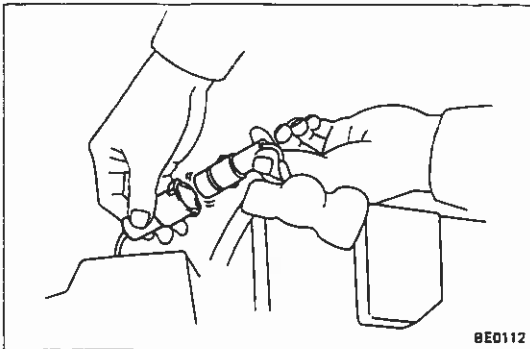


# BODY ELECTRICAL SYSTEM

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## PRECAUTIONS

### TAKE CARE WHEN INSPECTING HEADLIGHT CIRCUIT

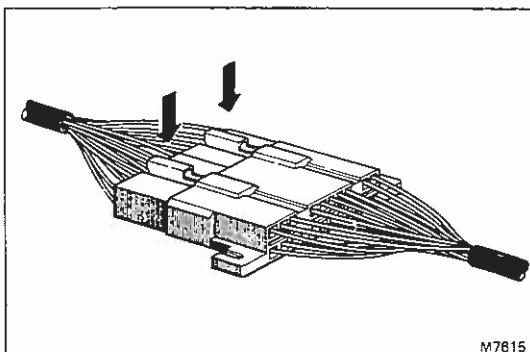
**WARNING:** With the headlight switch OFF, disconnect the pink fusible link before beginning work.

### WIRING COLOR CODE

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

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

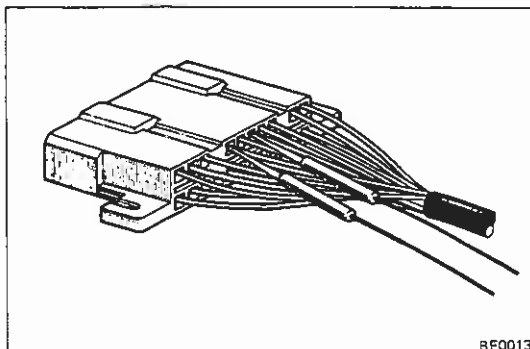
Example: R-G indicates a Red wire with a Green stripe.



### BULKHEAD TYPE CONNECTOR HANDLING AND INSPECTION

#### DISCONNECT BULKHEAD TYPE CONNECTOR

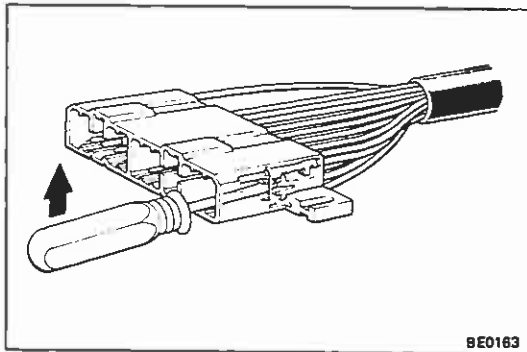
To remove the connector, push in the lock levers shown in the figure, and pull out.



#### INSPECT BULKHEAD TYPE CONNECTOR

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

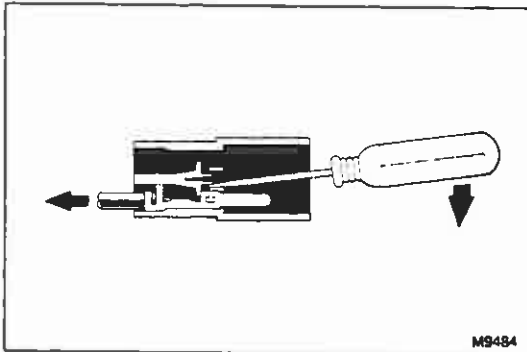
Therefore, ensure that the test probe is inserted only from the wire harness side as shown in the figure.



## REPLACEMENT OF TERMINAL

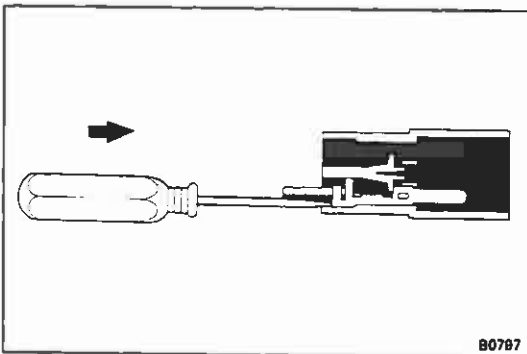
### REMOVE TERMINAL FROM BULKHEAD CONNECTOR

- (a) From the open end, insert a miniature screwdriver between the locking lugs and terminal.
- (b) Pry up the locking lugs with the screwdriver and pull the terminal out from the rear.



### INSTALL TERMINAL TO BULKHEAD CONNECTOR

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



## INSPECTION OF CIRCUIT AND CONNECTOR

### INSPECT CIRCUIT

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

### INSPECT CONNECTOR

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

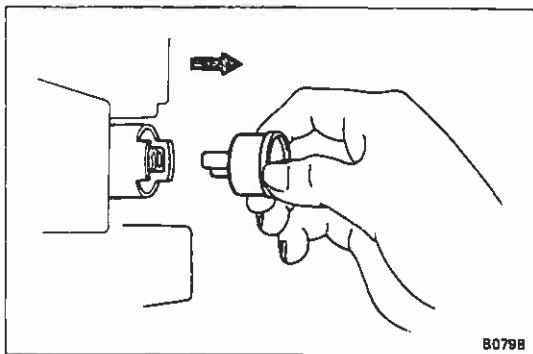
## REPLACEMENT OF FUSE

Install a new fuse with the correct amperage.

### CAUTION:

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

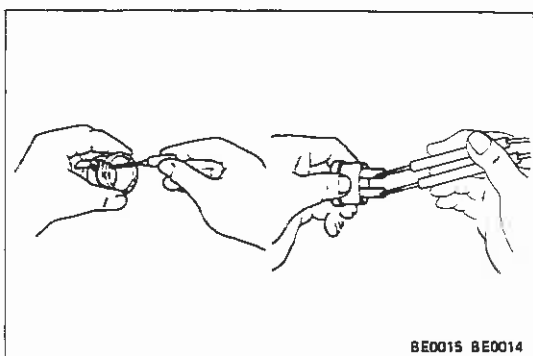
If a fuse continues to blow, a short circuit is indicated. The system must be checked by a qualified technician.



## RESET CIRCUIT BREAKER

### 1. REMOVE CIRCUIT BREAKER

- (a) Remove the kick panel.
- (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.

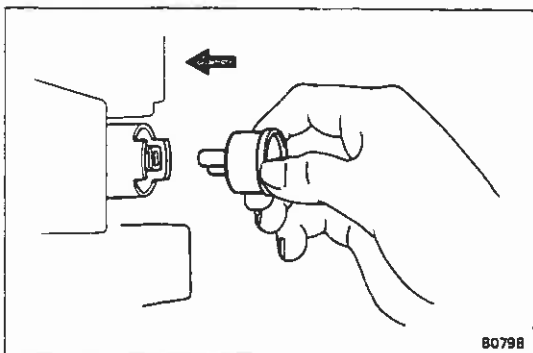
If there is no continuity, replace the circuit breaker.

### 3. INSTALL CIRCUIT BREAKER

- (a) Install the circuit breaker.

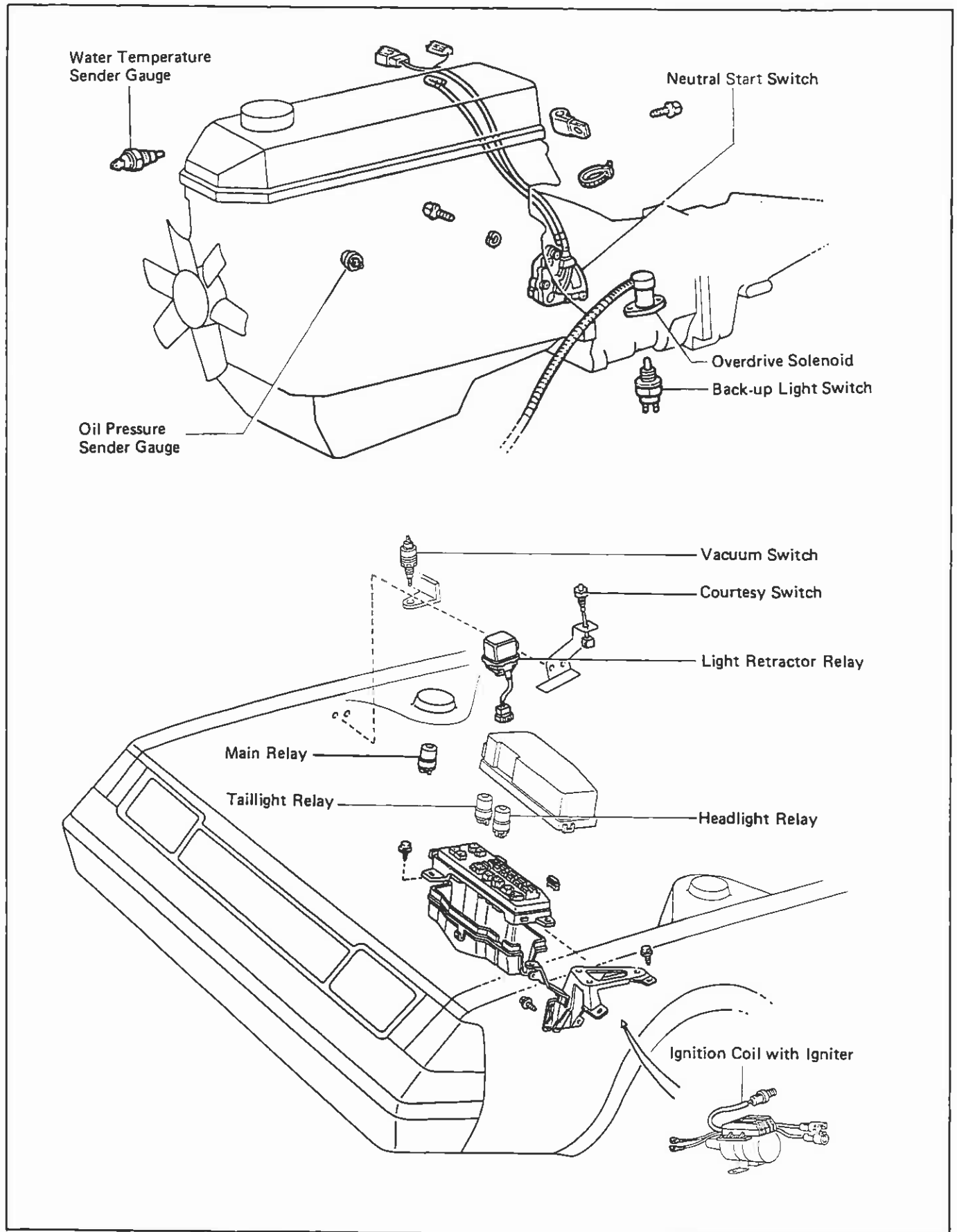
**NOTE:** If a circuit breaker continues to cut out, a short circuit is indicated. The system must be checked by a qualified technician.

- (b) Install the kick panel.

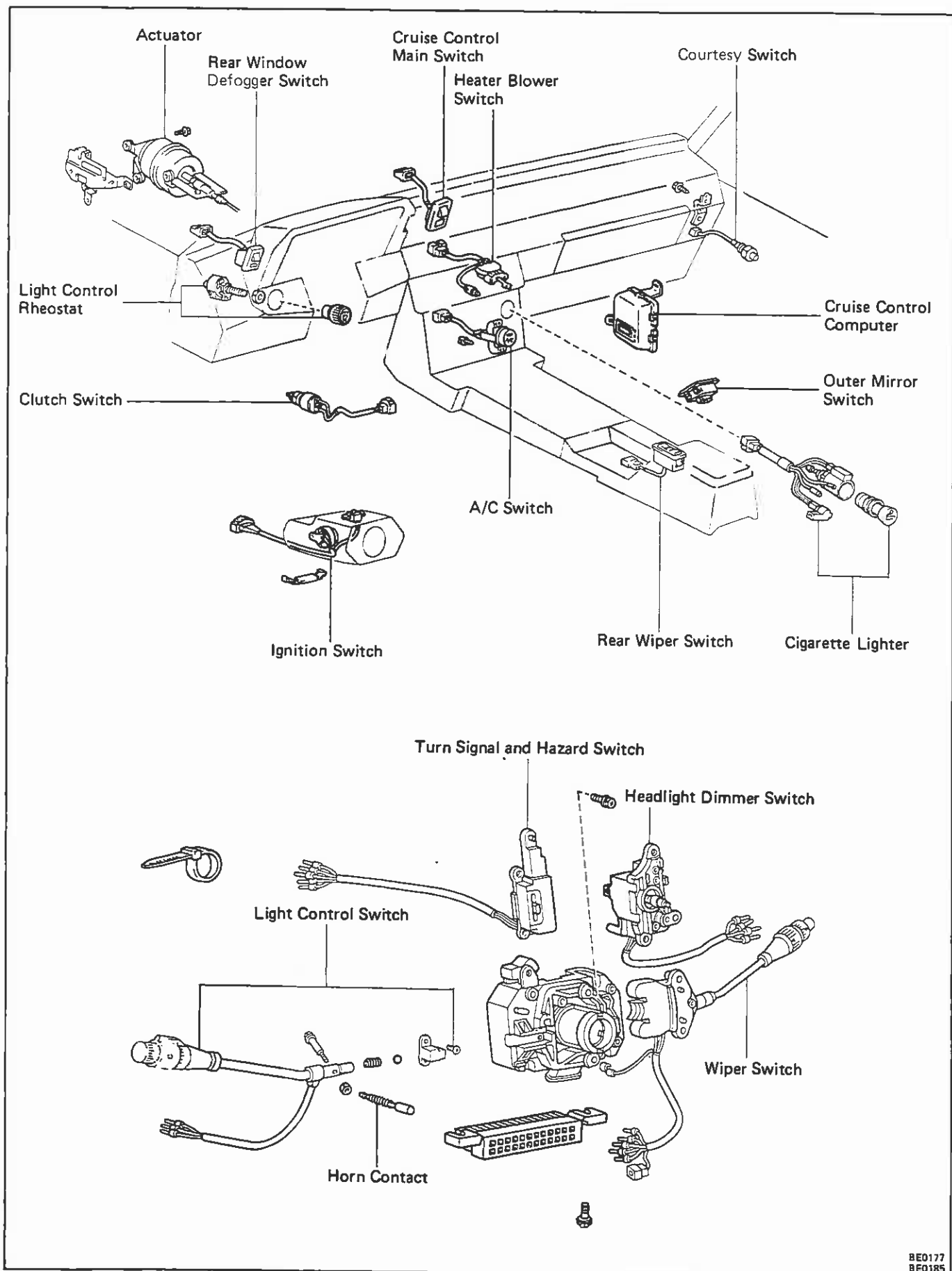


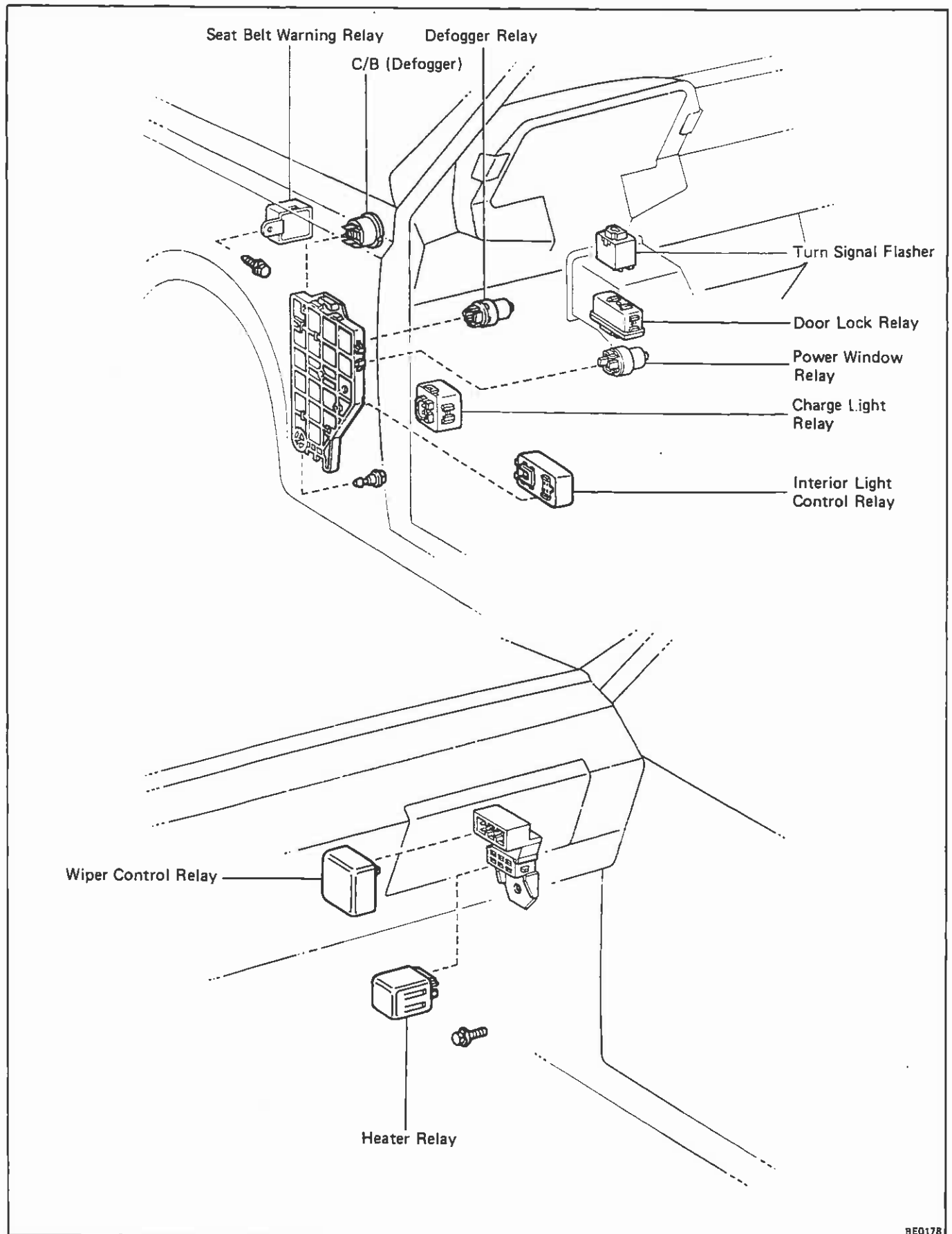
## LOCATION OF SWITCHES AND RELAYS

### ENGINE COMPARTMENT SWITCHES AND RELAYS

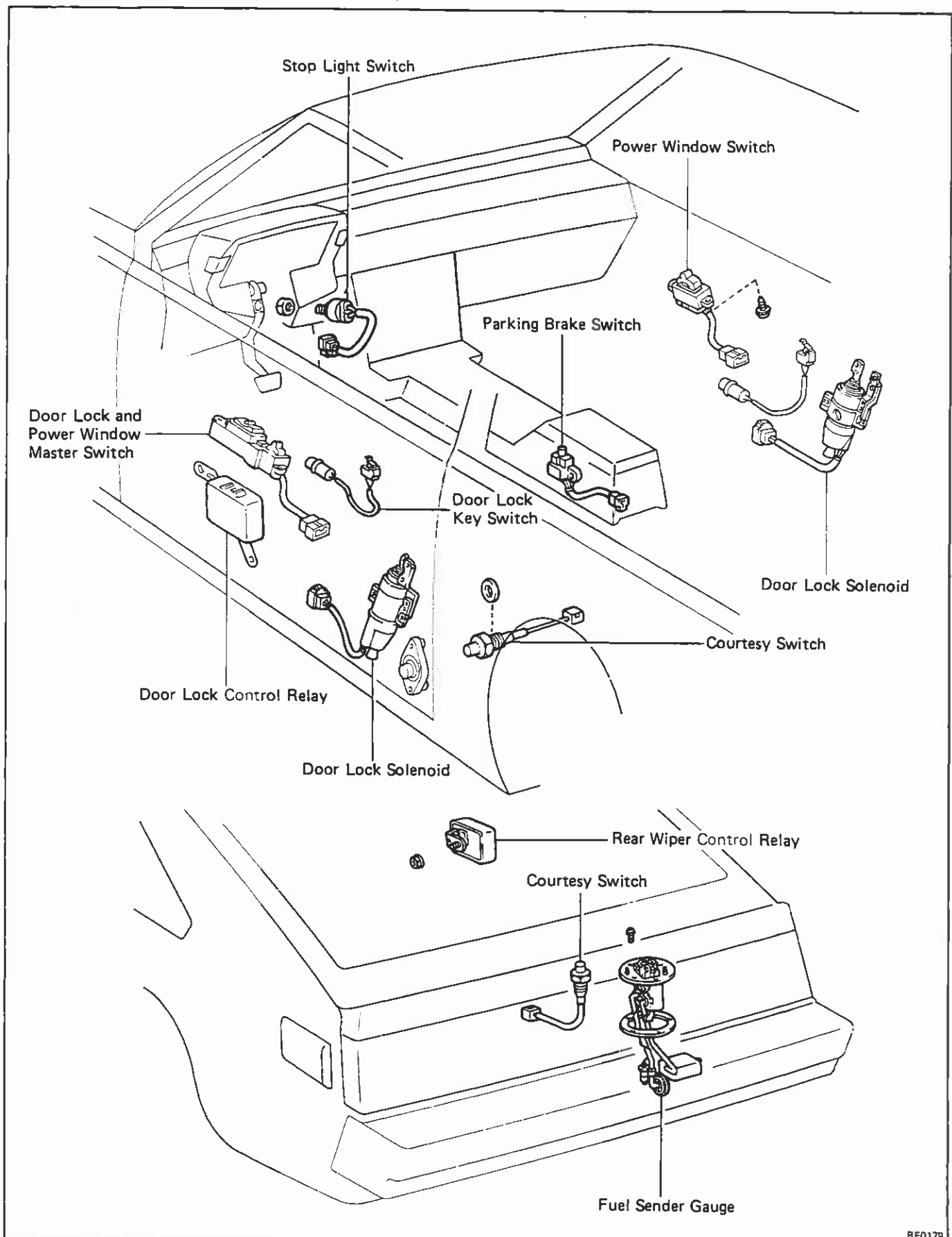


## INSTRUMENT PANEL SWITCHES AND RELAYS

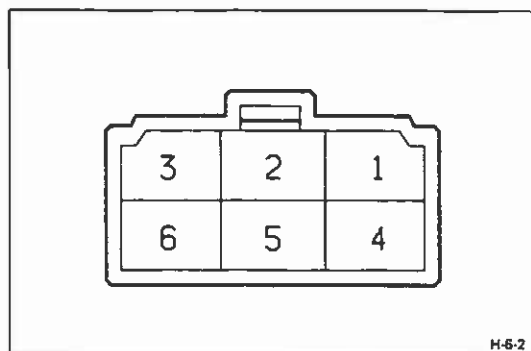


**PASSENGER COMPARTMENT SWITCHES AND RELAYS**

## PASSENGER AND LUGGAGE COMPARTMENT SWITCHES AND RELAYS







## IGNITION SWITCH

### INSPECTION OF IGNITION SWITCH

#### INSPECT SWITCH CONTINUITY

Inspect the switch continuity between terminals.

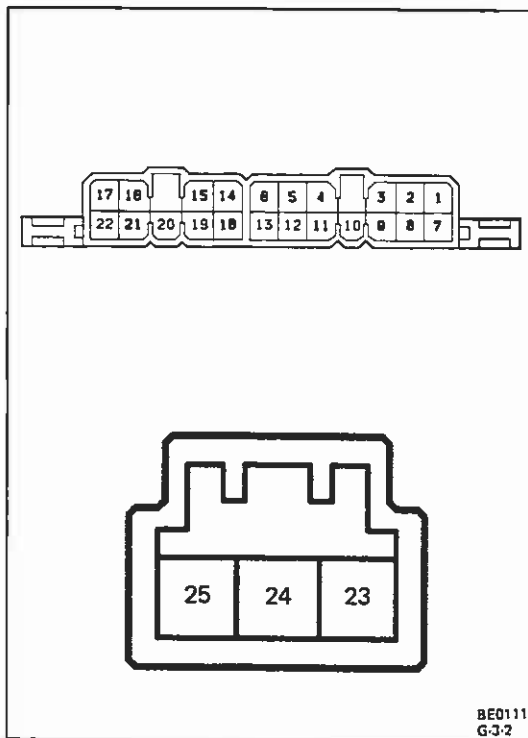
| Terminal        |        | 1 | 3 | 6 | 4 | 2 | 5 |
|-----------------|--------|---|---|---|---|---|---|
| Switch position |        |   |   |   |   |   |   |
| LOCK            |        |   |   |   |   |   |   |
| ACC             |        | ○ | ○ |   |   |   |   |
| ON              |        | ○ | ○ | ○ |   |   |   |
| START           |        | ○ | ○ | ○ | ○ |   |   |
| Warning         | Normal |   |   |   |   |   |   |
|                 | Push   |   |   |   |   | ○ | ○ |

If continuity is not as specified, replace the switch.

# LIGHTING

## Troubleshooting

| Problem   | Possible cause  | Remedy   | Page                   |
|---|---|--|------------------------|
| Only one light does not light                             | Light bulb burned out<br>Socket, wire or ground faulty  | Replace bulb<br>Repair as necessary  |                        |
| Headlights do not light                                   | Fusible link blown<br>Headlight control relay faulty<br>Light control/dimmer switch faulty<br>Wiring or ground faulty             | Replace fusible link<br>Check relay<br>Check switch<br>Repair as necessary                                     | BE-12<br>BE-11         |
| High beam headlights or headlight flashers do not operate | Light control/dimmer switch faulty<br>Wiring faulty   | Check switch<br>Repair as necessary  | BE-11                  |
| Tail, parking and license light do not light              | TAIL fuse blown<br>Fusible link blown<br>Taillight control relay faulty<br>Light control switch faulty<br>Wiring or ground faulty | Replace fuse and check for short<br>Replace fusible link<br>Check relay<br>Check switch<br>Repair as necessary | BE-4<br>BE-12<br>BE-11 |
| Stop lights do not light                                  | STOP fuse blown<br>Stop light switch faulty<br>Wiring or ground faulty  | Replace fuse and check for short<br>Adjust or replace switch<br>Repair as necessary                            | BE-4<br>BE-81          |
| Stop lights stay on                                       | Stop light switch faulty  | Adjust or replace switch   | BE-81                  |
| Instrument lights do not light (taillights light)         | Light control rheostat faulty<br>Wiring or ground faulty  | Check rheostat<br>Repair as necessary  | BE-16                  |
| Turn signal does not flash on one side                    | Turn signal switch faulty<br>Wiring or ground faulty  | Check switch<br>Repair as necessary  | BE-15                  |
| Turn signals do not operate                               | TURN fuse blown<br>Turn signal flasher faulty<br>Turn signal switch faulty<br>Wiring or ground faulty                             | Replace fuse and check for short<br>Check flasher<br>Check switch<br>Repair as necessary                       | BE-4<br>BE-16<br>BE-15 |
| Hazard warning lights do not operate                      | HAZ fuse blown<br>Turn signal flasher faulty<br>Hazard warning switch faulty<br>Wiring or ground faulty                           | Replace fuse and check for short<br>Check flasher<br>Check switch<br>Repair as necessary                       | BE-4<br>BE-16<br>BE-15 |



## Light Control Switch and Headlight Dimmer Switch

### INSPECTION OF LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

#### INSPECT CONTINUITY OF LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

Inspect the switch continuity between terminals.

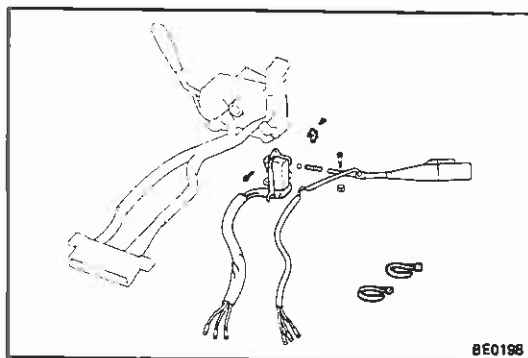
Light control switch

| Switch position \ Terminal (Wire color) | 10<br>EL<br>(W) | 11<br>T<br>(Y) | 4<br>H<br>(R) | 24<br>U<br>(G) |
|---|-----------------|----------------|---------------|----------------|
| OFF                                     |                 |                |               |                |
| UP                                      | ○               |                |               | ○              |
| TAIL                                    | ○               | ○              |               | ○              |
| HEAD                                    | ○               | ○              | ○             |                |

Headlight dimmer switch

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

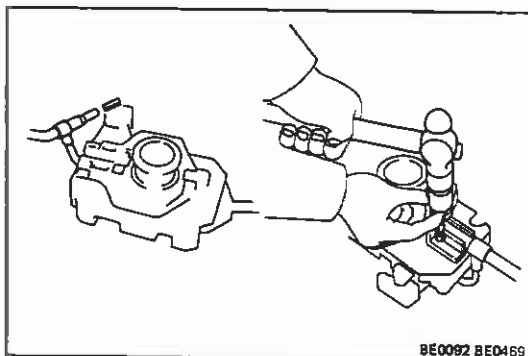
If continuity is not as specified, replace the switch.

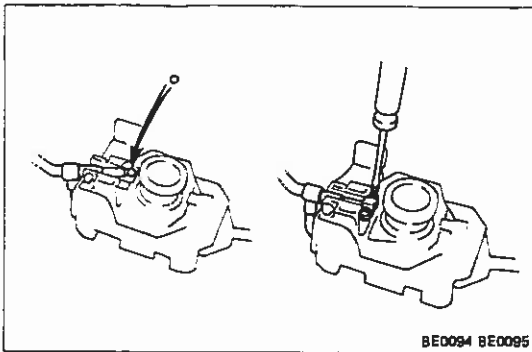


## REPLACEMENT OF LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

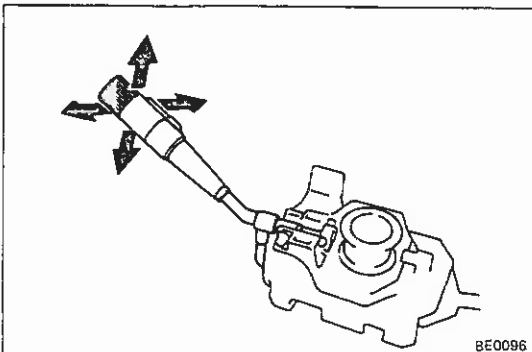
### REPLACE LIGHT CONTROL SWITCH AND HEADLIGHT DIMMER SWITCH

- Remove the terminals from the connector.  
(See page BE-3)
- Remove the light control switch.
- Remove the headlight dimmer switch.
- Install the headlight dimmer switch.
- Insert the spring into the lever and install the lever with the pin and E-ring.

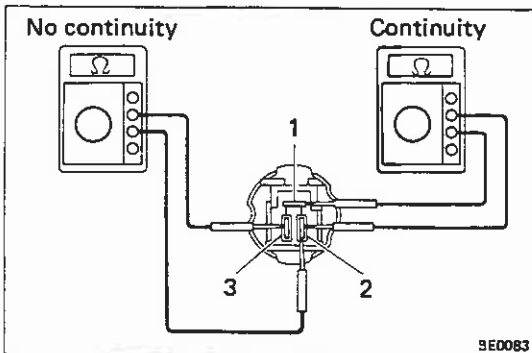




- (f) Place the ball on the spring, position the lever at HI and install the plate.



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



## Light Control Relays (Headlight and Taillight)

### INSPECTION OF LIGHT CONTROL RELAY

#### 1. INSPECT RELAY CONTINUITY

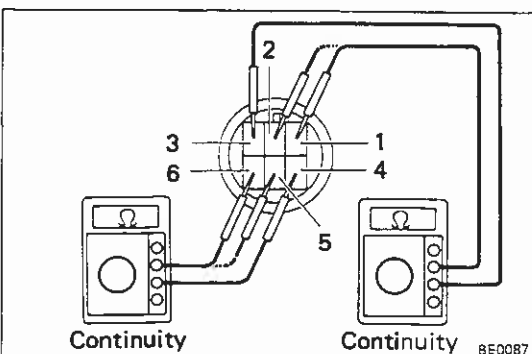
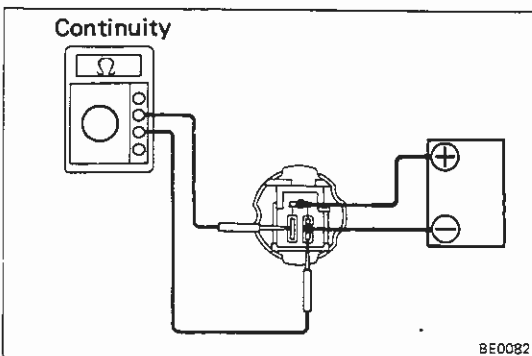
- Check that there is continuity between terminals 1 and 2.
- Check that there is no continuity between terminals 2 and 3.

If continuity is not as specified, replace the relay.

#### 2. INSPECT RELAY OPERATION

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

If operation is not as specified, replace the relay.



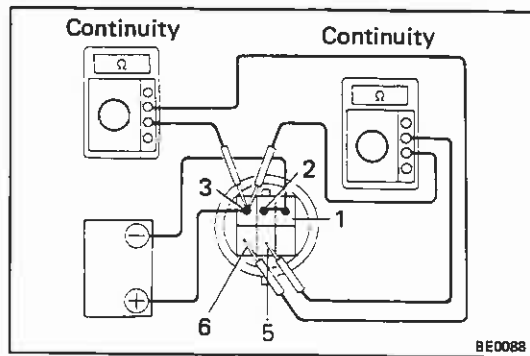
## Light Retractor Relay

### INSPECTION OF LIGHT RETRACTOR RELAY

#### 1. INSPECT RELAY CONTINUITY

- Check that there is continuity between terminals 1 and 3 and also between terminals 2 and 3.
- Check that there is continuity between terminals 4 and 5 and also between terminals 4 and 6.
- Check that there is no continuity between terminals 1 and 4.

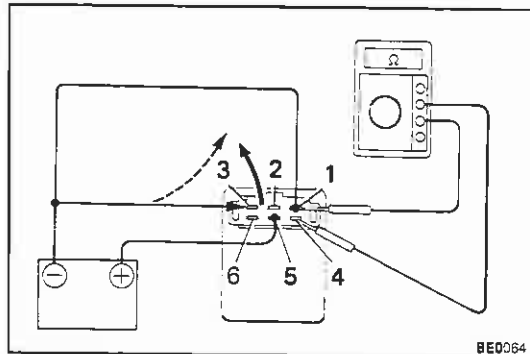
If continuity is not as specified, replace the relay.



## 2. INSPECT RELAY OPERATION

- Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to terminals 1 and 2.
- Check the continuity between terminals 3 and 5 and terminals 3 and 6.

If operation is not as specified, replace the relay.



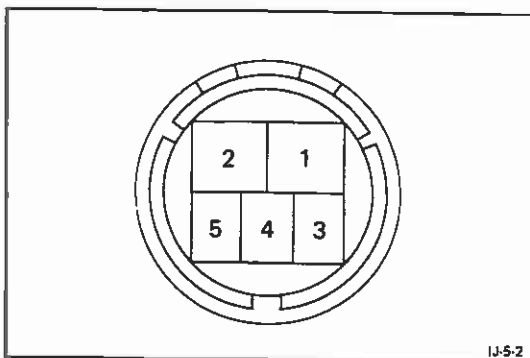
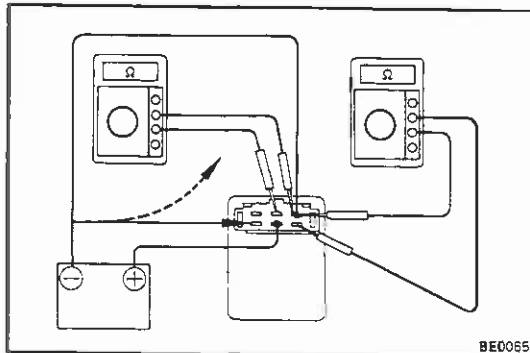
## Light Retractor Control Relay

### INSPECTION OF LIGHT RETRACTOR CONTROL RELAY

#### INSPECT RELAY OPERATION

- Connect the positive (+) lead from the battery to terminal 5. Connect the negative (–) lead to terminal 1.
- Connect the negative (–) lead from the battery to terminal 3. After disconnecting the connection between terminal 3 and battery, check the continuity for 2 – 4 seconds between terminal 1 and 2.
- Check the continuity between terminals 1 and 4 after connecting the negative (–) lead from the battery to terminal 6. After disconnecting the connection between terminal 6 and the battery, check that there is continuity for 2 – 4 seconds between terminals 1 and 4, and continuity immediately for 6 – 14 seconds between terminals 1 and 2.

If operation is not as specified, replace the relay.



## Light Retractor Motor

### INSPECTION OF LIGHT RETRACTOR MOTOR

#### 1. INSPECT MOTOR OPERATION

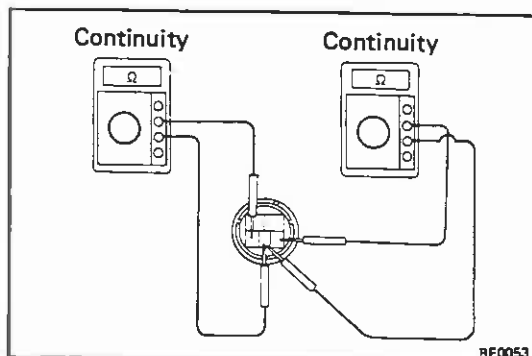
Connect the positive (+) lead from the battery to terminal 2 and connect the negative (–) lead to terminal 1. Check that the motor runs.

