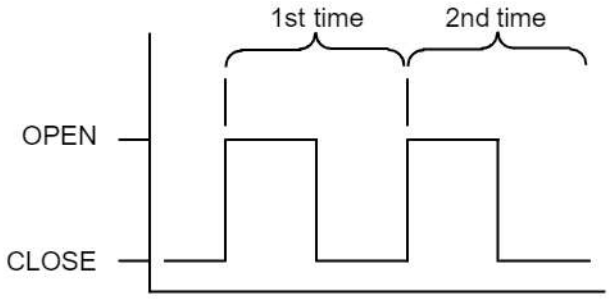
Start registration of recognition code

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. (Repeat this twice within 5 seconds)

Within 40 secs.

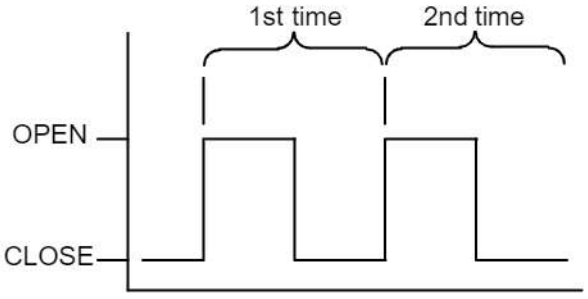
Open and close the door (manual operation) 2 times.



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

Within 40 secs.

Again open and close the door (manual operation) 2 times.



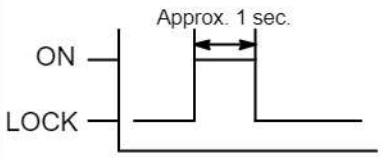
Close the all door and insert the key into the ignition key cylinder.

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

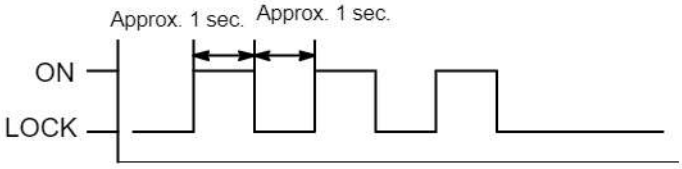
Add mode

ON – LOCK change occurs 1 time



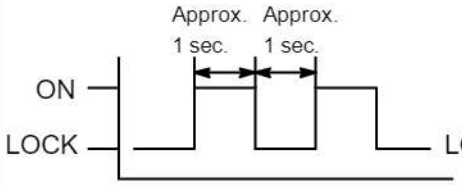
Confirmation mode

ON – LOCK change occurs 3 times



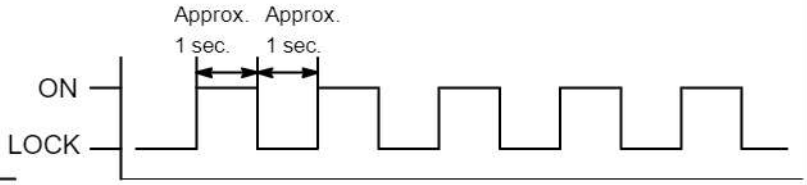
Rewrite mode

ON – LOCK change occurs 2 times



Prohibition mode

ON – LOCK change occurs 5 times



Pull out the key from the ignition key cylinder.

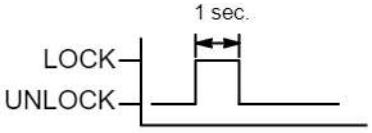
Within 3 secs.

When add mode or rewrite mode is selected.

Door control relay 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.

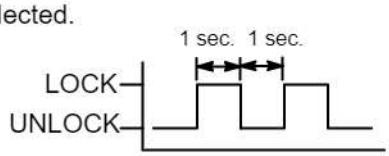
LOCK–UNLOCK occurs once

Indicates that add mode has been selected.



LOCK–UNLOCK occurs twice

Indicates that rewrite mode has been selected.

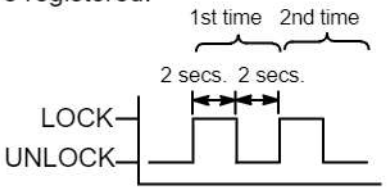


When prohibition mode is selected.

When confirmation mode is selected.

Door control relay 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 indicates that 2 types of recognition codes are registered.



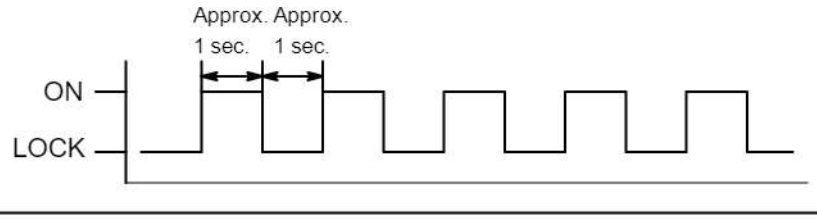
Registration of recognition code (Confirmation mode and prohibition mode) is completed.

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When prohibition mode is selected.

Within 40 secs.

Door control relay performs LOCK–UNLOCK operation 5 times at a 1 sec. interval to inform the operator that prohibition mode has been selected.



Press the lock and unlock switches on the transmitter switch simultaneously for less than 1.5 sec.

Within 3 secs.

Press either one of 2 switches on the transmitter.

Within 3 secs.

Door control relay 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.
- When selecting add mode, an already registered recognition code was received.

If LOCK–UNLOCK operation cannot 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 door control relay response.
- The driver's door is opened.
- 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.

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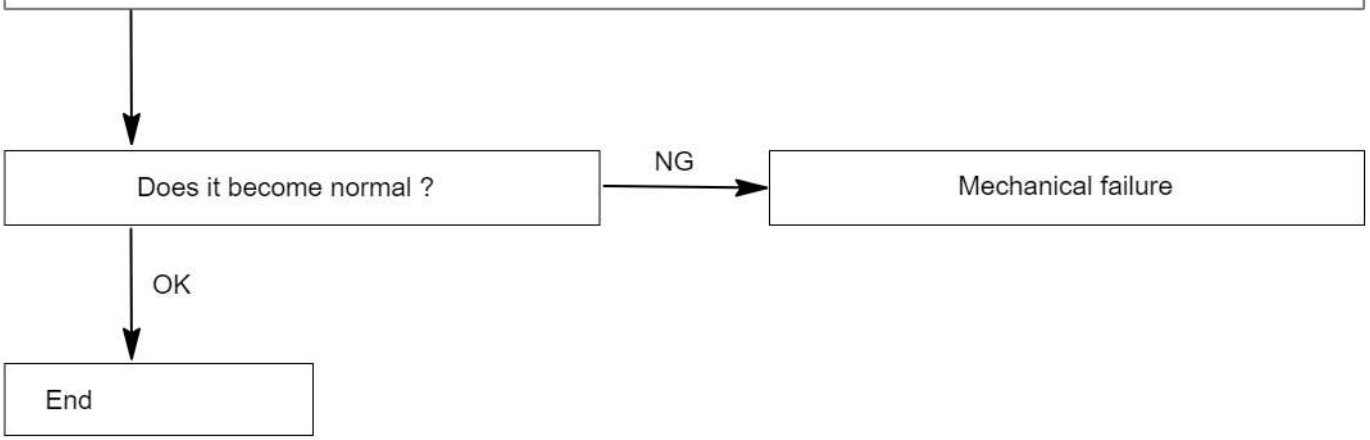
SLIDING ROOF SYSTEM

TROUBLESHOOTING

BE0O9-10

Sliding roof cannot be closed and reverses in error for some reason.

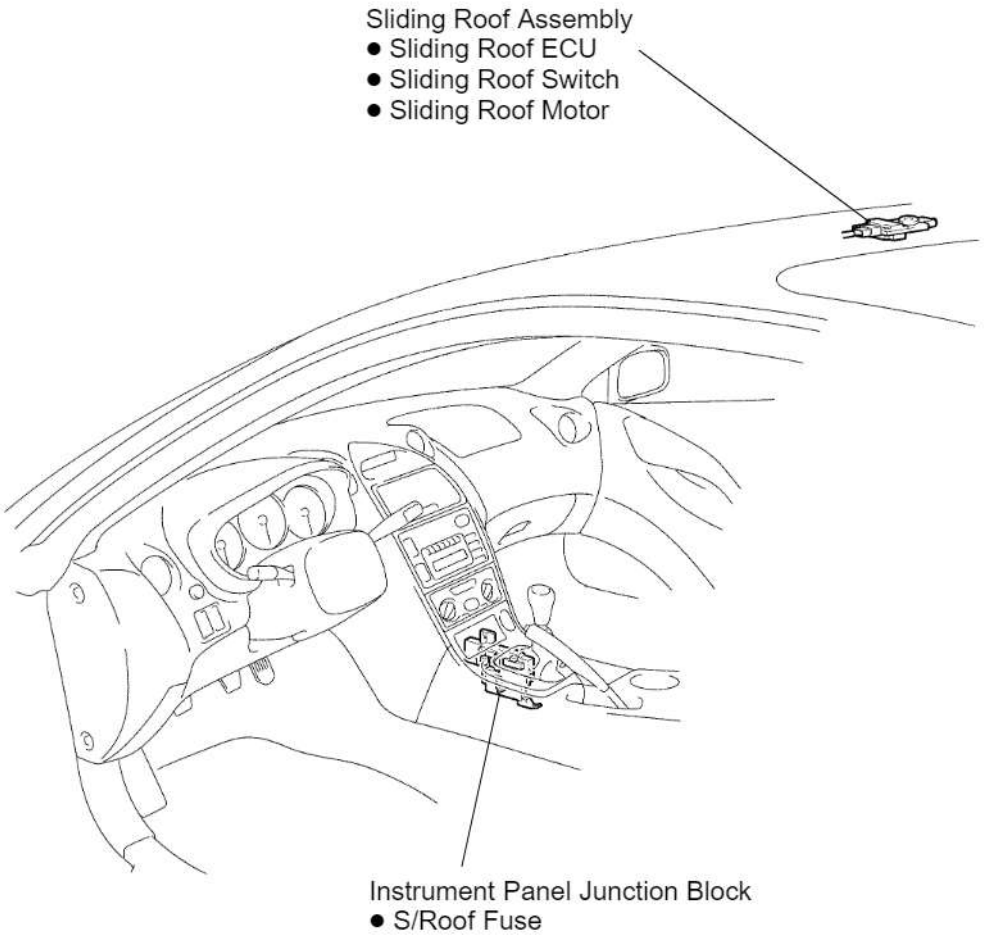
1. Operate the corresponding switch continuously for 10 sec, or more from the starting point of the reverse motion.
2. This shifts it to the manual operation in which the jam protection system is prohibited. (with the ignition ON)
3. In the manual operation, close the sliding roof completely and stop the motion.
4. The fully closed position will be detected by ECU.(Initialization)



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BE0PJ–05

LOCATION



P

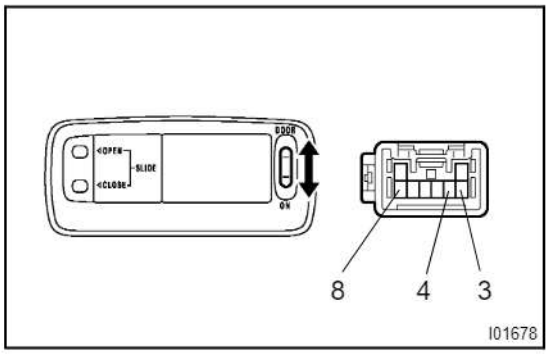
I13593

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BE1DA–05

INSPECTION

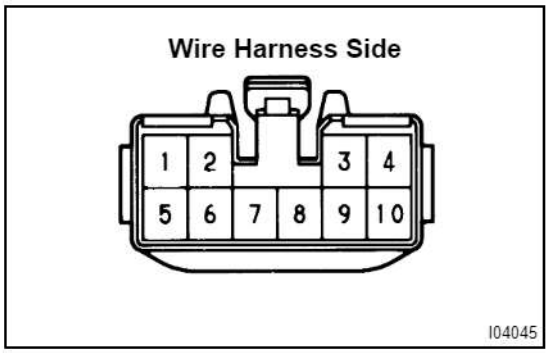
1. INSPECT SLIDING ROOF SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OPEN	3 – 8	Continuity
OFF	–	No continuity
CLOSE	4 – 8	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT SLIDING ROOF CONTROL ASSEMBLY CIRCUIT



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

Tester connection	Condition	Specified condition
1 – Ground	Constant	Continuity
2 – Ground	Ignition switch LOCK or ACC	No voltage*
2 – Ground	Ignition switch ON	Battery positive voltage
5 – Ground	Constant	Battery positive voltage
7 – Ground	Constant	Continuity
6 – Ground	Constant	No continuity
8 – Ground	Ignition switch LOCK or ACC	No voltage
8 – Ground	Ignition switch ON	Battery positive voltage
9 – Ground	Sliding roof control switch CLOSE/DOWN	No continuity
9 – Ground	Sliding roof control switch OPEN/UP	Continuity
10 – Ground	Sliding roof control switch OPEN/UP	No continuity
10 – Ground	Sliding roof control switch CLOSE/DOWN	Continuity

*: Exceptions: Within 43 seconds after the ignition switch ON → OFF (ACC) or until driver or passenger door is opened after the ignition switch ON → OFF (ACC).

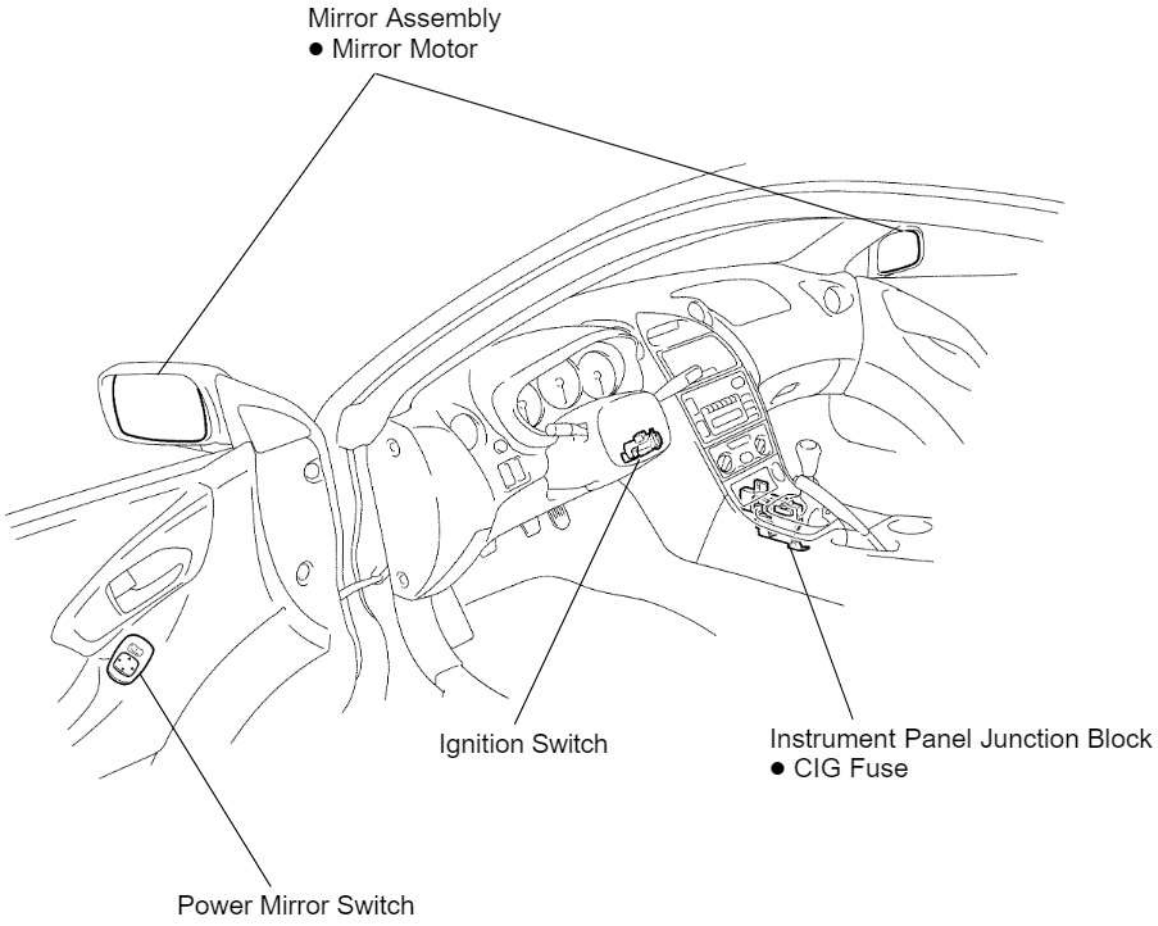
If the circuit is not as specified, replace the assembly.

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POWER MIRROR CONTROL SYSTEM

LOCATION

BE0PL-14



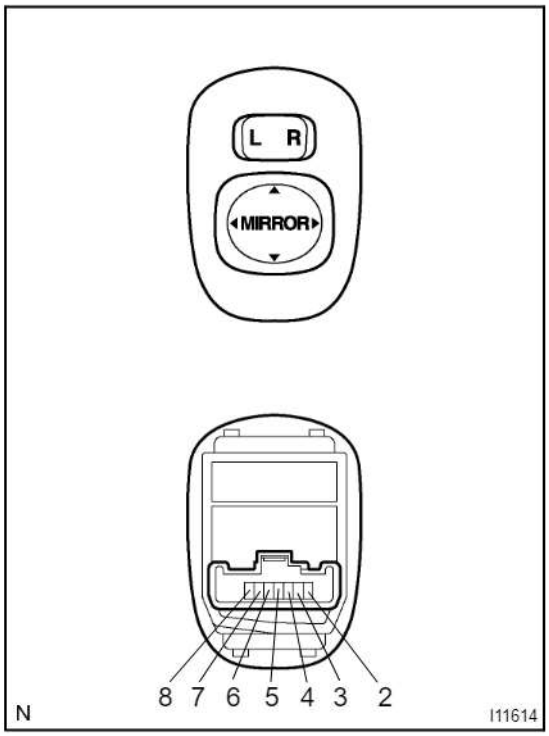
P

I13598

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BE1DB-13

INSPECTION



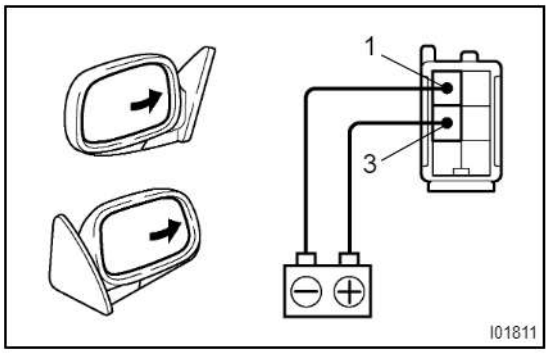
1. INSPECT LEFT SIDE MIRROR SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	4 – 8 6 – 7	Continuity
DOWN	4 – 7 6 – 8	Continuity
LEFT	5 – 8 6 – 7	Continuity
RIGHT	5 – 7 6 – 8	Continuity

2. INSPECT RIGHT SIDE MIRROR SWITCH CONTINUITY

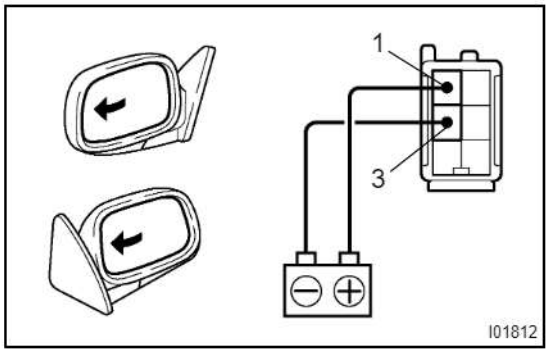
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	3 – 8 6 – 7	Continuity
DOWN	3 – 7 6 – 8	Continuity
LEFT	2 – 8 6 – 7	Continuity
RIGHT	2 – 7 6 – 8	Continuity

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



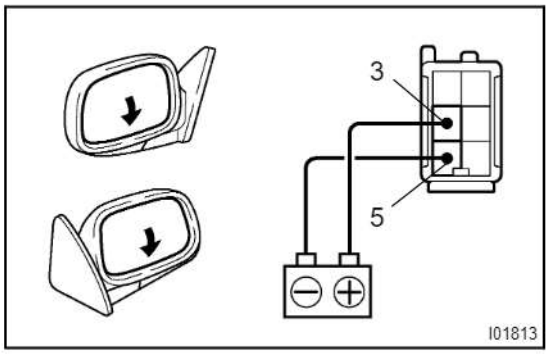
3. INSPECT MIRROR MOTOR OPERATION

(a) Connect the battery positive (+) lead from the battery to terminal 3 and the battery negative (–) lead to terminal 1, and check that the mirror turns right side.

