

BODY ELECTRICAL SYSTEM

BE00M-04

PRECAUTION

HINT:

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

1. HEADLIGHT SYSTEM

Halogen bulbs have pressurized gas inside and require special handling. They can burst if scratched or dropped. Hold a bulb only by its plastic or metal case.

Don't touch the glass part of a bulb with bare hands.

2. SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

The MR2 is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag, failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly 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.

3. AUDIO SYSTEM

If the negative (–) terminal cable is disconnected from the battery, the preset AM, FM1 and FM2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.

4. MOBILE COMMUNICATION SYSTEM

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

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

BE00N-04

IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH:

Symptom	Suspected Area	See page
Ignition switch is not set to each position.	5. Ignition switch	BE-16
"Key unlock warning system" does not operate.	1. GAUGE fuse 2. Key unlock warning switch 3. Door courtesy switch 4. Body control system 5. Combinationmeter 6. Wire harness	BE-9 BE-16 BE-26 DI-354 – –

HEADLIGHT AND TAILLIGHT SYSTEM

Symptom	Suspected Area	See page
Headlight does not light. (Taillight is normal.)	1. HEAD fuse (LH UPR, RH UPR) 2. No. 2 daytime running relay 3. No. 4 daytime running relay 4. Headlight control relay 5. Headlight dimmer switch 6. Light control switch 7. Daytime running light relay (Main) 8. Headlight bulb 9. Wire harness	BE-9 BE-18 BE-18 BE-18 BE-18 BE-18 BE-18 – –
Headlight does not light. (Taillight does not light up.)	1. Light control switch 2. Daytime running light relay (Main) 3. Headlight bulb 4. Wire harness	BE-18 BE-18 – –
Only one side light does not light.	1. HEAD fuse (LH UPR, RH UPR) 2. Headlight bulb 3. Wire harness	BE-9 – –
"Lo-Beam" does not light. (ALL)	1. Headlight dimmer switch 2. No. 2 daytime running light relay 3. No. 4 daytime running light relay 4. Wire harness	BE-18 BE-18 BE-18 –
"Lo-Beam" does not light. (ONE SIDE)	1. HEAD LH LWR fuse 2. HEAD RH LWR fuse 3. Headlight bulb 4. Wire harness	BE-9 BE-9 – –
"Hi-Beam" does not light. (ALL)	1. Headlight dimmer switch 2. No. 2 daytime running light relay 3. No. 4 daytime running light relay 4. Wire harness	BE-18 BE-18 BE-18 –
"Hi-Beam" does not light. (ONE SIDE)	1. HEAD LH UPR fuse 2. HEAD RH UPR fuse 3. Headlight bulb 4. Wire harness	BE-9 BE-9 – –
"Flash" does not light.	1. Headlight dimmer switch 2. Daytime running light relay (Main) 3. Wire harness	BE-18 BE-18 –
"Light-on warning system" does not operate	1. GAUGE fuse 2. Door courtesy switch (Driver's) 3. Body control system 4. Combinationmeter 5. Wire harness	BE-9 BE-26 DI-354 – –

BODY ELECTRICAL – TROUBLESHOOTING

Headlight does not light with light control SW in HEAD.	<ol style="list-style-type: none"> 1. Light control switch 2. Daytime running light relay (Main) 3. No. 4 daytime running relay 4. Wire harness 	<p>BE-18 BE-18 BE-18 -</p>
Headlight does not go out with light control SW in OFF.	<ol style="list-style-type: none"> 1. No. 4 daytime running relay 2. Daytime running light relay (Main) 3. Light control switch 4. Wire harness 	<p>BE-18 BE-18 BE-18 -</p>
Taillight does not light with light control SW in TAIL.	<ol style="list-style-type: none"> 1. Taillight control relay 2. Light control switch 3. Wire harness 	<p>BE-18 BE-18 -</p>
Taillight does not go out with light control SW in OFF.	<ol style="list-style-type: none"> 1. Taillight control relay 2. Light control switch 3. Wire harness 	<p>BE-18 BE-18 -</p>
Headlight does not light with engine running and light control SW in OFF.	<ol style="list-style-type: none"> 1. GAUGE fuse 2. Generator L terminal 3. Parking brake switch 4. Brake fluid level warning switch 5. Daytime running light relay (Main) 6. Wire harness 	<p>BE-9 CH-10 BE-40 BE-40 BE-18 -</p>

TURN SIGNAL AND HAZARD WARNING SYSTEM

Symptom	Suspected Area	See page
"Hazard" and "Turn" do not light up.	<ol style="list-style-type: none"> 1. Hazard warning switch 2. Turn signal switch 3. Wire harness 	<p>BE-24 BE-24 -</p>
The flashing frequency is abnormal.	<ol style="list-style-type: none"> 1. Bulb 2. Turn signal flasher relay 3. Wire harness 	<p>- BE-24 -</p>
Hazard warning light does not light up. (Turn is normal.)	<ol style="list-style-type: none"> 1. HAZ fuse 2. Hazard warning switch 3. Wire harness 	<p>BE-9 BE-24 -</p>
Hazard warning light does not light up in one direction.	<ol style="list-style-type: none"> 1. Hazard warning switch 2. Wire harness 	<p>BE-24 -</p>
Turn signal does not light up.	<ol style="list-style-type: none"> 1. Ignition switch 2. TURN fuse 3. Turn signal switch 4. Wire harness 	<p>BE-16 BE-9 BE-24 -</p>
Turn signal does not light up in one direction.	<ol style="list-style-type: none"> 1. Turn signal switch 2. Wire harness 	<p>BE-24 -</p>
Only one bulb does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Wire harness 	<p>- -</p>

INTERIOR LIGHT SYSTEM

Symptom	Suspected Area	See page
Only one light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Wire harness 	<p>- -</p>
Interior light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Interior light assembly 3. Wire harness 	<p>- BE-26 -</p>
Illumination does not fade out when all the doors are closed.	<ol style="list-style-type: none"> 1. Courtesy switch 2. Combinationmeter 3. Body control system 4. DOME fuse 5. Wire harness 	<p>BE-26 BE-40 DI-354 BE-9 -</p>

BACK-UP LIGHT SYSTEM

Symptom	Suspected Area	See page
Back-up light does not light up.	1. GAUGE fuse 2. Back-up light switch 3. Bulb 4. Wire harness	BE-9 BE-28 – –
Back-up light remains always ON.	1. Back-up light switch 2. Wire harness	BE-28 –
Only one light does not light up.	1. Bulb 2. Wire harness	– –

STOP LIGHT SYSTEM

Symptom	Suspected Area	See page
Stop light does not light up.	1. STOP fuse 2. Stop light switch 3. Bulb 4. Wire harness	BE-9 BE-30 – –
Stop light remains always ON.	1. Stop light switch 2. Wire harness	BE-30 –
Only one light does not light up.	1. Bulb 2. Wire harness	– –

WIPER AND WASHER SYSTEM

Symptom	Suspected Area	See page
Wipers and washers do not operate.	1. WIPER fuse 2. Ignition switch 3. Wiper and washer switch 4. Wire harness	BE-9 BE-16 BE-32 –
Front wiper does not operate.	1. WIPER fuse 2. Front wiper and washer switch 3. Front wiper motor 4. Wire harness	BE-9 BE-32 BE-32 –
Front washer does not operate.	1. WASHER fuse 2. Front wiper and washer switch 3. Washer motor 4. Wire harness	BE-9 BE-32 BE-32 –

Meter, Gauges and Illumination:**COMBINATION METER**

Symptom	Suspected Area	See page
Tachometer, fuel gauge and engine coolant temperature gauge do not operate.	1. RADIO2 fuse 2. GAUGE fuse 3. Meter circuit 4. Wire harness	BE-9 BE-9 BE-38 –
Speedometer does not operate.	1. Vehicle speed sensor 2. ABS ECU 3. Meter circuit 4. Wire harness	BE-40 DI-202 BE-38 –
Tachometer does not operate.	1. ECM 2. Meter circuit 3. Wire harness	DI-1 BE-38 –
Fuel gauge does not operate or abnormal operation.	1. Fuel sender gauge 2. Meter circuit 3. Wire harness	BE-40 BE-38 –

BODY ELECTRICAL – TROUBLESHOOTING

Engine coolant temperature gauge does not operate or abnormal operation.	<ol style="list-style-type: none"> 1. Engine coolant temperature receiver gauge 2. ECM 3. Meter circuit 4. Wire harness 	<p>BE-40 DI-1 BE-38 -</p>
All illumination lights do not light up.	<ol style="list-style-type: none"> 1. Light control switch 2. TAIL1 fuse 3. Light control rheostat 4. Meter circuit 5. Wire harness 	<p>BE-18 BE-9 BE-40 BE-38 -</p>
Only one illumination light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Meter circuit 	<p>- BE-38</p>

**Warning Lights:
COMBINATION METER**

Symptom	Suspected Area	See page
Warning lights do not light up. (Except discharge and door open.)	<ol style="list-style-type: none"> 1. LED 2. IGN fuse 3. Ignition switch 4. Meter circuit 5. Generator 6. Wire harness 	<p>- BE-9 BE-16 BE-38 CH-10 -</p>
Brake warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Brake fluid level warning switch 3. Parking brake switch 4. Daytime running light relay (Main) 5. Meter circuit 6. Wire harness 	<p>- BE-40 BE-40 BE-18 BE-38 -</p>
Seat belt warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Seat belt buckle switch 3. Body control system 4. Meter circuit 5. Wire harness 	<p>- BE-40 DI-354 BE-38 -</p>
Low oil pressure warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ECM 3. Oil pressure warning switch 4. Meter circuit 5. Wire harness 	<p>- DI-1 BE-40 BE-38 -</p>
Door open warning light does not light up.	<ol style="list-style-type: none"> 1. LED 2. DOME fuse 3. Door courtesy switch 4. Body control system 5. Meter circuit 6. Wire harness 	<p>- BE-9 BE-26 DI-354 BE-38 -</p>

**Indicator Lights:
COMBINATION METER**

Symptom	Suspected Area	See page
SRS indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. Airbag sensor assembly 3. Meter circuit 4. Wire harness 	<p>- DI-235 BE-38 -</p>
PS indicator light does not light up	<ol style="list-style-type: none"> 1. LED 2. Vane pump assembly with motor 3. Meter circuit 4. Wire harness 	<p>- SR-26 BE-38 -</p>

ABS indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ABS ECU 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">DI-202</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>
Malfunction indicator light does not light up.	<ol style="list-style-type: none"> 1. LED 2. ECM 3. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">DI-1</p> <p style="text-align: center;">–</p>
Turn indicator light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Turn signal and hazard warning system 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">BE-2</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>
High beam indicator light does not light up.	<ol style="list-style-type: none"> 1. Bulb 2. Headlight and taillight system 3. Meter circuit 4. Wire harness 	<p style="text-align: center;">–</p> <p style="text-align: center;">BE-2</p> <p style="text-align: center;">BE-38</p> <p style="text-align: center;">–</p>

DEFOGGER SYSTEM

Symptom	Suspected Area	See page
All defogger systems do not operate.	<ol style="list-style-type: none"> 1. HTR fuse 2. DEF fuse 3. Defogger relay 4. Defogger switch 5. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-48</p> <p style="text-align: center;">BE-48</p> <p style="text-align: center;">–</p>
Rear window defogger does not operate.	<ol style="list-style-type: none"> 1. Defogger wire 2. Wire harness 	<p style="text-align: center;">BE-48</p> <p style="text-align: center;">–</p>

ELECTRIC TENSION REDUCER SYSTEM

Symptom	Suspected Area	See page
Tension reducer does not operate.	<ol style="list-style-type: none"> 1. GAUGE fuse 2. Buckle switch 3. Tension reducer solenoid 4. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-46</p> <p style="text-align: center;">BE-46</p> <p style="text-align: center;">–</p>

POWER WINDOW CONTROL SYSTEM

Symptom	Suspect Area	See page
Power window does not operate.	<ol style="list-style-type: none"> 1. D P/W fuse 2. P P/W fuse 3. Body control system 4. Ignition switch 5. Power window control switch 6. Wire harness 	<p style="text-align: center;">BE-9</p> <p style="text-align: center;">BE-9</p> <p style="text-align: center;">DI-354</p> <p style="text-align: center;">BE-16</p> <p style="text-align: center;">BE-52</p> <p style="text-align: center;">–</p>
"One touch power window system" does not operate.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>
Only one window glass does not move.	<ol style="list-style-type: none"> 1. Power window control switch 2. Power window motor 3. Wire harness 	<p style="text-align: center;">BE-52</p> <p style="text-align: center;">BE-52</p> <p style="text-align: center;">–</p>
"Window lock system" does not operate.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>
Illumination does not light up.	<ol style="list-style-type: none"> 1. Power window control switch 	<p style="text-align: center;">BE-52</p>

POWER DOOR LOCK CONTROL SYSTEM

Symptom	Suspected Area	See page
"Door lock control system" does not operate. (ALL)	1. Body control system 2. DOOR fuse 3. GAUGE fuse 4. Wire harness 5. Other parts	DI-354 BE-9 BE-9 - -
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-56 DI-354 - -
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-56 DI-354 - -
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-56 DI-354 - -
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-56 BE-26 BE-56 DI-354 - -
Only one door lock does not operate.	1. Door lock motor 2. Wire harness	BE-56 -

POWER MIRROR CONTROL SYSTEM

Symptom	Suspected Area	See page
Mirror does not operate.	1. RADIO2 fuse 2. Mirror switch 3. Mirror motor	BE-9 BE-61 BE-61
Mirror operates abnormally.	1. Mirror switch 2. Mirror motor 3. Wire harness	BE-61 BE-61 -

AUDIO SYSTEM

Symptom	Suspected Area	See page
Audio system abnormal operation.	TROUBLESHOOTING	BE-71

CLOCK SYSTEM (in Heater Control Panel)

Symptom	Suspected Area	See page
Clock will not operate.	TROUBLESHOOTING NO. 1	BE-94
Clock loses or gains time.	TROUBLESHOOTING NO. 2	BE-94

ENGINE IMMOBILIZER SYSTEM

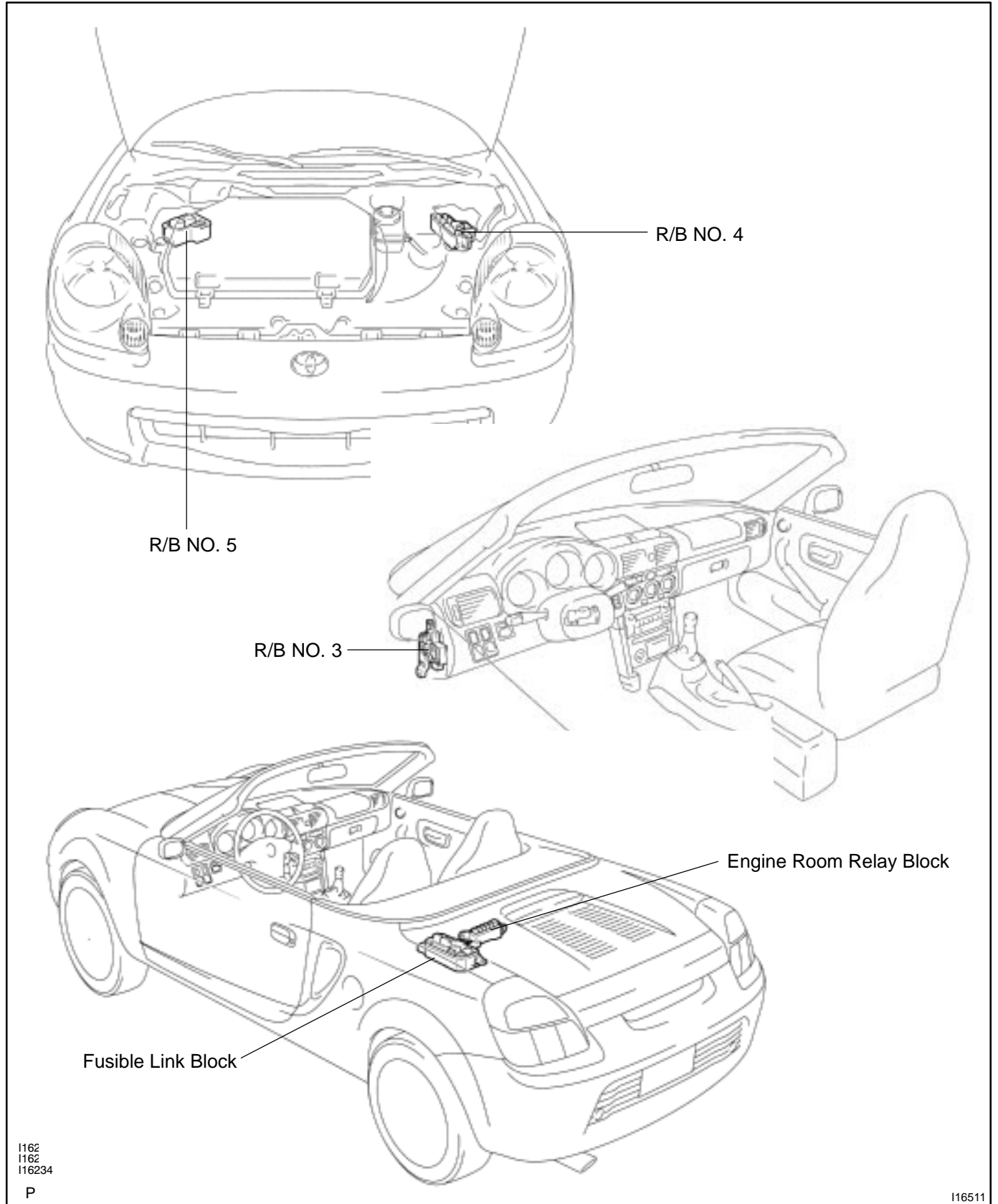
Symptom	Suspected Area	See page
Engine immobilizer system does not operate.	See DIAGNOSIS SYSTEM	DI-335

HORN SYSTEM

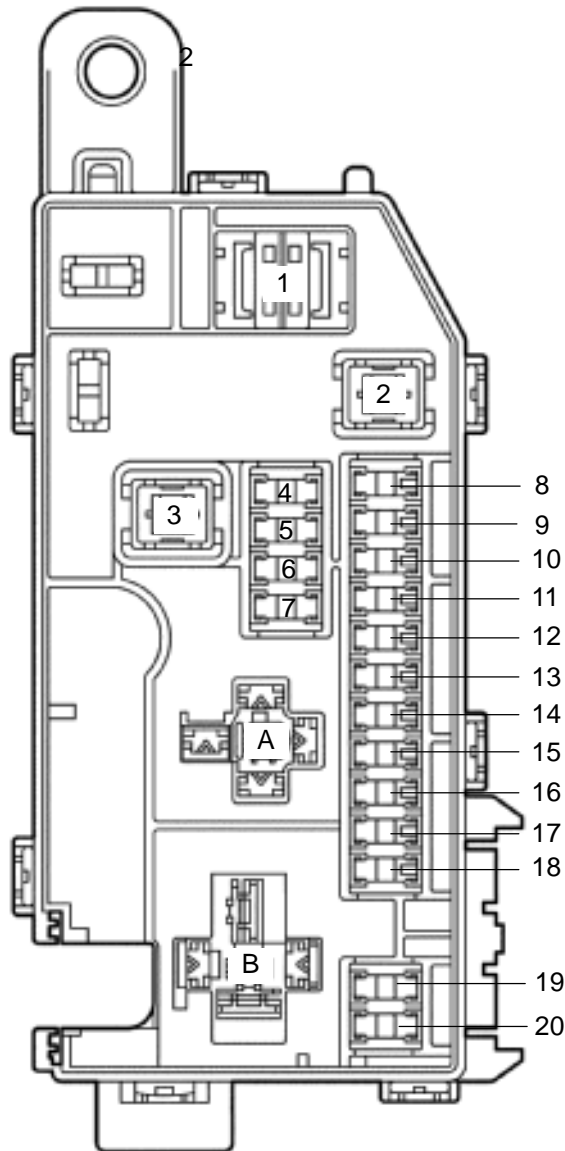
Symptom	Suspected Area	See page
Horn system does not operate.	<ol style="list-style-type: none"> 1. HORN fuse 2. Horn relay 3. Horn switch 4. Horn 5. Wire harness 	BE-9 BE-106 BE-106 BE-106 –
Horns blow all the time.	<ol style="list-style-type: none"> 1. Horn relay 2. Horn switch 3. Wire harness 	BE-106 BE-106 –
One horn operates but the other horn does not operate.	<ol style="list-style-type: none"> 1. Horn 2. Wire harness 	BE-106 –
Horns operate abnormally.	<ol style="list-style-type: none"> 1. Horn relay 2. Horn 3. Wire harness 	BE-106 BE-106 –

POWER SOURCE LOCATION

BE1K3-01



Fusible Link Block



Fuses

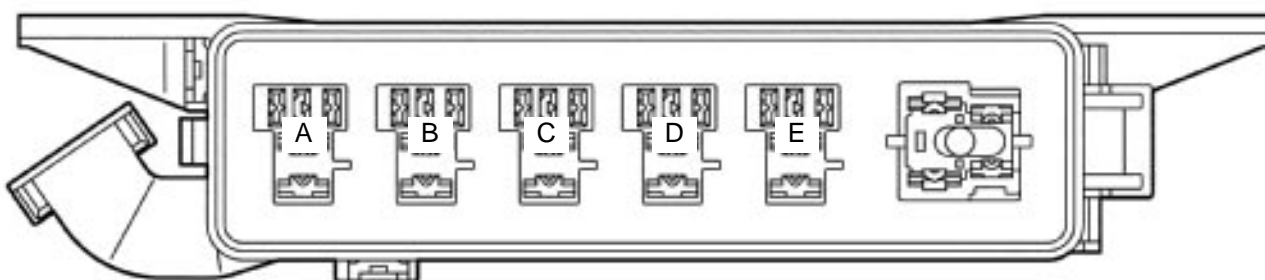
1. FL ALT	100 A
2. MAIN	40 A
3. HTR	40 A
4. EFI2	7.5 A
5. ST	7.5 A
6. SMT-IG	10 A
7. -	
8. -	
9. ALT-S	7.5 A
10. ECU-B1	25 A
11. SMT-B	10 A
12. HORN	10 A
13. HAZ	15 A
14. AM2	15 A
15. IG2	15 A
16. EFI1	15 A
17. ETCS	15 A
18. HPU	30 A
19. DRL NO.1	7.5 A
20. DRL NO.2	20 A

Relays

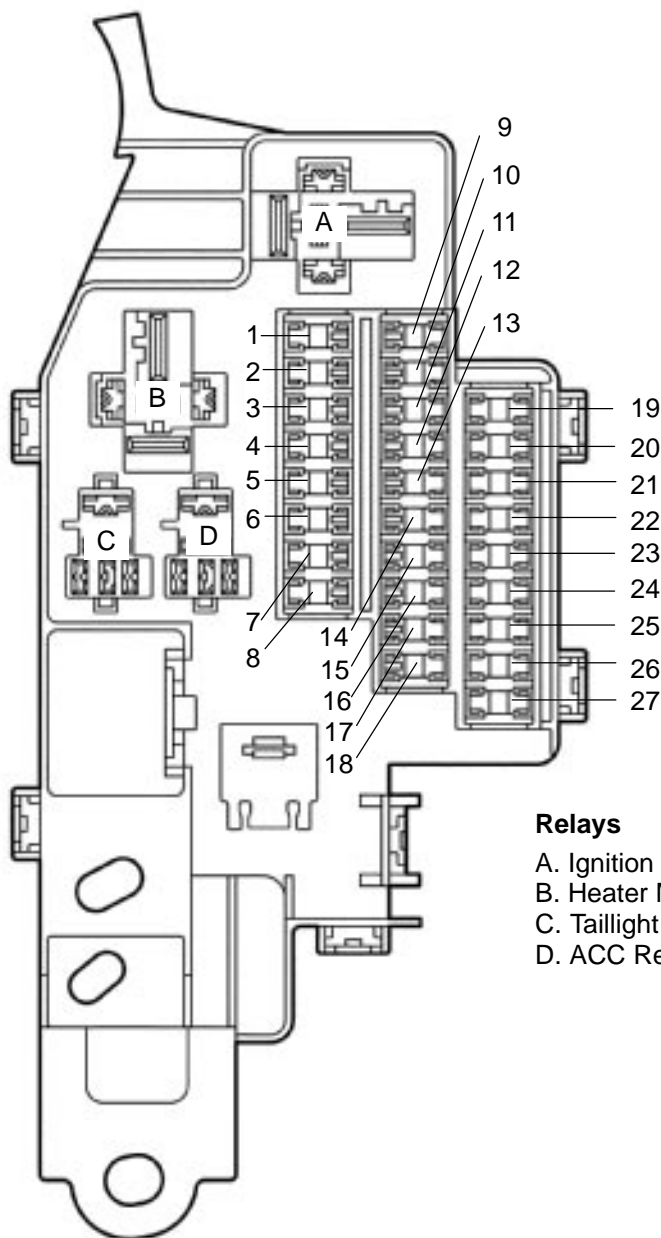
- A. Starter Relay (Marking: ST)
- B. Headlight Control Relay (Marking: H-LP)

Engine Room Relay Block**Relays**

- A. Circuit Opening Relay (Marking: C/OPN)
- B. Ignition Relay (Marking: IG2)
- C. Horn Relay (Marking: HORN)
- D. EFI Main Relay (Marking: EFI)
- E. Magnetic Clutch Relay (Marking: A/C COMP)



R/B NO. 3



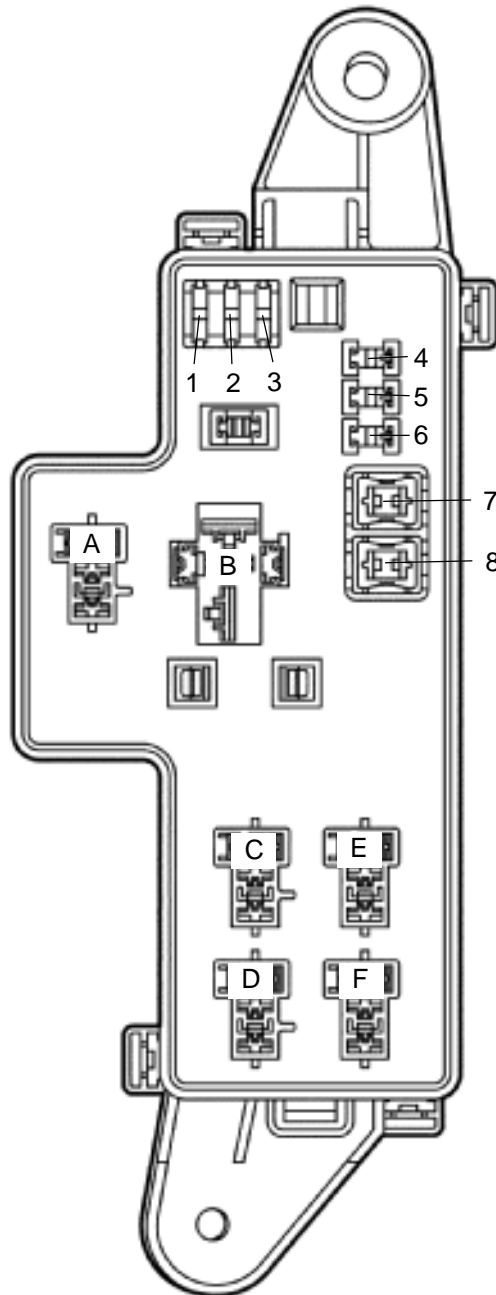
Fuses

1. WASHER	10 A
2. HTR	10 A
3. WIPER	20 A
4. ECU-IG	7.5 A
5. FAN-IG	7.5 A
6. TURN	7.5 A
7. GAUGE	7.5 A
8. SRS	7.5 A
9. DEF	25 A
10. OBD	7.5 A
11. AM1	7.5 A
12. ACC	25 A
13. DOOR	15 A
14. -	
15. STOP	15 A
16. TAIL1	20 A
17. D P/W	20 A
18. P P/W	20 A
19. RADIO1	15 A
20. DOME	10 A
21. ECU-B	10 A
22. TAIL2	10 A
23. PANEL	7.5 A
24. RADIO2	7.5 A
25. CIG	15 A
26. I/UP	7.5 A
27. -	

Relays

- A. Ignition Relay
- B. Heater Main Relay
- C. Taillight Control Relay
- D. ACC Relay

R/B NO. 4



Fuses

- | | |
|------------|------|
| 1. SPARE | 30 A |
| 2. SPARE | 15 A |
| 3. SPARE | 20 A |
| 4. CDS FAN | 30 A |
| 5. ABS1 | 20 A |
| 6. RDI FAN | 30 A |
| 7. EHPS | 50 A |
| 8. ABS2 | 40 A |

Relays

- A. NO. 1 Cooling Fan Relay (Marking: FAN NO.1)
- B. EHPS Relay (Marking: EHPS)
- C. NO. 3 Cooling Fan Relay (Marking: FAN NO.3)
- D. NO. 2 Cooling Fan Relay (Marking: FAN NO.2)
- E. ABS Motor Relay (Marking: ABS MTR)
- F. ABS Solenoid Relay (Marking: ABS SOL)

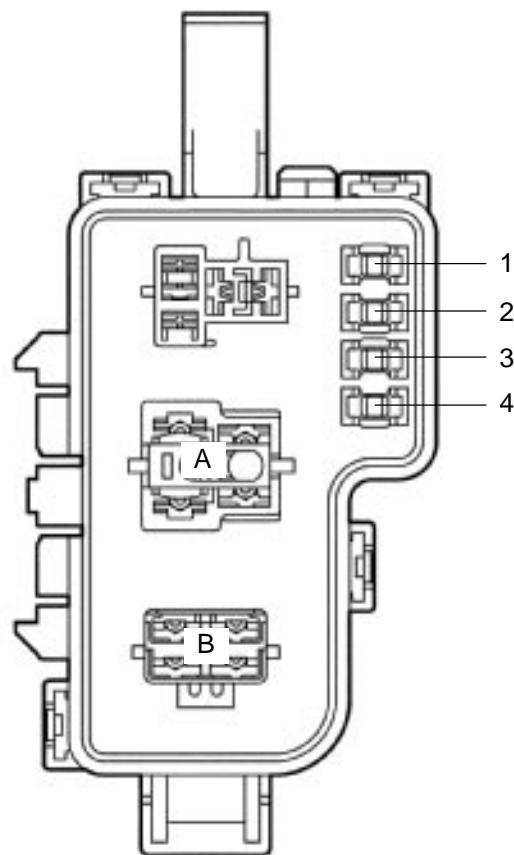
R/B NO. 5

Fuses

1. HEAD RH LWR	10 A
2. HEAD LH LWR	10 A
3. HEAD RH UPR	10 A
4. HEAD LH UPR	10 A

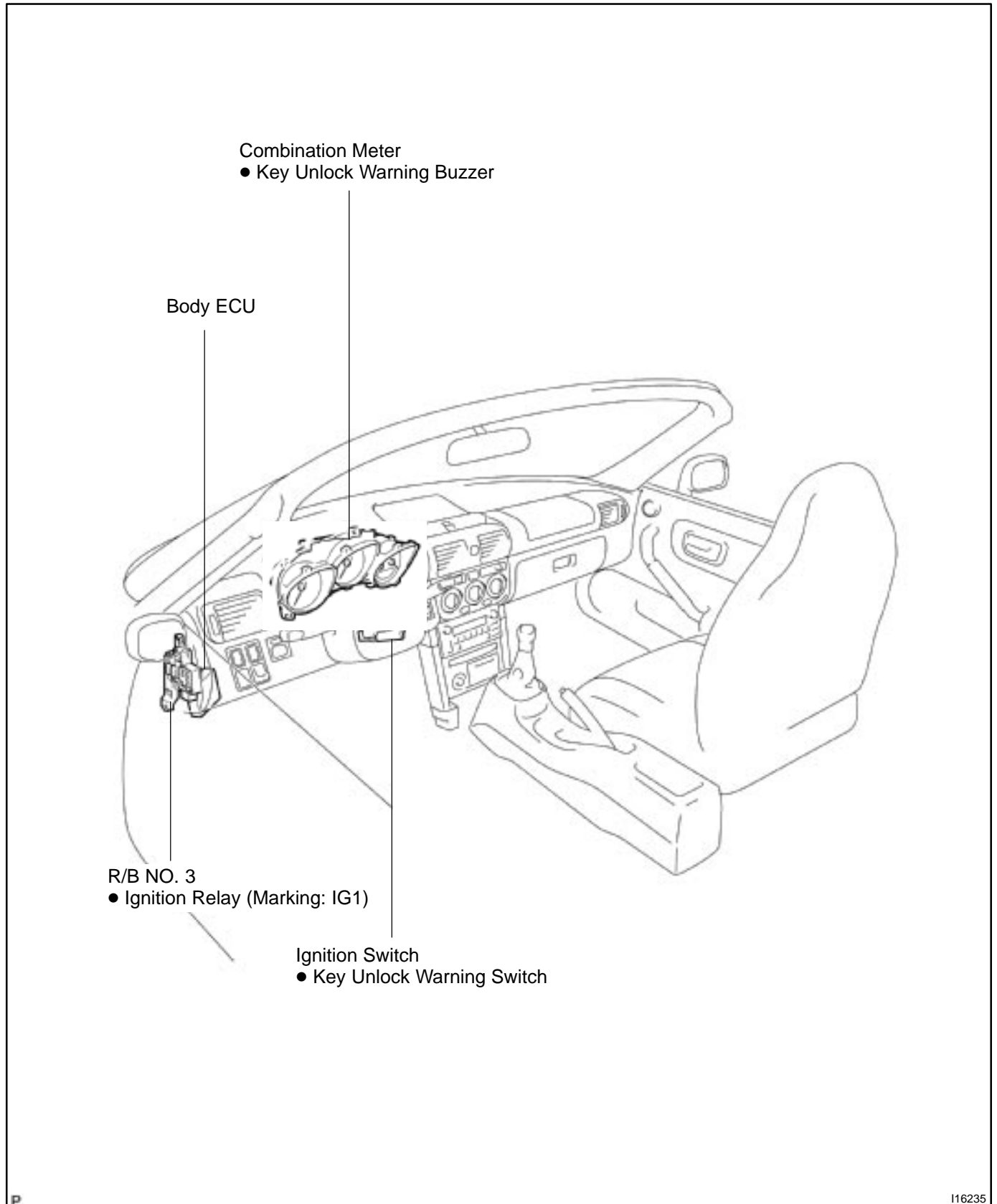
Relays

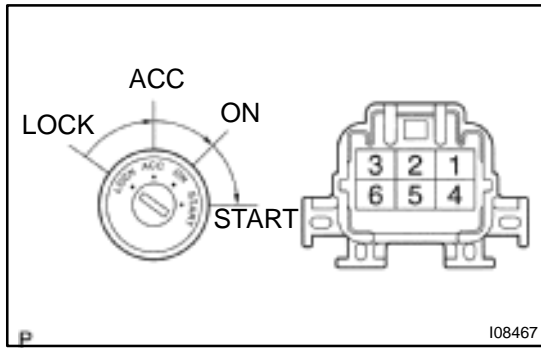
A. NO. 4 Daytime Running Light Relay (Marking: DRL NO.4)
B. NO. 2 Daytime Running Light Relay (Marking: DRL NO.2)



IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH LOCATION

BE00P-05



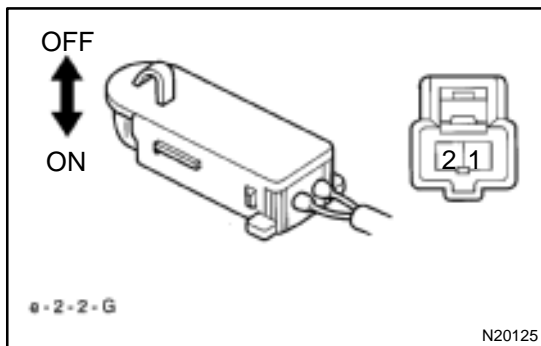


INSPECTION

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

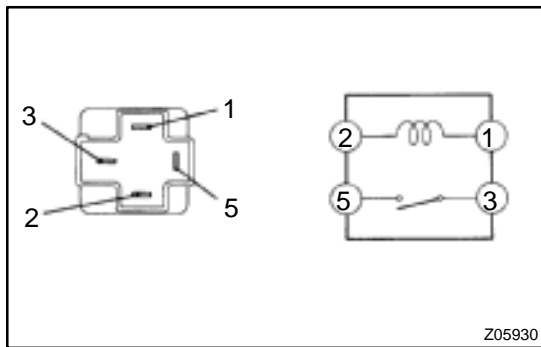
If continuity is not as specified, replace the switch.



2. INSPECT KEY UNLOCK WARNING SWITCH CONTINUITY

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

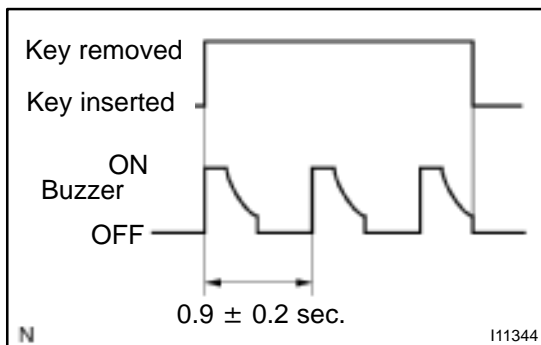
If continuity is not as specified, replace the switch.



3. INSPECT IGNITION RELAY (Marking: IG1) 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.



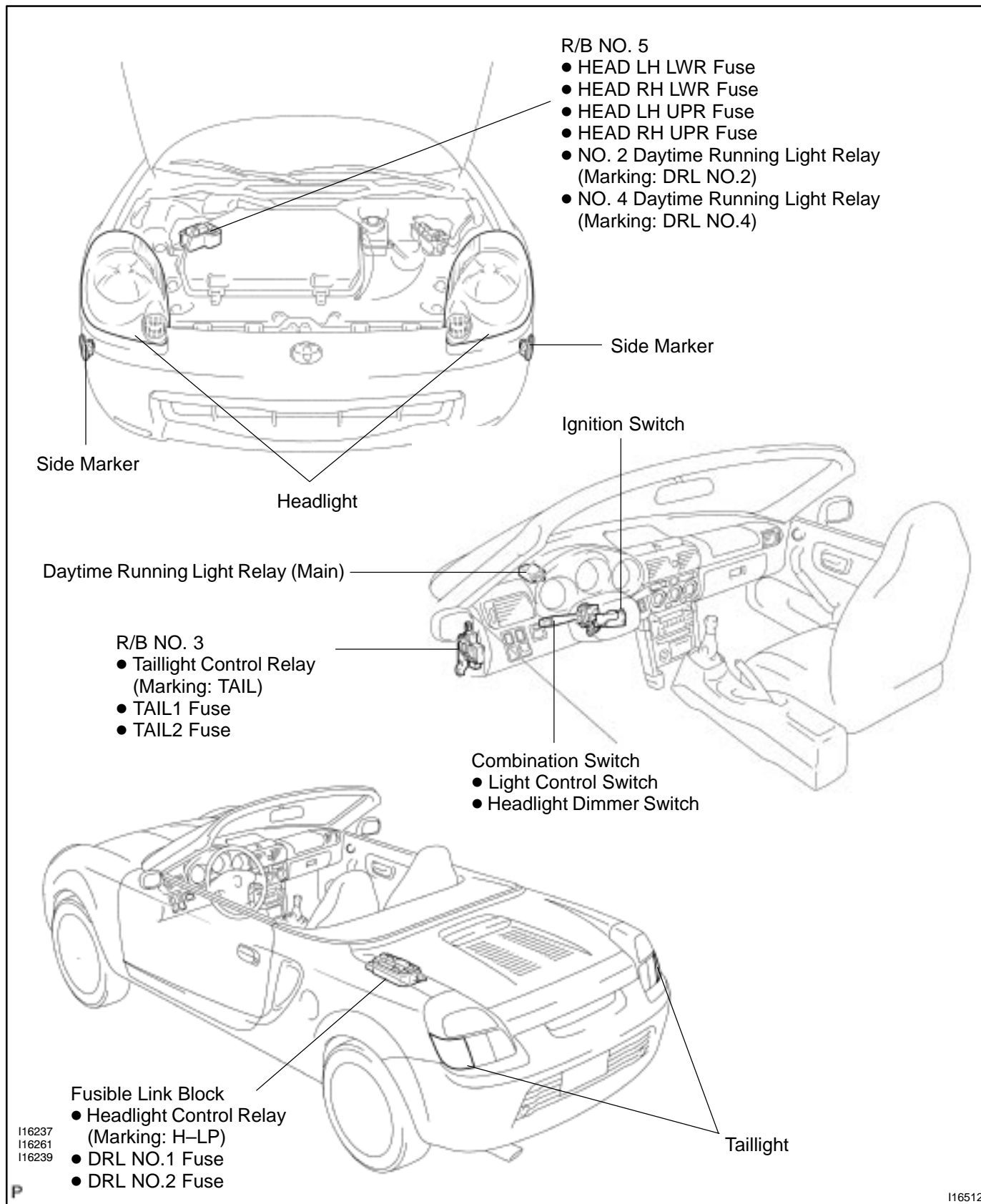
4. INSPECT KEY UNLOCK WARNING BUZZER

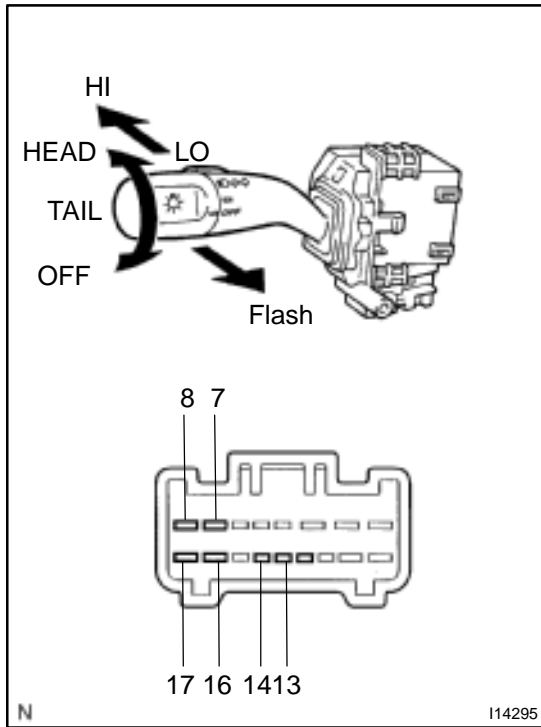
Check the buzzer sound when driver's door is opened and key inserted.

If operation is not as specified, replace the combination meter (See page [BO-41](#)).