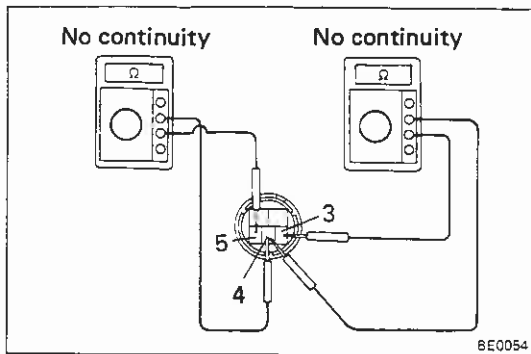
If there is no motor operation, replace the motor.

#### 2. INSPECT DIODE CONTINUITY OF MOTOR

- Move the headlights to any position except the uppermost or lowermost positions.
- Connect the ohmmeter positive (+) lead to terminal 4 and the negative (–) lead to terminal 5.
- Connect the ohmmeter positive (+) lead to terminal 4 and the negative (–) lead to terminal 3.

If there is no continuity, replace the motor assembly.





- (d) Reverse the test leads of the ohmmeter and inspect continuity.

If there is continuity, replace the motor assembly.

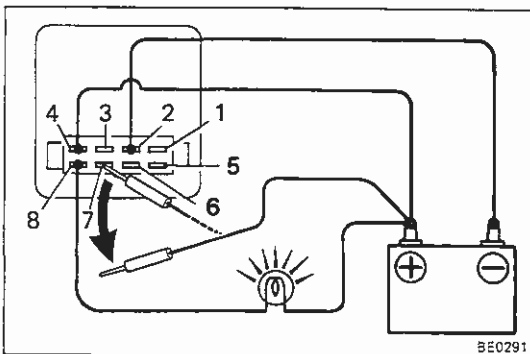
## Headlight Retainer Relay

### INSPECTION OF HEADLIGHT RETAINER RELAY

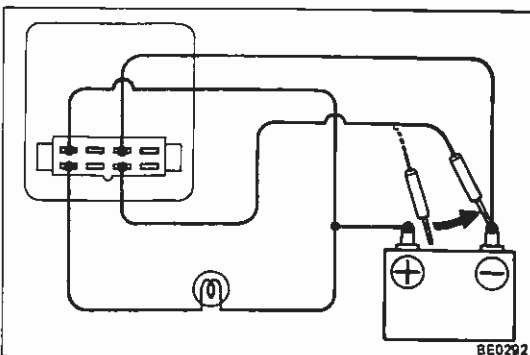
#### 1. INSPECT HEADLIGHT CIRCUIT OPERATION

Connect the positive (+) leads from the battery to terminals 4 and 7. Connect the negative (−) lead to terminal

2. Connect the 3.4W test bulb between terminal 8 and positive (+) lead from the battery.



- (a) Disconnect the positive (+) lead from the terminal 7. Check that the test bulb is lighting.

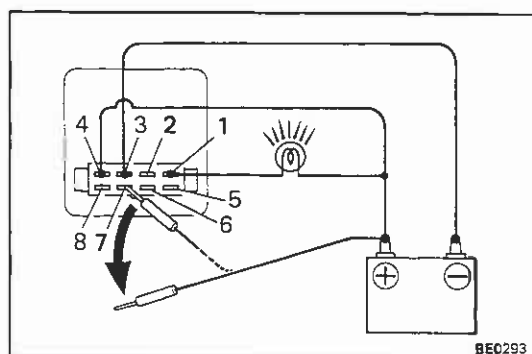


- (b) Connect the negative (−) lead to the terminal 6. Check that the test bulb does not light.

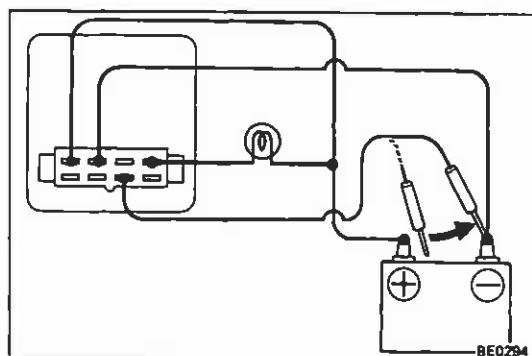
If operation is not as specified, replace the relay.

#### 2. INSPECT TAILLIGHT CIRCUIT OPERATION

Connect the positive (+) leads from the battery to terminals 4 and 7. Connect the negative (−) lead to terminal 3. Connect the 3.4W test bulb between terminal 1 and positive (+) lead from the battery.

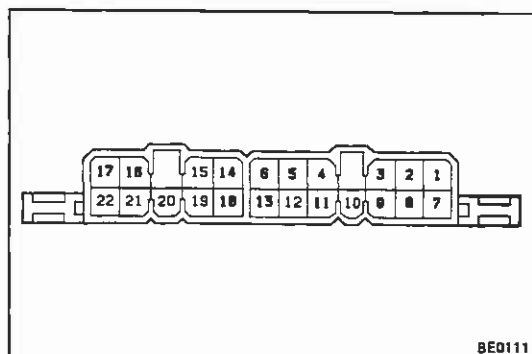


- (a) Disconnect the positive (+) lead from the terminal 7. Check that the test bulb is lighting.



- (b) Connect the negative (–) lead to the terminal 6. Check that the test bulb does not light.

If operation is not as specified, replace the relay.



## Turn Signal and Hazard Warning Switch

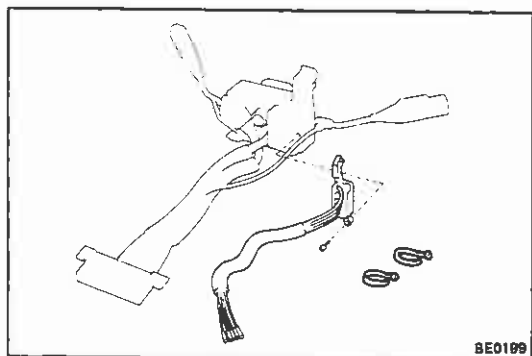
### INSPECTION OF TURN SIGNAL AND HAZARD WARNING SWITCH

#### INSPECT CONTINUITY OF TURN SIGNAL AND HAZARD WARNING SWITCH

Inspect the switch continuity between terminals.

| Switch position | Terminal (Wire color) | 9<br>TL<br>(G-B) | 3<br>TB<br>(G-W) | 8<br>TR<br>(G-Y) | 2<br>B1<br>(G-L) | 7<br>F<br>(G) | 1<br>B2<br>(G-O) |
|-----------------|-----------------------|------------------|------------------|------------------|------------------|---------------|------------------|
|                 |                       |                  |                  |                  |                  |               |                  |
| Turn signal     | L                     | ○                | ○                |                  | ○                | ○             |                  |
|                 | N                     |                  |                  |                  | ○                | ○             |                  |
|                 | R                     |                  | ○                | ○                | ○                | ○             |                  |
| Hazard          | ON                    | ○                | ○                | ○                |                  | ○             | ○                |

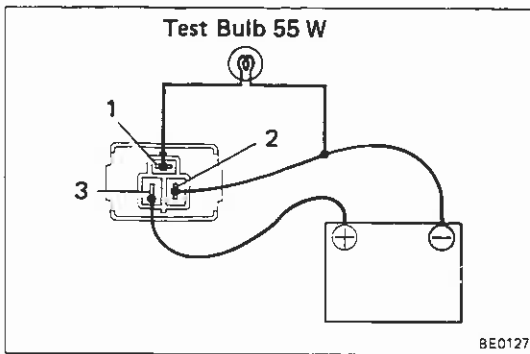
If continuity is not as specified, replace the switch.



### REPLACEMENT OF TURN SIGNAL AND HAZARD WARNING SWITCH

#### REPLACE TURN SIGNAL SWITCH

- Remove the terminals from the connector. (See page BE-3)
- Remove the turn signal and hazard warning switch.
- Install the turn signal and hazard warning switch.
- Connect the terminals to the connector. (See page BE-3)



## Turn Signal Flasher

### INSPECTION OF TURN SIGNAL FLASHER

#### INSPECT FLASHER OPERATION

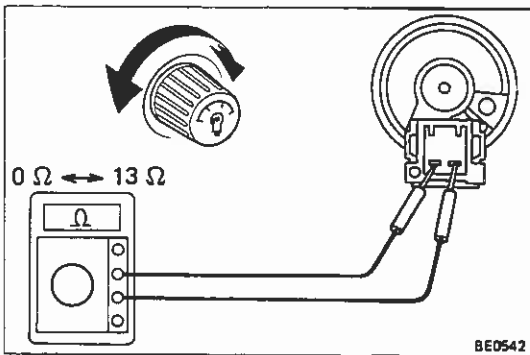
- Connect the positive (+) lead from the battery to terminal 3. Connect the negative (—) lead to terminal 2.
- Connect a 55W bulb between terminals 1 and 2, and check that the bulb goes on and off.

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

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

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

If operation is not as specified, replace the rheostat.

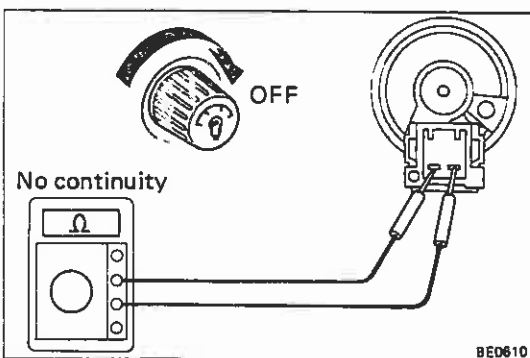


## Light Control Rheostat

### INSPECTION OF LIGHT CONTROL RHEOSTAT

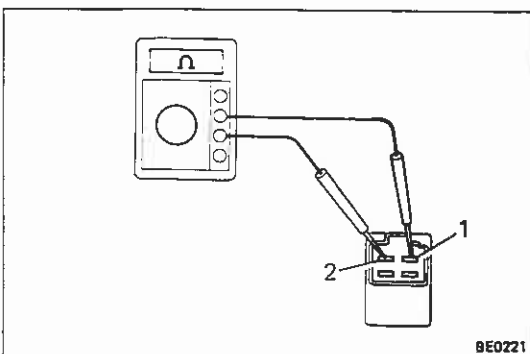
#### INSPECT RHEOSTAT OPERATION

- Gradually change the brightness of rheostat from maximum to minimum, check that the resistance between terminals increases from 0Ω to 13Ω.



- Check that there is no continuity between terminals with the rheostat turned off.

If operation is not as specified, replace the rheostat.



## Light Control Rheostat (Digital Type)

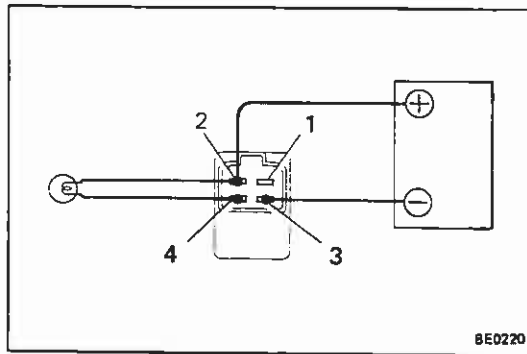
### INSPECTION OF LIGHT CONTROL RHEOSTAT

#### 1. INSPECT RHEOSTAT OPERATION

- Check that there is no continuity between terminals 1 and 2 when the rheostat is in the off position.
- Check that there is continuity between terminals 1 and 2 when the rheostat is in any position except the off position.

If operation is not as specified, replace the rheostat.



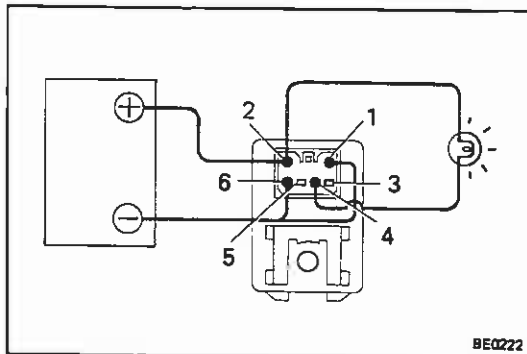


## 2. INSPECT RHEOSTAT OPERATION FOR DIM OUT

Connect the positive (+) lead from the battery to terminal 2. Connect the negative (-) lead to terminal 3, and connect a 3.4W test bulb between terminals 2 and 4.

Gradually turn the rheostat knob toward the bright side and/or dark side and check that the test bulb brightness changes.

If operation is not as specified, replace the rheostat.



## Fade-Out Relay

### INSPECTION OF FADE-OUT RELAY

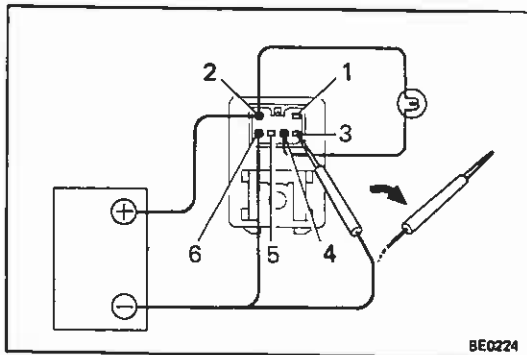
#### 1. INSPECT COURTESY SWITCH CIRCUIT OPERATION

Connect the positive (+) lead from the battery to terminal 2. Connect the negative (-) lead to terminals 1 and 6. Connect a 3.4W test bulb between terminals 2 and 4.

(a) Check that the bulb lights.

(b) Disconnect the negative (-) lead from terminal 1, and check that the bulb fades out about 8, 5 seconds later.

If operation is not as specified, replace the relay.



#### 2. INSPECT OUTSIDE HANDLE SWITCH CIRCUIT OPERATION

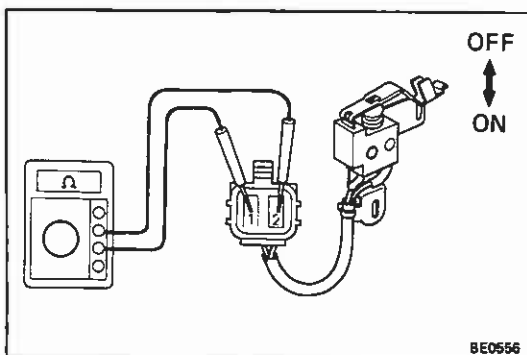
Connect the positive (+) lead from battery to terminal 2.

Connect the negative (-) lead to terminals 3 and 6.

Connect a 3.4W test bulb between terminals 2 and 4.

Disconnect the negative (-) lead from terminal 3, and check that the bulb fades out about 8, 5 seconds later.

If operation is not as specified, replace the relay.



## Outside Handle Switch

### INSPECTION OF OUTSIDE HANDLE SWITCH

#### INSPECT SWITCH CONTINUITY

(a) Check that there is continuity between terminals 1 and 2 when the switch is on.

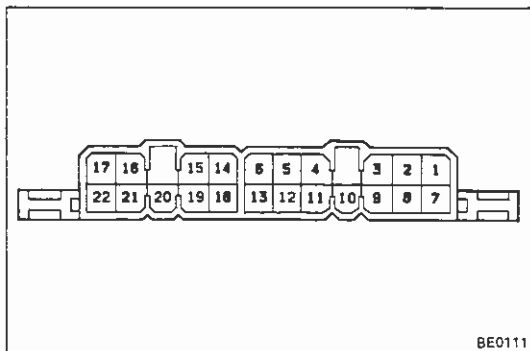
(b) Check that there is no continuity between terminals 1 and 2 when the switch is off.

If continuity is not as specified, replace the switch.

## WIPERS AND WASHERS

### Troubleshooting

| Problem   | Possible cause                | Remedy                            | Page       |       |
|---|-------------------------------|-----------------------------------|------------|-------|
|   |                               |                                   | Windshield | Rear  |
| Wipers do not operate or return to off position | "WIPER" fuse blown            | Replace fuse and check for shorts | BE-4       | BE-4  |
|   | Wiper motor faulty            | Check motor                       | BE-19      | BE-20 |
|   | Wiper switch faulty           | Check switch                      | BE-18      | BE-20 |
|   | Wiring or ground faulty       | Repair as necessary               |            |       |
| Wipers do not operate at INT position           | Wiper relay faulty            | Check relay                       | BE-18      | BE-20 |
|   | Wiper switch faulty           | Check switch                      | BE-18      | BE-20 |
|   | Wiper motor faulty            | Check motor                       | BE-19      | BE-21 |
|   | Wiring or ground faulty       | Repair as necessary               |            |       |
| Washer does not operate                         | Washer hose or nozzle clogged | Repair as necessary               |            |       |
|   | Washer motor faulty           | Replace motor                     |            |       |
|   | Wiper switch faulty           | Check switch                      | BE-18      | BE-20 |
|   | Wiring faulty                 | Repair as necessary               |            |       |



### Front Wiper and Washer Switch

#### INSPECTION OF FRONT WIPER AND WASHER SWITCH

##### 1. INSPECT FRONT WIPER AND WASHER SWITCH CONTINUITY

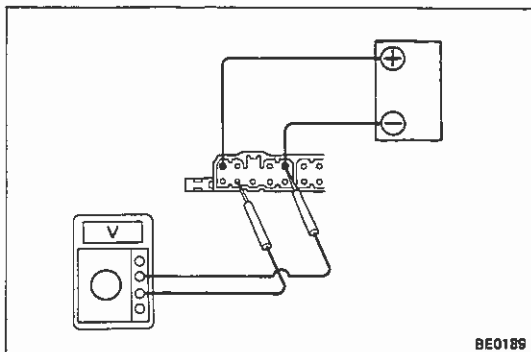
Inspect the switch continuity between terminals.

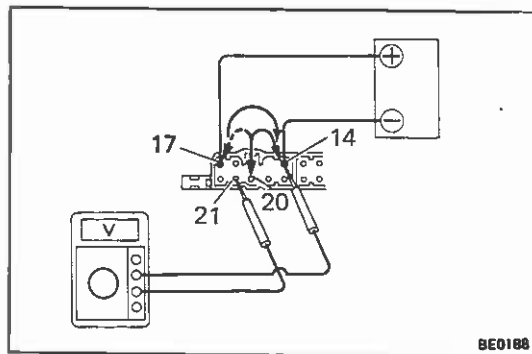
| Switch | Terminal<br>Switch<br>position<br>(Wire<br>color) | 20<br>+S<br>(L-R) | 21<br>+1<br>(L-B) | 17<br>+B<br>(L-W) | 22<br>+2<br>(L-O) | 14<br>W<br>(L) | 15<br>Ew<br>(B) |
|--------|---|-------------------|-------------------|-------------------|-------------------|----------------|-----------------|
|        |   |                   |                   |                   |                   |                |                 |
| Wiper  | OFF   | ○—○               |                   |                   |                   |                |                 |
|        | INT   | ○—○               |                   |                   |                   |                |                 |
|        | LO  |                   | ○—○               |                   |                   |                |                 |
|        | HI  |                   |                   | ○—○               |                   |                |                 |
| Washer | OFF   |                   |                   |                   |                   |                |                 |
|        | ON  |                   |                   |                   |                   | ○—○            |                 |

If continuity is not as specified, replace the switch.

##### 2. INSPECT SWITCH OPERATION (INT Type only)

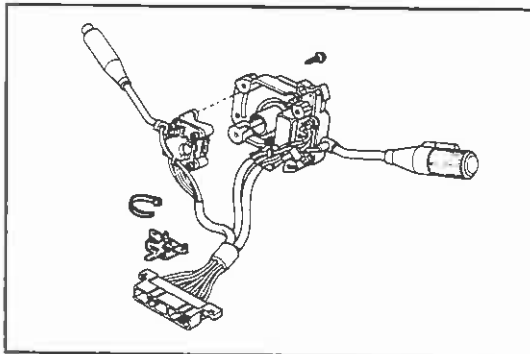
- Connect the positive (+) lead from the battery to terminal 17 and connect the negative (−) lead from the battery to terminal 15.
- Connect the positive (+) lead from the voltmeter to terminal 21 and connect the negative (−) lead from the voltmeter to terminal 15. Turn the wiper switch to INT position and check that the meter needle indicates battery voltage.





- (c) After first connecting the 20 probe to terminal 15, connect it to terminal 17. Then, immediately connect it to terminal 15 again, and check that the tester needle indicates 0 volts for 3 – 5 seconds before returning to its original position

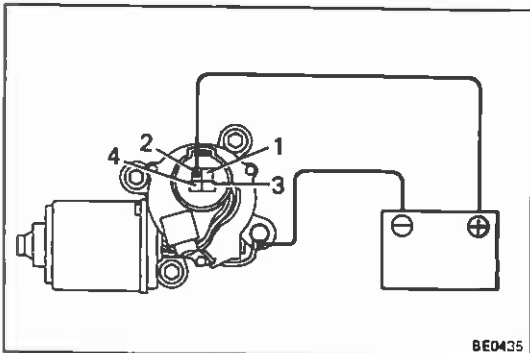
If operation is not as specified, replace the switch.



## REPLACEMENT OF FRONT WIPER AND WASHER SWITCH

### REPLACE FRONT WIPER AND WASHER SWITCH

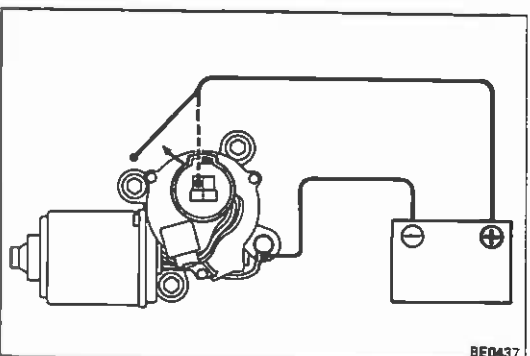
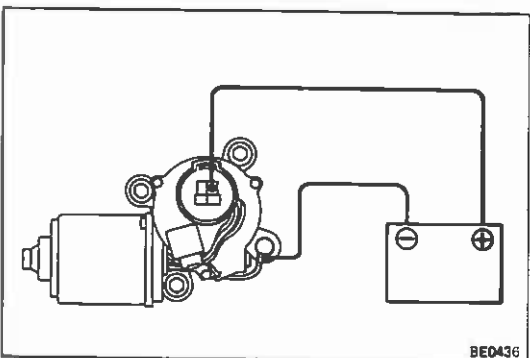
- Remove the terminals from the connector.  
(See page BE-3)
- Remove the wiper control switch and washer switch.
- Install the wiper control switch and washer switch.
- Install the terminals to the connector.  
(See page BE-3)

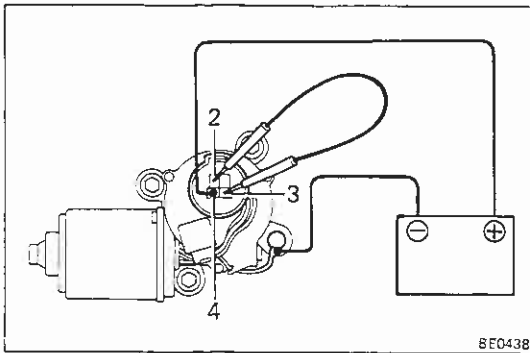


## Front Wiper Motor

### INSPECTION OF FRONT WIPER MOTOR

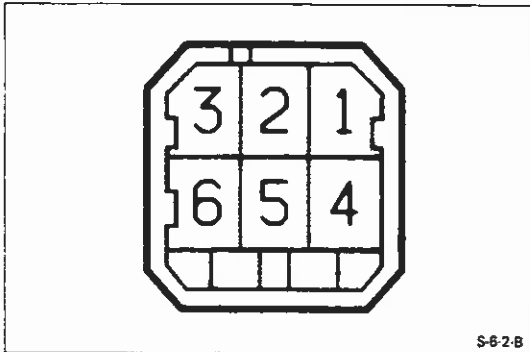
- INSPECT THAT MOTOR TURNS AT LOW SPEED**
  - Disconnect the connector from the wiper motor.
  - Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.
  - Check that the motor turns at low speed.
- INSPECT THAT MOTOR TURNS AT HIGH SPEED**
  - Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.
  - Check that the motor turns at high speed.
- INSPECT THAT MOTOR STOPS RUNNING AT STOP POSITION**
  - Turn the motor at low speed.
  - Stop the motor operation at anywhere except the motor stop position by disconnecting the battery terminals.





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

If operation is not as specified, replace the motor.



## Rear Wiper and Washer Switch

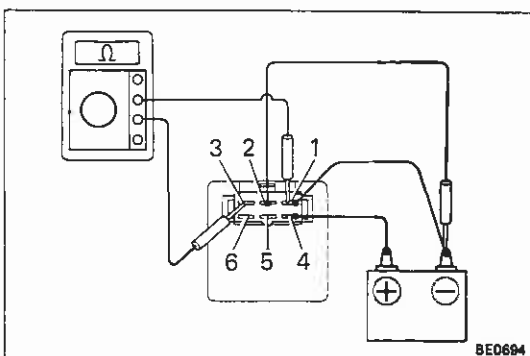
### INSPECTION OF REAR WIPER AND WASHER SWITCH

#### INSPECT SWITCH CONTINUITY

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

If there is not continuity between the terminals specified, replace the switch.

| Switch position \ Terminal | 6 | 3 | 5 | 4 | 1 | 2 |
|----------------------------|---|---|---|---|---|---|
| OFF                        |   |   | ○ | ○ |   |   |
| INT                        |   | ○ | ○ | ○ |   | ○ |
| ON                         | ○ | ○ | ○ | ○ |   |   |
| Washer                     | ○ |   | ○ | ○ | ○ |   |



## Rear Wiper Relay

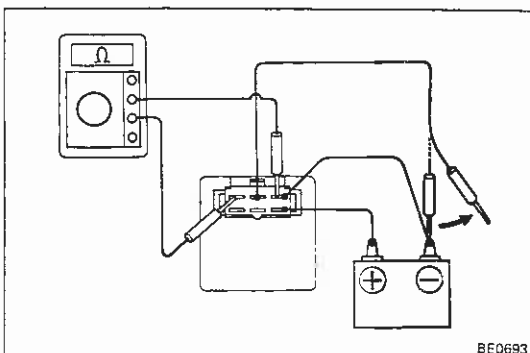
### INSPECT REAR WIPER RELAY

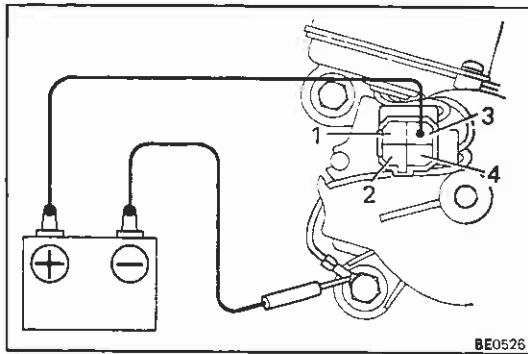
#### INSPECT RELAY OPERATION

Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to terminal 4.

- (a) With connect the positive (+) lead from the battery to terminal 2, check that there is not continuity between terminals 1 and 3.
- (b) With disconnect terminal 2, check that there is no continuity between terminals 1 and 3 for 9 – 15 seconds.

If operation is not as specified, replace the relay.



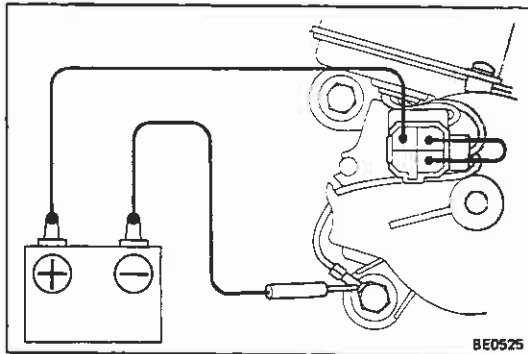


## Rear Wiper Motor

### INSPECTION OF REAR WIPER MOTOR

#### 1. INSPECT THAT MOTOR TURNS

- Disconnect the connector from the wiper motor.
- Connect the positive (+) lead from the battery to terminal 3. Connect the negative (–) lead to the motor body.
- Check that the motor turns.



#### 2. INSPECT THAT MOTOR TURNS

- Turn the motor.
- Stop the motor operation at anywhere except the stop position by disconnecting the battery terminals.
- Connect the positive (+) lead from the battery to terminal 1. Connect the negative (–) lead to the motor body.
- Check that the motor stops running at stop position after the motor operates again.

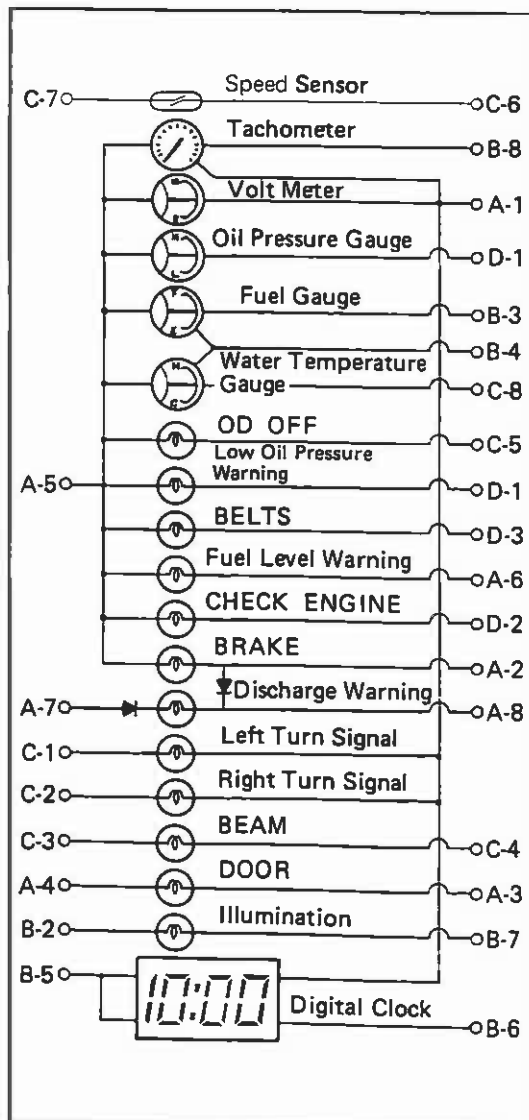
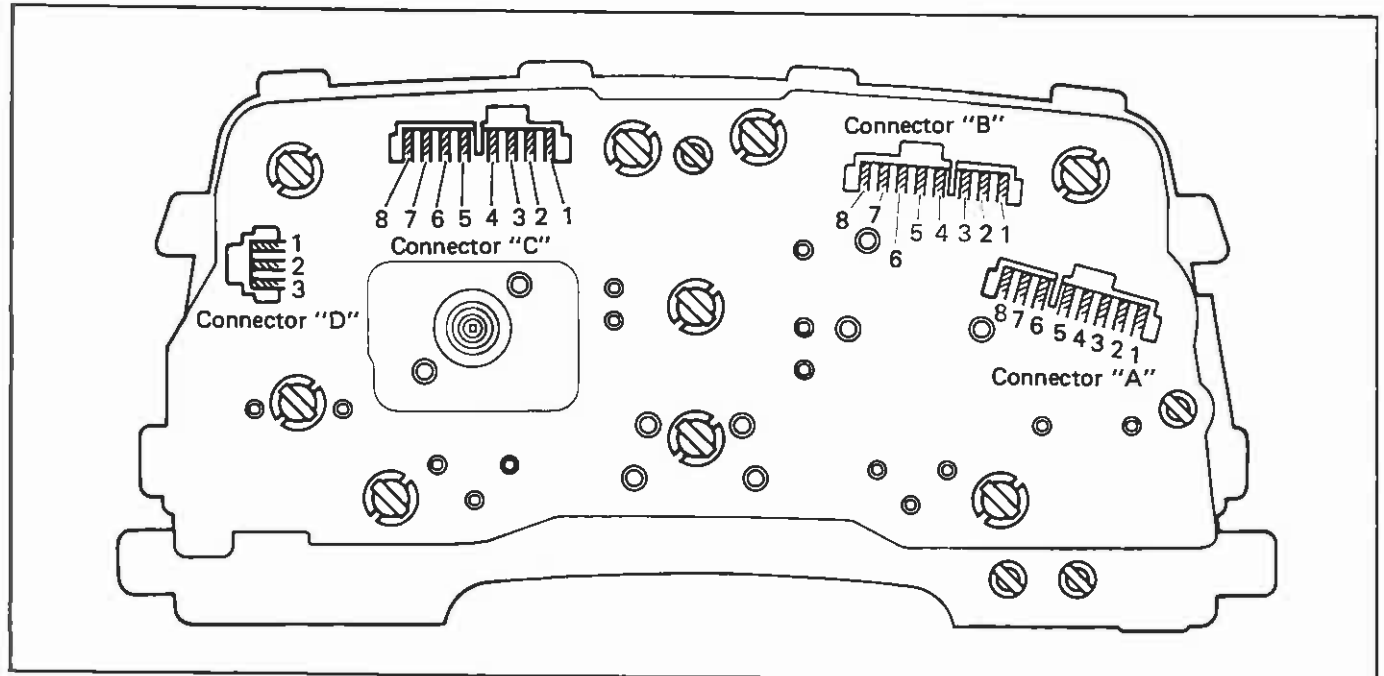
If operation is not as specified, replace the motor.

## INSTRUMENTS AND SENDER GAUGES

### Troubleshooting

| Problem  | Possible cause  | Remedy  | Page                   |
|--|---|---|------------------------|
| Voltmeter does not work                        | Fuses blown<br>Faulty<br>Wiring faulty  | Replace in-line fuses and check for short<br>Check voltmeter<br>Repair as necessary                   | BE-25                  |
| Tachometer does not work                       | GAUGE fuse blown<br>Tachometer faulty<br>Wiring faulty  | Replace fuse and check for short<br>Check tachometer<br>Repair as necessary                           | BE-4<br>BE-24          |
| Fuel receiver gauge does not work              | GAUGE fuse blown<br>Fuel receiver gauge faulty<br>Sender gauge faulty<br>Wiring or ground faulty                                | Replace fuse and check for short<br>Check receiver gauge<br>Check sender gauge<br>Repair as necessary | BE-4<br>BE-25<br>BE-25 |
| Water temperature receiver gauge does not work | GAUGE fuse blown<br>Water temperature receiver gauge faulty<br>Water temperature sender gauge faulty<br>Wiring or ground faulty | Replace fuse and check for short<br>Check receiver gauge<br>Check sender gauge<br>Repair as necessary | BE-4<br>BE-26<br>BE-26 |
| Oil pressure receiver gauge does not work      | GAUGE fuse blown<br>Oil pressure receiver gauge faulty<br>Oil pressure sender gauge faulty<br>Wiring or ground faulty           | Replace fuse and check for short<br>Check receiver gauge<br>Check sender gauge<br>Repair as necessary | BE-4<br>BE-27<br>BE-27 |
| Brake warning light does not light             | GAUGE fuse blown<br>Bulb burned out<br>Brake fluid level warning switch faulty<br>Wiring or ground faulty                       | Replace fuse and check for short<br>Replace bulb<br>Check switch<br>Repair as necessary               | BE-4<br>BE-28          |
| Discharge warning light does not light         | IGN fuse blown<br>Bulb burned out<br>Wiring faulty  | Replace fuse and check for short<br>Replace bulb<br>Repair as necessary                               | BE-4                   |

## Combination Meter and Gauge



### COMBINATION METER CIRCUIT

| No. | Wiring Connector Sides  |
|-----|---|
| A   | 1 Ground  |
|     | 2 Parking Brake Switch Terminal 1 and Fluid Level Warning Switch Terminal 1 |
|     | 3 Door Courtesy Switch  |
|     | 4 DOME Fuse   |
|     | 5 GAUGE Fuse  |
|     | 6 Fuel Level Warning Switch Terminal 1                                      |
|     | 7 IGN Fuse  |
|     | 8 Charging Light Relay  |
| B   | 2 TAIL Fuse   |
|     | 3 Fuel Sender Gauge Terminal 2  |
|     | 4 Ground  |
|     | 5 DOME Fuse   |
|     | 6 CIG   |
|     | 7 Light Control Rheostat Terminal 2   |
|     | 8 Ignition Coil Terminal (—)  |
| C   | 1 Turn Signal Switch Terminal 9   |
|     | 2 Turn Signal Switch Terminal 8   |
|     | 3 Dimmer Switch Terminal 5  |
|     | 4 Ground  |
|     | 5 OD Relay  |
|     | 6 Ground  |
|     | 7 ECU and Cruise Control Computer Terminal 7                                |
|     | 8 Water Temperature Sender Gauge  |
| D   | 1 Oil Pressure Sender Gauge or Oil Pressure Switch                          |
|     | 2 ECU   |
|     | 3 Seat Belt Warning Relay   |

## Speedometer

### ON-VEHICLE INSPECTION OF SPEEDOMETER

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

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

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

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

| Standard indication<br>(km/h) | Allowable range<br>(km/h) |
|-------------------------------|---------------------------|
| 20                            | 18 – 23                   |
| 40                            | 40 – 44                   |
| 60                            | 60 – 64.5                 |
| 80                            | 80 – 85                   |
| 100                           | 100 – 105                 |
| 120                           | 120 – 125.5               |
| 140                           | 140 – 146                 |
| 160                           | 160 – 167                 |

| Standard indication<br>(mph) | Allowable range<br>(mph) |
|------------------------------|--------------------------|
| 20                           | 20 – 23                  |
| 40                           | 40 – 43.5                |
| 60                           | 60 – 64                  |
| 80                           | 80 – 84.5                |
| 100                          | 100 – 105                |
| 120                          | 125 – 125.5              |

## Tachometer

### ON-VEHICLE INSPECTION OF TACHOMETER

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

#### CAUTION:

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

| rpm                        | 1000 | 3000 | 5000 | 7000 |
|----------------------------|------|------|------|------|
| Temp.                      |      |      |      |      |
| 25°C DC13V                 | ±100 | ±200 | ±200 | ±300 |
| +20°C to +60°C<br>10 – 15V | ±125 | ±200 | ±350 | ±410 |



## Voltmeter

### INSPECTION OF VOLTMETER

Compare the tester and voltmeter indications.

If the error is excessive, replace the voltmeter.

