

BODY ELECTRICAL SYSTEM

	Page
PRECAUTIONS	BE-2
LOCATION OF SWITCHES AND RELAYS	BE-5
SWITCHES	BE-9
LIGHTING	BE-13
WIPERS AND WASHERS	BE-17
INSTRUMENTS AND SENDER GAUGES	BE-21
REAR WINDOW DEFOGGER	BE-30
HEATER	BE-32
CRUISE CONTROL SYSTEM	BE-36
POWER WINDOW	BE-53
BACK DOOR POWER WINDOW	BE-55
RADIO, STEREO TAPE PLAYER AND MOTOR ANTENNA	BE-60
CLOCK	BE-69

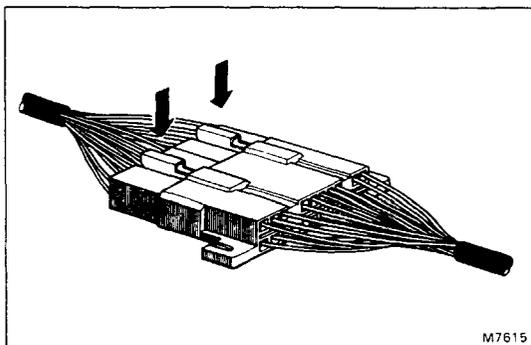
PRECAUTIONS

WIRING COLOR CODE

Wire colors are indicated by an alphabetical code. The 1st letter indicates the basic wire color and the 2nd indicates the stripe color.

B = Black	BR = Brown
G = Green	GR = Grey
L = Light Blue	LG = Light Green
O = Orange	P = Pink
R = Red	V = Violet
W = White	Y = Yellow

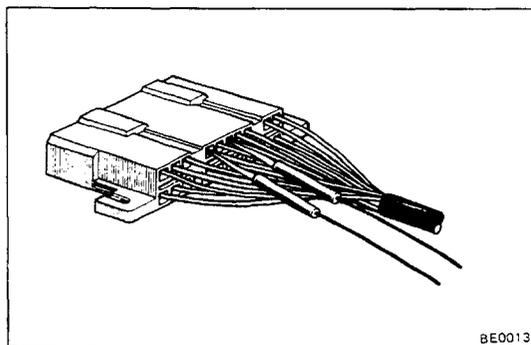
Example: R-G indicates a red wire with a green stripe.



HANDLING AND INSPECTION OF BULKHEAD TYPE CONNECTOR

DISCONNECT BULKHEAD TYPE CONNECTOR

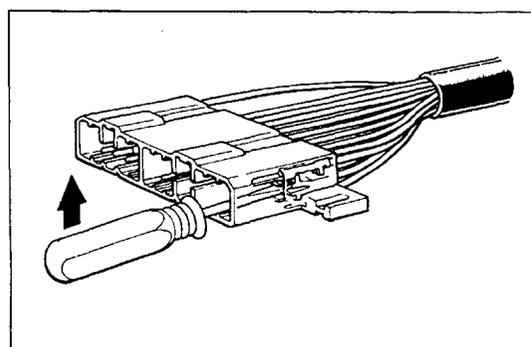
To remove the connector, push the lock levers, shown ... the figure, and pull out.



INSPECT BULKHEAD TYPE CONNECTOR

When checking the continuity or voltage with a circuit tester, insertion of the test probe into the receptacle connector may open the fitting to the connector and result in poor contact.

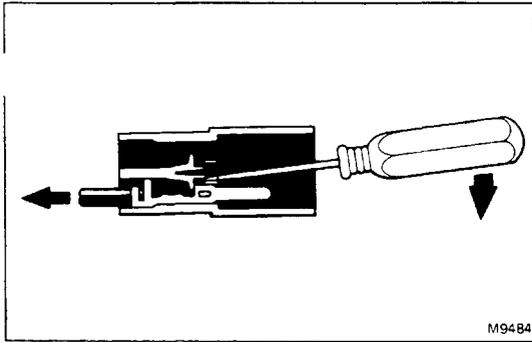
Therefore, ensure that the test probe is inserted only from the wire harness side as shown in the figure.



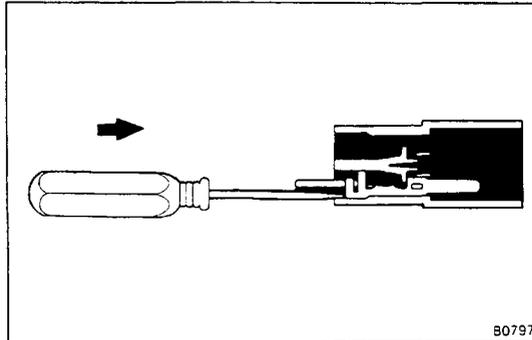
REPLACEMENT OF TERMINAL

REMOVE TERMINALS FROM BULKHEAD CONNECTOR

- (a) From the open end, insert a miniature screwdriver between the locking lug and terminal.



- (b) Pry up the locking lug with the screwdriver and pull the terminal out from the rear.



INSTALL TERMINALS TO BULKHEAD CONNECTOR

- (a) Push in the terminal until it is securely locked in the connector lug.
 (b) Pull on the wire to confirm that it is securely locked.

INSPECTION OF CIRCUIT AND CONNECTOR

INSPECT CIRCUIT

When inspecting the circuit, refer to the diagram at the back of the manual.

INSPECT CONNECTOR

All connectors are shown from the component side. Therefore, when inspecting from the body side, the left and right terminal connections will be in reverse.

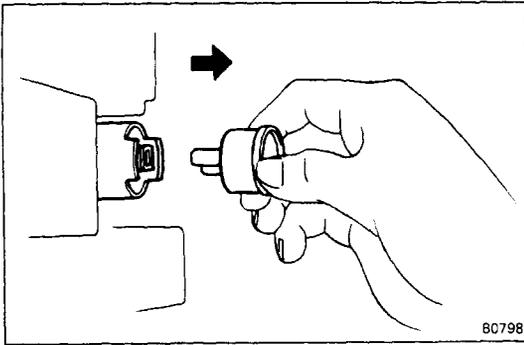
REPLACEMENT OF FUSE

Install a new fuse with the correct amperage.

CAUTION:

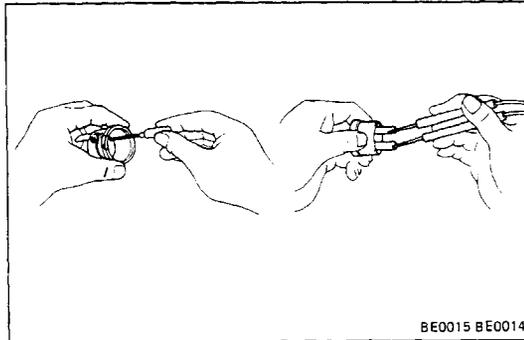
1. Turn off all electrical components and the ignition switch before replacing a fuse. Do not exceed the fuse amp rating.
2. Always use a fuse puller for removing and inserting a fuse. Remove and insert straight in and out without twisting. Twisting could force open the terminals too much, resulting in a bad connection.

If a fuse continues to blow, a short circuit is indicated. The system must be checked by a qualified technician.



RESET OF CIRCUIT BREAKER

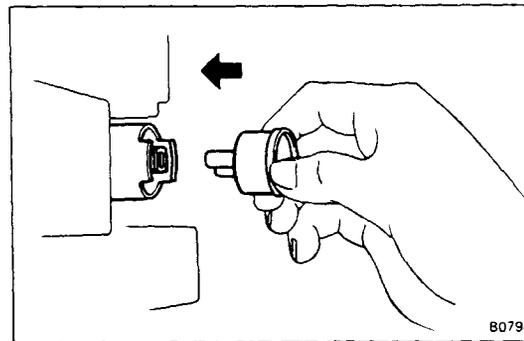
1. REMOVE CIRCUIT BREAKER



2. RESET CIRCUIT BREAKER

- (a) Insert the needle into the reset hole and push it in.
- (b) Using an ohmmeter, check that there is continuity between both terminals of the circuit breaker.

If there is no continuity, replace the circuit breaker.



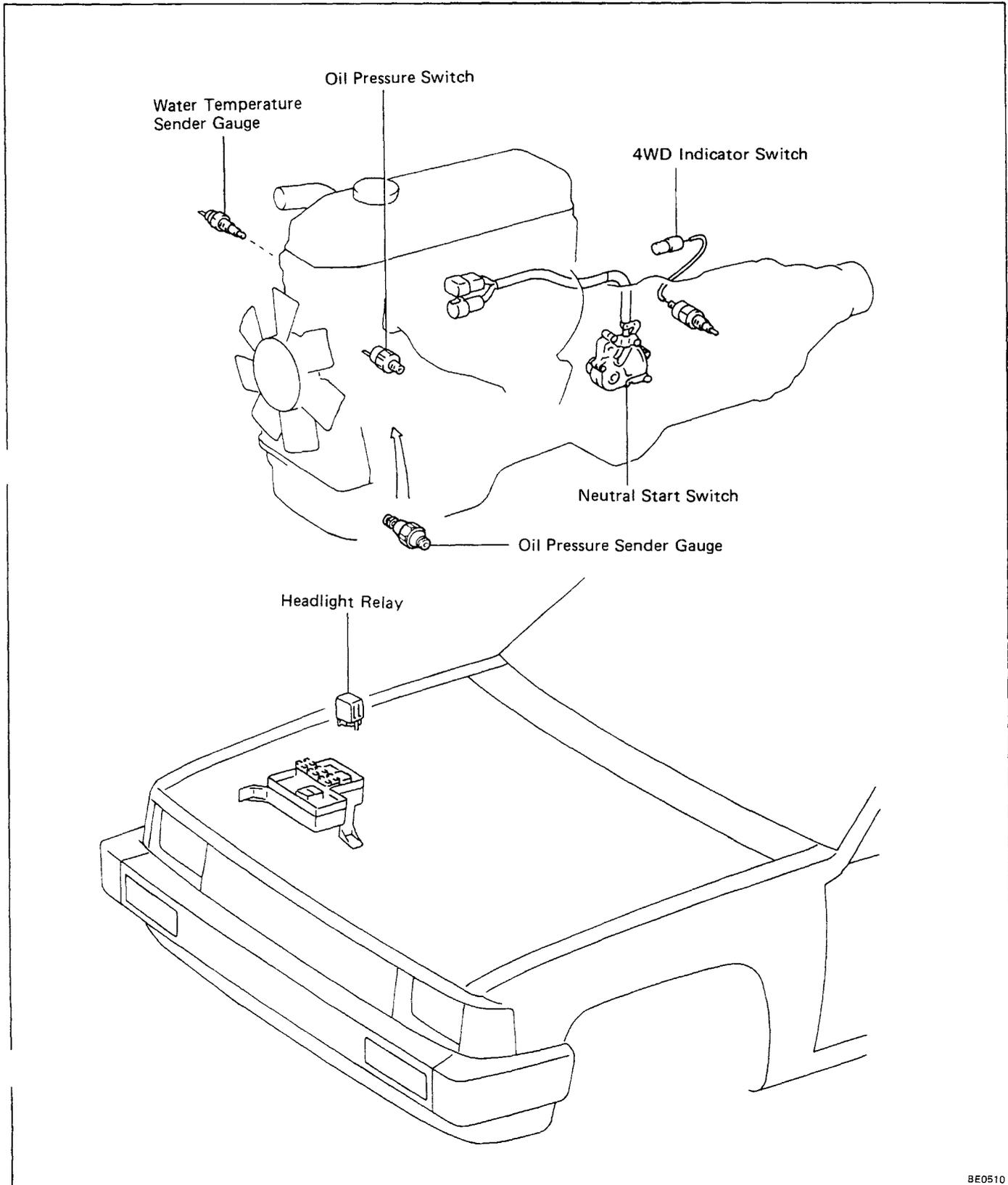
3. INSTALL CIRCUIT BREAKER

Install the circuit breaker.

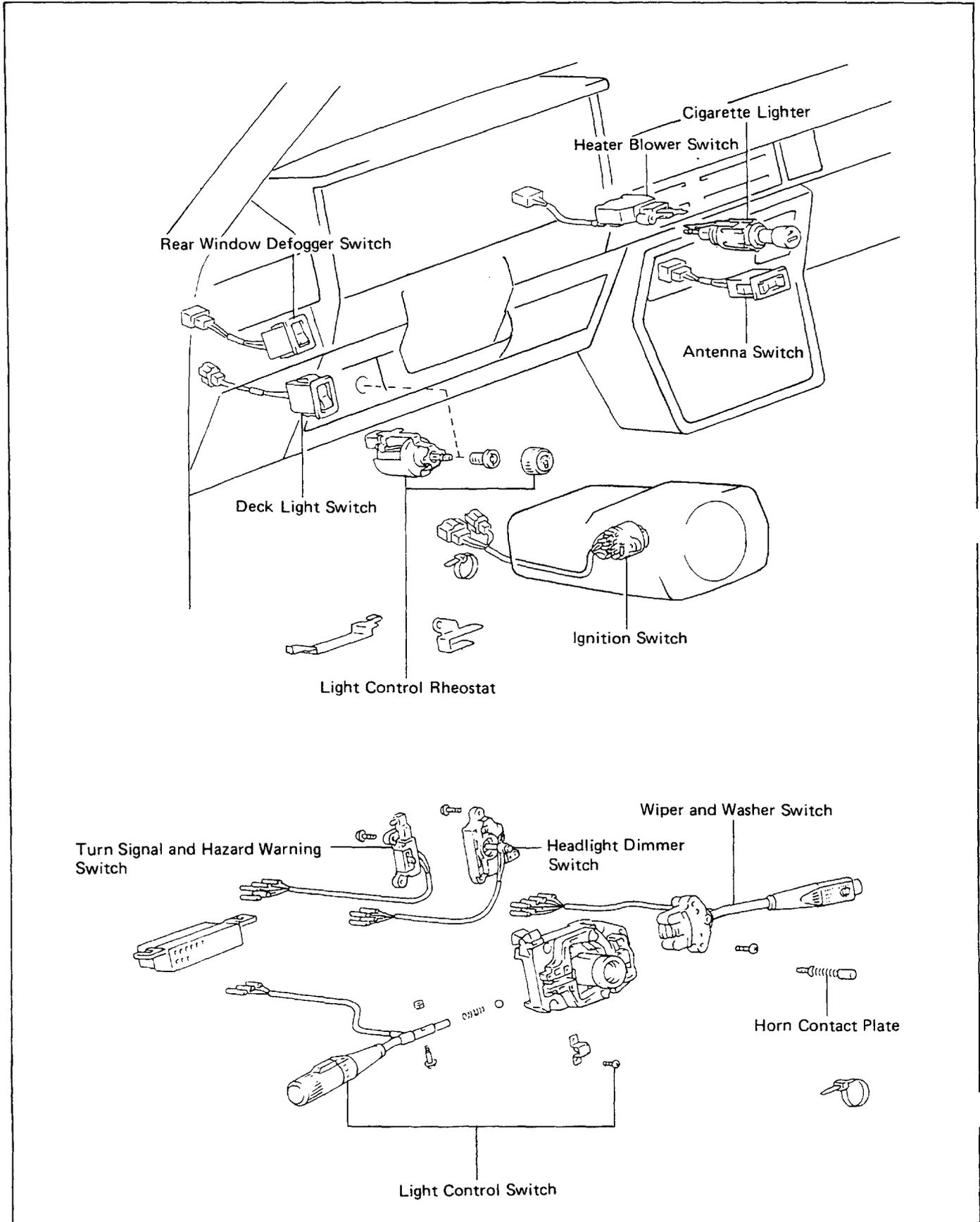
NOTE: If the circuit breaker continues to cut out, a short circuit is indicated. The system must be checked by a qualified technician.

LOCATION OF SWITCHES AND RELAYS

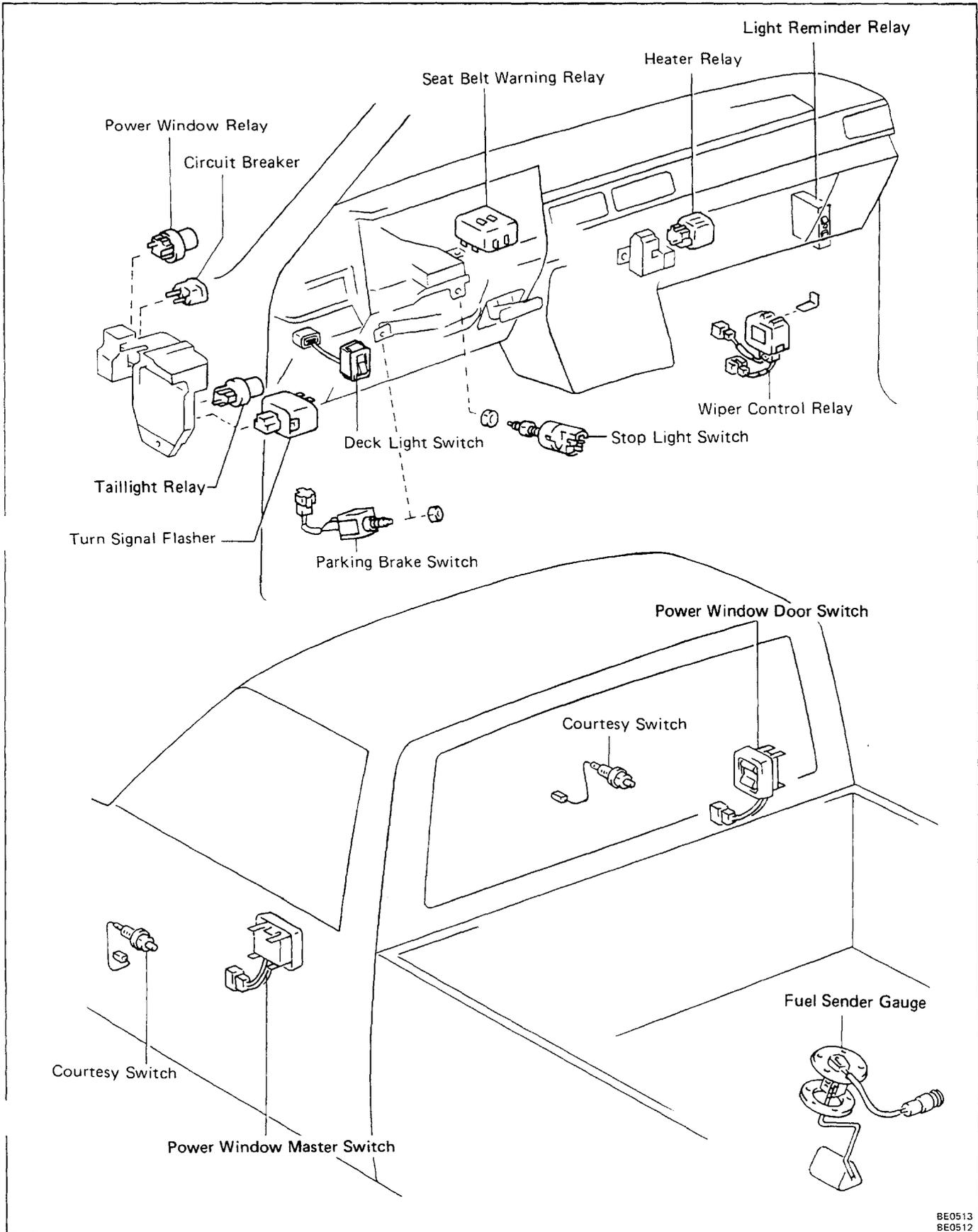
ENGINE COMPARTMENT SWITCHES AND RELAYS



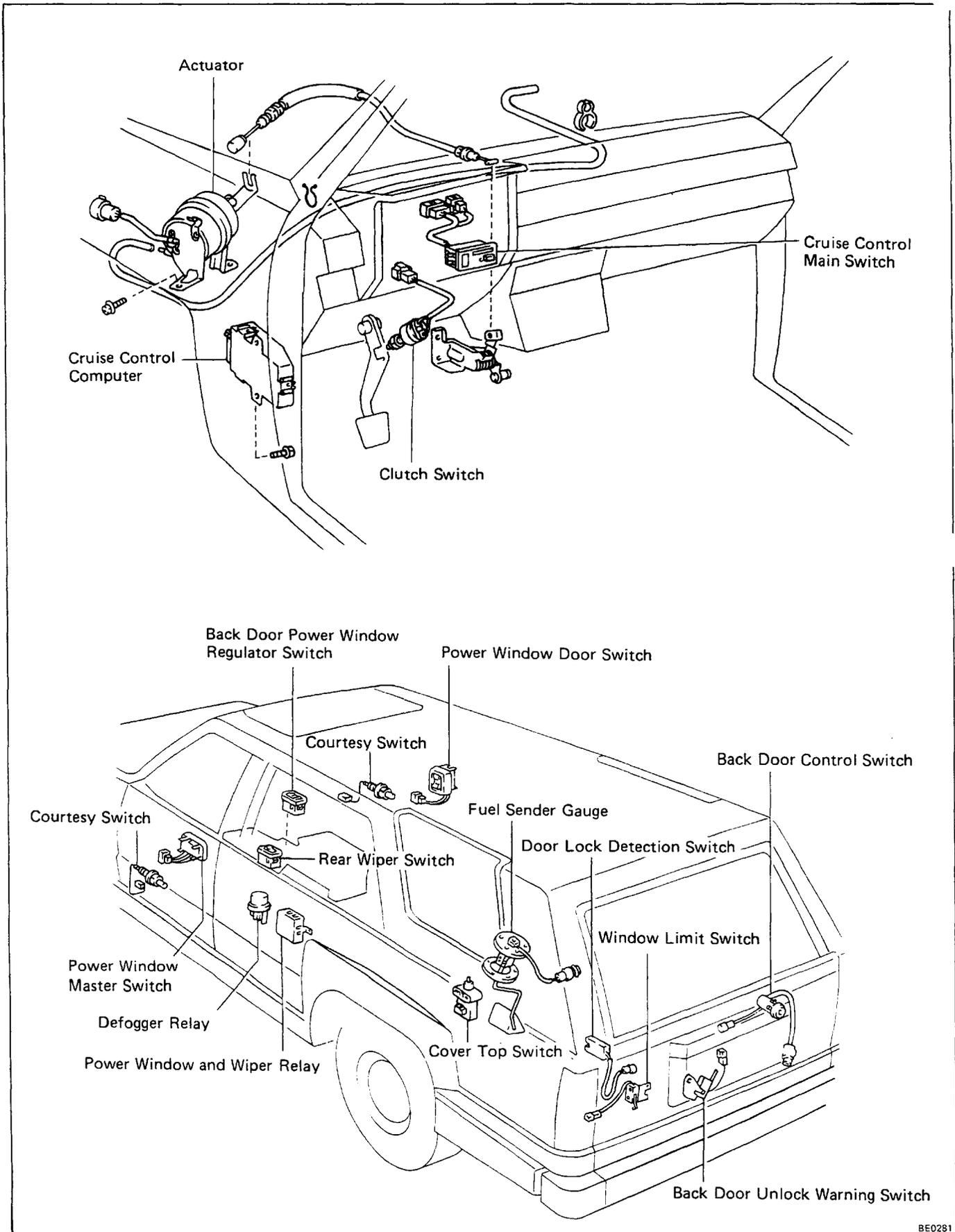
DASH AND STEERING COLUMN SWITCHES AND RELAYS



DASH AND STEERING COLUMN SWITCHES AND RELAYS (Cont'd)



DASH AND STEERING COLUMN SWITCHES AND RELAYS (Cont'd)



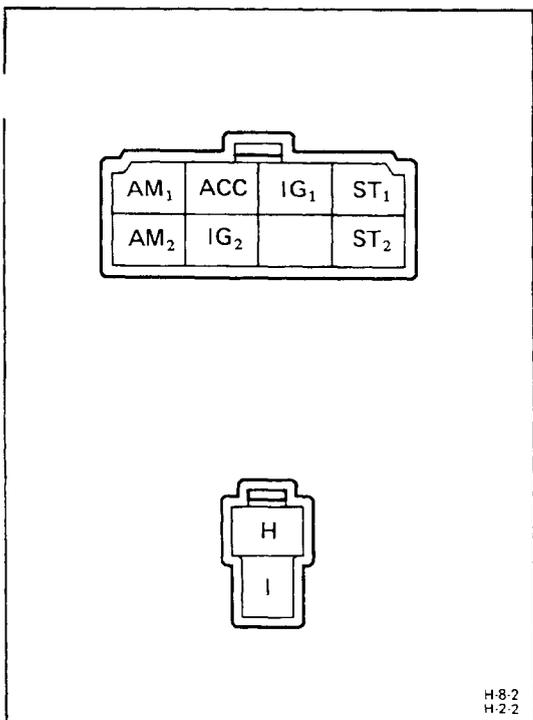
SWITCHES

Ignition Switch

INSPECTION OF IGNITION SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.



Terminal (Wire color)	AM ₁	ACC	IG ₁	ST ₁	AM ₂	IG ₂	ST ₂	H	I
	(B-R)	(L-R)	(B-Y)	(B-W)	(BR)	(BR-W)	(BR-R)	(G-W)	(G-W)
LOCK									
ACC	○—○								
ON	○—○	○—○			○—○				
START	○—○	○—○	○—○		○—○	○—○	○—○		
warning	normal								
	push							○—○	

If continuity is not as specified, replace the switch.

Combination Switch

INSPECTION OF COMBINATION SWITCH

1. INSPECT LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

Inspect the switch continuity between terminals.

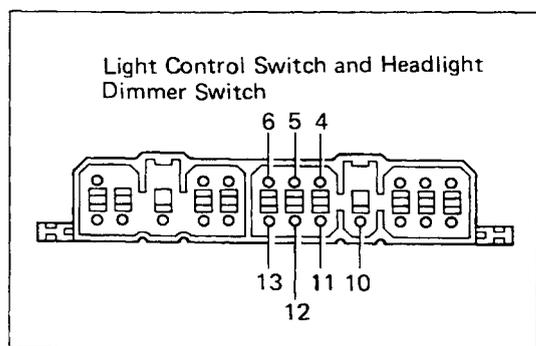
Light control switch

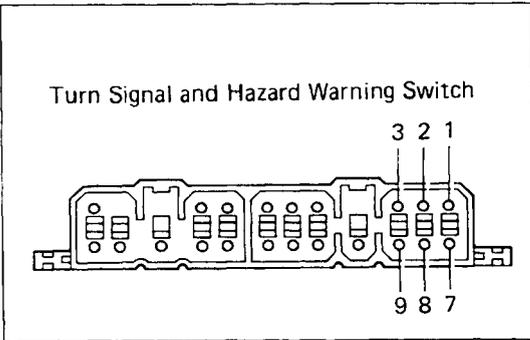
Terminal (Wire color)	10 or 11 EL (W)	10 or 11 T (W)	4 H (R)
	Switch position		
OFF			
TAIL	○—○	○—○	
HEAD	○—○	○—○	○—○

Headlight dimmer switch

Terminal (Wire color)	13 ED (W-B)	6 HL (R-G)	5 HU (R-Y)	12 HF (R-W)
	Switch position			
Flash	○—○		○—○	○—○
Low Beam	○—○	○—○		
High Beam	○—○		○—○	

If continuity is not as specified, replace the switch.



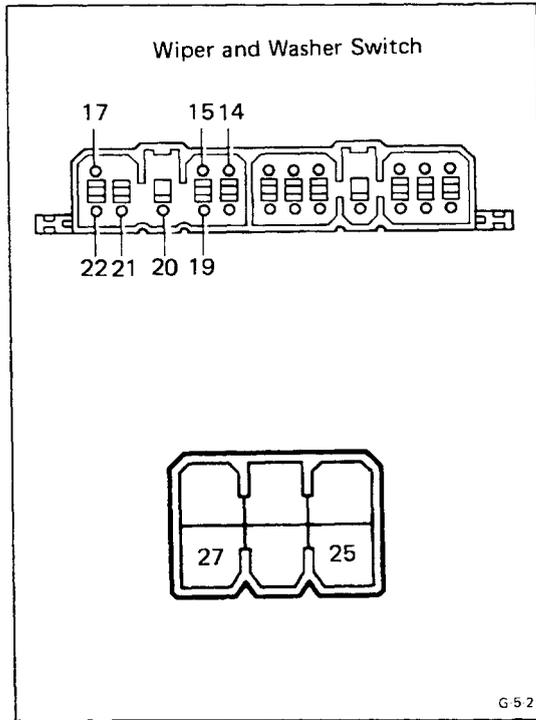


2. INSPECT TURN SIGNAL AND HAZARD WARNING SWITCH

Inspect the switch continuity between terminals.