HEADLIGHT AND TAILLIGHT SYSTEM LOCATION

BE00R-05





INSPECTION

1. INSPECT LIGHT CONTROL SWITCH CONTINUITY

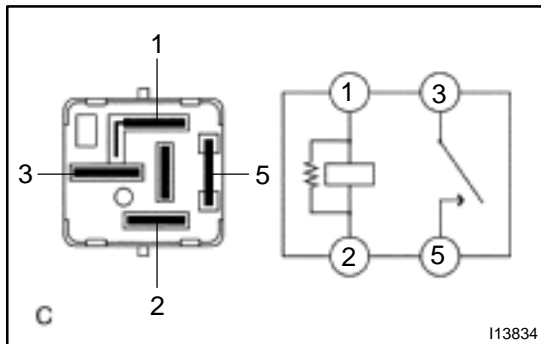
Switch position	Tester connection	Specified condition
OFF	-	No continuity
TAIL	14 - 16	Continuity
HEAD	13 - 14 - 16	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT HEADLIGHT DIMMER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LO beam	16 - 17	Continuity
HI beam	7 - 16	Continuity
Flash	7 - 8 - 16	Continuity

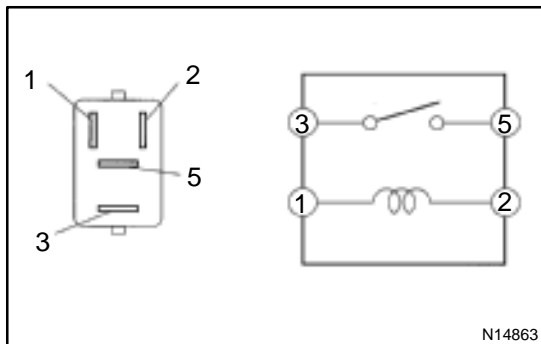
If continuity is not as specified, replace the switch.



3. INSPECT HEADLIGHT CONTROL RELAY (Marking: H-LP) CONTINUITY

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

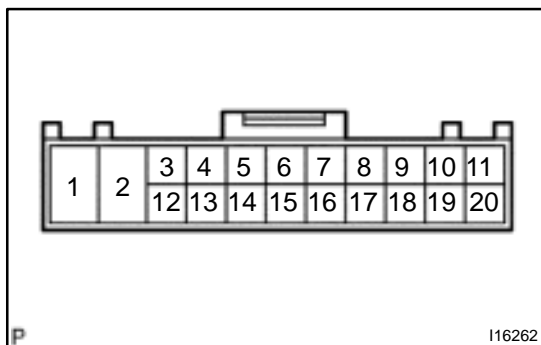
If continuity is not as specified, replace the relay.



4. INSPECT TAILLIGHT CONTROL RELAY (Marking: TAIL) 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.



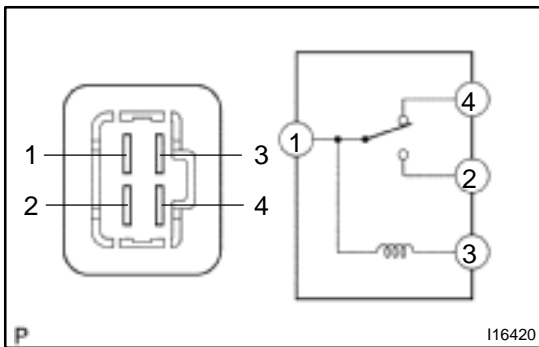
5. INSPECT DAYTIME RUNNING LIGHT RELAY (MAIN) CIRCUIT

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

BODY ELECTRICAL – HEADLIGHT AND TAILLIGHT SYSTEM

Tester connection	Condition	Specified condition
1 – Ground	Constant	Continuity
2 – Ground	Constant	Continuity
3 – Ground	Constant	Battery positive voltage
4 – Ground	Constant	Continuity
5 – Ground	Constant	Continuity
6 – Ground	Constant	Battery positive voltage
7 – Ground	Light control switch position OFF or TAIL	No continuity
7 – Ground	Light control switch position HEAD	Continuity
8 – Ground	Headlight dimmer switch position LO beam	No continuity
8 – Ground	Headlight dimmer switch position HI beam or Flash	Continuity
9 – Ground	Engine stop	No voltage
9 – Ground	Engine running	Battery positive voltage
10 – Ground	Brake fluid level warning position OFF	No continuity
10 – Ground	Brake fluid level warning position ON	Continuity
11 – Ground	Parking brake switch position OFF (Parking brake lever released)	No continuity
11 – Ground	Parking brake switch position ON (Parking brake lever pulled up)	Continuity
12 – Ground	Ignition switch position LOCK or ACC	No voltage
12 – Ground	Ignition switch position ON or START	Battery positive voltage

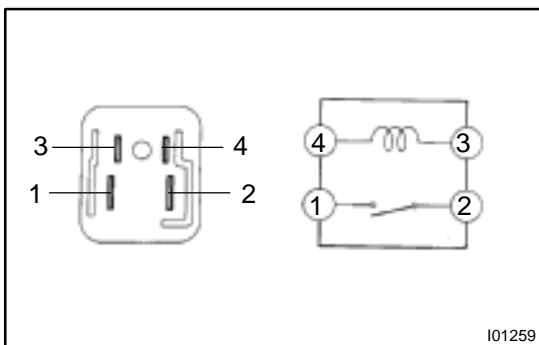
If circuit is as specified, try replacing the relay with a new one. If circuit is not as specified, inspect the circuits connected to other parts.



6. INSPECT NO. 2 DAYTIME RUNNING LIGHT RELAY (Marking: DRL NO.2) CONTINUITY

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

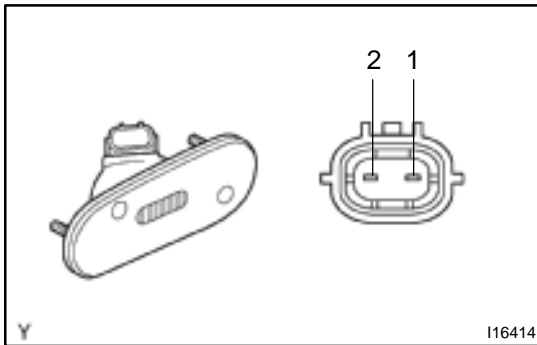
If continuity is not as specified, replace the relay.



7. INSPECT NO. 4 DAYTIME RUNNING LIGHT RELAY (Marking: DRL NO.4) CONTINUITY

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

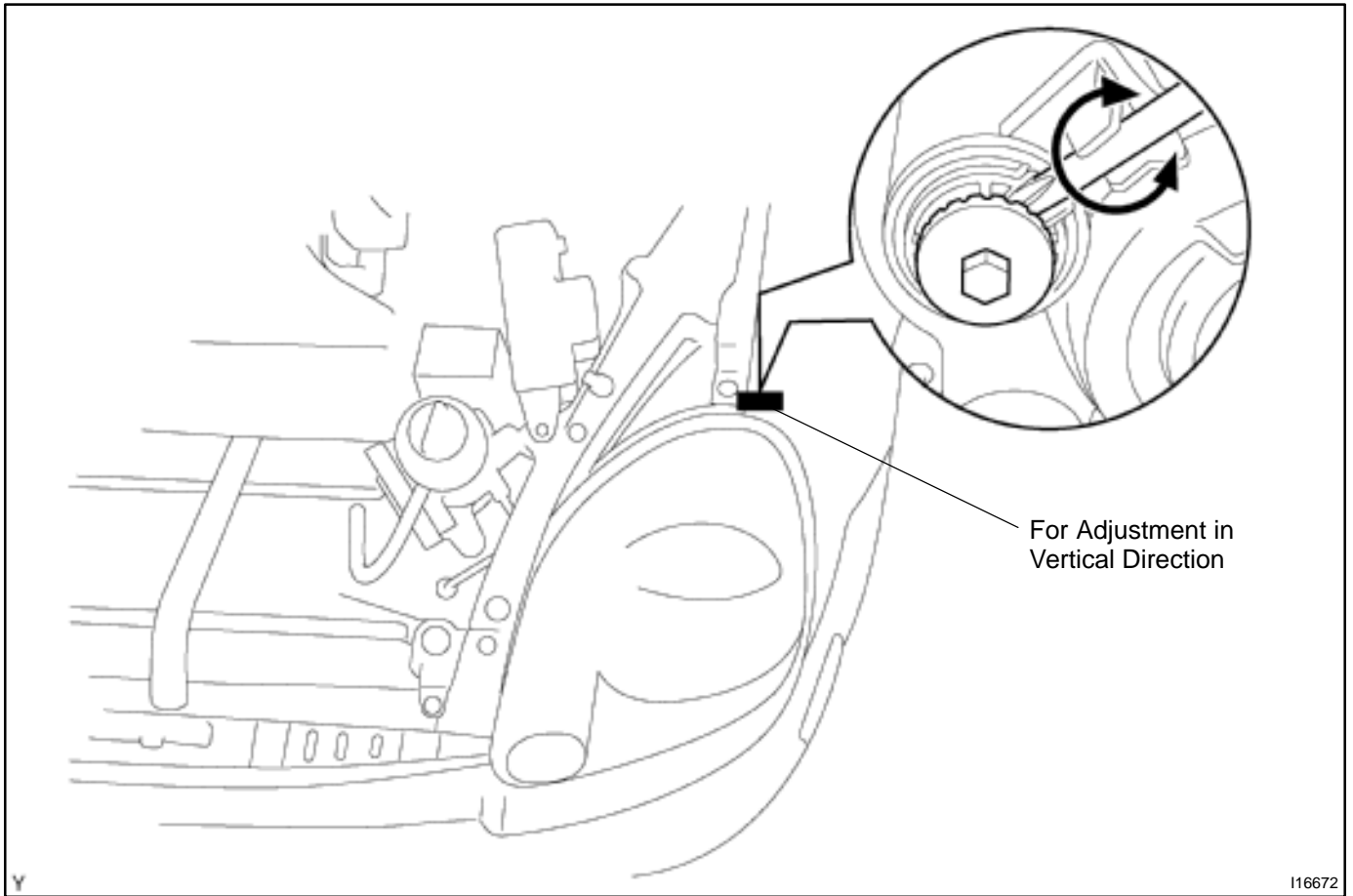
If continuity is not as specified, replace the relay.

**8. INSPECT SIDE MARKER LIGHT CONTINUITY**

Using an ohmmeter, check that continuity exists between terminals.

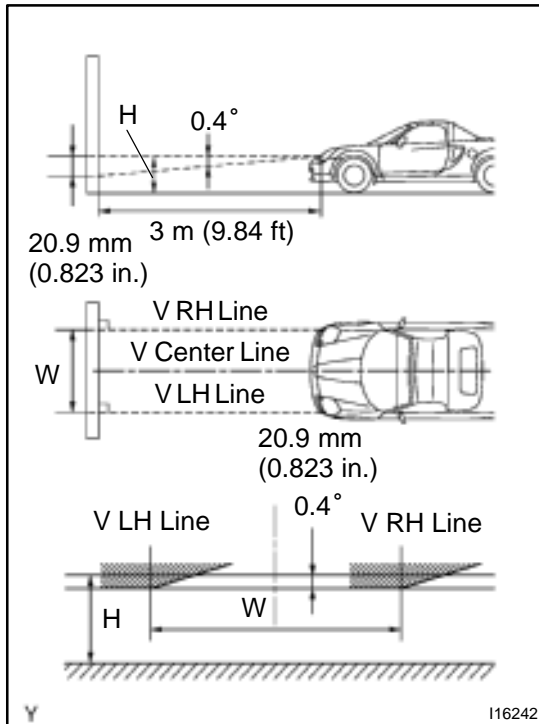
If continuity is not as specified, replace the light assembly or bulb.

ADJUSTMENT



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ADJUST HEADLIGHT AIM

- (a) Put the vehicle under the following conditions.
 - Make sure the body around the headlight is not deformed.
 - Park the vehicle on a level spot.
 - Get into the driver's seat and be ready for driving (with a full tank).
 - Bounce the vehicle several times.
 - Tire inflation pressure is the specified value.
- (b) Prepare the thick white colored paper.
- (c) Stand the paper perpendicularly and ensure the distance from it to the head lights is 3 m (9.84 ft).
- (d) Ensure that the center line of vehicle and the paper are at a 90 degree angle as shown in the illustration.(H line)
- (e) On the paper, draw a horizontal line indicating the longitudinal headlights (low beam and high beam center mark) position.
- (f) On the paper. draw a vertical line indicating the center of the vehicle (V center line)
- (g) On the paper, draw vertical lines indicating the lateral headlights (low beam and high beam center marks) positions.(V RH and LH lines)
- (h) Take an appropriate measure so as not to affect the other light.

NOTICE:

- **Disconnect the connector of another light to prevent heat affection from the light because the other lens of the head light assembly is made of synthetic resin. When connecting the connector again take care not to make the aiming out of adjustment.**
- **When covering the headlight, finish it within 3 minutes.**

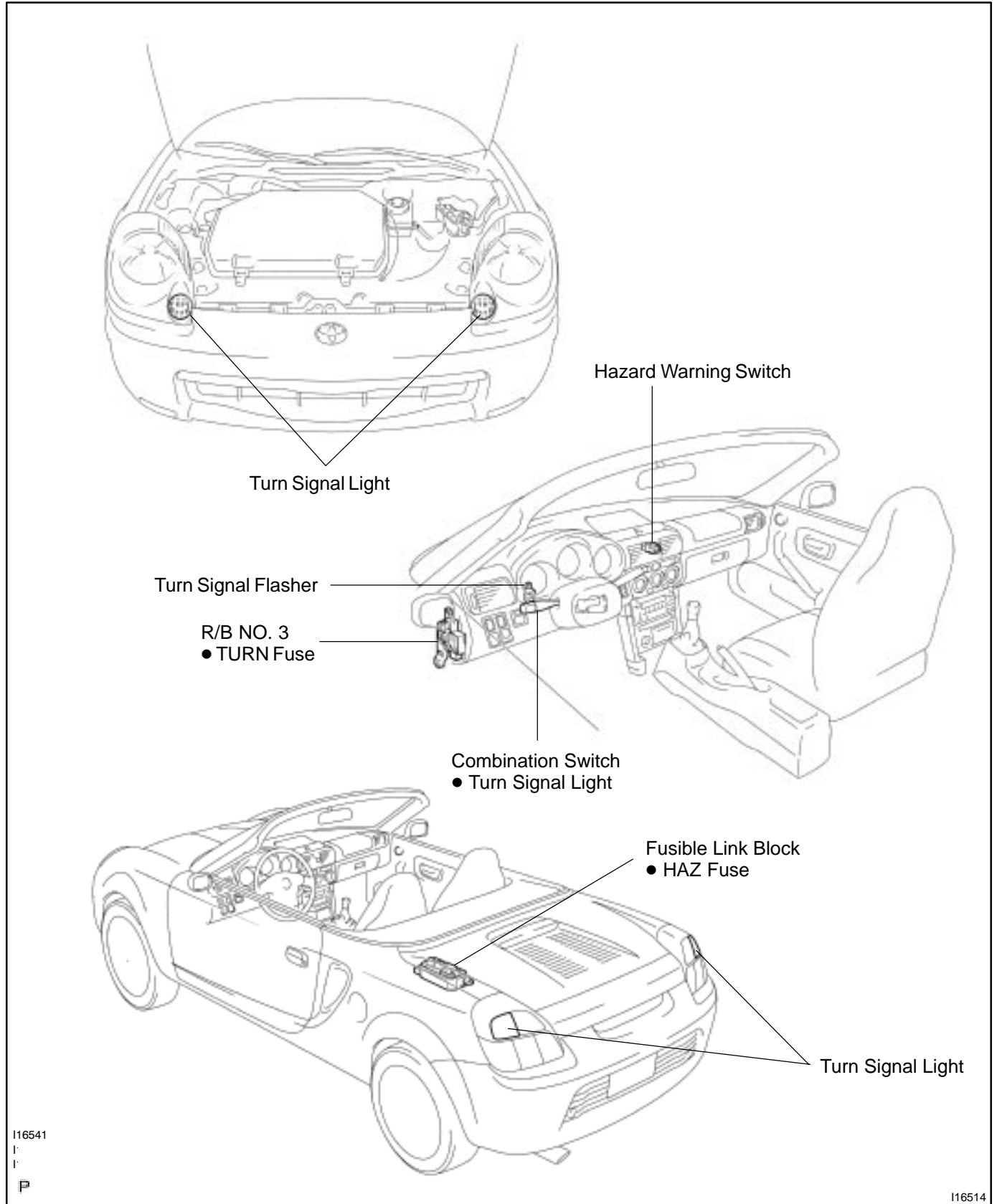
- (i) Turn the headlights ON.
- (j) Check that the head lights light up the paper as shown in the illustration.

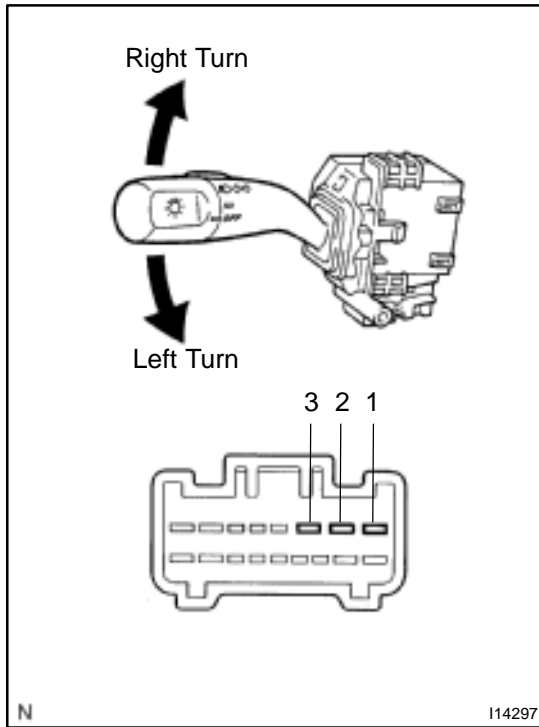
HINT:

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

TURN SIGNAL AND HAZARD WARNING SYSTEM LOCATION

BE00Y-04



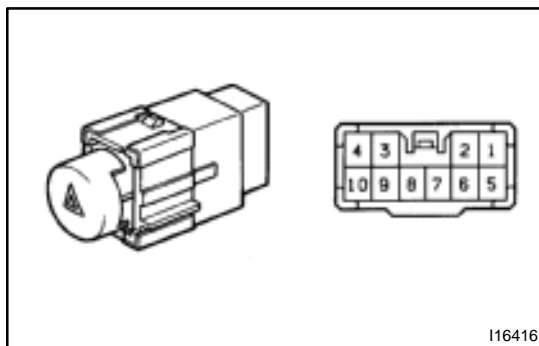


INSPECTION

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

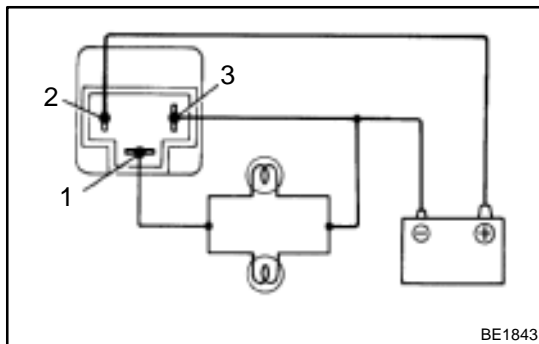
If continuity is not as specified, replace the switch.



2. INSPECT HAZARD WARNING SWITCH CONTINUITY

Condition	Tester connection	Specified condition
OFF	7 – 10	Continuity
ON	7 – 8, 4 – 5 – 6 – 9	Continuity
Illumination circuit	2 – 3	Continuity

If continuity is not as specified, replace the switch.



3. INSPECT TURN SIGNAL FLASHER OPERATION

- Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3.
- Connect the 2 turn signal light bulbs (21 W) parallel to each other to terminals 1 and 3, check that the bulbs flash.

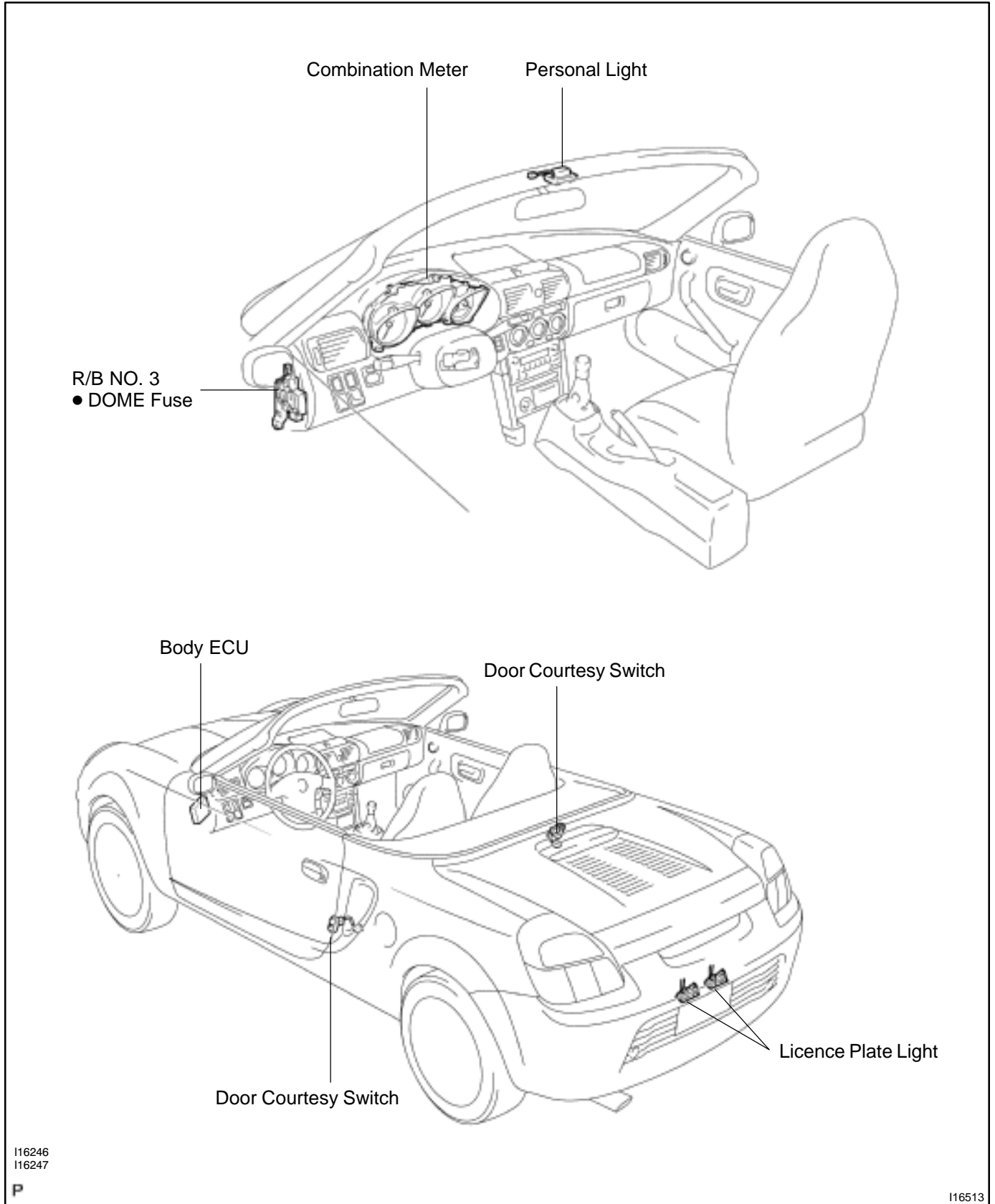
HINT:

- 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.

INTERIOR LIGHT SYSTEM LOCATION

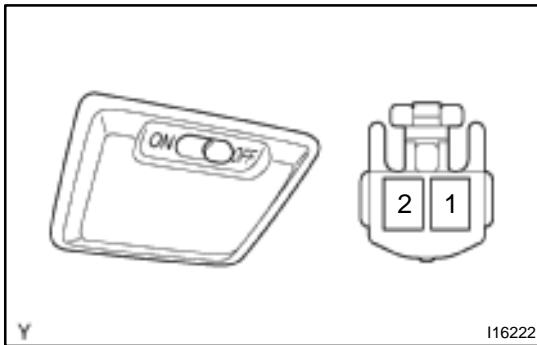
BE0P0-04



I16246
I16247

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I16513

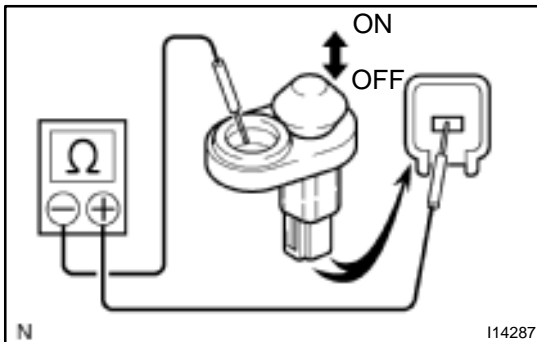


INSPECTION

1. INSPECT PERSONAL LIGHT CONTINUITY

Using an ohmmeter, check that continuity exists between terminals.

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

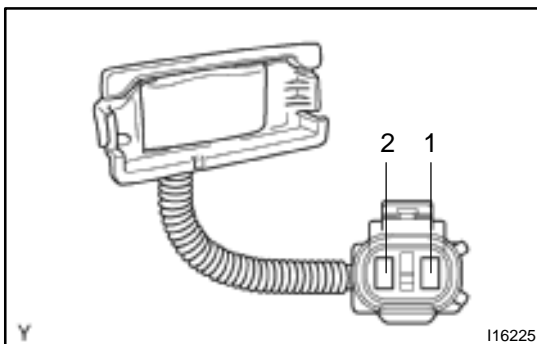


2. INSPECT DOOR COURTESY SWITCH CONTINUITY

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

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

If operation is not as specified, replace the switch.



3. INSPECT LICENCE PLATE LIGHT CONTINUITY

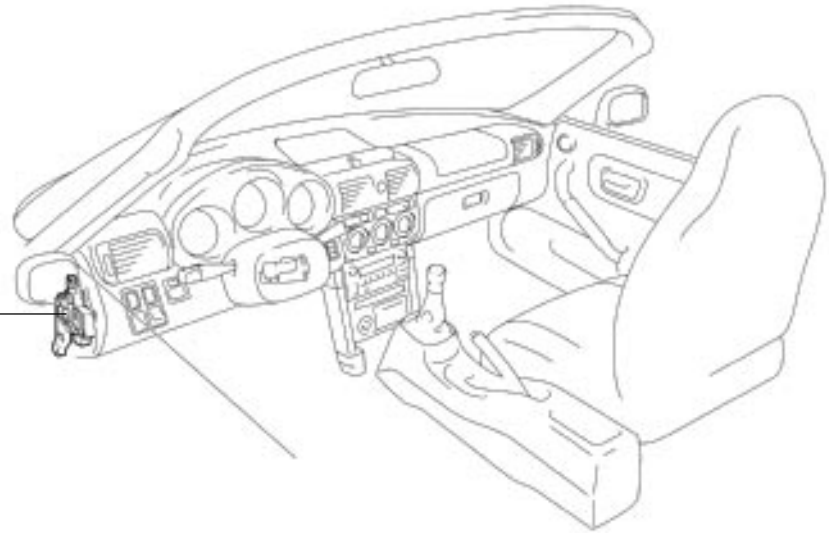
Using an ohmmeter, check that continuity exists between terminals.

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

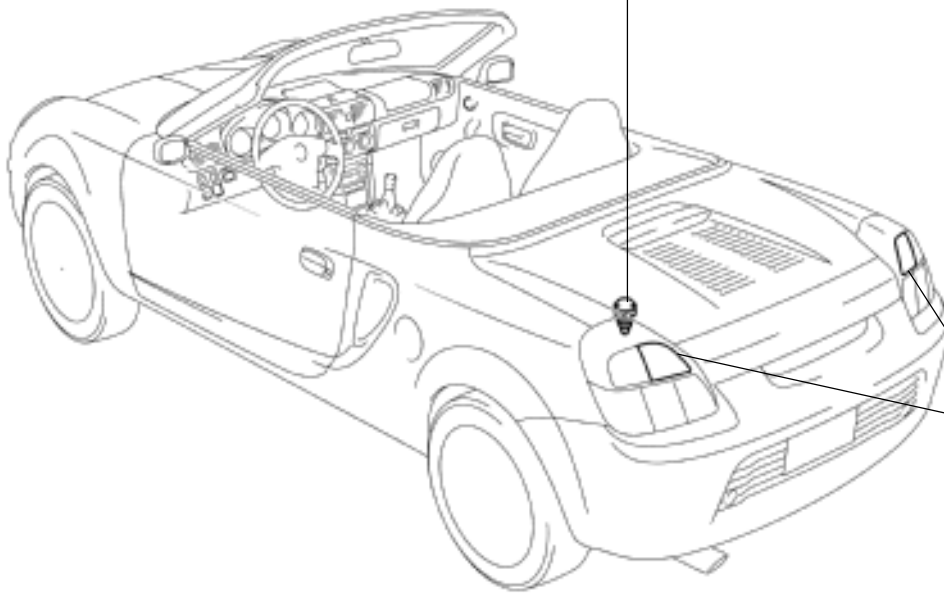
BACK-UP LIGHT SYSTEM LOCATION

BE0P2-04

R/B NO. 3
● GAUGE Fuse



Back-up Light Switch

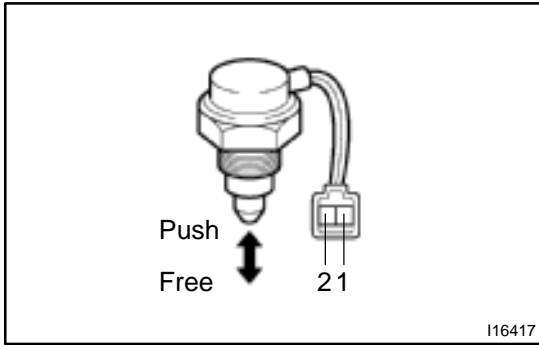


Back-up Light

I16233
I16248



I16515



INSPECTION

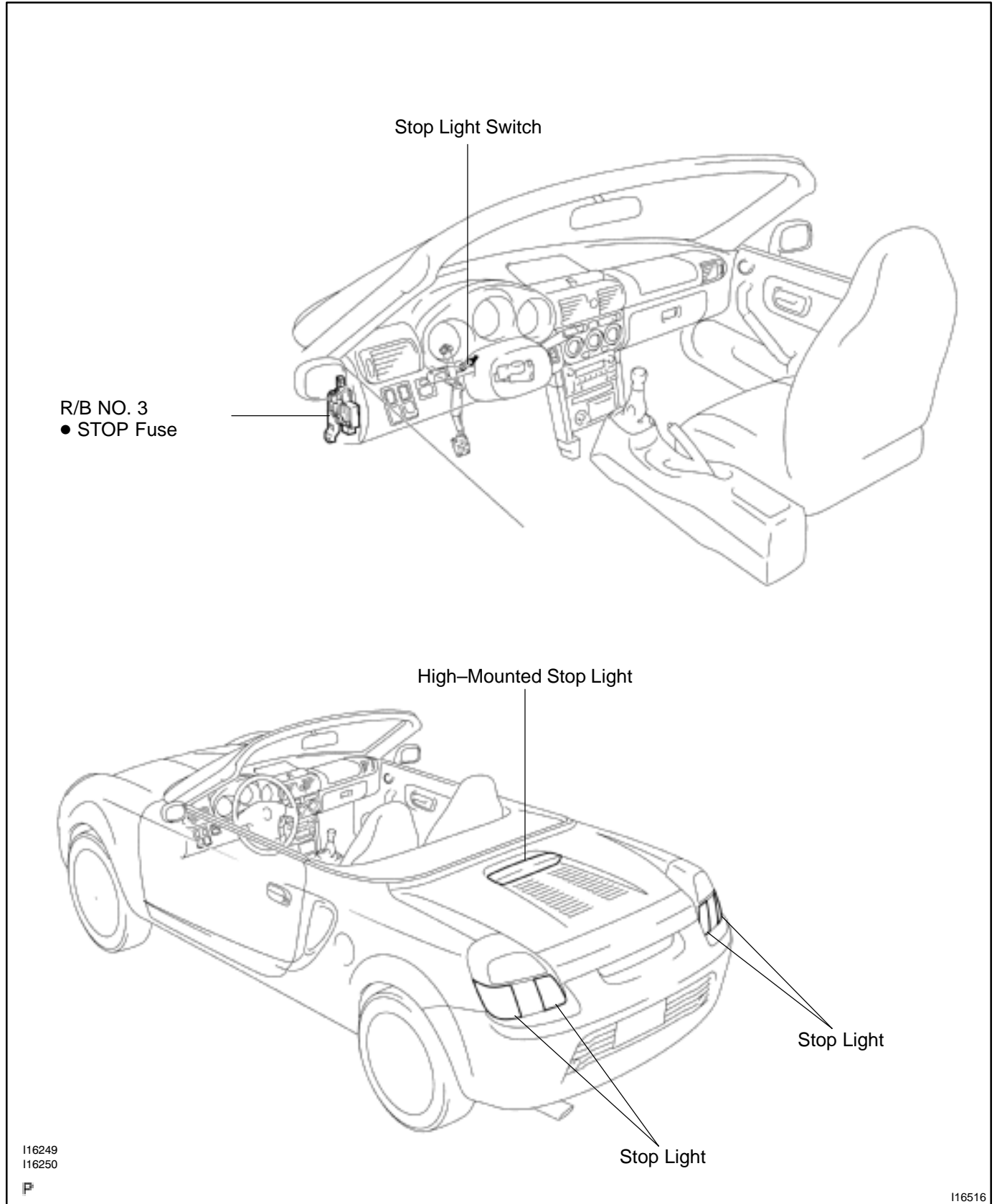
INSPECT BACK-UP LIGHT SWITCH CONTINUITY

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

If continuity is not as specified, replace the switch.

STOP LIGHT SYSTEM LOCATION

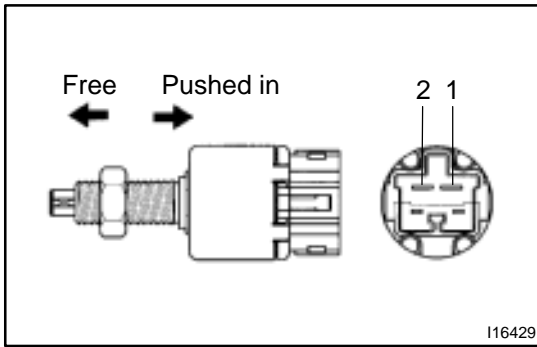
BE0P4-04



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INSPECTION

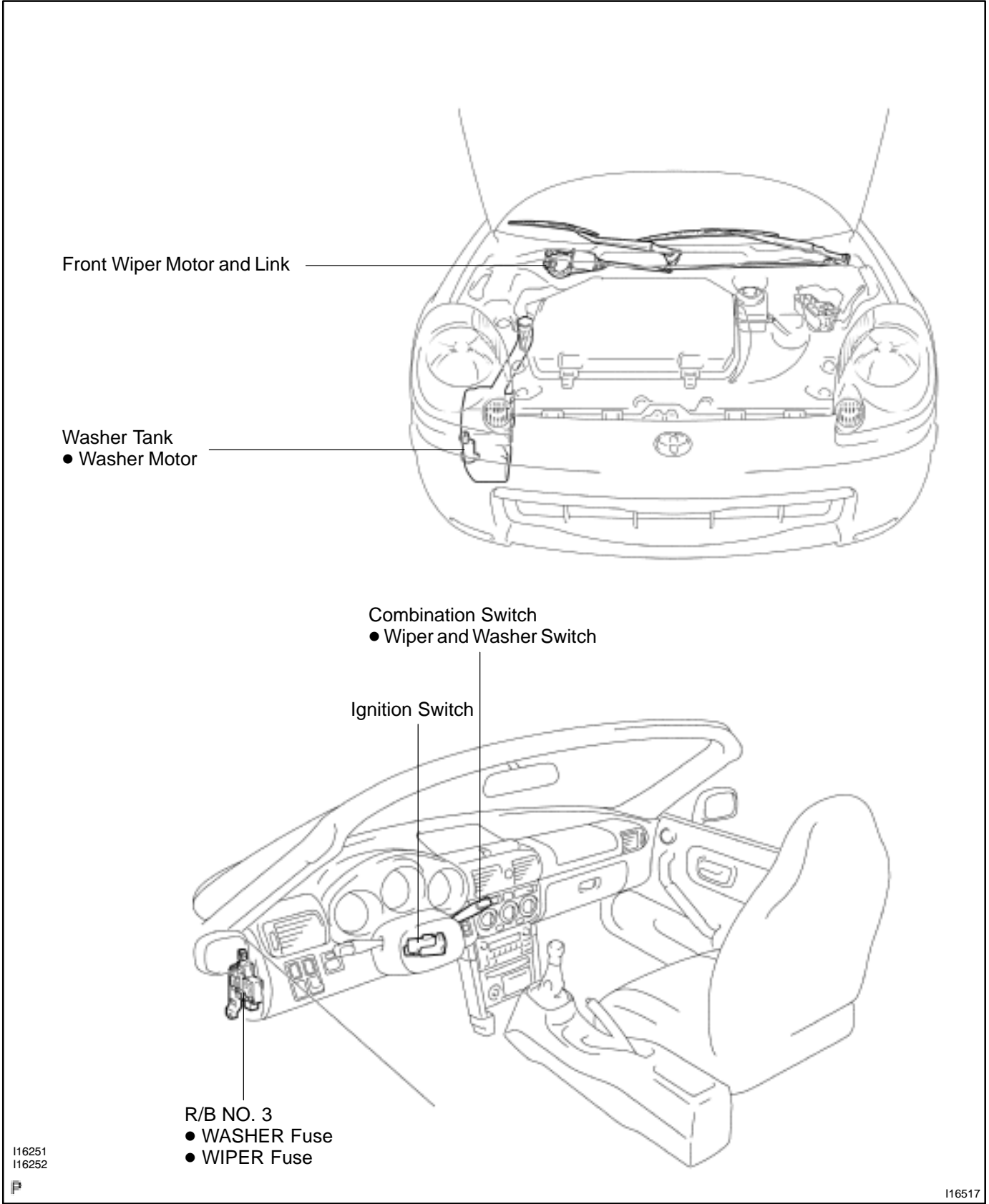
INSPECT STOP LIGHT SWITCH CONTINUITY

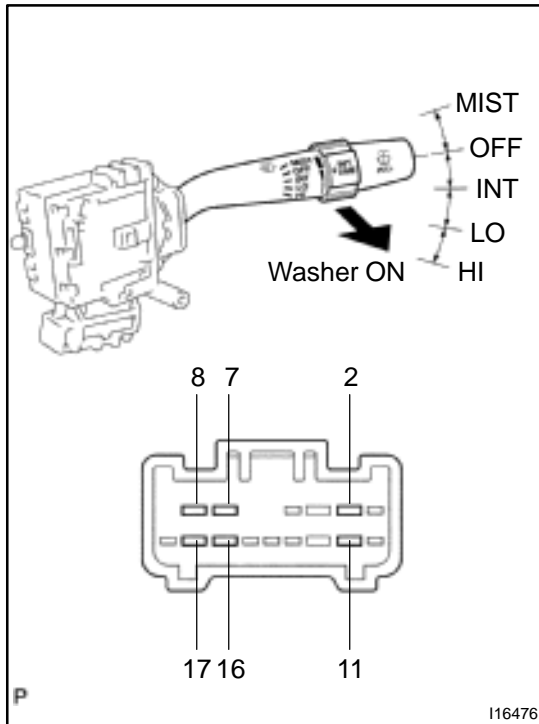
Switch position	Tester connection	Specified condition
Switch pin pushed in (Pedal released)	-	No continuity
Switch pin free (Pedal depressed)	1 - 2	Continuity

If continuity is not as specified, replace the switch.

WIPER AND WASHER SYSTEM LOCATION

BE0P6-04



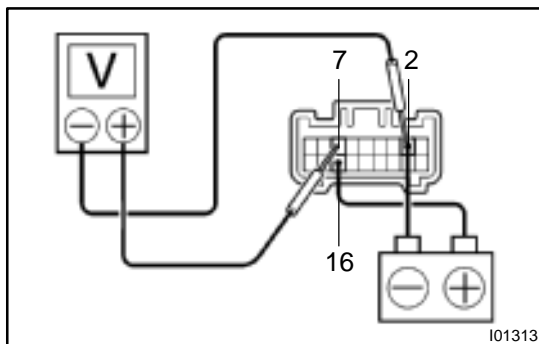


INSPECTION

1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY

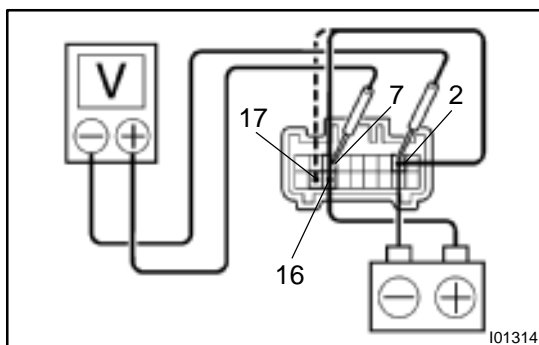
Switch position	Tester connection	Specified condition
OFF	7 – 16	Continuity
MIST	7 – 17	Continuity
INT	7 – 16	Continuity
LO	7 – 17	Continuity
HI	8 – 17	Continuity
Washer ON	2 – 11	Continuity

If continuity is not as specified, replace the switch.



2. INSPECT WIPER INTERMITTENT OPERATION

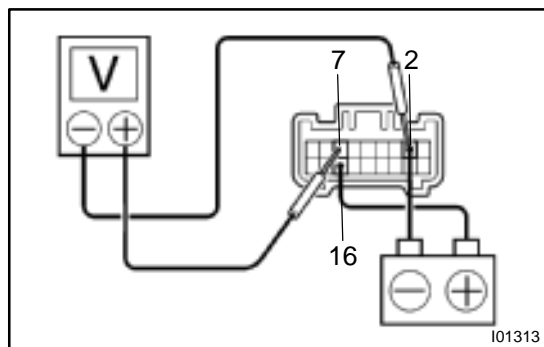
- Turn the wiper switch to INT position.
- Turn the intermittent time control switch to FAST position.
- Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.
- Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2, check that the meter needle indicates battery positive voltage.



- After connecting terminal 16 to terminal 17, connect to terminal 2 to terminal 17, check the voltage rises from 0 volts to battery positive voltage with in the times, as shown in the table.

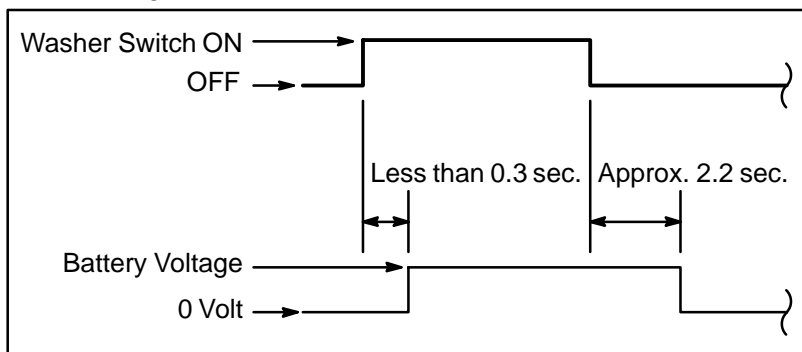
INT time control switch position	Voltage
FAST	Approx. 1 – 3 sec.
SLOW	Approx. 10 – 15 sec.