## Fuel Gauge

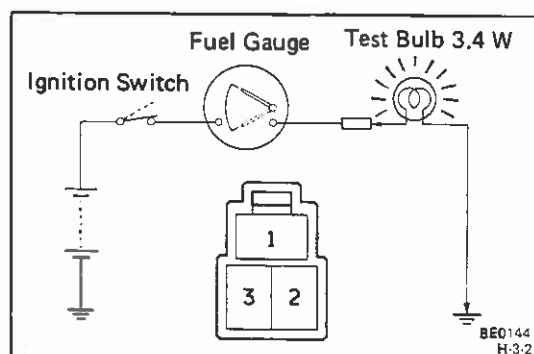
### INSPECTION OF FUEL GAUGE

#### 1. INSPECT RECEIVER GAUGE OPERATION

- Disconnect the connector from the fuel sender gauge. Ground the terminal 2 through a 3.4W bulb, as shown.
- Turn the ignition switch to ON. Check that the bulb starts flashing within several seconds and the receiver gauge needle deflects.

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

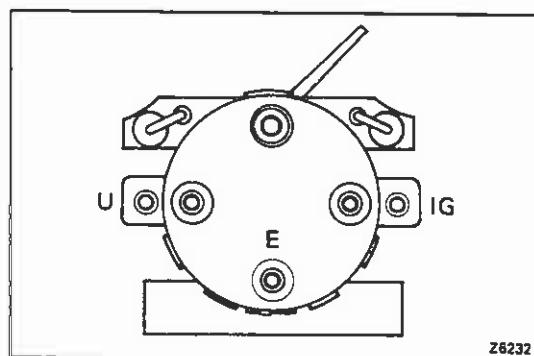
If indications are not as specified, remove and test the receiver gauge.



#### 2. MEASURE RECEIVER GAUGE RESISTANCE BETWEEN TERMINALS

| Between terminals | Resistance ( $\Omega$ ) |
|-------------------|-------------------------|
| IG – U            | Approx. 101.9           |
| U – E             | Approx. 101.3           |
| IG – E            | Approx. 203.2           |

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



#### 3. MEASURE RESISTANCE OF SENDER GAUGE

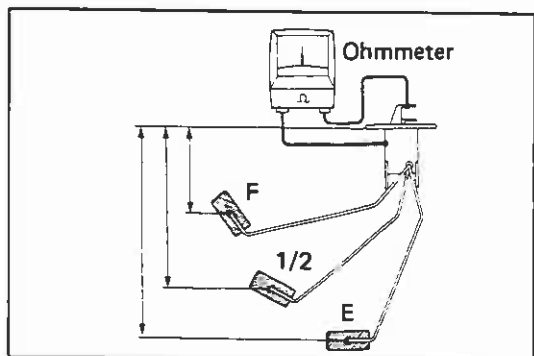
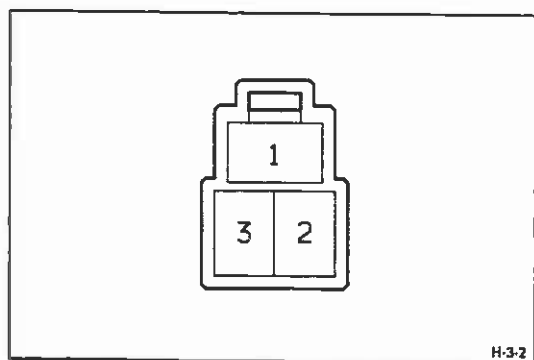
- Check that resistance changes as the float is moved from the top to bottom position.
- Measure the resistance between terminals 2 and 3 for each float position.

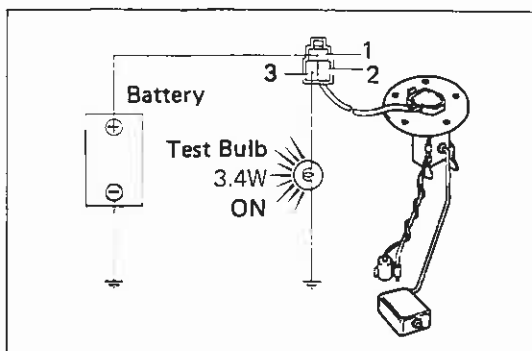
##### 4-link type

|     | Float position | mm (in.)        | Resistance ( $\Omega$ ) |
|-----|----------------|-----------------|-------------------------|
| F   | 67.2 – 73.2    | (2.646 – 2.882) | $3 \pm 2.1$             |
| 1/2 | 167.7          | (6.602)         | $32.5 \pm 4.8$          |
| E   | 231.7 – 237.7  | (9.122 – 9.358) | $110 \pm 7.7$           |

##### IRS type

|     | Float position | mm (in.)        | Resistance ( $\Omega$ ) |
|-----|----------------|-----------------|-------------------------|
| F   | 43.7 – 49.7    | (1.720 – 1.957) | $3 \pm 2.1$             |
| 1/2 | 135.1          | (5.319)         | $32.5 \pm 4.8$          |
| E   | 200.2 – 206.2  | (7.882 – 8.118) | $110 \pm 7.7$           |



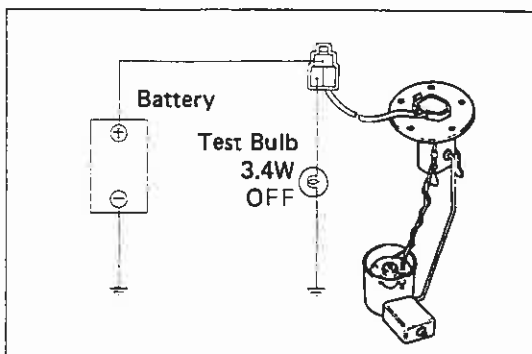


## Fuel Level Warning Switch

### INSPECTION OF FUEL LEVEL WARNING SWITCH

#### INSPECT LEVEL SWITCH OPERATION

- When voltage is applied between the connector and ground through a 12V, 3.4W bulb, the bulb should light up.
- When the switch is submerged in gasoline or water under the condition above, the bulb should go out.



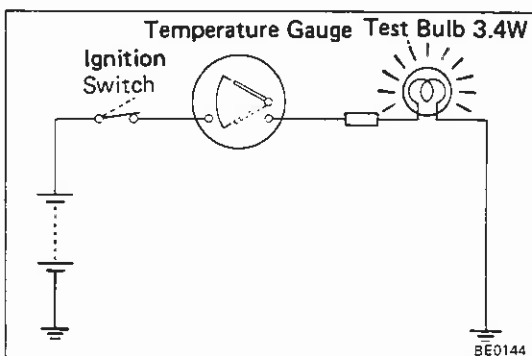
## Water Temperature Gauge

### INSPECTION OF WATER TEMPERATURE GAUGE

#### 1. INSPECT RECEIVER GAUGE OPERATION

- Disconnect the connector from the sender gauge. Ground the terminal through a 3.4W bulb as shown.
- Turn the ignition switch to ON. Check that the bulb starts flashing within several seconds and the water temperature receiver gauge needle deflects.

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



#### 2. MEASURE RESISTANCE OF RECEIVER GAUGE

Using an ohmmeter, measure the resistance between terminals.

| Between terminals | Resistance ( $\Omega$ ) |
|-------------------|-------------------------|
| IG — U            | Approx. 56              |
| U — E             | Approx. 201.8           |
| IG — E            | Approx. 145.8           |

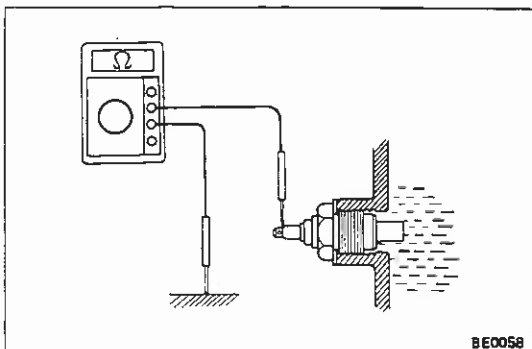
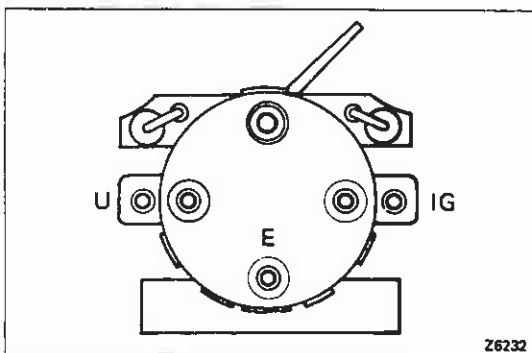
If each resistance value is not as shown above, replace the receiver gauge.

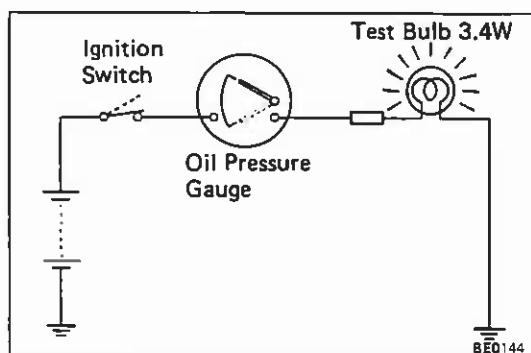
#### 3. MEASURE RESISTANCE OF SENDER GAUGE

Using an ohmmeter, measure the resistance between the terminal and ground for the corresponding water temperature sender gauge.

| Water temperature $^{\circ}\text{C}$ ( $^{\circ}\text{F}$ ) | Resistance ( $\Omega$ ) |
|---|-------------------------|
| 50 (122)  | 200.2                   |
| 115 (239)   | 22.6                    |

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





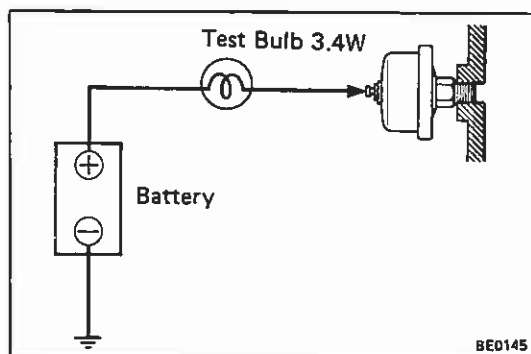
## Oil Pressure Gauge

### INSPECTION OF OIL PRESSURE GAUGE

#### 1. INSPECT RECEIVER GAUGE OPERATION

- Disconnect the connector from the sender gauge. Ground the terminal through a 3.4W bulb as shown.
- Turn the ignition switch to ON. Check that the bulb starts flashing and the gauge pointer deflects.

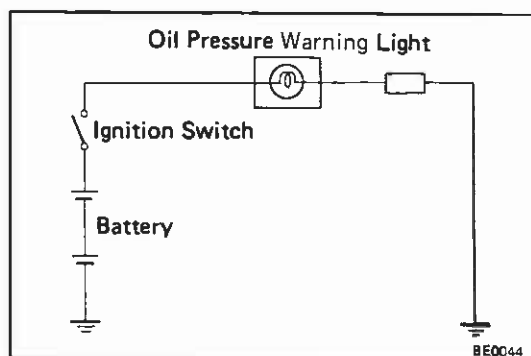
If indications are not as specified, remove and test the receiver gauge.



#### 2. INSPECT SENDER GAUGE OPERATION

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

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



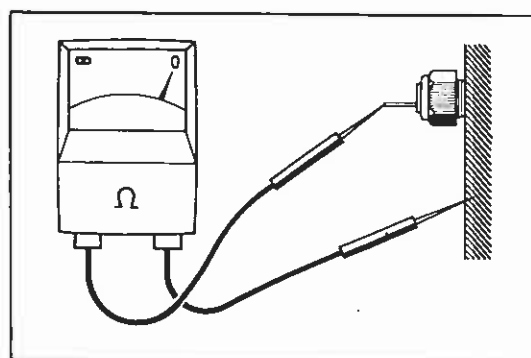
## Low Oil Pressure Warning

### INSPECTION OF LOW OIL PRESSURE WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

- Disconnect the connector from the switch. Connect the switch terminal and body ground.
- Turn the ignition switch to ON. Check that the bulb flashes.

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

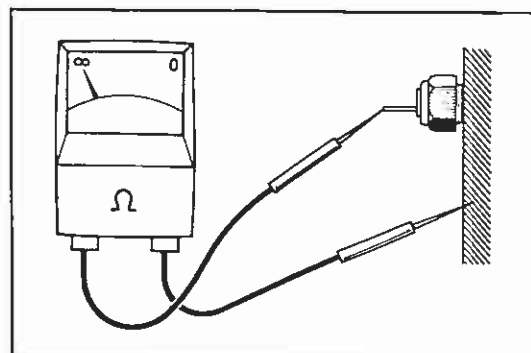


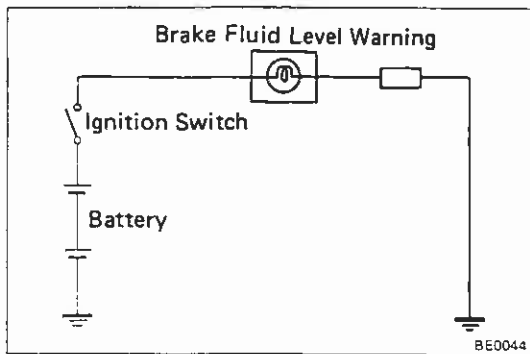
#### 2. INSPECT SWITCH OPERATION

Check the continuity between the terminal and ground.

- Inspect that the switch is ON with the engine stopped.
- Inspect that the switch is OFF with the engine running.

**NOTE:** After the engine has started, oil pressure should be over 0.4 kg/cm<sup>2</sup> (5.7 psi, 39 kPa).





## Brake Warning

### INSPECTION OF BRAKE WARNING

#### 1. INSPECT WARNING LIGHT OPERATION

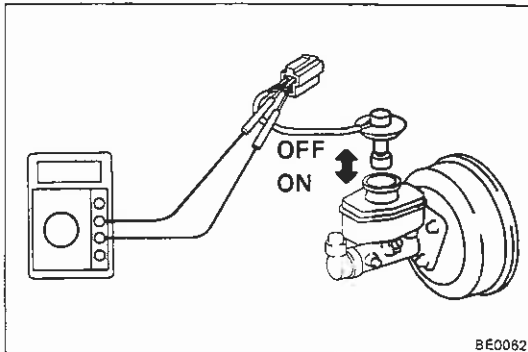
- Disconnect the connector from the switch. Connect the switch terminal and body ground.
- Turn the ignition switch to ON. Check that the bulb flashes.

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

#### 2. INSPECT OPERATION OF BRAKE FLUID LEVEL WARNING SWITCH

Inspect the switch operation when the switch is OFF (float up) and when the switch is ON (float down).

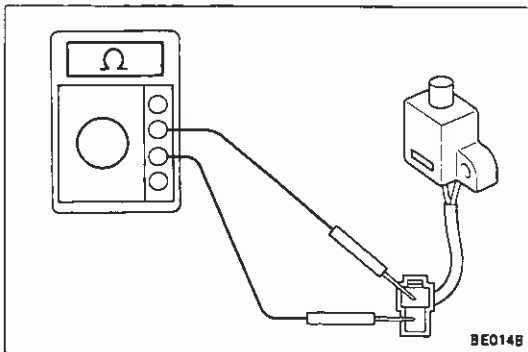
If operation is not as specified, replace the switch.



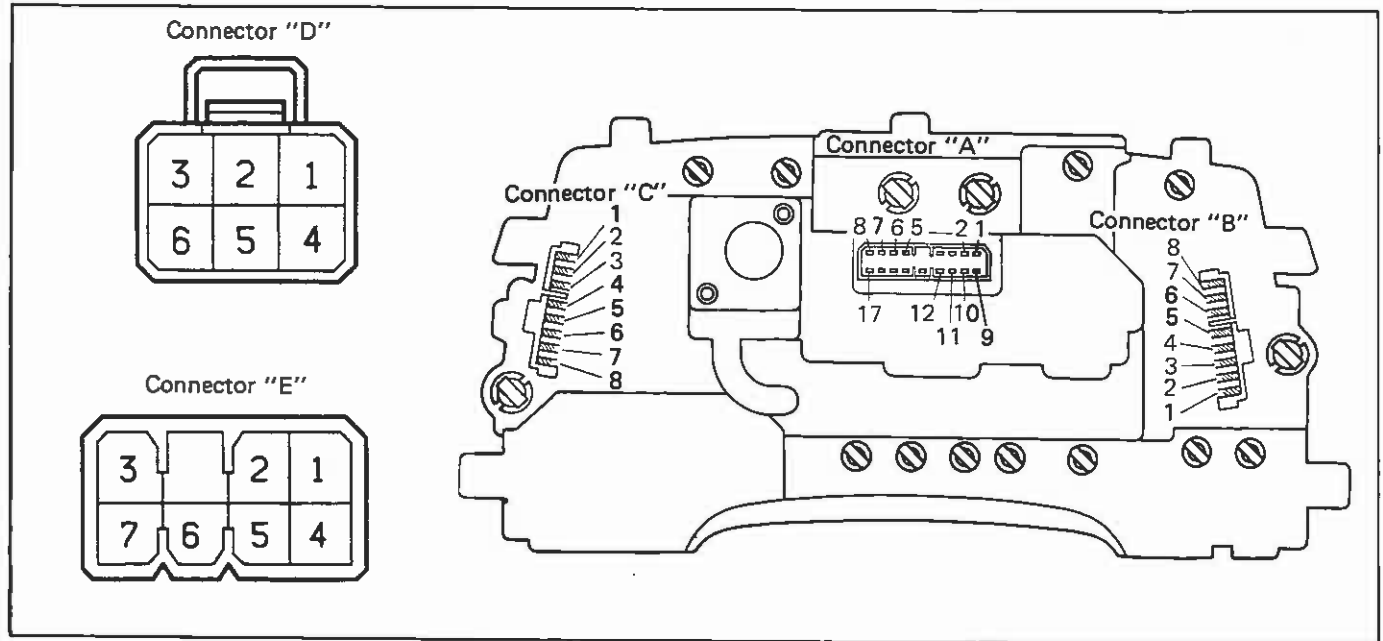
#### 3. INSPECT OPERATION OF PARKING BRAKE SWITCH

- Check that there is continuity between terminals when the switch is free (parking brake lever up).
- Check that there is no continuity between terminals when the switch pin is pushed (parking brake lever down).

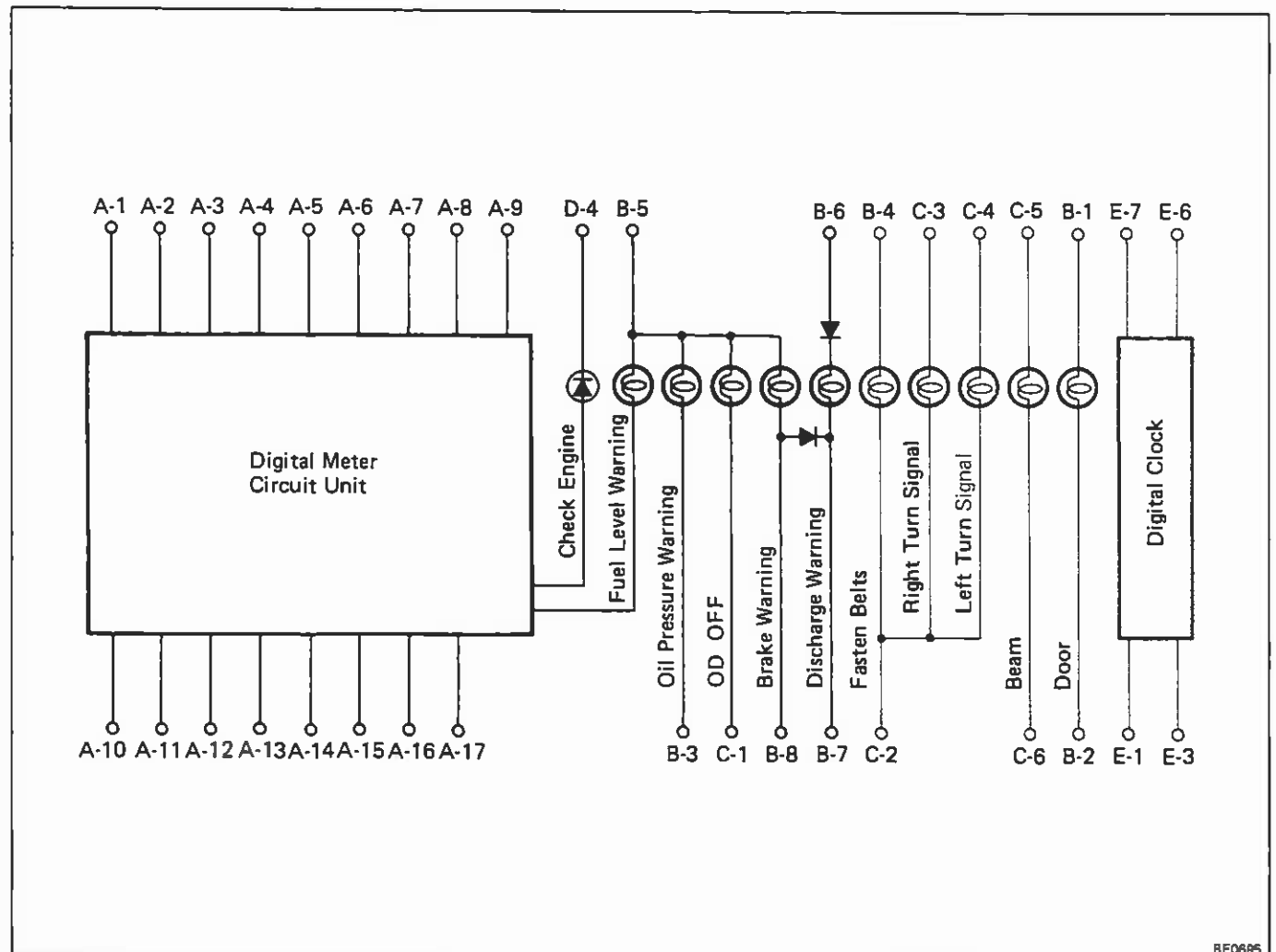
If operation is not as specified, replace the switch.



## Combination Meter and Gauge (Digital Type)



### COMBINATION METER CIRCUIT



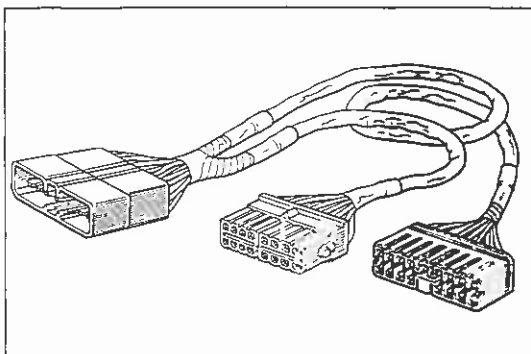
| No. | Wiring Connector Side   |
|-----|---|
| A   | 1 GAUGE Fuse<br>2 Ground<br>5 Fuel Sender Gauge Terminal 1<br>6 Ignition Switch Terminal 4<br>7 Water Temperature Sender Gauge<br>8 Light Control Rheostat Terminal 3<br>9 Igniter<br>10 Fuel Sender Gauge Terminal 3<br>11 Fuel Sender Gauge Terminal 2<br>12 ECU and Cruise Control Computer Terminal 6<br>17 Light Control Rheostat Terminal 2 |
| B   | 1 DOME Fuse<br>2 Ground<br>3 Oil Pressure Switch<br>4 Seat Belt Warning Relay<br>5 GAUGE Fuse<br>6 IGN Fuse<br>7 CHARGE Fuse<br>8 Parking Brake Switch Terminal 1 and Brake Fluid Level Warning Switch Terminal 1   |
| C   | 1 OD Main Switch<br>2 Ground<br>3 Turn Signal and Hazard Warning Switch Terminal 8<br>4 Turn Signal and Hazard Warning Switch Terminal 9<br>5 Headlight Dimmer Switch Terminal 5<br>6 Ground<br>7 TAIL Fuse<br>8 Light Control Rheostat Terminal 3  |
| D   | 4 ECU<br>5 Ground   |
| E   | 1 Ground<br>3 ECU Fuse<br>6 CIG FUSE<br>7 TAIL Fuse   |

## Combination Meter (Digital Type)

### PRECAUTIONS

1. When checking voltage, resistance, etc., use a high-impedance type tester (It is impossible with a simple tester).
2. Do not attempt to disassemble or repair individual components.
3. Do not attempt to make checks with an external power (battery etc.) applied directly to the component.
4. When the ignition switch is turned ON, indications other than the speedometer will be slightly delayed but this is normal.
5. When the ignition switch is placed at ST, all meters will go out but this is normal.
6. Do not touch circuit components as there is danger of circuit damage due to static electricity. Never reverse battery connections as it could result in instant damage to the interior of the components.
7. Do not disconnect the battery while the engine is running as this would cause an instant reverse charge (100V), resulting in damage to the interior of the components.
8. Always disconnect the battery terminals before pulling apart connectors or terminals.
9. To prevent damage, handle meters with care.

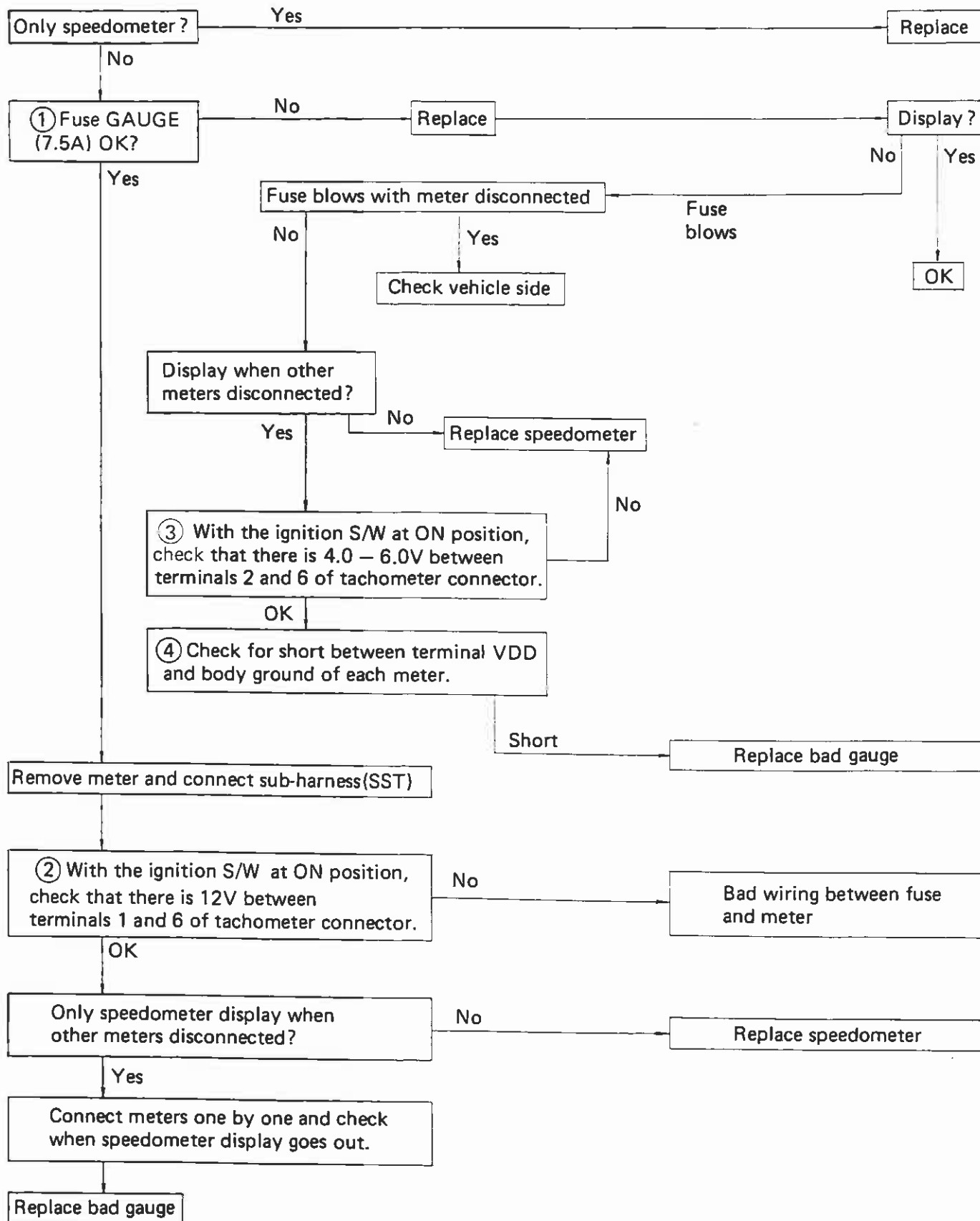
| Trouble           |  | Refer to                      |
|-------------------|--|-------------------------------|
| Speedometer       | No display at all  | A                             |
|                   | Speedometer displays [0] while driving.  | B                             |
|                   | Flickers or fluctuates   | Check cable                   |
|                   | Abnormal display   Difficult to comprehend   | Replace speedometer           |
|                   | Lights do not dim when light and rheostat S/W turned ON.   | C                             |
|                   | Display disappears when rheostat is turned with light S/W ON.  | D                             |
|                   | Brightness does not change even when rheostat is turned.   | E                             |
|                   | Abnormal speedometer signal  | F                             |
|                   | No speed unit conversion   | G                             |
| Tachometer        | No display at all  | H                             |
|                   | Zero indication even with engine running.  | I                             |
|                   | Abnormal display   Wrong display, no display change or constant display change from correct to "0" or no display at all. | Replace tachometer            |
|                   | Lights do not dim when light and rheostat S/W turned ON.   | J                             |
| Fuel Gauge        | No display at all  | K                             |
|                   | Fuel scale change display (magnifier) does not illuminate.   | L                             |
|                   | Fuel warning light does not light.   | M                             |
|                   | Fuel warning light always lit.   | N                             |
|                   | Abnormal display   No display segment or intermediate segment illumination. No figure or symbol indication.              | Replace fuel and temp. gauges |
|                   | Defective display  | O                             |
|                   | Lights do not dim when light and rheostat S/W turned ON.   | P                             |
| Water Temp. Gauge | No display at all  | K                             |
|                   | Top segment does not flash.  | M                             |
|                   | Abnormal display   Both indicator segments lit. No figure or symbol indication, etc.                                     | Replace fuel and temp. gauges |
|                   | Wrong display   Display segment does not rise. Top segment flashes always. Unstable display, etc.                        | Q                             |
|                   | Lights do not dim when light and rheostat S/W turned ON.   | P                             |



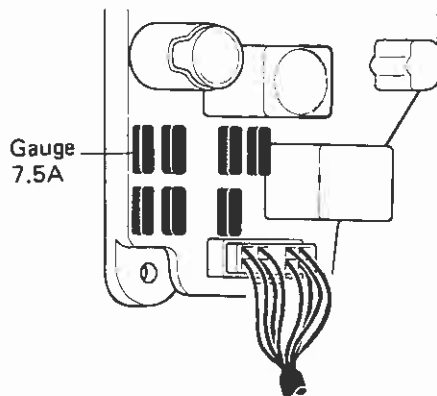
NOTE: The "sub-harness (SST)" appearing in the following pages of the Troubleshooting Section refer to SST 09082-00100, Digital Meter Check Sub-Harness.



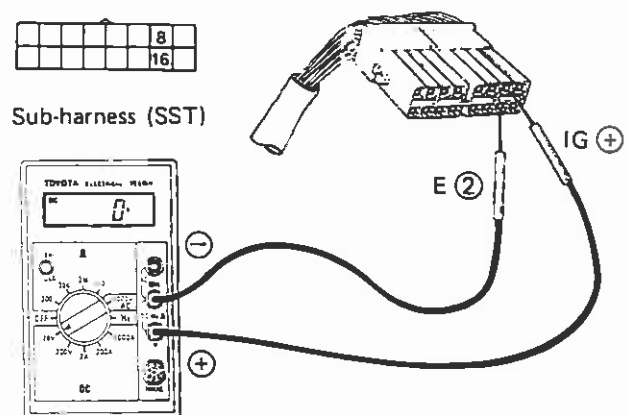
| SECTION  | TROUBLE            |                          |
|----------|--------------------|--------------------------|
| <b>A</b> | <b>Speedometer</b> | <b>No display at all</b> |



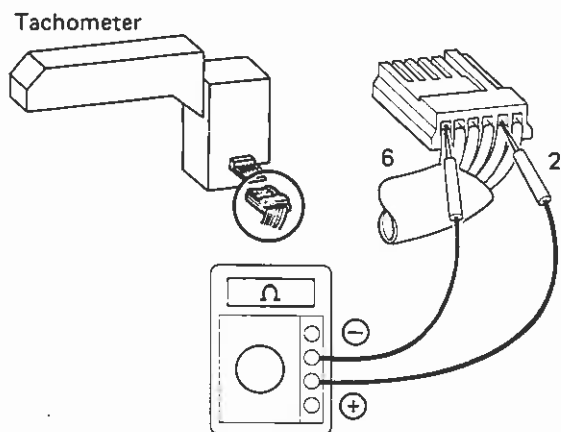
1



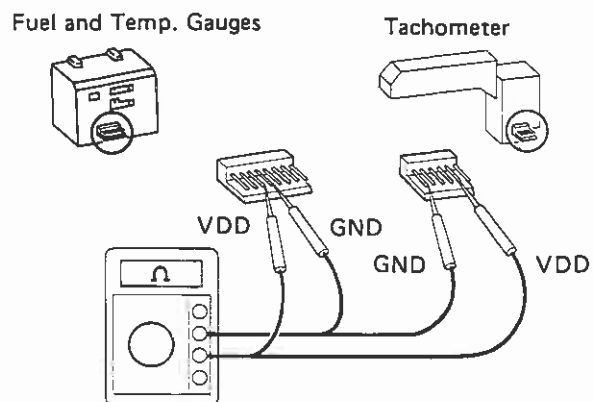
2



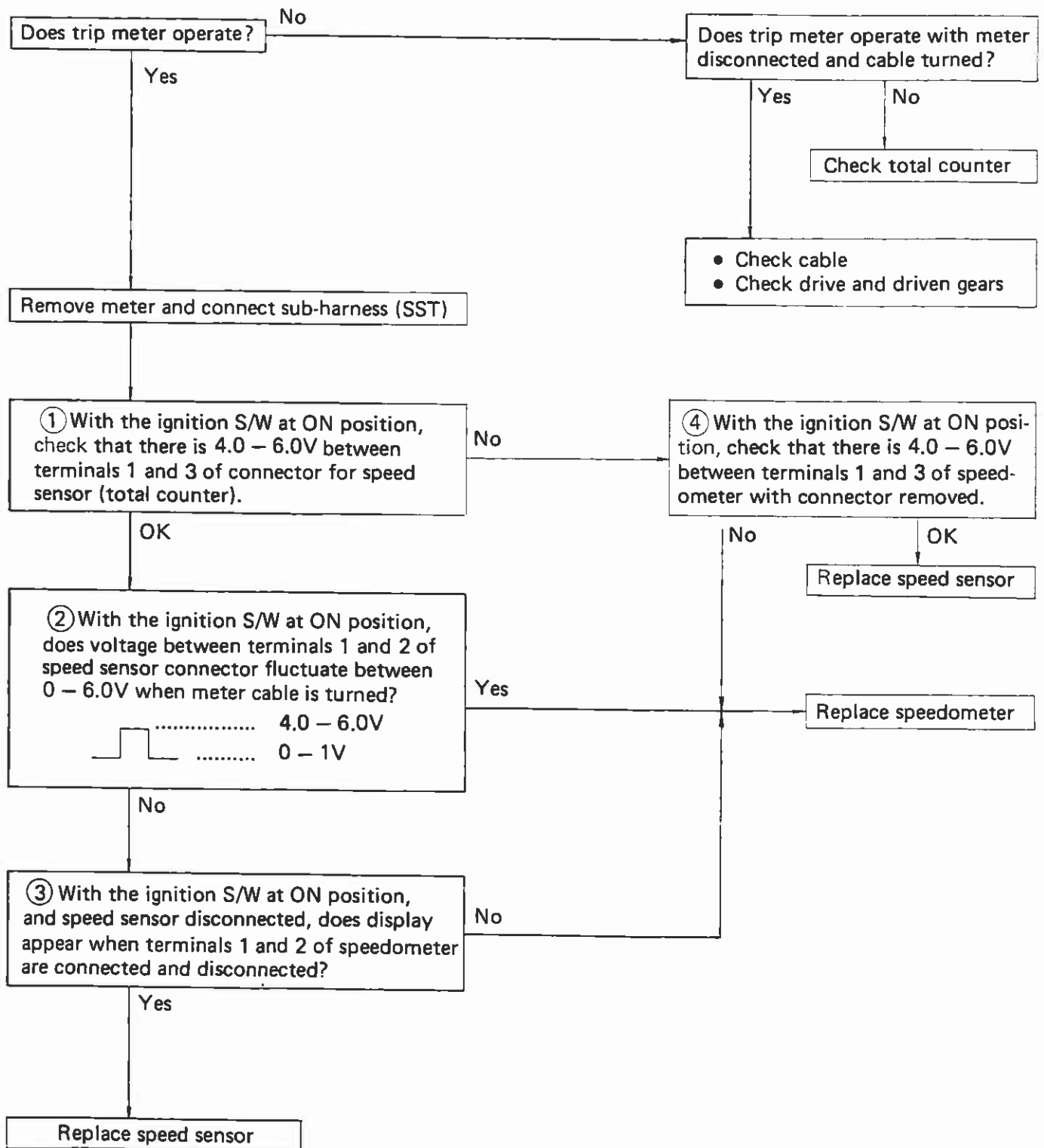
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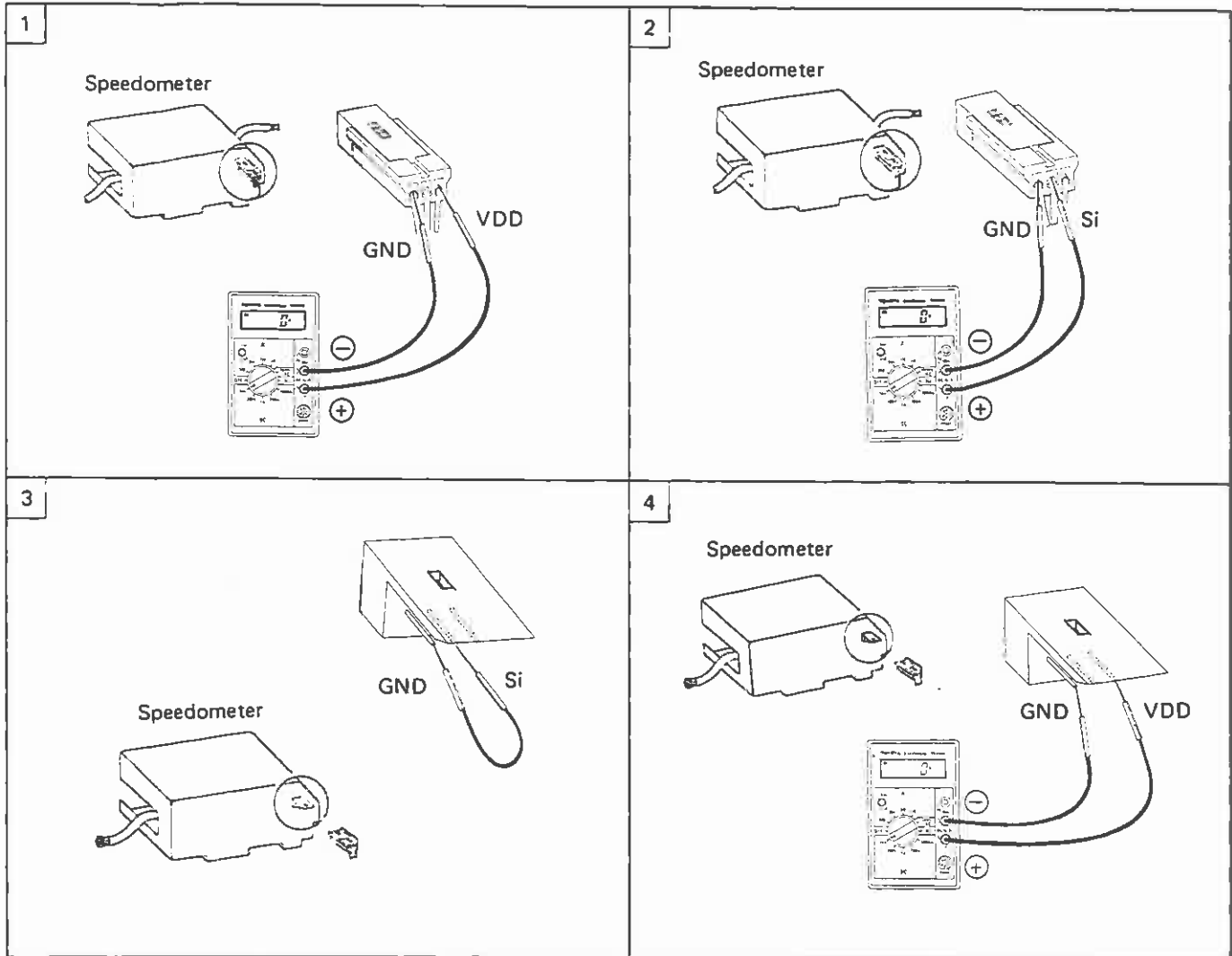