Terminal (Wire color)	9 T _L (G-B)	3 T _B (G-W)	8 T _R (G-Y)	2 B ₁ (G-L)	7 F (G)	1 B ₂ (G-O)
Turn signal						
L	○	○		○	○	
N				○	○	
R		○	○	○	○	
Hazard ON	○	○	○		○	○

If continuity is not as specified, replace the switch.

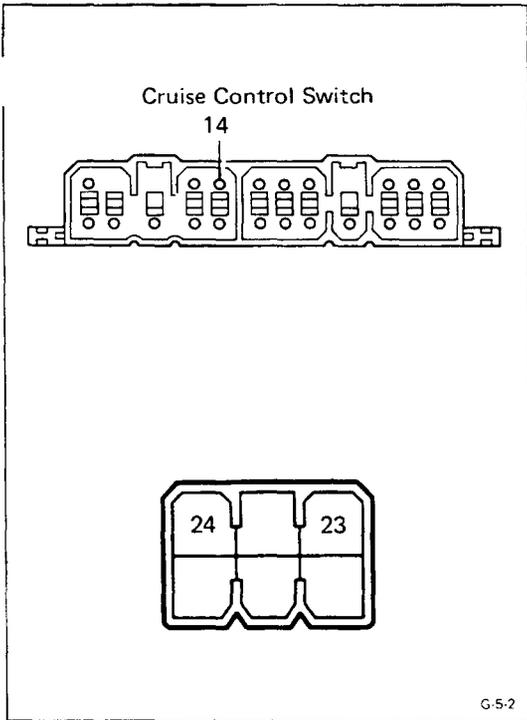


3. INSPECT WIPER AND WASHER SWITCH

Inspect the switch continuity between terminals.

Switch	Terminal (Wire color)	20 +S (L-R)	21 +1 (L-B)	17 +B (L-W)	22 +2 (L-O)	19 C ₁ (LG-R)	14 E _w (B)	15 W (L)	27 VR ₁ (Y)	25 VR ₂ (Y)
Wiper	MIST		○	○						
	OFF	○	○							
	INT	○	○			○	○			
	LO		○	○						
	HI			○	○					
Washer	OFF									
	ON						○	○		
INT Time	SLOW				50 kΩ				○	○
	•				34.25 kΩ				○	○
	●				15.75 kΩ				○	○
	FAST				0 kΩ				○	○

If continuity is not as specified, replace the switch.

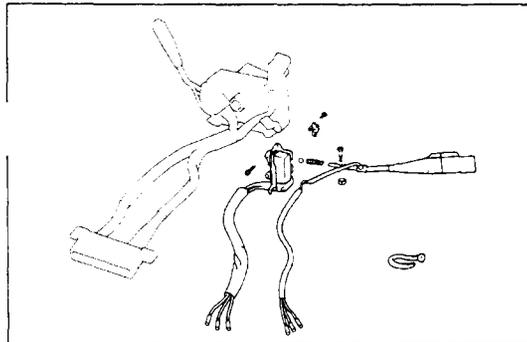


4. INSPECT CRUISE CONTROL SWITCH

Inspect the switch continuity between terminals.

Terminal (Wire color) Switch position	24 S _s (G)	23 S _R (R)	14 E _w (B)
SET COAST	○	—	○
OFF			
ACCEL RESUME		○	○

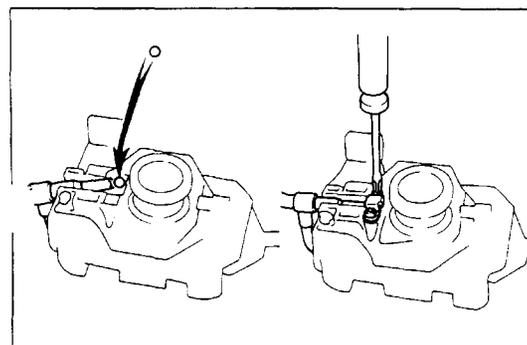
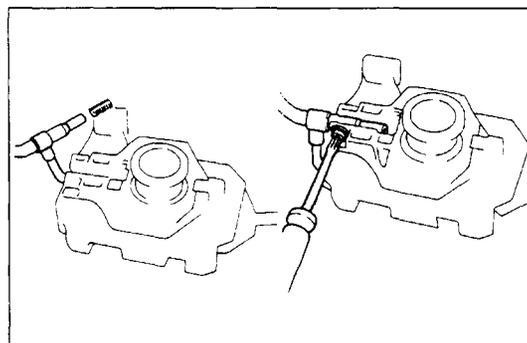
If continuity is not as specified, replace the switch.

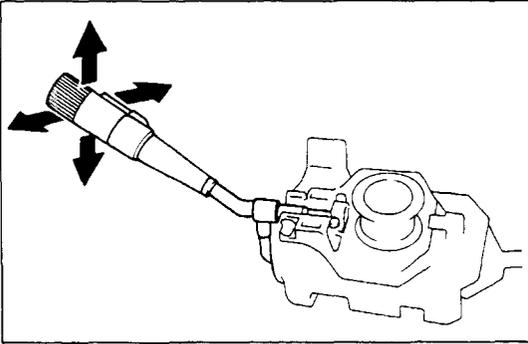


REPLACEMENT OF COMBINATION SWITCH

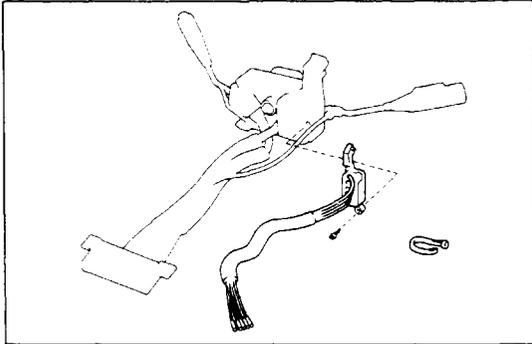
1. REPLACE LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

- (a) Remove the terminals from the connector.
(See page BE-2 and BE-6)
- (b) Remove the light control switch.
- (c) Remove the headlight dimmer switch.
- (d) Install the headlight dimmer switch.
- (e) Insert the spring into the lever and install the lever with the set screw.
- (f) Place the ball on the spring, position the lever at HI and install the plate.



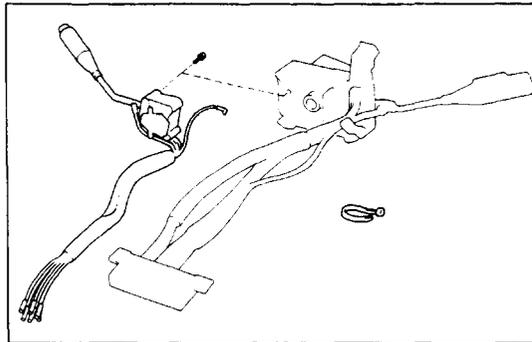


- (g) Insure that the switch operates smoothly.
- (h) Install the terminals to the connector.
(See page BE-3)



2. REPLACE TURN SIGNAL AND HAZARD WARNING SWITCH

- (a) Remove the terminals from the connector.
(See page BE-2)
- (b) Remove the turn signal and hazard warning switch.
- (c) Install the turn signal and hazard warning switch.
- (d) Install the terminals to the connector.
(See page BE-3)



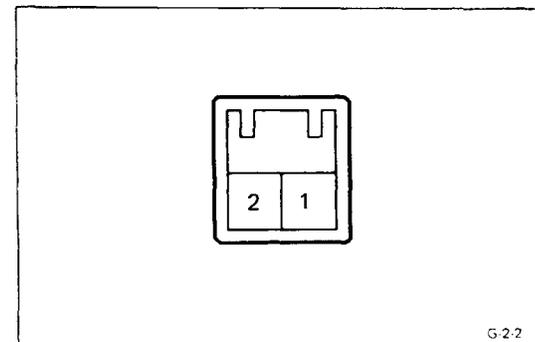
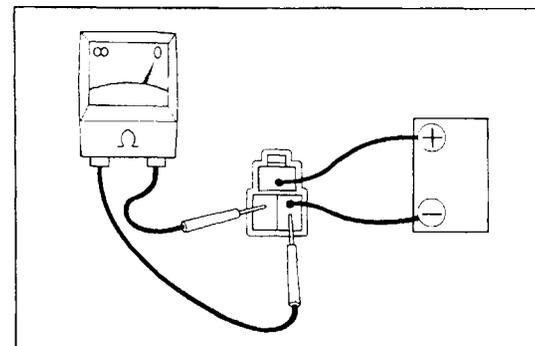
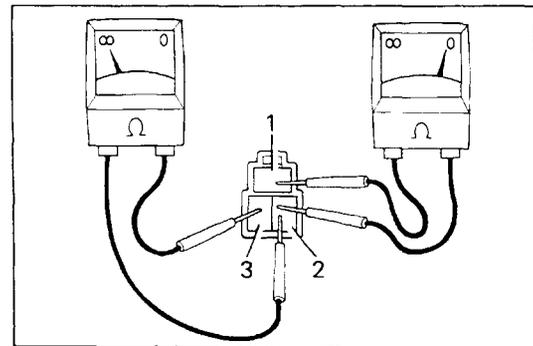
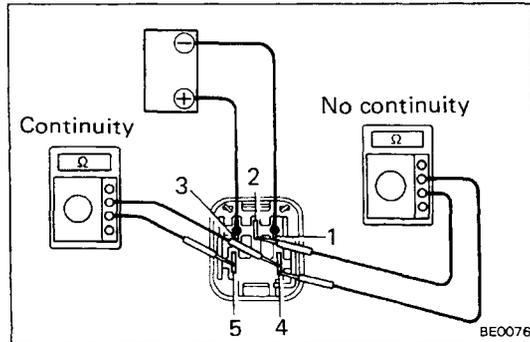
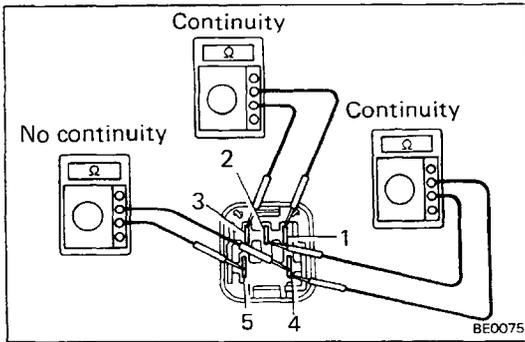
3. REPLACE WIPER AND WASHER SWITCH

- (a) Remove the terminals from the connector.
(See page BE-2)
- (b) Remove the wiper control switch and washer switch
- (c) Install the wiper control switch and washer switch.
- (d) Install the terminals to the connector.
(See page BE-3)

LIGHTING

Troubleshooting

Problem	Possible cause	Remedy	Page
Only one light does not light	Light bulb burned out Socket, wire or ground faulty	Replace bulb Repair as necessary	
Headlights do not light	Fusible link blown Headlight control relay faulty Light control/dimmer switch faulty Wiring or ground faulty	Replace fusible link Check relay Check switch Repair as necessary	BE-14 BE-9
High beam headlights or headlight flashers do not operate	Light control/dimmer switch faulty Wiring or ground faulty	Check switch Repair as necessary	BE-9
Tail, parking and license light do not light	TAIL fuse blown Fusible link blown Taillight control relay faulty Light control switch faulty Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Repair as necessary	BE-3 BE-14 BE-9
Stop lights do not light	STOP fuse blown Stop light switch faulty Wiring or ground faulty	Replace fuse and check for short Adjust or replace switch Repair as necessary	BE-3
Stop lights stay on	Stop light switch faulty	Adjust or replace switch	
Instrument lights do not light (taillights light)	Light control rheostat faulty Wiring or ground faulty	Check rheostat Repair as necessary	BE-14
Turn signal does not flash on one side	Turn signal switch faulty Wiring or ground faulty	Check switch Repair as necessary	BE-10
Turn signals do not operate	HAZ-HORN fuse blown Turn signal flasher faulty Turn signal/hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE-3 BE-15 BE-10
Hazard warning lights do not operate	HAZ-HORN fuse blown Turn signal flasher faulty Turn signal/hazard switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE-3 BE-15 BE-10



Headlight Control Relay

INSPECTION OF HEADLIGHT CONTROL RELAY

1. INSPECT RELAY CONTINUITY

- Check that there is continuity between terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminals 4 and 5.

If continuity is not as specified, replace the relay.

2. INSPECT RELAY OPERATION

- Apply battery voltage across terminals 1 and 3.
- Check that there is continuity between terminals 4 and 5.
- Check that there is no continuity between terminals 2 and 4.

If operation is not as specified, replace the relay.

Taillight Control Relay

INSPECTION OF TAILLIGHT CONTROL RELAY

1. INSPECT RELAY CONTINUITY

- Check that there is continuity between terminals 1 and 2.
- Check that there is no continuity between terminals 2 and 3.

If continuity is not as specified, replace the relay.

2. INSPECT RELAY OPERATION

- Apply battery voltage across terminals 1 and 2.
- Check that there is continuity between terminals 2 and 3.

If operation is not as specified, replace the relay.

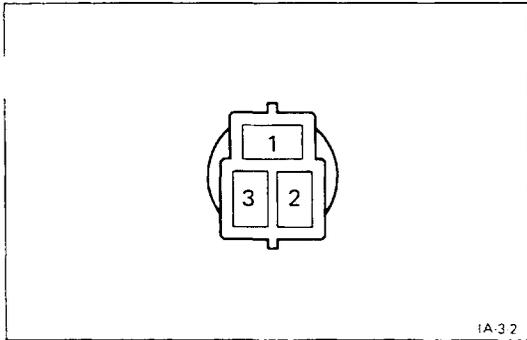
Light Control Rheostat

INSPECTION OF LIGHT CONTROL RHEOSTAT

INSPECT RESISTANCE OF RHEOSTAT

Point	Resistance (Ω)
Full counterclockwise	∞
Midpoint	Approx. 7
Full clockwise	0

If resistance is not as specified, replace the rheostat.



Turn Signal Flasher

INSPECTION OF TURN SIGNAL FLASHER

INSPECT FLASHER OPERATION

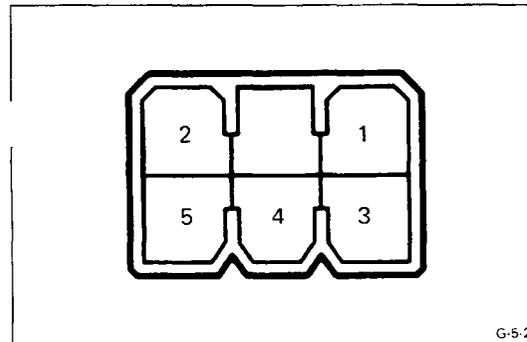
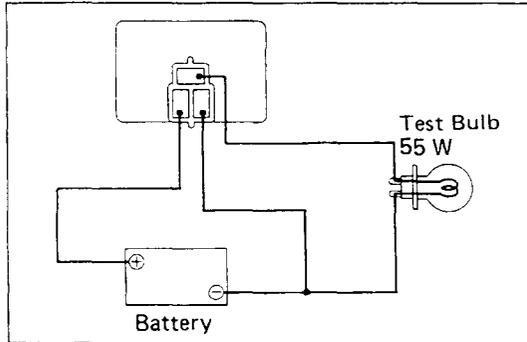
- (a) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminal 2.
- (b) Connect a 55W bulb between terminals 1 and 2, and check that the bulb goes on and off.

NOTE: The turn signal lights should flash 75 to 95 times per minute.

If one of the front or rear turn signal lights has an open circuit, the number of flashes would be more than 120 per minute.

If one of the side turn signal lights has an open circuit, the number of flashes would increase by about 10 per minute.

If continuity is not as specified, replace the flasher.



Deck Light Switch

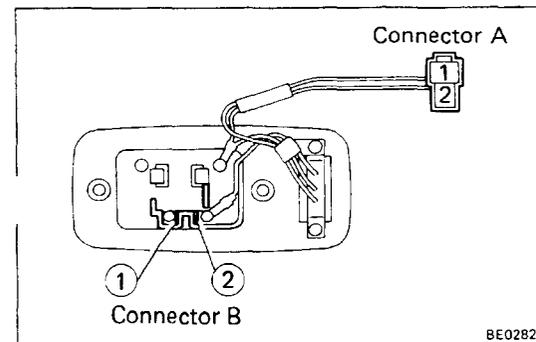
INSPECTION OF DECK LIGHT SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	Indicator		3	4	5
	1	2			
ON	○—○	○—○		○—○	○—○
OFF	○—○	○—○	○—○	○—○	○—○

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



Rear Room Light Switch

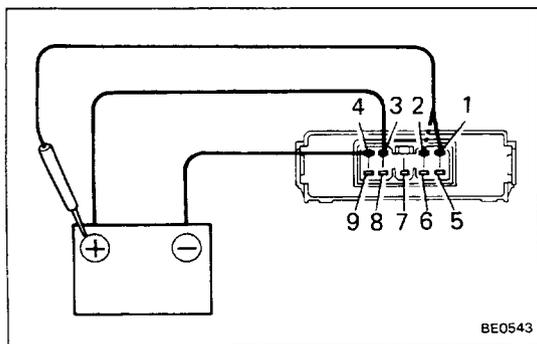
INSPECTION OF REAR ROOM LIGHT SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	Connector A		Connector B	
	1	2	1	2
Right	○—○	○—○	○—○	
Left		○—○	○—○	○—○

If continuity is not as specified, replace the switch.



Light Reminder Relay

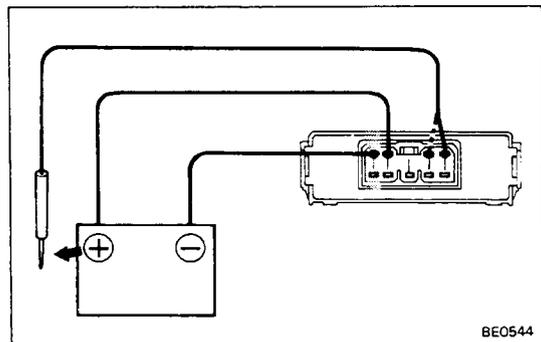
INSPECTION OF LIGHT REMINDER RELAY

1. INSPECT OPERATION OF WARNING BUZZER CIRCUIT

Connect the positive (+) lead from the battery to terminal 3. Connect the negative (-) lead to terminal 4.

- (a) Check that the buzzer does not sound when connected terminal 1 or 2 to the positive (+) lead.
- (b) Check that the buzzer sound when disconnected terminal 1 or 2 from the positive (+) lead.

If operation is not as specified, replace the relay.



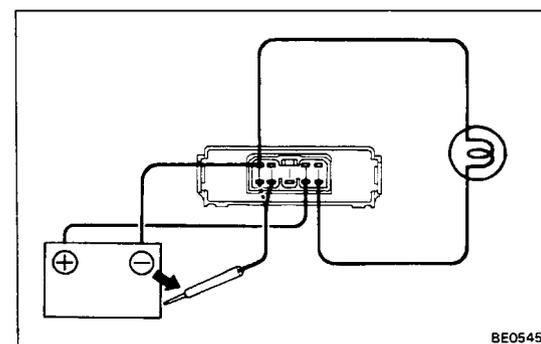
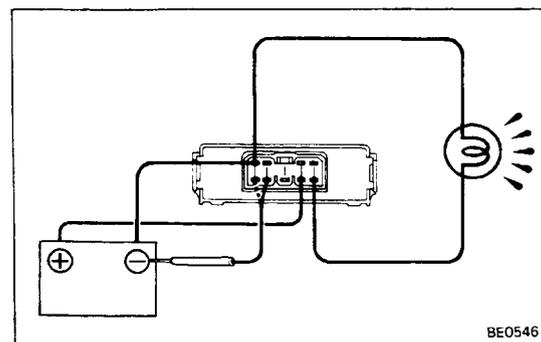
2. INSPECT OPERATION OF ILLUMINATION CONTROL

Connect the positive (+) lead from the battery to terminal 6. Connect the negative (-) lead to terminal 4. Connect the 1.4W test bulb between terminals 4 and 5.

- (a) Check that the test bulb lights when connected terminal 8 or 9 to the negative (-) lead.

- (b) Check that the test bulb does not light for 6 to 14 seconds after terminal 8 or 9 is disconnected from the negative (-) lead.

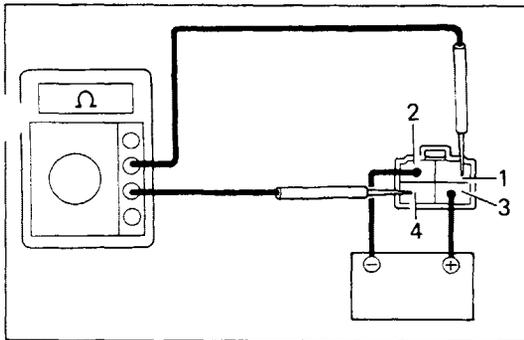
If operation is not as specified, replace the relay.



WIPERS AND WASHERS

Troubleshooting

Problem	Possible cause	Remedy	Page	
			Front	Rear
Wipers do not operate of return to off position	Fuse blown	Replace fuse and check for short	BE-3	BE-3
	Wiper motor faulty	Check motor	BE-18	BE-20
	Wiper switch faulty	Check switch	BE-10	BE-19
	Wiring or ground faulty	Repair as necessary		
Wipers do not operate in INT position	Wiper control relay faulty	Check relay	BE-17	
	Wiper switch faulty	Check switch	BE-10	BE-19
	Wiper motor faulty	Check motor	BE-18	BE-20
	Wiring or ground faulty	Repair as necessary		
Washer does not operate	Washer hose or nozzle clogged	Repair as necessary		
	Washer motor faulty	Replace motor		
	Washer switch faulty	Check switch	BE-10	BE-19
	Wiring faulty	Repair as necessary		



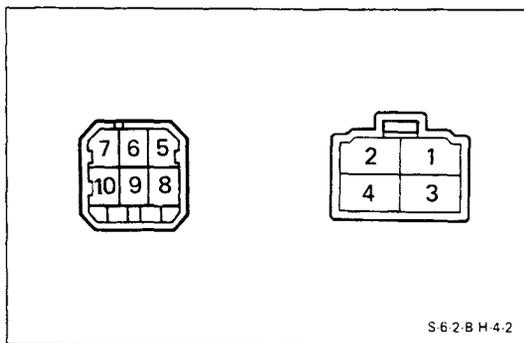
Wiper Control Relay

INSPECTION OF WIPER CONTROL RELAY (INT. Invariable Type)

INSPECT RELAY OPERATION

- (a) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminal 2.
- (b) Check that there is continuity between terminals 1 and 4 once each 3 to 5 seconds.

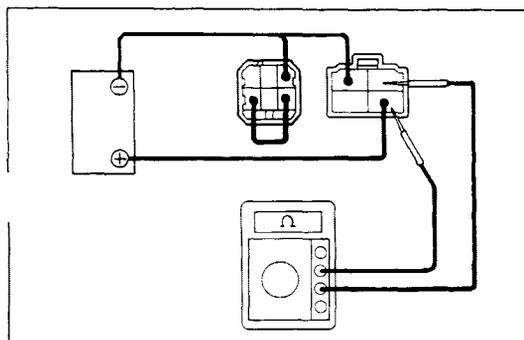
If operation is not as specified, replace the relay.



INSPECTION OF WIPER CONTROL RELAY (INT. Variable Type)

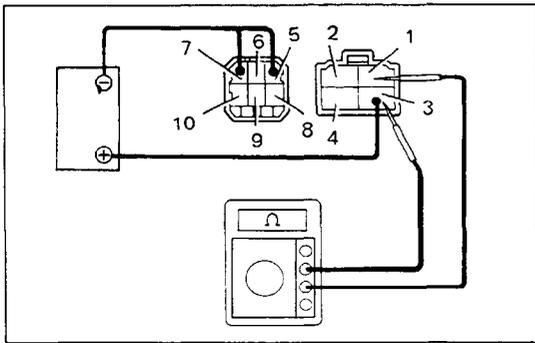
1. INSPECT INTERMITTENT OPERATION OF RELAY

- (a) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminal 5.
- (b) With terminal 2 and 5 connected, check that continuity between 1 and 3 is as shown in the following diagram.



Condition	Connect terminals 8 and 10
Time (secs.)	
Duration of continuity	0.8 +0.3 –0.4
Duration of non-continuity	2.0 ± 0.6

If operation is not as specified, replace the relay.

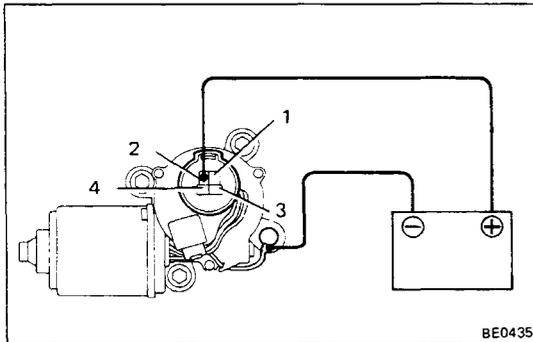


2. INSPECT WASHER CIRCUIT OF RELAY

- (a) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminal 1.
- (b) Inspect continuity between terminals 1 and 3 as follows.

Time (seconds)	Between terminals 1 and 3	Time (seconds)	Between terminals 1 and 3
Connect terminals 5 and 7	Continuity	Disconnect terminals 5 and 7	Continuity
0.5 ± 0.2	↓	2.2 ± 0.5	↓
	No Continuity		No Continuity

If operation is not as specified, replace the relay.

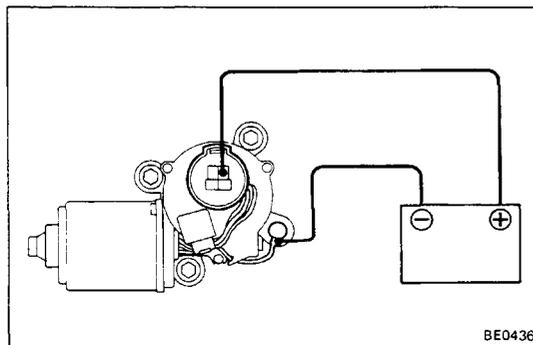


Front Wiper Motor

INSPECTION OF FRONT WIPER MOTOR

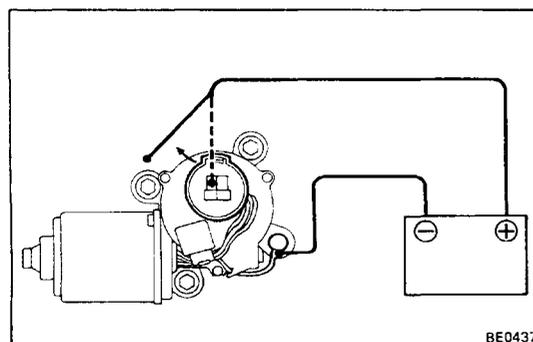
1. INSPECT THAT MOTOR TURNS AT LOW SPEED

- (a) Disconnect the connector from the upper motor.
- (b) Connect the positive (+) lead from the battery to terminal 2. Connect the negative (–) lead to the motor body.
- (c) Check that the motor turns at low speed.



2. INSPECT THAT MOTOR TURNS AT HIGH SPEED

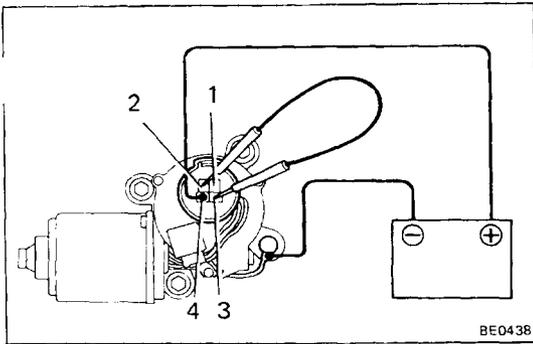
- (a) Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.
- (b) Check that the motor turns at high speed.



