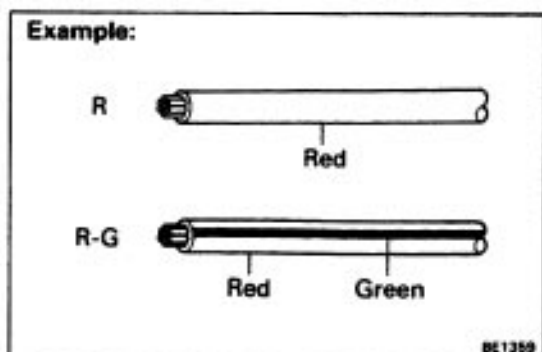


# BODY ELECTRICAL SYSTEM



## GENERAL INFORMATION

### WIRING COLOR CODE

Wire colors are indicated by an alphabetical code.

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

The first letter indicates the basic wire color and the second letter indicates the color of the stripe.

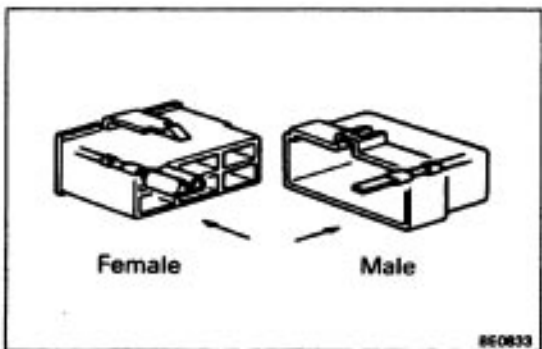
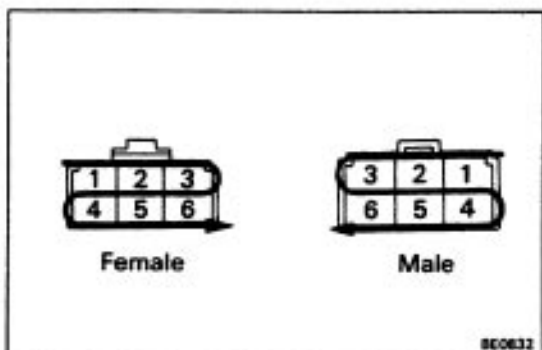
### CONNECTOR

#### 1. PIN NUMBER OF FEMALE CONNECTOR

Numbered in order from upper left to lower right.

#### 2. PIN NUMBER OF MALE CONNECTOR

Numbered in order from upper right to lower left.

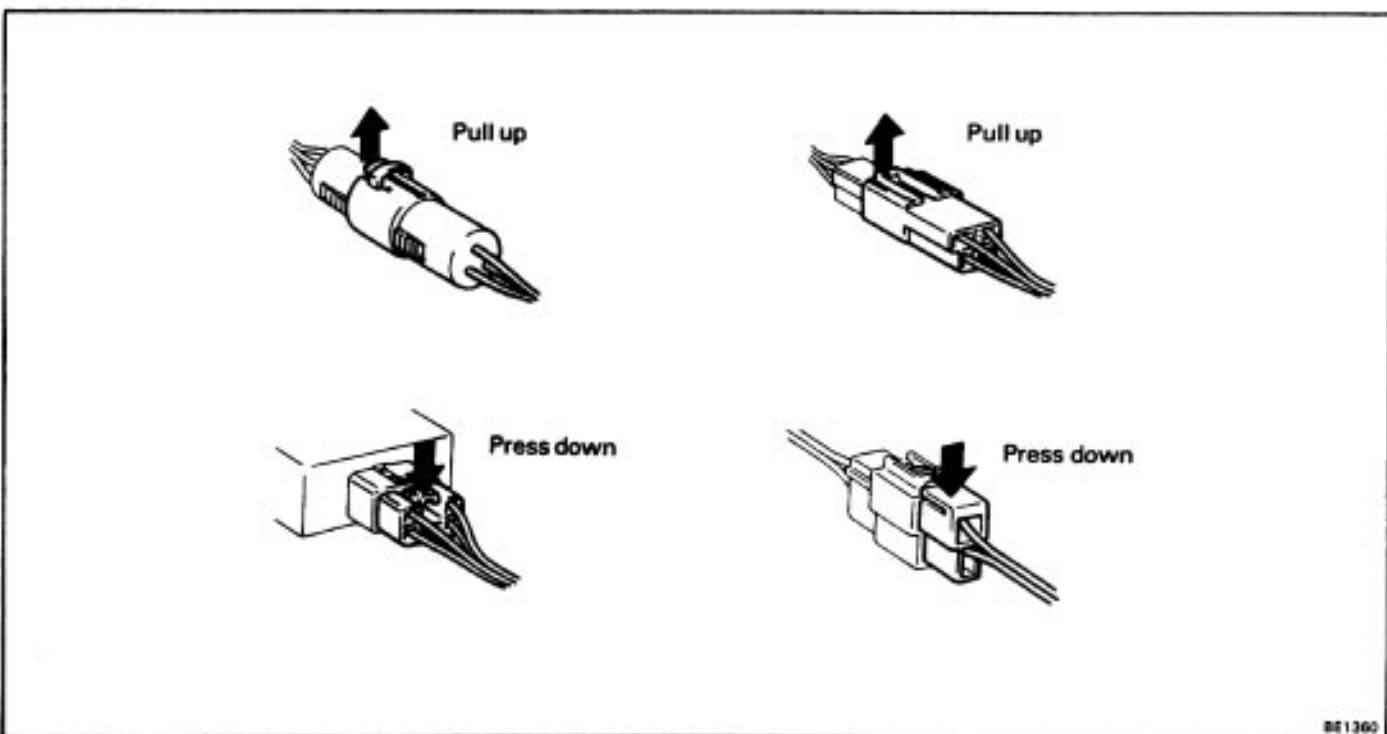


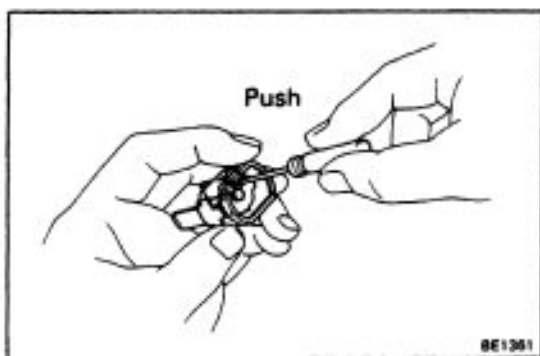
#### 3. DISTINCTION OF MALE AND FEMALE CONNECTORS

Male and female connectors are distinguished by shape of their internal pins.

- All connectors are shown from the open end, and the lock is on top.
- To pull apart the connectors, pull on the connector itself, not the wires.

HINT: Check the type of connector before disconnecting.





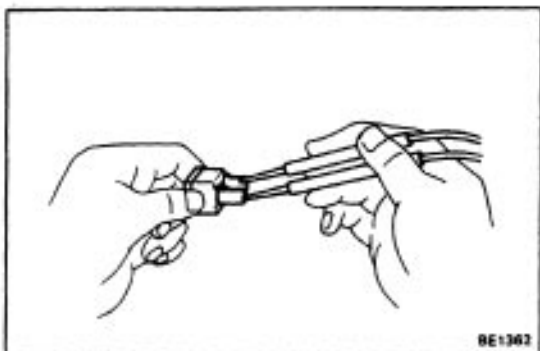
## RESET CIRCUIT BREAKER

### 1. REMOVE CIRCUIT BREAKER

- (a) Disconnect the negative (–) cable from the battery.
- (b) Remove the circuit breaker.

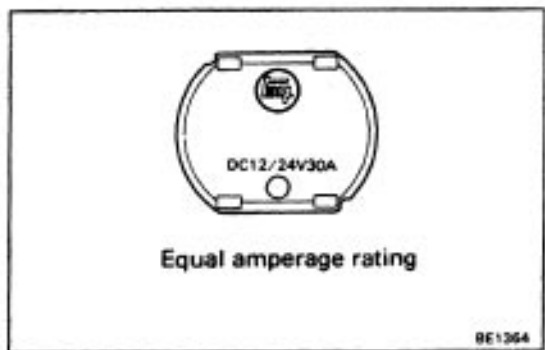
### 2. RESET CIRCUIT BREAKER

- (a) Insert the needle into the reset hole and push it.

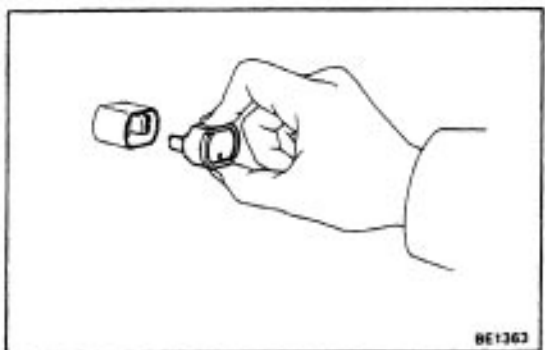


- (b) Using an ohmmeter, check that there is continuity between both terminals of the circuit breaker.

If continuity is not as specified, replace the circuit breaker.



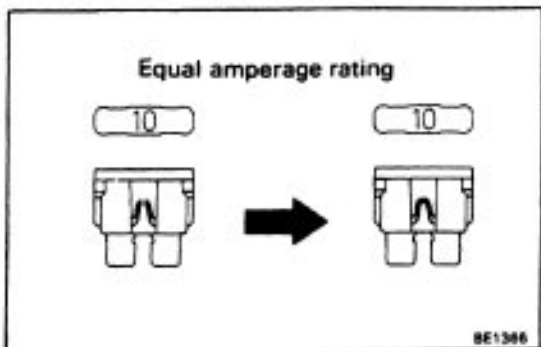
HINT: If replacing the circuit breaker, be sure to replace it with a breaker with an equal amperage, rating.



### 3. INSTALL CIRCUIT BREAKER

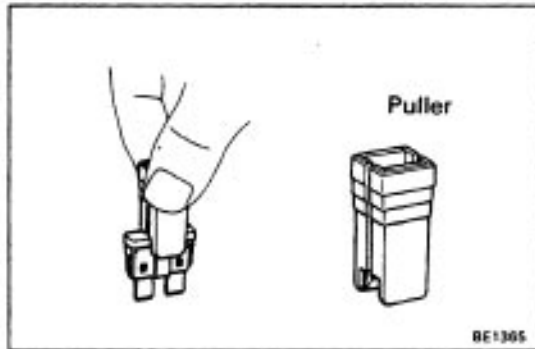
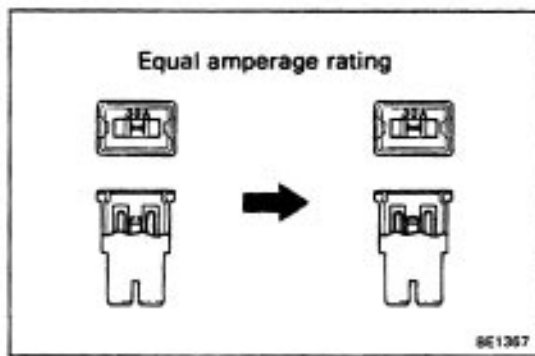
- (a) Install the circuit breaker.
- (b) Connect the negative (–) cable to the battery.

HINT: If a circuit breaker continues to cut out, a short circuit is indicated. Have the system checked by a qualified technician.



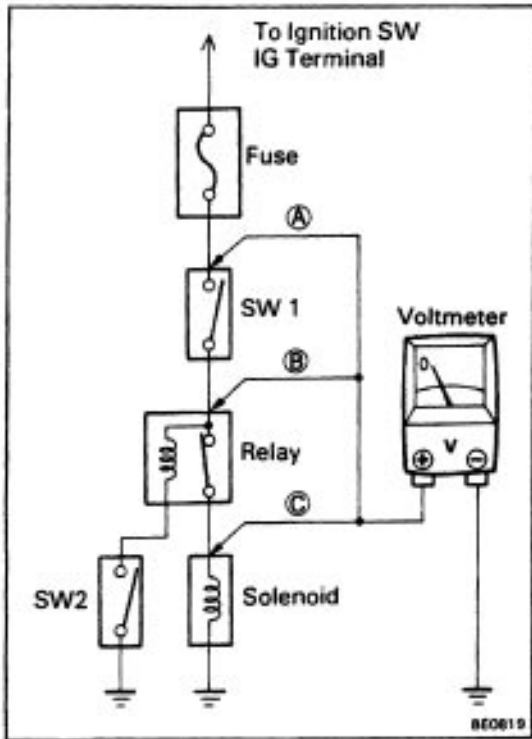
## REPLACEMENT OF FUSE AND FUSIBLE LINK

HINT: If replacing the fuse or fusible link, be sure to replace it with a fuse or fusible link with an equal amperage rating.

**NOTICE:**

1. Turn off all electrical components and the ignition switch before replacing a fuse or fusible link. Do not exceed the fuse or fusible link amperage 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 or fusible link continues to blow, a short circuit is indicated. The system must be checked by a qualified technician.

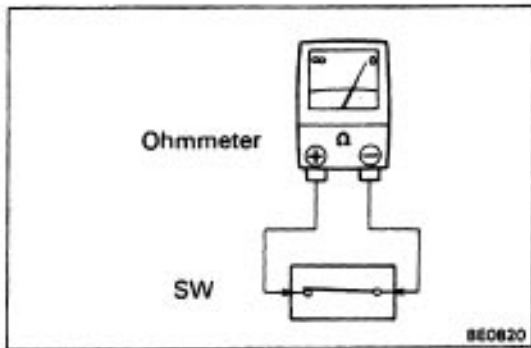


## CHECK FOR VOLTAGE

- (a) Establish conditions in which voltage is present at the check point.

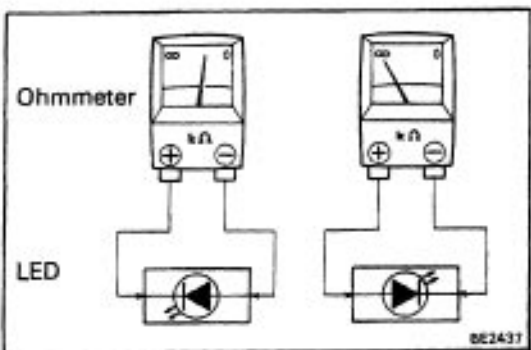
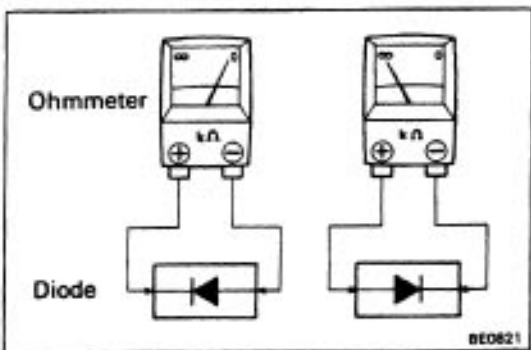
Example:

- (A) – Ignition SW on  
 (B) – Ignition SW and SW 1 on  
 (C) – Ignition SW, SW 1, and Relay on (SW 2 off)
- (b) Using a voltmeter, connect the negative (–) lead to a good ground point or negative (–) battery terminal and the positive (+) lead to the connector or component terminal. This check can be done with a test bulb instead of a voltmeter.



## CHECK FOR CONTINUITY AND RESISTANCE

- (a) Disconnect the battery terminal or wire so there is no voltage between the check points.
- (b) Contact the two leads of an ohmmeter to each of the check points.



If the circuit has diodes, reverse the two leads and check again.

When contacting the negative (–) lead to the diode positive (+)

side and the positive (+) lead to the negative (–) side, there should be continuity.

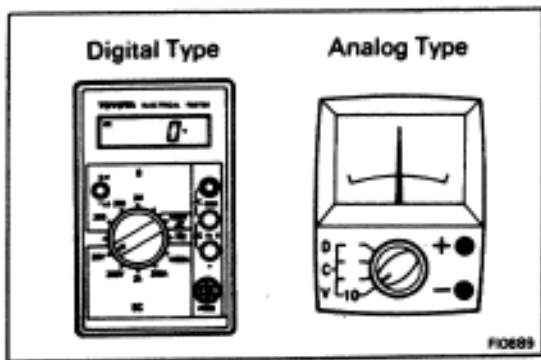
When contacting the two leads in reverse, there should be no continuity.

HINT: Specifications may vary depending on the type of tester, so refer to the tester's instruction manual before performing the inspection.

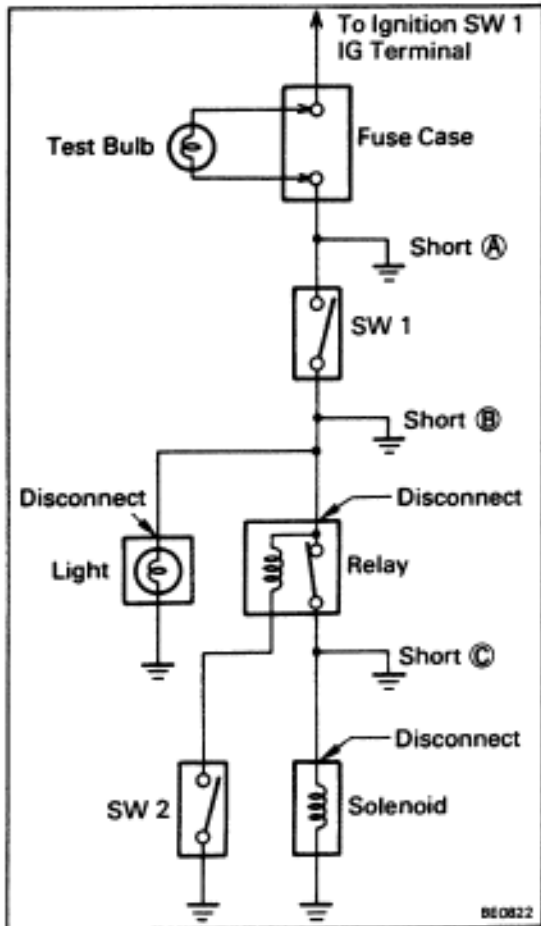
Check LED (Light Emitting Diode) in the same manner as that for diodes.

HINT:

- Use a tester with a power source of 3 V or greater to overcome the circuit resistance.
- If a suitable tester is not available, apply voltage and check that the LED lights up.



- (c) Use a volt/ohmmeter with high impedance ( $10\text{ k}\Omega/\text{V}$  minimum) for troubleshooting of the electrical circuit.



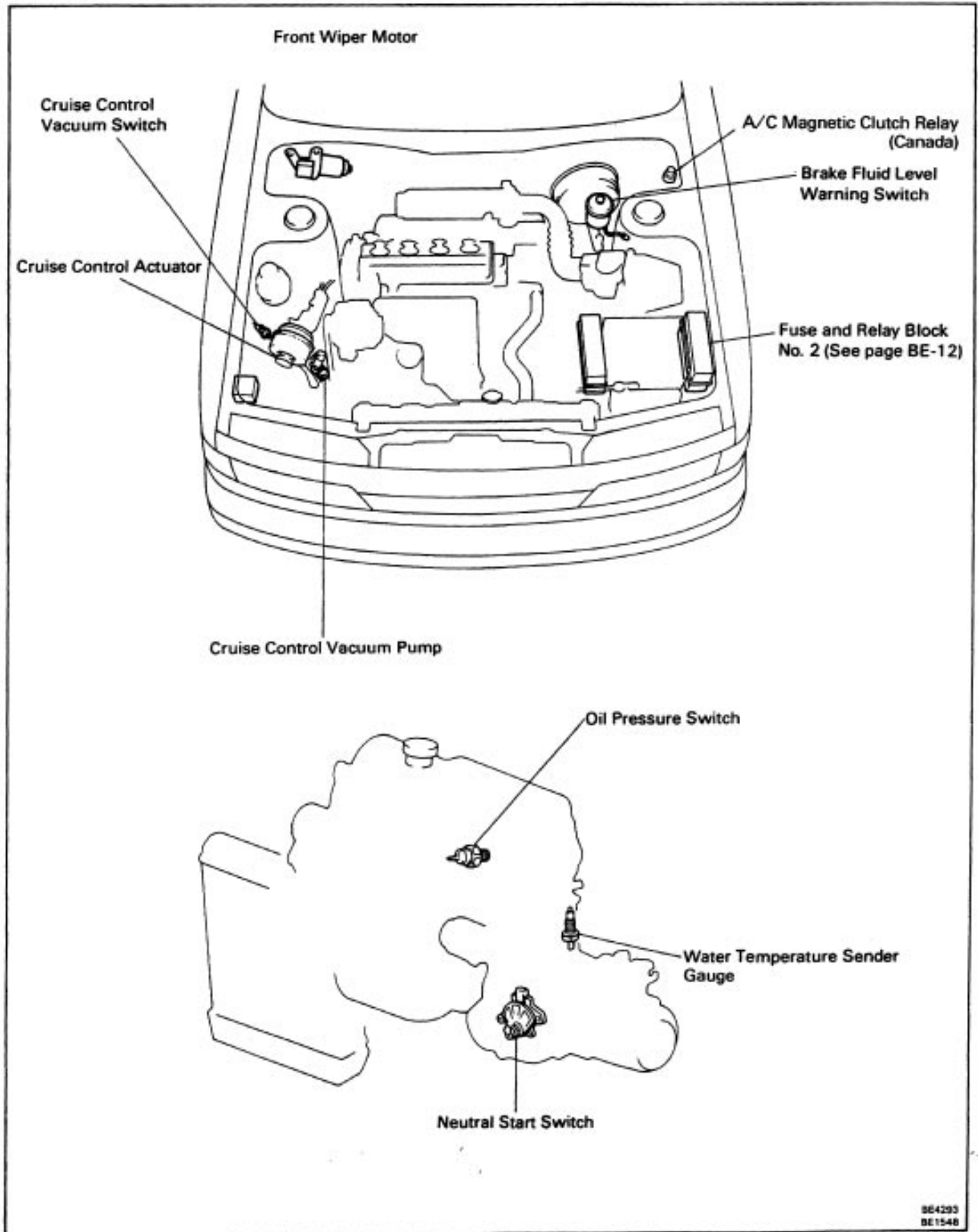
## CHECK FOR SHORT CIRCUIT

- Remove the blown fuse and eliminate all loads from the fuse.
- Connect a test bulb in place of the fuse.
- Establish conditions in which the test bulb comes on.

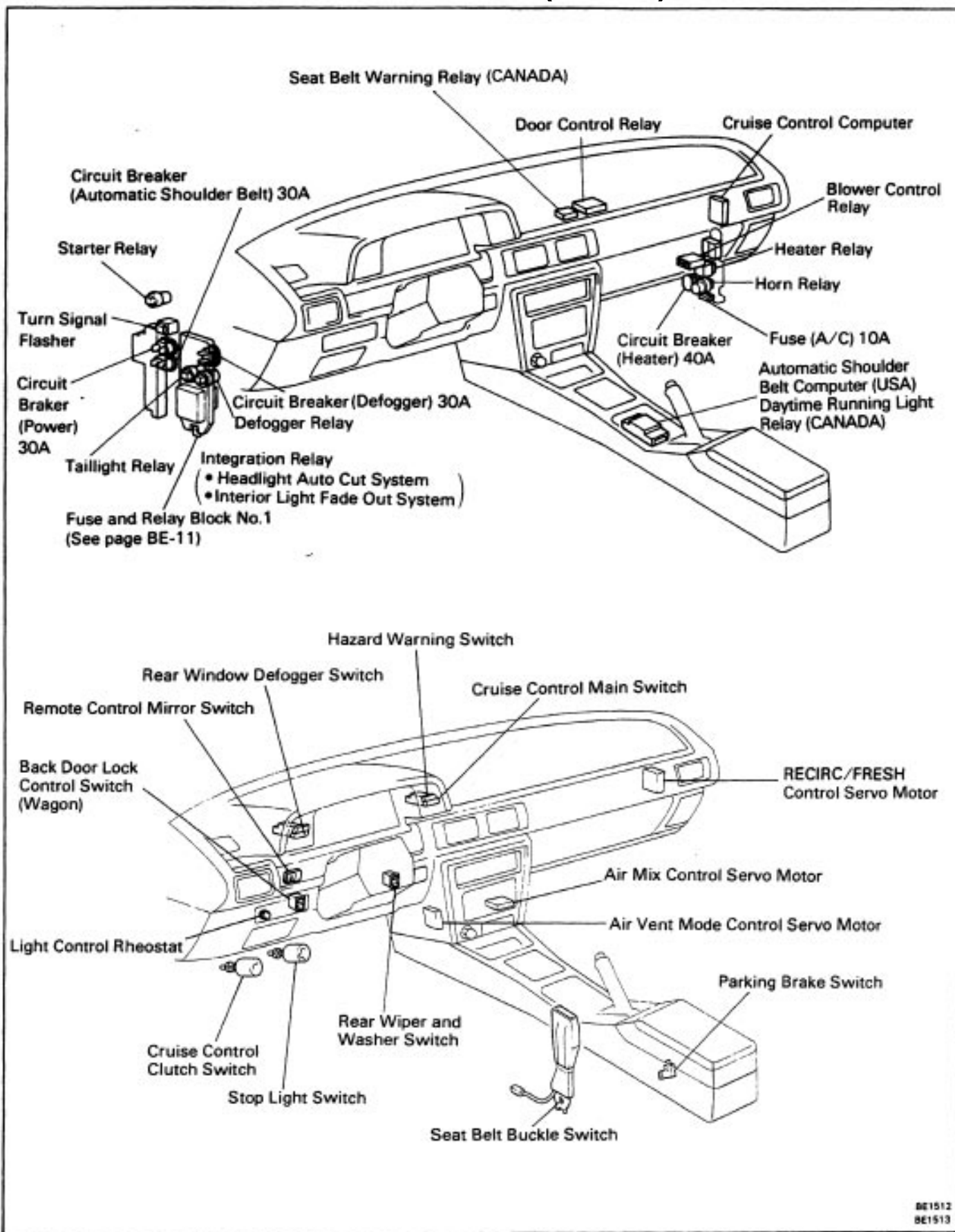
Example:

- Ignition SW on
- Ignition SW and SW 1 on
- Ignition SW, SW 1 and Relay on (Connect the Relay) and SW 2 oft (or Disconnect SW 2)
- Disconnect and reconnect the connectors while watching the test bulb.  
The short lies between the connector where the test bulb stays lit and the connector where the bulb goes out.
- Find the exact location of the short by lightly shaking the problem wire along the body.

## LOCATION OF SWITCHES AND RELAYS



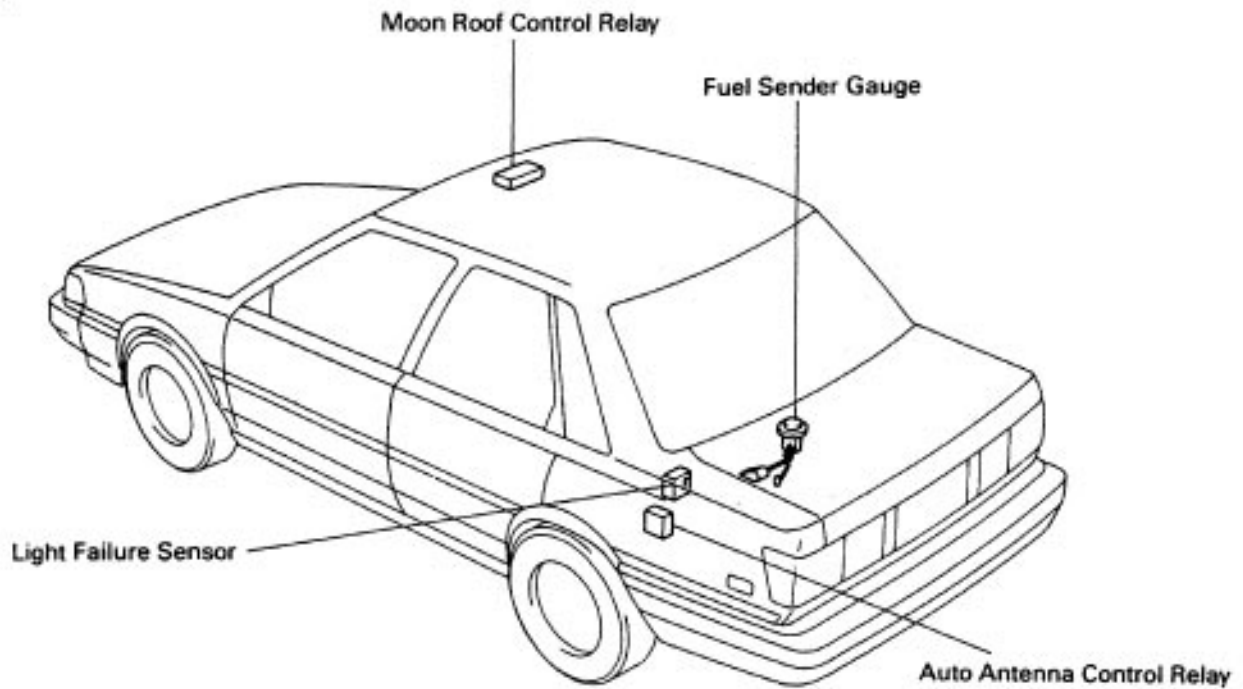
## LOCATION OF SWITCHES AND RELAYS (Cont'd)



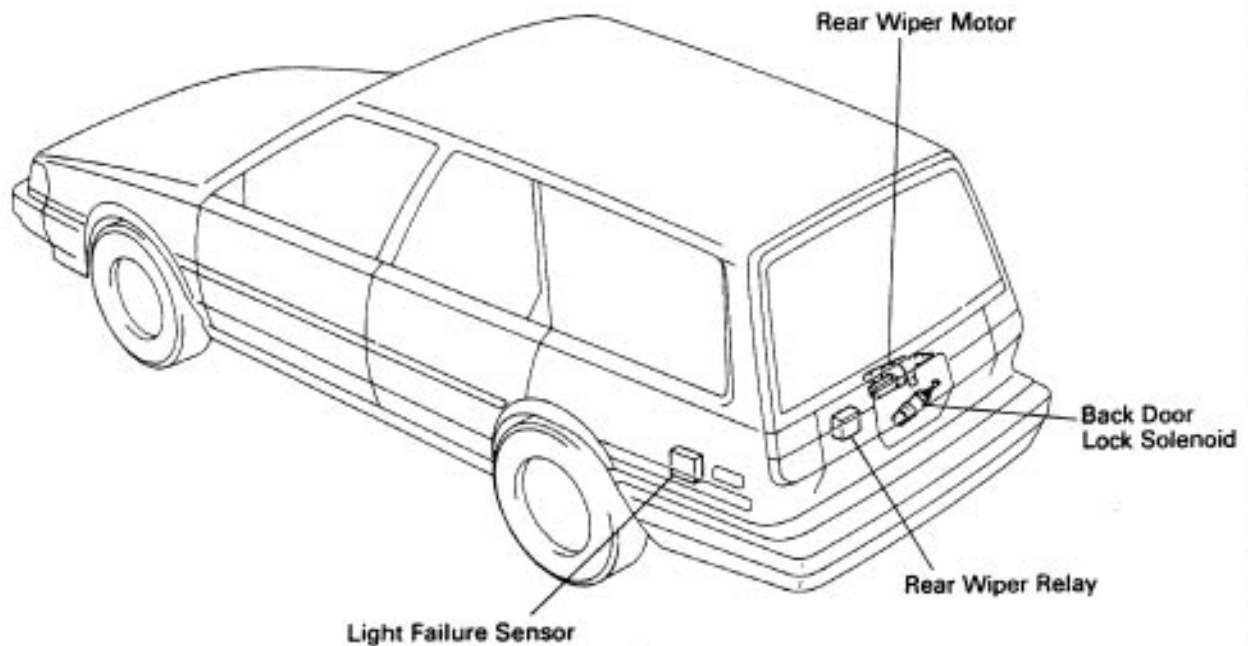


## LOCATION OF SWITCHES AND RELAYS (Cont'd)

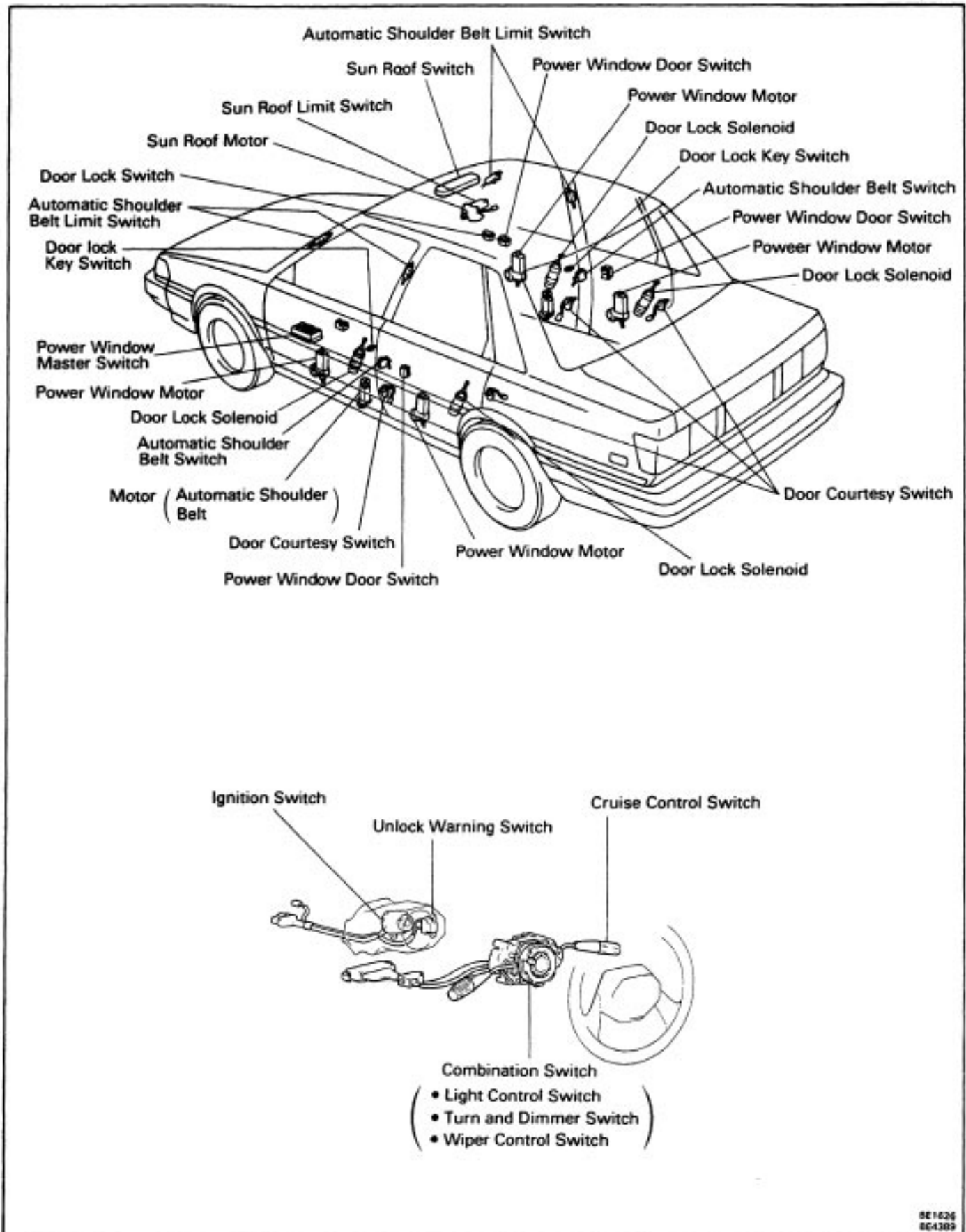
(Sedan)



(Wagon)

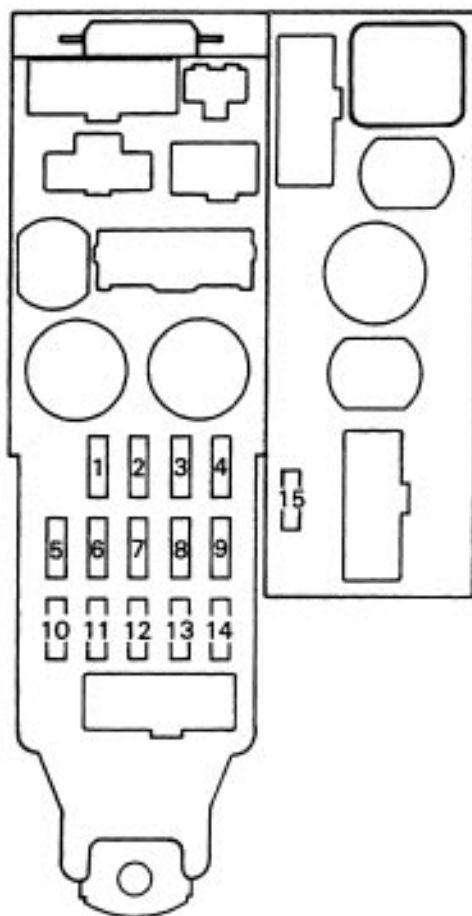


## LOCATION OF SWITCHES AND RELAYS (Cont'd)



## FUSE AND RELAY BLOCKS

### FUSE AND RELAY BLOCK No-1 (LOCATION: Driver's Side Kick Panel)

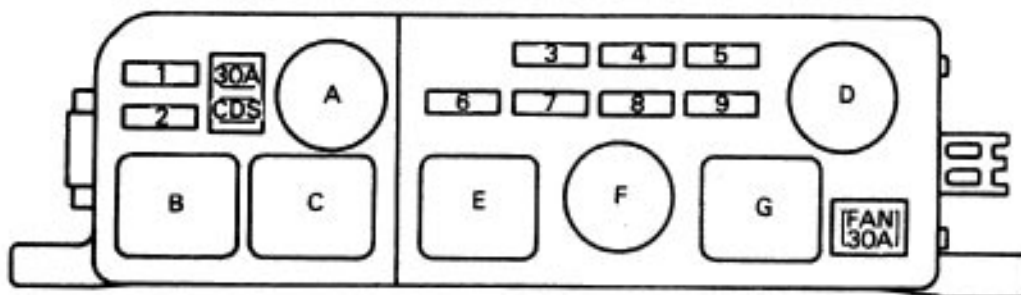


#### Fuses

1. GAUGE	7.5A
2. –	20A
3. STOP	15A
4. TAIL	15A
5. CIG	7.5A
6. RADIO	7.5A
7. TURN	10A
8. DEF-I/UP	10A
9. –	20A
10. ENGINE	15A
11. WIPER	7.5A
12. ECU-IG	10A
13. –	
14. IGN	
15. ECU-B	

## FUSE AND RELAY BLOCKS (Cont'd)

### FUSE AND RELAY BLOCK No-2 (LOCATION: Engine Compartment)

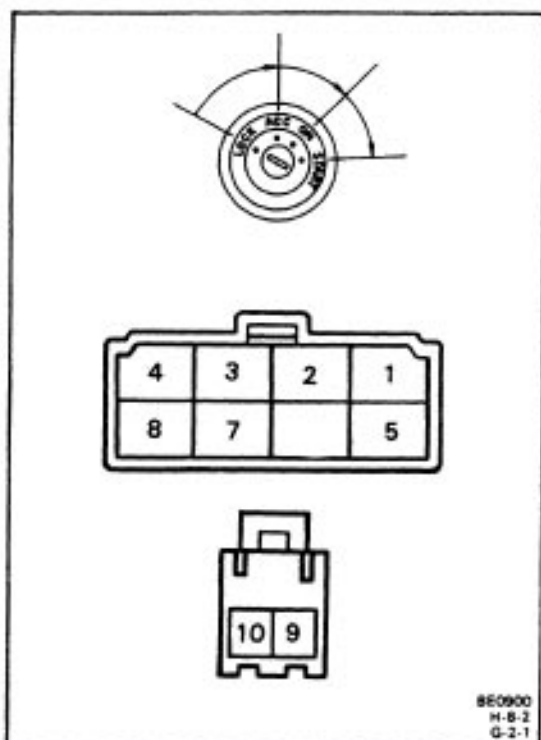


#### Fuses

1. HEAD-HI (RH) 15A (CANADA)
2. HEAD-HI (LH) 15A (CANADA)
3. DOME 20A
4. – –
5. HEAD (RH) 15A (USA)  
HEAD-LO (RH) 15A (CANADA)
6. CHARGE 7.5A
7. ER 15A
8. HAZ.HORN 15A
9. HEAD (LH) 15A (USA)  
HEAD-LO (H) 15A (CANADA)

#### Relays

- A. A/C FAN No.3 Relay
- B. A/C MAGNET CLUTCH Relay  
(USA)  
DIMMER Relay (CANADA)
- C. A/C FAN No.2 Relay
- D. FAN No. 1 Relay
- E. HEADLIGHT Relay
- F. EFI MAIN Relay
- G. ENGINE MAIN Relay



## IGNITION SWITCH AND UNLOCK WARNING SWITCH

### INSPECTION OF SWITCHES

#### INSPECT SWITCHES CONTINUITY

Inspect the switch continuity between terminals.