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

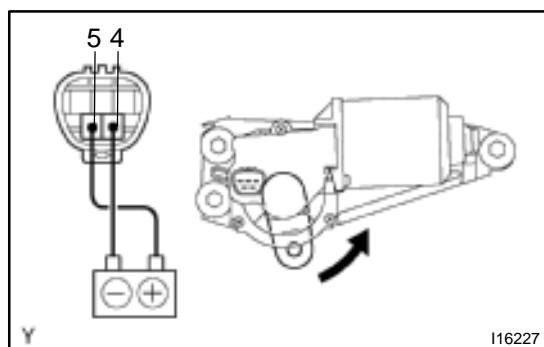


3. INSPECT FRONT WASHER LINKED OPERATION

- Connect the positive (+) lead from the battery to terminal 16 and the negative (-) lead to terminal 2.
- Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (-) lead to terminal 2.
- 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.

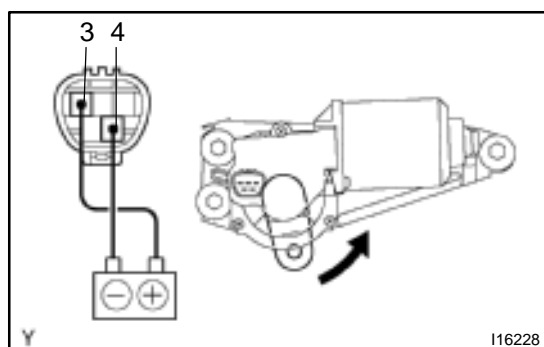


4. Low speed:

INSPECT FRONT WIPER MOTOR OPERATION

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

If operation is not as specified, replace the motor.

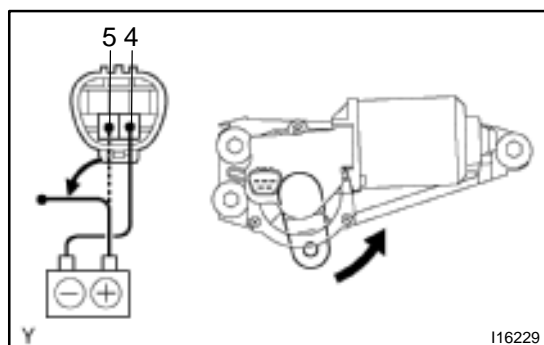


5. High speed:

INSPECT FRONT WIPER MOTOR OPERATION

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

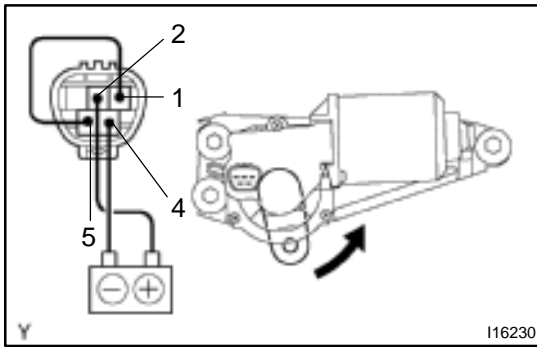
If operation is not as specified, replace the motor.



6. Stopping at stop position:

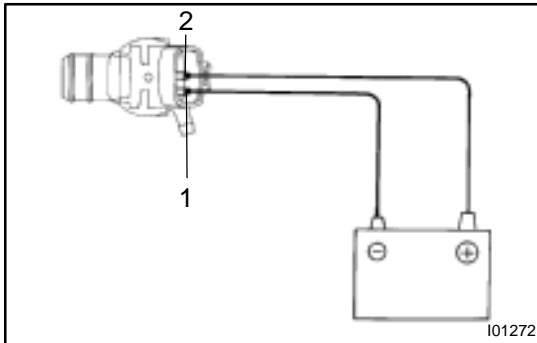
INSPECT FRONT WIPER MOTOR OPERATION

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



- (b) Connect terminals 1 and 5.
 (c) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 4, check that the motor stops running at the stop position after the motor operates again.

If operation is not as specified, replace the motor.



7. INSPECT WASHER MOTOR OPERATION

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

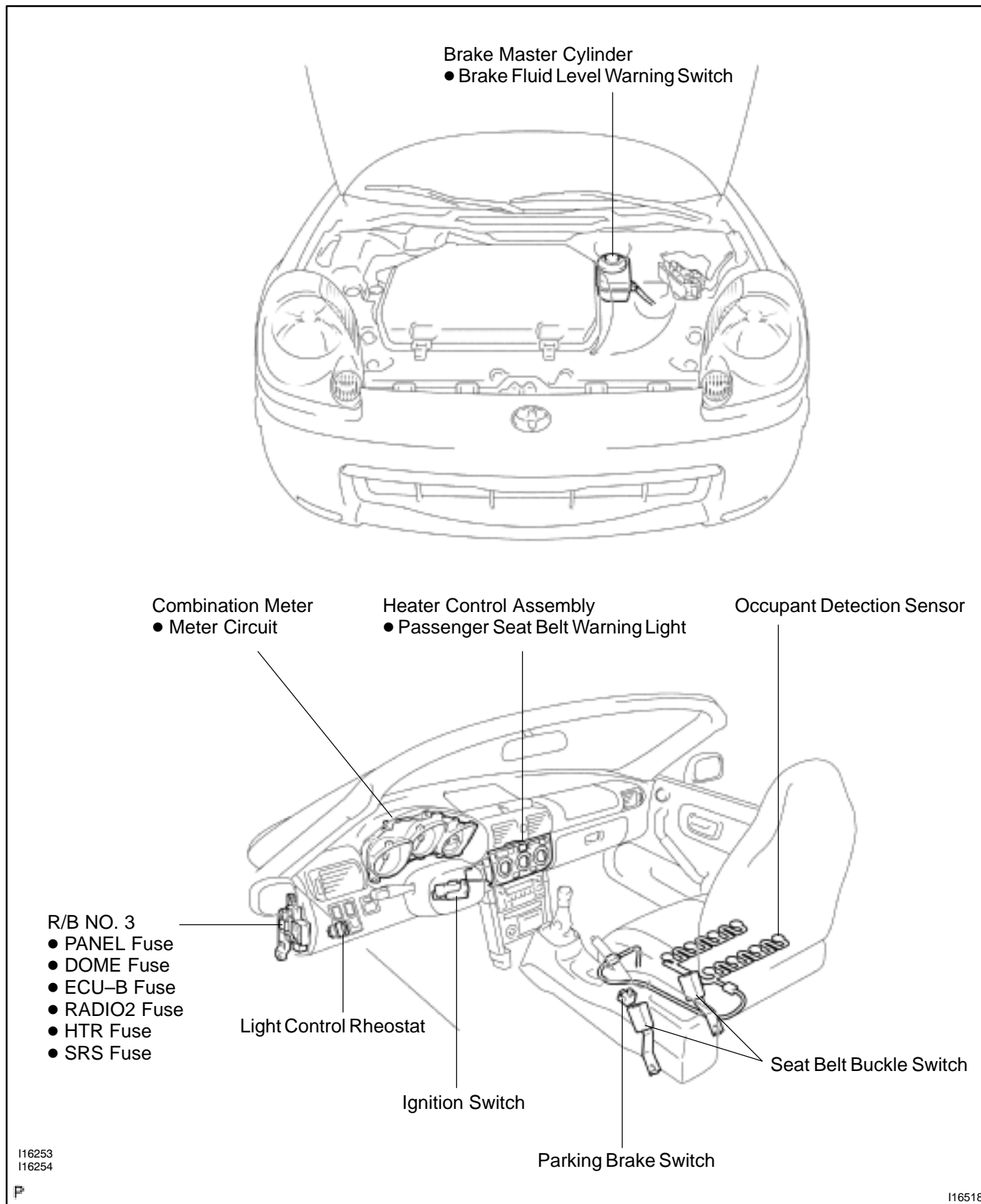
NOTICE:

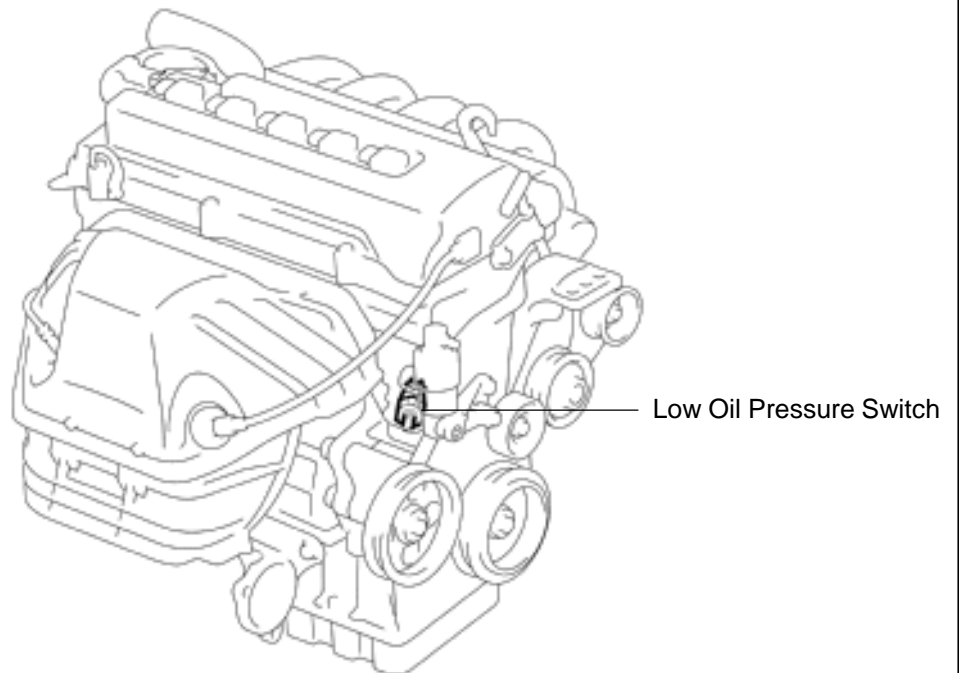
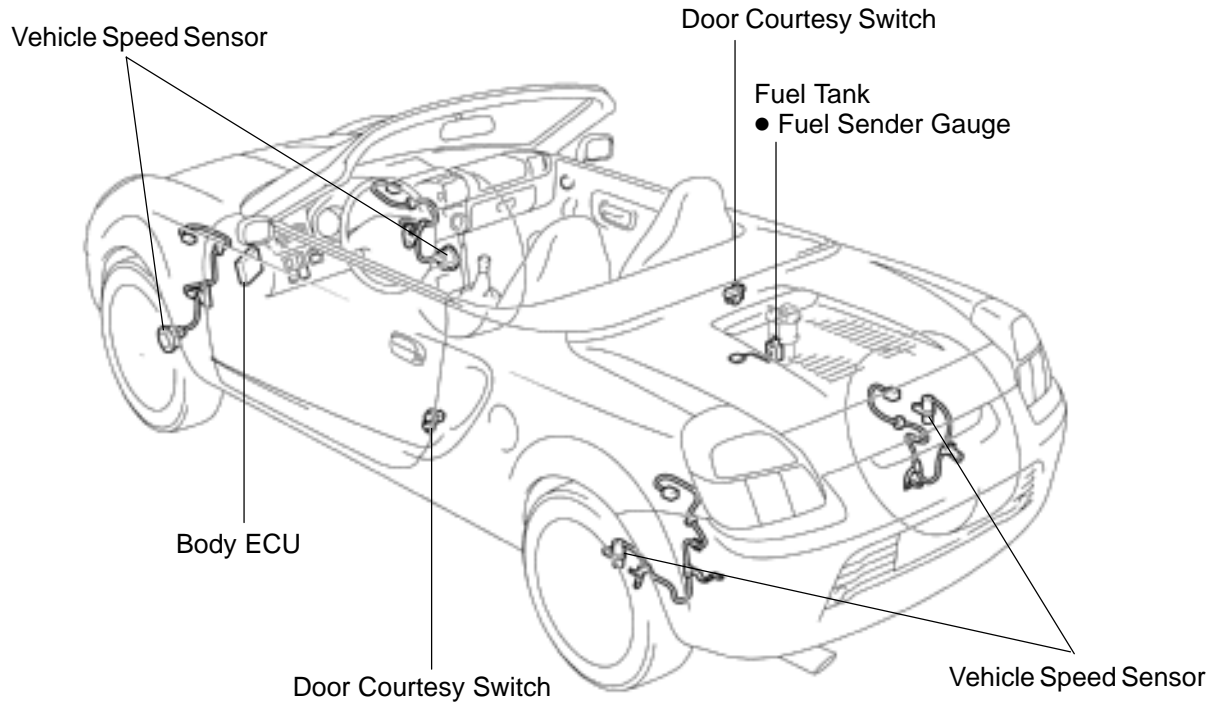
These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.

COMBINATION METER LOCATION

BE1D1-03

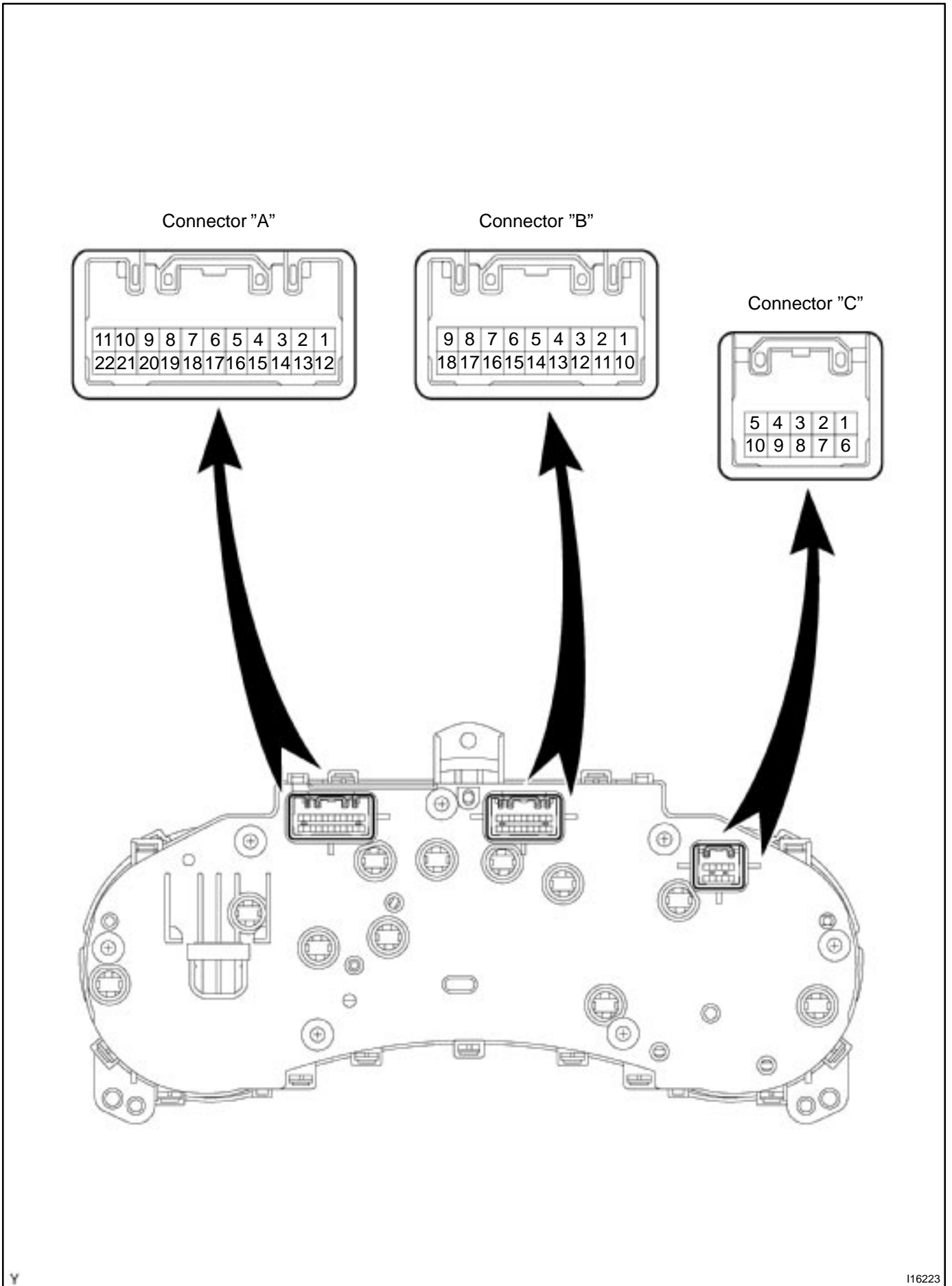




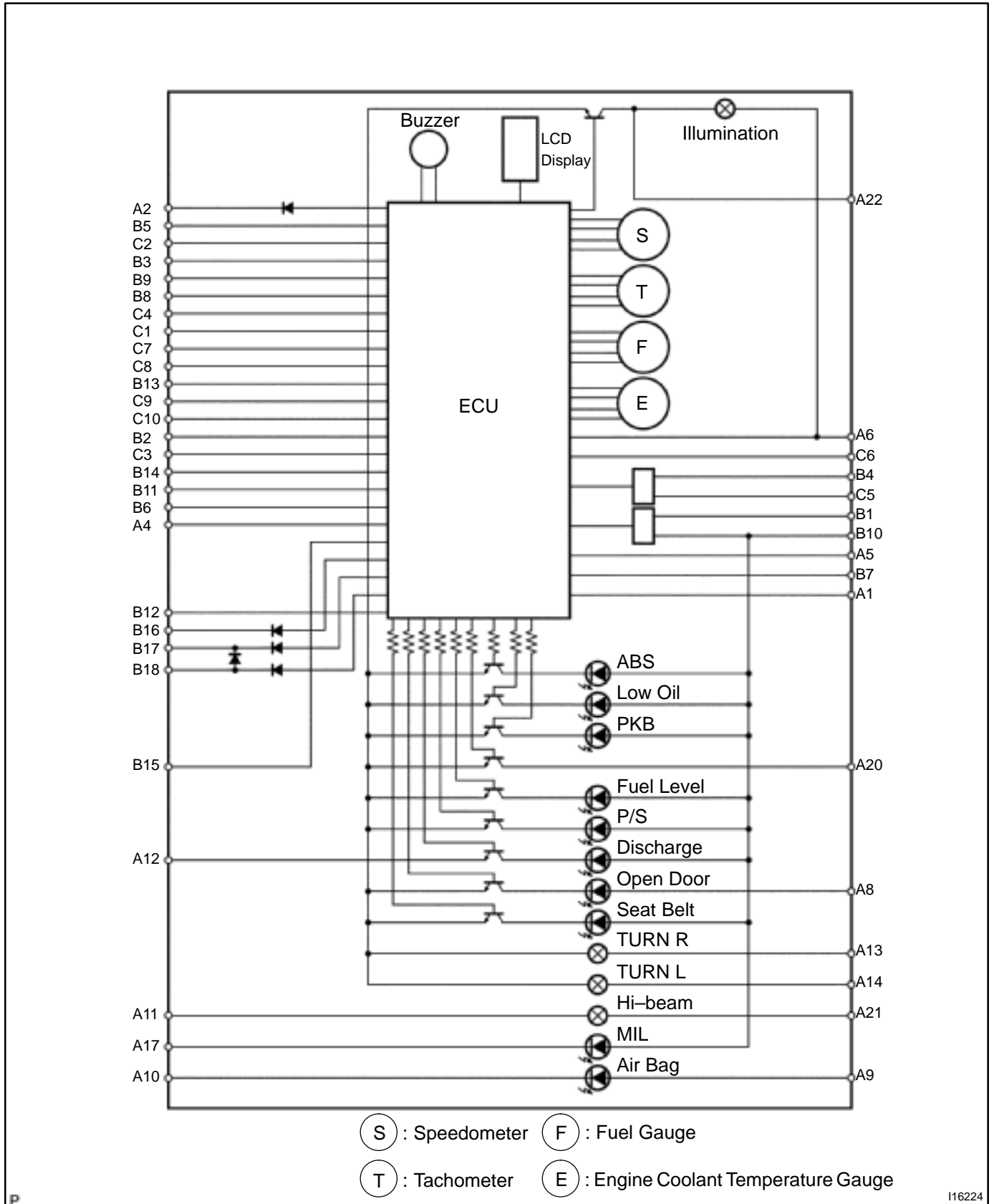
I16255
I16260

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I16519



CIRCUIT



P

I16224

No.	Wiring connector side
A	1 Heater Main Relay (Marking: HTR)
	2 Key Unlock Warning Switch
	4 ABS ECU (Speed Meter)
	5 Power Steering ECU (SPD Terminal), ECM (SPD Terminal)
	6 PANEL Fuse
	8 DOME Fuse
	9 Airbag Sensor Assembly (IG2 Terminal)
	10 Airbag Sensor Assembly (LA Terminal)
	11 Ground
	12 Ground
	13 Hazard Switch
	14 Hazard Switch
	17 ECM (W Terminal)
	20 Passenger Seat Belt Warning Light (Heater Control Assembly)
21 Daytime Running Light Relay	
22 HAZARD Switch, HTR Panel, Audio	
B	1 ECU-B Fuse
	2 Rheostat
	3 Fuel Sender
	4 ECM (MPX1 Terminal)
	5 I/UP Fuse, Defogger Relay
	6 Brake Fluid Level Warning Switch
	7 RADIO2 Fuse
	8 Ground
	9 Fuel Sender
	10 GAUGE Fuse
	11 Power Steering ECU (WL Terminal)
	12 ABS ECU (WA Terminal)
	13 A/C Switch (L A/C Terminal)
	14 Ground
	15 RH Buckle Switch
	16 LH Buckle Switch and Tension Reducer
	17 LH Door Courtesy Switch
	18 RH Door Courtesy Switch
C	1 A/C Thermistor
	2 Fuel Sender
	3 Rheostat
	4 A/C Thermistor
	5 ECM (MPX2 Terminal)
	6 ECM (TACH Terminal)
	9 A/C Switch (S A/C Terminal)
	10 A/C Switch (DEF Terminal)

MPX: Multiplex communication
Temp. : Temperature

INSPECTION

1. INSPECT SPEEDOMETER ON-VEHICLE

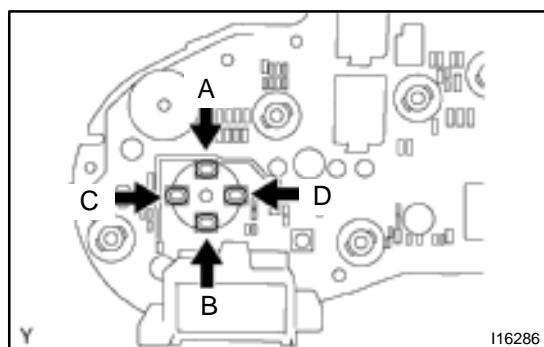
Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

HINT:

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

USA (mph)	
Standard indication	Allowable range
20	19 – 22
40	39 – 42.5
60	59.5 – 63.5
80	80 – 85
100	100 – 105.5
120	120 – 125.5
140	140 – 146

If error is excessive, replace the combination meter.



2. INSPECT SPEEDOMETER RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

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

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

3. INSPECT TACHOMETER ON-VEHICLE

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

NOTICE:

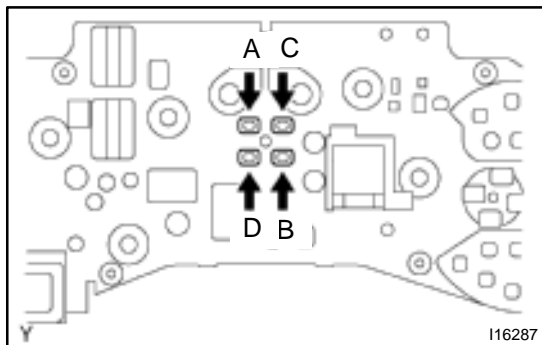
Reversing the connection of the tachometer will damage the transistors and diodes inside.

(b) Compare the tester indications with tachometer indications.

RPM (DC 13.5 V, 25° C (77° F))

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

If error is excessive, replace the combination meter.

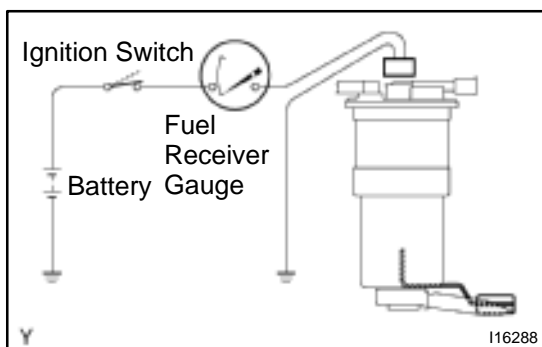


4. INSPECT TACHOMETER RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

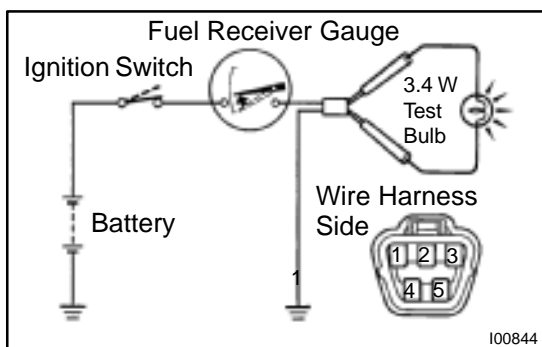
Tester connection	Resistance (Ω)
A - B	250
C - D	250

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



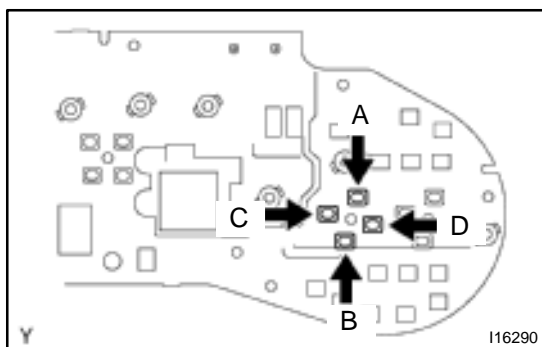
5. INSPECT FUEL RECEIVER GAUGE OPERATION

- Disconnect the connector from the fuel pump assembly.
- Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.



- Connect terminals 2 and 3 of the wire harness side connector through a 3.4 W test bulb.
- Turn the ignition switch ON, check that the bulb lights up and receiver gauge needle indicators EMPTY.

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

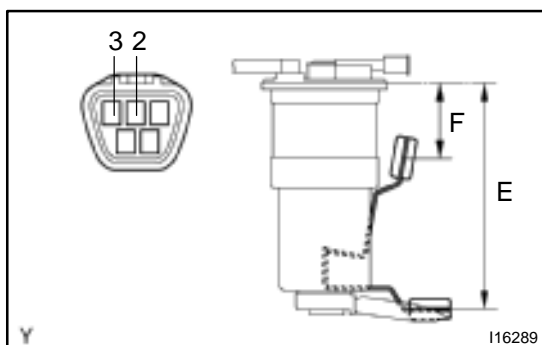


6. INSPECT FUEL RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals with an ohmmeter at the positions shown in the illustration.

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

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

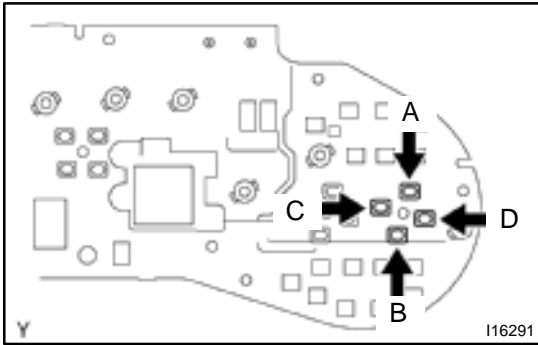


7. INSPECT FUEL SENDER GAUGE RESISTANCE

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

Float position: mm (in.)	Resistance (Ω)
F: Approx. 68.8 (2.71)	Approx. 16.4
E: Approx. 207.4 (8.17)	Approx. 192.7

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

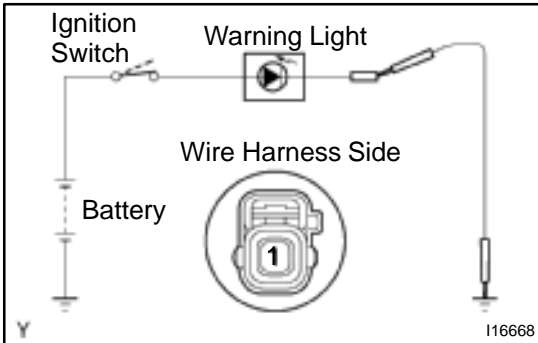


8. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE RESISTANCE

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

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

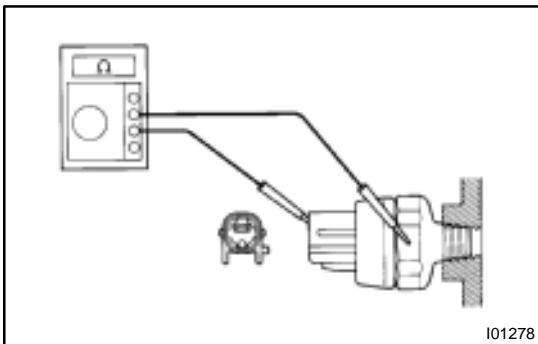
If resistance value is not as specified, replace the combination meter.



9. INSPECT LOW OIL PRESSURE WARNING LIGHT

- (a) Disconnect the connector from the warning switch and ground terminal of the wire harness side connector.
- (b) Turn the ignition switch ON, check that the warning light lights up.

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



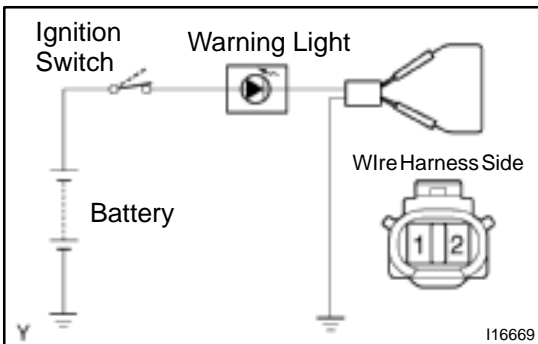
10. INSPECT LOW OIL PRESSURE SWITCH CONTINUITY

- (a) Check that continuity exists between terminal and ground with the engine stopped.
- (b) Check that no continuity exists between terminal and ground with the engine running.

HINT:

The oil pressure should be over 24.5 kPa (0.25 kgf/cm², 3.55 psi).

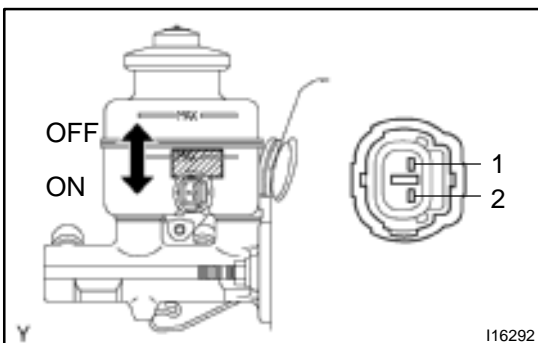
If operation is not as specified, replace the switch.



11. INSPECT BRAKE WARNING SYSTEM LIGHT

- (a) Disconnect the connector from the brake fluid warning switch.
- (b) Connect terminals of the wire harness side of the level warning switch connector.
- (c) Start the engine, check that the warning light lights up.

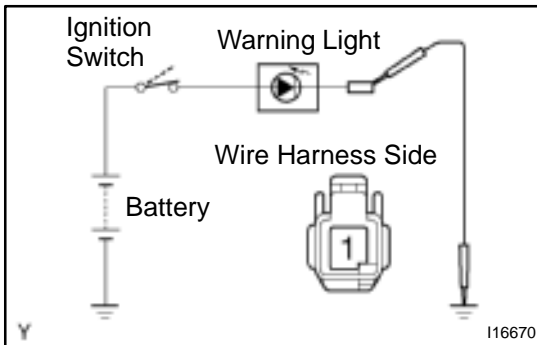
If the warning light does not light up, test the LED or wire harness.



12. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

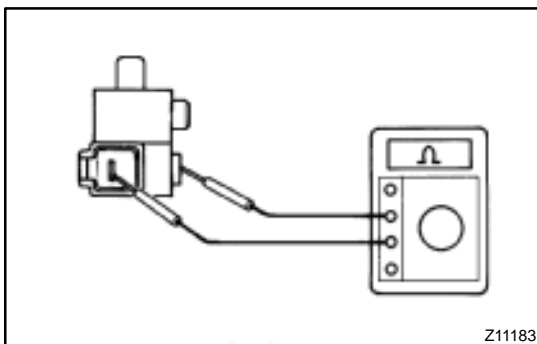
- (a) Remove the reservoir cap and strainer.
- (b) Disconnect the connector.
- (c) Check that no continuity exists between terminals with the switch OFF (float up).
- (d) Use syphon, etc. to take fluid out of the reservoir.
- (e) Check that continuity exists between terminals with the switch ON (float down).

- (f) Pour the fluid back in the reservoir.
If operation is not as specified, replace the switch.



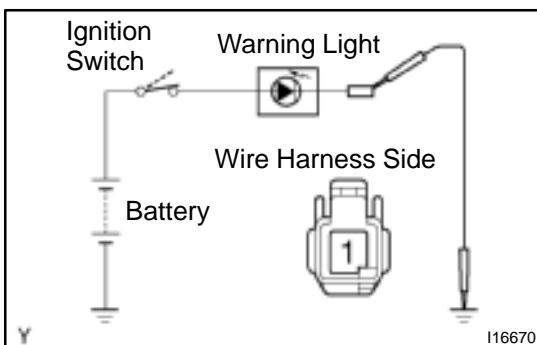
13. INSPECT PARKING BRAKE WARNING LIGHT

- Disconnect the connector from the parking brake switch.
 - Ground terminal of the wire harness side connector.
 - Start the engine, check that the warning light lights up.
- If the warning light does not light up, test the LED or inspect wire harness.



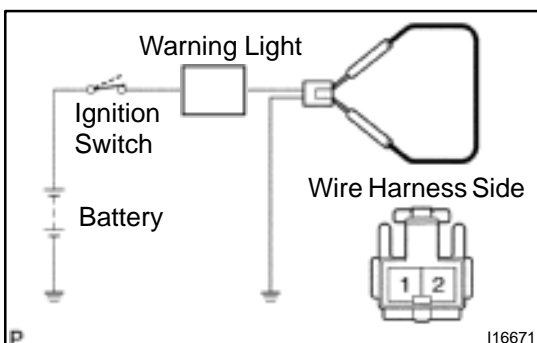
14. INSPECT PARKING BRAKE SWITCH CONTINUITY

- Check that continuity exists between terminal and switch body with the switch ON (switch pin released).
 - Check that no continuity exists 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.



15. INSPECT OPEN DOOR WARNING LIGHT

- Disconnect the connector from the door courtesy switch.
 - Ground terminal of the wire harness side connector.
 - Start the engine, check that the warning light lights up.
- If the warning light does not light up, test the LED or inspect wire harness.



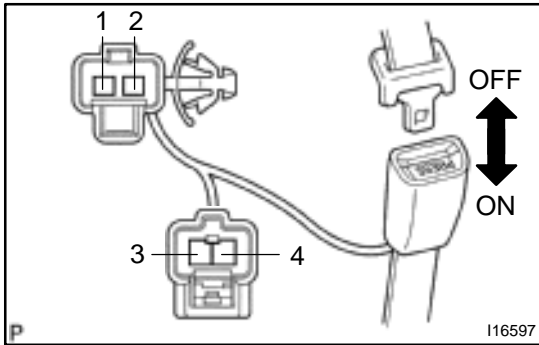
16. Driver's side:

INSPECT SEAT BELT WARNING LIGHT

- Disconnect the connector from buckle switch and ground terminal on the wire harness side connector.
- Turn the ignition switch ON and check that the warning light lights up.

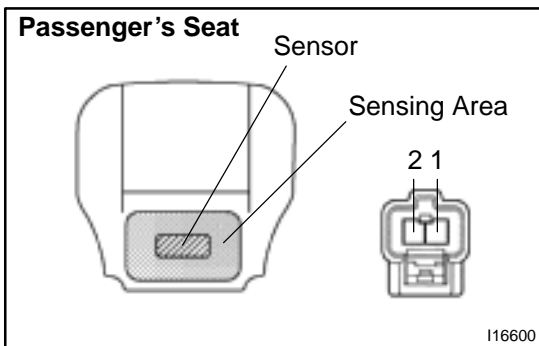
If the warning light does not light up, test the LED or inspect wire harness.

**17. Driver's side:
INSPECT BUCKLE SWITCH CONTINUITY (See page BE-46)**



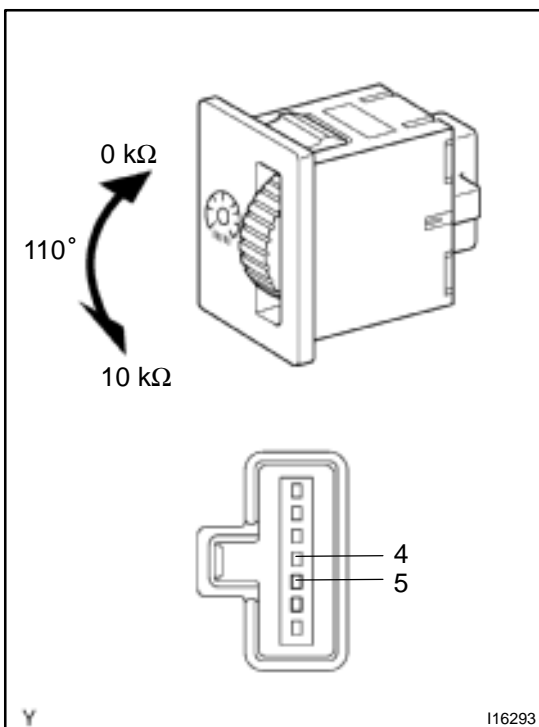
- 18. Passenger's side:
INSPECT BUCKLE SWITCH CONTINUITY**
- (a) Check that continuity exists between terminals 1 and 3 the switch side connectors with the switch OFF (belt fastened).
 - (b) Check that no continuity exists between terminals 1 and 3 the switch side connectors with the switch ON (belt unfastened).

If operation is not as specified, replace the switch.



**19. Passenger's seat only:
INSPECT SEAT BELT WARNING OCCUPANT DETECTION SENSOR CONTINUITY**

Check that continuity exists between terminals 1 and 2 when pressing the sensing part.
If operation is not as specified, replace the seat cushion pad with sensor.



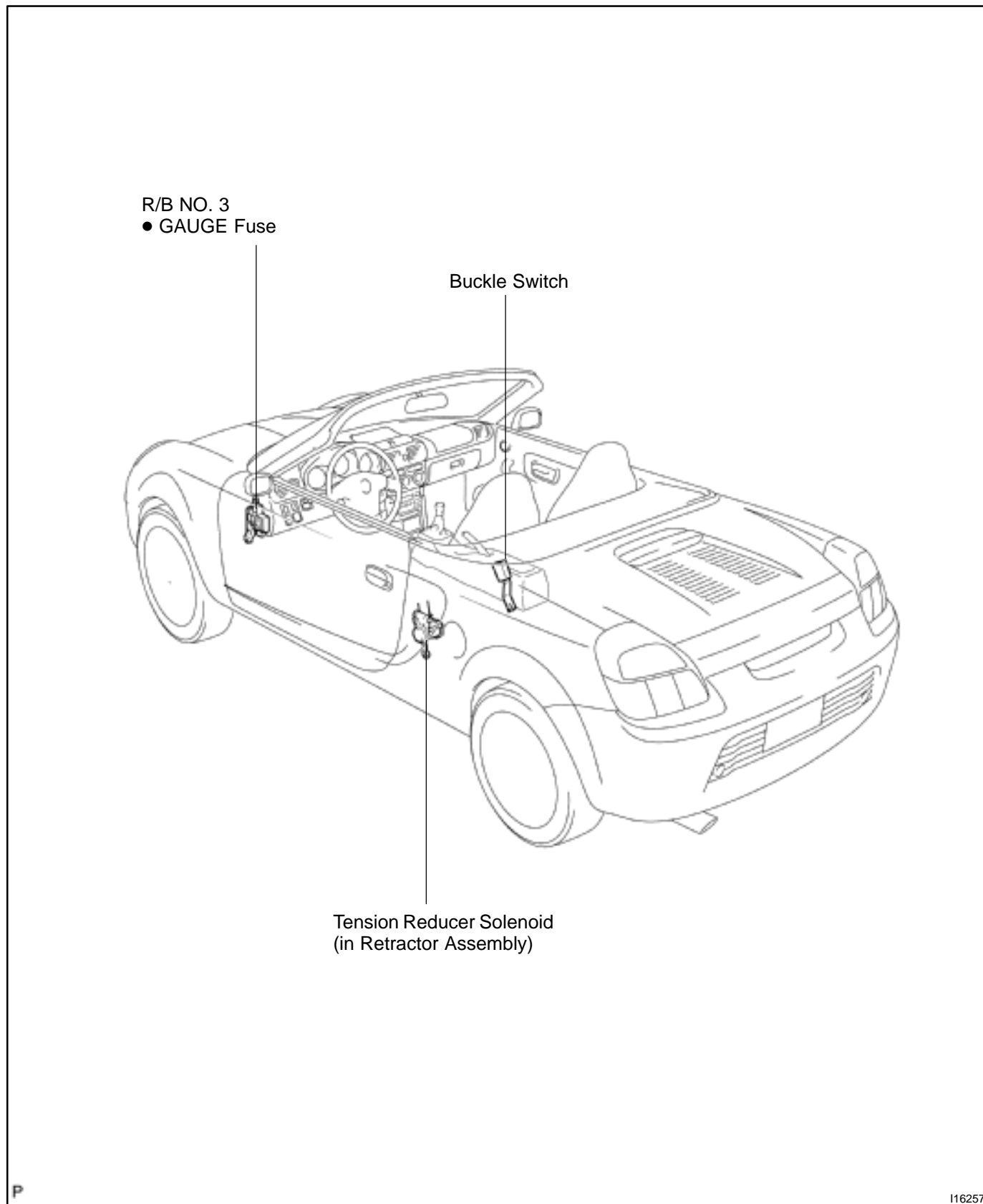
20. INSPECT LIGHT CONTROL RHEOSTAT OPERATION

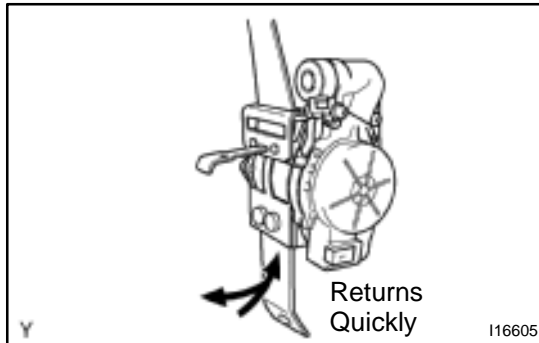
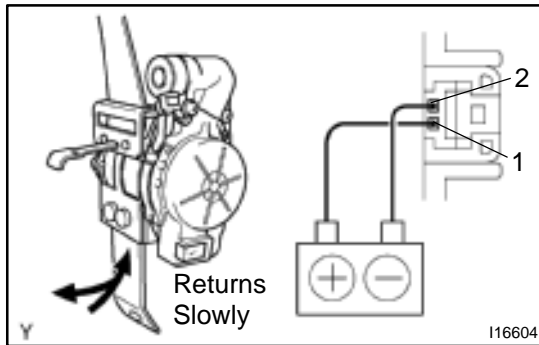
Gradually, turn the rheostat knob from the bright side to the dark side and check that the resistance decreases from 10 kΩ to 0 Ω between terminals 4 and 5. (Rheostat knob turned to clockwise)
If operation is not as specified, replace the light control rheostat.