3. INSPECT THAT MOTOR STOPS RUNNING AT STOP POSITION

- (a) Turn the motor at low speed.
- (b) Stop motor operation at anywhere except the stop position by disconnecting the battery terminals.

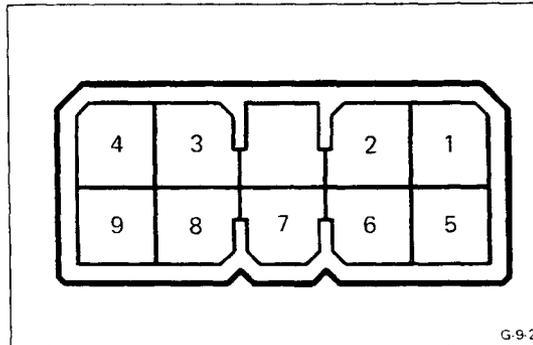
B10595



(c) Connect the positive (+) lead from the battery to terminal 4. Connect the negative (–) lead to the motor body. Connect terminals 2 and 3.

(d) Check that the motor stops running at the stop position after the motor operates again.

If operation is not as specified, replace the motor.



Rear Wiper and Washer Switch

INSPECTION OF REAR WIPER AND WASHER SWITCH

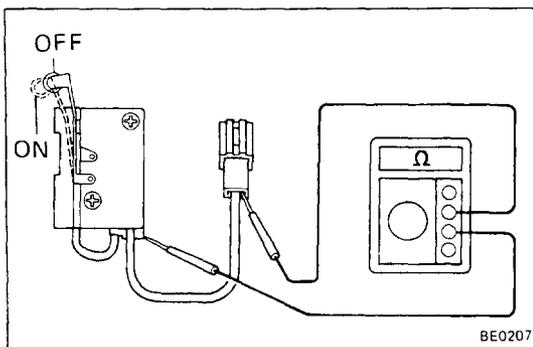
INSPECT SWITCH CONTINUITY

Inspect the continuity between terminals for each switch position shown in the table below.

Terminal Switch position	1 *	2 *	3	4	5	6	8	9
OFF	○—○		○—○		○—○		○—○	
ON	○—○						○—○	
Washer	○—○			○—○			○—○	

*For illumination light

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



Window Limit Switch

INSPECTION OF WINDOW LIMIT SWITCH

INSPECT SWITCH CONTINUITY

Using an ohmmeter, inspect the continuity between the terminal and body ground.

(a) Check that there is no continuity when the switch is pushed (OFF position).

(b) Check that there is continuity when the switch is free (ON position).

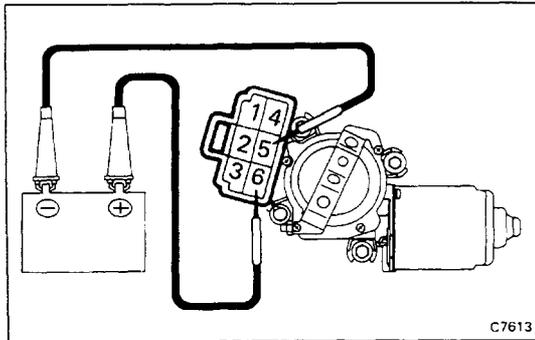
If continuity is not as specified, replace the switch.

Power Window and Wiper Relay

(See page BE-58)

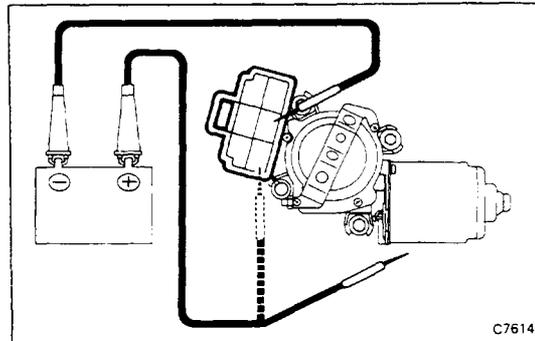
Rear Wiper Motor

INSPECTION OF REAR WIPER MOTOR



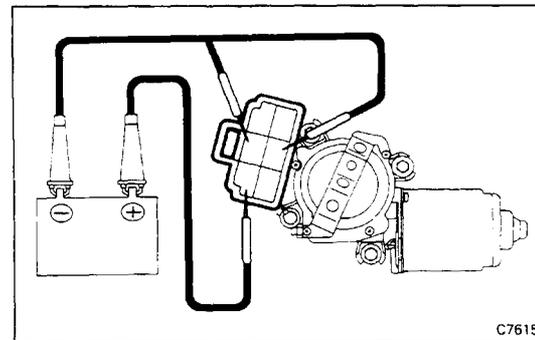
1. INSPECT THAT MOTOR TURNS

- (a) Disconnect the connector from the wiper motor.
- (b) Connect the positive (+) lead from the battery to terminal 6. Connect the negative (-) lead to terminal 5.
- (c) Check that the motor turns.



2. INSPECT THAT MOTOR TURNS RUNNING AT STOP POSITION

- (a) Turn the motor.
- (b) Stop motor operation at anywhere except the stop position by disconnecting the battery terminals.



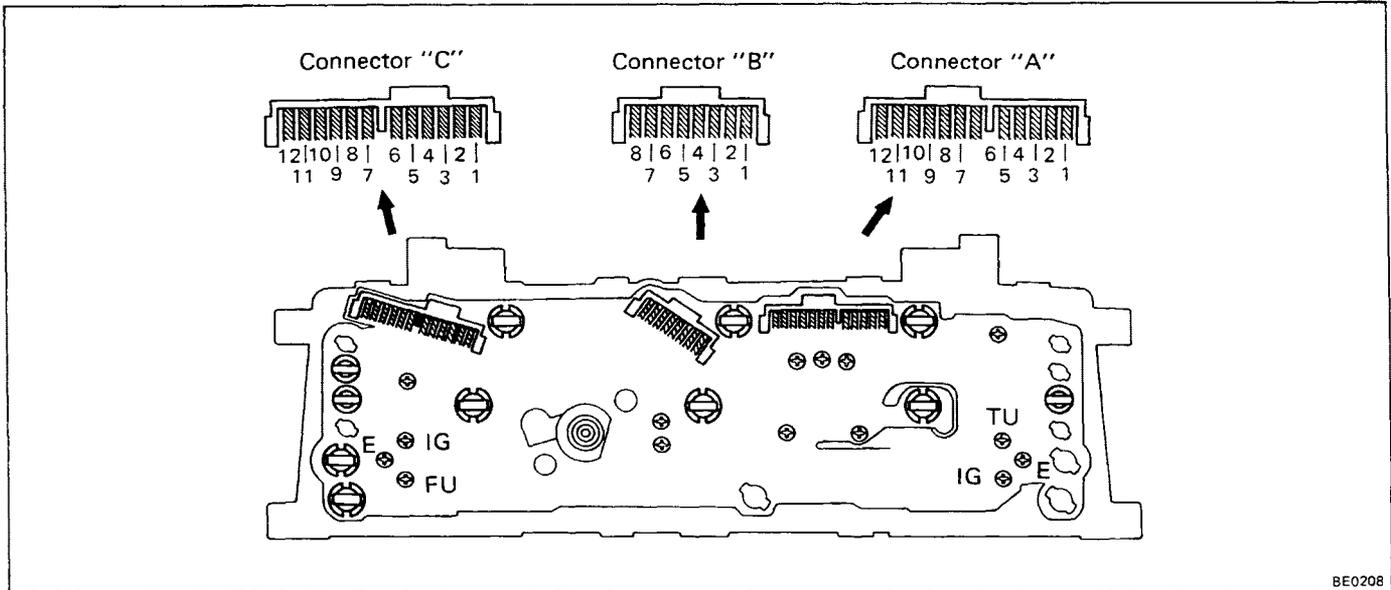
- (c) Connect the positive (+) lead from the battery to terminal 3. Connect the negative (-) lead to terminal 5. Connect the terminals 2 and 5.
- (d) Check that the motor stops running at stop position after the motor operates again.

If operation is not as specified, replace the motor.

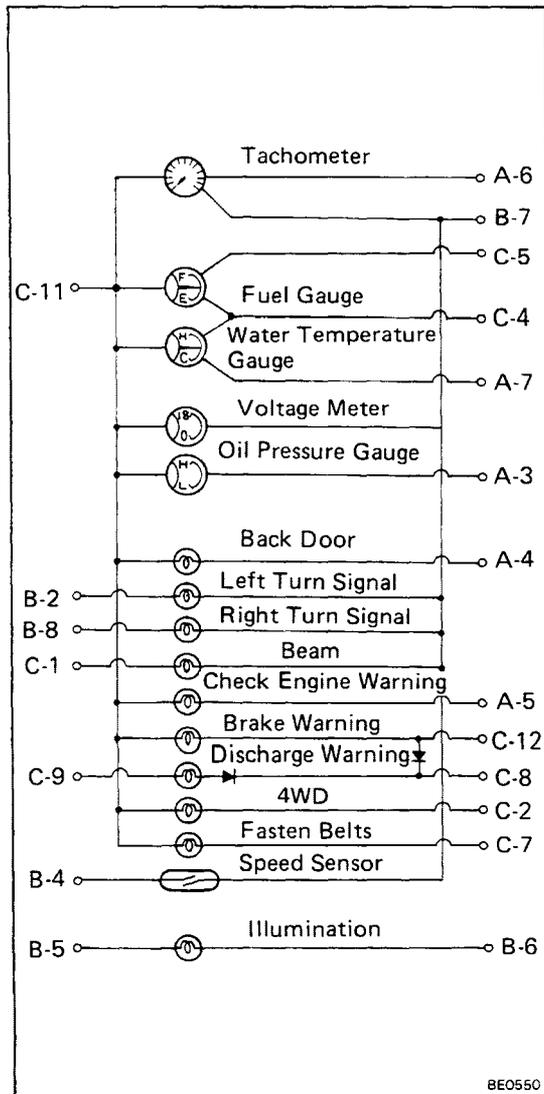
INSTRUMENTS AND SENDER GAUGES Troubleshooting

Problem	Possible cause	Remedy	Page
Voltmeter does not work	Fuses blown	Replace in-line fuse and check for short	BE-24
	Voltmeter faulty	Check voltmeter	
	Wiring or ground faulty	Repair as necessary	
Tachometer does not work	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Tachometer faulty	Check tachometer	BE-24
	Wiring or ground faulty	Repair as necessary	
Fuel gauge does not work	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Fuel receiver gauge faulty	Check gauge	BE-25
	Sender gauge faulty	Check sender gauge	BE-26
	Wiring or ground faulty	Repair as necessary	
Water temperature gauge does not work	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Water temperature gauge faulty	Check gauge	BE-26
	Water temperature sender gauge faulty	Check sender gauge	BE-27
	Wiring or ground faulty	Repair as necessary	
Brake warning light does not light	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Bulb burned out	Replace bulb	
	Brake fluid level warning switch faulty	Check switch	BE-29
	Parking brake switch faulty	Check switch	BE-29
	Wiring or ground faulty	Repair as necessary	
Low oil pressure warning light does not light	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Bulb burned out	Replace bulb	
	Oil pressure switch faulty	Check switch	BE-28
	Wiring or ground faulty	Repair as necessary	
Discharge warning light does not light	IGN fuse blown	Replace fuse and check for short	BE-3
	Bulb burned out	Replace bulb	
	Wiring or ground faulty	Repair as necessary	

Combination Meter and Gauge (w/Tachometer)



BE0208



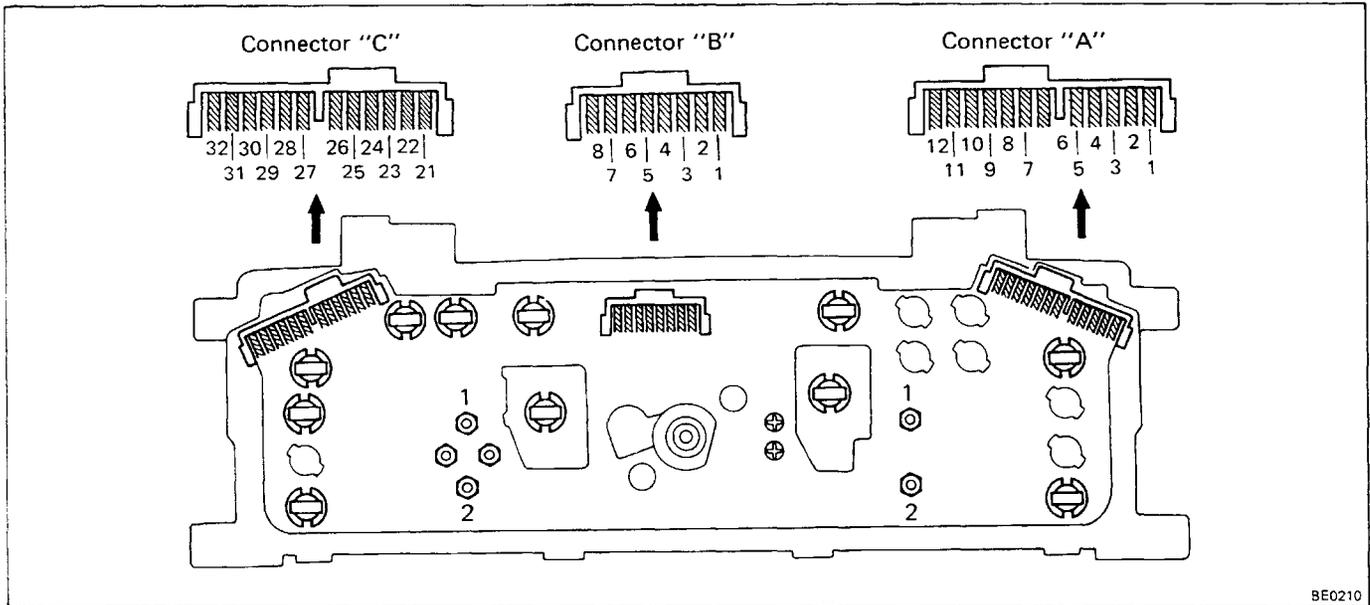
BE0550

COMBINATION METER CIRCUIT

No.	Wiring connector side
A	3 Oil Pressure Sender Gauge or Oil Pressure Switch
	4 Back Door Unlock Warning Switch and Door Lock Detection Switch
	5 EFI Computer
	6 Ignition Coil
	7 Water Temperature Sender Gauge
B	2 Turn Signal Switch Terminal 9
	4 EFI Computer and Cruise Control Computer Terminal 7
	5 TAIL Fuse
	6 Light Control Rheostat Terminal 1
	7 Ground
8 Turn Signal Switch Terminal 8	
C	1 Headlight Dimmer Switch Terminal 6
	2 4WD Indicator Switch
	4 Ground
	5 Fuel Sender Gauge Terminal 1
	7 Seat Belt Warning Relay
	8 CHARGE Fuse
	9 IGN Fuse
	11 ENGINE Fuse
12 Parking Brake Switch and Brake Fluid Level Warning Switch	

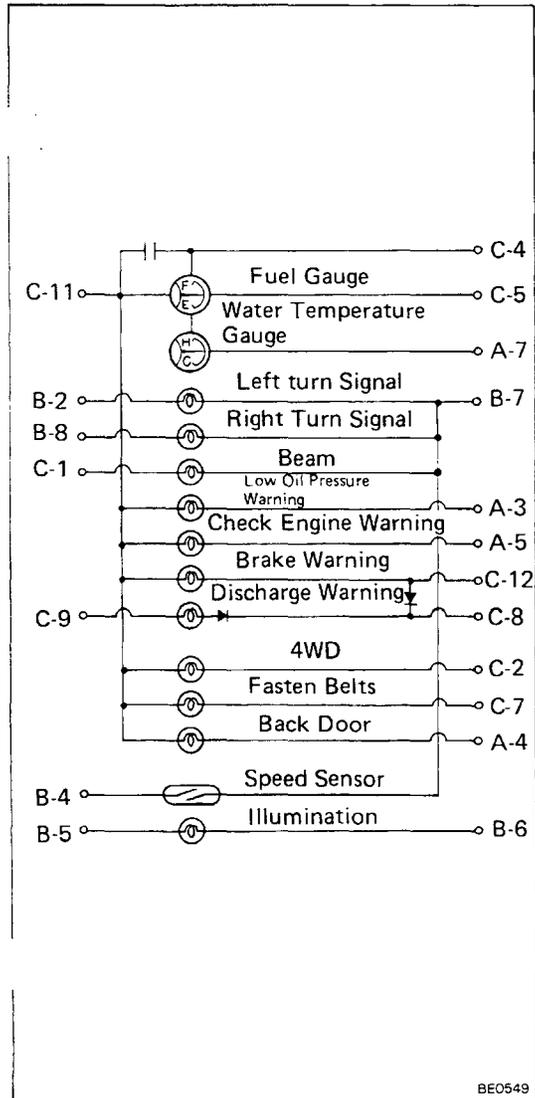
B00021

Combination Meter and Gauge (w/o Tachometer)



BE0210

COMBINATION METER CIRCUIT



BE0549

No.	Wiring connector side
A	3 Oil Pressure Switch
	4 Back Door Unlock Warning Switch and Door Lock Detection Switch
	5 EFI Computer
B	7 Water Temperature Sender Gauge
	2 Turn Signal Switch Terminal 9
	4 EFI Computer and Cruise Control Computer Terminal 7
	5 TAIL Fuse
	6 Light Control Rheostat Terminal 1
C	7 Ground
	8 Turn Signal Switch Terminal 8
	1 Headlight Dimmer Switch Terminal 5
	2 4WD Indicator Switch
	4 Ground
	5 Fuel Sender Gauge Terminal 1
	7 Seat Belt Warning Relay
	8 CHARGE Fuse
	9 IGN Fuse
	11 ENGINE Fuse
	12 Parking Brake Switch and Brake Fluid Level Warning Switch

B00020

Speedometer

ON-VEHICLE INSPECTION OF SPEEDOMETER

- (a) Using a speedometer tester, inspect the speedometer for allowable indicating error and check the operation of the odometer.

NOTE: Tire wear and tire over or under inflation will increase the indicating error.

Standard indication (km/h)	Allowable range (km/h)
20	18 — 23
40	40 — 44
60	60 — 64.5
80	80 — 85
100	100 — 105
120	120 — 125.5
140	140 — 146
160	160 — 167

Standard indication (mph)	Allowable range (mph)
20	20 — 23
40	40 — 43.5
60	60 — 64
80	80 — 84.5
100	100 — 105

- (b) Check the speedometer for pointer vibration and abnormal noises.

NOTE: Pointer vibration can be caused by a loose speedometer cable.

Tachometer

ON-VEHICLE INSPECTION OF TACHOMETER

- (a) Connect a tune-up test tachometer and start the engine.
- (b) Compare the tester and tachometer indications. If the error is excessive, replace the tachometer.

CAUTION:

- 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 severe impact.

Standard indication (rpm)	700	3,000	5,000	7,000
Allowable range (rpm)	+20	±200	±200	±300
25°C DC 13 V	-120			

Voltmeter

INSPECTION OF VOLTMETER

Compare the tester and voltmeter indications.

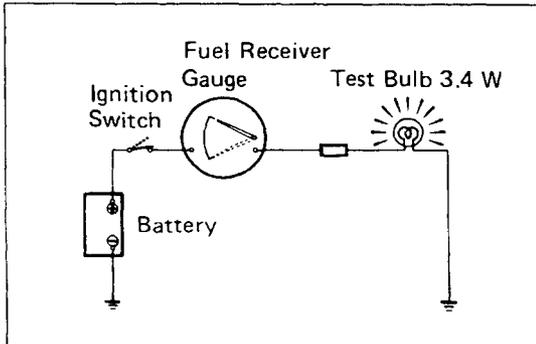
If the error is excessive, replace the voltmeter.

Fuel Gauge

INSPECTION OF FUEL GAUGE

1. INSPECT RECEIVER GAUGE OPERATION (w/ Tachometer)

- (a) Disconnect the connector from the fuel sender gauge. Turn the ignition switch on. Check that the receiver gauge needle moves to the empty position.
- (b) Connect a 3.4 W bulb between terminal 1 and body ground. Check that the bulb lights and that the receiver gauge needle operates.



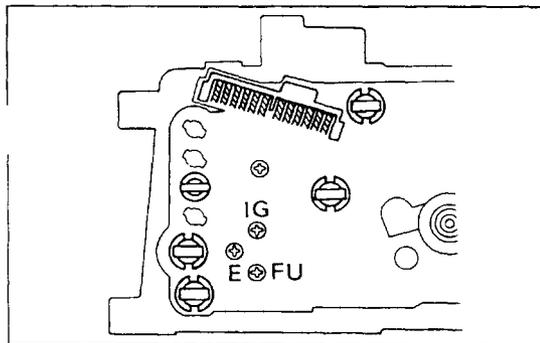
NOTE: Because of the silicon oil in the gauge, it will take about 90 seconds for the needle to stabilize.

If indications are not correct, remove and test the receiver gauge.

2. MEASURE RECEIVER GAUGE RESISTANCE BETWEEN TERMINALS (w/ Tachometer)

Between terminals	Resistance (Ω)
IG — FU	Approx. 83
FU — E	Approx. 156
IG — E	Approx. 239

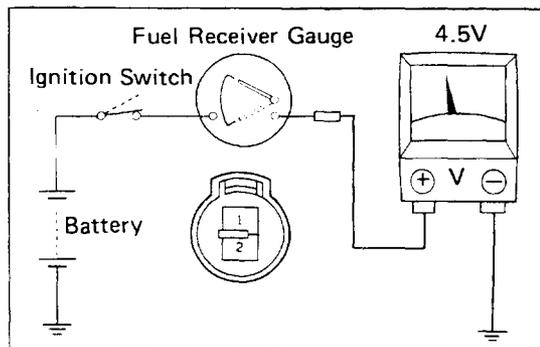
If each resistance value is not as shown in the table above, replace the receiver gauge.



3. INSPECT RECEIVER GAUGE OPERATION (w/o Tachometer)

- (a) Disconnect the connector from the fuel sender gauge. Connect the positive (+) lead from the voltmeter to terminal 1 and connect the negative (—) lead from the voltmeter to terminal 2.
- (b) Turn the ignition switch on. Check that the meter needle vibrates near the 4.5 V position.

If voltage is not correct, remove and test the receiver gauge.

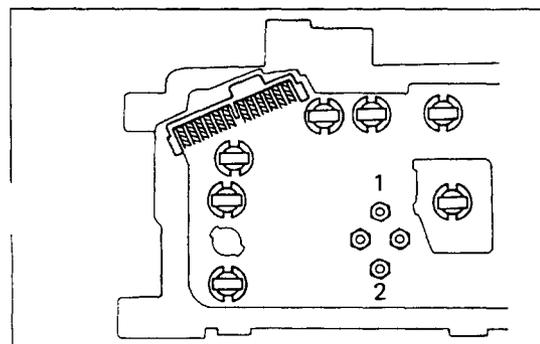


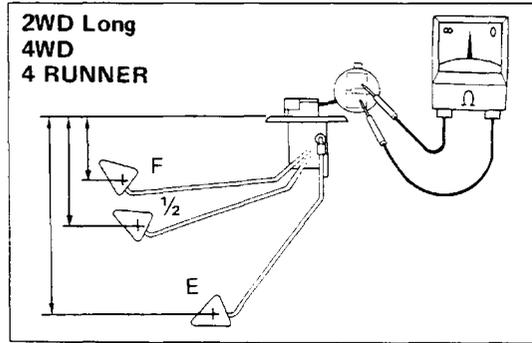
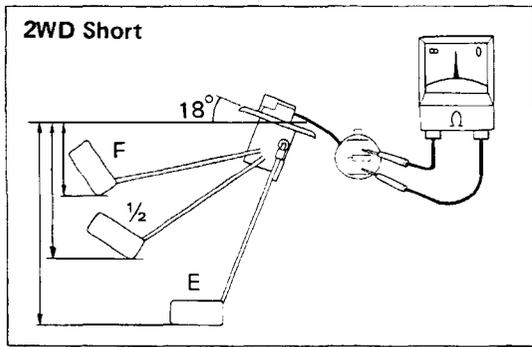
4. MEASURE RECEIVER GAUGE RESISTANCE (w/o Tachometer)

Using an ohmmeter, measure the resistance between terminals 1 and 2.

Resistance: Approx. 55 Ω

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





5. MEASURE RESISTANCE OF SENDER GAUGE

- (a) Check that resistance changes as the float is moved from the top to bottom position.
- (b) Measure the resistance between terminals 1 and 2.

2WD

	Float position mm (in.)		Resistance (Ω)
	Short Deck	Long Deck	
F	47 (1.85)	94.3 (3.71)	3^{+2}_{-3}
1/2	150 (5.91)	174.7 (6.88)	32.5 ± 4.8
E	245.1 (9.65)	256.7 (10.11)	110 ± 7.7

4WD

	Float position mm (in.)		Resistance (Ω)
	65 liters	73 liters	
F	105.7 (4.16)	114.3 (4.50)	3^{+2}_{-3}
1/2	196.2 (7.72)	214.7 (8.45)	32.5 ± 4.8
E	288.2 (11.35)	317.1 (12.48)	110 ± 7.7

4 RUNNER

	Float position mm (in.)		Resistance (Ω)
	56 liters	65 liters	
F	91.9 (3.62)	105.7 (4.16)	3^{+2}_{-3}
1/2	182.5 (7.19)	196.2 (7.72)	32.5 ± 4.8
E	262.0 (10.31)	288.2 (11.35)	110 ± 7.7

If each resistance value is not as shown in the table above, replace the sender gauge.

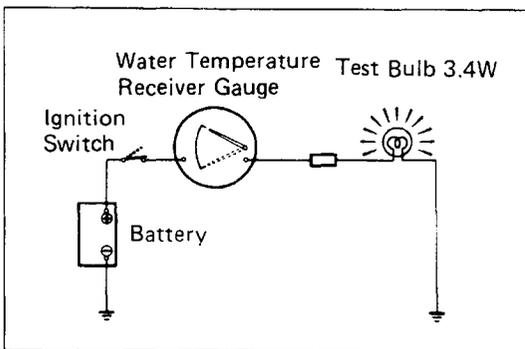
Water Temperature Gauge

INSPECTION OF WATER TEMPERATURE GAUGE

1. INSPECT RECEIVER GAUGE OPERATION (w/ Tachometer)

- (a) Disconnect the connector from the sender gauge. Ground the terminal through a 3.4 W bulb as shown.
- (b) Turn the ignition switch on. Check that the bulb lights and that the receiver gauge needle operates.

If indications are not correct, remove and test the receiver gauge.

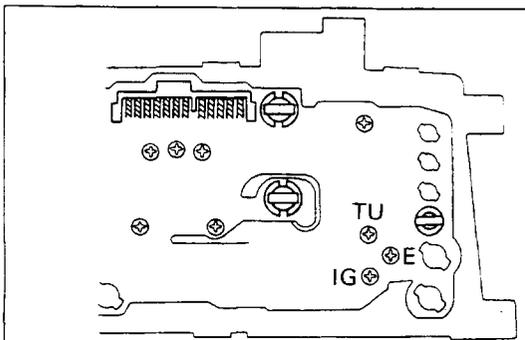


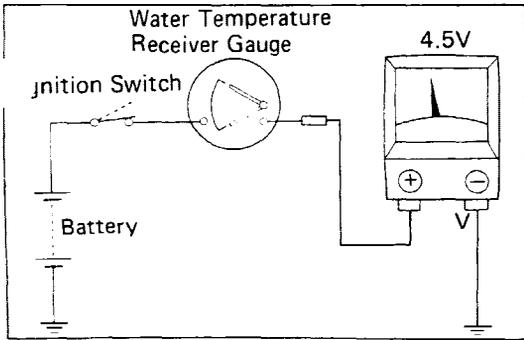
2. MEASURE RESISTANCE OF RECEIVER GAUGE (w/ Tachometer)

Using an ohmmeter, measure the resistance between terminals.