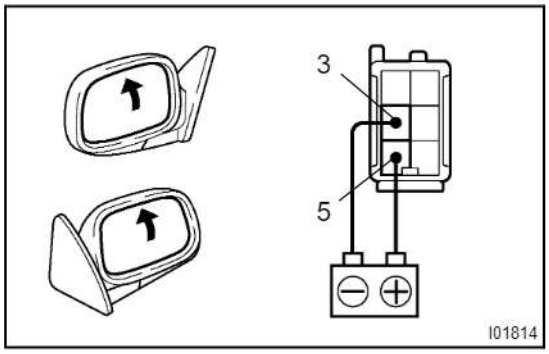


(b) Reverse the polarity, and check that the mirror turns left side.

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(c) Connect the battery positive (+) lead to terminal 3 and the battery negative (–) lead to terminal 5, and check that the mirror turns downward.



(d) Reverse the polarity, and check that the mirror turns to the upward.

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

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AUDIO SYSTEM

DESCRIPTION

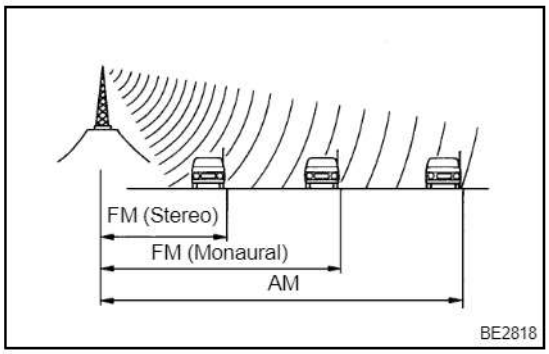
BE2FE-03

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

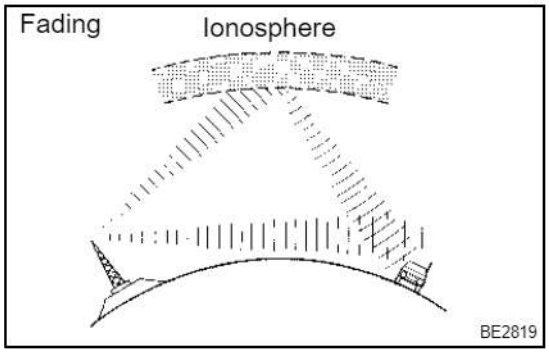


2. SERVICE AREA

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

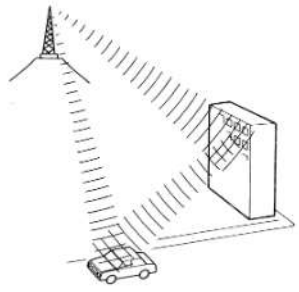
Besides the problem of static, there are also the problems called ”fading”, ”multipath” and ”fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.



- 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”.

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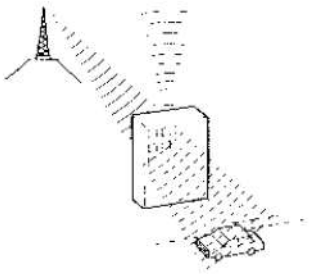
Multipath



BE2820

- 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



BE2821

- Fade Out
  Because FM radio waves are 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. 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.

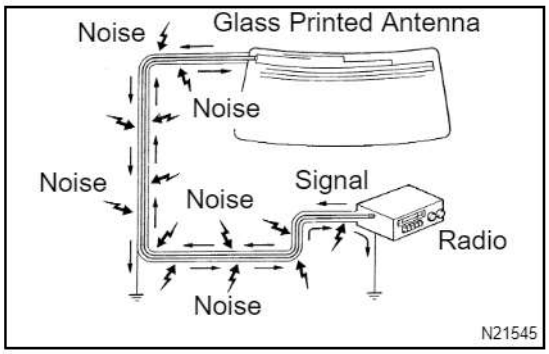
AM	Noise occurs at a specific place.	Strong possibility of foreign noise.
	Noise occurs when listening to faint broadcasting.	There is a case that the same program is broadcasted from different local stations, and you are listening to different station even if the program is the same.
	Noise occurs only at night.	Strong possibility of the beat from a distant broadcasting.
FM	Noise occurs at a specific place while driving.	Strong possibility of multipath noise and fading noise caused by the changes of FM waves.

HINT:
If the condition when the noise occurs does not meet any of the above, find out the cause based on "Reception Problems". Refer to the description about Multipath and Fading mentioned previously.

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(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 which prevent 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 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 transmitted through the core wire of the coaxial cable. Any noise wave other than radio wave is mixed into this core wire, that 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 and thus preventing noise from mixing in. If this shield wire has grounding failure, that causes noise.

5. COMPACT DISC PLAYER

Compact Disc Players use a laser beam pick–up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc.

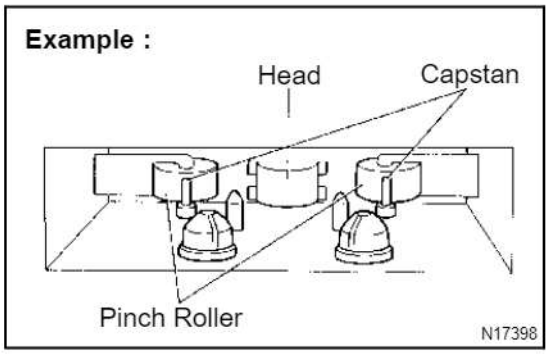
HINT:

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:

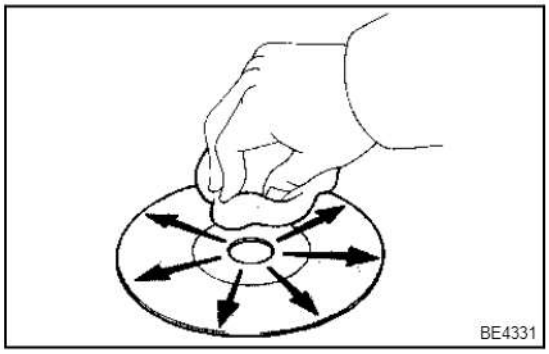
CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.

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6. Tape Player/Head Cleaning:
MAINTENANCE

(a) Raise the cassette door with your finger.
(b) Using a pencil or similar object, push in the guide.
(c) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, the pinch rollers and the capstans.



7. CD Player/Disc Cleaning:
MAINTENANCE

If disc gets dirty, clean the disc by wiping the surface from the center to outside radially with a soft cloth.

NOTICE:

Do not use a conventional record cleaner or anti–static preservative.

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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 an 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 failure. This problem is resolved by standardization of signals.

(2) Various types of after market products can be add or replace freely.

(3) Because of the above (2), each manufacture has been concentrated on developing products in their strongest field. That enable manufactures to provide many types of products inexpensively.

(4) Generally, a new product developed by a manufacture could not be used with other manufactures products due to a lack of compatibility. 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, and thus it is very effective for 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.

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9. DIAGNOSIS FUNCTION

(a) Diagnosis start–up

For shifting to diagnosis mode, turn the ignition switch ON and push the "DISC" switch 3 times while pressing "ch1" and "ch6" switches.

HINT:

To exit the diagnosis mode, push the "DISC" switch for 1.7 sec. or turn the ignition switch to ACC or OFF.

(b) Element check mode

After the diagnosis start–up, the system enters the element check mode. Check that the all elements come on.

HINT:

By pressing the "SEEK UP" switch, the system enters the "Service Check Mode".

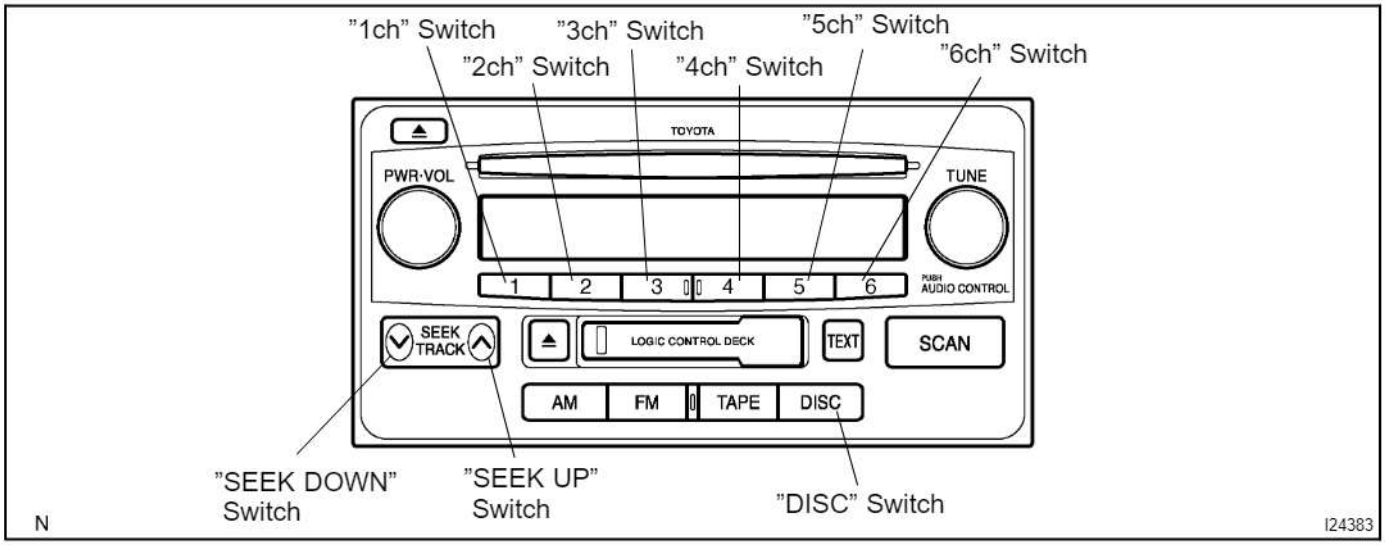
(c) Switch check mode

(1) Element check mode is started at the same time with the switch check mode.

(2) Check that there is a beep sound when any switch is pressed.

HINT:

By pressing "SEEK UP" switch, the system enters the "Service Check Mode".



(d) Service check mode

(1) After the element check and switch check is completed, the system enters service check mode when "SEEK UP" switch is pressed.

(2) Error codes over the tuner and connected equipments are displayed on the screen of the tuner. Results for each check are displayed as follows:

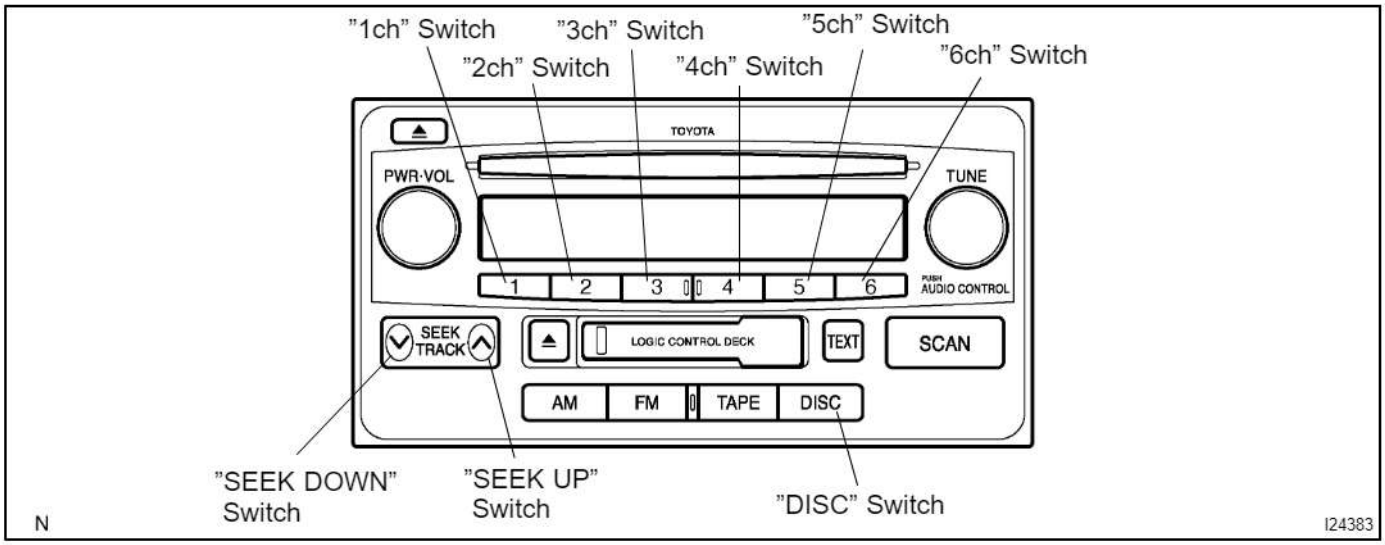
- good:
  No DTC is detected for both "System Check Confirmation" and "Diagnosis Memory Response".
- nCon:
  The component does not respond to the "Diagnosis On Instruction" command.
  Applicable only to AVC – LAN.
- ECHn:
  Application of new version is confirmed by the "Diagnosis On Check", and there is one or more DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response".
- CHEC:
  Application of new version is confirmed by the "Diagnosis On Check", and there is no DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response", but one or more DTC which indicates "Check" is identified.

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- Old:
  Application of old version is confirmed by the ”Diagnosis On Check”, and DTC is identified in the ”System Check Result Response” or ”Diagnosis Memory Response”.
- nrES:
  No response is identified in the ”System Check Start Instruction” and ”Request for System Check Result” commands.

HINT:

- Check the present and past condition of components by performing the System Check and collecting stored DTC memories.
- Check results are displayed as one of the following six indications: ”good”, ”ECHn”, ”CHEC”,”nCon”, ”Old” or ”nrES”.

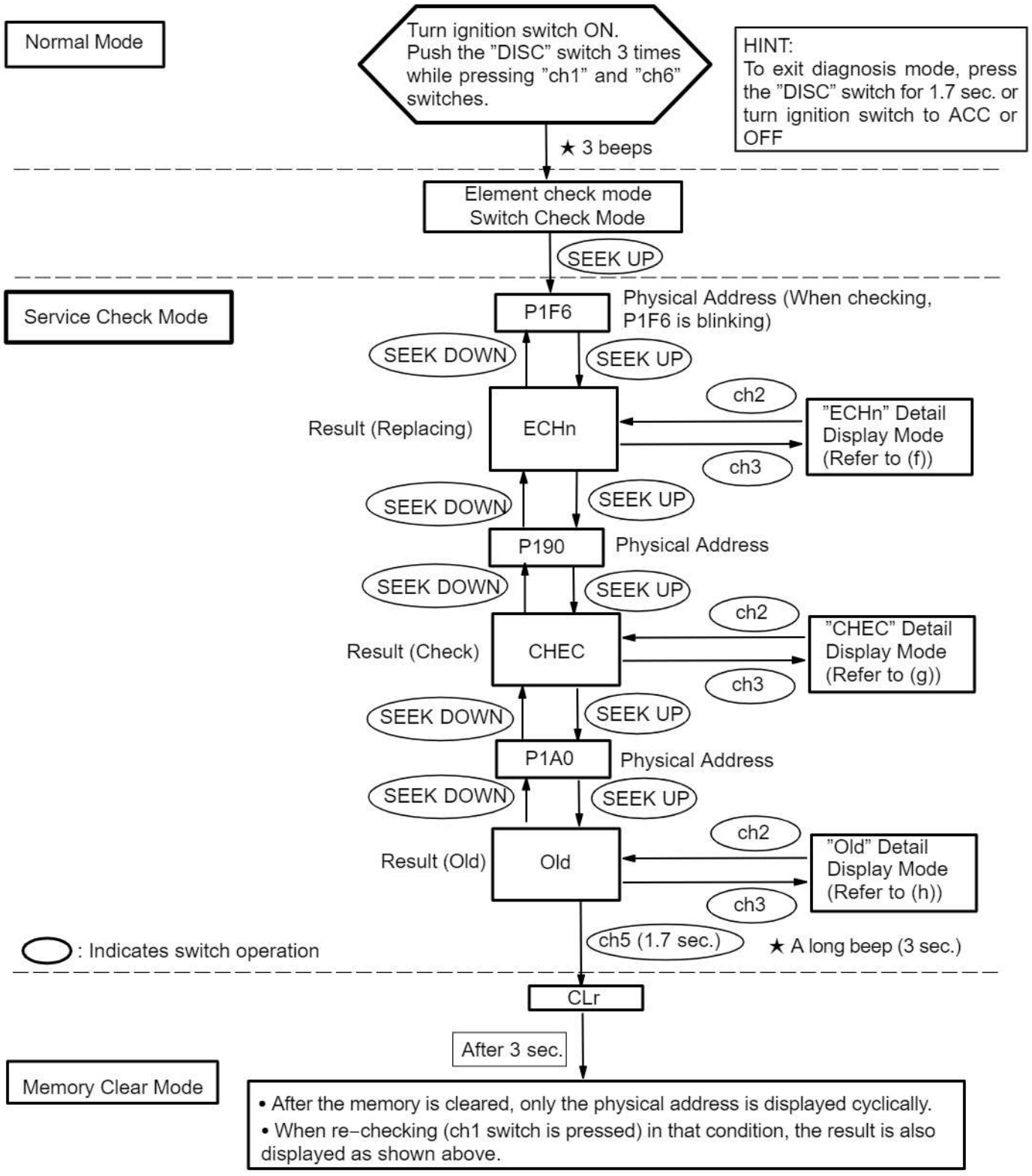


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(e) Display Screen for Service Check.

