BODY ELECTRICAL

BODY ELECTRICAL SYSTEM

PRECAUTION

BE181-03

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 YARIS VERSO/ECHO VERSO 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, FM 1 and FM 2 stations stored in memory are erased, so make sure to note the stations and reset them after the negative (–) terminal cable is reconnected to the battery.
- If the negative (–) terminal cable is disconnected from the battery, the "ANTI–THEFT SYSTEM" will operate when the cable is reconnected, but the radio, tape player and CD player will not operate. Be sure to input the correct ID number so that the radio, tape player and CD player can be operated again.

4. MOBILE COMMUNICATION SYSTEM

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

TROUBLESHOOTING

BE182-02

PROBLEM SYMPTOMS TABLE

IGNITION SWITCH:

Symptom	Suspect Area	See page
Ignition switch is not set to each position.	1. Ignition Switch 2. Power Source Circuit	BE–16 –

KEY UNLOCK WARNING SWITCH:

Symptom	Suspect Area	See page
Key unlock warning system does not operate. (The buzzer sounds when the ignition key is ACC or ON)	1. Ignition Switch 2. Key Unlock Warning Switch 3. Wire Harness 4. Combination Meter	BE–16 BE–16 – –

w/o Daytime Running Light System:
HEADLIGHT AND TAILLIGHT SYSTEM

Symptom	Suspect Area	See page
Only one headlight comes on.	1. Bulb 2. H–LP LH or RH Fuse 3. Wire Harness	– – –
"LO–Beam" does not light.	1. Headlight Control Relay 2. Wire Harness	BE–21 –
"HI–Beam" does not light.	1. Headlight Dimmer Switch 2. Wire Harness	BE–21 –
"Flash" does not light.	1. Headlight Dimmer Switch 2. Wire Harness	BE–21 –
"Flash" does not light.	1. Bulb 2. Wire Harness	– –
Headlight does not come on.	1. Headlight Control Relay 2. Light Control Switch 3. Wire Harness	BE–21 BE–21 –
Headlight does not come on.	1. Bulb 2. Wire Harness	– –
Headlight flickers.	1. Bulb 2. Wire Harness	– –
Headlight is dark.	1. Bulb 2. Wire Harness	– –
Only one taillight comes on.	1. Bulb 2. Wire Harness	– –
Taillight does not come on. (Headlight is normal)	1. TAIL Fuse 2. Taillight Control Relay 3. Light Control Switch 4. Wire Harness	– BE–21 BE–21 –
Taillight does not come on. (Headlight does not light)	1. Light Control Switch 2. Wire Harness	BE–21 –
Rear combination light does not come on.	1. Wire Harness 2. Bulb	– –

w/ Daytime Running Light System:
HEADLIGHT AND TAILLIGHT SYSTEM

Symptom	Suspect Area	See page
Only one headlight comes on.	1. Headlight Dimmer Relay 2. Daytime Running Light Relay 3. Bulb 4. Wire Harness 5. Combination Meter	BE–21 BE–21 – – –
"LO–Beam" does not light (All).	1. Headlight Dimmer Relay 2. Wire Harness	BE–21 –
"LO–Beam" does not light (One side).	1. Bulb 2. H–LP LO LH Fuse 3. H–LP LO RH Fuse 4. Wire Harness	– – – –
"HI–Beam" does not light (All).	1. Headlight Dimmer Switch 2. Daytime Running Light Relay 3. Wire Harness 4. Combination Meter	BE–21 BE–21 – –
"HI–Beam" does not light (One side).	1. Bulb 2. H–LP LO LH Fuse 3. H–LP LO RH Fuse 4. Headlight Dimmer Relay 5. Wire Harness	– – – BE–21 –
"Flash" does not light.	1. Headlight Dimmer Switch 2. Daytime Running Light Relay 3. Wire Harness 4. Combination Meter	BE–21 BE–21 – –
Headlight does not come on.	1. Headlight Control Relay 2. Daytime Running Light Relay 3. Headlight Dimmer Relay 4. Headlight Dimmer Switch 5. Light Control Switch 6. Wire Harness 7. Bulb 8. Combination Meter	BE–21 BE–21 BE–21 BE–21 BE–21 – – –
Headlight does not come on with light control switch in HEAD.	1. Light Control Switch 2. Wire Harness	BE–21 –
Headlight does not go out with light control switch in OFF.	1. Headlight Control Relay 2. Wire Harness	BE–21 –
Headlight flickers.	1. Bulb 2. Wire Harness	– –
Headlight is dark.	1. Bulb 2. Wire Harness	– –
Taillight does not come on with light control switch in TAIL.	1. Taillight Control Relay 2. Light Control Switch 3. Wire Harness	BE–21 BE–21 –

Taillight does not go out with light control switch in OFF.	1. Taillight Control Relay 2. Light Control Switch 3. Wire Harness	BE–21 BE–21 –
Headlight does not come on with engine running and light control switch in OFF.	1. ECU–B Fuse 2. GAUGE Fuse 3. Daytime Running Light Relay 4. Headlight Dimmer Relay 5. Alternator L Terminal 6. Wire Harness 7. Combination Meter	– – BE–21 BE–21 – – –

HEADLIGHT BEAM LEVEL CONTROL SYSTEM:

HINT:

Troubleshooting of the headlight beam level control system is based on the premise that the headlight system is operating normally. Accordingly, before troubleshooting the headlight system, first make certain that the headlight system is operating normally.

Symptom	Suspect Area	See page
Headlight beam level control system does not operate. (All)	1. Headlight Beam Level Control Switch 2. Headlight Beam Level Control Actuator 3. Wire Harness	BE–29 BE–29 –
Headlight beam level control system does not operate. (One side)	1. Headlight Beam Level Control Switch 2. Headlight Beam Level Control Actuator 3. Wire Harness	BE–29 BE–29 –
Abnormal operation. (All)	1. Headlight Beam Level Control Switch 2. Headlight Beam Level Control Actuator 3. Wire Harness	BE–29 BE–29 –
Abnormal operation. (One side)	1. Headlight Beam Level Control Switch 2. Headlight Beam Level Control Actuator 3. Wire Harness	BE–29 BE–29 –

BE

FOG LIGHT SYSTEM:

Symptom	Suspect Area	See page
Front fog light does not light up with light control SW TAIL or HEAD. (Headlight is normal.)	1. Bulbs 2. FR FOG Fuse 3. Front Fog Light Relay 4. Front Fog Light Switch 5. Wire Harness	– BE–11 BE–31 BE–31 –
Front fog light does not light up with light control SW TAIL or HEAD. (Headlight does not light.)	1. Inspect Headlight and Taillight System 2. Wire Harness	BE–2 –
Only one light does not light.	1. Bulbs 2. Wire Harness	– –
Rear fog light does not light with light control SW HEAD. (Headlight is normal.)	1. Bulbs 2. ECU–B2 Fuse 3. Rear Fog Light Switch 4. Wire Harness	– BE–11 BE–31 –
Rear fog light does not light with light control SW HEAD. (Headlight does not light.)	1. Inspect Headlight and Taillight System 2. Wire Harness	BE–2 –
Only one light does not light.	1. Bulbs 2. Wire Harness	– –
Rear fog light does not light with light control switch TAIL or HEAD. (Headlight is normal.)	1. Bulb 2. ECU–B Fuse 3. Rear Fog Light Switch 4. Wire Harness	– – BE–31 –

Rear fog light does not light with light control switch TAIL or HEAD. (Headlight does not light.)	1. Headlight and Taillight System 2. Wire Harness	BE–18 –
Only one rear fog light does not light.	1. Bulb 2. Wire Harness	– –

TURN SIGNAL AND HAZARD WARNING SYSTEM:

Symptom	Suspect Area	See page
"Hazard" and "Turn" do not light up.	1. Hazard Warning Switch 2. Turn Signal Flasher 3. Wire Harness	BE–34 BE–34 –
The flashing frequency is abnormal.	1. Bulb 2. Turn Signal Switch 3. Wire Harness	– BE–34 –
Hazard warning light does not light up. (Turn is normal.)	1. HAZ Fuse 2. Wire Harness	– –
Hazard warning light does not light up in one direction.	1. Hazard Warning Switch 2. Wire Harness	BE–34 –
*1Turn signal does not light up.	1. Ignition Switch 2. GAUGE Fuse 3. Turn Signal Switch 4. Wire Harness	BE–16 – BE–34 –
*2Turn signal does not light up.	1. GAUGE Fuse 2. Turn Signal Switch 3. Wire Harness	– BE–34 –
Turn signal does not light up in one direction.	1. Turn Signal Switch 2. Wire Harness	BE–34 –
Only one bulb does not light up.	1. Bulb 2. Wire Harness	– –

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

INTERIOR LIGHT SYSTEM:

Symptom	Suspect Area	See page
Only one interior light does not light up.	1. Bulb 2. Wire Harness	– –
Interior light does not light up (All).	1. DOME Fuse 2. Wire Harness	– –
Room light does not light up.	1. Bulb 2. Room Light 3. Wire Harness	– BE–37 –
Only one rear room light does not light up.	1. Bulb 2. Battery 3. Wire Harness	– – –

BACK–UP LIGHT SYSTEM:

Symptom	Suspect Area	See page
Back–Up Light does not light up.	1. GAUGE Fuse 2. Ignition Switch 3. Wire Harness 4. Bulb	– BE–16 – –

Back–Up Light remains always on.	1. Back–Up Light Switch (M/X) 2. Neutral Start Switch (A/X) 3. Wire Harness	BE–40 DI–47 –
Only one light does not light up.	1. Bulb 2. Wire Harness	– –

STOP LIGHT SYSTEM:

Symptom	Suspect Area	See page
Stop light does not light up.	1. STOP Fuse 2. Stop Light Switch 3. Wire Harness	– BE–42 –
Only one light always lights up.	1. Wire Harness	–
Only one light does not light.	1. Bulb 2. Wire Harness	– –

WIPER AND WASHER SYSTEM:

Symptom	Suspect Area	See page
Front wiper and washers do not operate.	1. WIPER Fuse 2. Front Wiper Switch 3. Front Wiper Motor 4. Wire Harness	– BE–44 BE–44 –
Front wipers do not operate in LO or HI.	1. Front Wiper Switch 2. Front Wiper Motor 3. Wire Harness	BE–44 BE–44 –
Front wipers do not operate in INT.	1. Front Wiper Switch 2. Front Wiper Motor 3. Wire Harness	BE–44 BE–44 –
Front Washer motor does not operate.	1. Front Washer Switch 2. Front Washer Motor 3. Wire Harness	BE–44 BE–44 –
Front Wipers do not operate when washer switch in ON.	1. Front Washer Motor 2. Wire Harness	BE–44 –
Rear wiper and washers do not operate.	1. WIPER Fuse 2. Rear Wiper Switch 3. Rear Wiper Motor 4. Wire Harness	– BE–44 BE–44 –
Rear washer motor does not operate.	1. Rear Washer Switch 2. Rear Washer Motor 3. Wire Harness	BE–44 BE–44 –
Rear wipers do not operate when washer switch in ON.	1. Rear Washer Motor 2. Wire Harness	BE–44 –
Washer fluid does not operate.	1. Washer Hose and Nozzle	–
• At wiper switch HI position, the wiper blade is in contact with the body. • When the wiper switch is OFF, the wiper blade does not retract or the retract position wrong.	1. *1Wiper Switch 2. Wire Harness	BE–44 –

*1: Inspect wiper arm and blade set position

BE

Meter Gauges and Illumination:
COMBINATION METER

Symptom	Suspect Area	See page
Tachometer, Fuel Gauge and Water Temperature Gauge does not operate.	1. GAUGE Fuse 2. Meter Circuit Plate 3. Wire Harness	– BE–50 –
Speedometer does not operate.	1. Vehicle Speed Sensor 2. Meter Circuit Plate 3. Wire Harness	BE–56 BE–50 –
Tachometer does not operate.	1. Igniter 2. Engine and ECT ECU 3. Meter Circuit Plate 4. Wire Harness	– – BE–50 –
Fuel Gauge does not operate or abnormal operation.	1. Fuel Receiver Gauge 2. Fuel Sender Gauge 3. Meter Circuit Plate 4. Wire Harness	BE–56 BE–56 BE–50 –
All illumination lights do not light up.	1. TAIL Fuse 2. Meter Circuit Plate 3. Wire Harness	– BE–56 –
Only one illumination light does not light up.	1. Bulb 2. Wire Harness	– –

Warning Lights:
COMBINATION METER

Symptom	Suspect Area	See page
Warning light do not light up. (Except Discharge, Open Door and SRS)	1. GAUGE Fuse 2. Meter Circuit Plate 3. Wire Harness	– BE–50 –
Fuel Level warning light does not light up.	1. Bulb 2. Fuel Sender Gauge 3. Meter Circuit Plate 4. Wire Harness	– BE–56 BE–50 –
Water Temperature warning light does not light up.	1. Bulb (Water temperature warning light) 2. Water Temperature Sender Gauge 3. Engine and ECT ECU 4. Meter Circuit Plate 5. Wire Harness	– BE–56 – BE–50 –
Low Oil Pressure warning light does not light up.	1. Bulb 2. Low Oil Pressure Warning Switch 3. Meter Circuit Plate 4. Wire Harness	– BE–56 BE–50 –
ABS warning light does not light up.	1. Bulb 2. ABS ECU 3. Wire Harness	– DI–58 –
Seat Belt warning light does not light up.	1. Bulb 2. Buckle Switch 3. Meter Circuit 4. Wire Harness	– BE–56 BE–56 –
Brake warning light does not light up.	1. Bulb 2. Parking Brake Switch 3. Brake Fluid Level Warning Switch 4. Meter Circuit Plate 5. Wire Harness	– BE–56 BE–56 BE–50 –

SRS Warning light does not light up.	1. Bulb 2. Airbag Sensor Assembly 3. Meter Circuit Plate 4. Wire Harness	– DI–100 BE–50 –
Open Door warning light does not light up.	1. DOME Fuse 2. Bulb 3. Door Courtesy Switch 4. Meter Circuit Plate 5. Wire Harness	– – BE–37 BE–50 –

Indicator Lights:

COMBINATION METER

Symptom	Suspect Area	See page
O/D OFF indicator light does not light up.	1. Bulb 2. O/D OFF Switch 3. Meter Circuit Plate 4. Wire Harness	– DI–51 BE–50 –
High beam indicator light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. Headlight System	– BE–50 – BE–18
Turn indicator light does not light up.	1. Bulb 2. Meter Circuit Plate 3. Wire Harness 4. Turn Signal and Hazard Warning System	– BE–50 – BE–18
Malfunction indicator light does not light up.	1. Bulb 2. Engine and ECT ECU 3. Meter Circuit Plate 4. Wire Harness	– – BE–50 –
Indicator lights do not light up. (Except Turn, Hi–beam and security)	1. GAUGE Fuse 2. Wire Harness	– –

BE

DEFOGGER SYSTEM:

Symptom	Suspect Area	See page
All defogger systems do not operate.	1. DEF Fuse 2. Defogger Switch 3. Wire Harness	– BE–66 –
Rear window defogger does not operate.	1. Defogger Wire 2. Choke Coil 3. Wire Harness	BE–66 – –
Mirror defogger does not operate.	1. Mirror Defogger 2. Wire Harness	BE–66 –

POWER WINDOW CONTROL SYSTEM:

Symptom	Suspect Area	See page
Power window does not operate (ALL). (Power Door Lock does not operate)	1. GAUGE Fuse 2. POWER Fuse 3. Power Main Relay 4. Wire Harness	– – BE–73 –
Power window does not operate (ALL). (Power Door Lock is normal)	1. Ignition Switch 2. Power Window Master Switch 3. Wire Harness	BE–16 BE–73 –

Only one window glass does not move.	1. Power Window Master Switch 2. Power Window Switch 3. Power Window Motor 4. Wire Harness	BE–73 BE–73 BE–73 –
"Window Lock System" does not operate.	1. Power Window Master Switch	BE–73

POWER DOOR LOCK CONTROL SYSTEM:

Symptom	Suspect Area	See page
"Door lock system" does not operate at all.	1. D/L Fuse 2. GAUGE Fuse 3. Door Lock Control Relay 4. Wire Harness	– – BE–87 –
Door lock system does not operate by manual switch.	1. Door Lock Control Relay 2. Door Lock Control Switch 3. Wire Harness	BE–87 BE–87 –
Door lock system does not operate by door key.	1. Door Key Lock and Unlock Switch 2. Wire Harness 3. Door Lock Link Disconnected	BE–87 – –
Fault in 2 – Operation unlock function of Driver's side door key lock and unlock switch.	1. Door Key Lock and Unlock Switch 2. Door Lock Control Relay 3. Wire Harness	BE–87 BE–87 –
Fault in key confine prevention operate.	1. Door Lock Control Relay 2. Door Control Switch 3. Door Courtesy Switch 4. Wire Harness	BE–87 BE–87 BE–37 –
Only one door lock does not operate.	1. Door Lock Motor 2. Wire Harness	BE–87 –

DOUBLE LOCKING SYSTEM:

All the doors double lock system does not operate.	1. MPX–B Fuse 2. DOOR DL Fuse 3. ECU–B Fuse 4. Wire Harness * 5. double Lock ECU 6. Body ECU	BE–11 BE–11 BE–87 – BE–96 –
Only one side double lock system does not operate (or abnormal).	1. Double Lock Motor 2. Double Lock Switch 3. Wire Harness 4. Double Lock ECU	BE–96 BE–96 – BE–96

SEAT HEATER SYSTEM:

Symptom	Suspect Area	See page
Seat heaters do not operate.	1. S–HTR Fuse 2. Wire Harness	– –
Driver's seat heater do not operate.	1. Seat Heater Switch 2. Seat Heater 3. Wire Harness	BE–122 BE–122 –
Seat heater temperature is too high.	1. Seat Heater	BE–122

BE

WIRELESS DOOR LOCK CONTROL SYSTEM:

HINT:

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

Symptom	Suspect Area	See page
All functions of wireless door lock control system do not operate.	1. Transmitter 2. Wireless Door Lock Control Receiver 3. Wire Harness	BE–105 BE–105 –

SLIDING ROOF SYSTEM

Symptom	Suspect Area	See page
Sliding roof system does not operate. (Door Lock does not operate)	1. POWER Fuse (I/P J/B) 2. Power Main Relay (I/P J/B) 3. GAUGE Fuse 4. Wire Harness	– – – –
Sliding roof system does not operate. (Door Lock is normal)	1. Ignition Switch 2. Sliding Roof Control Relay and Switch 3. Sliding Roof Motor and Limit Switch 4. Wire Harness	BE–16 BE–115 BE–115
Sliding roof system operates abnormally.	1. Sliding Roof Control Relay and Switch 2. Sliding Roof Motor and Limit Switch 3. Wire Harness	BE–115 BE–115
Sliding roof system stops operation half way. (Stones of foreign material trapped in motor assembly)	1. Sliding Roof Control Relay and Switch 2. Sliding Roof Motor and Limit Switch 3. Wire Harness	BE–115 BE–115

BE

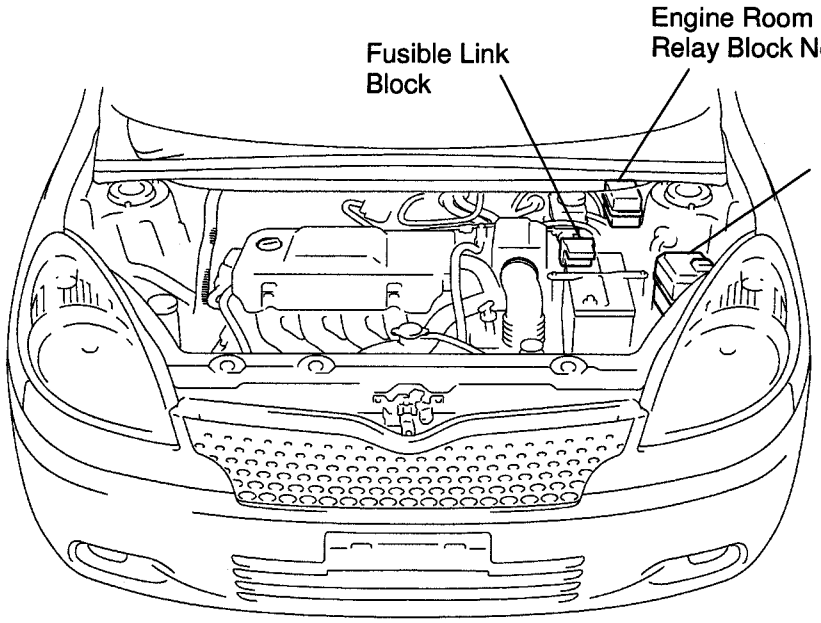
POWER MIRROR CONTROL SYSTEM:

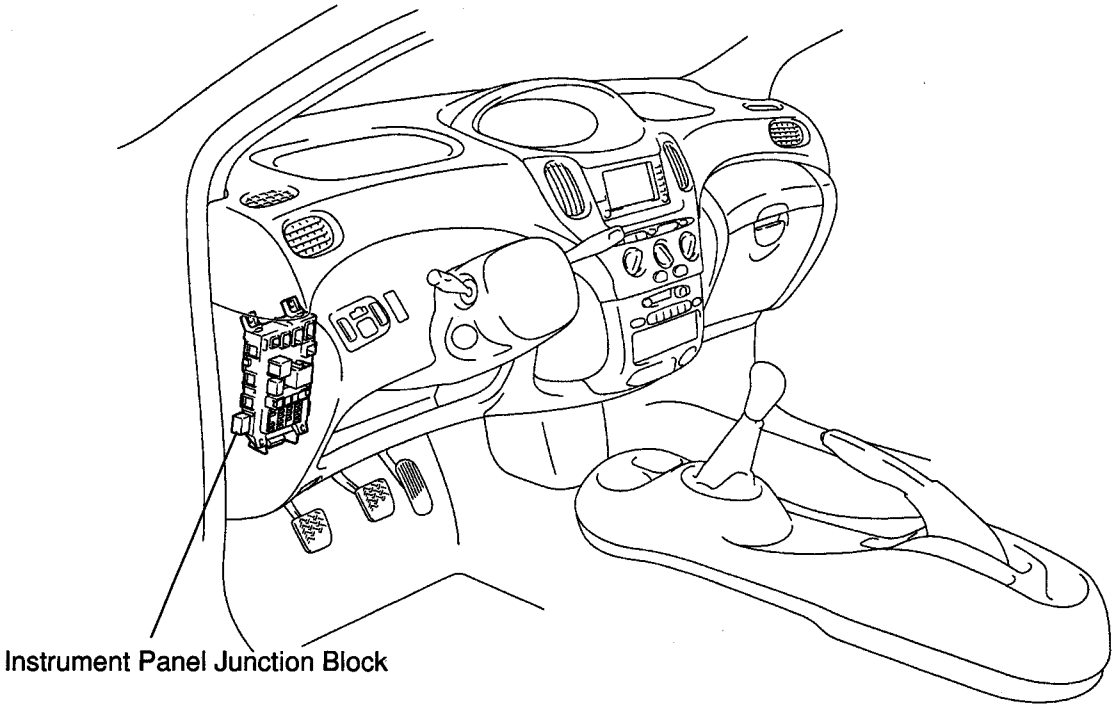
Symptom	Suspect Area	See page
Mirror does not operate.	1. ACC Fuse 2. Mirror Switch 3. Mirror Motor 4. Wire Harness	– BE–119 BE–119 –
Mirror operates abnormally.	1. Mirror Switch 2. Mirror Motor 3. Wire Harness	BE–119 BE–119 –

POWER SOURCE

LOCATION

BE183-02

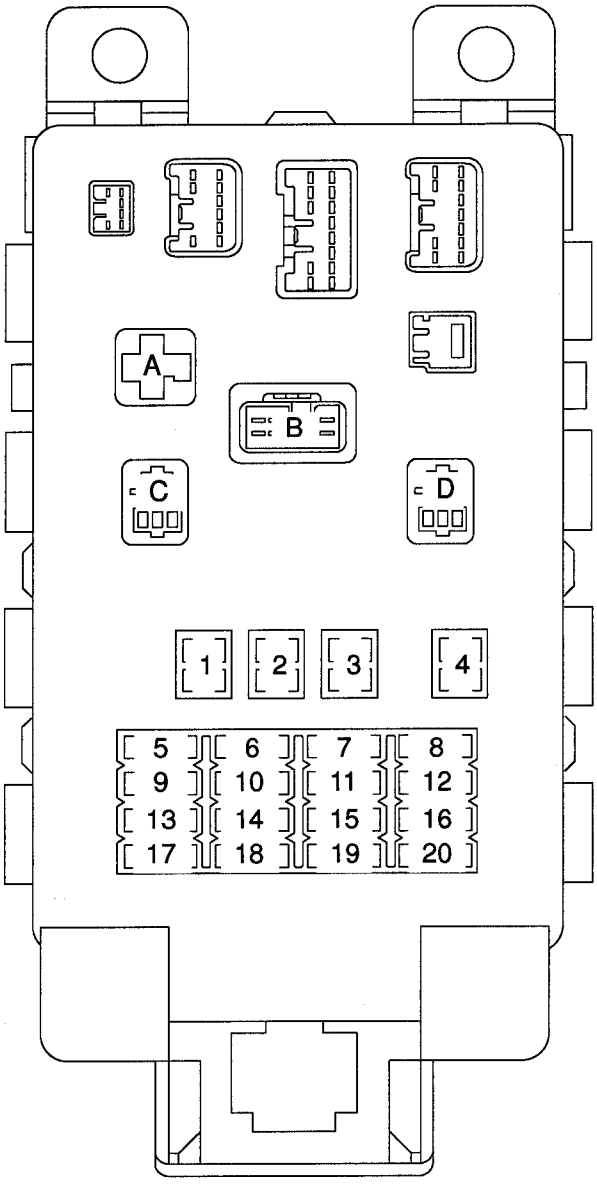




P

I13491

Instrument panel junction block:



Fuses

1. AM1 Fuse
2. POWER Fuse *1,2
3. HTR Fuse
4. DEF Fuse *1
5. GAUGE Fuse
6. DEF Fuse
7. D/L Fuse *1,2
8. TAIL Fuse
9. –
10. WIPER Fuse
11. ECU–B Fuse
12. FOG Fuse
13. ACC Fuse
14. ECU–IG Fuse
15. OBD Fuse
16. HAZ Fuse
17. A/C Fuse
18. S–HTR Fuse *1
19. –
20. STOP Fuse

Relays

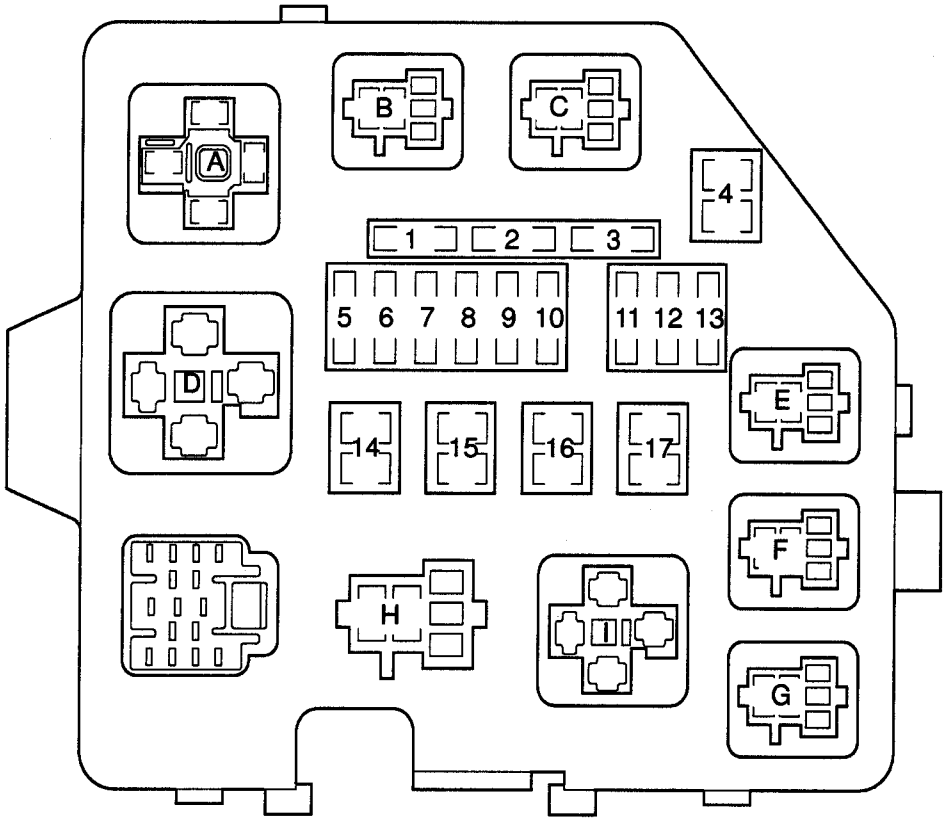
A. Heater Relay
B. FLASHER Relay
C. Power Main Relay
D. C/OPN Relay

*1: LHD Models (Hi Grade)
*2: RHD Models

Y

I12040

Engine room relay block No. 1:



Fuses

1. SPARE Fuse 30A
2. SPARE Fuse 15A
3. –
4. Fuse Puller
5. DOME Fuse
6. EFI Fuse
7. HORN Fuse
8. AM2 Fuse
9. ST Fuse
10. –
11. H–LP LH Fuse (w/o D. R. L.) *1, 2
    H–LP LO LH Fuse (w/ D. R. L.)
12. H–LP RH Fuse (w/o D. R. L.) *1, 2
    H–LP LO RH Fuse (w/ D. R. L.)
13. P/POINT Fuse
14. –
15. RDI Fuse
16. HTR SUB1 Fuse *1
17. –

Relays

A. ST Relay
B. FAN NO. 2 Relay (w/o D.R.L) *1, 2
C. FAN NO. 1 Relay
D. –
E. EFI Relay
F. A/C MG Relay (w/o D.R.L) *1, 2
G. HORN Relay
H. P/POINT Relay
I. HTR SUB 1 Relay (w/ D.R.L) / HTR2 (w/o D.R.L)

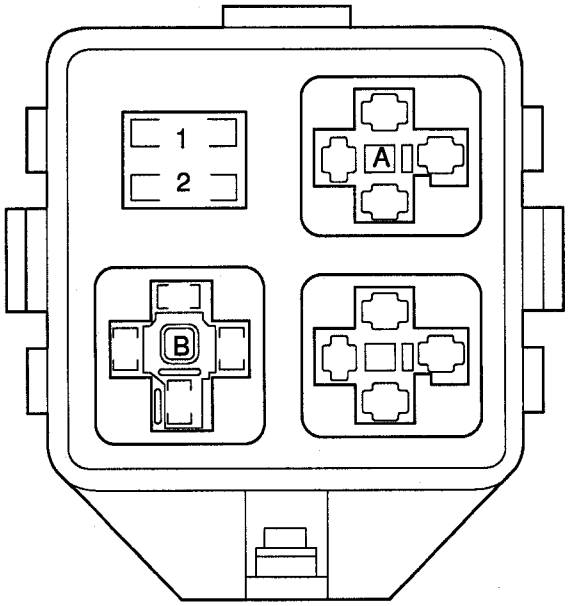
D. R. L. : Daytime Running Light

*1: LHD Models
*2: RHD Models

Y

I14253

Engine room relay block No. 2:



Fuses

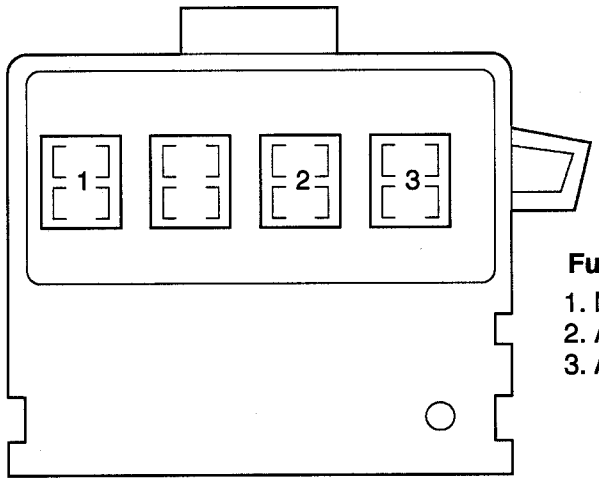
1. H–LP HI RH Fuse (w/ D. R. L.)
2. H–LP HI LH Fuse (w/ D. R. L.)

Relays

A. H–LP Relay (w/ D. R. L.)
B. DIM Relay (w/ D. R. L.)

D. R. L. : Daytime Running Light

Fusible link block:



Fuses

1. MAIN FL
2. ALT FL
3. ABS FL

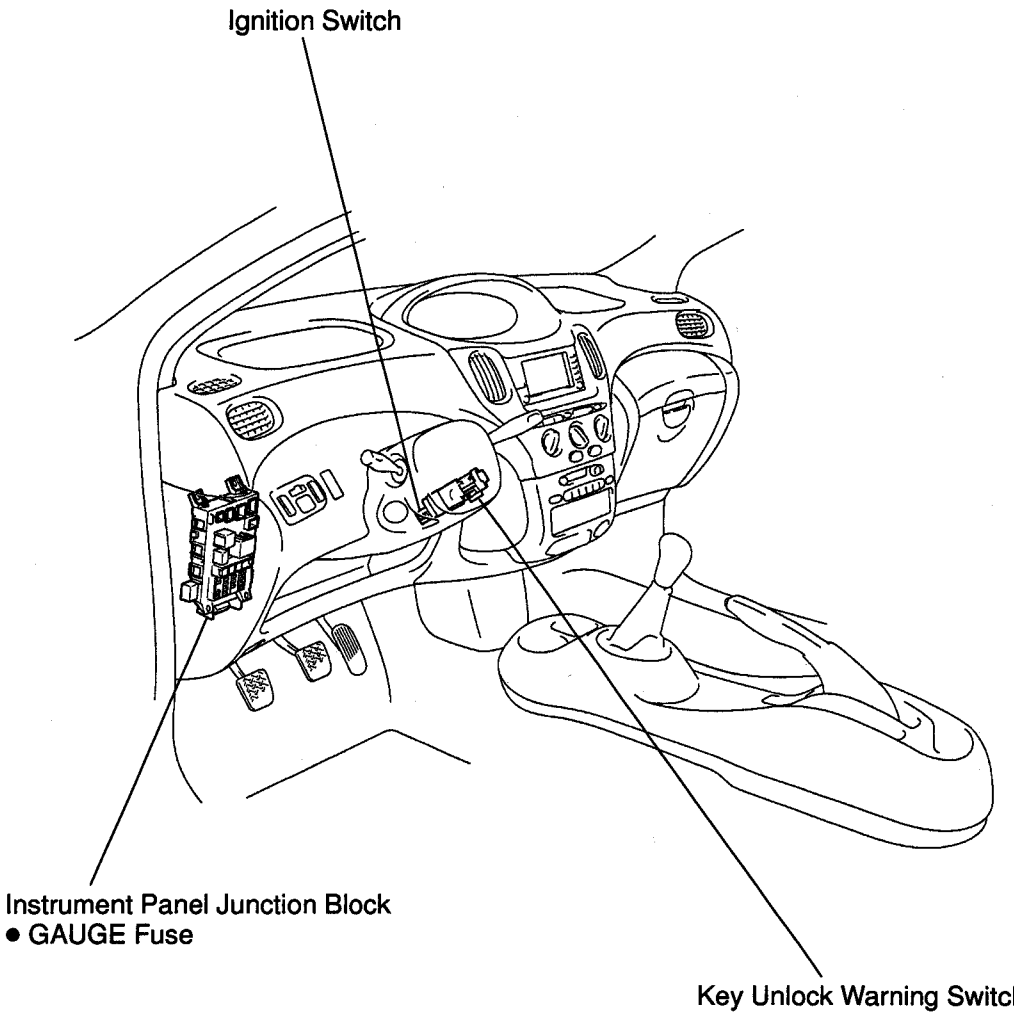
Y

I12042

IGNITION SWITCH AND KEY UNLOCK WARNING SWITCH

LOCATION

BE184-02



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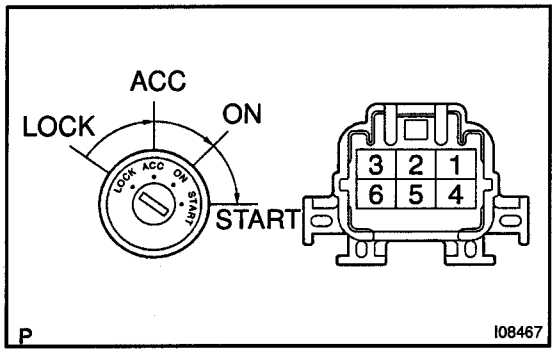
I13492

BE185-02

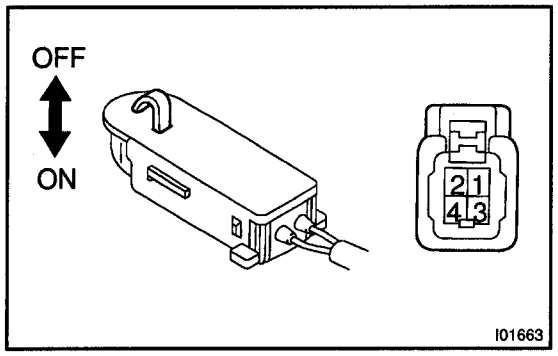


INSPECTION

1. INSPECT IGNITION SWITCH CONTINUITY

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

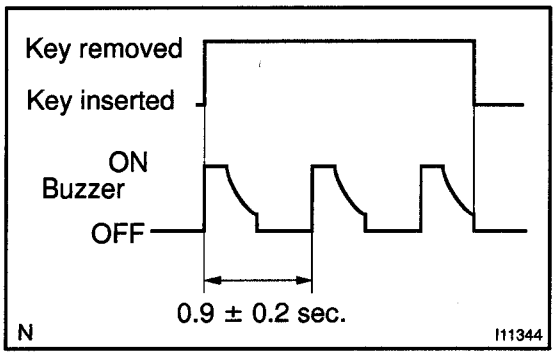
If continuity is not as specified, replace the switch.



2. INSPECT KEY UNLOCK WARNING SWITCH CONTINUITY

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

If continuity is not as specified, replace the switch.



3. INSPECT KEY UNLOCK WARNING BUZZER

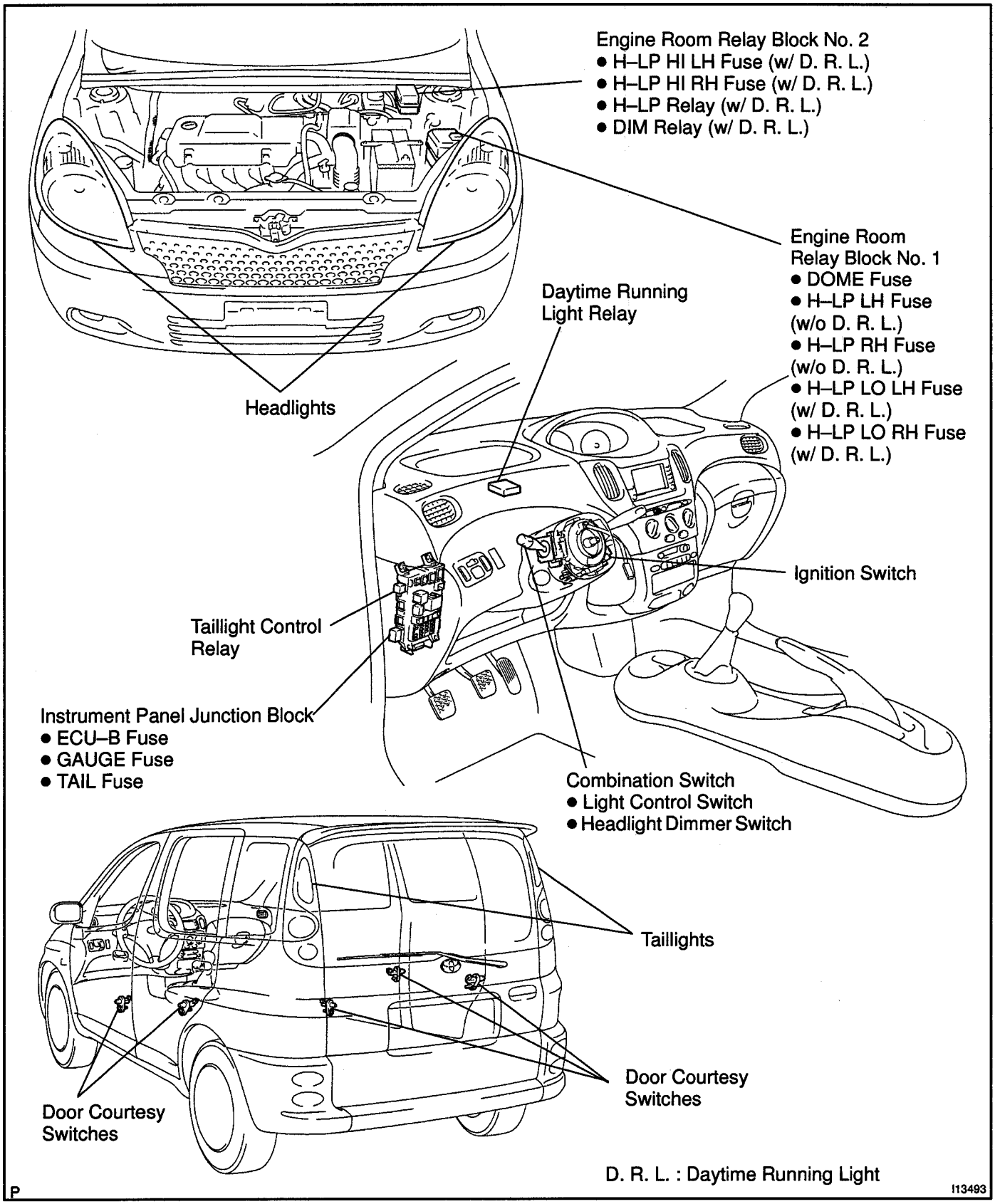
Check that the buzzer sound when driver's door is opened and key inserted.

If operation is not as specified, replace the combination meter. (See page BE–48)

HEADLIGHT AND TAILLIGHT SYSTEM

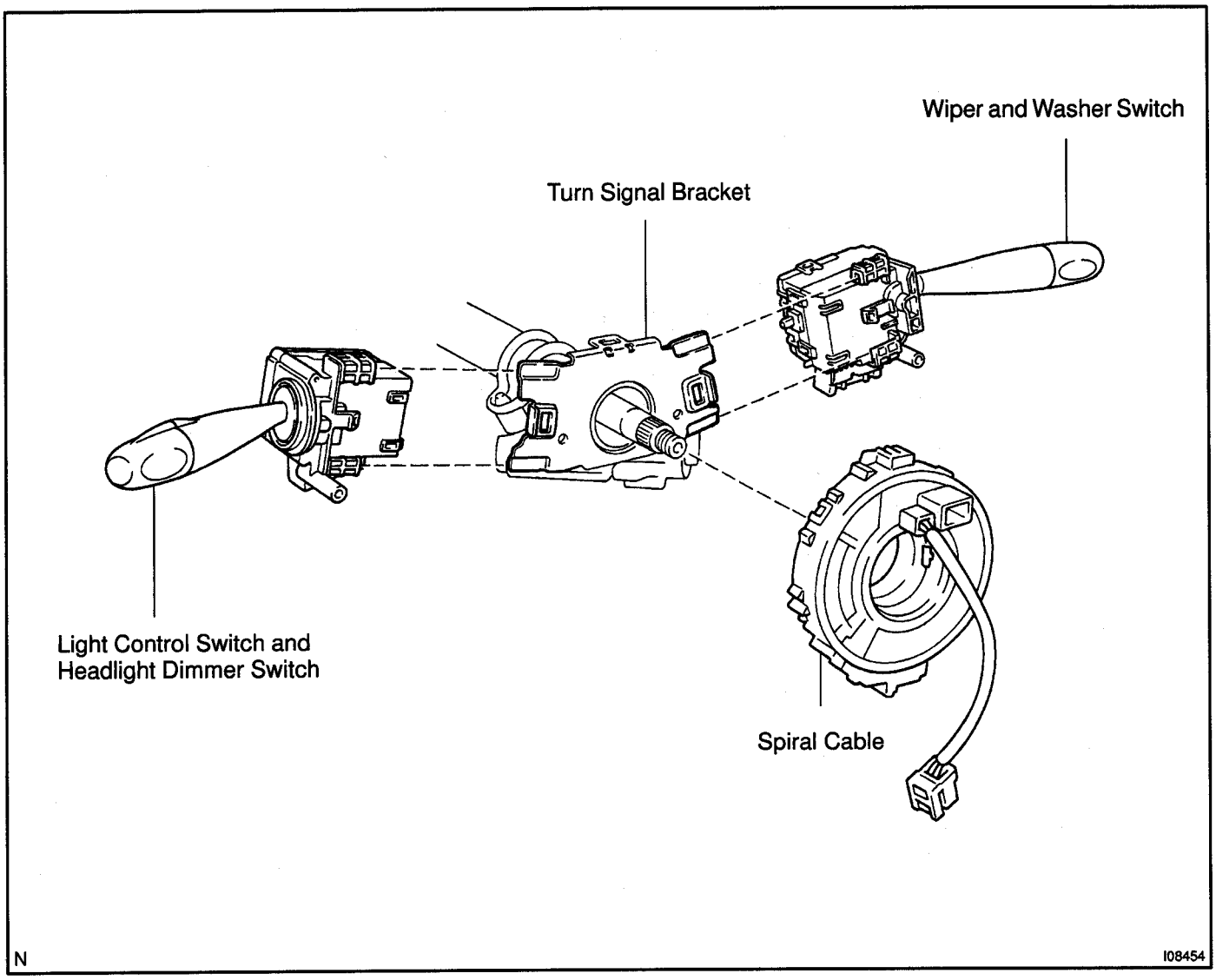
LOCATION

BE1DP–01



BE187-02

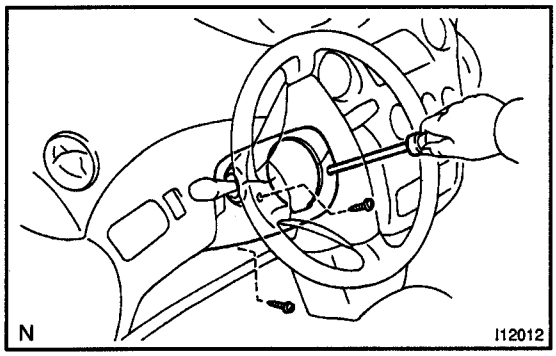
COMPONENTS



BE188-02

REMOVAL

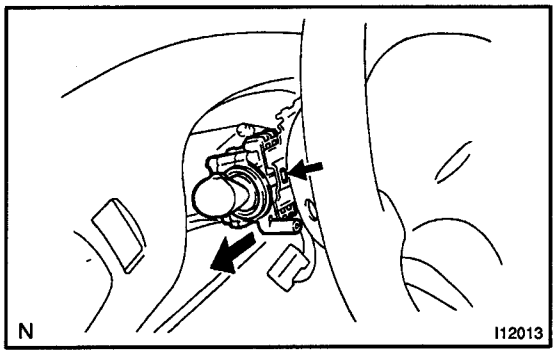
Installation is in the reverse order of removal.



1. REMOVE COLUMN COVER

(a) Remove the 3 screws.

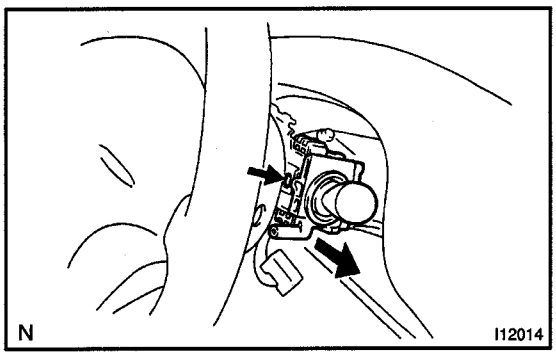
(b) Remove the column cover.



2. REMOVE LIGHT CONTROL SWITCH

(a) Disconnect the light control switch connector.

(b) Remove the switch from the turn signal bracket.



3. REMOVE WIPER AND WASHER SWITCH

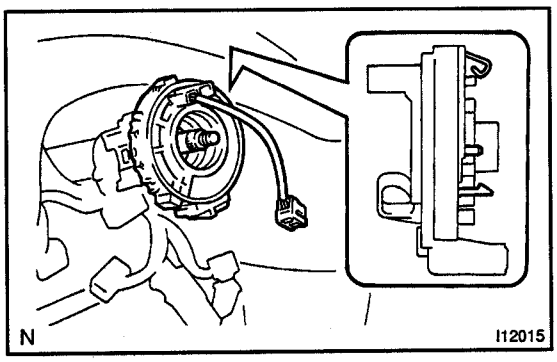
(a) Disconnect the wiper and washer switch connector.

(b) Remove the switch from the turn signal bracket.

BE189-02

DISASSEMBLY

1. REMOVE STEERING WHEEL (See page SR–12)



2. REMOVE SPIRAL CABLE

Remove the spiral cable from the turn signal bracket.

BE18A-02

INSPECTION

1. INSPECT LIGHT CONTROL SWITCH CONTINUITY

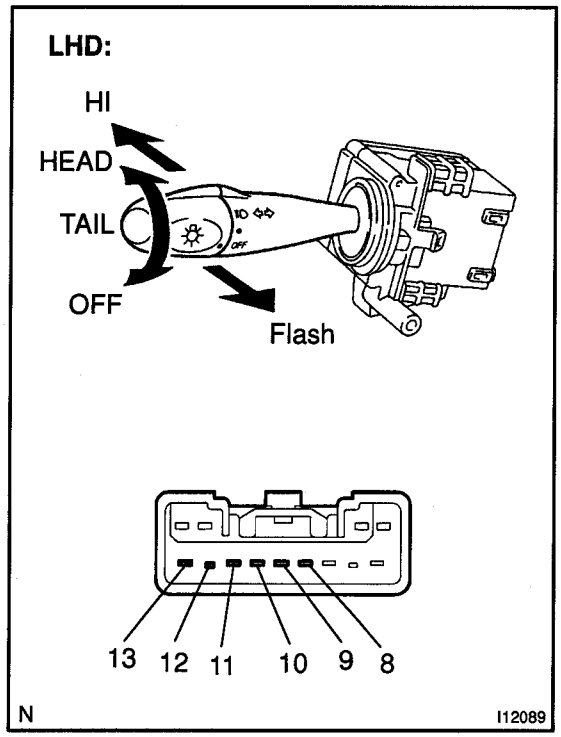
Switch position	Tester connection	Specified condition
OFF	–	No continuity
TAIL	10 – 13	Continuity
HEAD	10 – 13, 11 – 12	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT HEADLIGHT DIMMER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Low beam	–	No. Continuity
HEAD and Low beam	8 – 11 – 12	Continuity
High beam	–	No Continuity
HEAD and High beam	9 – 11 – 12	Continuity
Flash	9 – 11	Continuity
HEAD and Flash	8 – 9 – 11 – 12	Continuity

If continuity is not as specified, replace the switch.



3. INSPECT LIGHT CONTROL SWITCH CONTINUITY

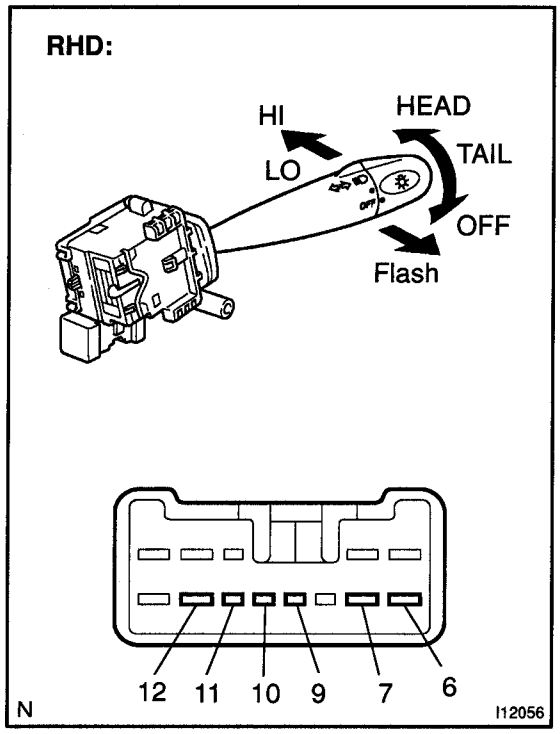
Switch position	Tester connection	Specified condition
OFF	–	No continuity
TAIL	6 – 12	Continuity
HEAD	6 – 12, 7 – 10	Continuity

If continuity is not as specified, replace the switch.

4. INSPECT HEADLIGHT DIMMER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Low beam	–	No continuity
HEAD and Low beam	7 – 9 – 10	Continuity
High beam	–	No continuity
HEAD and High beam	7 – 10 – 11	Continuity
Flash	10 – 11	Continuity
HEAD and Flash	7 – 10 – 11	Continuity

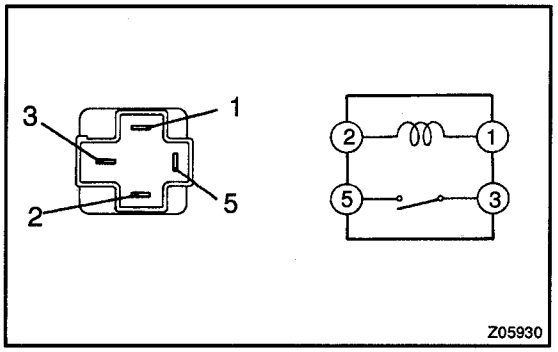
If continuity is not as specified, replace the switch.

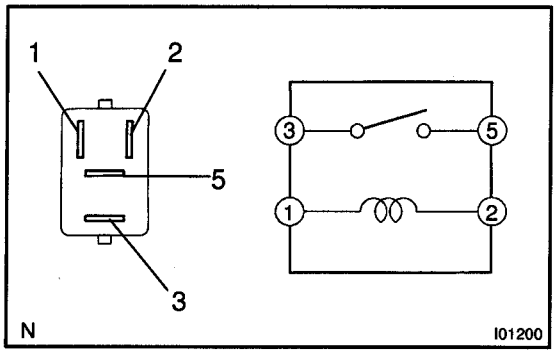


5. INSPECT HEADLIGHT CONTROL RELAY CONTINUITY

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

If continuity is not as specified, replace the relay.

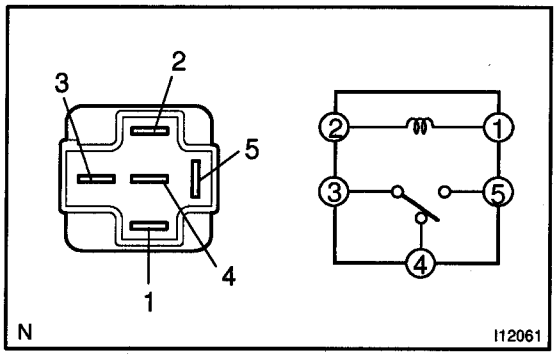




6. INSPECT TAILLIGHT CONTROL RELAY CONTINUITY

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

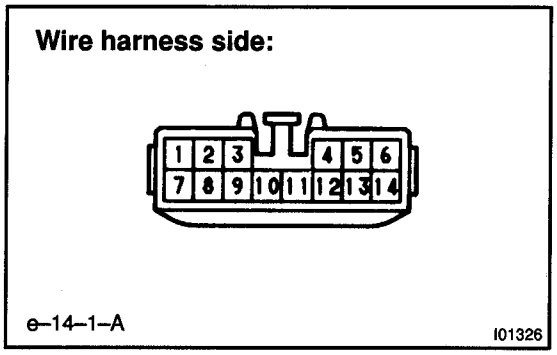
If continuity is not as specified, replace the relay.



7. w/ Daytime running light system: INSPECT HEADLIGHT DIMMER RELAY CONTINUITY

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

If continuity is not as specified, replace the relay.