ELECTRIC TENSION REDUCER SYSTEM (Driver)

LOCATION

BE1K9-01





INSPECTION

1. INSPECT TENSION REDUCER SOLENOID OPERATION

- Connect the positive (+) lead from the battery to terminal 1, and the negative (-) lead to terminal 2.
- Pull the belt upward and check that the belt is slowly retracted when released.

- Disconnect the lead from the battery.
- Pull the belt upward and check that the belt is retracted more quickly when released than in (b).

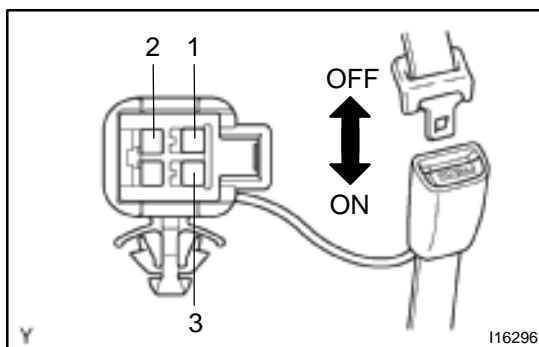
HINT:

Do not tilt the retractor.

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

CAUTION:

Must not charge the connector terminal of the pretensioner. The pretensioner may work resulting in an unexpected injury.



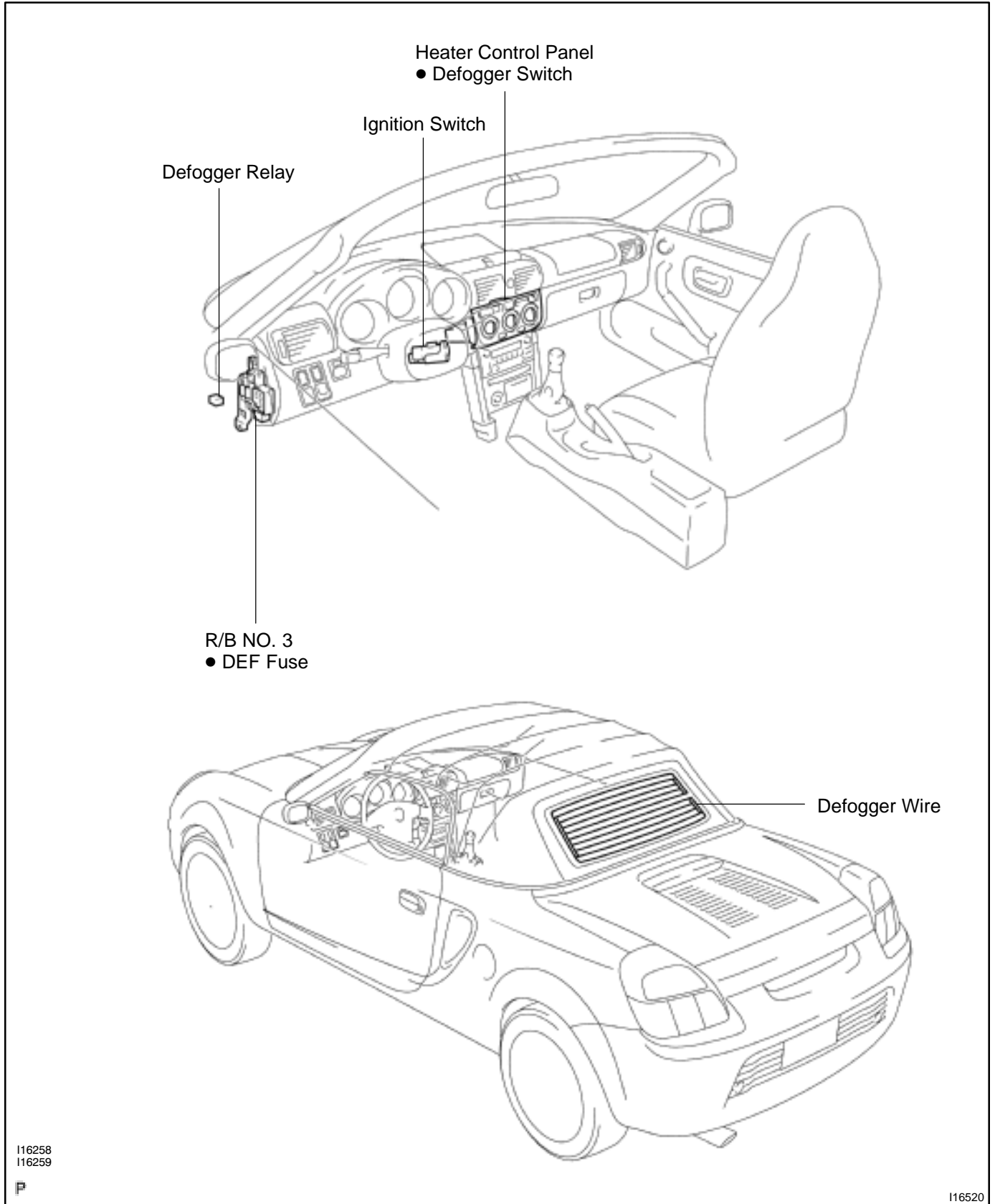
2. Driver's side:

INSPECT BUCKLE SWITCH CONTINUITY

- Check that continuity exists between terminals 1 and 3 on the switch side connector with the switch ON (belt fastened).
 - Check that no continuity exists between terminals 1 and 2 on the switch side connector with the switch OFF (belt unfastened).
 - Check that no continuity 1 and 2 (belt fastened).
 - Check that continuity 1 and 2 (belt unfastened).
- If operation is not as specified, replace the switch.

DEFOGGER SYSTEM LOCATION

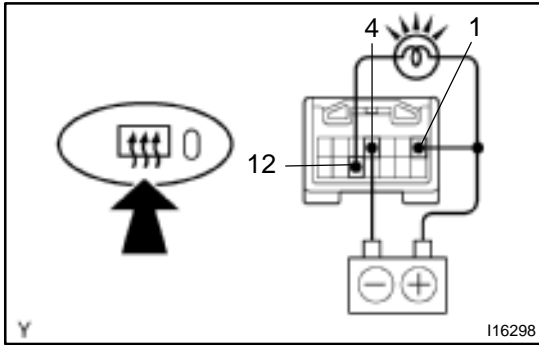
BEOPD-04



I16258
I16259



I16520

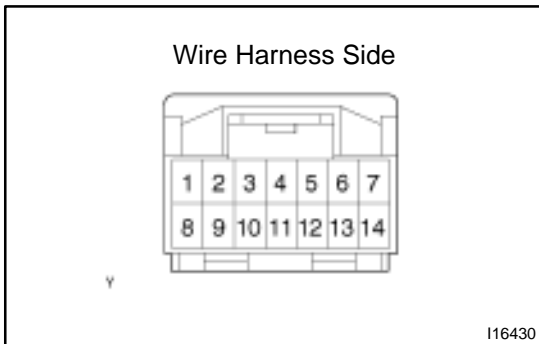


INSPECTION

1. INSPECT DEFOGGER TIMER OPERATION

- (a) Connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 4.
- (b) Connect the positive (+) lead from the battery to terminal 12 through a 3.4 W test bulb.
- (c) Turn the defogger switch ON and check that the indicator light and test bulb light up for 12 for 18 minutes, then the indicator light and test bulb lights go out.

If operation is not as specified, replace the switch.



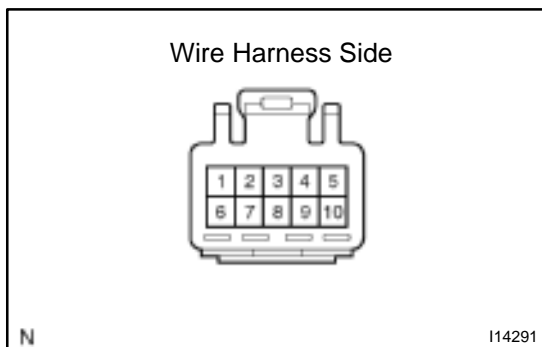
2. INSPECT DEFOGGER SWITCH CIRCUIT

Connector disconnected:

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

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

If the circuit is as specified, replace the switch.



3. INSPECT DEFOGGER SWITCH CIRCUIT

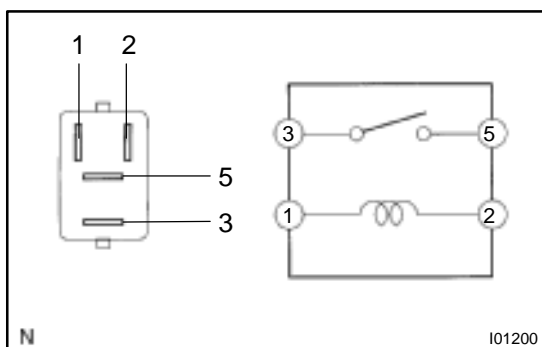
Connector connected:

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
4 – Ground	Ignition switch ON and defogger switch OFF	Battery positive voltage
4 – Ground	Ignition switch ON and defogger switch ON	No voltage

If the circuit is as specified, try replacing the switch with a new one.

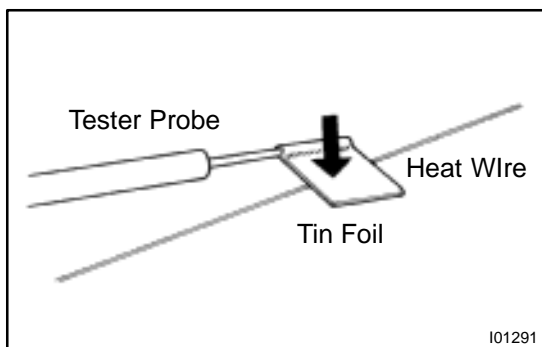
If the circuit is not as specified, inspect the circuit connected to other parts.



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.

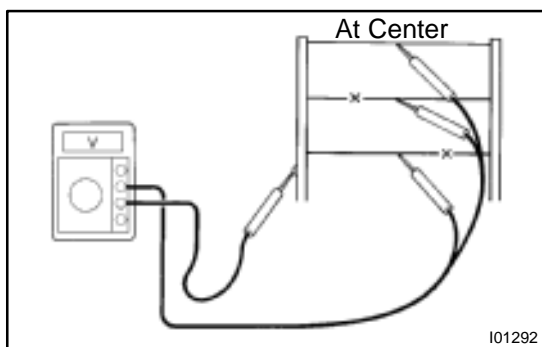


5. INSPECT DEFOGGER WIRE

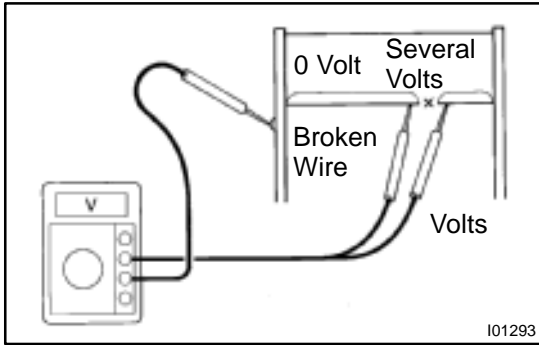
NOTICE:

- When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.
- Do not use detergents or glass cleaners with abrasive ingredients.
- When measuring voltage, 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.

- Turn the ignition switch ON.
- Turn the defogger switch ON.
- Inspect the voltage at the center of each heat wire, as shown.



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



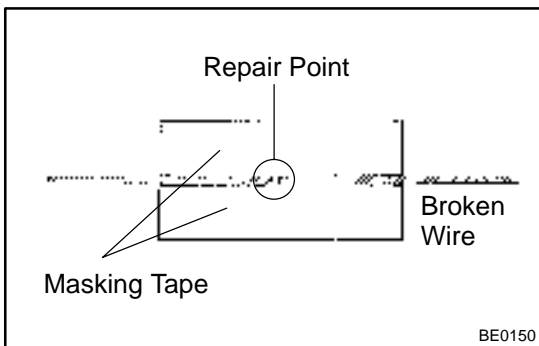
HINT:

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

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

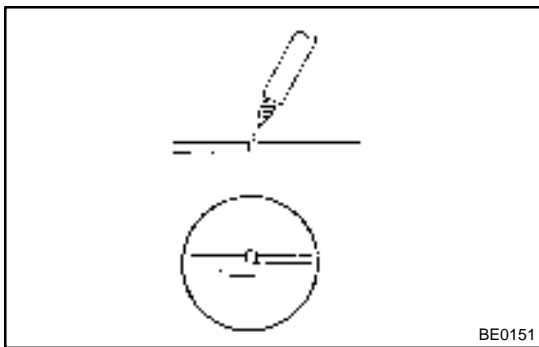
HINT:

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.



6. IF NECESSARY, REPAIR DEFOGGER WIRE

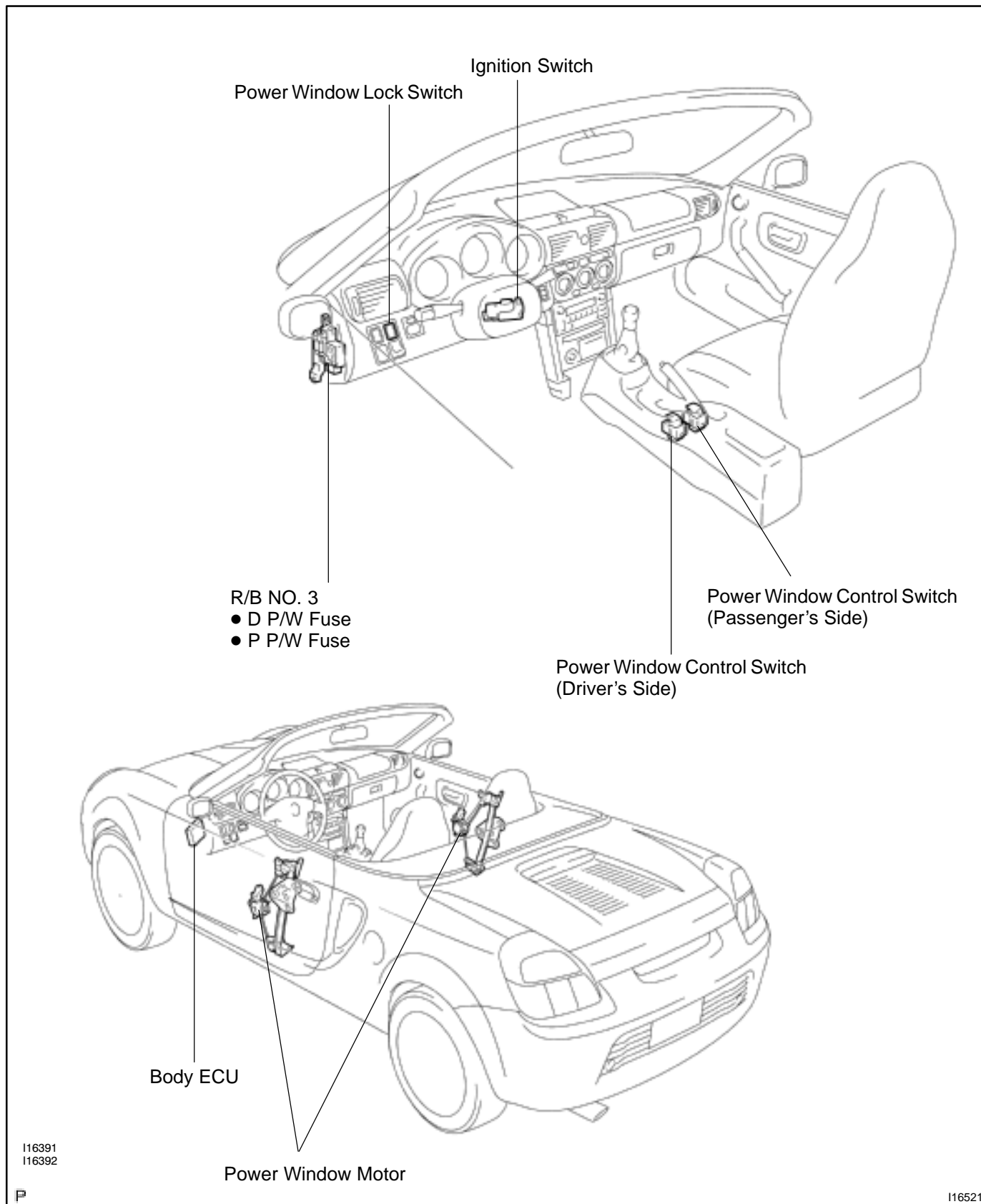
- (a) Clean the broken wire tips with grease, wax and silicone remover.
- (b) Place the masking tape along both sides of the wire to be repaired.

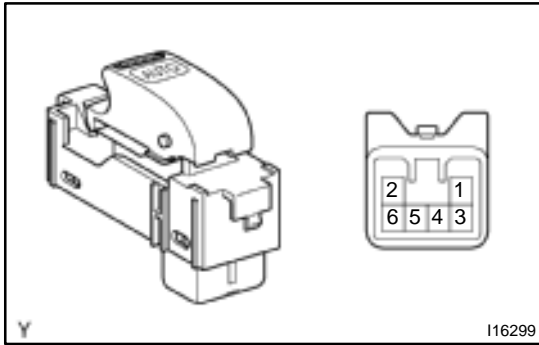


- (c) Thoroughly mix the repair agent (Dupont paste No. 4817 or equivalent).
- (d) Using a fine top brush, apply a small amount to the wire.
- (e) After a few minutes, remove the masking tape.
- (f) Do not repair the defogger wire for at least 24 hours.

POWER WINDOW CONTROL SYSTEM LOCATION

BE0PF-04



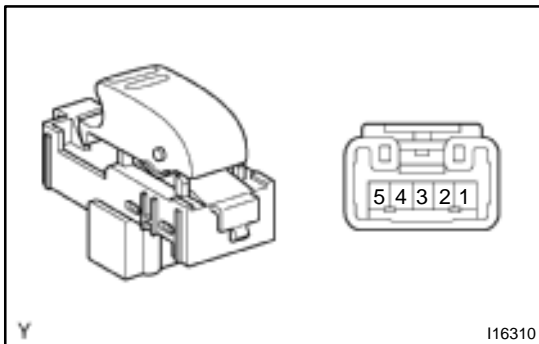


INSPECTION

1. Driver's side: INSPECT POWER WINDOW CONTROL SWITCH CONTINUITY

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

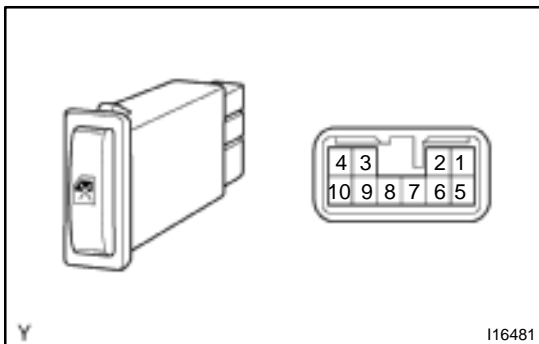
If continuity is not as specified, replace the switch.



2. Passenger's side: INSPECT POWER WINDOW CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
UP	1 – 2, 3 – 4	Continuity
OFF	1 – 2, 3 – 5	Continuity
DOWN	1 – 4, 3 – 5	Continuity

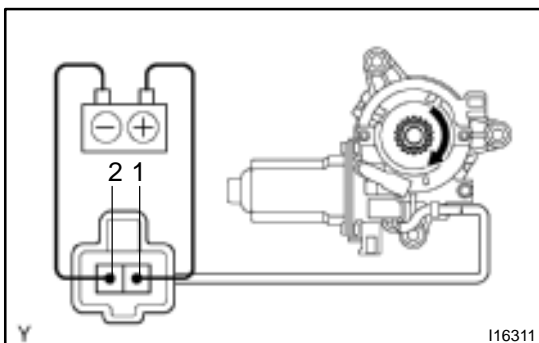
If continuity is not as specified, replace the switch.



3. Only for passenger's power window: INSPECT POWER WINDOW LOCK SWITCH CONTINUITY

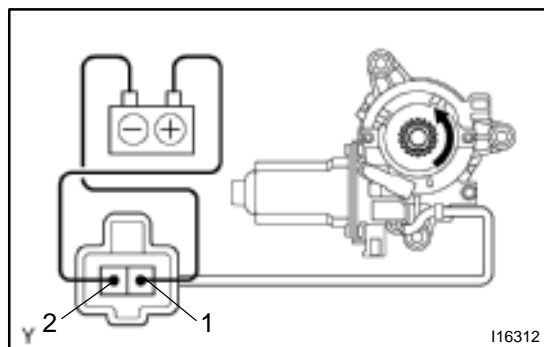
Switch position	Tester connection	Specified condition
ON	7 – 10	Continuity
OFF	7 – 10	No Continuity

If continuity is not as specified, replace the switch.



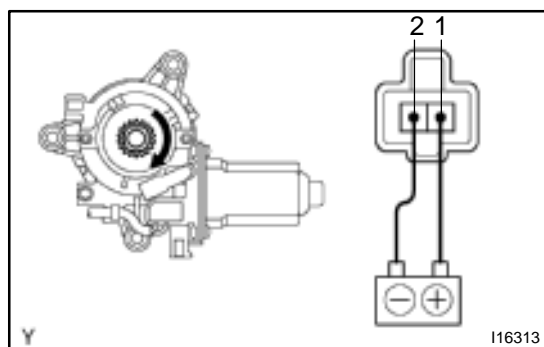
4. Driver's door: INSPECT POWER WINDOW MOTOR OPERATION

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



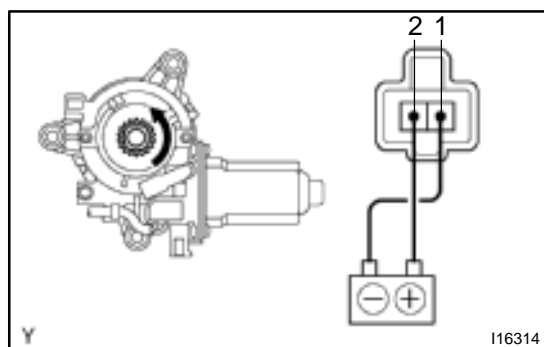
- (b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



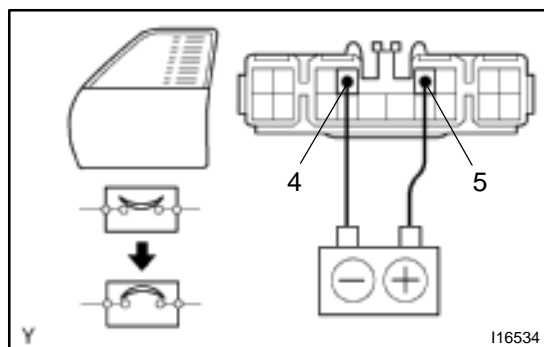
**5. Passenger's door:
INSPECT POWER WINDOW MOTOR OPERATION**

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



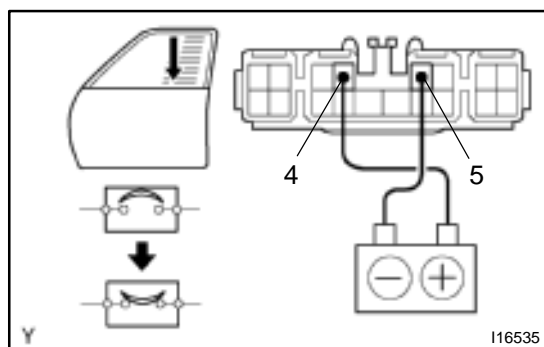
- (b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



**6. Driver's door:
INSPECT POWER WINDOW MOTOR PTC OPERATION**

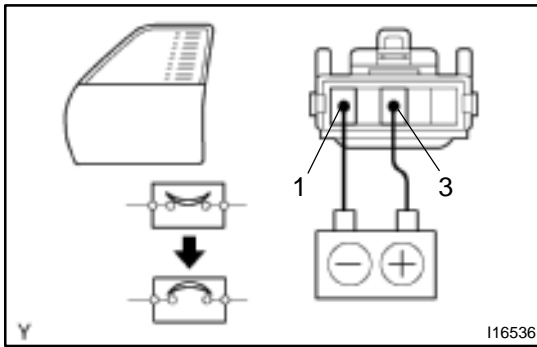
- (a) Disconnect the B6 connector from the body ECU.
(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4 on the wire harness side connector, and raise the window to fully closed position.



- (c) Continue to apply voltage, check that a circuit breaker operation noise is heard within approximately 4 to 90 seconds.

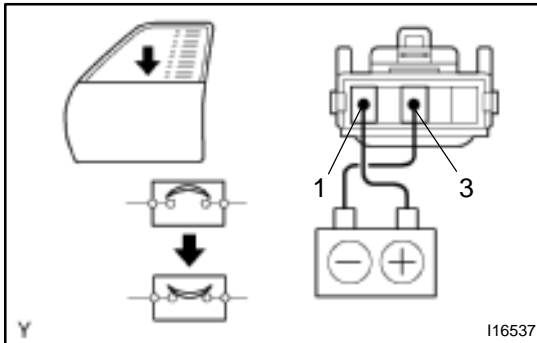
- (d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.

If operation is not as specified, replace the motor.



**7. Passenger's door:
INSPECT POWER WINDOW MOTOR PTC OPERATION**

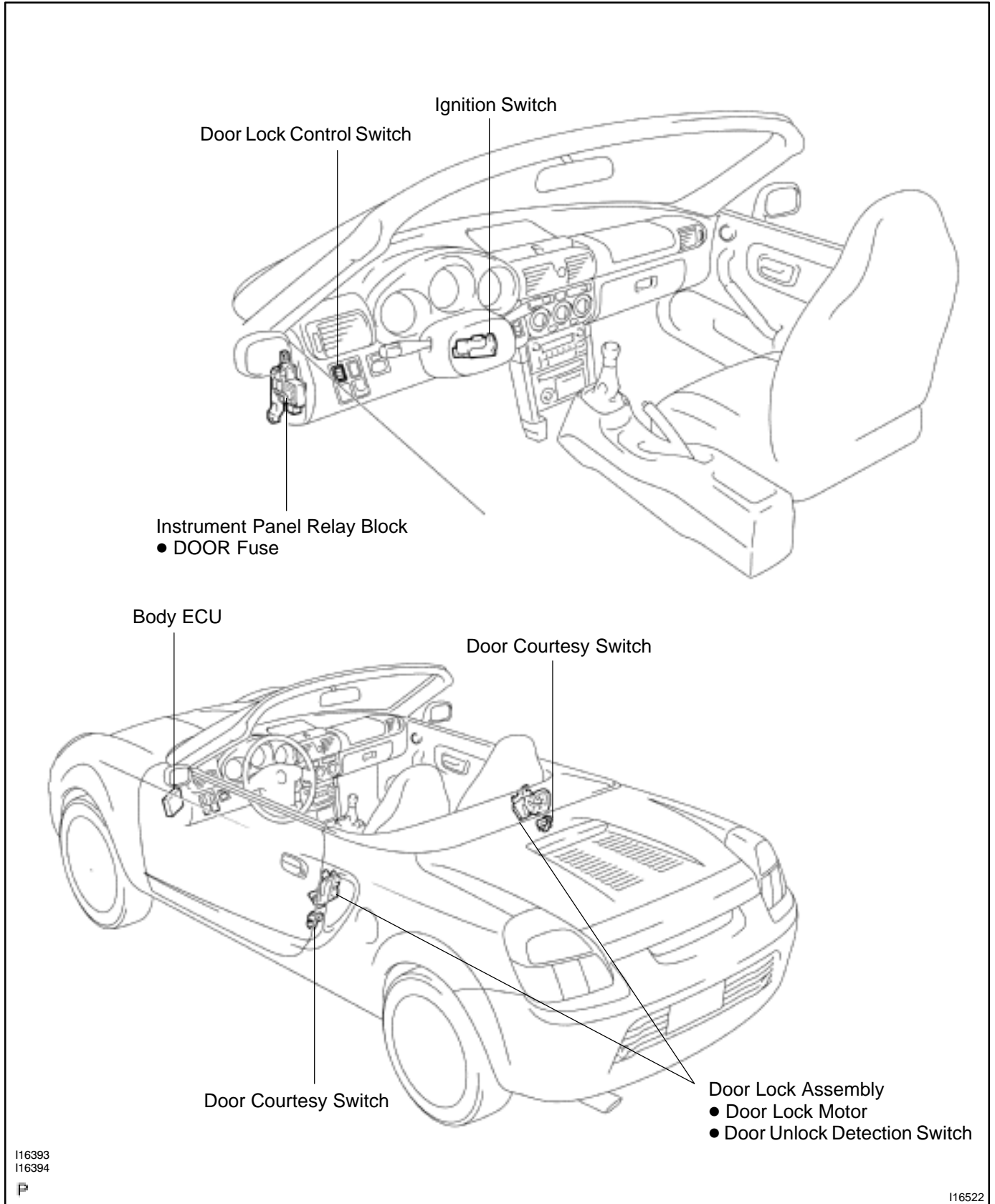
- (a) Disconnect the connector from the power window switch.
- (b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to terminal 1 on the wire harness side connector, and raise the window to fully closed position.

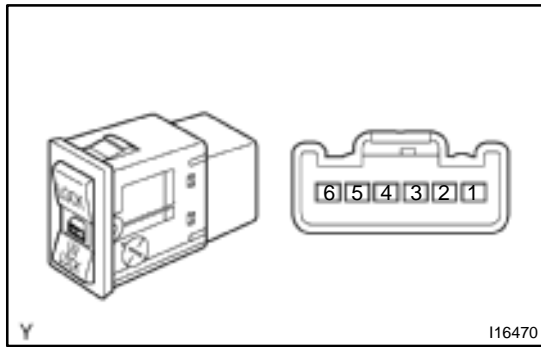


- (c) Continue to apply voltage, check that circuit breaker operation noise is heard within approximately 4 to 90 seconds.
 - (d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.
- If operation is not as specified, replace the motor.

POWER DOOR LOCK CONTROL SYSTEM LOCATION

BEOPH-04



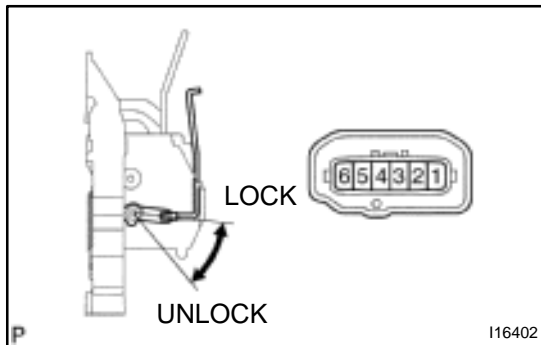


INSPECTION

1. INSPECT DRIVER'S DOOR LOCK CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 – 3, 5 – 6	Continuity
OFF	–	No continuity
UNLOCK	1 – 6, 3 – 5	Continuity

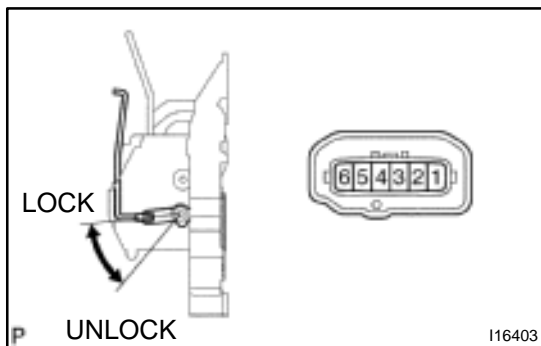
If continuity is not as specified, replace the switch.



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

Switch position	Tester connection	Specified condition
LOCK	2 – 4	Continuity
OFF	–	No continuity
UNLOCK	2 – 3	Continuity

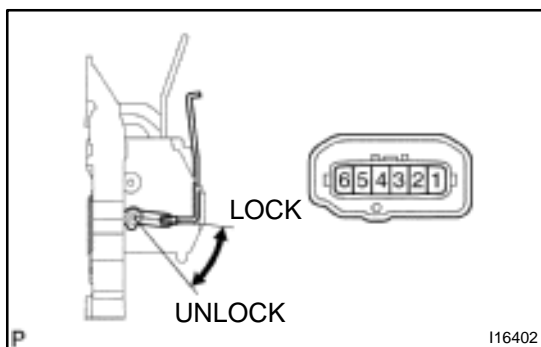
If continuity is not as specified, replace the switch.



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

Switch position	Tester connection	Specified condition
LOCK	3 – 5	Continuity
OFF	–	No continuity
UNLOCK	4 – 5	Continuity

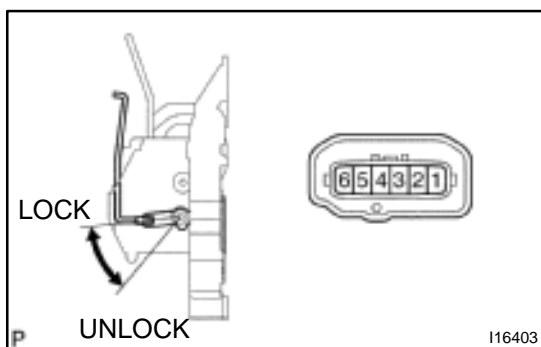
If continuity is not as specified, replace the switch.



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)	1 – 2	Continuity

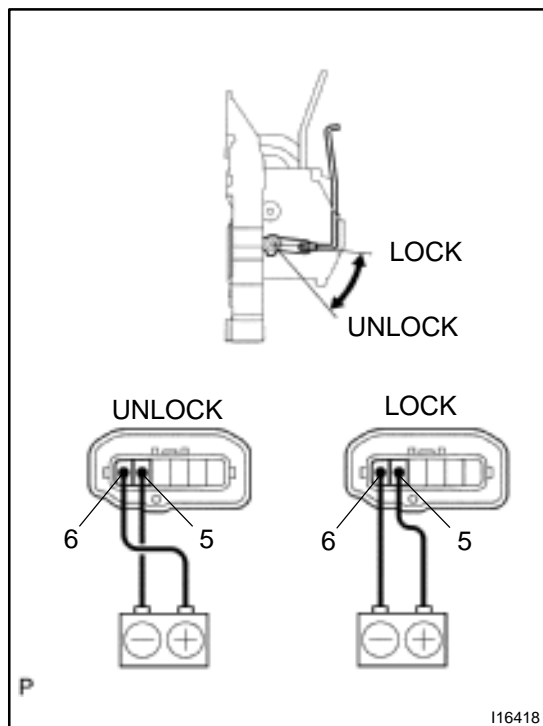
If continuity is not as specified, replace the switch.



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

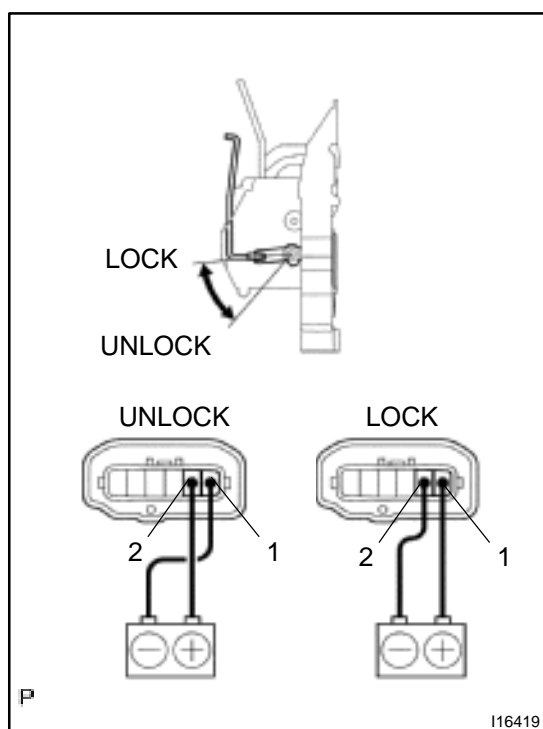
Switch position	Tester connection	Specified condition
OFF (Door Lock set to LOCK)	–	No continuity
ON (Door Lock set to UNLOCK)	5 – 6	Continuity

If continuity is not as specified, replace the switch.

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

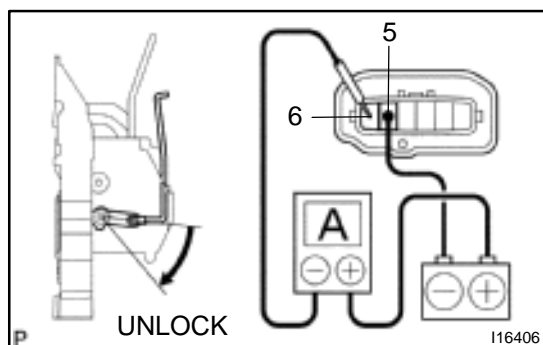
- (a) Connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 5, and check that the door lock link moves to UNLOCK position.
- (b) Reverse the polarity and check that the door lock link moves to LOCK position.

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

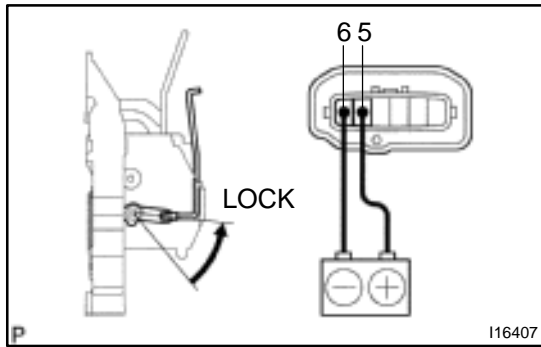
**7. Passenger's door:****INSPECT DOOR LOCK MOTOR OPERATION**

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

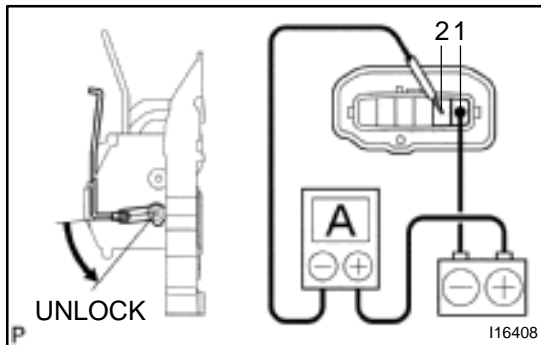
If operation is not as specified, replace the door lock assembly.

**8. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION**

- (a) Connect the negative (-) lead from the ammeter to terminal 6, and the positive (+) lead to negative terminal of the battery.
- (b) Connect the negative (-) lead from the battery to terminal 5.
- (c) Check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

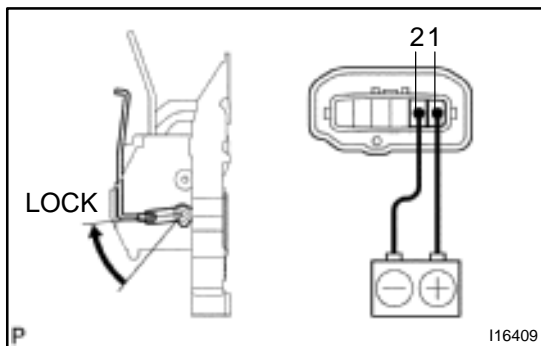


- (d) Disconnect the leads from terminals.
 - (e) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 6, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

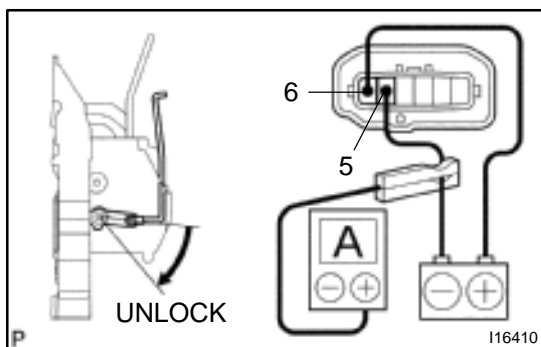


9. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

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

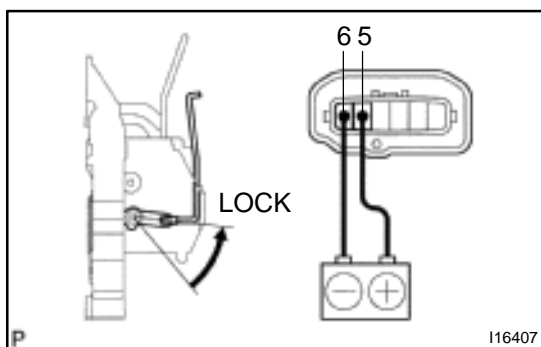


- (d) Disconnect the leads from terminals.
 - (e) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

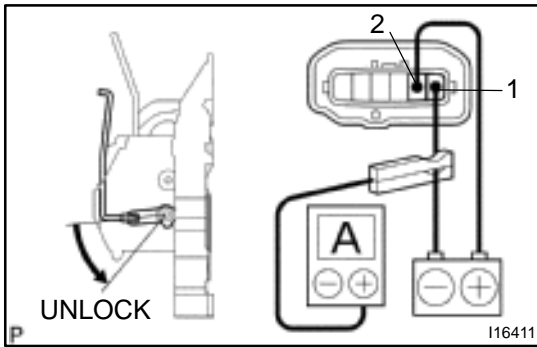


10. INSPECT DRIVER'S DOOR PTC THERMISTOR OPERATION

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

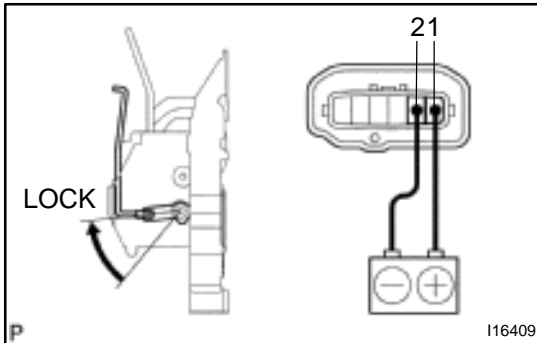


- (c) Disconnect the leads from terminals.
 - (d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.