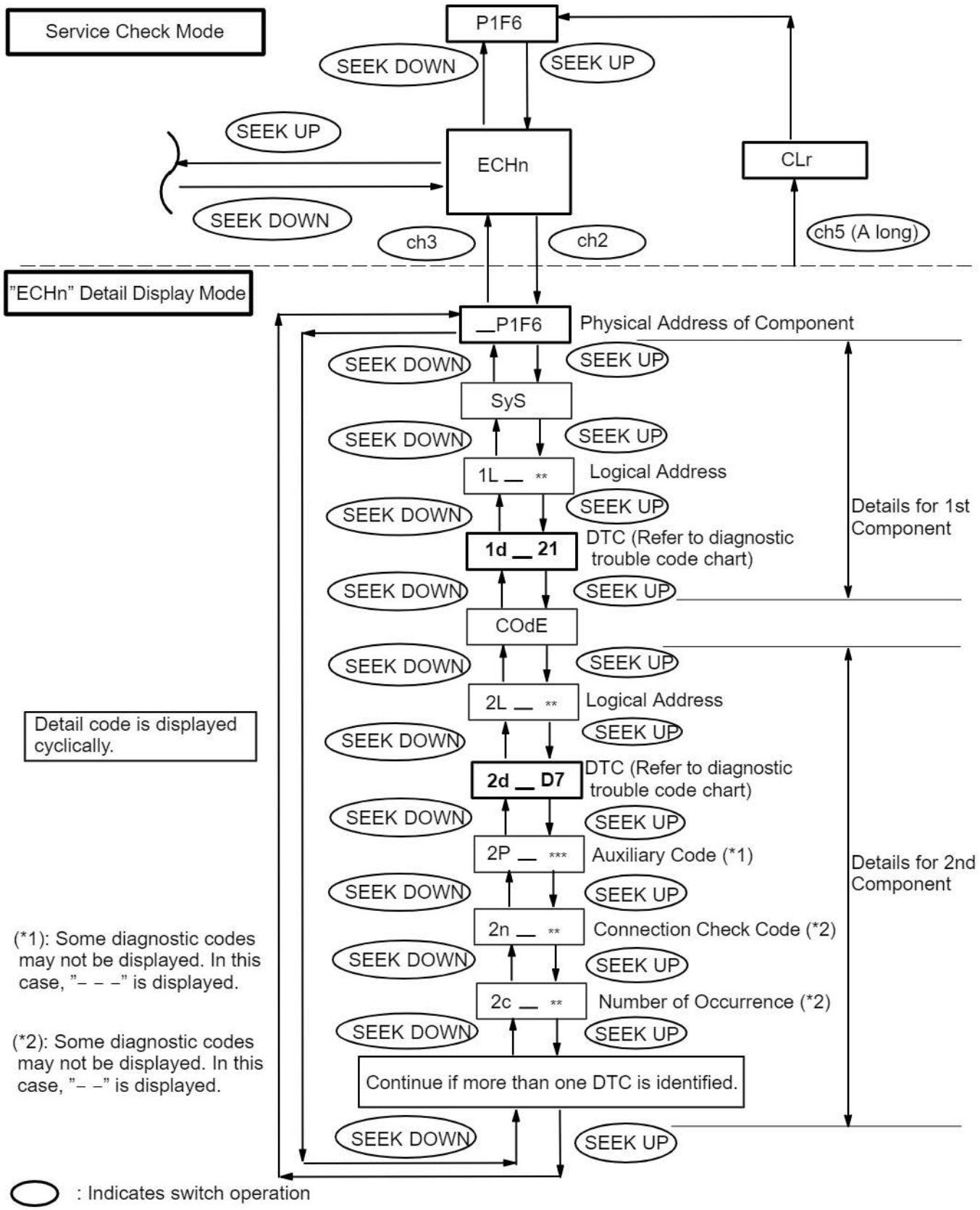
Example:

Connection parts (physical address): Radio receiver (P190), RSE ECU (P1F6), DVD player (P1A0)



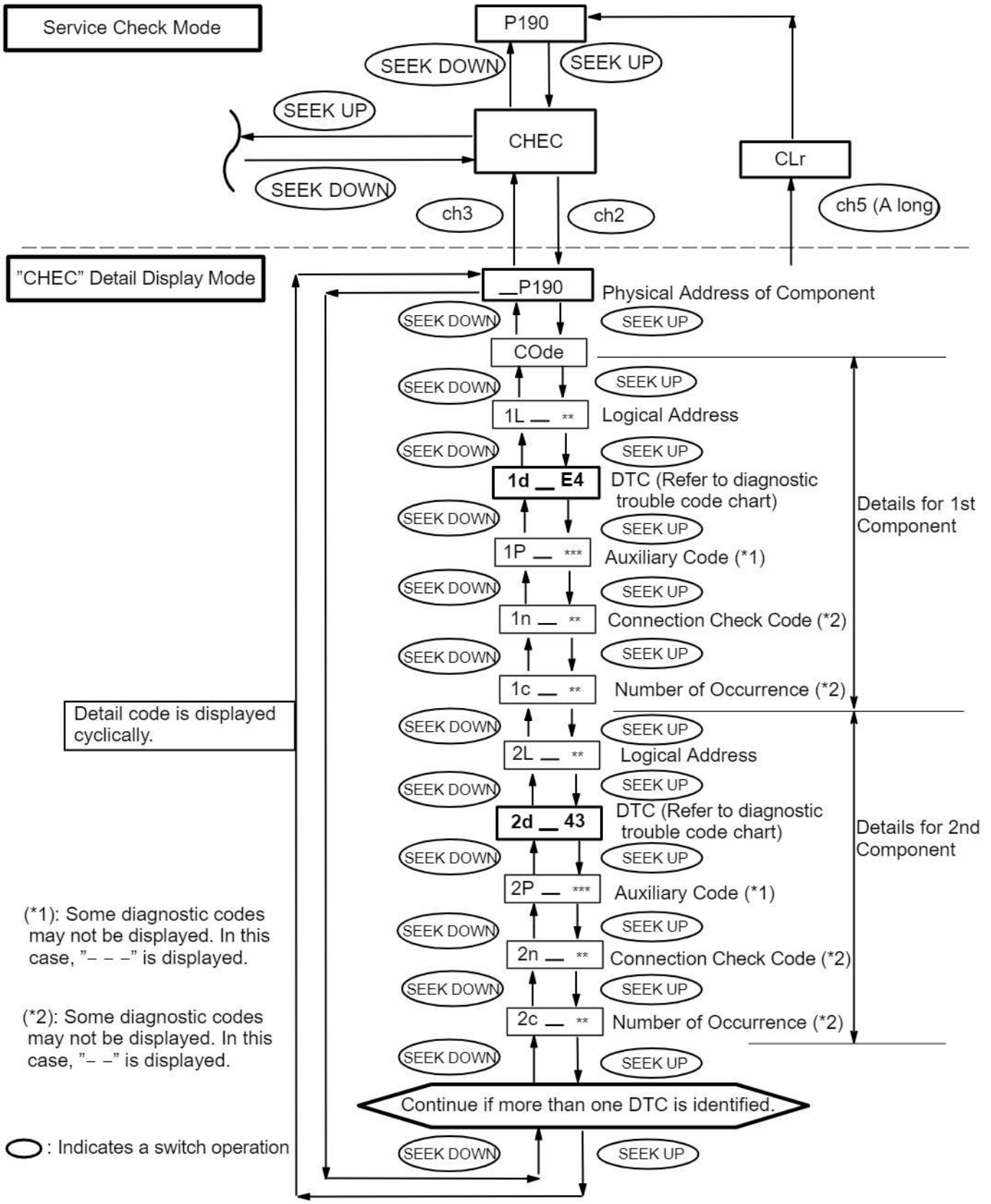
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(f) "ECHn" Detail Display Mode Screen



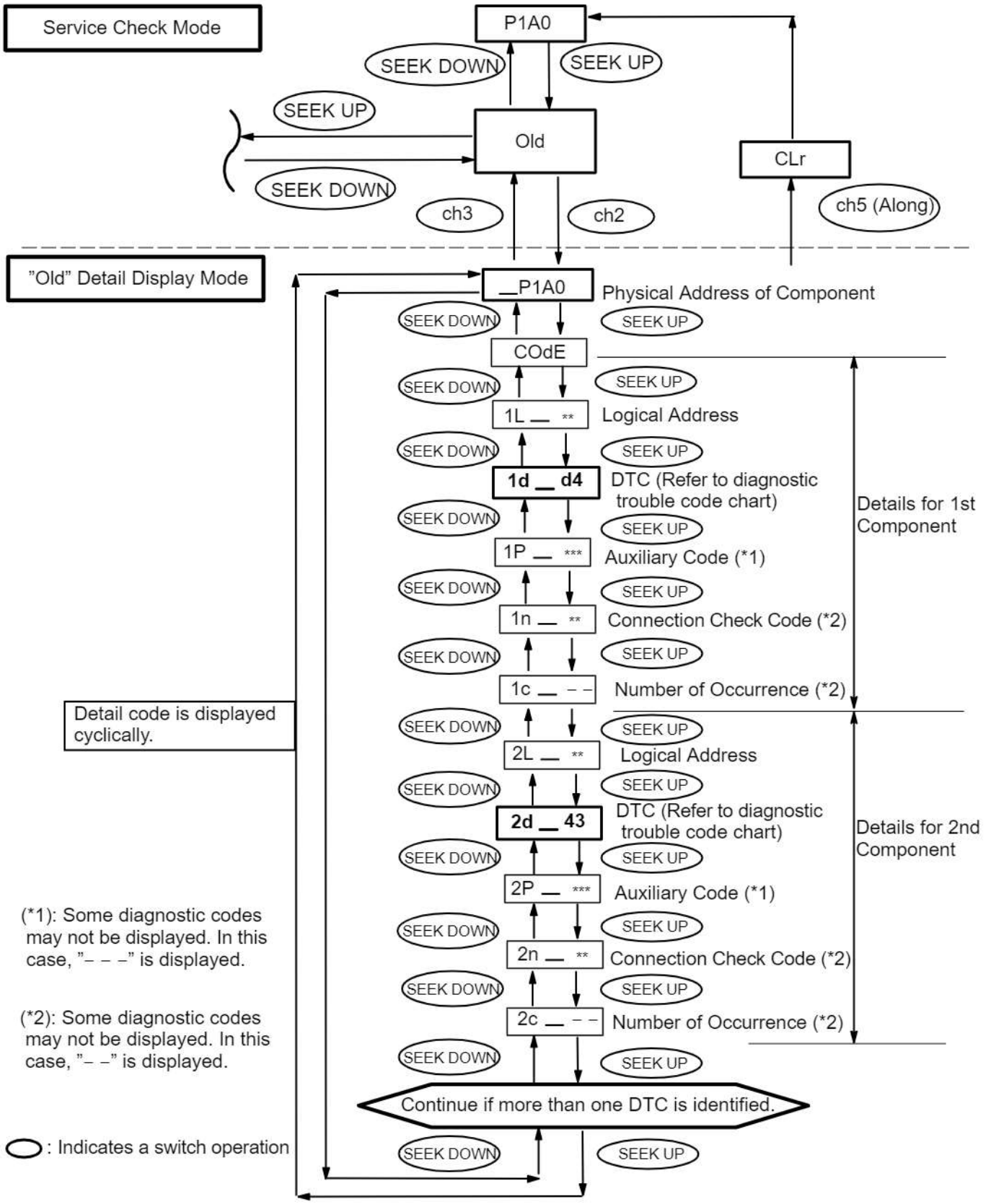
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(g) "CHEC" Detail Display Mode Screen



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(h) "Old" Detail Display Mode Screen



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10. DIAGNOSIS CODE LIST

- If there is "O" in the system check column, an error can be detected when the mode is switched to the system check mode.
- If there is "O" in the diagnosis memory column, each unit is monitoring whether or not it has failure. In the 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)	42	FM tuner error	There is an error in FM tuner	Radio receiver check	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	○
	FF	Diagnosis no response	Result of diagnosis is not issued from start to finish	Radio receiver 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	○

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BE1DD–07

TROUBLESHOOTING

NOTICE:

When replacing the internal mechanism (computer part) of the audio system, be careful not to bring your body or clothing into contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

HINT:

This is a simple troubleshooting which should be carried out on the vehicle during system operation. This inspection procedure was prepared for the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

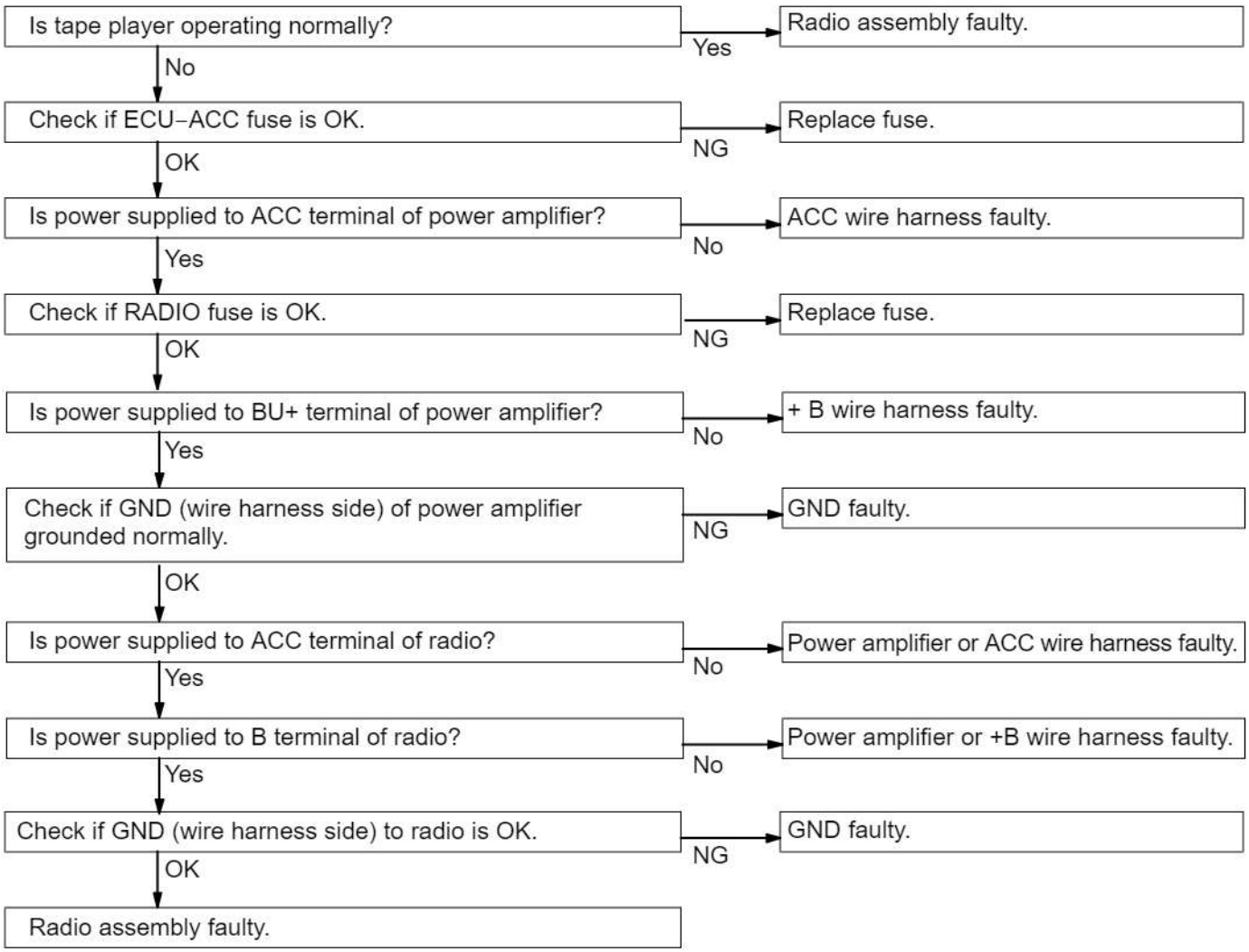
- Open or short circuit of the wire harness
- Connector or terminal connection fault

	Problem	No.
Radio	Radio does not operate when power switch turned to 'ON'.	1
	Display indicates when power switch is turned to 'ON', but no sound (including 'noise') is produced.	2
	Noise present, but AM – FM are not operating.	3
	Any speaker does not work.	4
	Any AM or FM does not work.	5
	Few preset turning bands.	5
	Reception is poor.	6
	Sound quality is 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 does not operate.	11
	Any speaker does not work.	12
	Sound quality is poor.	13
	Tape jammed, malfunction with tape speed or auto–reverse.	14
	Cassette tape cannot be ejected.	15
CD Player	CD cannot be inserted.	16
	CD inserted, but no power.	17
	Power coming in, but CD player does not operate.	18
	Sound jumps.	19
	Sound quality is poor (Volume faint).	20
	Any speaker does not work.	21
	CD cannot be ejected.	22
Power Amplifier	No power coming in.	23
	Power coming in, but power amplifier does not operate.	24
	Any speaker does not work.	25
Noise	Noise occurs	26
	Noise is produced by vibration or shock while driving.	27
	Noise is produced when engine starts.	28

The term "AM" includes LW, MW and SW, and the term "FW" includes UKW.

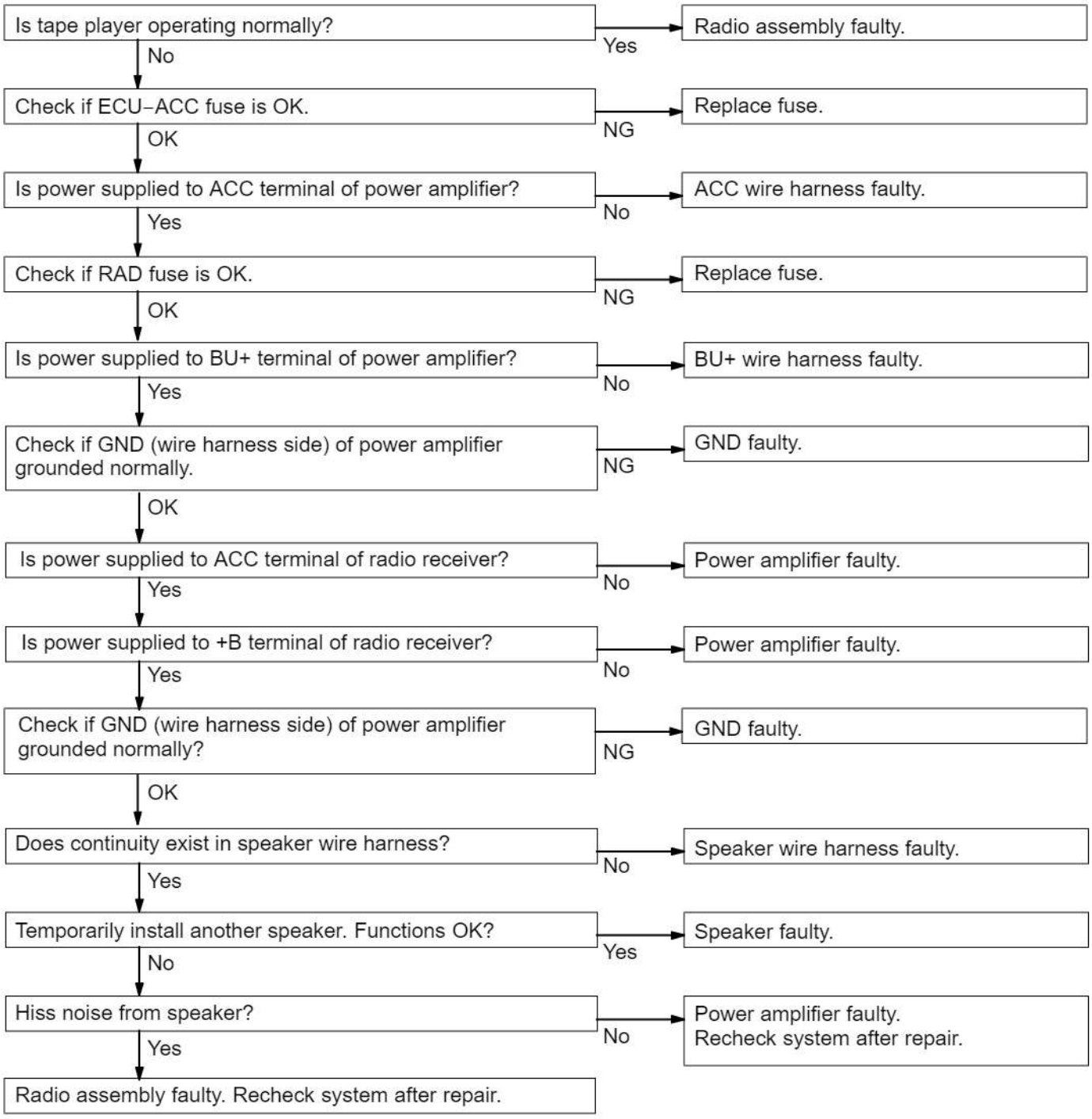
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1	Radio	RADIO NOT OPERATING WHEN POWER SWITCH TURNED TO "ON"



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2	Radio	DISPLAY INDICATES WHEN POWER SWITCH TURNED TO "ON", BUT NO SOUND (INCLUDING "NOISE") IS PRODUCED



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3	Radio	NOISE PRESENT, BUT AM–FM NOT OPERATING

Go to No.25

If radio side faulty. → Radio faulty.