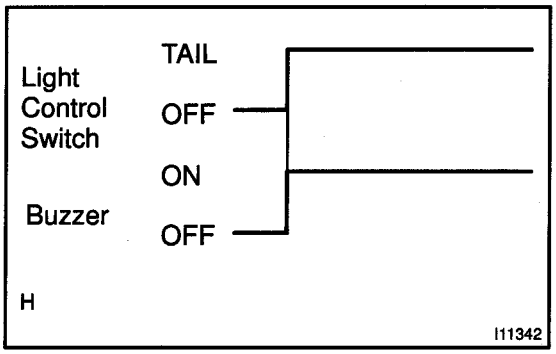
8. w/ Daytime running light system: INSPECT DAYTIME RUNNING LIGHT MAIN RELAY CIRCUIT

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

Tester connection	Condition	Specified condition
2 – Ground	Light control switch OFF	No continuity
2 – Ground	Light control switch TAIL or HEAD	Continuity
4 – Ground	Light control switch OFF or TAIL	No continuity
4 – Ground	Light control switch HEAD	Continuity
6 – Ground	Headlight dimmer switch LOW beam or HIGH beam	No continuity
6 – Ground	Headlight dimmer switch FLASH	Continuity
7 – Ground	Constant	Continuity
10 – Ground	Constant	Continuity
13 – Ground	Headlight dimmer switch LOW beam	No continuity
13 – Ground	Headlight dimmer switch HIGH beam or FLASH	Continuity
1 – Ground	Ignition switch LOCK or ACC	No voltage
1 – Ground	Ignition switch ON or START	Battery voltage
3 – Ground	Constant	Battery voltage
5 – Ground	Constant	Battery voltage
8 – Ground	Engine Stop	No voltage
8 – Ground	Engine Running	Battery voltage

9 – Ground	Constant	No voltage
9 – Ground	Ground terminal 3	Battery voltage
12 – Ground	Constant	Battery voltage
14 – Ground	Constant	No voltage
14 – Ground	Ground terminal 5	Battery voltage

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

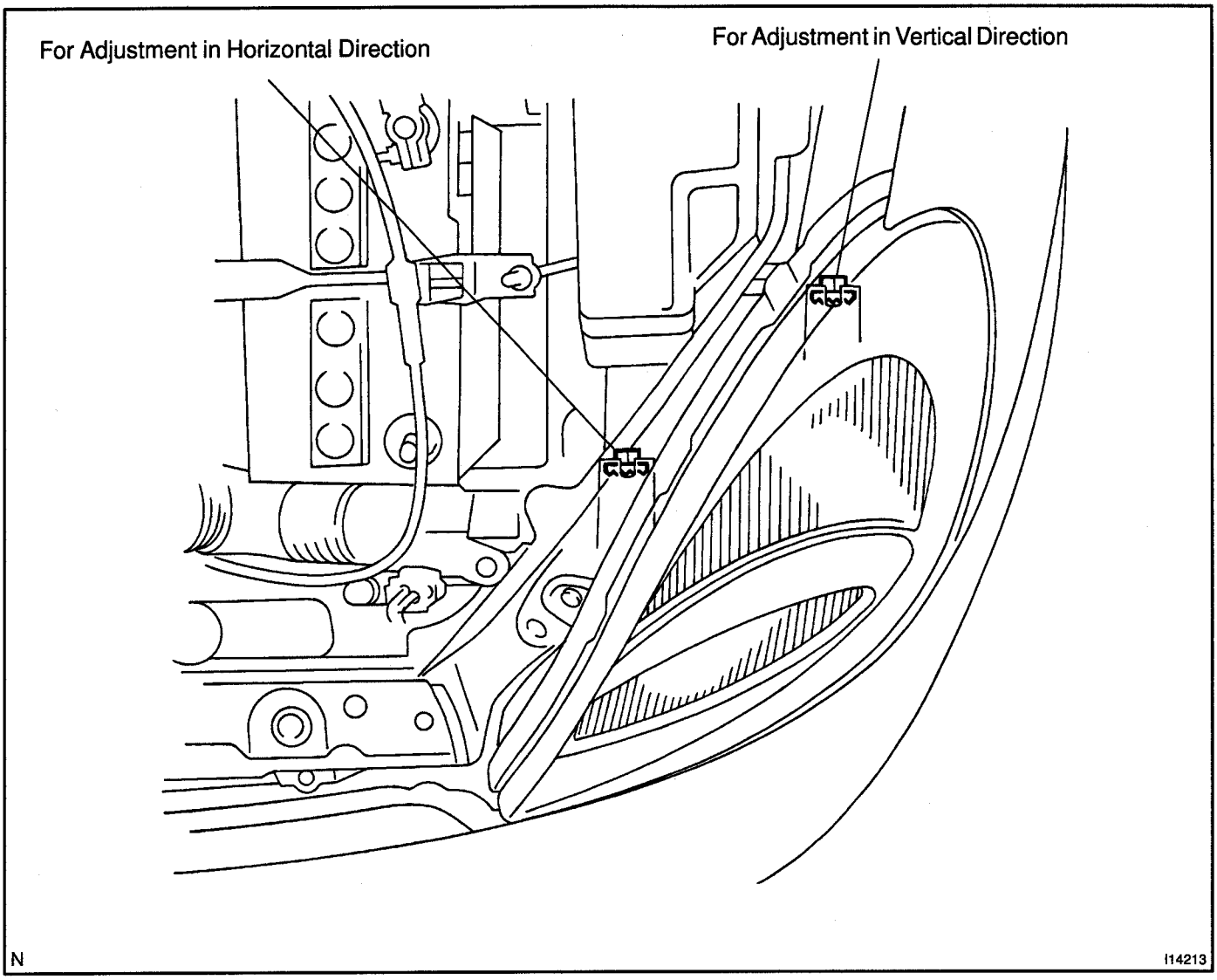


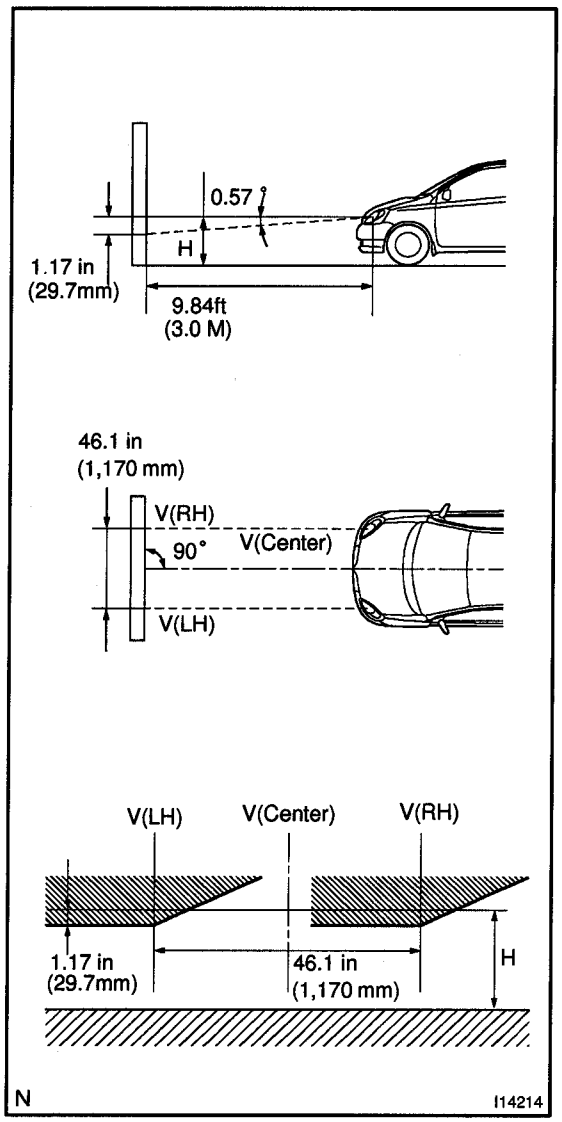
9. INSPECT LIGHT AUTO TURN OFF BUZZER

Check that the buzzer sound when driver's door is opened and turn light control switch position TAIL.
If operation is not as specified, replace the combination meter. (See page BE–48)

BE18B-02

ADJUSTMENT





ADJUSTING HEADLIGHT AIM

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

(b) Check the headlight aimming.
(1) Prepare the thick white colored paper.
(2) Stand the paper perpendicularly and ensure the distance from it to the head lights is 9.84 ft.
(3) Ensure that the center line of vehicle and the paper are at a 90 degree angle as shown in the illustration.
(4) Engine running.
(5) Draw a horizontal line on the paper where the head lights of the vehicle are to be.
(6) Draw a vertical line on the paper where the center line of the vehicle is to be. (V line)
(7) Draw the vertical lines on the paper where the headlights (low–beam and high–beam center marks) of the vehicle are to be(V RH and V LH lines).
(8) Draw the vertical lines on the paper where the headlights(low beam center marks)of the vehicle are to be.(V RH and LH lines)
(9) Turn the head lights ON.
(10) Check that the head lights light up the paper as shown in the illustration.
(11) When the paper is not lighted up properly, adjust the lights in the vertical or horizontal direction.

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

(c) Adjust the headlight in vertical direction.
Using adjusting bolt A, adjust the headlight aim to within the specifications.

(d) Adjust the headlight in horizontal direction.
Using adjusting bolt B, adjust the headlight aim to within the specifications.

BE18C–01

REASSEMBLY

Installation is in the reverse order of disassembly (See page BE–20).

BE18D-01

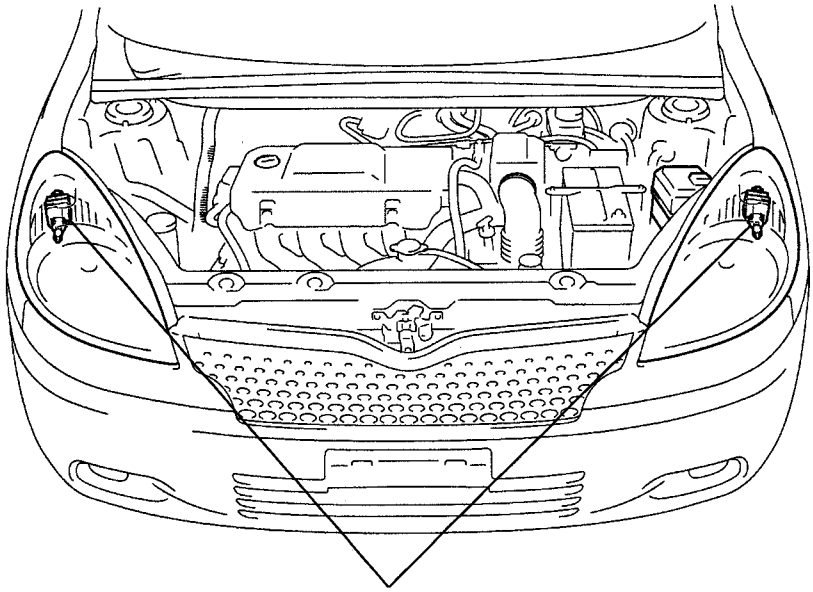
INSTALLATION

Installation is in the reverse order of removal (See page BE–19).

HEADLIGHT BEAM LEVEL CONTROL SYSTEM

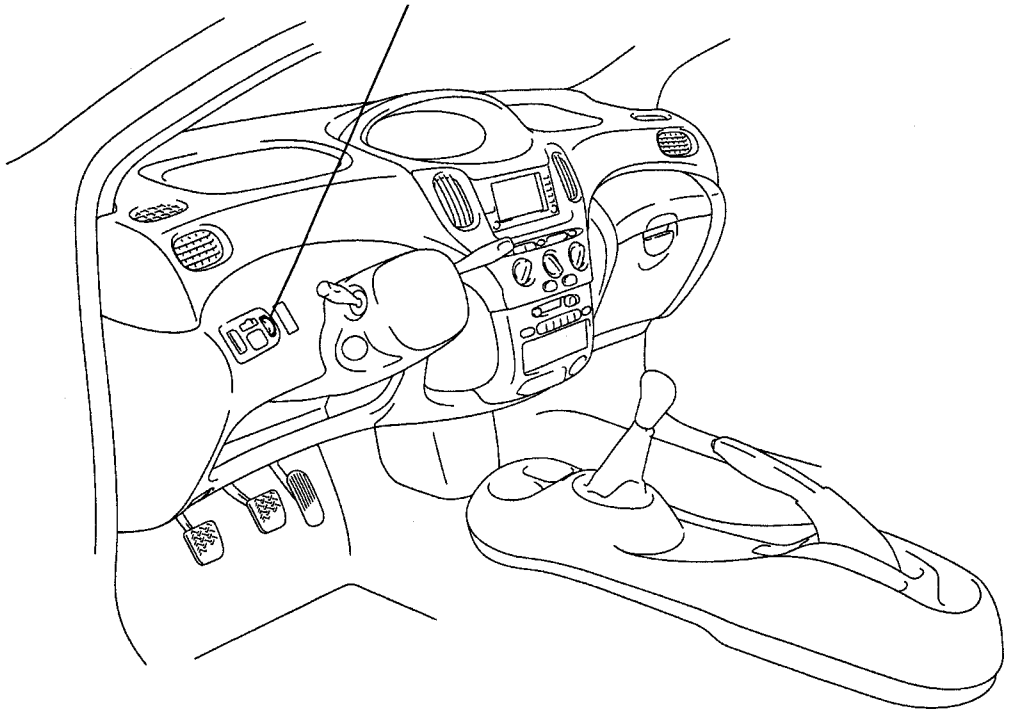
BE18E-02

COMPONENTS



Headlight Beam Level Control Actuator

Headlight Beam Level Control Switch



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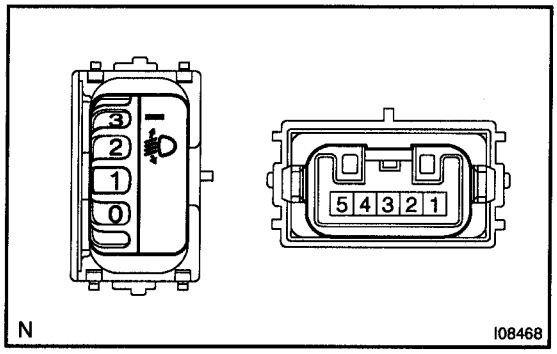


BE01S-04

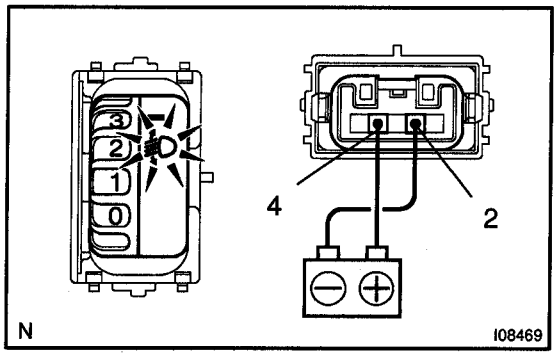
INSPECTION

1. INSPECT HEADLIGHT BEAM LEVEL CONTROL SWITCH RESISTANCE

Measure the resistance between terminal 3 and 5.

Switch position	Resistance (Ω)
0	2,500
1	1087
2	702
3	632

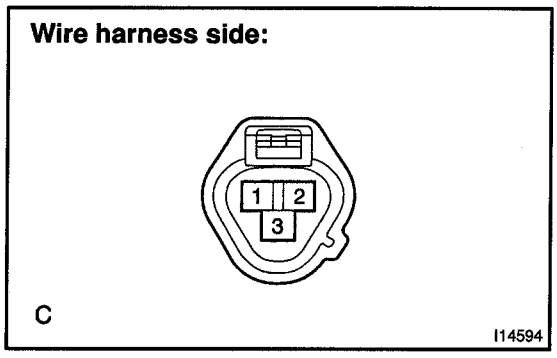
If resistance value is not as specified, replace the switch.



2. INSPECT HEADLIGHT BEAM LEVEL CONTROL SWITCH ILLUMINATION

Connect the positive (+) lead from the battery to terminal 4 and negative (–) lead to terminal 2, and check that the illumination light lights up.

If operation is not as specified, replace the switch.



3. INSPECT HEADLIGHT BEAM LEVEL CONTROL ACTUATOR CIRCUIT

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

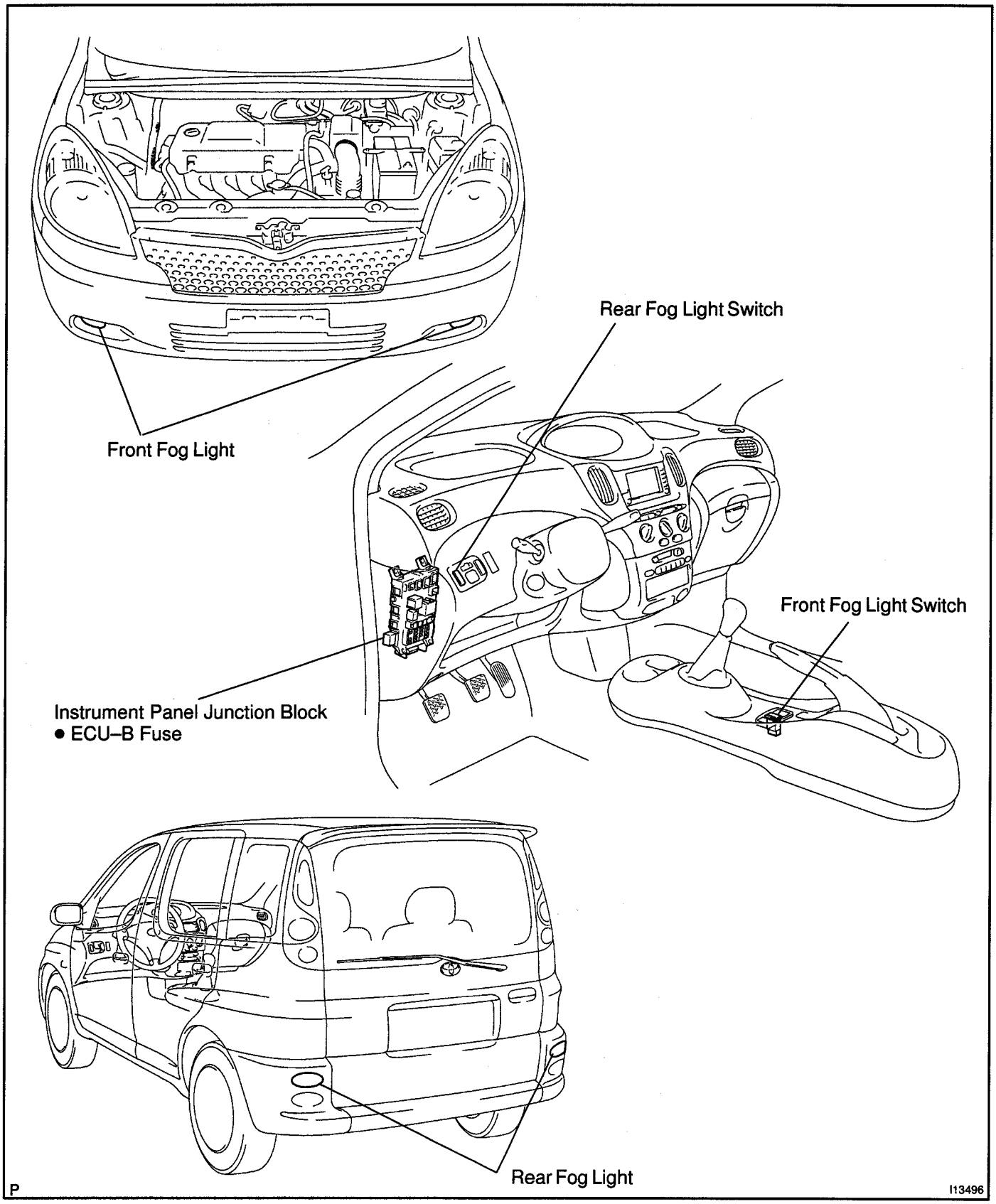
Tester connection	Condition	Specified condition
3 – Ground	Constant	Continuity
2 – Ground	Light control switch TAIL or HEAD	Battery voltage

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

FOG LIGHT SYSTEM

LOCATION

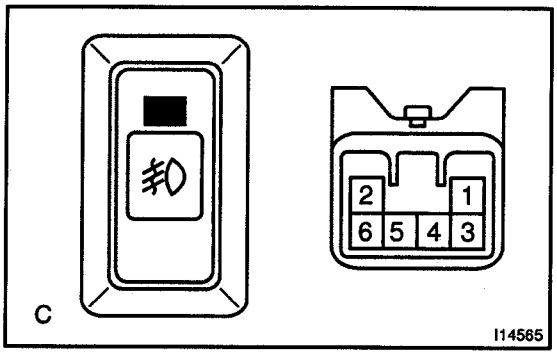
BE1DT–01



BE1DU-01

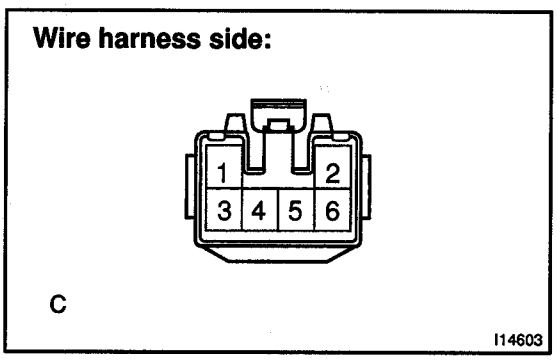
INSPECTION

1. INSPECT FRONT FOG LIGHT SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OFF	2 – 6	No continuity
ON	2 – 3 – 6	Continuity
Illumination circuit	1 – 4	Continuity

If continuity is not as specified, replace the switch.



2. INSPECT FRONT FOG LIGHT SWITCH CIRCUIT

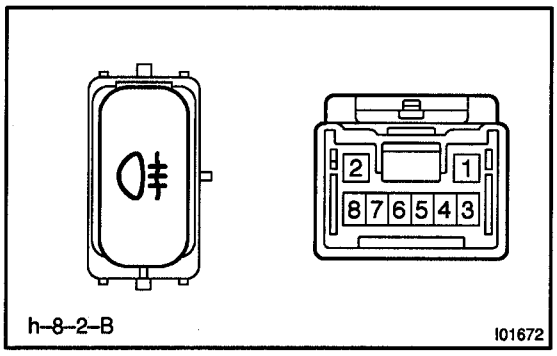
Disconnect the connector from the switch and inspect the connector on the wire harness side.

Tester connection	Condition	Specified condition
6 – Ground	Ignition switch ON	* Continuity
2 – Ground	Ignition switch ON	Continuity
4 – Ground	Constant	Continuity
1 – Ground	Light control switch TAIL or HEAD	Battery voltage
3 – Ground	Constant	Battery voltage

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

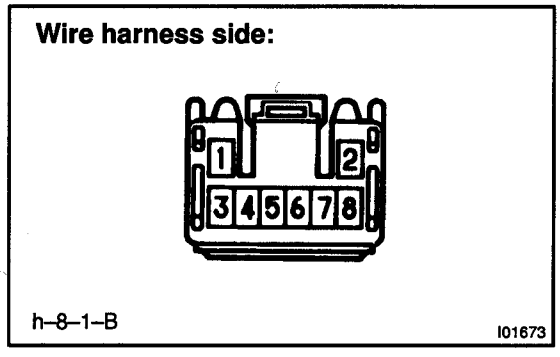
If circuit is not as specified, replace the wire harness.

3. INSPECT REAR FOG LIGHT SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OFF	–	No continuity
ON	2 – 5 – 6	Continuity
Illumination circuit	2 – 7	Continuity

If continuity is not as specified, replace the switch.



4. INSPECT REAR FOG LIGHT SWITCH CIRCUIT

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

Tester connection	Condition	Specified condition
1 – Ground	Constant	* Continuity
5 – Ground	Light control switch HEAD	Continuity
7 – Ground	Constant	Continuity
2 – Ground	Light control switch TAIL or HEAD	Battery voltage
3 – Ground	Constant	Battery voltage

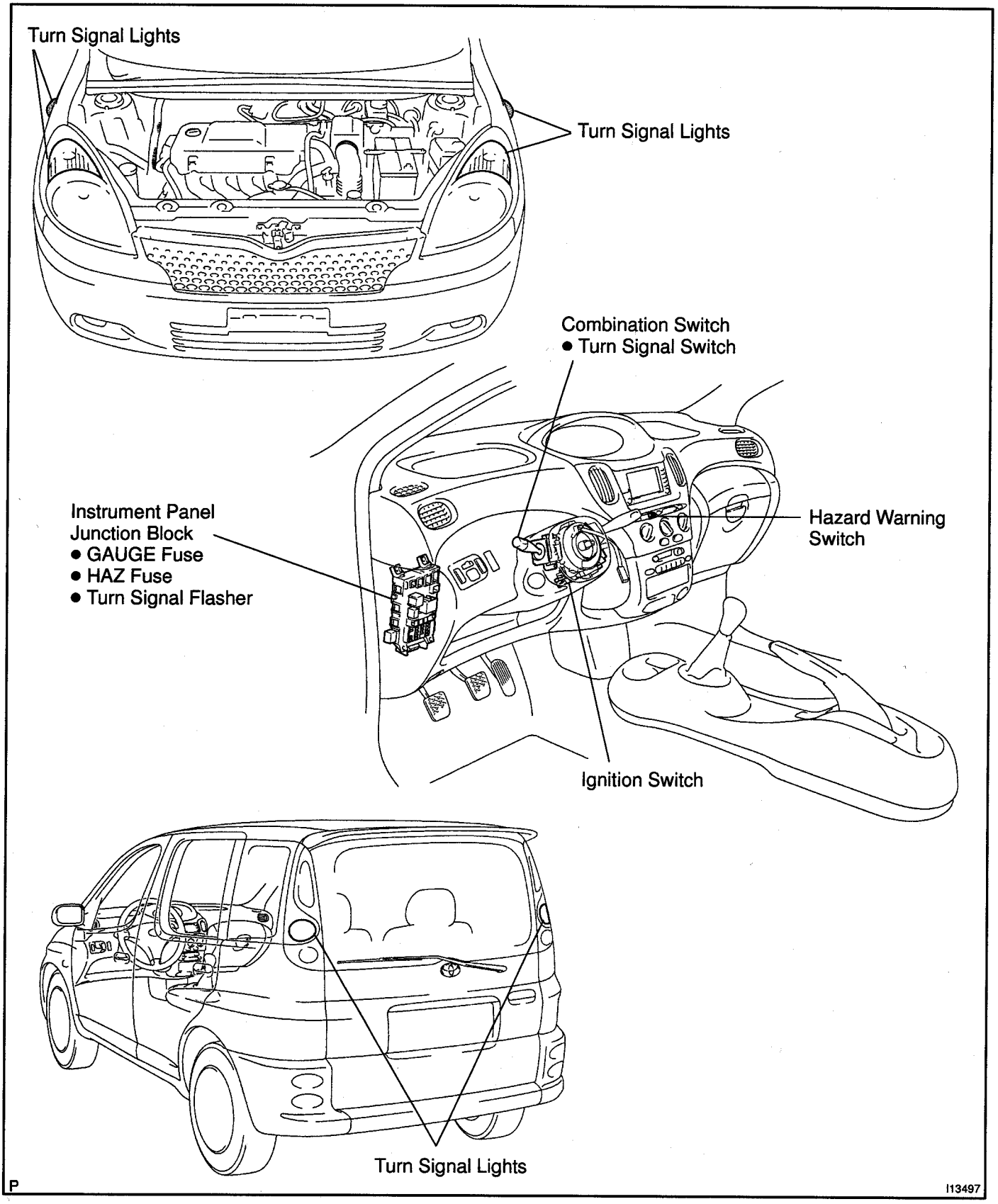
*: There is resistance because this circuit is grounded through the bulb.

If circuit is not as specified, replace the wire harness.

TURN SIGNAL AND HAZARD WARNING SYSTEM

LOCATION

BE18H-02



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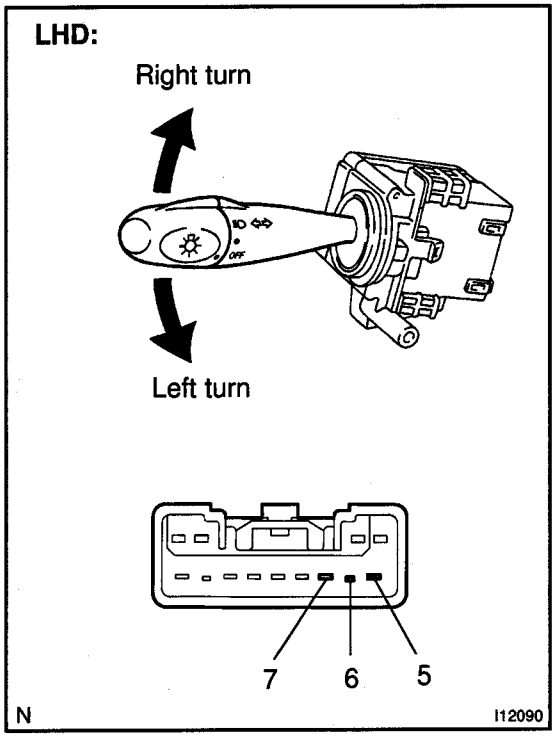
BE01W-03

INSPECTION

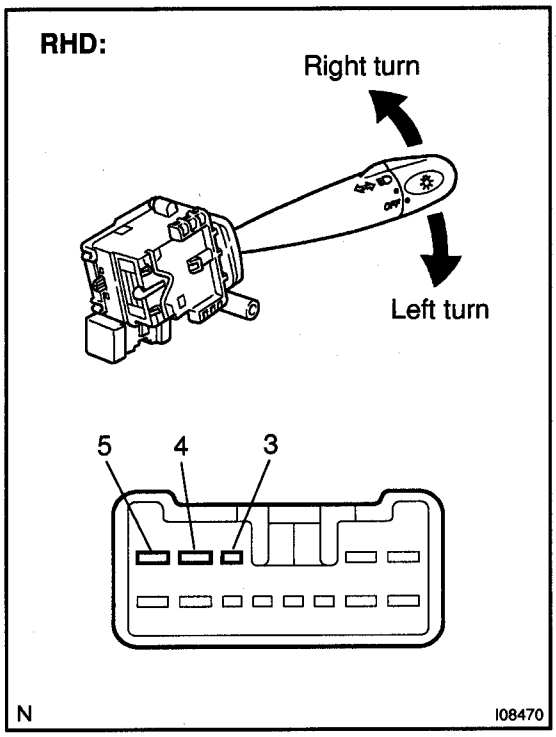
1. INSPECT TURN SIGNAL SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
Left turn	5 – 6	Continuity
Neutral	–	No continuity
Right turn	6 – 7	Continuity

If continuity is not as specified, replace the switch.

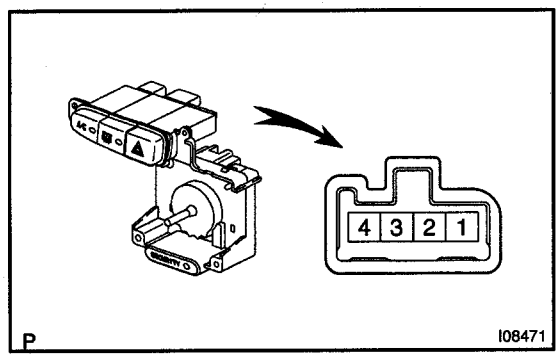
2. INSPECT TURN SIGNAL SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
Left turn	3 – 4	Continuity
Neutral	–	No continuity
Right turn	4 – 5	Continuity

If continuity is not as specified, replace the switch.

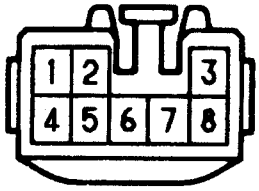
3. INSPECT HAZARD WARNING SWITCH CONTINUITY



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

If continuity is not as specified, replace the switch.

Wire harness side:



I04046

4. INSPECT TURN SIGNAL FLASHER CIRCUIT

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

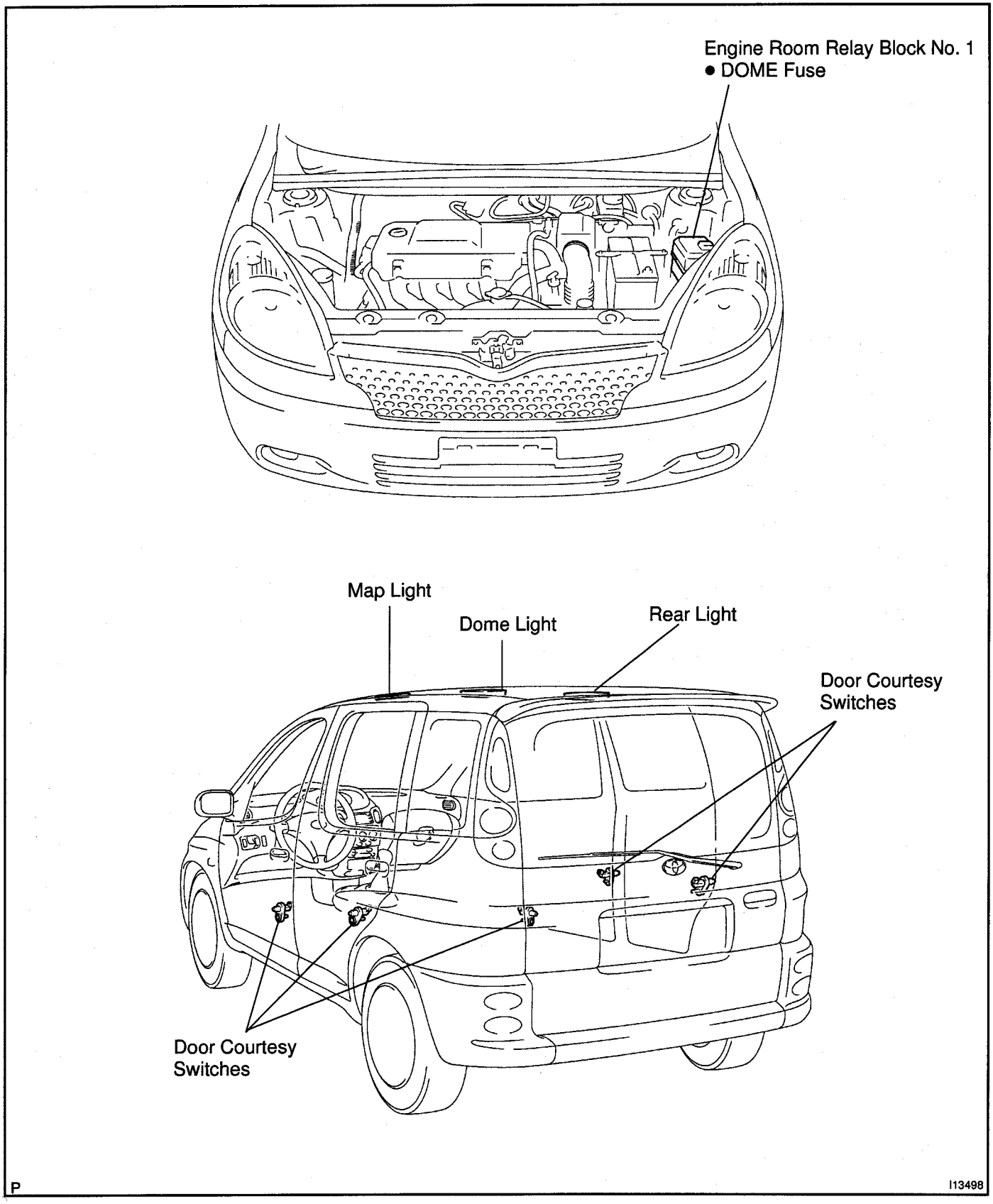
Tester connection	Condition	Specified condition
2 – Ground	Constant	Continuity
3 – Ground	Constant	Continuity
5 – Ground	Turn signal switch RIGHT or OFF	No continuity
5 – Ground	Turn signal switch LEFT	Continuity
6 – Ground	Turn signal switch LEFT or OFF	No continuity
6 – Ground	Turn signal switch RIGHT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

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

INTERIOR LIGHT SYSTEM

LOCATION

BE18I–02



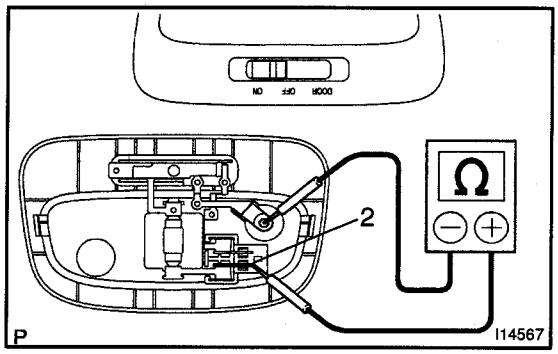
BE1DV-01

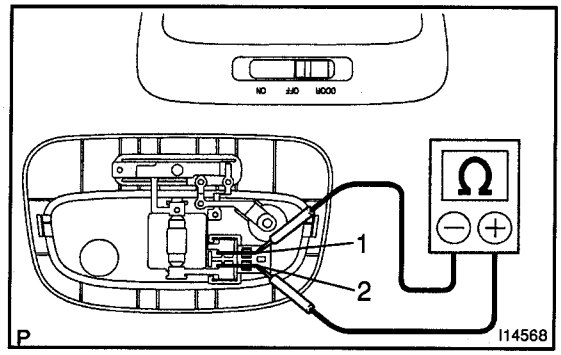
INSPECTION

1. INSPECT MAP LIGHT CONTINUITY

(a) Disconnect the connector from the room light.

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

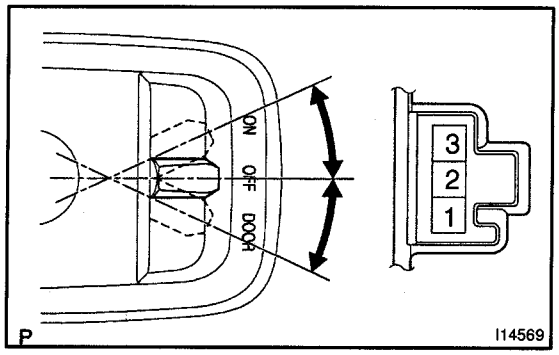




(c) Turn the room light switch DOOR, check that there is continuity between terminals 1 and 2.

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

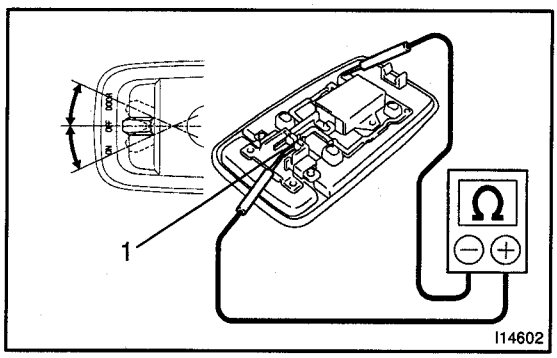
2. w/ Sliding roof: INSPECT DOME LIGHT SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OFF	–	No continuity
DOOR	2 – 3	Continuity
ON	1 – 2	Continuity

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

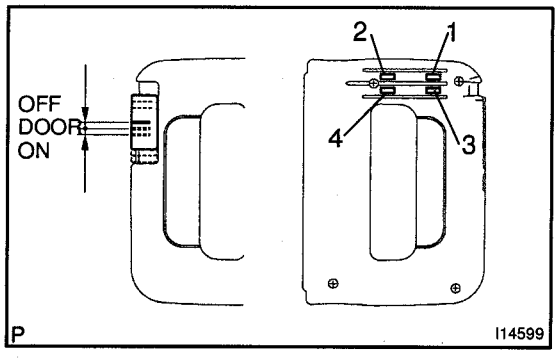
3. w/o Sliding roof: INSPECT DOME LIGHT SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
OFF	–	No continuity
DOOR	2 – Body Ground	Continuity
ON	1 – 2	Continuity

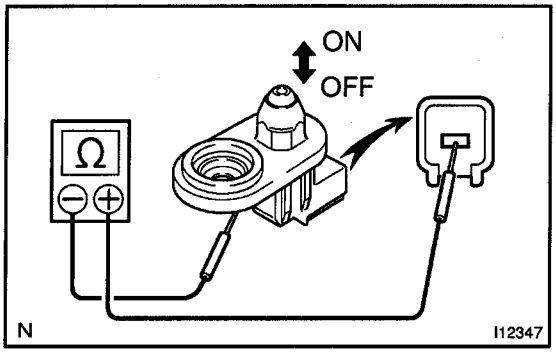
If continuity is not as specified, replace the light assembly or bulb.

4. INSPECT REAR LIGHT CONTINUITY



Switch position	Tester connection	Specified condition
OFF	–	No continuity
DOOR	2 – 3	Continuity
ON	2 – 4	Continuity

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



5. INSPECT DOOR COURTESY SWITCH CONTINUITY

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

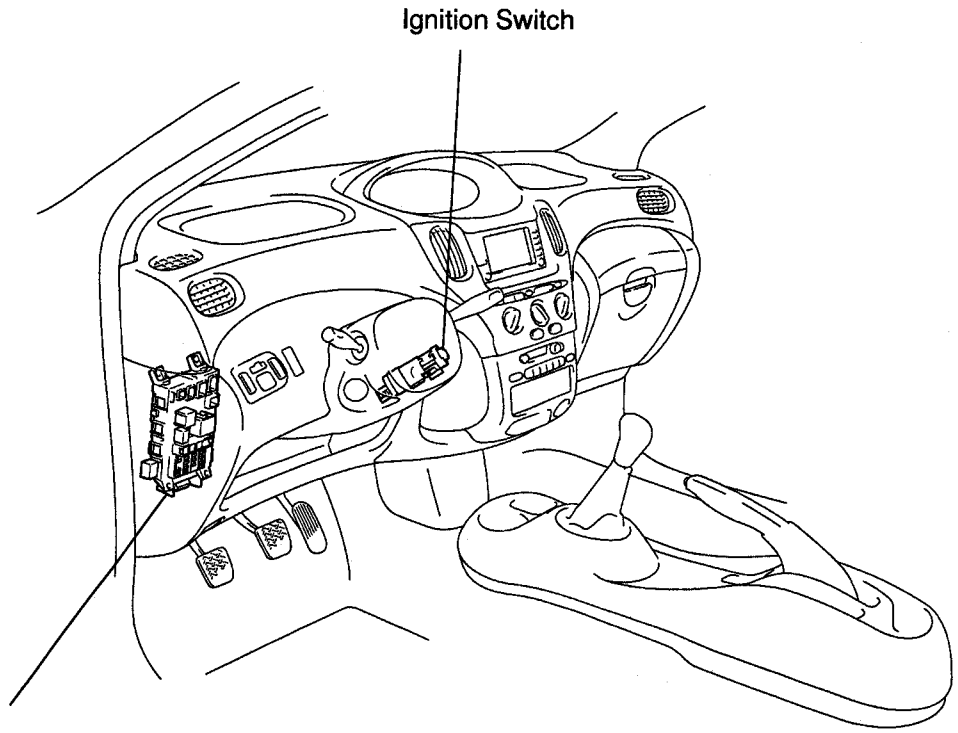
(b) Check that no continuity exists between terminals and the switch body with the switch OFF (switch pin pushed in: closed doors).

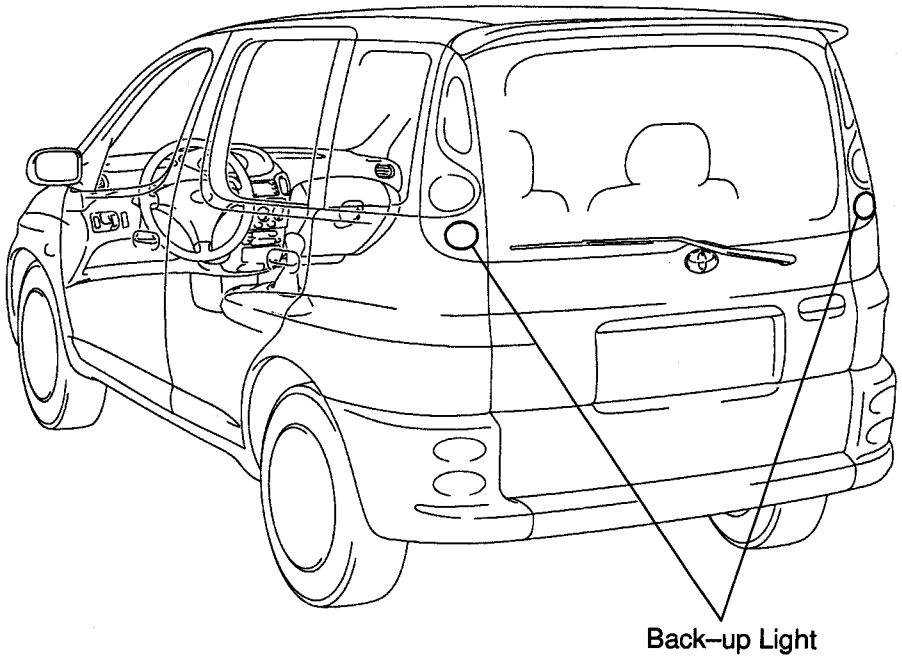
If operation is not as specified, replace the switch.

BACK–UP LIGHT SYSTEM

LOCATION

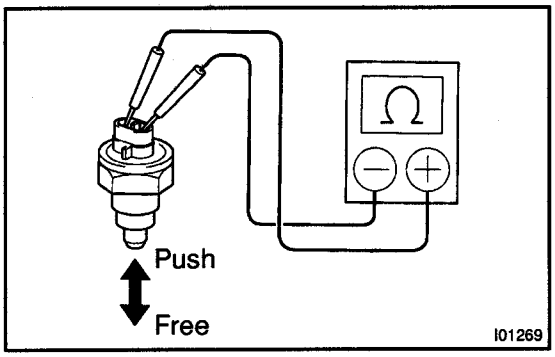
BE18K–02





P

I13499



BE020–04

INSPECTION

1. **M/T:**
   INSPECT BACK–UP LIGHT SWITCH CONTINUITY

Switch position	Specified condition
Push	Continuity
Free	No continuity

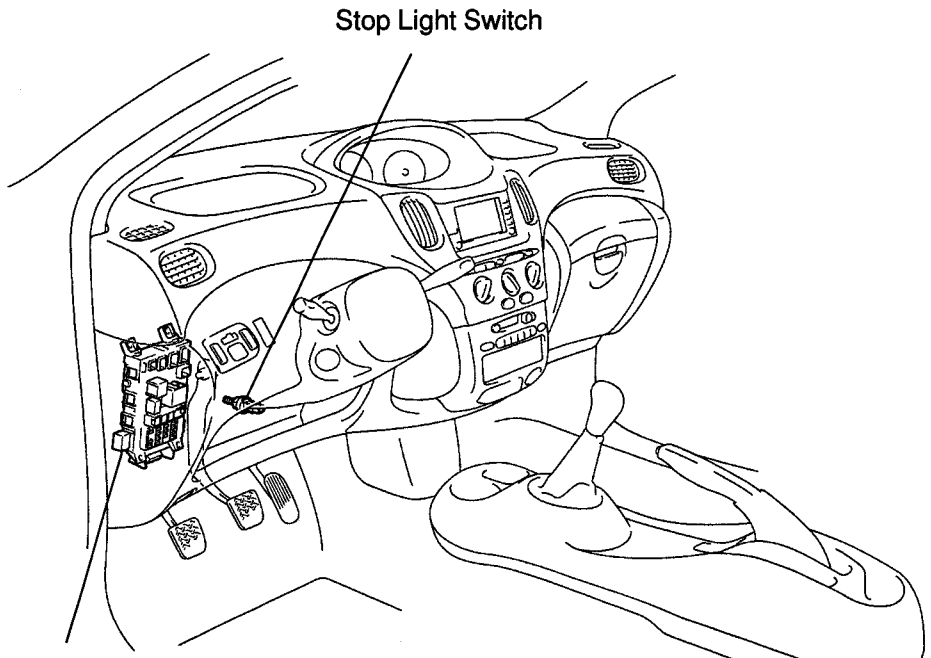
If continuity is not as specified, replace the switch.

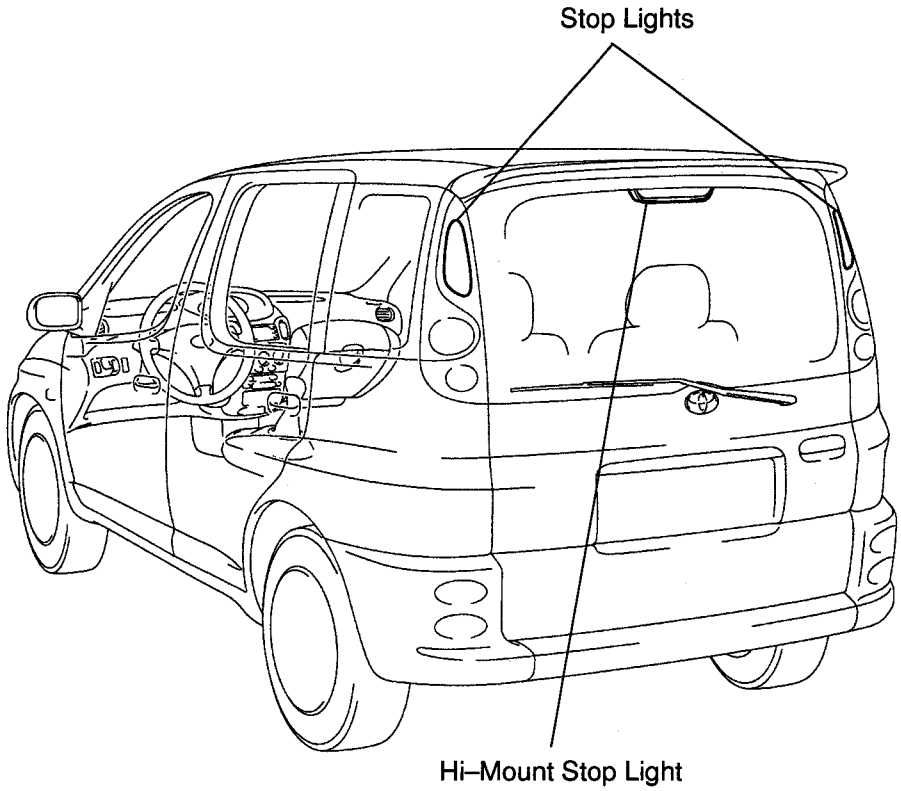
2. **A/T:**
   INSPECT NEUTRAL START SWITCH CONTINUITY
   (See page DI–47)

STOP LIGHT SYSTEM

LOCATION

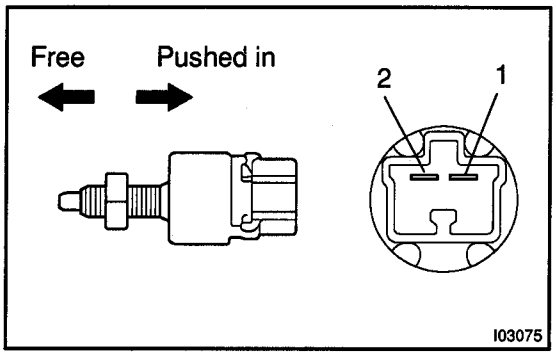
BE18L–02





P

I13500



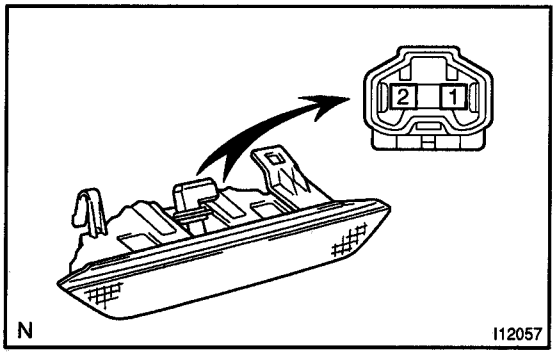
BE022-03

INSPECTION

1. 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.



2. INSPECT HI–MOUNTED STOP LIGHT CONTINUITY

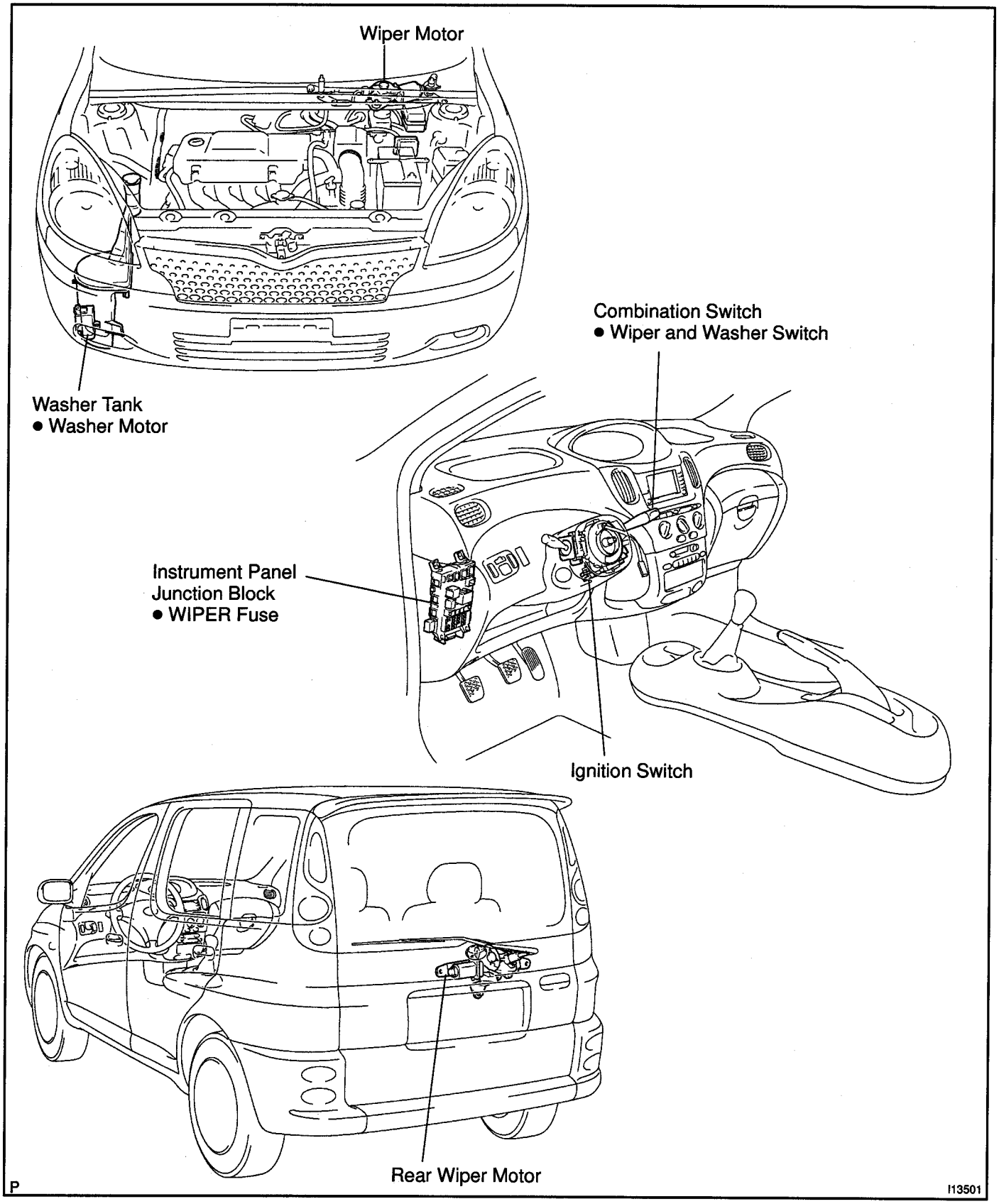
Using the ohmmeter, check that continuity exists between terminals.