4

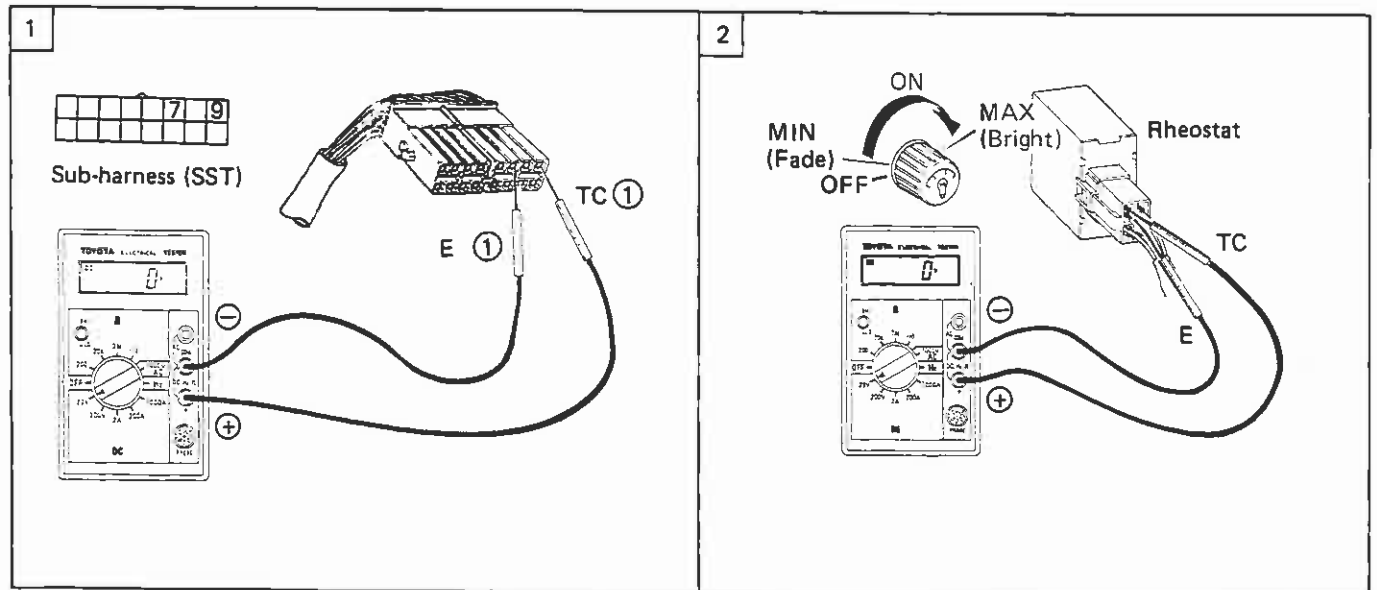
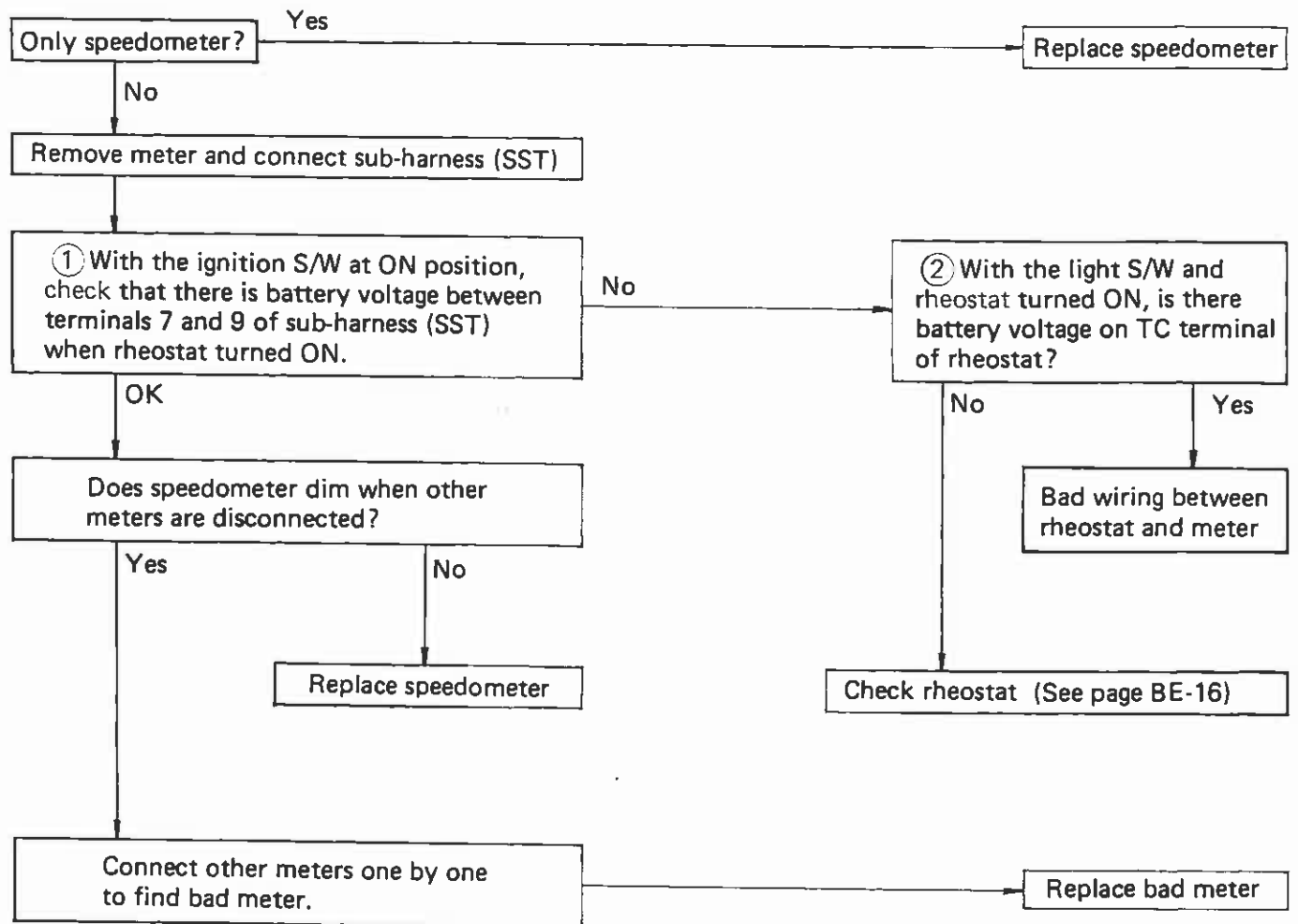


| SECTION  | TROUBLE     |  |
|----------|-------------|--|
| <b>B</b> | Speedometer | Speedometer displays [0] while driving |

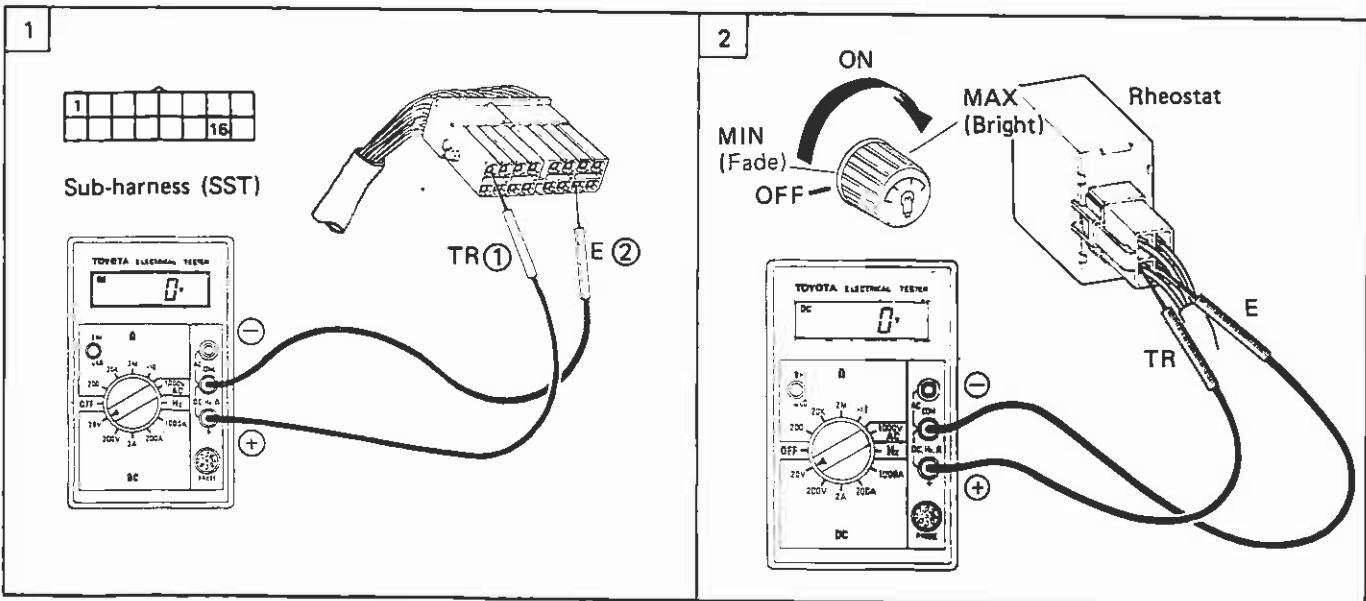
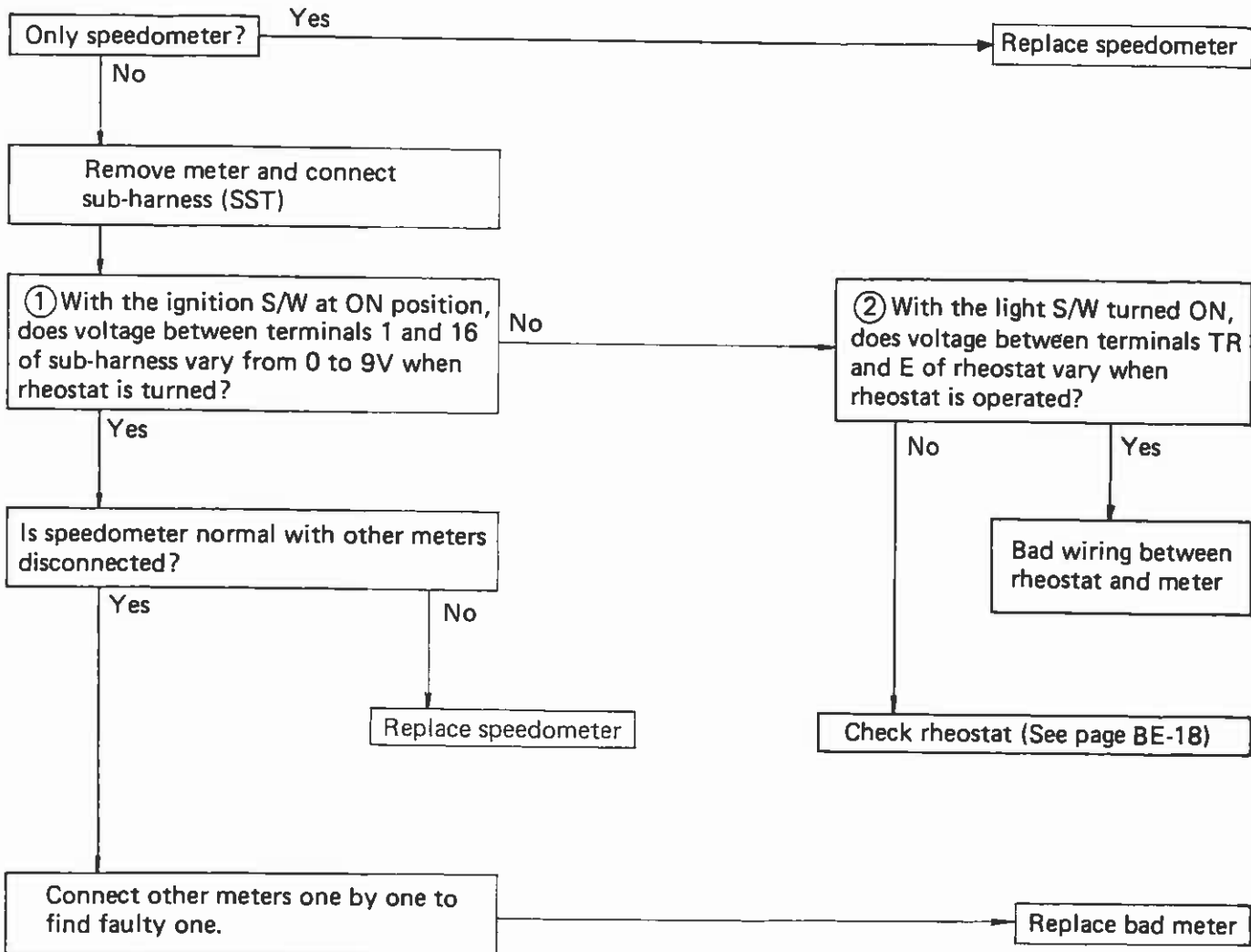




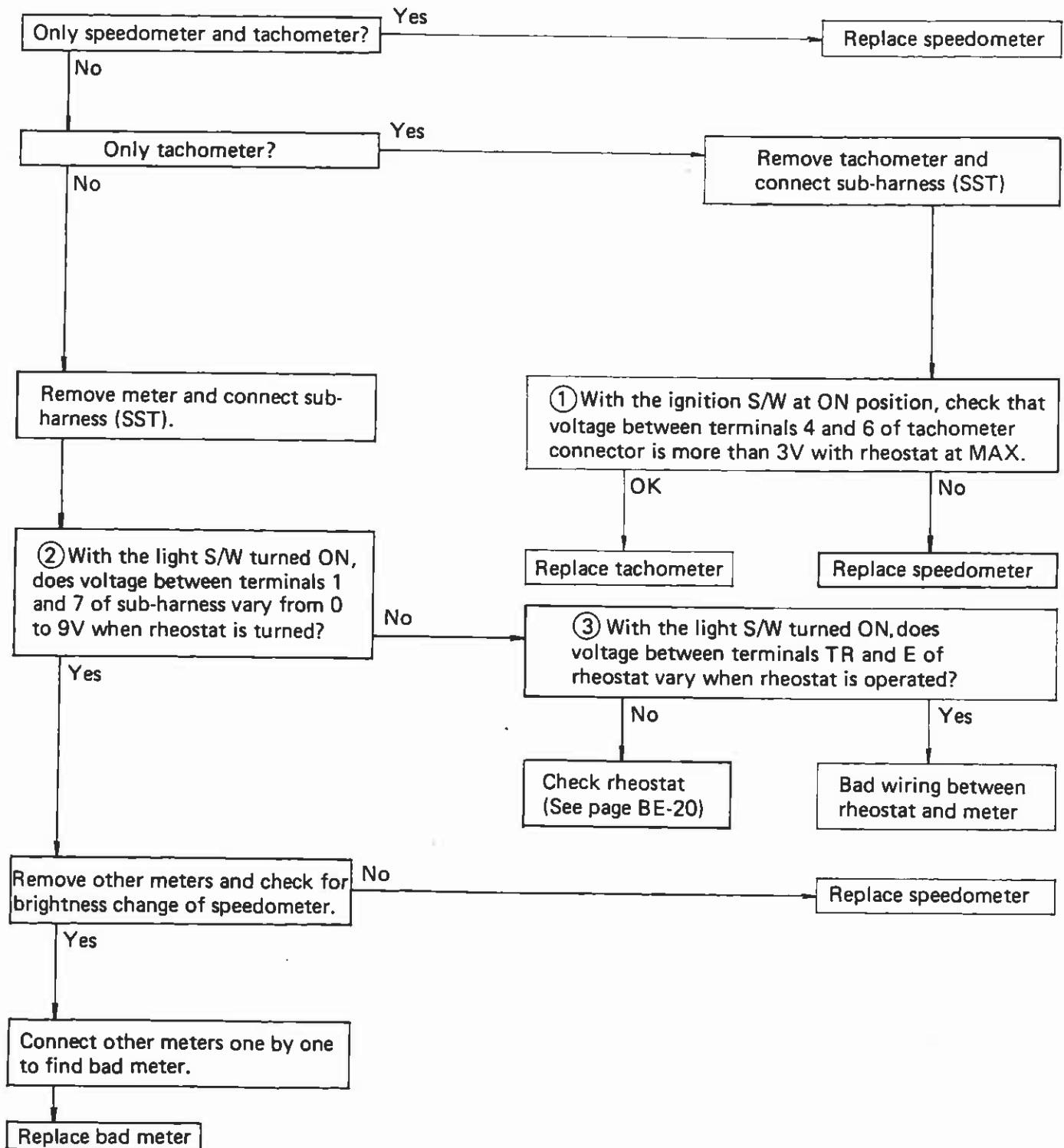
| SECTION  | TROUBLE     |  |
|----------|-------------|--|
| <b>C</b> | Speedometer | Lights do not dim when light and rheostat S/W turned ON. |

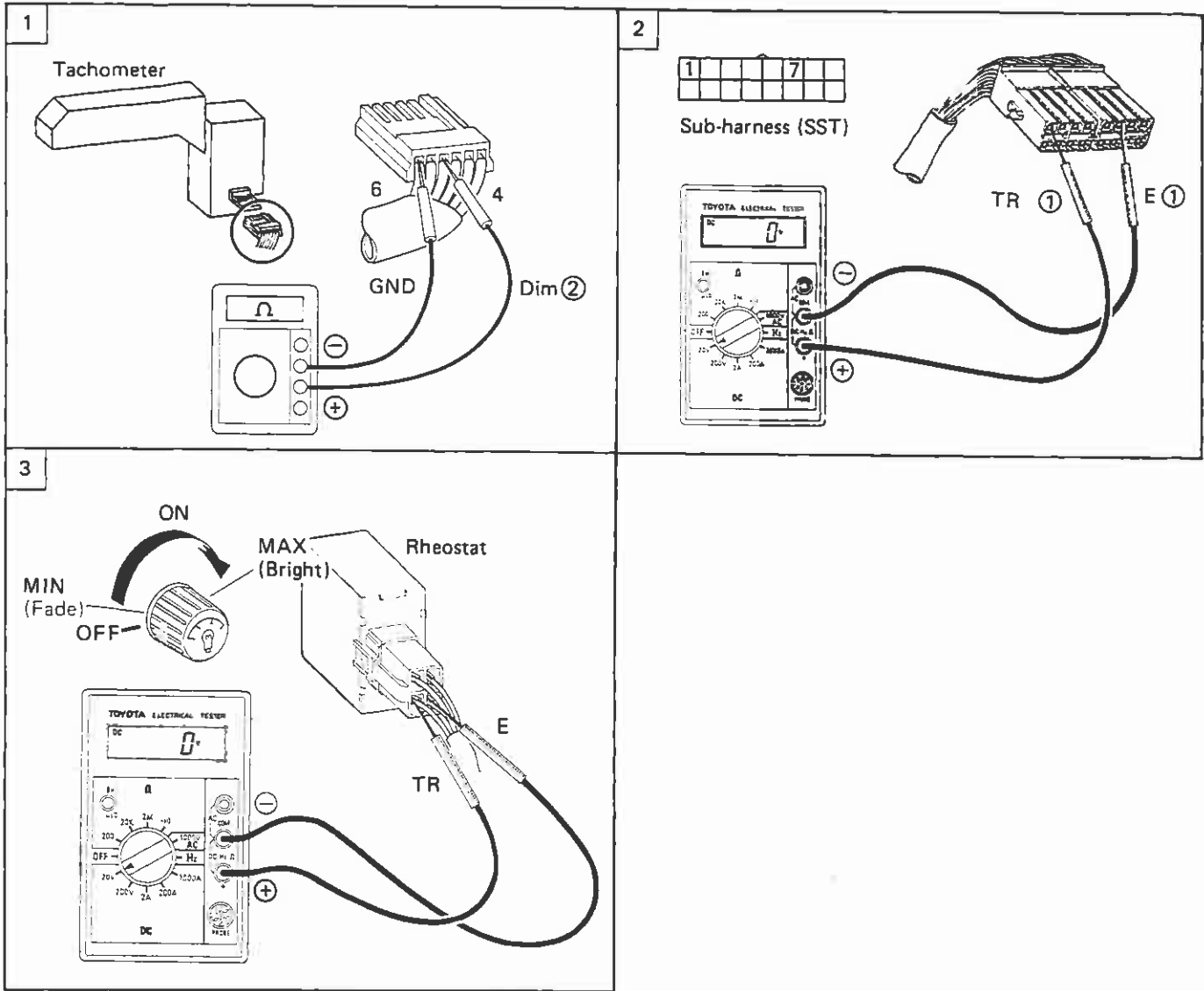


| SECTION  | TROUBLE     |  |
|----------|-------------|--|
| <b>D</b> | Speedometer | Display disappears when rheostat is turned with light S/W ON |



| SECTION  | TROUBLE     |  |
|----------|-------------|--|
| <b>E</b> | Speedometer | Brightness does not change when rheostat is turned |







| SECTION  | TROUBLE     |                             |
|----------|-------------|-----------------------------|
| <b>F</b> | Speedometer | Abnormal speedometer signal |

IG S/W ON, CRUISE CONTROL MAIN S/W ON

① With the ignition S/W at ON position, is there battery voltage on terminal 14 of connector with wiring meter connector disconnected?

No

Defective control parts for CRUISE CONTROL

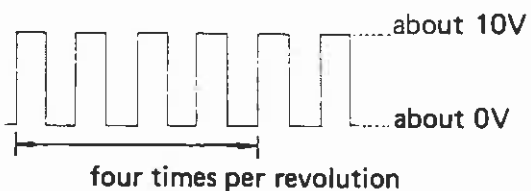
Yes

Connect sub-harness (SST)

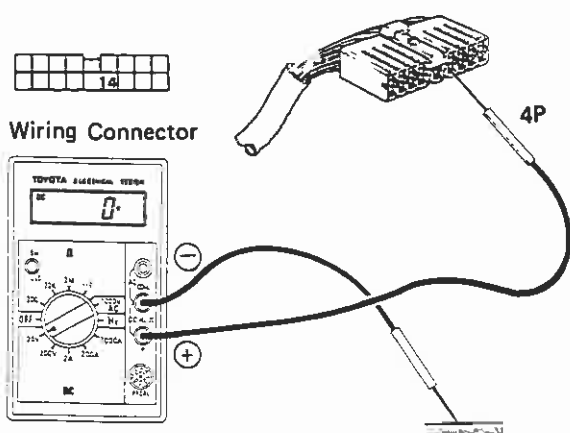
② With the ignition S/W at ON position, does voltage between terminals 14 and 16 of sub-harness (SST) change from 10 to 0V when the magnet shaft is turned?

No

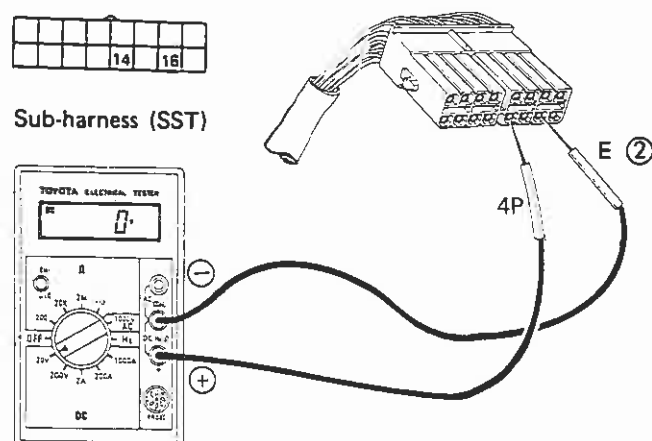
Replace speedometer



1



2



| SECTION  | TROUBLE     |                          |
|----------|-------------|--------------------------|
| <b>G</b> | Speedometer | No speed unit conversion |

Remove meter and connect sub-harness (SST)

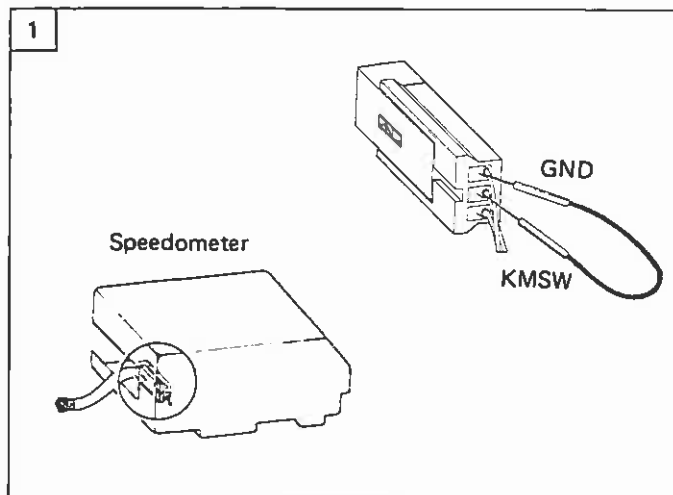
① With the ignition S/W at ON position, is there speed unit conversion when rear terminals are short-circuited?

No

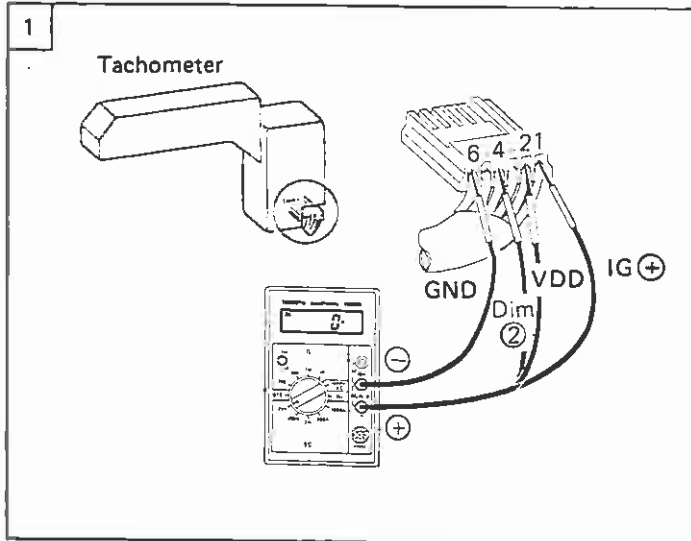
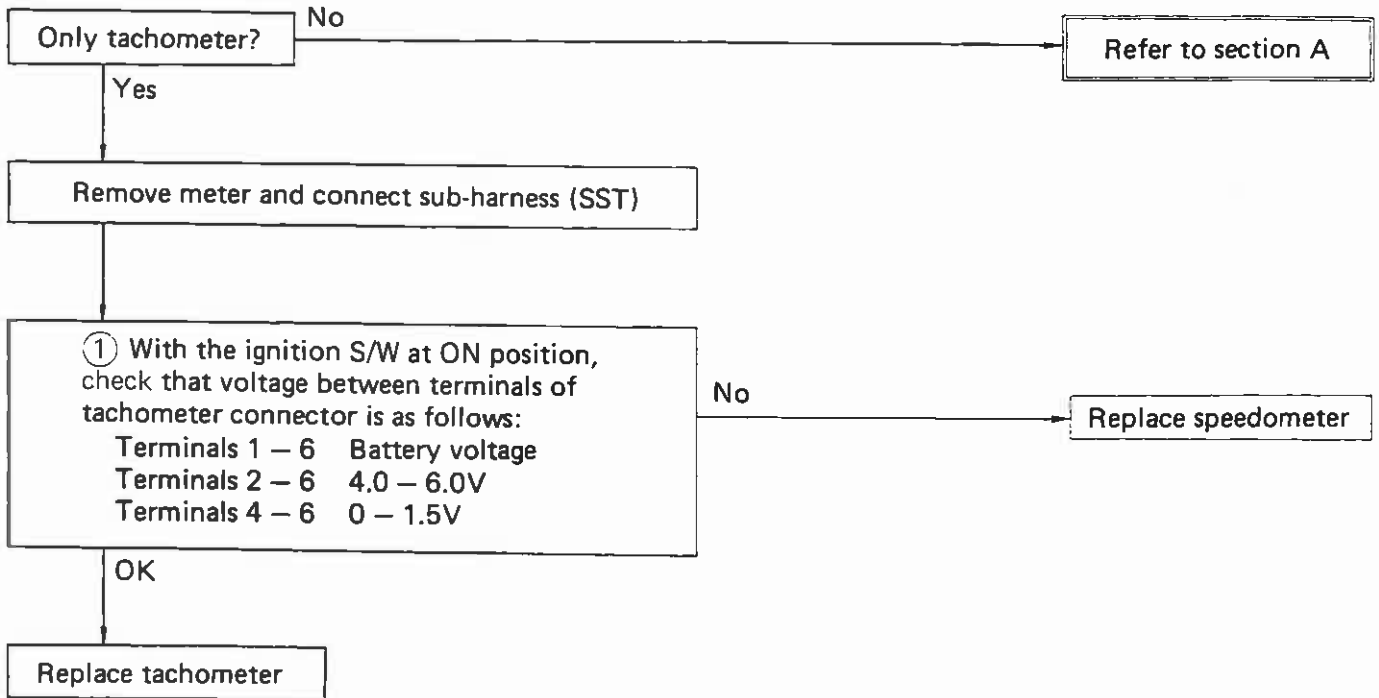
Replace speedometer

Yes

Replace speed scale change S/W



| SECTION  | TROUBLE           |                          |
|----------|-------------------|--------------------------|
| <b>H</b> | <b>Tachometer</b> | <b>No display at all</b> |



| SECTION | TROUBLE    |  |
|---------|------------|--|
| I       | Tachometer | Zero indication even with engine running |

Remove meter and connect sub-harness (SST)

① With the ignition S/W at ON position, does voltage between terminals 16 and 17 of sub-harness fluctuate with variations in engine rpm?

No

Bad wiring between igniter and meter

Yes

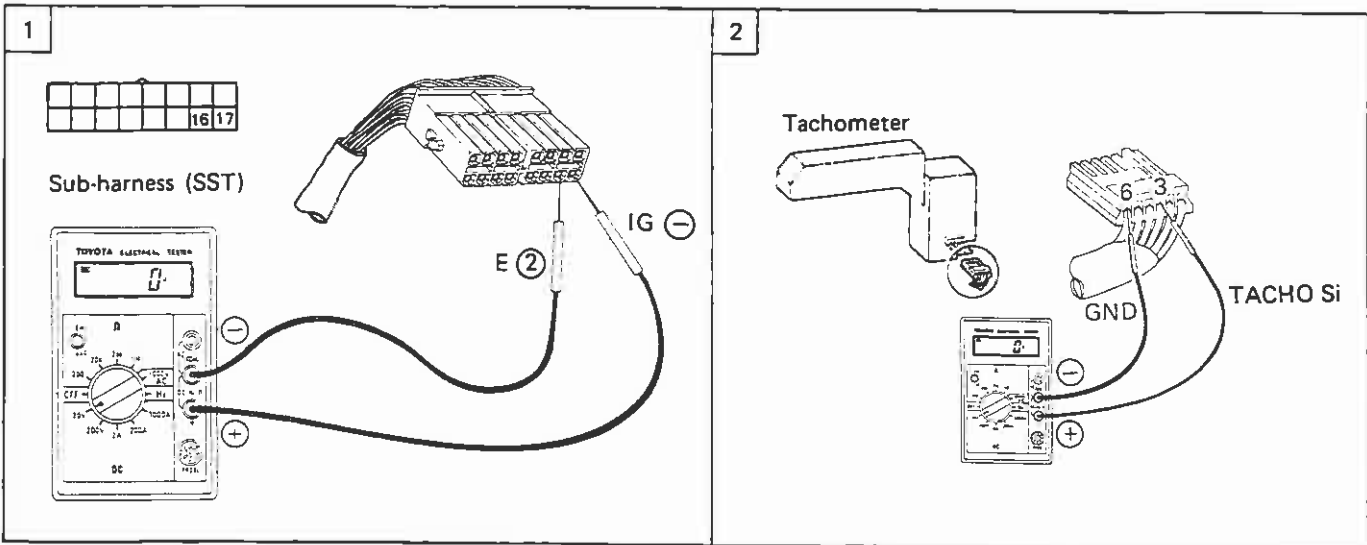
② With the ignition S/W at ON position, does voltage between terminals 3 and 6 of tachometer connector fluctuate between 0 and 1.5V when engine speed increases from 2,000 to 3,000 rpm?