Ignition switch

Terminal	4	3	2	1	8	7	5
Switch position							
LOCK							
ACC	○	○					
ON	○	○	○		○	○	
START	○	○	○	○	○	○	○

#### Unlock warning switch

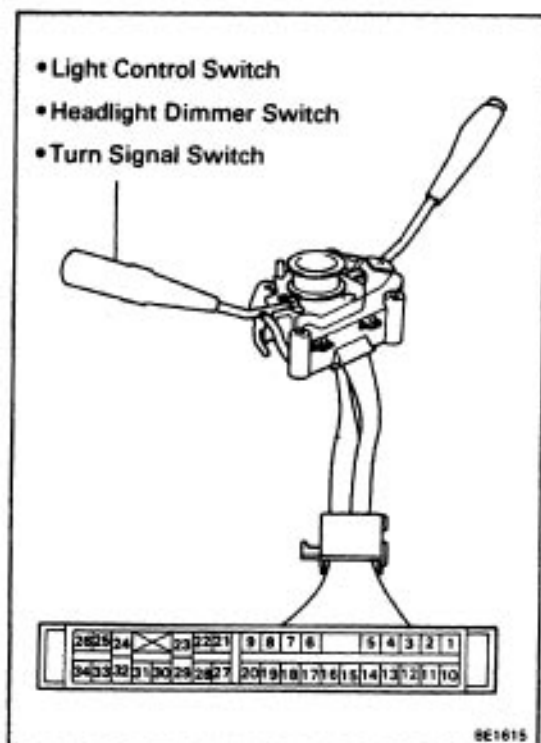
Terminal	9	10
Switch pin position		
Released (Remove ignition key)		
Pushed in (Set ignition key)	○	○

If continuity is not as specified, replace the switch.

# LIGHTING

## Troubleshooting

Problem	Possible cause	Remedy	Page
Only one light comes ON	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 Daytime running light relay faulty (CANADA) Headlight dimmer relay faulty (CANADA) Wiring or ground faulty	Replace fusible link Check relay Check switch Check relay Check relay Repair as necessary	BE-3 BE-18 BE-15 BE-25  BE-25
High beam headlights or headlight flashers do not operate	Light control/dimmer switch faulty Daytime running light relay faulty (CANADA) Headlight dimmer relay faulty (CANADA) Wiring or ground faulty	Check switch Check relay Check relay Repair as necessary	BE-15 BE-25  BE-25
Tail, parking and license light do not light	TAIL fuse blown Fusible link blown Taillight control relay faulty Light control switch faulty Daytime running light relay faulty (CANADA) Wiring or ground faulty	Replace fuse and check for short Replace fusible link Check relay Check switch Check relay Repair as necessary	BE-3 BE-3 BE-18 BE-15 BE-25
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 BE-89
Stop lights stay on	Stop light switch faulty	Adjust or replace switch	BE-89
Instrument lights do not light (taillights light)	Light control rheostat faulty Wiring or ground faulty	Check rheostat Repair as necessary	BE-23
Turn signal does not flash on one side	Turn signal switch faulty Wiring or ground faulty	Check switch Repair as necessary	BE-15
Turn signals do not operate	TURN fuse blown Turn signal flasher faulty Turn signal switch faulty Wiring or ground faulty	Replace fuse and check for short Check flasher Check switch Repair as necessary	BE-3 BE-19 BE-15
Hazard warning lights do not operate	HAZ-HORN fuse blown Turn signal flasher faulty Hazard warning switch faulty Wiring or ground faulty	Replace fuse and check short Check flasher Check switch Repair as necessary	BE-3 BE-19 BE-19



## Light Control Switch, Headlight Dimmer Switch and Turn Signal Switch

### INSPECTION OF SWITCHES

#### INSPECT SWITCHES CONTINUITY

Inspect the switch continuity between terminals.

Light control switch

Terminal	22	31	33
Switch position			
OFF			
TAIL	○	○	
HEAD	○	○	○

#### Headlight dimmer switch

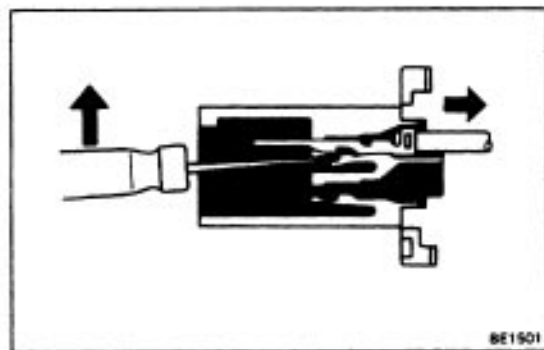
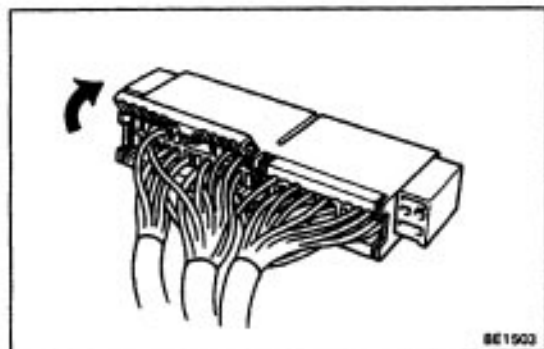
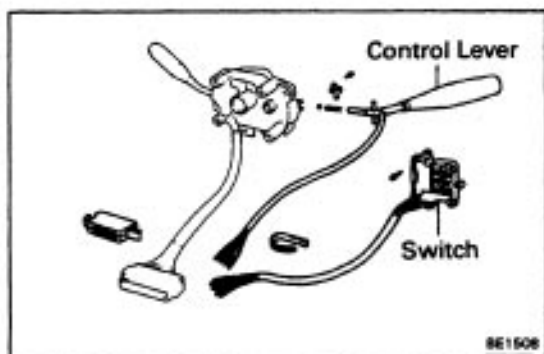
Terminal	23	29	32	34
Switch position				
Flash		○	○	○
Low Beam	○	○		
High Beam		○	○	

#### Turn signal switch

Terminal	21	25	28
Switch position			
Left Turn	○	○	
Neutral			
Right Turn	○		○

If continuity is not as specified, replace the switch.

## REPLACEMENT OF SWITCHES



### 1. REMOVE TERMINALS FROM CONNECTOR

(a) Release the four tabs and open the terminal cover.

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

(c) Pry down the locking lug with the screwdriver and pull the terminal out from the rear.

### 2. REMOVE CONTROL LEVER

(a) Remove the bail set plate and the ball.

(b) Remove the control lever with the spring.

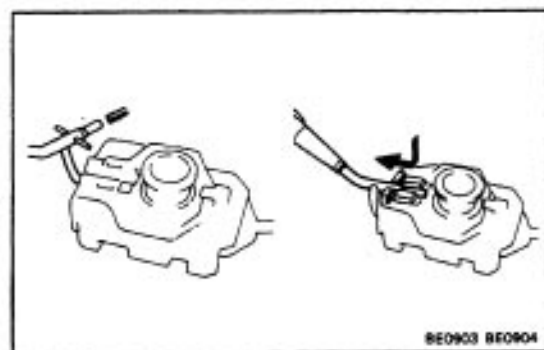
### 3. REMOVE SWITCHES

Remove the switches with the four screws.

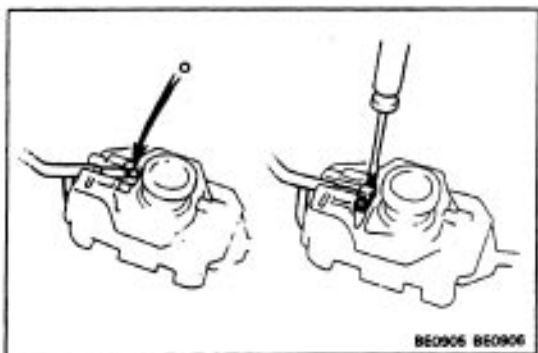
### 4. INSTALL SWITCHES

### 5. INSTALL CONTROL LEVER

(a) Insert the spring into the control lever and install the control lever.



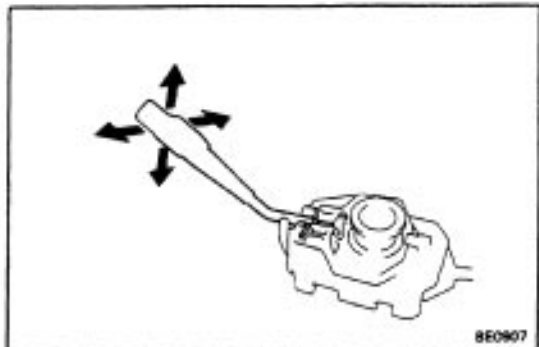




- (b) Place the ball on the spring, position the control lever at HIGH and install the ball set plate with the two screws.

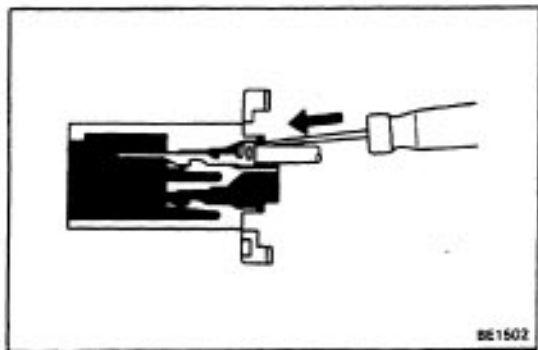
## 6. INSPECT SWITCH OPERATION

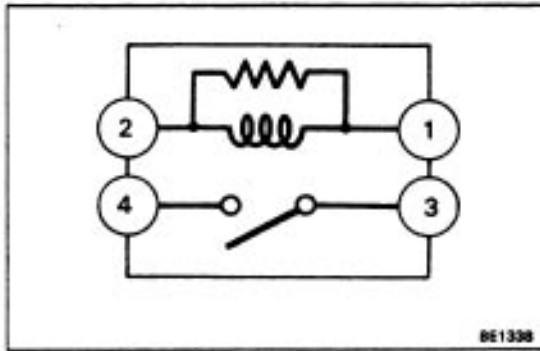
Insure that the switch operates smoothly.



## 7. INSTALL TERMINALS TO CONNECTOR

- (a) Push in the terminal until it is securely locked in the connector lug.  
(b) Close the terminal cover.



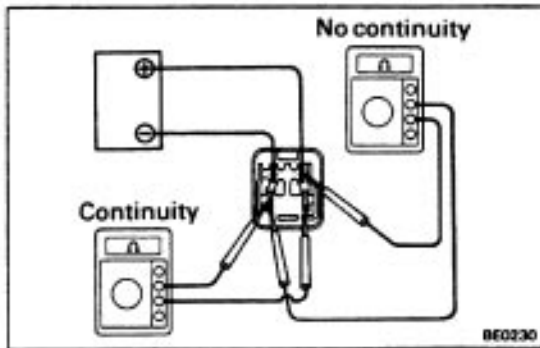
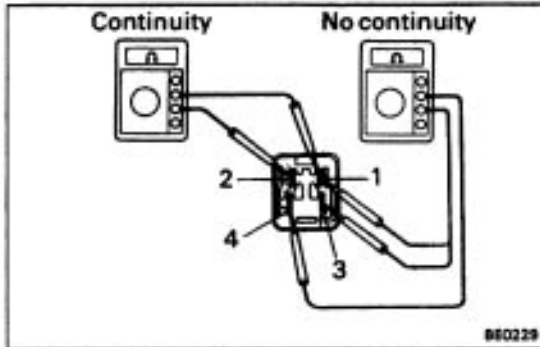


## Headlight Control Relay INSPECTION OF RELAY

### 1. INSPECT RELAY CONTINUITY

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

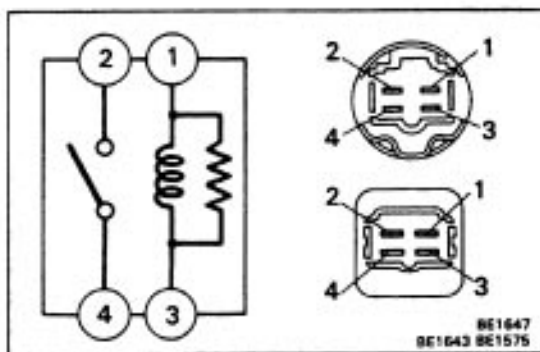
If continuity is not as specified, replace the relay.



### 2. INSPECT RELAY OPERATION

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

If operation is not as specified, replace the relay.

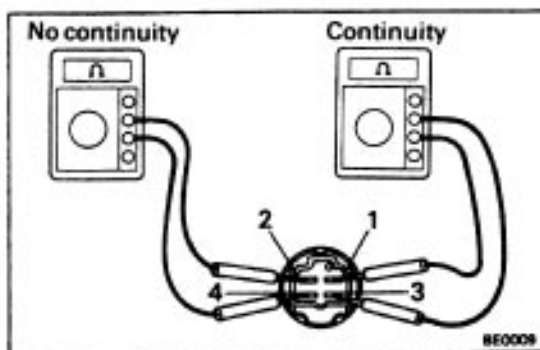


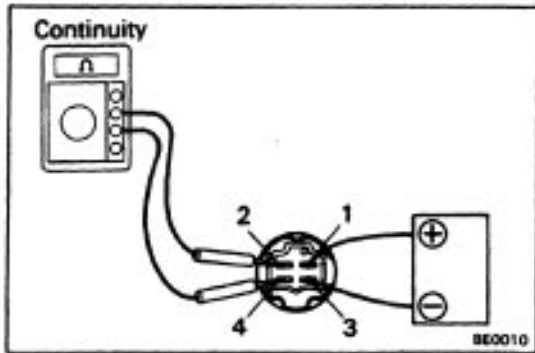
## Taillight Control Relay INSPECTION OF RELAY

### 1. INSPECT RELAY CONTINUITY

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

If continuity is not as specified, replace the relay.

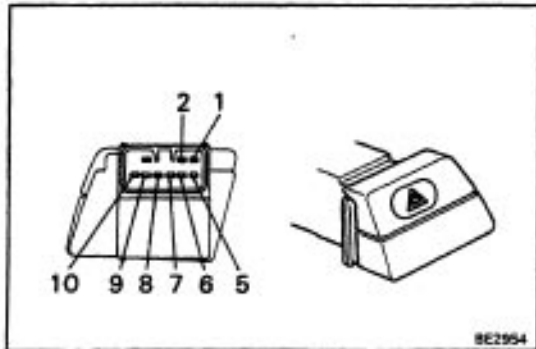




## 2. INSPECT RELAY OPERATION

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

If operation is not as specified, replace the relay.



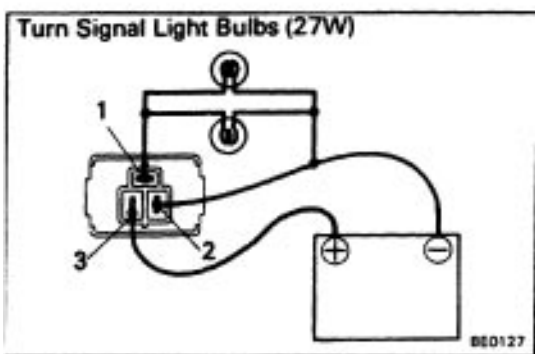
## Hazard Warning Switch INSPECTION OF SWITCH

### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal	10	7					1
Switch position							
OFF (Free)	○	○	○	○	○	○	○
ON (Lock)	○	○	○	○	○	○	○

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



## Turn Signal Flasher INSPECTION OF FLASHER

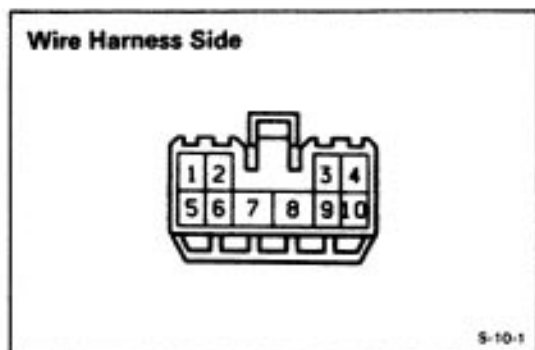
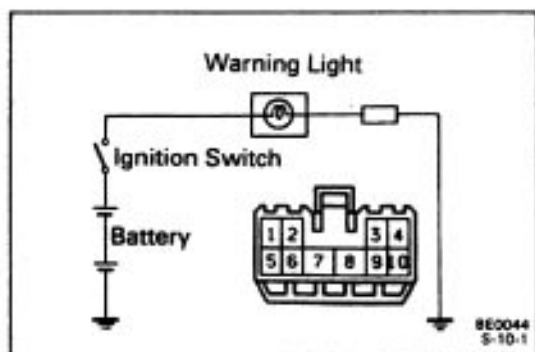
### INSPECT FLASHER OPERATION

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

HINT: The turn signal lights should flash 60 to 120 times per minute.

If one of the front or rear turn signal lights has an open circuit, the number of flashes will be more than 140 per minute.

If operation is not as specified, replace the flashes.



## Taillight Failure Sensor INSPECTION OF SENSOR

### 1. INSPECT WARNING LIGHT OPERATION

- Disconnect the connector from the failure sensor and ground the terminal 3 on the wire harness side.
- Remove the CHARGE fuse and turn the ignition switch ON, check that the bulb lights.

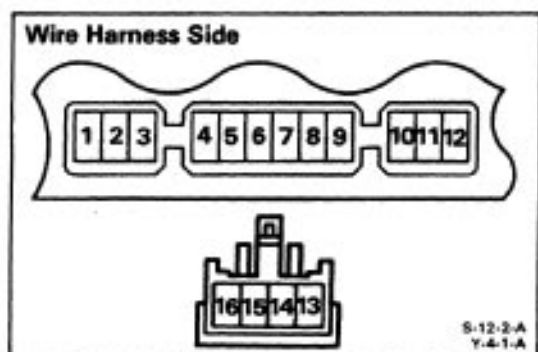
If bulb does not light, inspect the bulb.

### 2. INSPECT SENSOR CIRCUIT

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

Check for	Tester connection	Condition		Specified value
Continuity	1 — Ground	Always		Continuity
Voltage	2 — Ground	Turn ignition switch to OFF or ACC		No voltage
		Turn ignition switch ON		Battery voltage
	3 — Ground	Turn ignition switch to OFF or ACC		No voltage
		Turn ignition switch ON	Remove CHARGE fuse	Battery voltage
			Install CHARGE fuse	No voltage
Continuity	4 — Ground	Always		Continuity
Voltage	7 — Ground	Stop light switch OFF (Brake pedal released)		No voltage
		Stop light switch ON (Brake pedal depressed)		Battery voltage
Continuity	9 — Ground	Always		Continuity
Voltage	10 — Ground	Turn light control switch OFF		No voltage
		Turn light control switch TAIL or HEAD		Battery voltage

If circuit is as specified, replace the relay.



## Integration Relay

### INSPECTION OF RELAY

#### INSPECT RELAY CIRCUIT

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

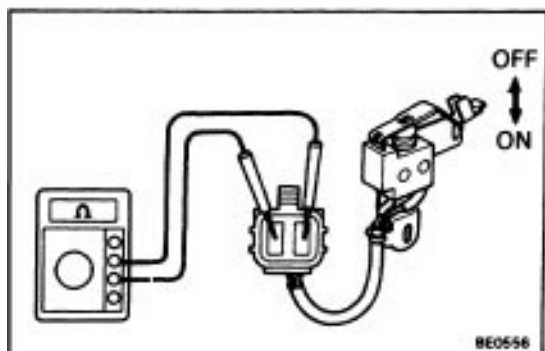
(w/o Fade Out System)

Check for	Tester connection	Condition	Specified value
Voltage	1 — Ground	Always	Battery voltage
	4 — Ground	Passenger's side and rear door courtesy switches OFF (Door closed)	Battery voltage
		Passenger's side or rear door courtesy switch ON (Door opened)	No voltage
Continuity	6 — Ground	Driver's side door courtesy switch OFF (Door closed)	No continuity
		Driver's side door courtesy switch ON (Door opened)	Continuity
Voltage	7 — Ground	Turn ignition switch to OFF or ACC	No voltage
		Turn ignition switch ON	Battery voltage
Continuity	13 — Ground	Turn light control switch to OFF or TAIL	No continuity
		Turn light control switch to HEAD	Continuity
Voltage	14 — Ground	Turn headlight dimmer switch to low beam or high beam	Battery voltage
		Turn headlight dimmer switch to Flash	No voltage
	15 — Ground	Always	Battery voltage
Continuity	16 — Ground	Turn light control switch OFF	No continuity
		Turn light control switch TAIL or HEAD	Continuity

## (w/ Fade Out System)

Check for	Tester connection	Condition	Specified value
Voltage	1 — Ground	Always	Battery voltage
	2 — Ground	Always .	Battery voltage
Continuity	3 — Ground	Door room light retainer switch ON (Door outside handle pulled up on driver's side)	Continuity
		Door room light retainer switch OFF (Door outside handle released on driver's side)	No continuity
Voltage	4 — Ground	Passenger's side and rear door courtesy switches OFF (Door closed)	Battery voltage
		Passenger's side or rear door courtesy switch ON (Door opened)	No voltage
Continuity	6 — Ground	Driver's side door courtesy switch OFF (Door closed)	No continuity
		Driver's side door courtesy switch ON (Door opened)	Continuity
Voltage	7 — Ground	Turn ignition switch to OFF or ACC	No voltage
		Turn ignition switch ON	Battery voltage
Continuity	10 — Ground	Always	Continuity
	13 — Ground	Turn light control switch to OFF or TAIL	No continuity
		Turn light control switch to HEAD	Continuity
Voltage	14 — Ground	Turn headlight dimmer switch to low beam or high beam	Battery voltage
		Turn headlight dimmer switch to Flash	No voltage
	15 — Ground	Always	Battery voltage
Continuity	16 — Ground	Turn light control switch OFF	No continuity
		Turn light control switch TAIL or HEAD	Continuity

If circuit is as specified, replace the relay.

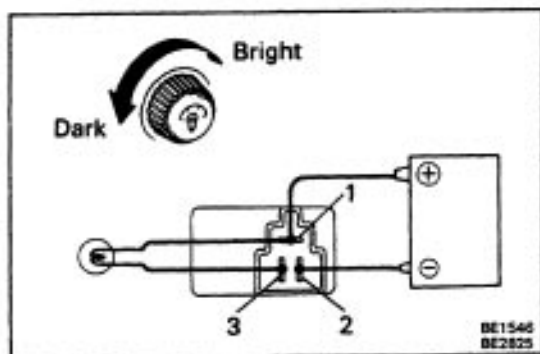


## Room Light Retainer Switch INSPECTION OF SWITCH

### INSPECT SWITCH CONTINUITY

- Check that there is no continuity between terminals with the switch OFF (Door outside handle released).
- Check that there is continuity between terminals with the switch ON (Door outside handle pulled).

If continuity is not as specified, replace the switch.



## Light Control Rheostat

### INSPECTION OF RHEOSTAT

#### INSPECT RHEOSTAT OPERATION

- Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
- Connect the terminals 1 and 3 through a 3.4 W test bulb.
- Gradually turn the rheostat knob from the bright side to dark side, check that the test bulb brightness changes from bright to dark.

If operation is not as specified, replace the rheostat.

## Daytime Running Light System (CANADA)

### DESCRIPTION

Current is led from the battery to terminal 12 of the running light relay.

Operation examples of the switch are shown below.

#### 1. IGNITION SWITCH "ON" AND LIGHT CONTROL SWITCH "OFF"

When the switches are set, current is led from the battery to terminal 1 of the running light relay. Also, because continuity is made between terminal 3 and the body ground, and 5 and the body ground of the running light relay, the taillight control relay and headlight control relay are turned on.

Then the taillights and headlights light up.

HINT: Because terminal 14 of the running light relay is not grounded at all times, the headlight dimmer relay is off, so that the headlights light up at the low beam.

#### 2. LIGHT CONTROL SWITCH IN "HEAD"

When the switch is set, continuity is made between terminal 4 and the body ground, and 2 and the body ground of the running light relay. Also, because the continuity is made between terminal 5 and the body ground, and 3 and the body ground of the running light relay at all times, the taillights and headlights light up.

HINT: When the headlight dimmer switch is set to "HIGH", continuity is made between terminal 13 of the running light relay and the body ground. Also, because continuity is made between terminal 14 of the running light relay and the body ground, the headlight dimmer relay is turned on. Then the headlights go on at the high beam.

#### 3. HEADLIGHT DIMMER SWITCH IN "FLASH"

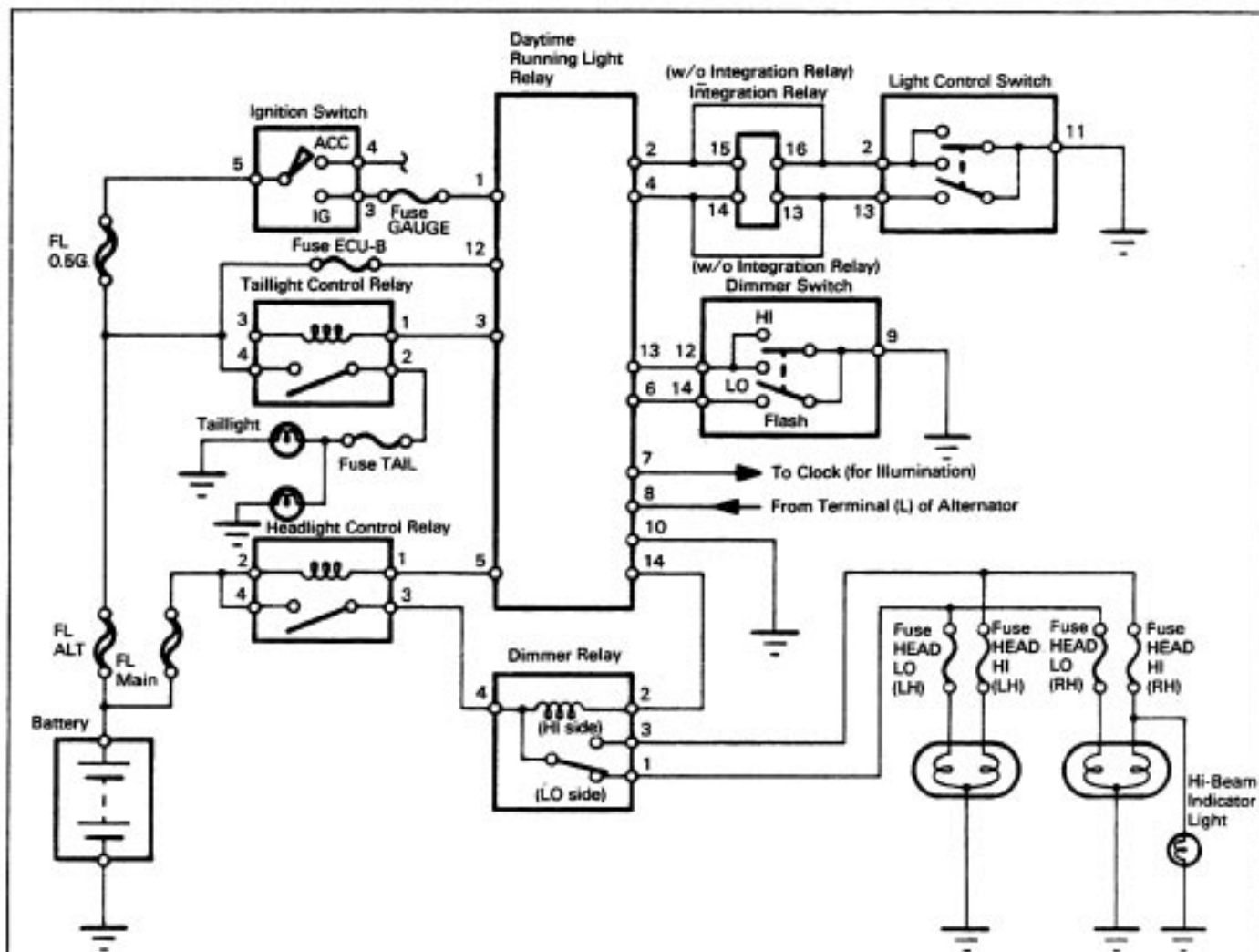
When the switch is set, continuity is made between terminal 6 and the body ground, and 13 and the body ground of the running light relay. Also, because the continuity is made between terminal 5 and the body ground, and 14 and the body ground of the running light relay, the headlights flash.

#### 4. ENGINE STOPS (IGNITION SWITCH "ON")

When the engine is stopped, because the continuity between terminal 5 and terminal 10 of the running light relay remains, so the running lights also remain.

HINT: If ignition switch is turned to "OFF", running lights will go off because the continuity between terminal 5 and terminal 10 of the running light relay is cut off.

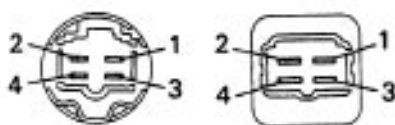
# WIRING AND CONNECTOR DIAGRAMS



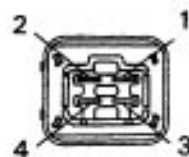
Ignition Switch



Taillight Control Relay



Dimmer Relay



Headlight Control Relay



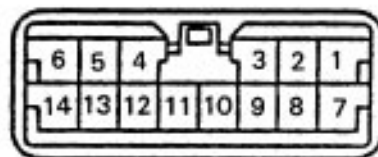
Integration Relay



- Dimmer Switch
- Light Control Switch
- Turn Signal Switch



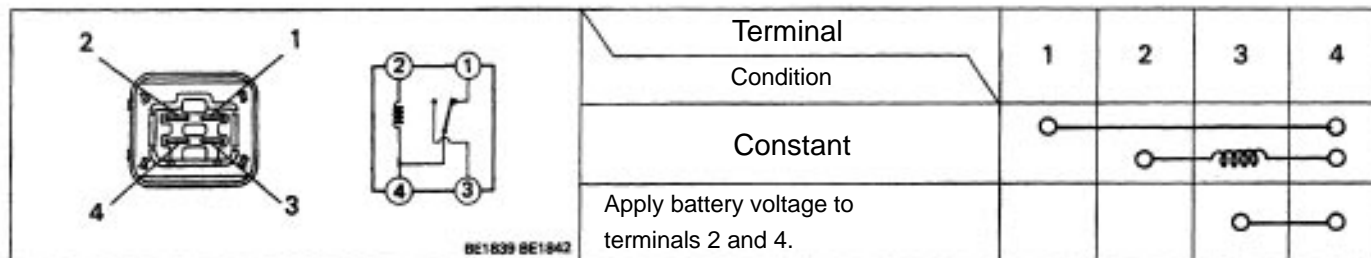
Daytime Running Light Relay





## INSPECTION OF RELAY

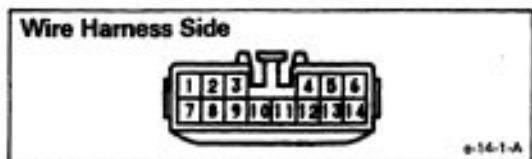
### 1. INSPECT DIMMER RELAY (Continuity)



If continuity is not as specified, replace the relay.

### 2. INSPECT DAYTIME RUNNING LIGHT RELAY (Relay Circuit)

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



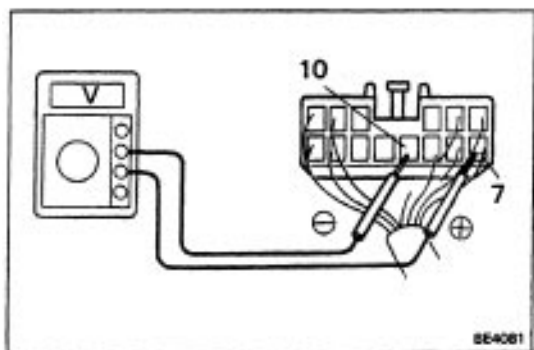
Check for	Tester connection		Condition	Specified value
Continuity	2 – Ground	Light control switch position	OFF	No continuity
			TAIL or HEAD	Continuity
	4 – Ground	Light control switch position	OFF or TAIL	No continuity
			HEAD	Continuity
	6 – Ground	Headlight dimmer switch position	Low beam or High beam	No continuity
			Flash	Continuity
	7 – Ground	Constant		Continuity
	10 – Ground			
Voltage	1 – Ground	Ignition switch position	LOCK or ACC	No voltage
			ON or START	Battery voltage
	3 – Ground	Constant		Battery voltage
	5 – Ground			
	8 – Ground	Engine	Stop	No voltage
			Running	Battery voltage
	12 – Ground	Constant		Battery voltage
	14 – Ground			
		Ground terminal 5		Battery voltage

If circuit is as specified, inspect relay operation.

### (Relay Operation)

- Connect the positive (+) lead from the voltmeter to terminal 7 and negative (–) lead to terminal 10.
- Check that there is battery voltage with light control switch is turned on.

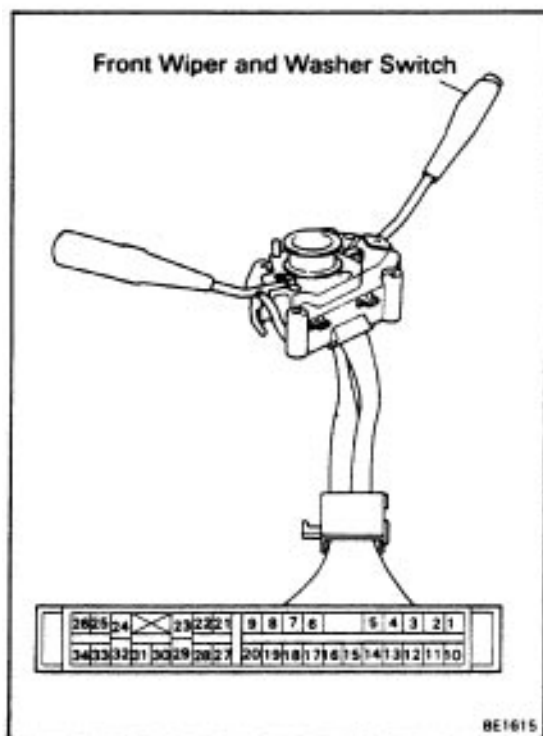
If operation is not as specified, replace the relay.



# WIPERS AND WASHERS

## Troubleshooting

Problem	Possible cause	Remedy	Page	
			Front	Rear
Wipers do not operate or return to off position	WIPER fuse blown Wiper motor faulty Wiper switch faulty Wiring or ground faulty	Replace fuse and check for short Check motor Check switch Repair as necessary	BE-3 BE-28 BE-26	BE-3 BE-29 BE-29
Wipers do not operate in INT position	Wiper relay faulty Wiper switch faulty Wiper motor faulty Wiring or ground faulty	Check relay Check switch Check motor Repair as necessary	BE-26 BE-28	BE-29 BE-29 BE-29
Washers do not operate	Washer hose or nozzle clogged Washer motor faulty Washer switch faulty Wiring faulty	Repair as necessary Replace motor Check switch Repair as necessary	BE-26	BE-29



## Front Wiper and Washer Switch

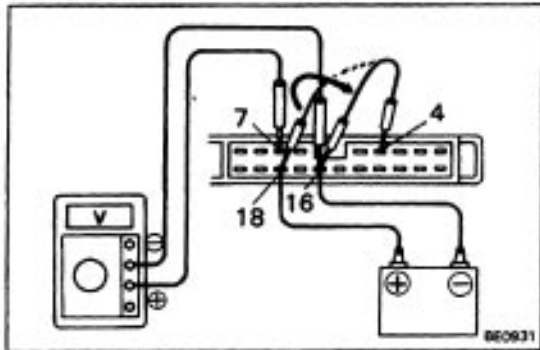
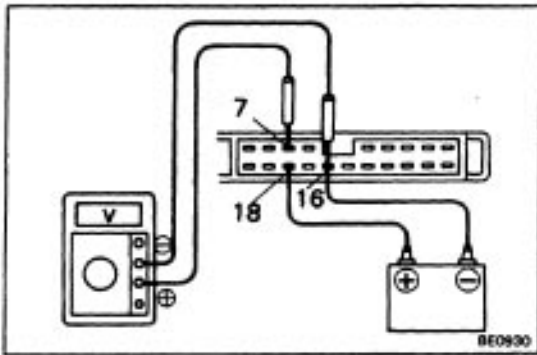
### INSPECTION OF SWITCH

#### 1. INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Switch	Terminal		18	7	13	4	8	16
	Switch position	MIST position						
Wiper	OFF	OFF		○	○			
		ON	○	○				
	INT	OFF		○	○			
		ON	○	○				
	LO	OFF	○	○				
		ON	○	○				
Washer		OFF	○	○	○			
		ON					○	○

If continuity is not as specified, replace the switch.



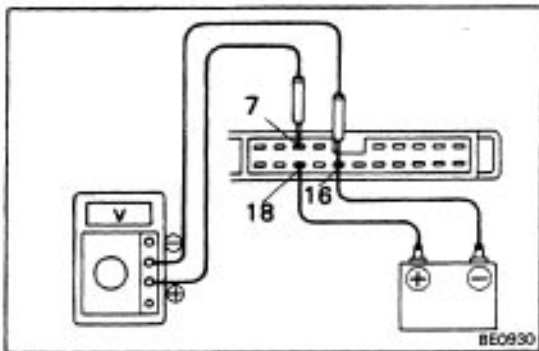
## 2. INSPECT INTERMITTENT OPERATION OF SWITCH

- Turn the wiper switch to INT position.
- Turn the INT switch to FAST position.(Variable type)
- Connect the positive (+) lead from the battery to terminal 18 and the negative (–) lead to terminal 16.
- Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 16, check that the meter needle indicates battery voltage.
- After connecting terminal 4 to terminal 18, connect it to terminal 16.