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

WIPER AND WASHER SYSTEM

LOCATION

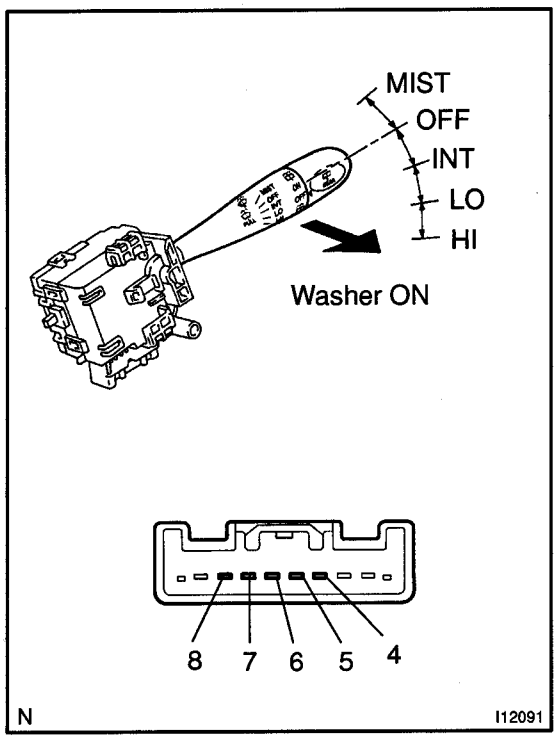
BE18M–02



BE1DX-01

INSPECTION

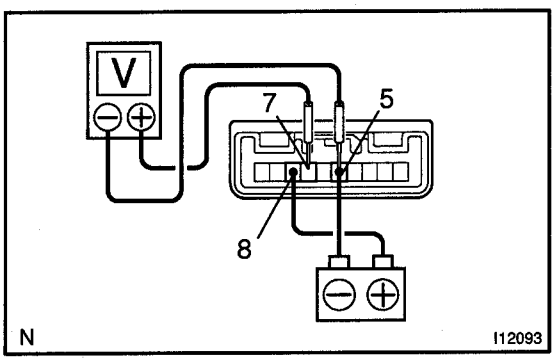
1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY



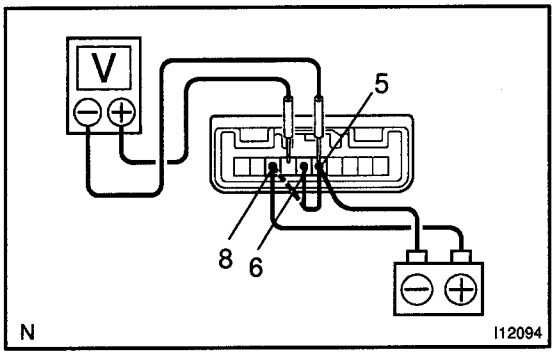
Switch position	Tester connection	Specified condition
MIST	7 – 8	Continuity
OFF	6 – 7	Continuity
INT	6 – 7	Continuity
LO	7 – 8	Continuity
HI	8 – 9	Continuity
Washer ON	4 – 5	Continuity

If continuity is not as specified, replace the switch.

2. INSPECT FRONT WIPER INTERMITTENT OPERATION



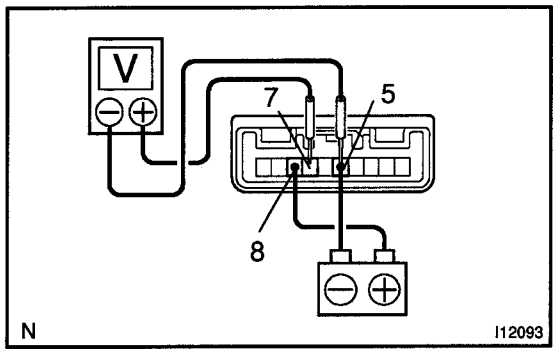
(a) Turn the wiper switch to INT position.
(b) Turn the intermittent time control switch to FAST position.
(c) Connect the positive (+) lead from the battery to terminal 8 and the negative (–) lead to terminal 5.
(d) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 5, check that the meter needle indicates battery voltage.



(e) After connecting terminal 6 to terminal 8, connect to terminal 8 to terminal 5, check the voltage rises from 0 volts to battery voltage with in the times, as shown in the table.

INT time control switch position	Voltage
FAST	Approx. 1 ~ 3 sec. ←Battery voltage ←0 Volt
SLOW	Approx. 10 ~ 15 secs. ←Battery voltage ←0 Volt

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

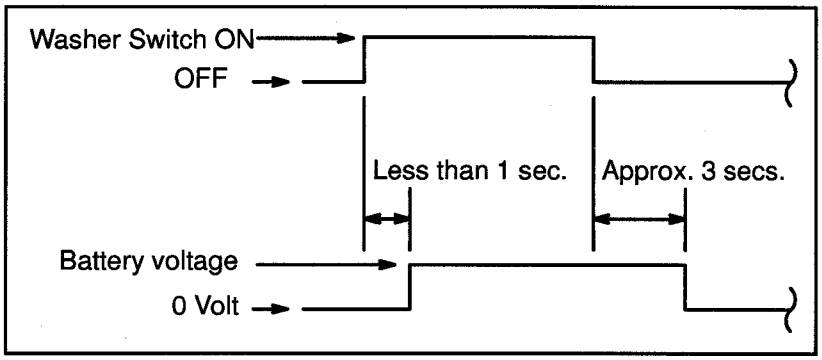


3. INSPECT FRONT WASHER LINKED OPERATION

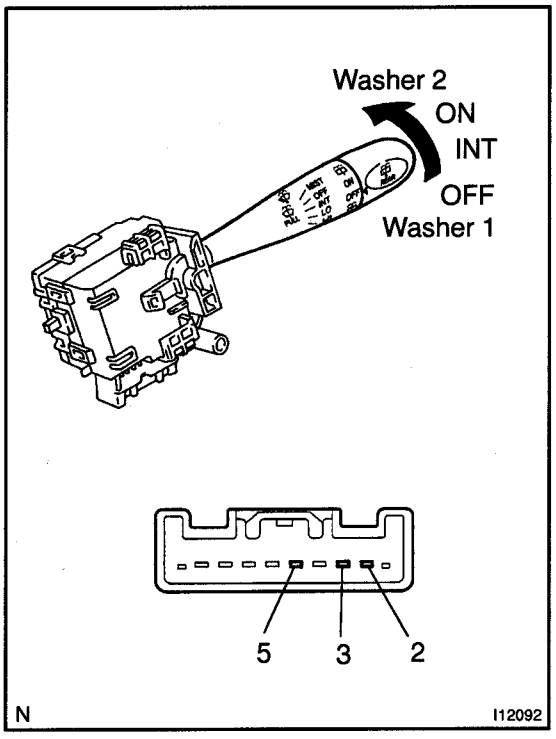
(a) Connect the positive (+) lead from the battery to terminal 8 and the negative (–) lead to terminal 5.

(b) Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 5.

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



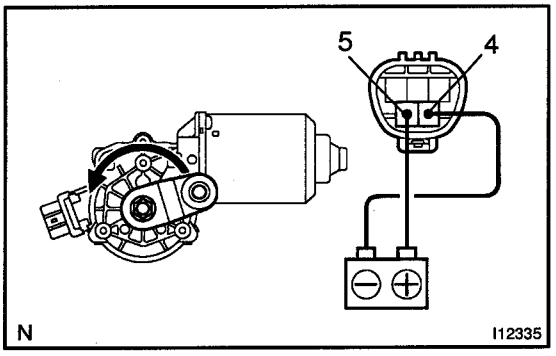
If operation is not as specified, replace the wiper and washer switch.



4. INSPECT REAR WIPER AND WASHER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
Washer 1	3 – 5	Continuity
OFF	–	No continuity
ON	2 – 5	Continuity
Washer 2	2 – 3 – 5	Continuity

If continuity is not as specified, replace the switch.

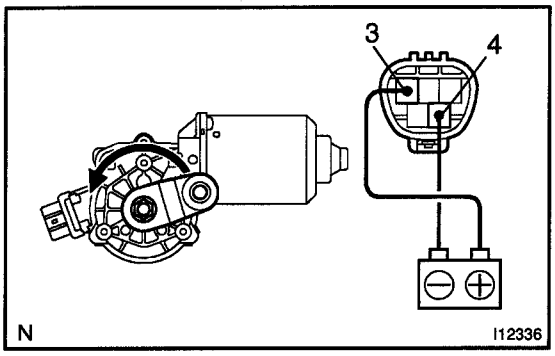


5. LHD models: INSPECT FRONT WIPER MOTOR OPERATION

Low Speed:

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.

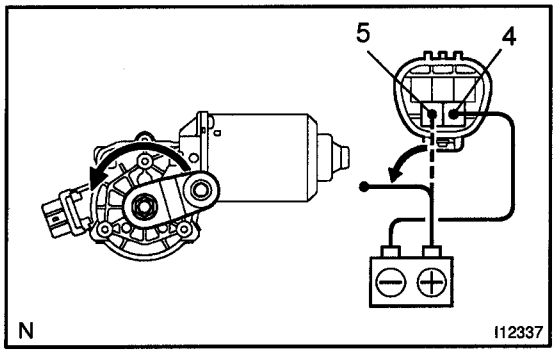
If operation is not as specified, replace the motor.



6. LHD models:
INSPECT FRONT WIPER MOTOR OPERATION
High Speed:

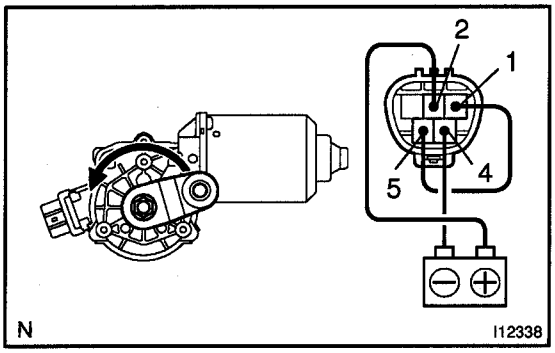
Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 4, check that the motor operates at high speed.

If operation is not as specified, replace the motor.



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

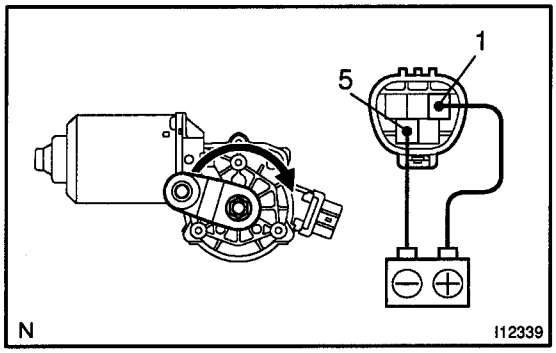
(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 5.



(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.

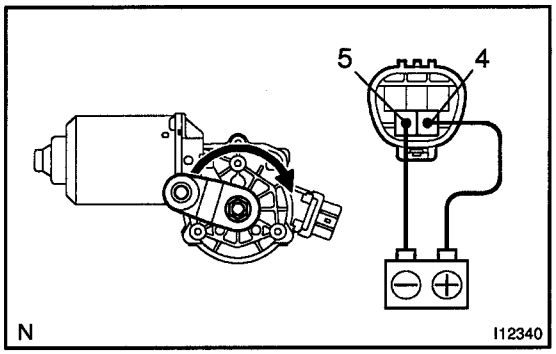
If operation is not as specified, replace the motor.



8. RHD models:
INSPECT FRONT WIPER MOTOR OPERATION
Low Speed:

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

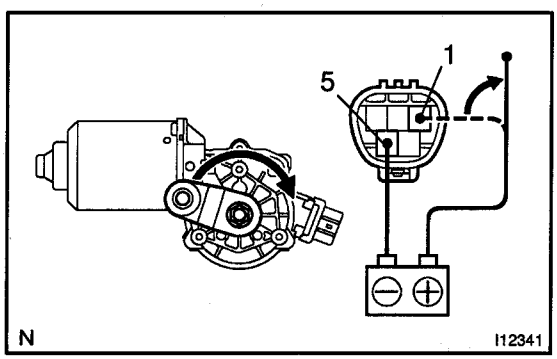
If operation is not as specified, replace the motor.



9. RHD models:
INSPECT FRONT WIPER MOTOR OPERATION
High Speed:

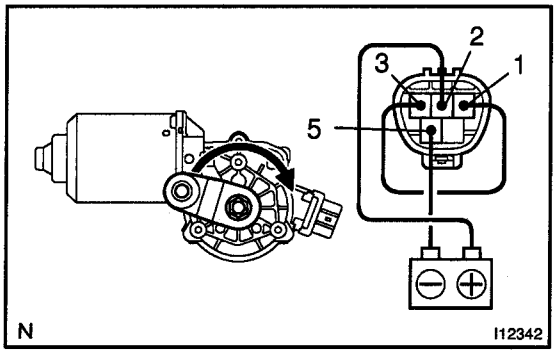
Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5, check that the motor operates at high speed.

If operation is not as specified, replace the motor.



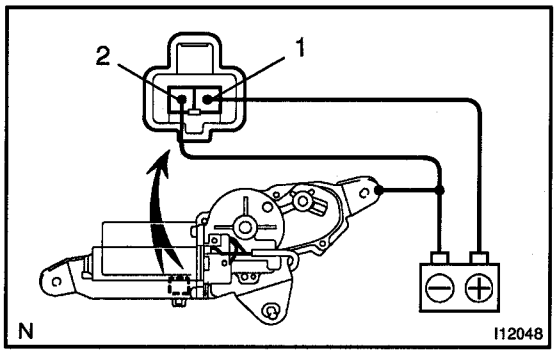
10. RHD models:
INSPECT FRONT WIPER MOTOR OPERATION
Stopping at Stop Position:

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



(b) Connect terminals 1 and 3.
(c) Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 5, check that the motor stops running at the stop position after the motor operates again.

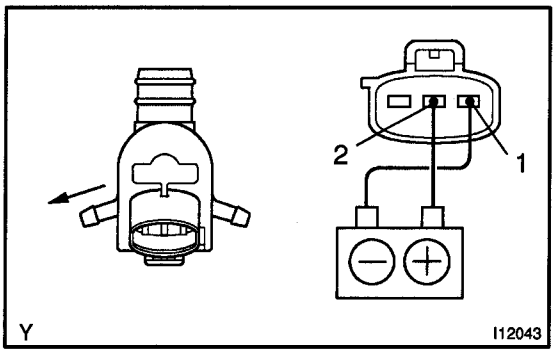
If operation is not as specified, replace the motor.



11. INSPECT REAR WIPER MOTOR OPERATION

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

If operation is not as specified, replace the motor.



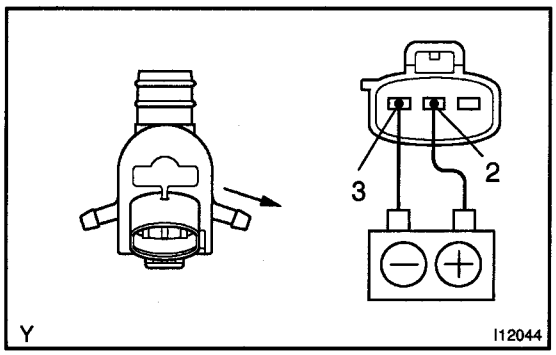
12. INSPECT FRONT WASHER MOTOR OPERATION

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.



13. INSPECT REAR WASHER MOTOR OPERATION

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

NOTICE:

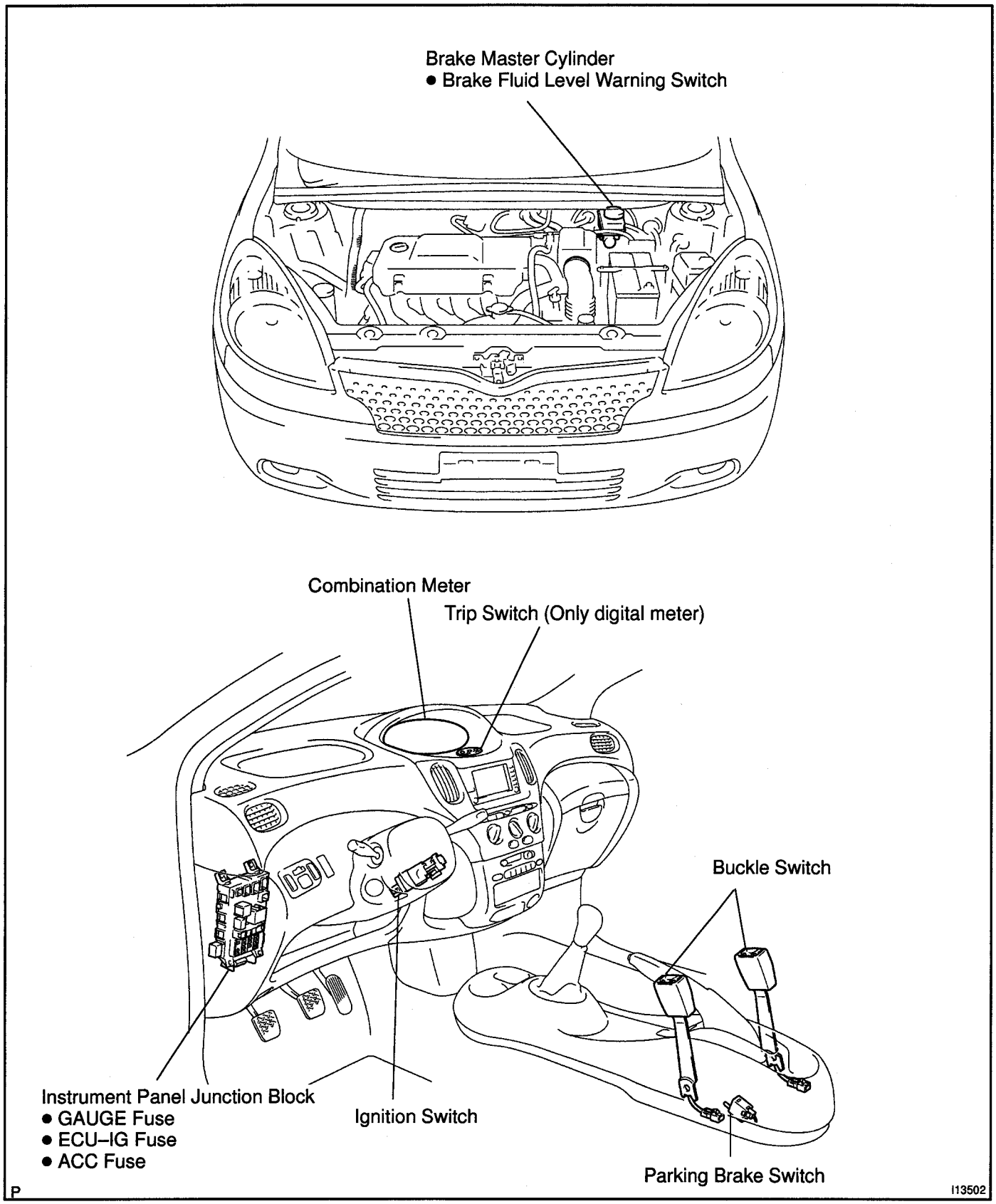
These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

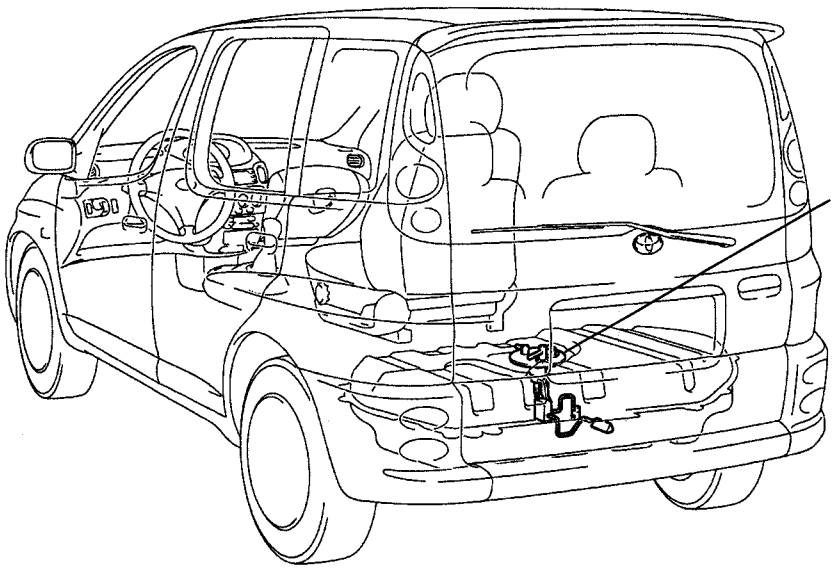
If operation is not as specified, replace the motor.

COMBINATION METER

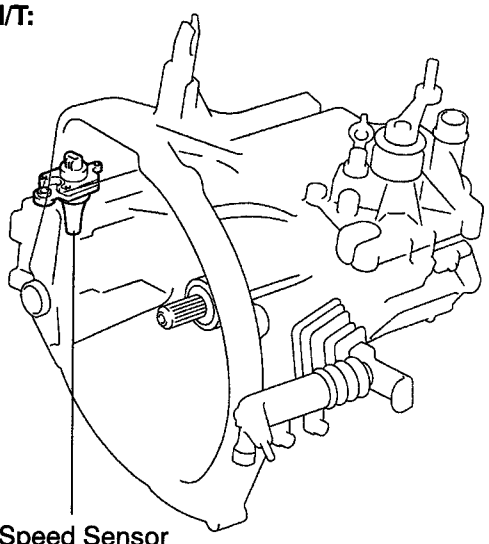
LOCATION

BE180-02

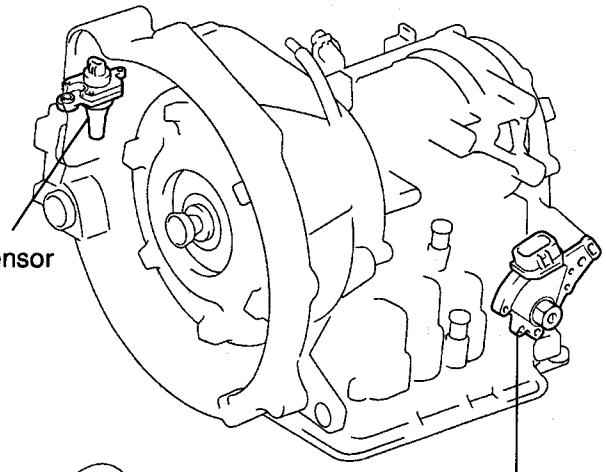


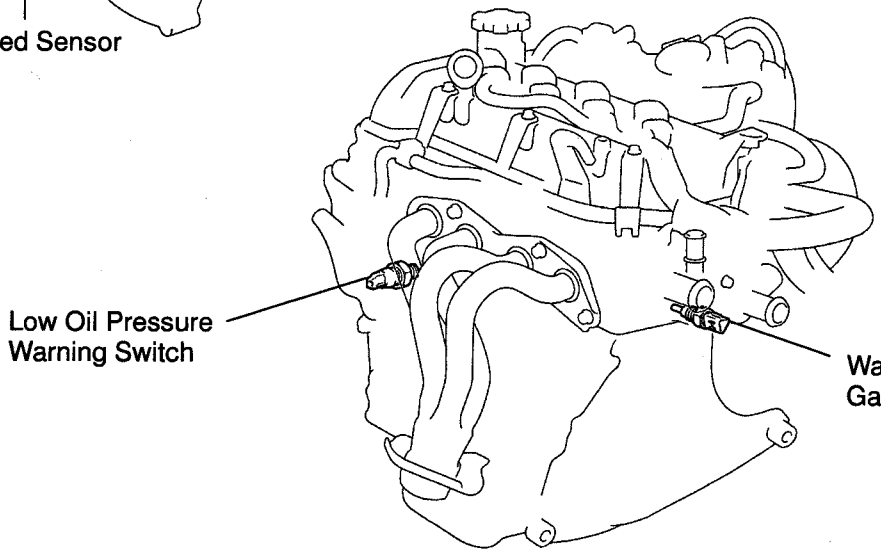


M/T:



A/T:





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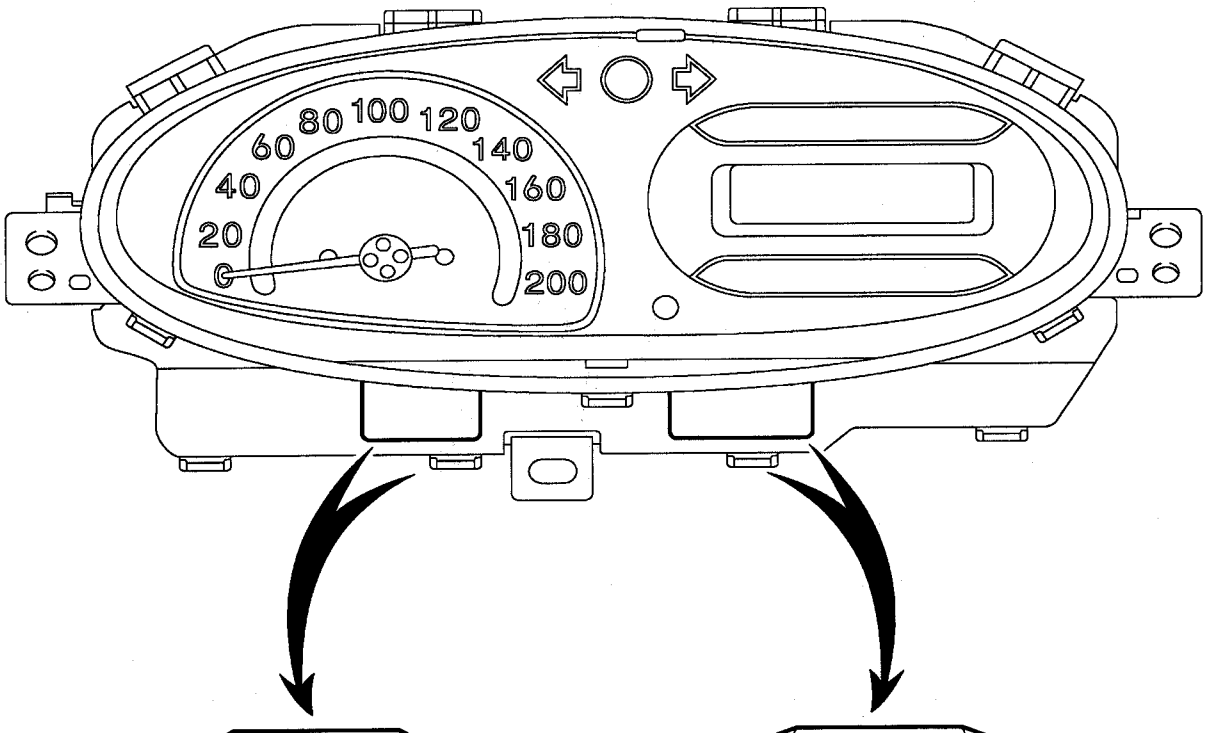
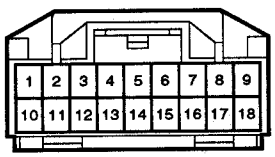
I13503

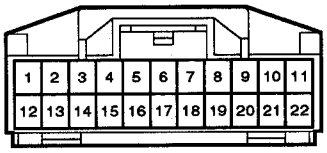
CIRCUIT

Analog meter:





Connector "A"

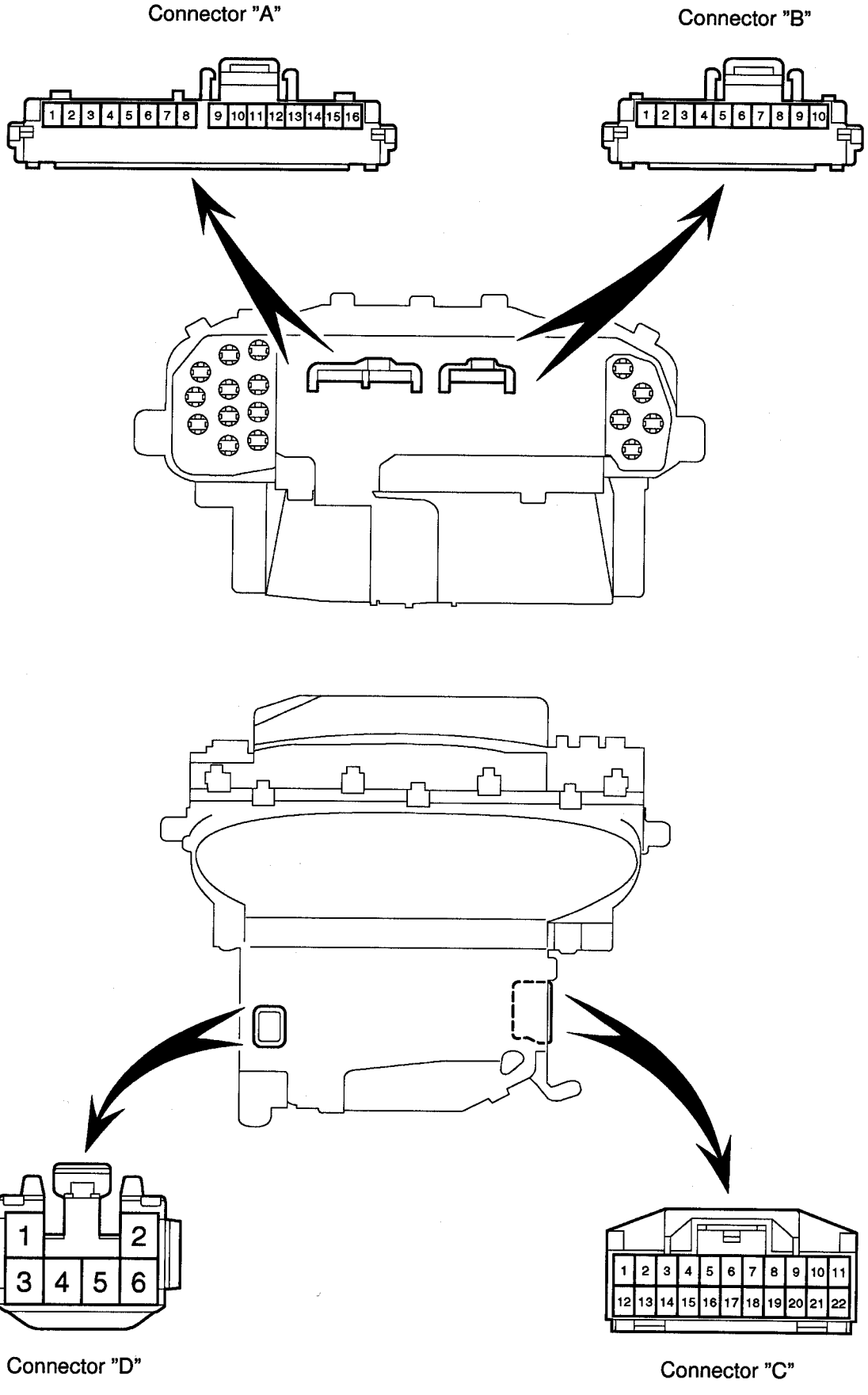


Connector "B"

N

I14595

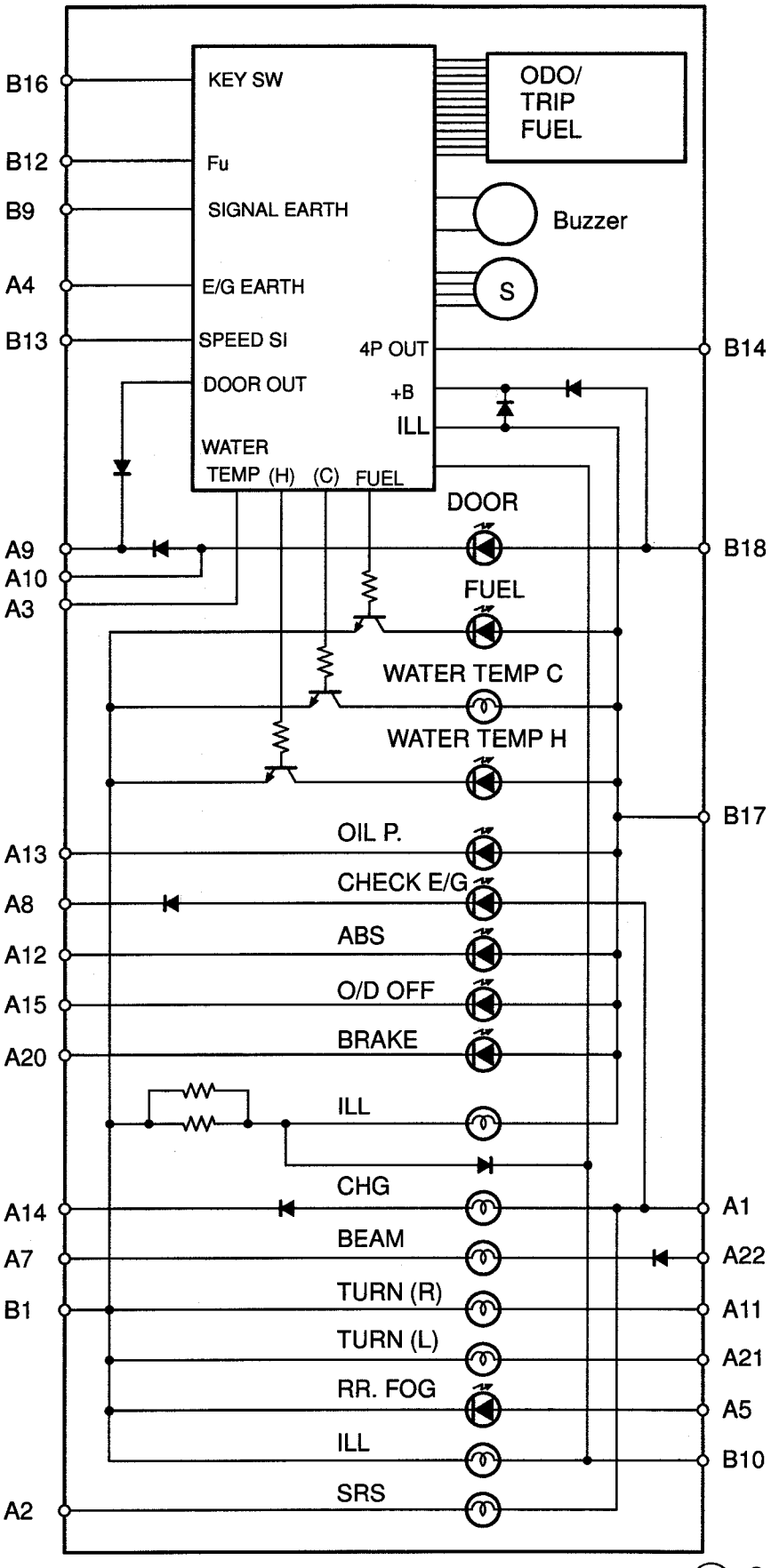
Digital meter:



N

I12071

Analog meter:

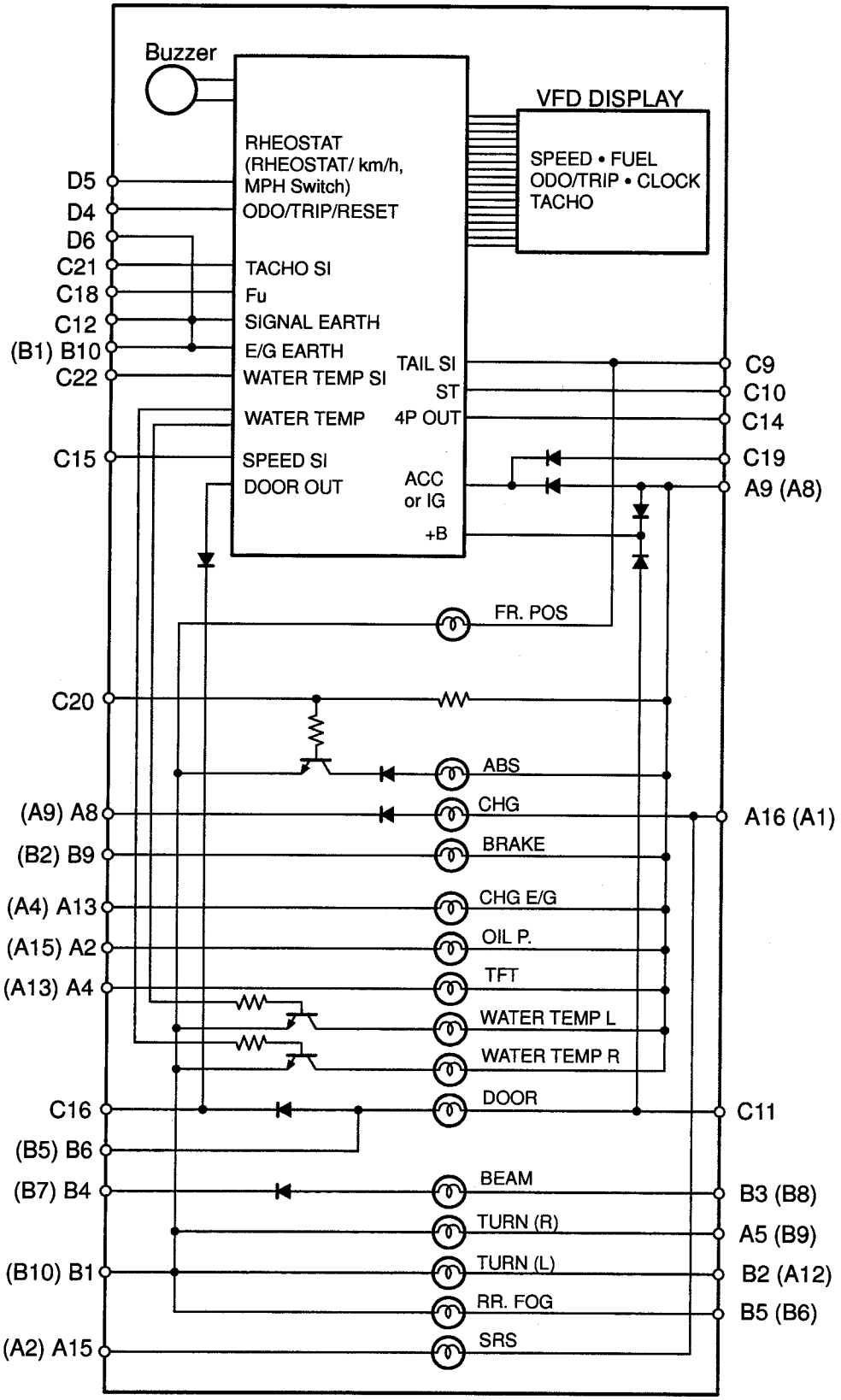


Ⓢ : Speedmeter

P

I14597

Digital meter:



( ): RHD Models

P

I12323

Analog meter:

No.		Wire Harness Side
A	1	IGN Fuse
	2	Airbag Sensor Assembly
	3	Water Temperature Sender Gauge
	4	Ground
	5	Rear Fog Light Switch
	6	–
	7	Headlight Dimmer Switch (w/o D. R. L.) Ground (w/ D. R. L.)
	8	Engine and ECT ECU
	9	Driver Door Courtesy Switch
	10	Except Driver Door Courtesy Switch
	11	Turn Signal Switch (Right)
	12	ABS ECU
	13	Low Oil Pressure Warning Switch
	14	Alternator
	15	O/D off Switch
	16	–
	17	–
	18	–
	19	–
	20	Brake Fluid Level Warning Switch
	21	Turn Signal Switch (Left)
	22	DOME Fuse (w/o D. R. L.) Daytime Running Light Relay (w/ D. R. L.)
B	1	Ground
	2	–
	3	–
	4	–
	5	–
	6	–
	7	–
	8	–
	9	Ground
	10	Light Control Switch
	11	–
	12	Fuel Lever Warning Switch
	13	Vehicle Speed Sensor (SI terminal)
	14	Speed Control Unit
	15	–
	16	–
	17	GAUGE Fuse
	18	DOME Fuse

D. R. L. : Daytime Running Light

Digital meter:

No.		Wire Harness Side
A	2 (15)	Low Oil Pressure Switch
	4 (13)	TFT ECU
	5 (B9)	Turn Signal Switch (Right)
	8 (9)	Alternator
	9 (8)	GAUGE Fuse
	13 (4)	Engine and ECT ECU
	15 (2)	Airbag Sensor Assembly
	16 (1)	IGN Fuse
B	1 (10)	Ground
	2 (A12)	Turn Signal Switch (Left)
	3 (8)	DOME Fuse (w/o D. R. L.) Daytime Running Light Relay (w/ D. R. L.)
	4 (7)	Headlight Dimmer Switch (w/o D. R. L.) Ground (w/ D. R. L.)
	5 (6)	Rear Fog Light Switch
	6 (5)	Except Driver Door Courtesy Switch
	9 (2)	Brake Fluid Level Warning switch
	10 (1)	Ground
C	9	Light Control Switch
	10	Ignition Switch (ST terminal)
	11	DOME Fuse
	12	Ground
	14	Speed Control Unit
	15	Vehicle Speed Sensor (SI terminal)
	16	Driver Door Courtesy Switch
	18	Fuel Sender Gauge
	19	ACC Fuse
	20	ABS ECU
	21	Engine and ECT ECU
	22	Water Temperature Sender Gauge
D	4	Trip Switch (ODO/TRIP/RESET)
	5	Trip Switch (RHEOSTAT) (Trip Switch (RHOSTAT/ km/h, MPH Switch))
	6	Ground

D. R. L. : Daytime Running Light
( ): RHD Models

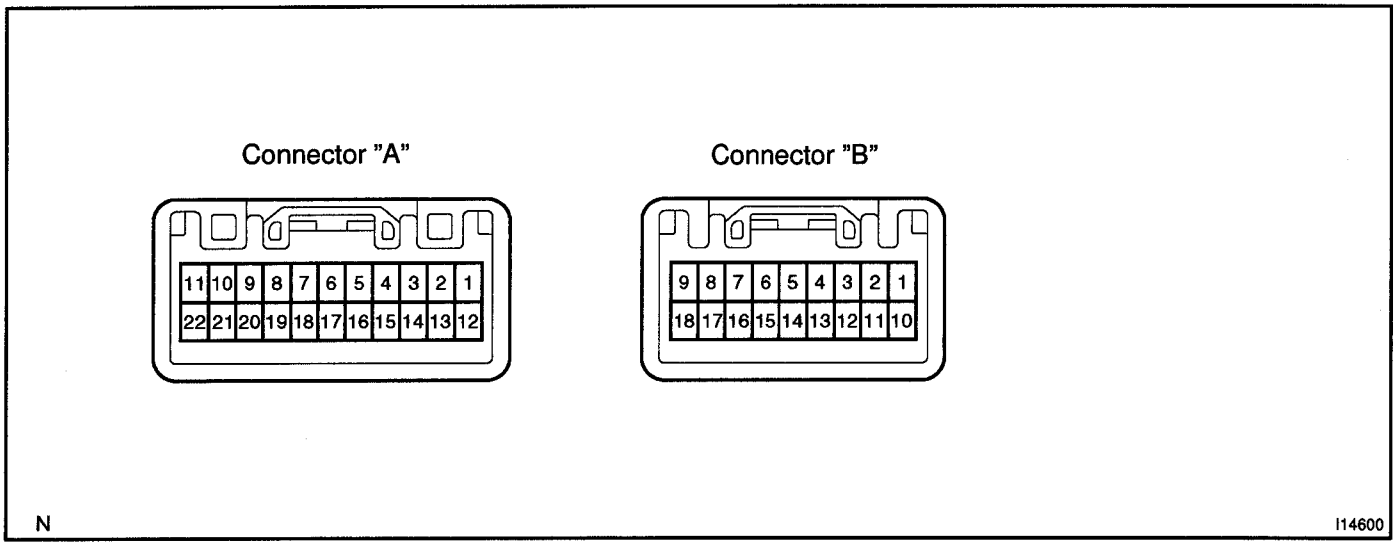
BE1E1–01

INSPECTION

1. INSPECT ANALOG COMBINATION METER CIRCUIT

Connector connected:

Connect the connector "A" and "B" to the combination meter and inspect the wire harness side connectors from the back side as shown in the table.



Tester connection	Condition	Specified condition
A1 – Ground	Ignition switch OFF	No voltage
A1 – Ground	Ignition switch ON	Battery voltage
A2 – Ground	Ignition switch ON and SRS indicator light light up	No voltage
A2 – Ground	Ignition switch ON and SRS indicator does not light up	Battery voltage
A3 – Ground	Ignition switch ON and water temperature warning light light up	No voltage
A3 – Ground	Ignition switch ON and water temperature warning light does not light up	Battery voltage
A4 – Ground	Constant	Continuity
A7 – Ground *2	Constant	Continuity
A9 – Ground	Ignition switch ON and driver door is opened	No voltage
A9 – Ground	Ignition switch ON and driver door is closed	Battery voltage
A10 – Ground	Ignition switch ON and except driver door is opened	No voltage
A10 – Ground	Ignition switch ON and except driver door is closed	Battery voltage
A11 – Ground	Ignition switch ON and turn signal switch OFF or LEFT	No voltage
A11 – Ground	Ignition switch ON and turn signal switch RIGHT	Battery voltage
A12 – Ground	Ignition switch ON and ABS is error	No voltage
A12 – Ground	Ignition switch ON and ABS is normal	Battery voltage
A13 – Ground	Ignition switch ON and engine oil level waning light up	No voltage

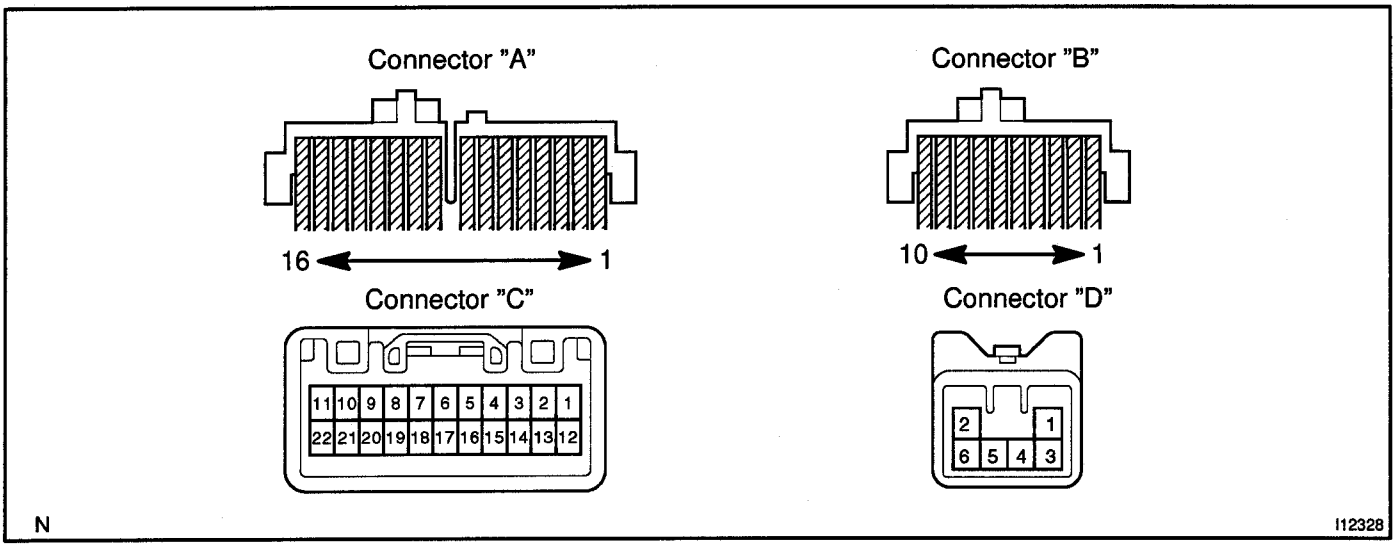
A13 – Ground	Ignition switch ON and engine oil level warning does not light up	Battery voltage
A14 – Ground	Ignition switch ON and engine is stopping	No voltage
A14 – Ground	Ignition switch ON and engine is running	Battery voltage
A15 – Ground	Ignition switch ON and O/D off switch ON	No voltage
A15 – Ground	Ignition switch ON and O/D off switch OFF	Battery voltage
A20 – Ground	Ignition switch ON, parking brake lever is released and brake fluid level warning switch float DOWN	No voltage
A20 – Ground	Ignition switch ON, parking brake lever is released and brake fluid level warning switch float UP	Battery voltage
A21 – Ground	Ignition switch ON and turn signal switch OFF or RIGHT	No voltage
A21 – Ground	Ignition switch ON and turn signal switch LEFT	Battery voltage
B1 – Ground	Constant	Continuity
B9 – Ground	Constant	Continuity
B10 – Ground	Light control switch OFF	No voltage
B10 – Ground	Light control switch TAIL or HEAD	Battery voltage
B13 – Ground	Ignition switch ON and slowly move the wheel	4.5 – 5.5 V
B17 – Ground	Ignition switch OFF	No voltage
B17 – Ground	Ignition switch ACC or ON	Battery voltage
B11 – Ground	Constant	Battery voltage

*1: w/o Daytime running light
*2: w/ Daytime running light
If circuit is not as specified, wiring diagram and inspect the circuits connected to other parts.

2. INSPECT DIGITAL COMBINATION METER CIRCUIT

Connector connected:

Connect the connector "A" , "B" , "C" and "D" to the combination meter and inspect the wire harness side connectors from the back side as shown in the table.



Tester connection	Condition	Specified condition
A2 (A15) – Ground	Ignition switch ON and engine oil level waning light up	No voltage
A2 (A15) – Ground	Ignition switch ON and engine oil level warning does not light up	Battery voltage
A5 (B9) – Ground	Ignition switch ON and turn signal switch OFF or LEFT	No voltage
A5 (B9) – Ground	Ignition switch ON and turn signal switch RIGHT	Battery voltage
A8 (A9) – Ground	Ignition switch ON and engine is stopping	No voltage
A8 (A9) – Ground	Ignition switch ON and engine is running	Battery voltage
A9 (A8) – Ground	Ignition switch OFF	No voltage
A9 (A8) – Ground	Ignition switch ON	Battery voltage
A13 (A4) – Ground	Ignition switch ON and engine is running	No voltage
A13 (A4) – Ground	Ignition switch ON and engine is stopping	Battery voltage
A15 (A2) – Ground	Ignition switch ON and SRS indicator light light up	No voltage
A15 (A2) – Ground	Ignition switch ON and SRS indicator does not light up	Battery voltage
A16 (A11) – Ground	Ignition switch OFF	No voltage
A16 (A11) – Ground	Ignition switch ON	Battery voltage
B1 – Ground	Constant	Continuity
B2 (A12) – Ground	Ignition switch ON and turn signal switch OFF or RIGHT	No voltage
B2 (A12) – Ground	Ignition switch ON and turn signal switch LEFT	Battery voltage
B4 (B7) – Ground *1	Light control switch OFF	No voltage
B4 (B7) – Ground *1	Light control switch HI	Battery voltage
B4 (B7) – Ground *2	Constant	Continuity

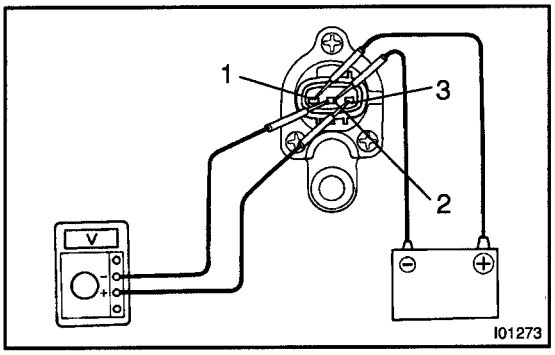
B6 (B5) – Ground	Ignition switch ON and except driver door is opened	No voltage
B6 (B5) – Ground	Ignition switch ON and except driver door is closed	Battery voltage
B9 (B2) – Ground	Ignition switch ON, parking brake lever is released and brake fluid level warning switch float DOWN	No voltage
B9 (B2) – Ground	Ignition switch ON, parking brake lever is released and brake fluid level warning switch float UP	Battery voltage
B10 – Ground	Constant	Continuity
C9 – Ground	Light control switch OFF	No voltage
C9 – Ground	Light control switch TAIL or HEAD	Battery voltage
C10 – Ground	Ignition switch ON	No voltage
C10 – Ground	Ignition switch START	Battery voltage
C11 – Ground	Constant	Battery voltage
C12 – Ground	Constant	Continuity
C14 – Ground	Ignition switch ON and slowly move the wheel	4.5 – 5.5 V
C15 – Ground	Ignition switch ON and slowly move the wheel	Battery voltage
C16 – Ground	Ignition switch ON and driver door is opened	No voltage
C16 – Ground	Ignition switch ON and driver door is closed	Battery voltage
C18 – Ground	Ignition switch ON and fuel sender gauge float UP	0.3 – 0.6 V
C18 – Ground	Ignition switch ON and fuel sender gauge float DOWN	4.9 – 6.9 V
C19 – Ground	Ignition switch OFF	No voltage
C19 – Ground	Ignition switch ACC or ON	Battery voltage
C20 – Ground	Ignition switch ON and ABS is error	No voltage
C20 – Ground	Ignition switch ON and ABS is normal	Battery voltage
C21 – Ground	Ignition switch ON and engine is running	No voltage
C21 – Ground	Ignition switch ON and engine is stopping	Battery voltage
C22 – Ground	Ignition switch ON and Water temperature warning light light up	No voltage
C22 – Ground	Ignition switch ON and Water temperature warning light does not light up	Battery voltage
D4 – Ground	Ignition switch ON and trip switch (ODO/TRIP) OFF	4.5 – 5.5 V
D4 – Ground	Ignition switch ON and trip switch (ODO/TRIP) ON	No voltage
D5 – Ground	Ignition switch ON and trip switch (RHEOSTAT) OFF	4.5 – 5.5 V
D5 – Ground	Ignition switch ON and trip switch (RHEOSTAT) ON	No voltage
D6 – Ground	Constant	Continuity

( ): RHD Models
*1: w/o Daytime running light
*2: w/ Daytime running light
If circuit is not as specified, wiring diagram and inspect the circuits connected to other parts.

3. 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.

(mph)		(km/h)	
Standard indication	Allowable range	Standard indication	Allowable range
20	20 – 24.5	20	20 – 26
40	40 – 46.5	40	40 – 48
60	60 – 68.5	60	60 – 70
80	80 – 90.5	80	80 – 92
100	100 – 112.5	100	100 – 114
		120	120 – 136
		140	140 – 158
		160	160 – 180



4. INSPECT VEHICLE SPEED SENSOR OPERATION

(a) Connect the positive (+) lead from battery to terminal 1 and negative (–) lead to terminal 2.
(b) Connect the positive (+) lead from tester to terminal 3 and the negative (–) lead to terminal 2.
(c) Rotate the shaft.
(d) Check that there is voltage change from approx. 0 V to 11 V or more between terminals 2 and 3.

HINT:
The voltage change should be 4 times for every revolution of the speed sensor shaft.
If operation is not as specified, replace the sensor.

5. INSPECT TACHOMETER/ ON–VEHICLE

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

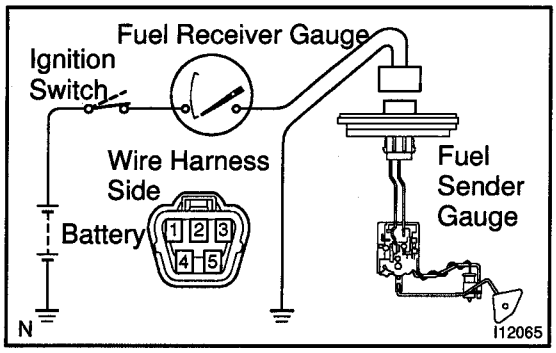
NOTICE:

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

(b) Compare the tester and tachometer indications.

DC 13.5 V 25 °C at (77°F)

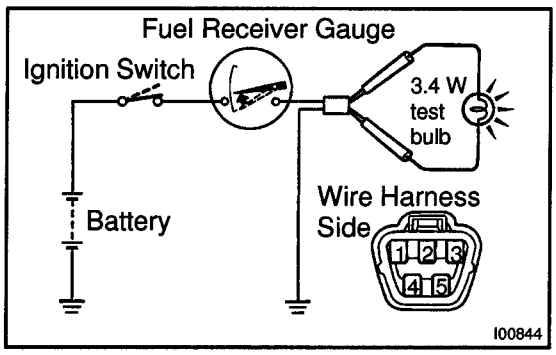
Standard indication	Allowable range
1,000	970 – 1,030
2,000	1,940 – 2,060
3,000	2,910 – 3,090
4,000	3,880 – 4,120
5,000	4,850 – 5,150
6,000	5,820 – 6,180
7,000	6,790 – 7,210



6. INSPECT FUEL RECEIVER GAUGE OPERATION

(a) Disconnect the connector from the sender gauge.

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



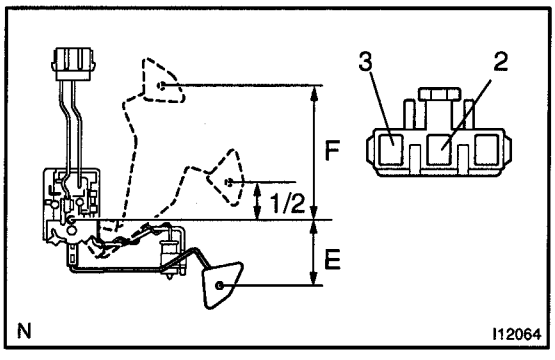
(c) Connect terminals 2 and 3 on the wire harness side connector through a 3.4 W test bulb.