If each resistance value is not as shown in the table below, replace the receiver gauge.

Between terminals	Resistance (Ω)
IG – TU	Approx. 135
TU – E	Approx. 138
IG – E	Approx. 273

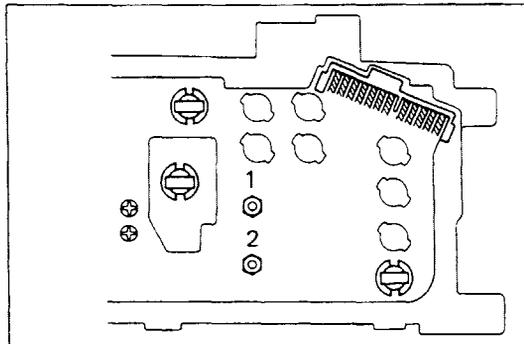




3. INSPECT RECEIVER GAUGE OPERATION (w/o Tachometer)

- (a) Disconnect the connector from the sender gauge. Connect the positive (+) lead from the voltmeter to terminal and connect the negative (-) lead from the voltmeter to body ground.
- (b) Turn the ignition switch on. Check that the meter needle vibrates near the 4.5 V position.

If voltage value is not correct, remove and test the receiver gauge.

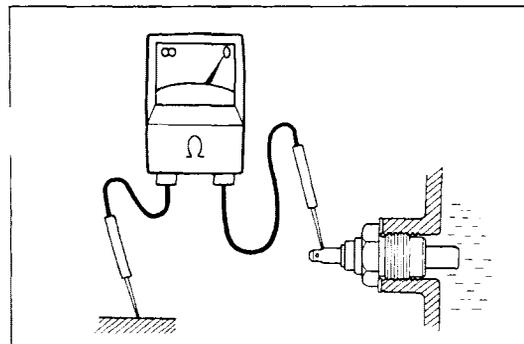


4. MEASURE RESISTANCE OF RECEIVER GAUGE (w/o Tachometer)

Using an ohmmeter, measure the resistance between terminals 1 and 2.

Resistance: Approx. 25 Ω

If resistance value is not correct, replace the receiver gauge.



5. MEASURE RESISTANCE OF SENDER GAUGE

Using an ohmmeter, measure the resistance between the terminal and ground.

If each resistance value is not as shown in the table below, replace the sender gauge.

Water temperature °C (°F)	Resistance (Ω)
60 (140)	146.6 ^{+26.5} / _{-4.0}
115 (239)	24.3 ^{+1.3} / _{-1.8}

Oil Pressure Gauge

INSPECTION OF OIL PRESSURE GAUGE

1. INSPECT RECEIVER GAUGE OPERATION

- (a) Disconnect the connector from the sender gauge. Connect the positive (+) lead from the voltmeter to the terminal and the negative (-) lead to body ground.
- (b) Turn the ignition switch on. Check that the meter needle vibrates near the 4.5 V position.

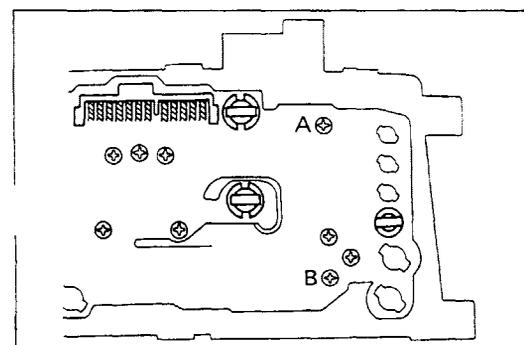
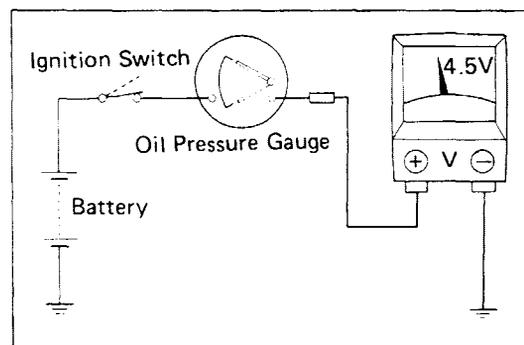
If the voltage value is not correct, remove and test the receiver gauge.

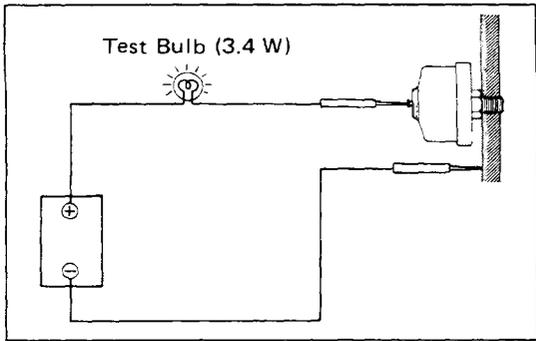
2. MEASURE RESISTANCE OF RECEIVER GAUGE

Using an ohmmeter, measure the resistance between terminals A and B.

Resistance: Approx. 44 Ω

If resistance value is not correct, replace the receiver gauge.

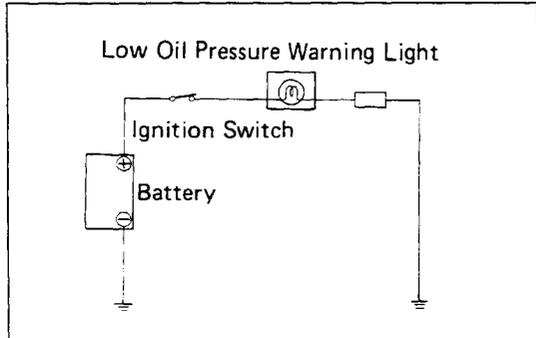




3. INSPECT SENDER GAUGE OPERATION

- (a) Disconnect the connector from the sender gauge
- (b) Connect a 12 V battery to the sender gauge terminal... in series with a 3.4 W bulb. Check that the bulb does not light when the engine is stopped, and flashes when the engine is running. The number of flashes should vary with engine speed.

If operation is not correct, replace the sender gauge.

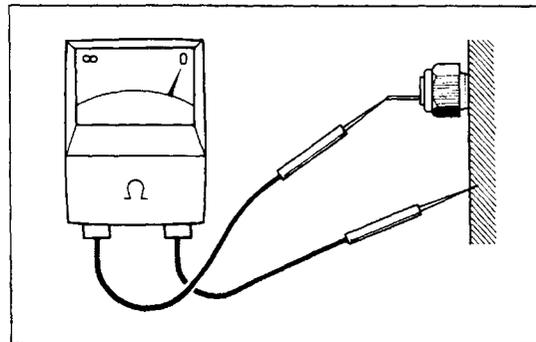


Low Oil Pressure Warning

INSPECTION OF LOW OIL PRESSURE WARNING

1. INSPECT WARNING LIGHT OPERATION

- (a) Disconnect the connector from the switch. Connect the switch terminal and body ground.
- (b) Turn the ignition switch on. Check that the bulb lights. If operation is not correct, remove and test the bulb.



2. INSPECT SWITCH OPERATION

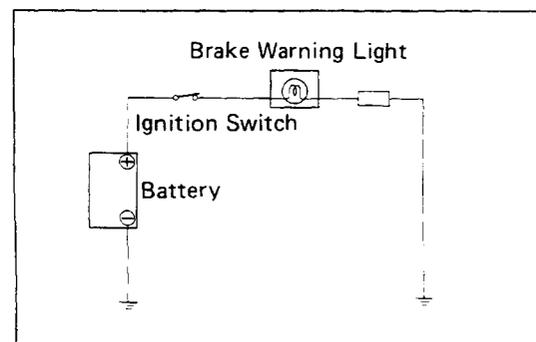
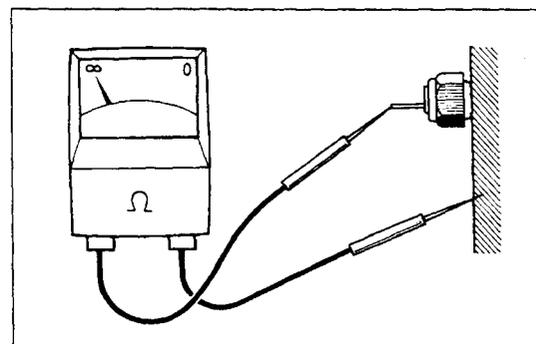
Check the continuity between the terminal and ground.

- (a) Check that there is continuity with the engine stopped

- (b) Check that there is no continuity with the engine running.

NOTE: After the engine has started, oil pressure should rise over 0.2 kg/cm² (2.8 psi, 20 kPa).

If operation is not correct, replace the switch.

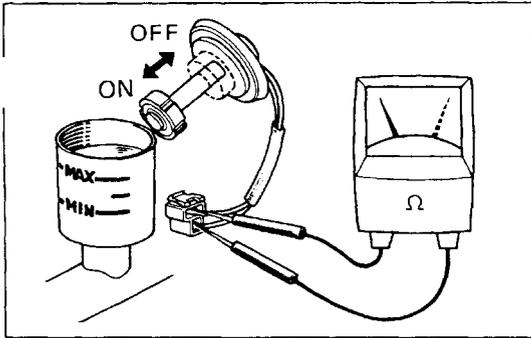


Brake Warning

INSPECTION OF BRAKE WARNING

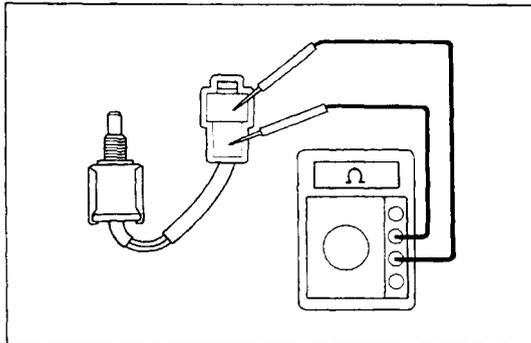
1. INSPECT WARNING LIGHT OPERATION

- (a) Disconnect the connector from the brake fluid level warning switch. Connect the switch terminals.
- (b) Turn the ignition switch on. Check that the bulb lights. If operation is not correct, remove and test the bulb.



2. INSPECT OPERATION OF BRAKE FLUID LEVEL WARNING SWITCH

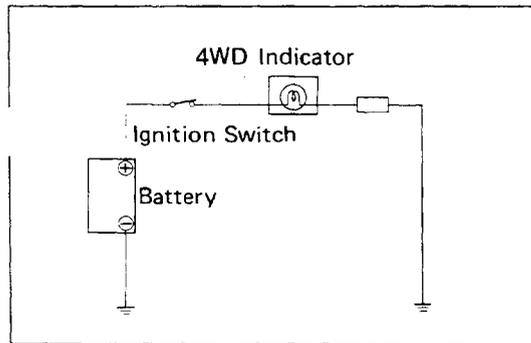
Inspect the switch operation when the switch is OFF (float up) and when the switch is ON (float down).
If operation is not correct, replace the switch.



3. INSPECT OPERATION OF PARKING BRAKE SWITCH

Using an ohmmeter, inspect the continuity between the terminals.

- (a) Check that there is continuity when the switch is free (parking brake lever pulled).
 - (b) Check that there is no continuity when the switch pin is pushed (parking brake lever returned).
- If operation is not correct, replace the switch.

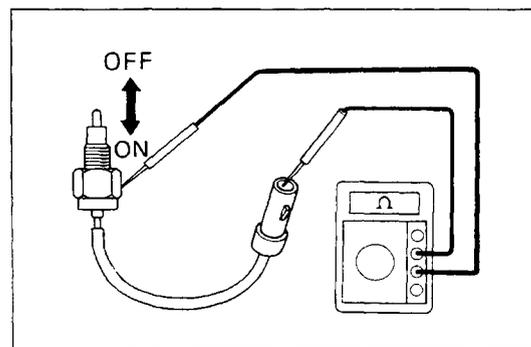


4WD Indicator

INSPECTION OF 4WD INDICATOR

1. INSPECT INDICATOR LIGHT OPERATION

- (a) Disconnect the connector from the 4WD indicator switch. Connect the switch terminal and body ground.
 - (b) Turn the ignition switch on. Check that the bulb lights.
- If operation is not correct, remove and test the bulb.



2. INSPECT 4WD INDICATOR SWITCH OPERATION

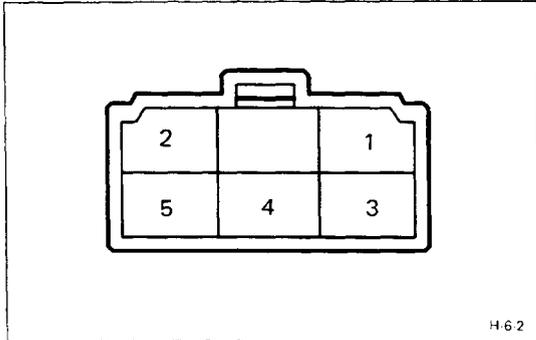
Using an ohmmeter, inspect the continuity between the terminal and body.

- (a) Check that there is continuity when the switch pin is pushed.
 - (b) Check that there is no continuity when the switch is free.
- If operation is not correct, replace the switch.

REAR WINDOW DEFOGGER

Troubleshooting

Problem	Possible cause	Remedy	Page
Rear window defogger does not work	Defogger switch faulty	Check switch	BE-30
	Defogger wire broken	Check wires	BE-31
	Wiring and ground faulty	Repair as necessary	



Rear Window Defogger Switch

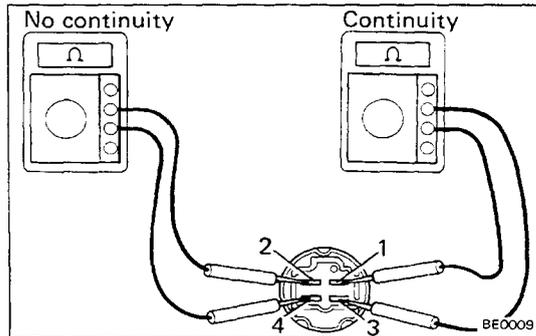
INSPECTION OF DEFOGGER SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	1	2	4	Light	
				3	5
OFF				○	○
ON	○	○		○	○

If continuity is not as specified, replace the switch.



Defogger Relay

INSPECTION OF DEFOGGER RELAY

1. INSPECT RELAY CONTINUITY

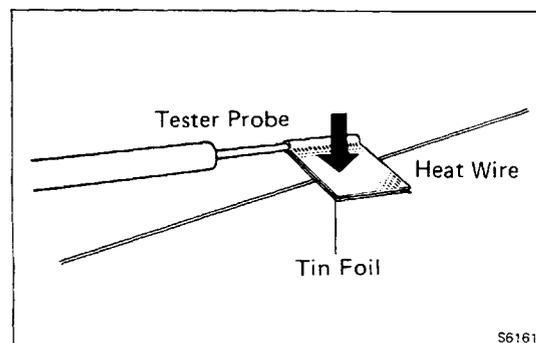
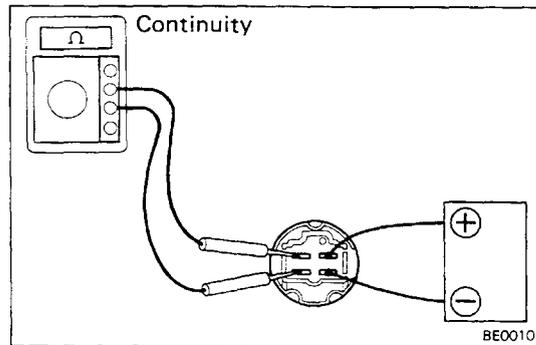
- (a) Check that there is continuity between terminals 1 and 3.
- (b) Check that there is no continuity between terminals 2 and 4.

If continuity is not as specified, replace the relay.

2. INSPECT RELAY OPERATION

Connect the positive (+) lead from the battery to terminal 1 and connect the negative (-) lead from the battery to terminal 3. Then, check that there is continuity between terminals 2 and 4.

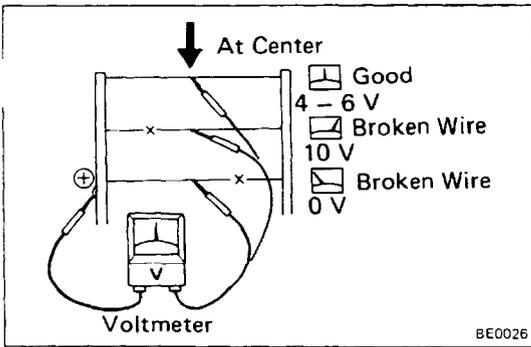
If operation is not as specified, replace the relay.



Rear Window Defogger Wires

CAUTION:

- 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 tip of the negative probe and press the foil against the wire with your finger, as shown.



INSPECTION OF REAR WINDOW DEFOGGER WIRES

1. INSPECT FOR WIRE BREAKAGE

- (a) Turn the defogger switch on.
- (b) Inspect the voltage at the center of each heat wire.

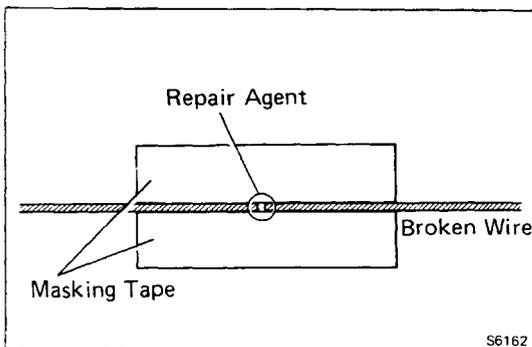
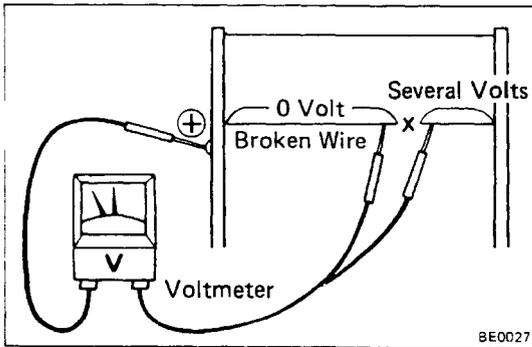
Voltage	Criteria
Approx. 5 V	Good (No break in wire)
Approx. 10 V or 0 V	Broken wire

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

2. INSPECT FOR WIRE BREAKAGE POINT

- (a) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.
- (b) Place the voltmeter negative (-) lead with the foil strip against the heat wire at the positive (+) terminal end and shift it toward the negative (-) terminal end.
- (c) The point where the voltmeter deflects from zero to several volts is the place where the heat wire is broken.

NOTE: If the heat wire is not broken, the voltmeter will indicate 0V at the positive (+) end of the heat wire but gradually increase to 12 V as the meter probe is moved to the other end.



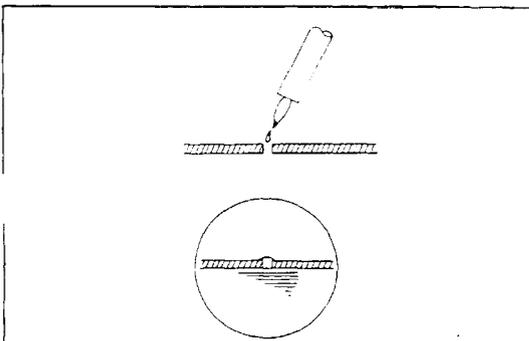
REPAIR OF REAR WINDOW DEFOGGER WIRES

CAUTION: The defogger wire of the 4 RUNNER can not be repaired. If defogger wire is broken, replace the back door window glass assembly.

- 1. CLEAN BROKEN WIRE WITH WHITE GASOLINE
- 2. PLACE MASKING TAPE ALONG BOTH SIDES OF WIRE TO BE REPAIRED

3. REPAIR DEFOGGER WIRES

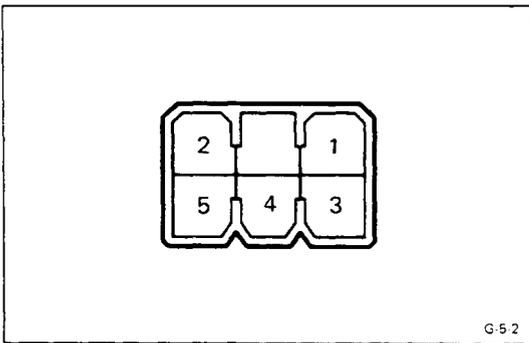
- (a) Thoroughly mix the repair agent (Dupont paste No. 4817).
- (b) Using a fine tip brush, apply a small amount to the wire.
- (c) After a couple of minutes, remove the masking tape.
- (d) Allow to stand at least 24 hours.



HEATER

Troubleshooting

Problem	Possible cause	Remedy	Page	
			Front	Rear
Blower does not work when fan switch is on	HEATER fuse blown	Replace fuse and check for short	BE-3	BE-3
	Heater relay faulty	Check relay	BE-32	BE-34
	Heater blower switch faulty	Check switch	BE-32	BE-34
	Heater blower resistor faulty	Check resistor	BE-33	BE-35
	Heater blower motor faulty	Replace motor		
	Wiring or ground faulty	Repair as necessary		
Incorrect temperature output	Control cables broken or binding	Check cables	BE-33	
	Heater hoses leaking or clogged	Replace hose		
	Water valve faulty	Replace valve		
	Air dampers broken	Repair dampers		
	Air ducts clogged	Repair ducts		
	Heater radiator leaking or clogged	Replace radiator		
	Heater control unit faulty	Repair control unit		



Heater Blower Switch

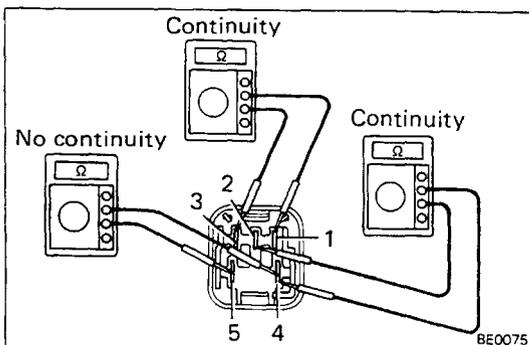
INSPECTION OF HEATER BLOWER SWITCH

INSPECT SWITCH CONTINUITY

Inspect heater blower switch continuity.

Terminal	4	5	1	2
Switch position				
OFF	○			
LO	○	○		
•	○	○	○	
HI	○	○		○

If continuity is not as specified, replace the switch.



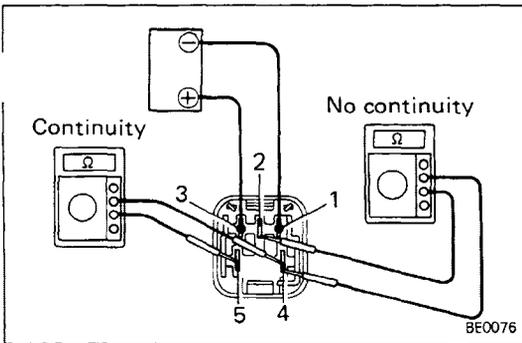
Heater Relay

INSPECTION OF HEATER RELAY

1. INSPECT RELAY CONTINUITY

- (a) Check that there is continuity between terminals 1 and 3.
- (b) Check that there is continuity between terminals 2 and 4.
- (c) Check that there is no continuity between terminals 4 and 5.

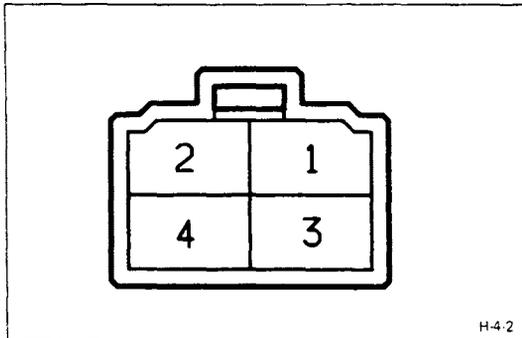
If continuity is not as specified, replace the relay.



2. INSPECT RELAY OPERATION

- (a) Apply battery voltage across terminals 1 and 3.
- (b) Check that there is continuity between terminals 4 and 5.
- (c) Check that there is no continuity between terminals 2 and 4.

If operation is not as specified, replace the relay.



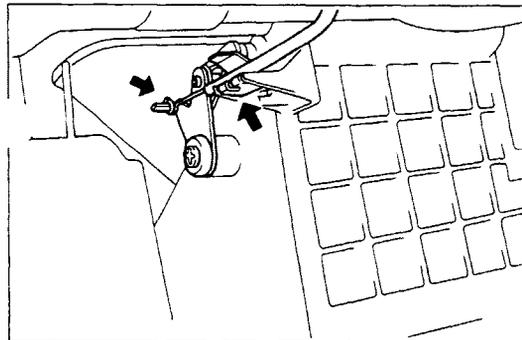
Heater Blower Resistor

INSPECTION OF HEATER BLOWER RESISTOR

INSPECT RESISTOR CONTINUITY

- (a) Check that there is continuity between terminals 1 and 2.
- (b) Check that there is continuity between terminals 1 and 3.

If continuity is not as specified, replace the resistor.

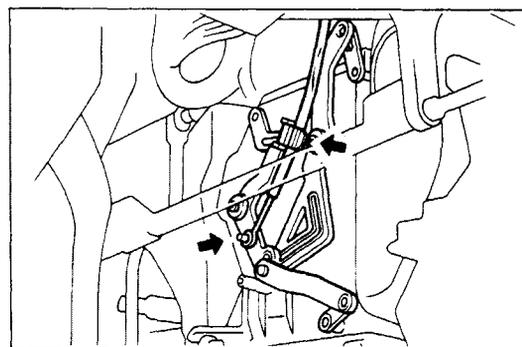


Heater Control

ADJUSTMENT OF HEATER CONTROL

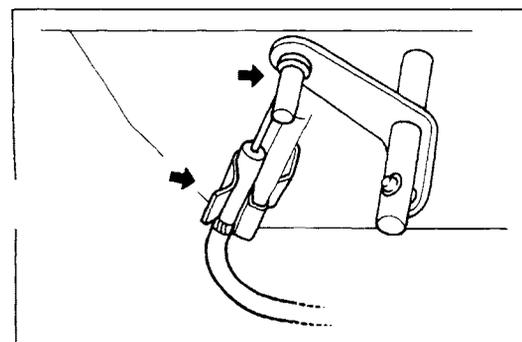
SET AIR INLET DAMPER

Set the air inlet damper and control lever to "Fresh Air".



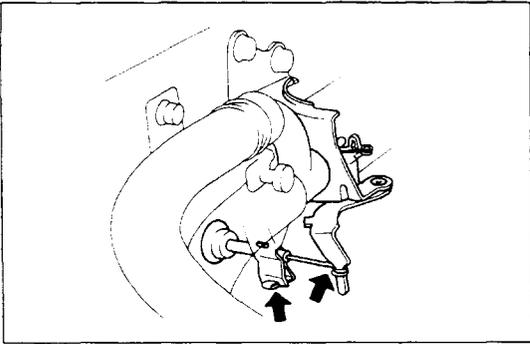
SET MODE SELECTOR DAMPER

Set the mode selector damper and control lever to "Vent".



SET AIR MIX DAMPER

Set the air mix damper and control lever to "Cool".

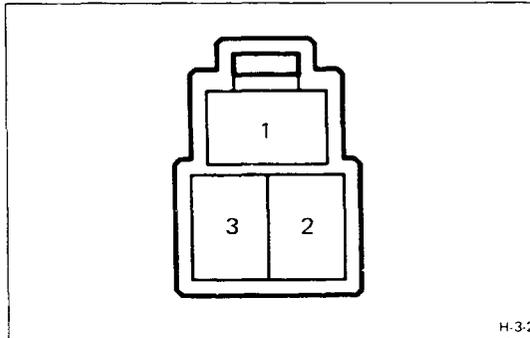


SET WATER VALVE

Set the water valve and control lever to "Cool".