11. INSPECT PASSENGER'S DOOR PTC THERMISTOR OPERATION

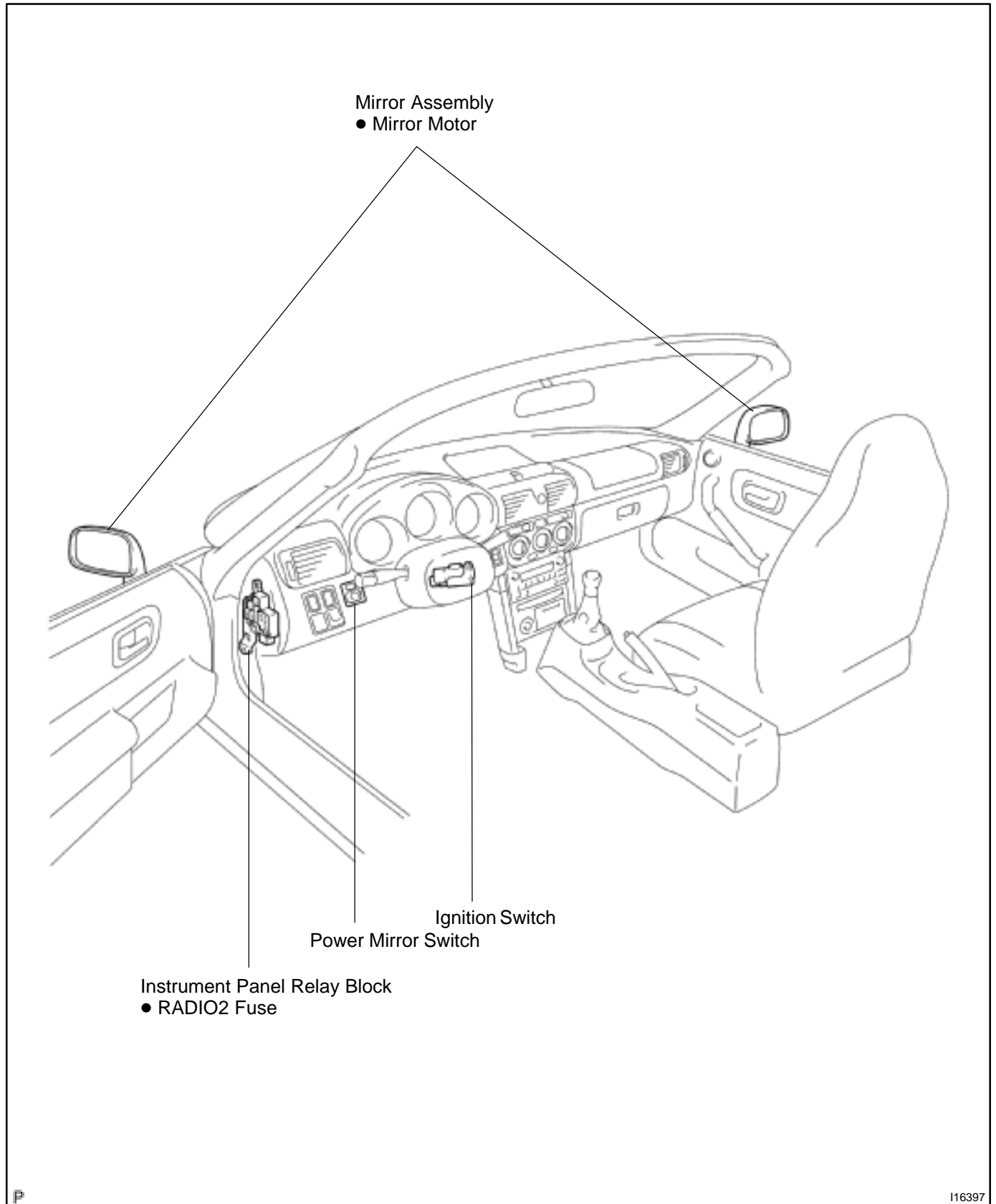
- (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1.
- (b) Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, and check that the current changes from approximately 3.2 A to less than 0.5 A within 20 to 70 seconds.

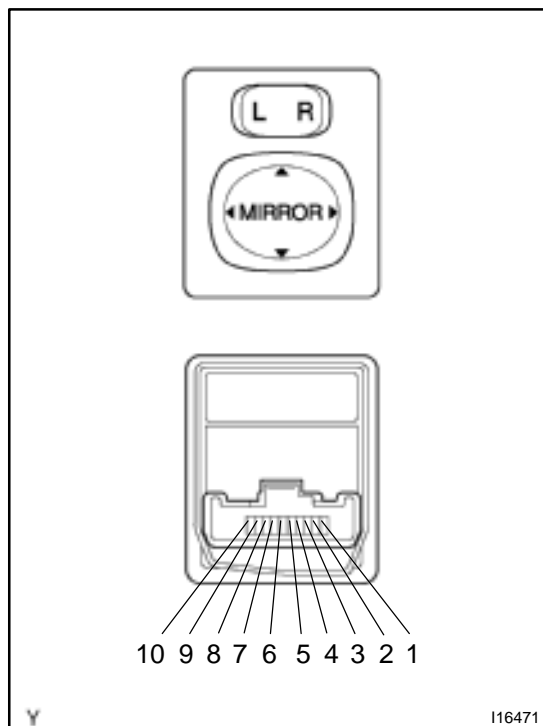


- (c) Disconnect the leads from terminals.
 - (d) Approximately 60 seconds later, reverse the polarity, and check that the door lock moves to the LOCK position.
- If operation is not as specified, replace the door lock assembly.

POWER MIRROR CONTROL SYSTEM LOCATION

BE0PL-04





INSPECTION

1. INSPECT LEFT SIDE MIRROR SWITCH CONTINUITY

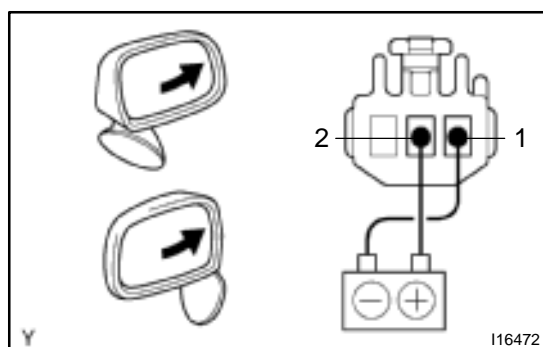
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	4–8 6–7	Continuity
DOWN	4–7 6–8	Continuity
LEFT	5–8 6–7	Continuity
RIGHT	5–7 6–8	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT RIGHT SIDE MIRROR SWITCH CONTINUITY

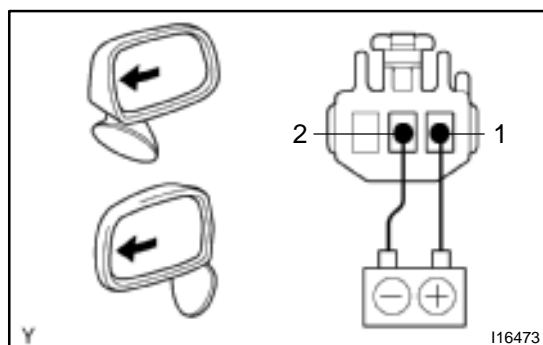
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	3–8 6–7	Continuity
DOWN	3–7 6–8	Continuity
LEFT	2–8 6–7	Continuity
RIGHT	2–7 6–8	Continuity

If continuity is not as specified, replace the switch.

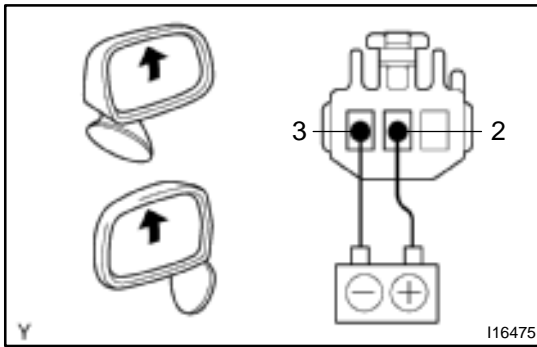


3. INSPECT MIRROR MOTOR OPERATION

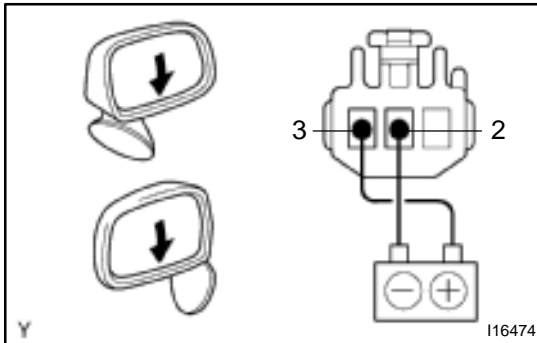
- (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the mirror turns to the right.



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



- (c) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 3, and check that the mirror turns downward.



- (d) Reverse the polarity, and check that the mirror turns upward.
If operation is not as specified, replace the mirror assembly.

AUDIO SYSTEM DESCRIPTION

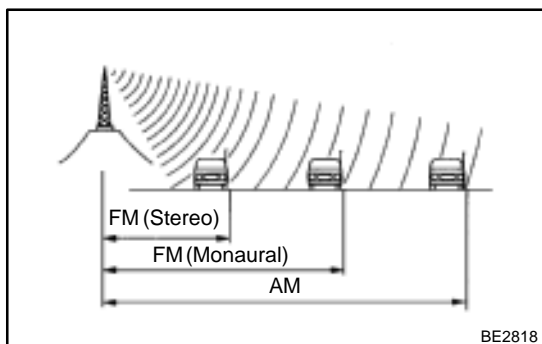
BE1KE-01

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

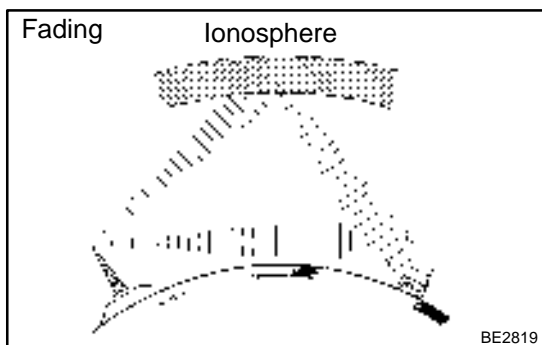


2. SERVICE AREA

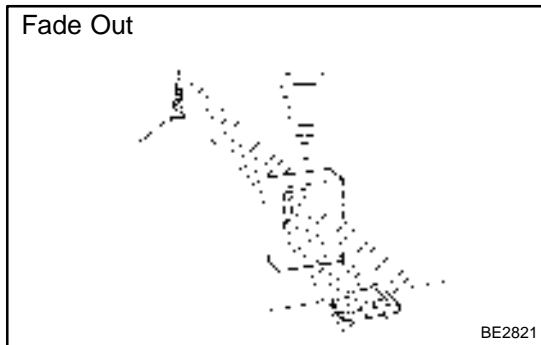
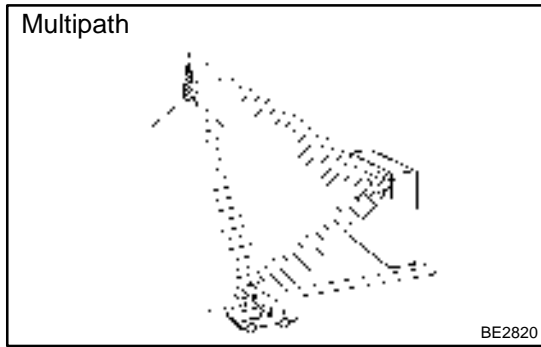
There are great differences in the size of the service area for AM and FM monaural. Sometimes FM stereo broadcasts cannot be received even though AM comes in very clearly. Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference ("noise") easily.

3. RECEPTION PROBLEMS

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



- **Fading**
Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle's antenna directly. This type of interference is called "fading".



- Multipath**
Interference caused by bouncing of radio waves off obstructions is called "multipath". Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly.
- Fade out**
Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstructions. This is called "fade out".

4. NOISE PROBLEMS

(a) Questionnaire for noise:

For noise troubleshooting it is very important to understand the claims from the customers well, so make the best use of the following questionnaire and diagnose the problem accurately.

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

HINT:

In the case that the noise occurrence condition does not meet any of the above, check based on the "Trouble Phenomenon". Refer to previous page for multipath and fading.

- (b) Matters that require attention when checking:
- Noise coming into the radio usually has no harm for practical use as the noise protection is taken and it is hardly thinkable for an extremely loud noise to come in. When extremely loud noise comes into the radio, check if the grounding is normal where the antenna is installed.
 - Check if all the regular noise prevention parts are properly installed and if there is any installation of non-authorized parts and non-authorized wiring.
 - If you leave the radio out of tune (not tuning), it is easy to diagnose the phenomenon as noise occurs frequently.

5. COMPACT DISC PLAYER

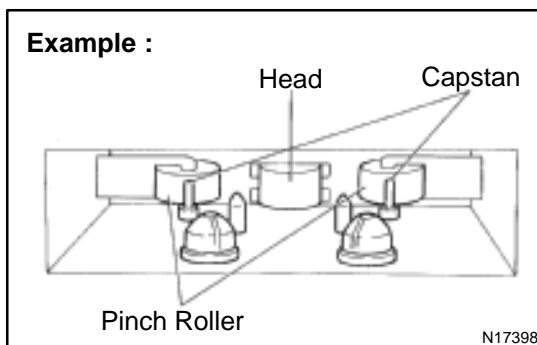
Compact Disc Players use a laser beam pick-up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc.

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.

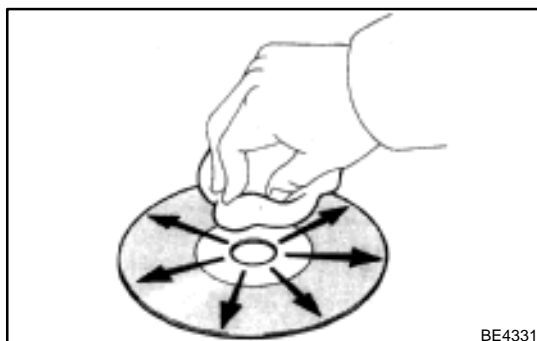
NOTICE:

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



6. Tape Player/Head Cleaning: MAINTENANCE

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



7. CD Player/Disc Cleaning: MAINTENANCE

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

NOTICE:

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

8. OUTLINE OF AVC-LAN**(a) What is AVC-LAN?**

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.

(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

- (1) When products by different manufactures were combined together, there used to be a case that malfunction occurred such as sound did not come out. This problem has been resolved by standardization of signals.
 - (2) Various types of after market products have been able to add or replace freely.
 - (3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.
 - (4) Conventionally, a new product developed by a manufacture could not be used due to a lack of compatibility with other manufactures products. Because of this new standard, users can enjoy compatible products provided for them timely.
- (c) The above descriptions are the objectives to introduce AVC-LAN. By this standardization, development of new products will no longer cause systematic errors. Thus, this is very effective standard for a product in the future.

HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops. Accordingly the audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. (When audio system is equipped with a navigation system, navigation ECU is the master unit.)
- The car audio system using AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical address. Numbers are also allotted to each function in one product, which are called logical address.

9. DIAGNOSIS FUNCTION

Error codes over tuner and connected equipment are displayed on the screen of tuner.

(a) Diagnosis start-up

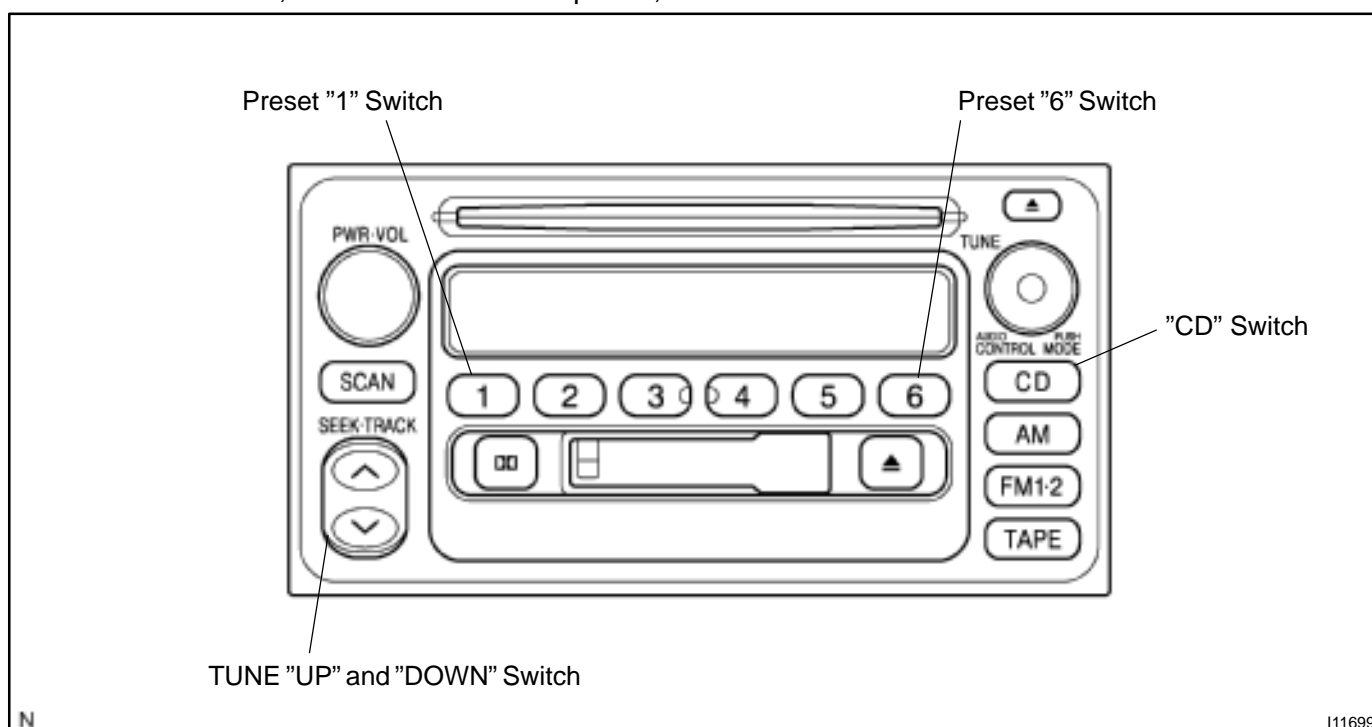
For shifting to diagnosis mode, push "CD" switch 3 times with pressing "1" and "6" of PRESET switch at the same time while the audio power is OFF and ACC is ON.

To exit from diagnosis mode, press "CD" switch for 2 seconds or turn the ignition key OFF.

(When "1-190" is displayed, the mode is transferred to LAN check mode.)

(b) LAN check

When starting up the diagnosis mode, the mode turns to LAN check mode, the screen displays the code numbers (physical address) of tuner and connected equipment. Smaller codes are displayed in order, displayed code numbers are switched by operating TUNE "UP" or "DOWN" switch. In LAN check mode, by pressing "5" of PRESET switch for more than 2 secs., diagnosis memory of each equipment can be deleted, when deletion is completed, the mode returns to LAN check mode.



Code No. (physical address) List

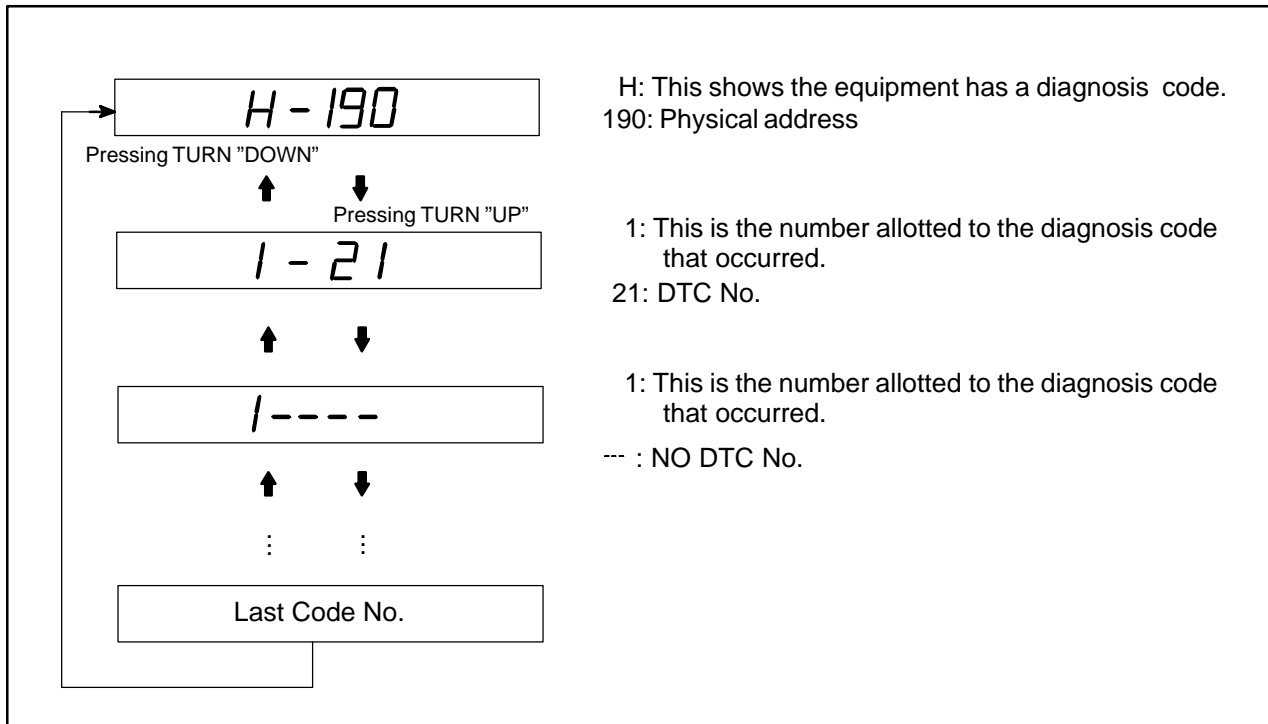
Code No. (physical address)	Equipmentname
190	Radio receiver assembly (Audio head unit)

(c) System check

- When pressing "1" of PRESET switch in LAN check mode, the mode turns to the system check mode, the system performs self diagnosis of connected equipment and displays the results. ("SYS" (showing the system is under detection) is displayed.)
- Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- It sometimes takes approx. 40 secs. till the system inspection is completed.
- The chart below is an example of when diagnosis code "21" appears on the physical address (190) equipment. (ROM error occurs on the radio receiver.)
- The smaller code numbers (physical address) are displayed in order (code No., diagnosis code, support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed.
- When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display.
- In the system check mode, when pressing "6" of PRESET switch the mode returns to LAN check mode.

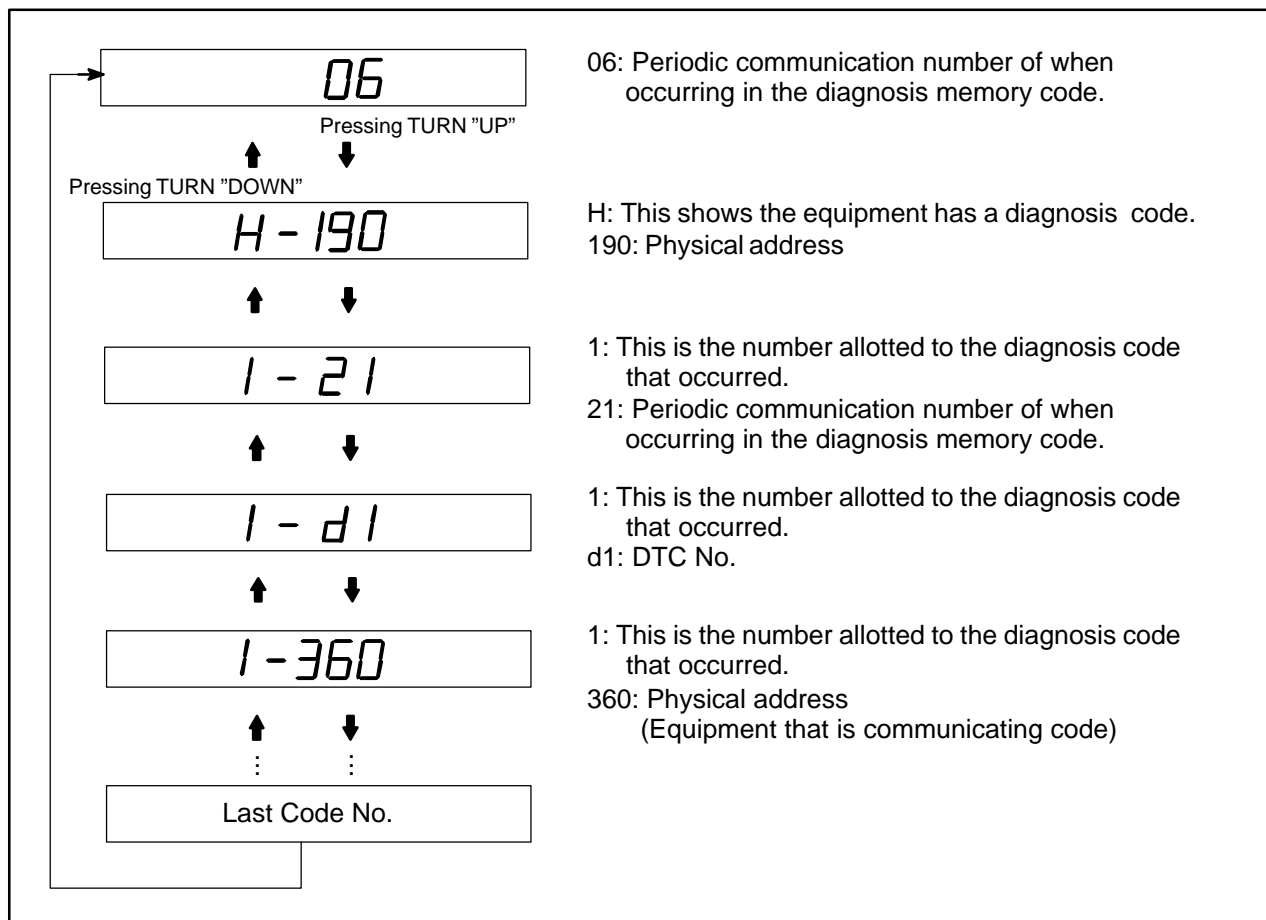


(d) Diagnosis memory

- (1) In LAN check mode, when pressing "2" of PRESET switch the mode turns to the diagnosis memory mode. ("CODE" is displayed.)
The results of self diagnosis performed over tuner and connected equipment are memorized and displayed.
- (2) Perform the operation shown in the following illustration, then read the result of the inspection.

HINT:

- The smaller code numbers (physical address) are displayed in order (code No. , periodic communication number when error occurs, diagnosis code, and support code of diagnosis code (object equipment)).
- When no error is detected in the system, "00" is displayed. When an error code is detected, up to 6 codes per one system are displayed. Pressing TUNE "UP" or "DOWN" switches the display. Each diagnosis code is same as code in the system check mode.
- When pressing "6" of PRESET switch, the mode returns to LAN check mode.
- The following illustration below is an example of when diagnosis code "D1" appears on the code (190) and (240 or 360) equipment. (Communication error occurs between the radio receiver and CD changer.)



(e) Diagnosis memory clear

- (1) After error is fixed, start up the diagnosis mode.
- (2) Continue pressing preset switch "5" for 2 secs. (CLr is displayed.)
- (3) Press the preset switch "2" and transfer to the diagnosis memory mode, and check that the normal code (00) is output.

10. DIAGNOSIS CODE LIST

- If there is "O" in the column of system check, an error can be detected when the mode is switched to the system check mode.
- If there is "O" in the column of diagnosis mode, each unit is monitoring whether or not it has failure. In case of detecting failure, it memorizes DTC.

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts	System Check	Diagnosis memory
Head Unit (190)	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 connector 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	○

TROUBLESHOOTING

NOTICE:

When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

HINT:

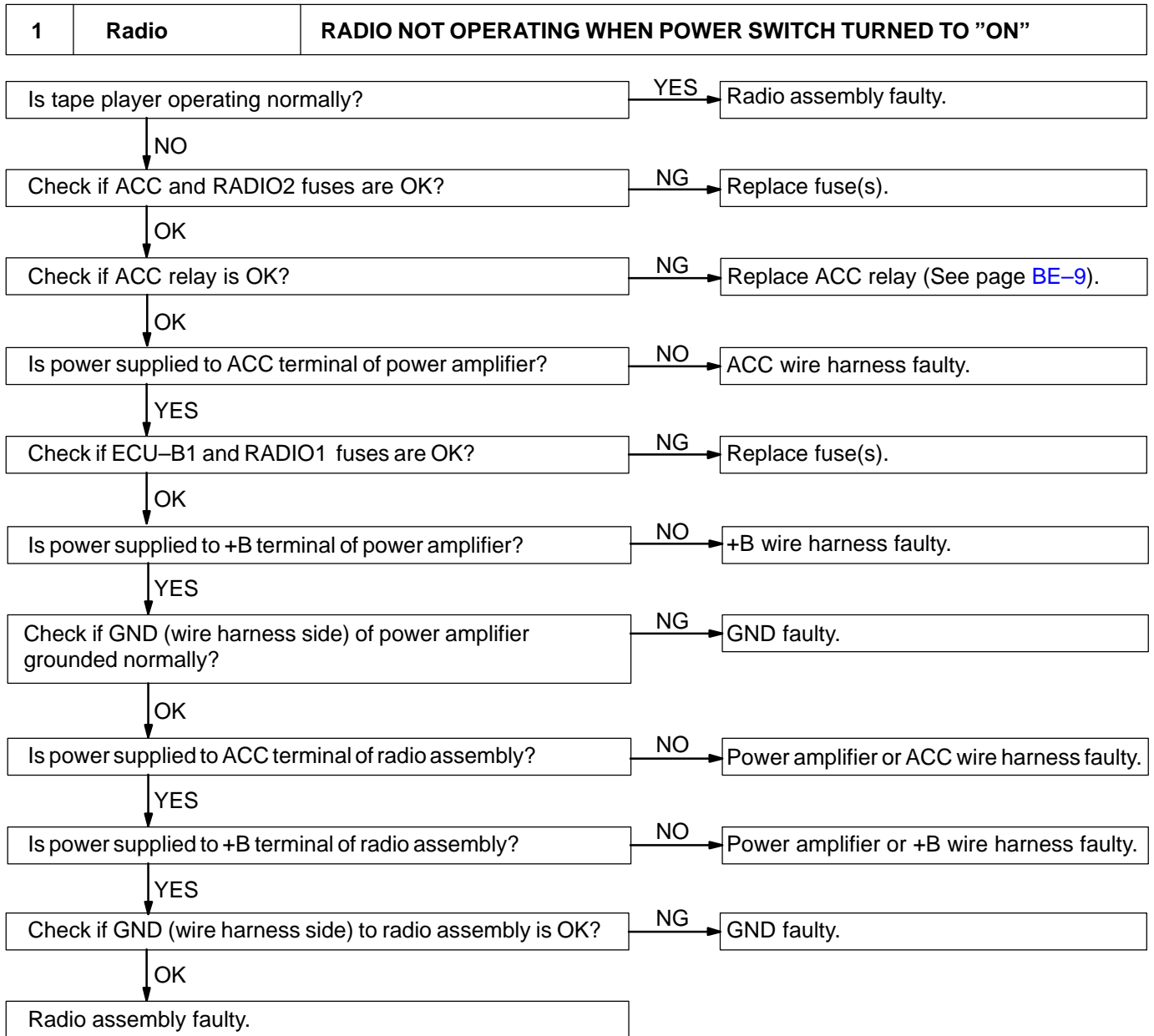
This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

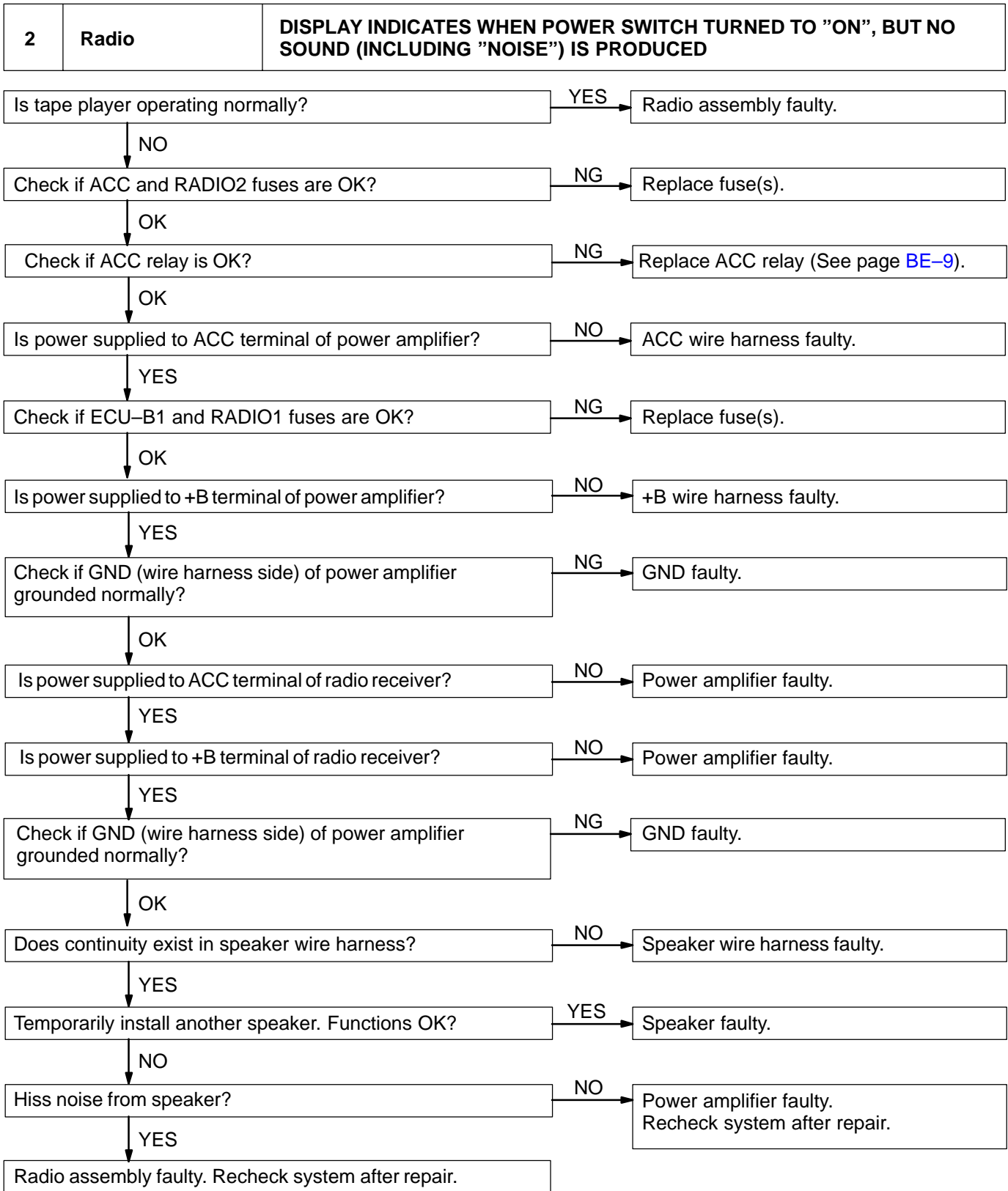
Always inspect the part with trouble taking the following items into consideration.

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

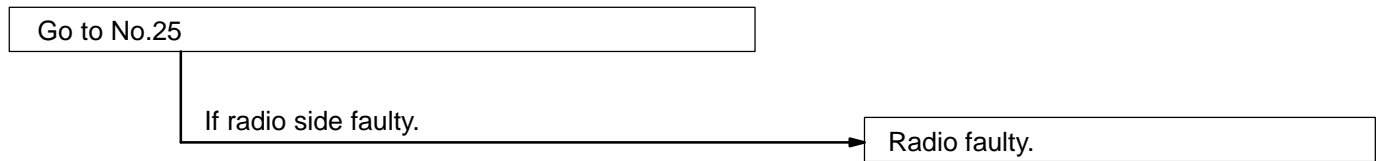
	Problem	No.
Radio	Radio not operating when power switch turned to "ON".	1
	Display indicates when power switch turned to "ON", but no sound (including "noise") is produced.	2
	Noise present, but AM – FM not operating.	3
	Any speaker does not work.	4
	Any AM or FM does not work.	5
	Few preset turning bands.	5
	Reception poor.	6
	Sound quality poor.	7
	Preset memory erased.	8
Tape player	Cassette tape cannot be inserted.	9
	Cassette tape inserted, but no power.	10
	Power coming in, but tape player not operating.	11
	Any speaker does not work.	12
	Sound quality poor.	13
	Tape jammed, malfunction with tape speed or auto–reverse.	14
	Cassette tape will not eject.	15
CD player	CD cannot be inserted.	16
	CD inserted, but no power.	17
	Power coming in, but CD player not operating.	18
	Sound jumps.	19
	Sound quality poor (Volume faint).	20
	Any speaker does not work.	21
	CD will not be ejected.	22
Power amplifier	No power coming in.	23
	Power coming in, but power amplifier not operating.	24
	Any speaker does not work.	25
Noise	Noise occurs	26
	Noise produced by vibration or shock while driving.	27
	Noise produced when engine starts.	28