4	Radio	ANY SPEAKER DOES 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 ↓

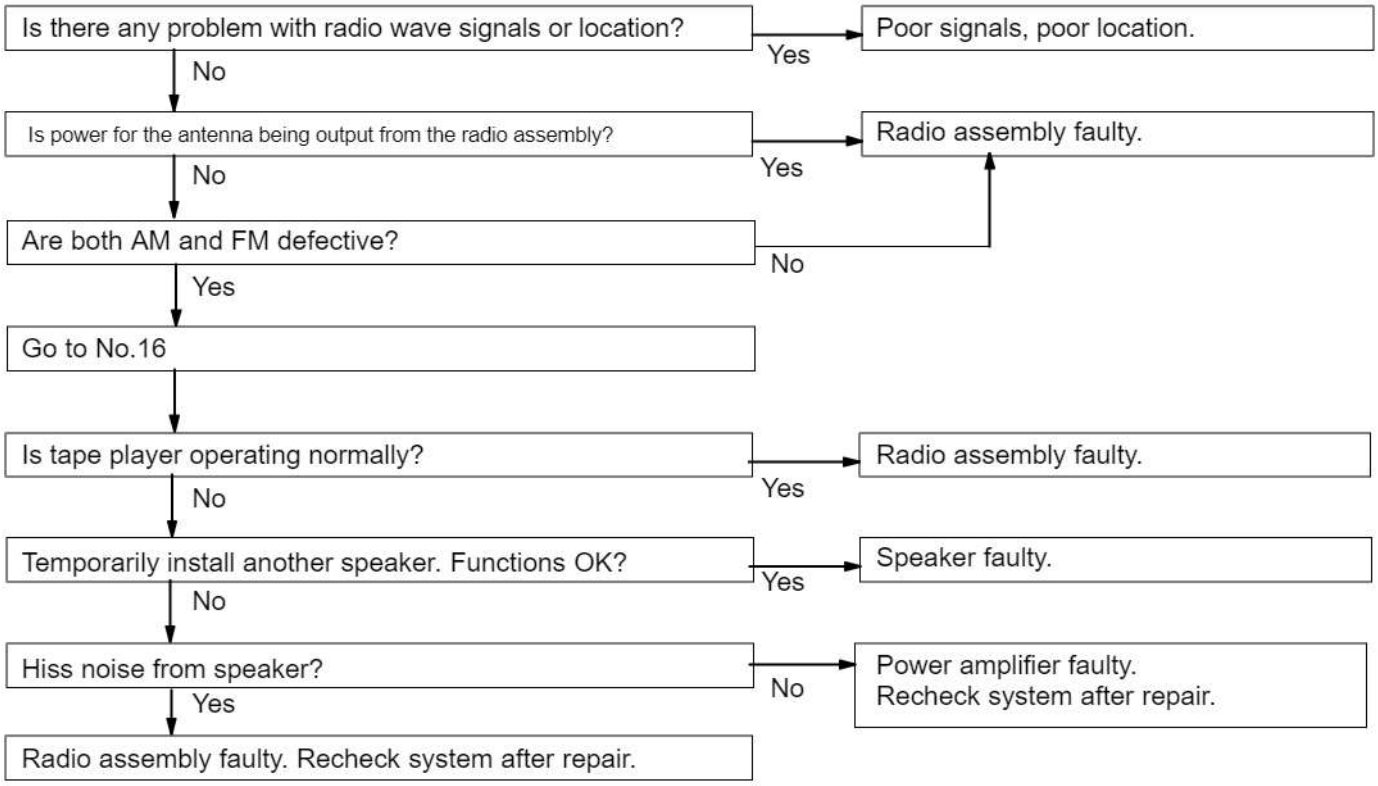
Does continuity exist in speaker wire harness?
- No → Speaker wire harness faulty.
- Yes ↓

Temporarily install another speaker. Functions OK?
- Yes → Speaker faulty.
- No ↓

Power amplifier faulty. Recheck system after repair.

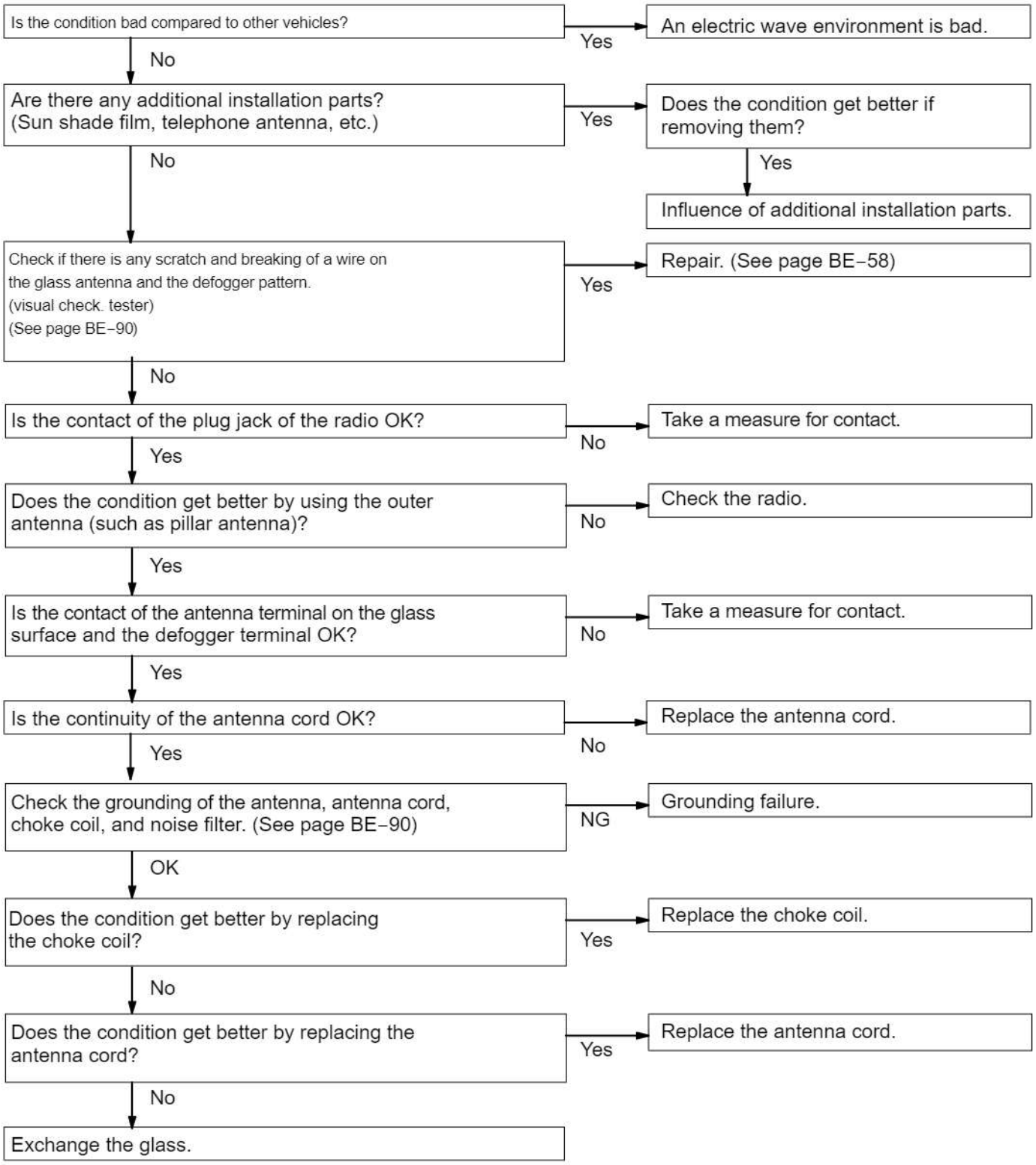
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5	Radio	ANY AM OR FM DOES NOT WORK FEW PRESET TUNING BANDS



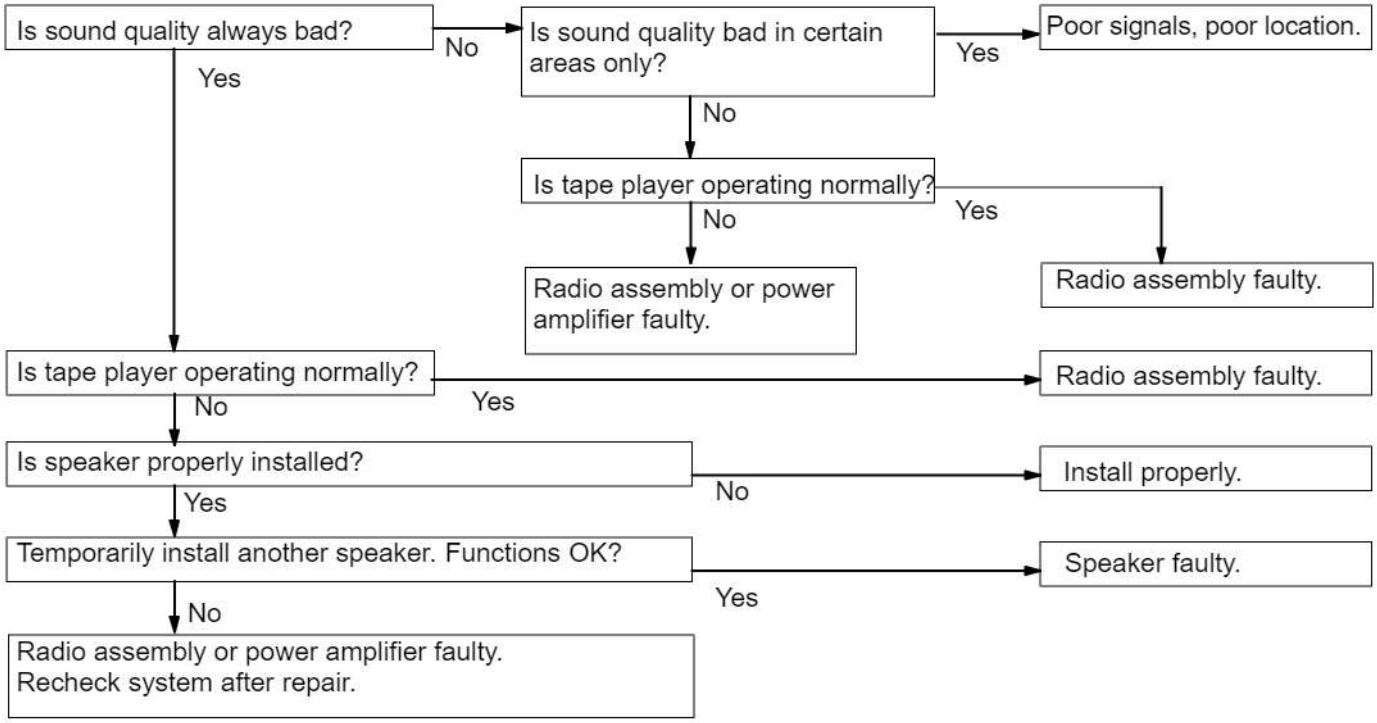
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6	Radio	POOR RECEPTION

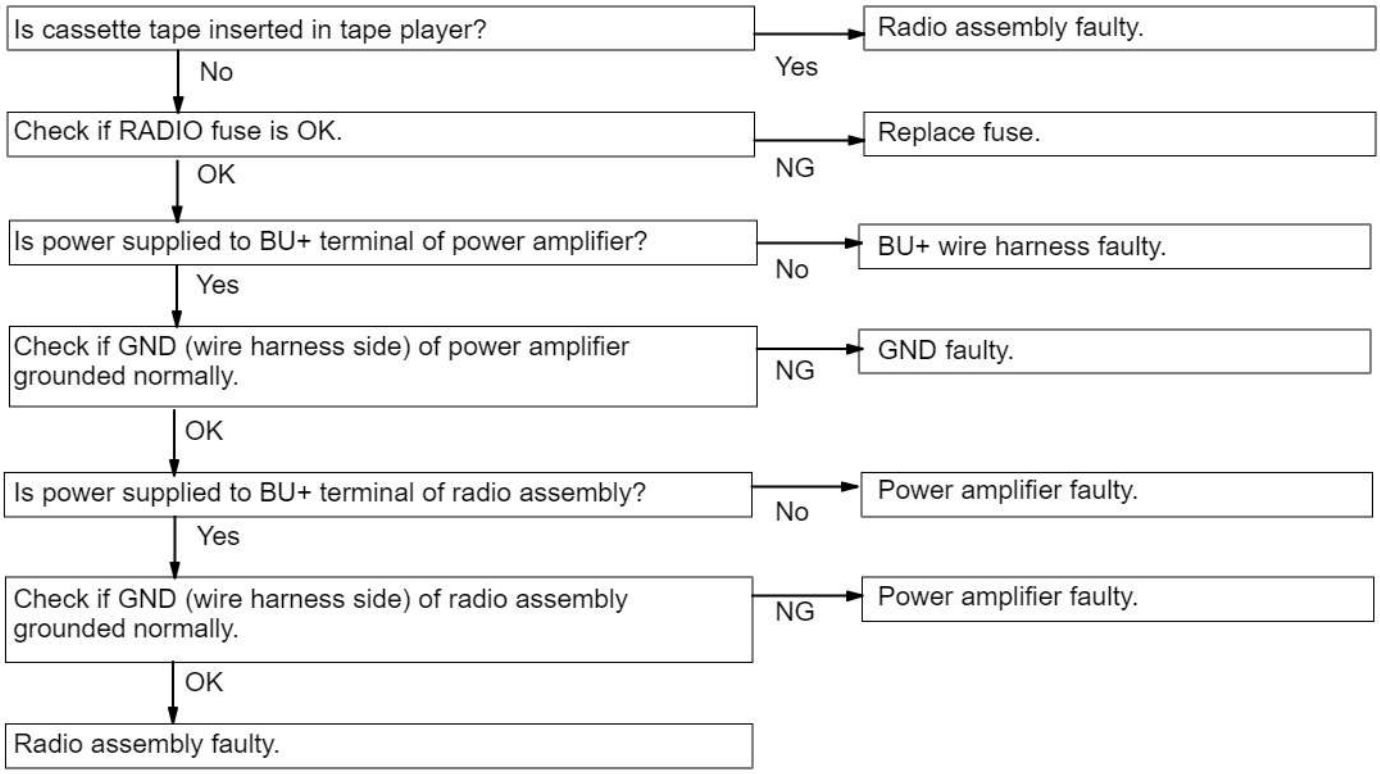


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7	Radio	SOUND QUALITY POOR

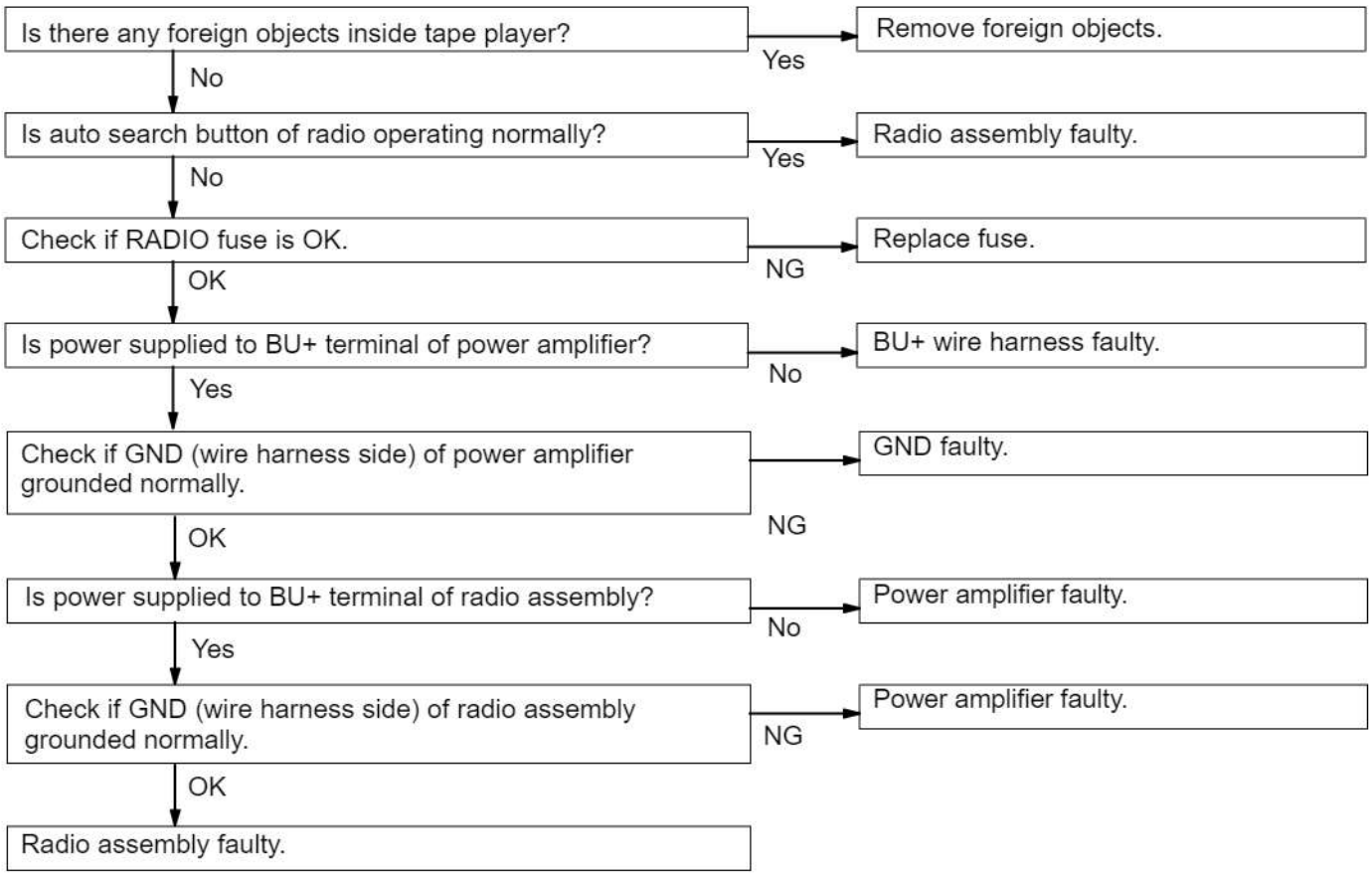


8	Radio	PRESET MEMORY DISAPPEARS

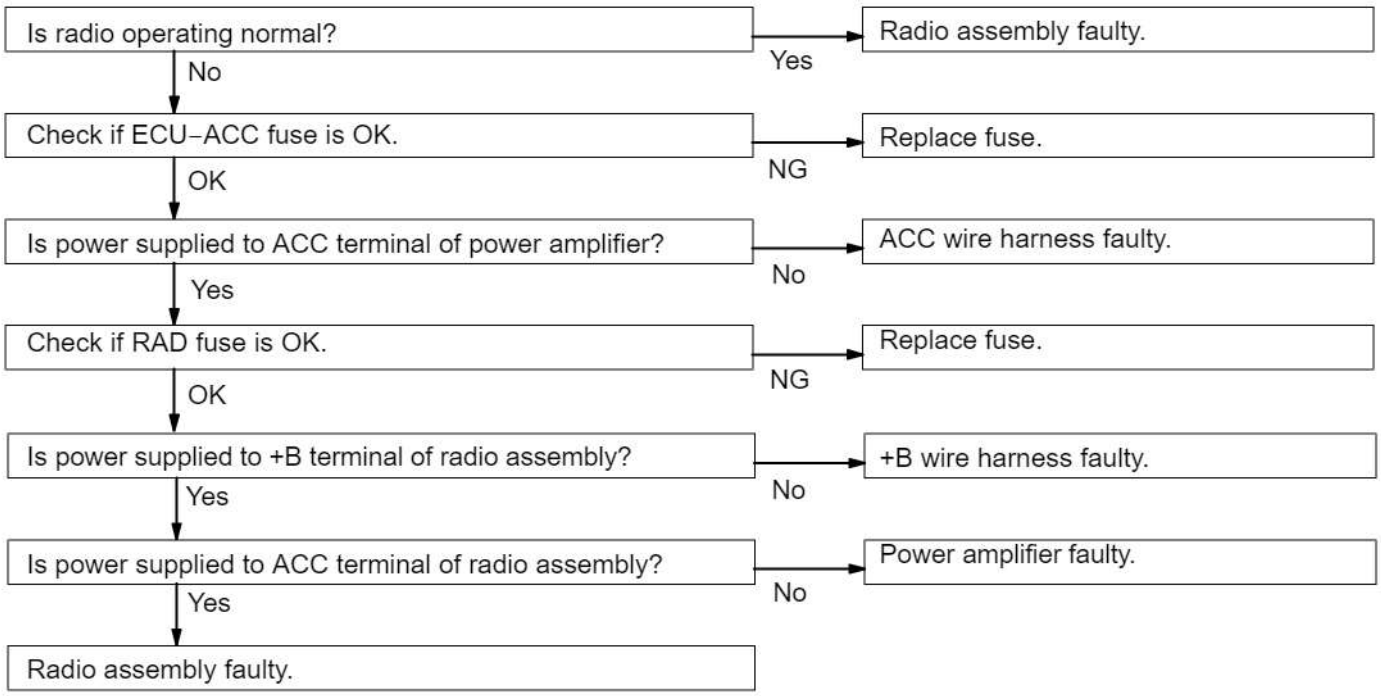


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9	Tape Player	CASSETTE TAPE CANNOT BE INSERTED