TEST CONTROL CABLE OPERATION

Move the control levers left and right and check for stiffness and binding through full range of the levers.



Rear Heater Blower Switch

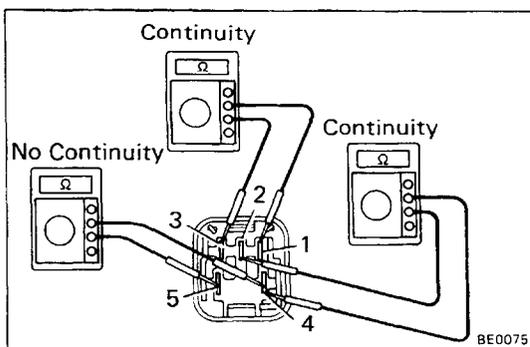
INSPECTION OF REAR HEATER BLOWER SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	1	2	3
HI	○—	○—	○—
OFF			
LO	○—	○—	

If continuity is not as specified, replace the switch.



Rear Heater Relay

INSPECTION OF REAR HEATER RELAY

1. INSPECT RELAY CONTINUITY

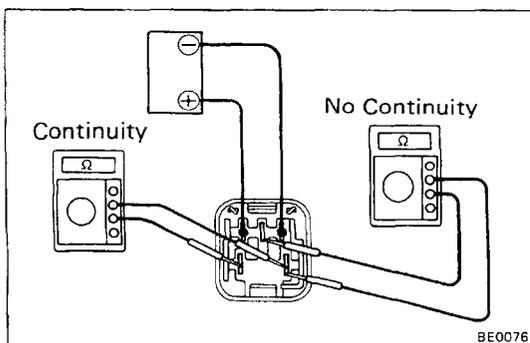
- Check that there is continuity between terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminals 4 and 5.

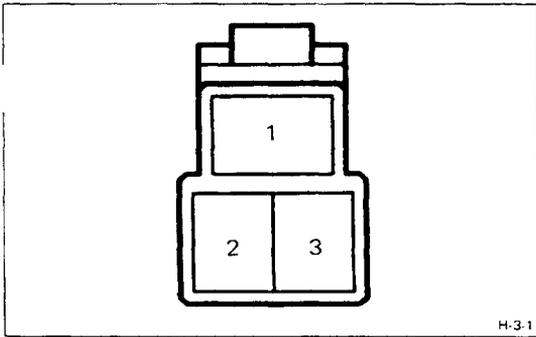
If continuity is not as specified, replace the relay.

2. INSPECT RELAY OPERATION

- Apply the battery voltage across terminals 1 and 3.
- Check that there is continuity between terminals 4 and 5.
- Check that there is no continuity between terminals 2 and 4.

If operation is not as specified, replace the relay.





Rear Heater Blower Resistor

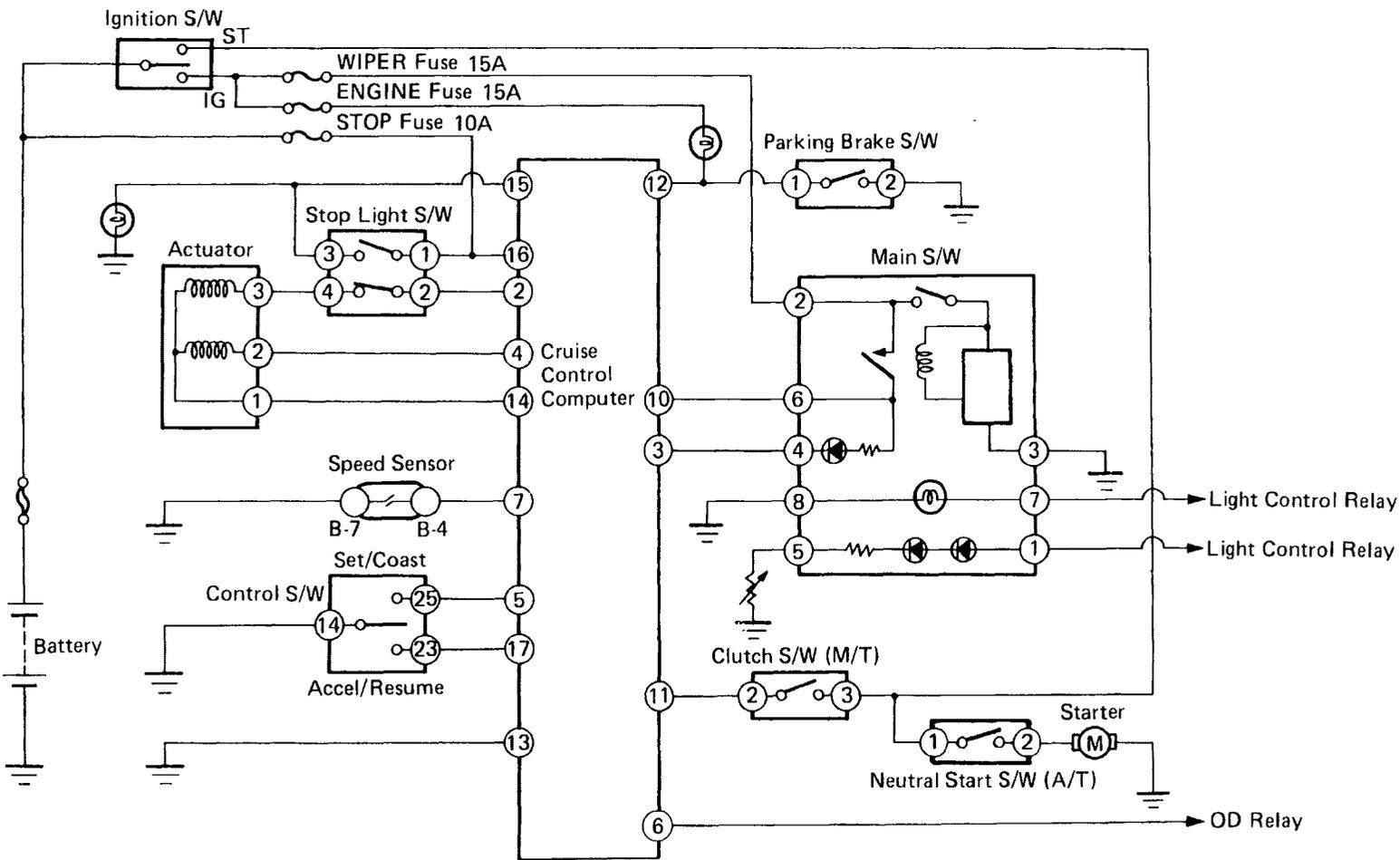
INSPECTION OF REAR HEATER BLOWER RESISTOR

INSPECT RESISTOR CONTINUITY

Check that there is continuity between terminals 1 and 2.

If continuity is not as specified, replace the resistor.

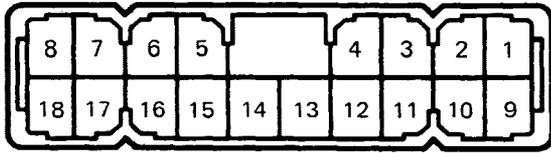
CRUISE CONTROL SYSTEM Wiring Diagram



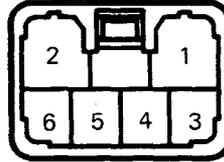
B10685

Connectors

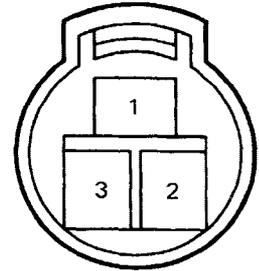
Cruise Control Computer



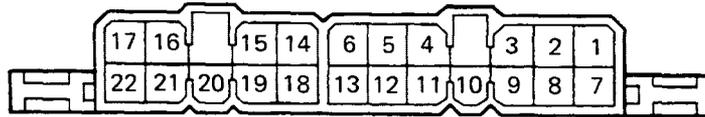
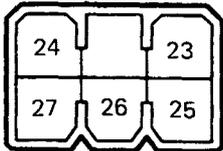
Main Switch



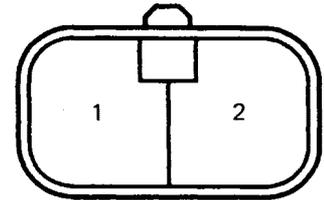
Actuator



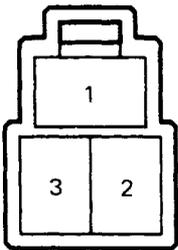
Control Switch



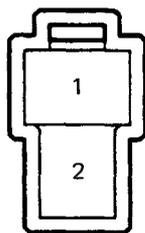
Neutral Start Switch



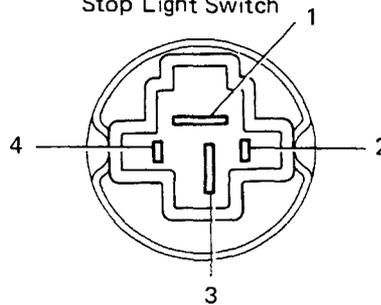
Clutch Switch



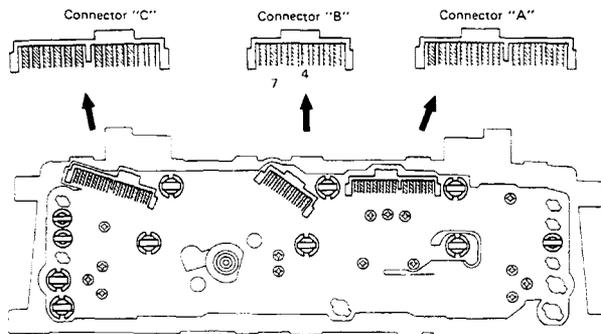
Parking Brake Switch



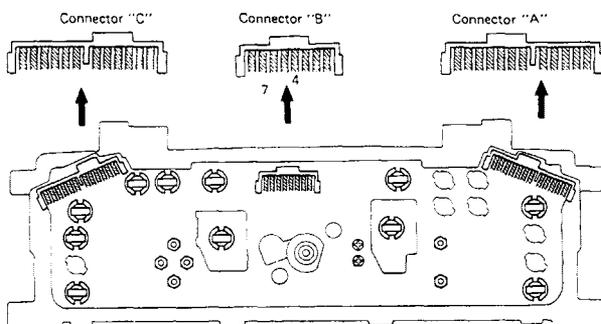
Stop Light Switch



Combination Meter (w/ Tachometer)



Combination Meter (w/o Tachometer)

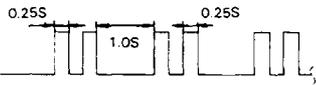
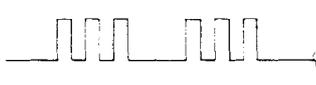
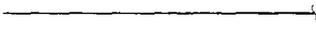
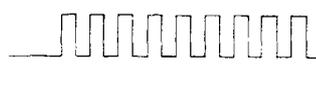


Diagnosis System

OUTPUT OF DIAGNOSIS CODES

1. INDICATE TYPE A CODE

- (a) Turn the ignition switch on.
- (b) Turn the set/coast switch on, and keep it.
- (c) Turn the main switch on.
- (d) Meet the conditions listed below.
- (e) Read the diagnosis code on the main switch indicator.

No.	Conditions	Indicator code	Diagnosis
1	Set/coast switch on	ON  OFF	Set/coast switch circuit is normal.
2	Accel/resume switch on	ON  OFF	Accel/resume switch circuit is normal.
3	Each cancel switch on (Stop light switch, Parking brake switch, Clutch switch, Neutral start switch)	ON  OFF 	Each cancel switch circuit is normal.
4	Drive 33 km/h (21 mph) or over	ON  OFF	Speed sensor circuit is normal.
5	Drive 33 km/h (21 mph) or below	ON  OFF	Speed sensor circuit is normal.

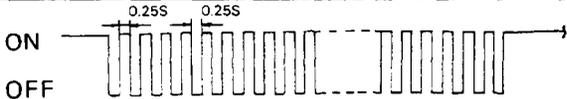
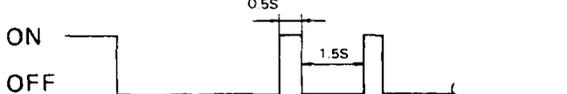
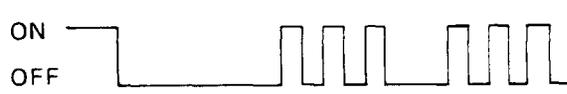
BE0267

NOTE: Indicator codes appear in order from No. 1.
 If there is no indicator code, perform diagnosis and inspection.
 (See page BE-40)

B10687

2. INDICATE TYPE B CODE

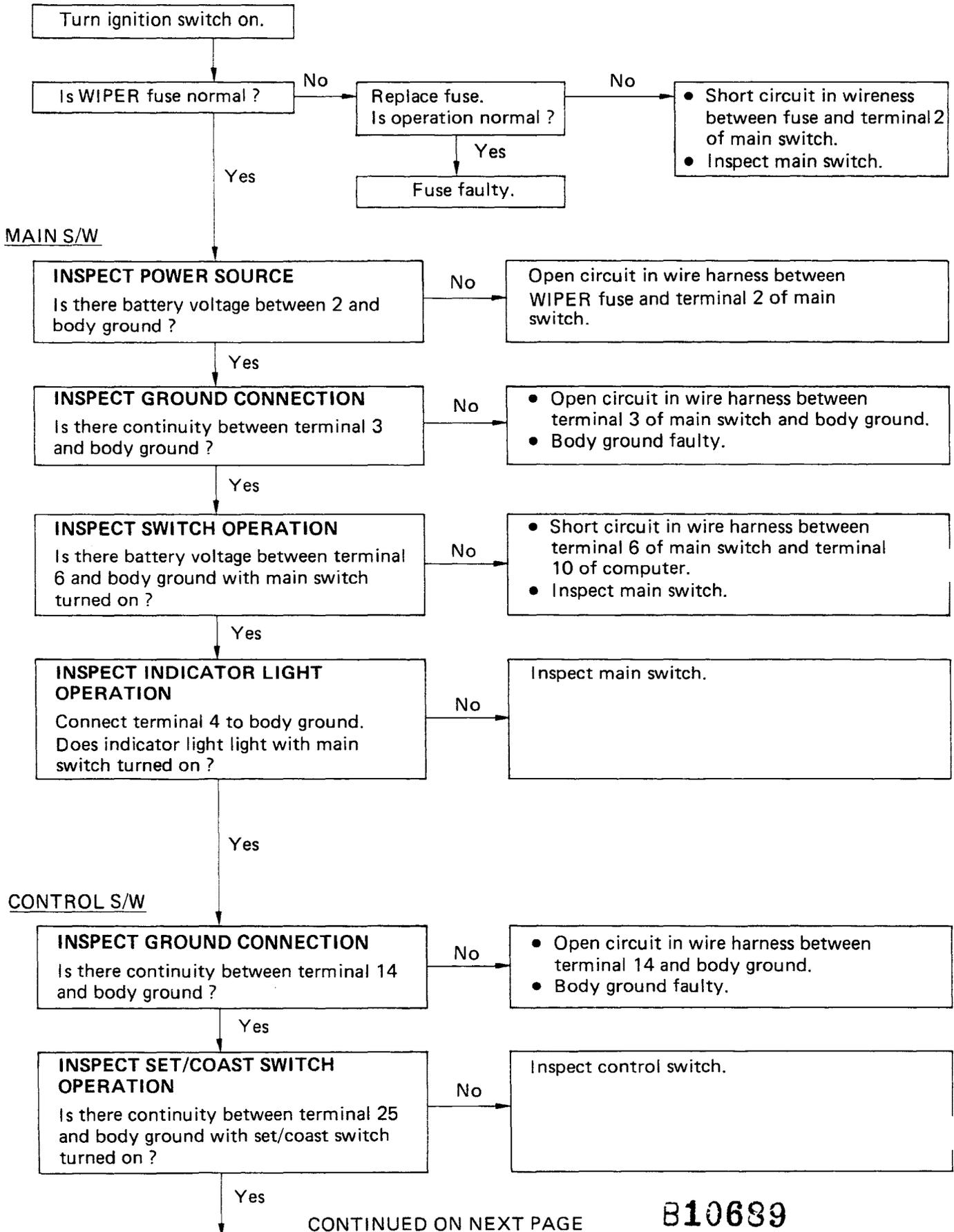
- (a) Do not turn the ignition switch and main switch off.
- (b) Turn the set/coast switch on three times within two seconds.
- (c) Read the diagnosis code on the main switch indicator.

No.	Indicator code	Diagnosis
		Normal
11		Actuator circuit is abnormal.
21		Speed sensor signal circuit is abnormal.
23		Speed sensor signal circuit is abnormal.
31		Accel/resume switch circuit is abnormal.
33		Accel/resume switch and set/coast switch circuit is abnormal.

NOTE:

- Indication codes appear with priority from No. 11.
- Normal code continues 20 seconds and abnormal codes are repeated three times.
- Indication is stopped when vehicle speed is over 16 km/h (10 mph) or main switch is turned off.
- If there is no indication code, perform diagnosis and inspection. (See page BE-40)

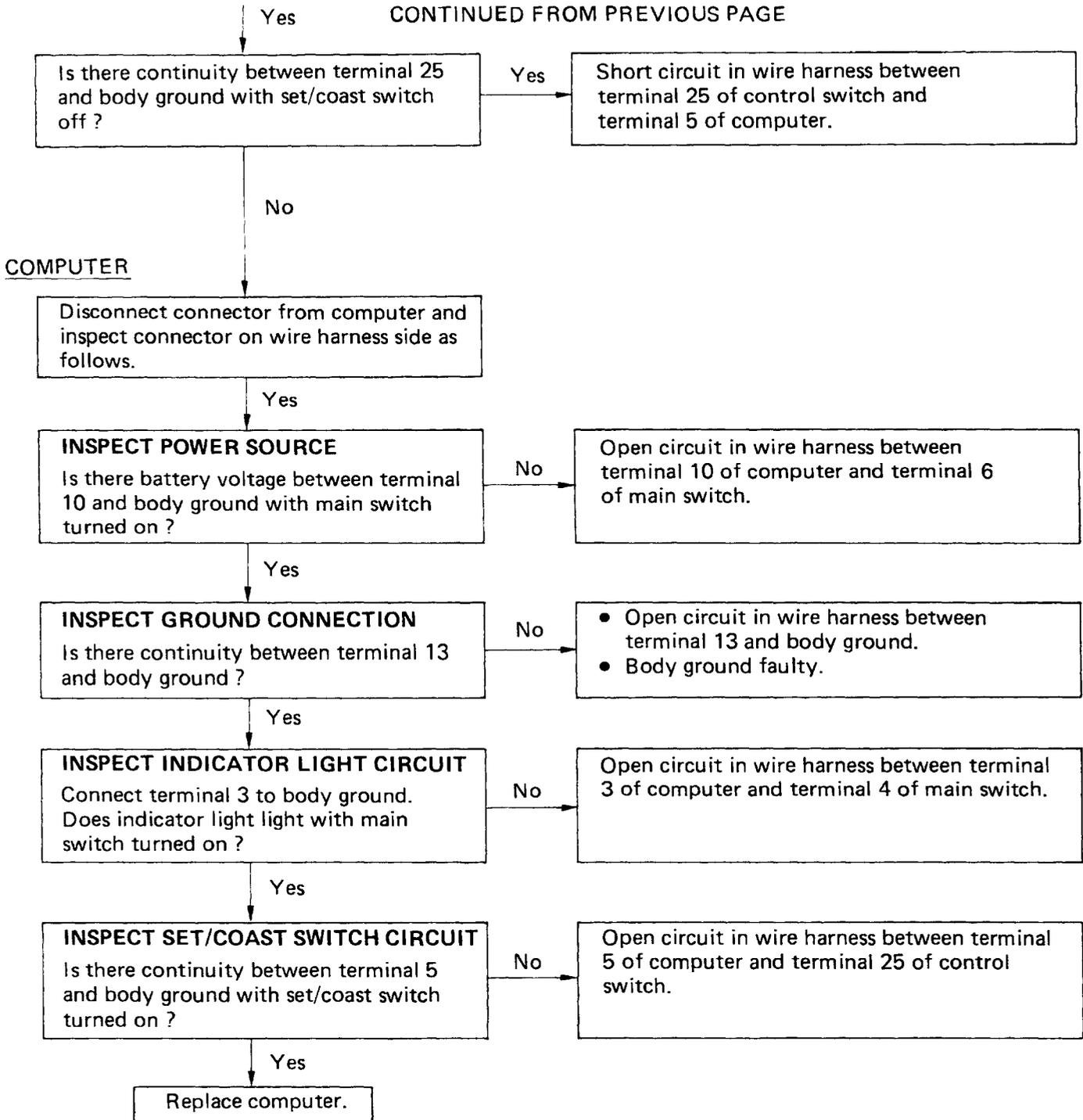
3. INSPECT DIAGNOSIS CIRCUIT



CONTINUED ON NEXT PAGE

B10689

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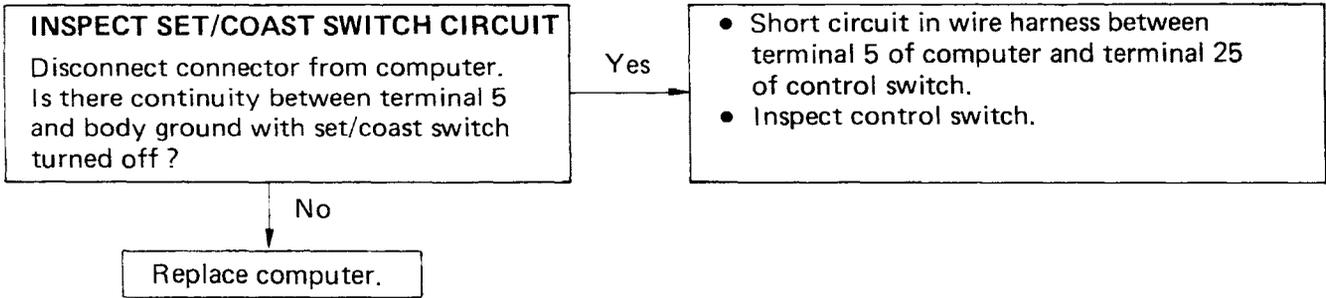


TROUBLESHOOTING

Symptom	Inspection Area		Section
Cruise control cannot be set.	(a) Inspect type A code.	No. 1 NO	A
		No. 2 NO	B
		No. 3 NO	C
		No. 4 NO	D
		No. 5 NO	D
	(b) Inspect type B code.	11	E
		21	D
		23	F
		31	B
		33	A and B
(c) All codes are normal.		Replace Computer	
Vehicle speed does not reduce when coast switch turned on.	Inspect No. 1 of type A code.	OK NO	F A
Vehicle does not accelerate when accel switch turned on.	Inspect No. 2 of type A code.	OK NO	F B
Vehicle speed does not return to memorized speed when resume switch turned on.	Inspect No. 2 of type A code.	OK NO	F B
Set speed deviates on high side.	Inspect No. 1 of type A code.	OK	F
Set speed deviates on low side.		NO	A
Vehicle speed fluctuates when set switch turned on.	Inspect No. 1 of type A code.	OK NO	F A
Setting speed does not cancel when brake pedal depressed.	Inspect No. 3 of type A code.	OK NO	F C
Setting speed does not cancel when parking brake pulled.	Inspect No. 3 of type A code.	OK NO	F C
Setting speed does not cancel when clutch pedal depressed (M/T only).	Inspect No. 3 of type A code.	OK NO	F C
Setting speed does not cancel when shifted to "N" range (A/T only).	Inspect No. 3 of type A code.	OK NO	F C
Speed can be set below 33 km/h (21 mph).	Inspect No. 4 of type A code.	OK NO	F D
Cruise control will not disengage even below 33 km/h (21 mph).	Inspect No. 5 of type A code.	OK NO	F D

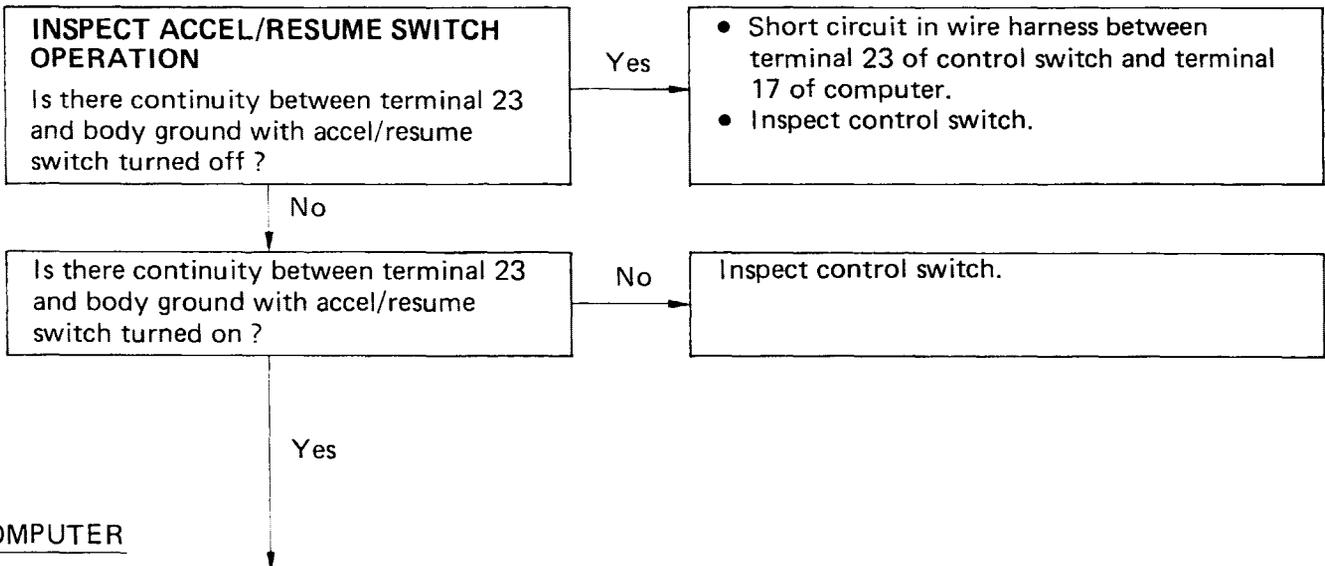
A INSPECTION OF SET/COAST SWITCH CIRCUIT