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

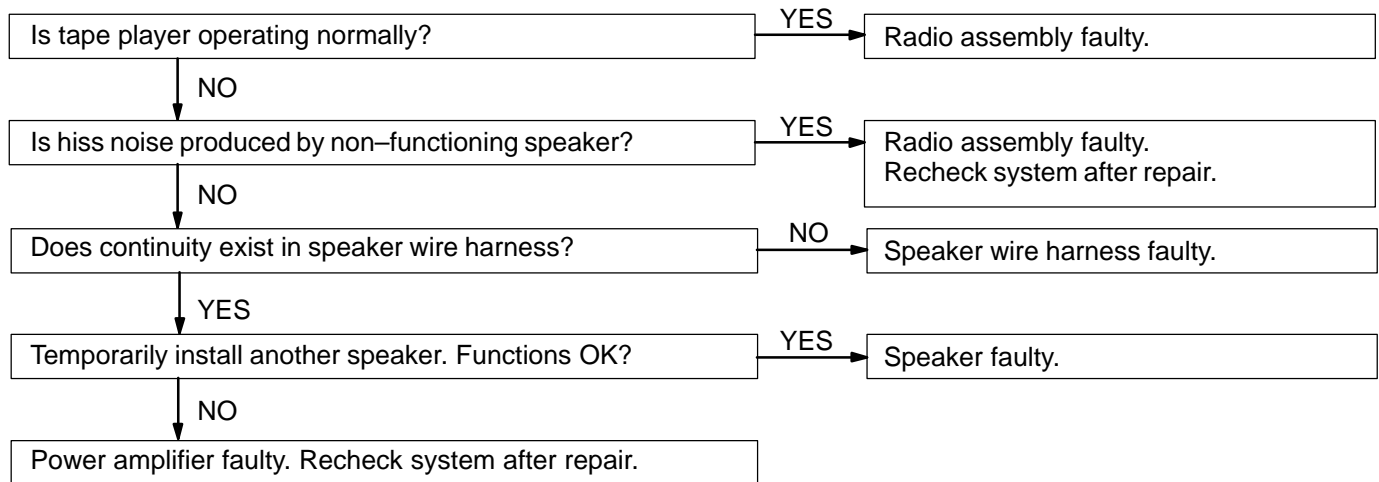




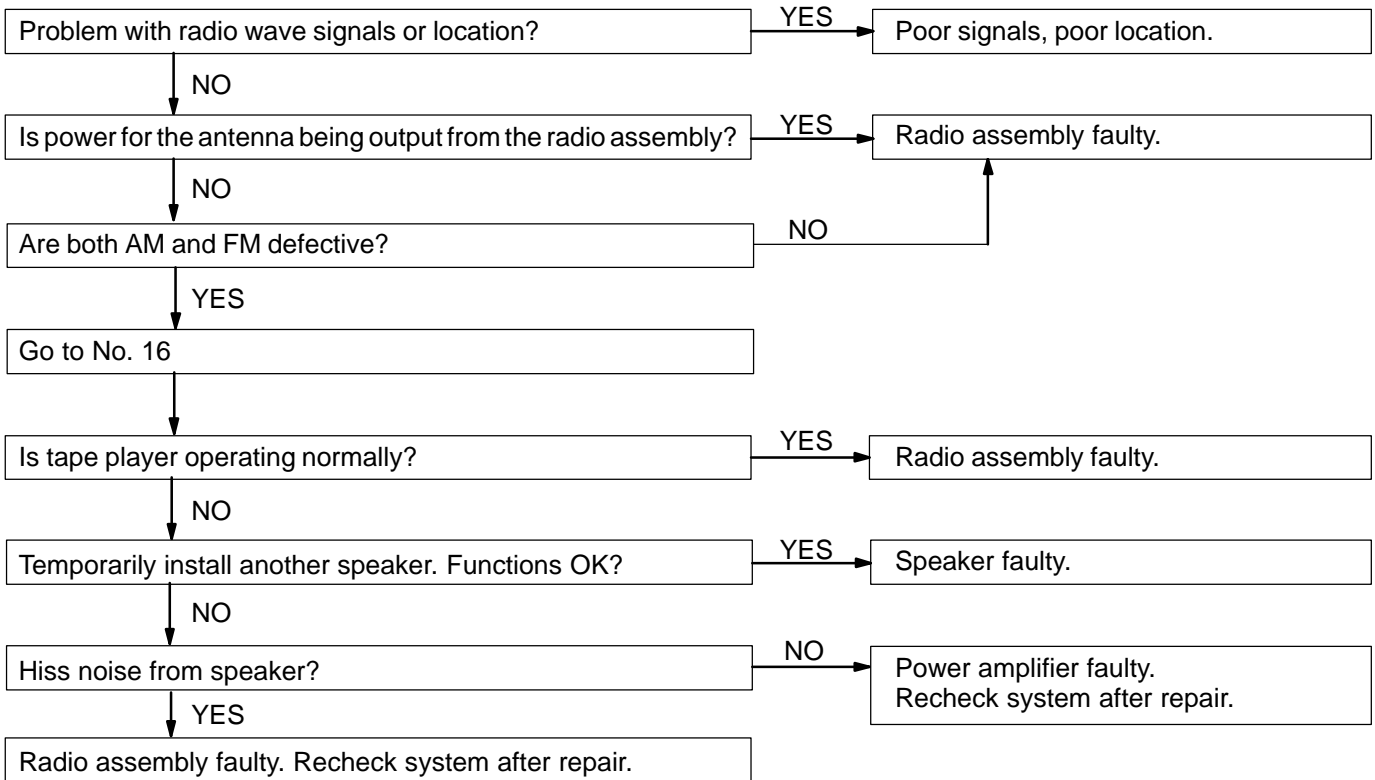
3	Radio	NOISE PRESENT, BUT AM-FM NOT OPERATING
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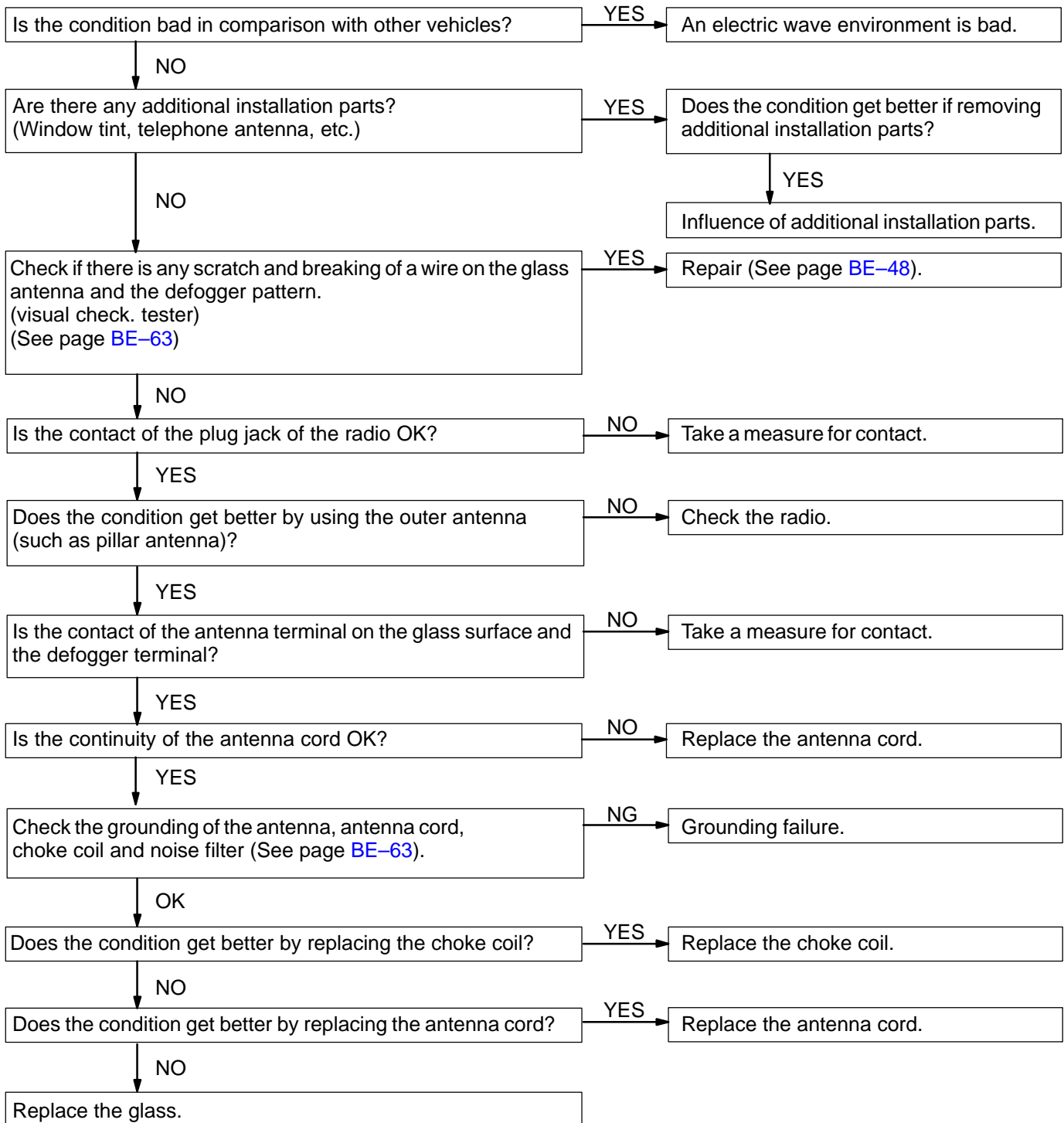
4	Radio	ANY SPEAKER DOSE NOT WORK
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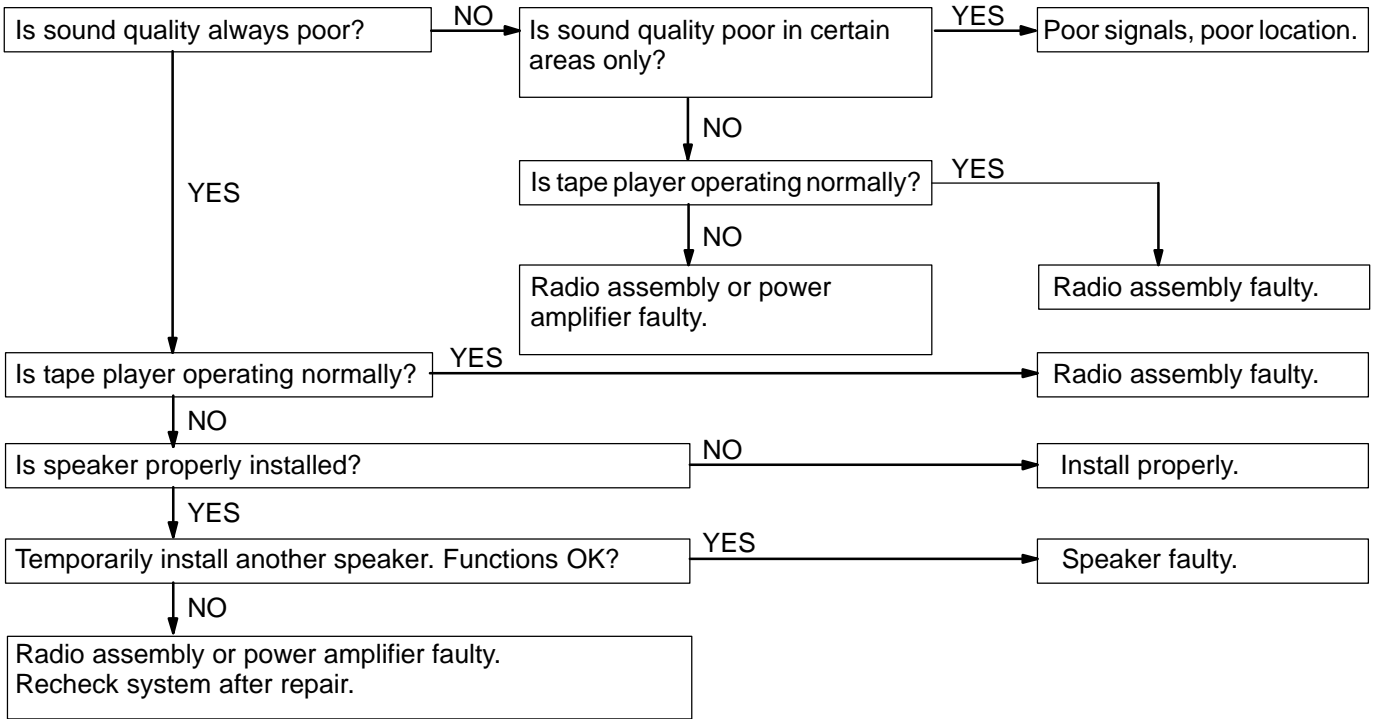
5	Radio	ANY AM OR FM DOES NOT WORK FEW PRESET TUNING BANDS
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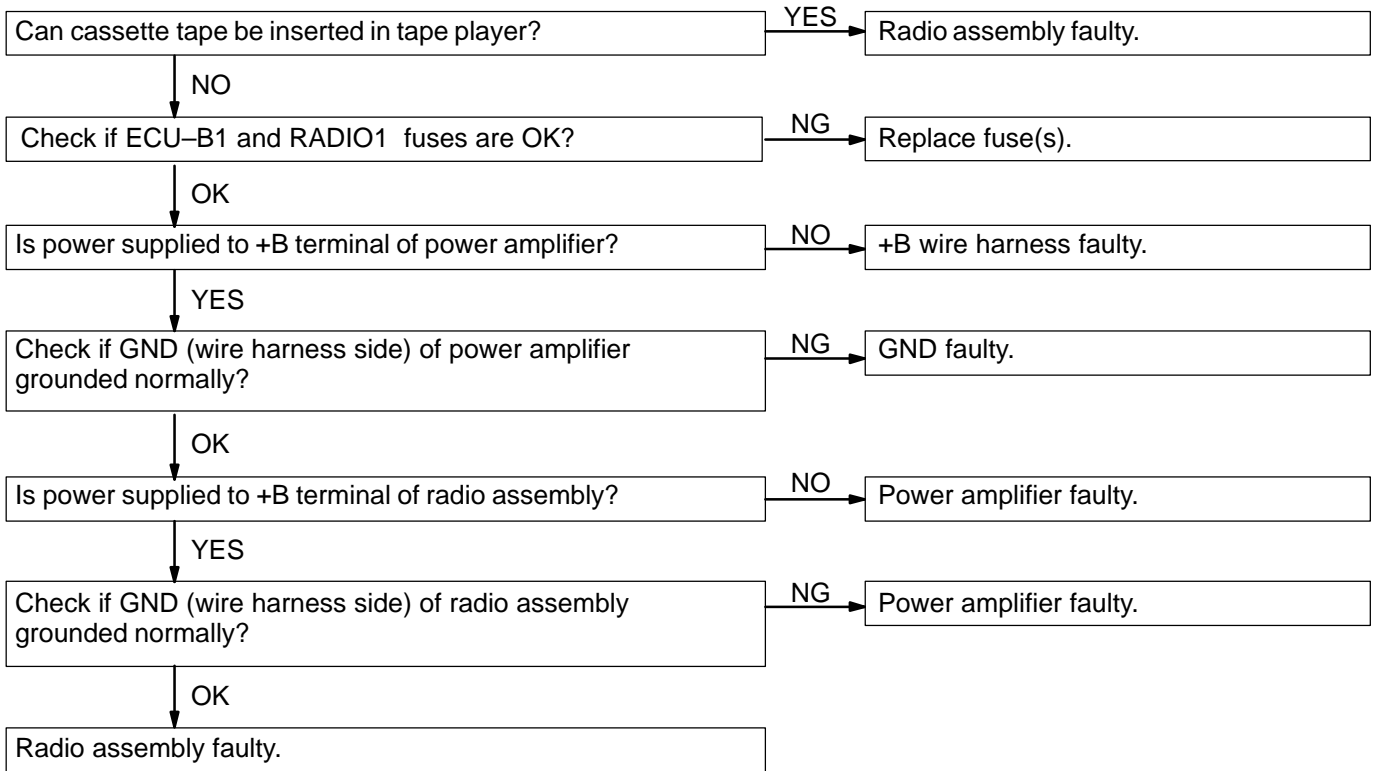
6	Radio	POOR RECEPTION
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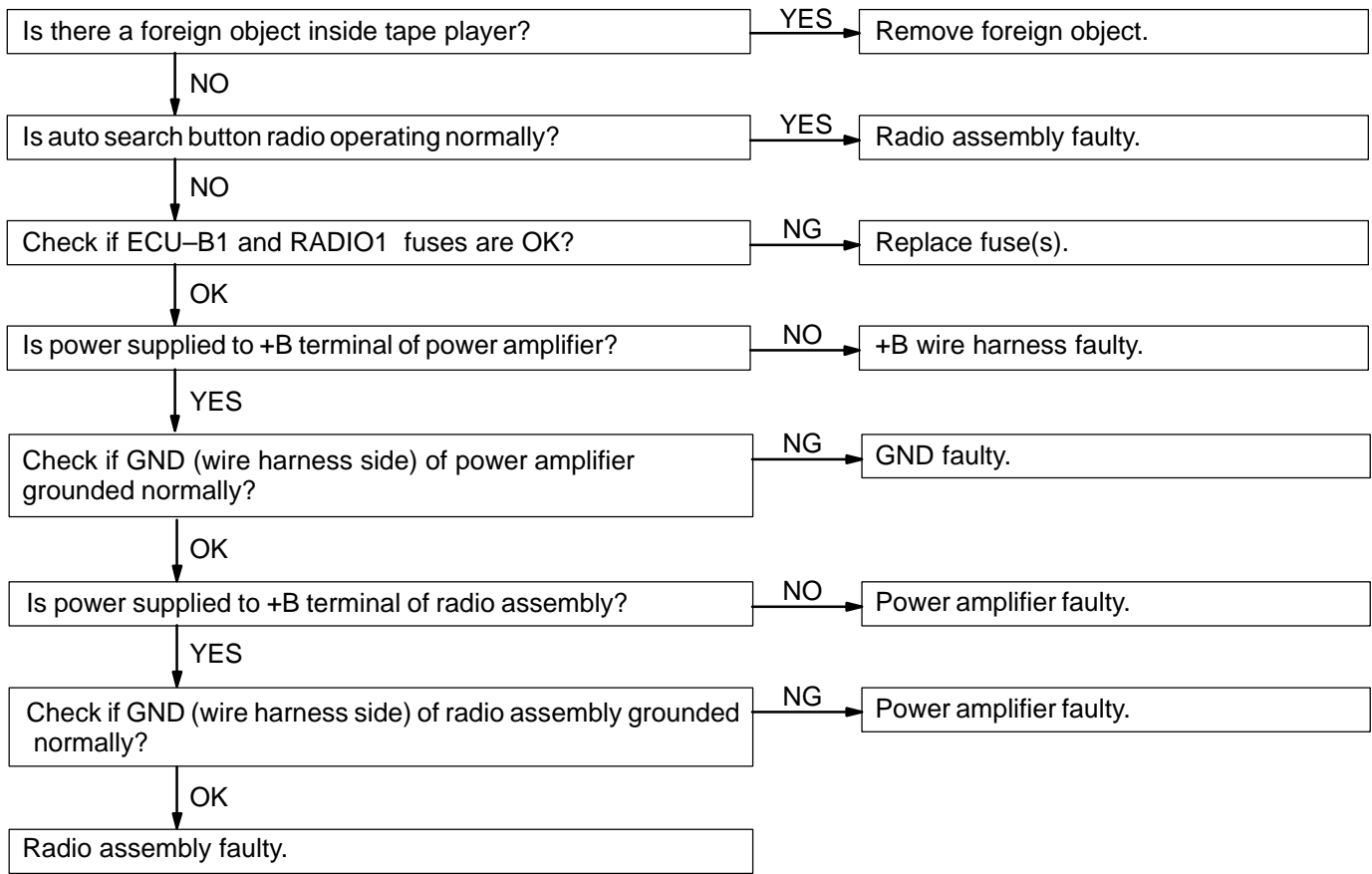
7	Radio	SOUND QUALITY POOR
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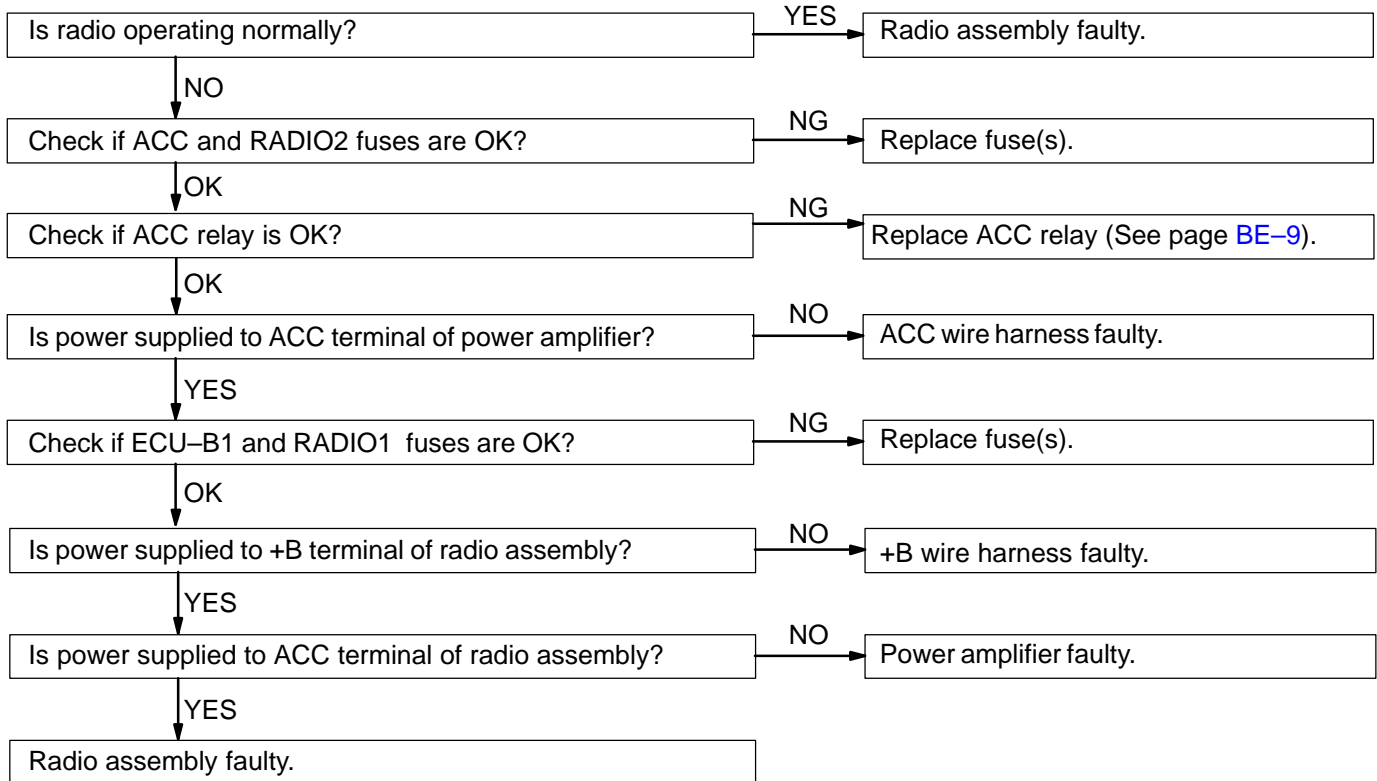
8	Radio	PRESET MEMORY DISAPPEARS
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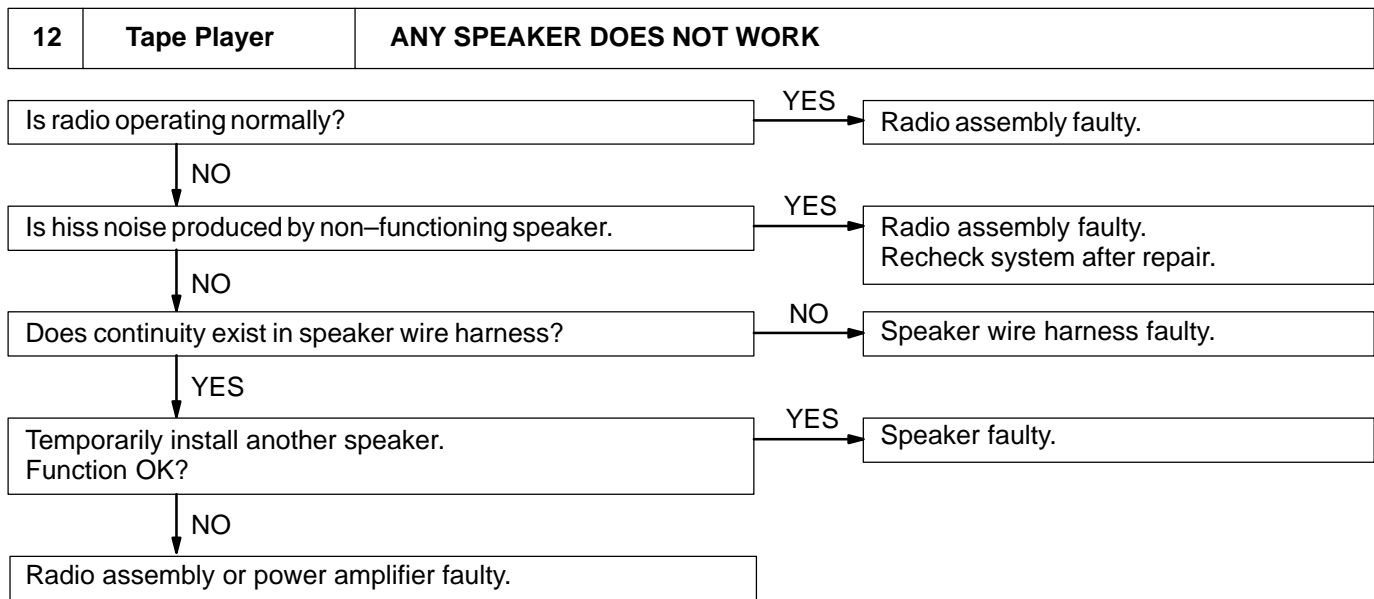
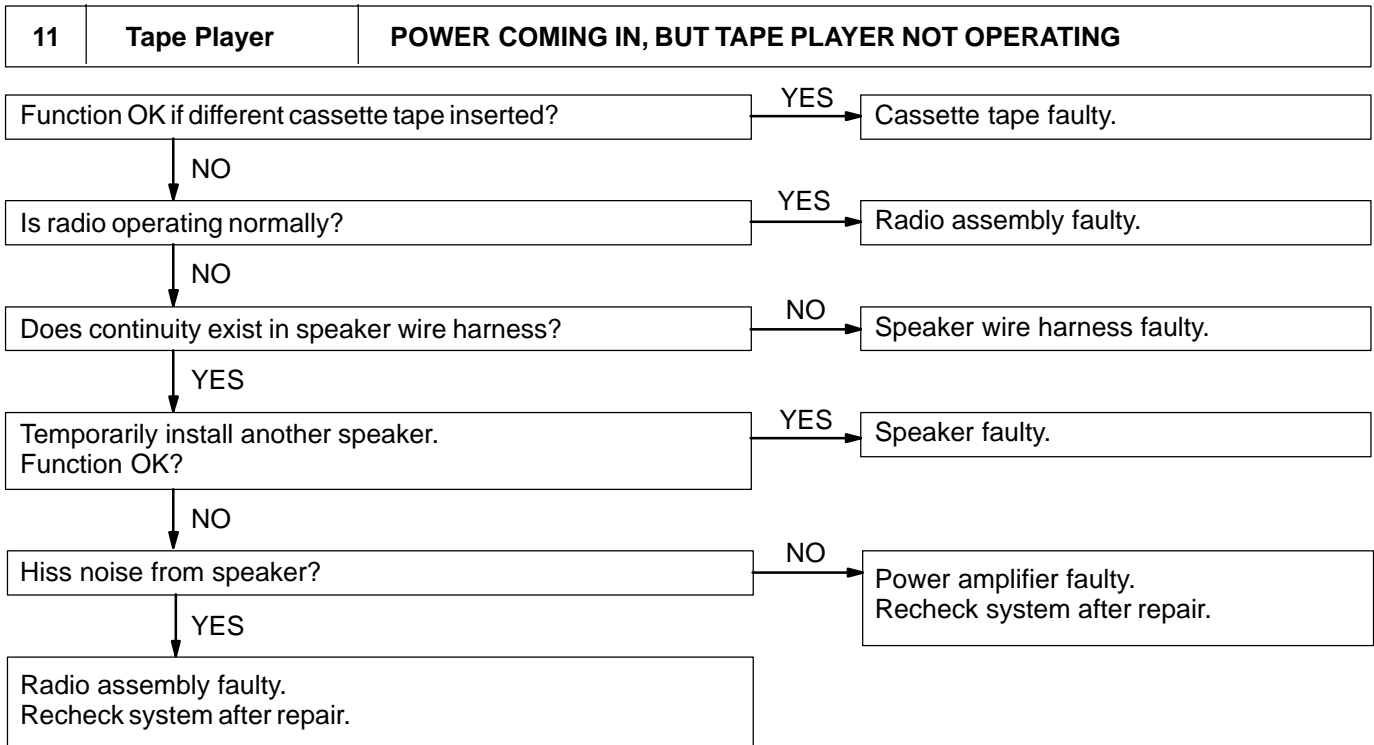


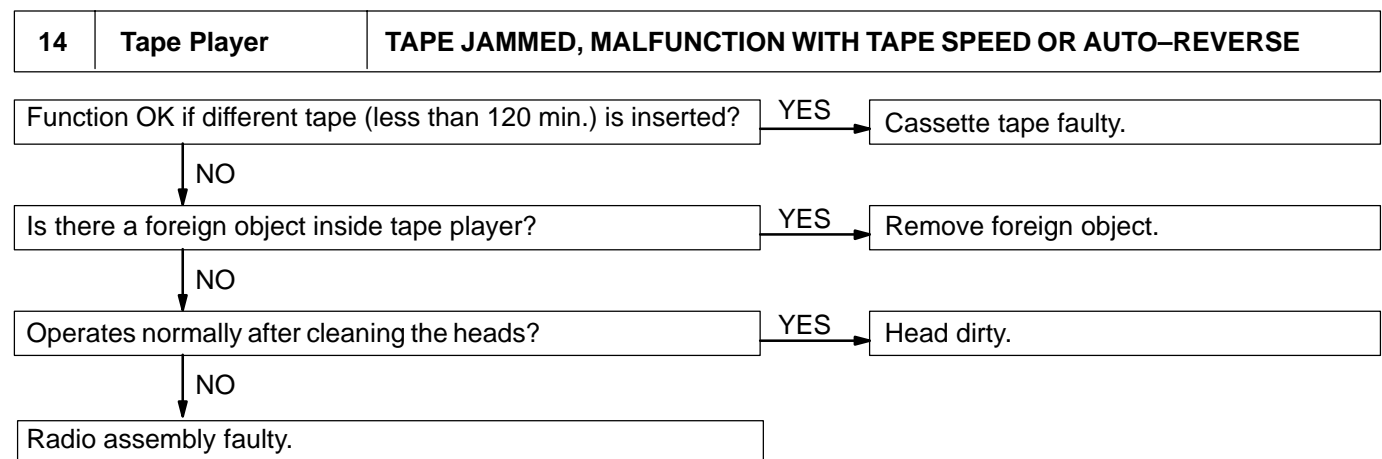
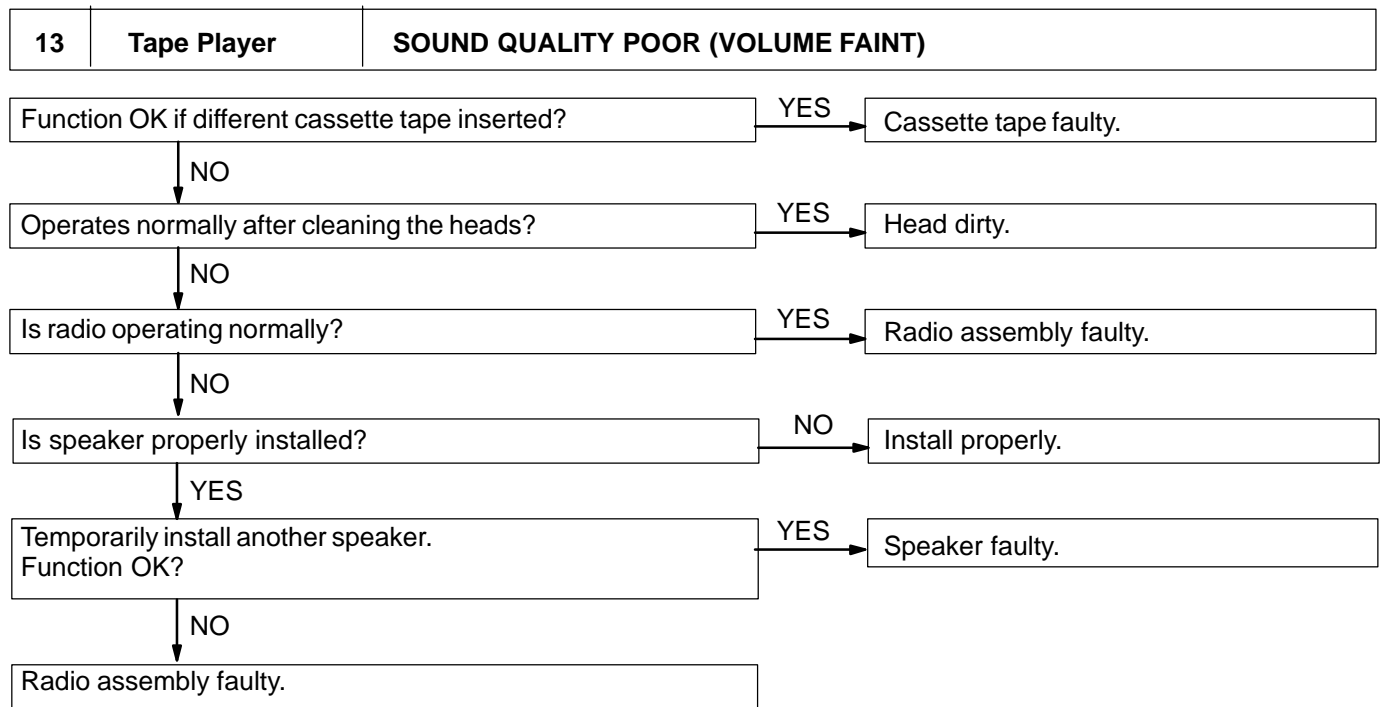
9	Tape Player	CASSETTE TAPE CANNOT BE INSERTED
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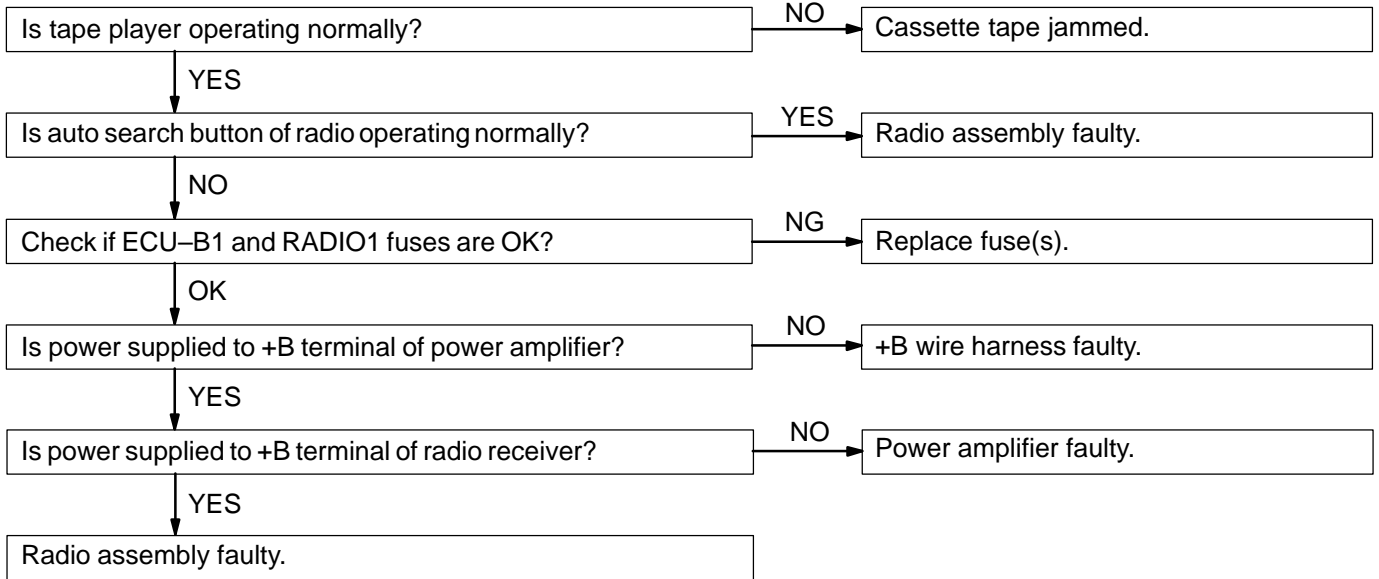
10	Tape Player	CASSETTE TAPE INSERTED, BUT NO POWER
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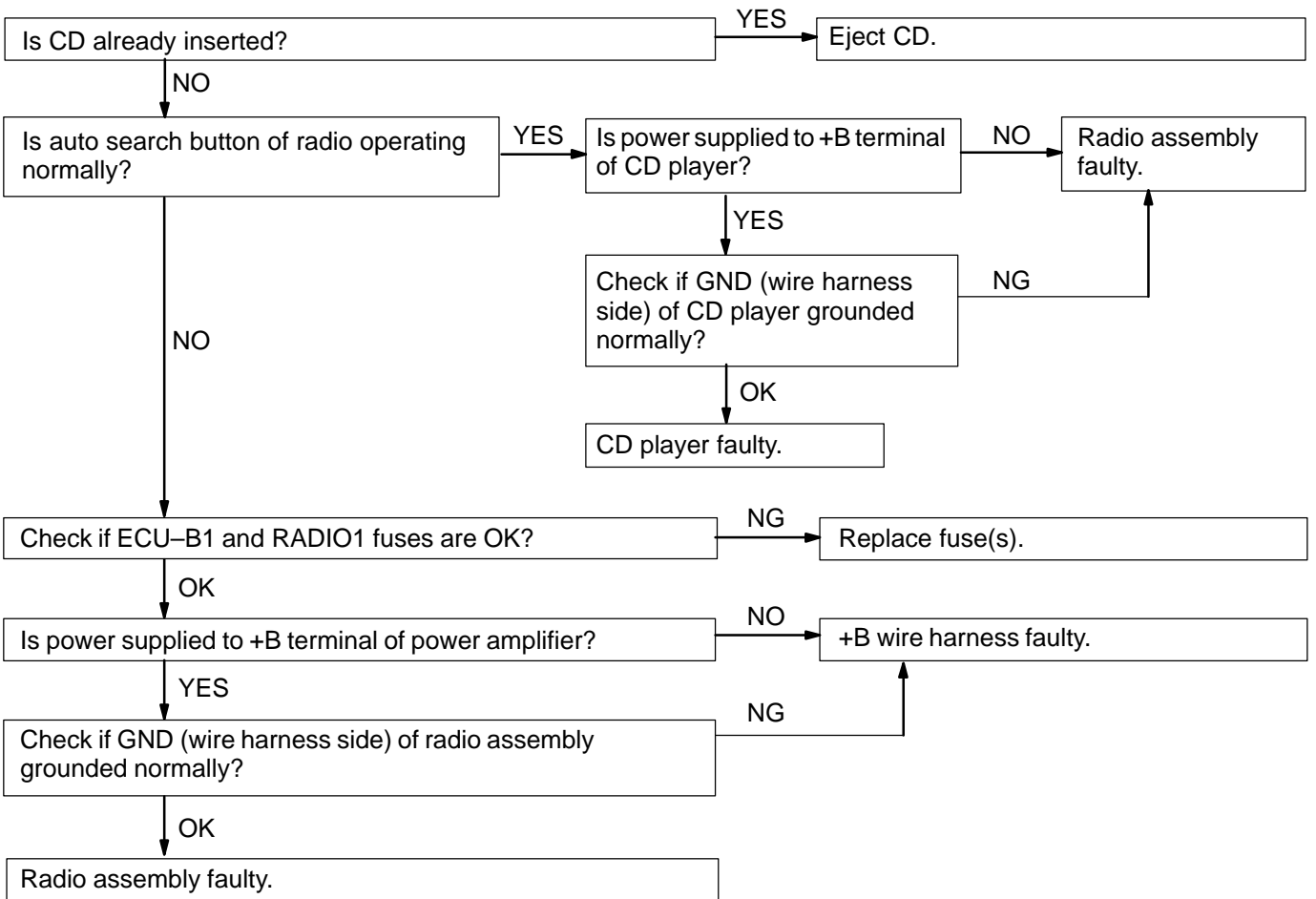




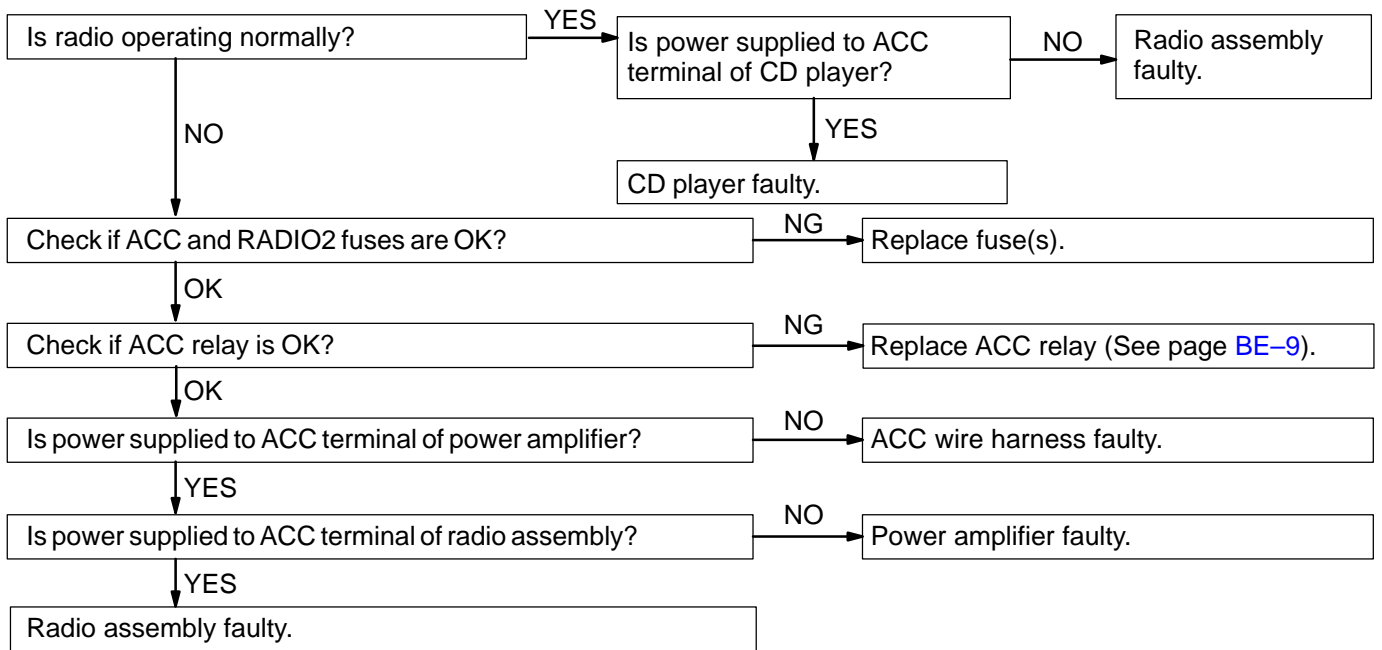
15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED
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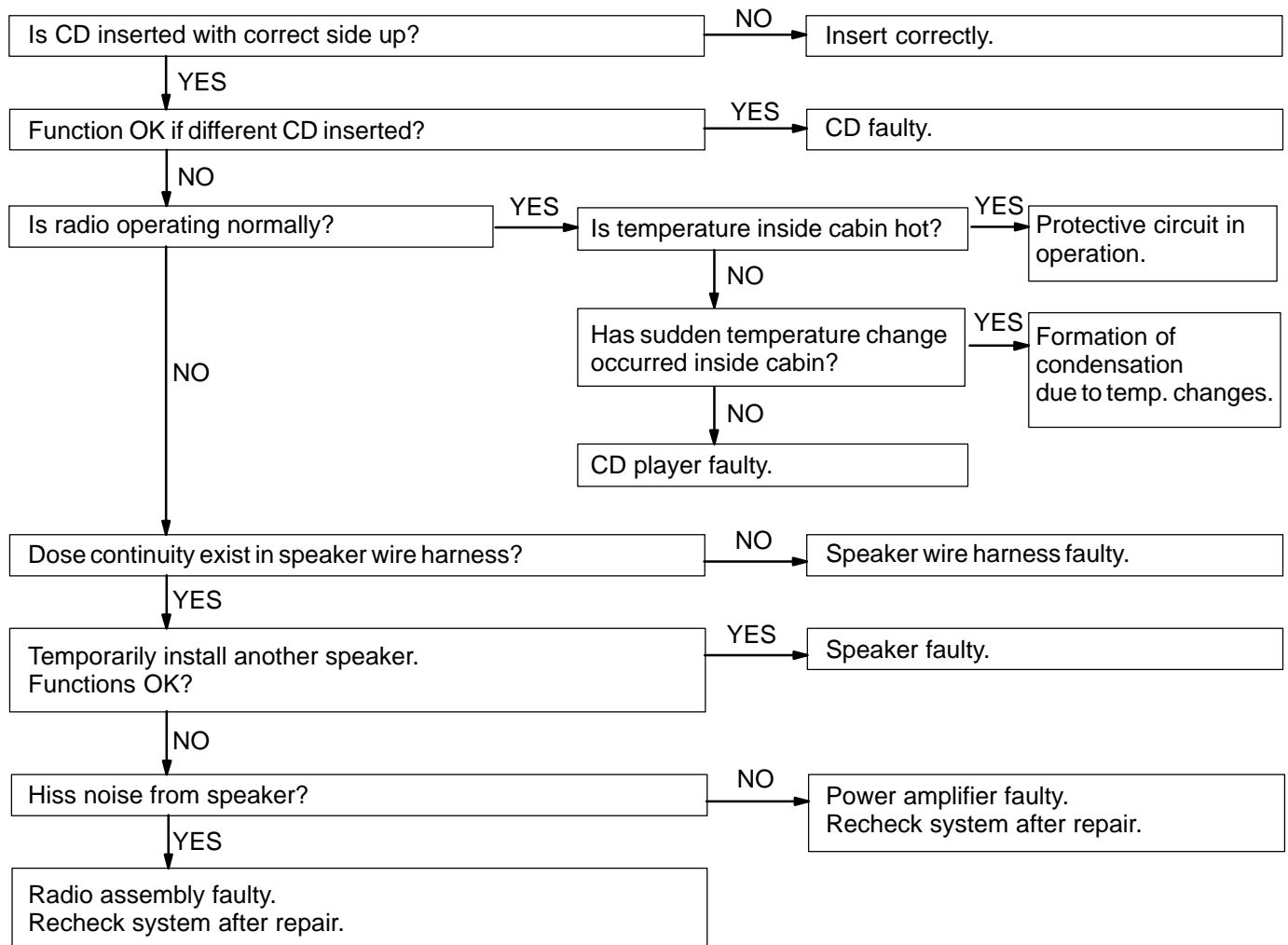
16	CD Player	CD CANNOT BE INSERTED
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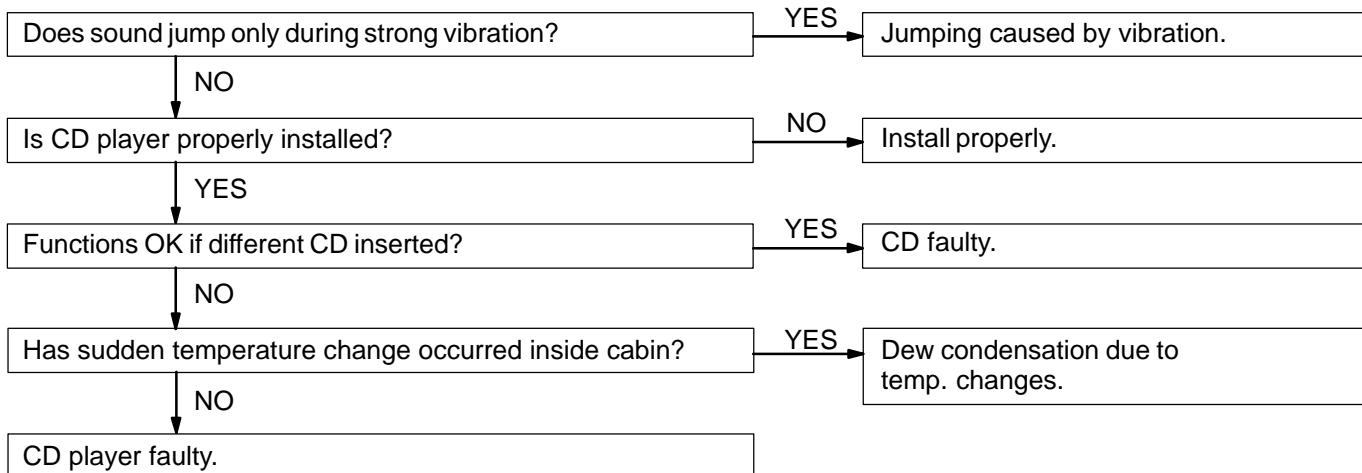
17 CD Player CD INSERTED, BUT NO POWER