Then, check that the voltage rises from 0 volts to battery voltage with in the times as shown in the table.

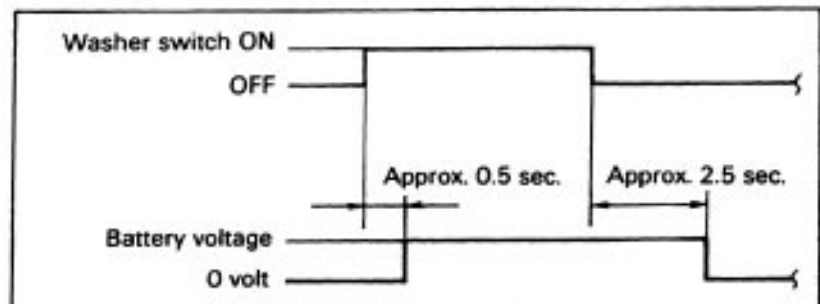
INT time control switch position	Voltage
FAST	Approx. 2 sec. Battery voltage 0 volt
SLOW	10.7 ± 5 sec. Battery voltage 0 volt
Non variable type	3.3 ± 1 sec. Battery voltage 0 volt

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

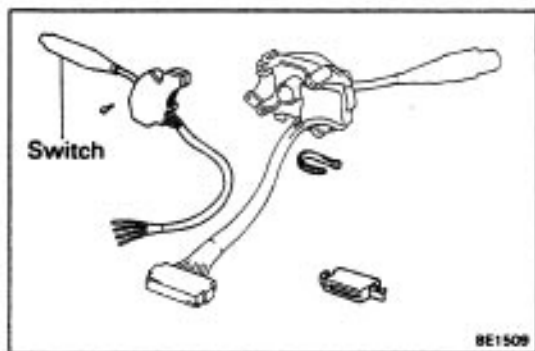


## 3. INSPECT WASHER SWITCH OPERATION (Washer linked type)

- Connect the positive (+) lead from the battery to terminal 18 and the negative (–) lead to terminal 16.
- Connect the positive (+) lead from the voltmeter to terminal 7 and the negative (–) lead to terminal 16.
- Push in the washer switch, check that the voltage changes as shown in the table.



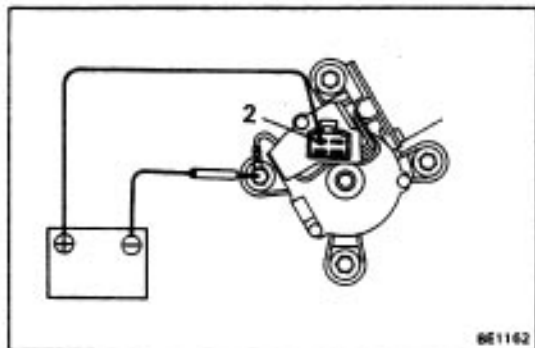
If operation is not as specified, replace the wiper and washer switch.



## REPLACEMENT OF SWITCH

### REPLACE SWITCH

- (a) Disconnect terminals from the connector.  
(See page BE- 16)
- (b) Remove the wiper and washer switch.
- (e) Install the wiper and washer switch.
- (d) Install terminals to the connector.  
(See page [BE-1 7](#))

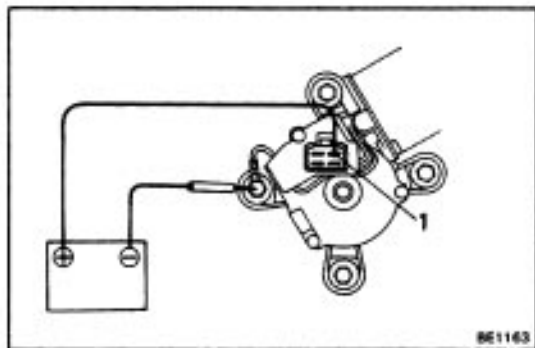


## Front Wiper Motor

### INSPECTION OF MOTOR

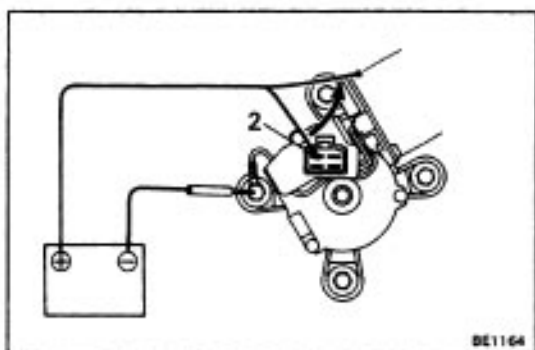
#### 1. INSPECT MOTOR OPERATES AT LOW SPEED

- (a) Disconnect the connector from the wiper motor.
- (b) Connect the positive (+) lead from the battery to terminal 2. and the negative (-) lead to the motor body.
- (e) Check that the motor operates at low speed.



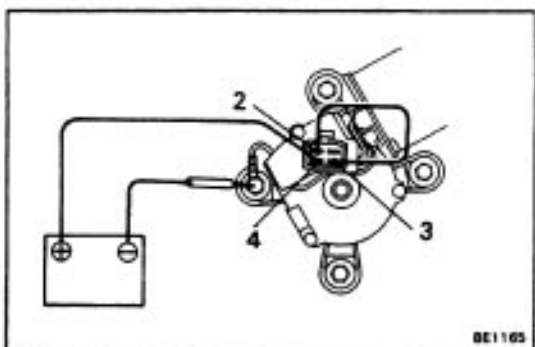
#### 2. INSPECT MOTOR OPERATES AT HIGH SPEED

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



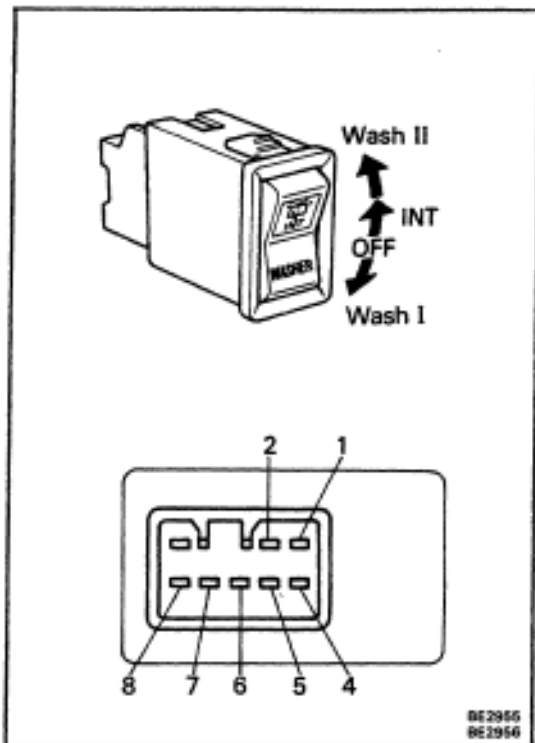
#### 3. INSPECT MOTOR OPERATES, STOPPING AT STOP POSITION

- (a) Operate the motor at low speed.
- (b) Stop motor operation anywhere except at the off position by disconnecting terminal 2.



- (c) Connect terminals 2 and 3.
- (d) Connect the positive (+) lead from the battery to terminal 4.
- (e) Check that the motor stops running at the off position after the motor operates again.

If operation is not as specified, replace the motor.



## Rear Wiper and Washer Switch

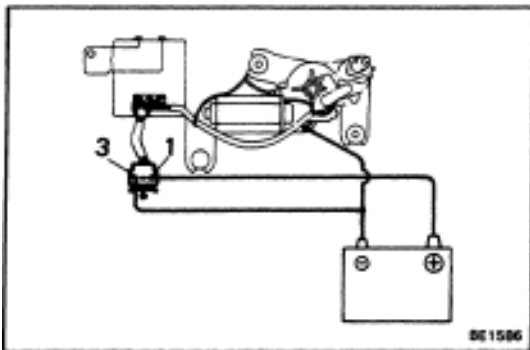
### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal	2	7	8	5	6	1	4
Switch position							
Wash II		○	○	○	○	○	○
INT		○	○			○	○
OFF						○	○
Wash I	○		○	○	○	○	○

If continuity is not as specified, replace the switch.

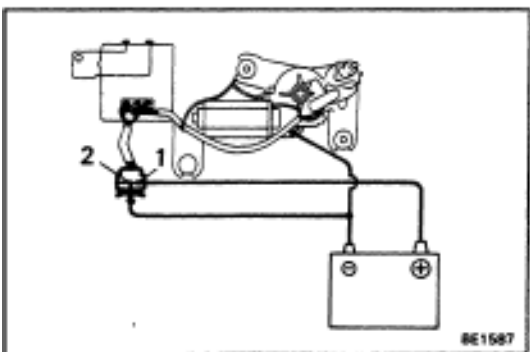


## Rear Wiper Motor and Relay

### INSPECTION OF MOTOR AND RELAY

#### 1. INSPECT RELAY AND MOTOR OPERATES

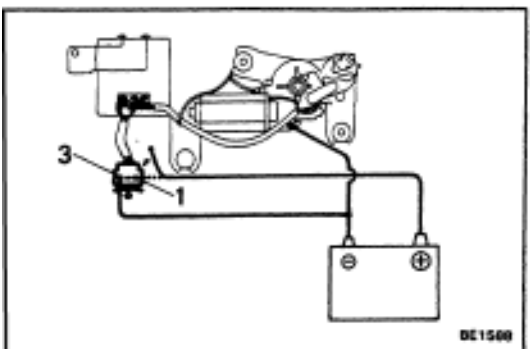
- Connect the positive (+) lead from the battery to terminal 1 and negative (-) leads to both terminal 3 and motor body.
- Check that the motor operates.



#### 2. INSPECT INTERMITTENT OPERATION OF RELAY

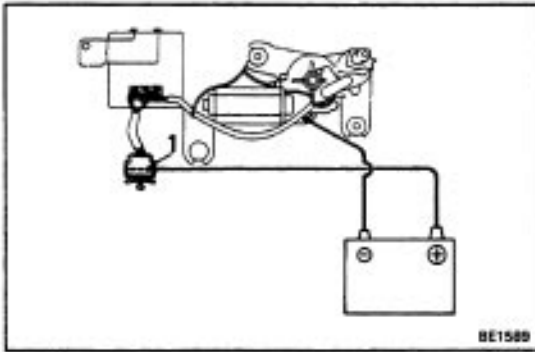
- Connect the positive (+) lead from the battery to terminal 1 and negative (-) leads to both terminal 2 and motor body.
- Check that the motor operates intermittently for 9 to 15 seconds.

If operation is not as specified, replace the relay.



#### 3. INSPECT MOTOR OPERATES, STOPPING AT STOP POSITION

- Start motor operation by connecting the positive (+) lead from the battery to terminal 1 and the negative (-) lead to both terminal 3 and motor body.



- (e) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to the motor body.
- (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.

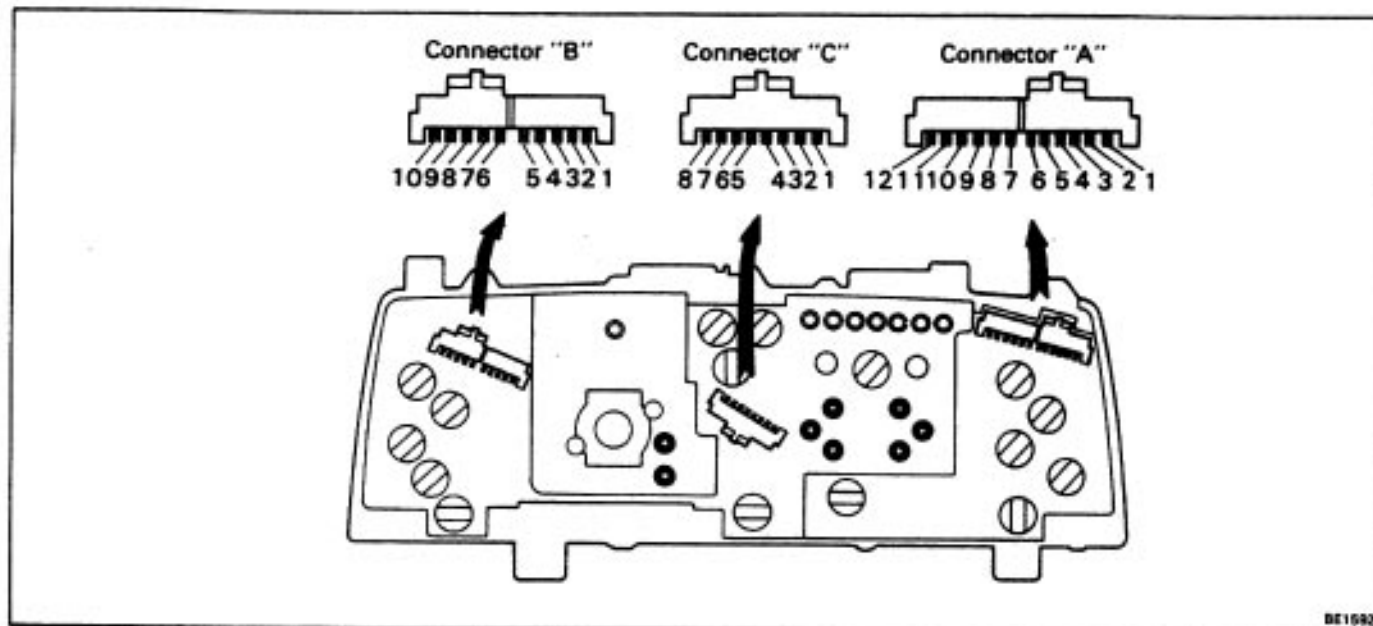
# COMBINATION METER

## Troubleshooting

Problem	Possible cause	Remedy	Page
Tachometer does not operate	"GAUGE" fuse blown Tachometer faulty Wiring faulty	Replace fuse and check for short Check tachometer Repair as necessary	BE-3 BE-36
Fuel gauge does not operate	"GAUGE" fuse blown Fuel gauge faulty Sender gauge faulty Wiring or ground faulty	Replace fuse and check for short Check gauge Check sender gauge Repair as necessary	BE-3 BE-36 BE-37
Fuel level warning light does not light	"GAUGE" fuse blown Bulb burned out Fuel level warning switch faulty Wiring or ground faulty	Replace fuse and check for short Replace bulb Check switch Repair as necessary	BE-3 BE-37
Water temperature gauge does not operate	"GAUGE" fuse blown Water temperature gauge faulty Water temperature sender gauge faulty Wiring or ground faulty	Replace fuse and check for short Check gauge Check sender gauge Repair as necessary	BE-3 BE-38 BE-39
Low oil pressure warning light does not light	"GAUGE" fuse blown Bulb burned out oil pressure warning switch faulty Wiring or ground faulty	Replace fuse and check for short Replace bulb Check switch Repair as necessary	BE-3 BE-39
Brake warning light does not light	"GAUGE" fuse blown Bulb burned out Brake fluid level warning switch faulty Parking brake switch faulty Wiring or ground faulty	Replace fuse and check for short Replace bulb Check switch Check switch Repair as necessary	BE-3 BE-40 BE-40
Open door warning light does not light	"GAUGE" fuse blown Bulb burned out Door courtesy switch faulty Wiring or ground faulty	Replace fuse and check for short Replace bulb Check switch Repair as necessary	BE-3 BE-40
Seat belt warning does not operate (Canada)	"DOME" fuse blown Bulb burned out Door courtesy switch faulty Unlock warning switch faulty Buckle switch faulty Seat belt warning relay faulty Wiring or ground faulty	Replace fuse and check for short Replace bulb Check switch Check switch Check switch Check relay Repair as necessary	BE-3 BE-40 BE-13 BE-41 BE-41

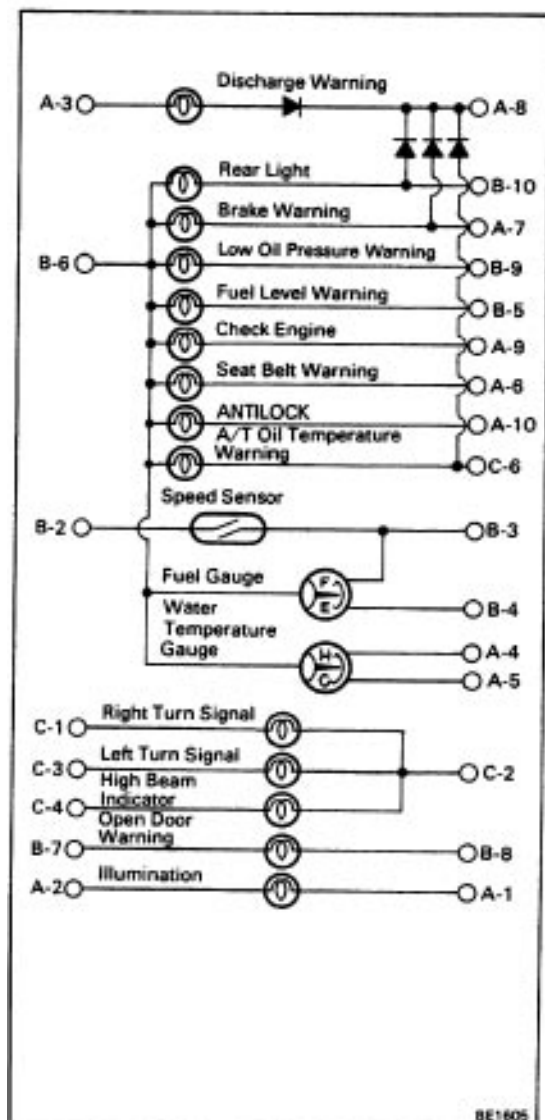


## Combination Meter and Gauges (w/o Tachometer)



BE1692

## COMBINATION METER CIRCUIT

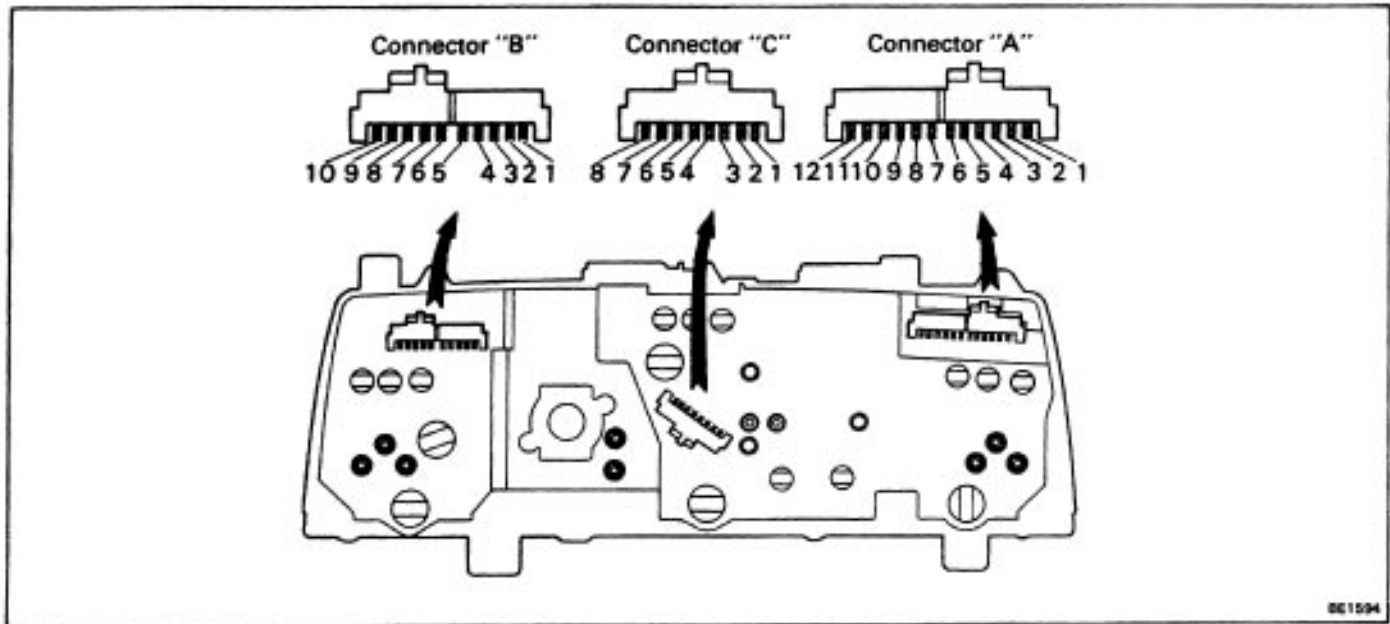


BE1605

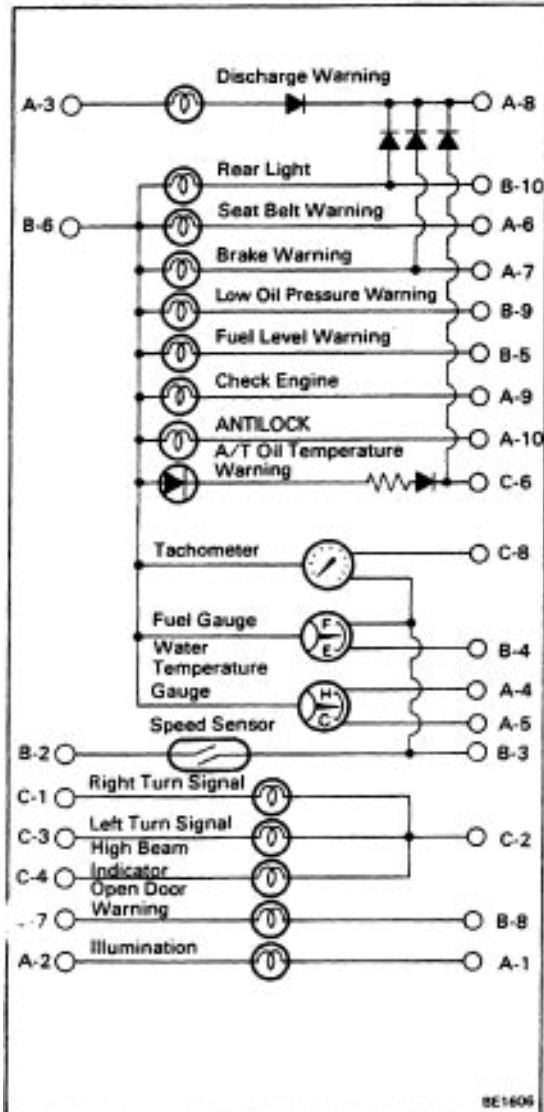
No.		Wiring Connector Side
A	1	Light Control Rheostat
	2	TAIL Fuse
	3	IGN Fuse
	4	Water Temperature Sender Gauge
	5	Ground
	6	Seat Belt Warning Relay
	7	Brake Fluid Level Warning Switch and Parking Brake Switch
	8	CHARGE Fuse
	9	TCCS ECU
	10	A.B.S. ECU
B	2	Cruise Control ECU and ECT ECU
	3	Ground
	4	Fuel Sender Gauge Terminal 3
	5	Fuel Sender Gauge Terminal 2
	6	GAUGE Fuse
	7	DOME Fuse
	8	Door Courtesy Switch
	9	Low Oil Pressure Switch
	10	Light Failure Sensor
C	1	Turn Signal Switch Terminal 28
	2	Ground
	3	Turn Signal Switch Terminal 25
	4	Turn Signal Switch Terminal 23 (USA)
		HEAD-HI (RH) Fuse (CANADA)
	6	A/T Oil Temperature Switch



## Combination Meter and Gauges (w/ Tachometer)

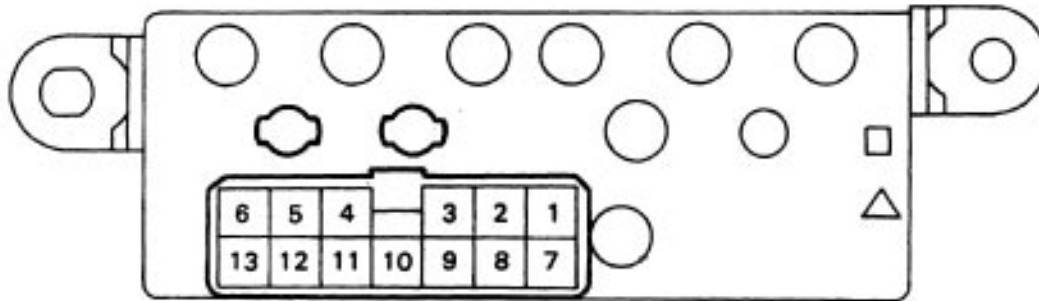


### COMBINATION METER CIRCUIT



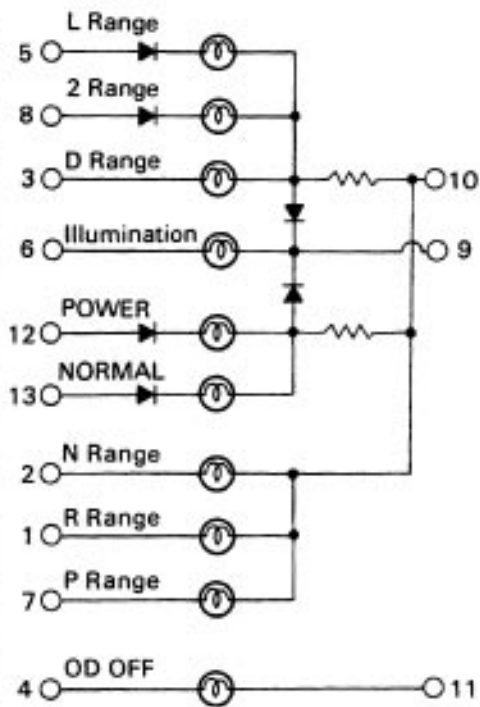
No.		Wiring Connector Side
A	1	Light Control Rheostat
	2	TAIL Fuse
	3	IGN Fuse
	4	Water Temperature Sender Gauge
	5	Ground
	6	Seat Belt Warning Relay
	7	Brake Fluid Level Warning Switch and Parking Brake Switch
	8	CHARGE Fuse
	9	TCCS ECU ,
	10	A. B. S. ECU
B	2	Cruise Control ECU and ECT ECU
	3	Ground
	4	Fuel Sender Gauge Terminal 3
	5	Fuel Sender Gauge Terminal 2
	6	. GAUGE Fuse
	7	DOME Fuse
	8	Door Courtesy Switch
	9	Low Oil Pressure Switch
	10	Light Failure Sensor
C	1	Turn Signal Switch Terminal 28
	2	Ground
	3	Turn Signal Switch Terminal 25
	4	Turn Signal Switch Terminal 23 (USA)
		HEAD-HI (RH) Fuse (CANADA)
	6	A/T Oil Temperature Switch
	8	Igniter

## Shift Position Indicator (A/T)



BE1607

### SHIFT POSITION INDICATOR CIRCUIT



BE2136

No.	Wiring Connector Side
1	Neutral Start Switch
2	Neutral Start Switch
3	Neutral Start Switch
4	GAUGE Fuse
5	Neutral Start Switch
6	TAIL Fuse
7	Neutral Start Switch
8	Neutral Start Switch
9	Light Control Rheostat
10	Ground
11	OD Main Switch
12	Pattern Select Switch
13	Pattern Select Switch

## Speedometer

### INSPECTION OF SPEEDOMETER

#### INSPECT SPEEDOMETER OPERATION (ON-VEHICLE)

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

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

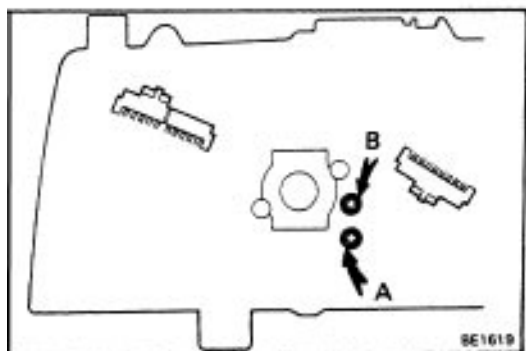
Standard indication (mph)	Allowable range (mph)
20	17 — 20
40	37 — 40.5
60	57 — 61
80	77 — 81.5
100	97 — 102
120	117 — 122.5

Standard indication (km/h)	Allowable range (km/h)
20	14 — 19
40	36 — 40
60	56 — 60.5
80	76 — 81
100	96 — 101
120	116 — 121.5
140	136 — 142
160	156 — 163

If error is excessive, replace the speedometer.

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

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



## Speed Sensor

### INSPECTION OF SPEED SENSOR

#### INSPECT SPEED SENSOR

Check that there is continuity between terminals A and B four times per each revolution of the shaft.

If operation is not as specified, replace the speedometer.

## Tachometer

### INSPECTION OF TACHOMETER

#### INSPECT TACHOMETER OPERATION (ON-VEHICLE)

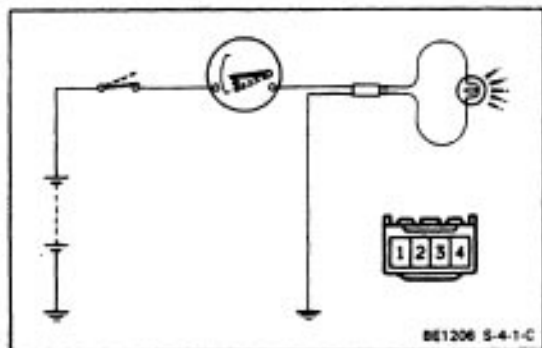
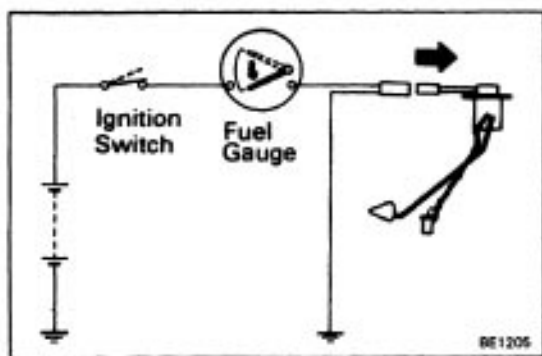
- (a) Connect a tune-up test tachometer, and start the engine.

#### NOTICE:

- Removing the connection of the tachometer will damage the transistors and diodes inside.
  - When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.
- (b) Compare the tester and tachometer indications.

DC 13.5 V 25°C (77°F)	
Standard indication (rpm)	Allowable range (rpm)
700	580 — 720
3,000	2,800 — 3,200
5,000	4,800 — 5,200
6,000	5,750 — 6,250
7,000	6,700 — 7,300

If error is excessive, replace the tachometer.



## Fuel Gauge

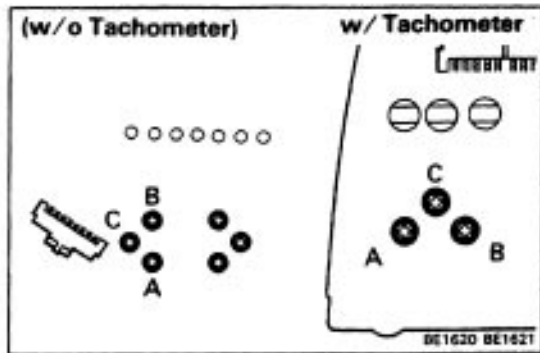
### INSPECTION OF GAUGE

#### 1. INSPECT RECEIVER GAUGE OPERATION

- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch ON, check that the receiver gauge needle moves to EMPTY.
- (e) Connect the terminals 3 and 4 on the wire harness side connector through a 3.4W test bulb, check that the bulb lights and receiver gauge needle moves towards the full side.

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

If operation is not as specified, test the receiver gauge.



## 2. MEASURE RECEIVER GAUGE RESISTANCE

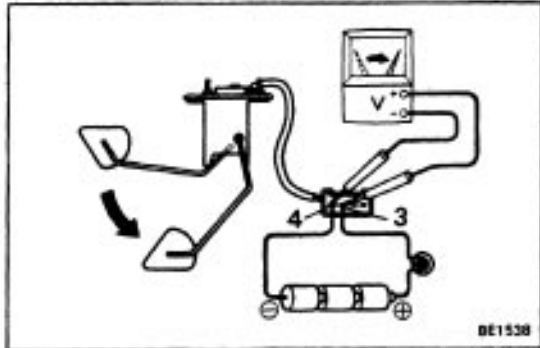
Measure the resistance between terminals.

Between terminals	Resistance ( $\Omega$ )
A – B	Approx. 64.3
A – C	Approx. 233.3
B – C	Approx. 169

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

## 3. INSPECT SENDER GAUGE OPERATION

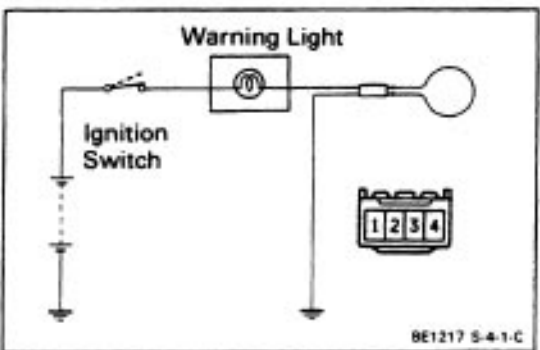
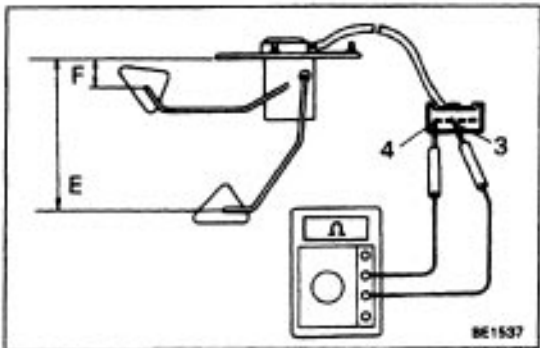
- Connect a series of three 1.5V dry cell batteries.
- Connect the positive (+) lead from the dry cell batteries to terminal 3 through a 3.4W test bulb and the negative (–) lead to terminal 4.
- Check that the voltage rises between terminals 3 and 4 as the float is moved from the top to bottom position.



- Measure the resistance between terminals 3 and 4 for each float position.

	Float position mm (in.)		Resistance ( $\Omega$ )
	FWD	All-Trac/4WD	
F	Approx. 35 (1.38)	Approx. 97 (3.82)	Approx. 3
E	Approx. 141 (5.55)	Approx. 234 (9.21)	Approx. 110

If operation is not as specified, replace the sender gauge.



## Fuel Level Warning

### INSPECTION OF LEVEL WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

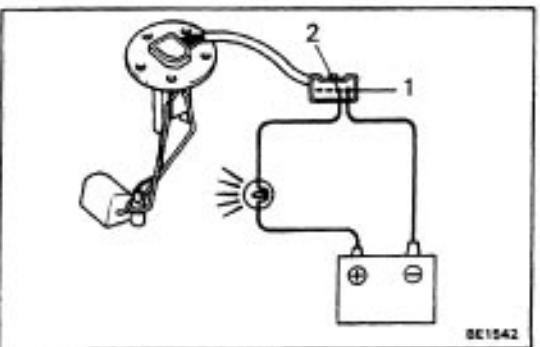
- Disconnect the connector from the sender gauge.
- Connect terminals 1 and 2 on the wire harness side-connector.
- Turn the ignition switch ON, check that the warning light lights.

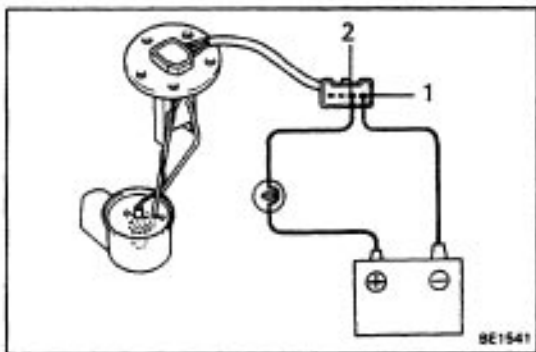
If the warning light does not light, test the bulb.

#### 2. INSPECT WARNING SWITCH OPERATION

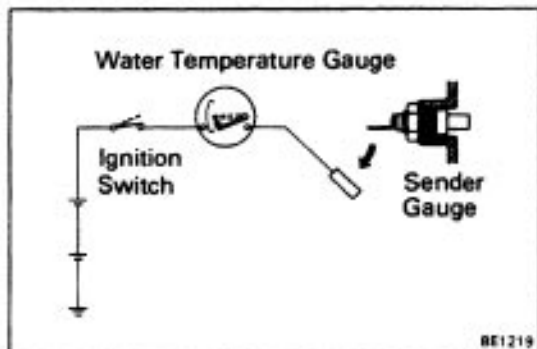
- Apply battery voltage to terminals 1 and 2 through a 3.4W test bulb, check that the bulb lights.

HINT: It will take a short time for the bulb to light.





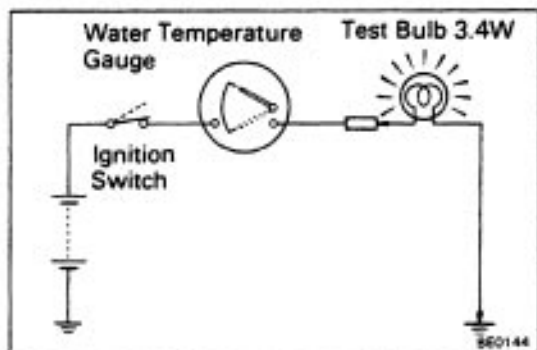
- (b) Submerge the switch in fuel, check that the bulb goes out.  
If operation is not as specified, replace the sender gauge.



## Water Temperature Gauge INSPECTION OF GAUGE

### 1. INSPECT RECEIVER GAUGE OPERATION

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

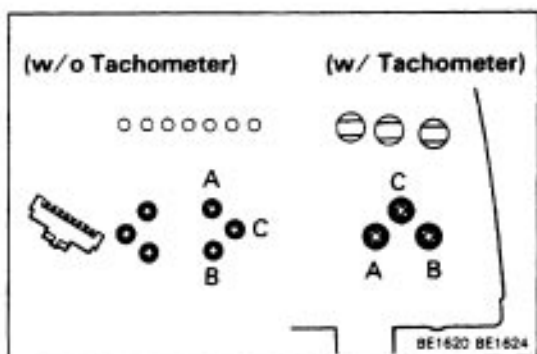


- (c) Ground the terminal on the wire harness side connector through a 3.4W test bulb.  
(d) Turn the ignition switch ON, check that the bulb lights and the receiver gauge needle moves to the hot side.

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

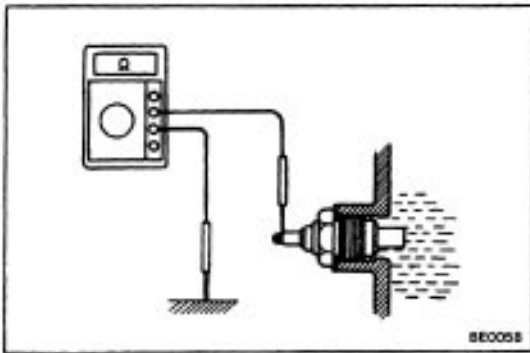
### 2. MEASURE RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals.