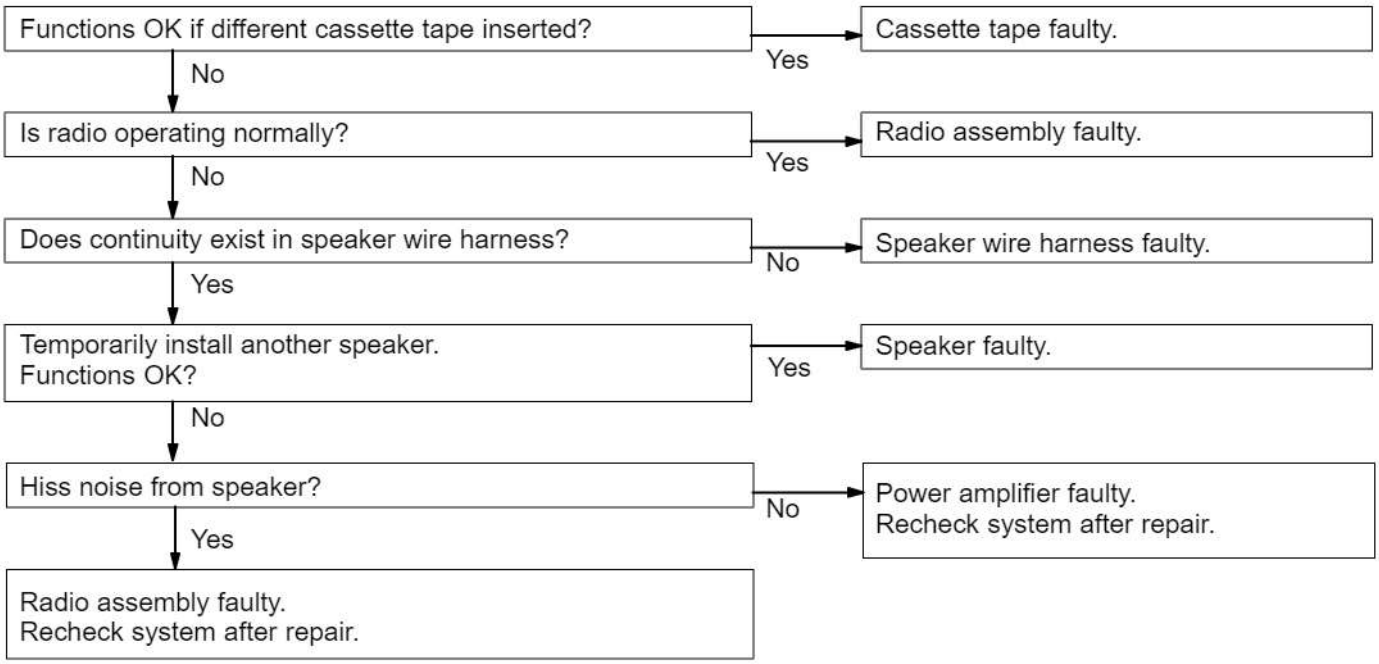


10	Tape Player	CASSETTE TAPE INSERTED, BUT NO POWER

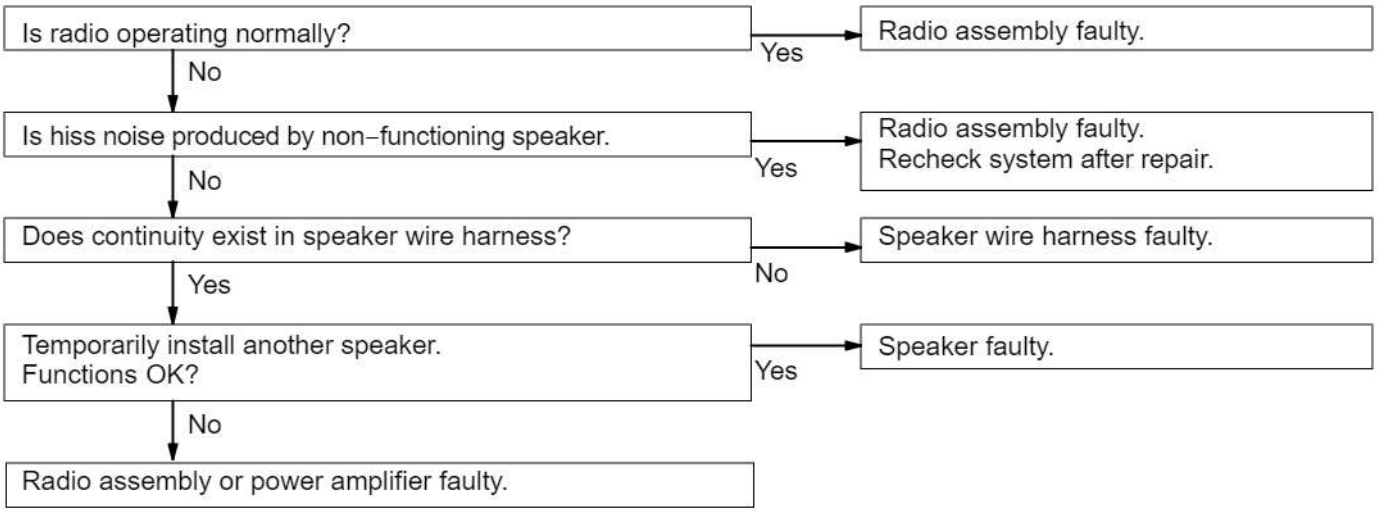


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11	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING

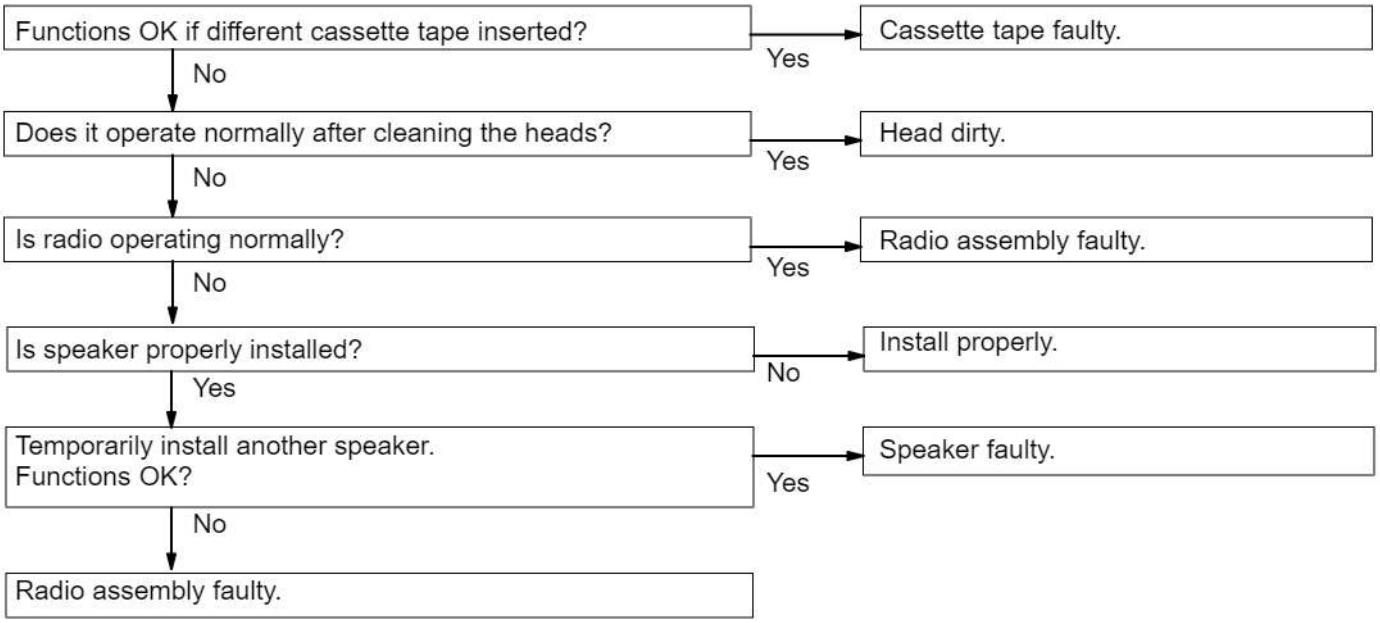


12	Tape Player	ANY SPEAKER DOES NOT WORK

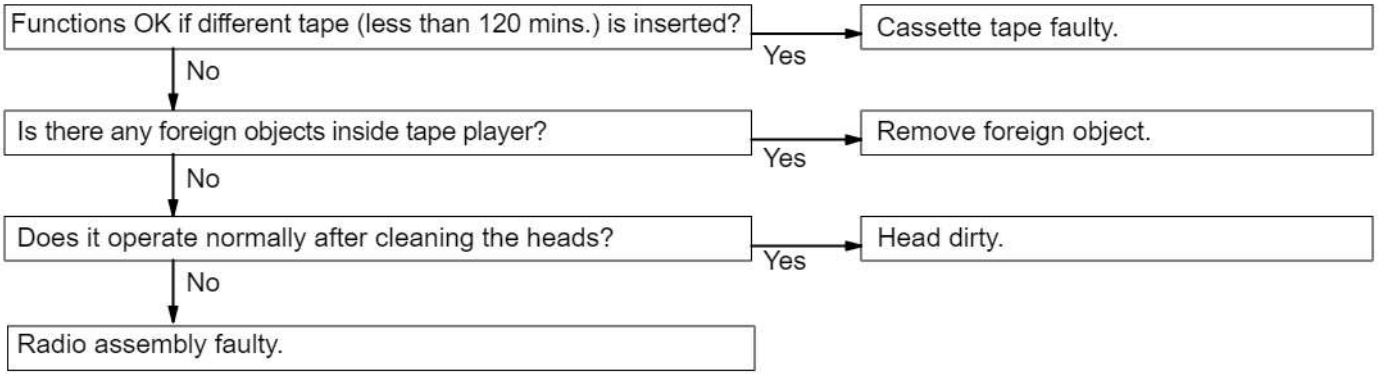


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13	Tape Player	SOUND QUALITY POOR (VOLUME FAINT)

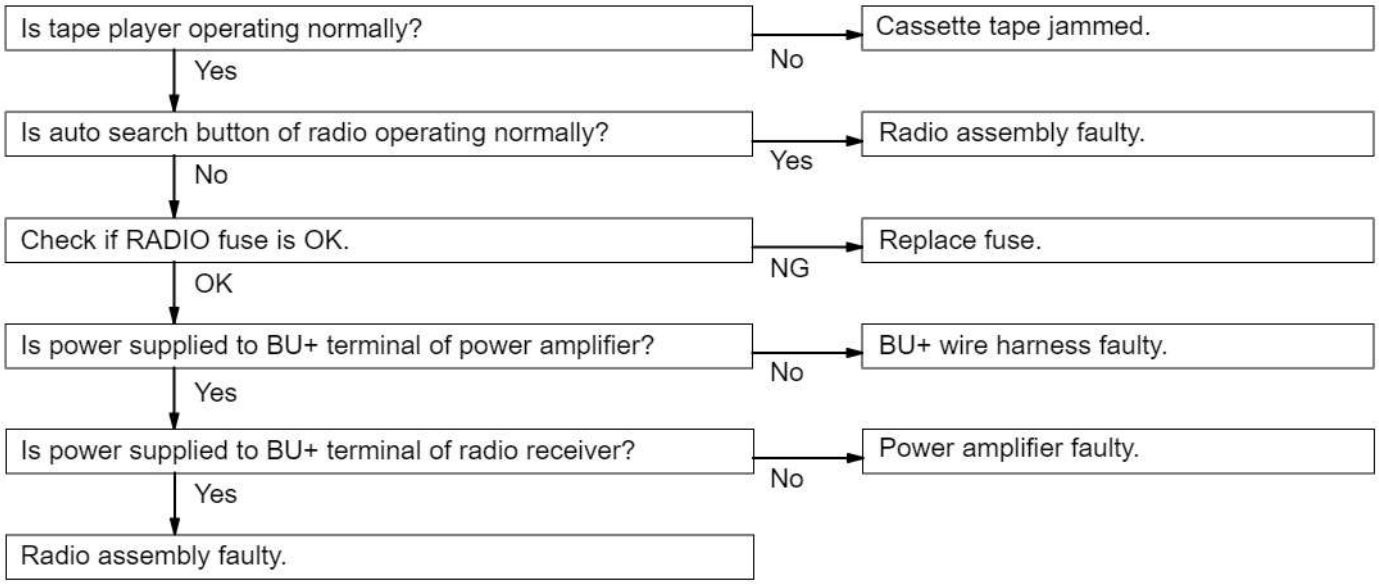


14	Tape Player	TAPE JAMMED MALFUNCTION WITH TAPE SPEED OR AUTO–REVERSE

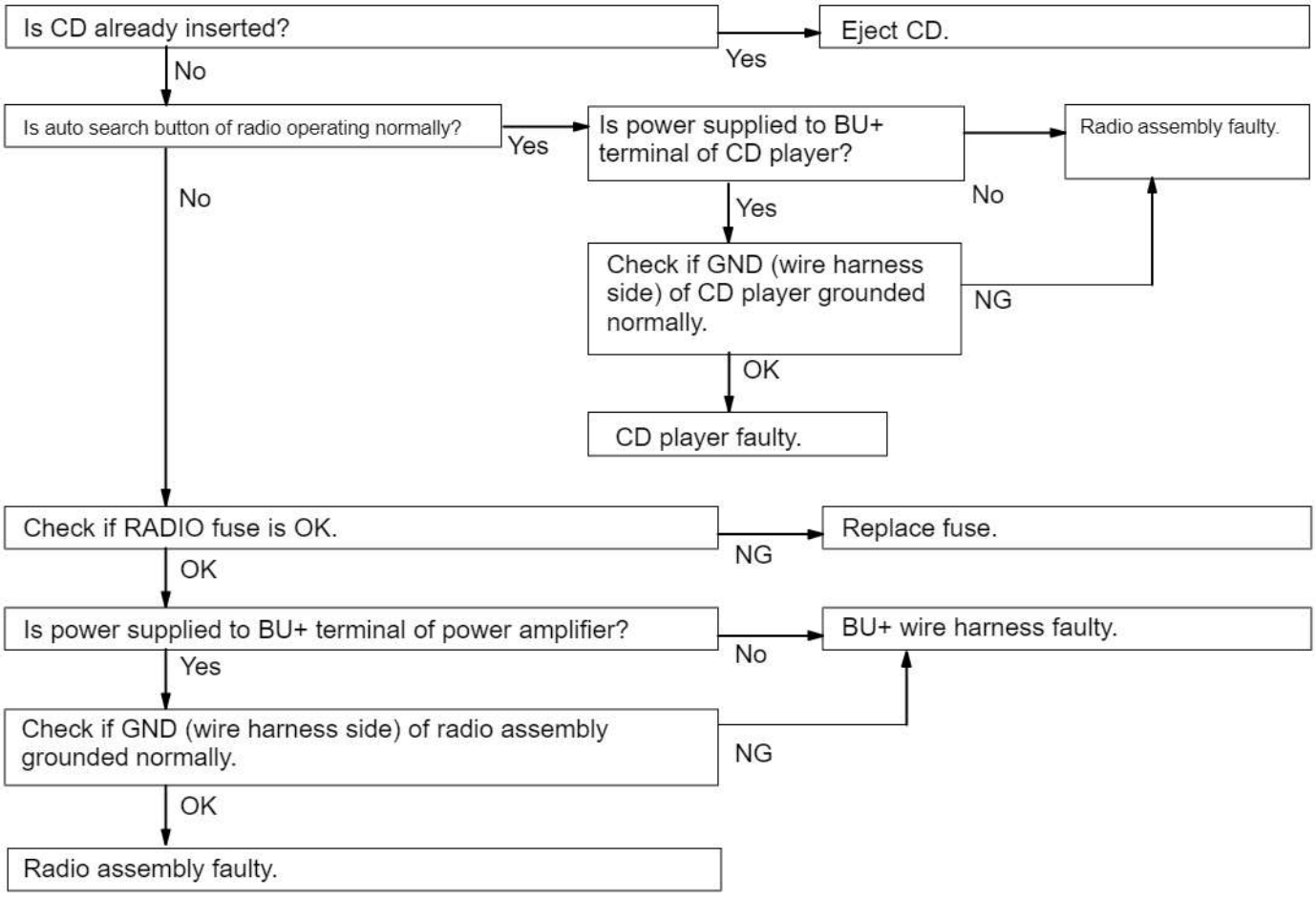


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15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED