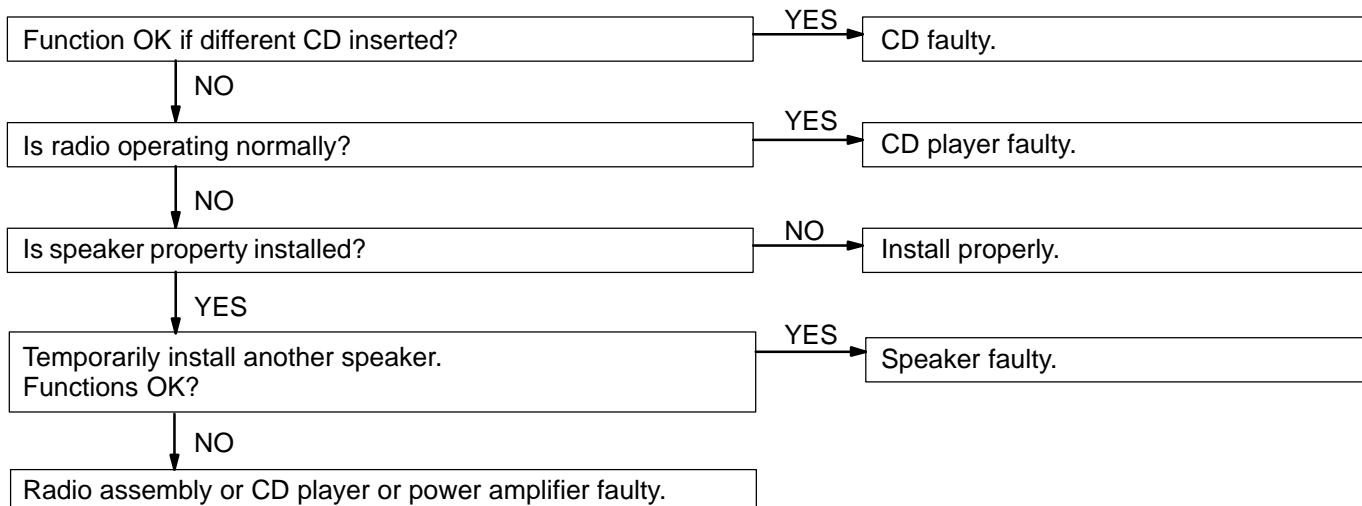
18 CD Player POWER COMING IN, BUT CD PLAYER NOT OPERATING



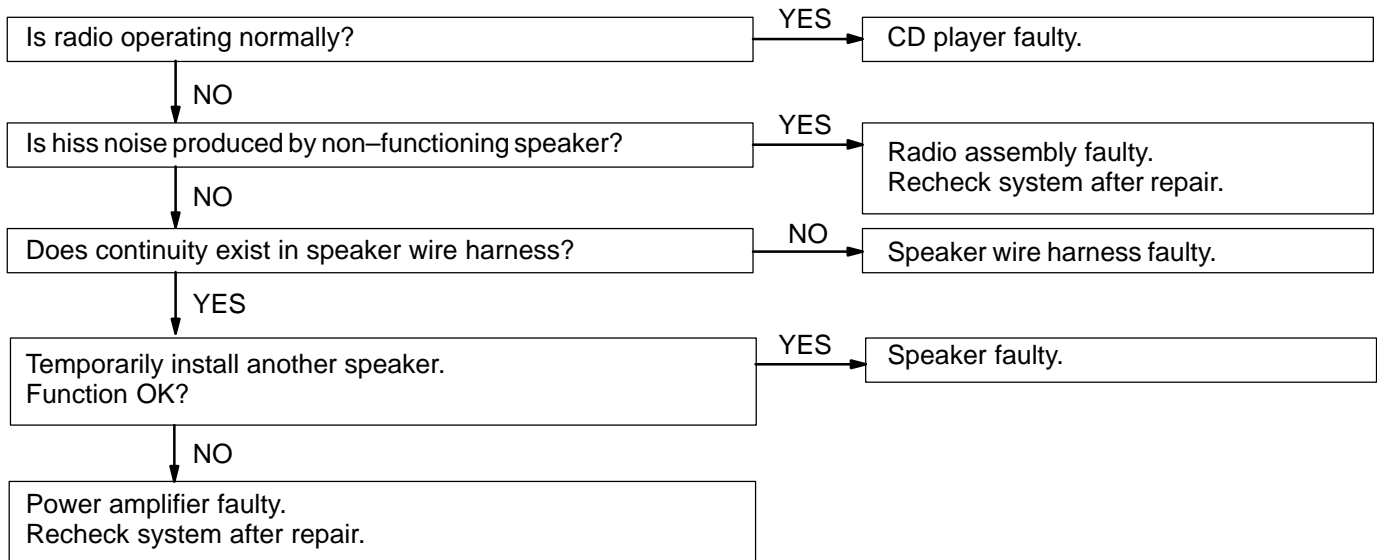
19	CD Player	SOUND JUMPS
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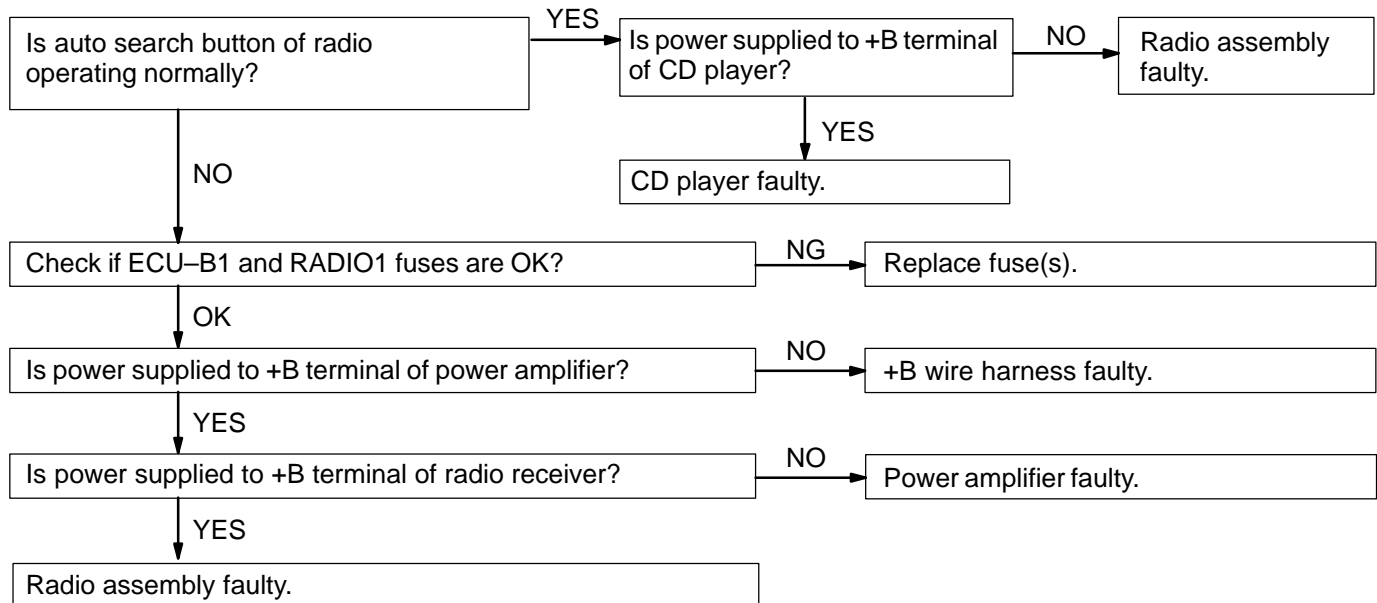
20	CD Player	SOUND QUALITY POOR (VOLUME FAINT)
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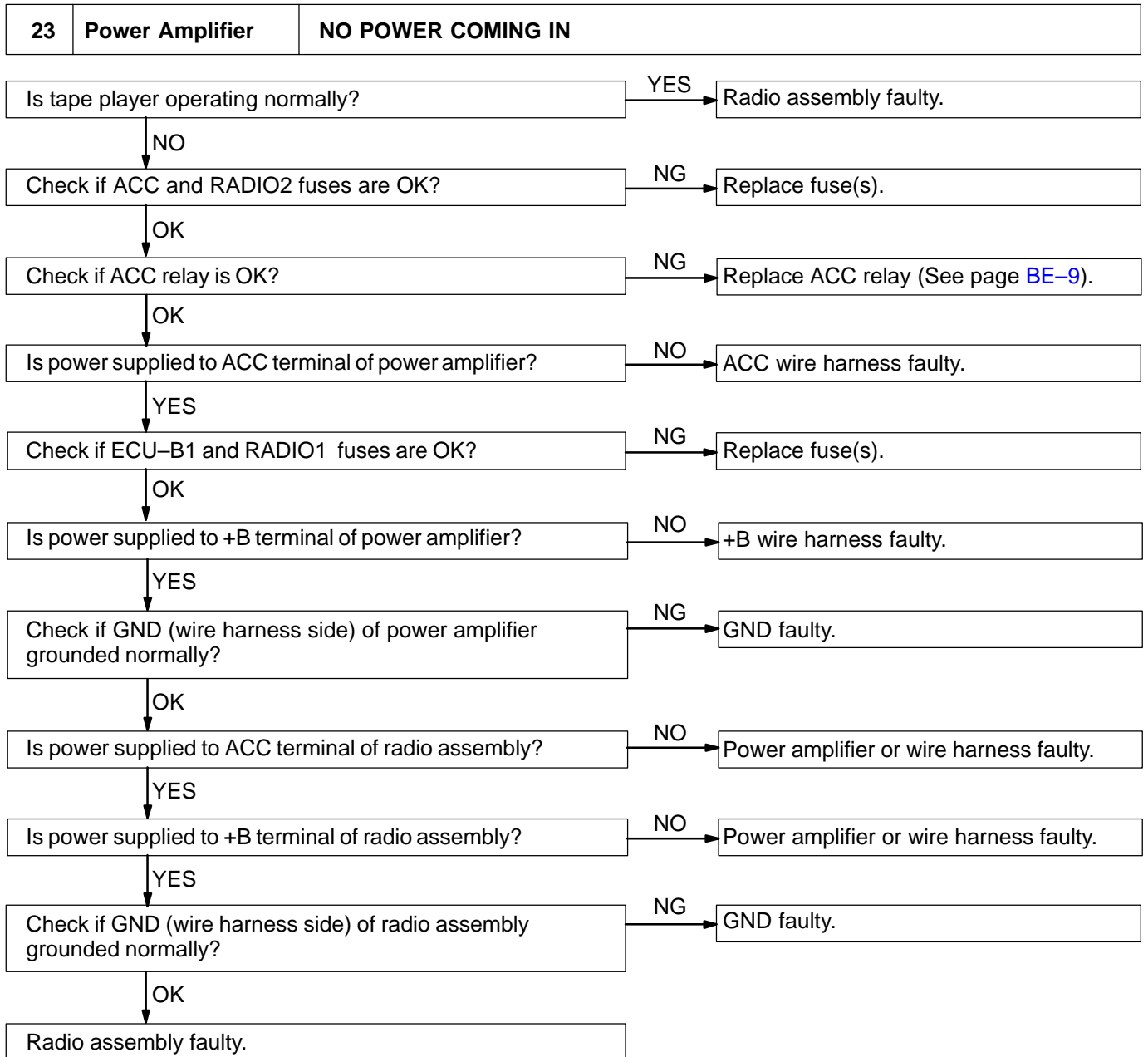


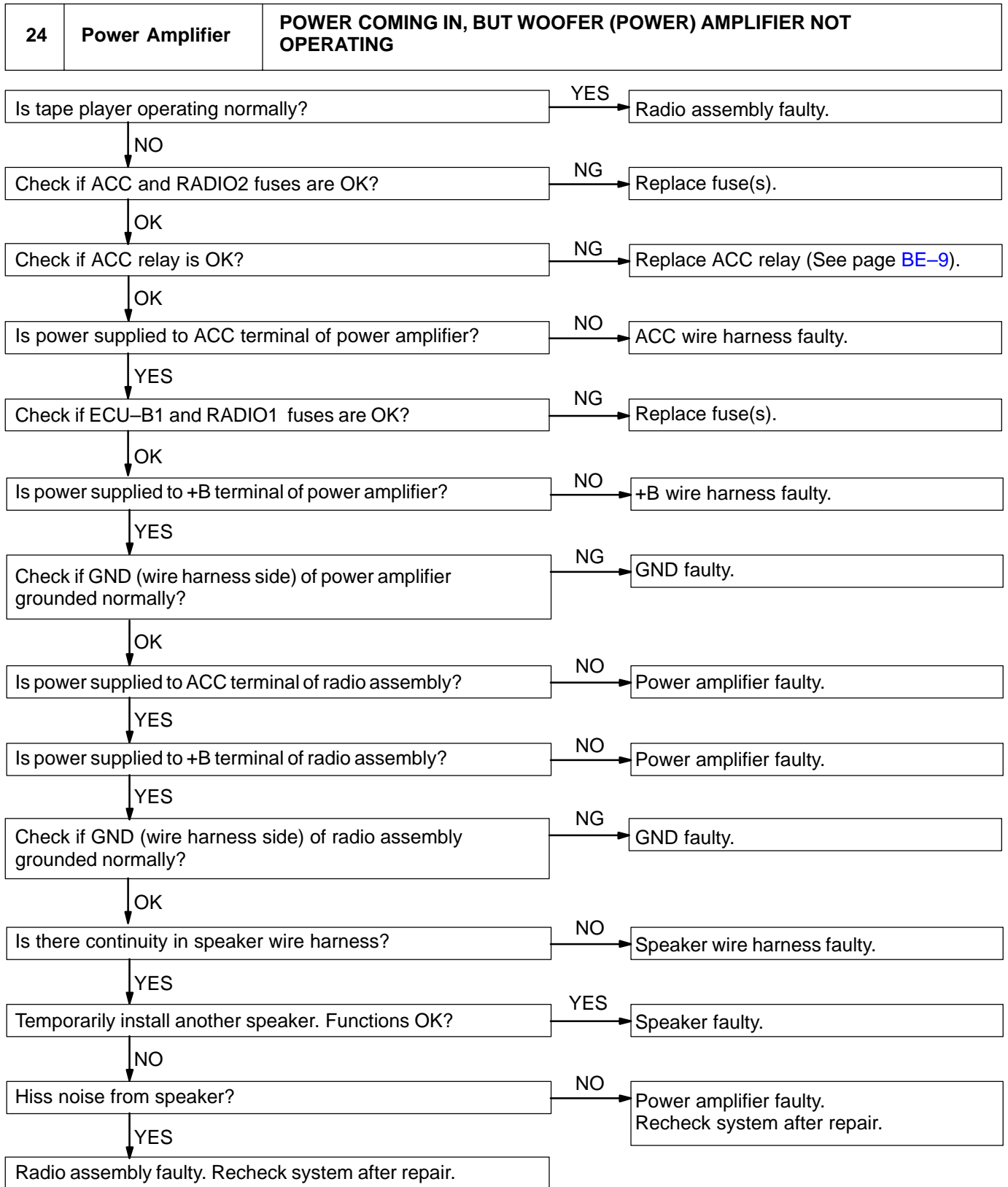
21	CD Player	ANY SPEAKER DOES NOT WORK
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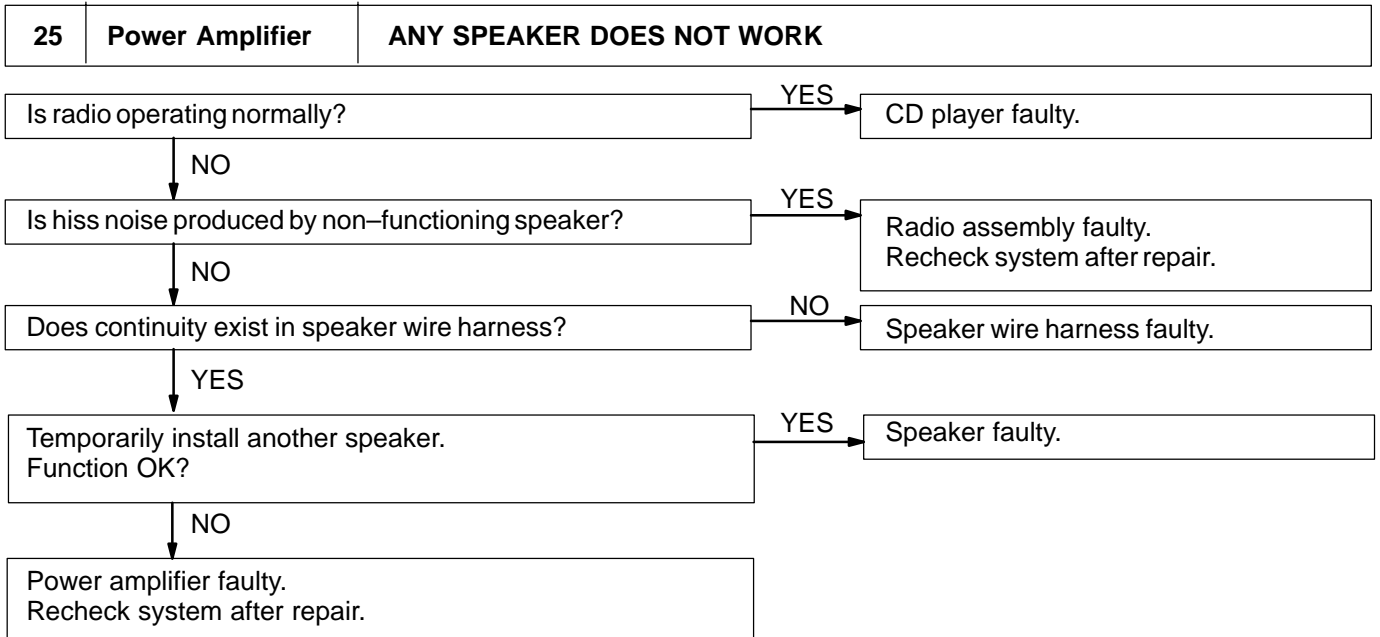


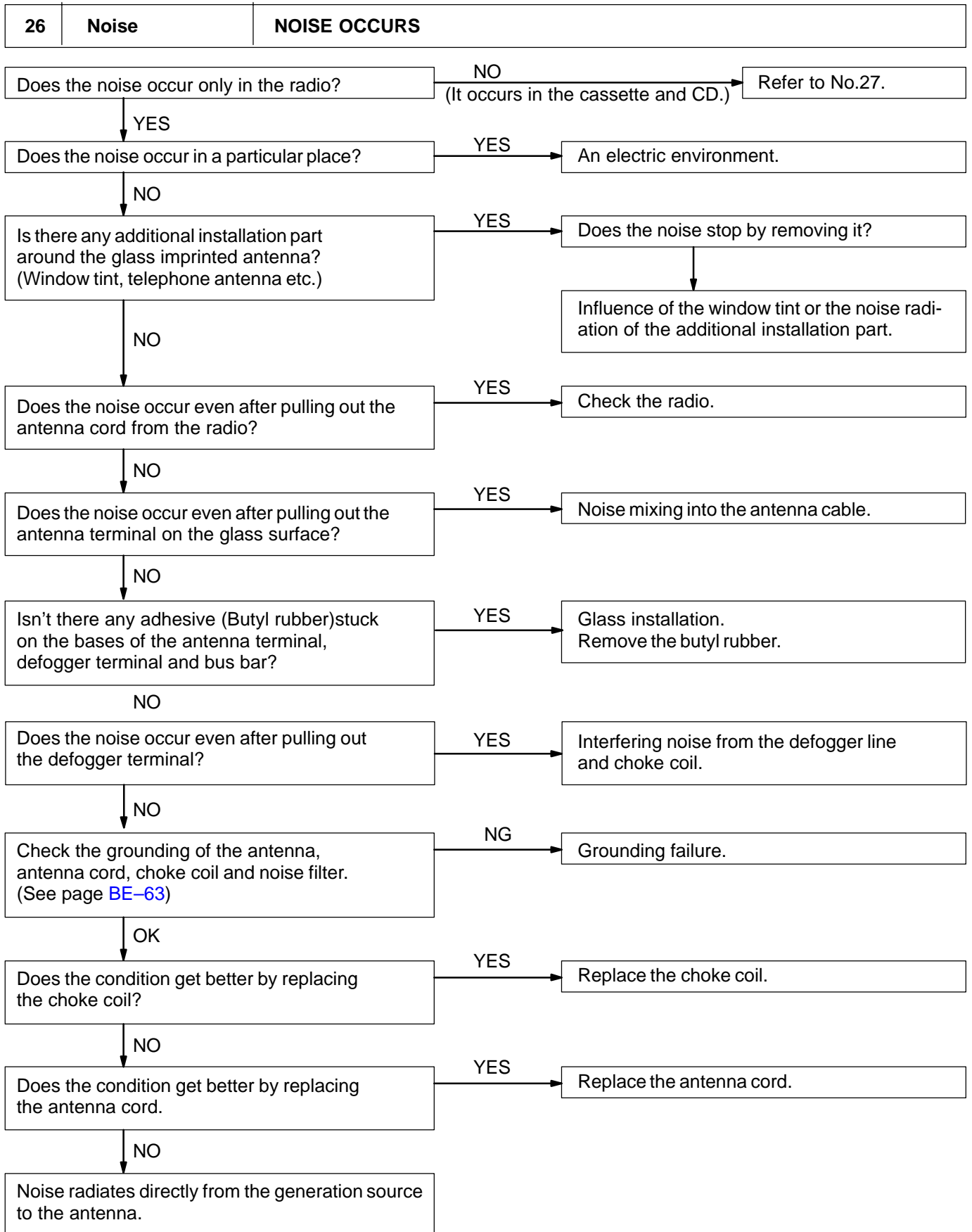
22	CD Player	CD WILL NOT BE EJECTED
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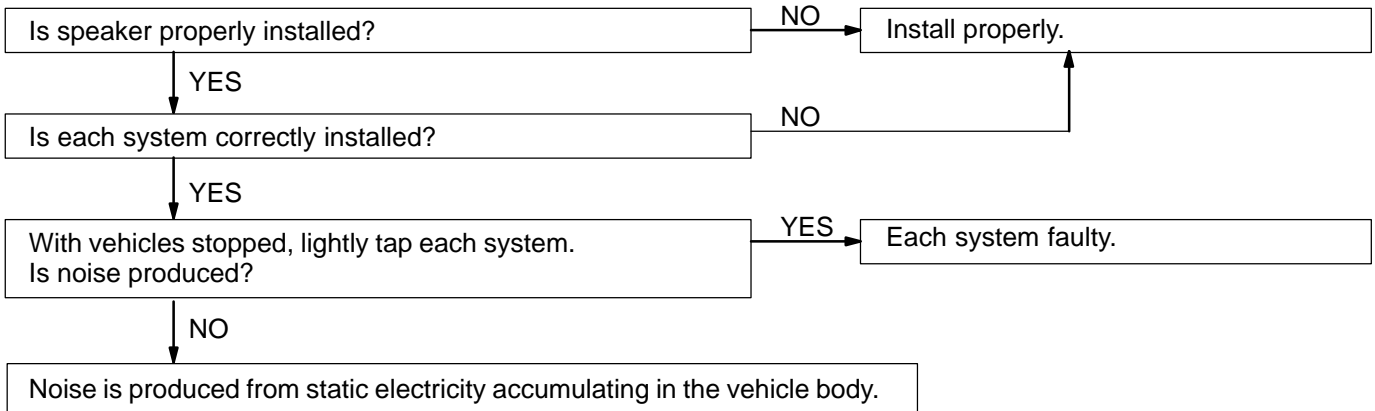




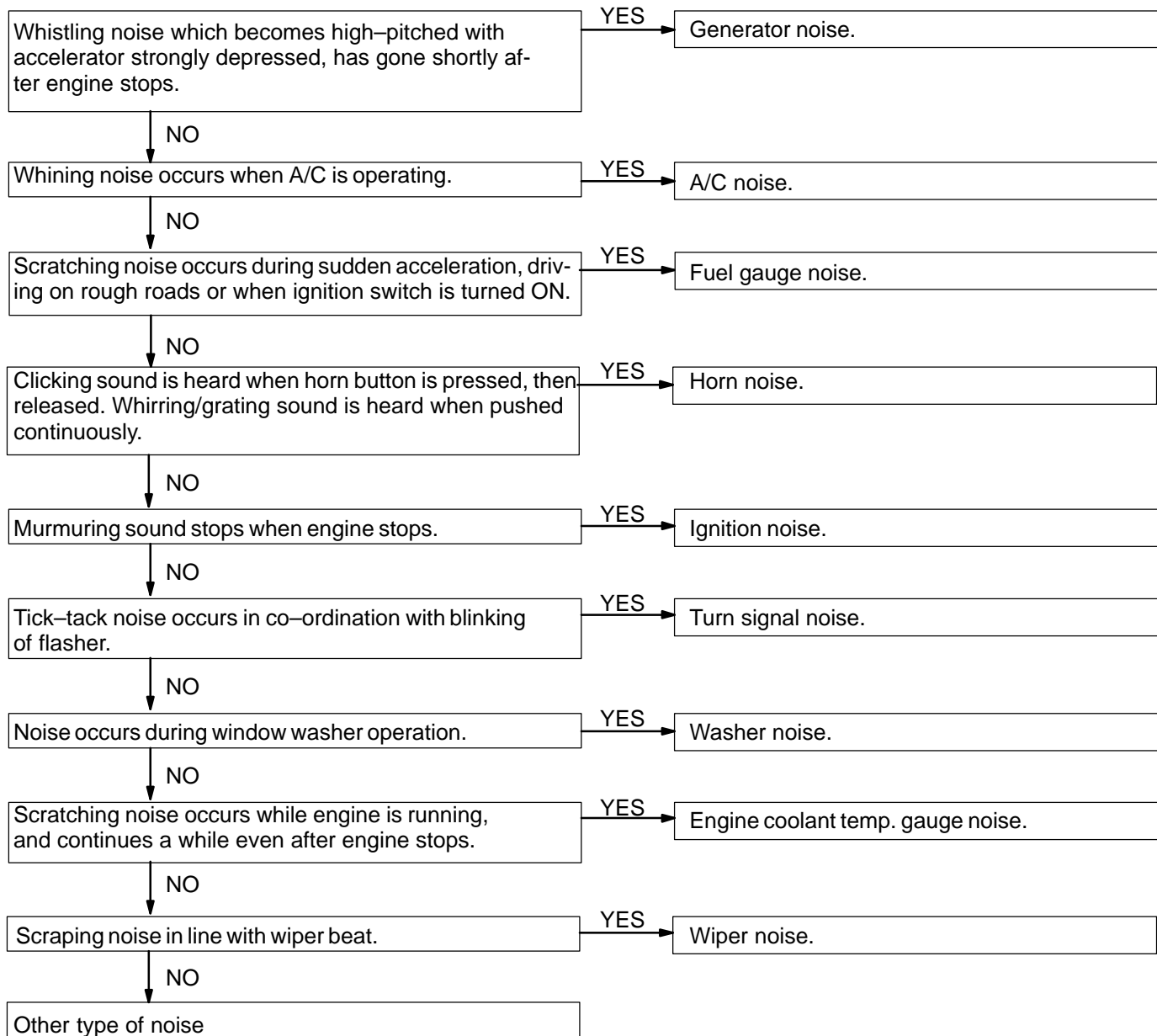




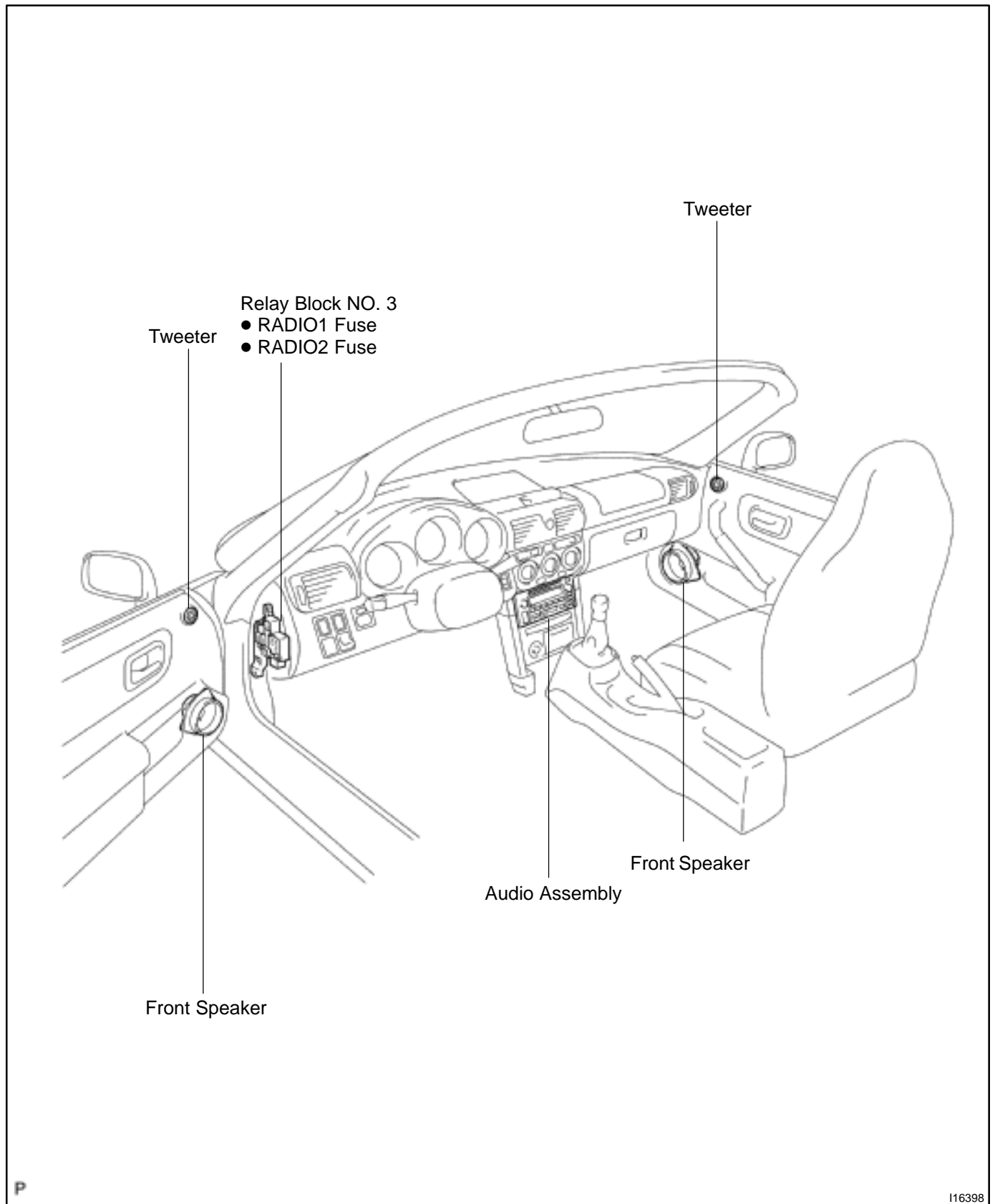
27	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING
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28	Noise	NOISE PRODUCED WHEN ENGINE STARTS
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LOCATION

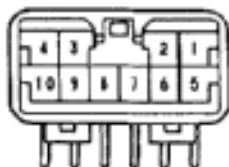


INSPECTION**INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT**

Disconnect the connectors from the radio receiver assembly, and inspect the connector on the wire harness side.

Radio Receiver Side

Connector "A"



Connector "B"



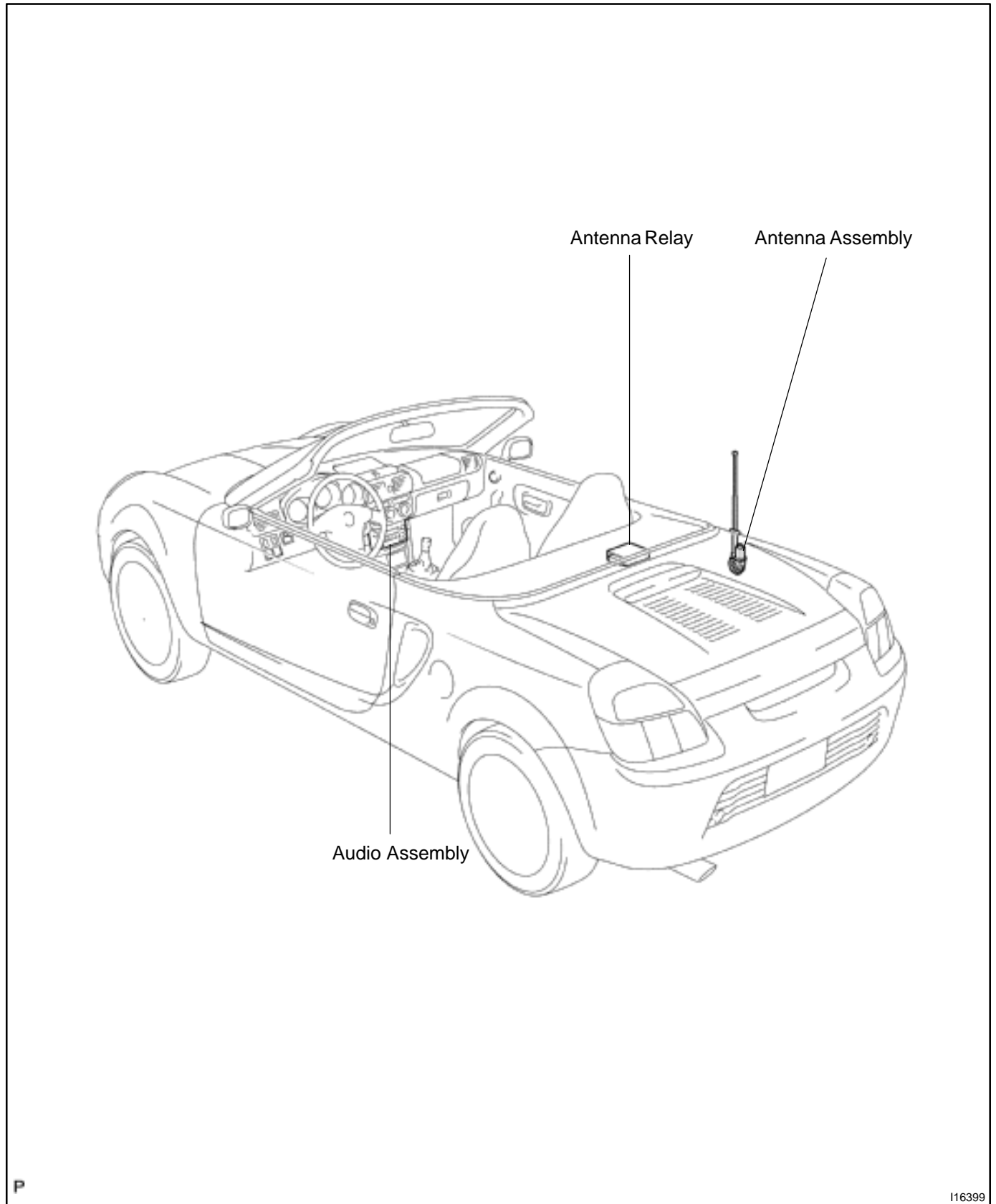
I12416

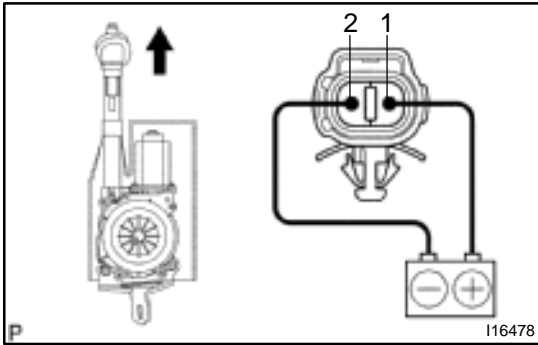
Tester connection	Condition	Specified condition
A1 – Ground (FR+)	Audiosounding	5 – 7 V
A2 – Ground (FL+)	Audiosounding	5 – 7 V
A3 – Ground (ACC)	Ignition switch ACC	Battery positive voltage
A4 – Ground (+B)	Constant	Battery positive voltage
A5 – Ground (FR–)	Audiosounding	5 – 7 V
A6 – Ground (FL–)	Audiosounding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

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

ANTENNA LOCATION

BE1DE-02





INSPECTION

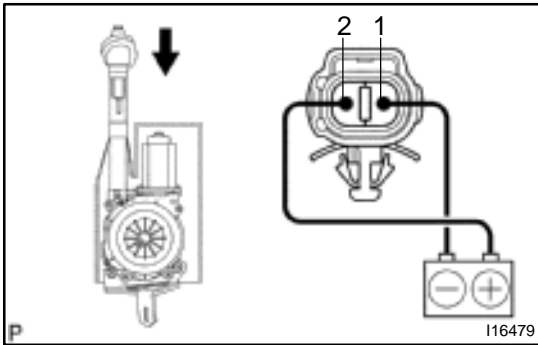
1. Auto antenna models:

INSPECT ANTENNA MOTOR

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
- (b) Check that the motor turns (moves upward).

NOTICE:

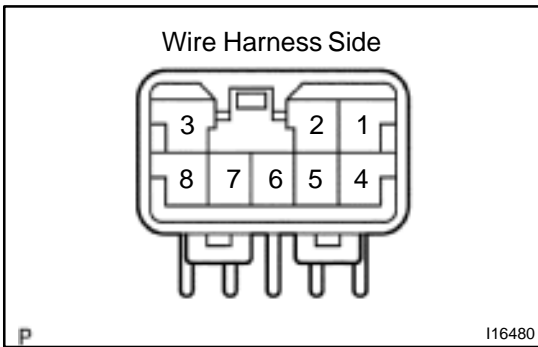
These tests must be done quickly (within 3 – 5 seconds) to prevent the coil from burning out.



- (c) Then, reverse the polarity, check that the motor turns the opposite way (moves downward).

NOTICE:

These tests must be done quickly (within 3 – 5 seconds) to prevent the coil from burning out.



2. Auto antenna models:

INSPECT ANTENNA MOTOR CONTROL RELAY CIRCUIT

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

Tester connection	Condition	Specified condition
2 – 3	Constant	Continuity
6 – Ground	Constant	Continuity
1 – Ground	Constant	Battery positive voltage
4 – Ground	Ignition switch position LOCK or ACC	No voltage
4 – Ground	Ignition switch position ON	Battery positive voltage
5 – Ground	Ignition switch position LOCK	No voltage
5 – Ground	Ignition switch position ACC or ON	Battery positive voltage
7 – Ground	Radio switch and cassette OFF	No voltage
7 – Ground	Radio switch or cassette ON	Battery positive voltage

If circuit is as specified, replace the relay.

CLOCK

TROUBLESHOOTING

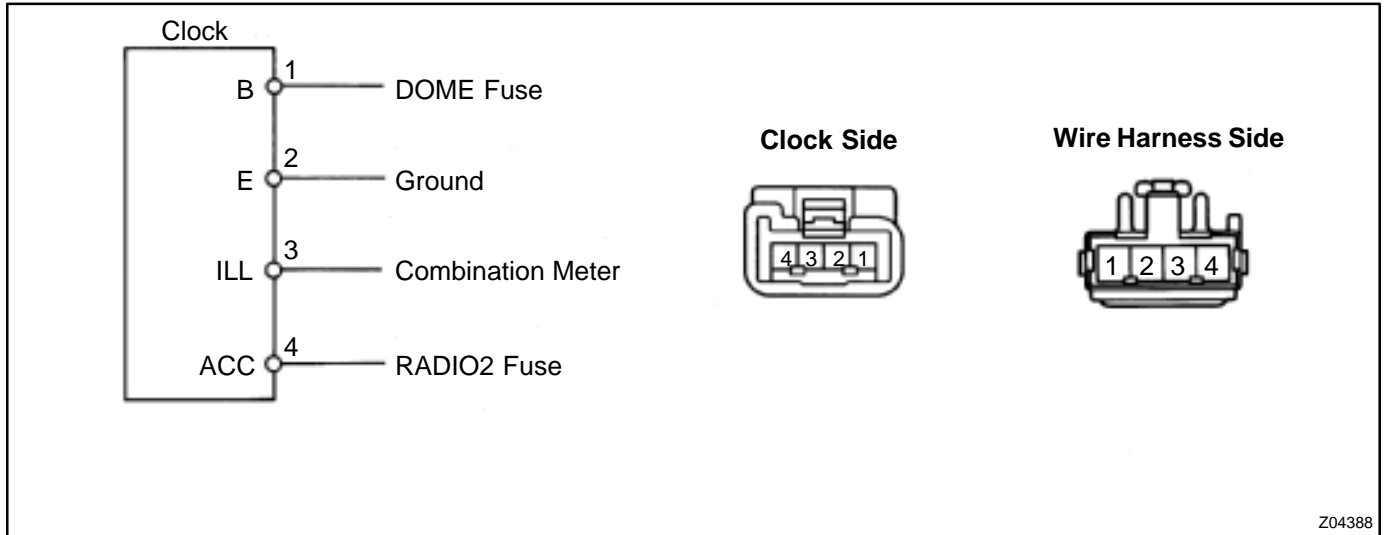
BE1KH-01

HINT:

Troubleshoot the clock according to the table below.