Between terminals		Resistance ( $\Omega$ )
Negative (-) lead from ohmmeter	Positive (+) lead from ohmmeter	
A	B	Approx. 54
A	C	Approx. 117.1
B	C	Approx. 201.1

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

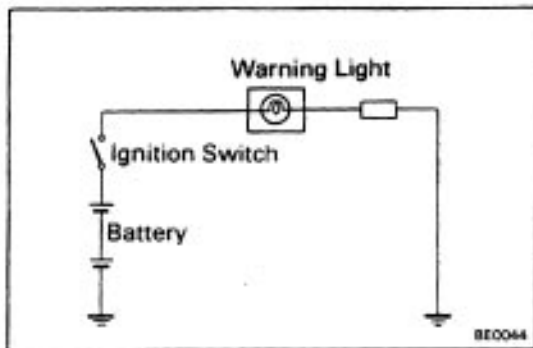


### 3. MEASURE SENDER GAUGE RESISTANCE

Measure the resistance between terminal and ground.

Water temperature °C (°F)	Resistance (Ω)	
	Yazaki	N i p p o n d e n s o
50 (122)	—	226 <sup>+33.6</sup> <sub>-38.6</sub>
60 (140)	152.7	—
115 (239)	26.4 <sup>+2.2</sup> <sub>-2.6</sub>	26.4 <sup>+1.71</sup> <sub>-2.21</sub>

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



## Low Oil Pressure Warning INSPECTION OF PRESSURE WARNING

### 1. INSPECT WARNING LIGHT OPERATION

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

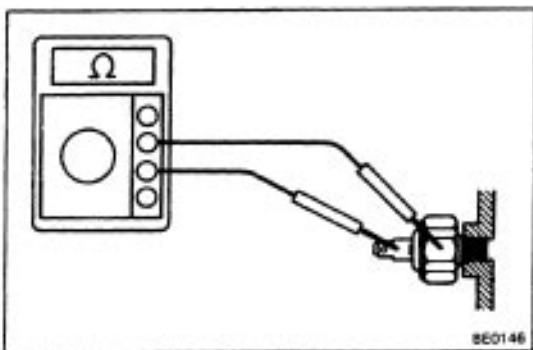
If the warning light does not light, test the bulb.

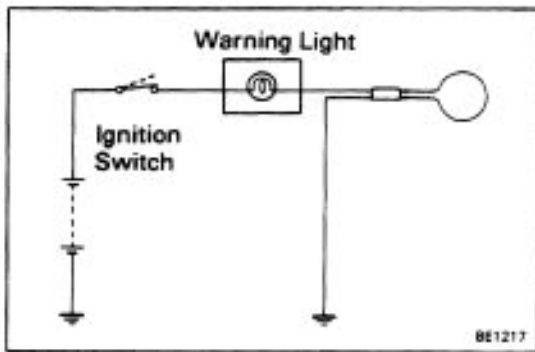
### 2. INSPECT PRESSURE SWITCH OPERATION

- Disconnect the connector from the switch.
- Check that there is continuity between terminal and ground with the engine stopped.
- Check that there is no continuity between terminal and ground with the engine running.

HINT: Oil pressure should be over 0.3 kg/cm<sup>2</sup> (4.3 psi, 29 kPa).

If operation is not as specified, replace the switch.





## Brake Warning

### INSPECTION OF BRAKE WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

- Disconnect the connectors from the level warning switch and parking brake switch.
- Connect terminals on the wire harness side of the level warning switch connector.
- Remove the CHARGE fuse and turn the ignition switch

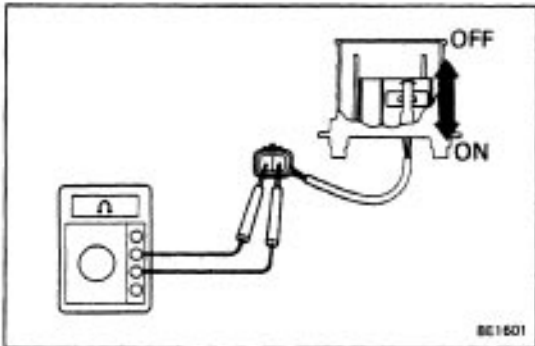
ON, check that the warning light lights.

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

#### 2. INSPECT LEVEL WARNING SWITCH OPERATION

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

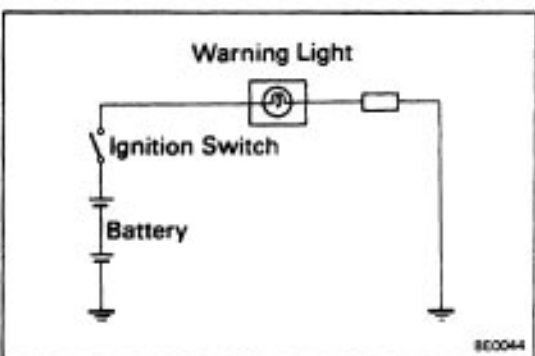
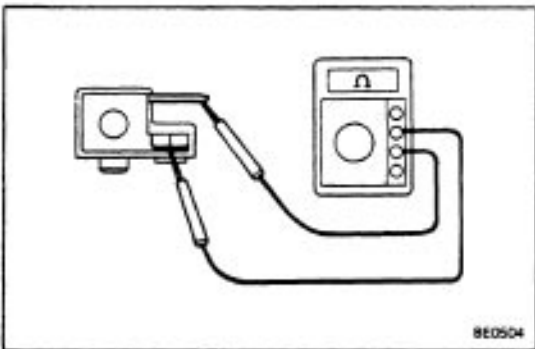
If operation is not as specified, replace the switch.



#### 3. INSPECT PARKING BRAKE SWITCH OPERATION

- Check that there is continuity between terminal and switch set nut with the switch pin released. (Parking brake lever pulled up)
- Check that there is no continuity between terminal and switch set nut with the switch pin pushed in. (Parking brake lever released)

If operation is not as specified, replace the switch.



## Open Door Warning

### INSPECTION OF OPEN DOOR WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

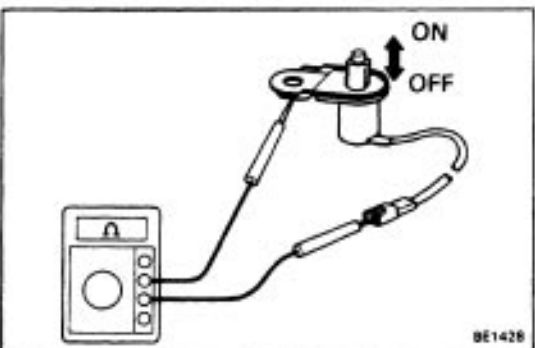
- Disconnect the connector from the door courtesy switch and ground it.
- Turn the ignition switch ON, check that the warning light lights.

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

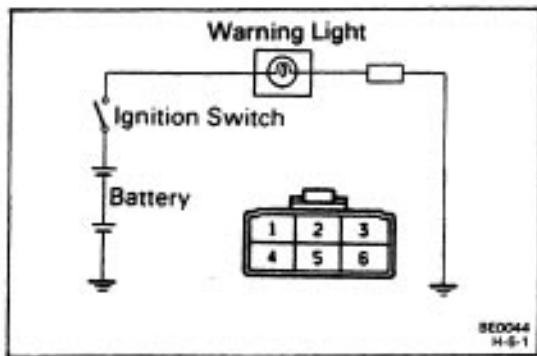
#### 2. INSPECT COURTESY SWITCH OPERATION

- Check that there is continuity between terminal and switch body with the switch pin released.
- Check that there is no continuity between terminal and switch body when the switch pin is pushed in.

If operation is not as specified, replace the switch.







## Seat Belt Warning

### INSPECTION OF SEAT BELT WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

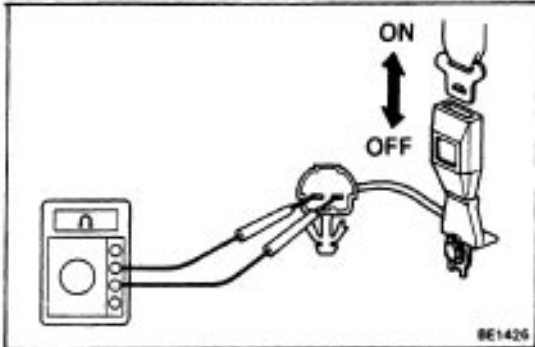
- Disconnect the connector from the seat belt warning relay and ground the terminal 5 on the wire harness side.
- Turn the ignition switch ON, check that the warning light lights.

If warning light does not light, test the bulb.

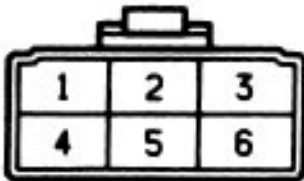
#### 2. INSPECT BUCKLE SWITCH OPERATION

- Disconnect the connector from the switch.
- Check that there is no continuity between terminals on the switch side connector with the belt fastened.
- Check that there is continuity between terminals on the switch side connector with the belt unfastened.

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



Wire Harness Side



#### 3. INSPECT UNLOCK WARNING SWITCH OPERATION (See page BE-1 3)

If operation is not as specified, replace the switch.

#### 4. INSPECT SEAT BELT WARNING RELAY CIRCUIT

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

Check for	Tester connection	Condition	Specified value
Voltage	1 – Ground	Courtesy switch OFF (Door closed)	Battery voltage
		Courtesy switch ON (Door opened)	No voltage
	2 – Ground	Turn ignition switch to OFF or ACC	No voltage
		Turn ignition switch ON	Battery voltage
	3 – Ground	Unlock warning switch OFF (Ignition key removed)	No voltage
		Unlock warning switch ON (Ignition key set)	Battery voltage
Continuity	4 – Ground	Always	Continuity
Voltage	5 – Ground	Turn ignition switch to OFF or ACC	No voltage
		Turn ignition switch ON	Battery voltage
Continuity	6 – Ground	Buckle switch OFF (Seat belt fastened)	No continuity
		Buckle switch ON (Seat belt unfastened)	Continuity

If circuit is as specified, replace the relay.

# REAR WINDOW DEFOGGER

## Troubleshooting

Problem	Possible cause	Remedy	Page
Rear window defogger does not work.	Circuit breaker OFF	Reset breaker and check for short	<a href="#">BE-3</a>
	GAUGE fuse blown	Replace fuse and check for short	<a href="#">BE-3</a>
	Defogger switch faulty	Check switch	<a href="#">BE-42</a>
	Defogger relay faulty	Check relay	<a href="#">BE-42</a>
	Defogger wire broken	Check wires	<a href="#">BE-43</a>
	Wiring and ground faulty	Repair as necessary	

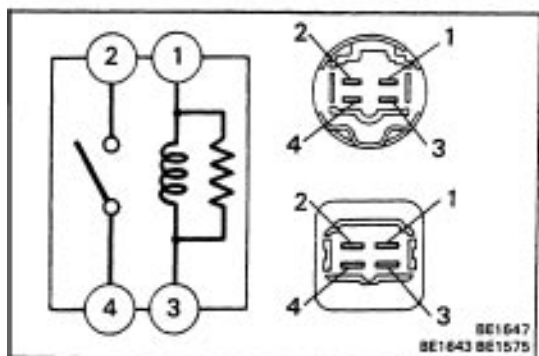
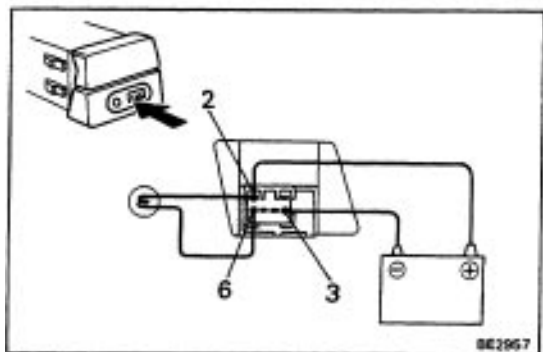
## Rear Window Defogger Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH OPERATION

- Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3.
- Connect terminals 2 and 6 through a 3.4 W test bulb.
- Push the defogger switch. Check that the test bulb lights for 12 to 18 minutes, then the test bulb goes out.

If operation is not as specified, replace the switch.



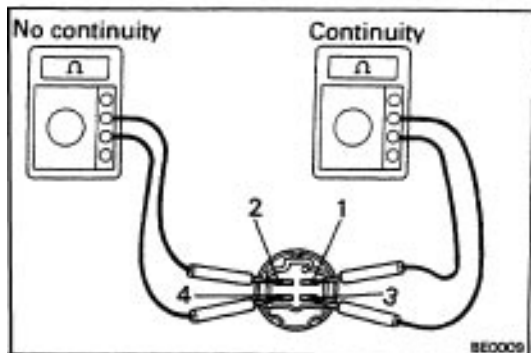
## Rear Window Defogger Relay

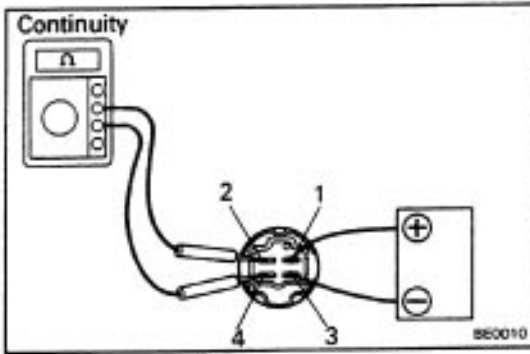
### INSPECTION OF RELAY

#### 1. INSPECT RELAY CONTINUITY

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

If continuity is not as specified, replace the relay.





## 2. INSPECT RELAY OPERATION

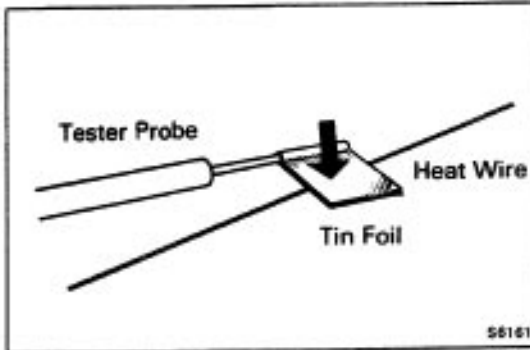
- Apply battery voltage to terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminals 3 and 4.

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 top of the negative probe and press the foil against the wire with your finger as shown.

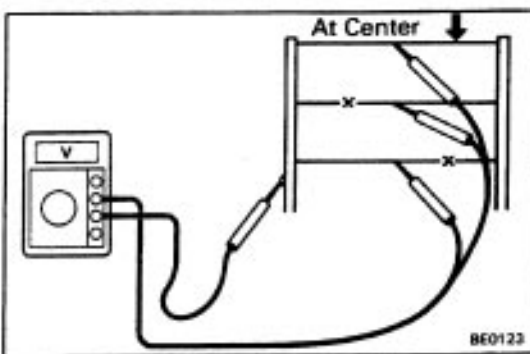


## INSPECTION OF DEFOGGER WIRES

### 1. INSPECT FOR WIRE BREAKAGE

- Turn the ignition switch to ON.
- Turn the defogger switch to ON.

- Inspect the voltage at the center of each heat wire as shown.



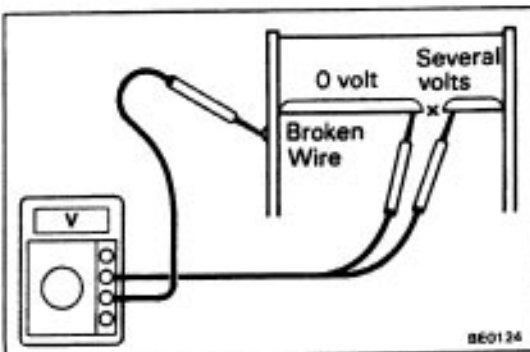
Voltage	Criteria
Approx. 5V	Okay (No break in wire)
Approx. 1 OV or OV	Broken wire

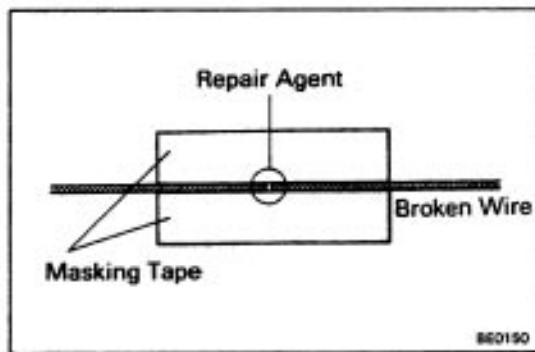
HINT: If there are 10V, the wire is broken between the center of the wire and positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.

### 2. INSPECT FOR WIRE BREAKAGE POINT

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

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





## REPAIR OF DEFOGGER WIRES

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

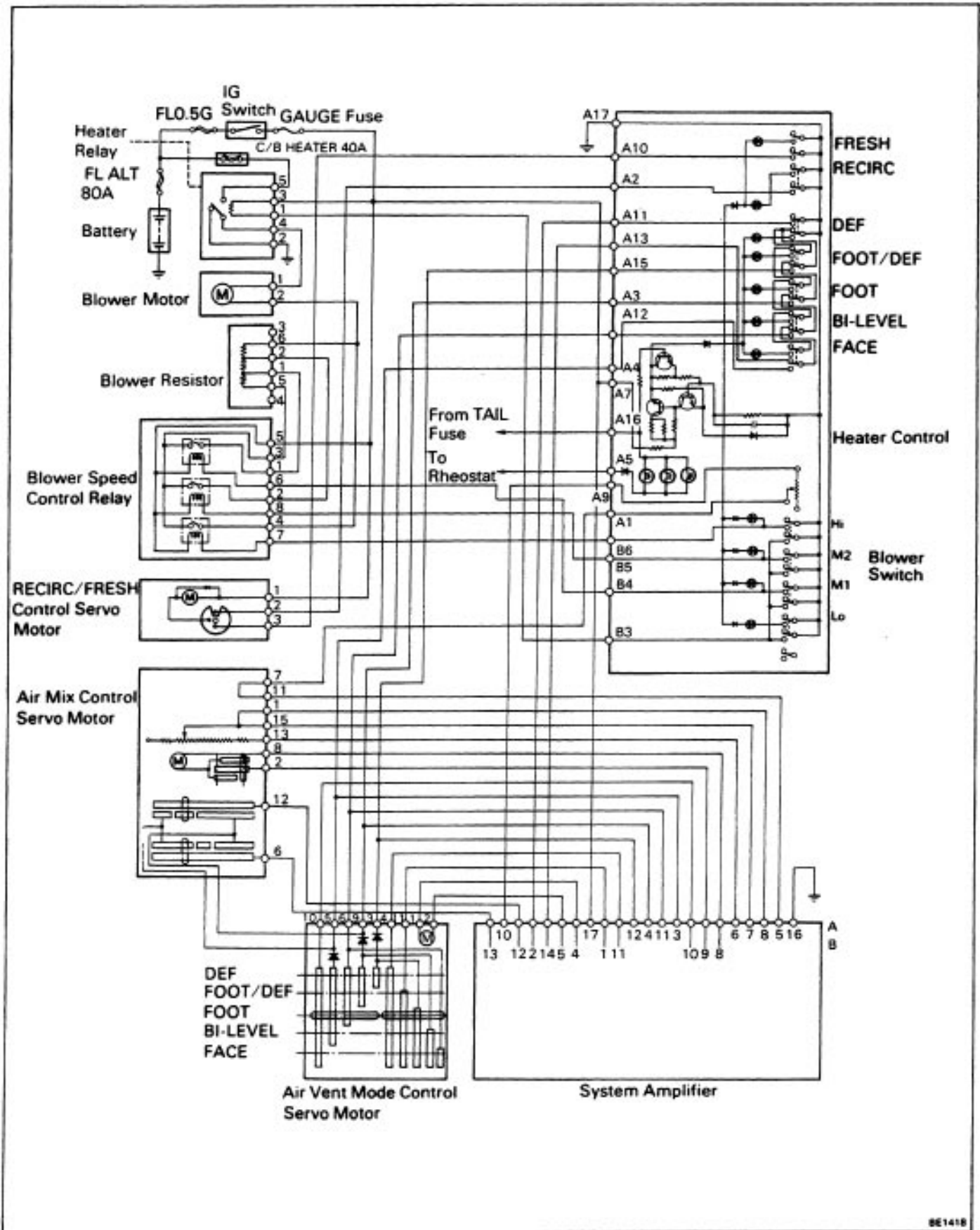


### 3. REPAIR DEFOGGER WIRES

- (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 few minutes, remove the masking tape.
- (d) Allow the repair to stand at least 24 hours.

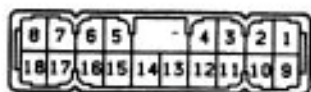
# HEATER

## Wiring Diagram (Push Type)

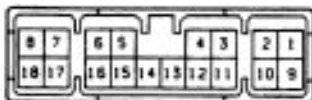


## Connectors

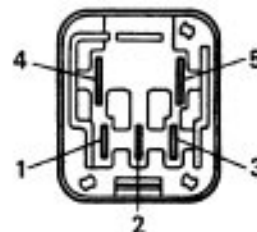
Heater Control Assembly  
Connector "A"



Amplifier  
Connector "A"



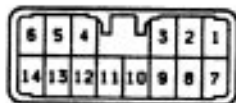
Heater Relay



Connector "6"



Connector "6"



Blower Motor



RECIRC/FRESH  
Control Servo Motor



Air Mix Control Servo Motor



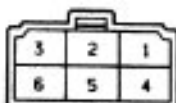
Air Vent Mode Control  
Servo Motor



Blower Speed  
Control Relay

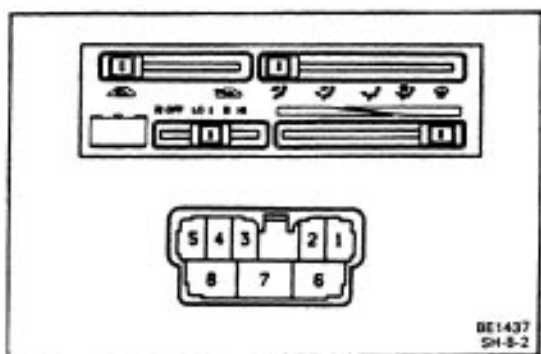


Blower Resistor



## Troubleshooting

Problem	Possible cause	Remedy	Page	
			Push	Lever
Blower does not work when fan switch is on	Heater circuit breaker OFF	Reset breaker and check for short	BE-3	BE-3
	GAUGE fuse blown	Replace fuse and check for short	BE-3	BE-3
	Heater relay faulty	Check relay	BE-48	BE-48
	Blower speed control relay faulty	Check control relay	BE-50	
	Heater blower switch faulty	Check switch	BE-49	
	Heater blower resistor faulty	Check resistor	BE-48	BE-47
	Heater blower motor faulty wiring or ground faulty	Check motor Repair as necessary		BE-48
Incorrect temperature output	Control cables broken or binding	Check cables	BE-52	BE-54
	Servo motor faulty	Check servo motor		
	Heater hoses leaking or clogged	Replace hoses		
	Water valve faulty	Replace water valve		
	Air dampers broken	Repair air dampers		
	Air ducts clogged	Repair air ducts		
	Heater radiator leaking or clogged	Repair heater radiator		
	Heater control unit faulty	Repair control unit		



### Heater Blower Switch (Lever Type) INSPECTION OF SWITCH INSPECT SWITCH CONTINUITY

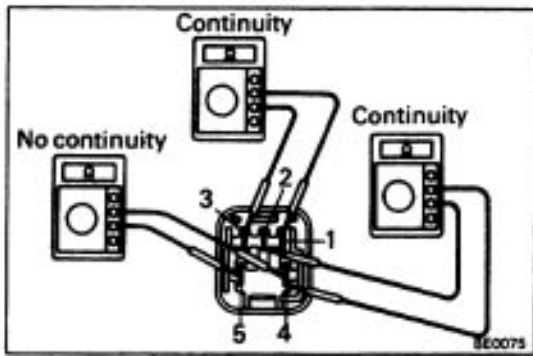
Inspect the heater blower switch continuity.

Terminal Switch position	8	5	2	1	6	*3	*4
OFF						○—○	○—○
LO	○—○					○—○	○—○
I	○—○	○—○	○—○			○—○	○—○
II	○—○	○—○	○—○	○—○		○—○	○—○
HI	○—○	○—○	○—○	○—○	○—○	○—○	○—○

\*For illumination light

If continuity is not as specified, replace the switch.





## Heater Relay

### INSPECTION OF RELAY

#### 1. INSPECT RELAY CONTINUITY

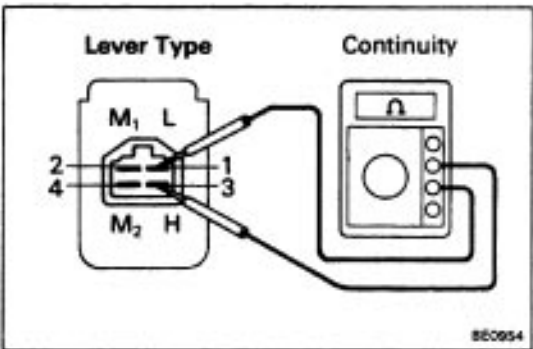
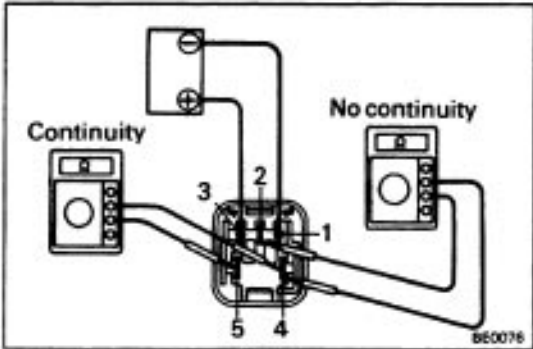
- Check that there is continuity between terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminals 4 and 5.

If continuity is not as specified, replace the relay.

#### 2. INSPECT RELAY OPERATION

- Apply battery voltage to 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.



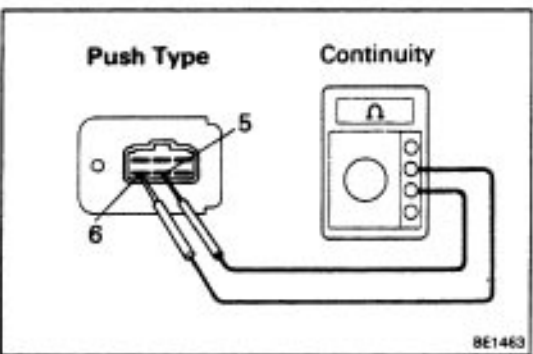
## Heater Blower Resistor

### INSPECTION OF RESISTOR

#### INSPECT RESISTOR CONTINUITY

##### (Levertype)

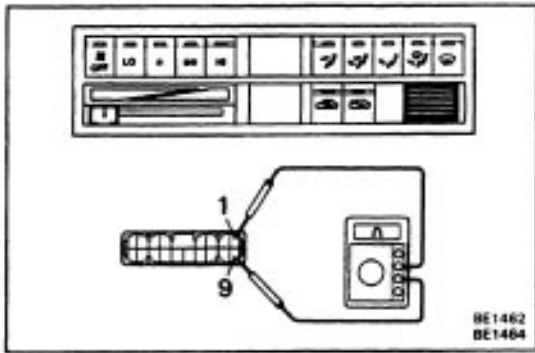
Check that there is continuity between terminals 1 and 3.  
If there is no continuity, replace the resistor.



##### (Push type)

Check that there is continuity between terminals 5 and 6.  
If there is no continuity, replace the resistor.





## Heater Control Assembly (Push Type)

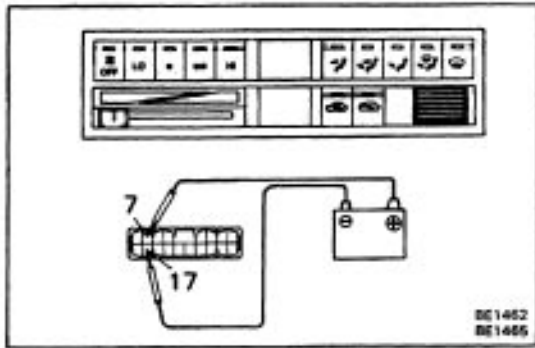
### INSPECTION OF HEATER CONTROL ASSEMBLY

#### 1. MEASURE TEMPERATURE CONTROL LEVER RESISTANCE

Measure the resistance between terminals A1 and A9 for each lever position.

Lever position	Resistance (kΩ)
Max Cool	∞
Middle	1.5 ± 0.2
Max. Warm	0

If each resistance value is not as shown in the table above, replace the heater control assembly.



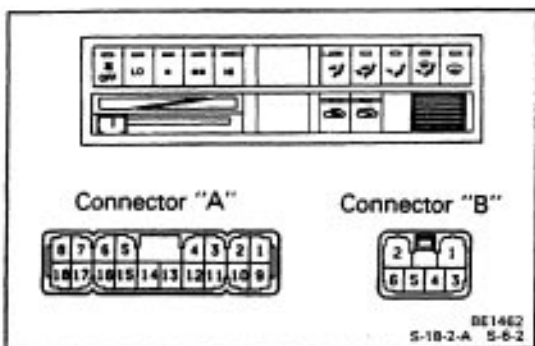
#### 2. INSPECT INDICATOR LIGHT OPERATION

- Connect the positive (+) lead from the battery to terminal A7 and negative (–) lead to terminal A17.
- With the blower button pushed in, check that the indicator light is lit. (The indicator light will not go on when the blower button is in the OFF position.)
- With the RECIRC button pushed in, check that the indicator light is lit.
- Next, push the FRESH button in, check that the indicator light is lit and the RECIRC indicator light goes off.
- Press each of the mode buttons in and check that their indicator lights go on.

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

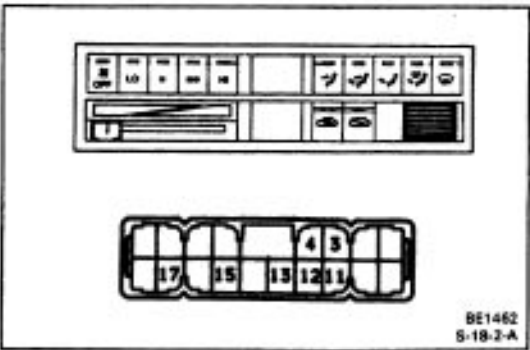
#### 3. INSPECT BLOWER SWITCH CONTINUITY

Inspect the blower switch continuity between terminals.



Terminal Switch position	A17	B3	B4	B5	B6
OFF					
LO	○	○			
I	○	○	○		
II	○	○		○	
HI	○	○			○

If continuity is not as specified, replace the heater control.

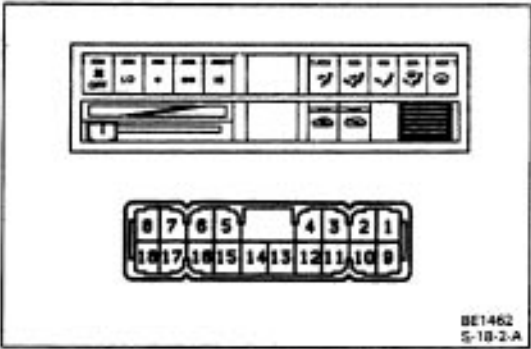


4. INSPECT AIR VENT MODE SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	At 7	A4	A12	A3	A15	A11
FACE	○	○				
BI-LEVEL	○		○			
FOOT	○			○		
FOOT/DEF	○				○	
DEF	○					○

If continuity is not as specified, replace the heater control.

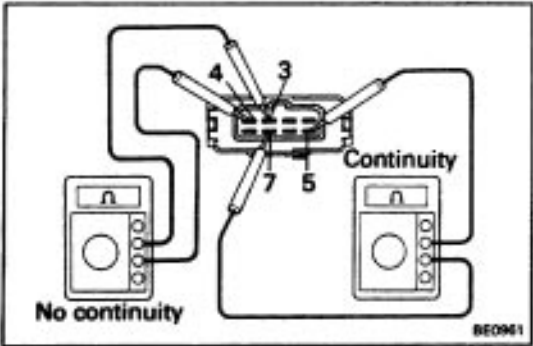


5. INSEPCT RECIRC/FRESH CONTROL SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	Al 7	A2	A10
RECirc	○	○	
FRESH	○		○

If continuity is not as specified, replace the heater control.



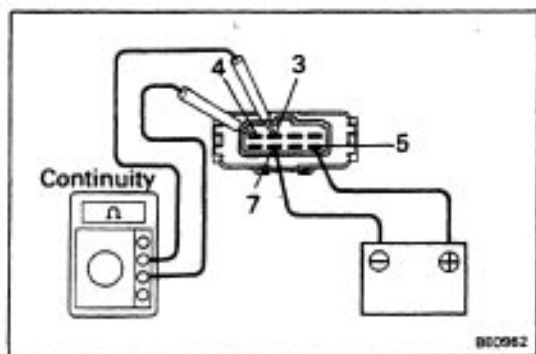
Blower Speed Control Relay (Push Type)

INSPECTION OF RELAY

1. INSPECT RELAY "A" CONTINUITY

- (a) Check that there is continuity between terminals 5 and 7.
- (b) Check that there is no continuity between terminals 3 and 4.

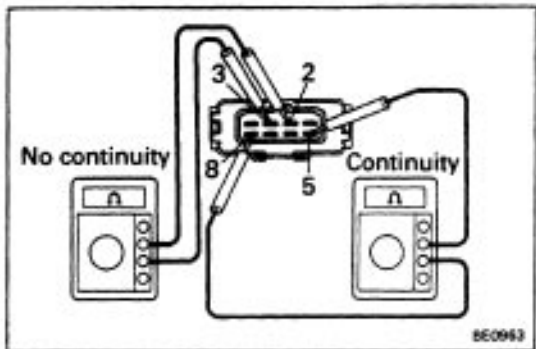
If continuity is not as specified, replace the relay.



## 2. INSPECT RELAY "A" OPERATION

- Apply battery voltage to terminals 5 and 7.
- Check that there is continuity between terminals 3 and 4.

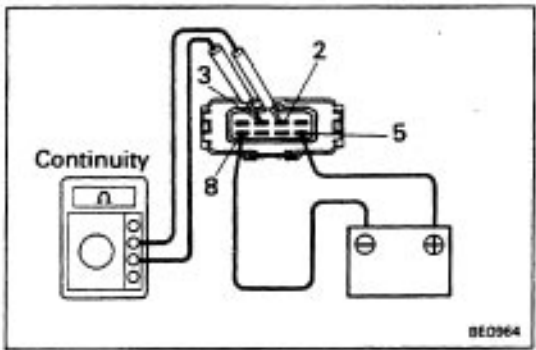
If operation is not as specified, replace the relay.



## 3. INSPECT RELAY "B" CoNTIN'UITY

- Check that there is continuity between terminals 5 and 8.
- Check that there is no continuity between terminals 2 and 3.

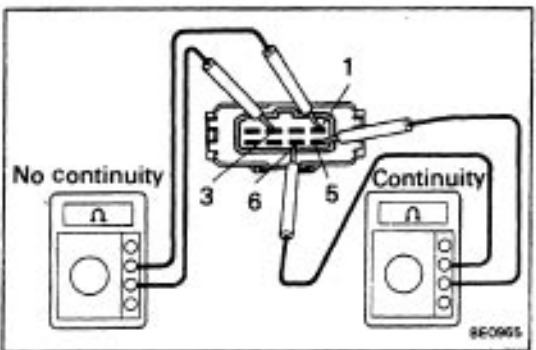
If continuity is not as specified, replace the relay.



## 4. INSPECT RELAY "B" OPERATION

- Apply battery voltage to terminals 5 and 8.
- Check that there is continuity between terminals 2 and 3.

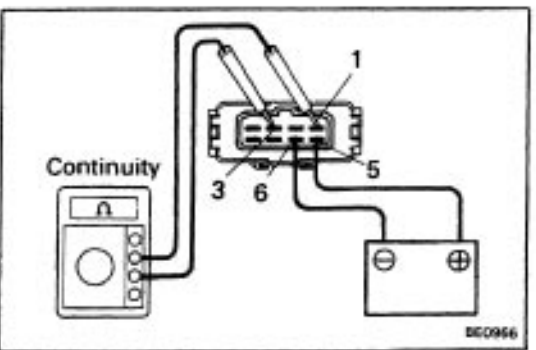
If operation is not as specified, replace the relay.



## 5. INSPECT RELAY "C" CONTINUITY

- Check that there is continuity between terminals 5 and 6.
- Check that there is no continuity between terminals 1 and 3.

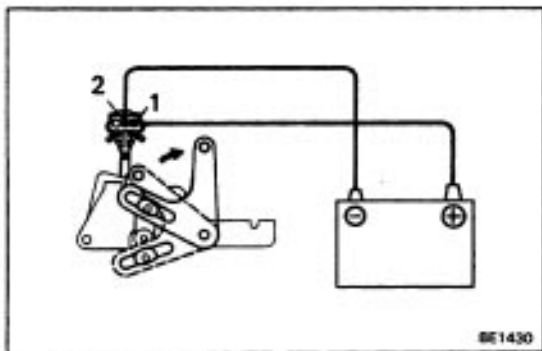
If continuity is not as specified, replace the relay.



## 6. INSPECT RELAY "C" OPERATION

- Apply battery voltage to terminals 5 and 6.
- Check that there is continuity between terminals 1 and 3.

If operation is not as specified, replace the relay.

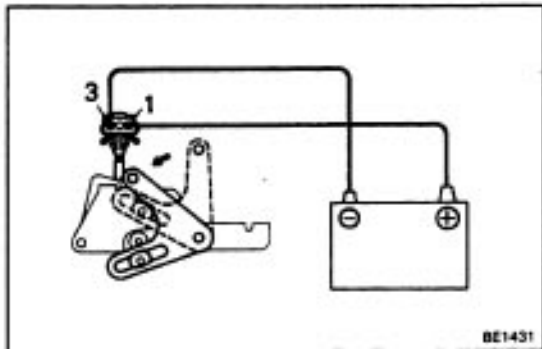


## RECIRC/FRESH Control Servo Motor (Push type)

### INSPECTION OF SERVO MOTOR

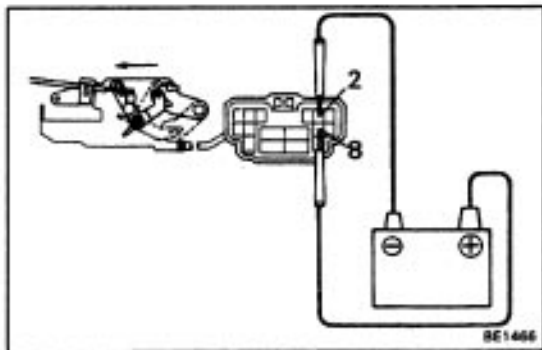
#### INSPECT SERVO MOTOR OPERATION

- (a) With the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 2, check that the lever moves smoothly from FRESH to RECIRC.



- (b) With the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 3, check that the lever moves smoothly from RECIRC to FRESH.

If operation is not as specified, replace the servo motor.