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

HINT:

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

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

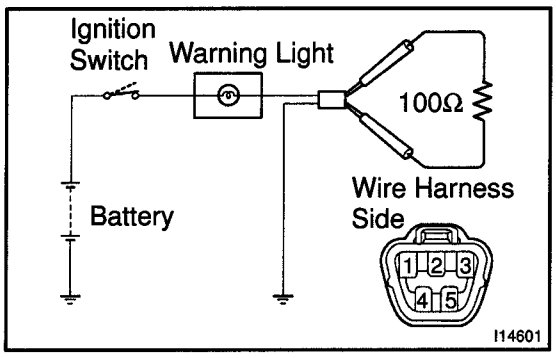


7. INSPECT FUEL SENDER GAUGE RESISTANCE

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

Float position mm (in.)	Resistance (Ω)
F: Approx. 92.0 (3.62) ± 3 (0.12)	Approx. 4.0 ± 0.5
1/2: Approx. 25.4 (1.00)	Approx. 55.0 ± 1.5
E: Approx. 46.6 (1.84) ± 3 (0.12)	Approx. 107.0 ± 2.5

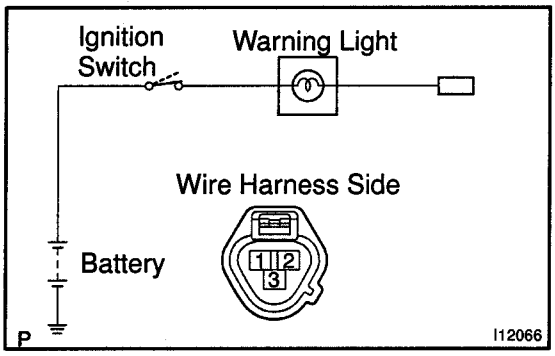
If resistance value is not as specified, replace the sender gauge.



8. INSPECT FUEL LEVEL WARNING LIGHT

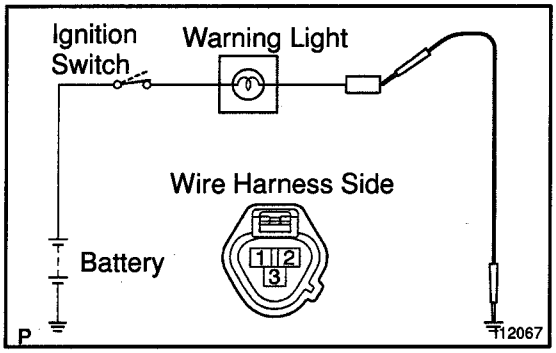
(a) Disconnect the connector from the sender gauge.
(b) Connect terminals 2 and 3 on the wire harness side connector.
(c) Turn the ignition switch ON, check that the warning light lights up.

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



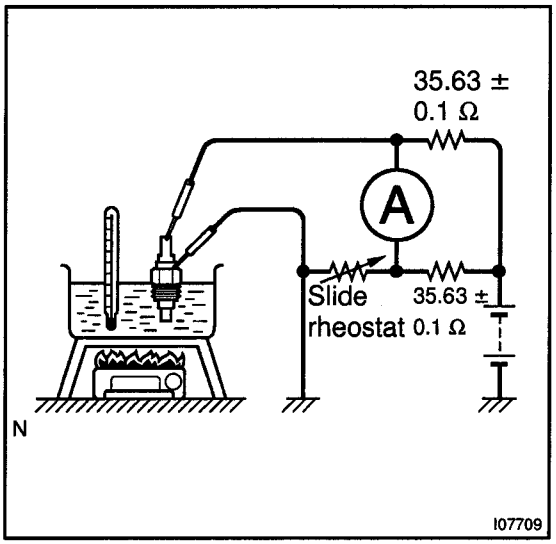
9. INSPECT WATER TEMPERATURE RECEIVER GAUGE WARNING LIGHT

(a) Disconnect the connector from the sender gauge.
(b) Turn the ignition switch ON and check that the COOL warning light lights up.



(c) Ground terminal 2 on the wire harness side, and check that the HOT warning light lights up.

If operation is as specified, replace the sender gauge.
Then recheck the system.
If operation is not as specified, measure the receiver gauge resistance.

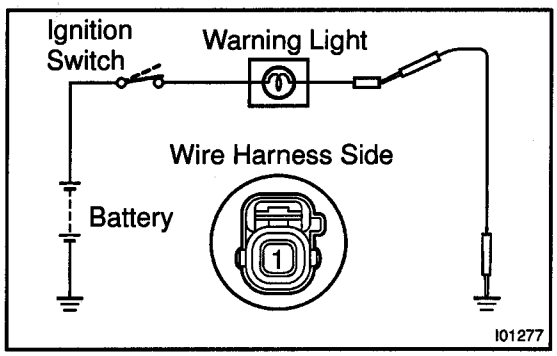


10. INSPECT WATER TEMPERATURE SENDER GAUGE RESISTANCE

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

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

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

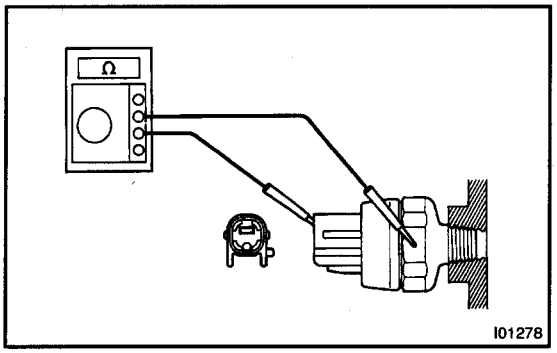


11. INSPECT LOW OIL PRESSURE WARNING LIGHT

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

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

If the warning light does not light up, test the bulb.



12. INSPECT LOW OIL PRESSURE SWITCH CONTINUITY

(a) Disconnect the connector from the switch.

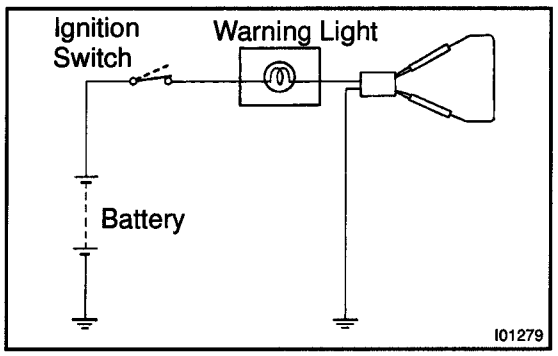
(b) Check that continuity exists between terminal and ground with the engine stopped.

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

HINT:

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

If operation is not as specified, replace the switch.



13. INSPECT BRAKE WARNING LIGHT

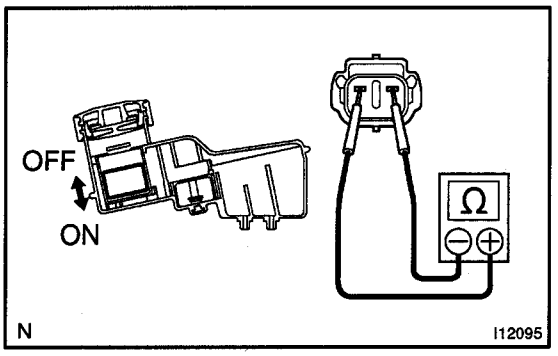
(a) Disconnect the connector from the brake fluid warning switch.

(b) Release the parking brake pedal.

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

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

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



14. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

(a) Remove the reservoir tank cap and strainer.

(b) Disconnect the connector.

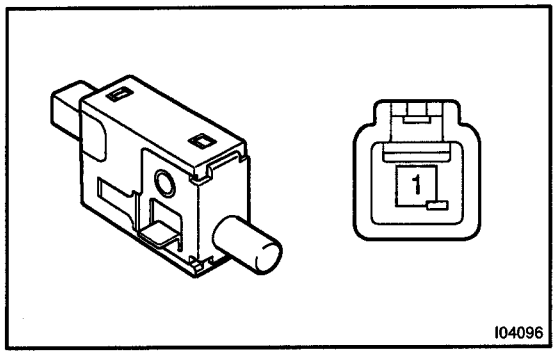
(c) Check that no continuity exists between the terminals with the switch OFF (float up).

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

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

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

If operation is not as specified, replace the switch.

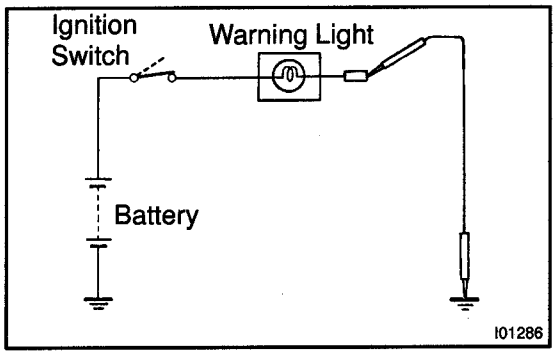


15. INSPECT PARKING BRAKE SWITCH CONTINUITY

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

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

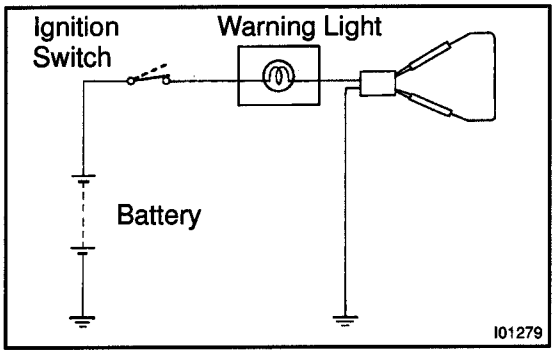
If operation is not as specified, replace the switch or inspect ground point.



16. INSPECT OPEN DOOR WARNING LIGHT

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

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

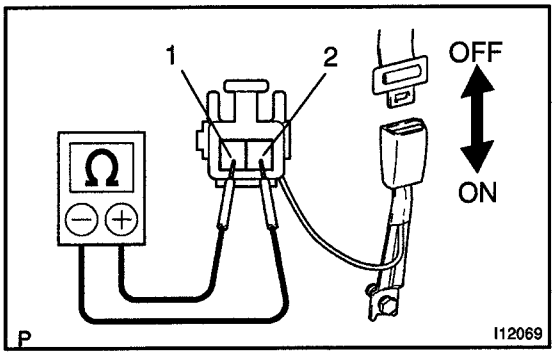


17. INSPECT SEAT BELT WARNING LIGHT

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

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

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

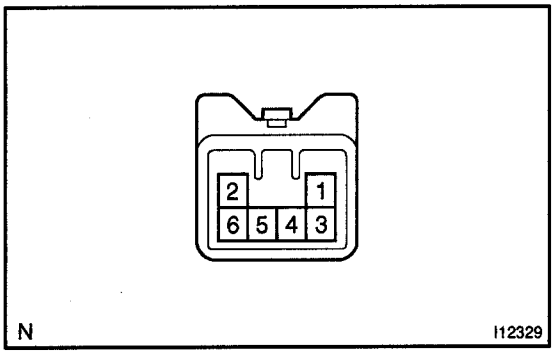


18. INSPECT BUCKLE SWITCH CONTINUITY

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

(b) Check that no continuity exists between the terminals on the switch side connector with the switch OFF (belt unfastened).

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



19. Digital models (w/o Digital clock): INSPECT TRIP SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
ODO/TRIP	3 – 5	Continuity
RHEOSTAT	3 – 4	Continuity

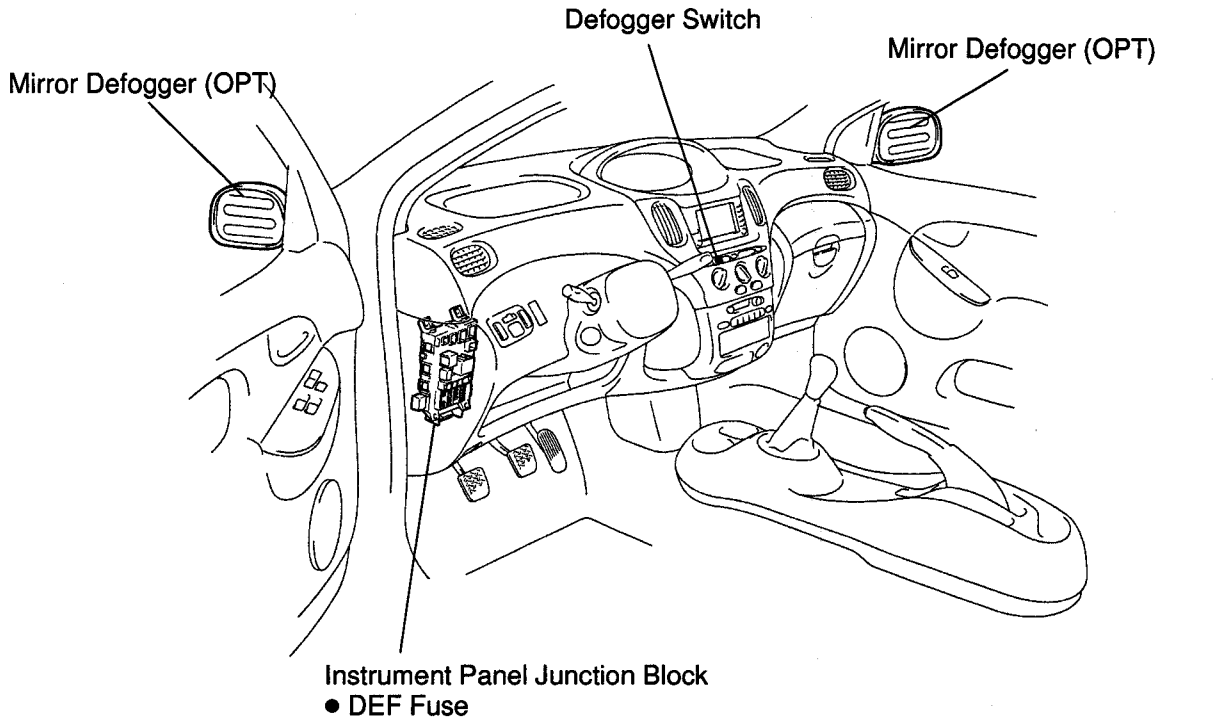
If continuity is not as specified, replace the switch.

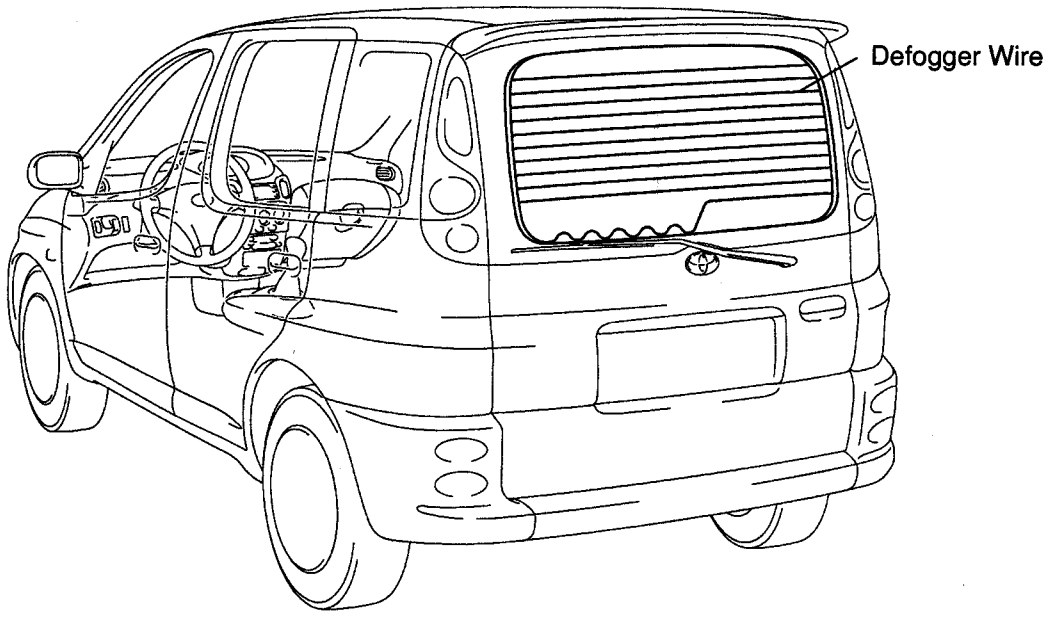
If continuity is not as specified, replace the switch.

DEFOGGER SYSTEM

LOCATION

BE18R–02





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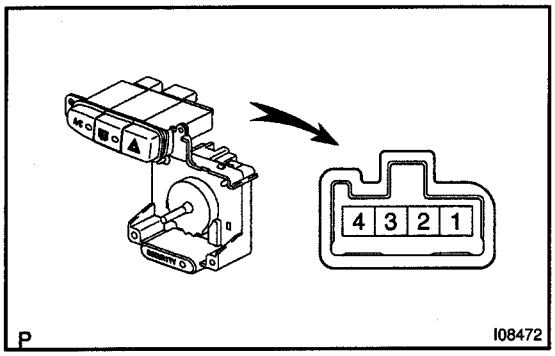
BE18S-02

INSPECTION

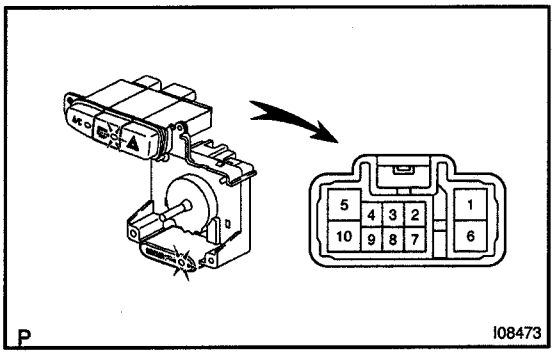
1. INSPECT DEFOGGER SWITCH CONTINUITY



Switch position	Tester connection	Specified condition
Switch OFF	–	No continuity
Switch ON	3 – 4	Continuity

If continuity is not as specified, replace the switch.

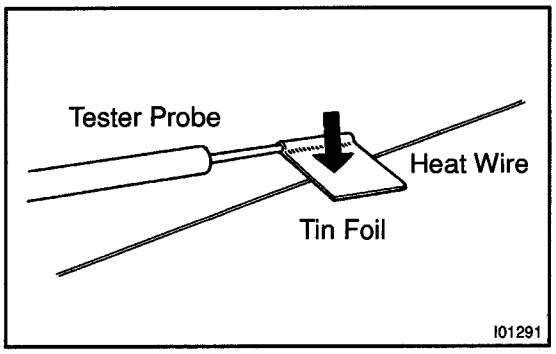
2. INSPECT CENTER CLUSTER SWITCH ASSEMBLY ILLUMINATION



Switch position	Tester connection	Specified condition
Illumination circuit	1 – 4	Continuity

If continuity is not as specified, replace the switch.

3. INSPECT DEFOGGER WIRE



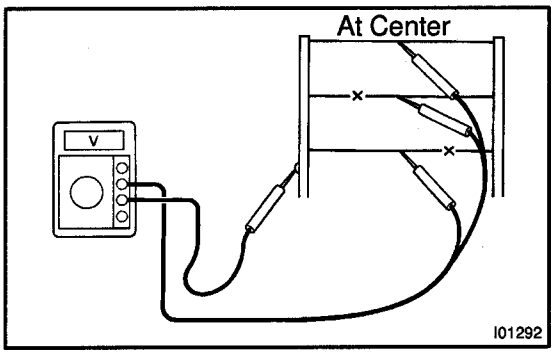
NOTICE:

- **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.**

(a) Turn the ignition switch ON.

(b) Turn the defogger switch ON.

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



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

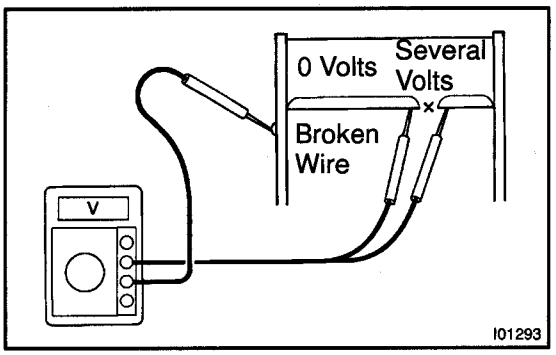
HINT:

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

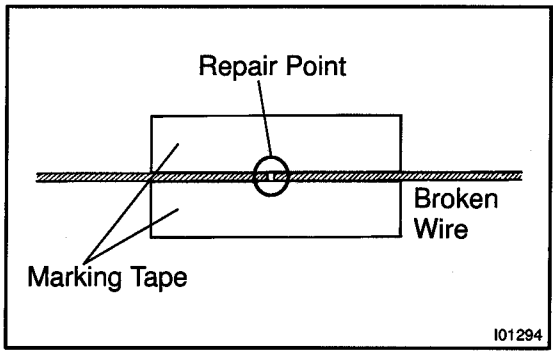
(d) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.

(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.

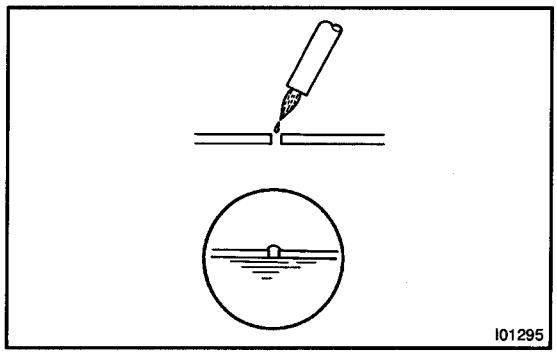


4. IF NECESSARY, REPAIR DEFOGGER WIRE

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

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

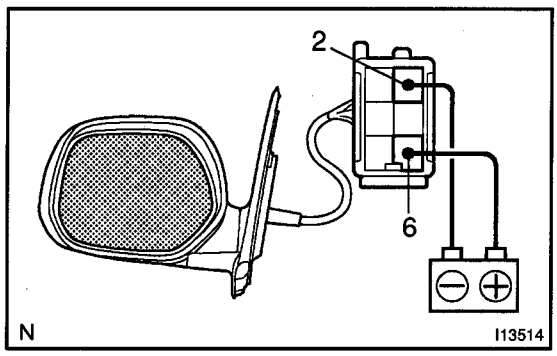
(c) Thoroughly mix the repair agent (Dupont paste No. 4817).



(d) Using a fine tip brush, apply a small amount of the agent to the wire.

(e) After a few minutes, remove the masking tape.

(f) Do not repair the defogger wire for at least 24 hours.



5. w/ Mirror heater:
INSPECT MIRROR DEFOGGER OPERATION

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

(b) Check that the mirror becomes warm.

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

POWER WINDOW CONTROL SYSTEM

TROUBLESHOOTING

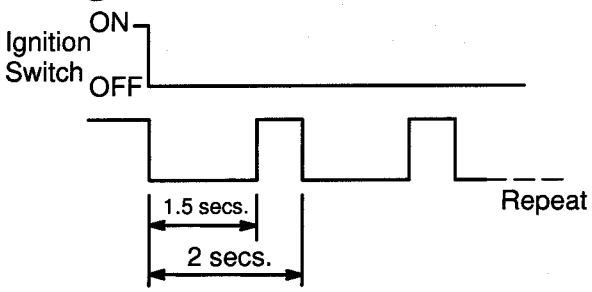
BE1EK-01

1	One touch power window does not move up and down.

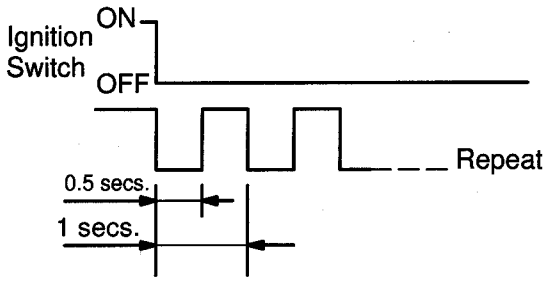
After turning the ignition switch ON and power window switch UP or DOWN check that the master and regulator switch AUTO light blinks.

• Error is classified into the following 3 types according to the way of blinking.

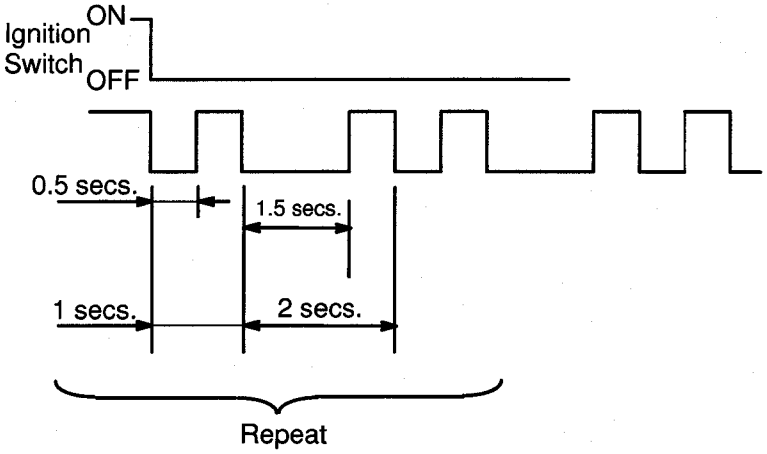
① Limit switch error



② Pulse sensor error



③ Limit switch/Pulse sensor synchronize error



< Reference > • When the ignition switch is turned OFF after the AUTO light starts blinking, the blinking will stop 43 sec. later.
• When the ignition switch is turned ON after that, the AUTO light will start blinking again.

blinks in the ① way

Remove the master switch.
(Connector connection condition)

When the fully closed driver's door is opened, does the voltage between terminal and terminal of master switch change from 0 V to 10 ~ 14 V?

Yes

CONTINUED ON NEXT PAGE

No

blinks in the ② or ③ way

No

Master switch defective

Disconnect the connecters of master switch and driver's power window motor.

CONTINUED ON NEXT PAGE

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Master switch defective

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Does continuity exist between connector terminals on the vehicle side?

Master switch side ↔ Motor side
7 (*1) terminal (PLS) ↔ 6 terminal
6 (*8) terminal (LMT) ↔ 2 terminal
5 (*10) terminal (SGND) ↔ 5 terminal

No → Wire harness defective (open)

Yes

Does continuity exist between 7 (*1), 6 (*8) and, 5 (*10) terminals on the master switch side or 2, 5 and 6 terminals on the motor side and body ground?

Yes → Wire harness defective (short)

No

Connect the connector of power window motor.

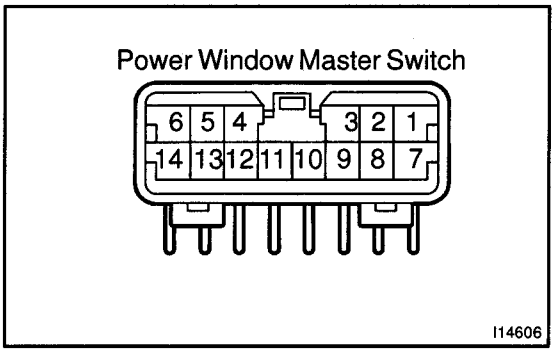
Connect the normal master switch, do AUTO UP and AUTO DOWN operations work?

Yes

No

Power window motor defective.

* : w/o Rear power window



2 During AUTO UP operation, the power window moves down.

When operating AUTO UP with the ignition switch ON, is there a cause of increasing friction resistance at the inverse position?
- Yes → Disassemble the door and repair or replace the applicable part.
- No ↓

Remove the power window regulator assembly.

Does the window operate smoothly when moving the window up manually after assembling?
- No → Check and replace door glass run.
- Yes ↓

Remove the power window motor from the power window regulator assembly.

When operating the power window regulator manually, does the regulator move smoothly?
Are gears not damaged?
- No → Power window regulator defective.
- Yes ↓

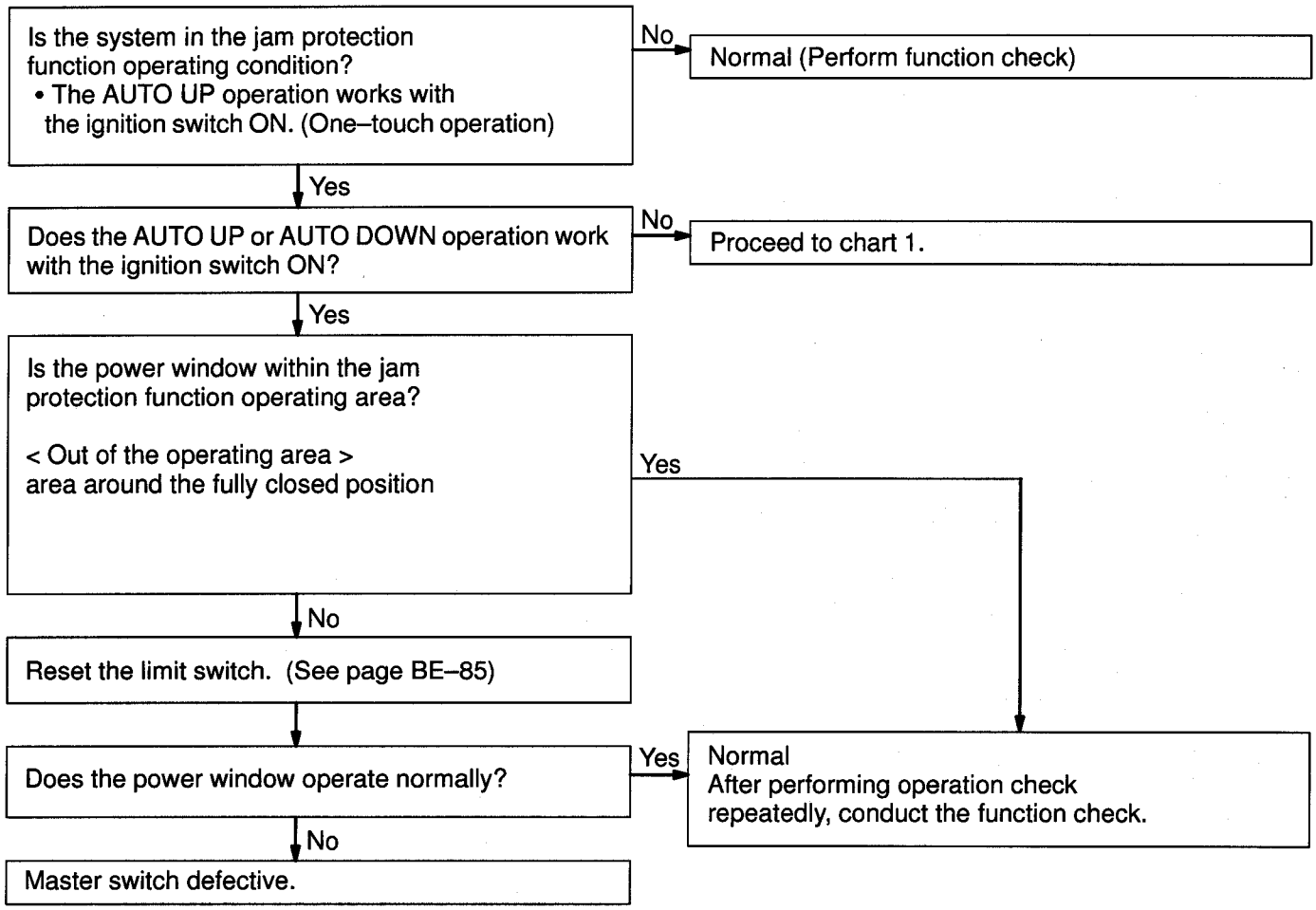
Does window motor rotate smoothly?
- No → Power window motor defective.
- Yes ↓

Reset the limit switch. (See page BE–85)

Does the window move normally?
- Yes → Normal (Check the function.)
- No ↓

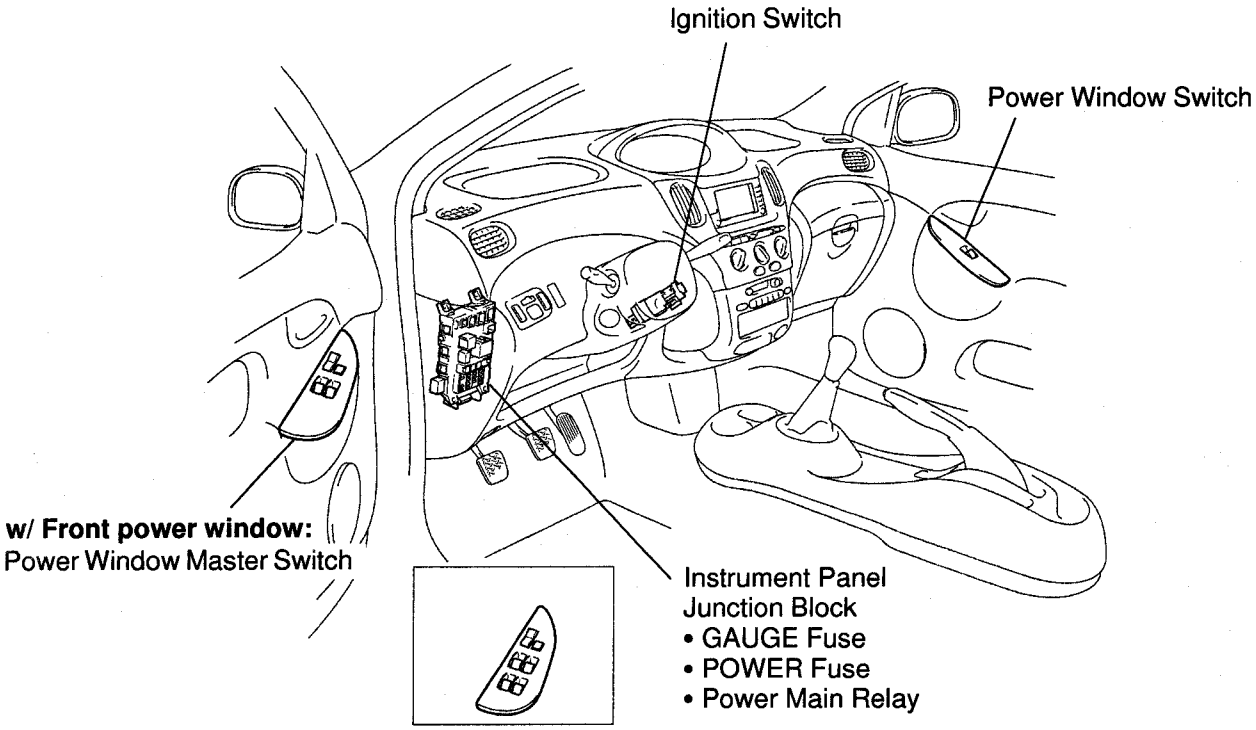
Master switch defective.

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

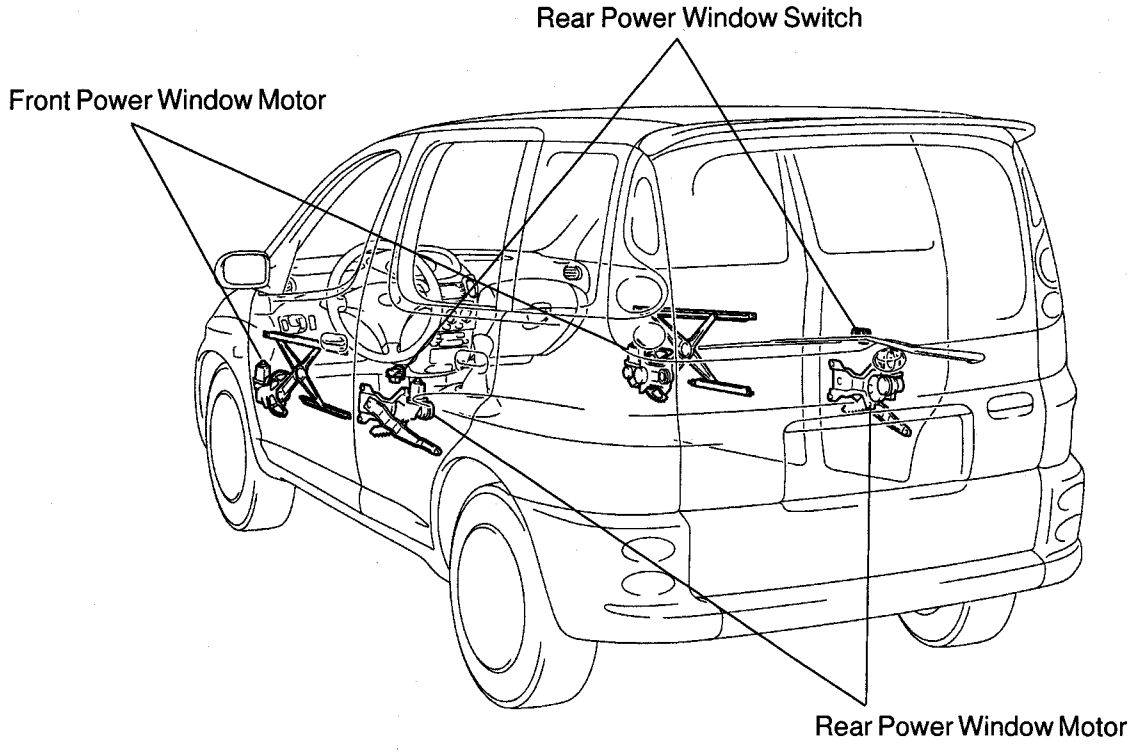


BE18T–02

LOCATION



w/ Front and rear power window:



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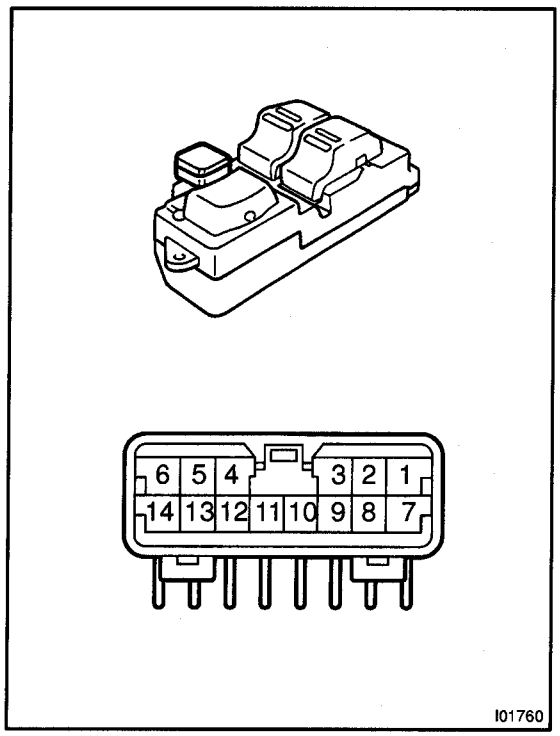
INSPECTION



1. LHD models (w/ Front power window): INSPECT POWER WINDOW MASTER SWITCH CONTINUITY

Driver's switch :

Switch position	Tester connection	Specified condition
UP AUTO/UP	4 – 6 3 – 5	Continuity
OFF	3 – 5 3 – 4	Continuity
DOWN	3 – 4 5 – 6	Continuity

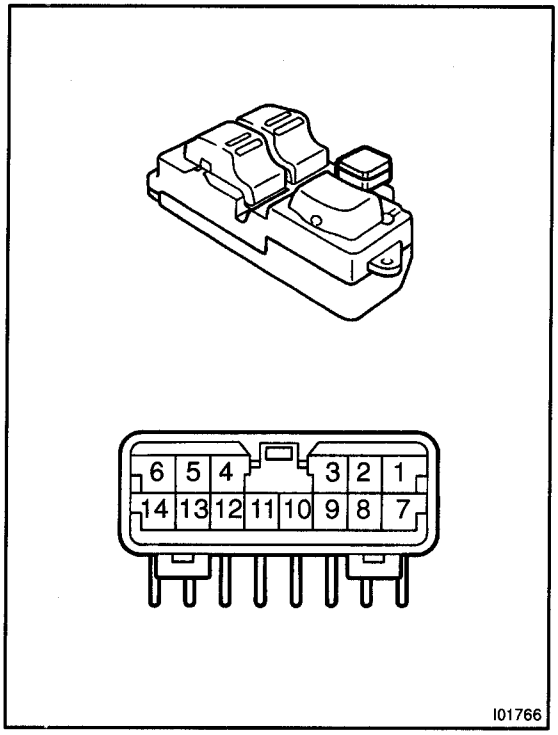
Passenger's switch (Window unlock) :

Switch position	Tester connection	Specified condition
UP	12 – 13 3 – 14	Continuity
OFF	3 – 12 3 – 14	Continuity
DOWN	13 – 14 3 – 12	Continuity

Passenger's switch (Window lock) :

Switch position	Tester connection	Specified condition
UP	12– 13	Continuity
OFF	12 – 14	Continuity
DOWN	13 – 14	Continuity

If continuity is not as specified, replace the switch.



2. RHD models (w/ Front and rear power window): INSPECT POWER WINDOW MASTER SWITCH CONTINUITY

Driver's switch :

Switch position	Tester connection	Specified condition
UP AUTO/UP	1 – 3 2 – 4	Continuity
OFF	3 – 4 2 – 4	Continuity
DOWN AUTO/DOWN	1 – 2 3 – 4	Continuity

Passenger's switch (Window unlock) :

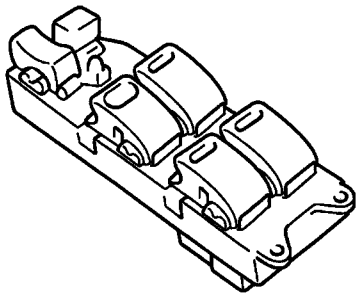
Switch position	Tester connection	Specified condition
UP	4 – 7 8 – 9	Continuity
OFF	4 – 9 4 – 7	Continuity
DOWN	4 – 9 7 – 8	Continuity

Passenger's switch (Window lock) :

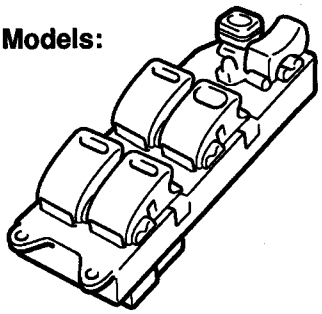
Switch position	Tester connection	Specified condition
UP	8 – 9	Continuity
OFF	7 – 9	Continuity
DOWN	7 – 8	Continuity

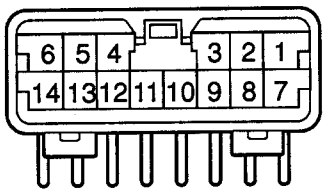
If continuity is not as specified, replace the switch.

LHD Models:



RHD Models:





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3. w/ Front and rear power window : INSPECT POWER WINDOW MASTER SWITCH CONTINUITY

Front driver's switch :

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

Front passenger's switch (Window unlock) :

Switch position	Tester connection	Specified condition
UP	4 – 8 7 – 10	Continuity
OFF	4 – 7 4 – 8	Continuity
DOWN	8 – 10 4 – 7	Continuity

Front passenger's switch (Window lock) :

Switch position	Tester connection	Specified condition
UP	7 – 10	Continuity
OFF	7 – 8	Continuity
DOWN	8 – 10	Continuity

Rear left switch (Window unlock) :

Switch position	Tester connection	Specified condition
UP	9 – 10 4 – 11	Continuity
OFF	4 – 9 4 – 11	Continuity
DOWN	10 – 11 4 – 9	Continuity

Rear left switch (Window lock) :

Switch position	Tester connection	Specified condition
UP	9 – 10	Continuity
OFF	9 – 11	Continuity
DOWN	10 – 11	Continuity

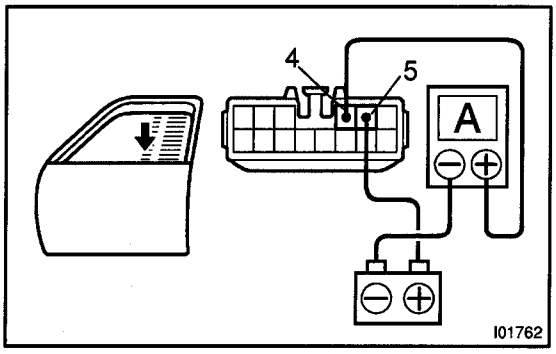
Rear right switch (Window unlock) :

Switch position	Tester connection	Specified condition
UP	10 – 13 4 – 14	Continuity
OFF	4 – 13 4 – 14	Continuity
DOWN	10 – 14 4 – 13	Continuity

Rear right switch (Window lock) :

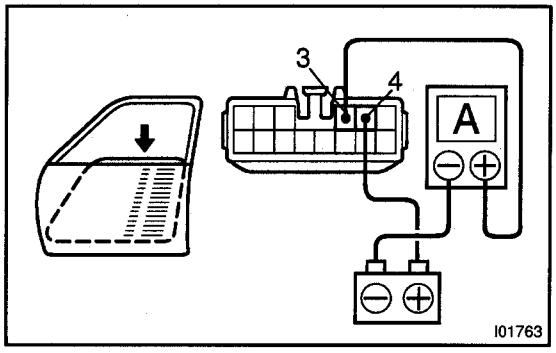
Switch position	Tester connection	Specified condition
UP	10 – 13	Continuity
OFF	13 – 14	Continuity
DOWN	10 – 14	Continuity

If continuity is not as specified, replace the master switch.



4. LHD w/ Front power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM (Using an ammeter)

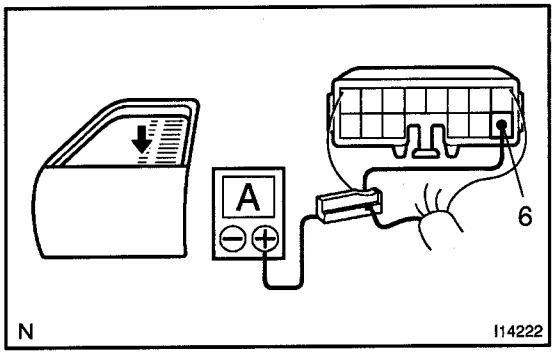
(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the ammeter to terminal 4 on the wire harness side connector and the negative (–) lead to the negative (–) terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 5 on the wire harness side connector.
(d) As the window goes down, check that the current is approximately 7 A.



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

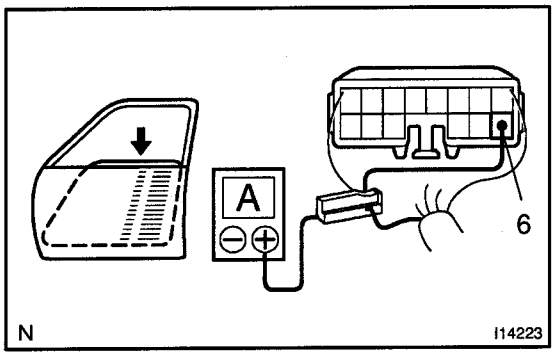
HINT:
The circuit breaker opens for 7 – 13 seconds after the window stops going down, so that check must be made before the circuit breaker operates.

If operation is not as specified, replace the master switch.



5. LHD w/ Front power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM
(Using an ammeter with a current – measuring probe)

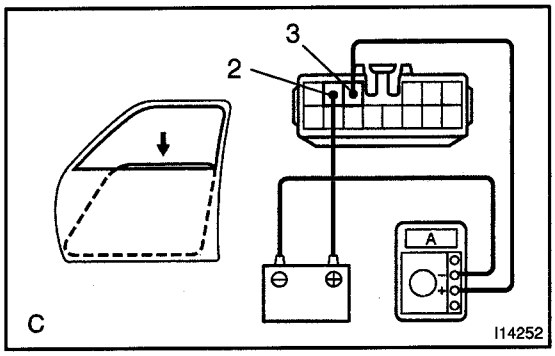
(a) Remove the master switch with connector connected.
(b) Attach a current – measuring probe to terminal 6 of the wire harness.
(c) Turn the ignition switch ON, and set the power window switch in the down position.



(d) As the window goes down, check that the current is approximately 7 A.
(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

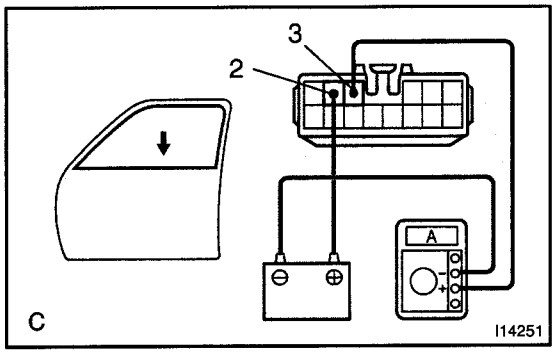
HINT:
The circuit breaker opens for 4 – 90 seconds after the window stops going down, so that check must be made before the circuit breaker operates.

If operation is not as specified, replace the master switch.



6. RHD w/ Front power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM
(Using an ammeter)

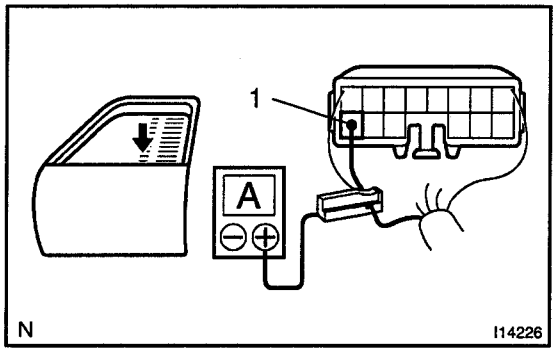
(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the ammeter to terminal 3 on the wire harness side connector and the negative (–) lead to the negative (–) terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 2 on the wire harness side connector.
(d) As the window goes down, check that the current is approximately 7 A.



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

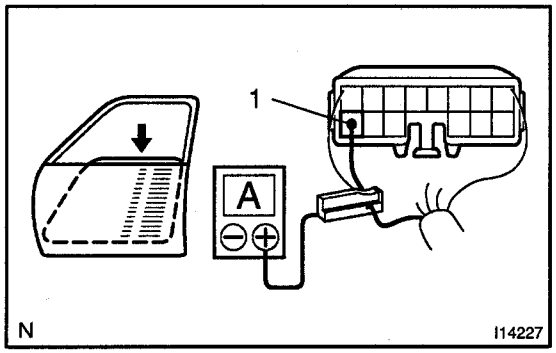
HINT:
The circuit breaker opens for 7 – 13 seconds after the window stops going down, so that check must be mate before the circuit breaker operates.

If operation is not as specified, replace the master switch.



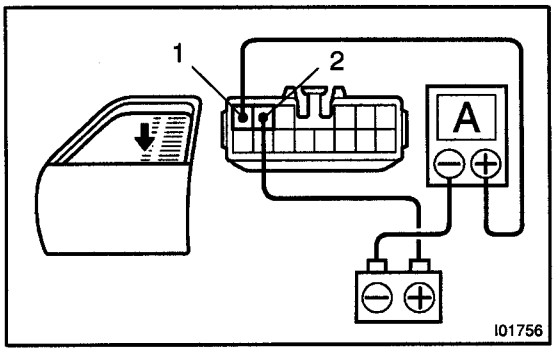
7. RHD w/ Front power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM (Using an ammeter with a current – measuring probe)

(a) Remove the master switch with connector connected.
(b) Attach a current – measuring probe to terminal 1 of the wire harness.
(c) Turn the ignition switch ON, and set the power window switch in the down position.



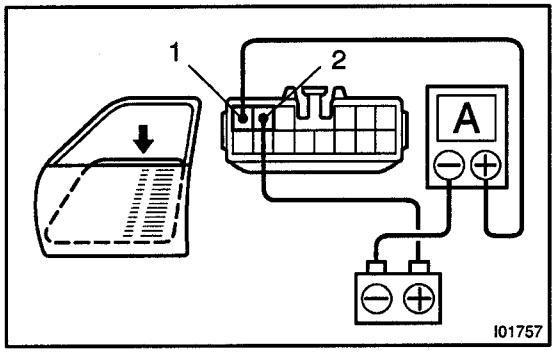
(d) As the window goes down, check that the current is approximately 7 A.
(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

HINT:
The circuit breaker opens for 4 – 90 seconds after the window stops going down, so that check must be made before the circuit breaker operates.



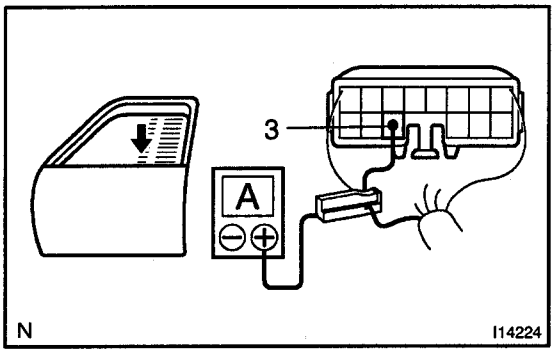
8. w/ Front and rear power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM (Using an ammeter)

(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the ammeter to terminal 3 on the wire harness side connector and the negative (–) lead to the negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 1 on the wire harness side connector.
(d) As the window goes down, check that the current flow is approximately 7 A.



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

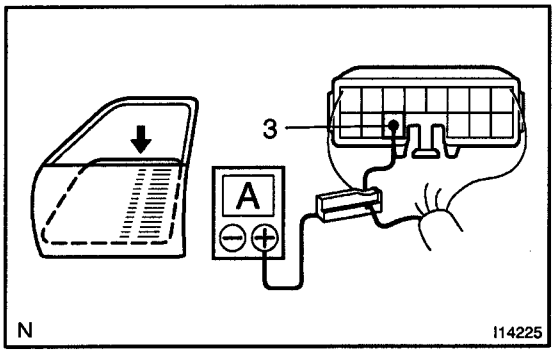
HINT:
The circuit breaker opens some 4 – 90 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If the operation is as specified, replace the master switch.

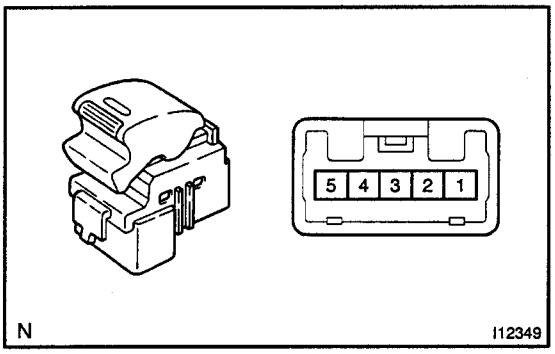


9. w/ Front and rear power window :
INSPECT ONE TOUCH POWER WINDOW SYSTEM (Using an ammeter with a current – measuring probe)

(a) Remove the master switch with connector connected.
(b) Attach a current – measuring probe to terminal 3 of the wire harness.
(c) Turn the ignition switch ON and set the power window switch in the down position.
(d) As the window goes down, check that the current flow is approximately 7 A.
(e) Check that the current increases up to approximately 14.5 A or more when the window stops going down.

HINT:
The circuit breaker opens for 4 – 90 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If operation is as specified, replace the master switch.

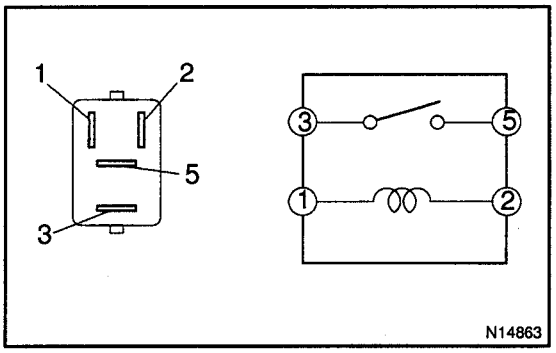




10. INSPECT PASSENGER AND REAR POWER WINDOW SWITCH CONTINUITY

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

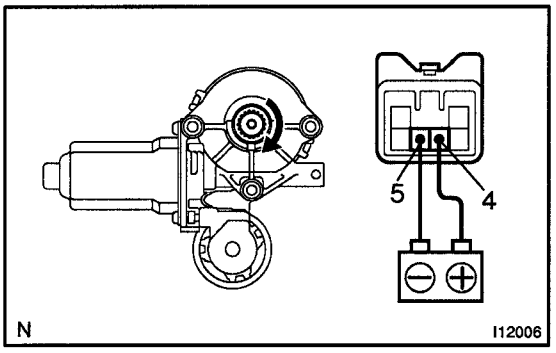
If continuity is not as specified, replace the switch.



11. INSPECT POWER MAIN RELAY CONTINUITY

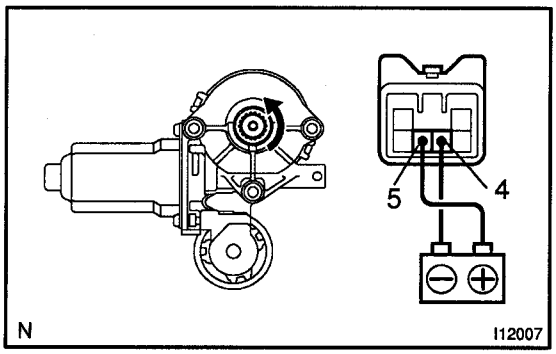
Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B + between terminals 1 and 2	3 – 5	Continuity

If continuity is not as specified, replace the switch.



12. Front left side door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5, and check that the motor turns clockwise.