No

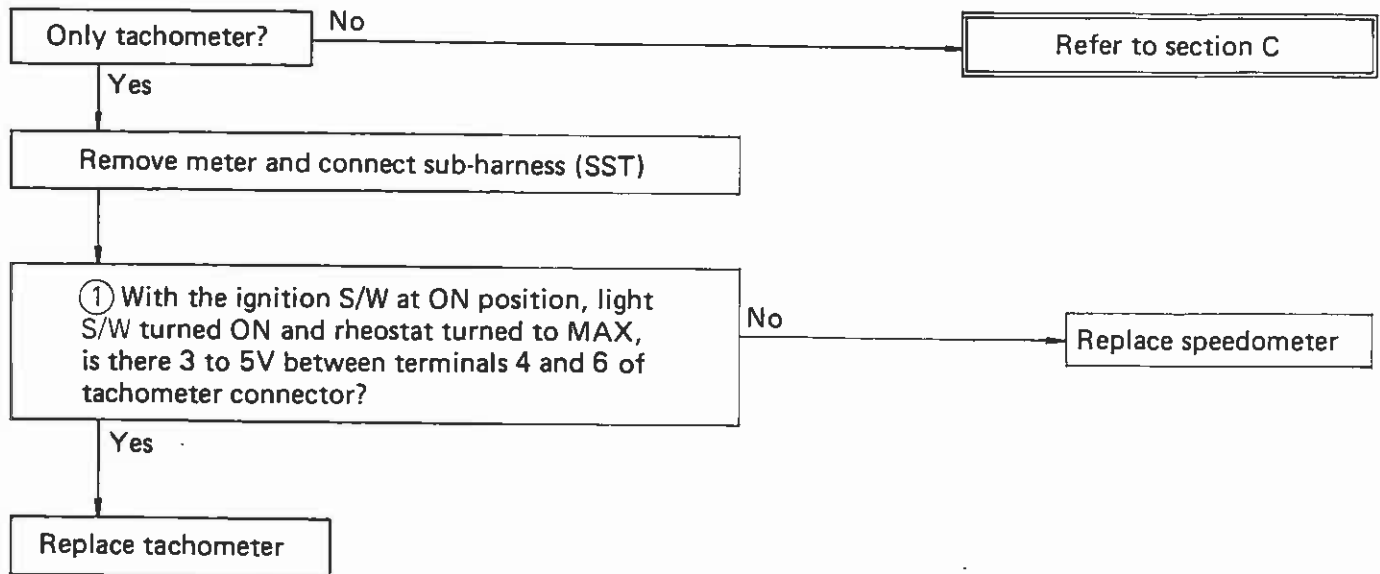
Replace speedometer

Yes

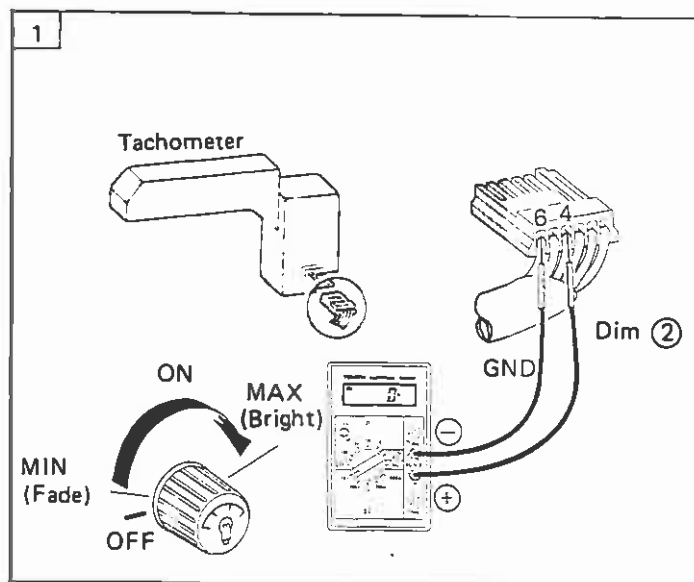
Replace tachometer



| SECTION  | TROUBLE    |  |
|----------|------------|--|
| <b>J</b> | Tachometer | Lights do not dim when light and rheostat S/W turned ON. |

**NOTE:**

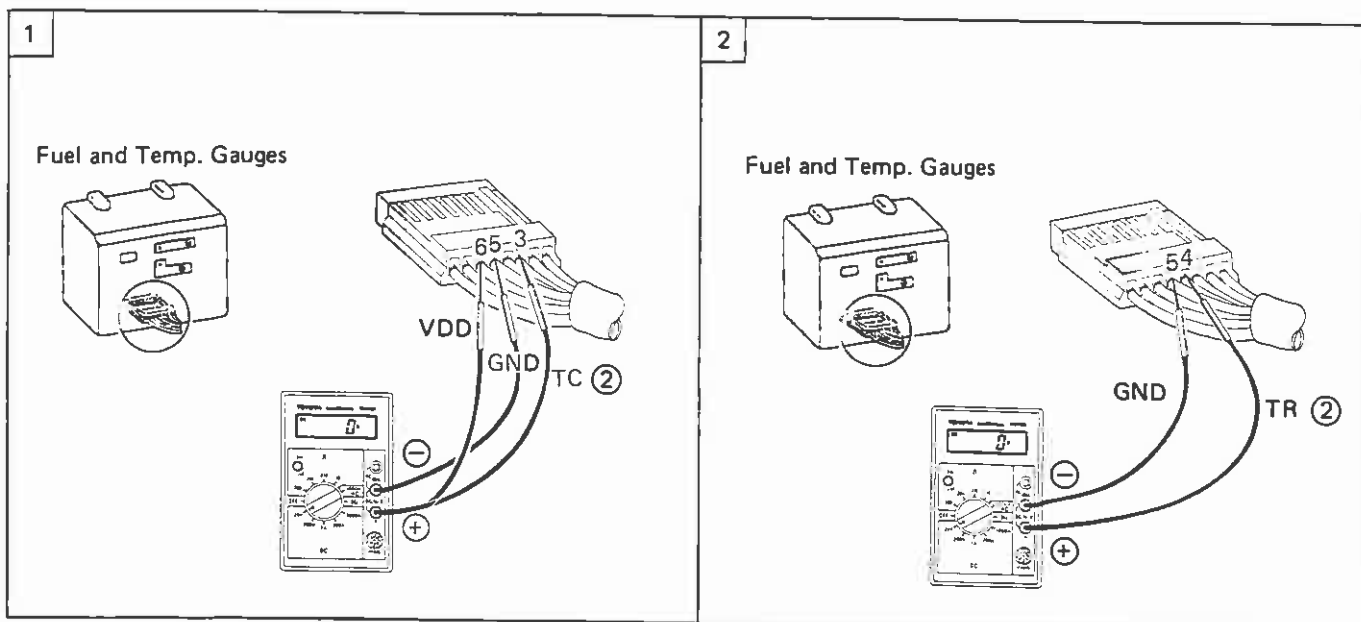
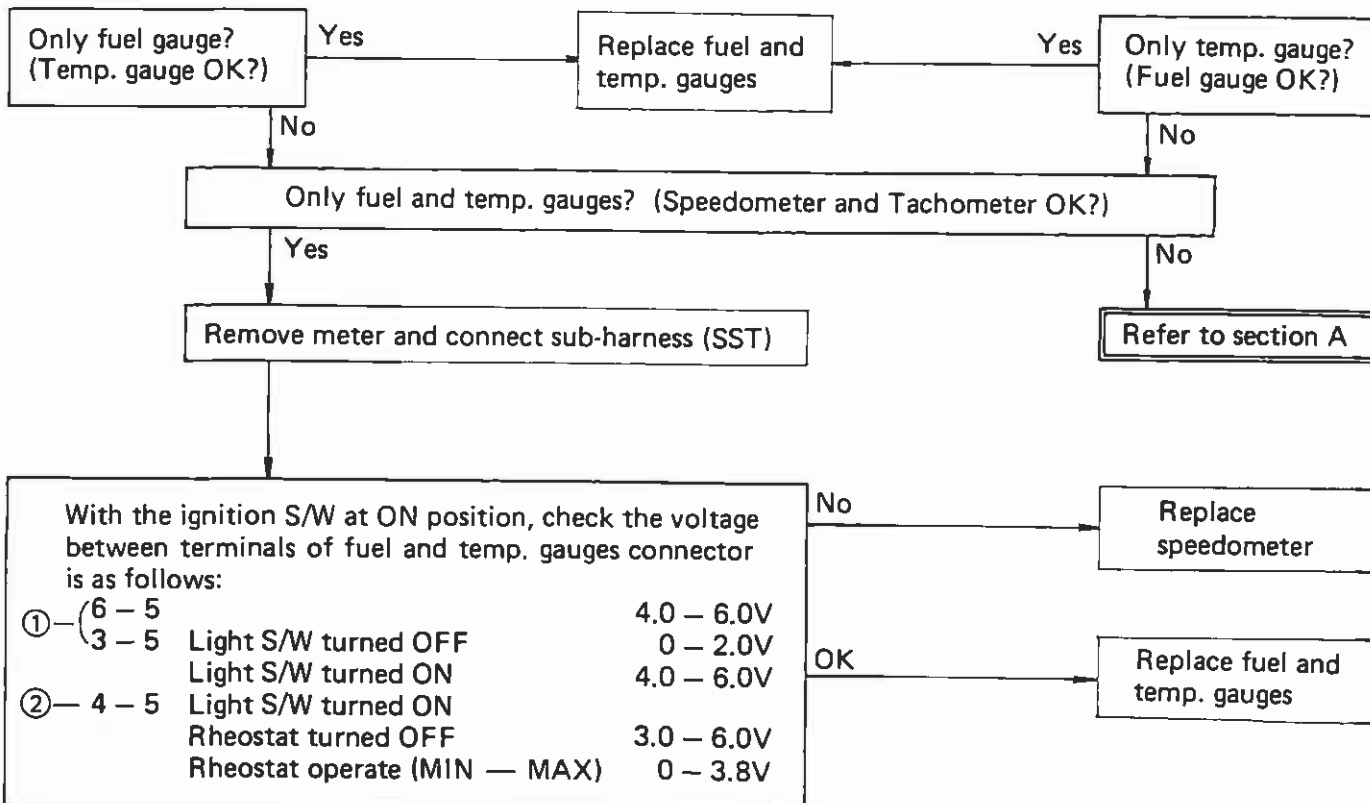
Connector dimming is performed by the dim signal (Dim ②) of the speedometer.



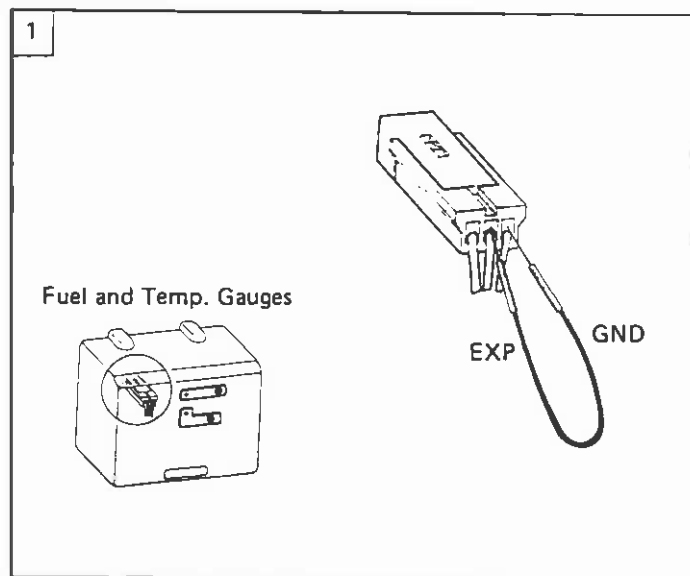
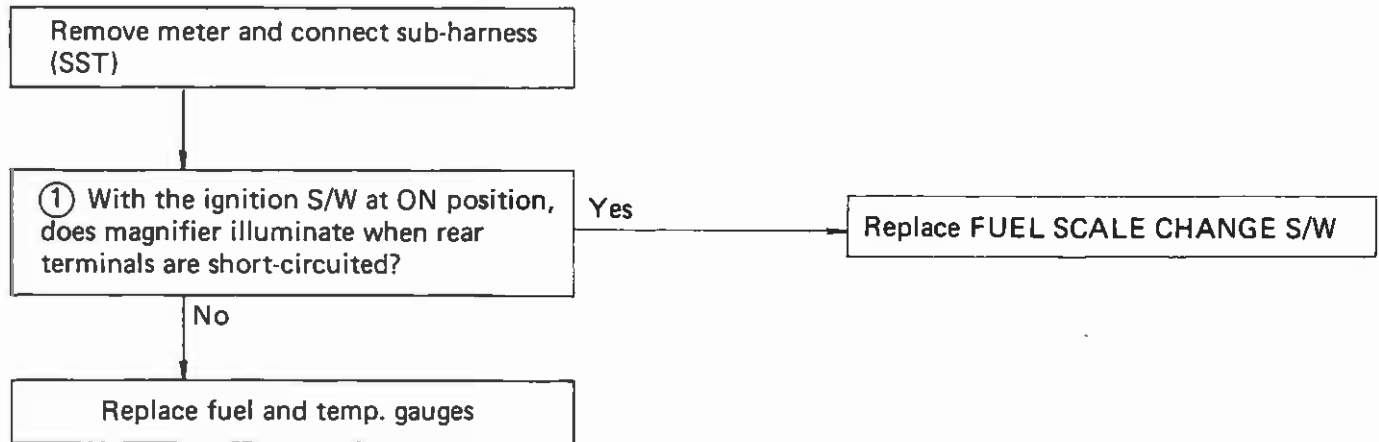
| SECTION  | TROUBLE                   |                   |
|----------|---------------------------|-------------------|
| <b>K</b> | Fuel gauge<br>Temp. gauge | No display at all |

For Fuel Gauge

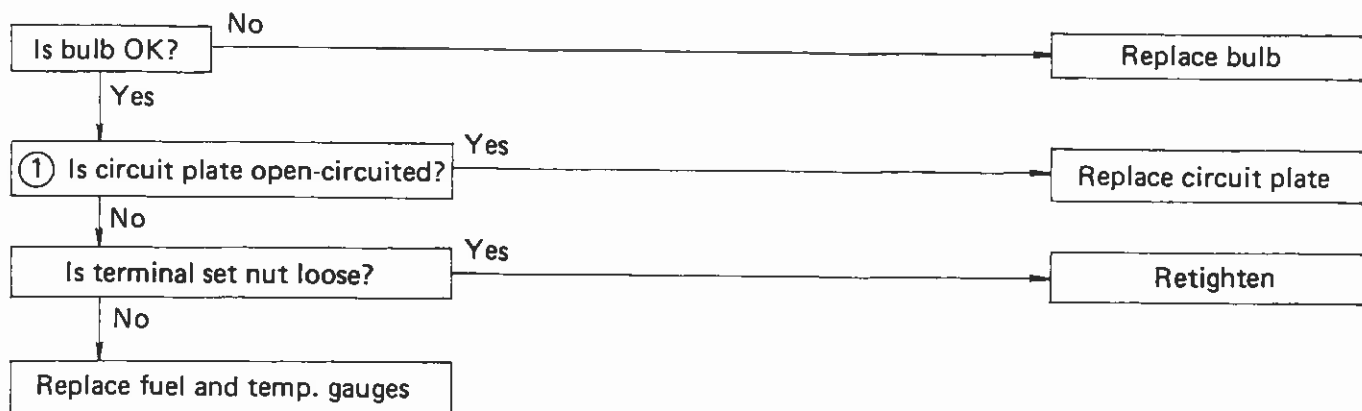
For Temp. Gauge



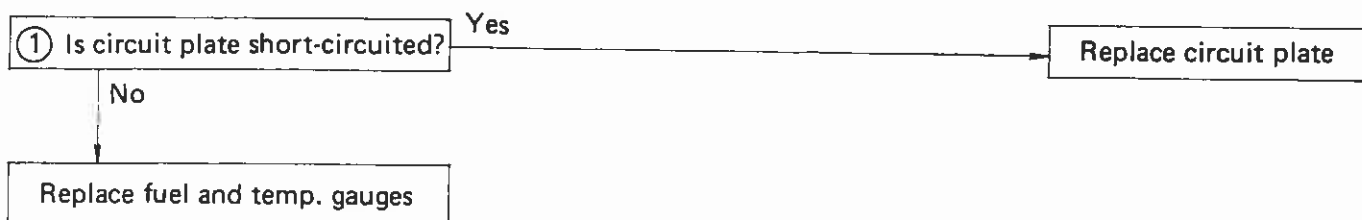
| SECTION  | TROUBLE           |  |
|----------|-------------------|--|
| <b>L</b> | <b>Fuel gauge</b> | <b>Fuel scale change display (magnifier) does not illuminate</b> |



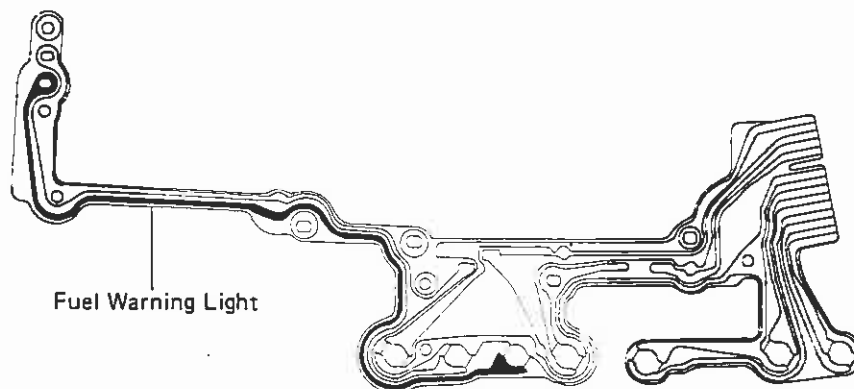
| SECTION  | TROUBLE    |                              |
|----------|------------|------------------------------|
| <b>M</b> | Fuel gauge | Warning light does not light |



| SECTION  | TROUBLE    |                          |
|----------|------------|--------------------------|
| <b>N</b> | Fuel gauge | Warning light always lit |

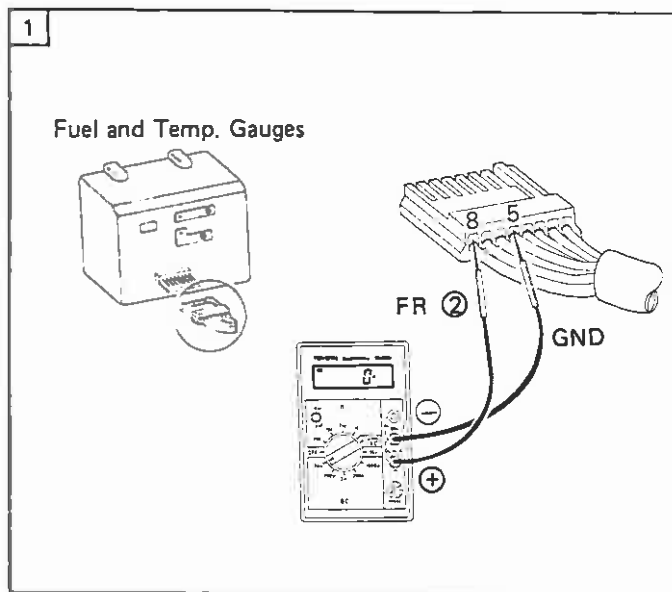
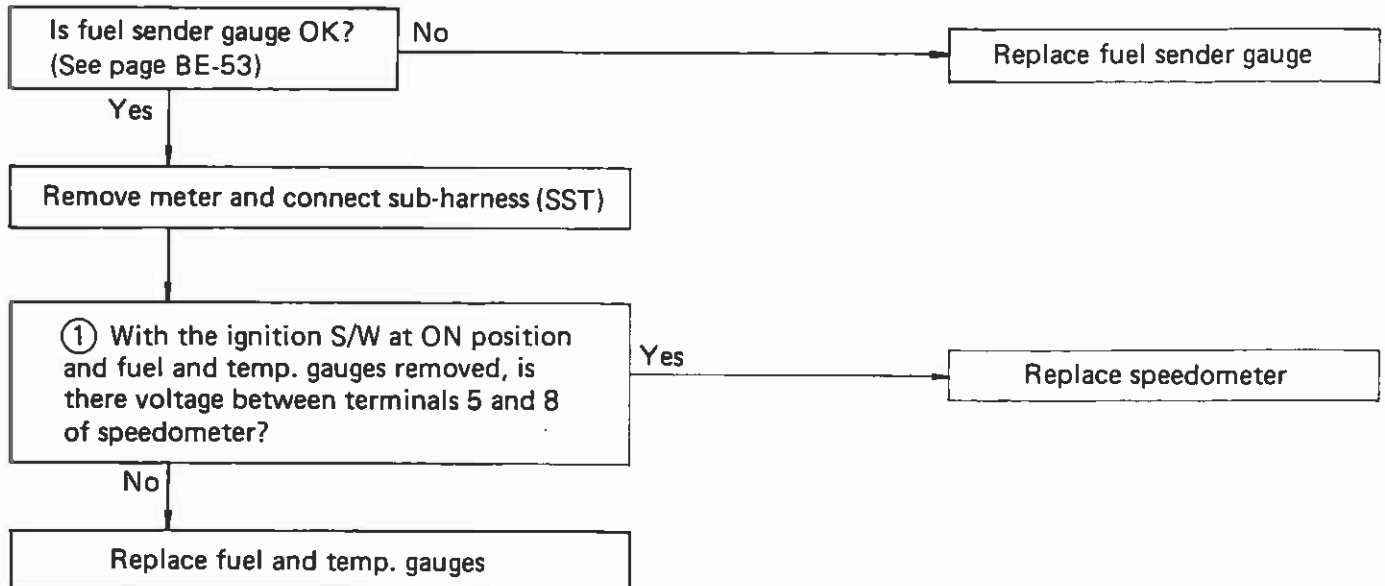


M-①  
N-①





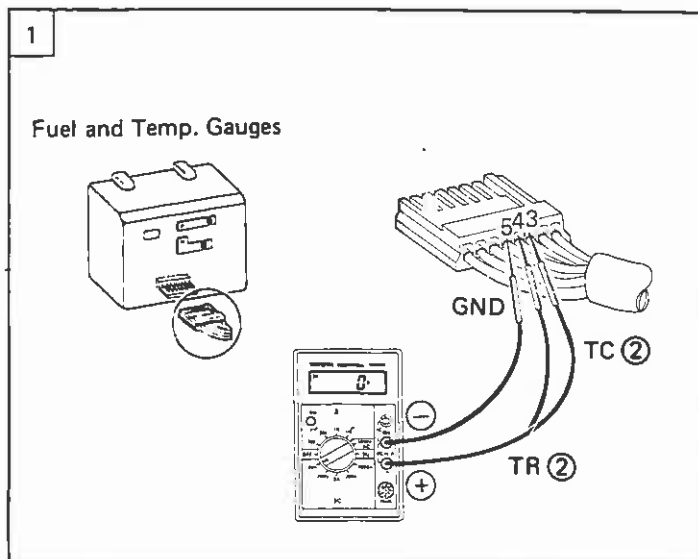
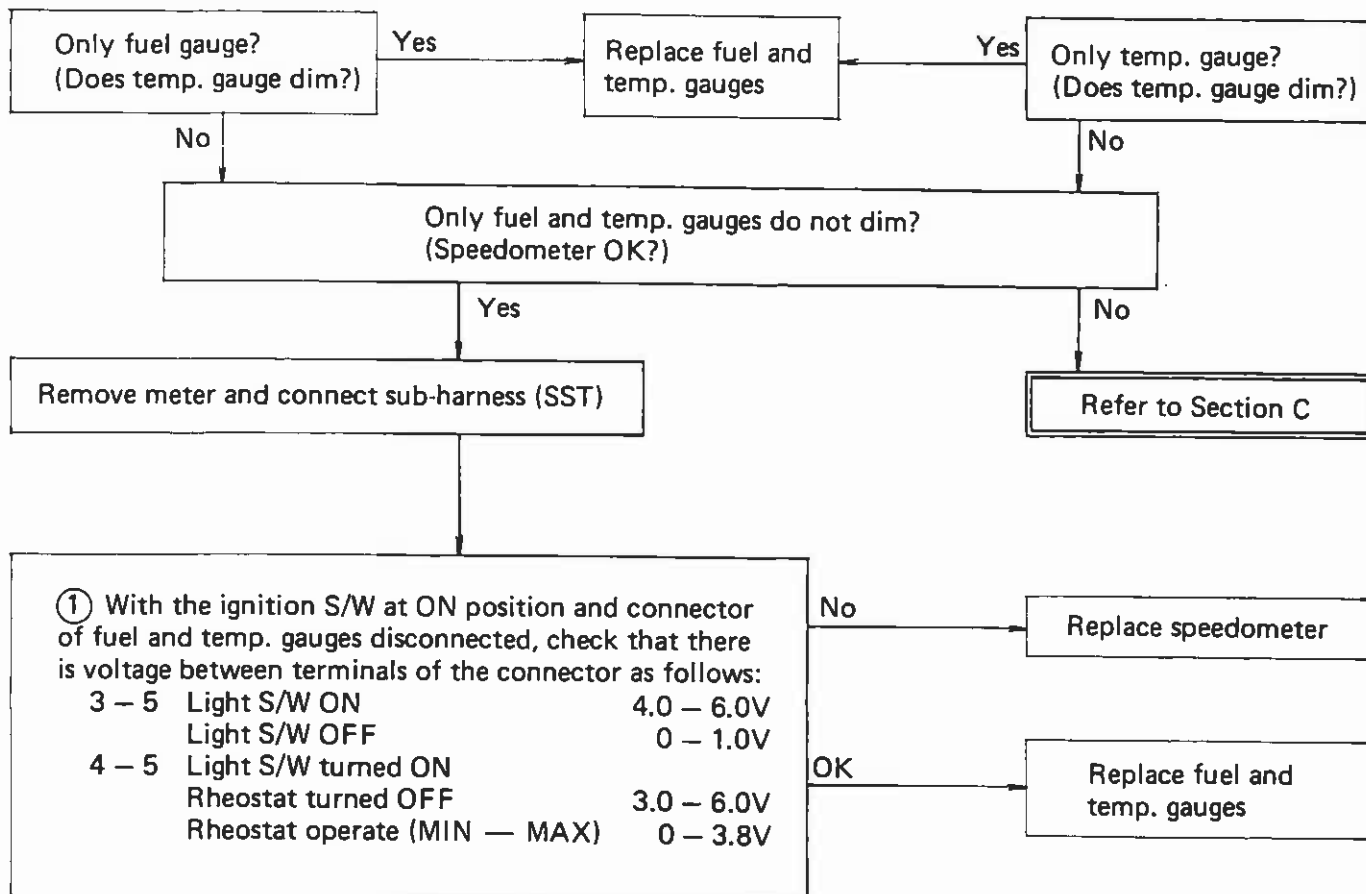
| SECTION  | TROUBLE    |                   |
|----------|------------|-------------------|
| <b>O</b> | Fuel gauge | Defective display |



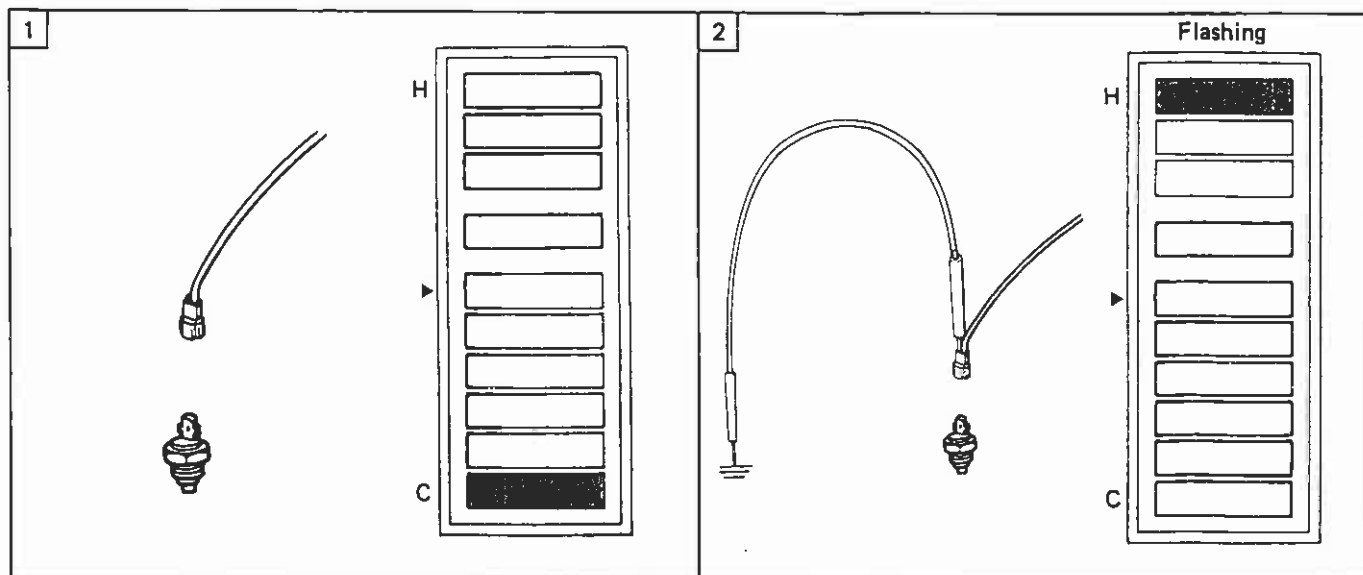
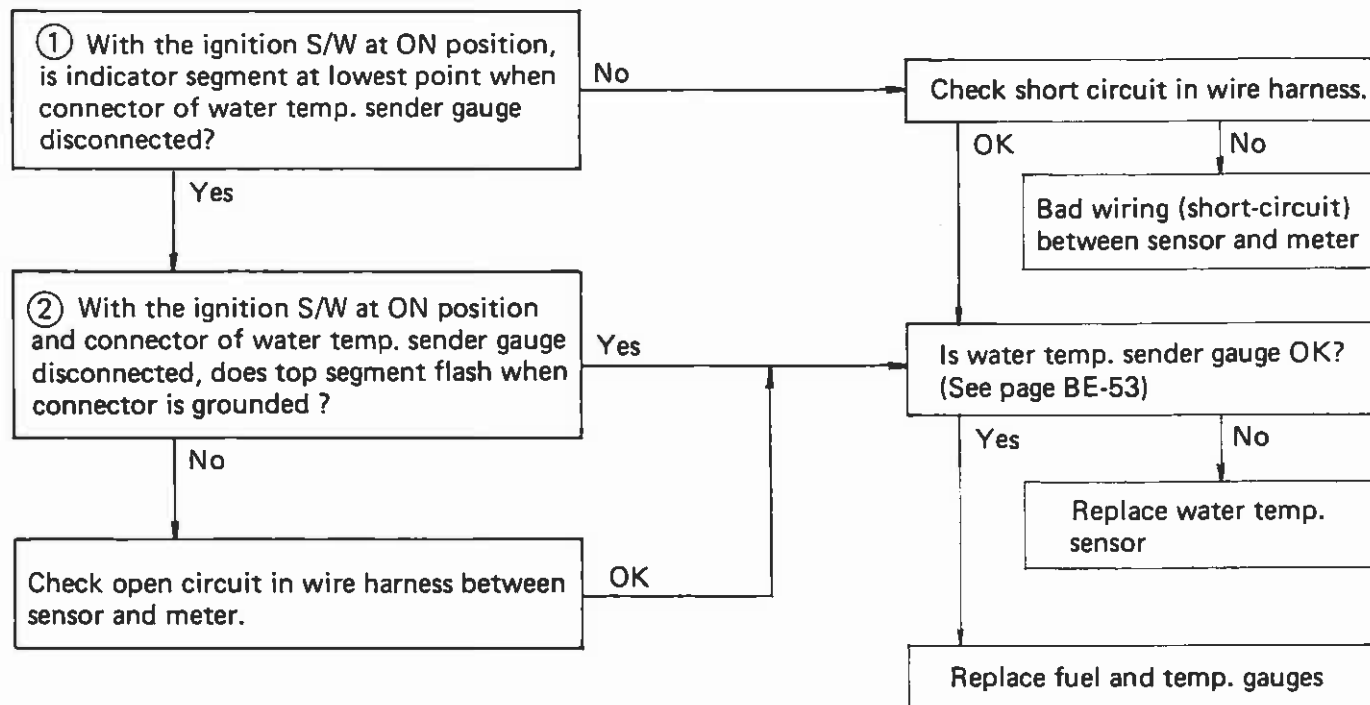
| SECTION  | TROUBLE                         |  |
|----------|---------------------------------|--|
| <b>P</b> | Fuel gauge<br>Water temp. gauge | Lights do not dim when light and rheostat S/W turned ON. |

For Fuel Gauge

For Temp. Gauge



| SECTION  | TROUBLE           |                      |
|----------|-------------------|----------------------|
| <b>Q</b> | Water temp. gauge | Defective indication |




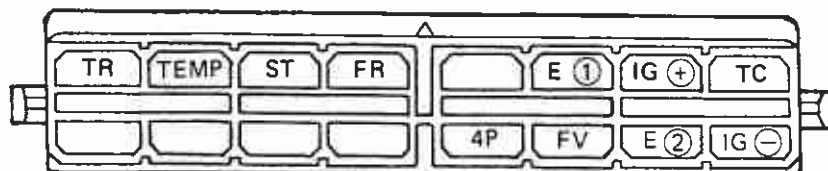
## ON-VEHICLE INSPECTION OF COMBINATION METER (Digital Type)

### 1. REMOVE COMBINATION METER AND CONNECT SUB-HARNESS (SST)

SST 09082-00100

### 2. INSPECT CIRCUIT AND PARTS OPERATION

| Terminals of sub-harness | Specification   |
|--------------------------|---|
| E① — Body ground         | Continuity 0 $\Omega$   |
| E② — Body ground         |   |
| IG⊕ — E①                 | Battery voltage (Ignition switch ON)  |
| ST — E①                  | 8 – 11V (Cranking)  |
| TC — E①                  | Battery voltage (Light switch and rheostat turned ON.)<br>0 V (Light switch turned ON and rheostat turned OFF.)   |
| TR — E①                  | 0 – 1.0V (Light switch turned OFF.)<br>0 – 1.0V (Light switch turned ON and rheostat MIN)<br>6 – 9V (Light switch turned ON and rheostat MAX)                                   |
| 4P — E①                  |  about 10V<br>about 0V<br>4 times/revolution of magnet shaft (Ignition switch ON)            |
| FV — E②                  | 4.0 – 6.0V (Ignition switch ON)   |
| FR — E②                  | 4.4 – 4.8V (F level) (Ignition switch ON)<br>3.27V (1/2 level) (Ignition switch ON)<br>2.3 – 2.7V (1/4 level) (Ignition switch ON)<br>0.2 – 0.5V (E level) (Ignition switch ON) |
| IG⊖ — E①                 | 11 – 13V (Idling)<br>10 – 12V (3,000 rpm)   |
| TEMP — E②                | 1.7V (No. 6 segment is lighted) (Ignition switch ON)  |



Connector of Digital Meter Check Sub-harness (SST 09082-00100)

## Speedometer

### ON-VEHICLE INSPECTION OF SPEEDOMETER

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

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

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

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

(km/h)

| Standard indication | Allowable range |
|---------------------|-----------------|
| 20                  | 18 – 22         |
| 40                  | 38 – 42         |
| 60                  | 58 – 62         |
| 80                  | 78 – 82         |
| 100                 | 97 – 103        |
| 120                 | 117 – 123       |

(mph)

| Standard indication | Allowable range |
|---------------------|-----------------|
| 20                  | 19 – 21         |
| 40                  | 39 – 41         |
| 60                  | 59 – 61         |
| 80                  | 78 – 82         |

## Tachometer

### ON-VEHICLE INSPECTION OF TACHOMETER

- (a) Connect a tune-up test tachometer and start the engine.
- (b) Compare the tester and tachometer indications.

If the error is excessive, replace the tachometer.

#### CAUTION:

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

(rpm)

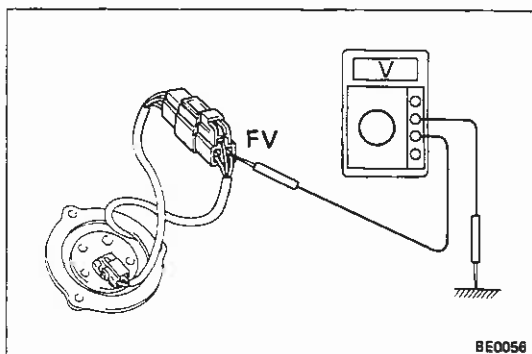
| Standard indication | Allowable range | Standard indication | Allowable range |
|---------------------|-----------------|---------------------|-----------------|
| 1,000               | 950 ± 30        | 5,000               | 4,900 ± 150     |
| 2,000               | 1,950 ± 60      | 6,000               | 5,900 ± 180     |
| 3,000               | 2,900 ± 90      | 7,000               | 6,900 ± 210     |
| 4,000               | 3,900 ± 120     | 8,000               | 7,900 ± 240     |

## Fuel Gauge

### INSPECTION OF FUEL GAUGE

#### 1. INSPECT RECEIVER GAUGE OPERATION

Disconnect the connector from the fuel sender gauge.

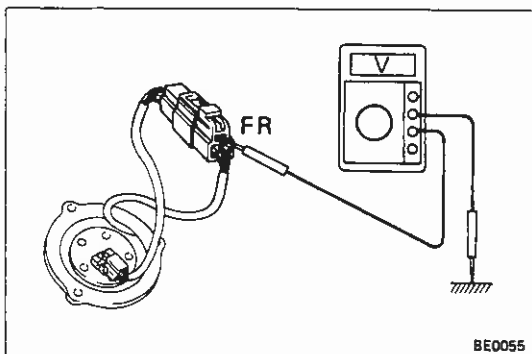


#### 2. INSPECT POWER SOURCE LINE TO CONNECTOR

Inspect the power source line between terminal FV and body ground of the sender gauge connector.

**Voltage:** 4.0 – 6.0V

**NOTE:** Never short circuit terminal FV.

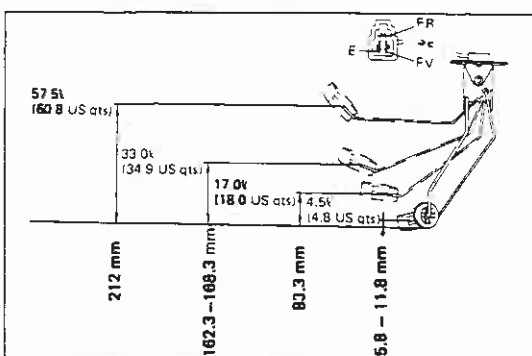


#### 3. INSPECT OUTPUT SIGNAL VOLTAGE

Inspect the output signal voltage between terminal FR and body ground of the sender gauge connector.

**Voltage:**

|            |              |
|------------|--------------|
| 4.4 – 4.8V | at F level   |
| 3.27V      | at 1/2 level |
| 2.3 – 2.7V | at 1/4 level |
| 0.3 – 0.5V | at E level   |



#### 4. INSPECT SENDER GAUGE OPERATION

Inspect the resistance between terminals FR and E.

**Resistance:**

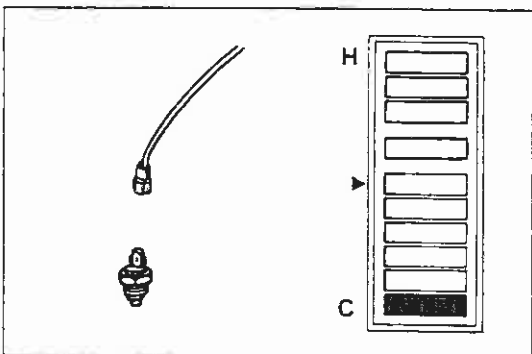
|             |                                      |
|-------------|--------------------------------------|
| 270 – 310 Ω | 212 mm (8.35 in.)                    |
| 186 – 226 Ω | 162.3 – 168.3 mm (6.390 – 6.626 in.) |
| 140 – 180 Ω | 83.3 mm (3.280 in.)                  |
| 17 – 33 Ω   | 5.8 – 11.8 mm (0.228 – 0.465 in.)    |

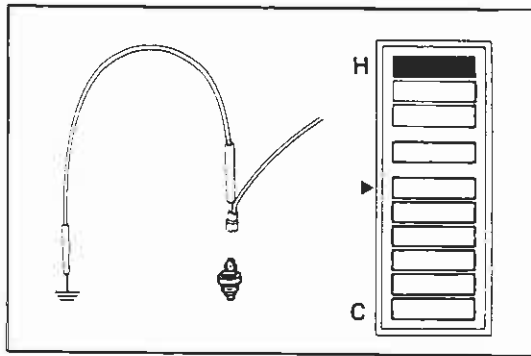
## Water Temperature Gauge

### INSPECTION OF WATER TEMPERATURE GAUGE

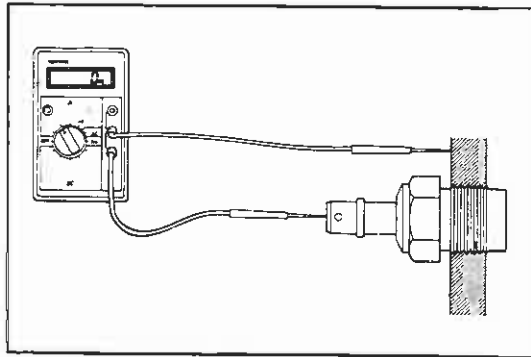
#### 1. INSPECT RECEIVER GAUGE OPERATION

- Warm up the engine.
- Disconnect the connector from the sender gauge.
- Check that the indicator segment is at the lowest (dimmiest) point with the ignition switch at ON position.