COMPUTER

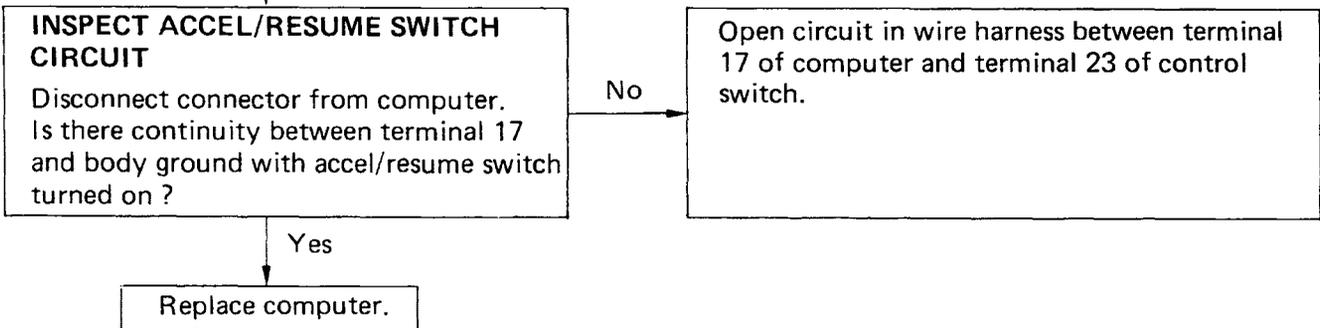


B INSPECTION OF ACCEL/RESUME SWITCH CIRCUIT

CONTROL S/W

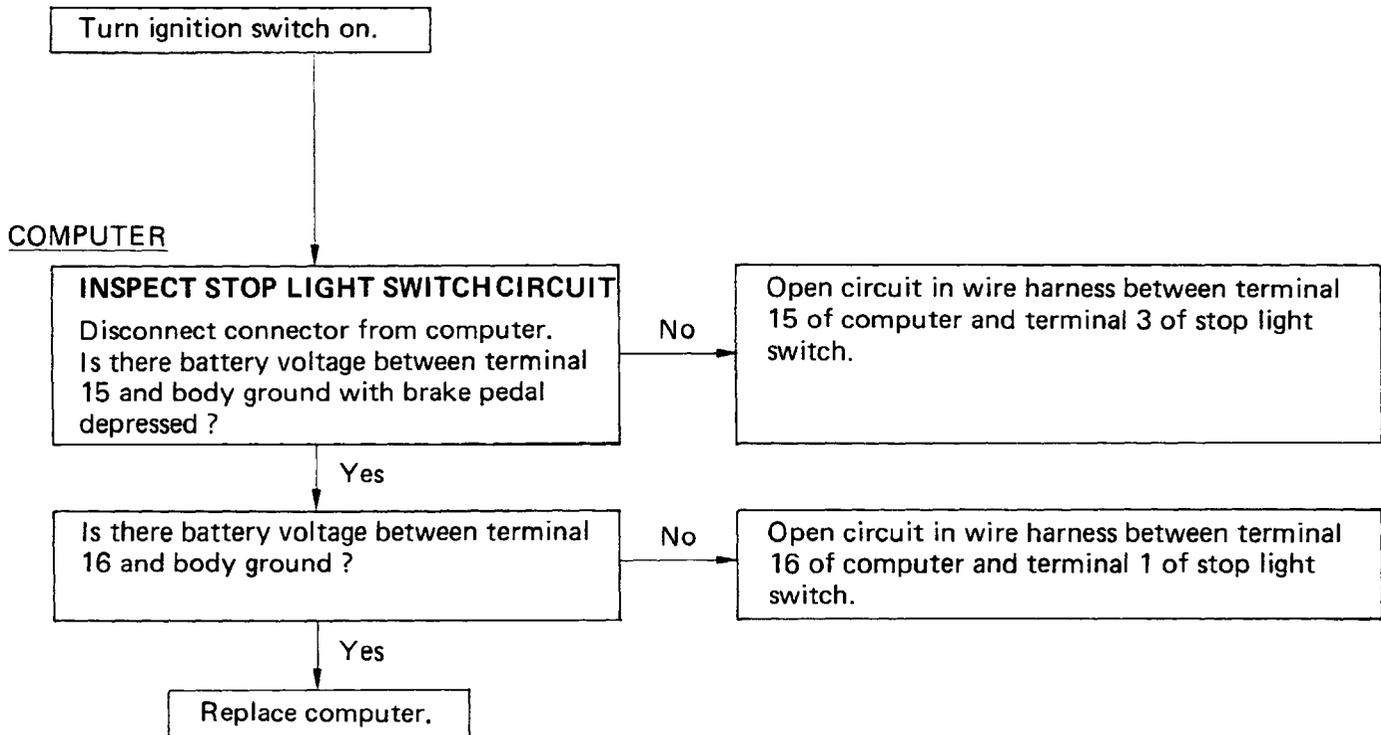


COMPUTER



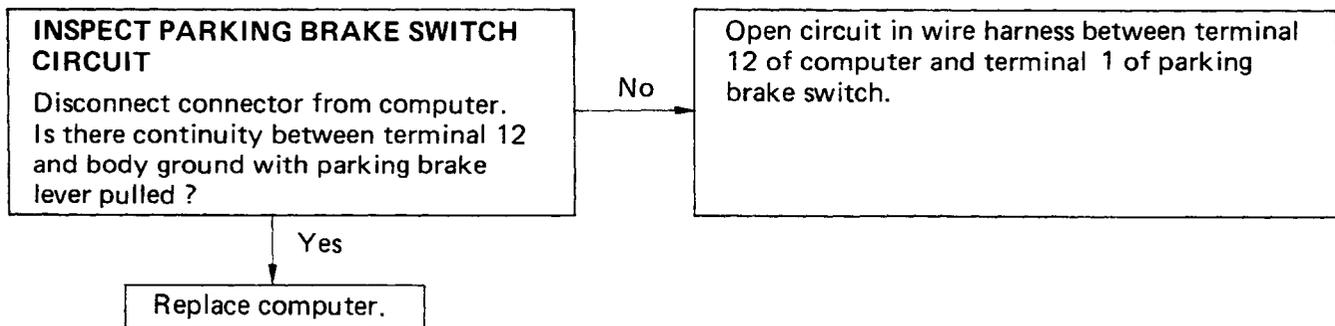
C INSPECTION CANCEL SWITCH CIRCUIT

1. INSPECT STOP LIGHT SWITCH CIRCUIT



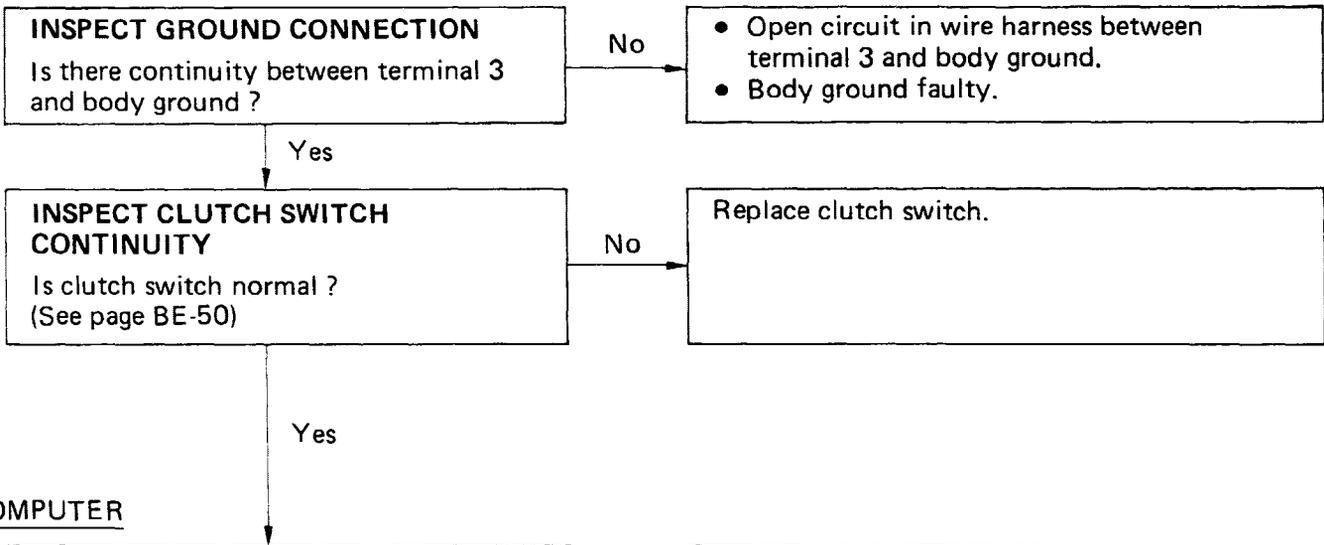
2. INSPECT PARKING BRAKE SWITCH CIRCUIT

COMPUTER

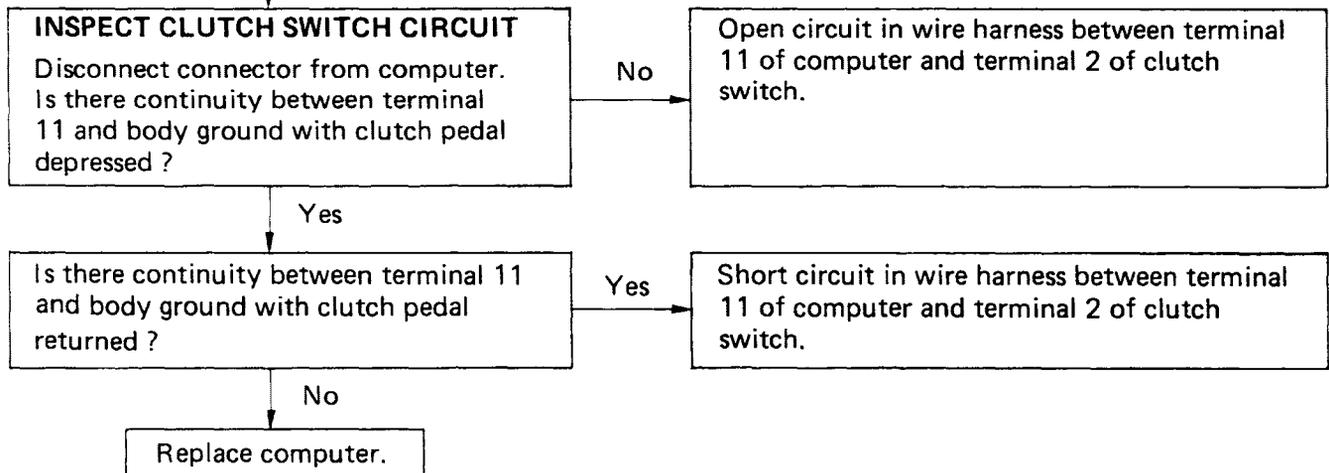


3. INSPECT CLUTCH SWITCH CIRCUIT (M/T)

CLUTCH S/W

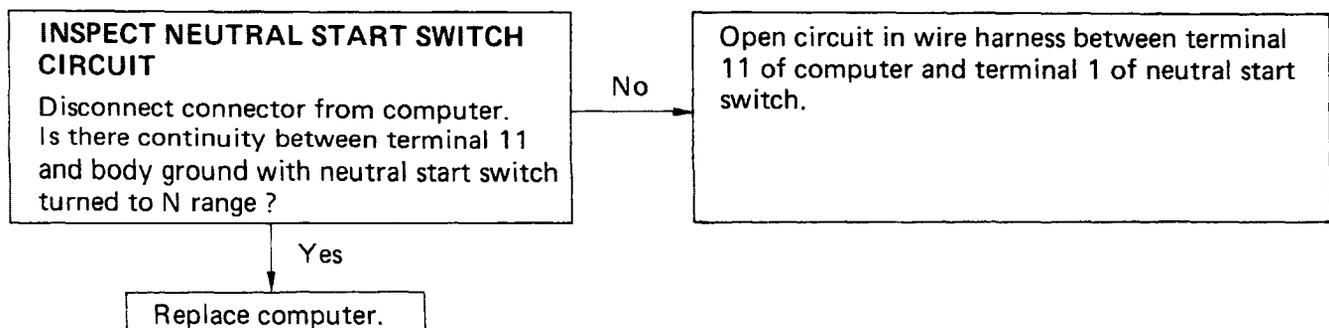


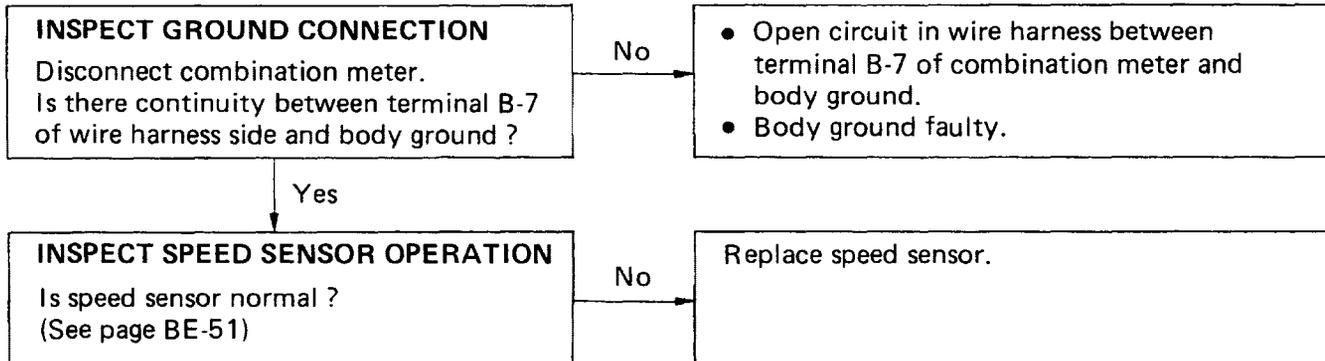
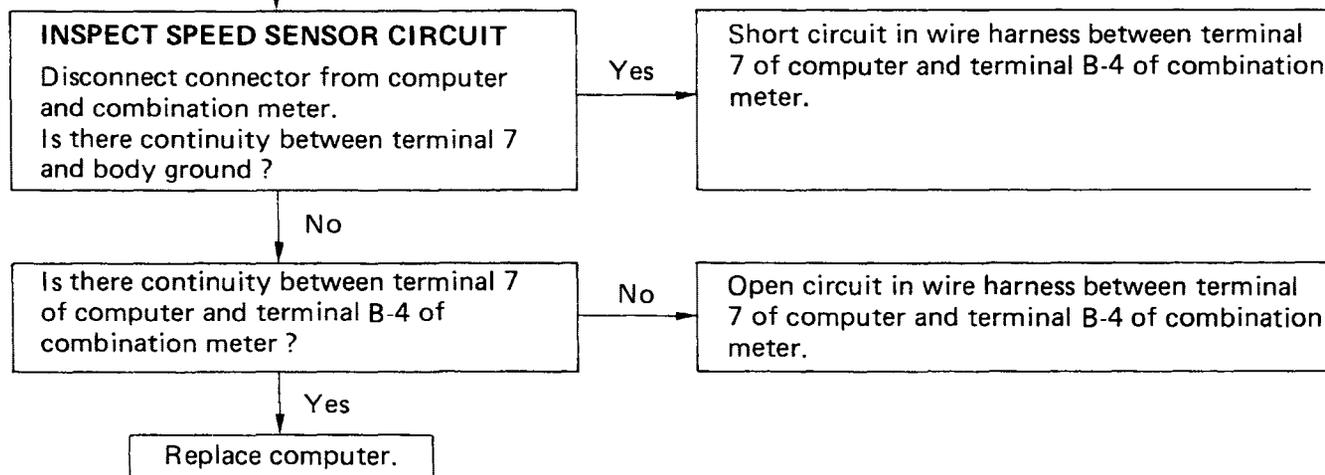
COMPUTER



4. INSPECT NEUTRAL START SWITCH CIRCUIT (A/T)

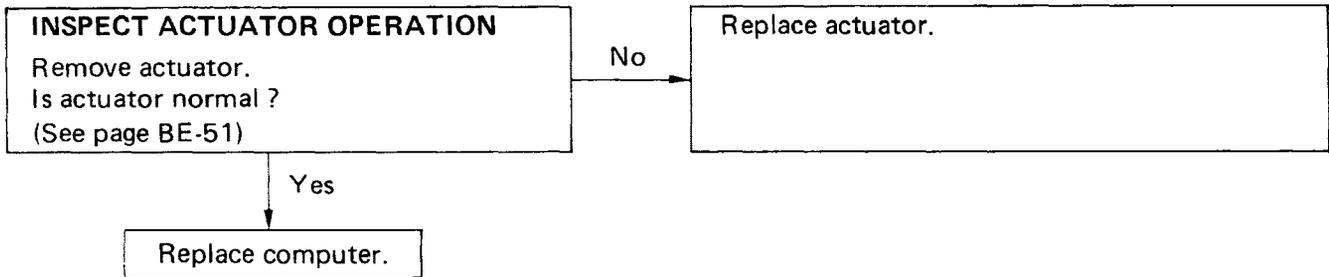
COMPUTER



D INSPECTION OF SPEED SENSOR CIRCUITSPEED SENSORCOMPUTER

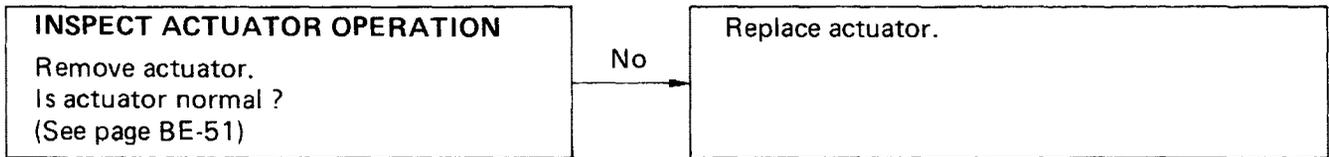
E INSPECTION OF ACTUATOR OPERATION

ACTUATOR

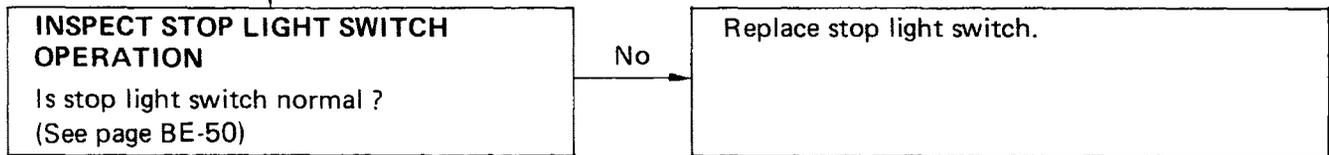


F INSPECTION OF ACTUATOR CIRCUIT

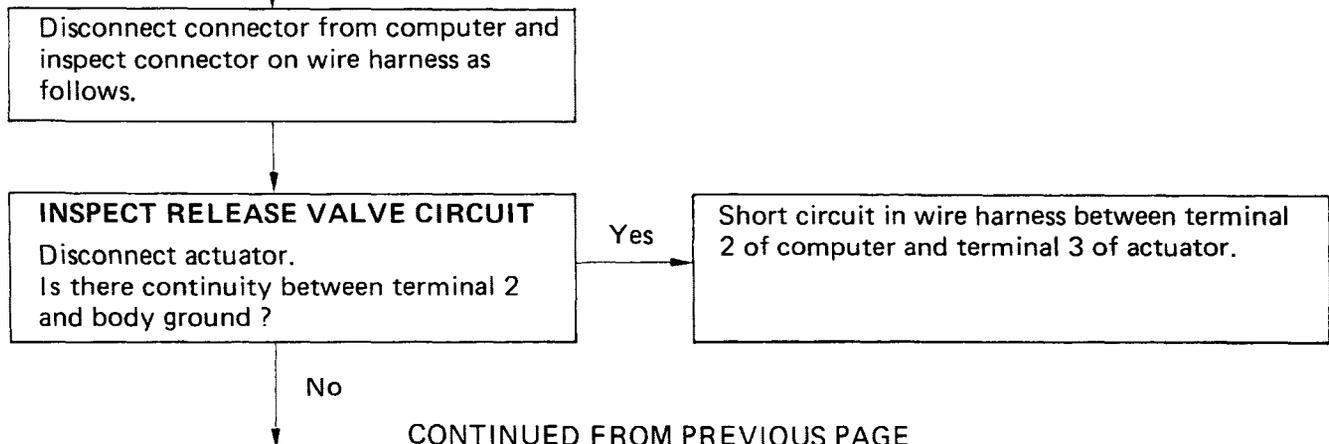
ACTUATOR



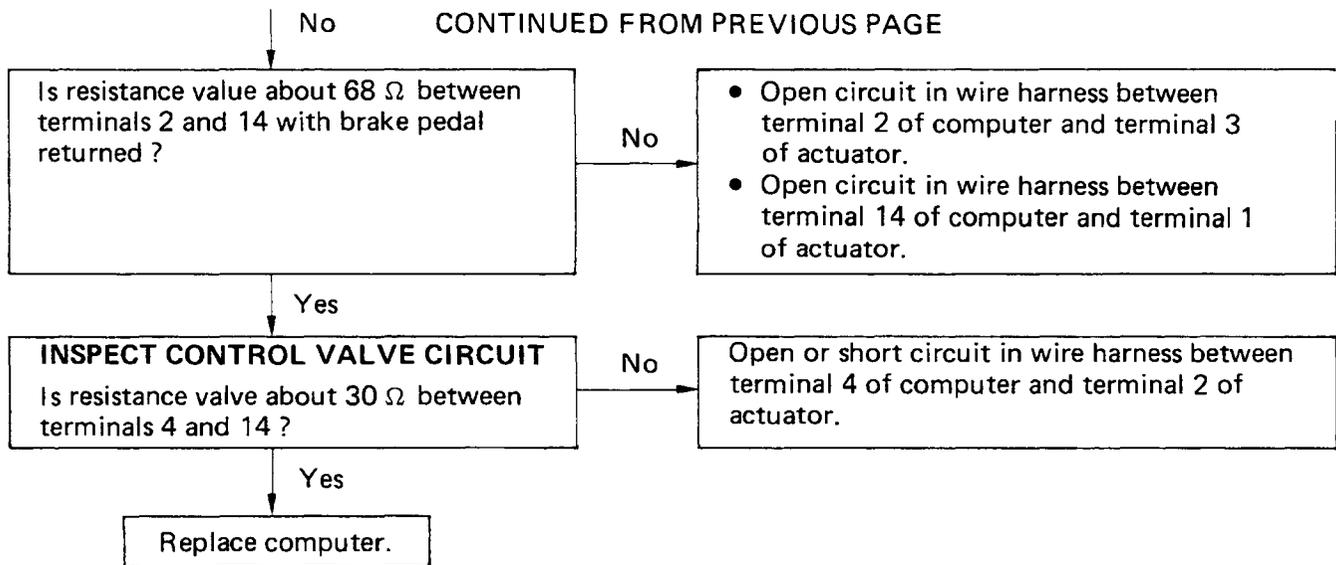
STOP LIGHT S/W



COMPUTER



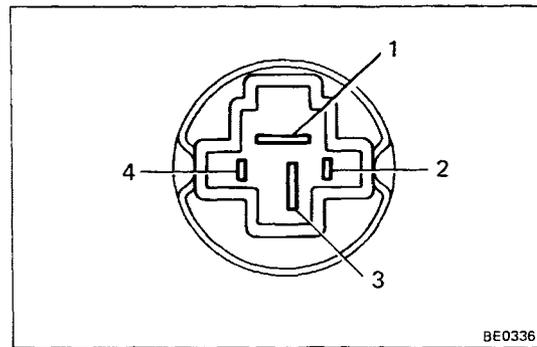
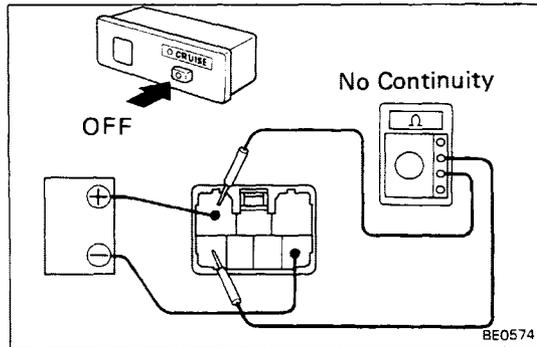
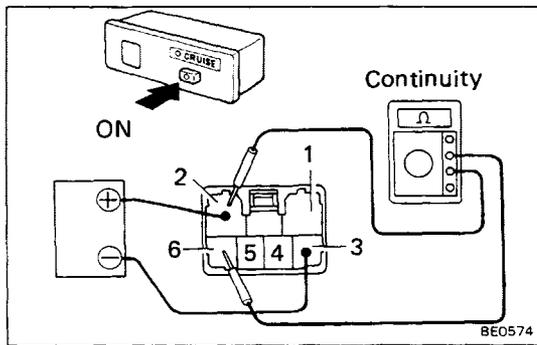
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Cruise Control Computer Circuit INSPECTION OF COMPUTER CIRCUIT

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

Terminal	Connection or Measure item	Check item	Tester connection	Condition	Voltage or Resistance value
2	Stop Light Switch and Release Valve	Resistance	2 – 14	Brake pedal returned	About 68Ω
3	Main Switch	Voltage	3 – Body Ground	Turn ignition switch and main switch on	Battery voltage
				Turn ignition switch and/or main switch off	No voltage
4	Control Valve	Resistance	4 – 14	–	About 30Ω
5	Control/Switch (set/coast)	Continuity	5 – Body Ground	Turn set/coast switch on	Continuity
				Turn set/coast switch off	No continuity
6	OD relay	–	–	–	–
7	Speed Sensor	Continuity	7 – Body Ground	Vehicle moving slowly	1 pulse each 40 cm (15.75 in.)
10	Main Switch	Voltage	10 – Body Ground	Turn ignition switch and main switch on	Battery voltage
				Turn ignition switch and/or main switch off	No voltage
11	Clutch Switch (M/T) or Neutral Start Switch (A/T)	Continuity	11 – Body Ground	Clutch pedal depressed or shifted into "N" range	Continuity
				Clutch pedal returned or shifted into only range except "N" range	No continuity
12	Parking Brake Switch	Voltage	12 – Body Ground	Parking brake pulled	No voltage
				Parking brake returned	Battery voltage
13	Body Ground	Continuity	13 – Body Ground	–	Continuity
14	Release Valve and Control Valve	–	–	–	–
15	Stop Light Switch	Voltage	15 – Body Ground	Brake pedal depressed	Battery voltage
				Brake pedal returned	No voltage
16	STOP Fuse	Voltage	16 – Body Ground	–	Battery voltage
17	Control Switch (accel/resume)	Continuity	17 – Body Ground	Turn accel/resume switch on	Continuity
				Turn accel/resume switch off	No continuity



Main Switch

INSPECTION OF MAIN SWITCH

1. INSPECT SWITCH CONTINUITY

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

(a) Check that there is continuity between terminals 2 and 6 with the main switch turned on.

(b) Check that there is no continuity between terminals 2 and 6 with the main switch turned off.

If continuity is not as specified, replace the switch.

Stop Light Switch

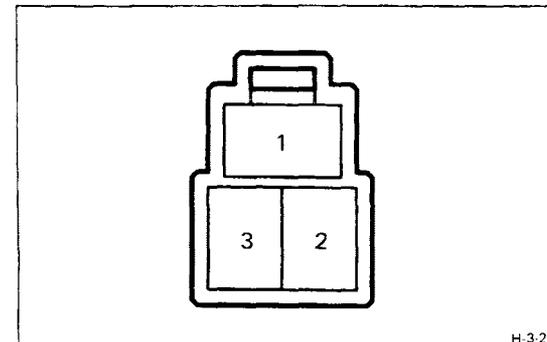
INSPECTION OF STOP LIGHT SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal	1	3	2	4
Brake pedal depressed	○	○		
Brake pedal returned			○	○

If continuity is not as specified, replace the switch.



Clutch Switch

INSPECTION OF CLUTCH SWITCH

INSPECT SWITCH CONTINUITY

(a) Check that there is continuity between terminals 1 and 3 with the clutch pedal depressed.

(b) Check that there is no continuity between terminals 2 and 3 with the clutch pedal returned.

If continuity is not as specified, replace the switch.

Control Switch

(See page BE-11)

Neutral Start Switch

(See page AT-92)

Parking Brake Switch

(See page BE-29)

Speed Sensor

(See page BE-37)

INSPECTION OF SPEED SENSOR

INSPECT SENSOR CONTINUITY

Check that there is continuity between terminals 4 of connector "B" and terminal 7 of connector "B" four times per each revolution of the shaft.

If continuity is not as specified, replace the sensor.

Actuator

INSPECTION OF ACTUATOR

1. INSPECT CONTROL CABLE FREEPLAY

Inspect that the control cable freeplay is less than 10 mm (0.39 in.).

If necessary, adjust the control cable freeplay.

2. INSPECT ACTUATOR RESISTANCE

Using an ohmmeter, measure the resistance value between terminals as follows.