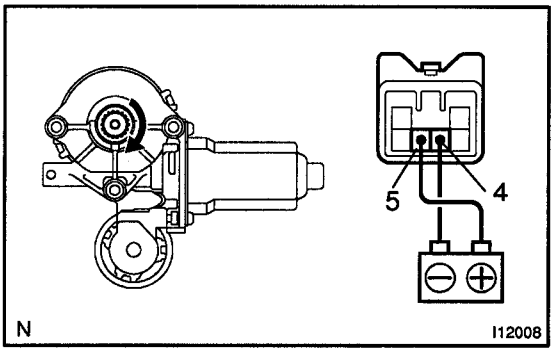


(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.

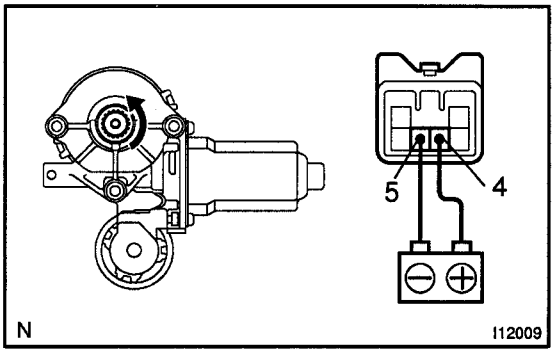
NOTICE:

Since the jam protection may not work properly be sure to conduct procedures described in "HOW TO RESET POWER MOTOR (RESET AND PULSE SWITCH)" after this inspection.



13. Front right side door:
INSPECT POWER WINDOW MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4, and check that the motor turns clockwise.

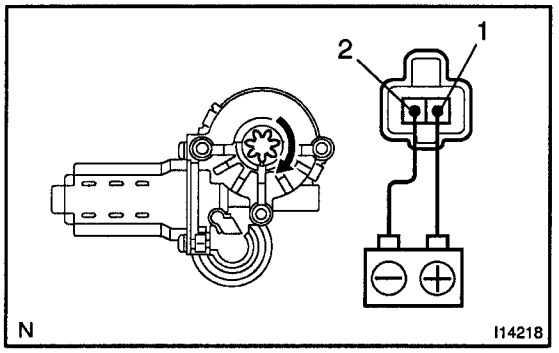


(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.

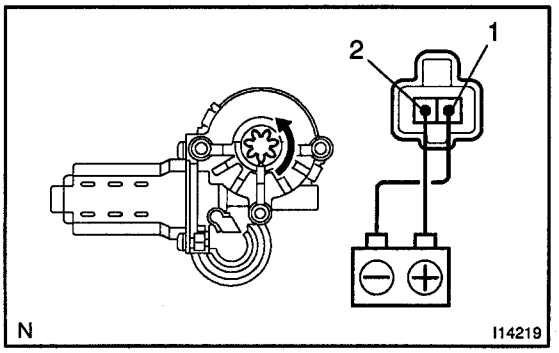
NOTICE:

Since the jam protection may not work properly be sure to conduct procedures described in "HOW TO RESET POWER MOTOR (RESET AND PULSE SWITCH)" after this inspection.



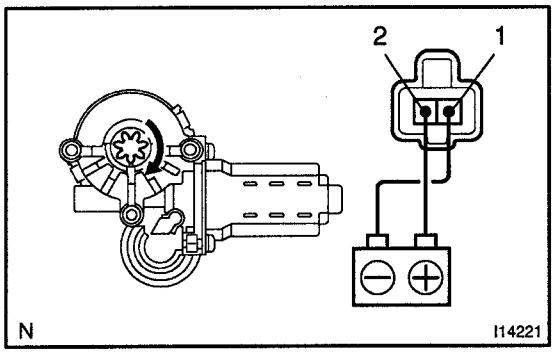
14. Rear right side door:
INSPECT POWER WINDOW MOTOR OPERATION

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



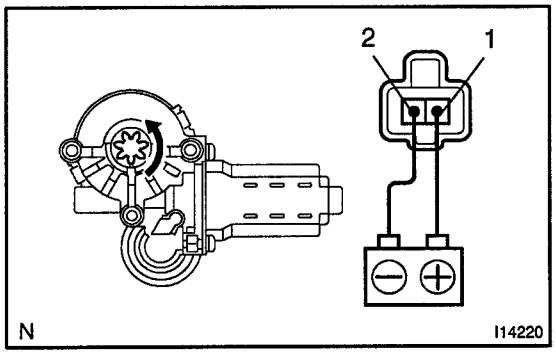
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



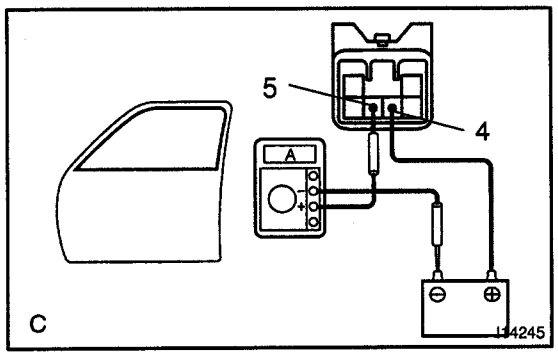
15. Rear left side door:
INSPECT POWER WINDOW MOTOR OPERATION

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



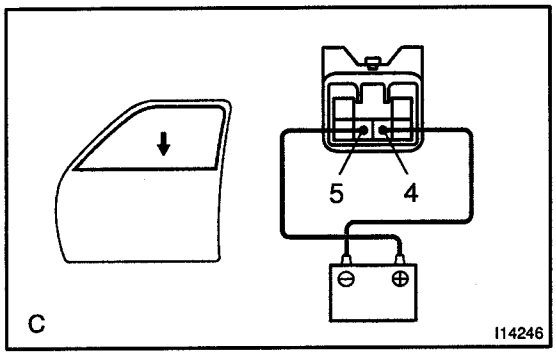
(b) Reverse the polarity, check that the motor turns counter-clockwise.

If operation is not as specified, replace the motor.



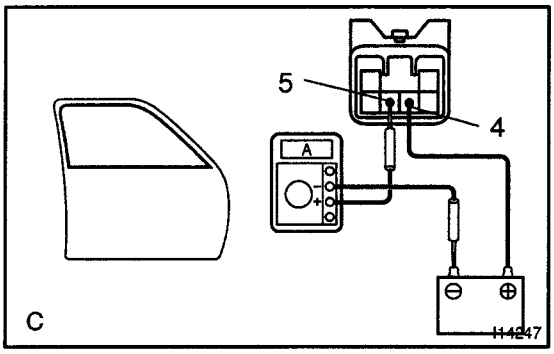
16. FRONT LH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

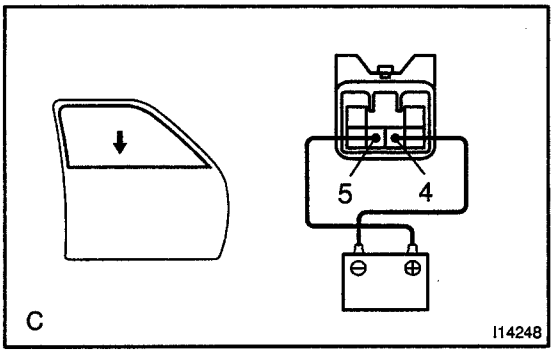
(a) Disconnect the connector from the power window motor.
(b) Connect the positive (+) lead from the ammeter to terminal 5 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 4 on the wire harness side connector, and raise the window to the fully position.
(d) Continue to apply voltage, and check that the current changes to less than 1 A with 4 to 90 seconds.



(e) Disconnect the leads from terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and negative (–) lead to terminal 4, and check that the window begins to descend.

If operation is not as specified, replace the motor.

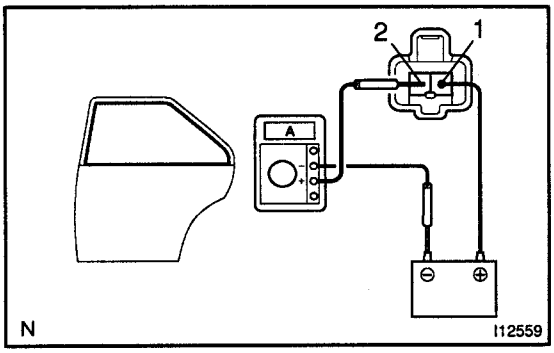


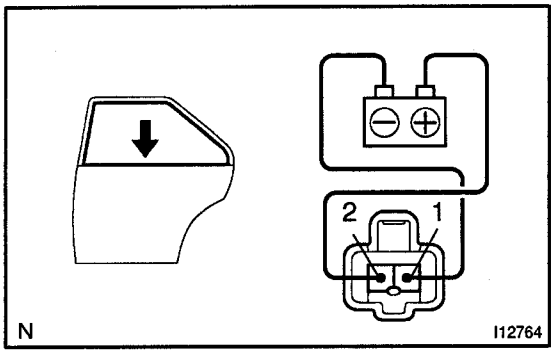


17. Front RH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the power window motor.
(b) Connect the positive (+) lead from the ammeter to terminal 5 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 4 on the wire harness side connector, and raise the window to the fully position.
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 90 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4, and check that the window begins to descend.

If operation is not as specified, replace the motor.

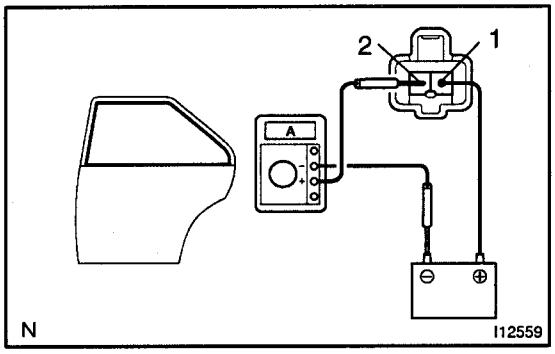




18. Rear LH door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

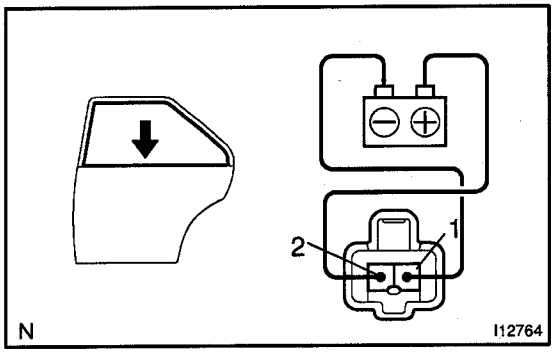
(a) Disconnect the connector from the power window motor.
(b) Connect the positive (+) lead from the ammeter to terminal 2 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 1 on the wire harness side connector, and raise the window to the fully position.
(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 40 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.



19. Rear RH Door:
INSPECT POWER WINDOW MOTOR PTC THERMISTOR OPERATION

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



(d) Continue to apply voltage and check that the current changes to less than 1 A within 4 to 40 seconds.
(e) Disconnect the leads from the terminals.
(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the window begins to descend.

If operation is not as specified, replace the motor.

20. INSPECT JAM PROTECTION FUNCTION

NOTICE:

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

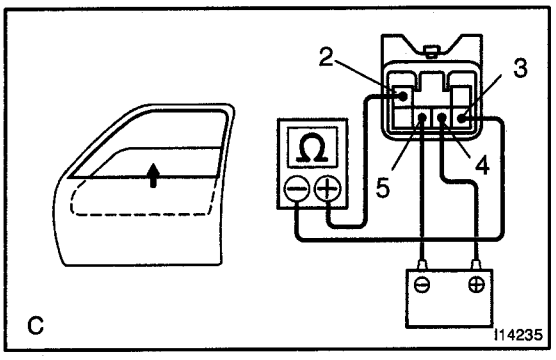
HINT:

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

(a) Confirmation of AUTO up operation:
Confirm that the window will be fully close with AUTO up operation.
(b) Checking of the operation of the jam protection function:
(1) Move up the window with AUTO up operation and check that the window will go down when it touches the handle of the hammer stetted.
(2) Confirm that the window will then stop going down about 200 mm .

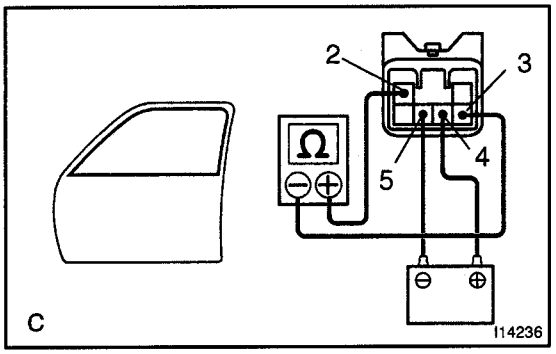
HINT:

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



21. LHD driver's Door (Window Up):
INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (–) lead from the ohmmeter to terminal 3 and the positive (+) lead to terminal 2.
(b) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5.
(c) Check that the continuity exists when the window goes up.

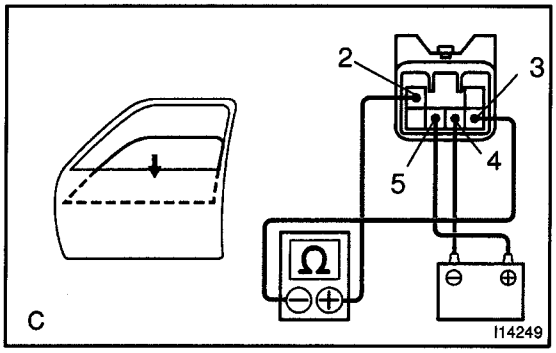


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

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

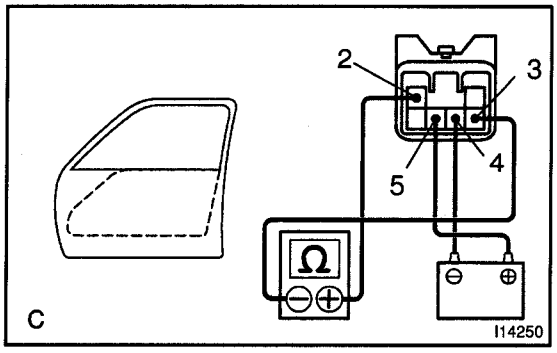


22. LHD driver's Door (Window Down): INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

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

(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4.

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

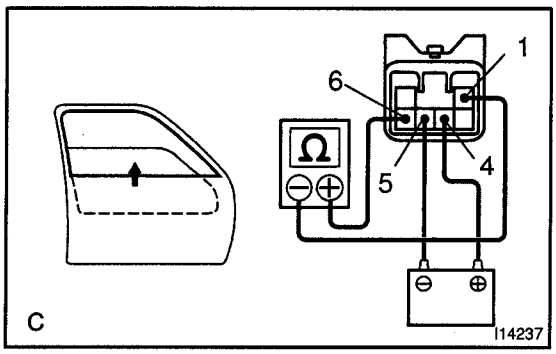


(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

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

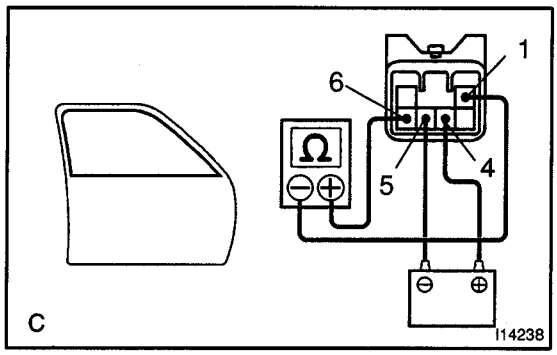


23. RHD driver's Door (Window Up): INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (–) lead from the ohmmeter to terminal 1 and the positive (+) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5.

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

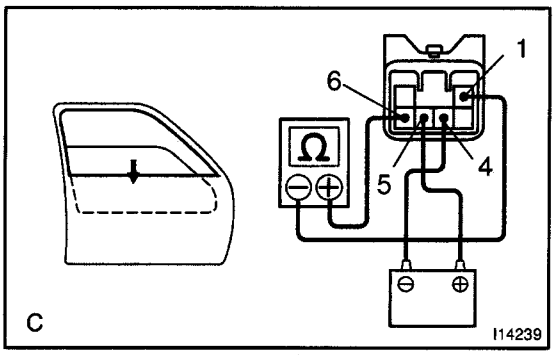


(d) Check that the no continuity exists when the window is in the fully closed position.

If operation is not as specified, replace the motor.

NOTICE:

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

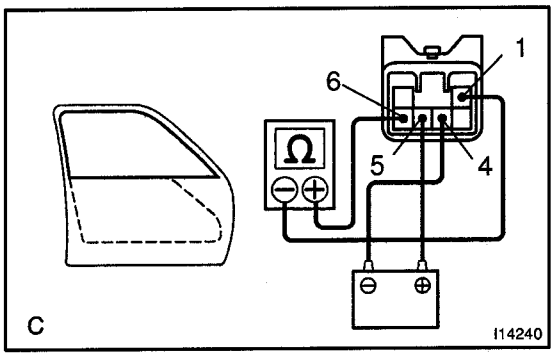


24. RHD driver's Door (Window Down): INSPECT JAM PROTECTION LIMIT SWITCH OPERATION

(a) Connect the negative (–) lead from the ohmmeter to terminal 1 and the positive (+) lead to terminal 6.

(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4.

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

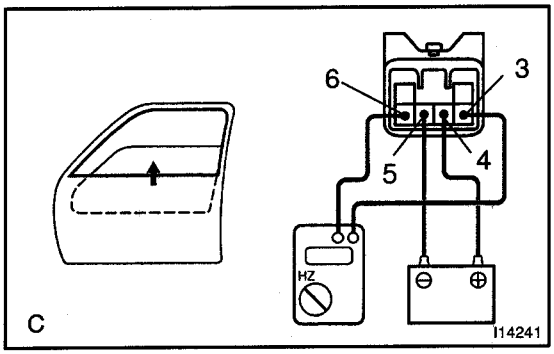


(d) Check that the no continuity exists when the window is in the fully opened position.

If operation is not as specified, replace the motor.

NOTICE:

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

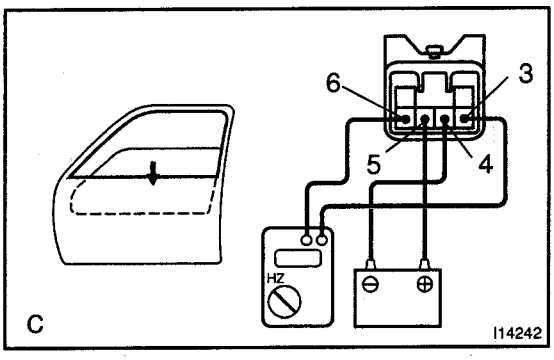


25. LHD driver's Door:
INSPECT JAM PROTECTION PULSE SWITCH OPERATION

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 6 and the negative (–) lead to terminal 3.

(b) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5.

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

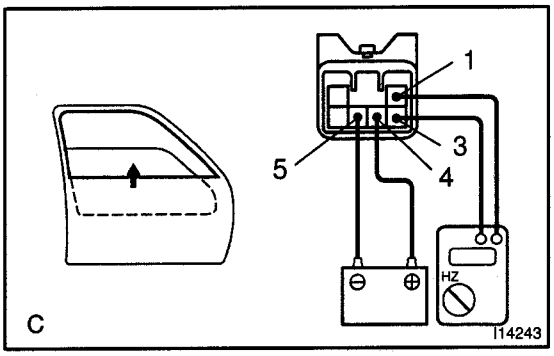


(d) Reverse the polarity and check that pulse is generated.

If operation is not as specified, replace the motor.

NOTICE:

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

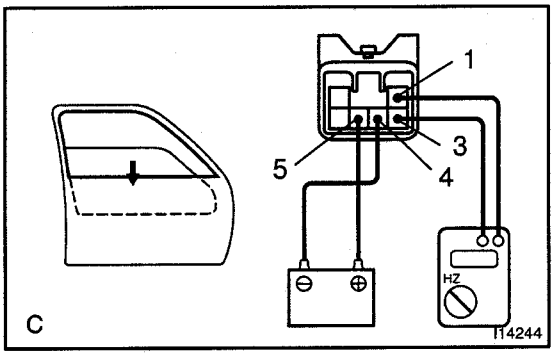


26. RHD driver's Door:
INSPECT JAM PROTECTION PULSE SWITCH OPERATION

(a) Connect the positive (+) lead from the TOYOTA electrical tester to terminal 3 and the negative (–) lead to terminal 1.

(b) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 5.

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



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

If operation is not as specified, replace the motor.

NOTICE:

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

27. INSPECT JAM PROTECTION FUNCTION

NOTICE:

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

HINT:

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

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

(b) Checking of the operation of the jam protection function:
(1) Move up the window with AUTO up operation and check that the window will go down when it touches the handle of the hammer stetted.
(2) Confirm that the window will then stop going down about 200 mm.

HINT:

In case of removing the glass, glass guide, regulator and etc. be sure to perform checking of the jam protection function.
If the jam protection is not function properly, adjust power window motor reset switch and pulse switch.

MEMO

BE0HG-14

ADJUSTMENT

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

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

HINT:

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

(a) Remove the power window motor.

HINT:

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

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

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

(d) Assemble the power window motor and regulator.

HINT:

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

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

HINT:

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

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

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

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

HINT:

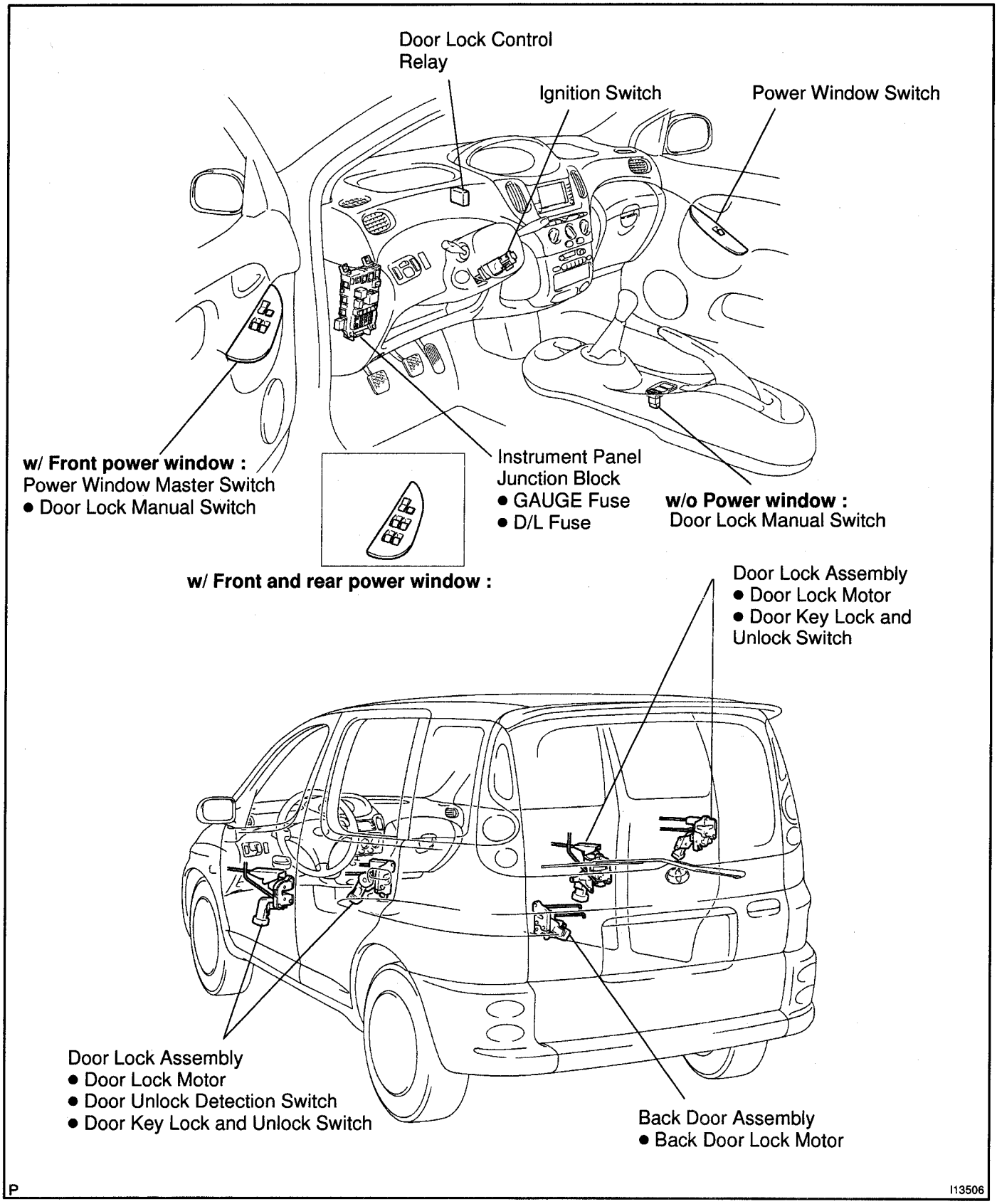
- Take care that the jam protection function does not operate just after resetting.
- Reset the regulator again when performing the reverse operating after closing the window fully by AUTO UP operation.

(i) Check the power window function.

POWER DOOR LOCK CONTROL SYSTEM

LOCATION

BE18V-02



P

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BE1E4–01

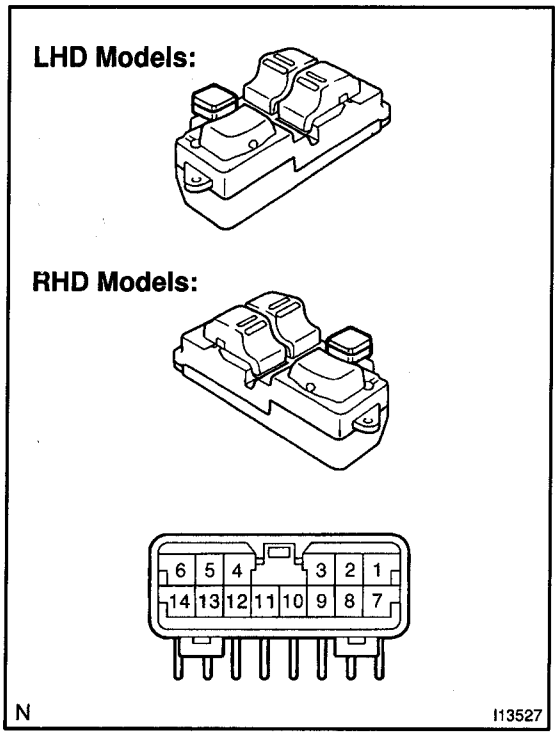
INSPECTION

1. w/ Front power window:
INSPECT DOOR LOCK CONTROL SWITCH CONTINUITY

( ) :LHD mdels

Switch position	Tester connection	Specified condition
LOCK	4 – 12 (2 – 3)	Continuity
OFF	–	No continuity
UNLOCK	4 – 5 (3 – 9)	Continuity

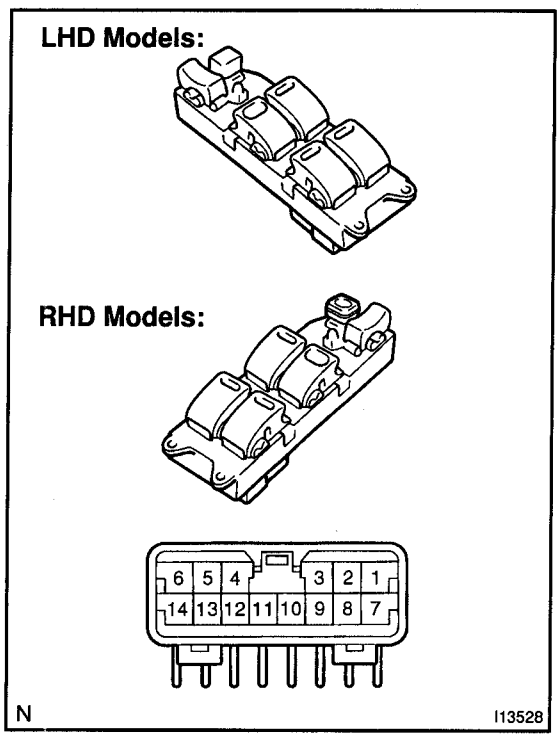
If continuity is not as specified, replace the switch.



2. W/ Front and rear power window:
INSPECT DOOR LOCK CONTROL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	6 – 4 – 5	Continuity
OFF	–	No continuity
UNLOCK	4 – 5 – 12	Continuity

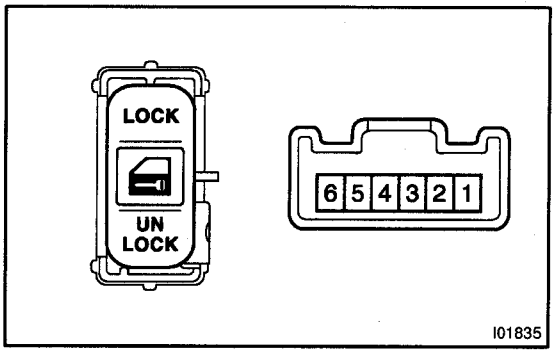
If continuity is not as specified, replace the switch.

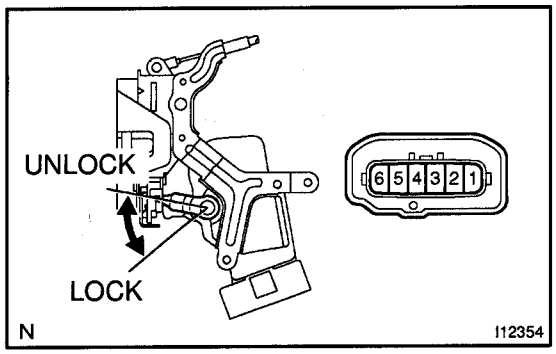


3. w/o Power window:
INSPECT DOOR LOCK MANUAL SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	1 – 3	Continuity
OFF	–	No continuity
UNLOCK	1 – 6	Continuity
Illumination	2 – 4	Continuity

If continuity is not as specified, replace the switch.



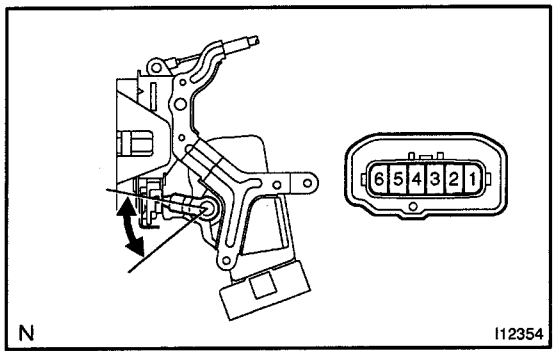


4. w/o Double Lock:
INSPECT FRONT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

( ) : LH side

Switch position	Tester connection	Specified condition
LOCK	2 – 4 (3 – 5)	Continuity
OFF	–	No continuity
UNLOCK	1 – 4 (3 – 6)	Continuity

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

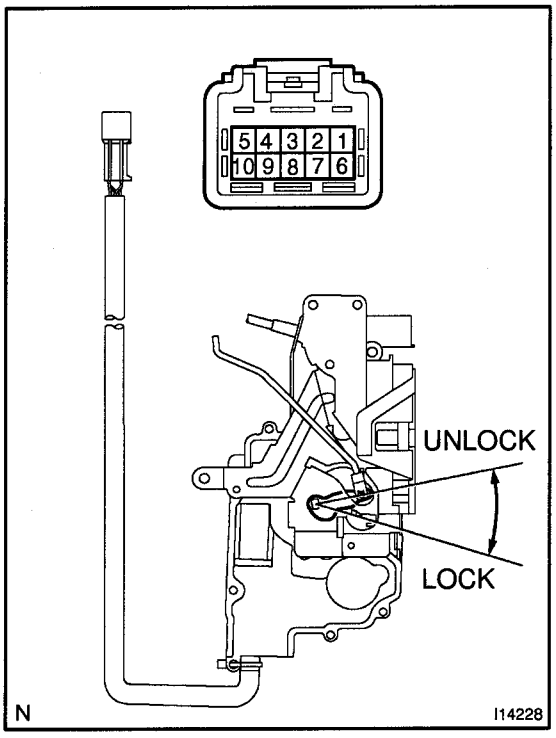


5. Wireless door lock:
INSPECT FRONT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

( ) : LH side

Switch position	Tester connection	Specified condition
LOCK	2 – 4 (3 – 5)	Continuity
OFF	–	No continuity
UNLOCK	1 – 4 (3 – 6)	Continuity

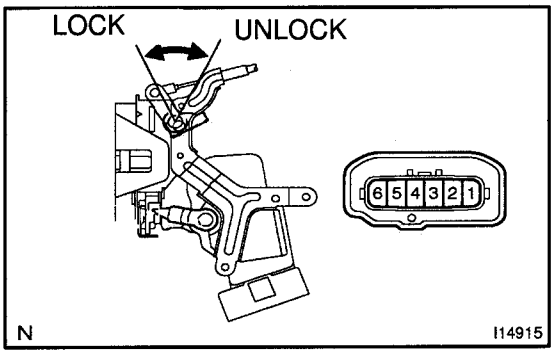
If continuity is not as specified, replace the door lock assembly.



6. w/ Double lock:
INSPECT FRONT DOOR KEY LOCK AND UNLOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
LOCK	7 – 9	Continuity
OFF	–	No continuity
UNLOCK	8 – 9	Continuity

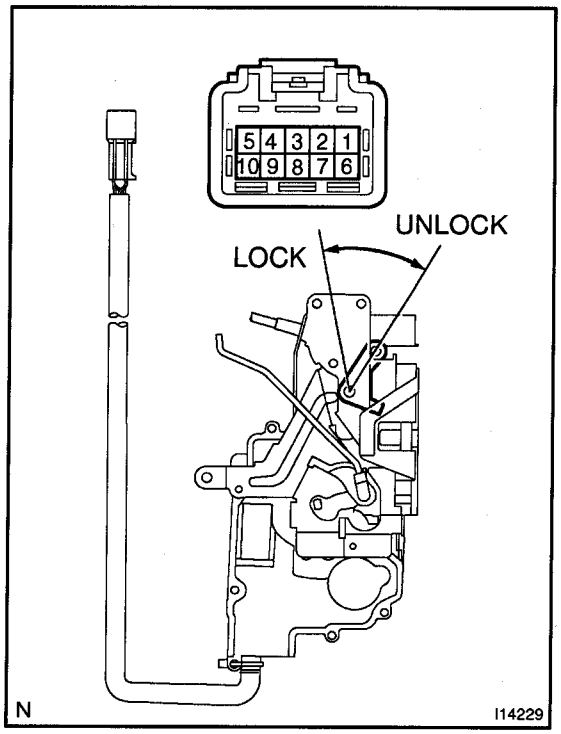
If continuity is not as specified, replace the door lock assembly.



7. Wireless door lock:
INSPECT FRONT DOOR UNLOCK DETECTION SWITCH CONTINUITY

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

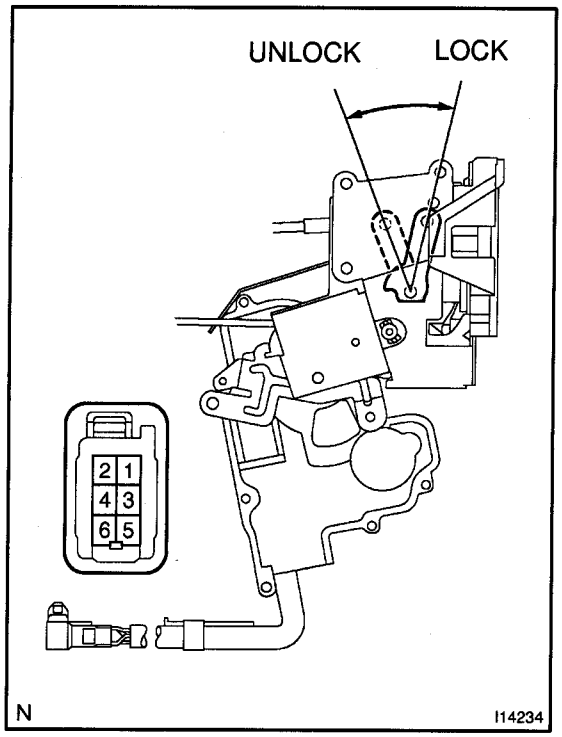
If continuity is not as specified, replace the door lock assembly.



8. w/ Double lock system:
INSPECT FRONT 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)	4 – 9	Continuity

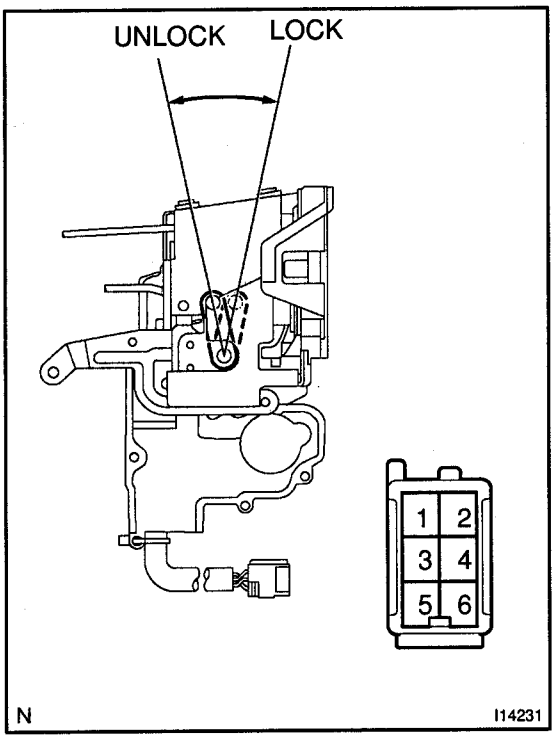
If continuity is not as specified, replace the door lock assembly.



9. w/ Double lock system:
INSPECT REAR 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 – 5	Continuity

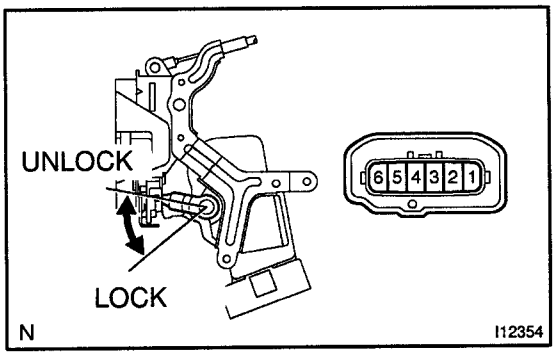
If continuity is not as specified, replace the door lock assembly.



10. w/ Double lock system:
INSPECT BACK 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 – 5	Continuity

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

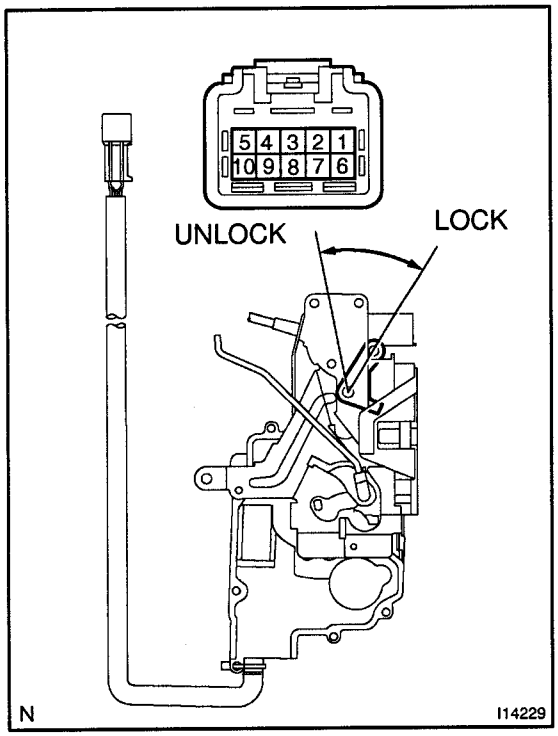


11. w/o Double lock and wireless door lock system:
INSPECT FRONT DOOR LOCK MOTOR OPERATION
( ) :LH side

(a) Connect the positive (+) lead from the battery to terminal 6 (1) and the negative (–) lead to terminal 5 (2), and check that the door lock link moves to LOCK position.

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

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

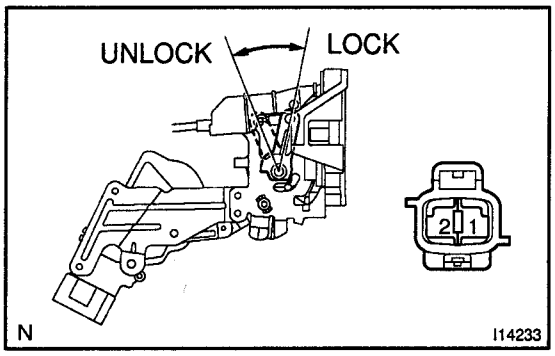


12. w/ Double lock system:
INSPECT FRONT DOOR LOCK MOTOR OPERATION

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

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

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

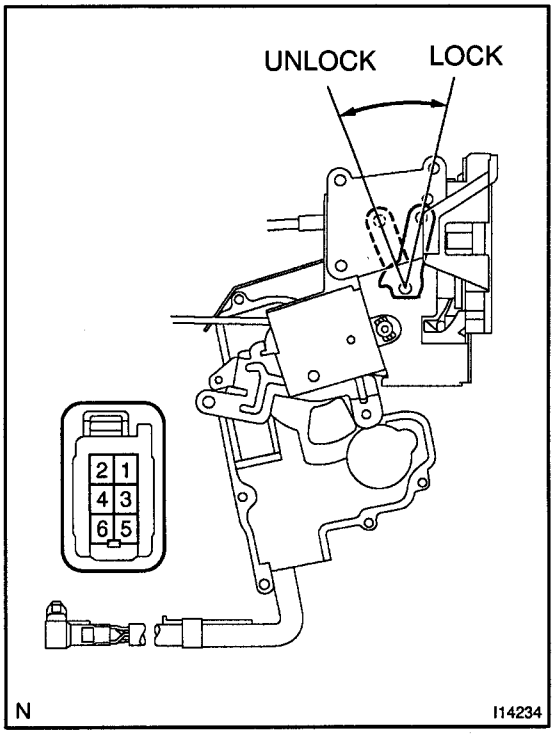


13. w/o Double lock system:
INSPECT REAR DOOR LOCK MOTOR OPERATION
( ) :LHD mdels

(a) Connect the positive (+) lead from the battery to terminal 5 (2) and the negative (–) lead to terminal 6 (1), and check that the door lock link moves to LOCK position.

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

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

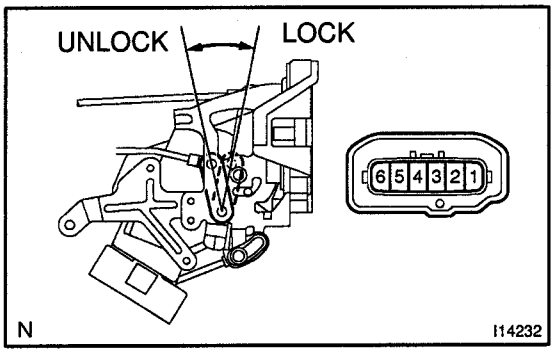


14. w/ Double lock system:
INSPECT REAR DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 4, and check that the door lock link moves to LOCK position.

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

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

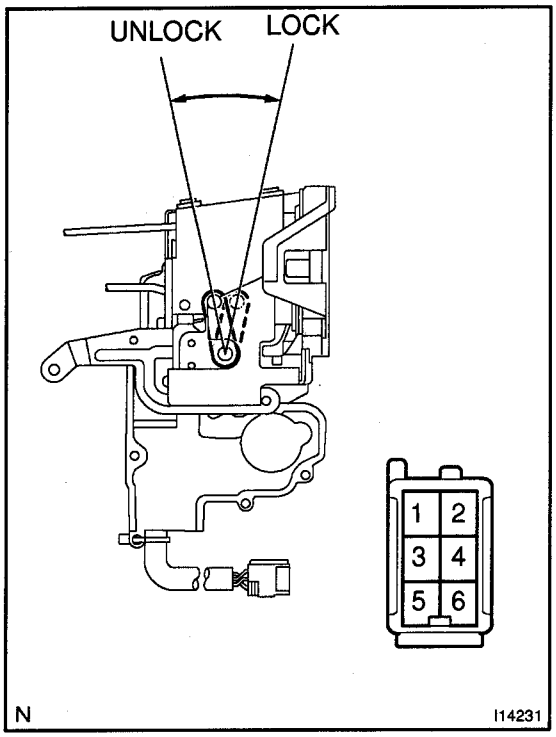


15. w/o Double lock system:
INSPECT BACK DOOR LOCK MOTOR OPERATION

(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 LOCK position.

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

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

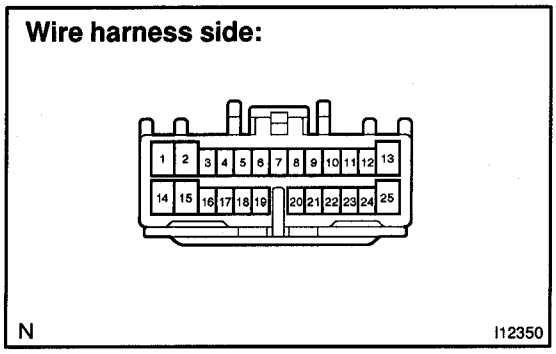


16. w/ Double lock system:
INSPECT BACK DOOR LOCK MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 4, and check that the door lock link moves to LOCK position.

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

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



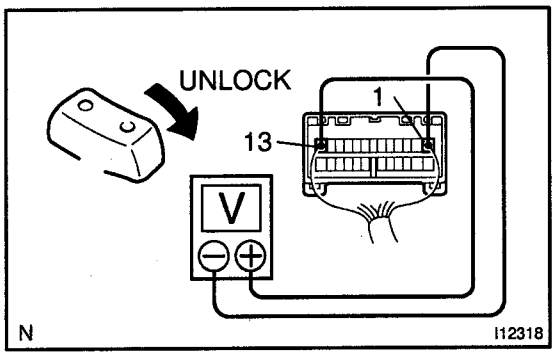
17. INSPECT DOOR LOCK CONTROL RELAY CIRCUIT

Disconnect the connector from the door lock control relay and inspect the connector on the wire harness side, as shown in the chart.

Tester connection	Condition	Specified condition
5 – Ground	Driver door unlock detection switch OFF (door locked)	No continuity
5 – Ground	Driver door unlock detection switch ON (door unlocked)	Continuity
7 – Ground	Driver's door lock control switch UNLOCK or OFF	No continuity
7 – Ground	Driver's door lock control switch LOCK	Continuity
7 – Ground	Back door lock control switch LOCK	Continuity
7 – Ground	Back door lock control switch UNLOCK	No continuity
8 – Ground	Driver's door lock control switch LOCK or OFF	No continuity
8 – Ground	Driver's door lock control switch UNLOCK	Continuity
8 – Ground	Back door lock control switch LOCK	No continuity
8 – Ground	Back door lock control switch UNLOCK	Continuity
9 – Ground	Driver's door key lock and unlock switch UNLOCK or OFF	No continuity
9 – Ground	Driver's door key lock and unlock switch LOCK	Continuity
9 – Ground	Front passenger's door key lock and unlock switch UNLOCK or OFF	No continuity

9 – Ground	Front passenger's door key lock and unlock switch LOCK	Continuity
11 – Ground	Driver's door key lock and unlock switch LOCK or OFF	No continuity
11 – Ground	Driver's door key lock and unlock switch UNLOCK	Continuity
11 – Ground	Front passenger's door key lock and unlock switch LOCK or OFF	No continuity
11 – Ground	Front passenger's door key lock and unlock switch UNLOCK	Continuity
18 – Ground	Driver's door courtesy switch OFF	No continuity
18 – Ground	Driver's door courtesy switch ON	Continuity
19 – Ground	Front passenger's door courtesy switch OFF	No continuity
19 – Ground	Front passenger's door courtesy switch ON	Continuity
19 – Ground	Rear left side door courtesy switch OFF	No continuity
19 – Ground	Rear left side door courtesy switch ON	Continuity
19 – Ground	Rear right side door courtesy switch OFF	No continuity
19 – Ground	Rear right side door courtesy switch ON	Continuity
21 – Ground	Key unlock warning switch OFF	No continuity
21 – Ground	Key unlock warning switch ON	Continuity
25 – Ground	Constant	Continuity
3 – Ground	Ignition switch OFF	No voltage
3 – Ground	Ignition switch ON	Battery voltage
14 – Ground	Constant	Battery voltage

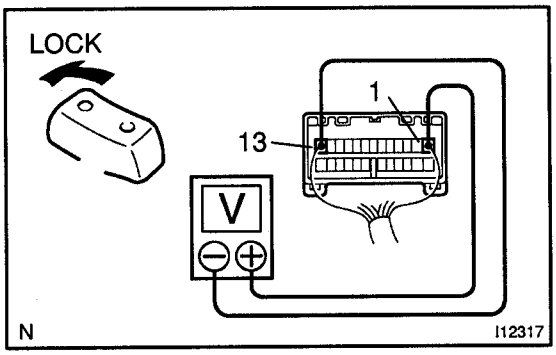
If circuit is as specified, replace the relay.
If circuit is as not specified, wiring diagram and inspect the circuits connected to other parts.



18. Door Lock Signal:
INSPECT DOOR LOCK CONTROL RELAY OPERATION

HINT:
When the relay circuit is as specified, inspect the door lock signal.

(a) Connect the positive (+) lead from the voltmeter to terminal 13 and the negative (–) lead to terminal 1.
(b) Set the door lock control switch to UNLOCK and check that the voltage rises from 0 V to battery voltage for approximately 0.2 seconds.



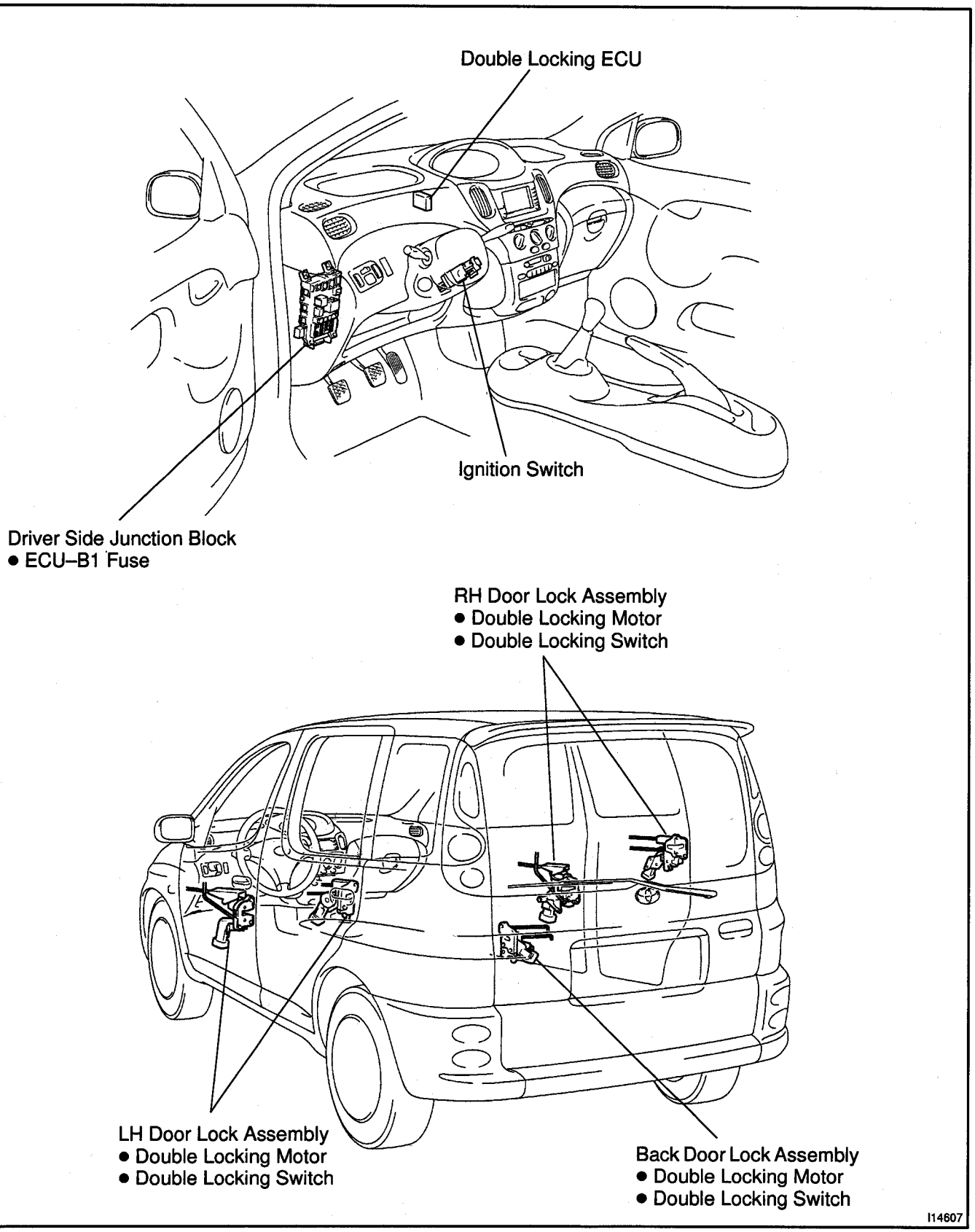
(c) Reverse the polarity of the voltmeter leads.
(d) Set the door lock control switch to LOCK and check that the voltage rises from 0 V to battery voltage for approximately 0.2 seconds.

If operation is not as specified, replace the relay.

DOUBLE LOCKING SYSTEM

LOCATION

BE16H–02



BE1E6-01

INSPECTION

1. INSPECT DOUBLE LOCK SYSTEM FUNCTION

HINT:

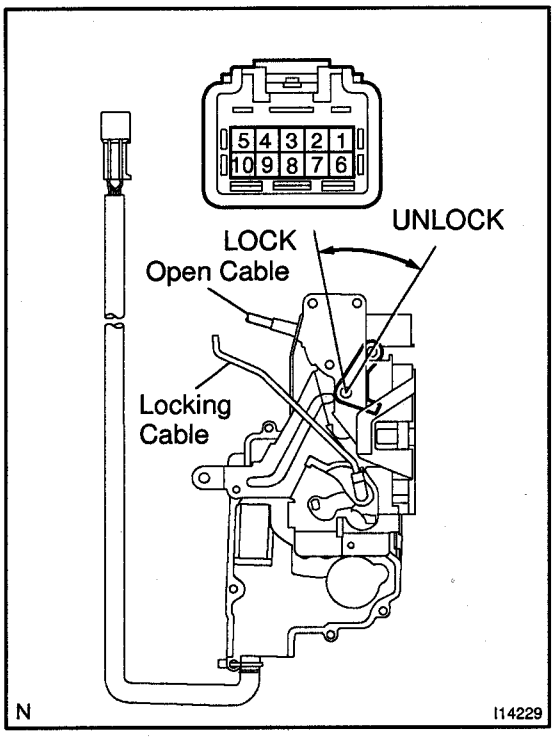
- In case of doing the following inspection, must open one of the windows of the doors.
- To set the double lock, turn the ignition switch OFF, pull out the key, open the driver's door and then perform the lock operation on the wireless transmitter. Locking again within 5 sec, after the first locking sets the double lock.

(a) Check that the double lock is set.
  (1) With the glass window opened, set the double lock from the outside of a vehicle using a wireless transmitter.
  (2) Check that the doors won't open from the inside of the vehicle even operating the door lock knob and inside door handle

(b) Check that the double lock is released (Case 1).
  (1) Press the UNLOCK button on the wireless transmitter.
  (2) Check that the doors will open from the inside of the vehicle by operating the door knob and inside door handle.

(c) Check that the double lock is released (Case 2).
  (1) With the glass window opened, set the double lock from the outside of a vehicle using a wireless transmitter.
  (2) Under this condition, insert the key into the ignition key cylinder, turn the ignition switch to ON and check that the doors will open.

If you find any abnormal symptom in the check items of (a),(b) and (c), troubleshoot according to the Problem Symptom Table.