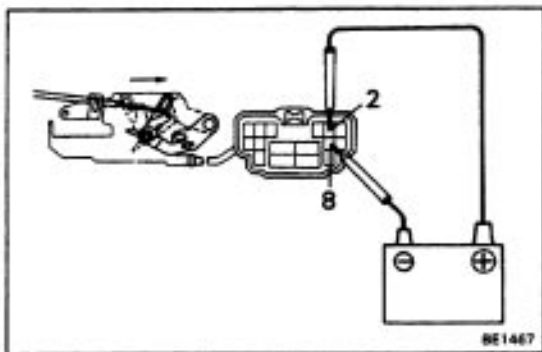


## Air Mix Control Servo Motor (Push Type)

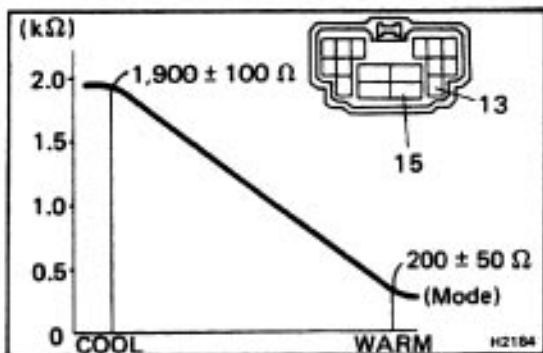
### INSPECTION OF SERVO MOTOR

#### INSPECT SERVO MOTOR OPERATION

- (a) With the positive (+) lead from the battery to terminal 8 and negative (-) lead to terminal 2, check that the lever moves smoothly from WARM to COOL.



- (b) With the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 8, check that the lever moves smoothly from COOL to WARM.

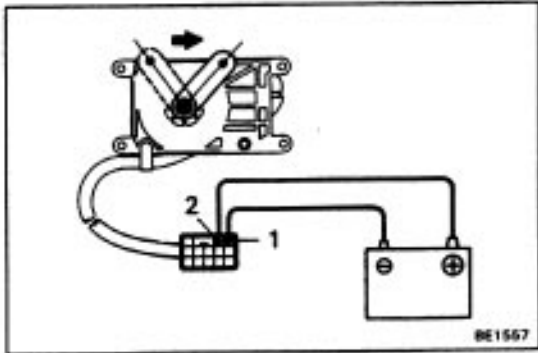


- (c) While operating the servo motor from either points (a) or (b), measure the resistance values of terminals 13 and 15.

Position	Resistance (Ω)
COOL	1,900 ± 100
WARM	200 ± 50

The resistance values from COOL to WARM will successively decrease.

If operation is not as specified, replace the servo motor.

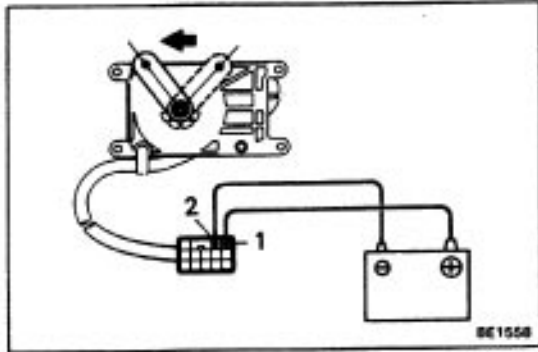


## Air Vent Mode Control Servo Motor (Push Type)

### INSPECTION OF SERVO MOTOR

#### INSPECT SERVO MOTOR OPERATION

- (a) Connect the positive (+) lead from the battery to terminal 2 and negative(-) lead to terminal 1, check that the lever moves smoothly from DEF to FACE.

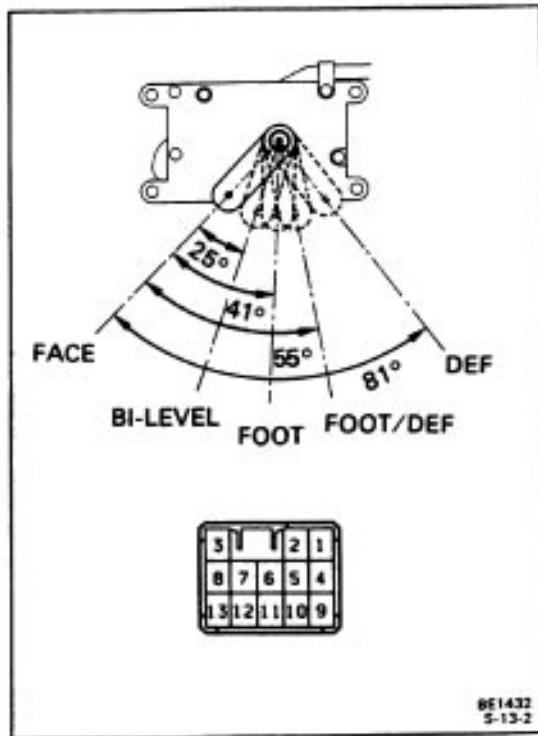


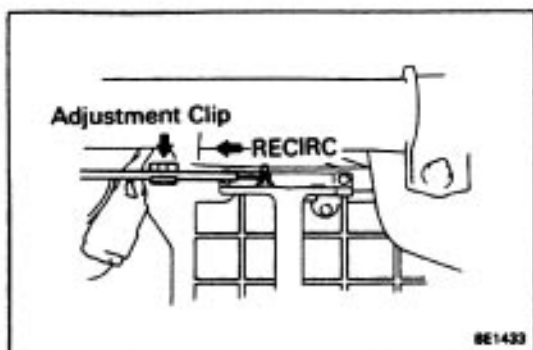
- (b) Connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 2, check that the lever moves smoothly from FACE to DEF.

- (c) Check for continuity between terminal as shown below.

Terminal	3	5	4	6	10	11	9
Lever position							
FACE	○	—	○	○	—	○	
BI-LEVEL		○	—	○	○	—	
FOOT	○	○	—	○	○	—	
Foot/DEF		○	—	○	○	—	○
DEF	○	○	—	○	○	—	○

If operation is not as specified, replace the motor.



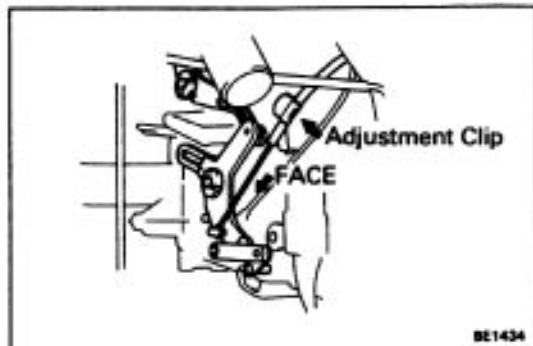


## Heater Control (Lever Type)

### ADJUSTMENT OF HEAT CONTROL

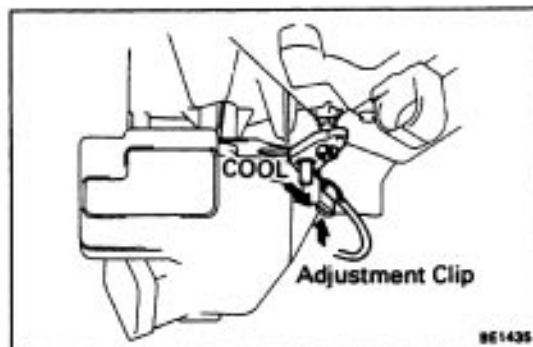
#### 1. SET AIR INLET DAMPER

Set the air inlet damper and control lever to "RECIRC".



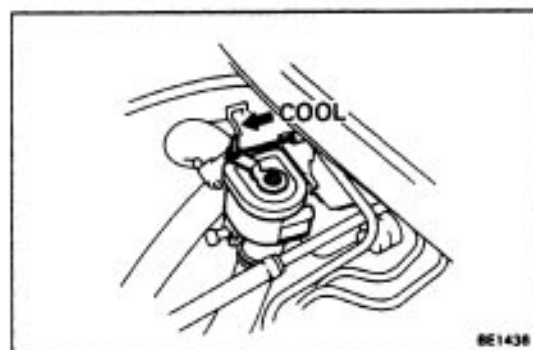
#### 2. SET MODE SELECTOR DAMPER

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



#### 3. SET AIR MIX DAMPER

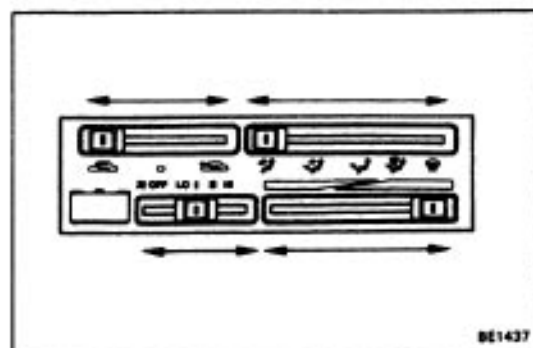
Set the air mix damper and control lever to "COOL".



#### 4. SET WATER VALVE

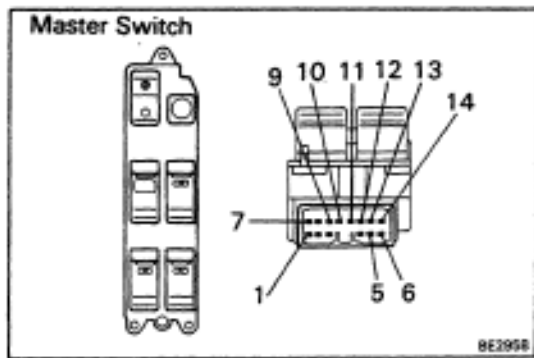
Set the water valve and control lever to "COOL".

HINT: Place the water valve lever on "COOL" and while pushing the outer cable in the "COOL" direction, clamp the outer cable to the water valve bracket.



#### 5. TEST CONTROL CABLE OPERATION

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



## POWER WINDOW

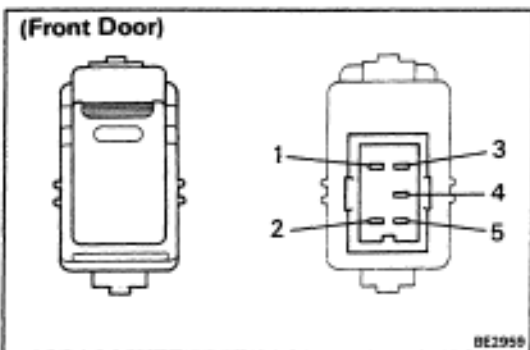
### Power Window Switch INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

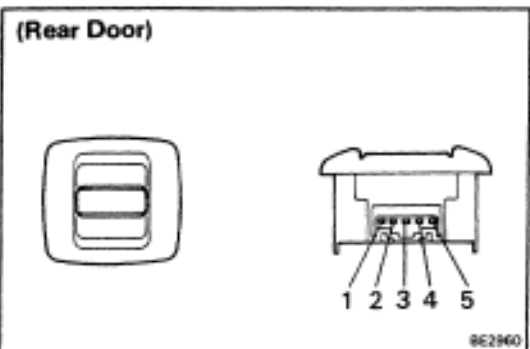
Illumination	Front-left		Ex. Front-left	
Terminal	7	1	7	1
Switch position				
Window unlock	○	●	○	●
Window lock	○	●	○	●

Operation window	Front- Left				Front-Right				Rear-Left				Rear-Right			
Terminal	7	13	6	1	7	5	12	1	7	9	10	1	7	14	11	1
Switch position																
UP	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
UP	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
OFF	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DOWN	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Door switch: Front door

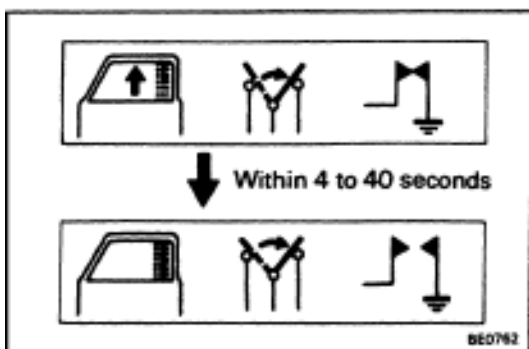
Terminal	5	1	2	3	4
Switch position					
UP	○	○		○	○
OFF		○	○	○	○
DOWN	○		○		○



Door switch: Rear door

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

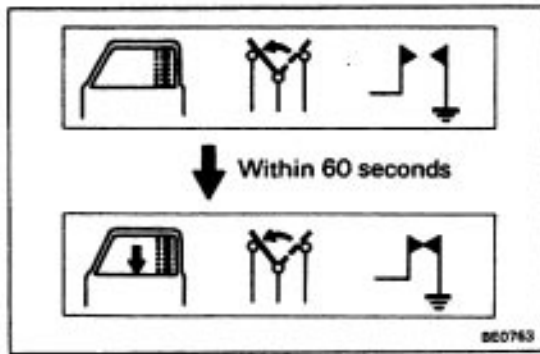
If continuity is not as specified, replace the switch.



### Power Window Motor INSPECTION OF MOTOR

#### 1. INSPECT CIRCUIT BREAKER OPERATION

- With the window in the full closed position, hold the power window switch in "UP" position and check that there is a circuit breaker operation noise within 4 to 40 seconds.



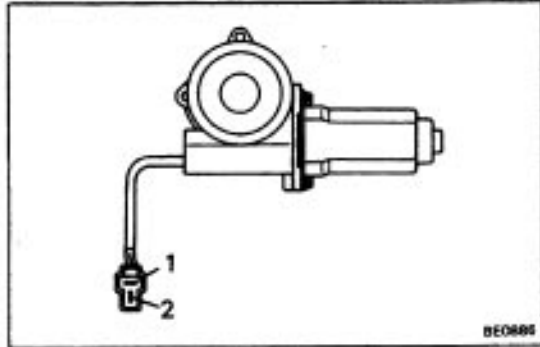
- (b) With the window in the full closed position, hold the switch in "DOWN" and check that the window begins to descend within 60 seconds.

If operation is not as specified, replace the motor.

## 2. INSPECT MOTOR OPERATION

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

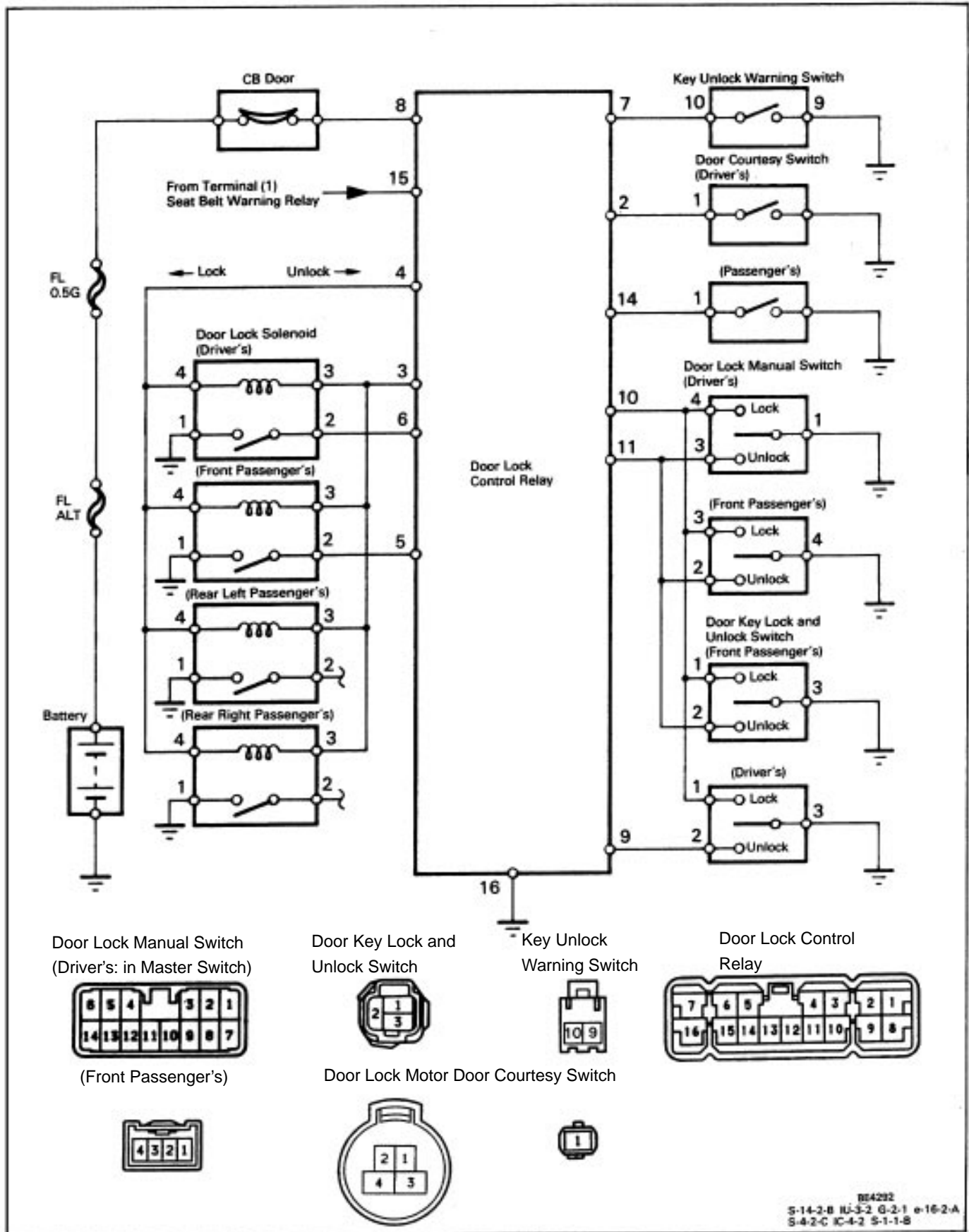
If operation is not as specified, replace the motor.

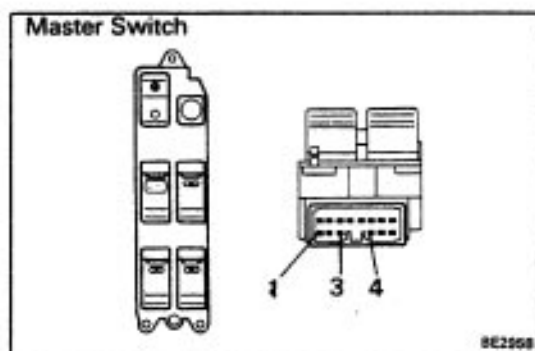




# DOOR LOCK CONTROL SYSTEM

## Wiring and Connector Diagrams





## Door Lock Control Switch

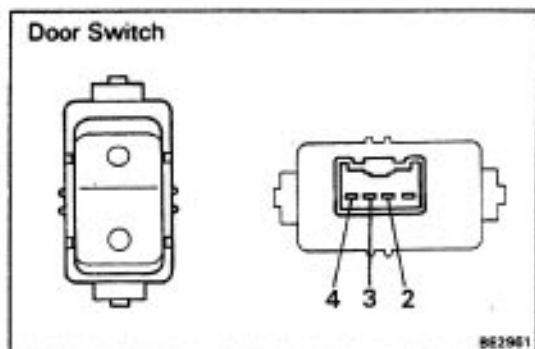
### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

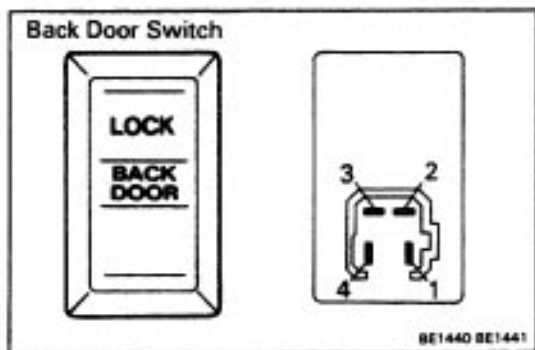
Master Switch

Terminal Switch position	4	3	1
LOCK	○	—	○
UNLOCK		○	—



Door Switch

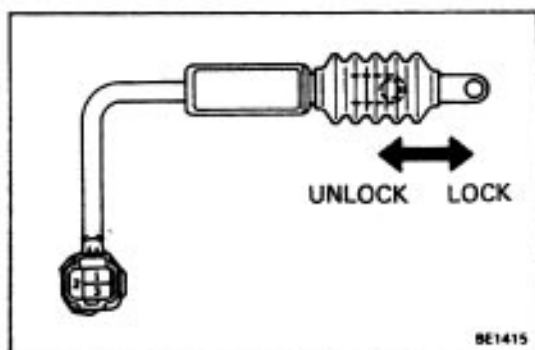
Terminal Switch position	2	4	3
LOCK		○	—
UNLOCK	○	—	○



Back Door Switch

Terminal Switch position	1	2	3	4
LOCK	○	—	○	—
OFF	○	—	○	—
UNLOCK	○	—	○	—

If continuity is not as specified, replace the switch.



## Door Lock Key Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position	1	2	3
LOCK	○	—	○
UNLOCK		○	—

If continuity is not as specified, replace the switch.

## Unlock Warning Switch

(See page [BE-13](#))

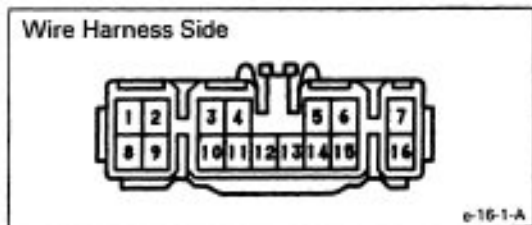
## Door Courtesy Switch

(See page [BE-40](#))

## Door Lock Control Relay INSPECTION OF RELAY

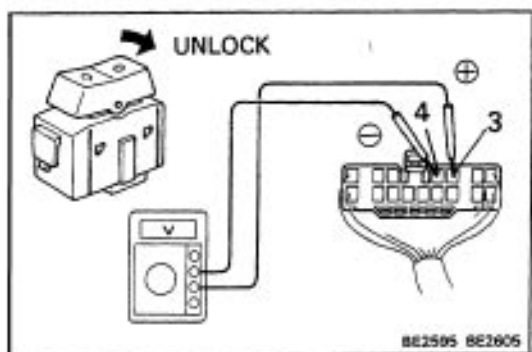
### (Relay Circuit)

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



Check for	Tester connection		Condition	Specified value
Continuity	2 — Ground	Driver's door courtesy switch position	OFF (Door closed)	No continuity
			ON (Door opened)	Continuity
	5 — Ground	Passenger's —door lock switch position	OFF (Door locked)	No continuity
			ON (Door unlocked)	Continuity
	6 — Ground	Driver's door lock switch position	OFF (Door locked)	No continuity
			ON (Door unlocked)	Continuity
	7 — Ground	Key unlock warning switch position	OFF (Ignition key removed)	No continuity
			ON (ignition key set)	Continuity
	9 — Ground	Door key lock and unlock switch position	OFF or lock (Door key free or turned to lock)	No continuity
			Unlock (Door key turned to unlock)	Continuity
Continuity	10 — Ground	Door lock manual switch position	OFF or Unlock	No continuity
			Lock	Continuity
	11 — Ground	Door lock manual switch position	OFF or Lock	No continuity
			Unlock	Continuity
	14 — Ground	Passenger's door courtesy switch position	OFF (Door closed)	No continuity
			ON (Door opened)	Continuity
Voltage	16 — Ground	Constant		Continuity
	1 — Ground	Ignition switch position	LOCK	No voltage
			ACC or ON	Battery voltage
	8 — Ground	Constant		Battery voltage

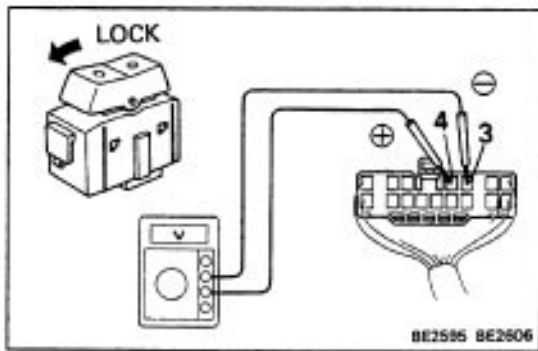
If circuit is as specified, inspect the door lock signal.



### (Door Lock Signal)

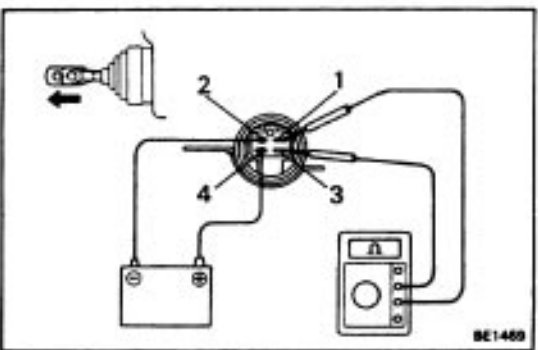
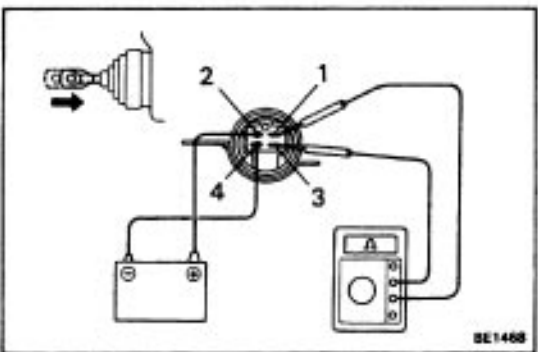
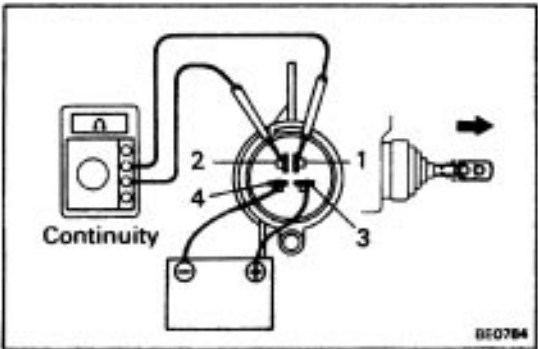
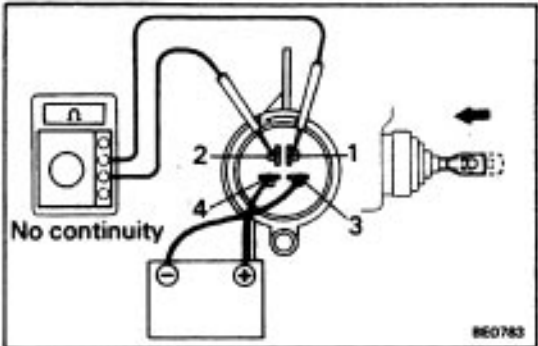
HINT: When the relay circuit is as specified, inspect the door lock signal.

- Connect the connector to the relay.
- Connect the positive (+) lead from the voltmeter to terminal 3 and the negative (–) lead to the terminal 4.
- Set the door lock manual switch to UNLOCK, check that the voltage rises from 0 volts to battery voltage for approximately 0.2 seconds.



- (d) Reverse the polarity of the voltmeter leads.
- (e) Set the door lock manual switch to LOCK, check that the voltage rises from 0 volts to battery voltage for approximately 0.2 seconds.

If operation is not as specified, replace the relay.



## Door Lock Solenoid INSPECTION OF DOOR LOCK SOLENOID

### 1. INSPECT SOLENOID OPERATION

#### (Front and Rear door)

- (a) Connect the positive (+) lead from the battery to terminal 4 and negative (–) lead to terminal 3, check that the solenoid operation in the lock (Pull) direction.
- (b) Check that there is no continuity between terminals 1 and 2.
- (c) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 4, check that the solenoid operation in the unlock (Push) direction.
- (d) Check that there is continuity between terminals 1 and 2.

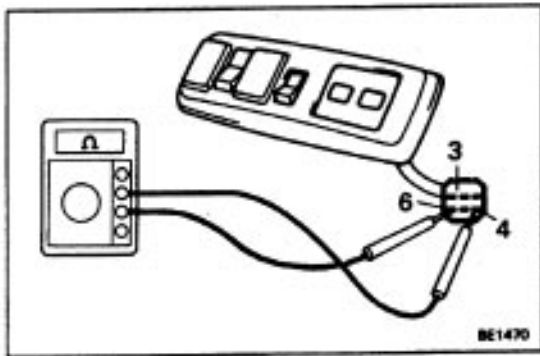
If operation is not as specified, replace the solenoid.

#### (Back door)

- (a) Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 4, check that the solenoid operation in the lock (Pull) direction.
- (b) Check that there is no continuity between terminals 1 and 3.

- (c) Connect the positive (+) lead from the battery to terminal 4 and negative (–) lead to terminal 2, check that the solenoid operation in the unlock (Push) direction.
- (d) Check that there is continuity between terminals 1 and 3.

If operation is not as specified, replace the solenoid.



## MOON ROOF

### Moon Roof Switch

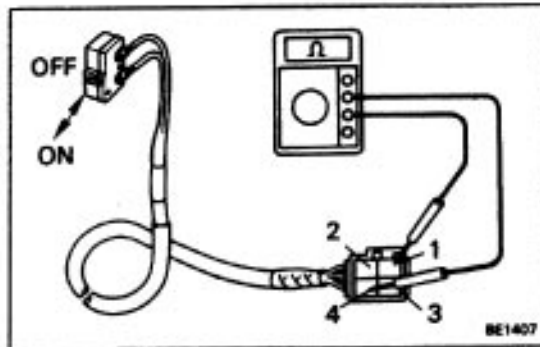
#### INSPECTION OF SWITCH

##### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal	3	4	6
Switch position			
OPEN	○	○	
CLOSE		○	○

If continuity is not as specified, replace the switch.



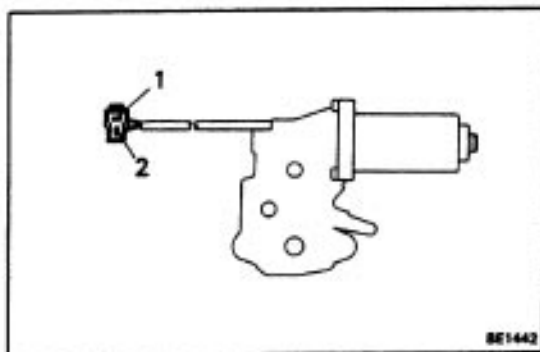
### Limit Switch

#### INSPECTION OF SWITCH

##### INSPECT SWITCH CONTINUITY

- Check that there is continuity between terminals 1 and 4 when the switch is ON.
- Check that there is no continuity between terminals 1 and 4 when the switch is OFF.

If continuity is not as specified, replace the switch.



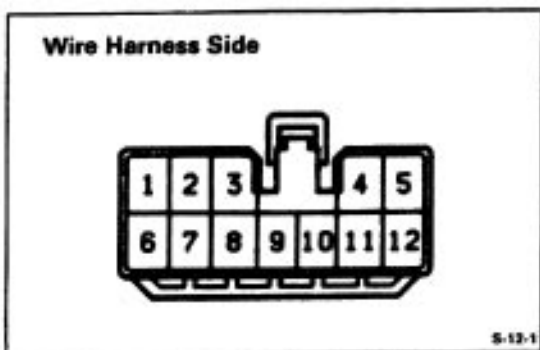
### Moon Roof Motor

#### INSPECTION OF MOTOR

##### INSPECT MOTOR OPERATION

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

If operation is not as specified, replace the motor.



### Moon Roof Control Relay

#### INSPECTION OF RELAY

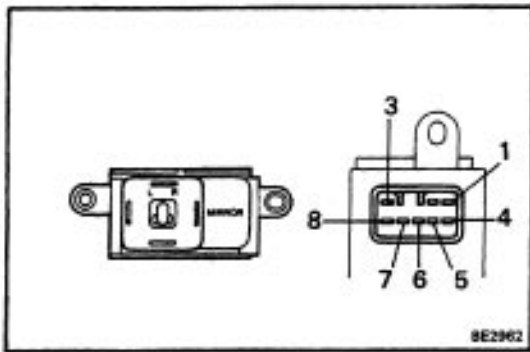
##### INSPECT RELAY VOLTAGE AND CONTINUITY

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

Check for	Tester connection	Condition	Specified value
Continuity	4 – Body ground	—	Continuity
Voltage	6 – Body ground	Turn ignition switch ON	Battery voltage
		Turn ignition switch OFF	No.voltage
Continuity	7 – Body ground	Push sun roof switch to CLOSE	Continuity
		Push sun roof switch to except CLOSE	No continuity
Continuity	8 – Body ground	Push sun roof switch to OPEN	Continuity
		Push sun roof switch to except OPEN	No continuity
Continuity	10 – Body ground	Push limit switch ON	Continuity
		Push limit switch OFF	No continuity
Continuity	12 – Body ground	—	Continuity

- (b) Connect the positive lead from the battery to terminal 1 and–negative (–) lead to terminal 5, check that the motor turns to close. Then, reverse the polarity, check that the motor turns to open. If motor does not operate, remove and test the motor.

If circuit operation is correct, replace the relay.















## REMOTE CONTROL MIRROR

### Mirror Switch

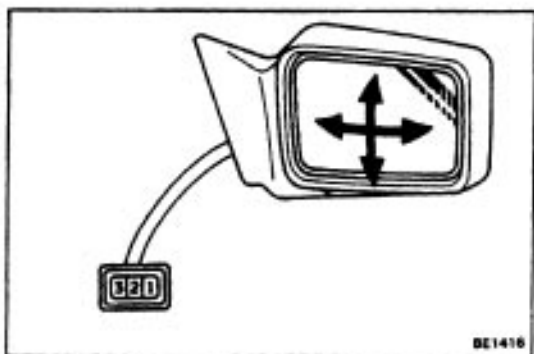
### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Mirror	Left					Right				
Terminal	8	6	4	3	7	3	4	5	1	
Switch position										
UP										
DOWN										
LEFT										
RIGHT										

If continuity is not as specified, replace the switch.



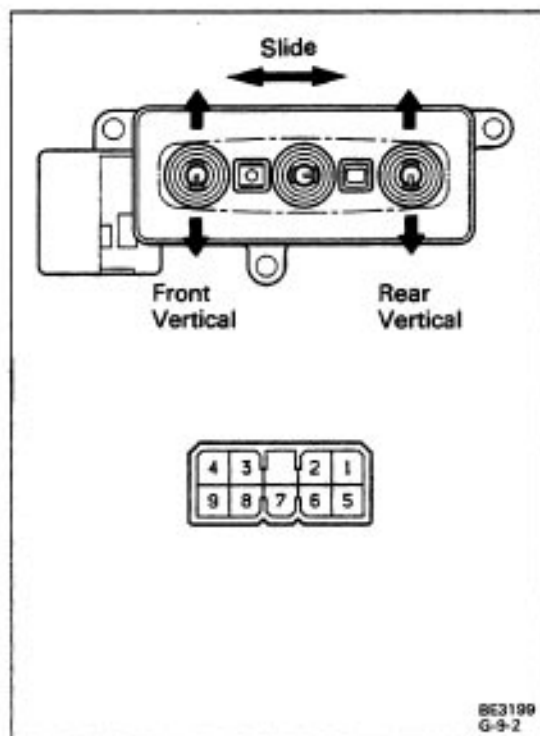
### Remote Control Mirror

### INSPECTION OF MIRROR

#### INSPECT MIRROR OPERATION

- Connect the positive (+) lead from the battery to terminal 1 and negative lead to terminal 2, check that the mirror moves upward.  
Then, reverse the polarity, check that the mirror operation is reversed.
- Connect the positive (+) lead from the battery to terminal 2 and negative(–) lead to terminal 3, check that the mirror moves to the right.  
Then, reverse the polarity, check that the mirror operation is reversed.

If there is no mirror operation, replace the mirror.



## POWER SEAT

### Power Seat Switch

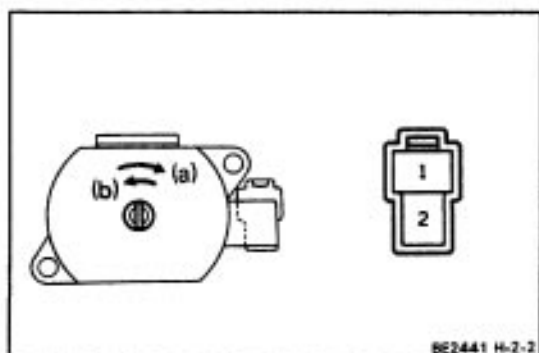
### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal Switch position		5	6	7	3	9	1	2	4
Slide Switch	FRONT	○				○			
	OFF	○				○		○	
	REAR	○						○	
Front Vertical Switch	UP	○	○		○				
	OFF	○	○	○					
	DOWN	○		○	○				
Rear Vertical Switch	UP	○			○		○		○
	OFF	○					○		○
	DOWN	○			○		○		○

If continuity is not as specified, replace the switch.



### Power Seat Motor

### INSPECTION OF MOTOR

#### INSPECT MOTOR OPERATION

##### (Slide Motor/Operation)

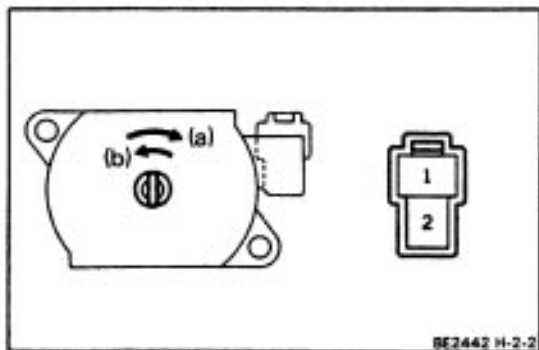
- Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise (moves to rear side).
- Then, reverse the polarity, and check that the motor turns counterclockwise (moves to front side).

If operation is not as specified, replace the motor.

##### (Front and Rear Vertical Motor/Operation)

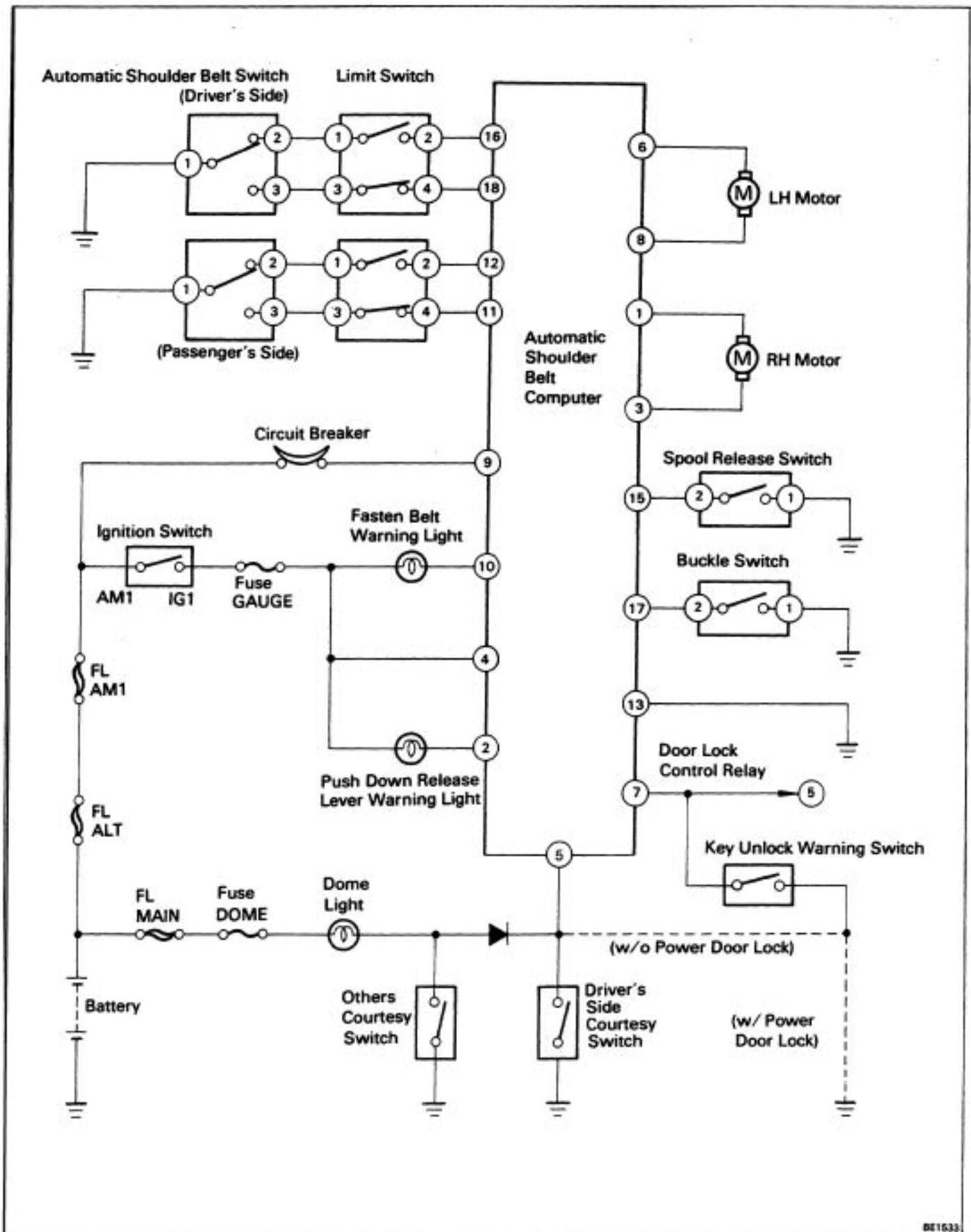
- Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the motor turns clockwise (seat rises).
- Then, reverse the polarity, and check that the motor turns counterclockwise (seat drops).