- (d) Ground the connector of the sender gauge with the connector disconnected.
- (e) Check that the top segment flashes with the ignition switch at ON position.



## 2. INSPECT SENDER GAUGE OPERATION

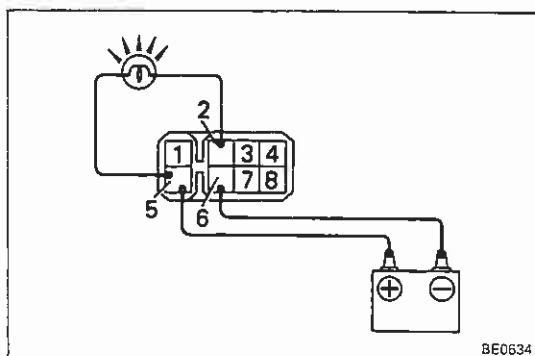
Inspect the resistance between the terminals of the sender gauge and body ground.

**Resistance:** 192 — 260  $\Omega$  50°C (122°F)  
65 — 89  $\Omega$  80°C (176°F)

## REAR WINDOW DEFOGGER

### Troubleshooting

| Problem                            | Possible cause           | Remedy                            | Page  |
|------------------------------------|--------------------------|-----------------------------------|-------|
| Rear window defogger does not work | Circuit breaker OFF      | Reset breaker and check for short | BE-4  |
|                                    | Defogger relay faulty    | Check relay                       | BE-57 |
|                                    | Defogger switch faulty   | Check switch                      | BE-56 |
|                                    | Defogger wire broken     | Check wires                       | BE-57 |
|                                    | Wiring and ground faulty | Repair as necessary               |       |



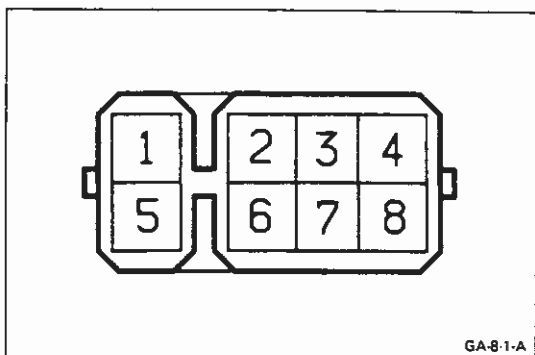
### Rear Window Defogger Switch (w/ Timer)

#### INSPECTION OF REAR WINDOW DEFOGGER SWITCH

##### INSPECT SWITCH OPERATION

- Connect the positive (+) lead from the battery to terminal 5 and connect the negative (–) lead to terminal 6. Connect terminals 2 and 5 through a 3.4 W test bulb.
- Turn the defogger switch on. Check that the bulb lights for 10 to 20 minutes, then the bulb puts goes out.

If operation is not as described, replace the switch.



### Rear Window Defogger Switch (w/o Timer)

#### INSPECTION OF REAR WINDOW DEFOGGER SWITCH

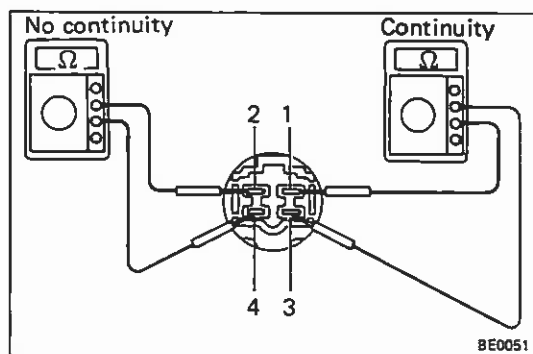
##### INSPECT SWITCH CONTINUITY

Inspect continuity between the terminals.

| Terminal<br>Switch<br>position | 6 | 5 | 2 |
|--------------------------------|---|---|---|
| OFF                            |   | ○ | ○ |
| ON                             | ○ | ○ | ○ |

If continuity is not as shown above, replace the switch.





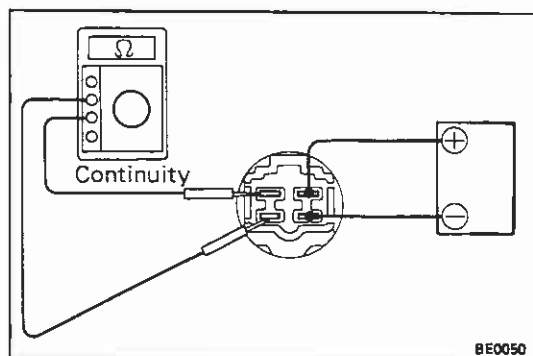
## Rear Window Defogger Relay

### INSPECTION OF REAR WINDOW DEFOGGER 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.

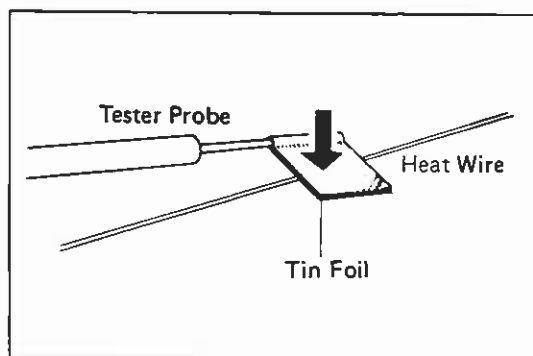
If continuity is not as specified, replace the relay.



#### 2. INSPECT RELAY OPERATION

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

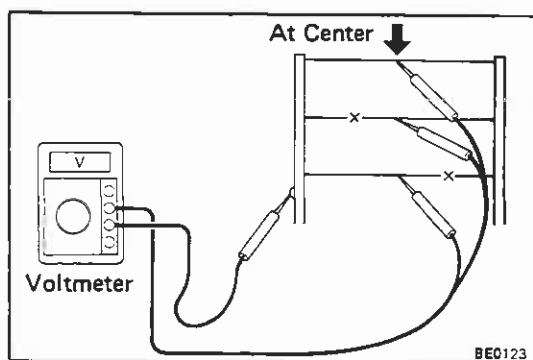
If operation is not as specified, replace the relay.



## Rear Window Defogger Wires

### CAUTION:

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



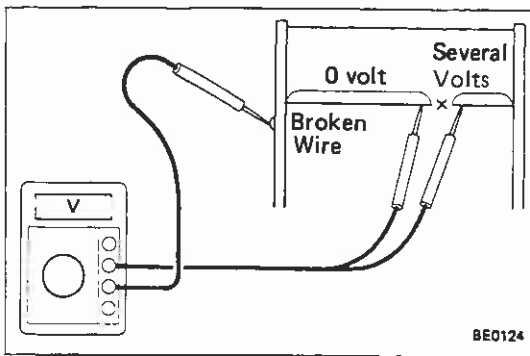
### INSPECTION OF REAR WINDOW DEFOGGER WIRES

#### 1. INSPECT FOR WIRE BREAKAGE

- Switch ON the defogger.
- Inspect the voltage at the center of each heat wire.

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

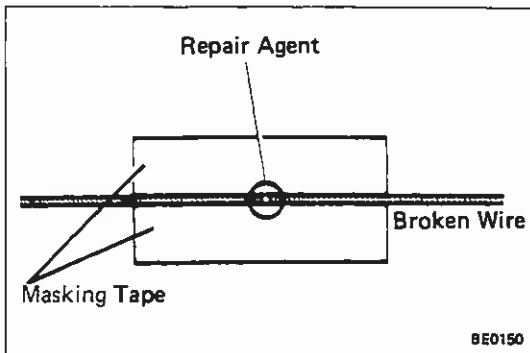
**NOTE:** If there is 10V, the wire is broken between the center of the wire and positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.



## 2. INSPECT FOR WIRE BREAKAGE POINT

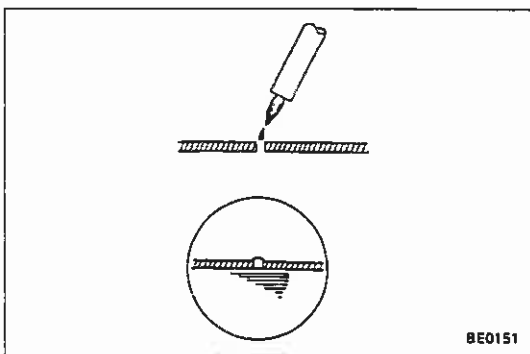
- Place the voltmeter positive (+) lead against the defogger positive (+) terminal.
- Place the voltmeter negative (-) lead with the foil strip against the heat wire at the positive (+) terminal end and slide it toward the negative (-) terminal end.
- The point where the voltmeter deflects from zero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

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



## REPAIR OF REAR WINDOW DEFOGGER WIRES

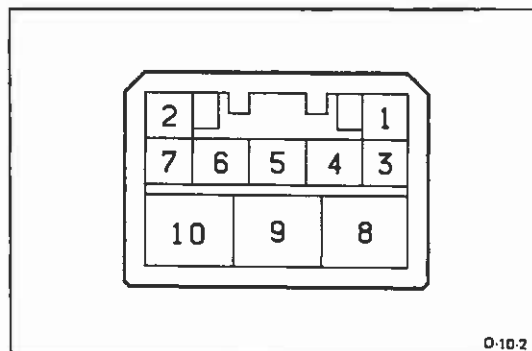
- CLEAN BROKEN WIRE TIPS WITH WHITE GASOLINE**
- PLACE MASKING TAPE ALONG BOTH SIDES OF WIRE TO REPAIRED**
  - Thoroughly mix the repair agent (Dupont paste No. 4817).
  - Using a fine tip brush, apply a small amount to the wire.
  - After a couple of minutes, remove the masking tape.
  - Allow to stand at least 24 hours.



## HEATER

### Troubleshooting

| Problem                                    | Possible cause                     | Remedy                           | Page  |
|--|------------------------------------|----------------------------------|-------|
| Blower does not work when fan switch is on | METER fuse blown                   | Replace fuse and check for short | BE-4  |
|  | Heater relay faulty                | Check relay                      | BE-60 |
|  | Heater blower switch faulty        | Check switch                     | BE-59 |
|  | Heater blower resistor faulty      | Check resistor                   | BE-60 |
|  | Heater blower motor faulty         | Replace motor                    |       |
|  | Wiring or ground faulty            | Repair as necessary              |       |
| Incorrect temperature output               | Control cables broken or binding   | Check cables                     | BE-60 |
|  | Heater hoses leaking or clogged    | Replace hose                     |       |
|  | Water valve faulty                 | Replace valve                    |       |
|  | Air dampers broken                 | Repair dampers                   |       |
|  | Air ducts clogged                  | Repair ducts                     |       |
|  | Heater radiator leaking or clogged | Replace radiator                 |       |
|  | Heater control unit faulty         | Repair control unit              |       |



### Heater Blower Switch

#### INSPECTION OF HEATER BLOWER SWITCH

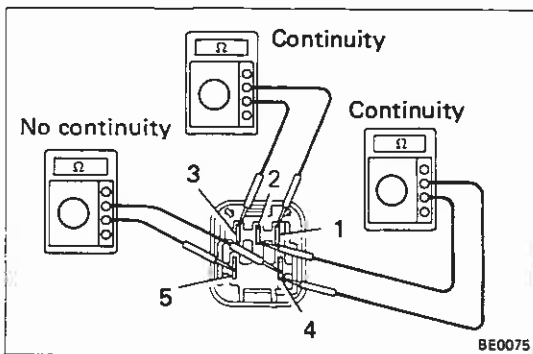
##### INSPECT SWITCH CONTINUITY

Inspect heater blower switch continuity.

| Terminal<br>Switch<br>position | 10  | 4   | 9   | 5   | 8 | 1 | 6<br>* | 7<br>* |
|--------------------------------|-----|-----|-----|-----|---|---|--------|--------|
| OFF                            | ○   |     |     |     |   |   | ○—○    |        |
| LO                             | ○—○ |     |     |     |   |   | ○—○    |        |
| •                              | ○—○ | ○—○ |     |     |   |   | ○—○    |        |
| •                              | ○—○ | ○—○ | ○—○ |     |   |   | ○—○    |        |
| HI                             | ○—○ | ○—○ | ○—○ | ○—○ |   |   | ○—○    |        |

\* For illumination light

If continuity is not as specified, replace the switch.



## Heater Relay

### INSPECTION OF HEATER RELAY

#### 1. INSPECT RELAY CONTINUITY

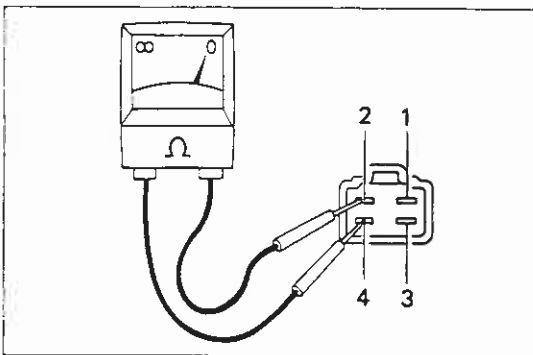
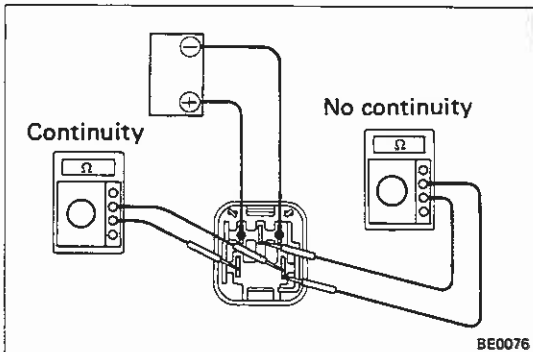
- Check that there is continuity between terminals 1 and 3.
- Check that there is continuity between terminals 2 and 4.
- Check that there is no continuity between terminal 4 and 5.

If continuity is not as specified, replace the relay.

#### 2. INSPECT RELAY OPERATION

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

If operation is not as specified, replace the relay.



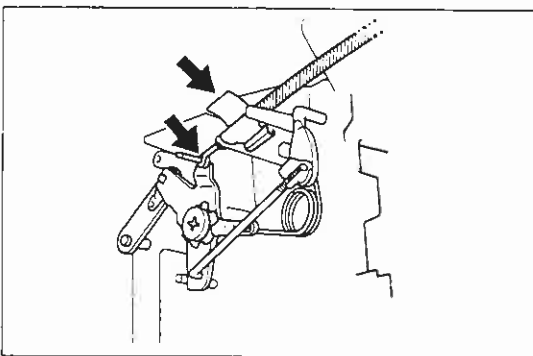
## Heater Blower Resistor

### INSPECTION OF HEATER BLOWER RESISTOR

#### INSPECT RESISTOR CONTINUITY

Check that there is continuity between terminals 2 and 4.

If there is no continuity, replace the resistor.

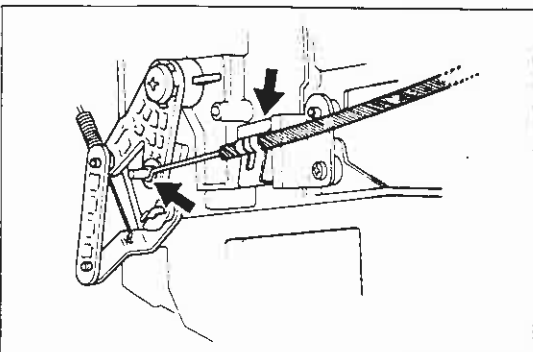


## Heater Control

### ADJUSTMENT OF HEATER CONTROL

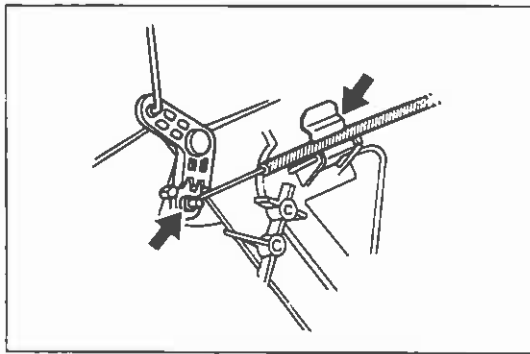
#### SET AIR INLET DAMPER

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

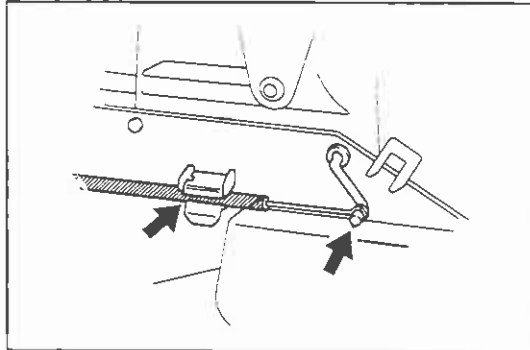


#### SET MODE SELECTOR DAMPER

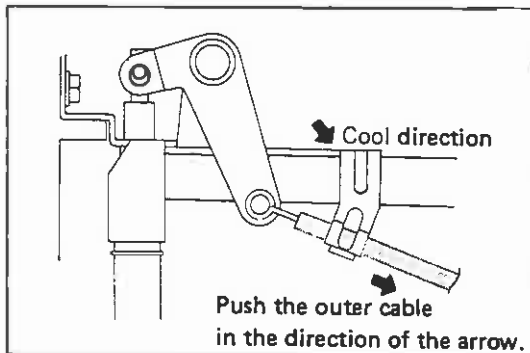
Set the mode selector damper and control lever to "Vent".

**SET AIR MIX DAMPER**

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

**SET BALANCE DAMPER**

Set the balance damper and control lever to the center position.

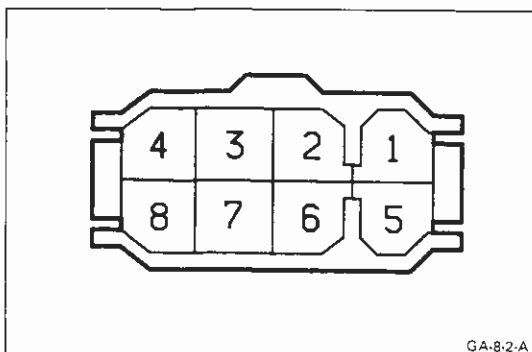
**SET WATER VALVE**

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

**NOTE:** 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.

**TEST CONTROL CABLE OPERATION**

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



## POWER WINDOW

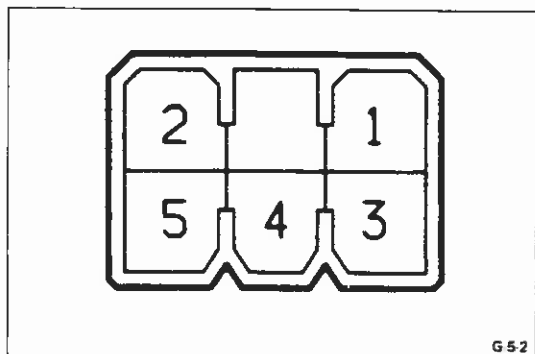
### Power Window Master Switch

#### INSPECTION OF POWER WINDOW MASTER SWITCH

##### INSPECT SWITCH CONTINUITY

| Switch          |          | Left |     |     |     | Right |     |     |
|-----------------|----------|------|-----|-----|-----|-------|-----|-----|
| Switch position | Terminal | 2    | 3   | 7   | 6   | 2     | 1   | 5   |
|                 |          |      |     |     |     |       |     |     |
| UP              |          | ○—○  |     | ○—○ | ○—○ | ○—○   |     | ○—○ |
| OFF             |          |      | ○—○ | ○—○ | ○—○ | ○—○   | ○—○ | ○—○ |
| DOWN            |          | ○—○  | ○—○ | ○—○ | ○—○ | ○—○   | ○—○ | ○—○ |

If continuity is not as specified, replace the switch.



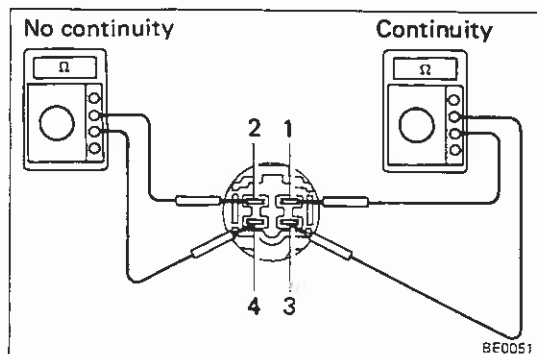
### Power Window Door Switch

#### INSPECTION OF POWER WINDOW DOOR SWITCH

##### INSPECT SWITCH CONTINUITY

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

If continuity is not as specified, replace the switch.

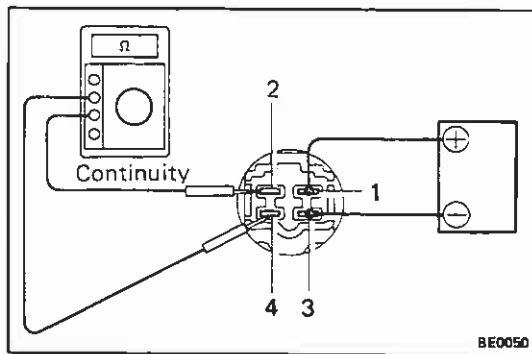


### Power Main Relay

#### INSPECTION OF POWER MAIN RELAY

##### 1. INSPECT RELAY CONTINUITY

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



## 2. INSPECT RELAY OPERATION

Inspect the continuity between terminals 2 and 4 with battery voltage applied between terminals 1 and 3.

If continuity is not as specified, replace the relay.

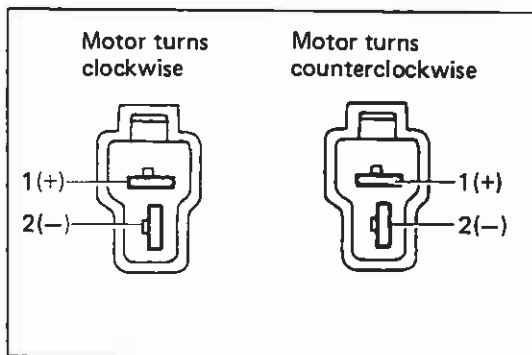
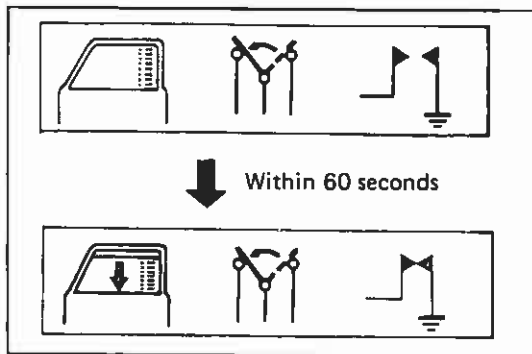
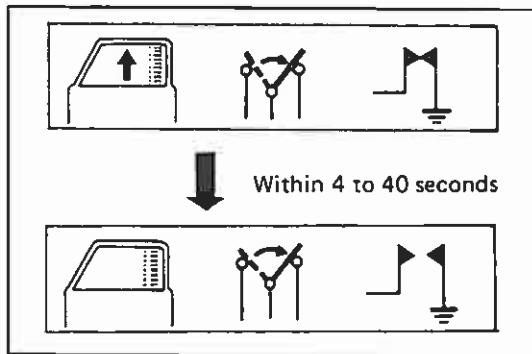
## Power Window Motor

### INSPECTION OF POWER WINDOW MOTOR

#### 1. INSPECT CIRCUIT BREAKER OPERATION

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

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

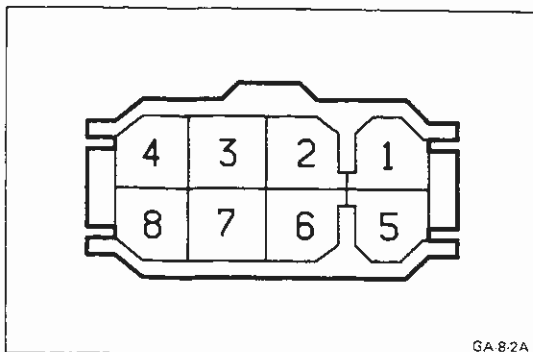


#### 2. INSPECT MOTOR OPERATION

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

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

If operation is not as specified, replace the motor.



## DOOR LOCK CONTROL SYSTEM

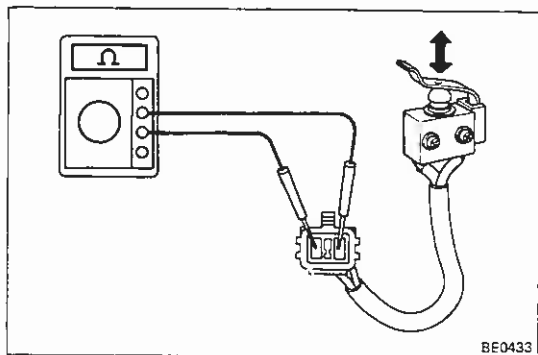
### Door Lock Control Switch

#### INSPECTION OF DOOR CONTROL SWITCH

##### INSPECT SWITCH CONTINUITY

| Switch position \ Terminal | 8 | 6 | 4 |
|----------------------------|---|---|---|
| LOCK                       |   |   |   |
| OFF                        |   |   |   |
| UNLOCK                     |   |   |   |

If continuity is not as specified, replace the switch.



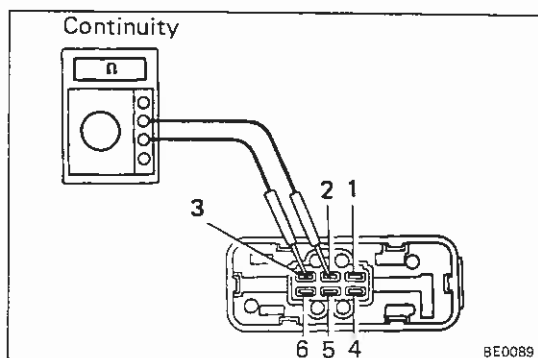
### Key Unlock Switch

#### INSPECTION OF KEY UNLOCK SWITCH

##### INSPECT SWITCH OPERATION

- Check that there is continuity between terminals when the switch pin is pushed.
- Check that there is no continuity between terminals when the switch is free.

If operation is not as specified, replace the switch.



### Door Lock Relay

#### INSPECTION OF DOOR LOCK RELAY

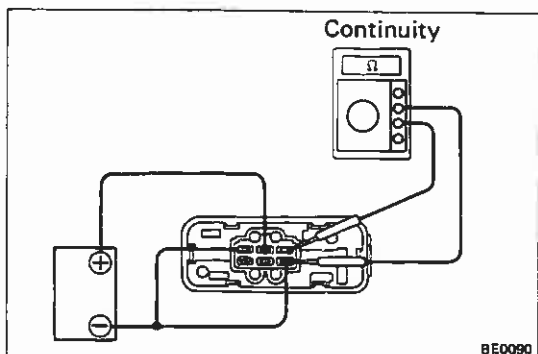
##### 1. INSPECT RELAY CONTINUITY

There should be continuity between terminals 2, 3 and 4.

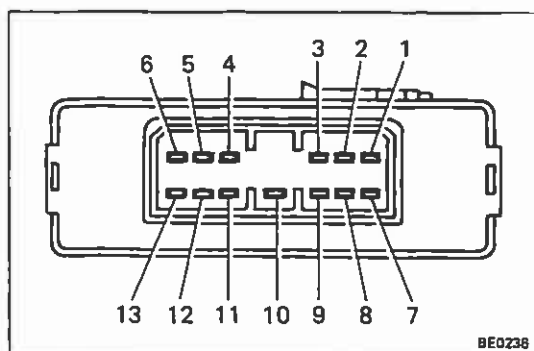
##### 2. INSPECT RELAY OPERATION

- Connect the positive (+) lead from the battery to terminal 2. Connect the negative (–) lead to terminals 3 and 4.
- Check that there is continuity between terminals 1 and 4.  
Check that there is continuity between terminals 3 and 6.

If there is no continuity, replace the relay.







## Door Lock Control Relay

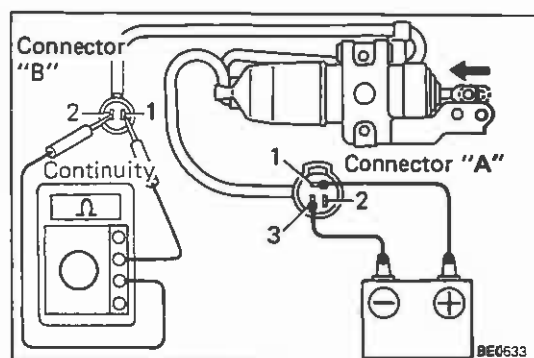
### INSPECTION OF DOOR LOCK CONTROL RELAY

#### INSPECT DOOR LOCK CONTROL RELAY CIRCUIT

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

| Terminal | Check Item | Tester Connection | Condition  | Voltage or Continuity |
|----------|------------|-------------------|--|-----------------------|
| 2        | Voltage    | 2 – Body Ground   | —  | Battery voltage       |
| 3        | Continuity | 3 – 4             | —  | Continuity            |
| 6        | Continuity | 6 – Body Ground   | Turn door lock control switch to LOCK.   | Continuity            |
|          |            |                   | Turn door lock control switch to UNLOCK or OFF.                                | No continuity         |
| 7        | Continuity | 7 – Body Ground   | Turn FL key unlock switch on.  | Continuity            |
|          |            |                   | Turn FL key unlock switch off.   | No continuity         |
| 9        | Continuity | 9 – Body Ground   | FL door lock knob pushed.  | No continuity         |
|          |            |                   | FL door lock knob pulled.  | Continuity            |
| 10       | Continuity | 10 – Body Ground  | —  | Continuity            |
| 11       | Continuity | 11 – Body Ground  | FR door lock knob pushed.  | No continuity         |
|          |            |                   | FR door lock knob pulled.  | Continuity            |
| 12       | Continuity | 12 – Body Ground  | Turn unlock warning switch and FL door courtesy switch off.                    | Continuity            |
|          |            |                   | Turn unlock warning switch and/or FL door courtesy switch off.                 | No continuity         |
| 13       | Continuity | 13 – Body Ground  | Turn FR key unlock switch on and/or turn door lock control switch to UNLOCK.   | Continuity            |
|          |            |                   | Turn FR key unlock switch off and turn door lock control switch to LOCK or OFF | No continuity         |

If circuit is correct as specified, replace the relay.



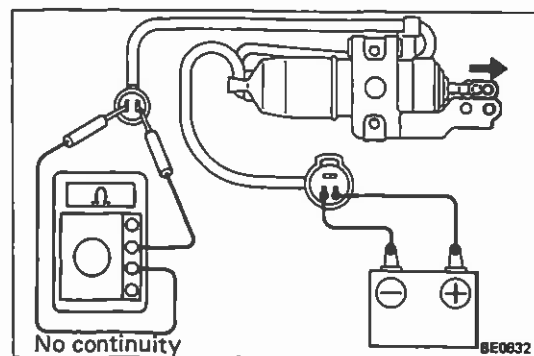
## Door Lock Solenoid

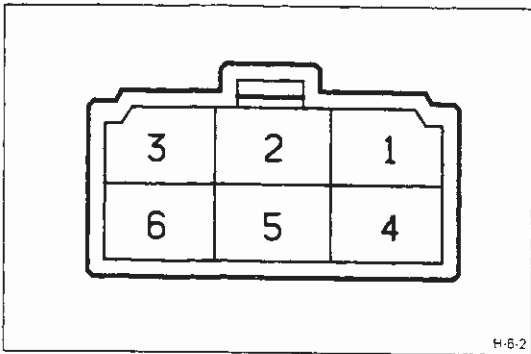
### INSPECTION OF DOOR LOCK SOLENOID

#### INSPECT SOLENOID OPERATION

- Connect the positive (+) lead from the battery to terminal A-1. Connect the negative (–) lead to terminal A-3. Check that the solenoid operates lock direction.
- Check that there is no continuity between terminals B-1 and B-2.
- Connect the positive (+) lead from the battery to terminal A-2. Connect the negative (–) lead to terminal A-3. Check that the solenoid operates unlock direction.
- Check that there is continuity between terminals B-1 and B-2.

If there is no solenoid operation, replace the solenoid.





## SUN ROOF

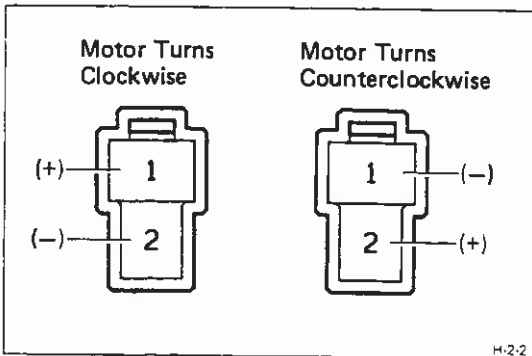
### Sun Roof Switch

#### INSPECTION OF SUN ROOF SWITCH

##### INSPECT SWITCH CONTINUITY

| Switch position \ Terminal | 3 | 1 | 4 | 5 |
|----------------------------|---|---|---|---|
| OPEN                       |   |   |   |   |
| OFF                        |   |   |   |   |
| CLOSE                      |   |   |   |   |

If continuity is not as specified, replace the switch.



## Sun Roof Motor

#### INSPECTION OF SUN ROOF MOTOR

##### INSPECT MOTOR OPERATION

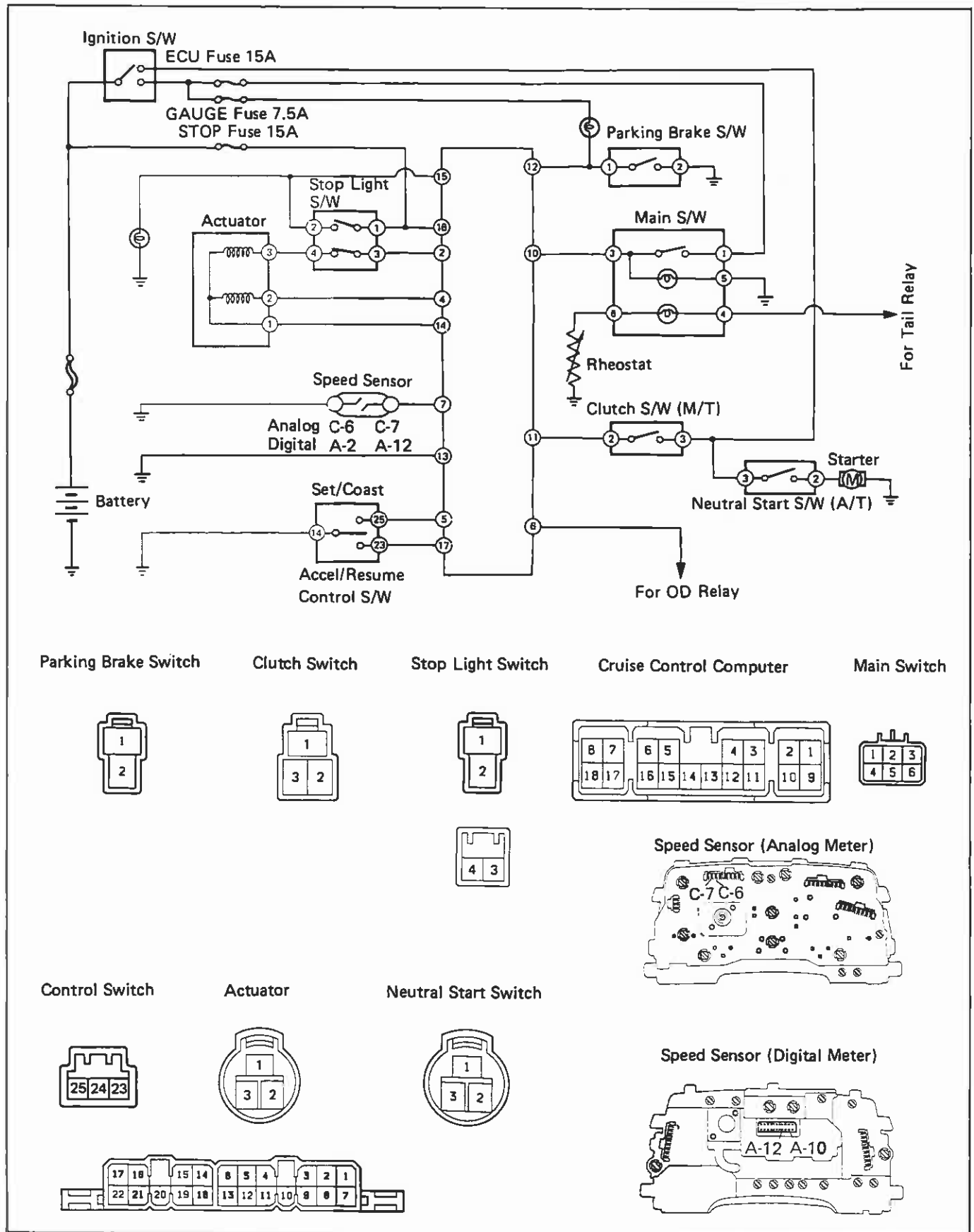
Apply 12V to both terminals of the connector and check that the motor runs.

Then reverse the polarity, and check that the motor revolution is reversed.

If there is no motor operation, replace the motor.