2. INSPECT FRONT DOUBLE LOCK SWITCH CONTINUITY

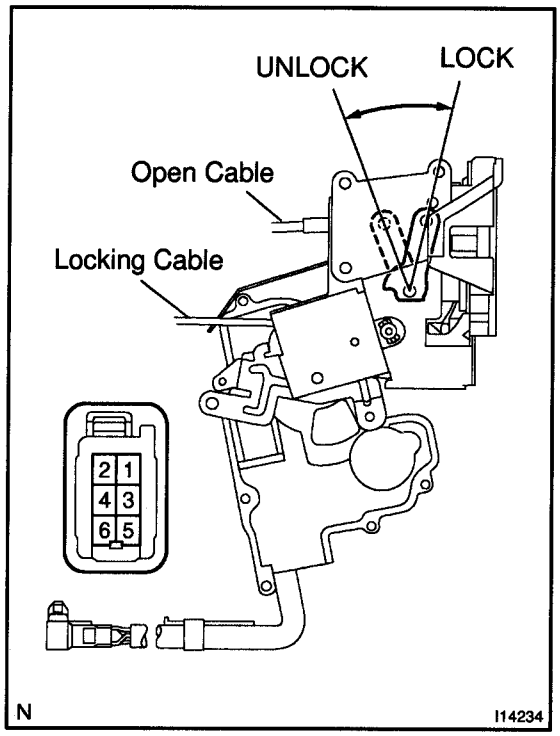
Switch position	Tester connection	Specified condition
OFF (Double lock is released)	–	No continuity
ON (Double lock is set)	5 – 9	Continuity

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

3. INSPECT FRONT DOUBLE LOCK MOTOR OPERATION

(a) Set the Door Lock to LOCK position by the locking cable.
(b) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 6, and check that the Door Lock will not unlock by pulling the locking cable. (Locking cable must return to LOCK position by the force of spring when pulling the locking cable.)
(c) Reverse the polarity and check that the Door Lock will unlock by pulling the locking cable.

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



4. INSPECT REAR DOUBLE LOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Double lock is released)	–	No continuity
ON (Double lock is set)	1 – 5	Continuity

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

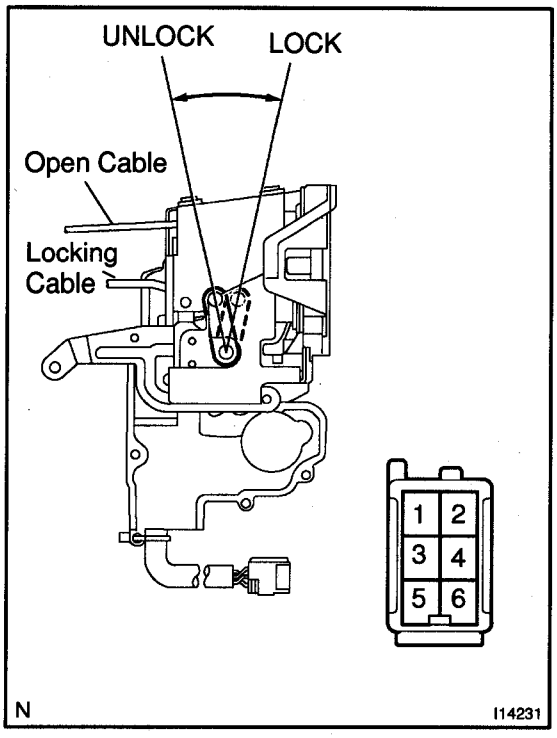
5. INSPECT REAR DOUBLE LOCK MOTOR OPERATION

(a) Set the Door Lock to LOCK position by the locking cable.

(b) Connect the positive (+) lead from the battery to terminal 6 and negative (–) lead to terminal 3, and check that the Door Lock will not unlock by pulling the locking cable. (Locking cable must return to LOCK position by the force of spring when pulling the locking cable.)

(c) Reverse the polarity and check that the Door Lock will unlock by pulling the locking cable.

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



6. INSPECT BACK DOUBLE LOCK SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF (Double lock is released)	–	No continuity
ON (Double lock is set)	1 – 5	Continuity

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

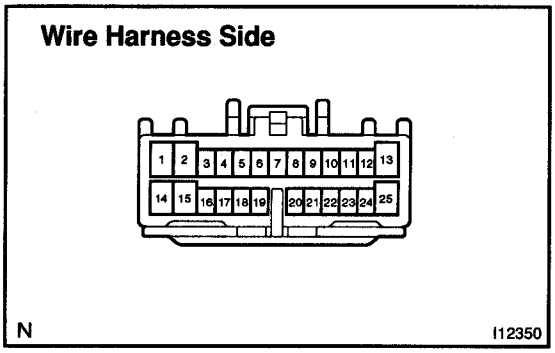
7. INSPECT BACK DOUBLE LOCK MOTOR OPERATION

(a) Set the Door Lock to LOCK position by the locking cable.

(b) Connect the positive (+) lead from the battery to terminal 6 and negative (–) lead to terminal 3, and check that the Door Lock will not unlock by pulling the locking cable. (Locking cable must return to LOCK position by the force of spring when pulling the locking cable.)

(c) Reverse the polarity and check that the Door Lock will unlock by pulling the locking cable.

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



8. INSPECT DOOR LOCK CONTROL RELAY CIRCUIT

Disconnect connector from the door lock control relay and inspect the connector on the wire harness side, as shown in the chart.

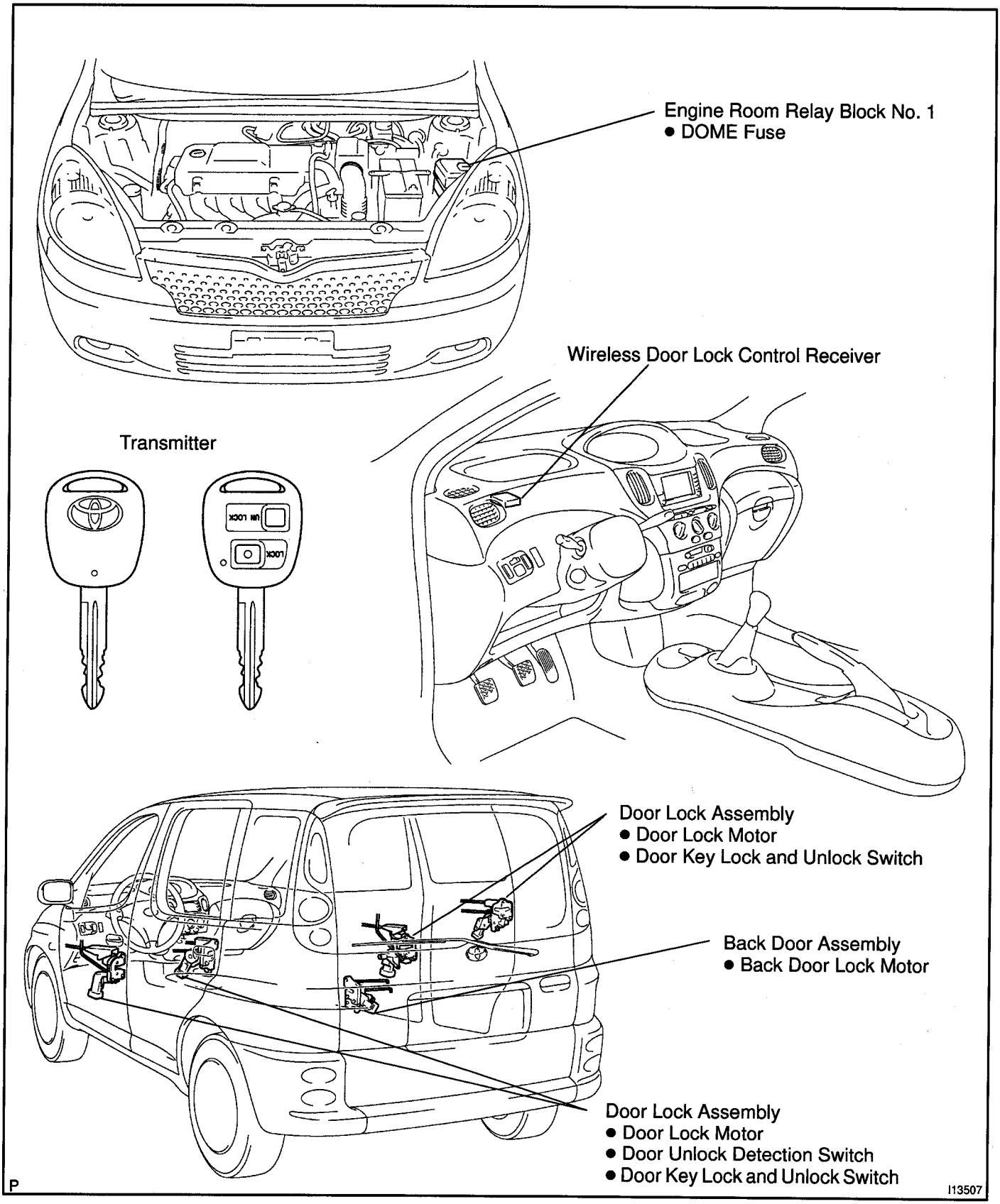
Tester connection	Condition	Specified condition
25 – Ground	Constant	Continuity
14 – Ground	Constant	Battery voltage
3 – Ground	Constant	Battery voltage

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

WIRELESS DOOR LOCK CONTROL SYSTEM

LOCATION

BE1E7-01



BE01M-09

PRE–CHECK

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

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

Basic function check:

Under the standard operation, when repeating the operation of UNLOCK and LOCK switch 3 times or more alternately, check the UNLOCK–LOCK operation from 3rd time onward.
- Following procedures are standard operation.

(1) Keep about 1 M away to the right direction from the outside handle of a driver's seat.
(2) Face the transmitter toward the vehicle and press one of transmitter switches for about 1 sec.

No

Yes

Transmitter LED inspection:

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

No

Yes

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

Transmitter battery check:

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

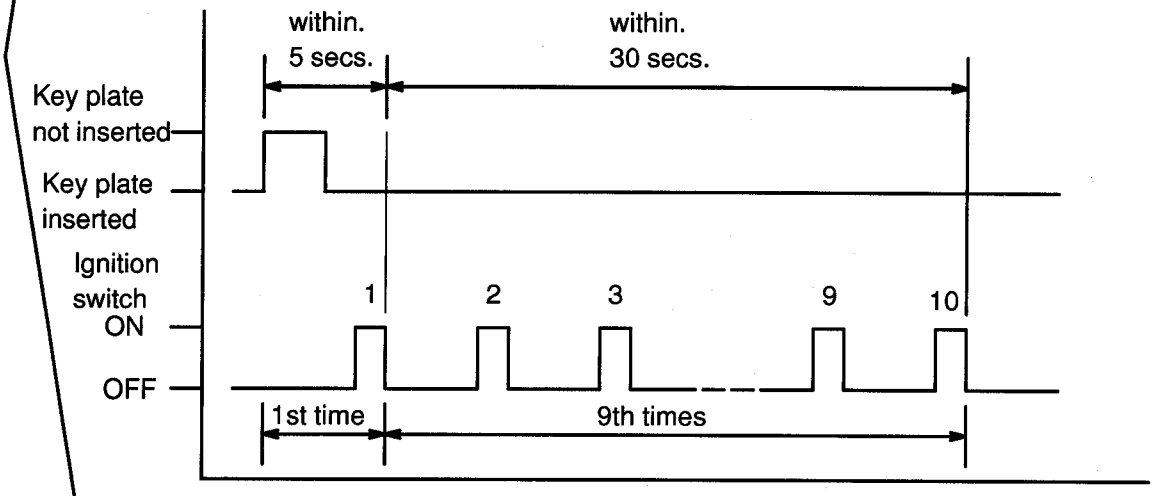
Yes → Battery faulty.

No

Make the vehicle be in the initialized condition.

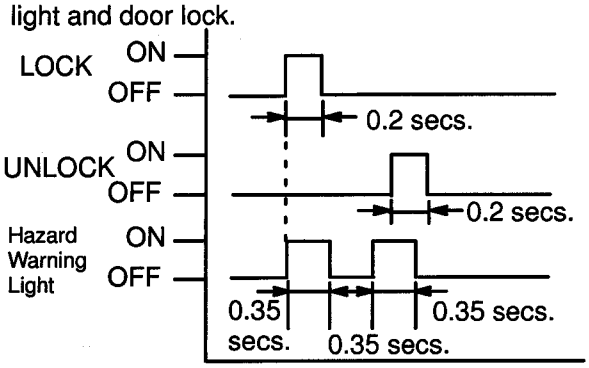
Inspection start by using self diagnostic mode:

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



Self diagnostic mode operation check:

After the self diagnostic mode input operation has been performed, check that the hazard warning light and door lock.



No
(Not entered in self diagnostic mode)

No

Is the method to enter into the diagnostic mode correct?

Yes

No

Is the lighting function of operation confirmation hazard warning light normal?

Check control hazard warning light.

Yes

Key unlock warning switch inspection:

Check that continuity exists between connector terminal 21 of door lock control relay on the vehicle side and ground by inserting the key plate into the ignition key cylinder.

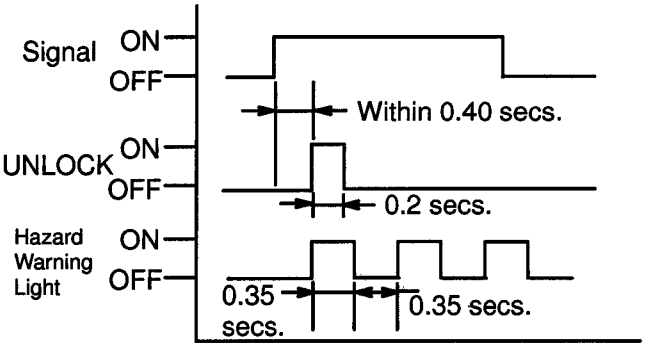
Check key unlock warning switch.

Yes
(Entered in self diagnostic mode)

Self diagnostic mode check:

Check that how the hazard warning light and door lock when pressing each transmitter switch.

(1) Receiver normal wave of LOCK and UNLOCK switch.



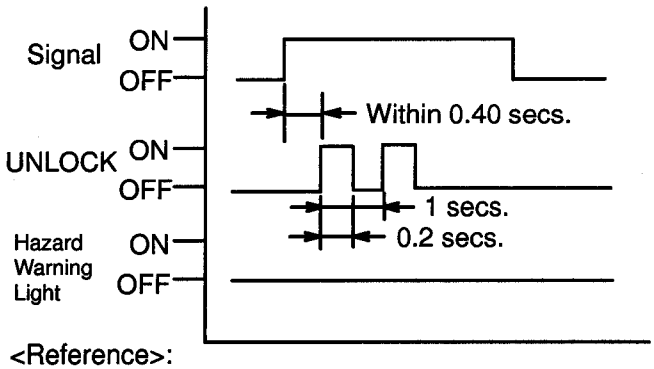
(2) is output.
(Hazard warning light response are same.)

Recognition code registration function check:

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

Wireless door lock operate normally when recognition code is registered.

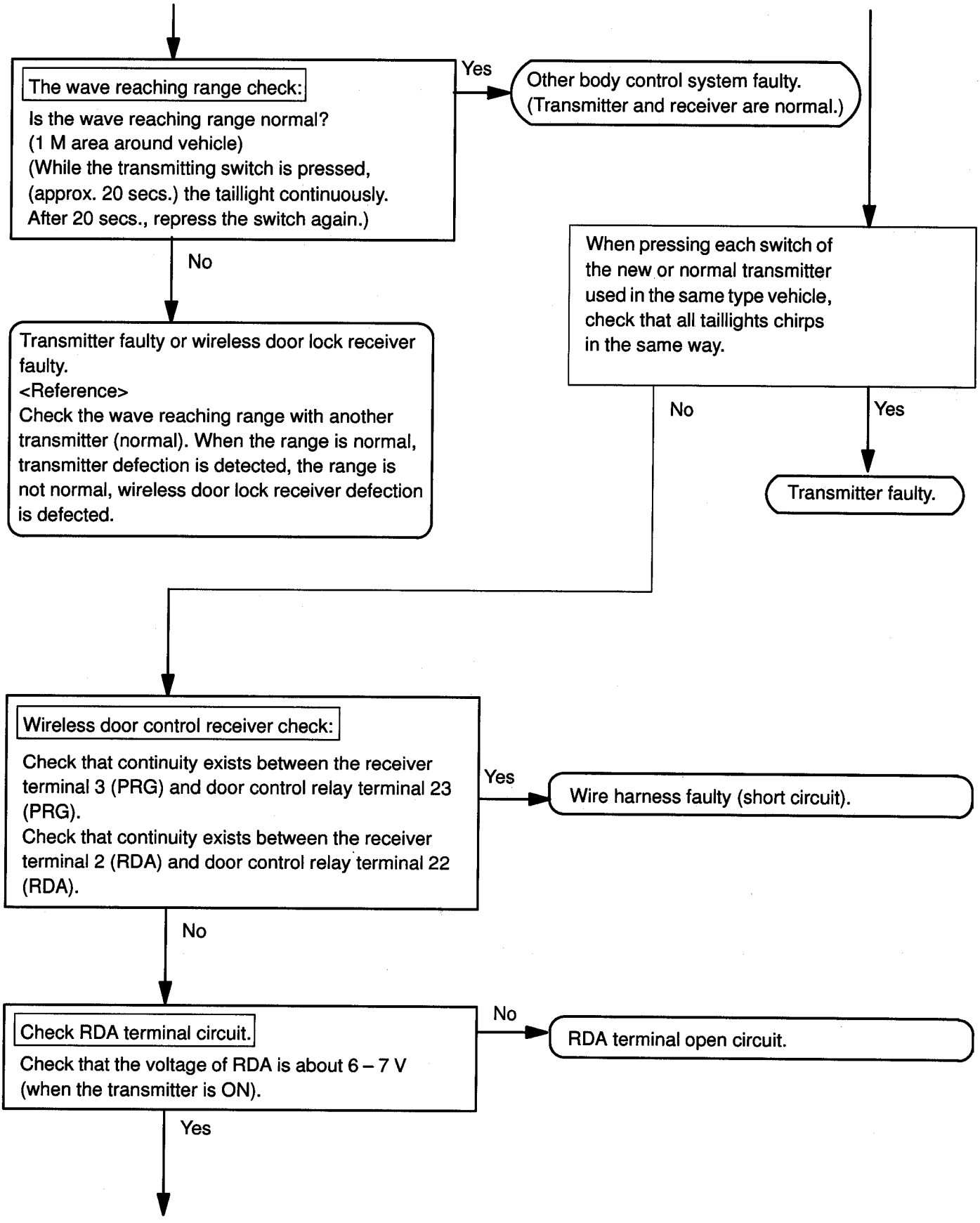
(2) Incompatibility of the recognition code or out from synchronization of rolling code.

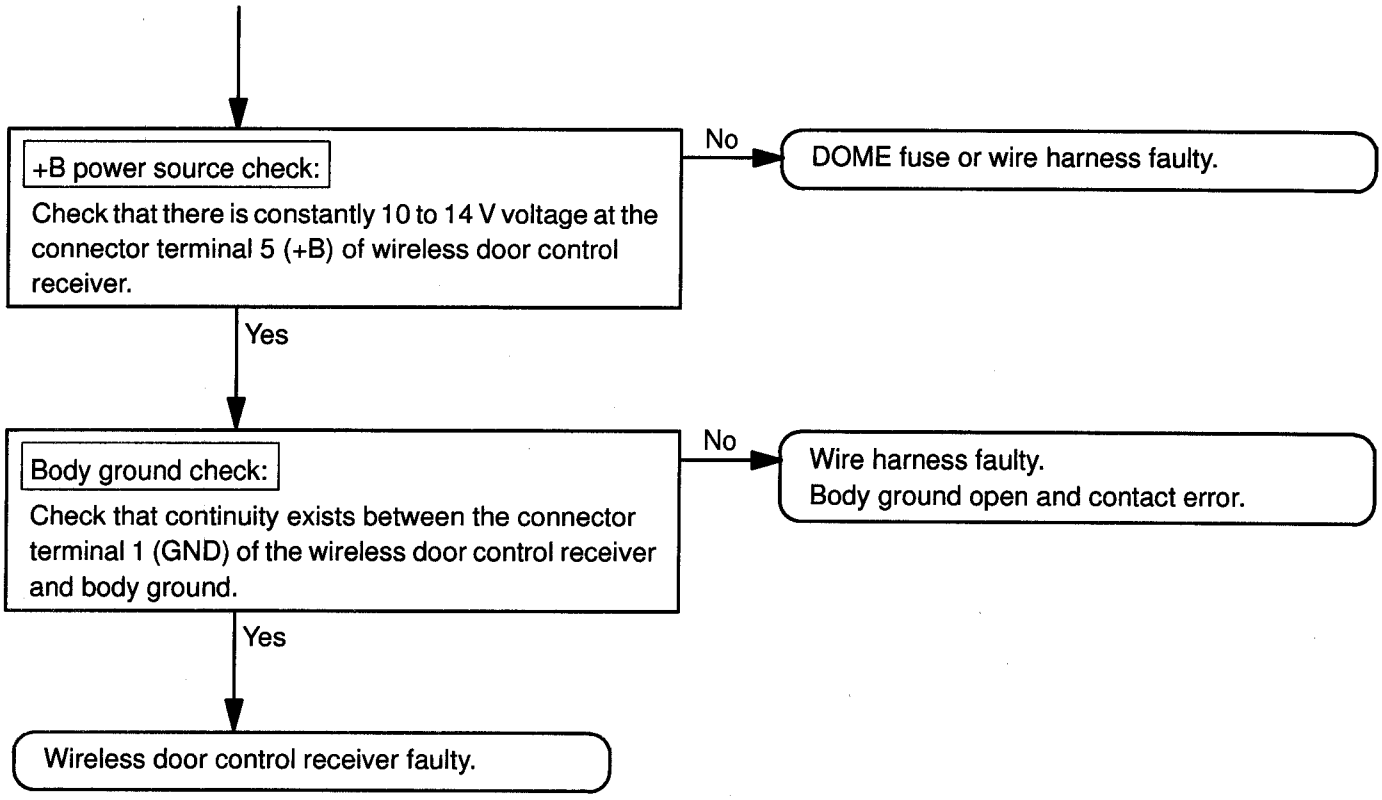


<Reference>:
While turning the ignition switch ON in the self diagnostic mode, the mode returns to normal mode.

No response from hazard warning light.

(1)


The wave reaching range check:
Is the wave reaching range normal?
(1 M area around vehicle)
(While the transmitting switch is pressed, (approx. 20 secs.) the taillight continuously. After 20 secs., repress the switch again.)
Yes
Other body control system faulty. (Transmitter and receiver are normal.)
No
Transmitter faulty or wireless door lock receiver faulty.
<Reference>
Check the wave reaching range with another transmitter (normal). When the range is normal, transmitter defection is detected, the range is not normal, wireless door lock receiver defection is defected.
When pressing each switch of the new or normal transmitter used in the same type vehicle, check that all taillights chirps in the same way.
No
Yes
Transmitter faulty.
Wireless door control receiver check:
Check that continuity exists between the receiver terminal 3 (PRG) and door control relay terminal 23 (PRG).
Check that continuity exists between the receiver terminal 2 (RDA) and door control relay terminal 22 (RDA).
Yes
Wire harness faulty (short circuit).
No
Check RDA terminal circuit.
Check that the voltage of RDA is about 6 – 7 V (when the transmitter is ON).
No
RDA terminal open circuit.
Yes


+B power source check:
Check that there is constantly 10 to 14 V voltage at the connector terminal 5 (+B) of wireless door control receiver.
No
DOME fuse or wire harness faulty.
Yes
Body ground check:
Check that continuity exists between the connector terminal 1 (GND) of the wireless door control receiver and body ground.
No
Wire harness faulty.
Body ground open and contact error.
Yes
Wireless door control receiver faulty.

BE0OJ–06

INSPECTION

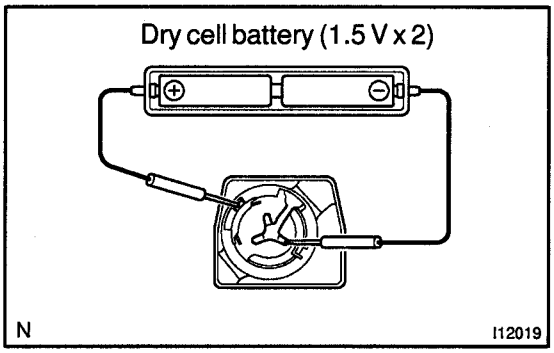
1. INSPECT WIRELESS DOOR LOCK TRANSMITTER OPERATION

HINT:

Refer to "Wireless door lock control receiver and transmitter replacement" on page BE–109.

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

(b) Remove the battery (lithium battery).



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

HINT:

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

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

Standard:

Remote control of vehicle door lock can be operated.

HINT:

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

(e) Install the battery (lithium battery).

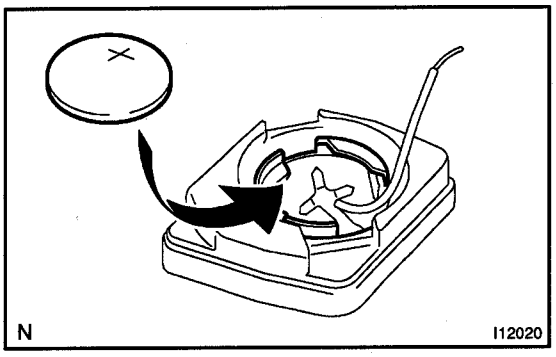
(f) Install a cover so that O–ring is not distorted or slipped off.

(g) Using a screwdriver, tighten the screw.

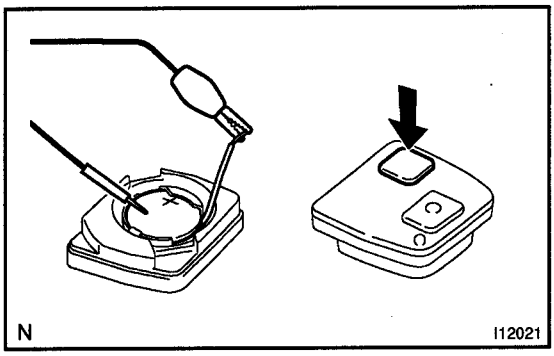
2. CHECK BATTERY CAPACITY

HINT:

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



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



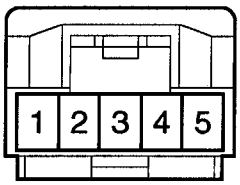
(d) Connect the (+) tester to the (+) battery (lithium battery), and (–) tester to the lead respectively.
(e) Press one of the transmitting switches on the transmitter for approx. 1 second.
(f) Press the transmitting switch on the transmitter again to check the voltage.
Standard: 2.1 V or more

HINT:

- When the temperature of the battery is low, the judge can not be made correctly.
  When the outcome of the test is less than 2.1 V, conduct the test again after leaving the battery in the place at 18 °C for more than 30 minutes.
- By auto power off function, the voltage becomes no load voltage (more than 2.5 V) condition after 20 seconds from the switch was pressed.
  Make sure to read the voltage before of it.
- High voltage might be shown 1 to 2 times after leaving the battery, judge should be made with the voltage shown at the 3rd time or later.

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

Wire harness side:



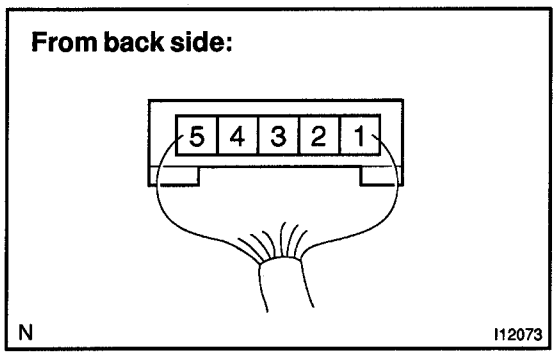
N I12038

3. INSPECT WIRELESS DOOR LOCK CONTROL RECEIVER CIRCUIT

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

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

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



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

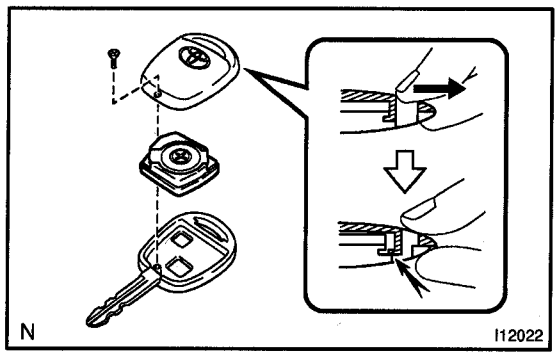
Tester connection	Condition	Specified condition
3 – Ground	Normal mode	10 – 14 V
2 – Ground	Ignition switch position OFF Key removed Transmitter ON	About 6 – 7 V

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

BE0GP–10

REPLACEMENT

1. REPLACE TRANSMITTER (LITHIUM) BATTERY



NOTICE:

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

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

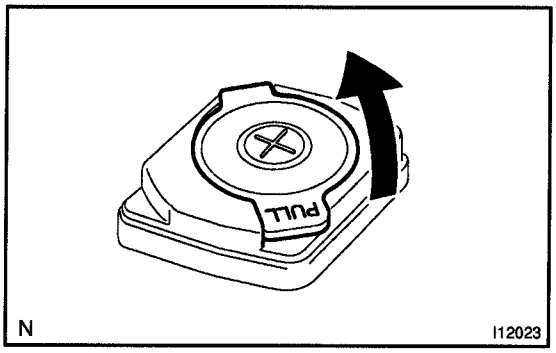
NOTICE:

Do not pry out the cover forcibly.

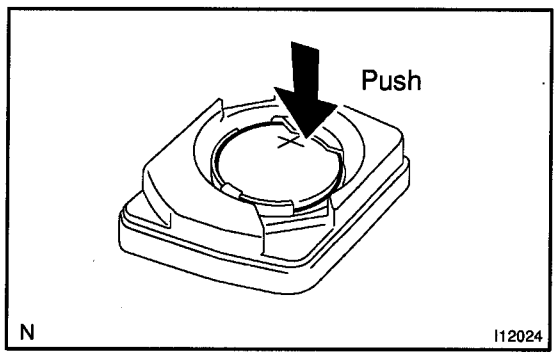
HINT:

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

(b) Remove the transmitter.



(c) Pull out the battery cover.



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

NOTICE:

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

(e) Install a battery (lithium battery).

NOTICE:

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

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

NOTICE:

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

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

(h) Using a screwdriver, tighten the screw.

2. REPLACE DOOR CONTROL RECEIVER AND TRANSMITTER

NOTICE:

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

(a) Select which operation mode should be performed from the following modes.
- Add mode
- Rewrite mode
- Prohibition mode
- Confirmation mode

HINT:
- The add mode is used to retain codes already registered while you register new recognition codes. This mode is used when adding a transmitter. However, if the number of registered codes exceeds 4 codes, previously registered codes are correspondingly erased in order, starting from the first registered code.
- The rewrite mode is used to erase all previously registered codes and register only new recognition codes.
- The prohibition mode is used to erase all registered codes and cancels the wireless door lock function. Use this mode when the transmitter is lost.
- The confirmation mode is for confirming how many recognition codes are already registered before you register additional recognition codes.

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

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

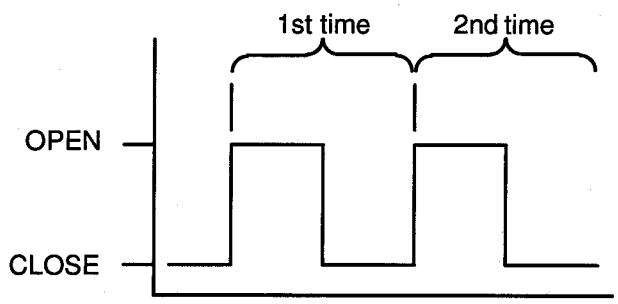
Start registration of recognition code

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

Insert the key into the ignition key cylinder, then pull it out. (Reform this twice within 5 seconds)

Within 40 secs.

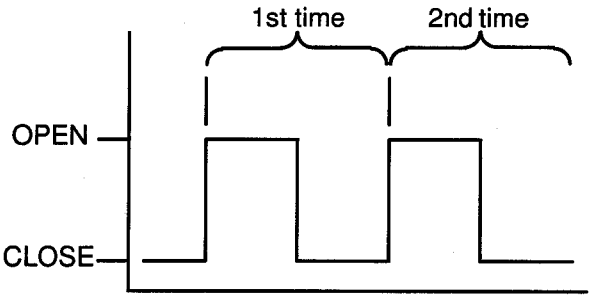
Open and close the door (manual operation) 2 times.



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

Within 40 secs.

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

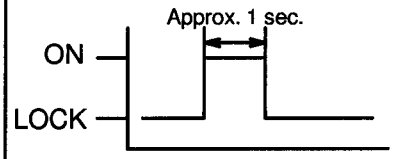


Close the all door and insert the key into the ignition key cylinder.

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

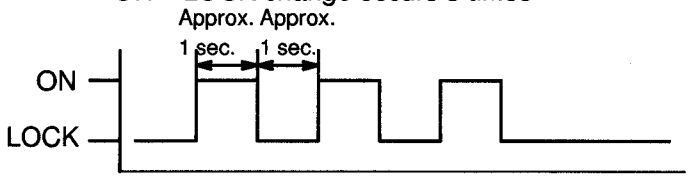
Add mode

ON – LOCK change occurs 1 time



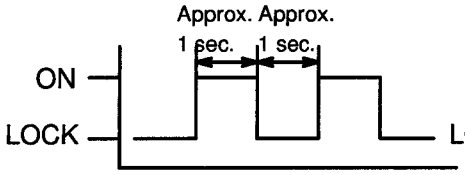
Confirmation mode

ON – LOCK change occurs 3 times



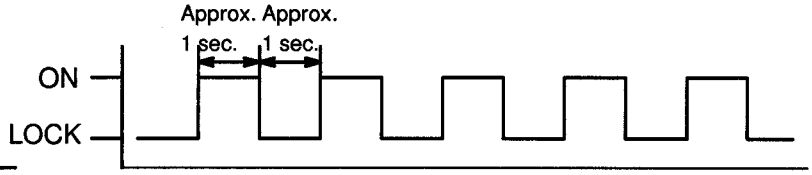
Rewrite mode

ON – LOCK change occurs 2 times



Prohibition mode

ON – LOCK change occurs 5 times



Pull out the key from the ignition key cylinder.

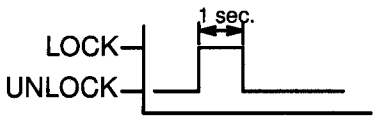
Within 3 secs.

When add mode or rewrite mode is selected.

Door control relay automatically performs the LOCK–UNLOCK operation once or twice at 1 sec. interval to inform the operator that either the add mode or rewrite mode has been selected.

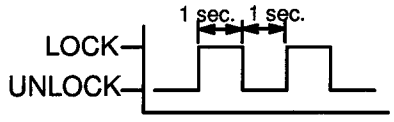
LOCK–UNLOCK occurs once

Indicates that add mode has been selected.



LOCK–UNLOCK occurs twice

Indicates that rewrite mode has been selected.



When prohibition mode is selected.

When confirmation mode is selected.

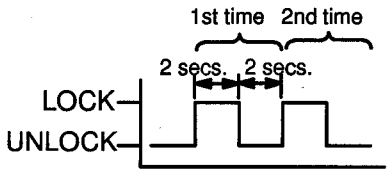
Door control relay automatically performs the LOCK–UNLOCK operation 1 to 4 times at 2 sec. interval to inform the operator of the number of the registered codes.

HINT:

When the number of the registered code is 0, the operation is automatically performed 5 times.

Example:

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

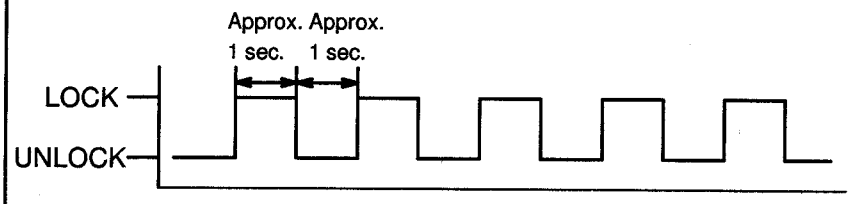


Registration of recognition code (Confirmation mode and prohibition mode) is completed.

When prohibition mode is selected.

Within 20 secs.

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



Press the lock and unlock switches on the transmitter switch simultaneously for more than between 1 sec. or more and 1.5 sec. below.

Within 3 secs.

Press either one of 2 switches on the transmitter.

Within 3 secs.

Door control relay automatically performs LOCK–UNLOCK operation once or twice at a 1 sec. interval to inform the operator that the receiver has received the signal from the transmitter.

LOCK–UNLOCK occurs once

Registration of recognition code is completed

LOCK–UNLOCK occurs twice

Registration of recognition code has not been completed.
- Recognition code received first time and second time did not match.
- When selecting add mode, a registered recognition code was received.

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

Proceed to finish registration

Proceed to continue registration

Within 40 secs.

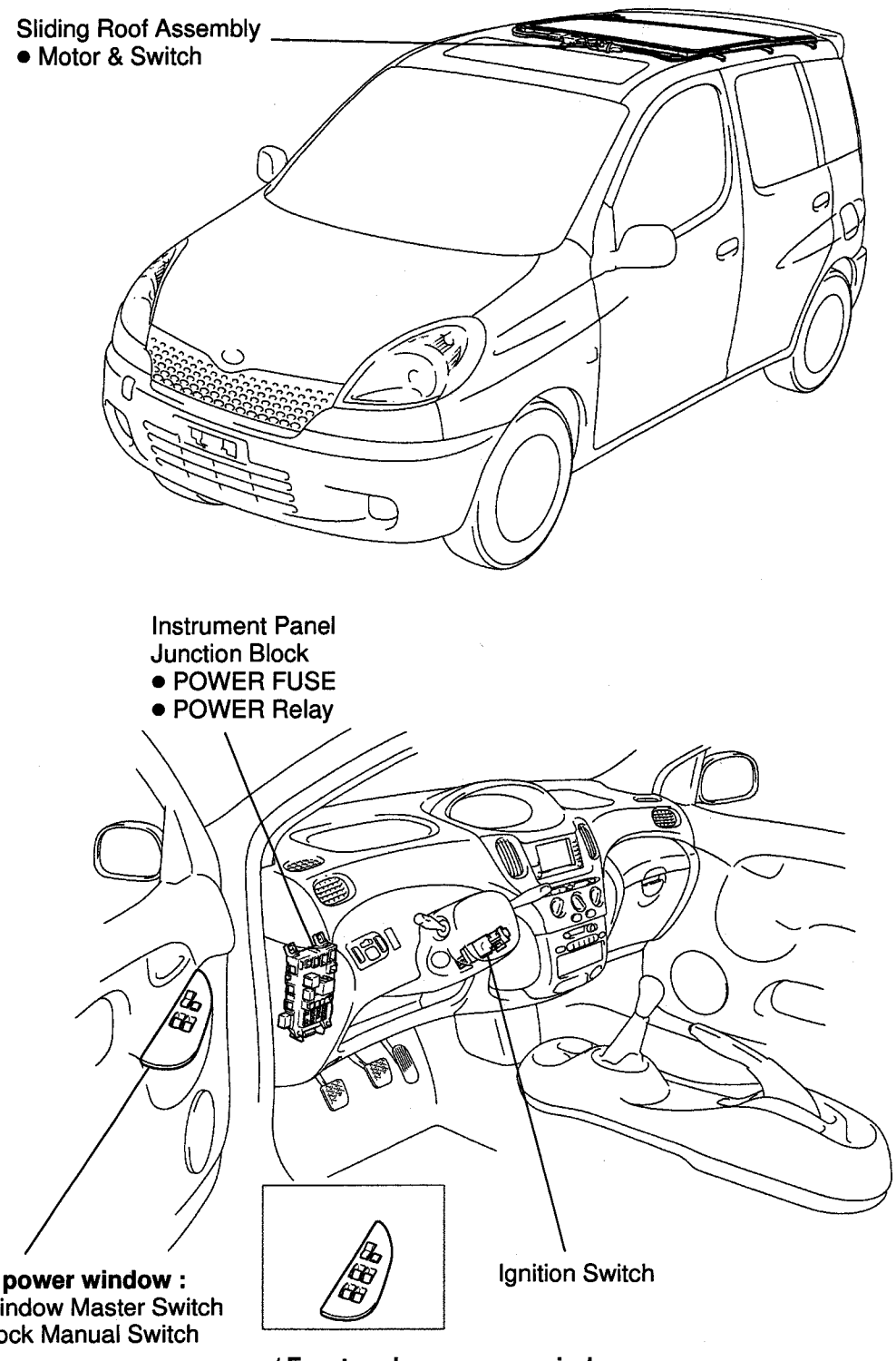
If even one of the following conditions is satisfied, registration of recognition codes is completed.
- 40 secs. elapses since the door control relay response.
- The driver's door is opened.
- The key plate is inserted in the ignition key cylinder.
- 4 type recognition codes are registration at one time.

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

SLIDING ROOF SYSTEM

LOCATION

BE1E9–01



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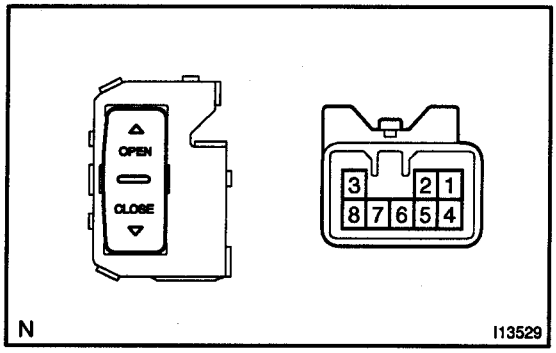


BE1EA-01

INSPECTION

1. INSPECT SLIDING ROOF SWITCH CONTINUITY

(a) Connect the positive (+) lead from the battery to terminal 8 and the negative (–) lead to terminal 4 and 7.

(b) Connect the positive (+) lead from the voltmeter to terminal 1 and the negative (–) lead to terminal 4.

HINT:

Tests shall be conducted in a sequence starting from the top.

Condition	Test operation	Test result
No connection between battery and terminal	Sliding roof switch OFF → OPEN	0 → 10 – 14V
Battery (–) connected to 5	Sliding roof switch OFF → OPEN	0 → 10 – 14V
Battery (–) connected to 6	Sliding roof switch OFF → OPEN	0 → 10 – 14V
Battery (–) connected to 5 and 6	Sliding roof switch OFF → OPEN	0 → 10 – 14V
Battery (–) connected to 5 Sliding roof switch OPEN	Connect battery (–) to 6	10 – 14V → 10 – 14V
Battery (–) connected to 5 and 6 Sliding roof switch OPEN	Disconnect battery (–) from 5	10 – 14V → 10 – 14V
No connection between battery and terminal Sliding roof switch OPEN	Disconnect battery (–) from 5	10 – 14V → 10 – 14V
No connection between battery and terminal	Sliding roof switch OFF → CLOSE	0 → 0V
Battery (–) connected to 5	Sliding roof switch OFF → CLOSE	0 → 0V
Battery (–) connected to 6	Sliding roof switch OFF → CLOSE	0 → 0V
Battery (–) connected to 5 and 6	Sliding roof switch OFF → CLOSE	0 → 0V
Battery (–) connected to 5 and 6	Disconnect battery (–) from 6	0 → 0V
Battery (–) connected to 5 Sliding roof switch CLOSE	Disconnect battery (–) from 5	0 → 0V

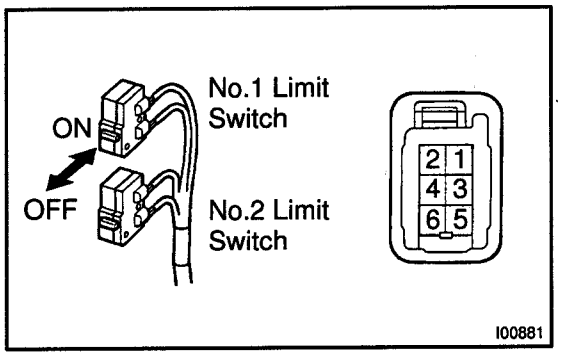
(c) Connect the positive (+) lead from the battery to terminal 8 and the negative (–) lead to terminal 4 and 7.

(d) Connect the positive (+) lead from the voltmeter to terminal 3 and the negative (–) lead to terminal 4.

Condition	Test operation	Test result
No connection between battery and terminal	Sliding roof switch OFF → OPEN	0 → 0V
Battery (–) connected to 5	Sliding roof switch OFF → OPEN	0 → 0V
Battery (–) connected to 6	Sliding roof switch OFF → OPEN	0 → 0V
Battery (–) connected to 5 and 6	Sliding roof switch OFF → OPEN	0 → 0V
Battery (–) connected to 5 Sliding roof switch OPEN	Connect battery (–) to 6	0 → 0V
Battery (–) connected to 5 and 6 Sliding roof switch OPEN	Disconnect battery (–) from 5	0 → 0V
No connection between battery and terminal Sliding roof switch OPEN	Disconnect battery (–) from 5	0 → 0V
No connection between battery and terminal	Sliding roof switch OFF → CLOSE	0 → 0V
Battery (–) connected to 5	Sliding roof switch OFF → CLOSE	0 → 10 – 14V
Battery (–) connected to 6	Sliding roof switch OFF → CLOSE	0 → 10 – 14V
Battery (–) connected to 5 and 6	Sliding roof switch OFF → CLOSE	0 → 10 – 14V
Battery (–) connected to 5 and 6	Disconnect battery (–) from 6	10 – 14 → 0V after approx. 5 sec
Battery (–) connected to 5 Sliding roof switch CLOSE	Connect battery (–) from 5	10 – 14 → 0V

(e) When the terminal 7 is not connected to the battery negative (–) lead, the test result should be 0V for each of the above tests.

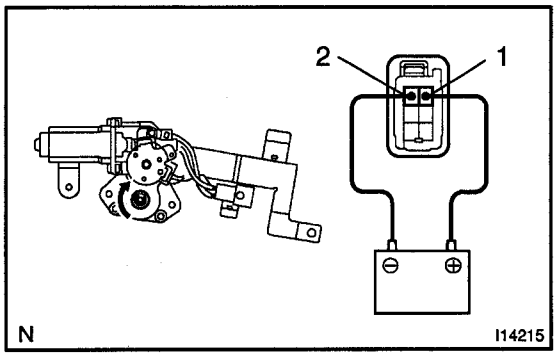
If operation is not as specified, replace the control assembly.



2. INSPECT SLIDING ROOF LIMIT SWITCH CONTINUITY

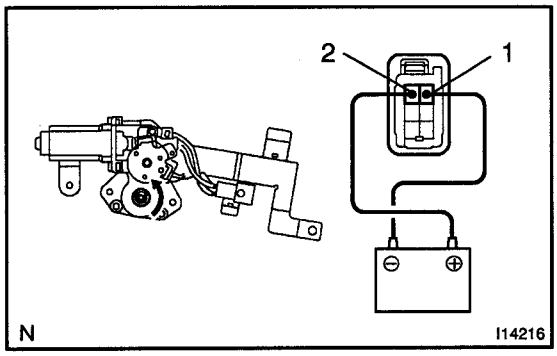
Switch position	Tester connection	Specified condition
No.1 limit switch OFF (SW pin released)	4 – 5	No continuity
No.1 limit switch ON (SW pin pushed in)	4 – 5	Continuity
No.2 limit switch OFF (SW pin released)	4 – 6	No continuity
No.2 limit switch ON (SW pin pushed in)	4 – 6	Continuity

If continuity is not as specified, replace the switch.



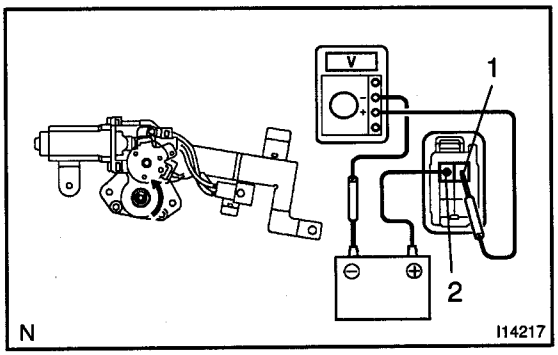
3. INSPECT SLIDING ROOF MOTOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns counterclockwise (moves of the close and up side).



(b) Reverse the polarity, check that the motor turns clockwise. (moves to the open and down side).

If operation is not as specified, replace the motor.



4. INSPECT SLIDING ROOF MOTOR PTC THERMISTOR OPERATION

(a) Disconnect the connector from the sliding roof motor.

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

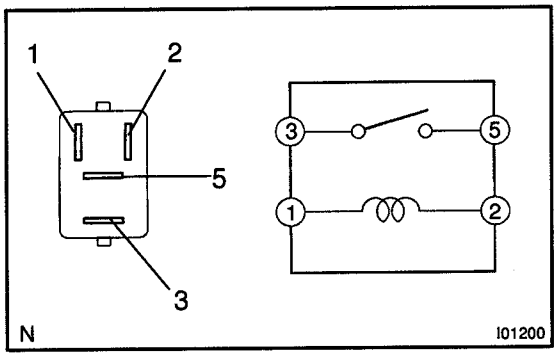
(c) Connect the positive (+) lead from the battery to terminal 2 on the wire harness side connector, and raise the window to the fully position.

(d) Continue to apply voltage and check that the current changes to less than 1 A within 10 to 90 seconds.

(e) Disconnect the leads from the terminals.

(f) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4 and check that the sliding roof begins to "CLOSE" position.

If operation is not as specified, replace the motor.



5. INSPECT POWER MAIN RELAY CONTINUITY

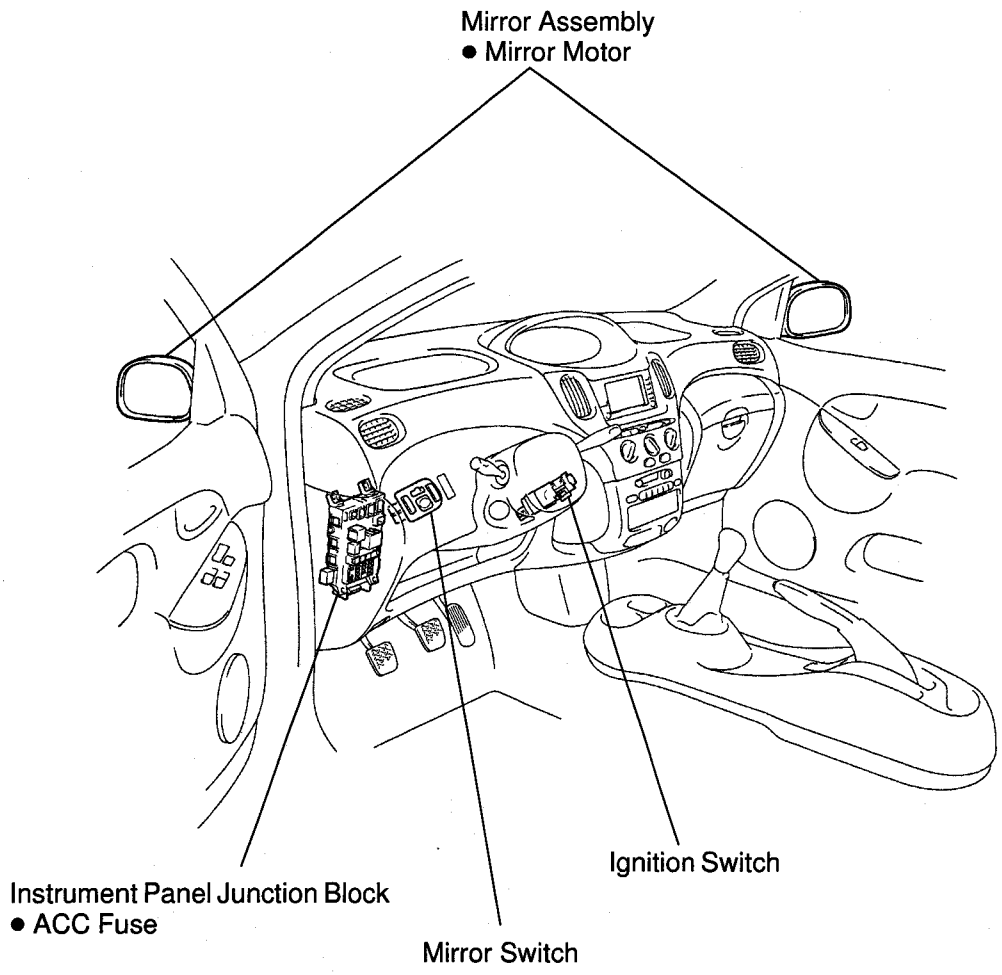
Condition	Tester connection	Specified condition
Constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the relay.

POWER MIRROR CONTROL SYSTEM

BE18Y–02

LOCATION



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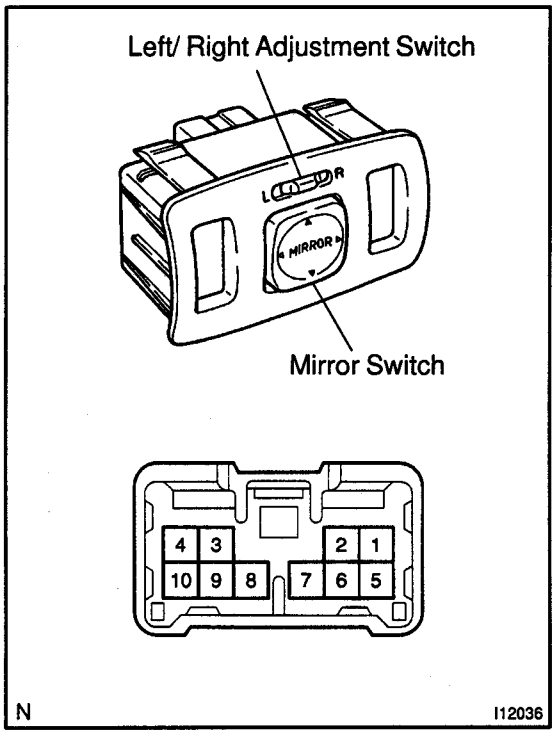


INSPECTION

1. INSPECT MIRROR SWITCH CONTINUITY

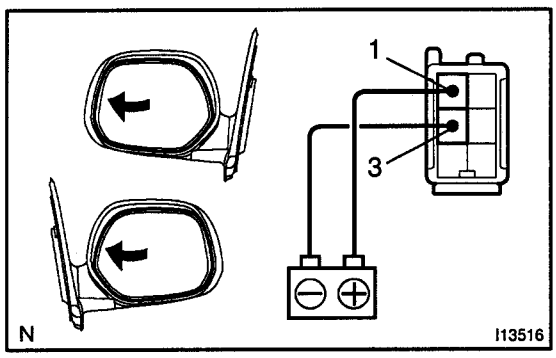
Left side for Left/Right adjustment switch

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

Right side for Left/Right adjustment switch

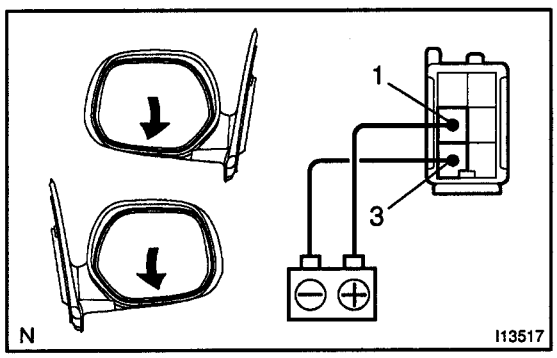
Switch position	Tester connection	Specified condition
OFF	–	No continuity
UP	6 – 10 7 – 9	Continuity
DOWN	6 – 9 7 – 10	Continuity
LEFT	6 – 10 8 – 9	Continuity
RIGHT	6 – 9 8 – 10	Continuity

If continuity is not as specified, replace the switch.

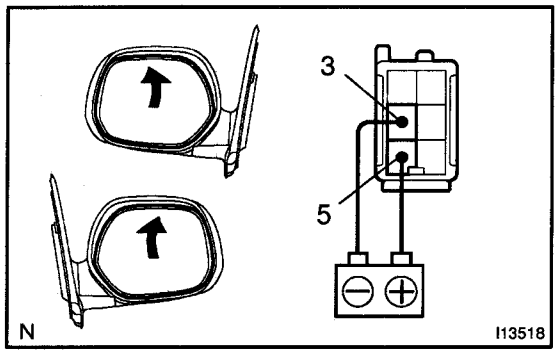


2. INSPECT MIRROR MOTOR OPERATION

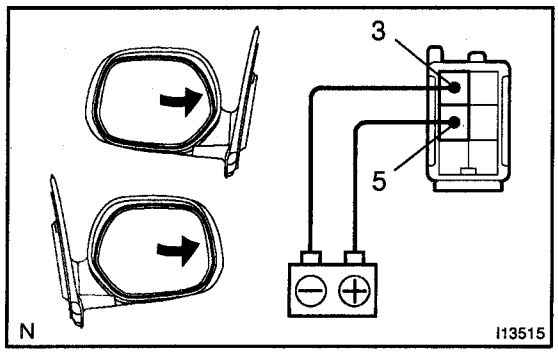
(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 1, and check that the mirror turns right side.