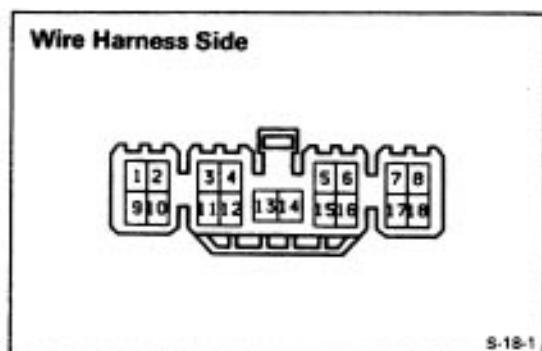
If operation is not as specified, replace the motor.





# AUTOMATIC SHOULDER BELT Wiring Diagram





## Computer

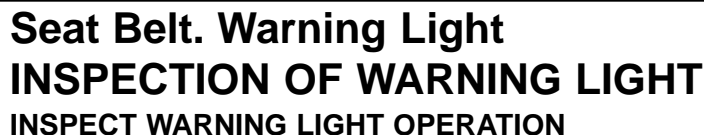
### INSPECTION OF COMPUTER

#### INSPECT COMPUTER CIRCUIT

- (a) Disconnect the computer connector and inspect the connector on the wire harness side as shown in the chart.

Check item	Check for	Tester connection	Condition	Specified value
Motor (RH)	Continuity	1–3	Always	Continuity
Push Down Release Lever	Voltage	2 – Ground	Turn ignition switch ON.	Battery voltage
Warning Light			Turn ignition switch OFF.	No voltage
Ignition Switch	Voltage	4 – Ground	Turn ignition switch ON.	Battery voltage
			Turn ignition switch OFF.	No voltage
w/ Power door lock	Continuity	5 – Ground	Open door.	Continuity
Courtesy Switch (Driver's side)			Close door.	No continuity
w/ Power door lock	Continuity	7 – Ground	Set ignition key.	Continuity
Unlock Warning Switch			Remove ignition key.	No continuity
w/o Power door lock	Continuity	7 – Ground	Open driver's side door and set ignition key.	Continuity
Courtesy Switch (Driver's side)			Close driver's side door and/or remove ignition key.	No continuity
Unlock Warning Switch Motor (Lh#)	Continuity	s–8	Always	Continuity
Circuit Breaker	Voltage	9 – Ground	Always	Battery voltage
Seat Belt Warning Light	Voltage	10 – Ground	Turn ignition switch ON.	Battery voltage
			Turn ignition switch OFF.	No voltage
Automatic Shoulder Belt Switch and Right Rear Limit Switch (Passenger's side)	Continuity	11 – Ground	Close RH front door and set shoulder anchor at ex. rear end position.	Continuity
			Open R H front door and set and/or shoulder anchor at rear end position.	No continuity
Automatic Shoulder Belt Switch and Right Front Limit Switch (Passenger's side)	Continuity	12 – Ground	Open RH front door and set shoulder anchor at ex. front end position.	Continuity
Ground			Close RH front door and/or set shoulder anchor at front end position.	No continuity
Spool Release Switch	Continuity	13 – Ground	Always	Continuity
			Pull up spool release lever.	Continuity
			Release spool release lever.	No continuity
Automatic Shoulder Belt Switch and Left Front Limit Switch (Driver's side)	Continuity	16 – Ground	Open LH front door and set shoulder anchor at ex. front end position.	Continuity
			Close LH front door and/or set shoulder anchor at front end position.	No continuity
Buckle Switch (Driver's side)	Continuity	17 – Ground	Unfasten lap belt.	Continuity
			Fasten lap belt.	No continuity
Automatic Shoulder Belt Switch and Left Rear Limit Switch (Driver's side)	Continuity	18 – Ground	Close LH front door and set shoulder anchor at ex. rear end position.	Continuity
			Open LH front door and set and/or shoulder anchor at rear end position.	No continuity

If circuit is as specified, replace the computer.



- (a) Disconnect the computer connector and ground the terminal 10 of the wire harness side connector.
- (b) Turn the ignition switch ON, check that the bulb lights. If operation is not as specified, check the bulb.



- (a) Disconnect the computer connector. Ground the terminal 2 of the wire harness side connector.
- (b) Turn the ignition switch ON, check that the bulb lights. If operation is not as specified, check the bulb.



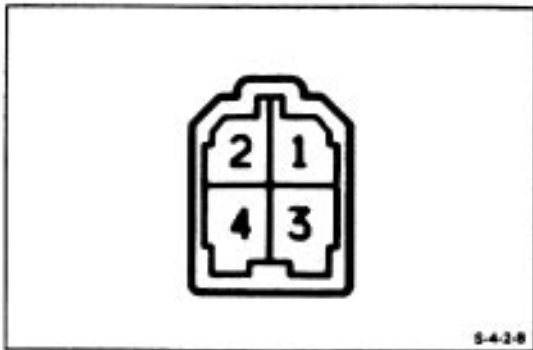
- Check that there is continuity between terminal and body ground with the switch ON (open door).
  - Check that there is no continuity between terminal and body ground with the switch OFF (close door).
- If operation is not as specified, replace the switch.



- Check that there is continuity between terminals with switch ON (unfasten lap belt).
  - Check that there is no continuity between terminals with switch OFF (fasten lap belt).
- If continuity is not as specified, replace the switch.



- Check that there is continuity between terminals with switch ON (pull up).
  - Check that there is no continuity between terminals with switch OFF (push down).
- If continuity is not as specified, replace the switch.



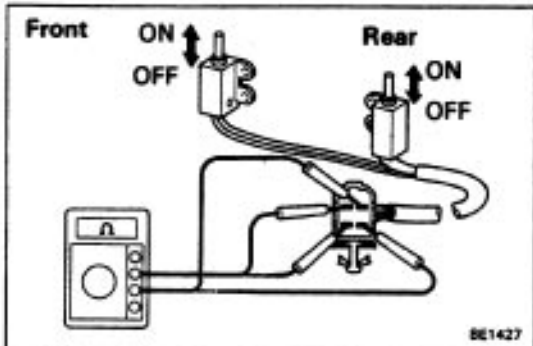
## Limit Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

- Check that there is no continuity between terminals 1 and 2 with front switch OFF.  
(Shoulder anchor at front end position)
- Check that there is no continuity between terminals 3 and 4 with rear switch OFF.  
(Shoulder anchor at rear end position)
- Check that there is continuity between terminals 1 and 2 with front switch ON.  
(Shoulder anchor at ex. front end position)
- Check that there is continuity between terminals 3 and 4 with rear switch ON.  
(Shoulder anchor at ex rear end position)

If continuity is not as specified, replace the switch.



## Unlock Warning Switch

(see page [BE-13](#))

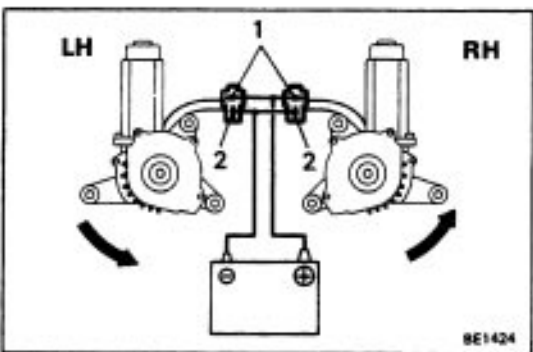
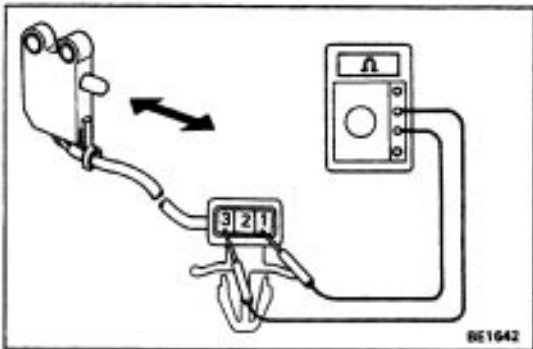
## Automatic Shoulder Belt Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

- Check that there is continuity between terminals 1 and 3 with switch pin pushed in (door close).
- Check that there is continuity between terminals 1 and 2 with switch pin free (door open).

If continuity is not as specified, replace the switch.



## Motor

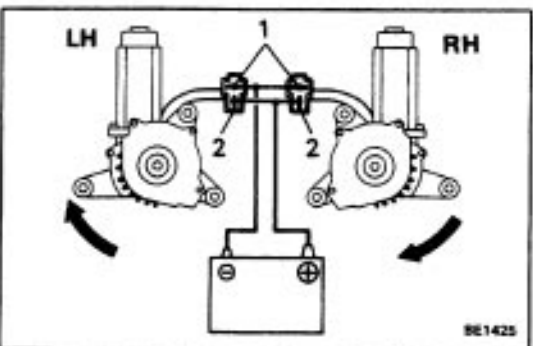
### INSPECTION OF MOTOR

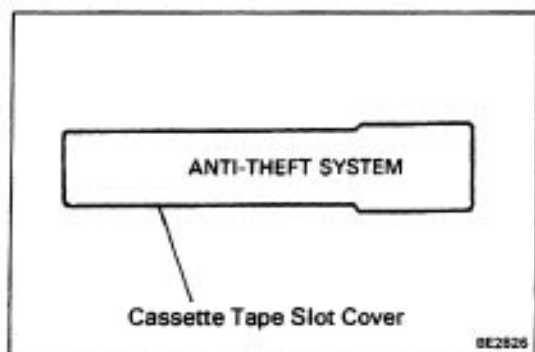
#### INSPECT MOTOR OPERATION

- Connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 2.
- Check that the motor turns as shown.

- Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 1.
- Check that the motor turns as shown.

If operation is not as specified, replace the motor.





## AUDIO SYSTEM

### System Description

#### Anti-Theft System (USA only)

The anti-theft system is only provided for audio systems equipped with an Acoustic Flavor function.

HINT: The words "ANTI-THEFT SYSTEM" are displayed on the cassette tape slot cover.

For operation instructions for the anti-theft system, please consult the audio system section in the Owner's Manual (hereafter called O/M).

#### 1. SETTING SYSTEM

The system is in operation once the customer has pushed the required buttons and entered the customer-selected 3-digit ID number.

(Refer to the O/M section, "Setting the anti-theft system")

HINT:

- When the audio system is shipped the ID number has not been input, so the anti-theft system is not in operation.
- If the ID number has not been input, the audio system remains the same as a normal audio system.

#### 2. ANTI-THEFT SYSTEM OPERATION

If the normal electrical power source (connector or battery terminal) is cut off, the audio system becomes inoperable, even if the power supply resumes.

#### 3. CANCELLING SYSTEM

The ID number chosen by the customer is input to cancel the anti-theft system.

(Refer to the O/M section, "if the system is activated")

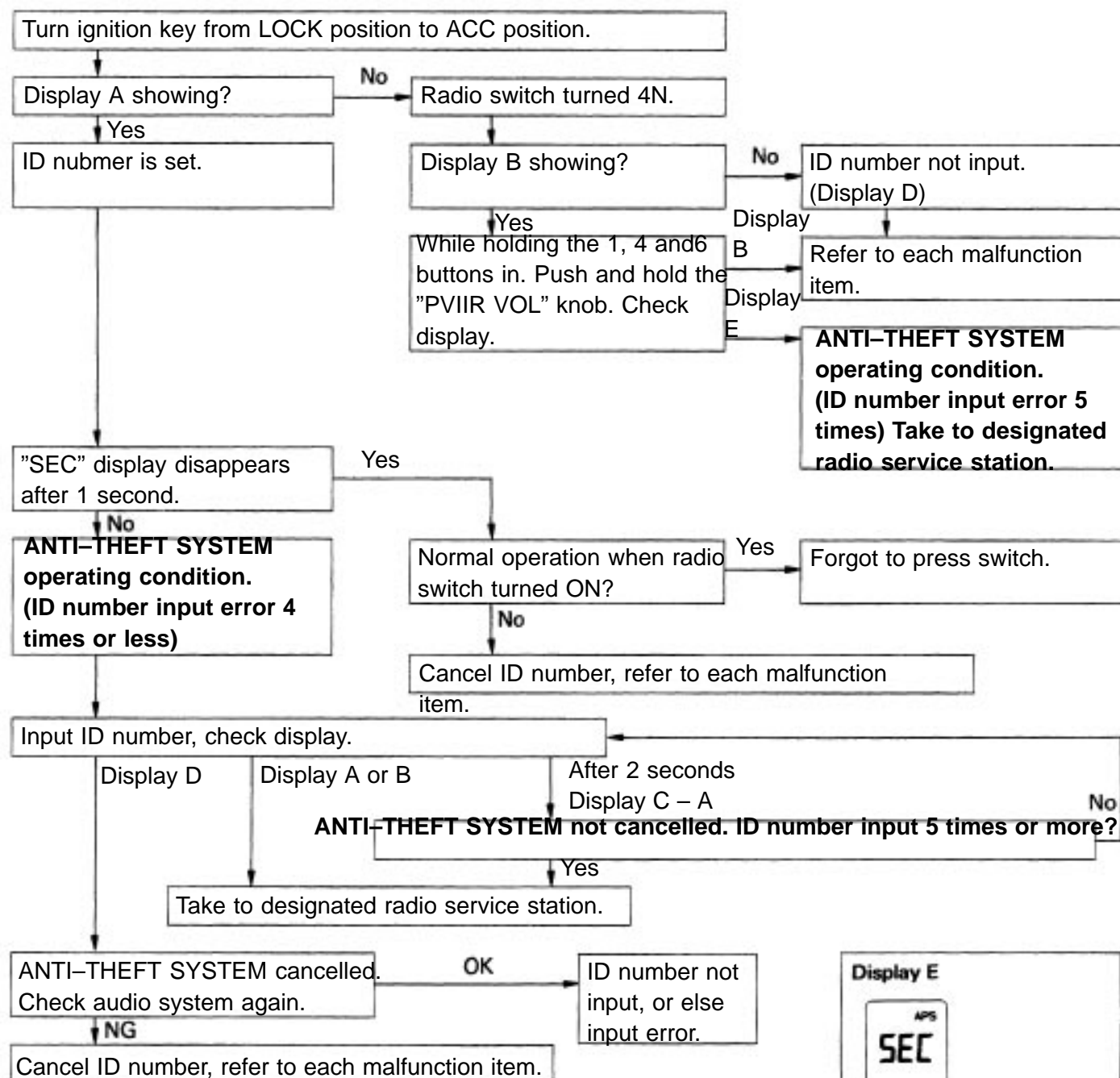
HINT: To change or cancel the ID number, please refer to the O/M section, "Cancelling the system".

## Troubleshooting

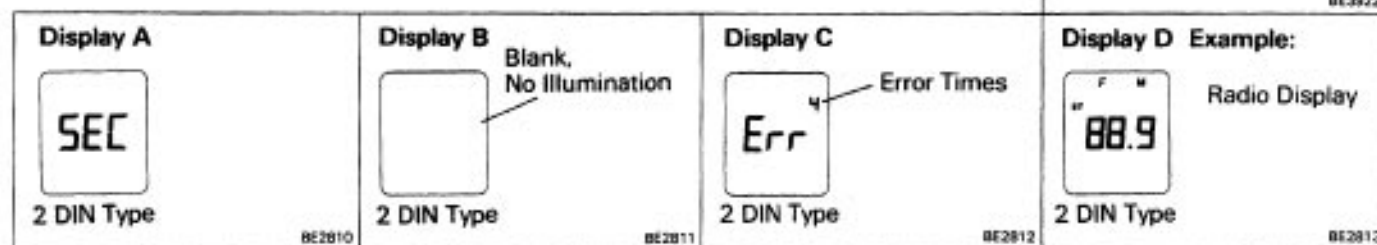
HINT: For audio systems with anti-theft system, troubleshooting items marked (\*) indicate that "Troubleshooting for ANTI-THEFT SYSTEM" should be carried out first.

No.	Problem		
1.	DEAD RADIO AND TAPE PLAYER	*(a)	No power to radio or tape player, or power but no sound.
		(b)	Tape player okay but no sound from AM and FM or either one.
		(c)	No sound from one speaker.
2.	FAINT RECEPTION		
3.	BAD SOUND QUALITY	(a)	Sound quality bad when radio played.
		(b)	Sound quality bad when tape player played.
4.	DEFECTIVE AUTO-SEARCH MECHANISM		

## Troubleshooting for ANTI-THEFT SYSTEM



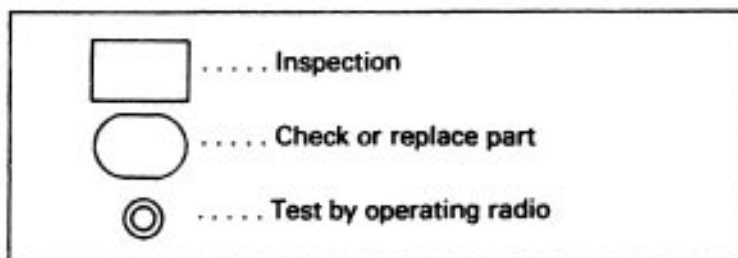
### (Liquid Crystal Display (LCD) for Audio System)



#### HINT:

- Refer to 0/M for operation details of ANTI-THEFT SYSTEM.
- When the ID number has been cancelled, reset the same number after completing the operation, or inform the customer that it has been cancelled.

## DESCRIPTION OF SYMBOLS



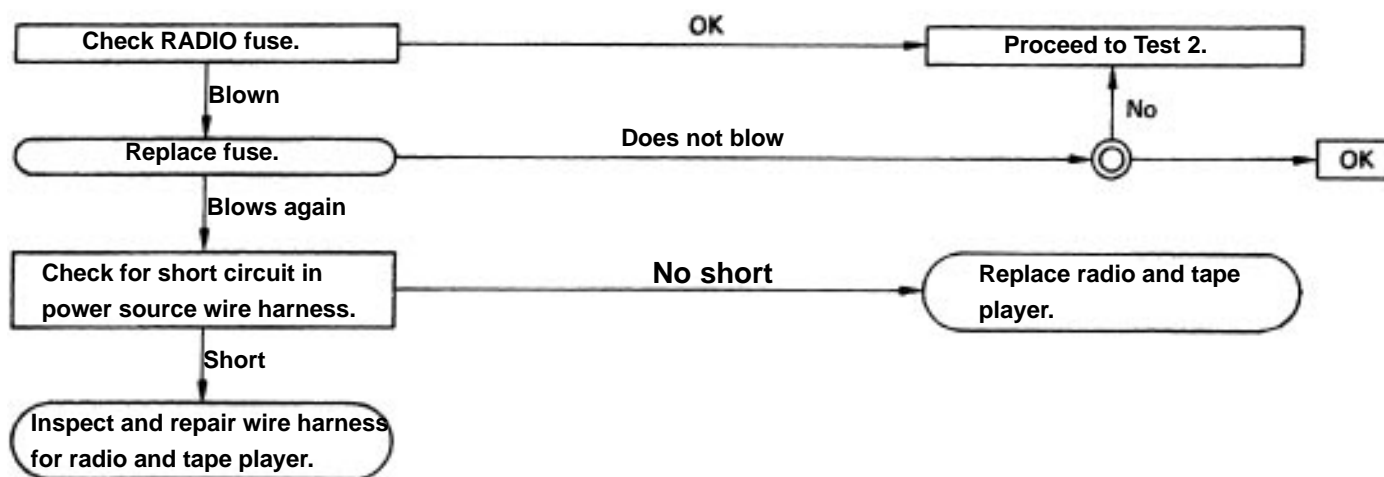
### 1. DEAD RADIO AND TAPE PLAYER

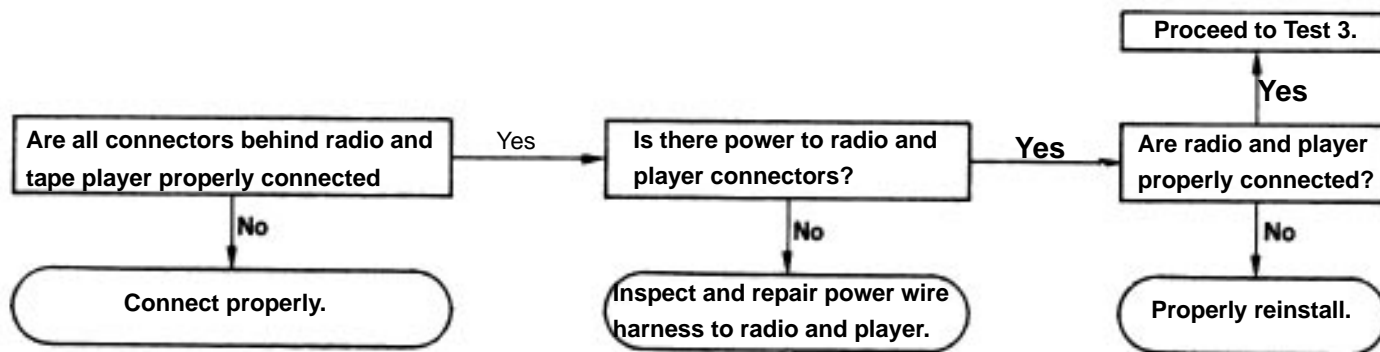
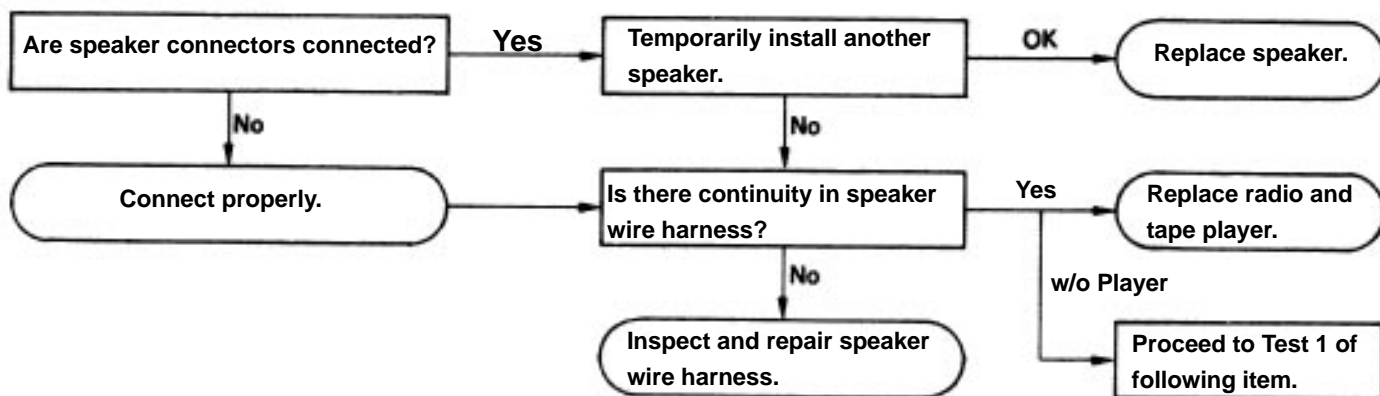
(a) No power to radio or tape player, or power but no sound.

Possible causes:

- Blown RADIO 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

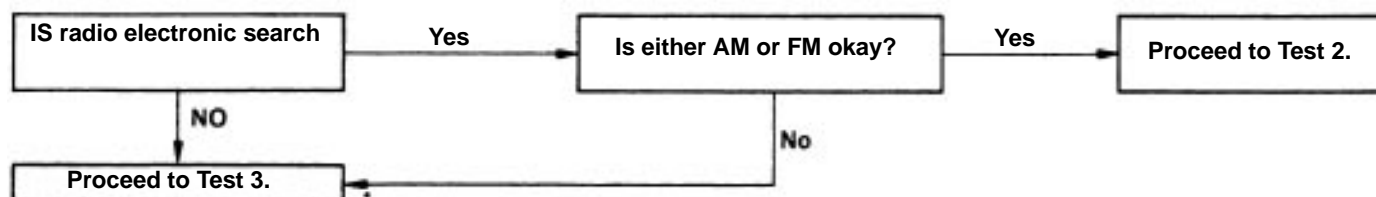


**TEST 2****TEST 3**

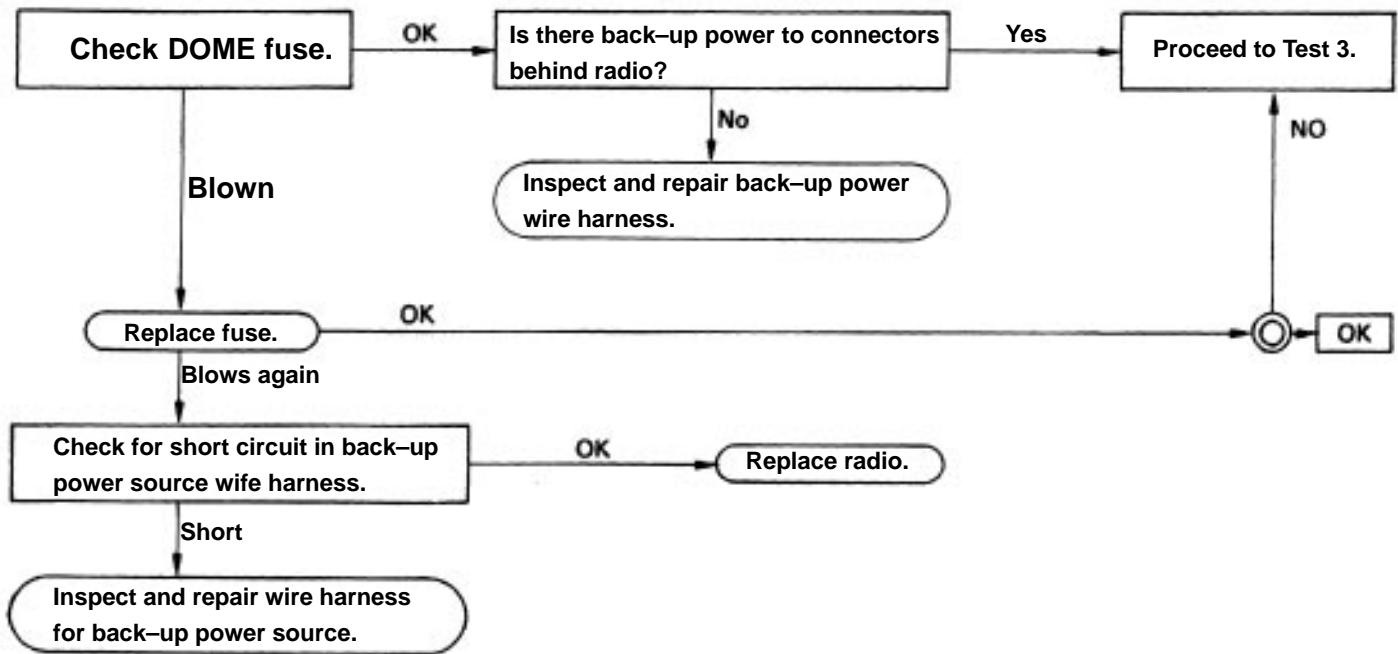
- (b) Tape player okay but not sound from either the FM or AM band.

Possible causes:

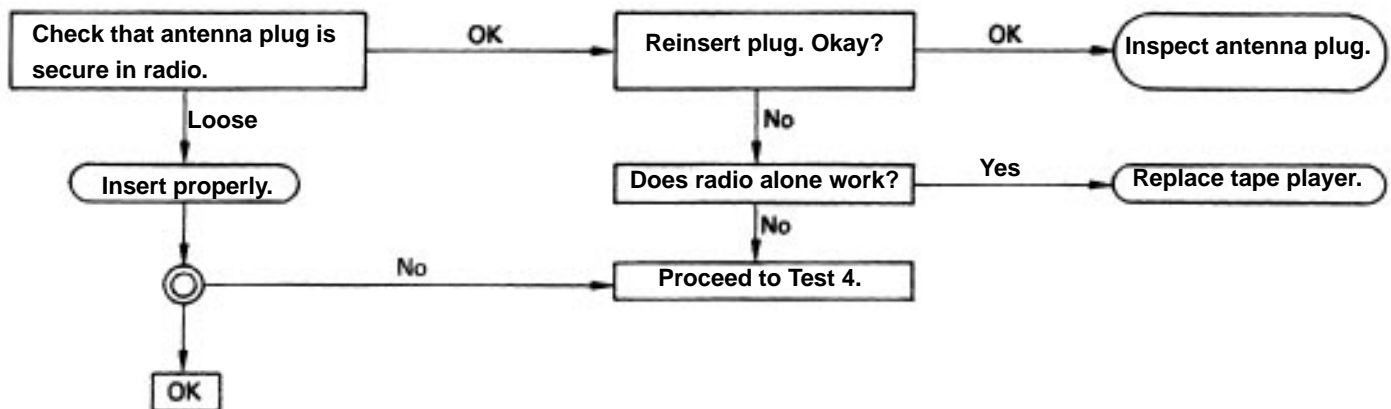
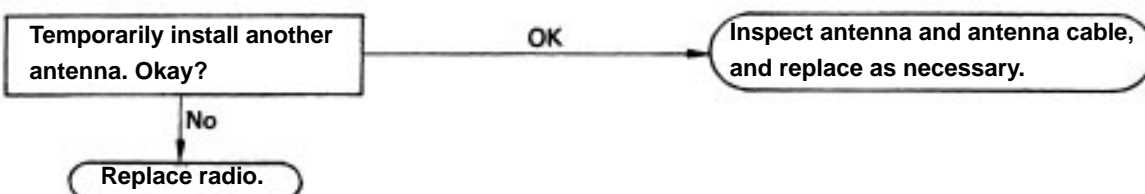
- Antenna disconnected
- Antenna plug not properly connected
- Defective antenna
- Defective antenna cable
- Defective radio or tape player
- Blown DOME fuse
- Short circuit or broken wire in wire harness for backup power source

**TEST 1**



**TEST 2**

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

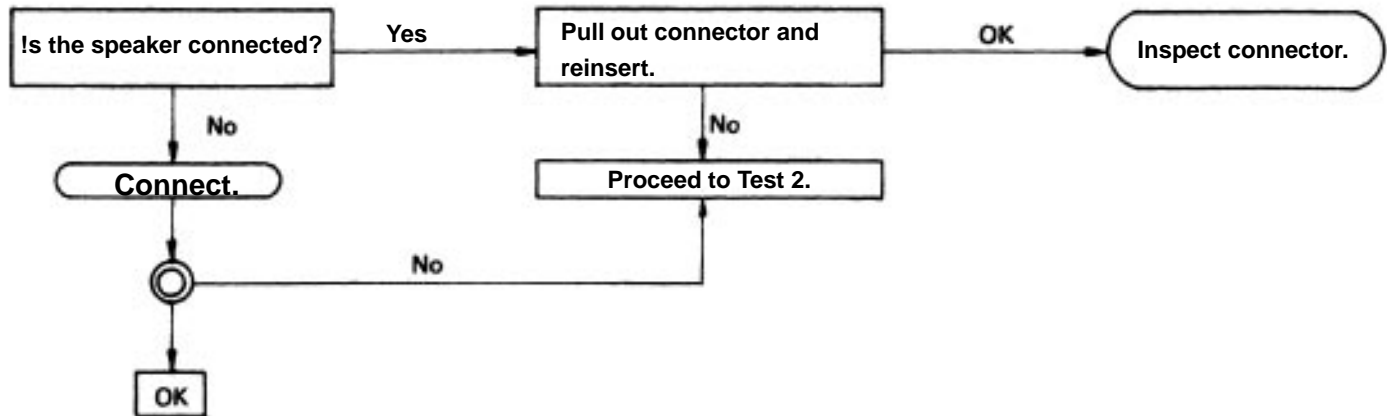
**TEST 3****TEST 4**

(c) No sound from one speaker.

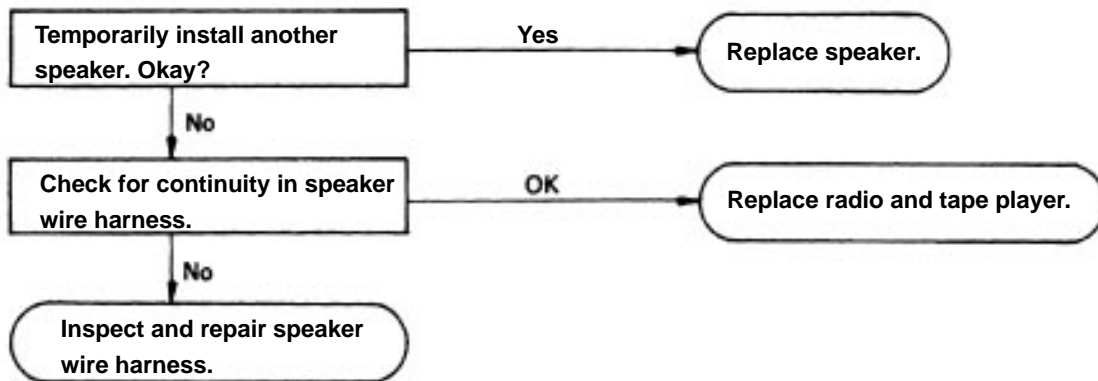
Possible causes:

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

### TEST 1



### TEST 2

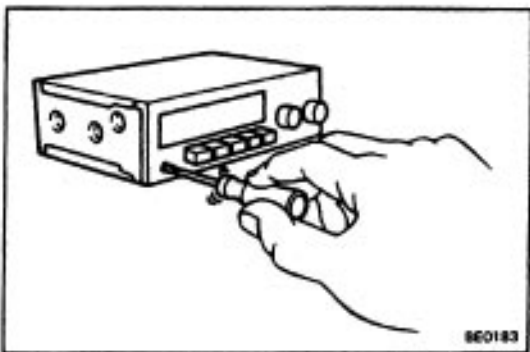
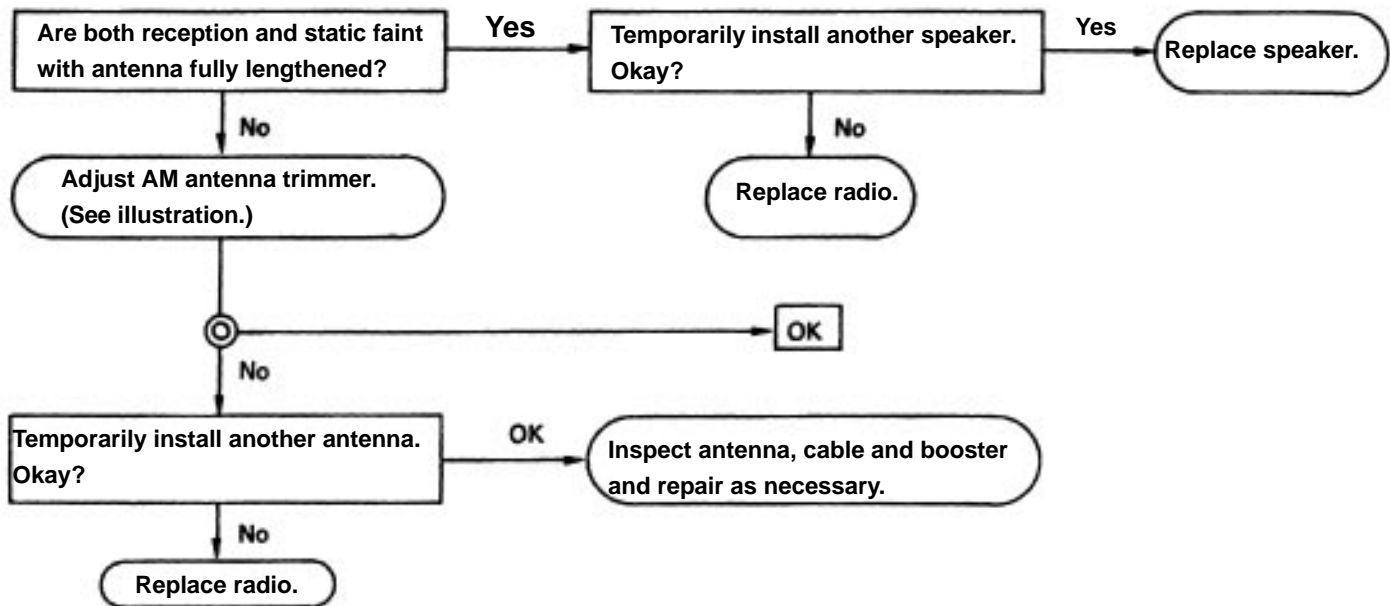


## 2. FAINT RECEPTION

Possible causes:

- Incorrectly adjusted antenna trimmer
- Defective antenna or antenna cable
- Defective speaker
- Defective radio

### TEST



(Ex. Electronic Search Type)

HINT: Adjustment of the antenna trimmer.