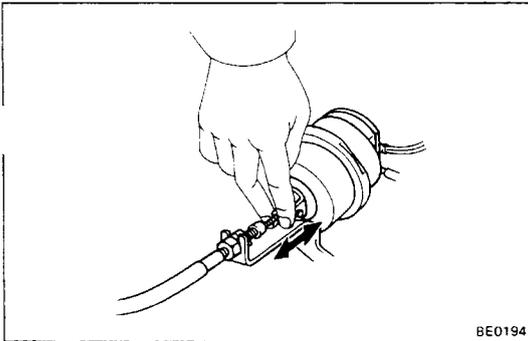
Resistance: 1 – 2 about 30 Ω
1 – 3 about 68 Ω

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

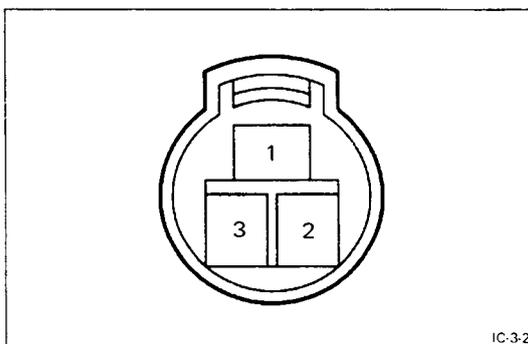
3. INSPECT ACTUATOR OPERATION

Connect the positive (+) lead from the battery to terminals 2 and 3. Connect the negative (–) lead to terminal 1.

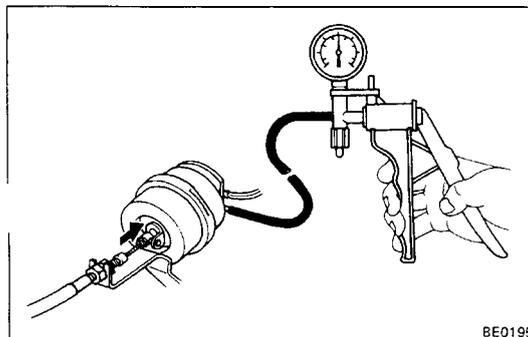
- (a) Slowly apply vacuum from 0 – 300 mmHg (0 – 11.81 in.Hg, 0 – 40.0 kPa), and check that the control cable can be pulled smoothly.
- (b) With the vacuum stabilized, check that the control cable does not return.



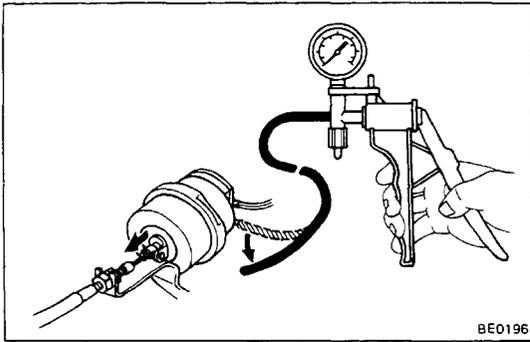
BE0194



IC-3-2

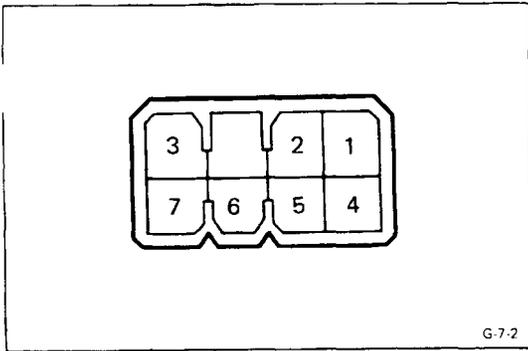


BE0195



- (c) Disconnect terminal 2 or 3 and check that the control cable returns to its original position and the vacuum returns to 0 mmHg (0 in.Hg, 0 kPa).

If operation is not as specified, replace the actuator.



POWER WINDOW Power Window Master Switch INSPECTION OF MASTER SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Window Switch Terminal Switch position	Front · Left				Front · Right			
	2	1	6	4	2	3	6	7
DOWN	○—○		○—○		○—○		○—○	○—○
OFF		○—○	○—○	○—○		○—○	○—○	○—○
UP	○—○	○—○	○—○	○—○	○—○	○—○	○—○	○—○

If continuity is not as specified, replace the switch.

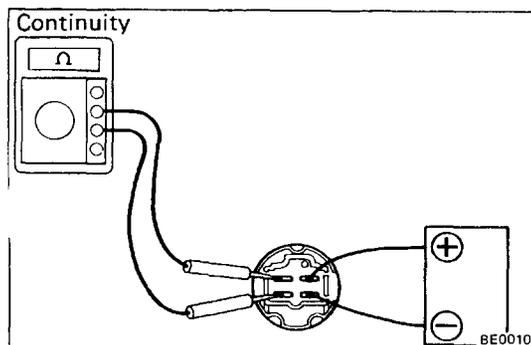
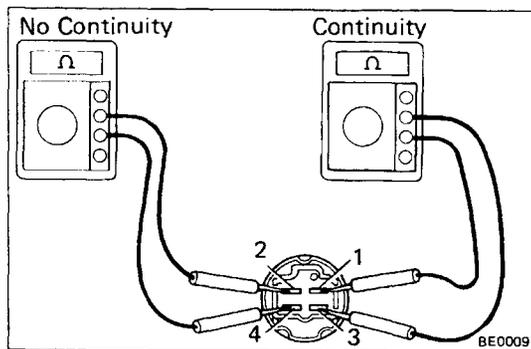
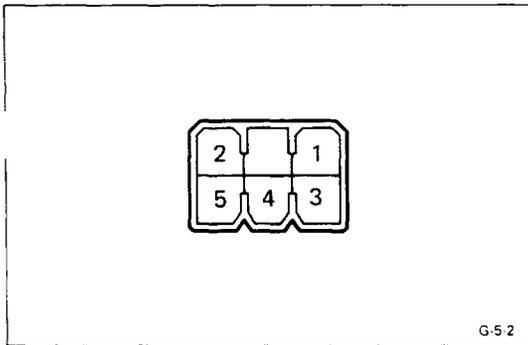
Power Window Door Switch INSPECTION OF DOOR SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	1	2	3	4	5
	UP	○—○			○—○
OFF	○—○		○—○	○—○	○—○
DOWN	○—○	○—○	○—○		○—○

If continuity is not as specified, replace the switch.



Power Main Relay

INSPECTION OF MAIN RELAY

1. INSPECT RELAY CONTINUITY

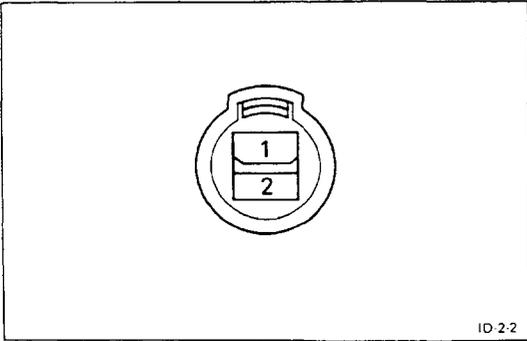
- Check that there is continuity between terminals 1 and 3.
- Check that there is no continuity between terminals 1 and 4.
- Check that there is no continuity between terminals 2 and 4.

If continuity is not as specified, replace the relay.

2. INSPECT RELAY OPERATION

- Apply battery voltage across terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminals 2 and 3.

If operation is not as specified, replace the relay.



Power Window Motor

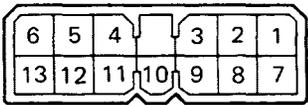
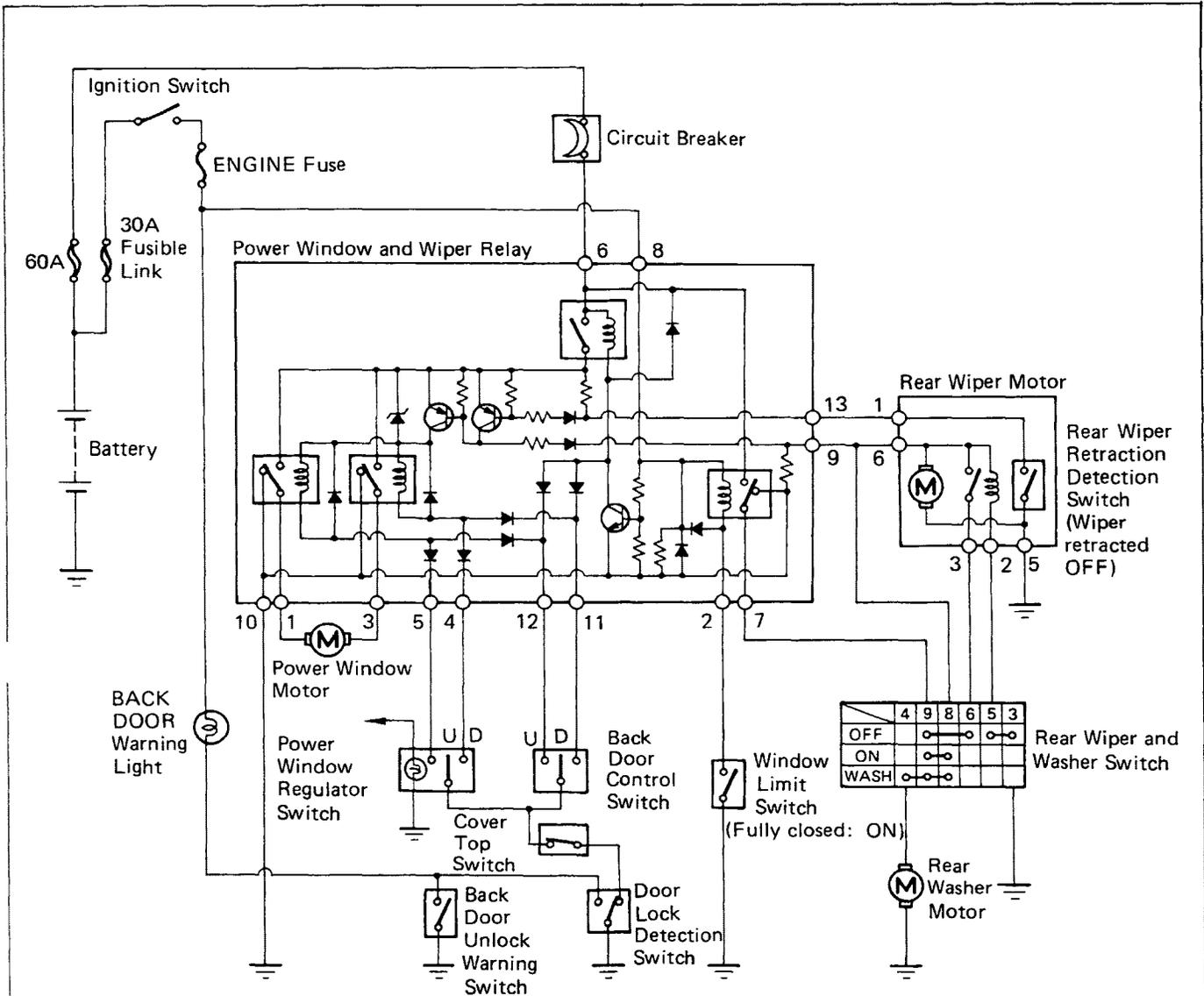
INSPECTION OF MOTOR

INSPECT 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.
- (b) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the motor turns in reverse.

If operation is not as specified, replace the motor.

BACK DOOR POWER WINDOW Wiring Diagram



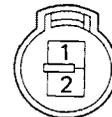
Power Window and Wiper Relay



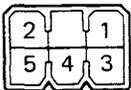
Door Lock Detection Switch



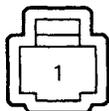
Cover Top Switch



Power Window Motor



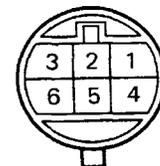
Power Window Regulator Switch



Back Door Unlock Warning Switch



Rear Wiper Retraction Detection Switch



Back Door Control Switch

Troubleshooting

Problem	Possible cause	Remedy	Page
Power window does not work	Fusible link blown	Replace fusible link	BE-4
	Circuit breaker OFF	Reset breaker and check for short	BE-3
	ENGINE fuse blown	Replace fuse and check for short	BE-58
	Power window and wiper relay faulty	Check relay	BE-56
	Power window regulator switch faulty	Check switch	BE-57
	Back door control switch faulty	Check switch	BE-57
	Cover top switch faulty	Check switch	BE-57
	Door lock detection switch faulty	Check switch	BE-57
	Power window motor faulty	Check motor	BE-58
	Rear wiper retraction detection switch faulty	Check switch	BE-58
Wiring or ground faulty	Repair as necessary		
BACK DOOR warning light does not light (Ignition switch ON)	ENGINE fuse blown	Replace fuse and check for short	BE-3
	Light bulb burned out	Replace bulb	BE-57
	Door lock detection switch faulty (Back door opened)	Check switch	BE-57
	Back door unlock warning switch faulty (Back door unlocked)	Check switch	BE-57
	Wiring or ground faulty	Repair as necessary	

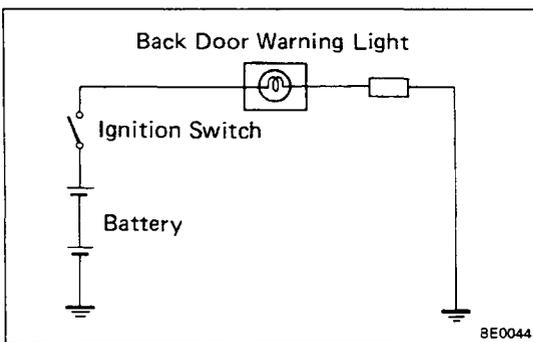
Back Door Warning Light

INSPECTION OF WARNING LIGHT

INSPECT WARNING LIGHT OPERATION

Disconnect the connector from the back door unlock warning switch. Connect the wire harness side connector and body ground. Turn the ignition switch on. Check that the bulb lights.

If operation is not as specified, remove and test the bulb.



Power Window Regulator Switch

INSPECTION OF REGULATOR SWITCH

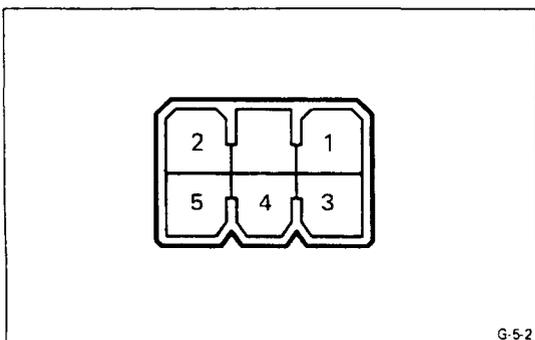
INSPECT SWITCH CONTINUITY

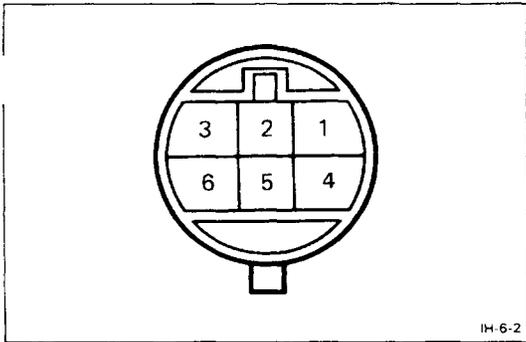
Inspect the switch continuity between terminals.

Terminal Switch position	1	2	5	3 *	4 *
UP		○—○		○—○	○—○
OFF				○—○	○—○
DOWN	○—○			○—○	○—○

* For illumination light

If continuity is not as specified, replace the switch.





IH-6-2

Back Door Control Switch

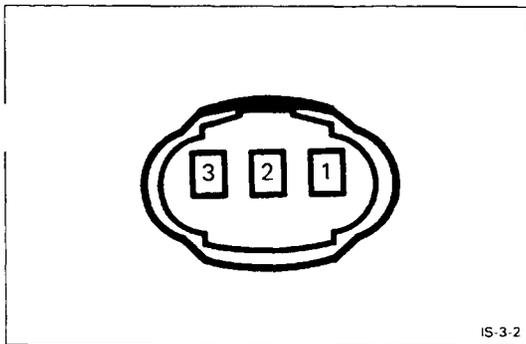
INSPECTION OF CONTROL SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal	1	2	3
UP (Left)	○ — ○		
OFF			
DOWN (Right)	○ — ○ — ○		

If continuity is not as specified, replace the switch.



IS-3-2

Door Lock Detection Switch

INSPECTION OF LOCK DETECTION SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch position \ Terminal	1	2	3
Unlock (Back door opened)	○ — ○		
Locked (Back door closed)	○ — ○ — ○		

NOTE: When the locked position, lock the left side back door lock assembly by push into the screwdriver or such to the lock assembly.

If continuity is not as specified, replace the switch.

Cover Top Switch

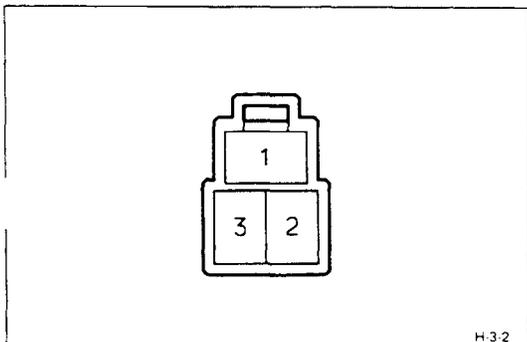
INSPECTION OF COVER TOP SWITCH

INSPECT SWITCH CONTINUITY

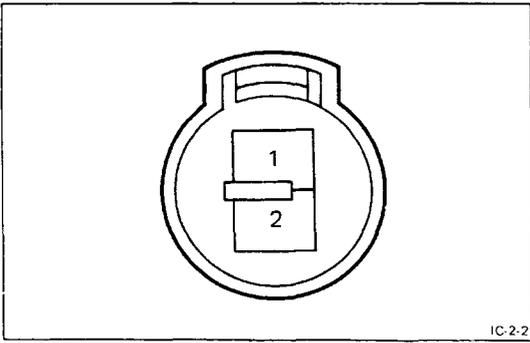
Inspect the switch continuity between terminals.

Switch position \ Terminal	1	2	3
Free	○ — ○		
Pushed		○ — ○	

If continuity is not as specified, replace the switch.



H-3-2



Power Window Motor

INSPECTION OF MOTOR

INSPECT MOTOR OPERATION

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

If operation is not as specified, replace the motor.

Window Limit Switch

(See page BE-19)

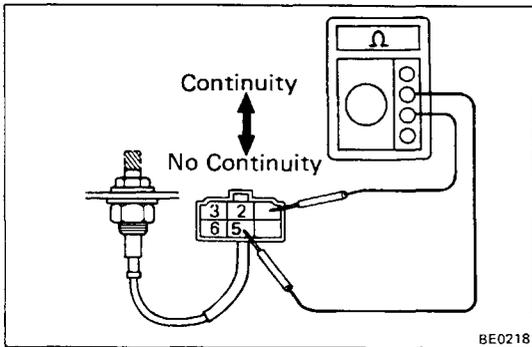
Rear Wiper Retraction Detection Switch

INSPECTION OF RETRACTION DETECTION SWITCH

INSPECT SWITCH CONTINUITY

- (a) Check that there is continuity when the switch is free (wiper operating).
- (b) Check that there is no continuity when the switch is pushed (wiper retracted).

If continuity is not as specified, replace the switch.



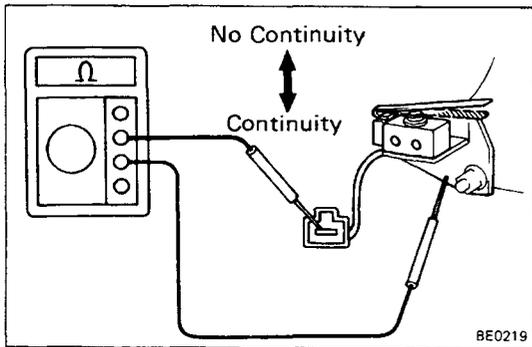
Back Door Unlock Warning Switch

INSPECTION OF UNLOCK WARNING SWITCH

INSPECT SWITCH CONTINUITY

- (a) Check that there is continuity when the switch is pushed (back door unlock).
- (b) Check that there is no continuity when the switch is free (back door locked).

If continuity is not as specified, replace the switch.



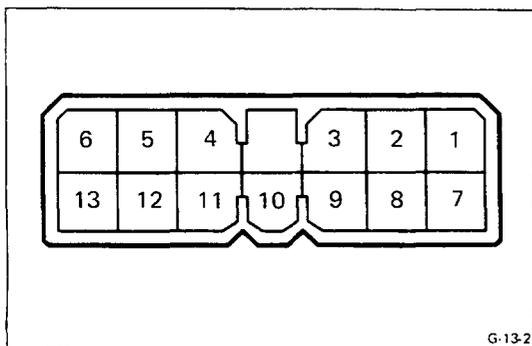
Power Window and Wiper Relay

INSPECTION OF POWER WINDOW AND WIPER RELAY

INSPECT RELAY CONTINUITY AND VOLTAGE

- (a) Disconnect the connector from the relay, and inspect the connector on the wire harness side shown in the chart.

NOTE: Inspect the connector with the cover top installed (Cover top switch ON).



Terminal	Check item	Tester connection	Condition	Voltage or Continuity
2	Continuity	2 – Body Ground	Window limit switch ON (Window fully closed)	Continuity
			Window limit switch OFF (Window open)	No continuity
4	Continuity	4 – Body Ground	Door lock detection switch LOCKED (Back door close) and window regulator switch DOWN (Window down)	Continuity
			Door lock detection switch UNLOCK (Back door open) or window regulator switch not DOWN (Window not down)	No continuity
5	Continuity	5 – Body Ground	Door lock detection switch LOCKED (Back door close) and window regulator switch UP (Window up)	Continuity
			Door lock detection switch UNLOCK (Back door open) or window regulator switch not UP (Window not up)	No continuity
6	Voltage	6 – Body Ground		Battery Voltage
7	Continuity	7 – 9	Rear wiper switch ON	Continuity
			Rear wiper switch OFF	No continuity
8	Voltage	8 – Body Ground	Ignition switch ON	Battery Voltage
			Ignition switch OFF	No voltage
10	Continuity	10 – Body Ground		Continuity
11	Continuity	11 – Body Ground	Door lock detection switch LOCKED (Back door close) and door control switch DOWN (Window down)	Continuity
			Door lock detection switch UNLOCK (Back door open) or door control switch not DOWN (Window not down)	No continuity
12	Continuity	12 – Body Ground	Door lock detection switch LOCKED (Back door close) and door control switch UP (Window up)	Continuity
			Door lock detection switch UNLOCK (Back door open) or door control switch not UP (Window not up)	No continuity

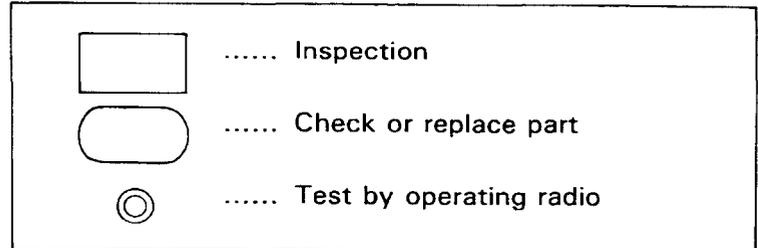
(b) Apply battery voltage between terminals 1 and 3 of the wire harness side. Check that the window motor turns. Then connect in reverse, check that the motor turns in reverse.

If circuit is correct as specified above, replace the relay.

RADIO, STEREO TAPE PLAYER AND MOTOR ANTENNA

Troubleshooting

DESCRIPTION OF SYMBOLS



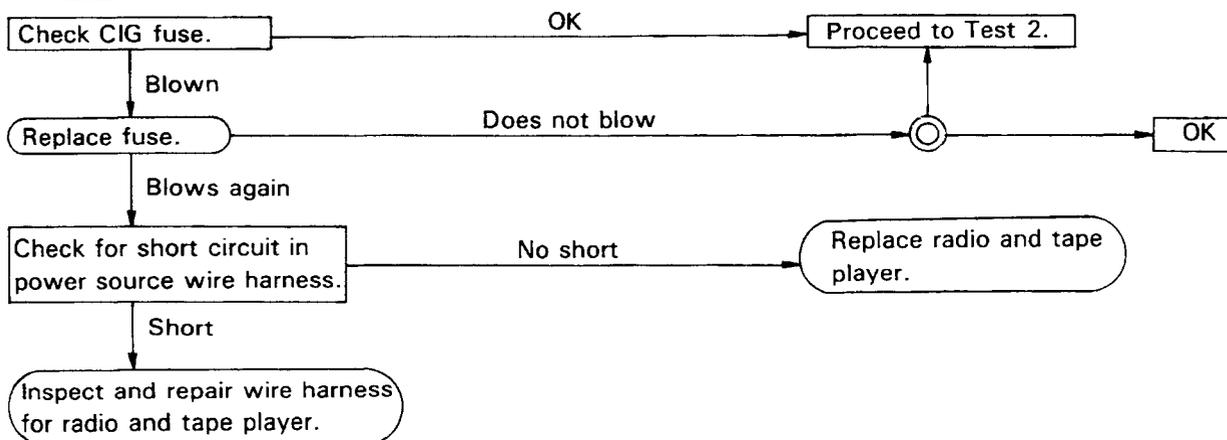
1. DEAD RADIO AND TAPE PLAYER

- (a) No power to radio or tape player, or power but no sound.

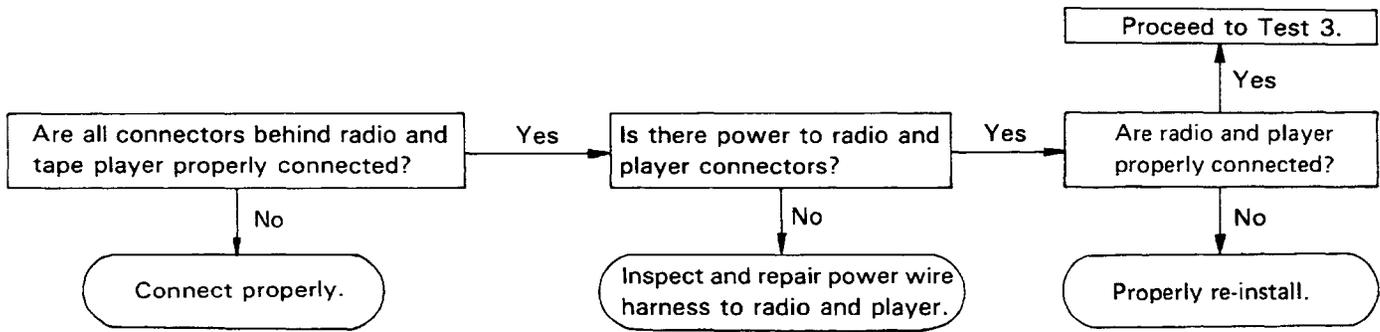
Possible causes:

- Blown CIG fuse
- Short circuit or broken wire in power source wire harness
- Loose connectors behind radio and tape player
- Loose speaker connector
- Defective speaker
- Broken wire in speaker wire harness
- Improperly installed radio or tape player
- Defective radio or tape player

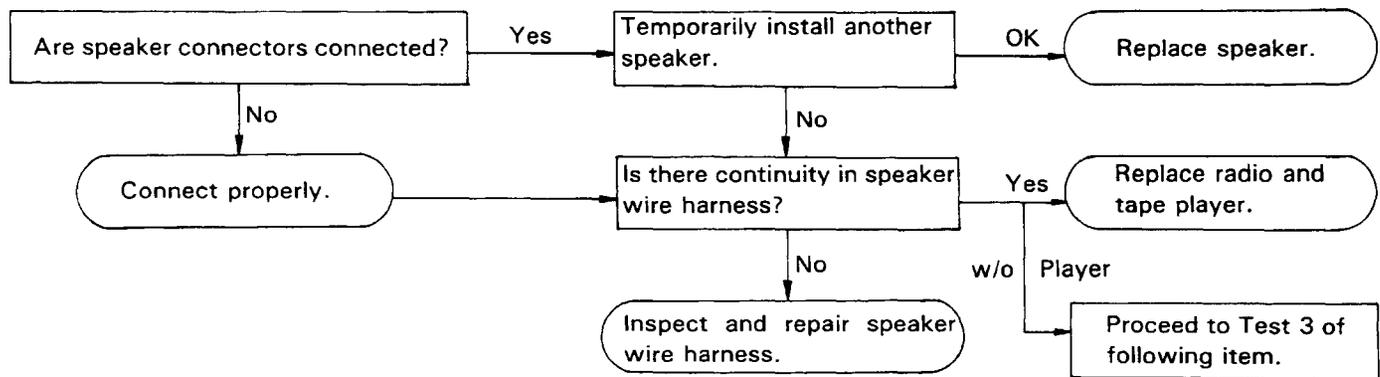
TEST 1



TEST 2



TEST 3

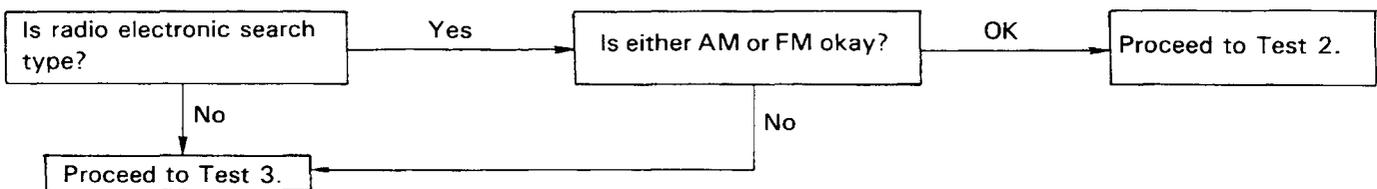


- (b) Tape player okay but no sound from AM and FM or either one.