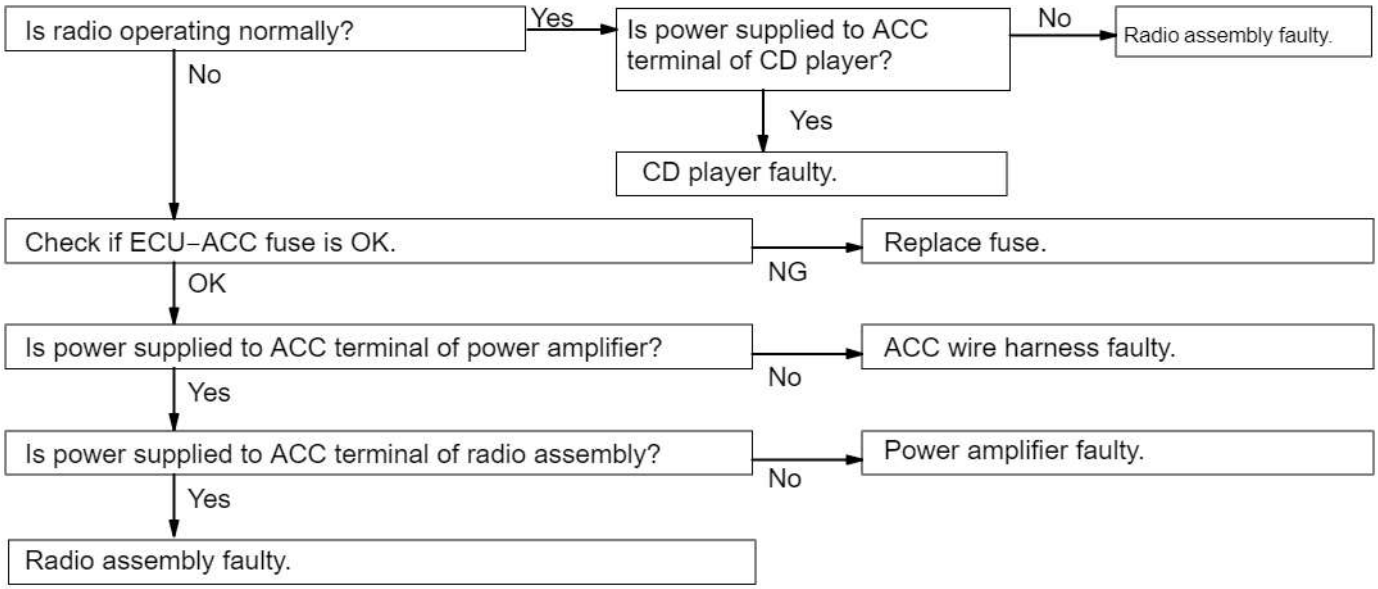


16	CD Player	CD CANNOT BE INSERTED

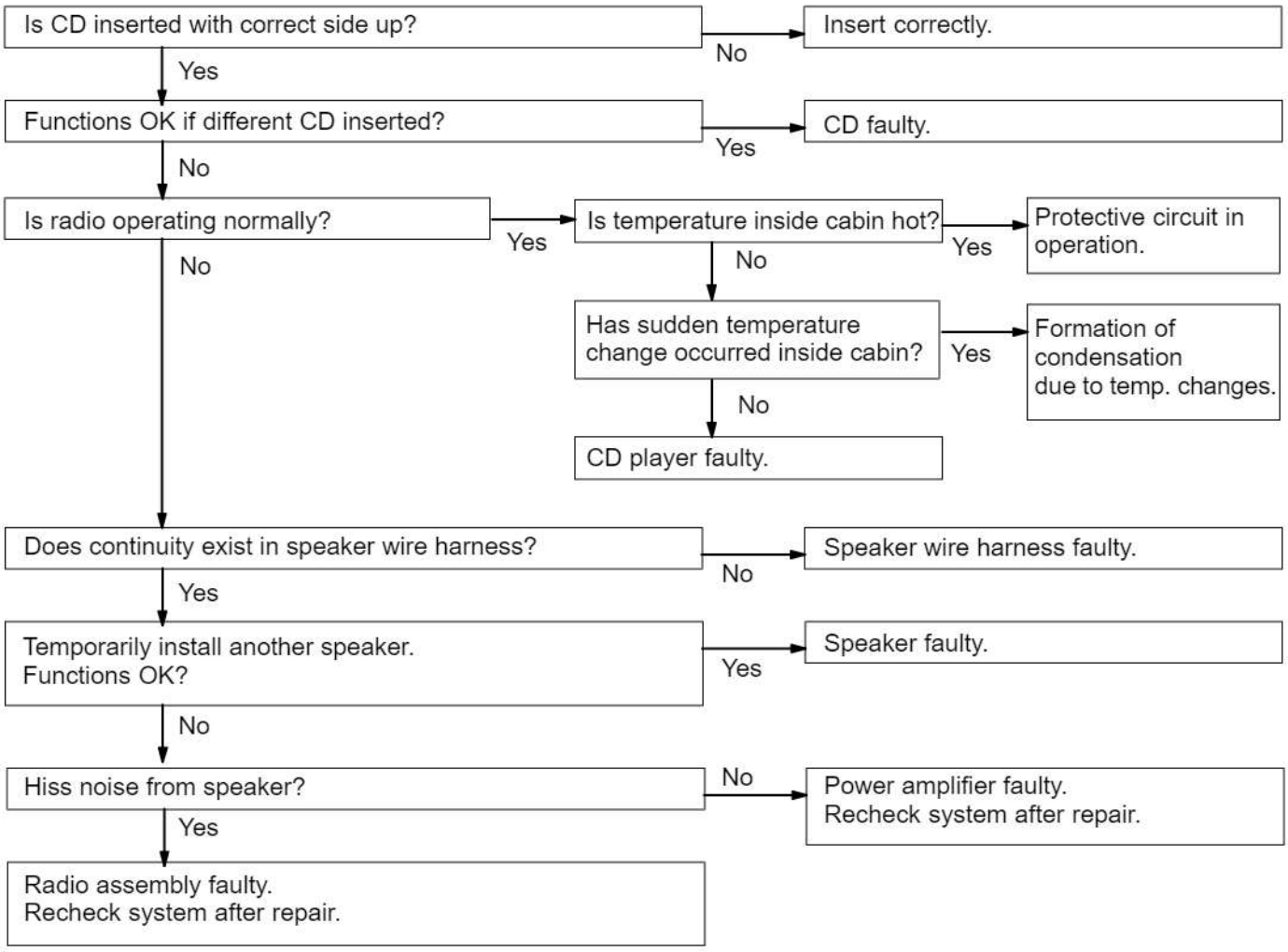


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17	CD Player	CD INSERTED, BUT NO POWER

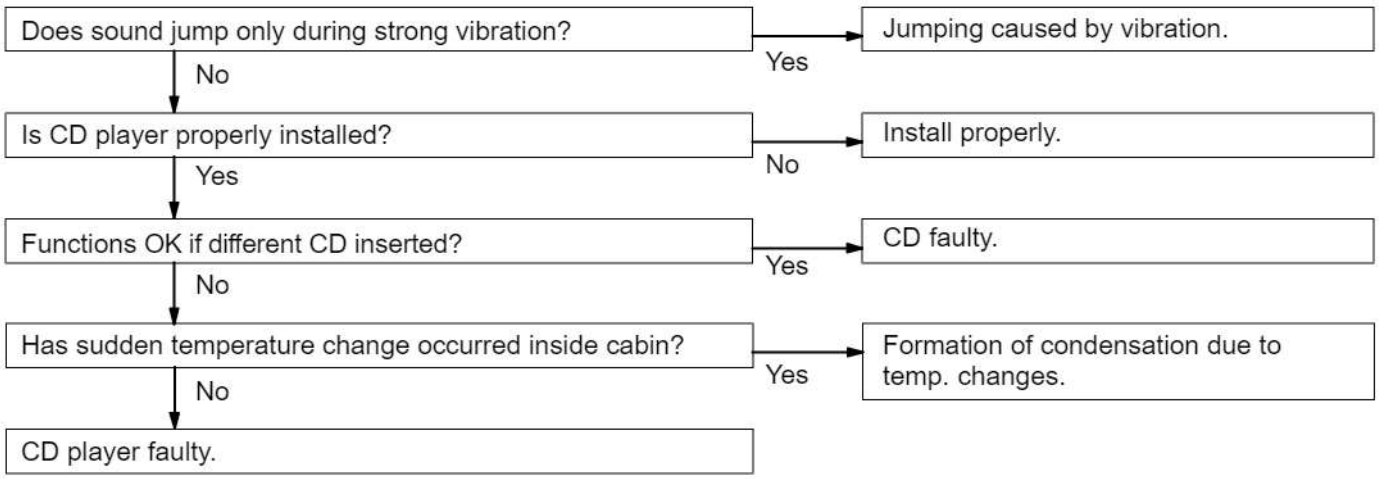


18	CD Player	POWER COMING IN, BUT CD PLAYER NOT OPERATING

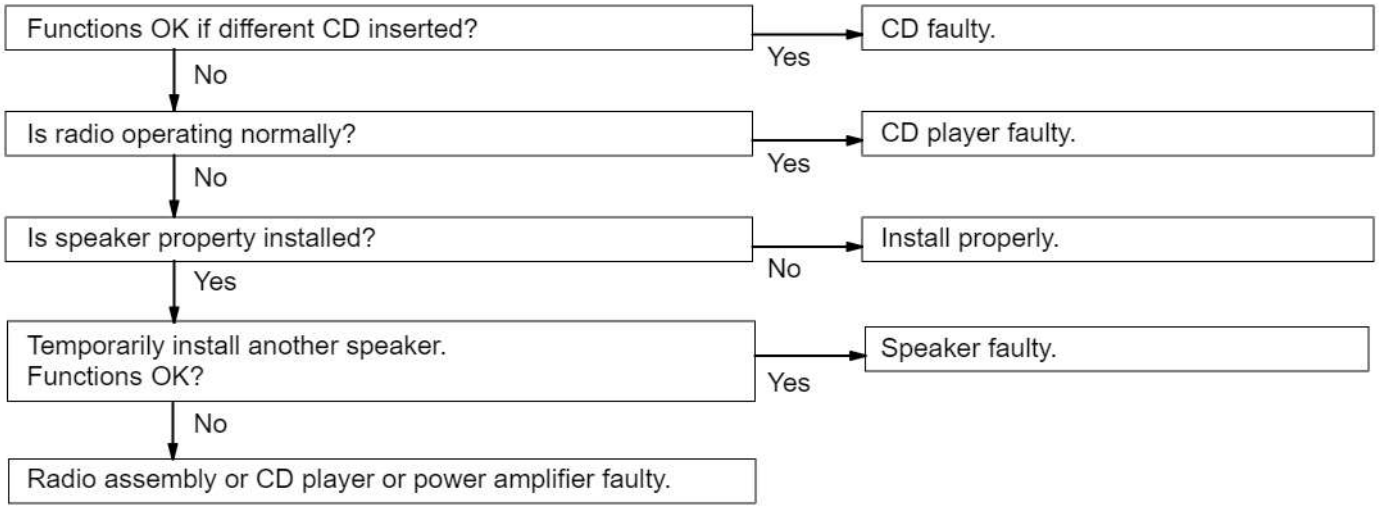


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19	CD Player	SOUND JUMPS

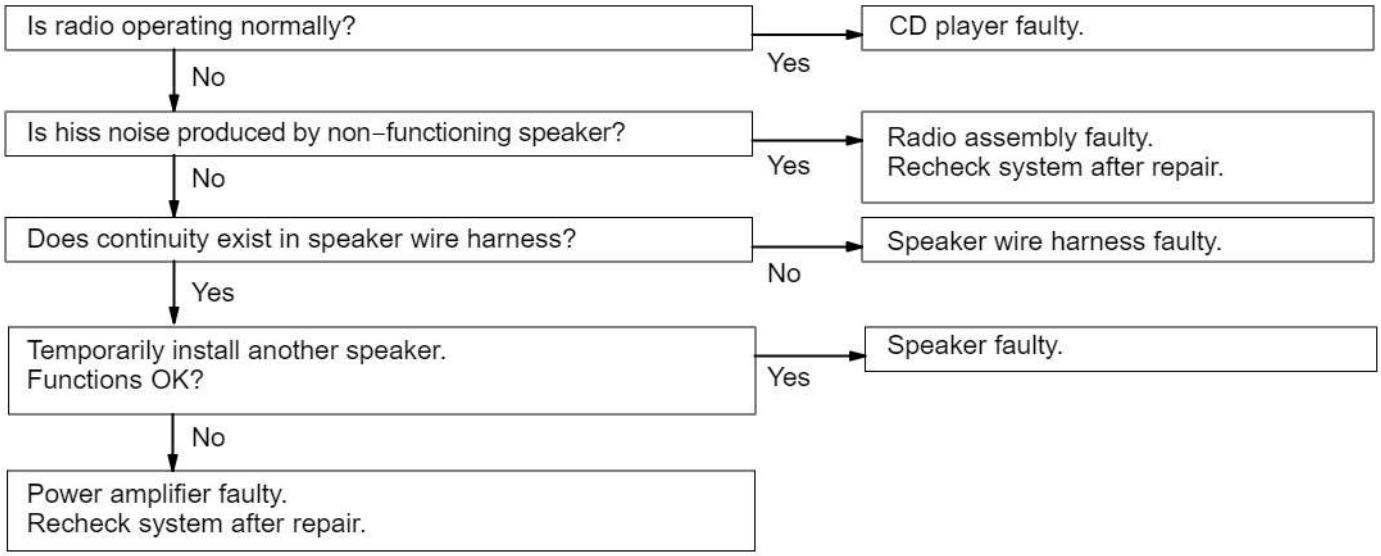


20	CD Player	SOUND QUALITY POOR (VOLUME FAINT)

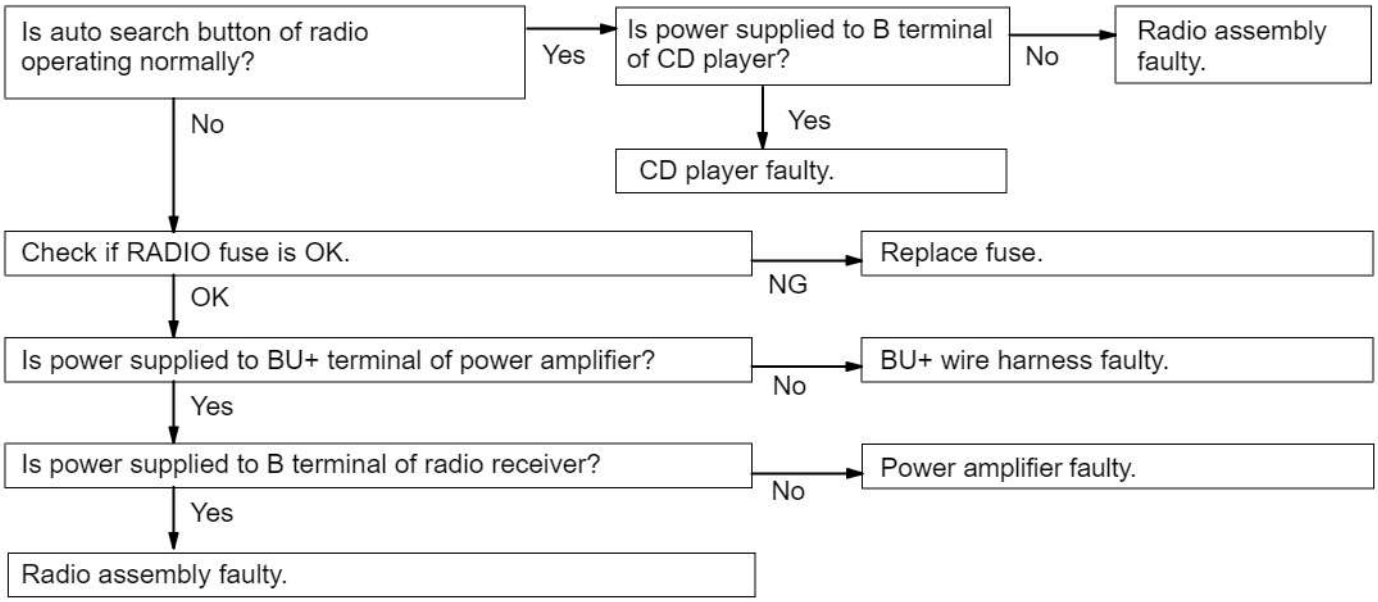


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21	CD Player	ANY SPEAKER DOES NOT WORK

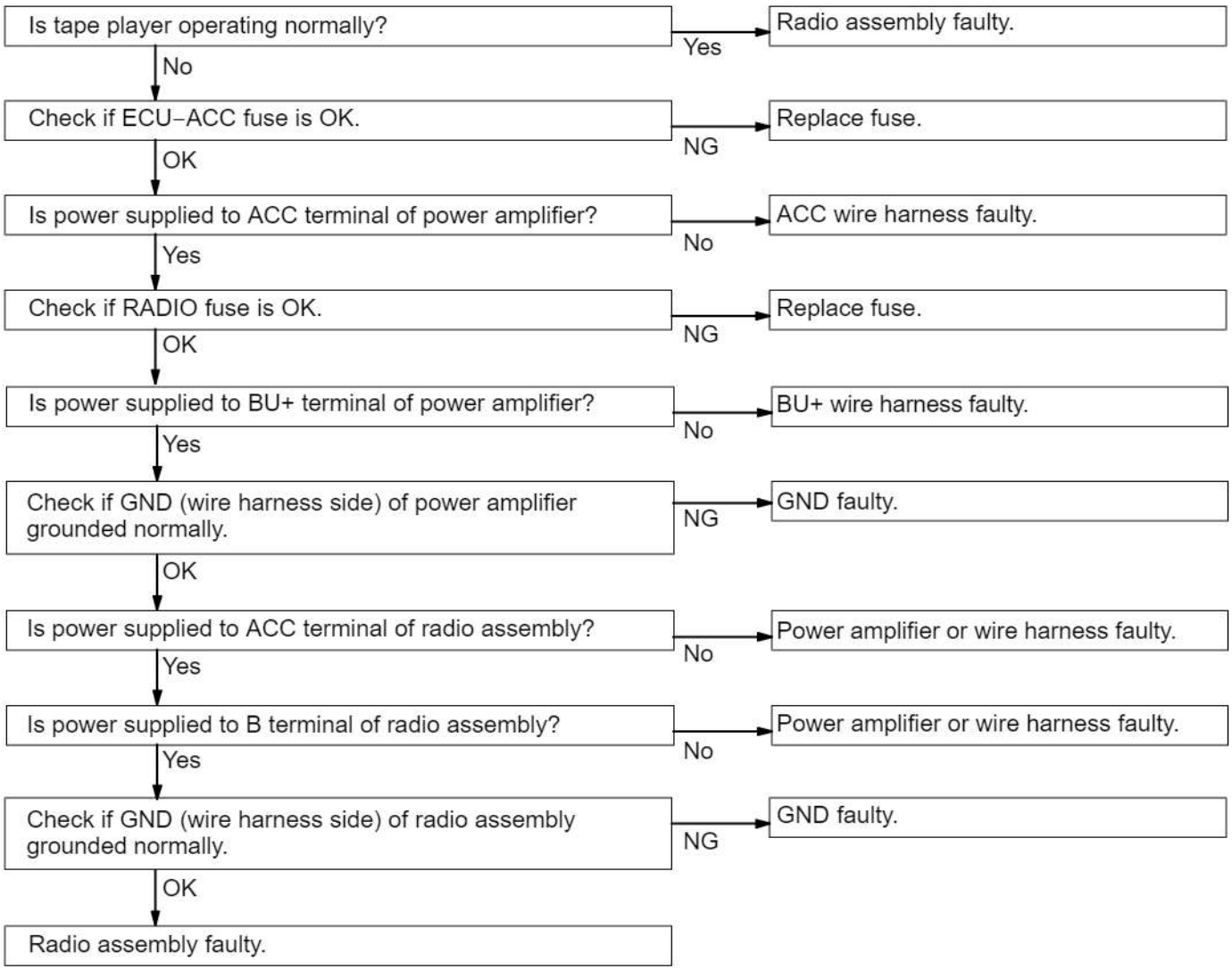


22	CD Player	CD WILL NOT BE EJECTED



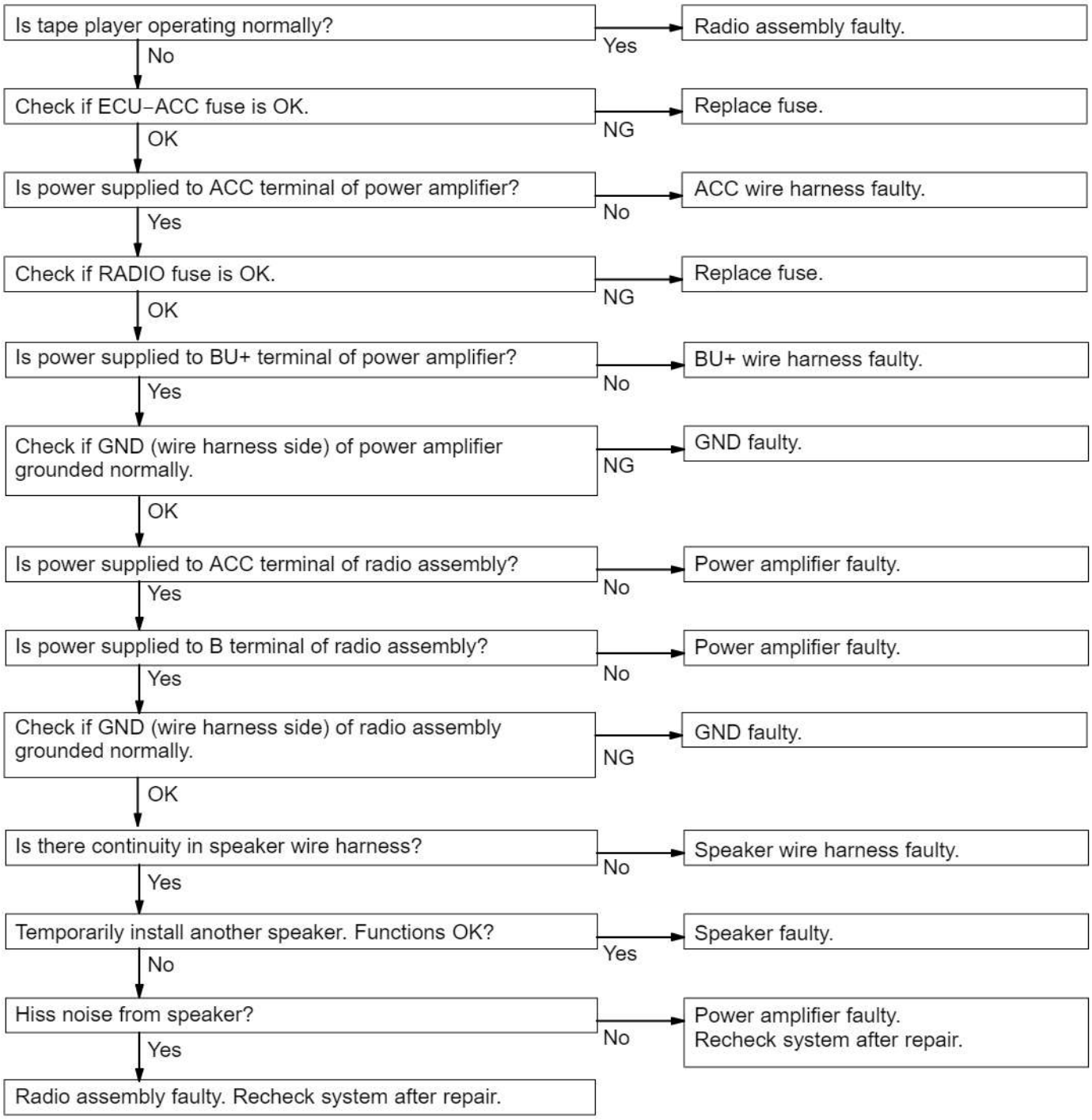
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23	Power Amplifier	NO POWER COMING IN