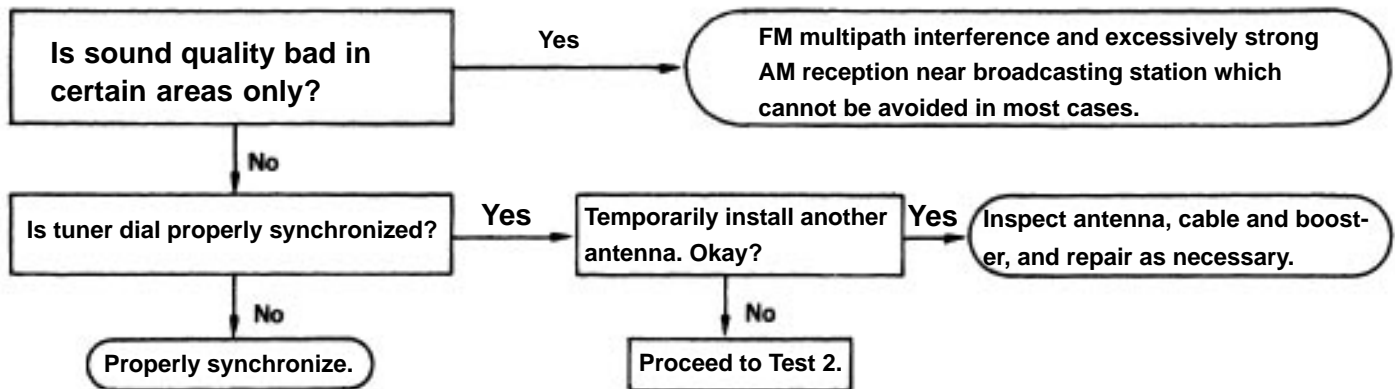
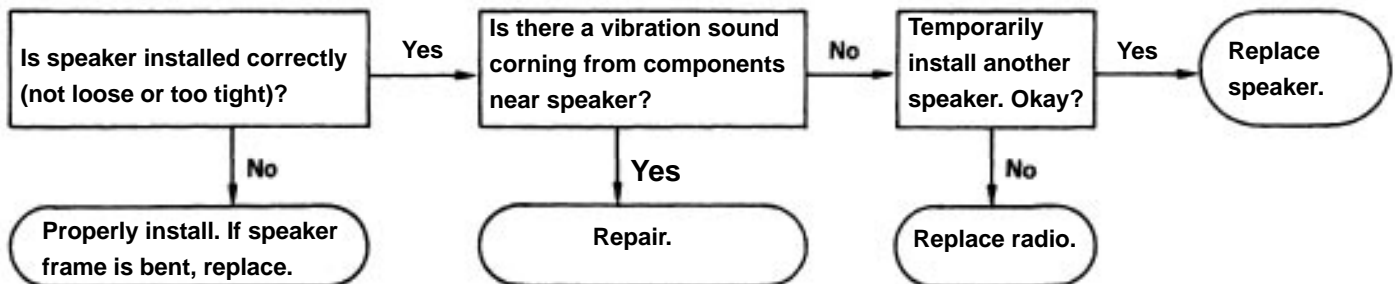
- (1) Fully lengthen the antenna.
- (2) With the volume and tone at maximum, turn the dial to around 1,400 kHz where there is no reception.
- (3) Adjust the trimmer to where static is loudest.

**3. BAD SOUND QUALITY**

(a) Sound quality bad when radio played.

Possible causes:

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

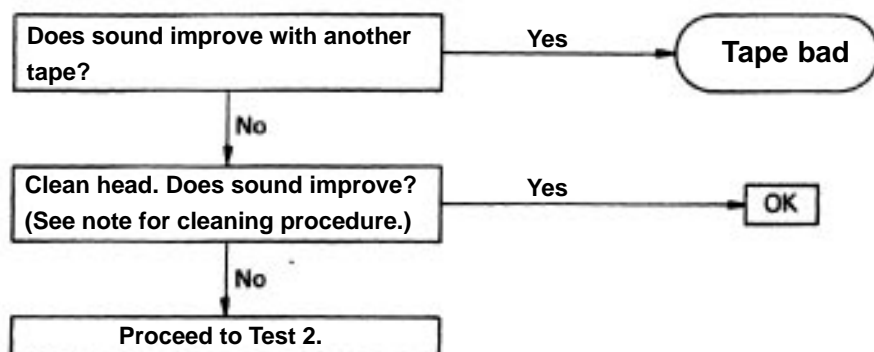
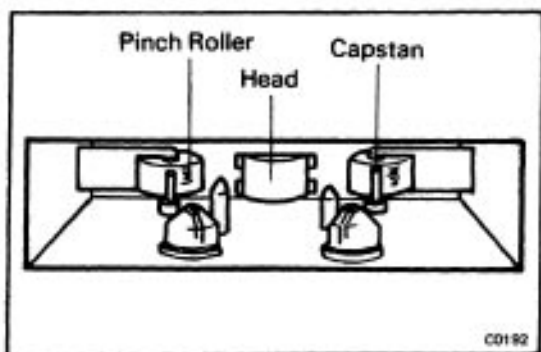
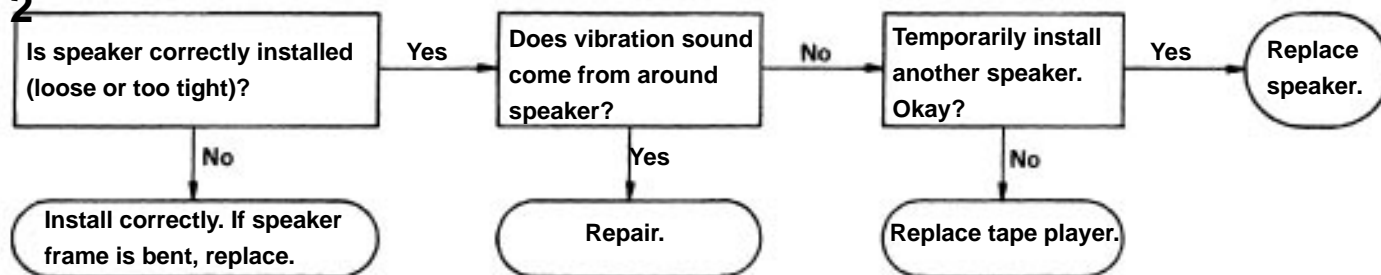
**TEST 1****TEST 2**

HINT: FM distortion tends to increase sharply if the tuner is not synchronized.

(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**

HINT: Head cleaning procedure.

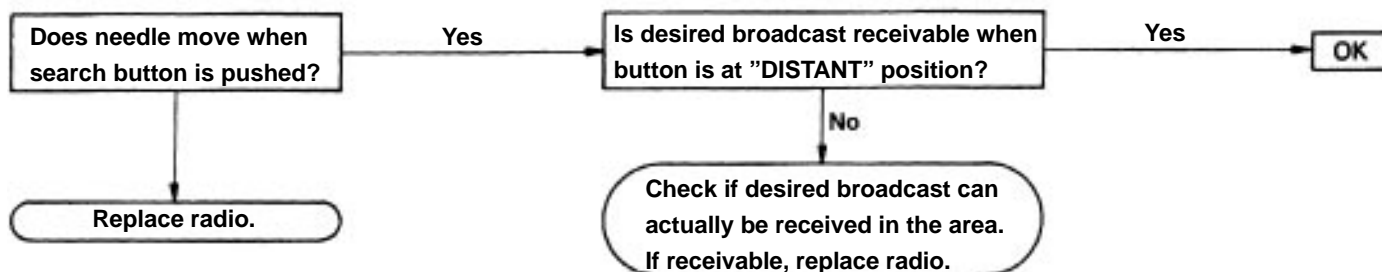
- (1) Raise the cassette door with your finger. Next, using a pencil or like object, push in the guide as shown.
- (2) Using a cleaning pen or cotton applicator soaked in alcohol, clean the head surface, pinch rollers and capstans.
- (3) Push in the "eject" button.

**4. DEFECTIVE AUTO-SEARCH MECHANISM**

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

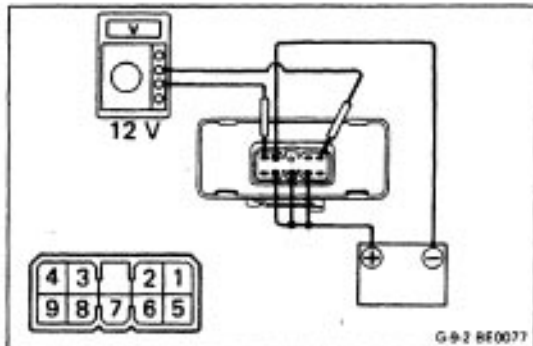
Possible causes:

- Poor search sensitivity (SENS button)
- Defective radio

**TEST**

## Antenna Motor Control Relay

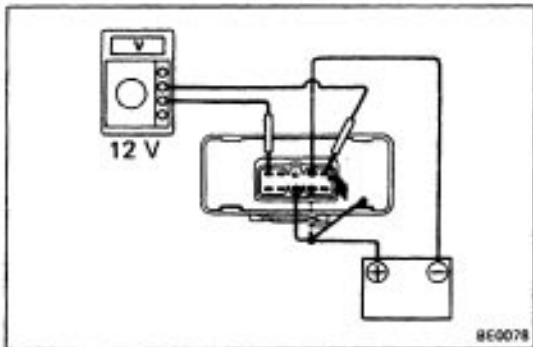
### INSPECTION OF ANTENNA MOTOR CONTROL RELAY



#### 1. INSPECT RELAY OPERATION (ANTENNA UP)

- Connect the voltmeter positive (+) lead to terminal 1 and the negative (-) lead to terminal 4.
- Connect the positive (+) lead from the battery to terminals 6, 7 and 8. Connect the negative (-) lead to terminal 3.
- Check that there is battery voltage.

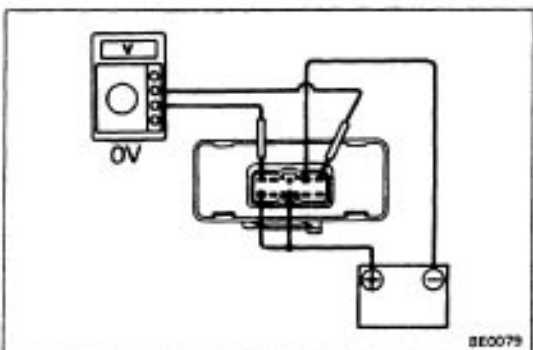
HINT: Measure the voltage within 7 seconds after connecting the positive (+) battery lead to terminals 8.



#### 2. INSPECT RELAY OPERATION (ANTENNA DOWN)

- Connect the voltmeter positive (+) lead to terminal 4 and the negative (-) lead to terminal 1.
- Connect the positive (+) lead from the battery to terminals 6 and 7. Connect the negative (-) lead to terminal 2.
- Disconnect the positive (+) battery lead from terminal 6.
- Check that there is battery voltage.

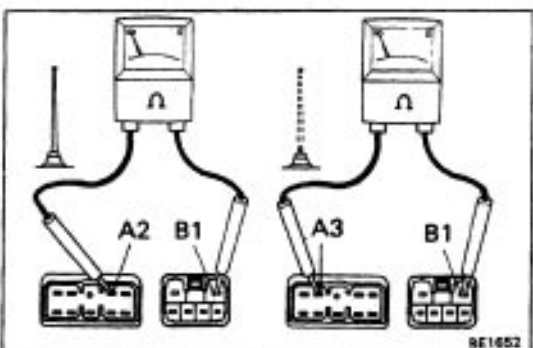
HINT: Measure the voltage within 7 seconds after disconnecting the positive (+) battery lead from terminal 6.



#### 3. INSPECT RELAY OPERATION (ANTENNA STOP)

- Connect the voltmeter positive (+) lead to terminal 1 and the negative (-) lead to terminal 4.
- Connect the positive (+) lead from the -battery to terminals 7 and 9. Connect the negative (-) lead to terminal 2.
- Check that there is no battery voltage.

If operation is not as specified, replace the relay.



## Antenna Motor

### INSPECTION OF ANTENNA MOTOR

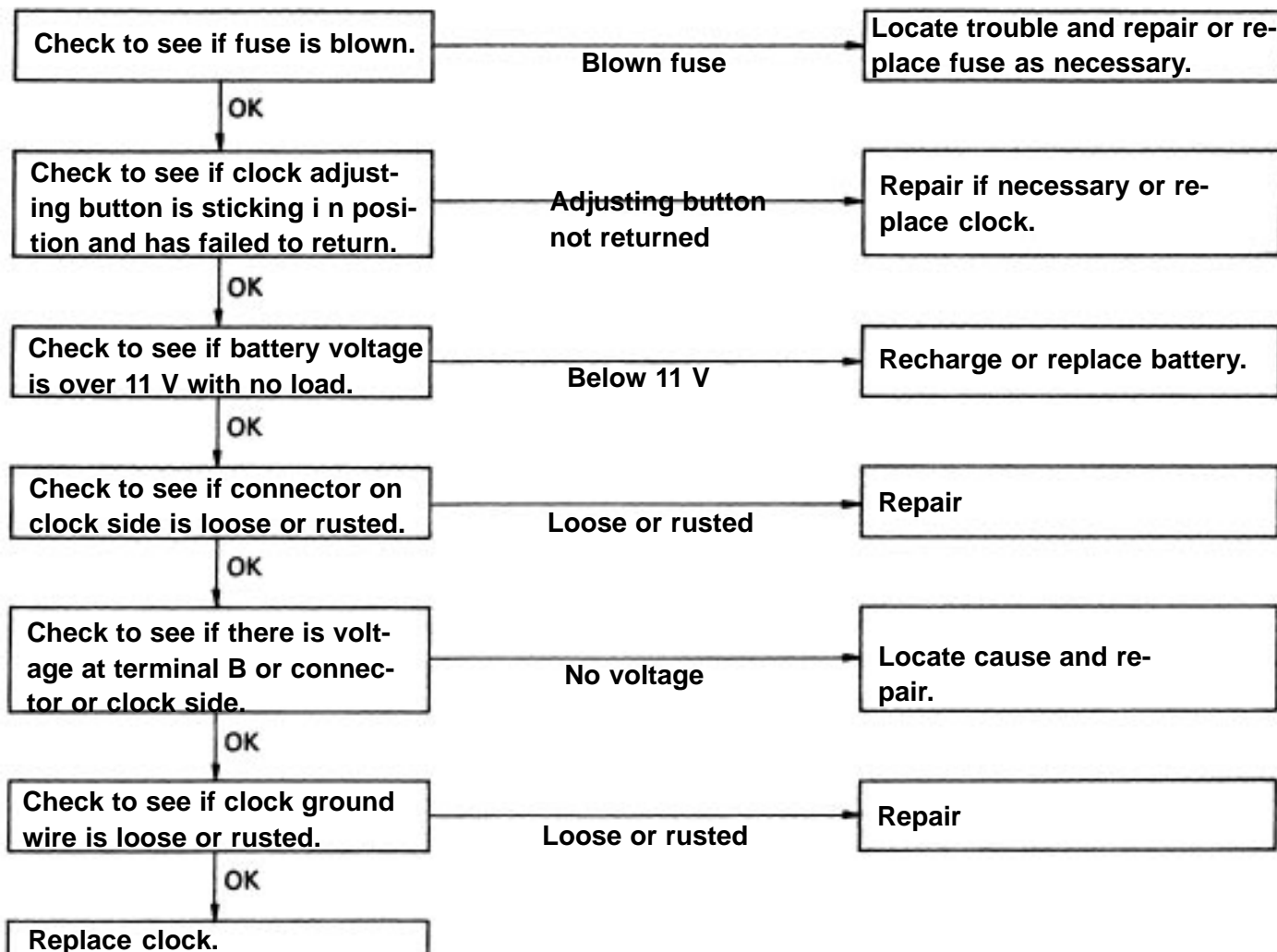
#### INSPECT LIMIT SWITCH OPERATION

- If the motor stops with the antenna up, check that there is no continuity between terminals A-2 and B-1.
- If the motor stops with the antenna down, check that there is no continuity between terminals A-3 and B-1.

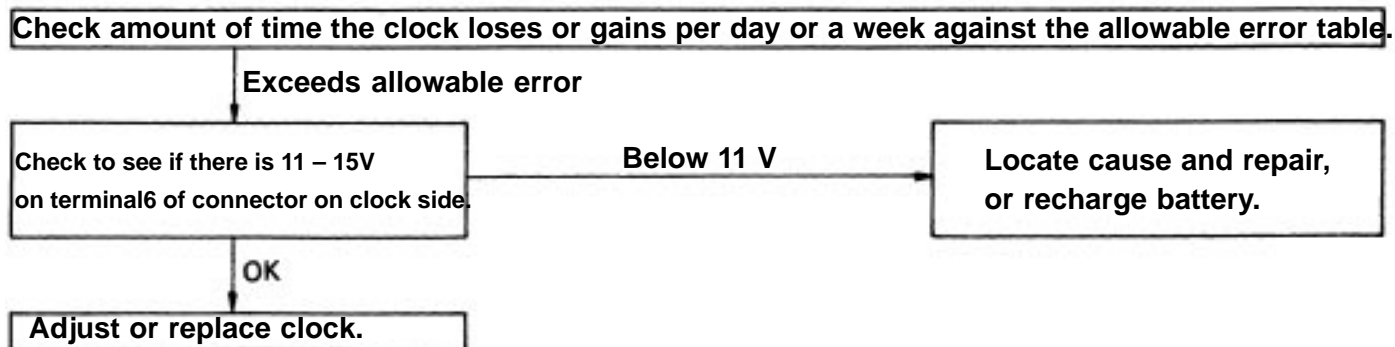
If continuity is not as specified, replace the motor.

## CLOCK

### Troubleshooting CLOCK WILL NOT OPERATE



### CLOCK LOSES OR GAINS TIME



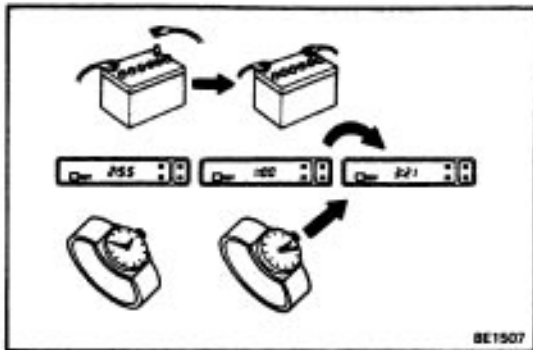
**1. INSPECT ALLOWABLE ERROR OF CLOCK**

Check the allowable error of the clock.

Allowable error (per day):  $\pm 1.5$  seconds

**2. ADJUSTMENT OF CLOCK**

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

**3. SETTING OF CLOCK**

(a) Connect the battery terminal.

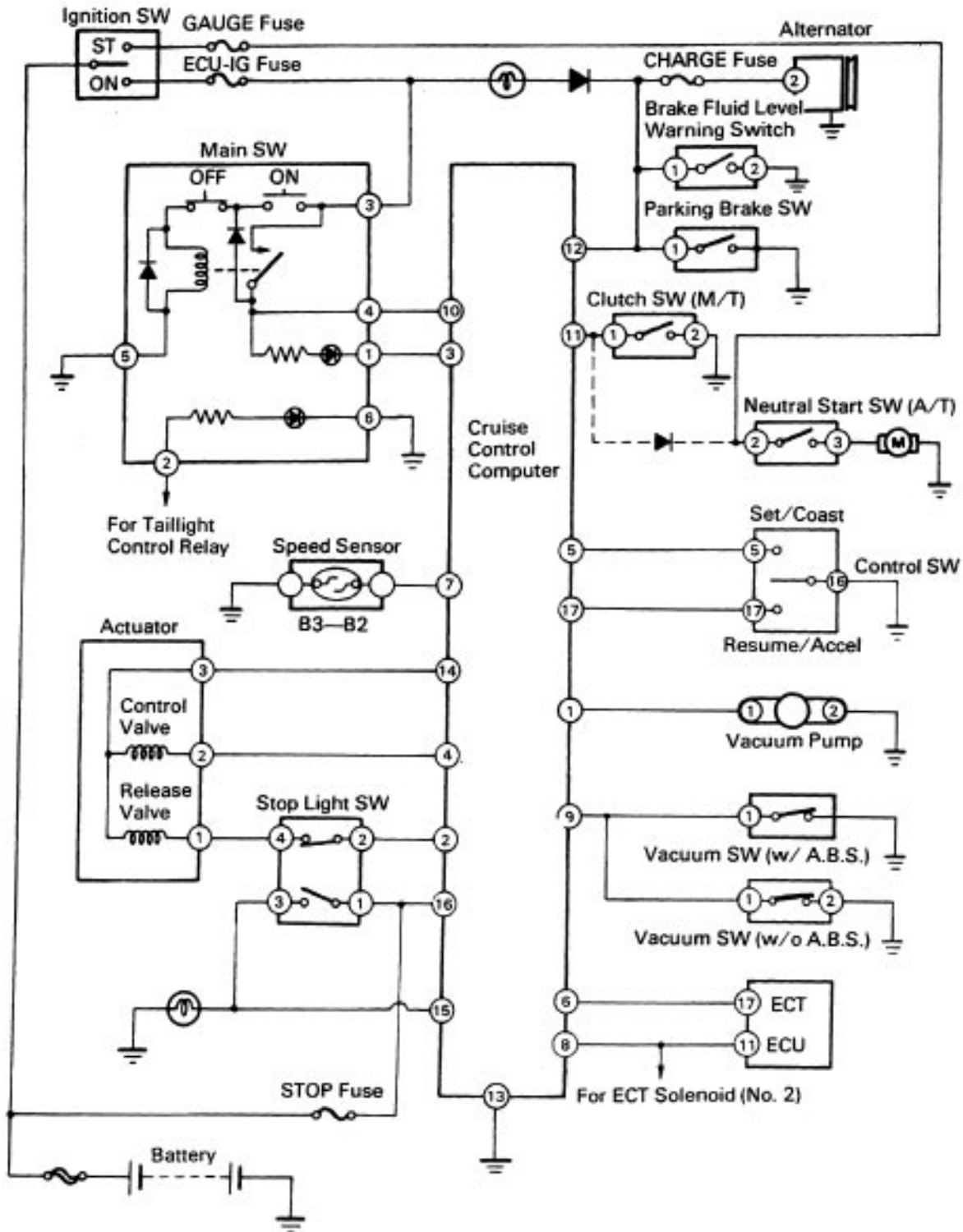
(b) Check the clock to see that it is running, and then set it to the correct time.

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



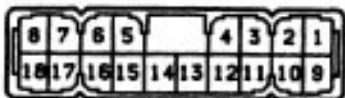
# CRUISE CONTROL SYSTEM

## Wiring Diagram

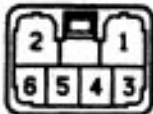


## Connectors

Cruise Control Computer



Main SW



Control SW



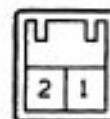
Actuator



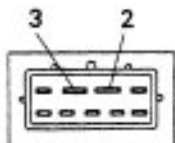
Stop Light Switch



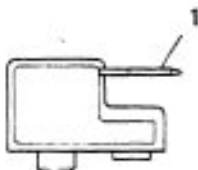
Clutch SW



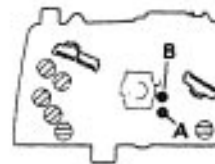
Neutral Start Switch



Parking Brake SW



Speed Sensor

Vacuum Switch  
(w/ A.B.S.) (w/o A.B.S.)

Vacuum Pump

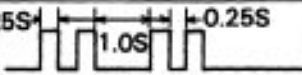





ECT Computer  
Wire Harness SideAlternator  
Wire Harness SideBrake Fluid Level  
Warning Switch

## Diagnosis System

### OUTPUT OF DIAGNOSTIC CODES

#### 1. READ TYPE A CODE

- Turn the ignition switch on.
- Turn the set/coast switch on, and keep it on.
- Push the main switch on.
- Turn the set/coast switch off.
- Meet the conditions listed below.
- Read the diagnostic code on the main switch indicator.

No.	Conditions	Indication code	Diagnosis
1	Set/coast switch on	ON 0.25S OFF 	Set/coast switch circuit is normal.
2	Resume/accel switch on	ON OFF 	Resume/ accel switch circuit is normal.
3	Vacuum switch on	ON OFF 	Vacuum switch circuit is normal.
4	Each cancel switch on (Stop light switch, Parking brake switch, Clutch switch, Neutral start switch)	ON OFF 	Each cancel switch circuit is normal.
5	Drive 40 km/h (25 mph) or over	ON OFF 	Speed sensor circuit is normal.
6	Drive 30 km/h (19 mph) or below	ON OFF 	Speed sensor circuit is normal.

#### HINT:

- To save time performing the next test, do not turn off the ignition switch when steps (a) – (f) are completed.
- Checking of No. 4 code is done with the vehicle jacked up and the engine idling.
- If there is no indication code, perform diagnosis –and inspection. (See page Be-74)

**2. READ TYPE 6 CODE**

- (a) If while driving with the cruise control on, the system is cancelled by a malfunction in either the actuator, speed sensor, or control switch circuit, the main switch indicator will blink 5 times.
- (b) While driving at a speed of 16 km/h (10 mph) or less, press the SET/COAST switch three times in two seconds.

HINT: In order to retain the diagnostic code when a malfunction has occurred, always inspect with the ignition and main switches on.

Should the power be cut, the diagnostic code will be erased from the computer memory.

- (e) Read the diagnostic code on the main switch indicator.

Indication code		Diagnosis
		Normal.
11		Actuator circuit is abnormal.
21		Speed sensor signal circuit is abnormal.
23		*Vehicle speed decreases to 16 km/h (14 mph) or more below set speed.
31		Resume/accel switch circuit is abnormal.
33		Resume/accel switch and set/coast switch circuit is abnormal.
* If the set speed can be maintained when the speed control switch is again set at SET/COAST, there is no malfunction.		

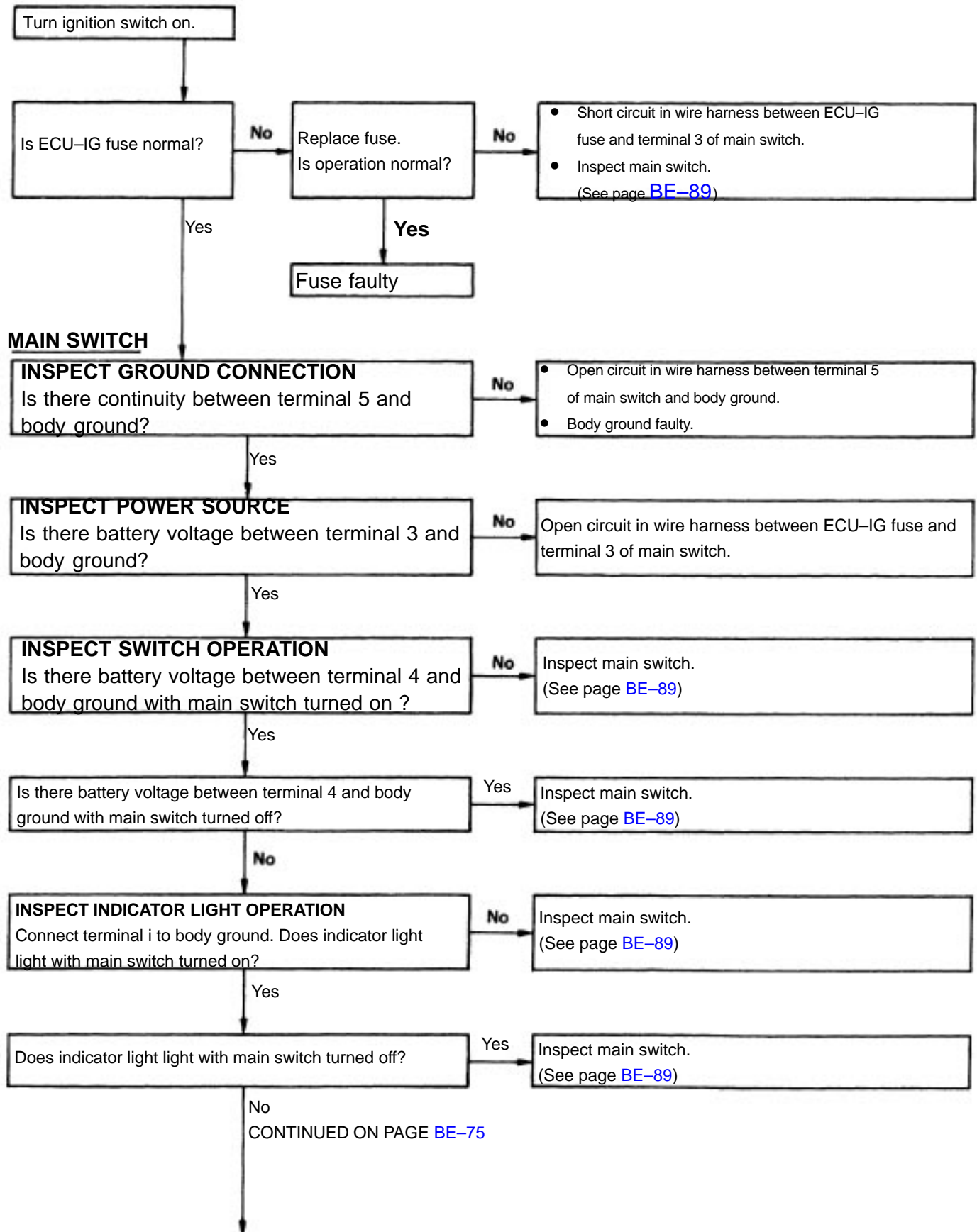
**HINT:**

- Indication codes appear in order from No. 11.
- 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-74](#))

## Troubleshooting

Problem	Inspection item		No.
Cruise control does not operate.	(a) Inspect type A codes.	No.1 NO No.2 NO No.3 NO No.4 NO No.5 NO No.6 NO	B C J F to I E E
	(b) Inspect type6 codes.	11 21 23 31 33	D E D, E C B, C
	(e) All codes are normal.		A, D, E
Vehicle speed does not decrease when coast switch turned on.	Inspect No. 1 of type A code.	OK NO	D B
Vehicle speed fluctuates when set switch turned on.			
Vehicle speed does not accelerate when accel switch turned on.	Inspect No.2 of type A code.	OK NO	D C
Vehicle speed does not return to memorized speed when resume switch turned on.			
Setting speed deviates on high side.	—	—	D, E
Setting speed deviates on low side.			
Return and acceleration response is sluggish.	Inspect No.3 of type A code.	OK NO	D J
Setting speed does not cancel when brake pedal depressed.	Inspect No.4 of type A code.	OK NO	D F
Setting speed does not cancel when parking brake pulled up.	Inspect No.4 of type A code.	OK NO	D G
Setting speed does not cancel when clutch pedal depressed (M/T only).	Inspect No.4 of type A code.	OK NO	D H
Setting speed does not cancel when shifted to "N" range (A/T only).	Inspect No.4 of type A code.	OK NO	D I
Speed can be set below about 40 km/h (25 mph).	Inspect No.5 of type A code. Inspect No.6 of type A code.	OK NO	D E
Cruise control will not disengage even about 40 km/h (25 mph).			
A short period after the O/D cut, (Approx. within 14 seconds) the O/D will resume.	—	—	K

## A INSPECTION OF POWER SOURCE CIRCUIT



CONTINUED ON PAGE [BE-74](#)**COMPUTER**

Disconnect connector from computer and inspect connector on wire harness side as follows.

**INSPECT GROUND CONNECTION.**

Is there continuity between terminal 13 and body ground?

No

- Open circuit in wire harness between terminal 13 and body ground.
- Body ground faulty.

Yes

**INSPECT POWER SOURCE**

Is there battery voltage between terminal 10 and body ground with main switch turned on?

No

Open circuit in wire harness between terminal 10 of computer and terminal 4 of main switch.

Yes

**INSPECT INDICATOR LIGHT CIRCUIT**

Connect terminal 3 to body ground.  
Does indicator light light with main switch turned on?

No

Open circuit in wire harness between terminal 3 of computer and terminal 1 of main switch.

Yes

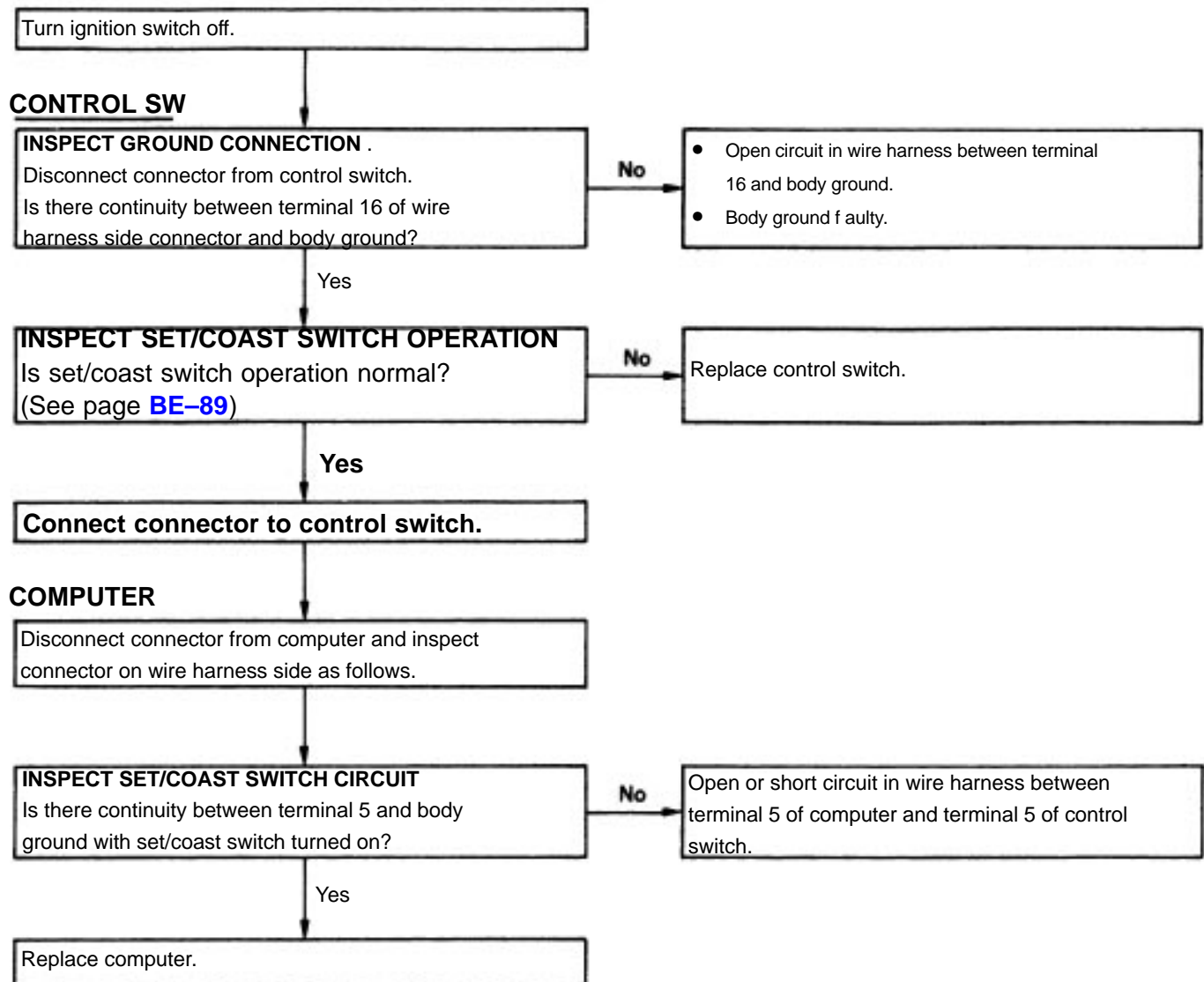
Disconnect connector from control switch.  
Is there continuity between terminal 3 and body ground?

Yes

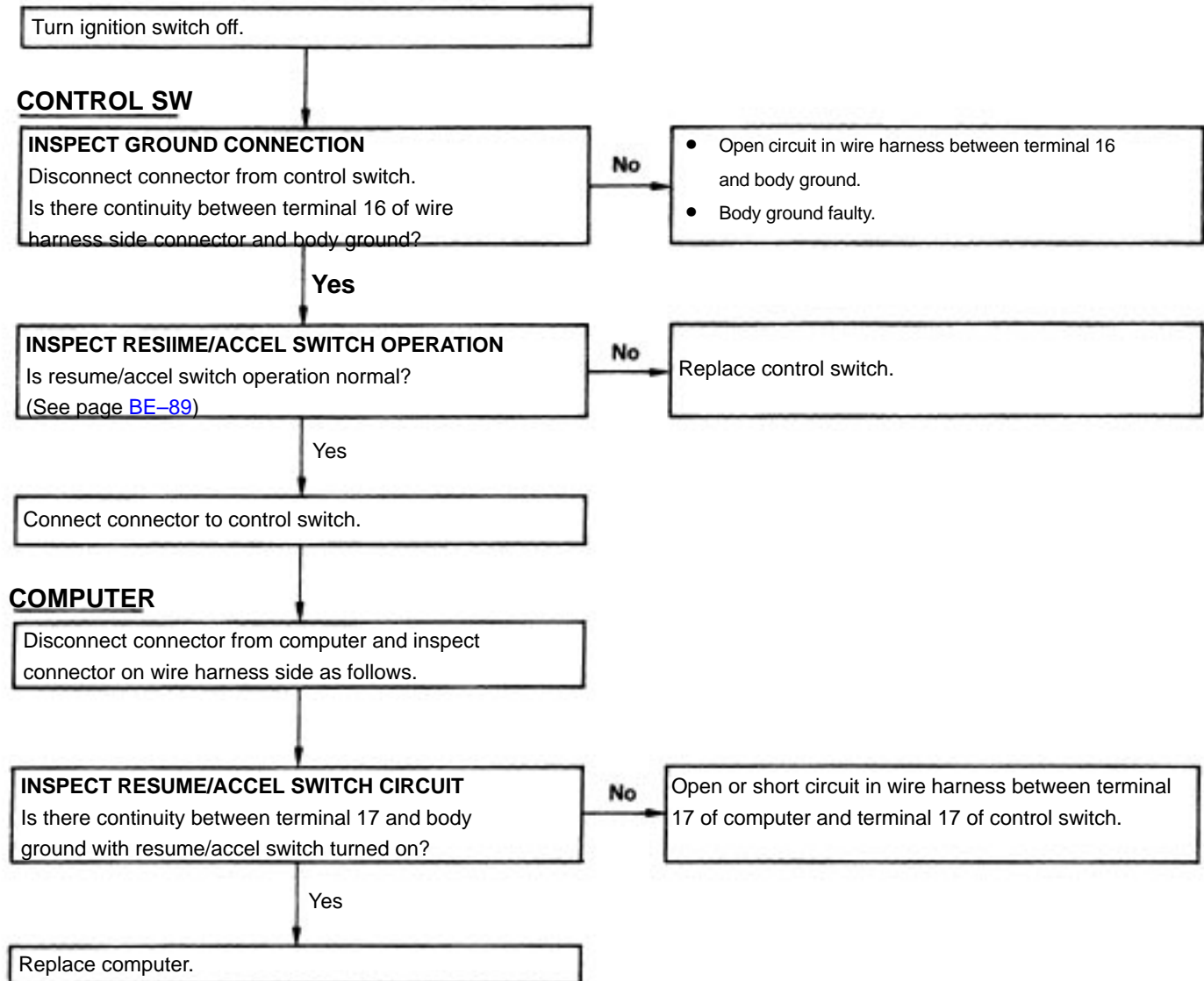
Short circuit in wire harness between terminal 3 of computer and terminal 1 of main switch.

No

Replace computer.

**B INSPECTION OF SET/COAST SWITCH CIRCUIT**



**C INSPECTION OF RESUME/ACCEL SWITCH CIRCUIT**

## D INSPECTION OF ACTUATOR CIRCUIT

Turn ignition switch off.

### VACUUM HOSE

Are there cracks or other damage on the vacuum hose?

Yes

Replace vacuum- hose.

No

### ACTUATOR

#### INSPECT CABLE FREEPLAY

Is control Cable freeplay less than 10 mm (0.39 in)?