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



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



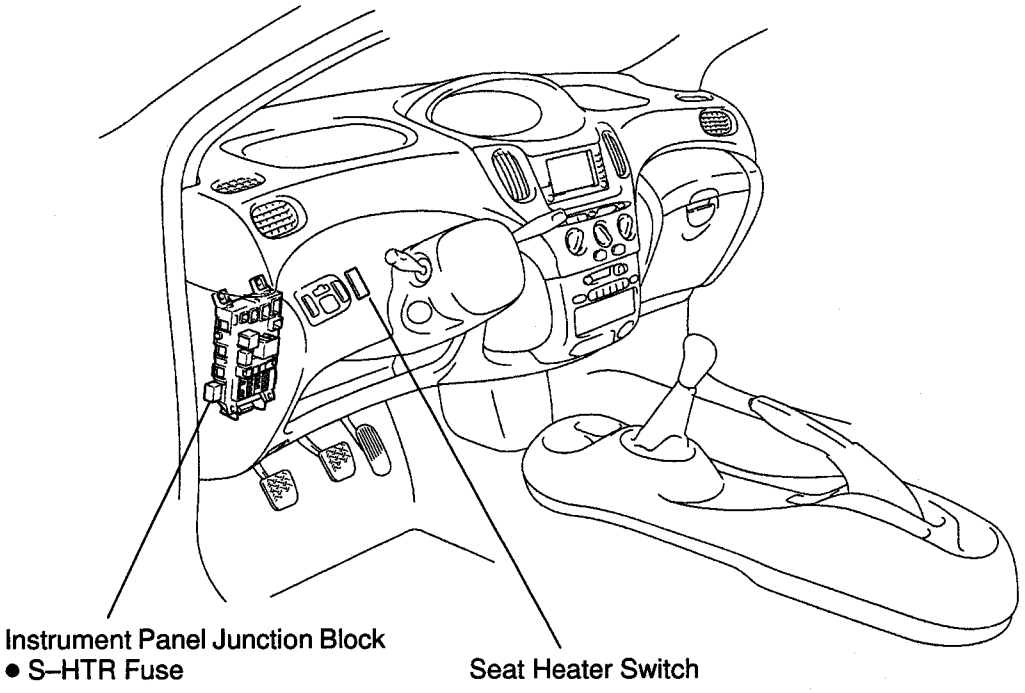
(d) Reverse the polarity, and check that the mirror turns to the upward.

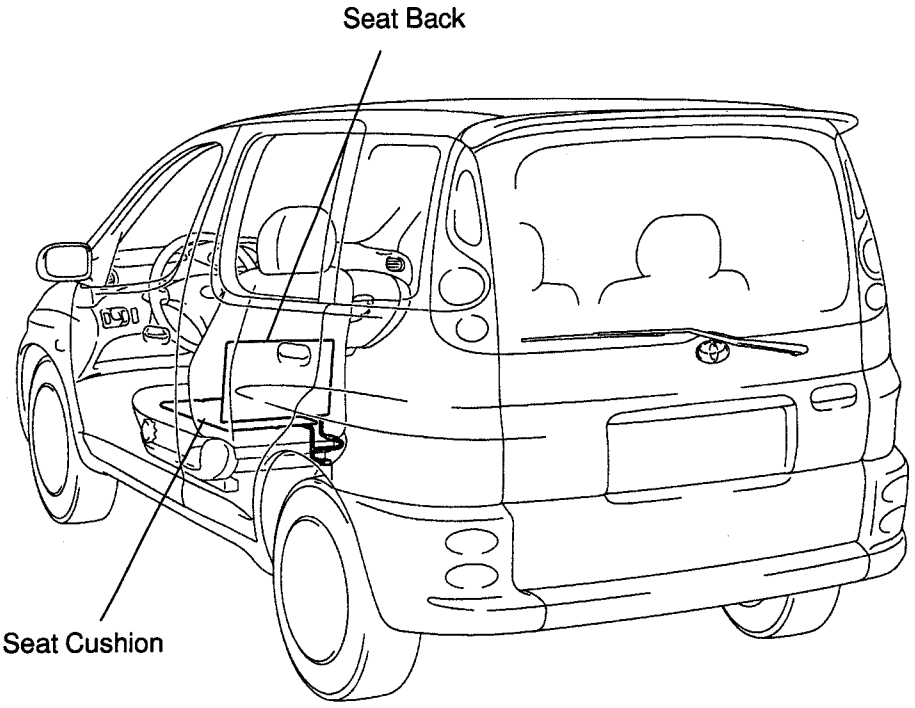
If operation is not as specified, replace the mirror assembly.

SEAT HEATER SYSTEM

LOCATION

BE190-02





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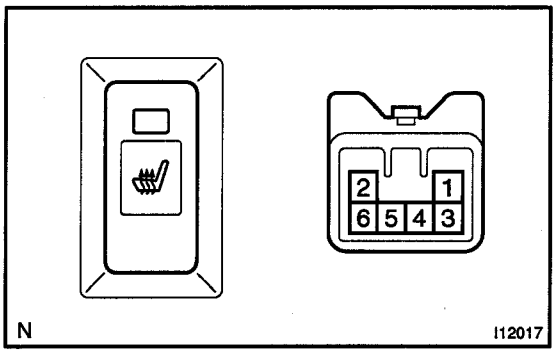
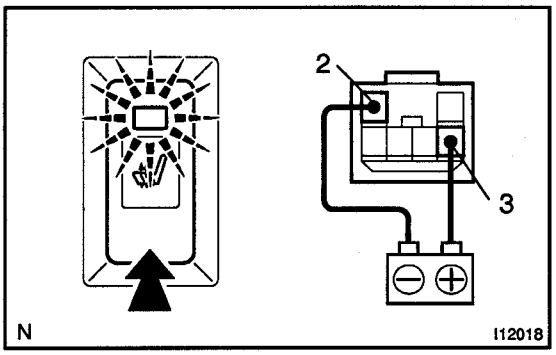
INSPECTION



1. INSPECT SEAT HEATER SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	2 – 6	No continuity
ON	2 – 3 – 6	Continuity
Illumination circuit	1 – 4	Continuity

If continuity is not as specified, replace the switch.

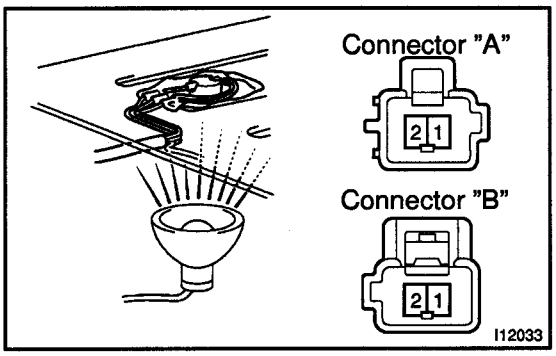


2. INSPECT SEAT HEATER INDICATOR LIGHT OPERATION

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

(b) Push the seat heater switch and check that the indicator light lights up.

If operation is not as specified, replace the switch and inspect the circuits connected to other parts.



3. INSPECT SEAT HEATER CUSHION CONTINUITY

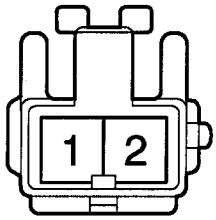
(a) Heat the thermostat with a light.

(b) Inspect the seat heater continuity between terminals, as shown.

Tester connection	Condition	Specified condition
A2 – B1	Constant	Continuity
A2 – B2	Constant	Continuity
A1 – B1	Seat heater temperature below 56 °C (133 °F)	Continuity

If continuity is not as specified, replace the seat cushion pad.

Wire harness side:



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4. INSPECT SEAT BACK CONTINUITY

Inspect the seat back continuity between terminals, as shown.

Tester connection	Condition	Specified condition
1 – 2	Constant	Continuity

If continuity is not as specified, replace the seat back pad.

AUDIO SYSTEM

DESCRIPTION

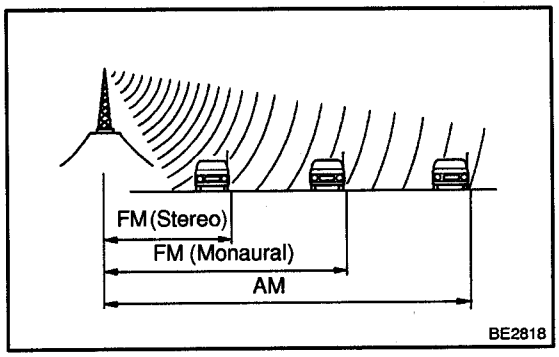
BE191-02

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	LW ⟷	AM (MW) ⟷	SW ⟷	FM (UKW) ⟷	
Modulation	Amplitube modulation			Frequency modulation	

LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency

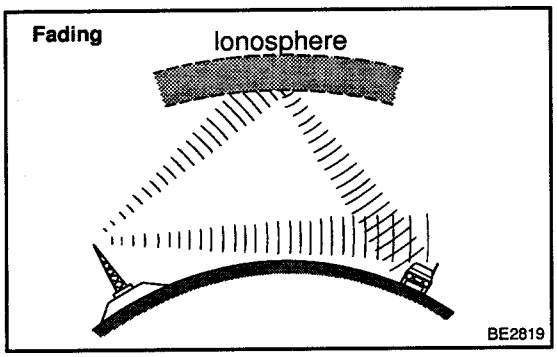


2. SERVICE AREA

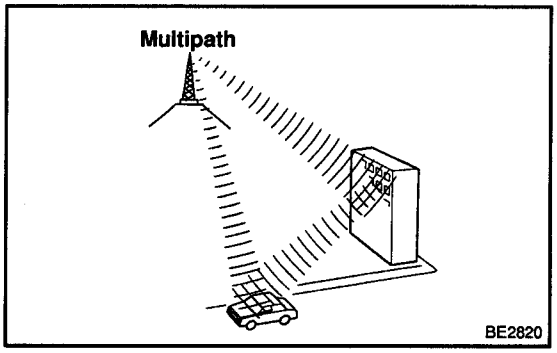
There are great differences in the size of the service area for AM and FM monaural. Sometimes FM stereo broadcasts cannot be received even through AM can be received in very clearly.
Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference ("noise")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

3. RECEPTION PROBLEMS

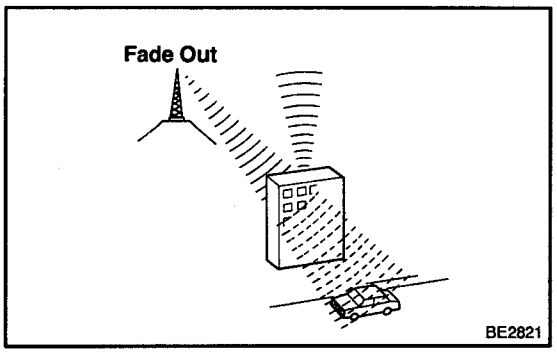
Besides the problem of static, there are also the problems called "fading", "multipath" and "fade out". These problems are caused not by electrical noise but by the nature of the radio waves themselves.



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



(2) Multipath
One type of interference caused by the bounce of radio waves off of obstructions is called "multipath". Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly.



(3) Fade Out
Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstruction. This is called "fade out".

4. COMPACT DISC PLAYER

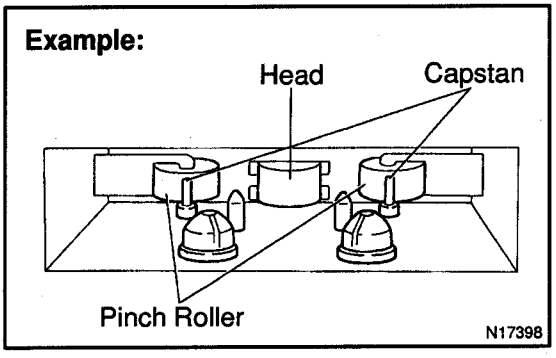
Compact Disc Players use a laser beam pick–up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc.

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:

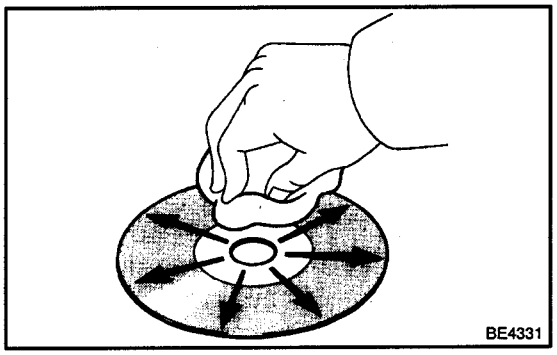
CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.



5. Tape Player/Head Cleaning:
MAINTENANCE

(a) Raise the cassette door with your finger.
Next, using a pencil or similar object, push in the guide.

(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



6. 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:

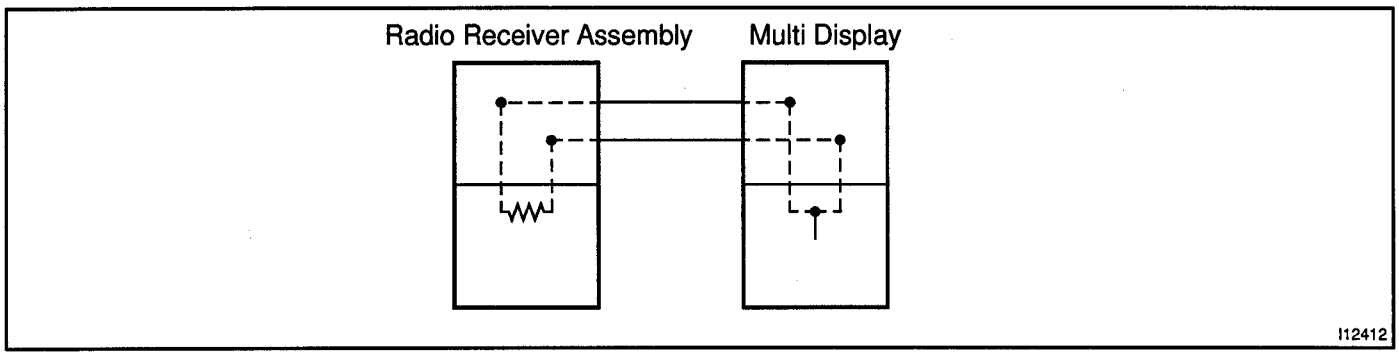
Do not use a conventional record cleaner or anti–static preservative.

7. 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.

BE1EC–01

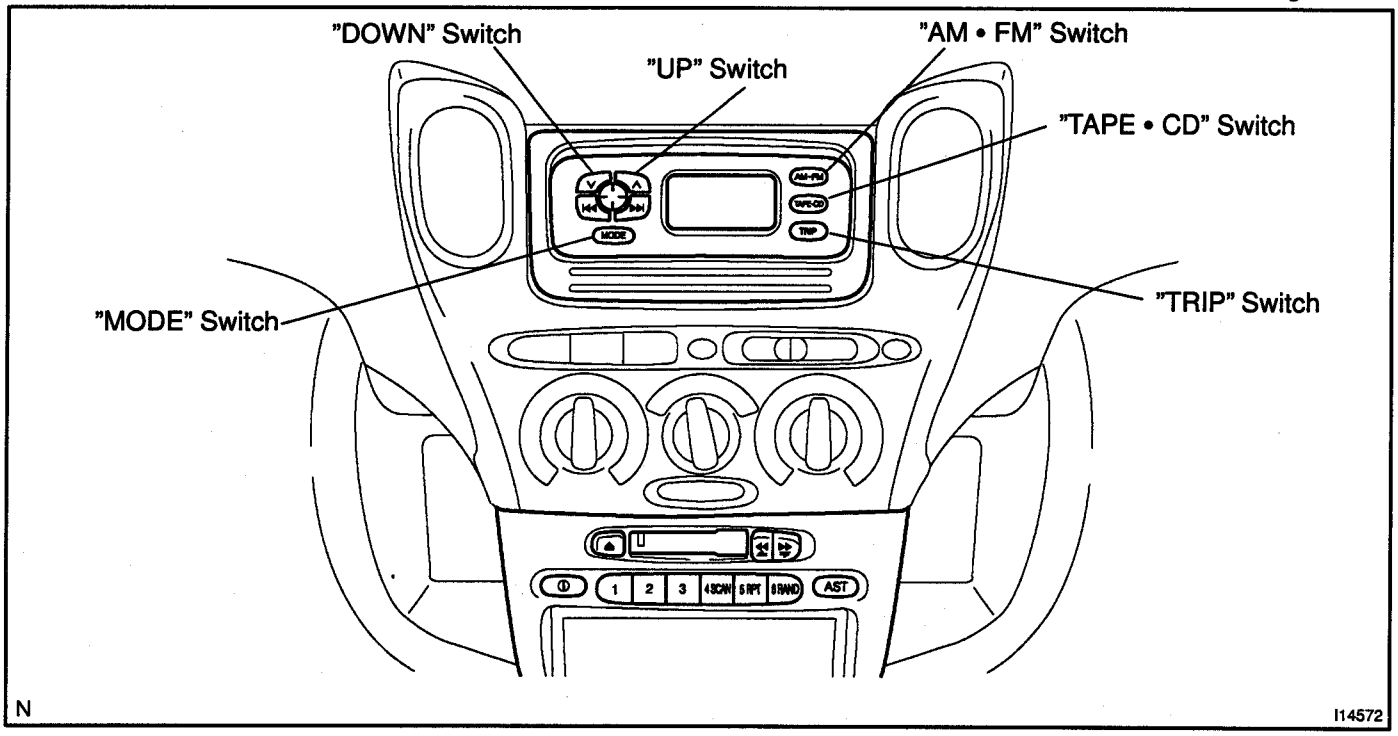
TROUBLESHOOTING

1. DIAGNOSIS FUNCTION (Standard type)

Error codes for connected component are displayed on the screen of display.

HINT:

Connection check codes are not in this troubleshooting.

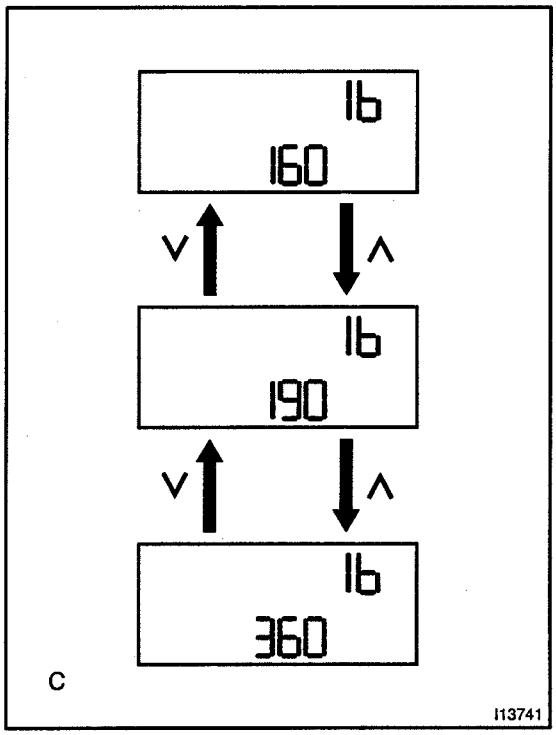


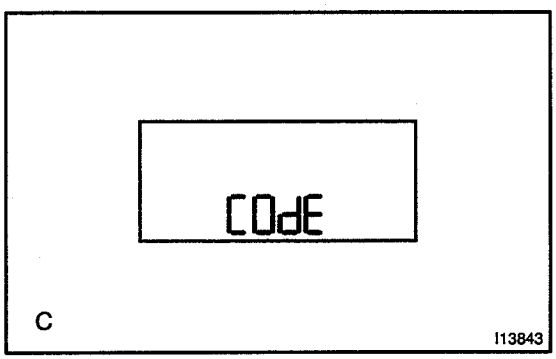
(a) Diagnosis start–up

For shifting to diagnosis mode, press the "MODE" switch 3 times while pressing the "AM•FM" and "TRIP" switch at the same time.(Beep 3 times)

(b) Finishing diagnosis

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





(c) LAN check

(1) In the 1st line, a connection check code is displayed on the right.

(2) In the 2nd line, a registered physical address of the connected component is displayed.

Code No. (physical address) List

Code No. (physical address)	Components name
160	Multi display
190	Radio receiver assembly (Audio head unit)
190	CD tuner

Code No. (physical address) List / Dealer option

Code No. (physical address)	Components name
178	Navigation ECU
320	Casette deck
340	CD player (in–dash type)
360	CD changer
3A0	MD changer

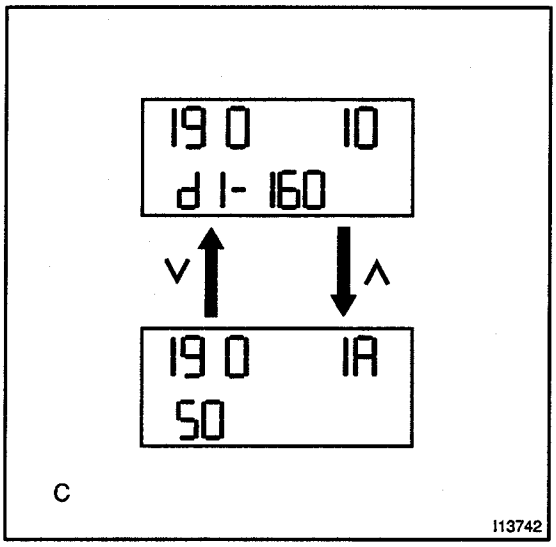
(3) Display screen contains data for only one component at a time.

(4) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.

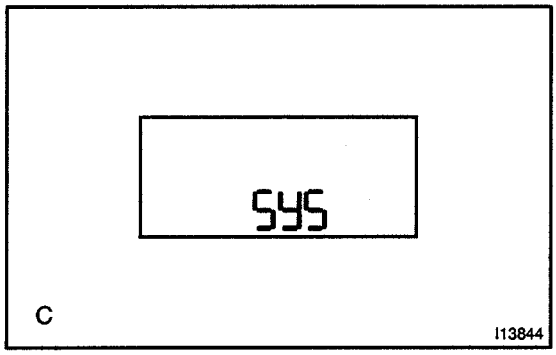
(5) First, current connection check code is displayed, secondly data for a master component and then, those for other slave components are displayed in the order of the physical address.

(d) Diagnosis memory

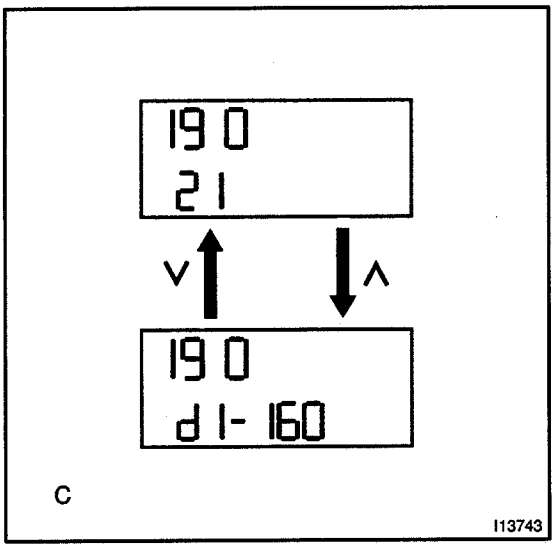
(1) When pressing the "MODE" switch in LAN check mode, the mode turns to the diagnosis memory mode. ("COdE" is displayed.) (Beep 3 times)
The results of self diagnosis performed over a tuner and connected component are memorized and displayed.



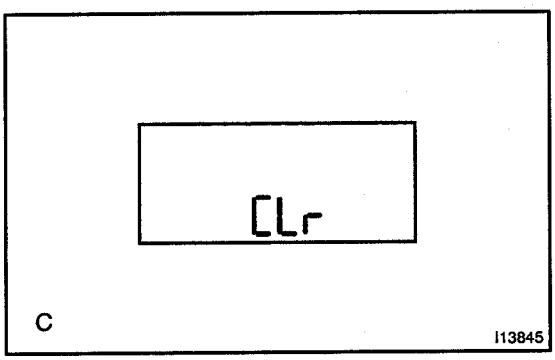
(2) In the 1st line, a physical address of component and the connection check code of DTC are displayed.
(3) In the 2nd line, a stored DTC (excluding connection check code) is displayed.
Displayed contents: DTC – auxiliary code
(4) Display screen contains only one DTC code at a time.
(5) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.
(6) Data for a master component is displayed first, and then those for other slave components are displayed in the order of the physical address (component in which DTC is detected only).
(7) The connection check codes are displayed in ascending order. For the same code, they are displayed in the order of priority in the DTCs.
(8) When no error is detected in the system, "00" is displayed.
(9) When pressing the "TRIP" switch, the mode returns to LAN check mode. (Beep 3 times)



(e) System check
(1) When pressing the "AM•FM" switch in LAN check mode, the mode turns to the system check mode in which the system performs self diagnosis of connected component and displays the results.("SyS" (showing the system is under detection) is displayed.) (Beep 3 times)



(2) In the 1st line, a physical address of the component of DTC are displayed.
(3) In the 2nd line, a stored DTC is displayed.
Displayed contents: DTC – auxiliary code
(4) Display screen contains only one DTC code at a time.
(5) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.
(6) Data for a master component is displayed first, and then other slave component are displayed in the order of the physical address (component in which DTC is detected only).
(7) When no error is detected in the system, "00" is displayed.
(8) DTCs are displayed in the order of priority.
(9) It sometimes takes approx. 40 sec. till the system inspection is completed.
(10) When pressing the "TRIP" switch in the system check mode, the mode returns to LAN check mode. (Beep 3 times)



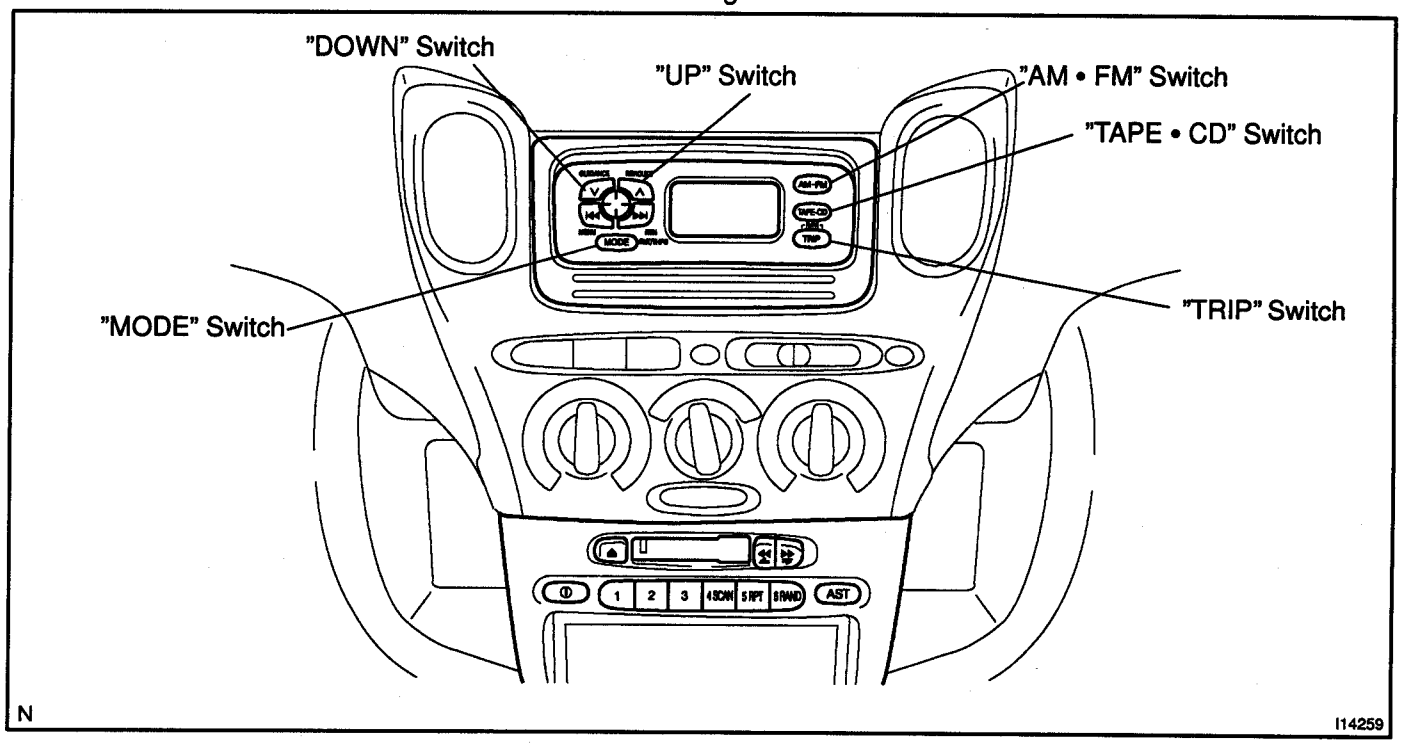
(f) Diagnosis memory clearance
(1) After an error is corrected, start up the diagnosis mode.
(2) Continue pressing the switch, "TAPE•CD" for 2 sec. ("CLr" is displayed.) (Beep 1 time)
(3) Press the "MODE" switch to change to the diagnosis memory mode and check that the normal code (00) is output.

2. DIAGNOSIS FUNCTION (Option–Higrade)

Error codes for a tuner and connected component are displayed on the screen of the tuner.

HINT:

Connection check codes are not specially required in this troubleshooting.

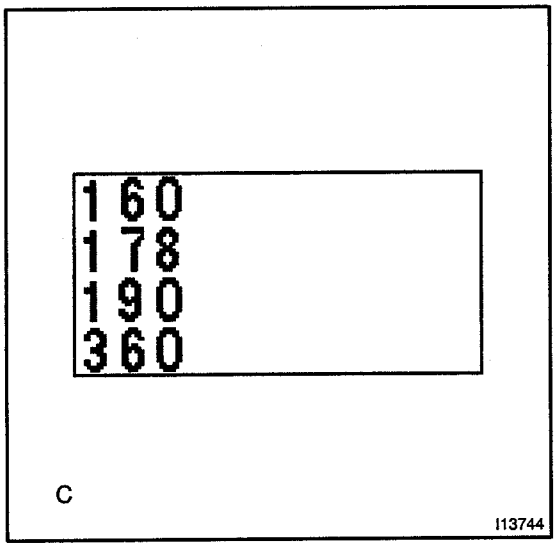


(a) Diagnosis start–up

For shifting to diagnosis mode, push the "MODE" switch 3 times while pressing the "AM•FM" and "TRIP" switch at the same time.(Beep 3 times)

(b) Finishing diagnosis

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



(c) LAN check

(1) Data for up to 4 components are displayed at a time.

(2) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.

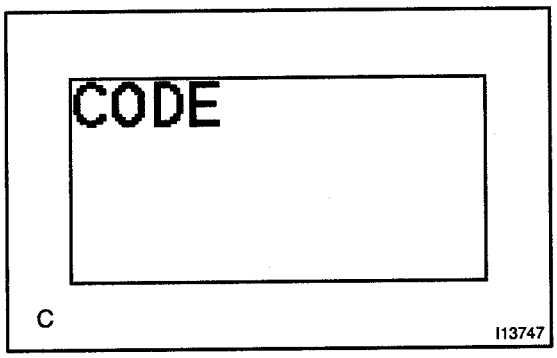
Code No. (physical address) List

Code No. (physical address)	Component name
160	Multi display
190	Radio receiver assembly (Audio head unit)
190	CD tuner

Code No. (physical address) List / Dealer option

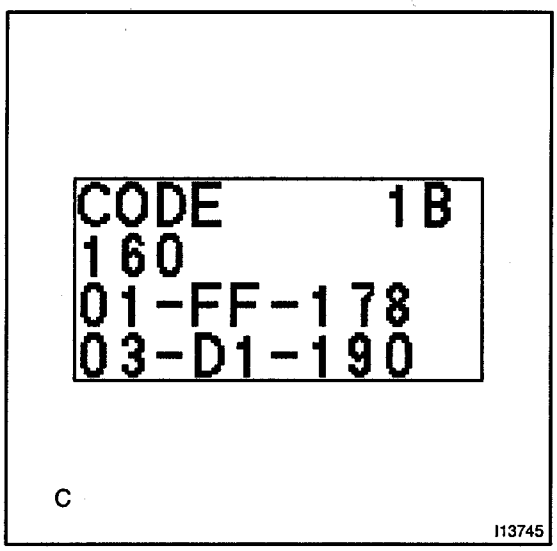
Code No. (physical address)	Component name
178	Navigation ECU
320	Casette deck
340	CD player (in–dash type)
360	CD changer

(3) Data for a master component is displayed first, and then those for other slave components are displayed in the order of the physical address.

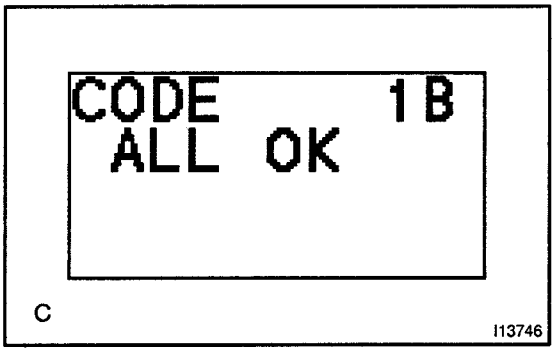


(d) Diagnosis memory

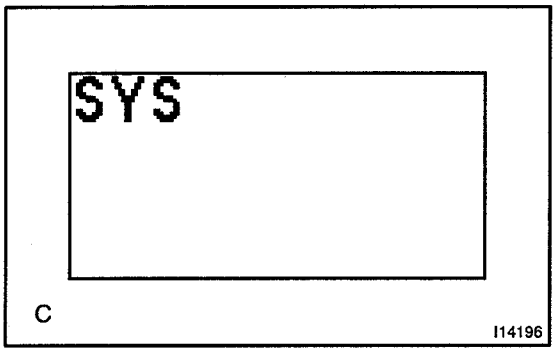
(1) When pressing the "MODE" switch in LAN check mode, the mode turns to the diagnosis memory mode. ("CODE" is displayed.) (Beep 3 times)
The results of self diagnosis performed over a tuner and connected component are memorized and displayed.



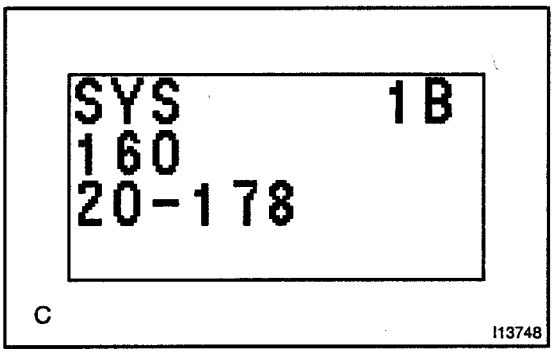
(2) In the 1st line, "CODE" and a current connection check code is displayed.
(3) In the 2nd line, a physical address of the component is displayed.
(4) In the 3rd and 4th lines, stored DTCs are displayed. Displayed contents: connection check code – DTC – auxiliary code
(5) Two DTC codes are displayed at a time.
(6) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.
(7) Data for a master component is displayed first, and then those for other slave components are displayed in the order of the physical address (components which DTC is detected only).
(8) The connection check codes are displayed in ascending order. For the same code, they are displayed in the order of priority in the DTCs.



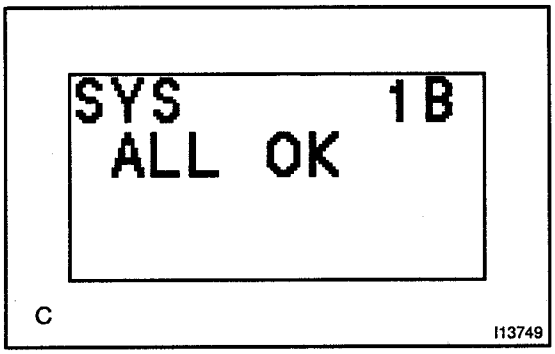
(9) When no error is detected in the system, "ALL OK" is displayed.
(10) When pressing the "TRIP" switch, the mode returns to LAN check mode. (Beep 3 times)



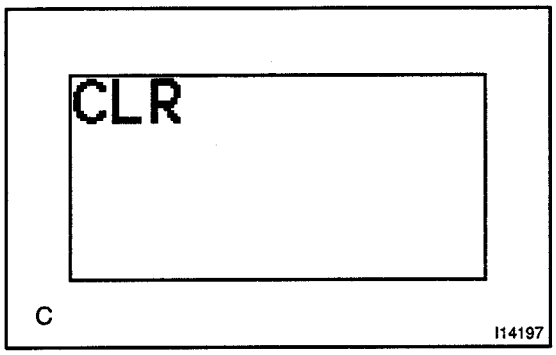
(e) System check
(1) When pressing the "AM•FM" switch in LAN check mode, the mode turns to the system check mode in which the system performs self diagnosis of connected component and displays the results.("SYS" (showing the system is under detection) is displayed.) (Beep 3 times)



(2) In the 1st line, "SYS" and a current connection check code are displayed.
(3) In the 2nd line, a physical address is displayed.
(4) In the 3rd and 4th lines, stored DTCs are displayed.
Displayed contents: DTCs – auxiliary code
(5) Two DTC codes are displayed at a time.
(6) By pressing TURN "UP" or "DOWN", the displayed code numbers (physical address) is changed in descending or ascending order respectively.



(7) When no error is detected in the system, "ALL OK" is displayed.
(8) Data for a master component is displayed first, and then those for other slave components are displayed in the order of the physical address. (only stored DTC connected component)
(9) DTCs are displayed in the order of priority
(10) It sometimes takes approx. 40 secs. till the system inspection is completed.
(11) When pressing the "TRIP" switch in the system check mode, the mode returns to LAN check mode. (Beep 3 times)



(f) Diagnosis memory clearance
(1) After errors are corrected, start up the diagnosis mode.
(2) Continue pressing the switch, "TAPE•CD" for 2 secs. ("CLR" is displayed.) (Beep 1 time)
(3) Press the "MODE" switch to change to the diagnosis memory mode and check that the normal code (ALL OK) is output.

3. DIAGNOSIS CODE LIST

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and components to be inspected	System Check	Diagnosis memory
Multi Display (160)	D1	Transmitter failure	Communication with component has failed successively.	• Check component in physical address which is shown by auxiliary code. • Wire harness and connecter check.	X	○
	D2	No Response to-Regular Communication	Error in periodic communication.		X	○
	FF	No Response to Diagnosis Mode	Result of diagnosis is not issued from the start to the end.		○	○
	21	ROM error	There is an error in internal ROM.	Multi–display Check	○	○
	22	RAM error	There is an error in internal RAM.		○	○
Head Unit (190)	D1	Transmitter failure	Communication with component has failed successively.	• Check component in physical address which is shown by auxiliary code. • Wire harness and connecter check.	X	○
	D4	Regular Communication Failure	Connection confirmation is not obtained from the component in communication.		X	○
	20	ECU error	There is an error in internal ECU.	Radio receiver assembly Check (Head Unit Check)	○	○
	21	ROM error	There is an error in internal ROM.		○	○
	22	RAM error	There is an error in internal RAM.		○	○
	41	AM tuner error	There is an error in AM tuner.		X	○
	42	FM tuner error	There is an error in FM tuner.		X	○
	50	Cassette error	There is an error in cassette deck.		X	○
	51	EJECT error	Cassette is not ejected		X	○

Parts Name	DTC	Diagnosis item	Diagnosis content	Countermeasure and components to be inspected	System Check	Diagnosis memory
CD tuner (190)	D1	Transmitter failure	Communication with component has failed successively.	• Check component in physical address which is shown by auxiliary code. • Wire harness and connecter check.	X	○
	D4	Regular Communication Failure	Connection confirmation has not come from the component that is communicating.		X	○
	20	ECU error	There is an error in internal ECU.	CD tuner check.	○	○
	21	ROM error	There is an error in internal ROM.		○	○
	22	RAM error	There is an error in internal RAM.		○	○
	41	AM tuner error	There is an error in AM tuner.		X	○
	42	FM tuner error	There is an error in FM tuner.		X	○
	60	CD error	Error codes other than 61, 62 are detected.	CD tuner check.	X	○
	61	EJECT error	CD is not ejected.	CD tuner check.	X	○
	62	DISC upside down/flaw	CD is inserted upside down or it has a flaw.	CD check.	X	○

HINT:

- If there is "O" in the column of system check, the error can be detected the system check mode.
- If there is "O" in the column of diagnosis memory, each unit is monitoring whether or not it has failure. In case of detecting failure, it memorizes DTC.
- When any codes of D1, D2, D4 and FF is detected, check the component which physical address is detected by the diagnosis code, the component corresponding to the auxiliary code, and wire harness connected between these equipments.

- D1: Transmission Failure
  Recorded every time transmission failure to the same physical address occurs 2 times consecutively.
- D2: No Response to Regular Communication: (Recorded only by a node which sends the connection check instruction.)
  Recorded when any physical address is deleted from the system component list.
- D4: Regular Communication Failure: (Recorded only by a node which receives the connection check instruction and the interruption of that.)
  Recorded when the connection check instruction has been interrupted.
- FF: No Response to Diagnosis Mode:.
  Recorded when the response to the diagnosis mode instruction / required commands (08 – 0DH) is not implemented within a fixed time.

NOTICE:

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

HINT:

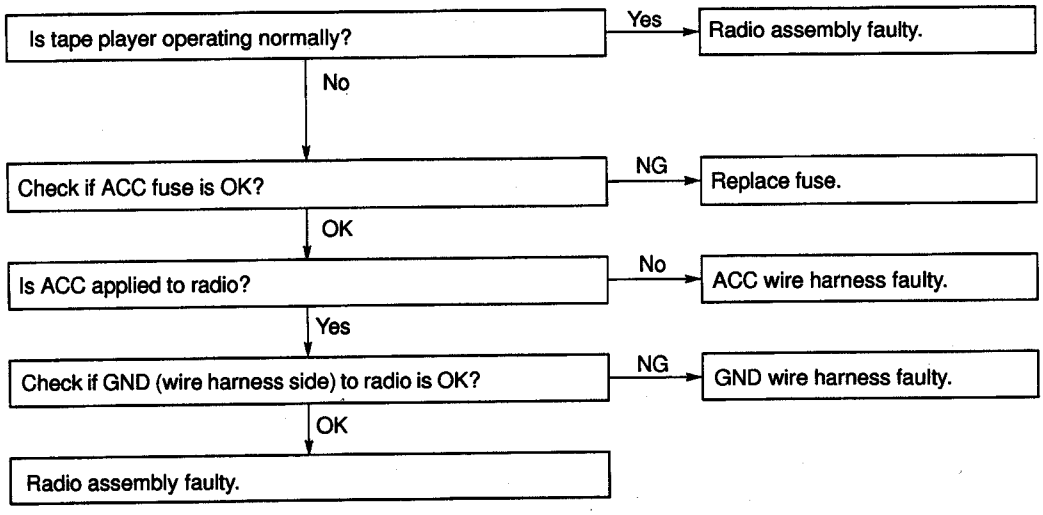
This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

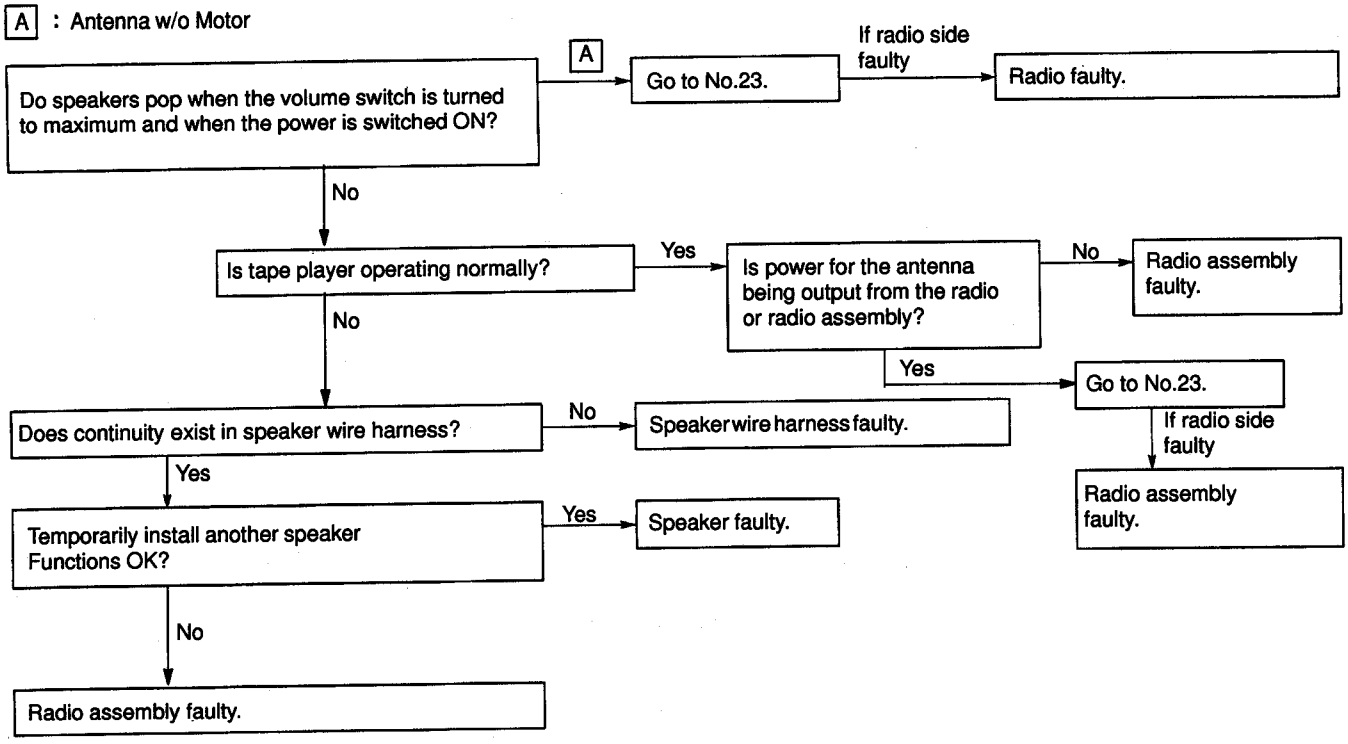
- Open or short circuit of the wire harness
- Connector or terminal connection fault

	Problem	No.
Radio	No power coming in.	1
	Power coming in, but radio not operating.	2
	Noise present, but AM – FM not operating.	3
	Any speaker does not work.	4
	Either AM or FM does not work.	5
	Reception poor (Volume faint).	5
	Few preset tuning bands.	5
	Sound quality poor.	6
	Cannot set station select button.	6
	Preset memory disappears.	7
Tape Player	Cassette tape cannot be inserted.	8
	Cassette tape inserted, but no power.	9
	Power coming in, but tape player not operating.	10
	Any speaker does not work.	11
	Sound quality poor (Volume faint).	12
	Tape jammed, malfunction with tape speed or auto–reverse.	13
	APS, SKIP, RPT buttons not operating.	14
	Cassette tape will not ejected.	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
Antenna	Antenna–related.	23
Noise	Noise produced by vibration or shock while driving.	24
	Noise produced when engine starts.	25