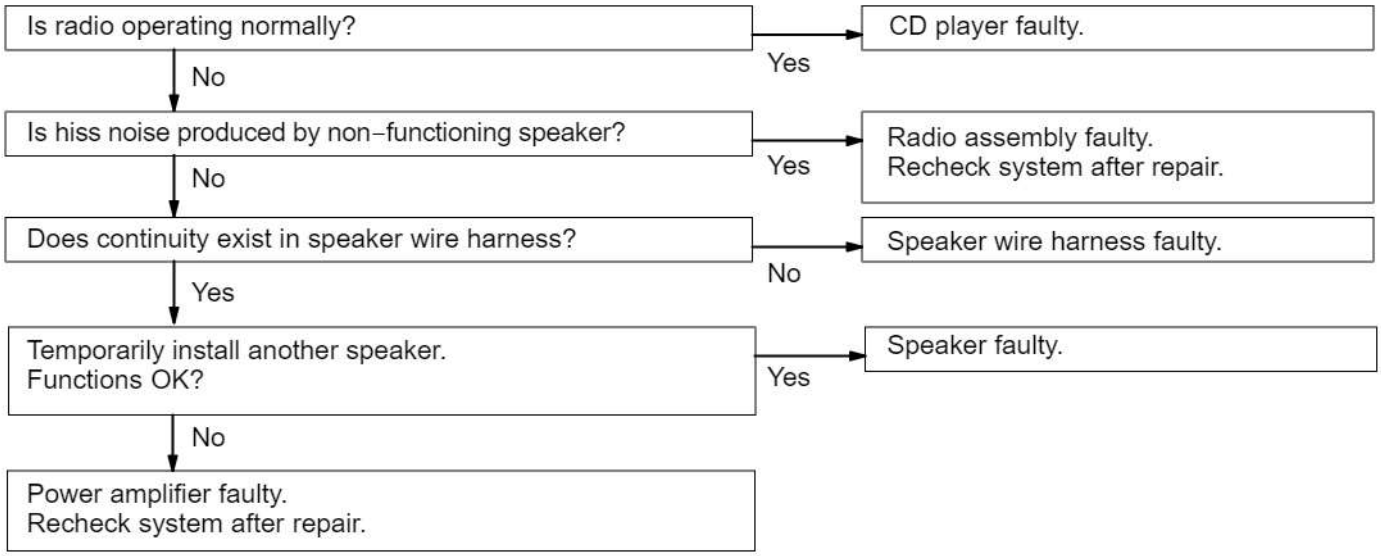
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24	Power Amplifier	POWER COMMIG IN, BUT WOOFER (POWER) AMPLIFIER NOT OPERATING



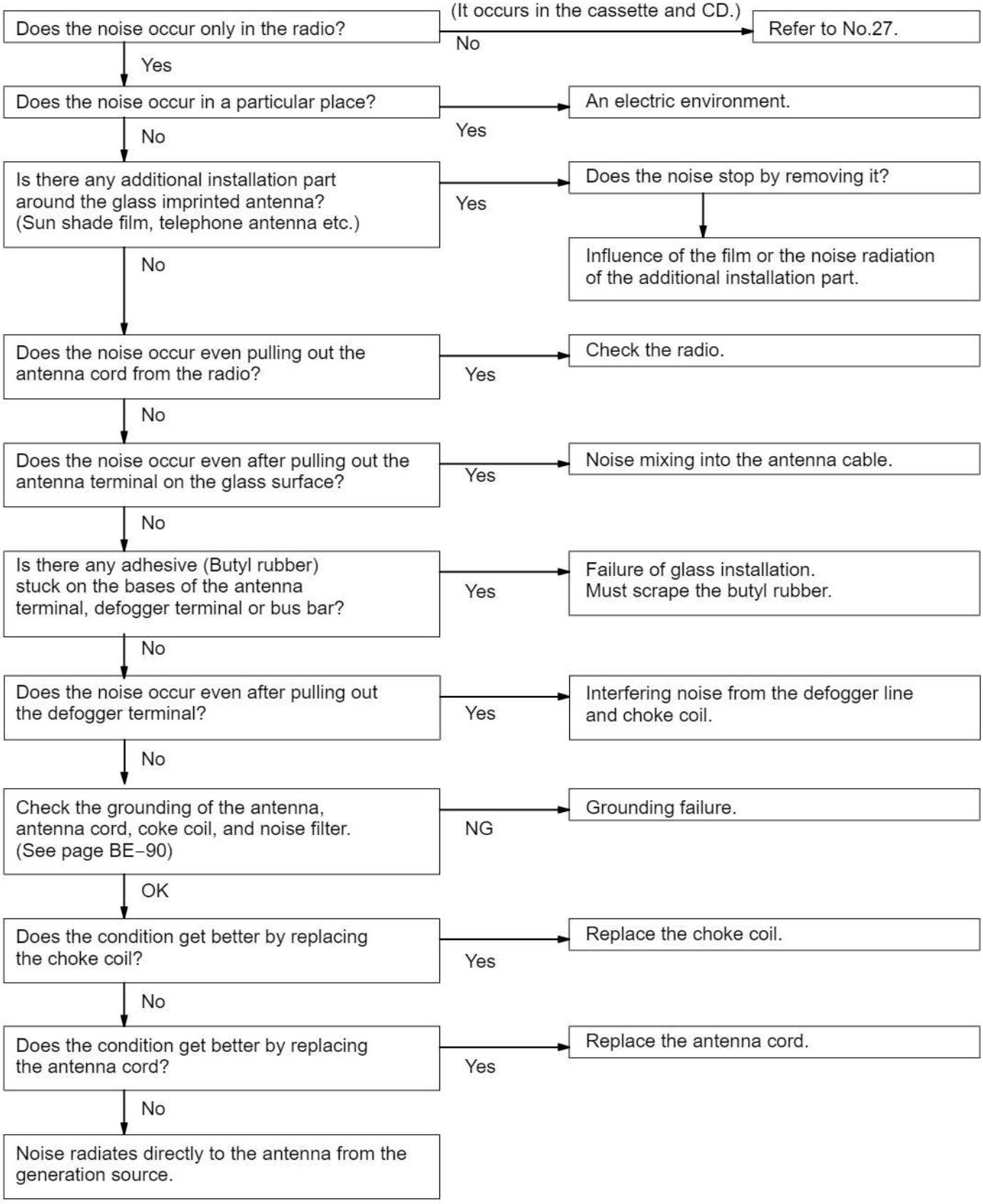
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25	Power Amplifier	ANY SPEAKER DOES NOT WORK



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26	Noise	NOISE OCCURS



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27	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING

Is speaker properly installed?
- No → Install properly.
- Yes ↓

Is each system properly installed?
- No → Install properly.
- Yes ↓

Vehicles stationary lightly tap each system. Is noise produced?
- Yes → Each system faulty.
- No ↓

Noise is produced from static eletricity accumulating in the vehicle body.

28	Noise	NOISE PRODUCED WHEN ENGINE STARTS

Whistling noise which becomes high–pitched when accelerator strongly depressed, and disappears shortly after engine stops.
- Yes → Generator noise.
- No ↓

Whining noise occurs when A/C is operating.
- Yes → A/C noise.
- No ↓

Scratching noise occurs during sudden acceleration, driving on rough roads or when ignition switch is turned ON.
- Yes → Fuel gauge noise.
- No ↓

Clicking sound is heard when horn button is once pressed and then released. Whirring/grating sound is heard when holding the horn button.
- Yes → Horn noise.
- No ↓

Murmuring sound stops when engine stops.
- Yes → Ignition noise.
- No ↓

Tick–tack noise occurs at the same time as blinking of flasher.
- Yes → Turn signal noise.
- No ↓

Noise occurs during window washer operation.
- Yes → Washer noise.
- No ↓

Scratching noise occurs while engine is running, and continues for a while even after engine stops.
- Yes → Engine coolant temp. gauge noise.
- No ↓

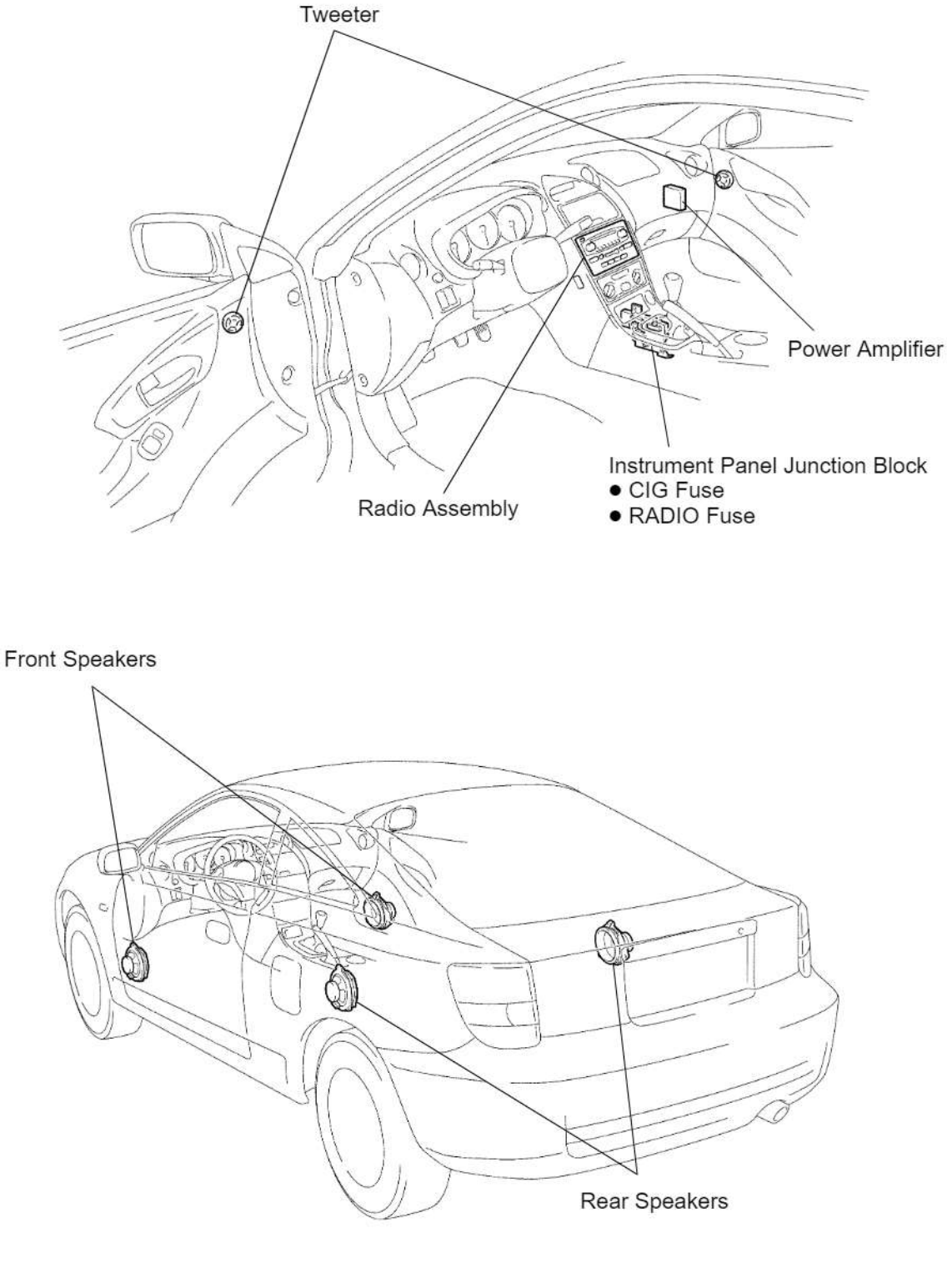
Scraping noise in line with wiper beat.
- Yes → Wiper noise.
- No ↓

Other type of noise

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BE0PP-13

LOCATION

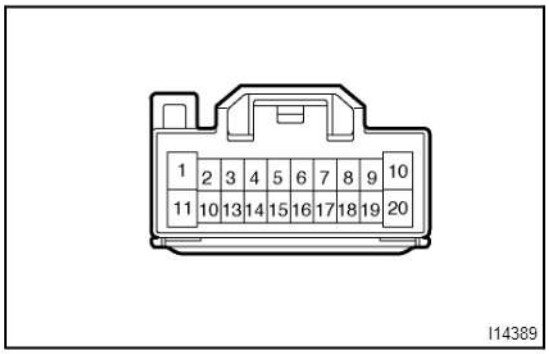


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I25301

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BE16M-10



INSPECTION

1. 8 speaker type:
INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT

Inspect the connector on the wire harness side with the connector of radio receiver assembly still connected.

Tester connection	Condition	Specified condition
1 – Ground (B)	Always	Battery positive voltage
2 – Ground (ILL+)	Light control switch TAIL or HEAD	Battery positive voltage
3 – Ground (AMP)	Radio power switch ON	Battery positive voltage
7 – Ground (MUTE)	Audio sounding	1 V or below
8 – Ground (FR)	Audio sounding	5 – 7 V
9 – Ground (FL)	Audio sounding	5 – 7 V
10 – Ground (GND3)	Always	Continuity
11 – Ground (ACC)	Ignition switch ACC	Battery positive voltage
16 – Ground (SGND)	Always	Continuity
17 – Ground (BEEP)	Audio sounding	–
18 – Ground (RR)	Audio sounding	5 – 7 V
19 – Ground (RL)	Audio sounding	5 – 7 V
20 – Ground (GND)	Always	Continuity

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

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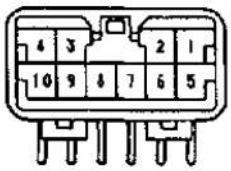
2. 6 speaker type:

INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT

Inspect the connector on the wire harness side with the connector of radio receiver assembly still connected.

Radio Receiver Side

Connector "A"



Connector "B"



I12416

Tester connection	Condition	Specified condition
A1 – Ground (FR+)	Audio sounding	5 – 7 V
A2 – Ground (FL+)	Audio sounding	5 – 7 V
A3 – Ground (ACC)	Ignition switch ACC	Battery positive voltage
A4 – Ground (+B)	Always	Battery positive voltage
A5 – Ground (FR–)	Audio sounding	5 – 7 V
A6 – Ground (FL–)	Audio sounding	5 – 7 V
A7 – Ground (GND)	Always	Continuity
A10 – Ground (ILL+)	Light control switch TAIL or HEAD	Battery positive voltage
B1 – Ground (RR+)	Audio sounding	5 – 7 V
B2 – Ground (RL+)	Audio sounding	5 – 7 V
B3 – Ground (RR–)	Audio sounding	5 – 7 V
B6 – Ground (RL–)	Audio sounding	5 – 7 V

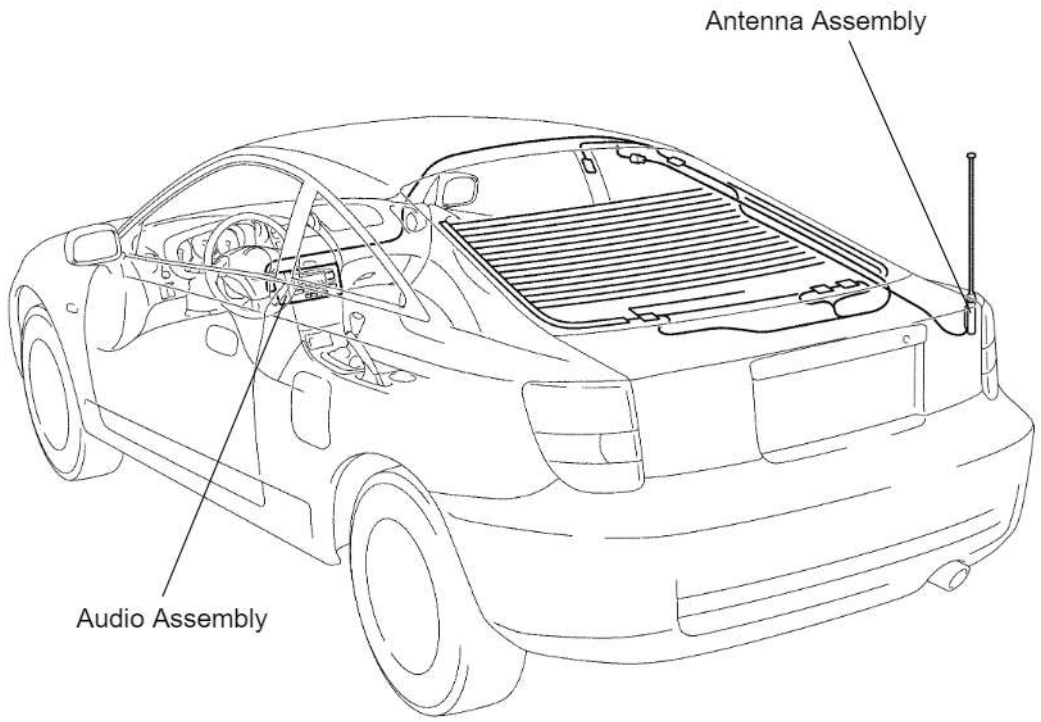
If the circuit is not as specified, inspect the circuits connected to other parts.