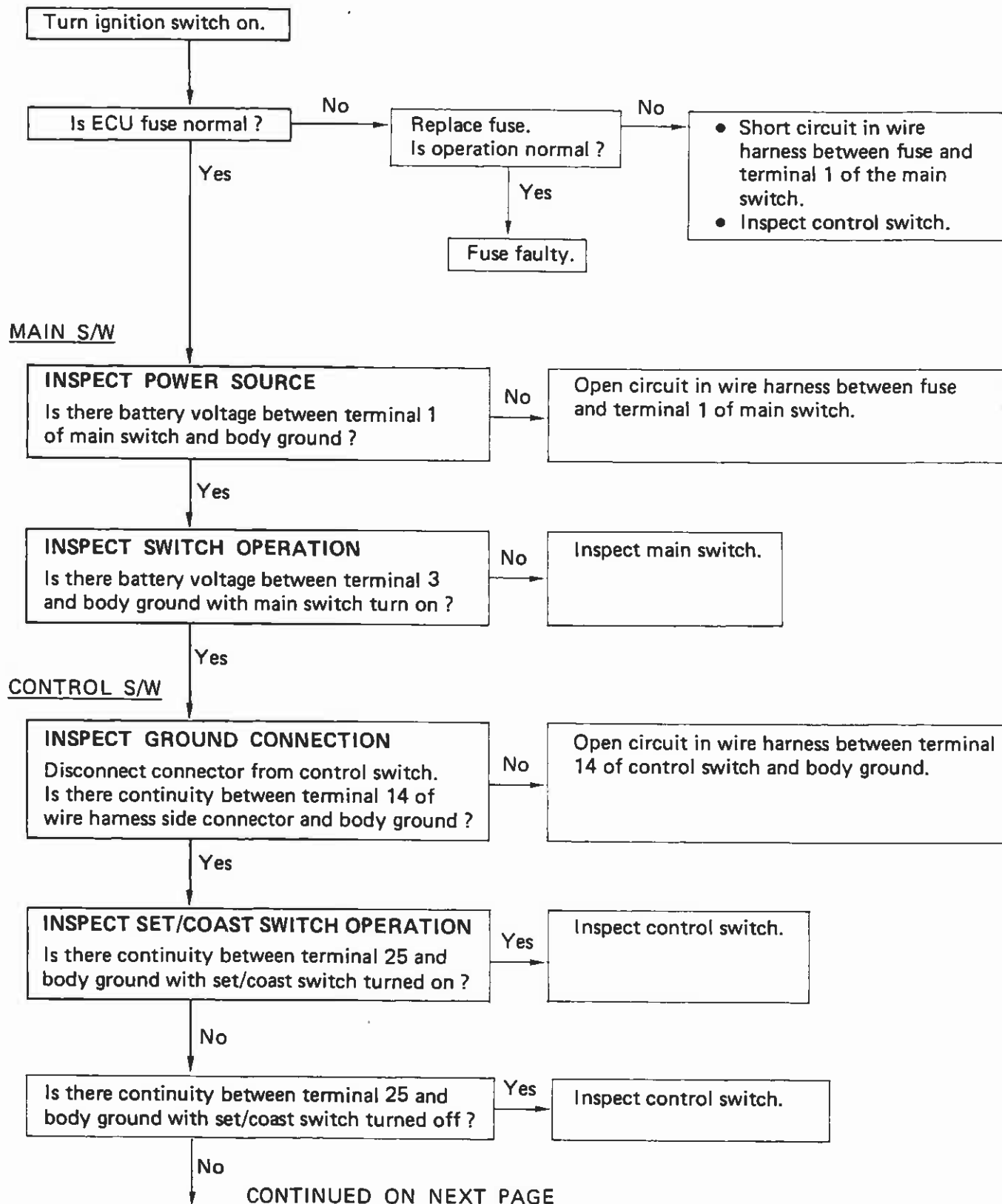
# CRUISE CONTROL SYSTEM

## Wiring Diagram

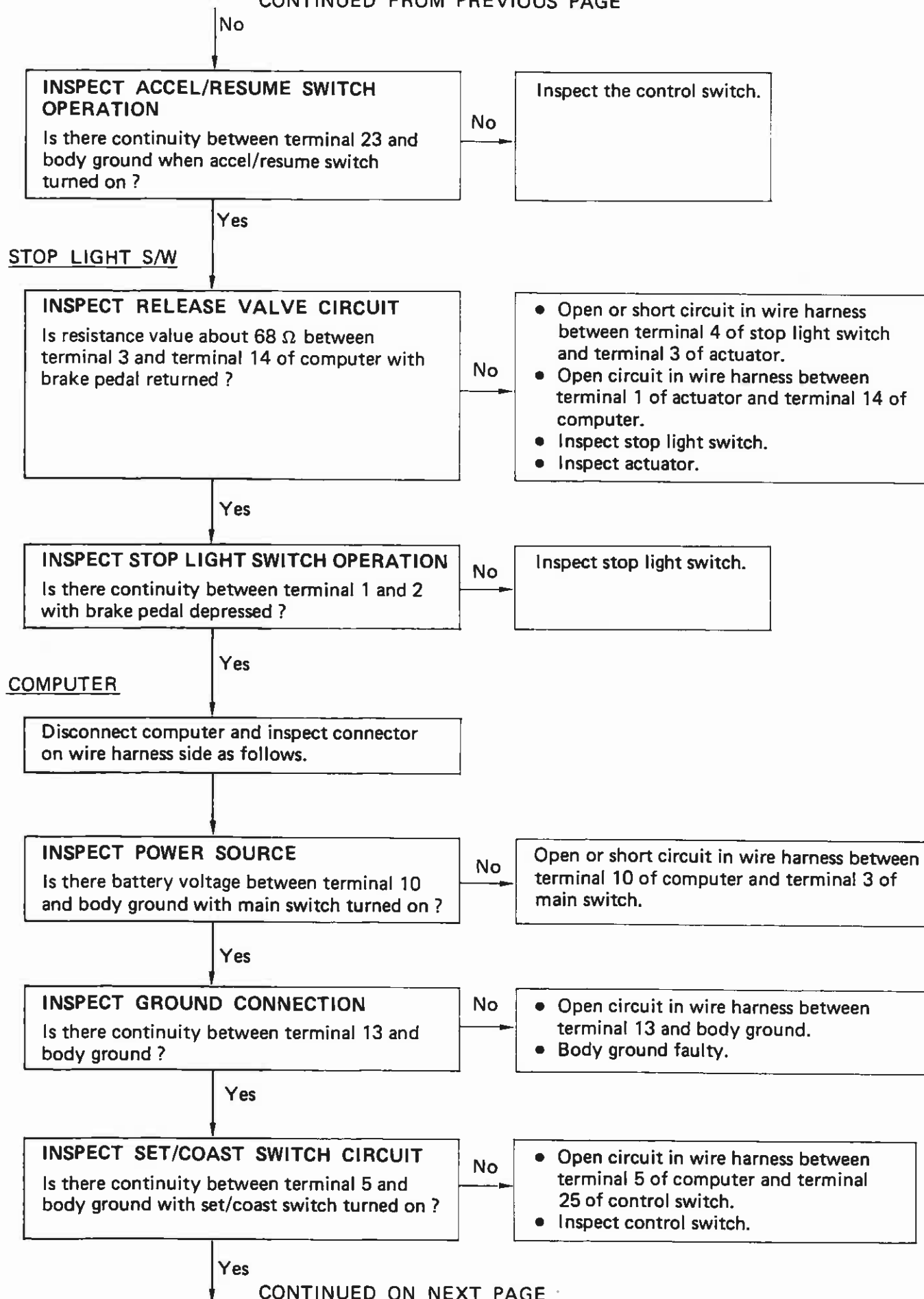


## Troubleshooting

| Problem  | Inspection Item  | Section |
|--|--|---------|
| Cruise control does not operate.   | Inspection of power source circuit   | A       |
| Vehicle speed does not reduce when coast switch turned on.                     | Inspection of control switch and circuit.                                    | B       |
| Vehicle does not accelerate when accel switch turned on.                       |  |         |
| Vehicle speed does not return to memorized speed when resume switch turned on. |  |         |
| Set speed deviates on high side.   | Inspection of actuator and circuit   | C       |
| Set speed deviates on low side.  |  |         |
| Vehicle speed does not fluctuate when set switch turned on.                    | Inspection of actuator and circuit<br>Inspection of speed sensor and circuit | C<br>H  |
| Setting speed does not cancel when brake pedal depressed.                      | Inspection of stop light switch and circuit                                  | D       |
| Setting speed does not cancel when parking brake pulled.                       | Inspection of parking brake switch and circuit                               | E       |
| Setting speed does not cancel when clutch pedal depressed (M/T only).          | Inspection of clutch switch and circuit                                      | F       |
| Setting speed does not cancel when shifted to "N" range (A/T only).            | Inspection of neutral start switch and circuit                               | G       |
| Speed can be set below 20 km/h.  | Inspection of speed sensor and circuit                                       | H       |
| Cruise control will not disengage even below 20 km/h.                          |  |         |

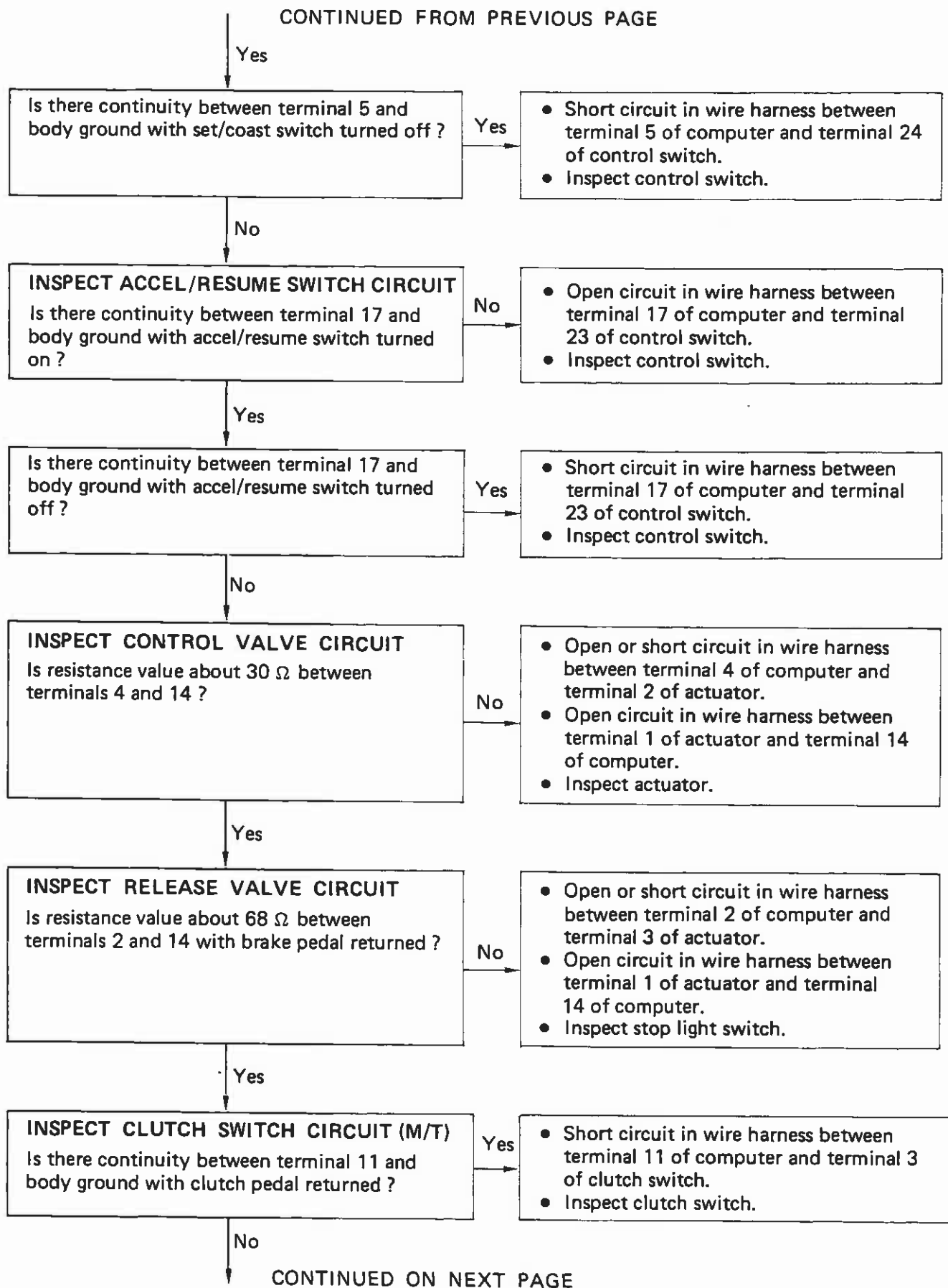
**A INSPECTION OF SOURCE CIRCUIT**

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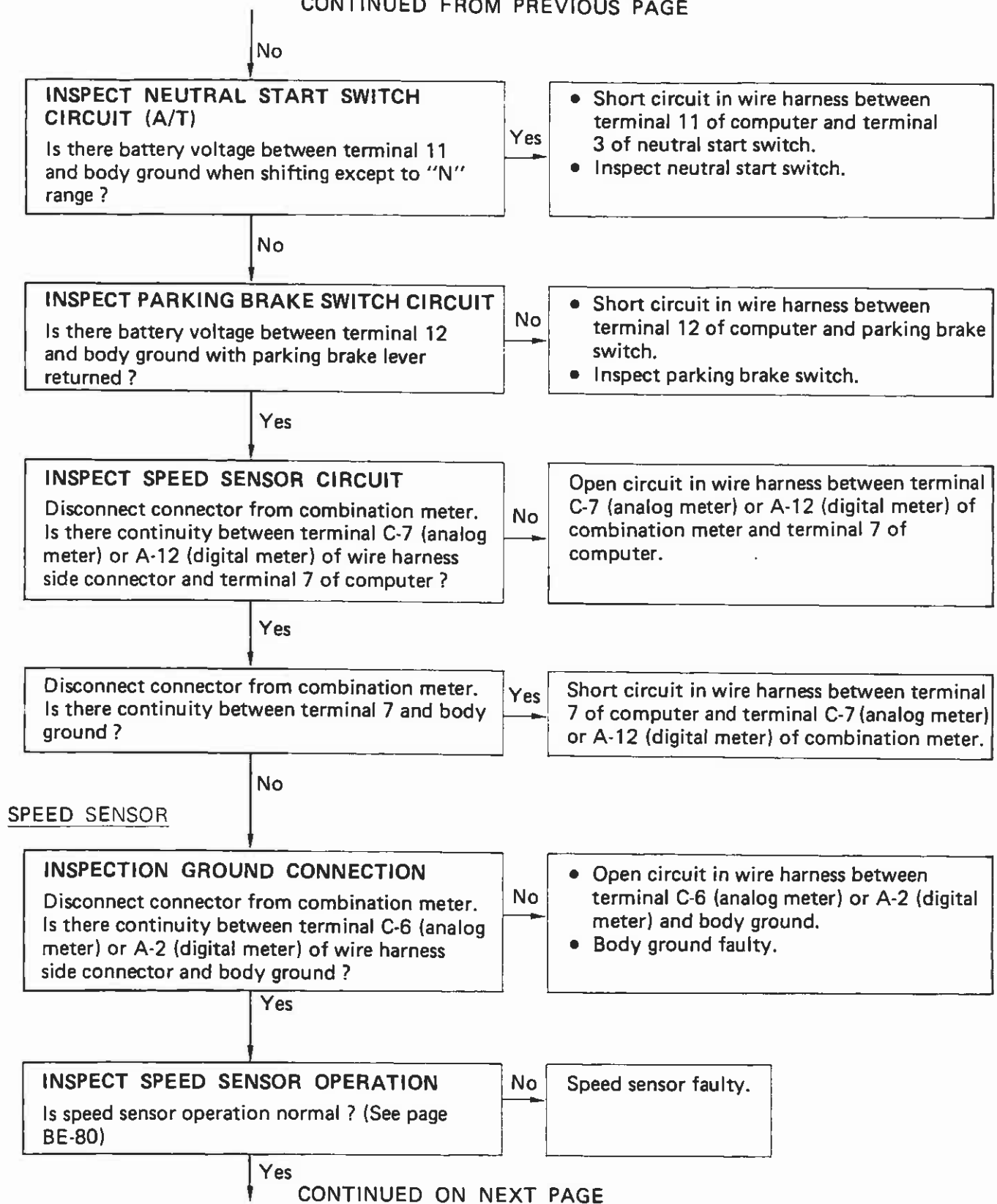
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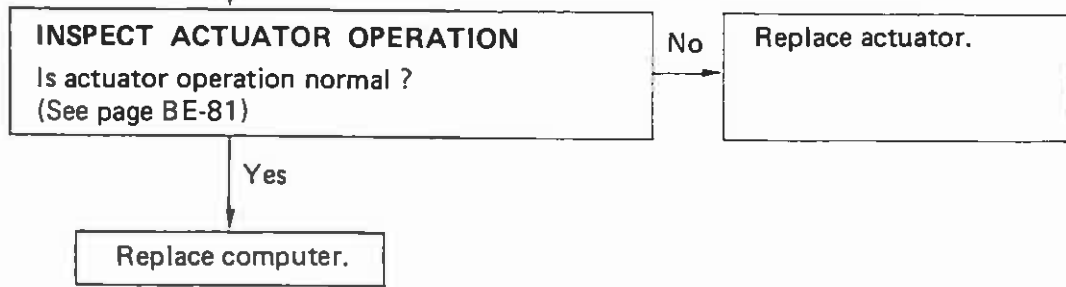
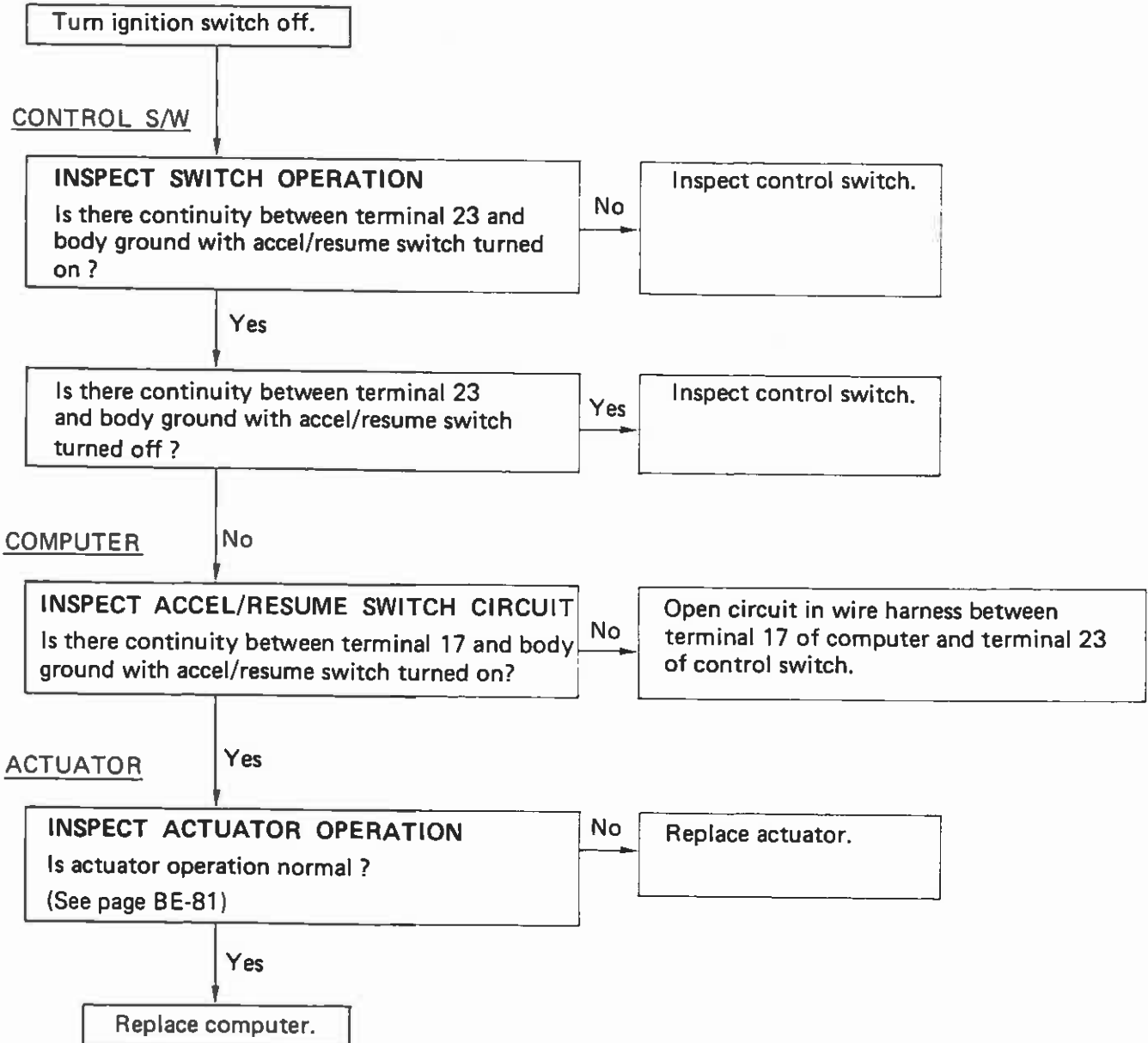
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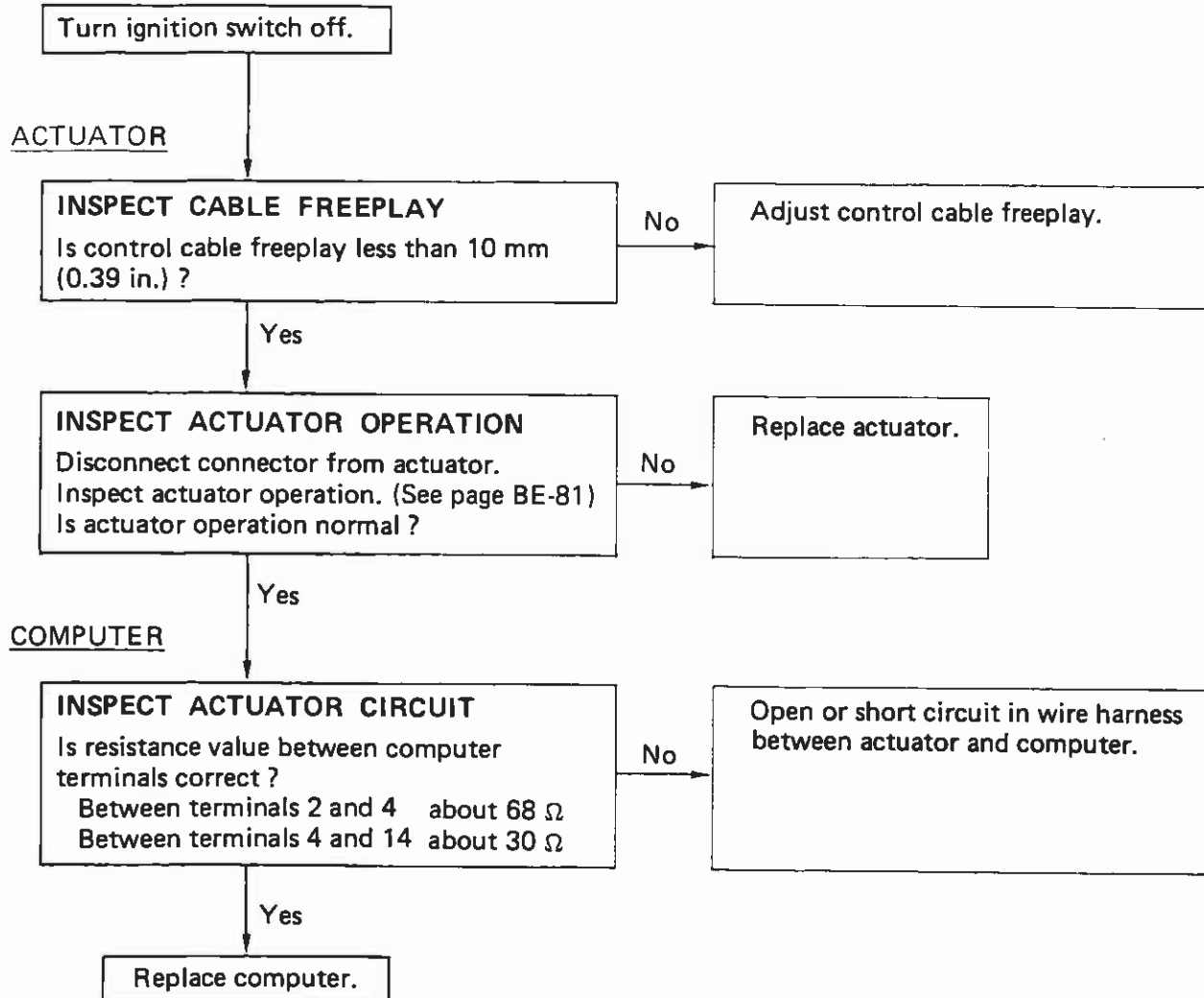
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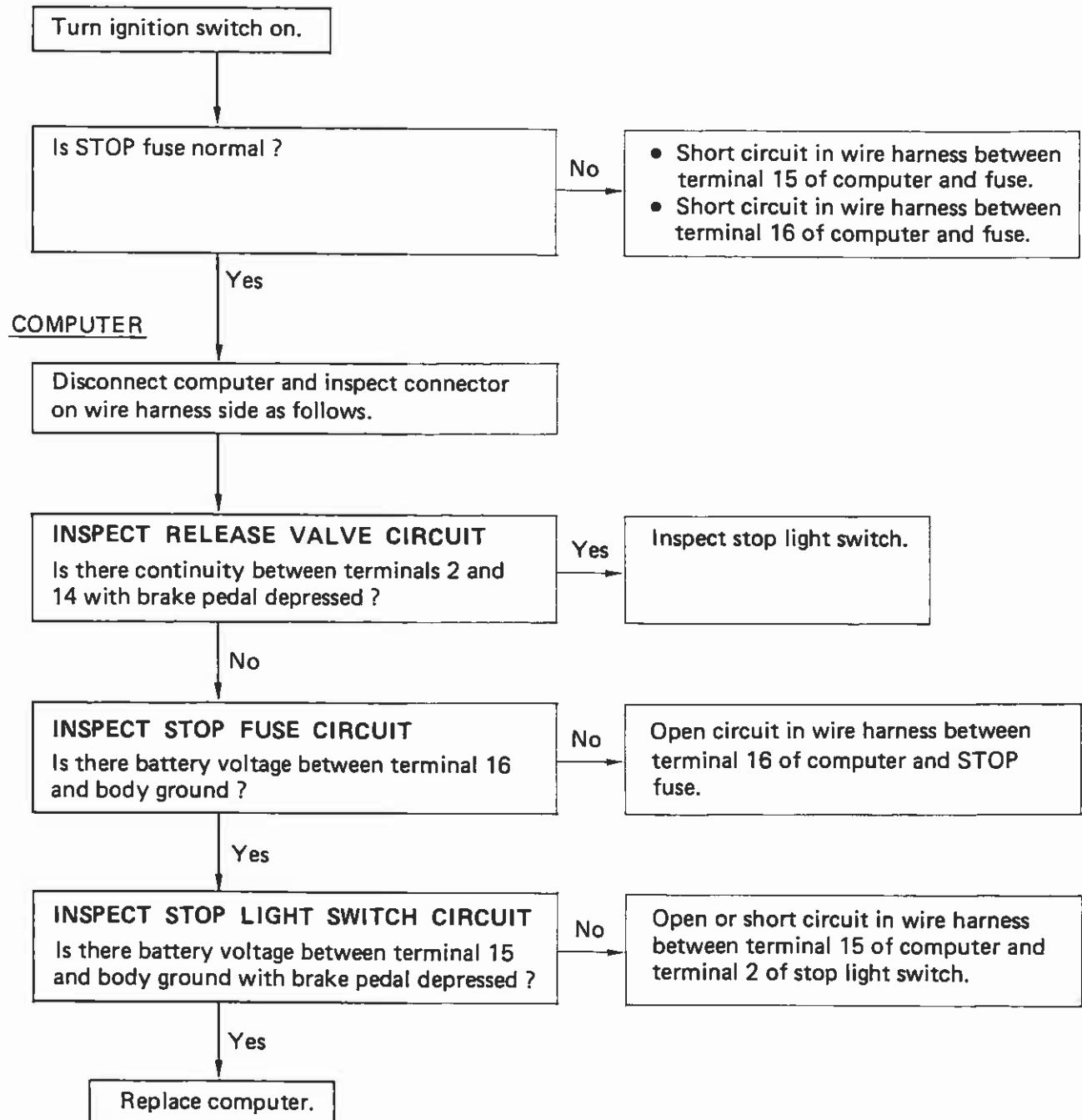


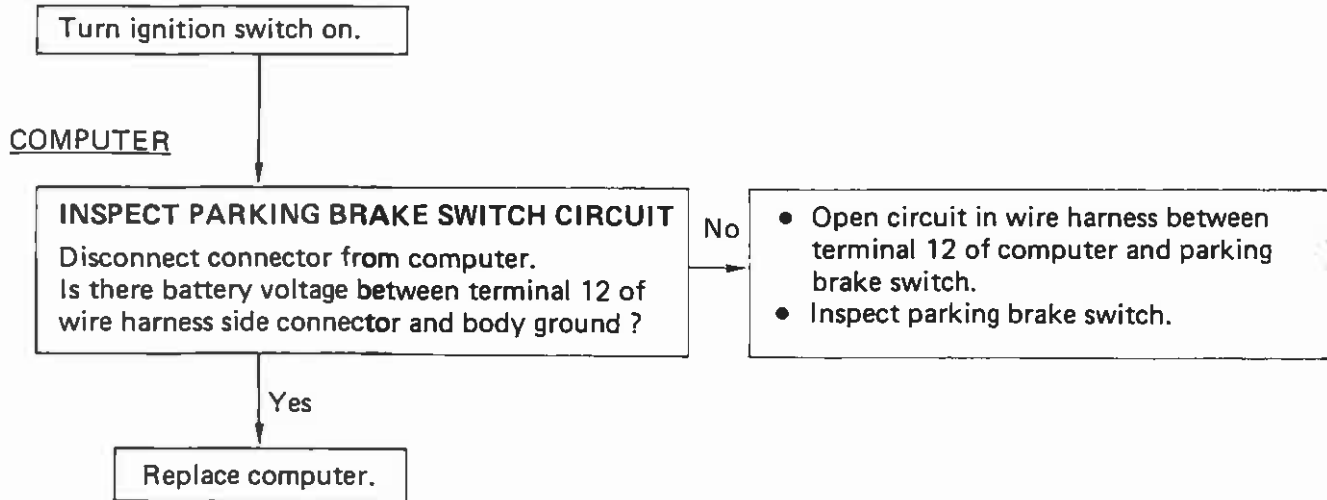
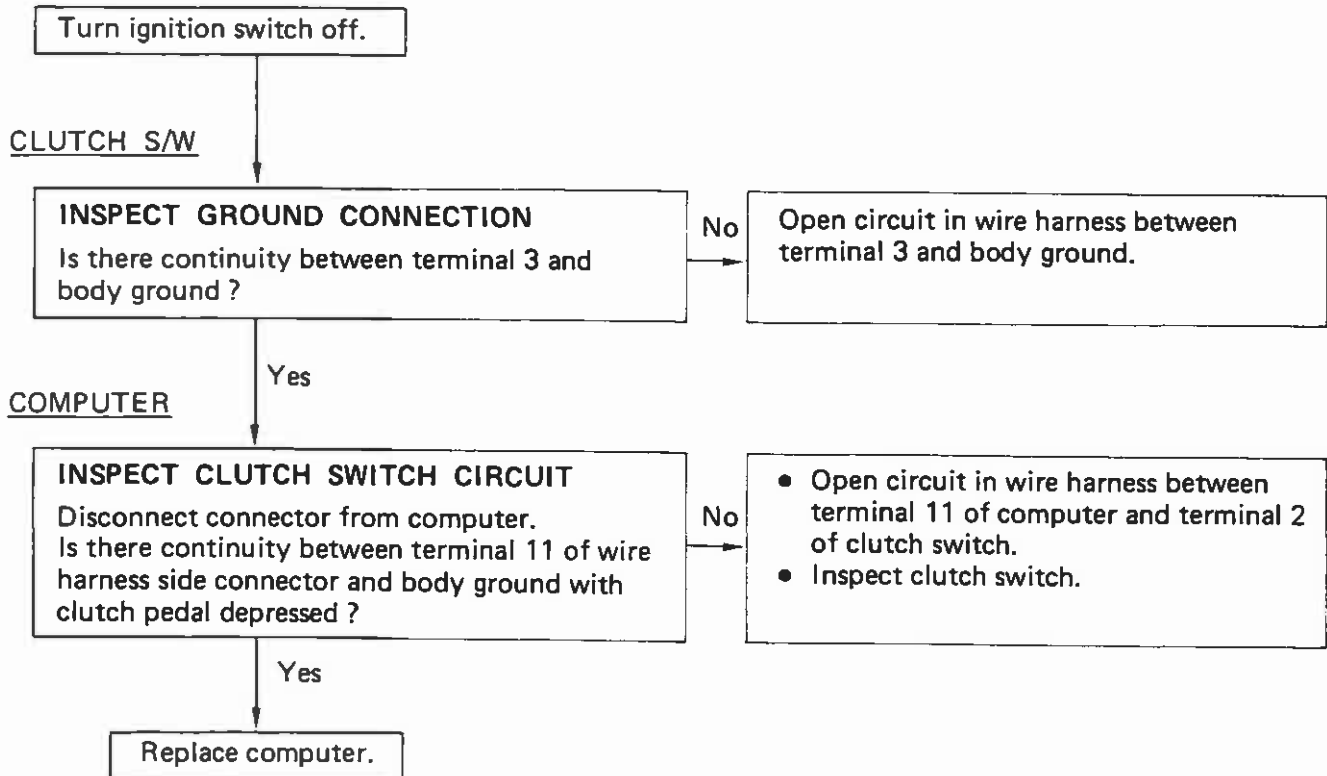


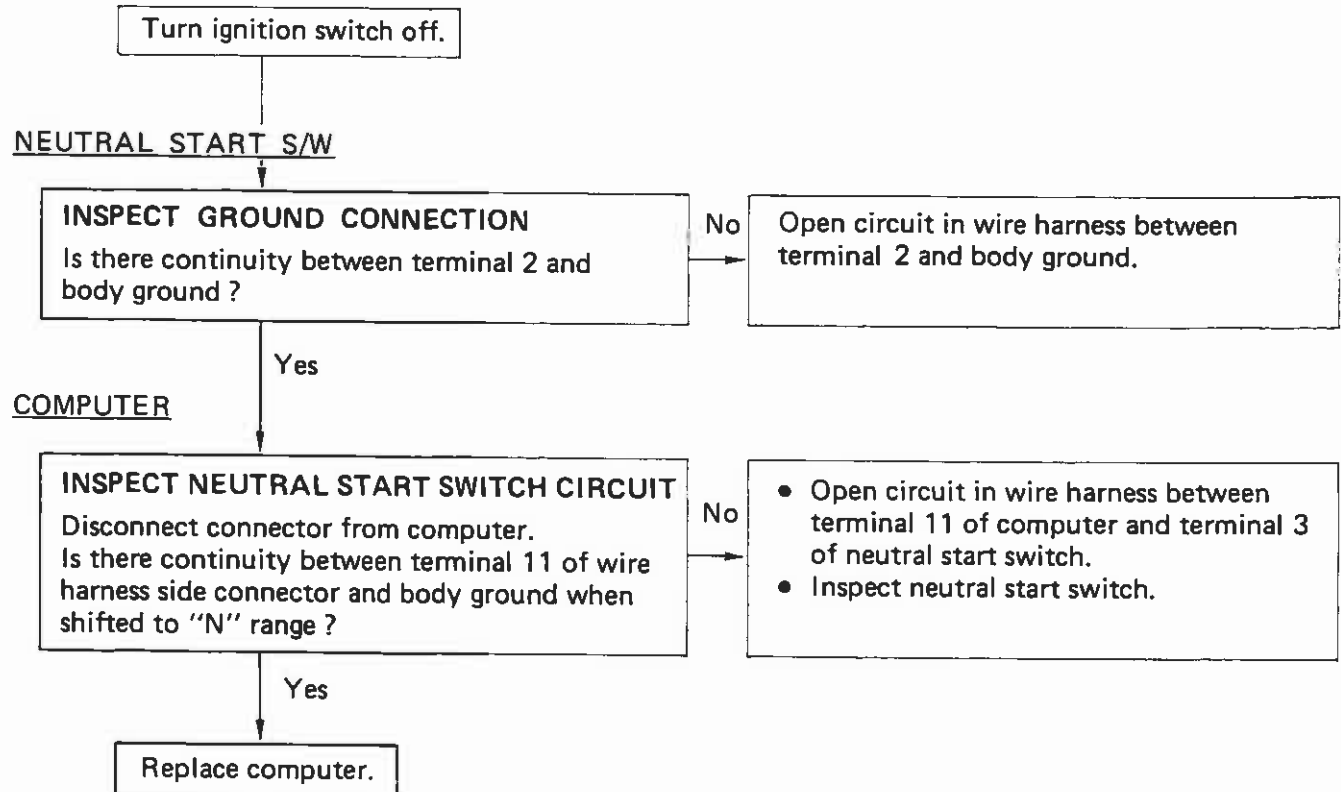
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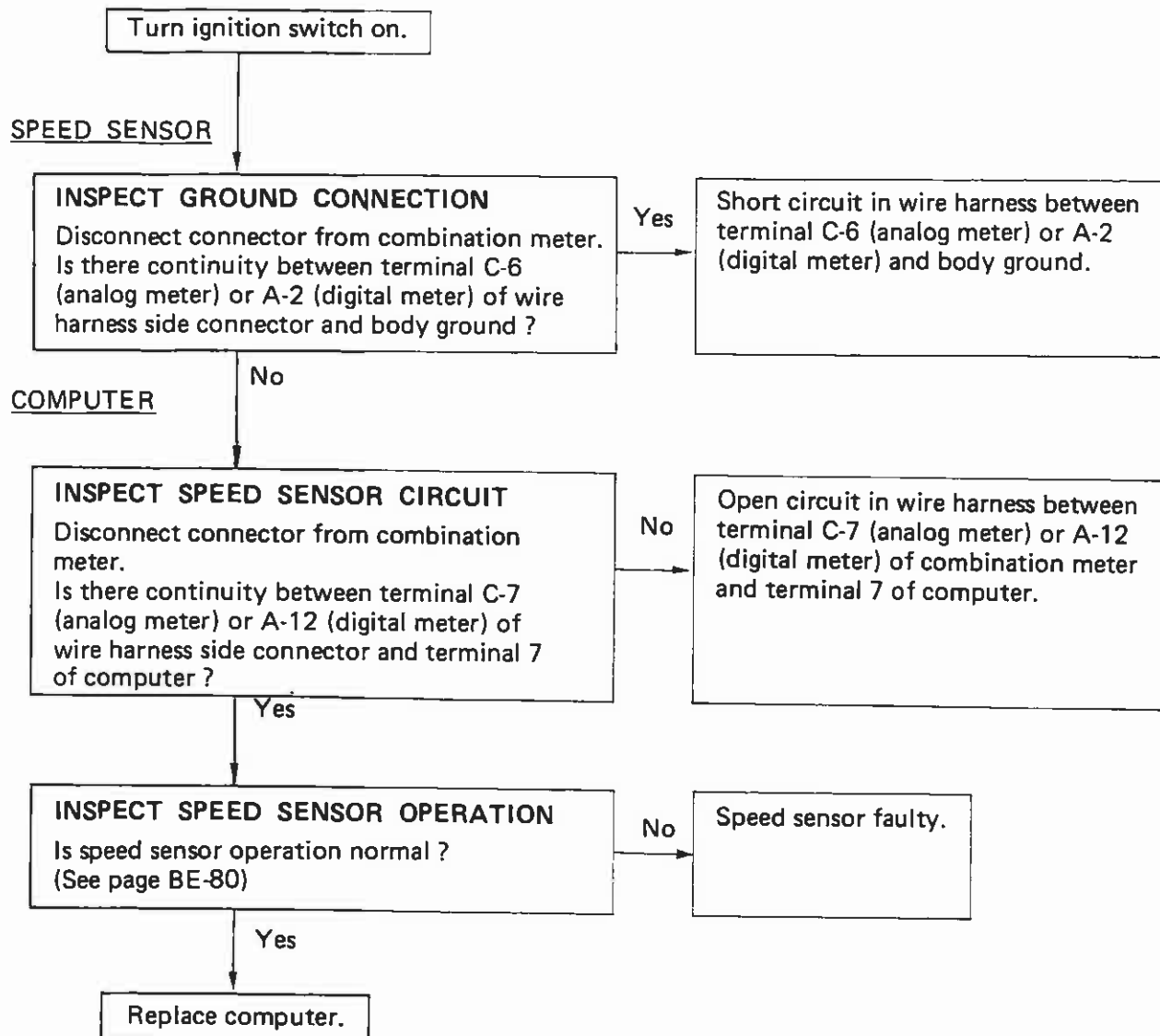
ACTUATOR**B INSPECTION OF CONTROL SWITCH CIRCUIT**