No

Adjust control cable freeplay.

Yes

#### INSPECT ACTUATOR OPERATION

Disconnect connector from actuator.

Is actuator operation normal?

(See page [BE-91](#))

No

Replace actuator.

Yes

### STOP LIGHT SW

#### INSPECT STOP LIGHT SWITCH CIRCUIT

Disconnect connector from stop light switch.

Is there continuity between terminal 4 of wire harness side connector and body ground?

Yes

Short circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch.

No

Connect the connector to actuator.

Is there continuity between terminal 4 of wire harness side connector and body ground?

No

Open circuit in wire harness between terminal 1 of actuator and terminal 4 of stop light switch.

Yes

#### INSPECT STOP LIGHT SWITCH OPERATION

Is stop light switch operation normal?

(See page [BE-89](#))

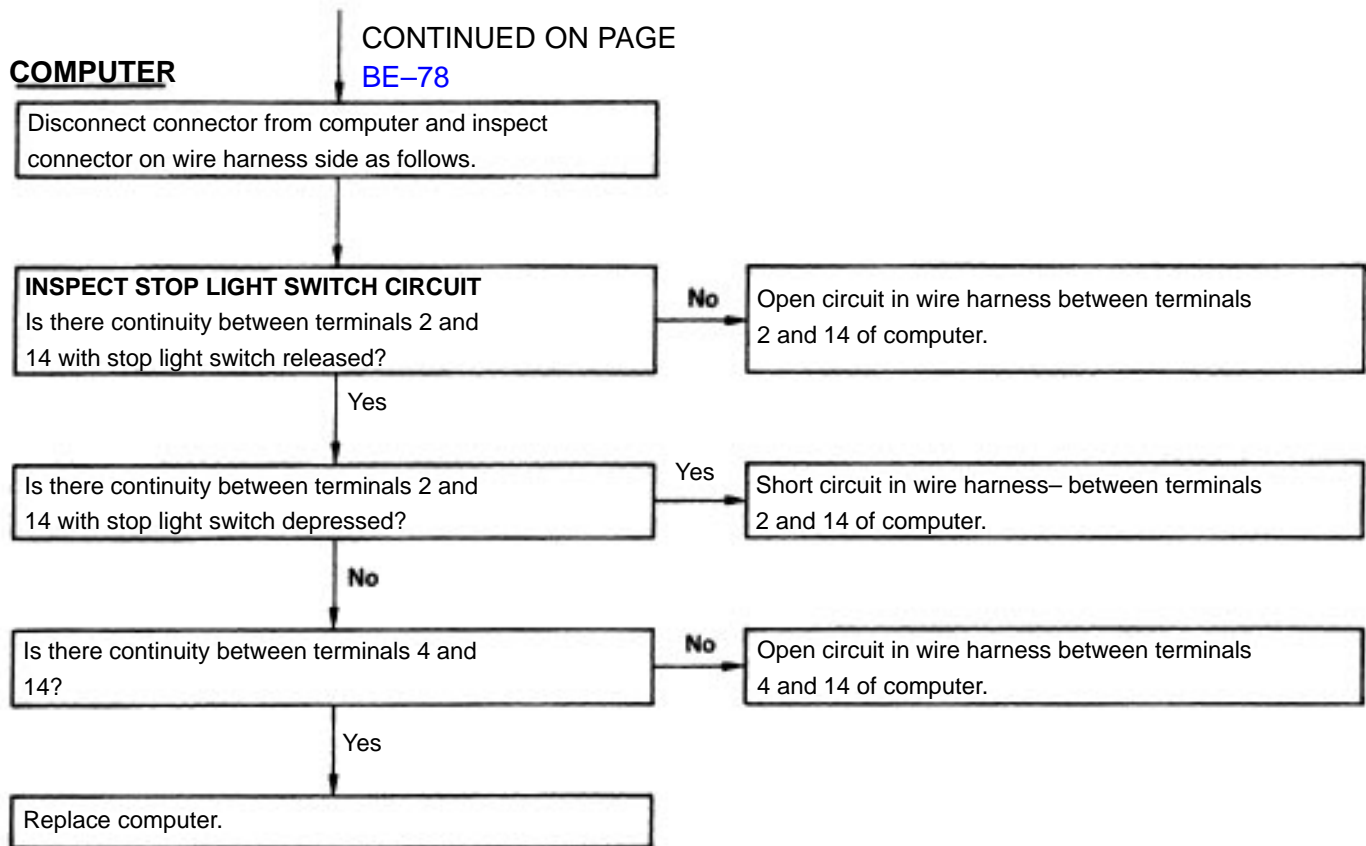
No

Replace stop light switch.

Yes

Connect connector to stop light switch.

CONTINUED ON PAGE  
[BE-79](#)



**E****INSPECTION OF SPEED SENSOR CIRCUIT****SPEEDOMETER CABLE****INSPECT SPEEDOMETER CABLE**

Does the meter fluctuate when driving at a steady speed?

Yes

Meter cable faulty.

No

Turn ignition switch off.

**SPEED SENSOR****INSPECT GROUND CONNECTION**

Disconnect connector from meter (speed sensor). Is there continuity between terminal B of wire harness side connector and body ground?

No

Open circuit in wire harness between terminal B and body ground.

Yes

**INSPECT SPEED SENSOR OPERATION**

Is speed sensor operation normal?  
(See page [BE-90](#))

No

Speed sensor faulty.

Yes

**COMPUTER****INSPECT SPEED SENSOR CIRCUIT**

Disconnect connector from computer.  
Is there continuity between terminal A of wire harness side connector and terminal 7 of computer?

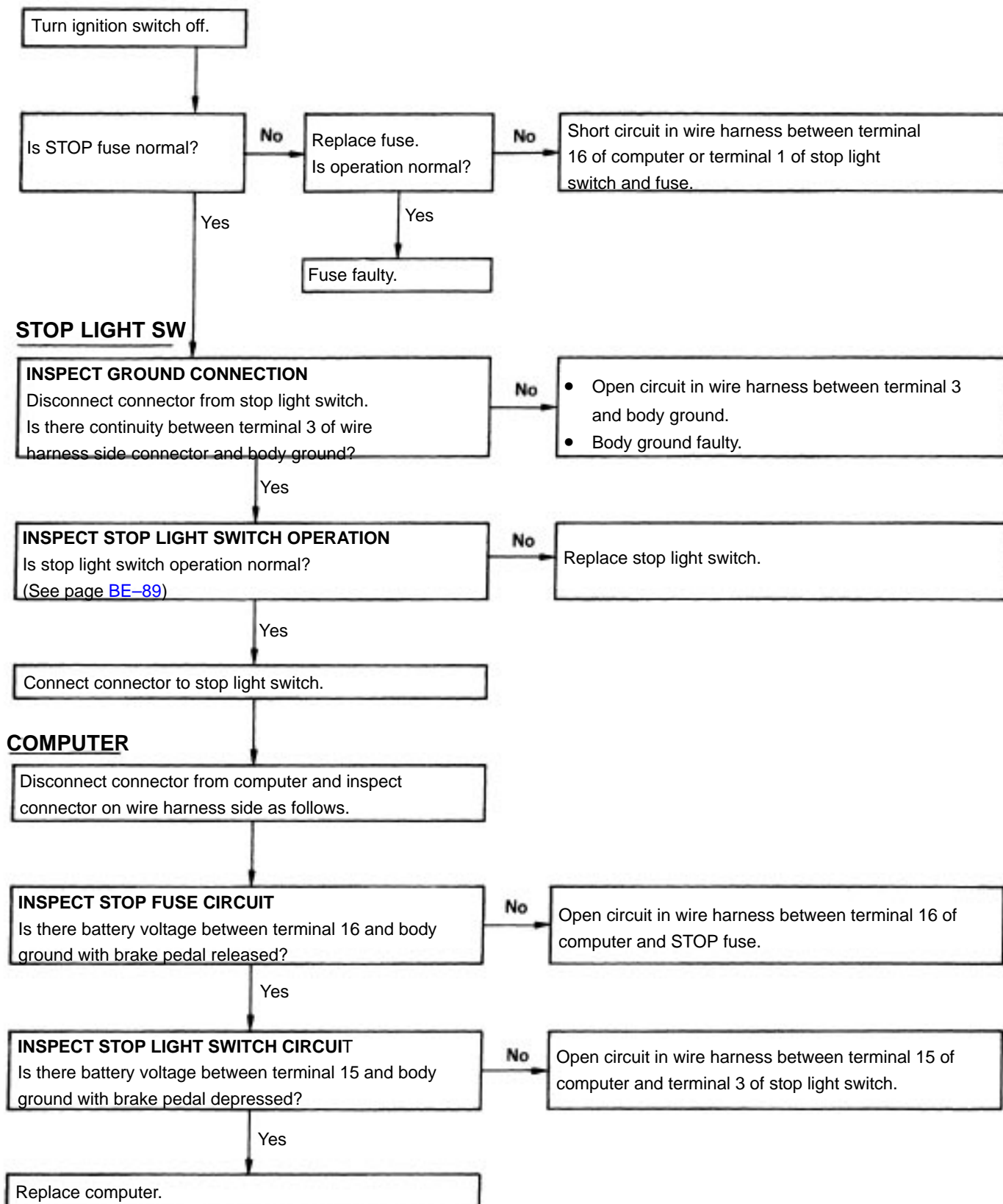
No

Open circuit in wire harness between terminal A of speed sensor and terminal 7 of computer.

Yes

Replace computer.

## F INSPECTION OF STOP LIGHT SWITCH CIRCUIT



**G****INSPECTION OF PARKING BRAKE SWITCH CIRCUIT**

Turn ignition switch off.

**ALTERNATOR****INSPECT ALTERNATOR OPERATION**

is alternator operation normal? (See page [CH-4](#))

No

Replace alternator.

Yes

**BRAKE FLUID LEVEL  
WARNING SWITCH****INSPECT GROUND CONNECTION**

Disconnect connector from brake level warning switch.  
Is there continuity between terminal 2 of wire harness side  
connector and body ground?

No

- Open circuit in wire harness between terminal 2 and body ground.
- Body ground faulty.

Yes

**INSPECT BRAKE WARNING SWITCH**

Is brake fluid level warning switch operation normal?  
(See page [BE-38](#))

No

Replace brake warning switch.

Yes

Connect the connector to brake warning switch.

**PARKING BRAKE SWITCH****INSPECT PARKING BRAKE SWITCH OPERATION**

Disconnect connector from parking brake switch.  
Is parking brake switch operation normal? (See page  
[BE-90](#))

No

Replace parking brake switch.

Yes

Connect connector to parking brake switch.

**COMPUTER**

Disconnect connector from computer and inspect connector  
on wire harness side as follows.

Remove CHARGE fuse and ignition switch turned on.

Is there no voltage between terminal 12 and body ground  
with parking brake pulled up?

No

Open circuit in wire harness between terminal 12 of  
computer and terminal of parking brake switch.

Yes

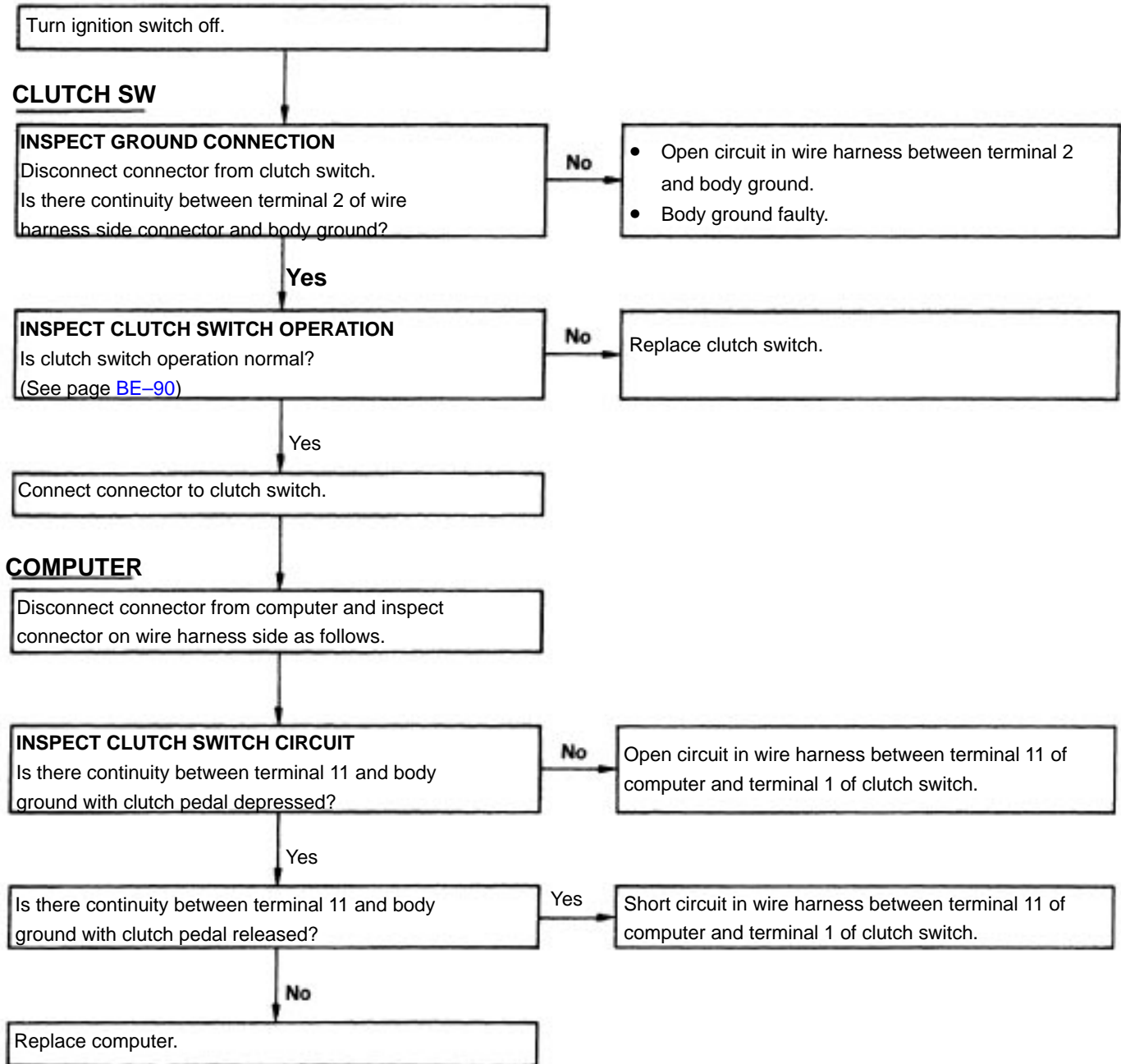
Is there battery voltage between terminal 12 and body  
ground with parking brake released?

No

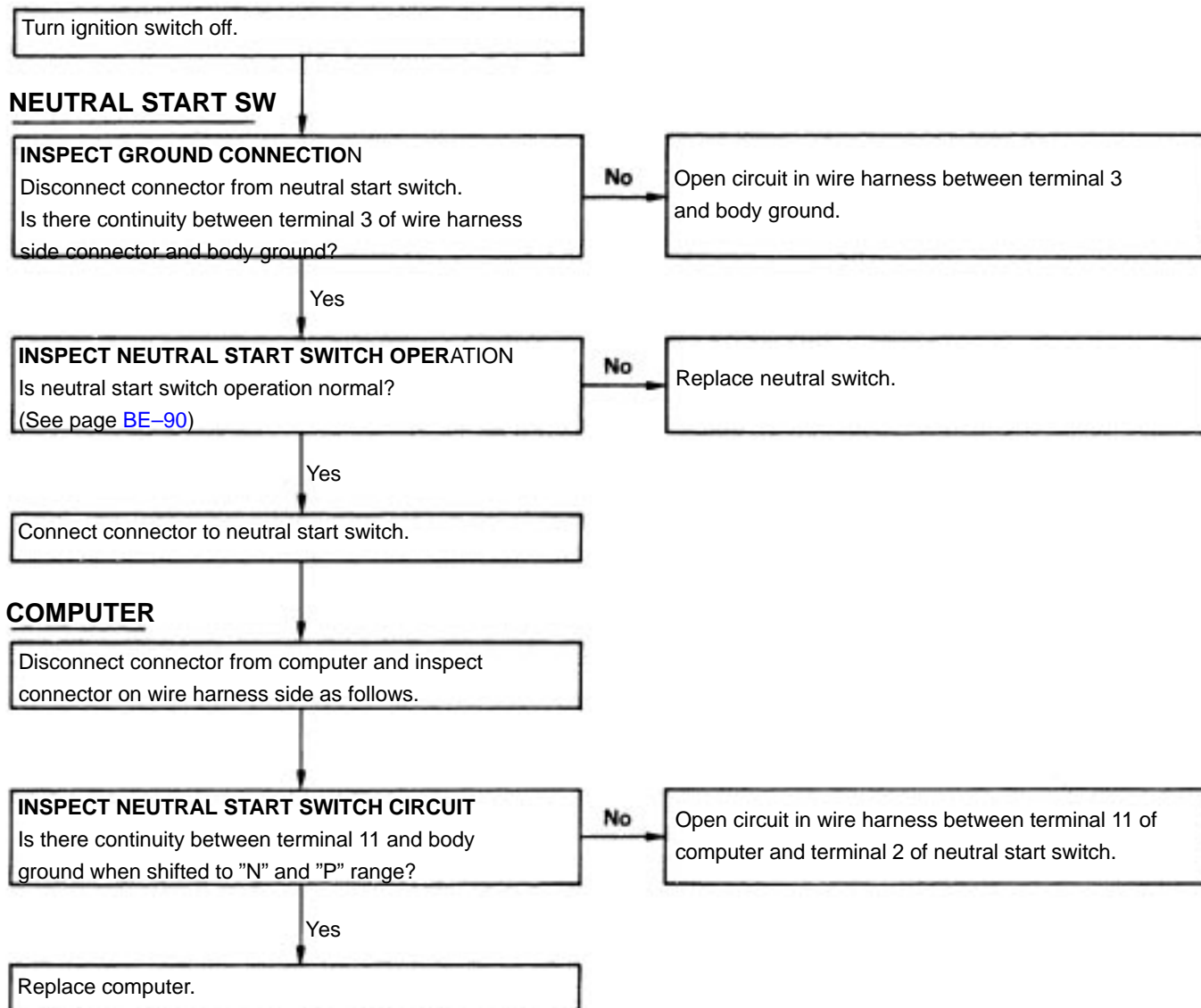
Short circuit in wire harness between terminal 12 of  
computer and terminal 1 of parking brake switch,  
terminal 1 of brake fluid level warning switch or terminal  
2 of alternator.

Yes

Replace computer.

**H INSPECTION OF CLUTCH SWITCH CIRCUIT**



**I INSPECTION OF NEUTRAL START SWITCH CIRCUIT**



## J INSPECTION OF VACUUM CIRCUIT

Turn ignition switch off.

### VACUUM HOSE

Are there cracks or other damage on the vacuum hose?

Yes

Replace vacuum hose.

No

### VACUUM SW

#### INSPECT VACUUM SWITCH CIRCUIT

Disconnect connector from vacuum switch.

Is there continuity terminal 1 of vacuum switch and body ground?

No

- Vacuum switch improper installed.
- Body ground faulty.

Yes

#### INSPECT VACUUM SWITCH OPERATION

Is vacuum switch normal?

(See page BE-92.)

No

Replace vacuum switch.

Yes

### VACUUM PUMP

#### INSPECT GROUND CONNECTION

Disconnect connector from vacuum pump.

Is there continuity between terminal 2 of wire harness side connector and body ground?

No

- Open circuit in wire harness between terminal 2 and body ground.
- Body ground faulty.

Yes

#### INSPECT VACUUM PUMP OPERATION

Is vacuum pump operation normal?

(See page BE-92)

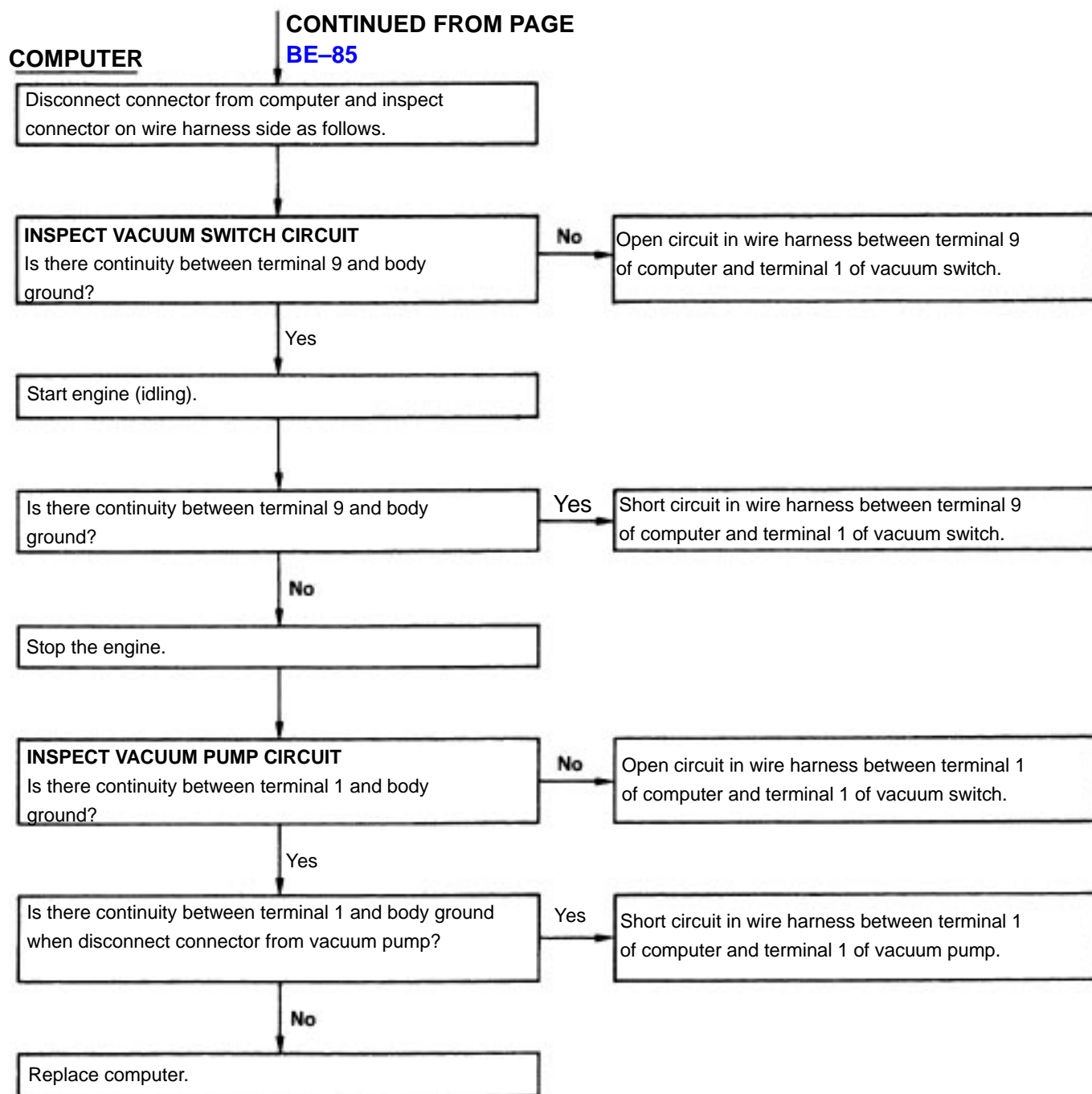
No

Replace vacuum pump.

Yes

Connect connector to vacuum switch and pump.

CONTINUED ON PAGE  
BE-86



**K****INSPECTION OF ECT SOLENOID CIRCUIT**

Turn ignition switch off.

**COMPUTER**

Disconnect connector from computer and inspect connector on wire harness side as follows.

**INSPECT ECT SOLENOID CIRCUIT**

Is there continuity between terminal 8 of wire harness side connector and terminal 11 of ECT computer?

**No**

Open circuit in wire harness between terminal 8 of computer and terminal 11 of ECT computer.

**Yes**

Is resistance value about 11 – 15 ohm between terminal 8 of wire harness side connector and body ground?

**No**

Open or short circuit in wire harness between terminal 8 of computer and terminal 11 of ECT computer or ECT solenoid (No. 2).

**Yes****INSPECT OVER DRIVE CIRCUIT**

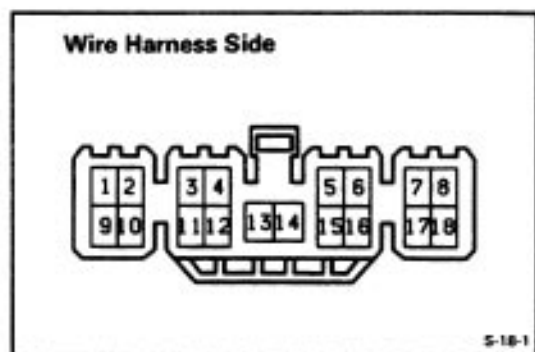
Is there continuity between terminal 6 of wire harness side connector and terminal 17 of ECT computer?

**No**

Open circuit in wire harness between terminal 6 of computer and terminal 17 of ECT computer.

**Yes**

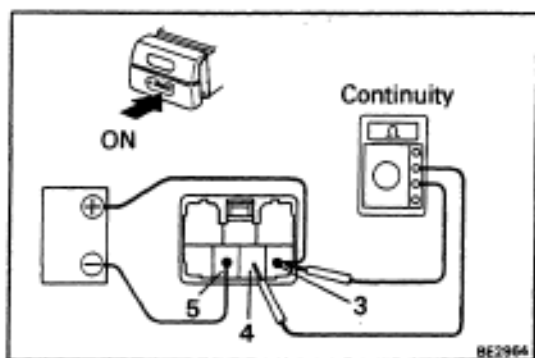
Replace computer.



## Cruise Control Computer Circuit INSPECTION OF COMPUTER CIRCUIT

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

Connection or measure item	Check for	Tester connection	Condition	Specified value
Stop Fuse	Voltage	16 – Body ground		Battery voltage
Stop Light Switch	Voltage	15 – Body ground	Brake pedal depressed	Battery voltage
			Brake pedal released	No voltage
Stop Light Switch and Release Valve	Resistance	2–14	Brake pedal released	Approx. 68Ω
Control Valve	Resistance	4–14	—	Approx. 30Ω
Control Switch	Voltage	10 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Control Switch (indicator circuit)	Voltage	3 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Control Switch (set/coast)	Continuity	5 – Body ground	Turn set/coast switch on	Continuity
			Turn set/coast switch off	No continuity
Control Switch (resume/accel)	Continuity	17 – Body ground	Turn resume/accel switch on	Continuity
			Turn resume/accel switch off	No continuity
Speed Sensor	Continuity	7 – Body ground	Vehicle moving slowly	1 pulse each 44 cm (15.75 in.)
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 released or shifted into only range except "N" and "P" range	No continuity
Parking Brake Switch	Voltage	12 – Body ground	Remove CHARGE fuse and ignition switch turned on with parking brake lever pulled up.	No voltage
			Remove CHARGE fuse and ignition switch turned on with parking brake lever released.	Battery voltage
Vacuum Switch	Continuity	9 – Body ground	Apply vacuum approx. 170 mmHg (fi.69 in.Hg, 22.7 kPa)	No continuity
			No vacuum	Continuity
Vacuum Pump	Continuity	1 – Body ground	—	Continuity
Body Ground	Continuity	13 – Body ground	—	Continuity



## Main Switch

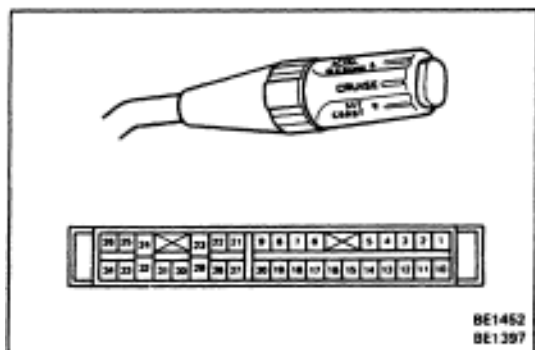
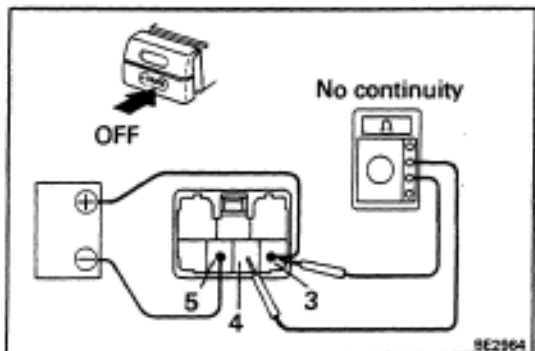
### INSPECTION OF MAIN SWITCH

#### INSPECT SWITCH CONTINUITY

- Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 5.
- Check that there is continuity between terminals 3 and 4 with the main switch pushed on.

- Check that there is no continuity between terminals 3 and 4 with the main switch pushed off.

If continuity is not as specified, replace the switch.



## Control Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

Terminal	16	17	5
Switch position			
RESUME/ACCEL	○	○	
OFF			
SET/COAST	○		○

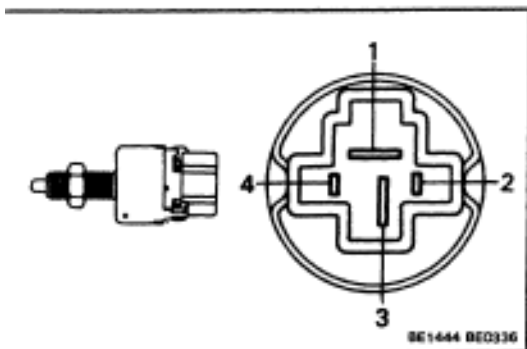
If continuity is not as specified, replace the switch.

## Stop Light Switch

### INSPECTION OF SWITCH

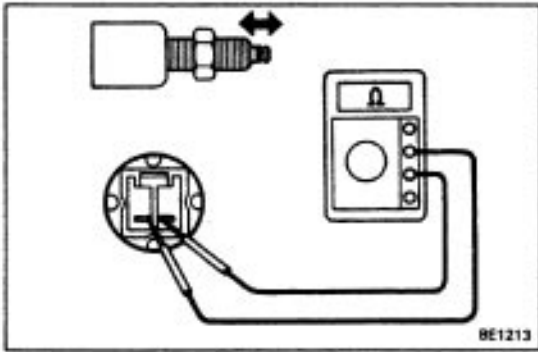
#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.



Terminal	1	2	3	4
Switch position				
Switch free (Brake pedal depressed)	○		○	
Switch pin pushed (Brake pedal released)		○		○

If continuity is not as specified, replace the switch.

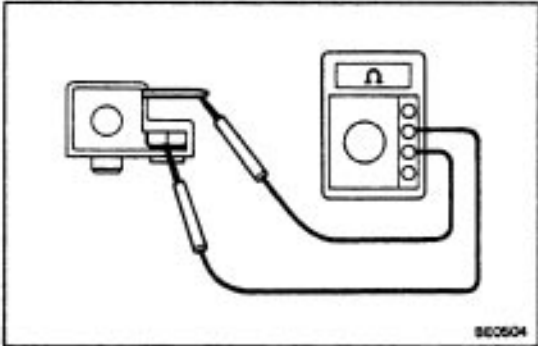


## Clutch Switch INSPECTION OF SWITCH

### INSPECT SWITCH CONTINUITY

- Check that there is continuity between terminals with the switch free.  
(Clutch pedal depressed)
- Check that there is no continuity between terminals with the switch pin pushed.  
(Clutch pedal released)

If continuity is not as specified, replace the switch.

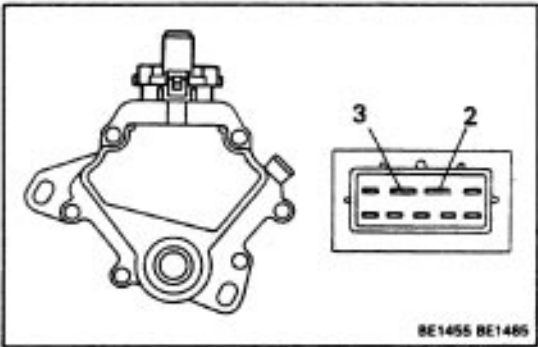


## Parking Brake Switch INSPECTION OF SWITCH

### INSPECT SWITCH CONTINUITY

- Check that there is continuity between terminal and switch set .nu^ with the switch free.  
(Parking brake lever pulled up)
- Check that there is no continuity between terminal and switch set nut with the switch pin pushed.  
(Parking brake lever released)

If continuity is not as specified, replace the switch.

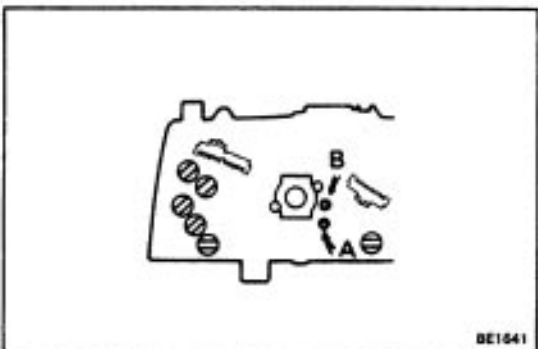


## Neutral Start Switch INSPECTION OF SWITCH

### INSPECT SWITCH CONTINUITY

Check that there is continuity between terminals 2 and 3 with switch position "P" and "N" ranges.

If continuity is not as specified, replace the switch.



## Speed Sensor INSPECTION OF SENSOR

### INSPECT SENSOR CONTINUITY

Check that there is continuity between terminals A and 6 four times per each revolution of the shaft.

If continuity is not as specified, replace the sensor.



## Actuator

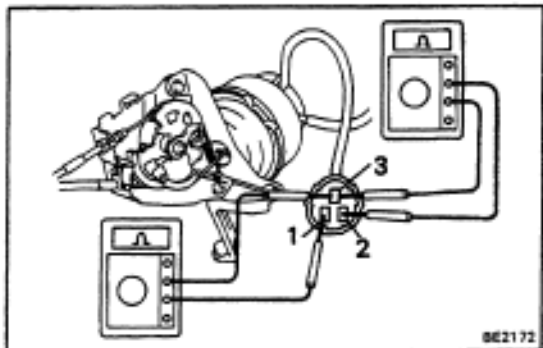
### INSPECTION OF ACTUATOR

#### 1. INSPECT CONTROL CABLE FREEPLAY

Measure the cable stroke to where the throttle valve begins to open.

**Standard: Approx. within 10 mm (0.39 in.) with a slight amount of freeplay.**

If freeplay is not as specified, adjust the control cable freeplay.



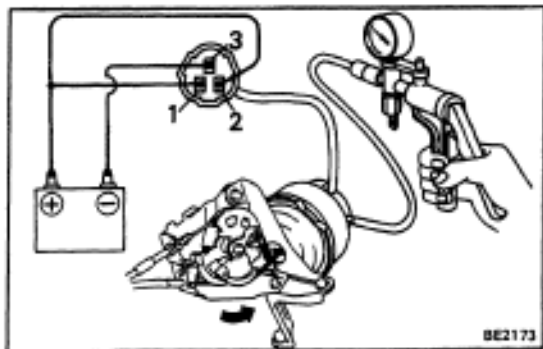
#### 2. INSPECT ACTUATOR RESISTANCE

Measure the resistance value between terminals as follows.

Resistance: 2 – 3 approx.  $30\Omega$

1 – 3 approx.  $68\Omega$

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



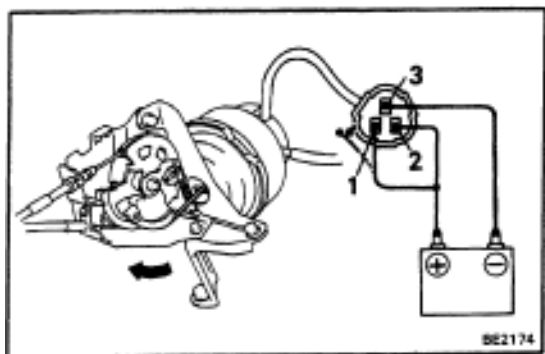
#### 3. INSPECT ACTUATOR OPERATION

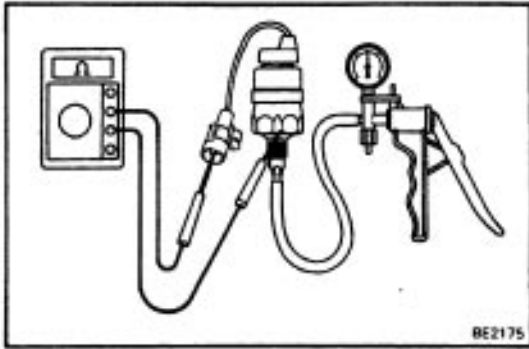
(a) Connect the positive (+) lead from battery to terminals 1, 2 and the negative H lead to terminal 3.

(b) 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.

(c) Disconnect terminal 1 or 2, 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.





## Vacuum Switch

### INSPECTION OF SWITCH

#### INSPECT SWITCH OPERATION (w/ A.B.S.)

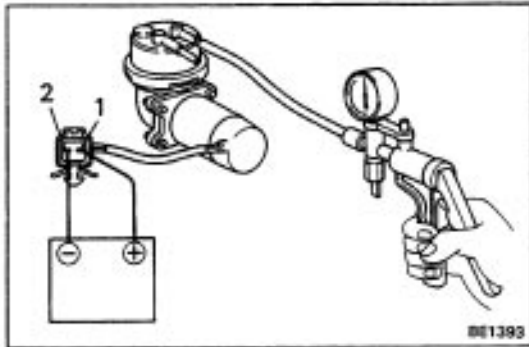
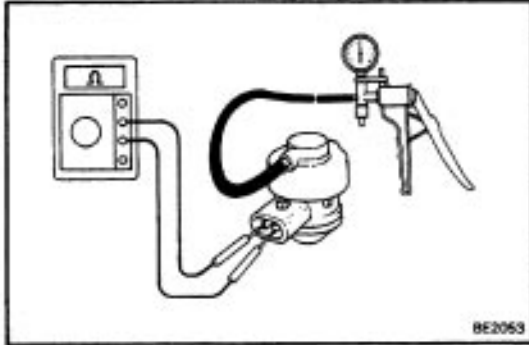
- Check that there is no continuity between terminal and body with a vacuum of  $170 \pm 10$  mmHg ( $6.69 \pm 0.39$  in.Hg,  $22.7 \pm 1.3$  kPa) or above.
- Check that there is continuity between terminal and body with no vacuum.

If operation is not as specified, replace the switch.

#### INSPECT SWITCH OPERATION (w/o A.B.S.)

- Check that there is no continuity between terminals with a vacuum of  $170 \pm 10$  mmHg ( $6.69 \pm 0.39$  in.Hg,  $22.7 \pm 1.3$  kPa) or above.
- Check that there is continuity between terminals with no vacuum.

If operation is not as specified, replace the switch.



## Vacuum Pump

### INSPECTION OF PUMP

#### INSPECT VACUUM PUMP OPERATION

- Connect a vacuum gauge to the ACT side of the pump.
- Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
- Check that there is the vacuum of 200 mmHg (7.87 in-Hg, 26.7 kPa) or above.

If operation is not as specified, replace the pump.