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ANTENNA

LOCATION

BE1DE–09



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I25302

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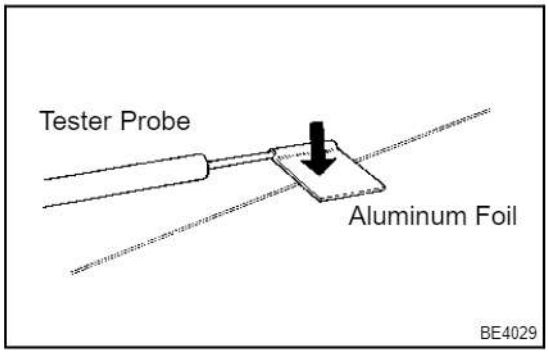
BE0B0-12

INSPECTION

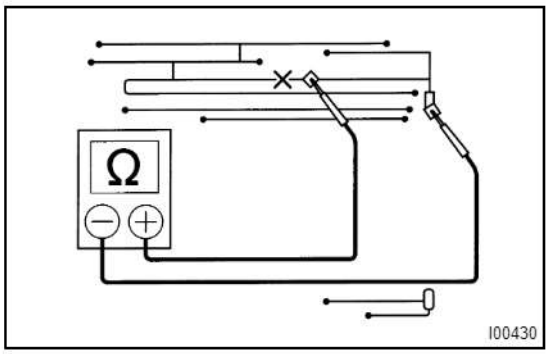
1. GLASS PRINTED ANTENNA INSPECTION PROCEDURE

NOTICE:

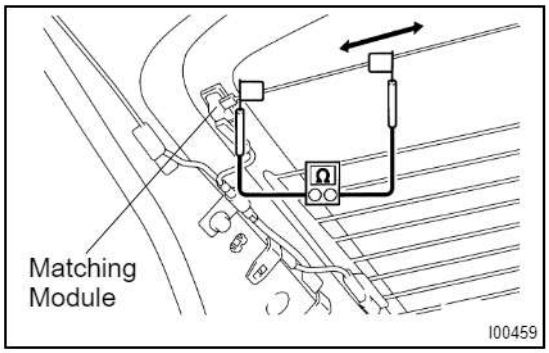
- **When cleaning the glass, use soft dry cloth, and wipe the glass between the wire.**
  Take care not to damage the wires.
- **Do not use detergents or glass cleaners with abrasive ingredients.**



NOTICE:
In order not to damage the glass printed antenna, wrap up the tip of the tester stick with aluminum foil as shown in the illustration and check by holding the aluminum foil with a finger.



By placing and moving the tester stick along the glass printed antenna, check if continuity exists.



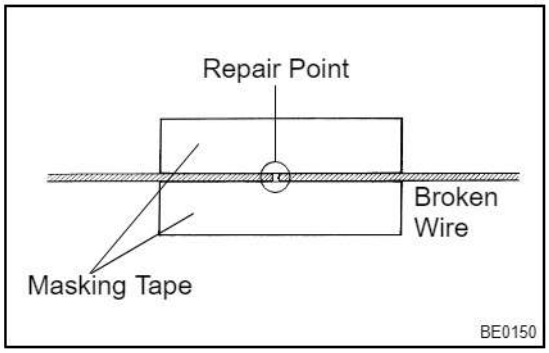
HINT:
Matching module is built in the bus bar of the glass printed antenna (main terminal side) of CELICA and no continuity exists between the terminal and the antenna. Therefore, for the continuity checking of the glass printed antenna on the main antenna side of CELICA, place one probe of the tester on the position beside the bus bar (position shown in the illustration) and check by moving the other probe of the tester along.

2. GLASS PRINTED ANTENNA REPAIR PROCEDURE

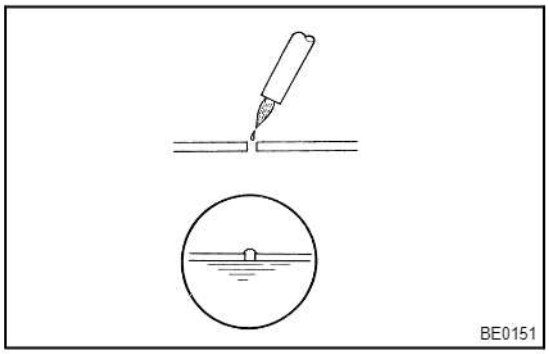
(a) Clean the broken wire tips with grease, wax and silicone remover.

(b) Place the masking tape along both sides of the wire for repair.

(c) Thoroughly mix the repair agent (Dupont paste No. 4817).



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(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.

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CLOCK

TROUBLESHOOTING

BE0G0-15

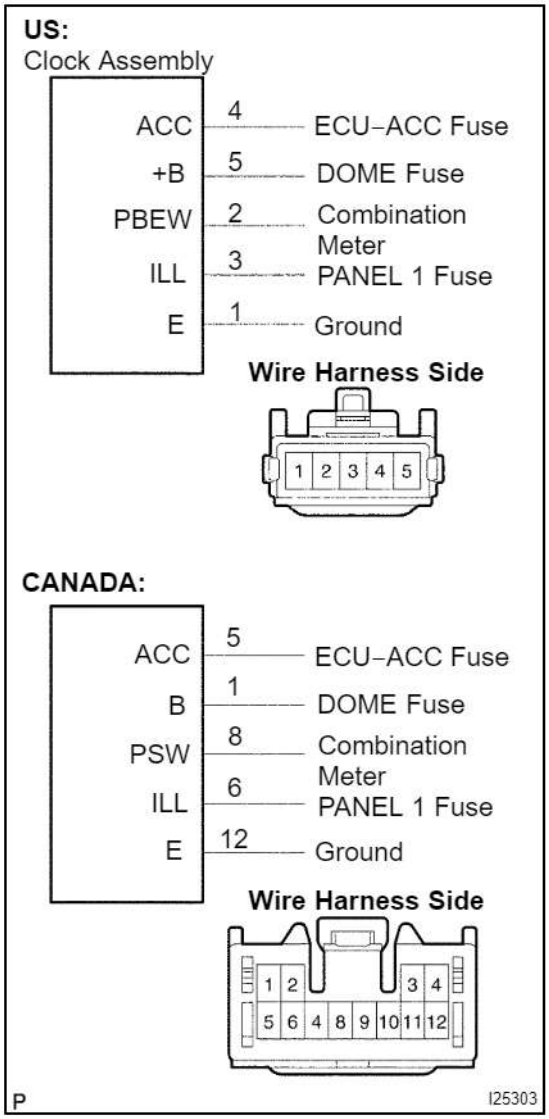
HINT:
Troubleshoot the clock according to the table below.

Troubleshooting	No.
Passenger seat belt warning light does not come on.	1
Clock does not operate.	1
Clock loses or gains time (± 1.5 seconds/day)	2

1. INSPECT CLOCK CIRCUIT

2. TROUBLESHOOTING NO.1

1	**PASSENGER SEAT BELT WARNING LIGHT DOES NOT OPERATE**
	CLOCK DOES NOT OPERATE



(a) Turn ignition switch ON.

(b) Check that the battery positive voltage is 10 – 16 V.

If voltage is not as specified, replace the battery.

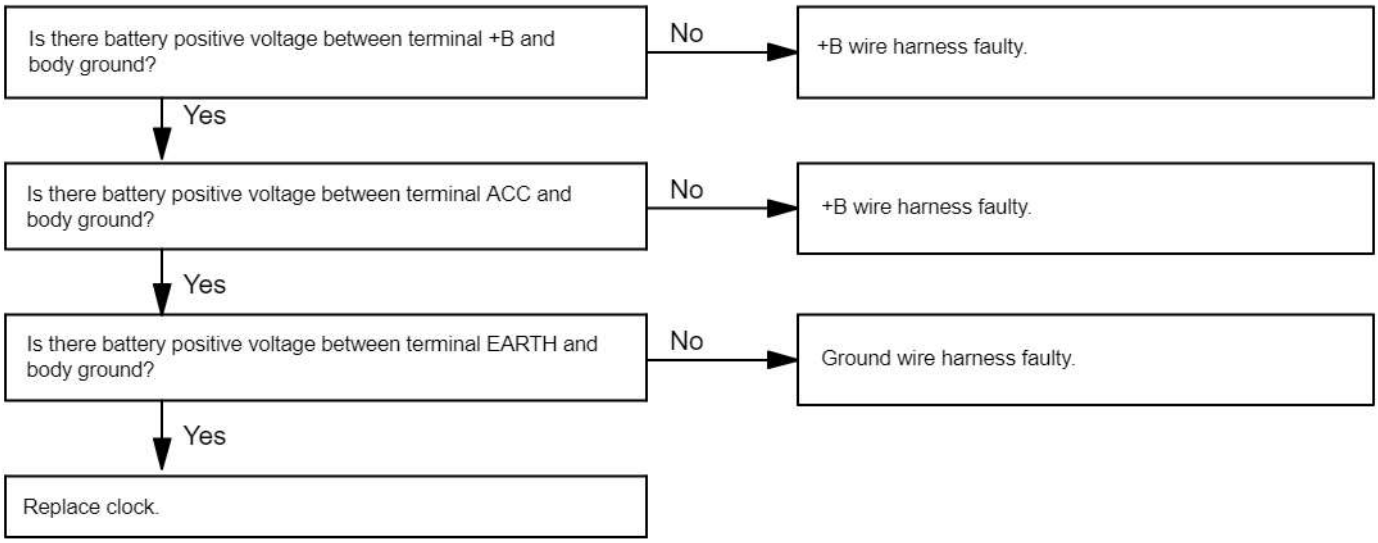
(c) Check that the DOME and ECU–ACC fuses are not blown.

If the fuse is blown, replace the fuse and check for short.

(d) Troubleshoot the clock as follows.

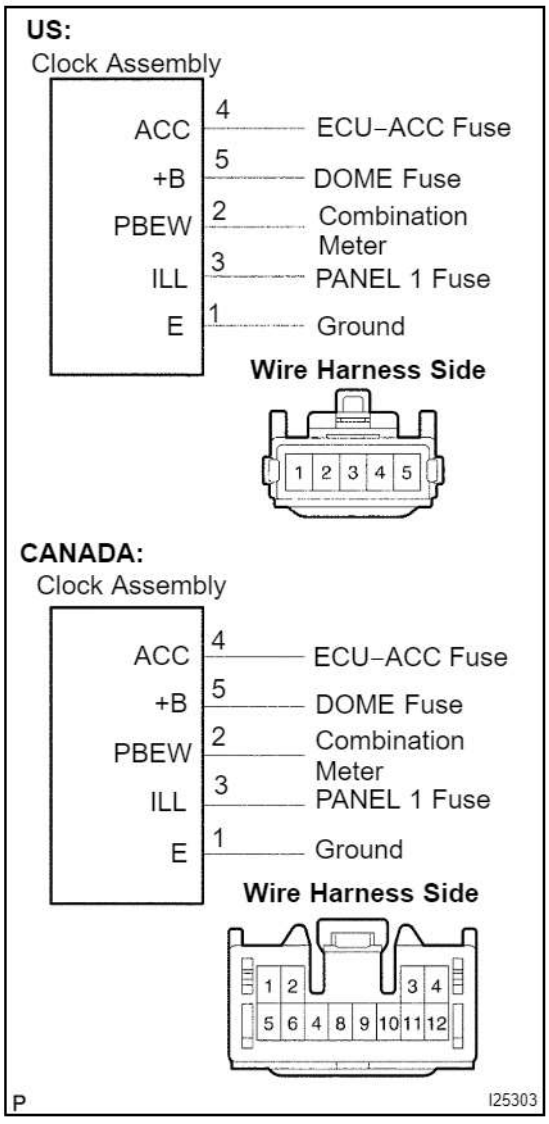
HINT:
Inspect the connector on the wire harness side.

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3. TROUBLESHOOTING NO.2

2	**CLOCK LOSES OR GAINS TIME**



(a) Turn ignition switch ON.

(b) Check that the battery positive voltage is 10 – 16 V.

If voltage is not as specified, replace the battery.

(c) Inspect the error of the clock.

Allowable error (per day): ± 1.5 seconds

If the error exceeds the allowable error, replace the clock.

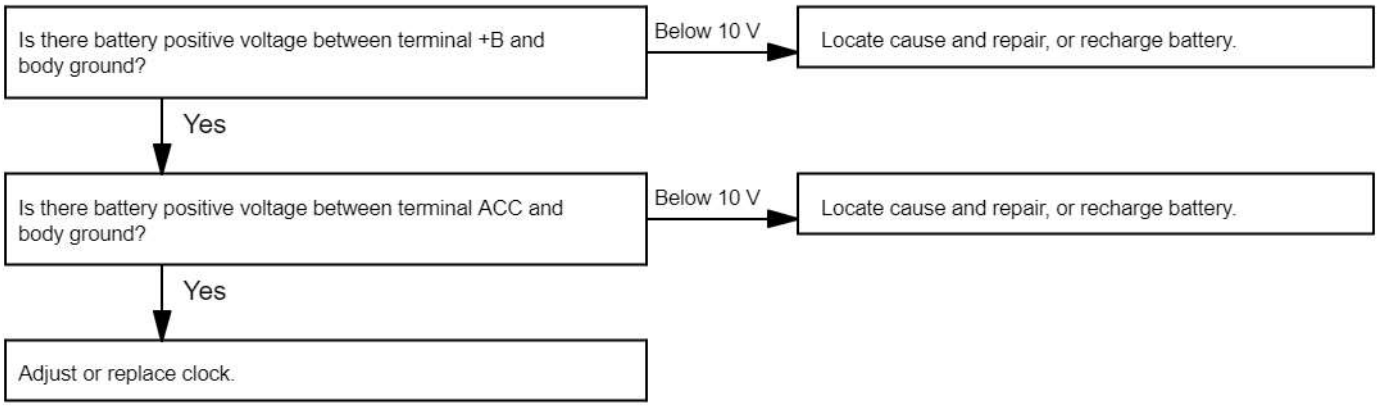
(d) Check if the clock adjusting button is sticking in position and has failed to return.

(e) Troubleshoot the clock as follows.

HINT:

Inspect the connector on the wire harness side.

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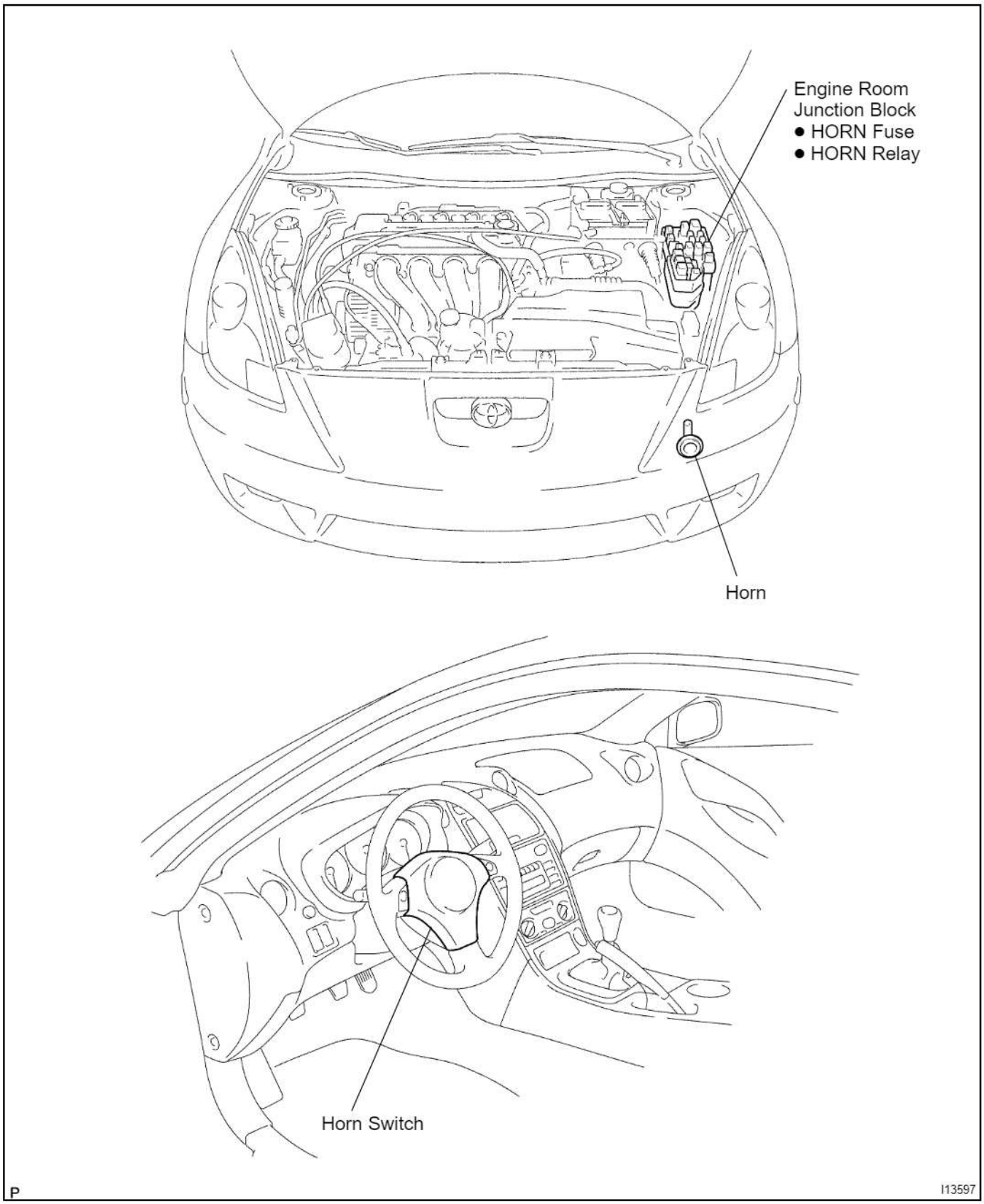


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HORN SYSTEM

LOCATION

BE0FY-33

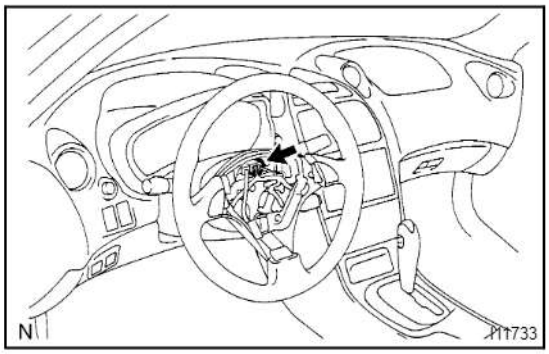


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BE0FZ-27

INSPECTION

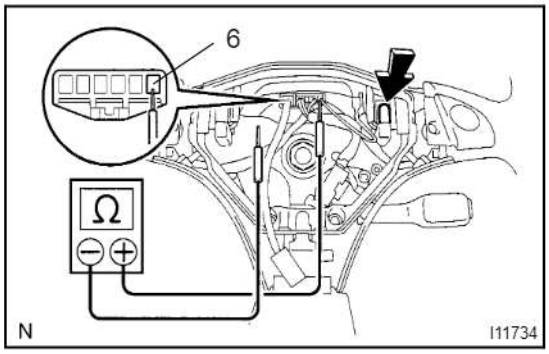
1. INSPECT HORN SWITCH



(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.

HINT:
Do not disconnect the connector from the horn pad.

(e) Disconnect the connector from the slip ring.

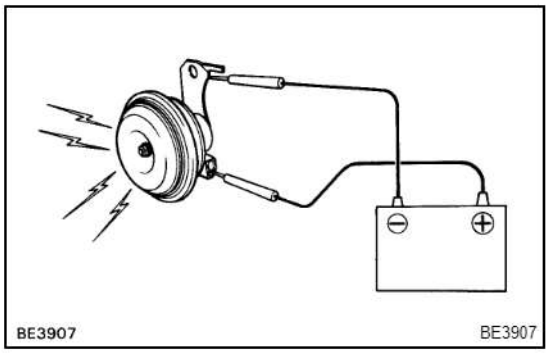


(f) Check that no continuity exists between terminal 6 of the connector and body ground.
(g) Check that continuity exists between terminal 6 of the connector and body ground when the horn contact plate is pressed against the steering spoke assembly.

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.

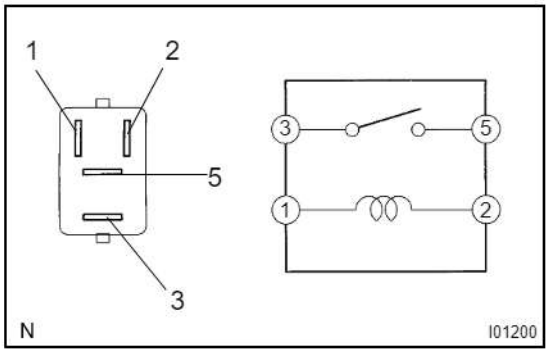
2. INSPECT HORN OPERATION



Connect the battery positive (+) lead from the battery to the terminal and battery negative (–) lead to the horn body and check that the horn blows.

If operation is not as specified, replace the horn.

3. 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.

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