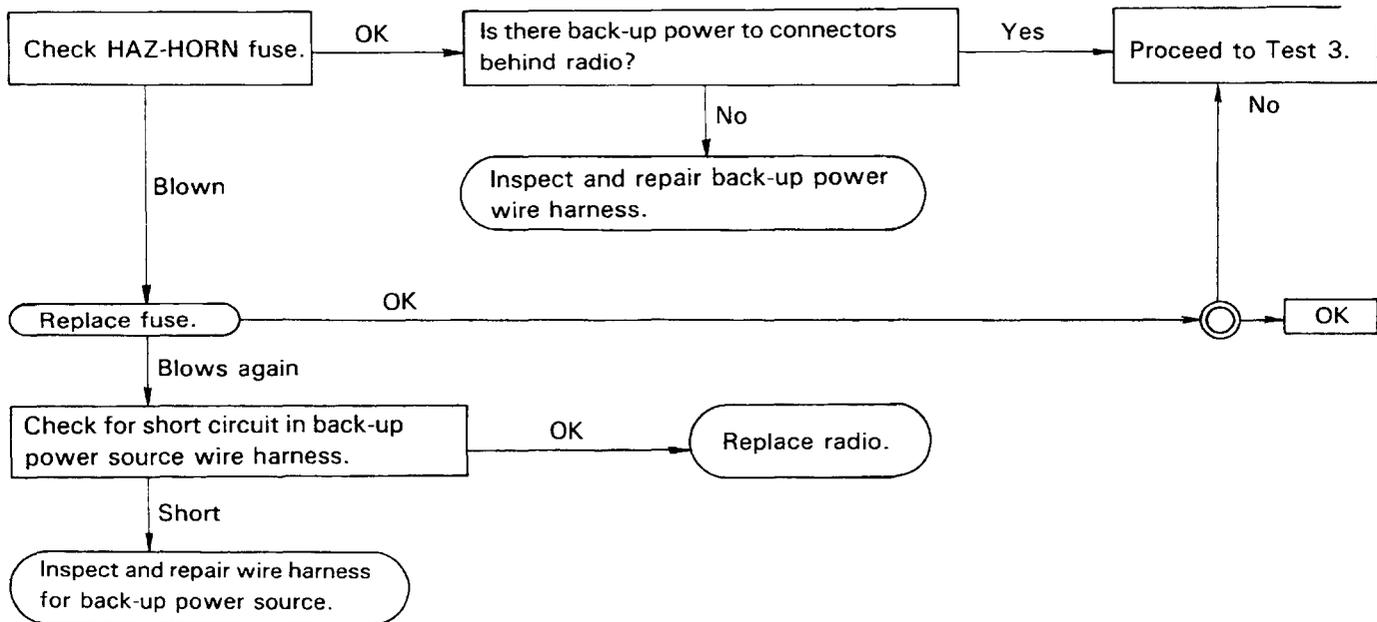
Possible causes:

- Antenna disconnected
- Antenna plug not properly connected
- Defective antenna
- Defective antenna cable
- Defective radio or tape player
- Blown HAZ-HORN fuse
- Short circuit or broken wire in wire harness for back-up power source

TEST 1

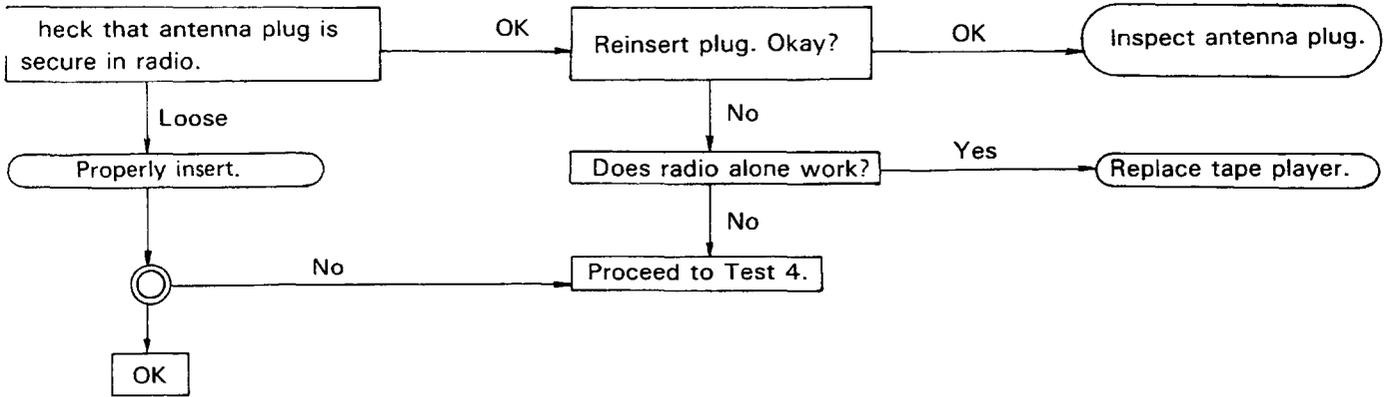


TEST 2

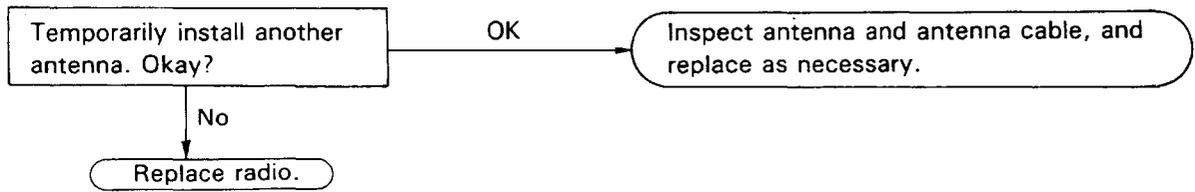


NOTE: Back-up power refers to the storage voltage for preset tuning. This is applied even when the ignition switch is OFF.

TEST 3



TEST 4

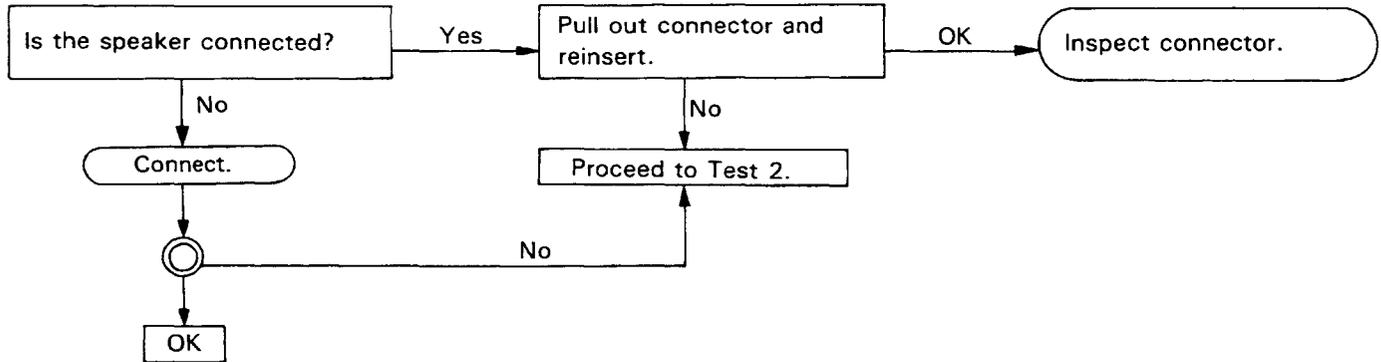


(c) No sound from one speaker.

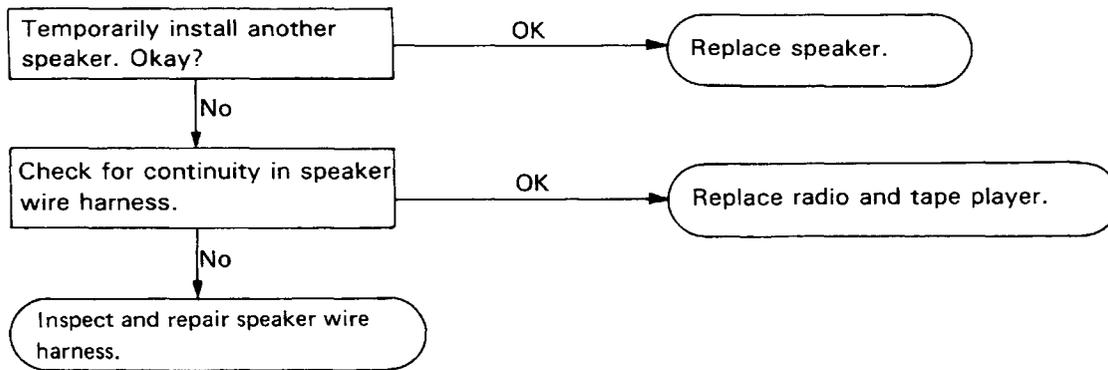
Possible causes:

- Loose speaker connector
- Broken wire in speaker wire harness
- Defective speaker
- Defective radio and tape player

TEST 1



TEST 2

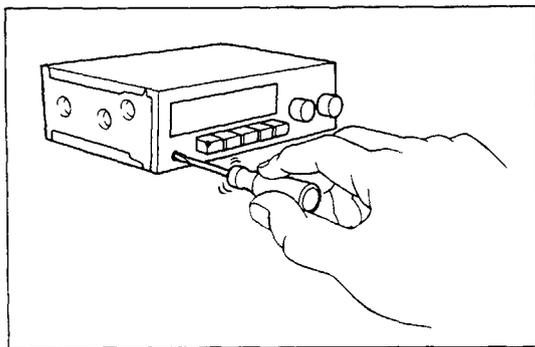
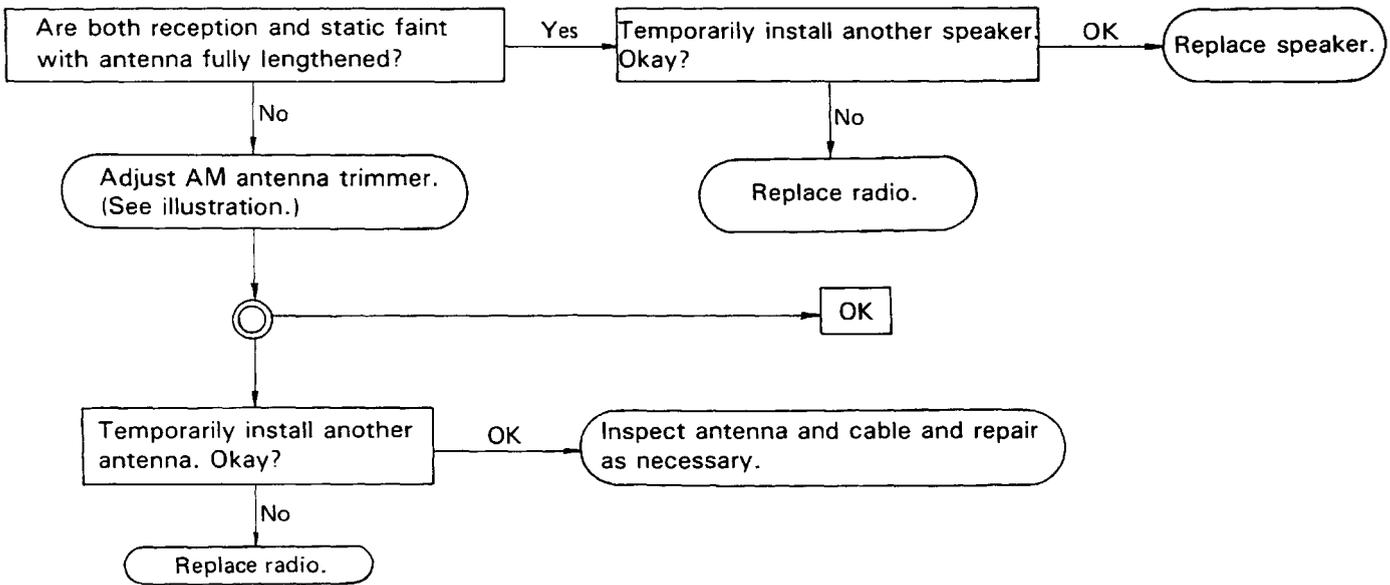


2. FAINT RECEPTION

Possible causes:

- Maladjusted antenna trimmer
- Defective antenna cable
- Defective speaker
- Defective radio

TEST



NOTE: Adjustment of antenna trimmer.

- (1) Fully lengthen the antenna.
- (2) With the volume and tone at maximum, turn the dial to around 1,400 kHz where there is no reception.
- (3) Adjust the trimmer to where static is loudest.

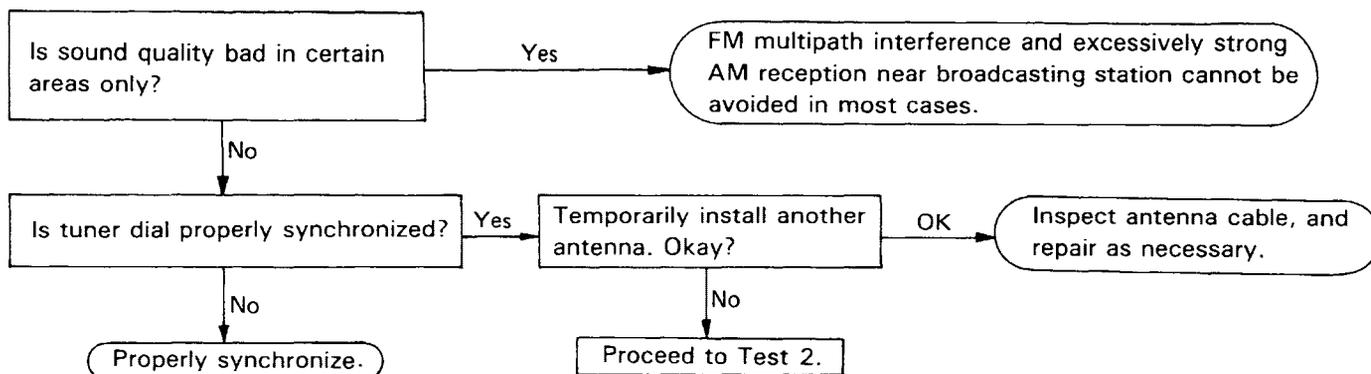
3. BAD SOUND QUALITY

(a) Sound quality bad when radio played.

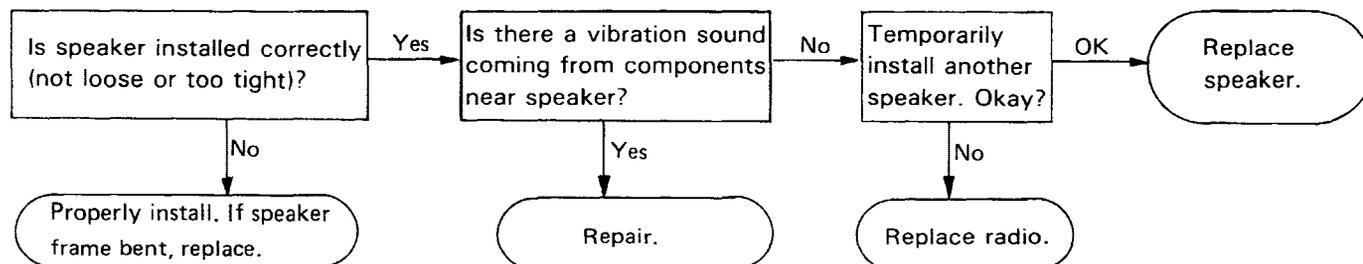
Possible causes:

- Multipath interference excessive interception
- Tuner dial not synchronized with station
- Defective antenna and cable
- Speaker improperly installed
- Vibration sound from components near speaker
- Defective speaker
- Defective radio

TEST 1



TEST 2

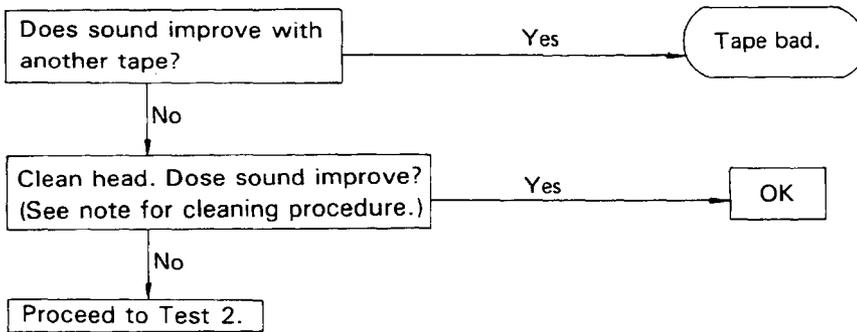


(b) Sound quality bad when tape player played.

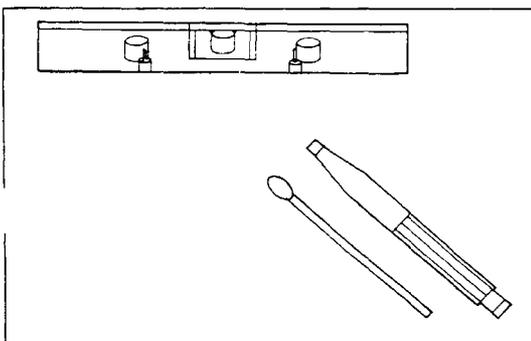
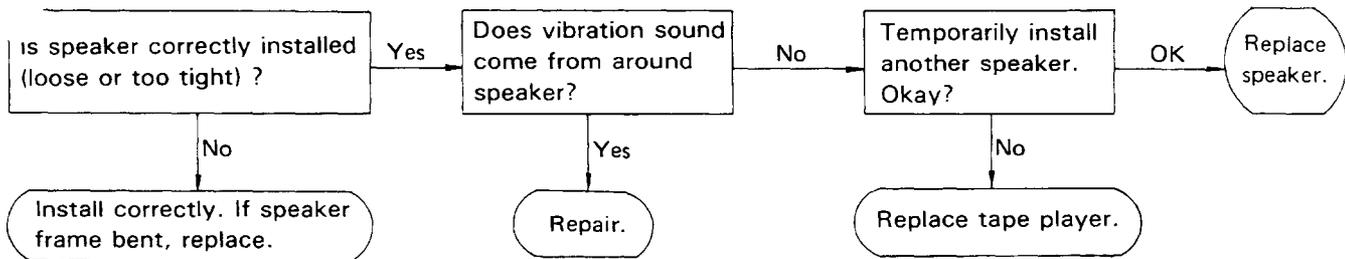
Possible causes:

- Bad tape
- Dirty head
- Incorrectly installed speaker
- Vibration noise from around speaker
- Defective speaker
- Defective tape player

TEST 1



TEST 2



NOTE: Head cleaning procedure.

- (1) Raise the cassette door with your finger. Next using a pencil or like object, push in the guide as shown.
- (2) Using a cleaning pen or cotton applicator soaked in alcohol, clean the head surface, pinch rollers and capstans.
- (3) Push in the eject button.

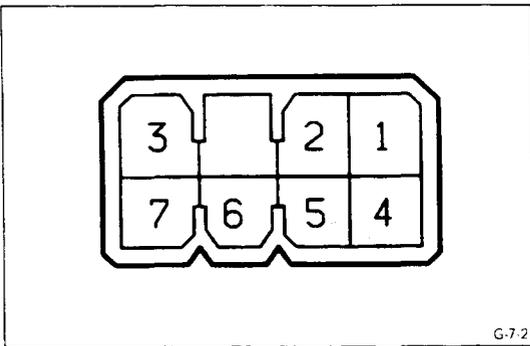
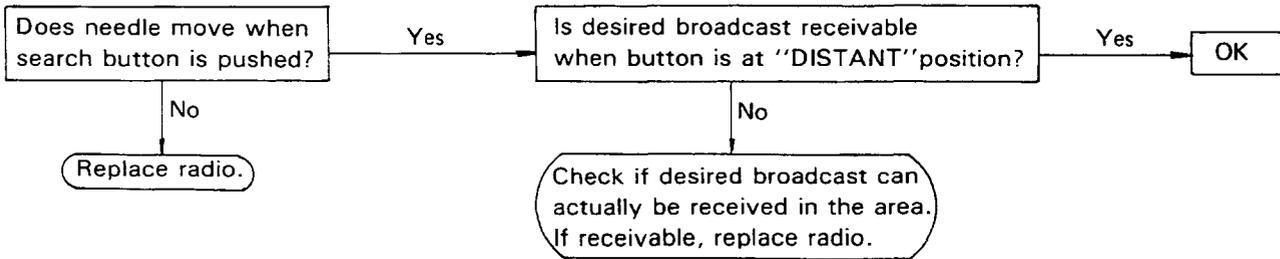
4. DEFECTIVE AUTO-SEARCH MECHANISM

Manual search possible but automatic search mechanism does not function or does not stop at all receivable static

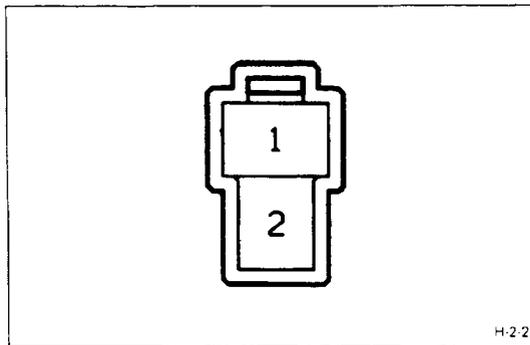
Possible causes:

- Poor search sensitivity (SENS button)
- Defective radio

TEST



G-7.2



H-2.2

Antenna Motor Control Switch

INSPECTION OF CONTROL SWITCH

INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal / Switch position	2	3	5	6	7
UP		○	○	○	○
OFF			○	○	○
DOWN	○		○	○	○

If continuity is not as specified, replace the switch.

Antenna Motor

INSPECTION OF MOTOR

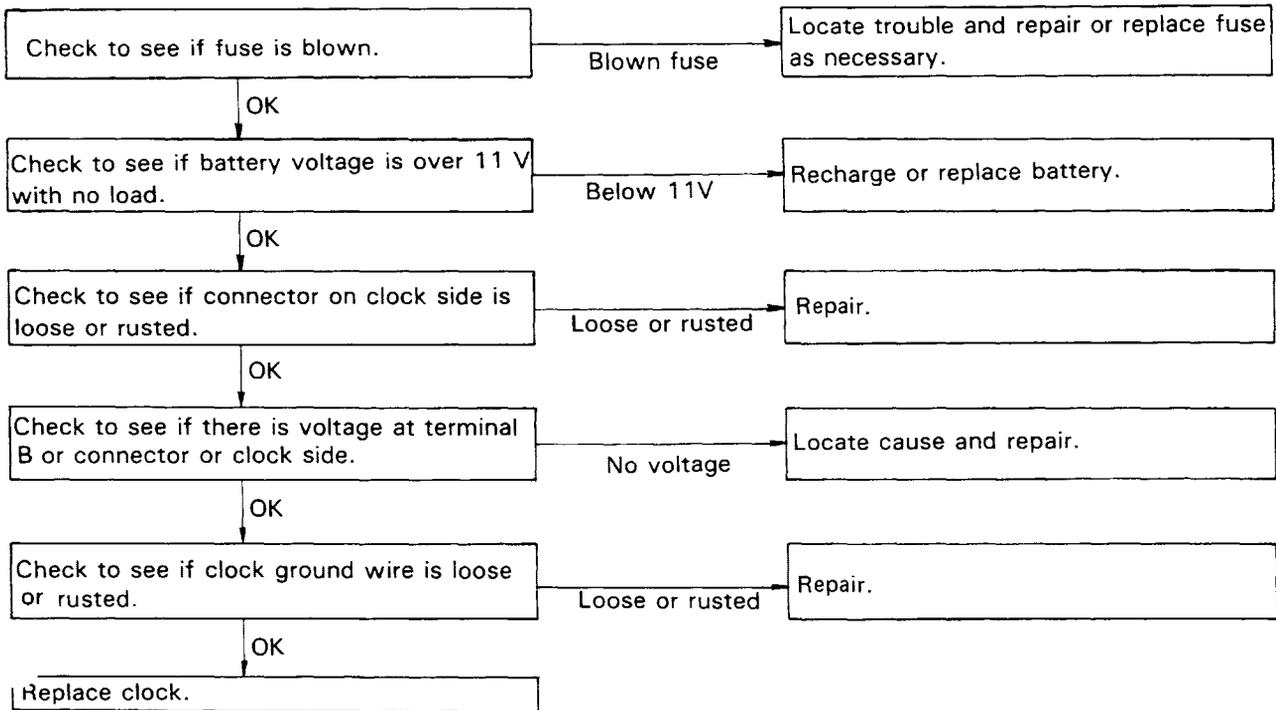
INSPECT MOTOR OPERATION

- Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, and check that the antenna rises.
- Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, and check that the antenna descends.

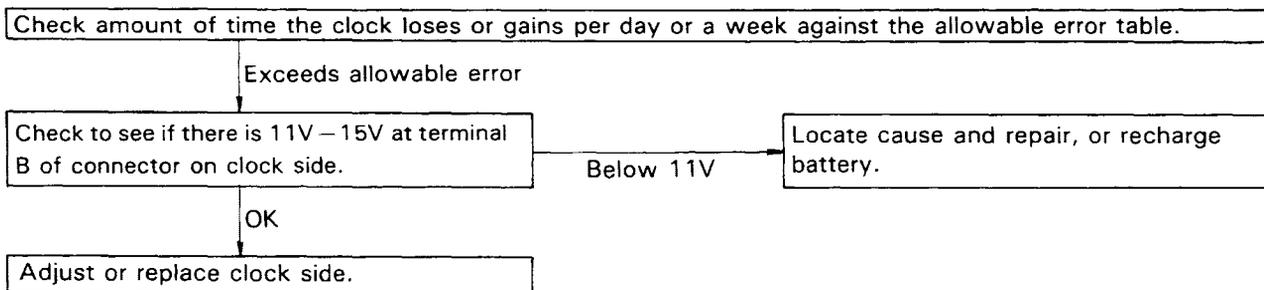
CLOCK

Troubleshooting

CLOCK WILL NOT OPERATE



CLOCK LOSES OR GAINS TIME



1. INSPECT ALLOWABLE ERROR OF CLOCK

Check the allowable error of the clock.

Allowable error (per day): ± 1.5 seconds

2. ADJUSTMENT OF CLOCK

Adjustment of the quartz clock requires a precise digital counter. Adjustment must be made in a shop specified by the manufacturer.

3. SETTING OF CLOCK

(a) Connect the battery terminal.

(b) Check the clock to see that it is running, and then set it to the correct time.

NOTE: Whenever the battery terminal is disconnected, make sure to set the clock to the correct time after reconnecting the battery.