1	Radio	NO POWER COMING IN

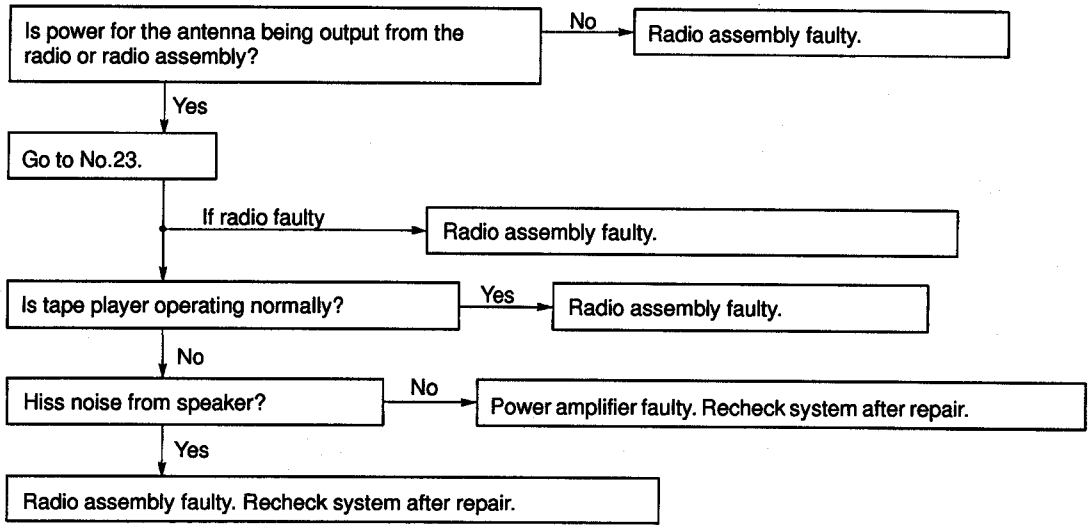


2	Radio	POWER COMING ON, BUT RADIO NOT OPERATING

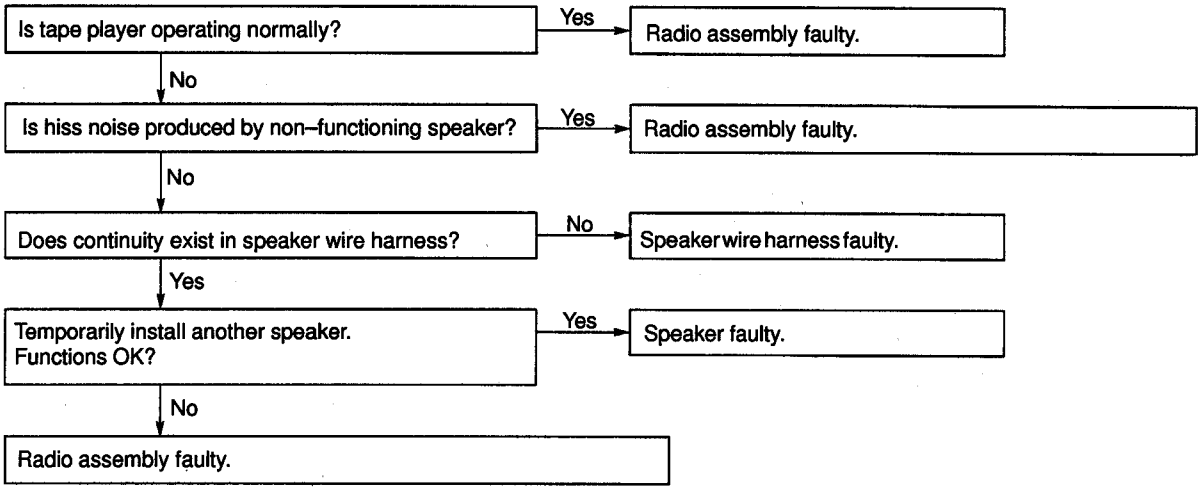


V07430

3	Radio	NOISE PRESENT, BUT AM–FM NOT OPERATING

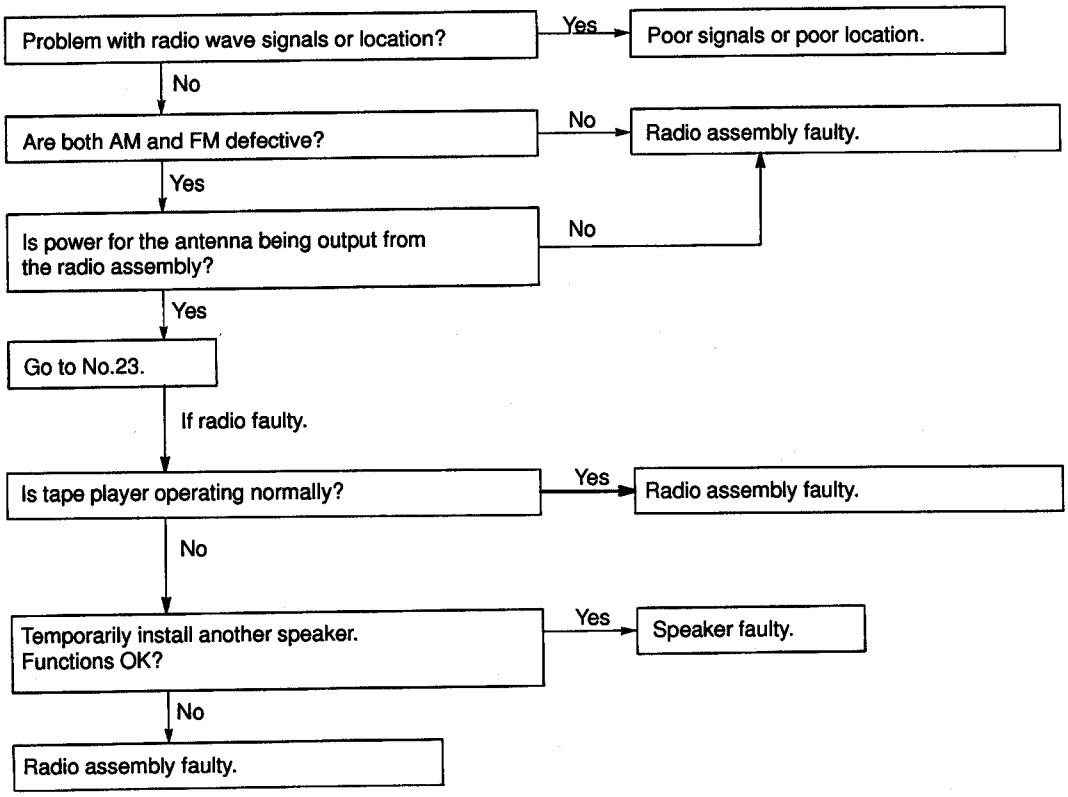


4	Radio	ANY SPEAKER DOES NOT WORK



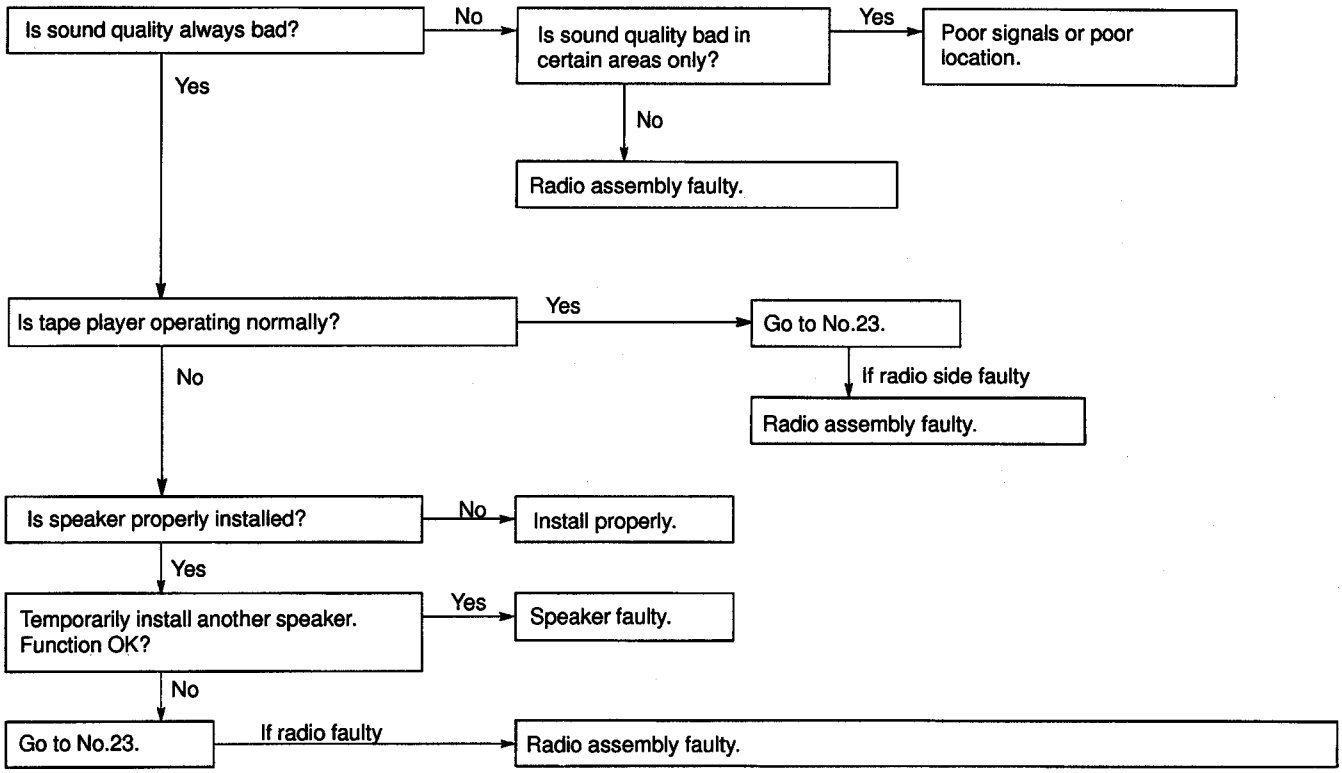
V07431

5	Radio	EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT), FEW PRESET TUNING BANDS

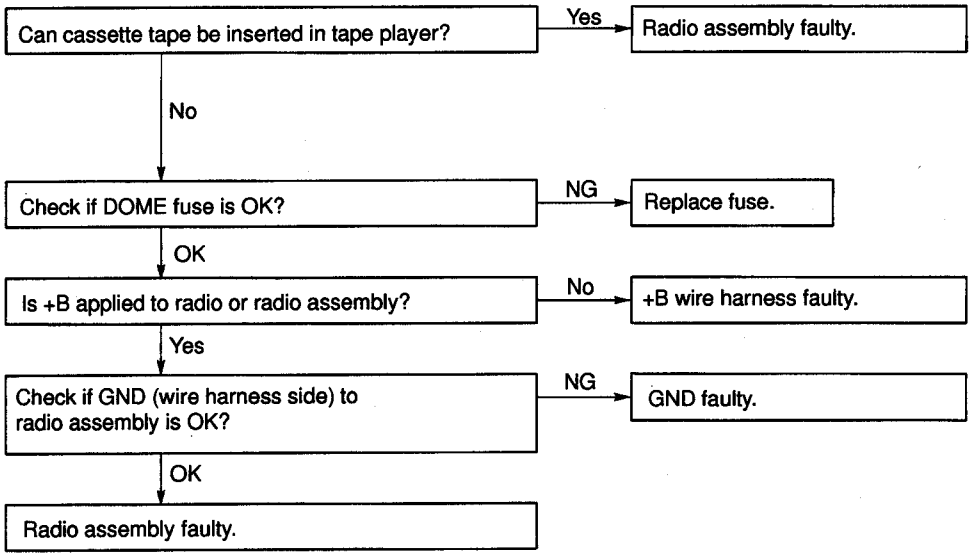


V07432

6	Radio	SOUND QUALITY POOR

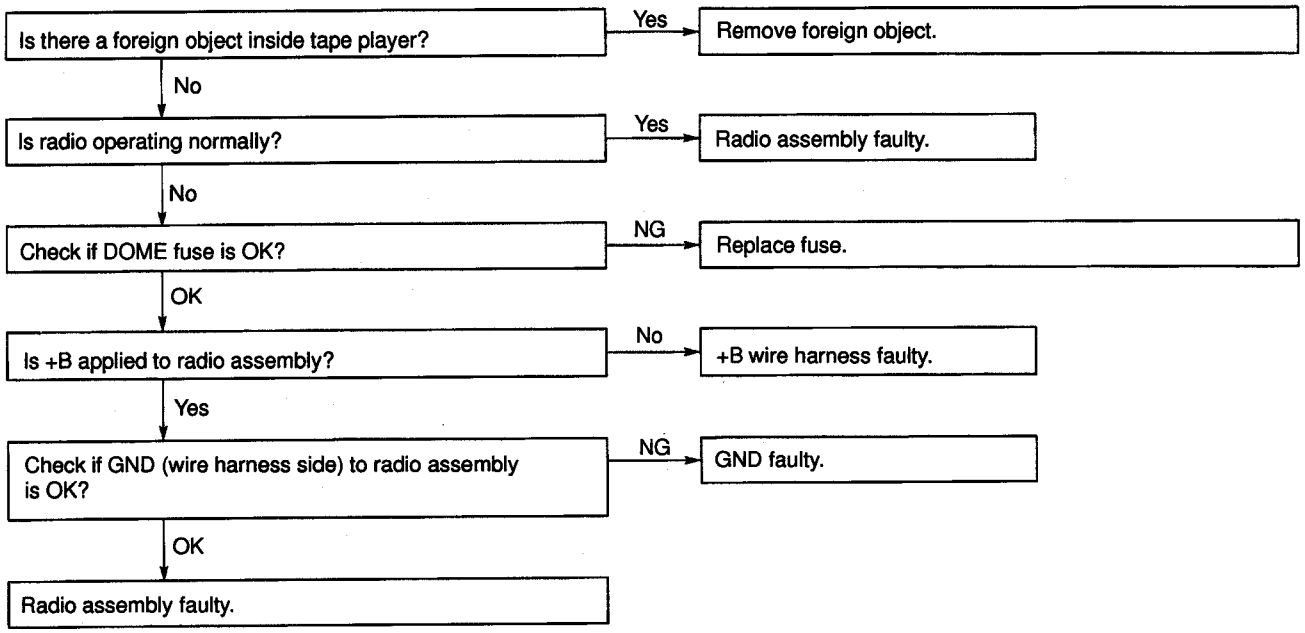


7	Radio	CANNOT SET STATION SELECT BUTTON, PRESET MEMORY DISAPPEARS

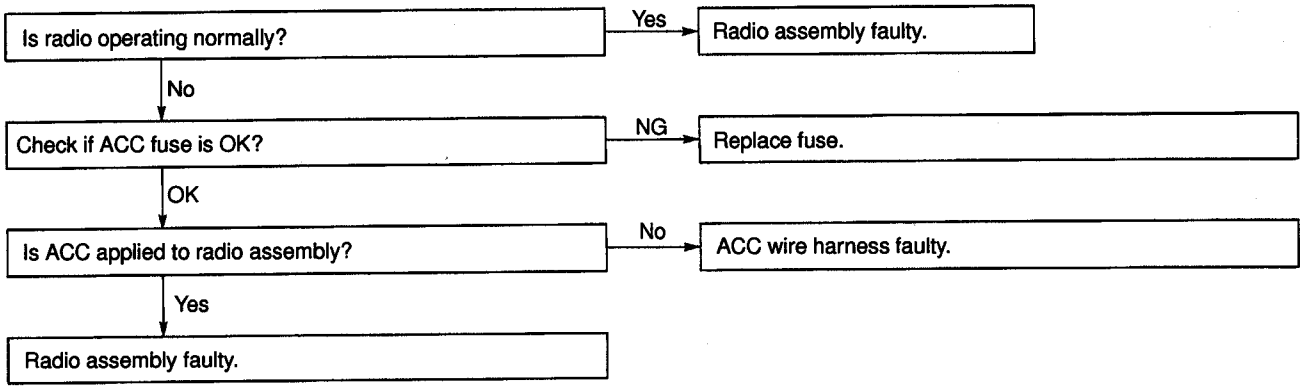


V07433

8 Tape Player — CASSETTE TAPE CANNOT BE INSERTED

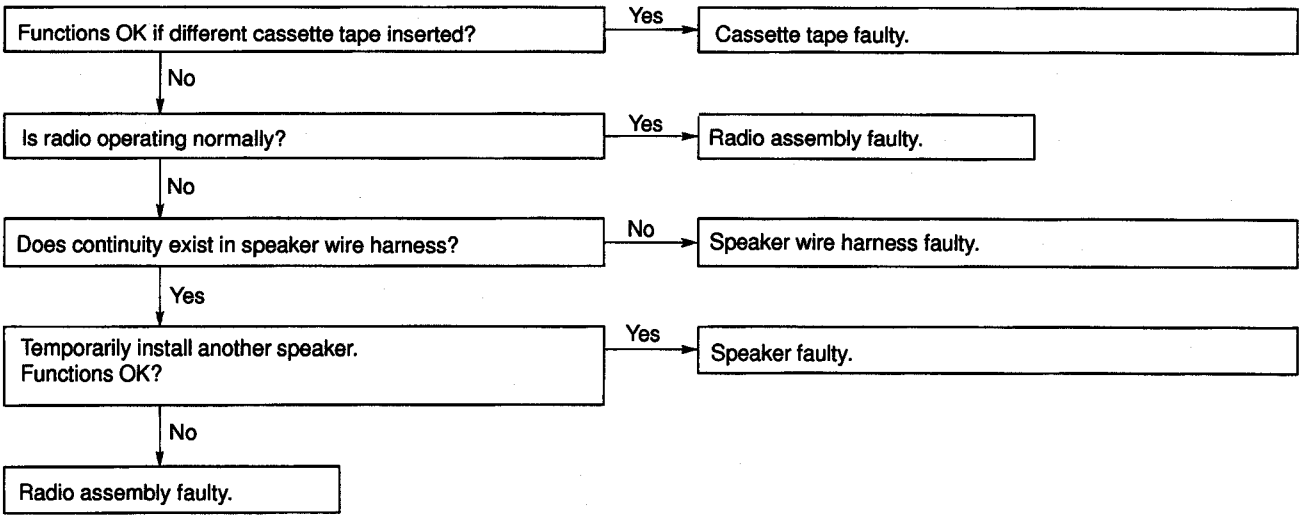


9 Tape Player — CASSETTE TAPE INSERTED, BUT NO POWER

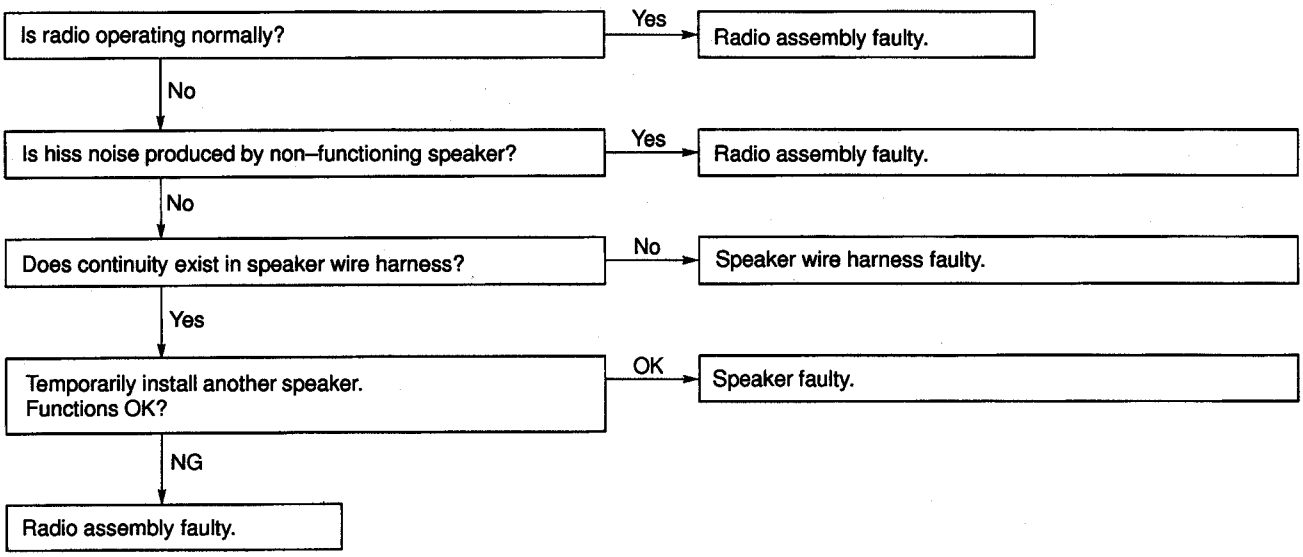


V07434

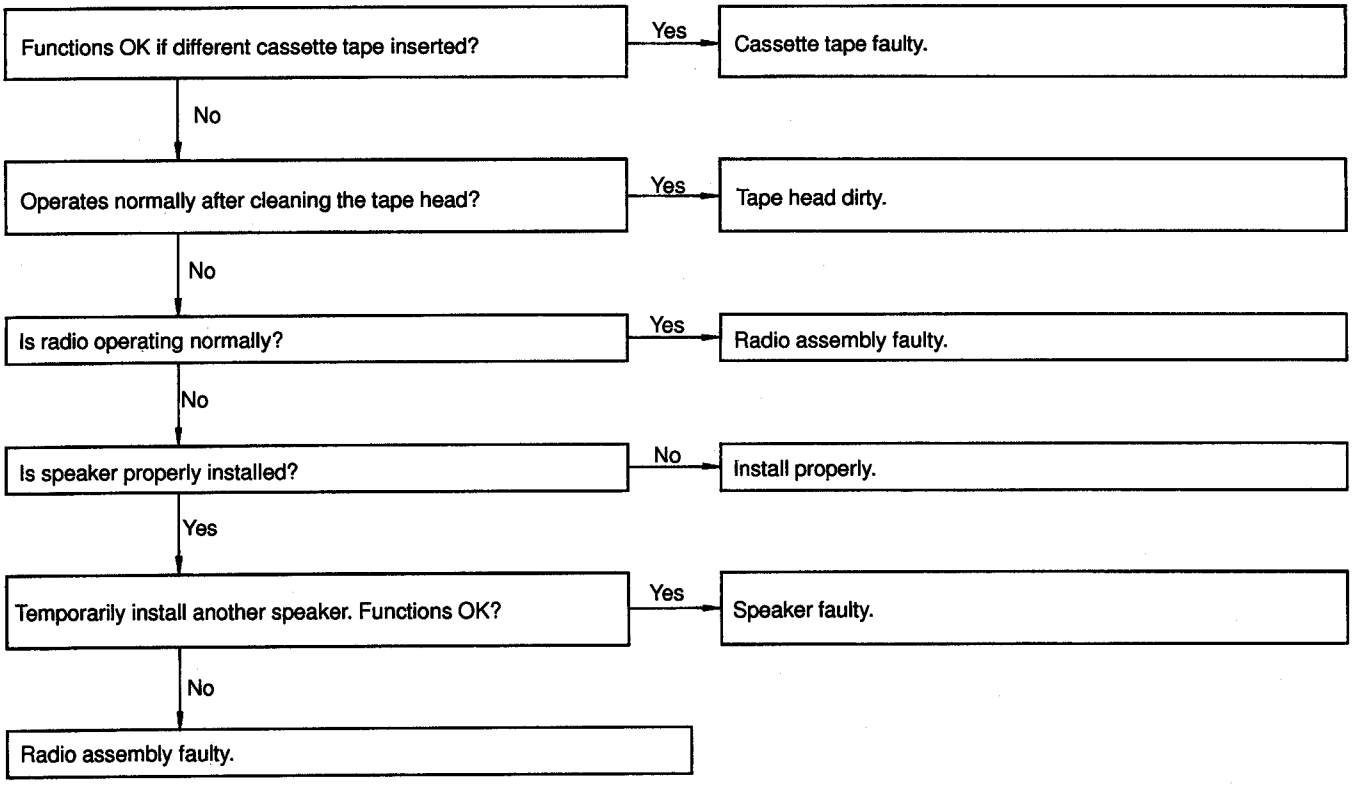
10	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING



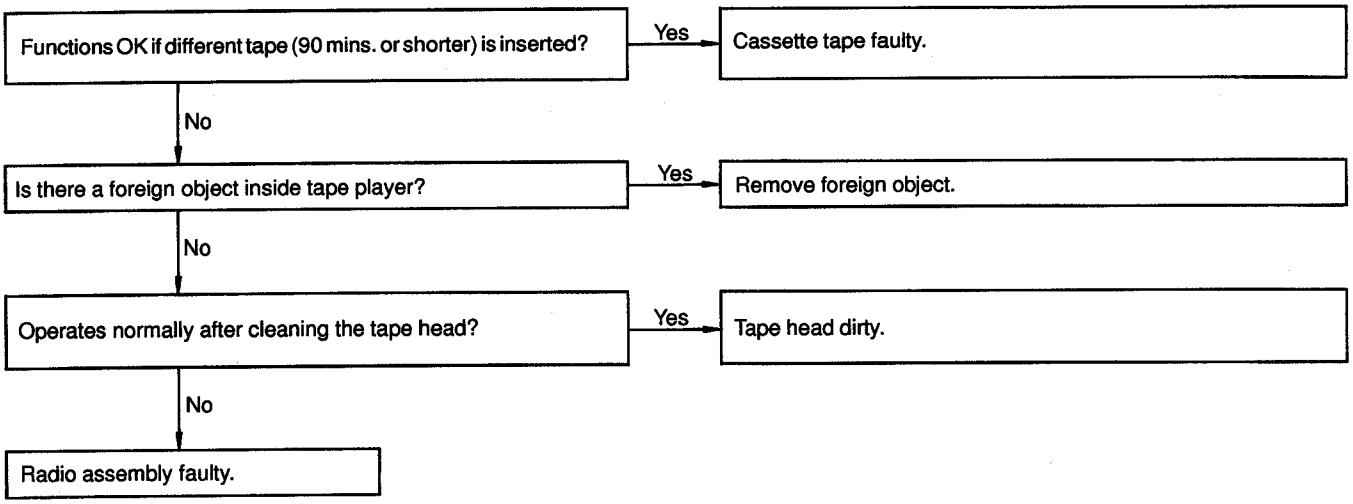
11	Tape Player	ANY SPEAKER DOES NOT WORK



12	Tape player	SOUND QUALITY POOR (VOLUME FAINT)

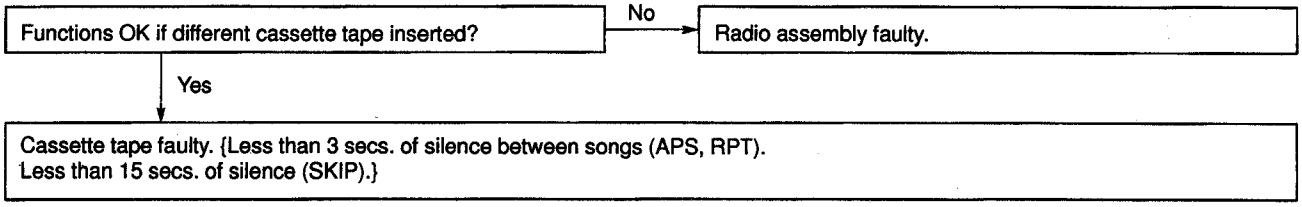


13	Tape Player	TAPE JAMMED, MALFUNCTION WITH TAPE SPEED OR AUTO–REVERSE

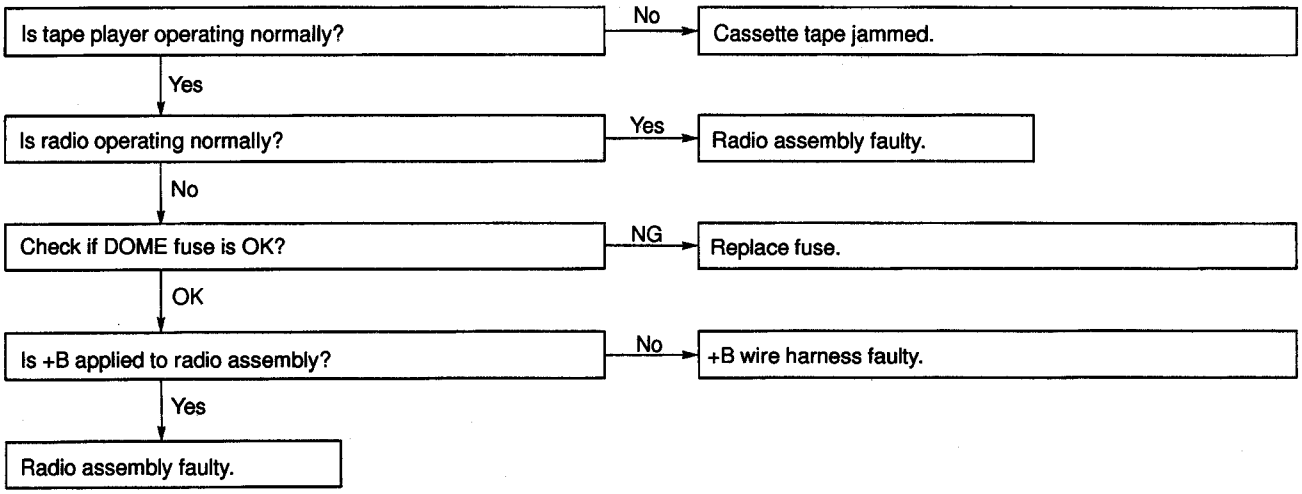


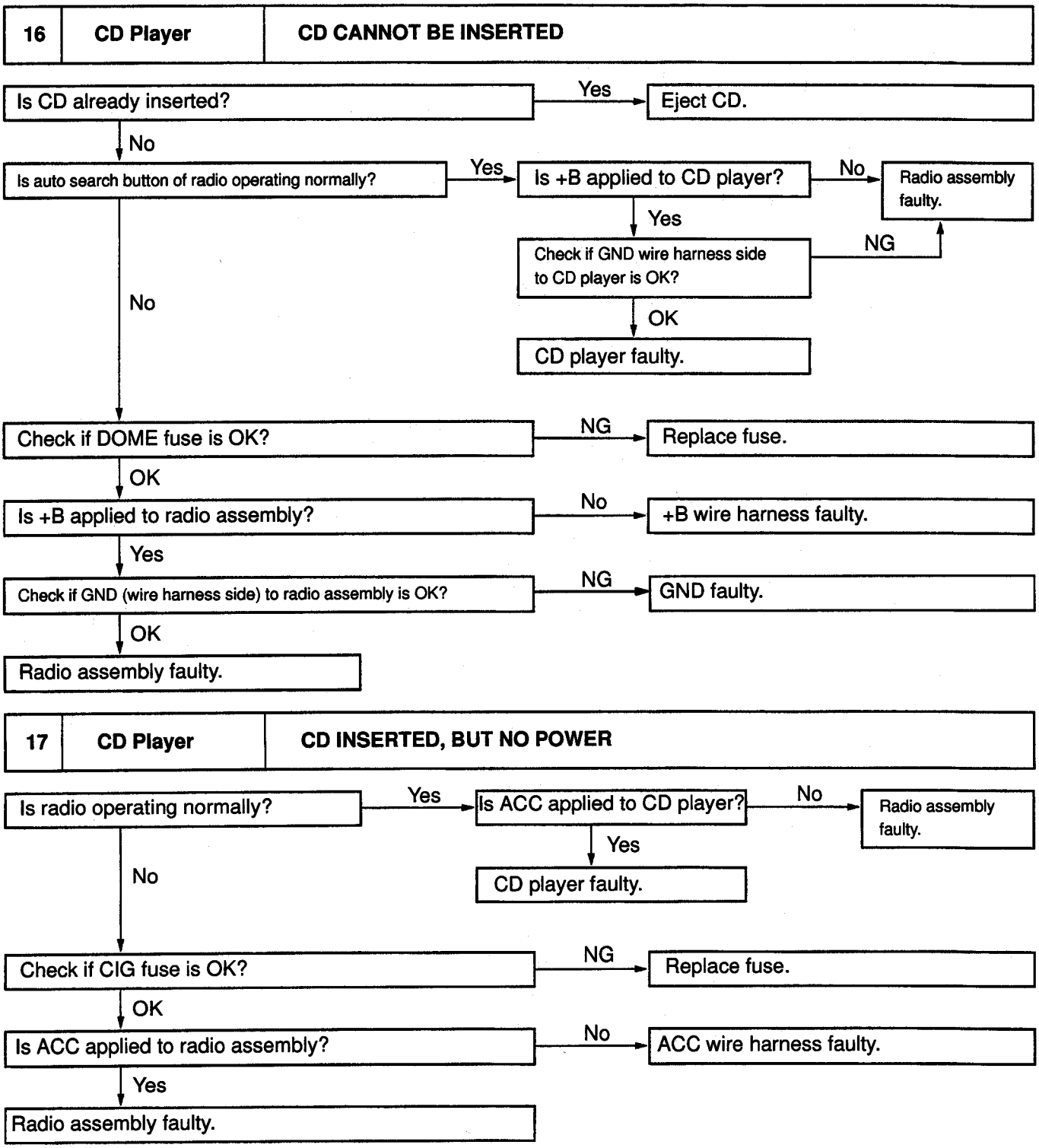
V04922

14	Tape Player	APS, SKIP, RPT BUTTONS NOT OPERATING



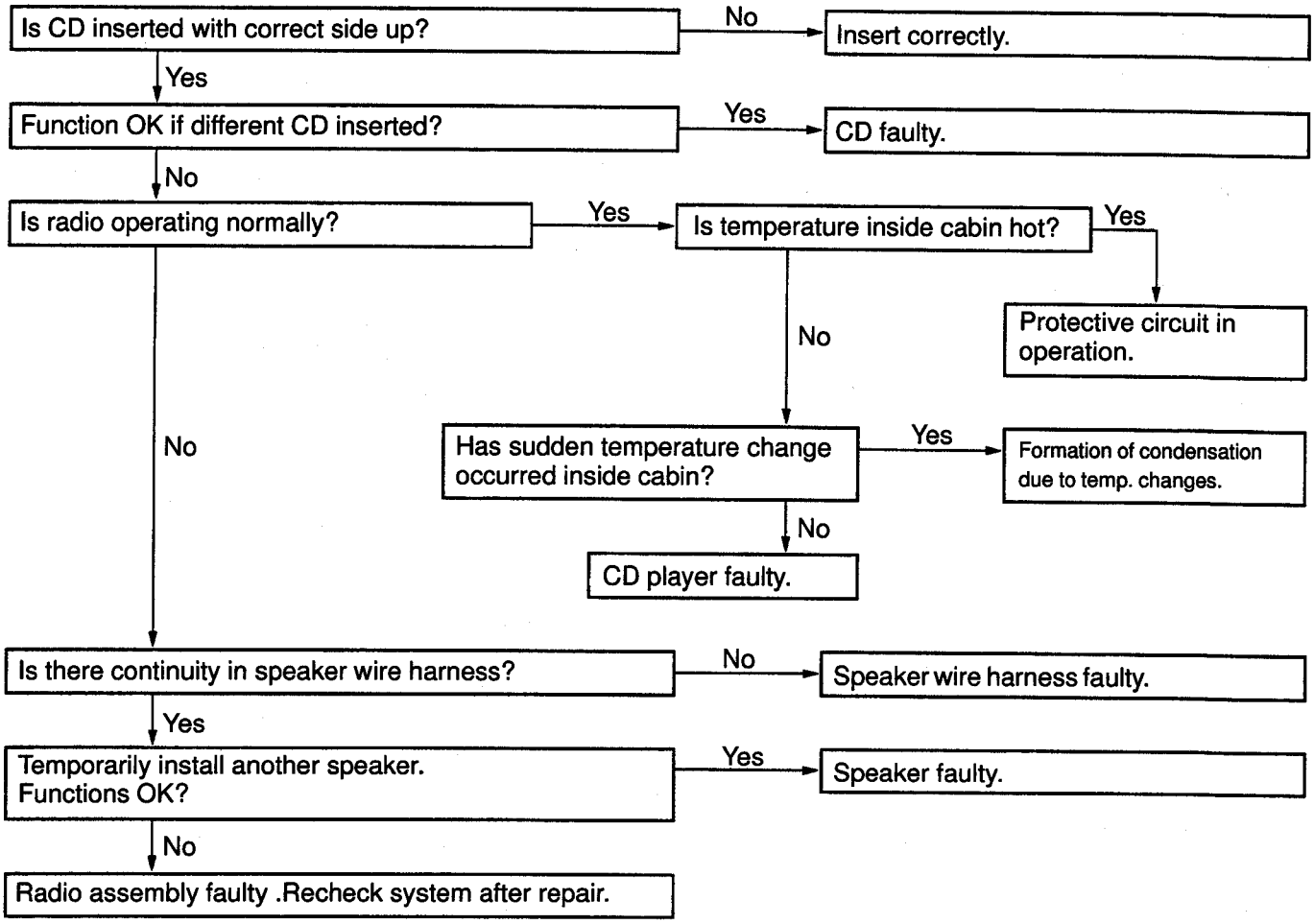
15	Tape Player	CASSETTE TAPE WILL NOT BE EJECTED



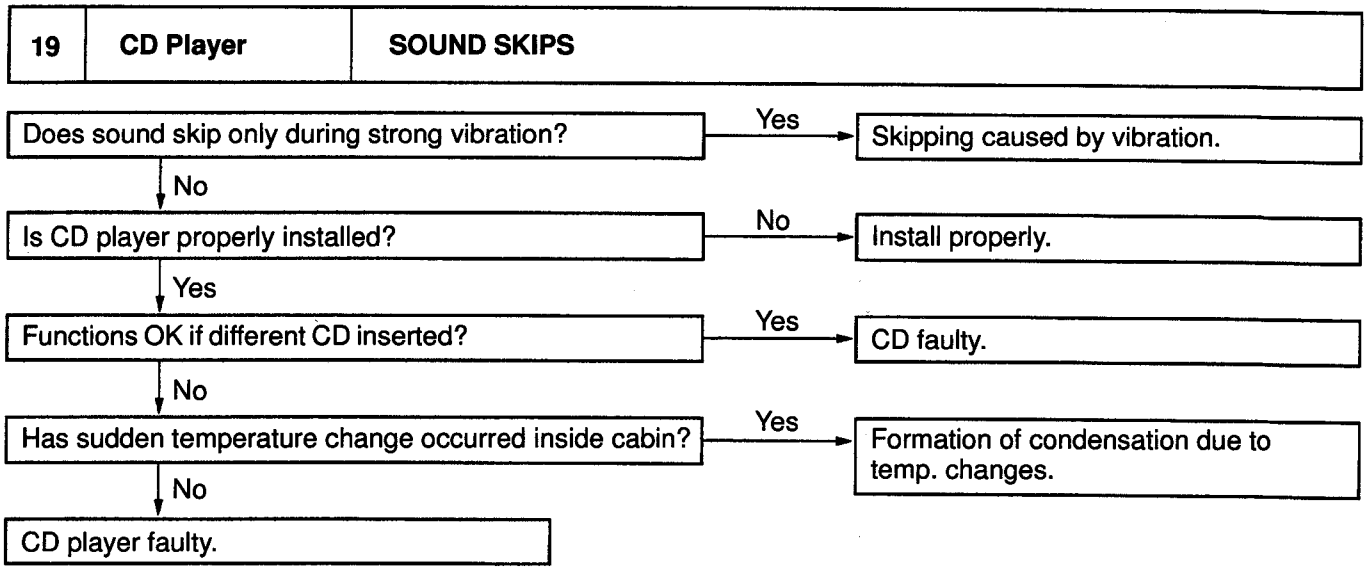

16
CD Player
CD CANNOT BE INSERTED
Is CD already inserted?
Yes
Eject CD.
No
Is auto search button of radio operating normally?
Yes
Is +B applied to CD player?
No
Radio assembly faulty.
Yes
Check if GND wire harness side to CD player is OK?
NG
OK
CD player faulty.
No
Check if DOME fuse is OK?
NG
Replace fuse.
OK
Is +B applied to radio assembly?
No
+B wire harness faulty.
Yes
Check if GND (wire harness side) to radio assembly is OK?
NG
GND faulty.
OK
Radio assembly faulty.
17
CD Player
CD INSERTED, BUT NO POWER
Is radio operating normally?
Yes
Is ACC applied to CD player?
No
Radio assembly faulty.
Yes
CD player faulty.
No
Check if CIG fuse is OK?
NG
Replace fuse.
OK
Is ACC applied to radio assembly?
No
ACC wire harness faulty.
Yes
Radio assembly faulty.

I05488

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

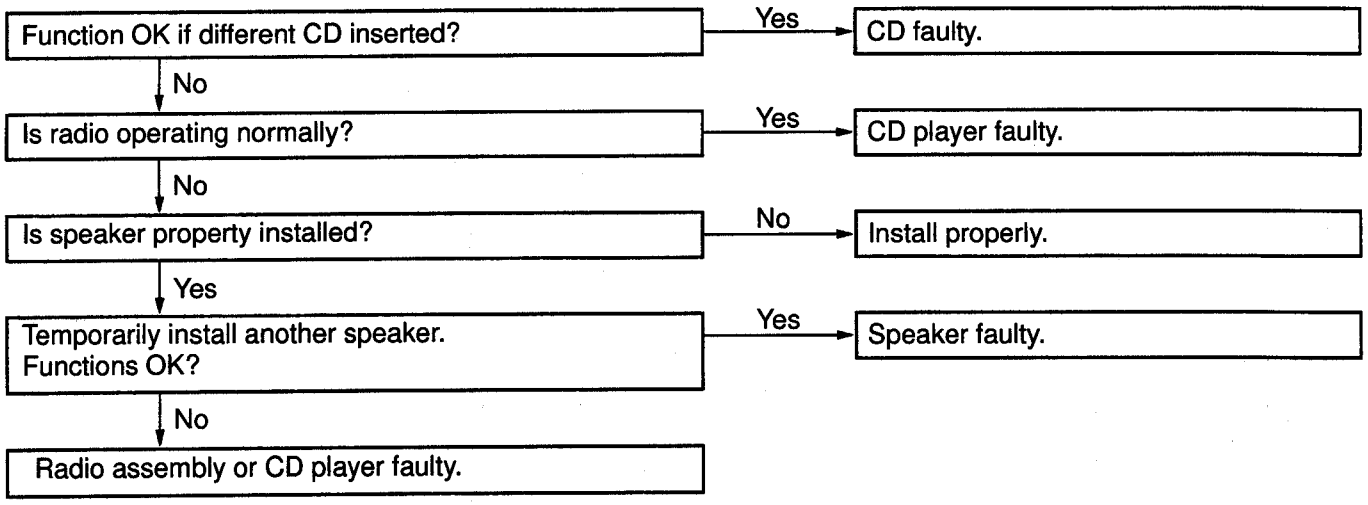


19 CD Player — SOUND SKIPS

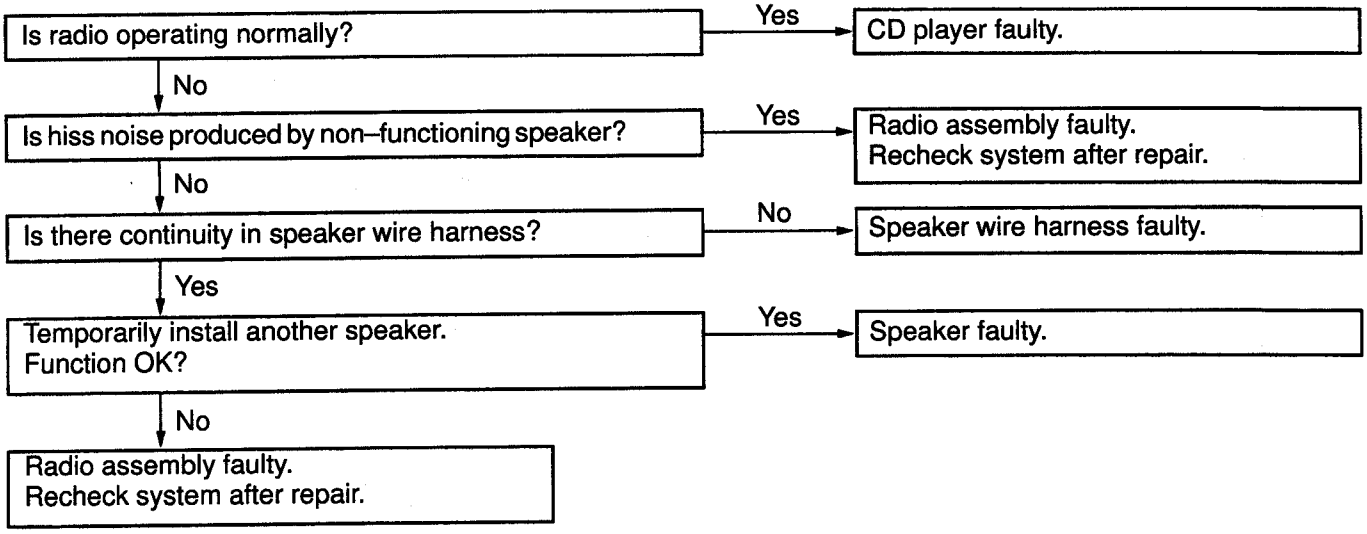


I05489

20	CD Player	SOUND QUALITY POOR (VOLUME FAINT)

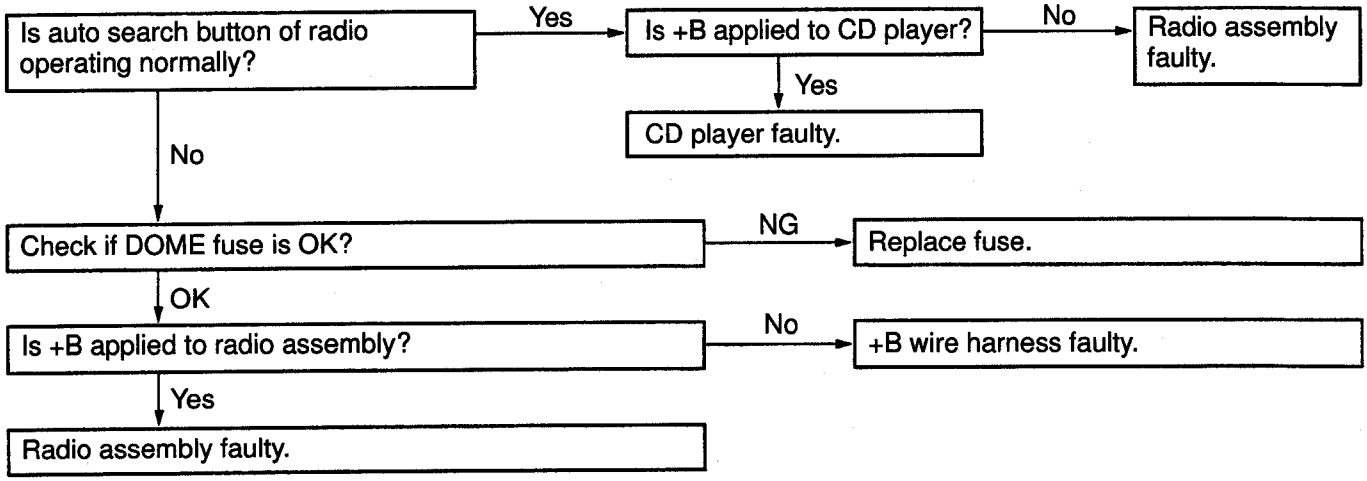


21	CD Player	ANY SPEAKER DOES NOT WORK

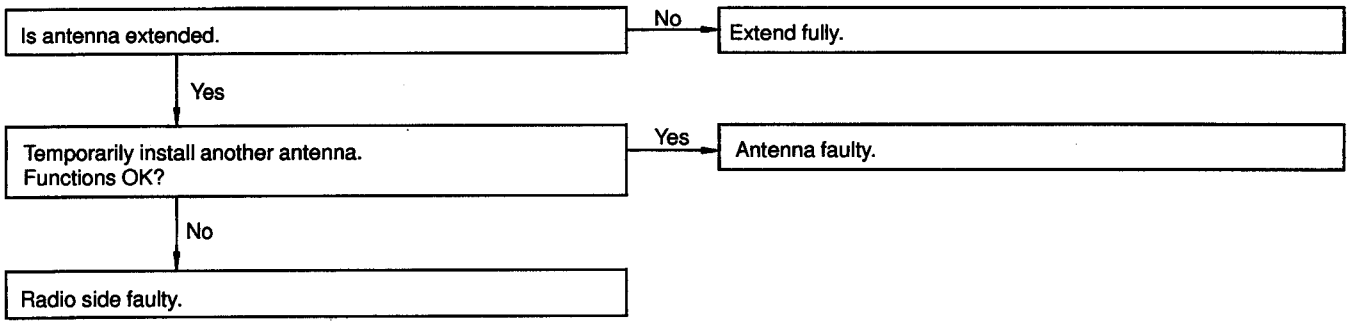


V08551

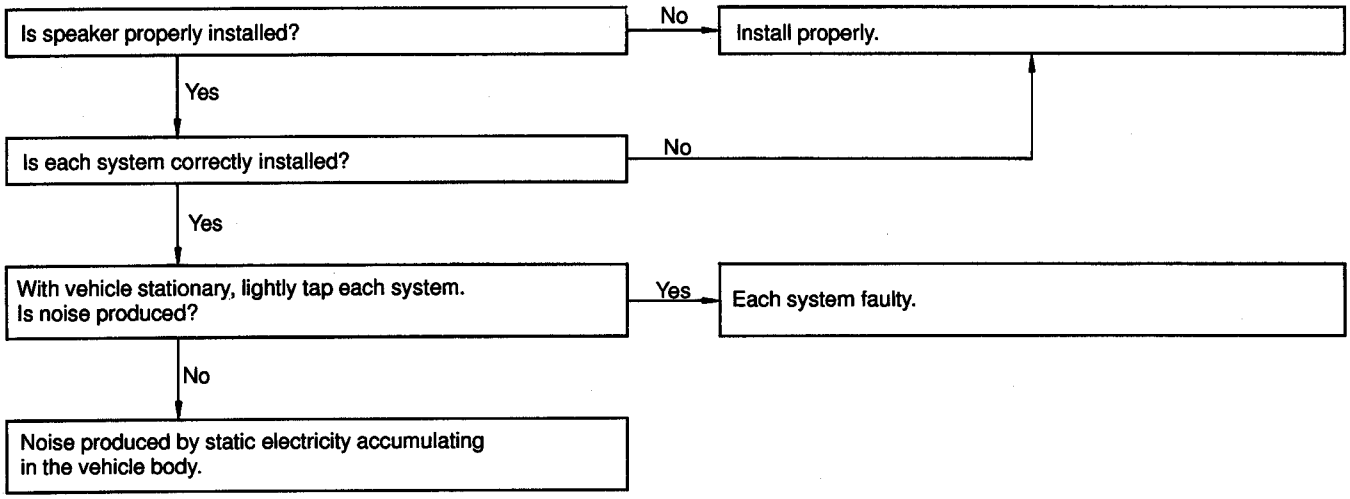
22	CD Player	CD WILL NOT BE EJECTED



23	Antenna	ANTENNA–RELATED

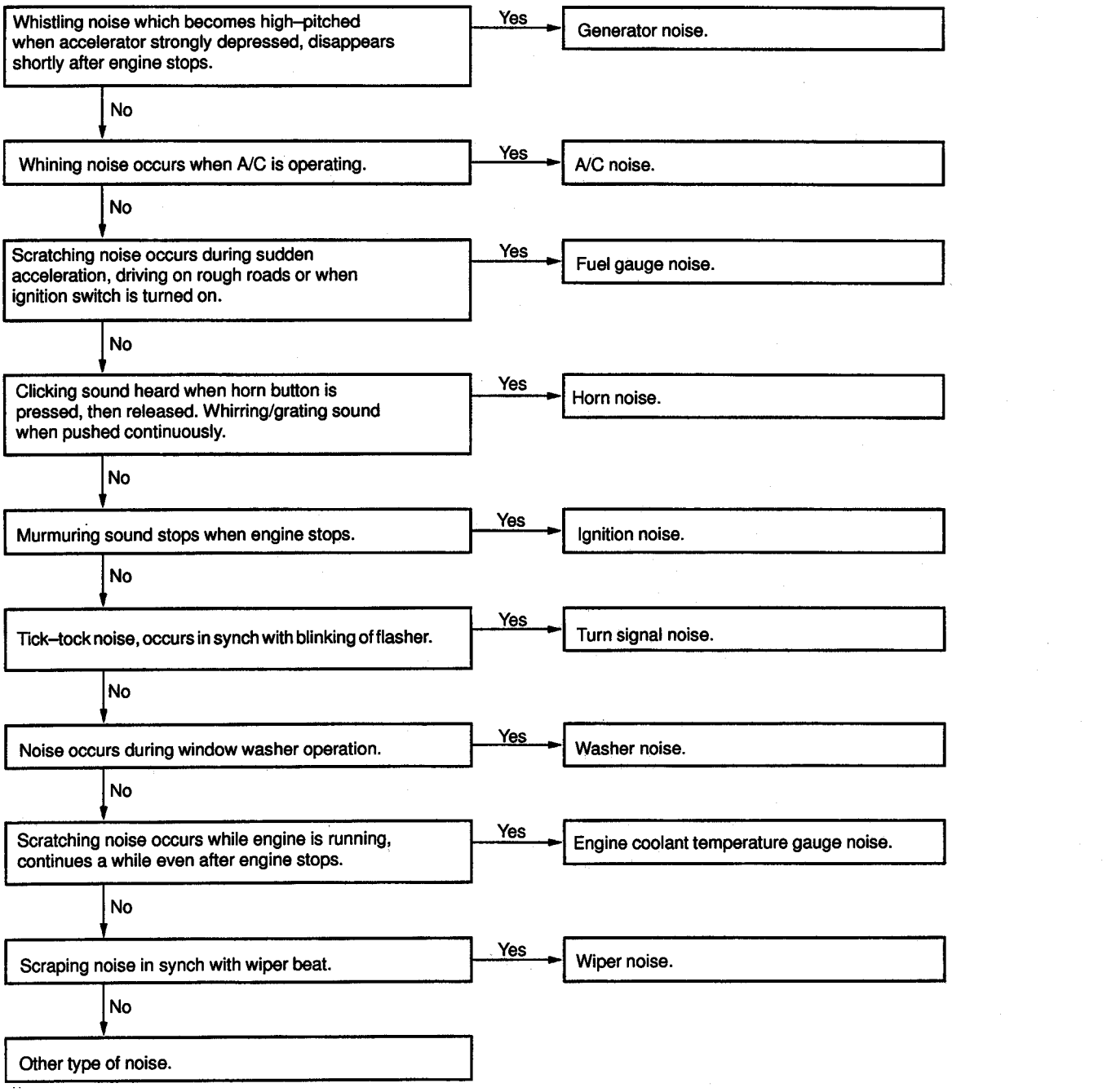


24	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING



V04924

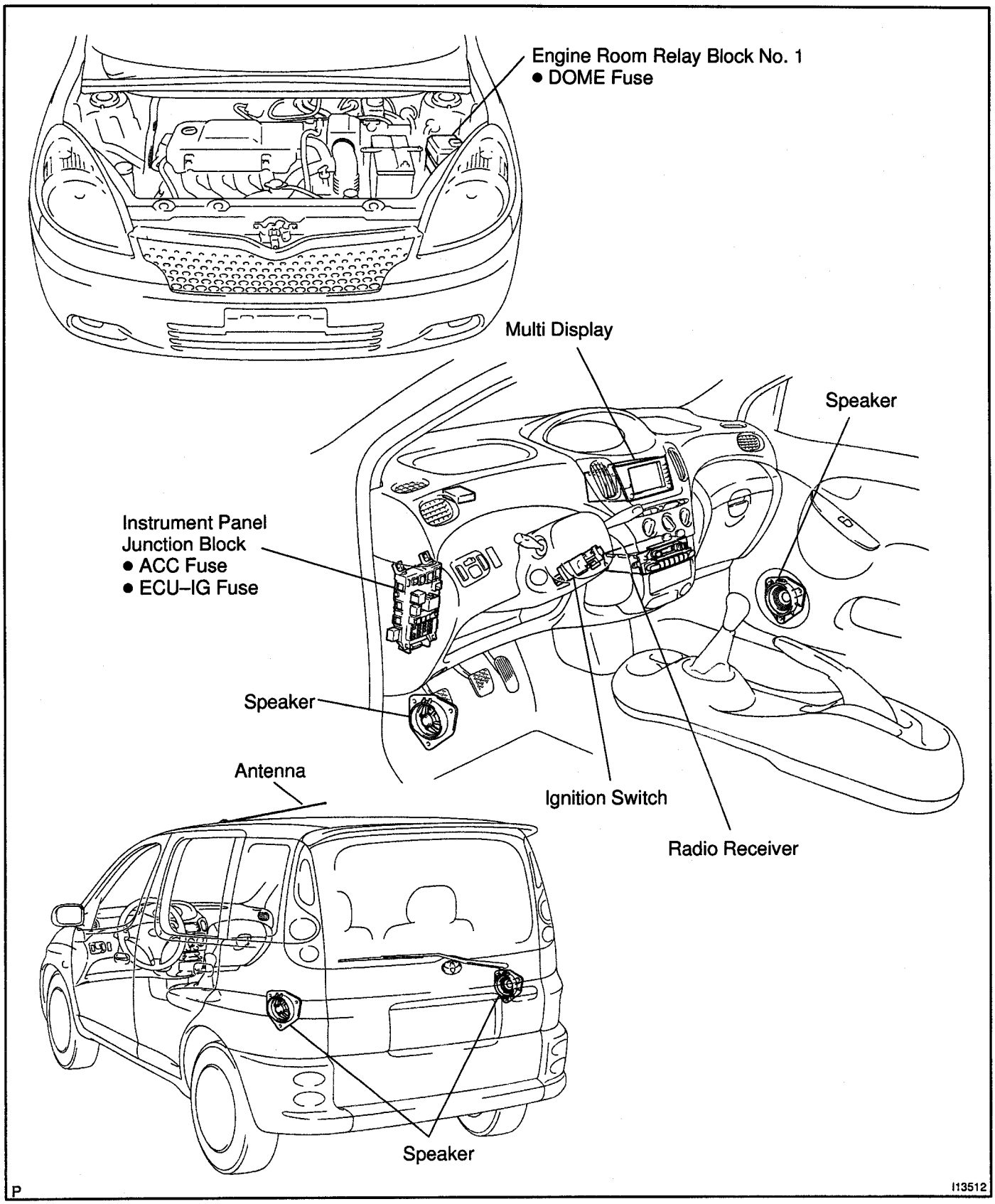
25	Noise	NOISE PRODUCED WHEN ENGINE STARTS



V08467

BE193-02

LOCATION



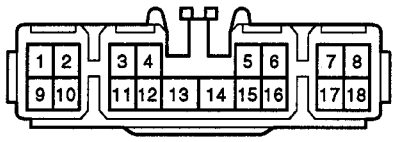
BE194-02

INSPECTION

1. INSPECT MULTI DISPLAY CIRCUIT

Disconnect the connectors from the multi display, and inspect the connector on the wire harness side.

Wire harness side:



N I12076

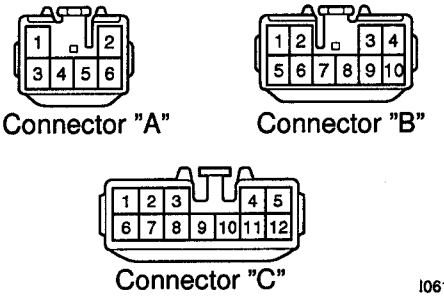
Tester connection	Condition	Specified condition
4 – Ground	Constant	Continuity
7 – Ground	Ignition switch LOCK or ACC	No voltage
7 – Ground	Ignition switch ON	Battery voltage
8 – Ground	Constant	Battery voltage
14 – Ground	Ignition switch LOCK or ACC	No voltage
14 – Ground	Ignition switch ON	Battery voltage
18 – Ground	Ignition switch LOCK	No voltage
18 – Ground	Ignition switch ACC or ON	Battery voltage

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

2. INSPECT RADIO RECEIVER ASSEMBLY CIRCUIT

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

Wire harness side:



I06198

Tester connection	Condition	Specified condition
B7 – Ground	Constant	Continuity
B3 – Ground	Ignition switch LOCK	No voltage
B3 – Ground	Ignition switch ACC or ON	Battery voltage
B4 – Ground	Constant	Battery voltage

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

CLOCK

TROUBLESHOOTING

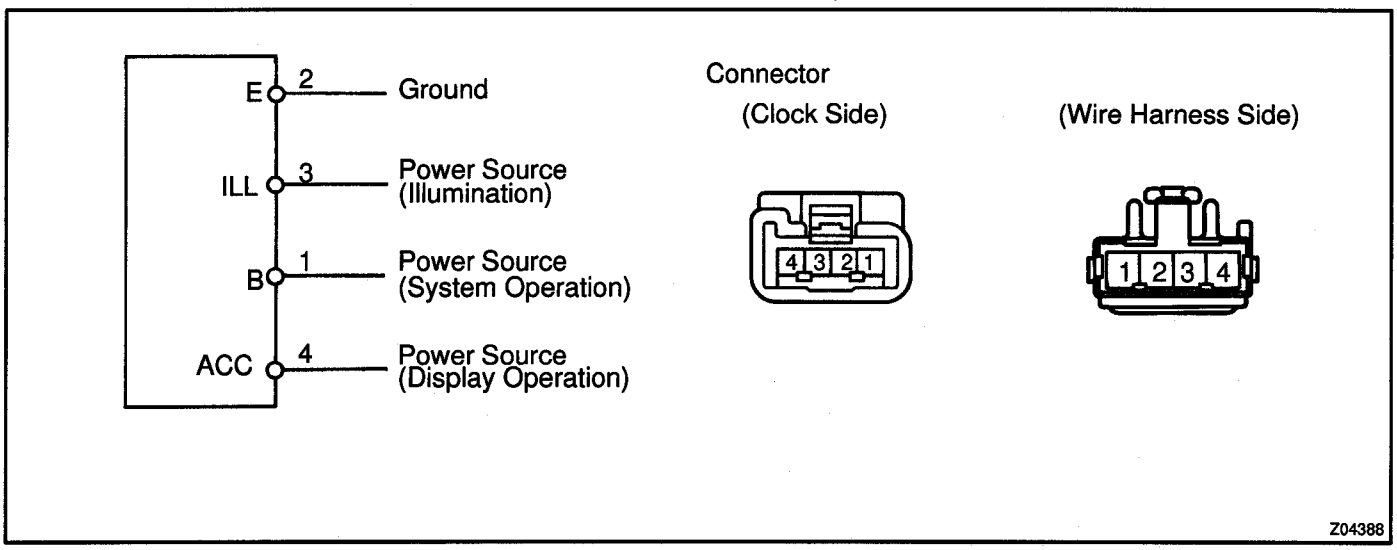
BE066-03

HINT:

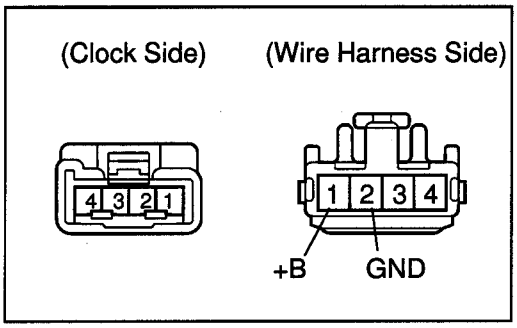
Troubleshoot the clock according to the table below.

Clock will not operate	1
Clock loses or gains time	2

± 1.5 seconds / day



1	CLOCK WILL NOT OPERATE



(a) Check that the battery voltage is 10 –14 V.
If voltage is not as specified, replace the battery.

(b) Check that the DOME fuse is not blown.
If the fuse is blown, replace the fuse and check for short circuit.

(c) Troubleshoot the clock as follows.
HINT:
Inspect the connector on the wire harness side.

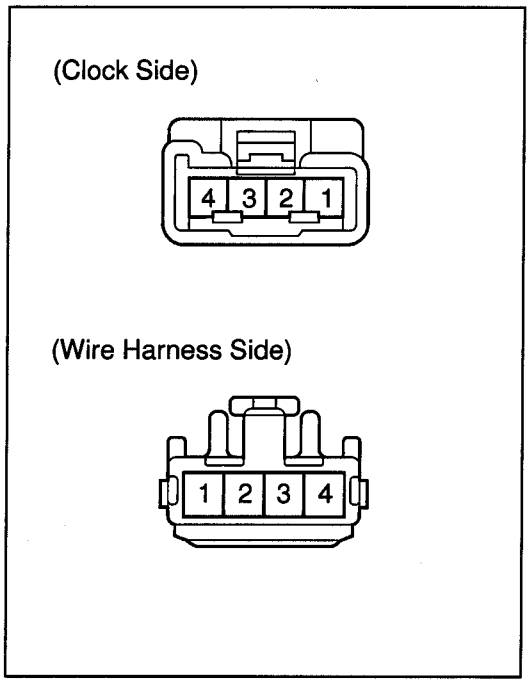
Is there battery voltage between terminal +B and body ground?
- No → Open or short circuit in wire harness between terminal +B and DOME fuse.
- Yes ↓

Does continuity exist between terminal GND and body ground?
- No → Open circuit in wire harness between terminal GND and body ground.
- Yes ↓

Replace clock.

I01417

2	CLOCK LOSES OR GAINS TIME



(a) Check that the battery 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 sec.
If the error exceeds the allowable error, replace the clock.

(c) Check that the clock adjusting button is caught in position, and does not return.
If the button is not returned, repair or replace the clock.

(d) Troubleshoot the clock as follows.
HINT:
Inspect the connector on the wire harness side.

Is there 10 – 16 V between terminal +B and body ground?

Below 10V → Detect cause and repair, or recharge battery.

Yes ↓

Adjust or replace clock.

I01418