Troubleshooting	No.
Clock will not operate	1
Clock loses or gains time	2

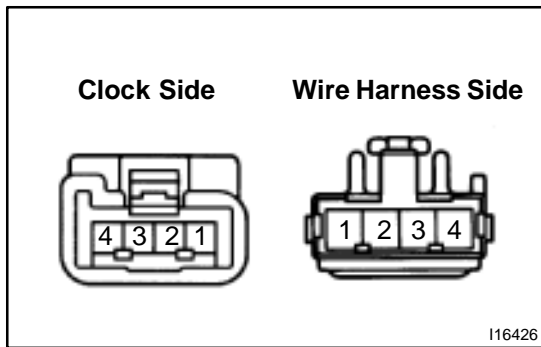
± 1.5 seconds / day



Z04388

1. TROUBLESHOOTING NO.1

1	CLOCK WILL NOT OPERATE
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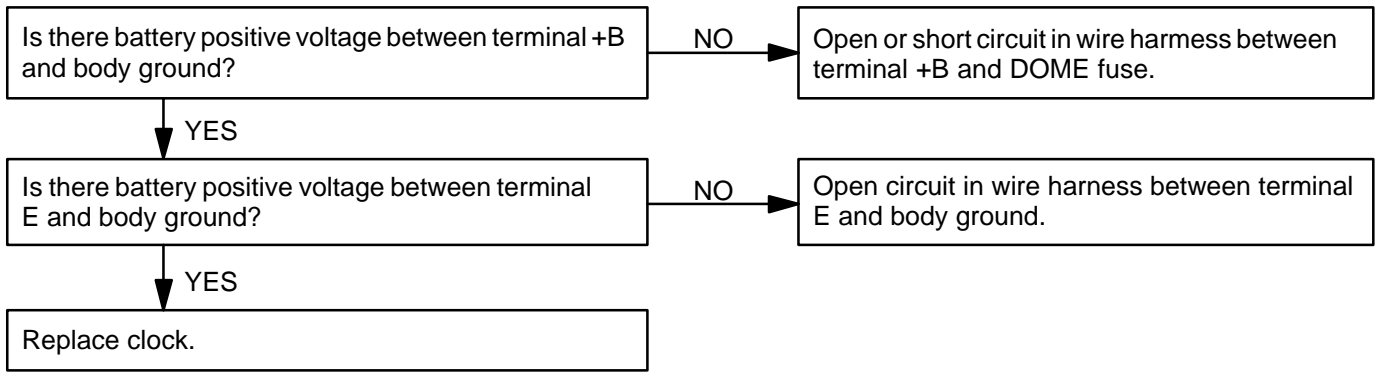
I16426

- (a) Check that the battery positive voltage is 10 – 16 V. If voltage is not as specified, replace the battery.
- (b) Check that the DOME and RADIO2 fuses are not blown. If the fuse is blown, replace the fuse and check for short.
- (c) Troubleshoot the clock as follows.

HINT:

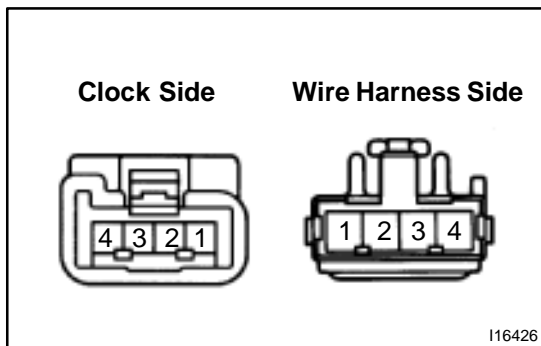
Inspect the connector on the wire harness side.

BODY ELECTRICAL - CLOCK

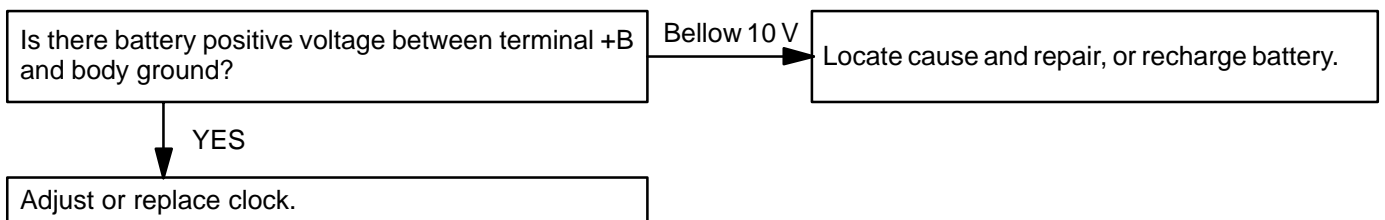


2. TROUBLESHOOTING NO.2

2	CLOCK LOSES OR GAINS TIME
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- (a) Check that the battery positive voltage is 10 – 16 V. If voltage is not as specified, replace the battery.
 - (b) Inspect the error of the clock.
Allowable error (per day): ± 1.5 seconds
 If the error exceeds the allowable error, replace the clock.
 - (c) Check that the clock adjusting button is sticking in position and has failed to return.
 If the error exceeds the allowable error, replace the clock.
 - (d) Troubleshoot the clock as follows.
- HINT:
 Inspect the connector on the wire harness side.



ENGINE IMMOBILISER SYSTEM

REGISTRATION PROCEDURE

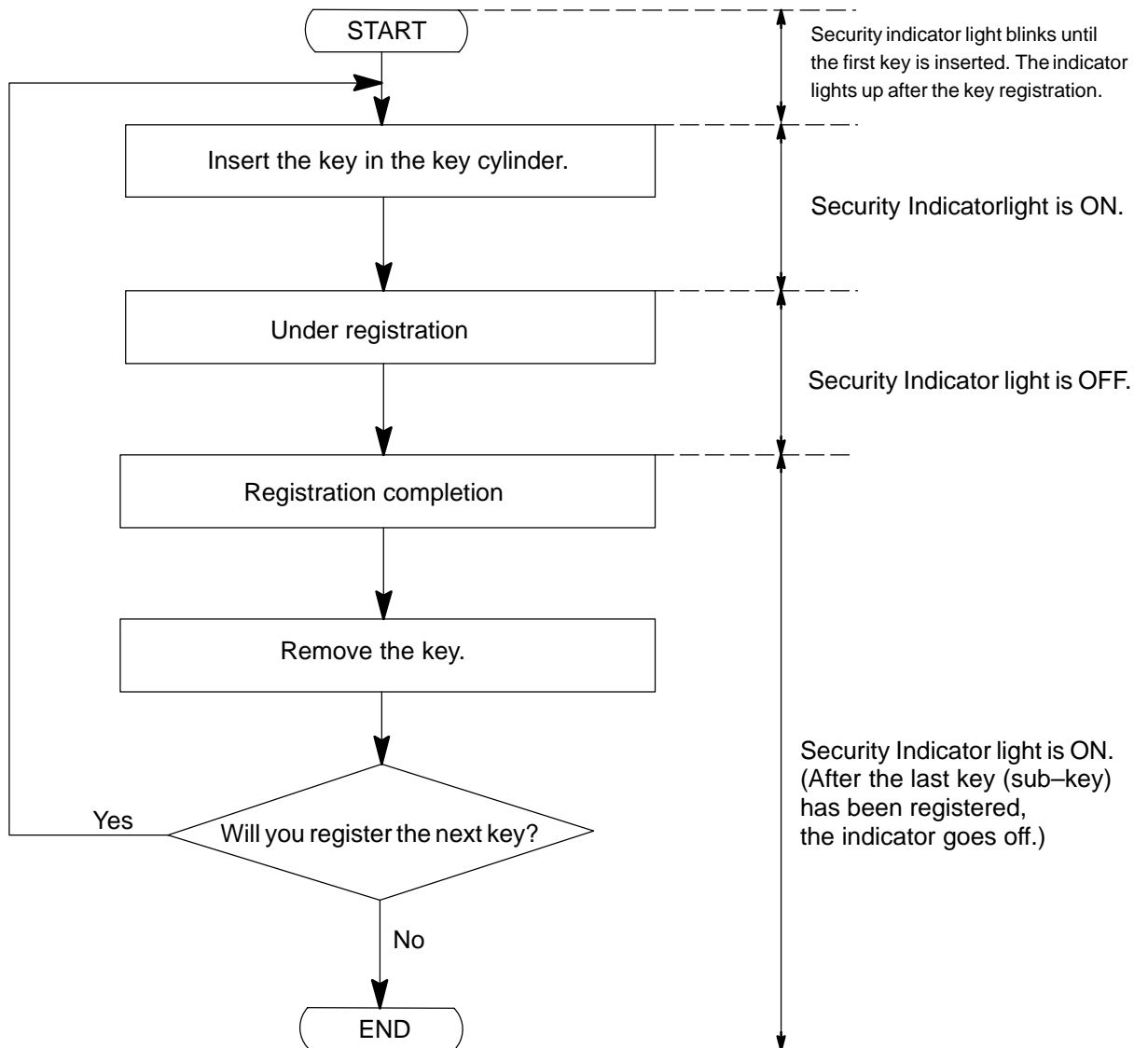
BE0B2-06

1. KEY REGISTRATION IN AUTOMATIC REGISTRATION MODE

(a) Registration of a new transponder key.

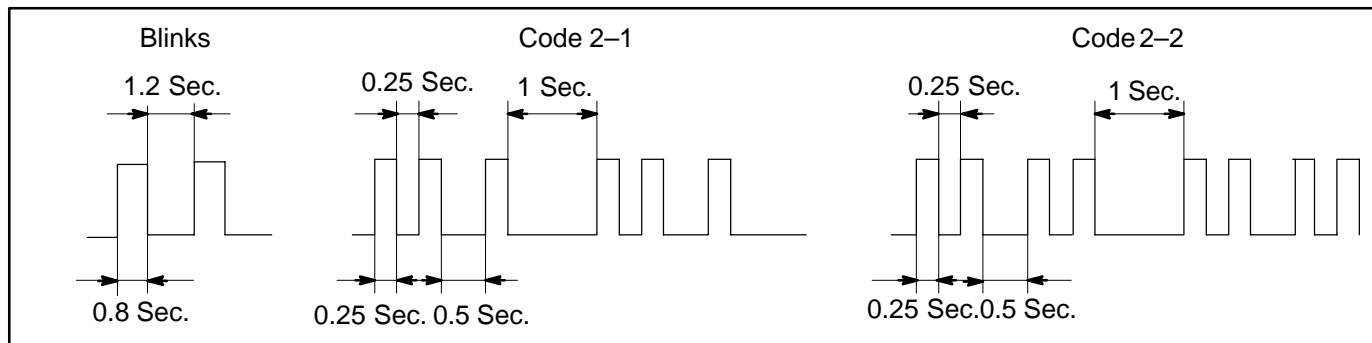
HINT:

- This must be done when you have installed a new ECM.
- The new ECM is in the automatic key code registration mode. The already fixed number of key codes for this ECM can be registered.
On this type of vehicle, up to 3 key codes can be registered.
- In the automatic registration mode, the last key registered becomes sub-key.



HINT:

- When a key is not inserted in the key cylinder in the automatic registration mode, the security indicator always lights on.
- When the immobiliser system operations normally and the key is pull out, the security indicator blinks.
- When key code registration could not be performed in the automatic registration mode, code 2-1 is output from the security indicator and when inserting the already registered key, code 2-2 is output.



(b) Automatic registration mode completion

If completing the mode forcibly when more than 1 key code have been registered in the automatic registration mode, perform the following procedures.

After 1 more key code have been registered with master key, perform step (1) or (2) without pulling the key out or inserting the already registered key.

- (1) Depress and release brake pedal 5 times or more within 15sec.
- (2) With the TOYOTA hand-held tester, require automatic registration mode completion.

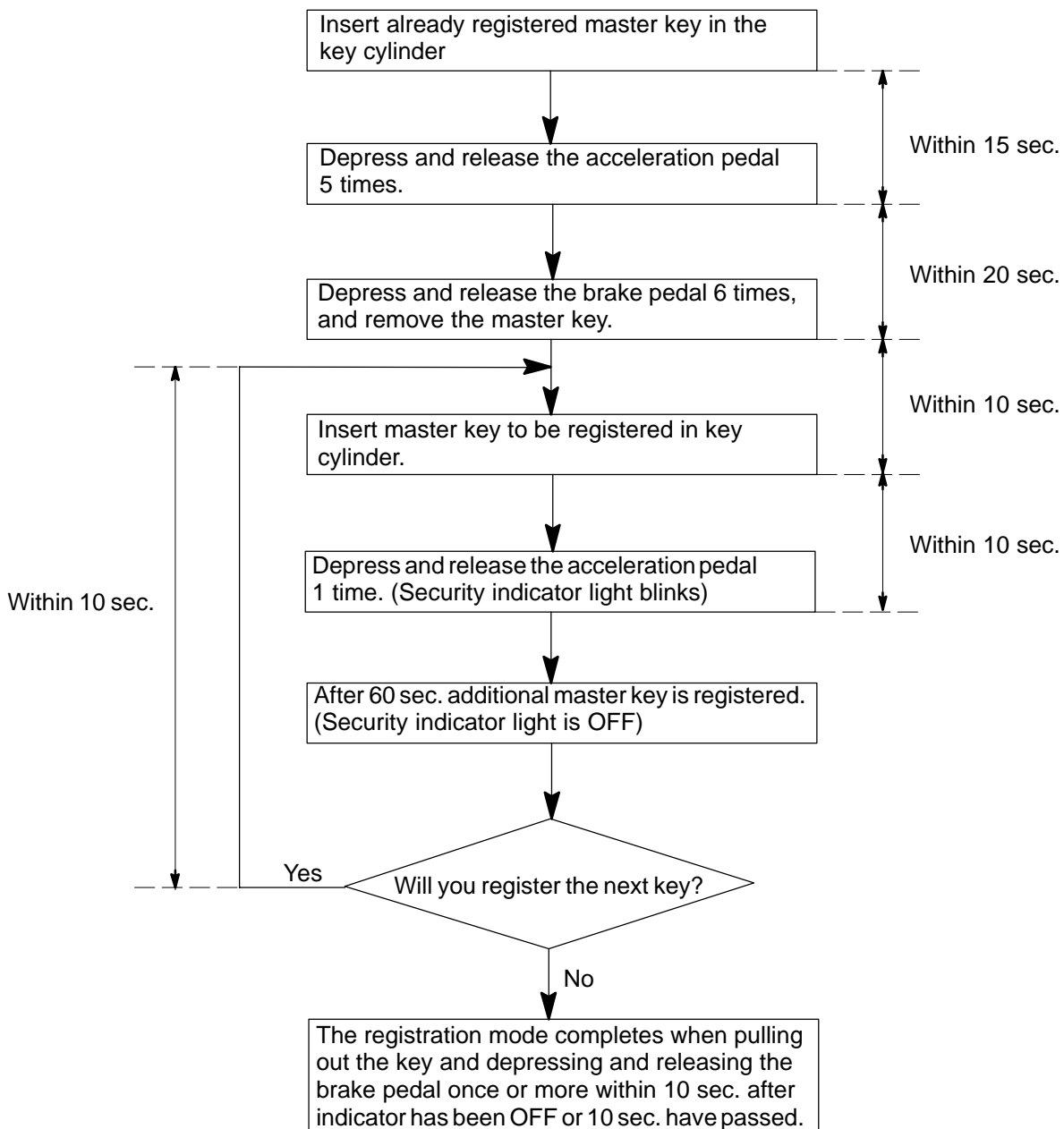
2. REGISTRATION OF ADDITIONAL MASTER KEY

There are 2 ways for registration of additional master key, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

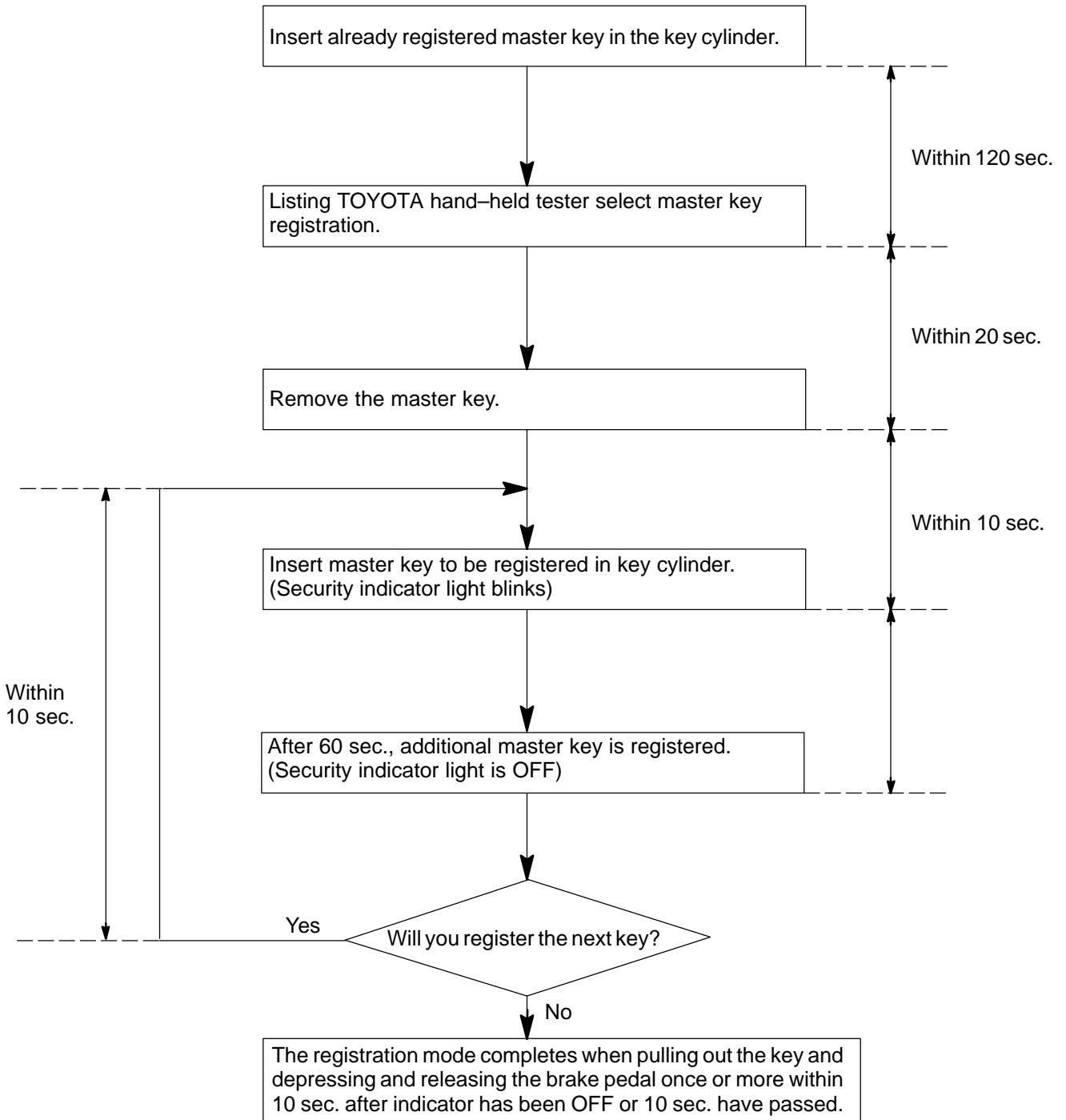
HINT:

- It is possible to register up to 7 master key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

(1) Depressing brake pedal and acceleration pedal:



(2) Using TOYOTA hand-held tester:



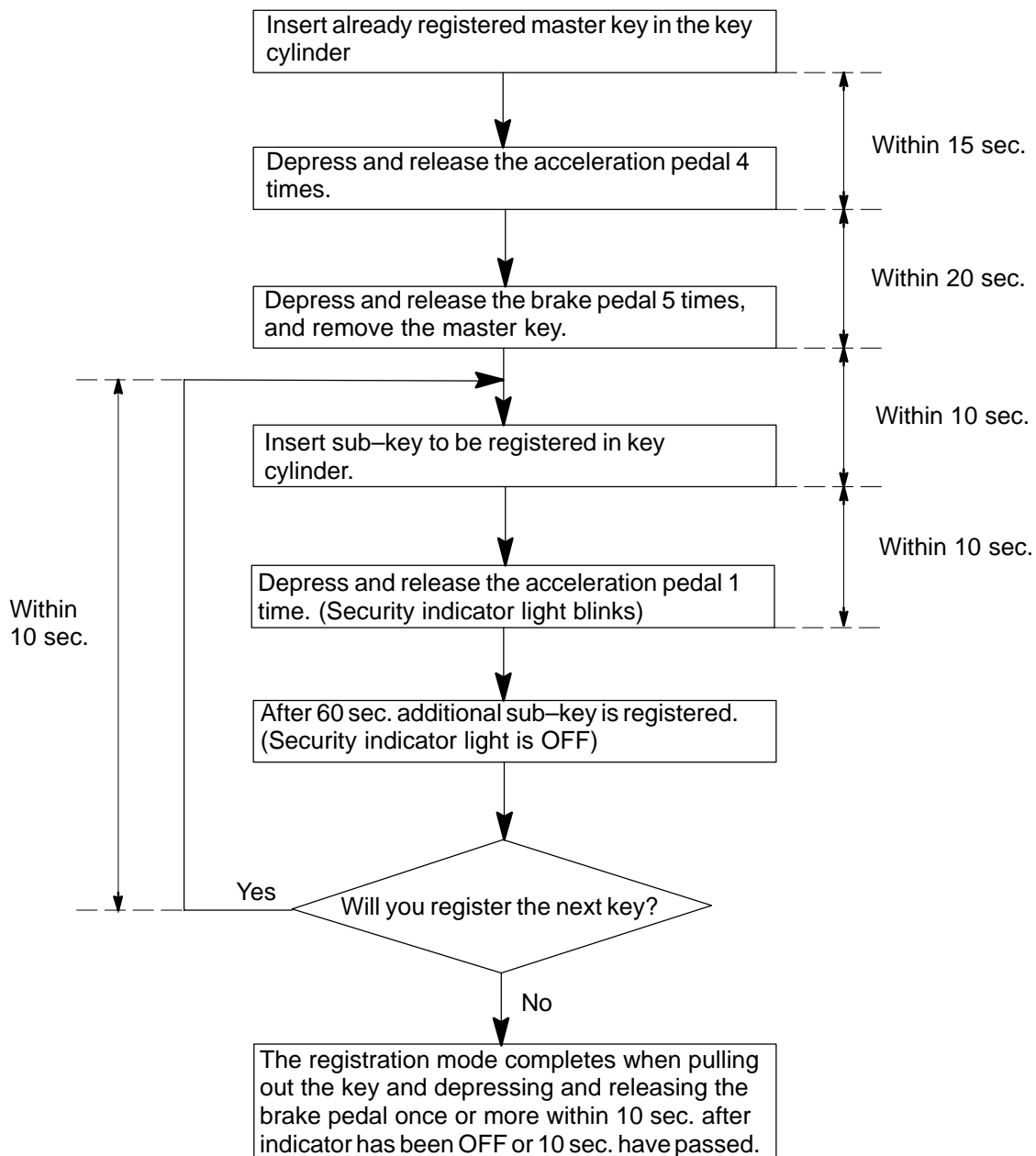
3. REGISTRATION ADDITIONAL OF SUB-KEY

There are 2 ways for registration of additional sub-key, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

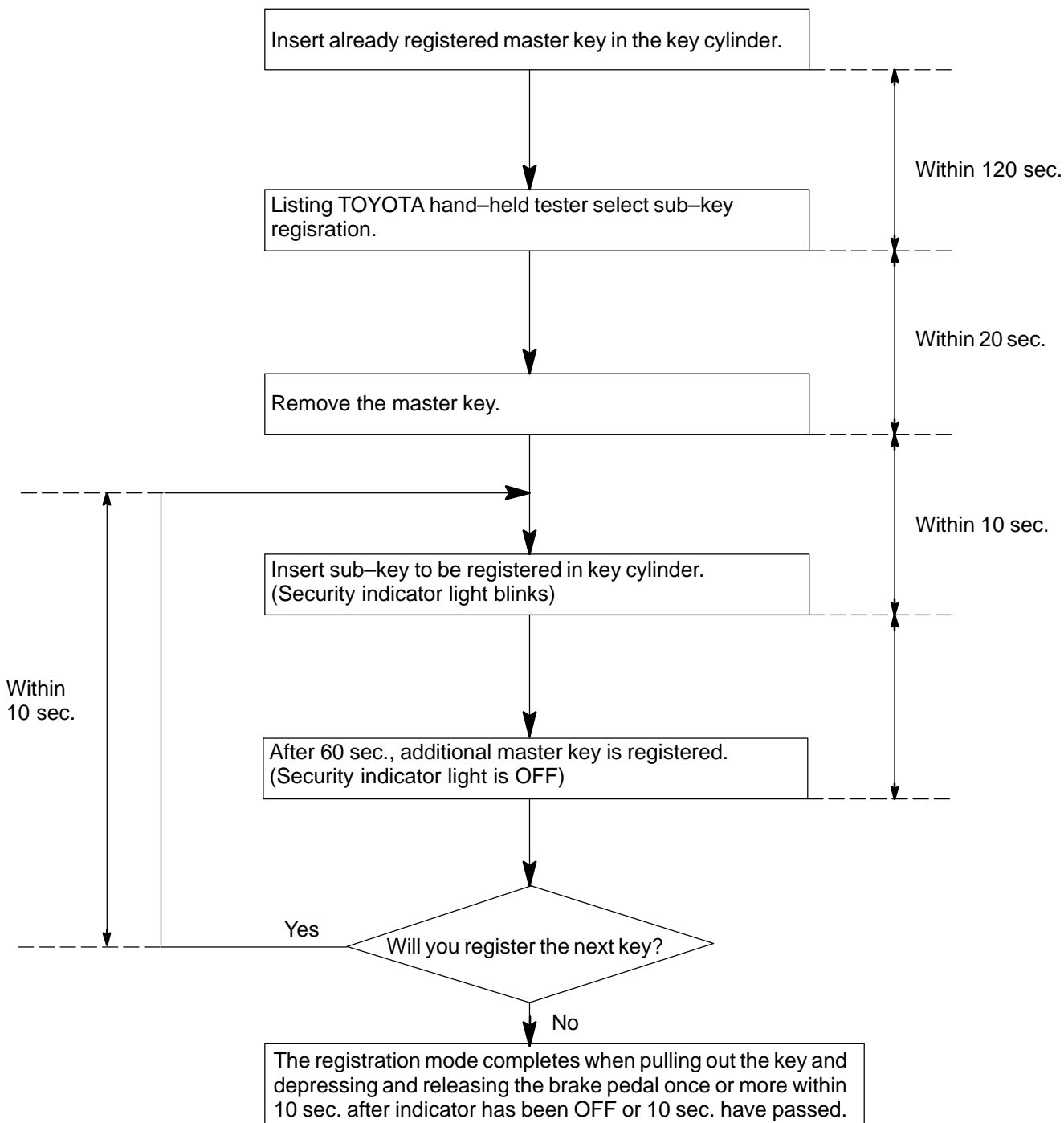
HINT:

- It is possible to register up to 3 sub-key codes including the already registered key code.
- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

(1) Depressing brake pedal and acceleration pedal:



(2) Using TOYOTA hand-held tester:



4. ERASURE OF TRANSPONDER KEY CODE

There are 2 ways for erasure of transponder key code, one is depressing brake pedal and acceleration pedal and the other is using TOYOTA hand-held tester.

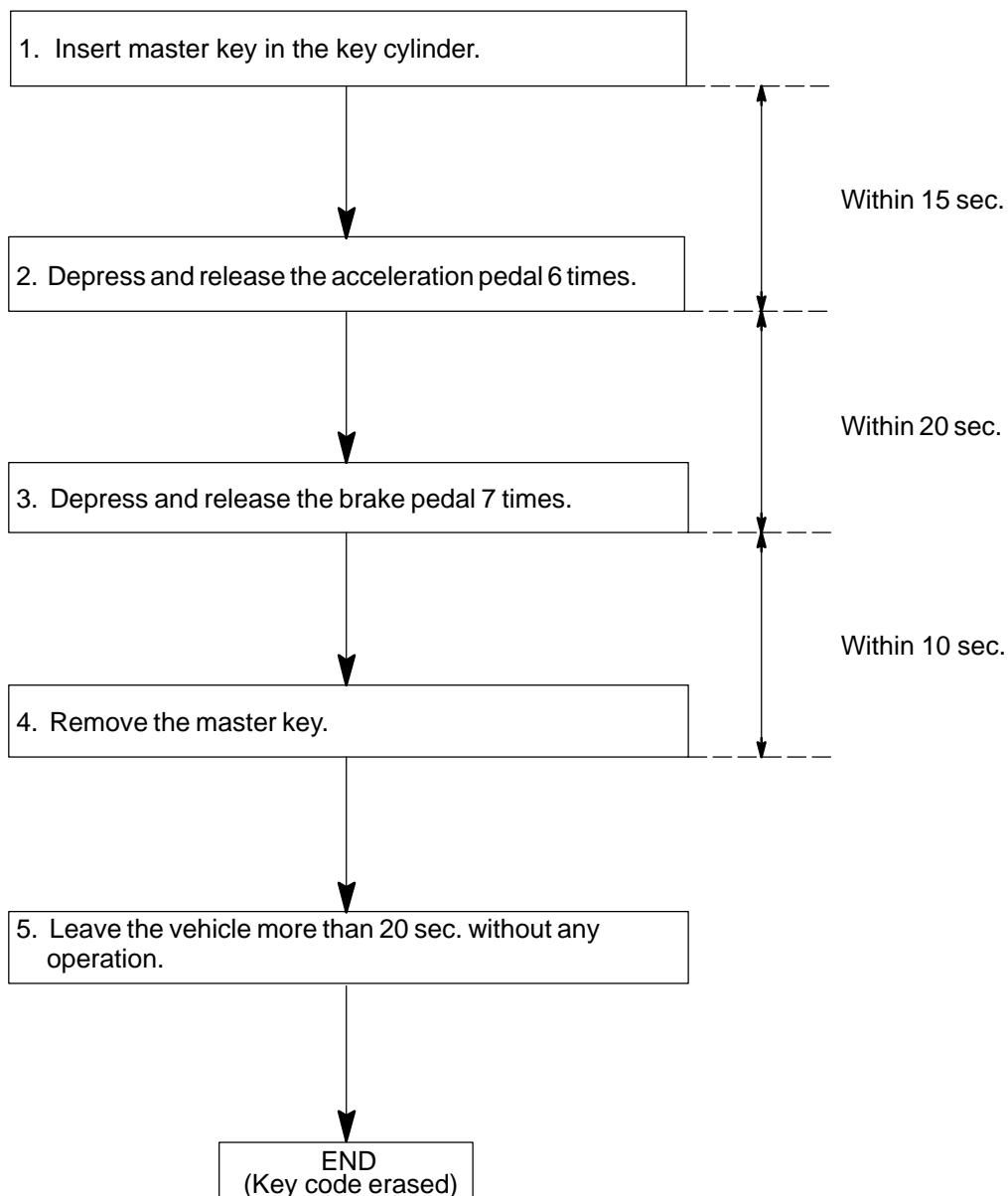
NOTICE:

All other master and sub-key codes are deleted leaving the master key code to use the operation. When using the key which was used before deleting, it is necessary to register the code again.

HINT:

- When any operation time described below is over, registration mode completes.
- When the next procedure is performed while the timer is working, the timer completes counting time, then next timer starts.

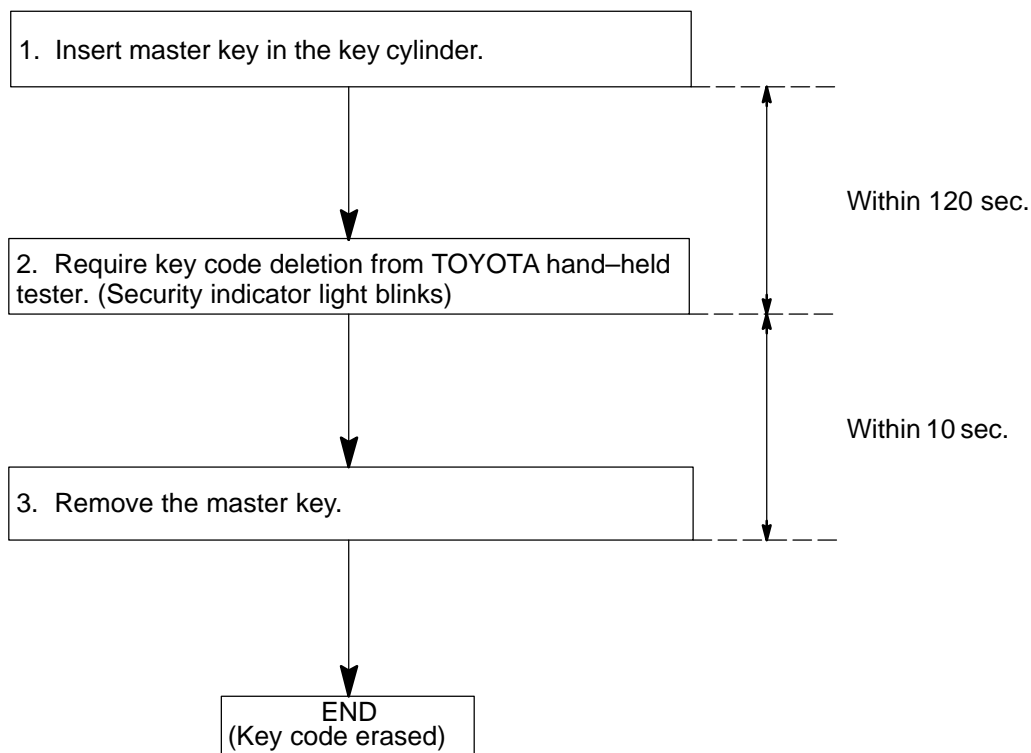
(1) Depressing brake pedal and acceleration pedal:



HINT:

If the key cannot be pulled out within 30 sec. from the first brake depression in the step 3, the key code deletion is canceled.

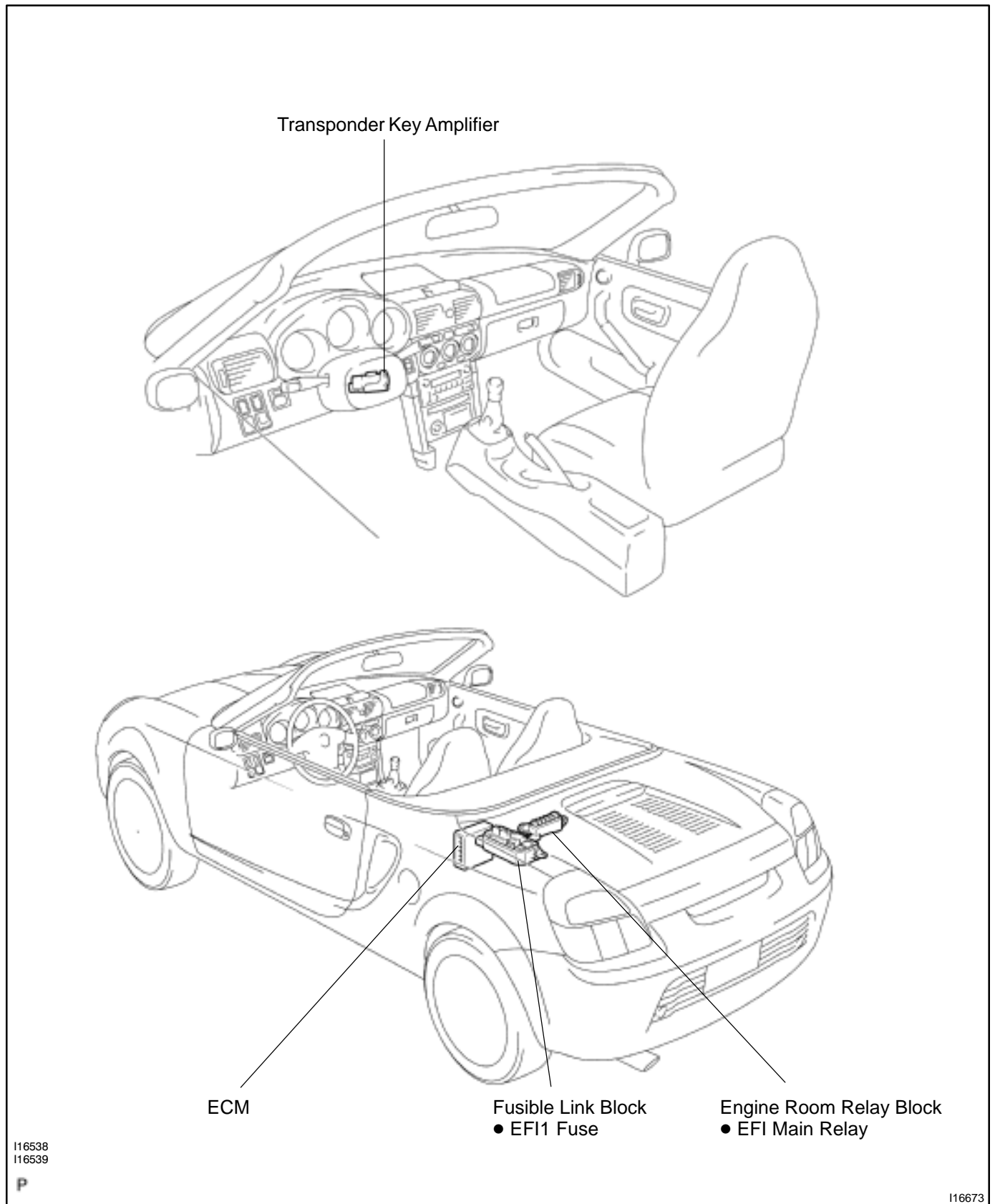
(2) Using TOYOTA hand-held tester:



HINT:

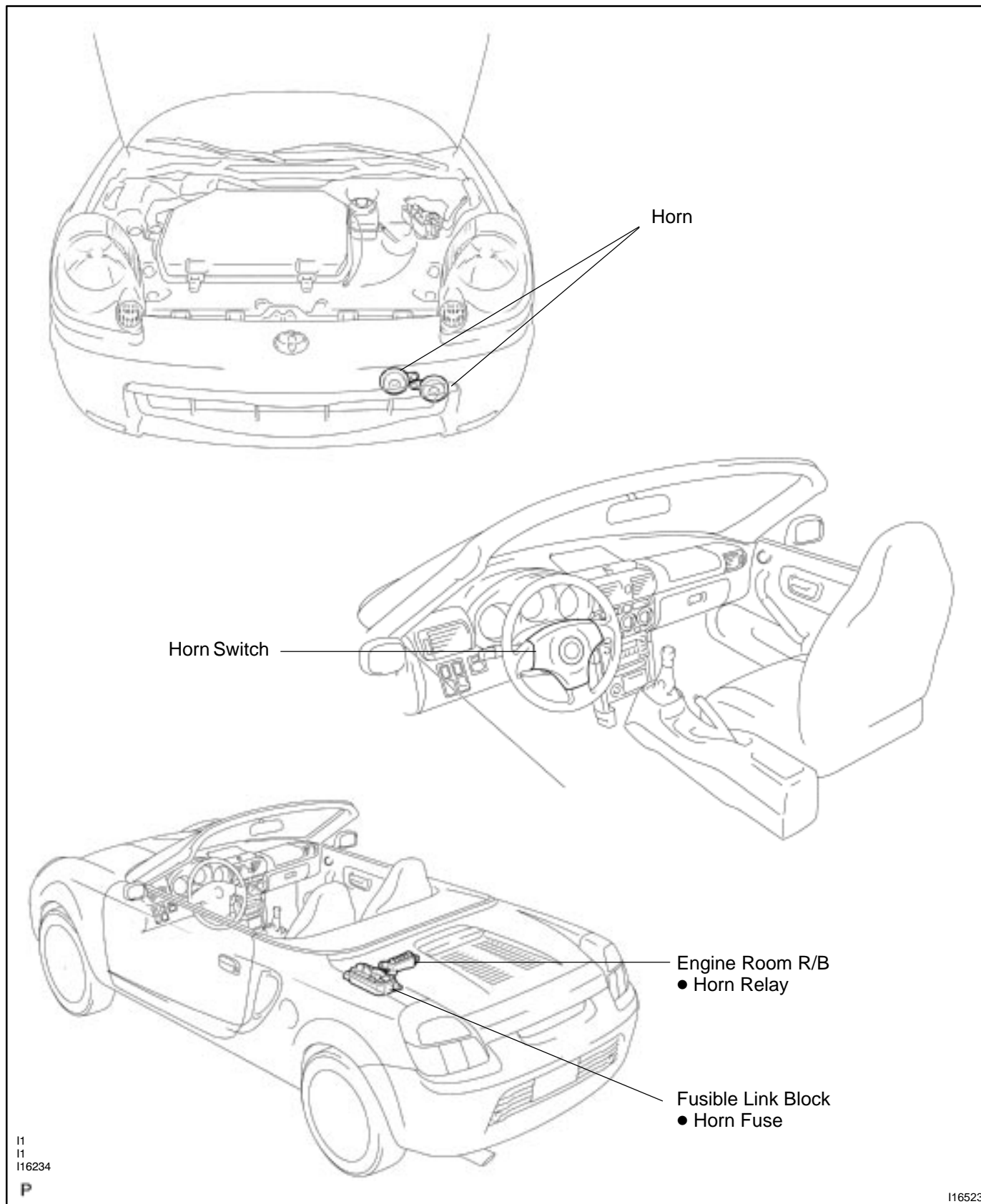
When the key cannot be pulled out in the step 3, key code deletion is canceled.
(Security indicator light is OFF)

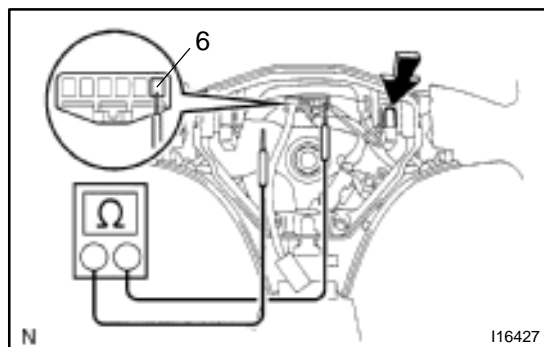
LOCATION



HORN SYSTEM LOCATION

BE0FY-12



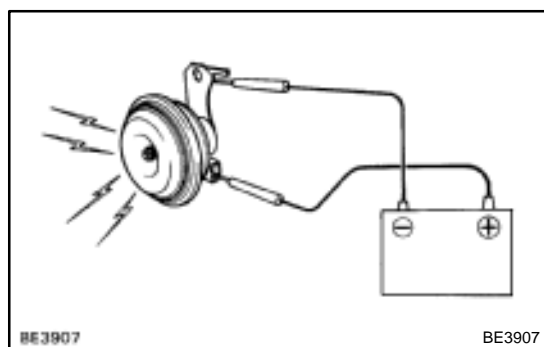


INSPECTION

1. INSPECT HORN SWITCH

- (a) Check that no continuity exists between terminal 6 of the connector and body ground.
- (b) 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.

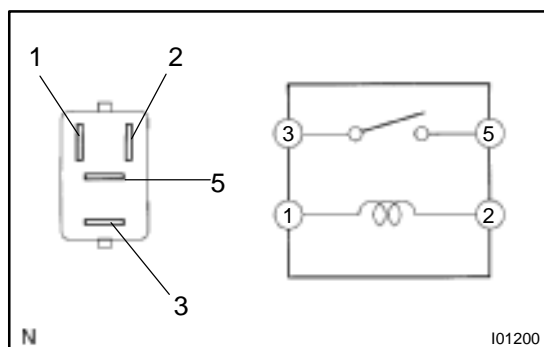
If continuity is not as specified, repair or replace the steering wheel or wire harness as necessary.



2. INSPECT HORN OPERATION

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

If operation is not as specified, replace the horn.



3. INSPECT HORN 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.