**C INSPECTION OF ACTUATOR CIRCUIT**

**D INSPECTION OF STOP LIGHT SWITCH CIRCUIT**

**E INSPECTION OF PARKING BRAKE SWITCH****F INSPECTION OF CLUTCH SWITCH CIRCUIT**

**G INSPECTION OF NEUTRAL START SWITCH CIRCUIT**

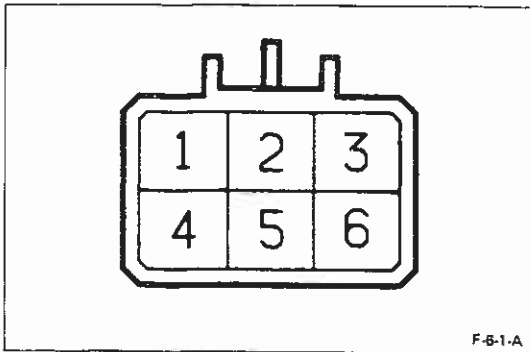
**H INSPECTION OF SPEED SENSOR CIRCUIT**

## Cruise Control Computer Circuit

### INSPECTION OF COMPUTER CIRCUIT

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

| Terminal | Connection or Measure Item            | Check Item | Tester Connection | Condition   | Voltage or Resistance Value |
|----------|---------------------------------------|------------|-------------------|---|-----------------------------|
| 2        | Stop Light Switch and Release Valve   | Resistance | 2 — 14            | Brake pedal returned  | About 68 $\Omega$           |
| 4        | Control Valve                         | Resistance | 4 — 14            |   | About 30 $\Omega$           |
| 5        | Control Switch (Set/coast S/W)        | Continuity | 5 — Body ground   | Turn set/coast switch on  | Continuity                  |
|          |                                       |            |                   | Turn set/coast switch off   | No continuity               |
| 6        | OD Relay                              |            |                   |   |                             |
| 7        | Speed Sensor                          | Continuity | 7 — Body ground   | Vehicle moving slowly   | See page BE-80              |
| 10       | Main Switch                           | Voltage    | 10 — Body ground  | Turn ignition switch and main switch on                             | Battery voltage             |
|          |                                       |            |                   | Turn ignition switch and/or main switch off                         | No voltage                  |
| 11       | Clutch Switch or Neutral Start Switch | Continuity | 11 — Body ground  | Clutch pedal depressed or if shifted into "N" range                 | Continuity                  |
|          |                                       |            |                   | Clutch pedal returned or if shifted into any range except "N" range | No continuity               |
| 12       | Parking Brake Switch                  | Voltage    | 12 — Body ground  | Parking brake lever pulled  | No voltage                  |
|          |                                       |            |                   | Parking brake lever returned  | Battery voltage             |
| 13       | Body Ground                           | Continuity | 13 — Body ground  |   | Continuity                  |
| 14       | Release Valve and Control Valve       |            |                   |   |                             |
| 15       | Stop Light Switch                     | Voltage    | 15 — Body ground  | Brake pedal depressed   | Battery voltage             |
|          |                                       |            |                   | Brake pedal returned  | No voltage                  |
| 16       | STOP Fuse                             | Voltage    | 16 — Body ground  |   | Battery voltage             |
| 17       | Control Switch (Accel/resume S/W)     | Continuity | 17 — Body ground  | Turn accel/resume switch on   | Continuity                  |
|          |                                       |            |                   | Turn accel/resume switch off  | No continuity               |



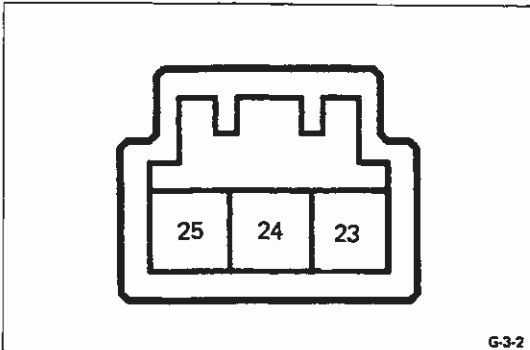
## Main Switch

### INSPECTION OF MAIN SWITCH

#### INSPECT SWITCH CONTINUITY

| Terminal<br>Switch position | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------------|---|---|---|---|---|---|
| OFF                         |   |   | ○ | ○ | ○ | ○ |
| ON                          | ○ | ○ | ○ | ○ | ○ | ○ |

If continuity is not as specified, replace the switch.



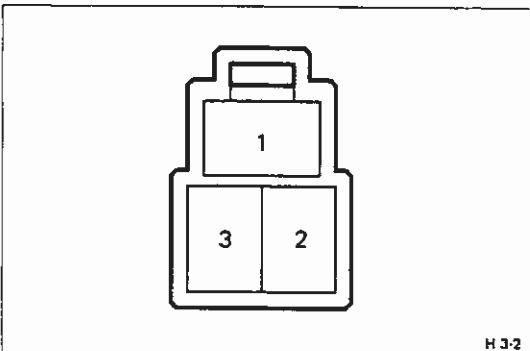
## Cruise Control Switch

### INSPECTION OF CRUISE CONTROL SWITCH

#### INSPECT CRUISE CONTROL SWITCH CONTINUITY

| Terminal<br>Switch position<br>(Wire color) | 23<br>SR | 25<br>SS | 14<br>EW |
|---|----------|----------|----------|
| SET/COAST                                   |          | ○        | ○        |
| OFF   |          |          |          |
| ACCEL/RESUME                                | ○        | ○        | ○        |

If continuity is not as specified, replace the switch.



## Clutch Switch

### INSPECTION OF CLUTCH SWITCH

#### INSPECT SWITCH CONTINUITY

- Check that there is continuity between terminals 2 and 3 with the clutch pedal depressed.
- Check that there is no continuity between terminals 2 and 3 with the clutch pedal returned.

If continuity is not as specified, replace the switch.

## Neutral Start Switch

(See page AT-5)

## Parking Brake Switch

(See step 3 on page BE-28)

## Speed Sensor

### INSPECTION OF SPEED SENSOR

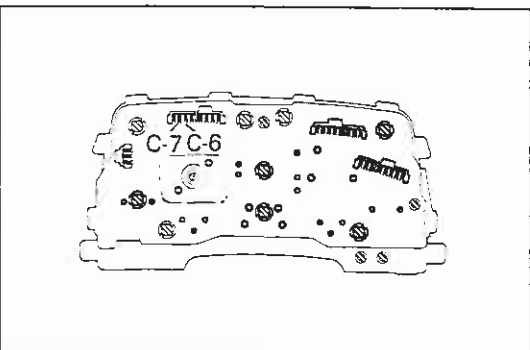
#### 1. INSPECT SENSOR CONTINUITY (ANALOG METER)

Check that there is continuity between terminals C-6 and C-7 four times per each revolution of the shaft.

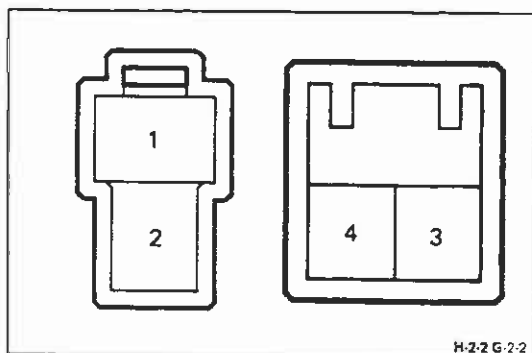
If continuity is not as specified, replace the sensor.

#### 2. INSPECT SENSOR CONTINUITY (DIGITAL METER)

(See page BE-41)







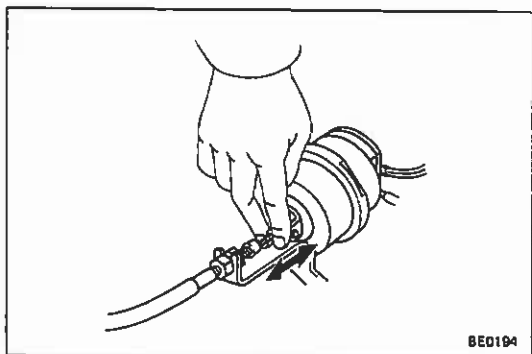
## Stop Light Switch

### INSPECTION OF STOP LIGHT SWITCH

#### INSPECT SWITCH CONTINUITY

| Terminal              | 1 | 2 | 3 | 4 |
|-----------------------|---|---|---|---|
| Brake pedal position  |   |   |   |   |
| Brake pedal depressed | ○ | ○ |   |   |
| Brake pedal returned  |   |   | ○ | ○ |

If continuity is not as specified, replace the switch.



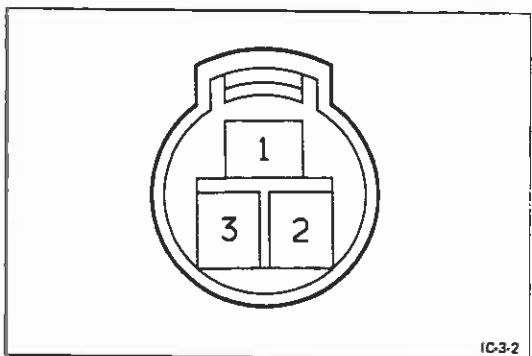
## Actuator

### INSPECTION OF ACTUATOR

#### 1. INSPECT CONTROL CABLE FREEPLAY

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

If necessary, adjust the control cable freeplay.

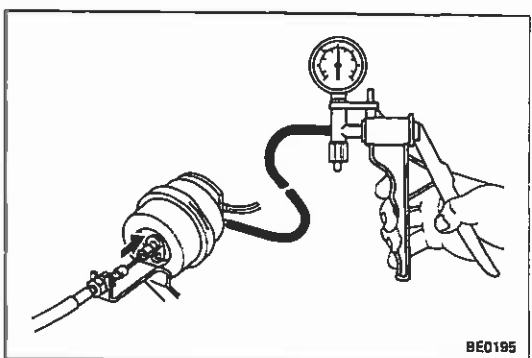


#### 2. INSPECT ACTUATOR RESISTANCE

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

Resistance: 1 – 2 about 30  $\Omega$   
1 – 3 about 68  $\Omega$

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

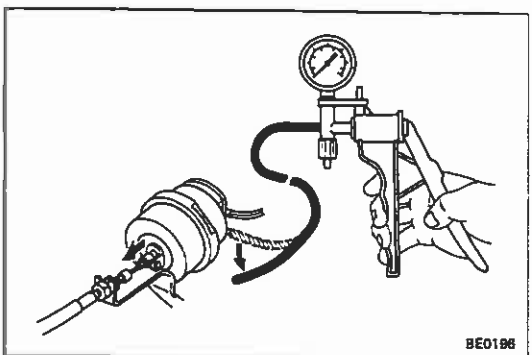


#### 3. INSPECT ACTUATOR OPERATION

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

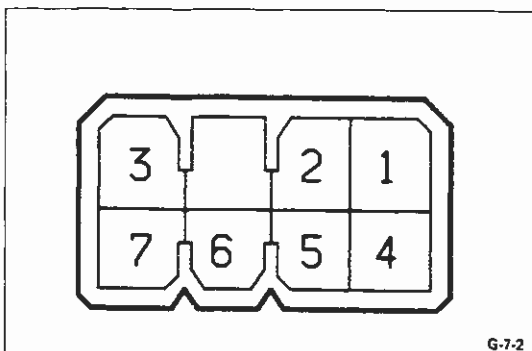
(a) Slowly apply vacuum from 0 – 300 mmHg (0 – 11.81 in.Hg, 0 – 40.0 kPa), and check that the control cable can be pulled smoothly.

(b) With the vacuum stabilized, check that the control cable does not return.



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

If operation is not as specified, replace the actuator.



## REMOTE CONTROL MIRROR

### Outer Mirror Switch

#### INSPECTION OF OUTER MIRROR SWITCH

##### INSPECT SWITCH CONTINUITY

| Mirror                         | Left Mirror |   |   |   |   | Right Mirror |   |   |   |
|--------------------------------|-------------|---|---|---|---|--------------|---|---|---|
| Terminal<br>Switch<br>position | 7           | 6 | 2 | 1 | 3 | 1            | 2 | 5 | 4 |
| Up                             | ○           |   | ○ | ○ | ○ | ○            | ○ |   | ○ |
| Down                           | ○           |   | ○ | ○ | ○ | ○            | ○ |   | ○ |
| Left                           |             | ○ | ○ | ○ | ○ | ○            | ○ |   |   |
| Right                          |             | ○ | ○ | ○ | ○ | ○            | ○ |   |   |

If continuity is not as specified, replace the switch.

## Remote Control Mirror

### INSPECTION OF REMOTE CONTROL MIRROR

#### 1. INSPECT LEFT MIRROR OPERATION

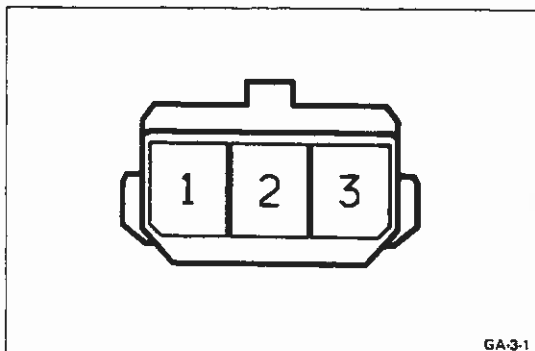
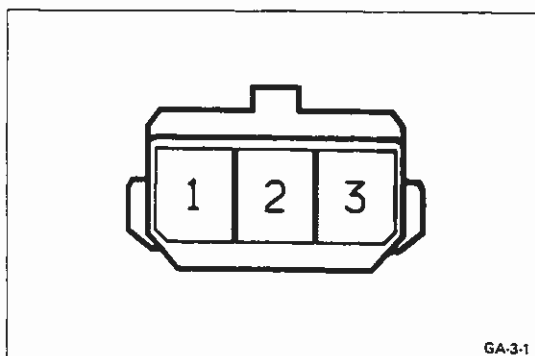
- Apply 12V to terminals 1 and 2 and check that the mirror operates.  
Then reverse the polarity, and check that the mirror revolution is reversed.
- Apply 12V to terminals 2 and 3 and check that the mirror operates.  
Then reverse the polarity, and check that the mirror revolution is reversed.

If there is no mirror operation, replace the left mirror.

#### 2. INSPECT RIGHT MIRROR OPERATION

- Apply 12V to terminals 1 and 2 and check that the mirror operates.  
The, reverse the polarity, and check that the mirror revolution is reversed.
- Apply 12V to terminals 2 and 3 and check that the mirror operates.  
Then reverse the polarity, and check that the mirror revolution is reversed.

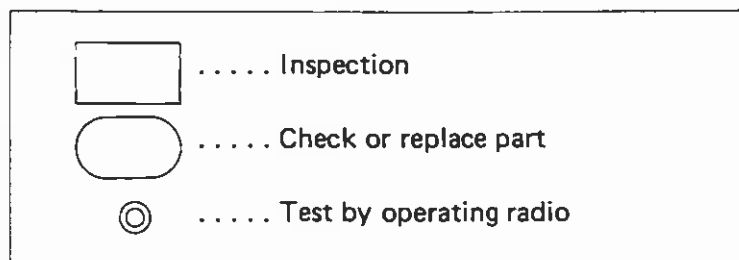
If there is no mirror operation, replace the right mirror.



# RADIO, STEREO TAPE PLAYER AND ANTENNA

## Troubleshooting

### DESCRIPTION OF SYMBOLS



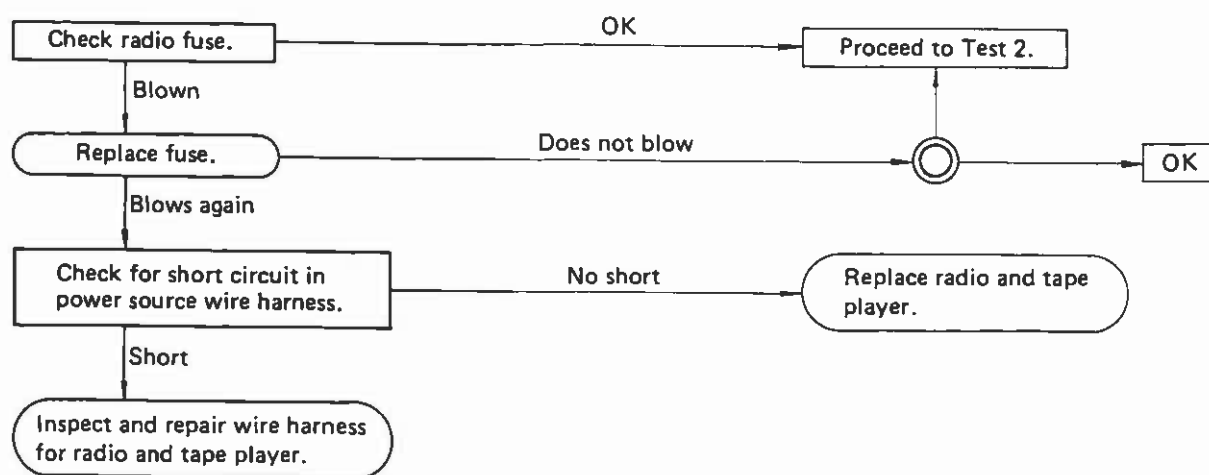
### 1. DEAD RADIO AND TAPE PLAYER

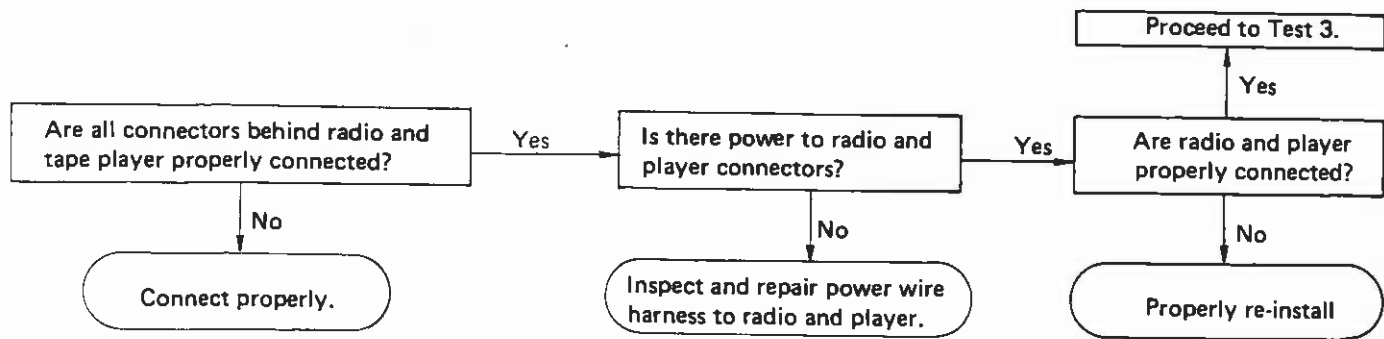
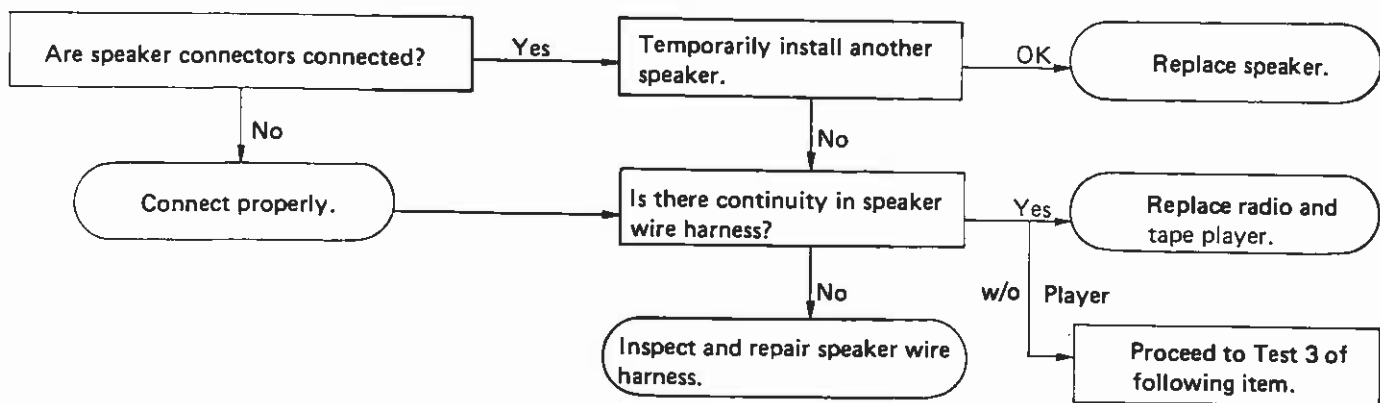
- (a) No power to radio or tape player, or power but no sound.

Possible causes:

- Blown 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



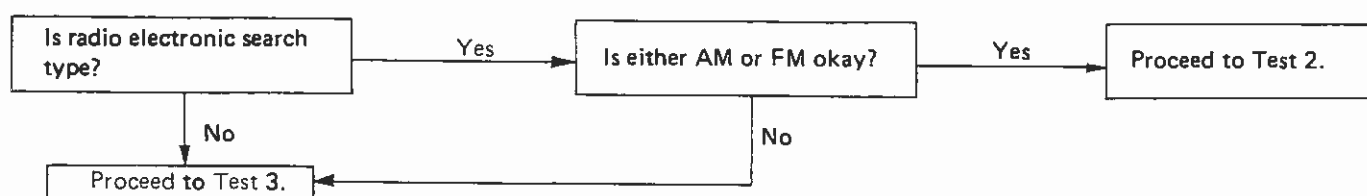
TEST 2TEST 3

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

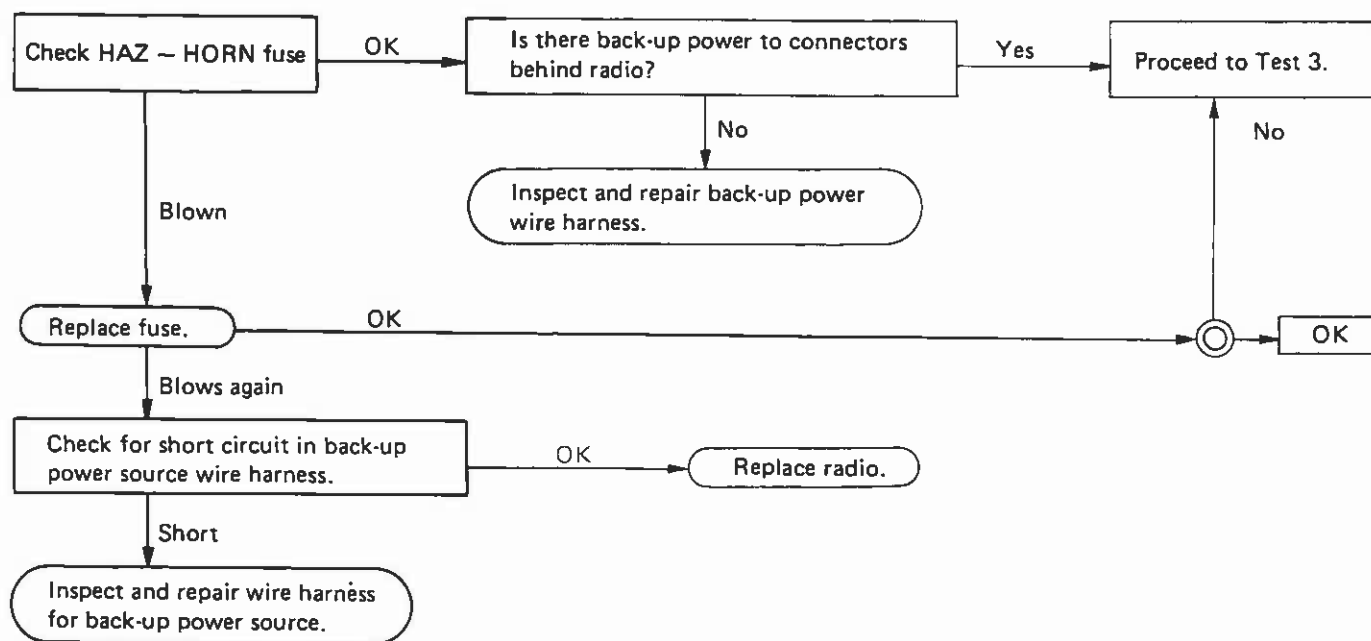
Possible causes:

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

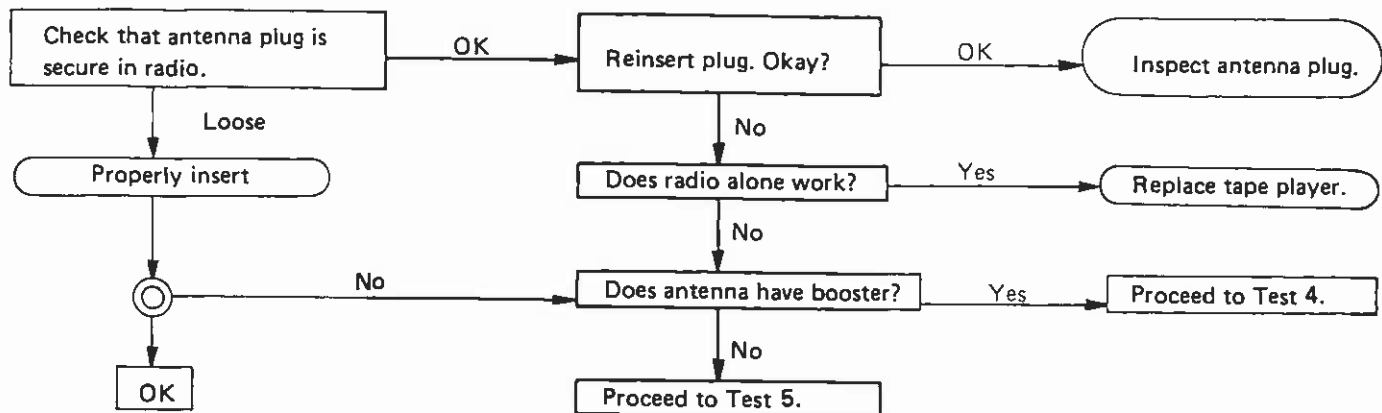
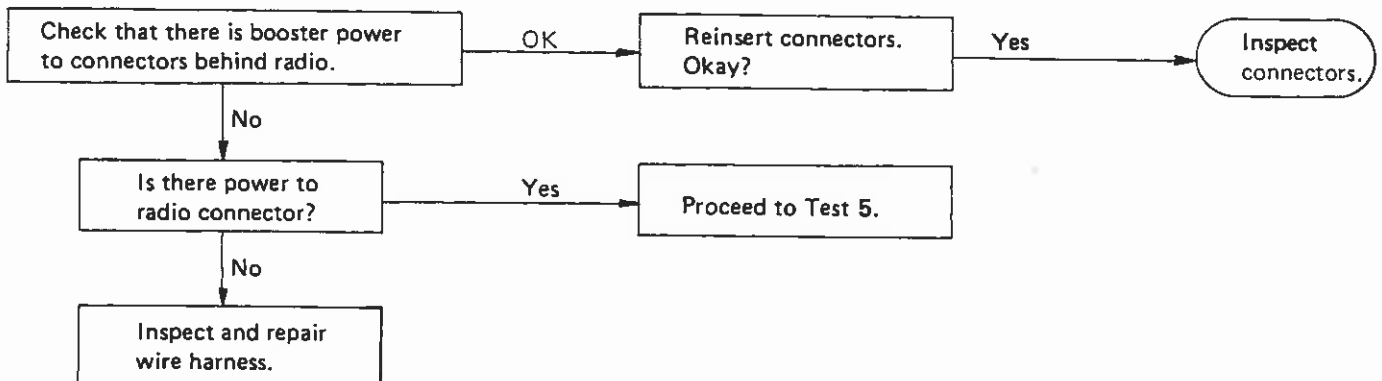
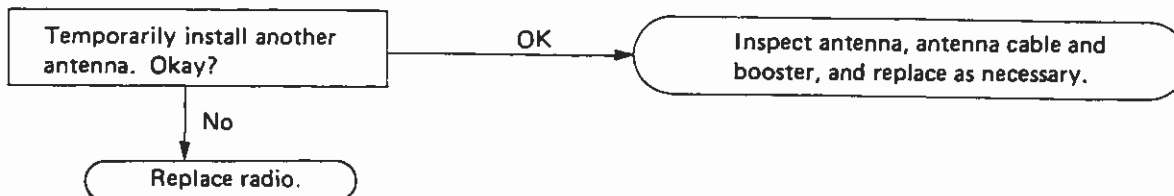
### TEST 1



### TEST 2



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

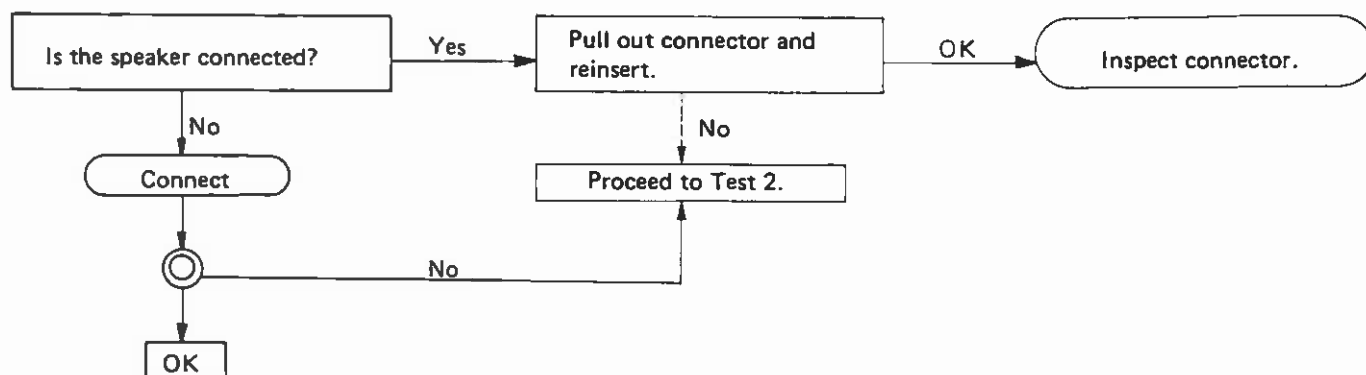
TEST 3TEST 4TEST 5

(c) No sound from one speaker.

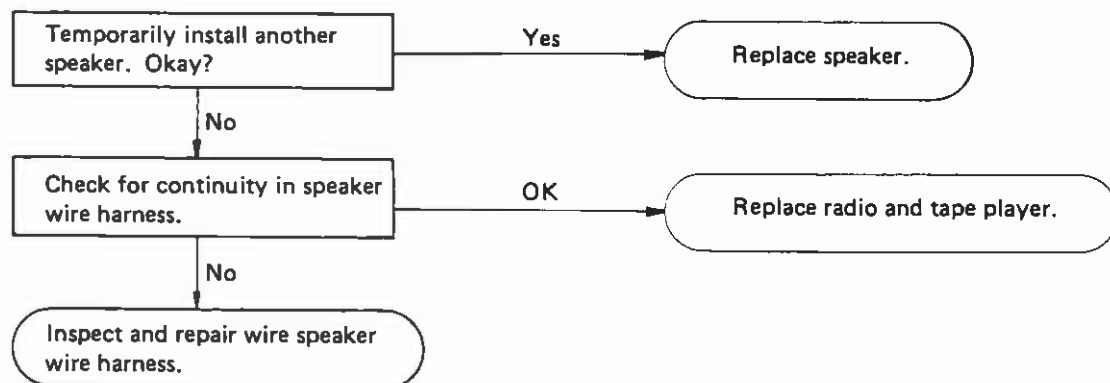
Possible causes:

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

### TEST 1



### TEST 2

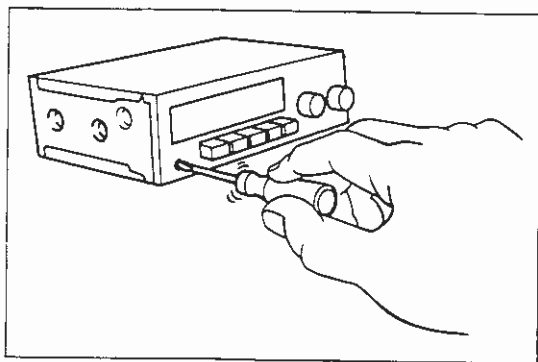
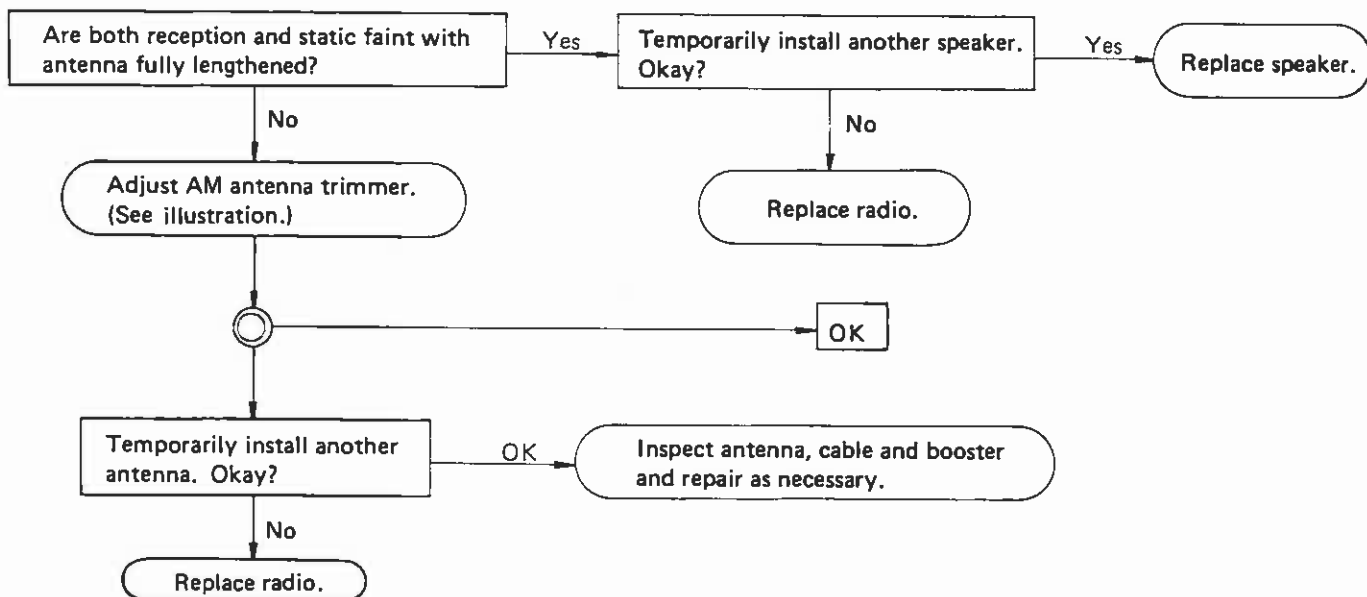


## 2. FAINT RECEPTION

Possible causes:

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

### TEST



(Ex. Electronic Search Type)

NOTE: Adjustment of antenna trimmer.

- (1) Fully lengthen the antenna.
- (2) With the volume and tone at maximum, turn the dial to around 1400 kHz where there is no reception.
- (3) Adjust the trimmer to where static is loudest.



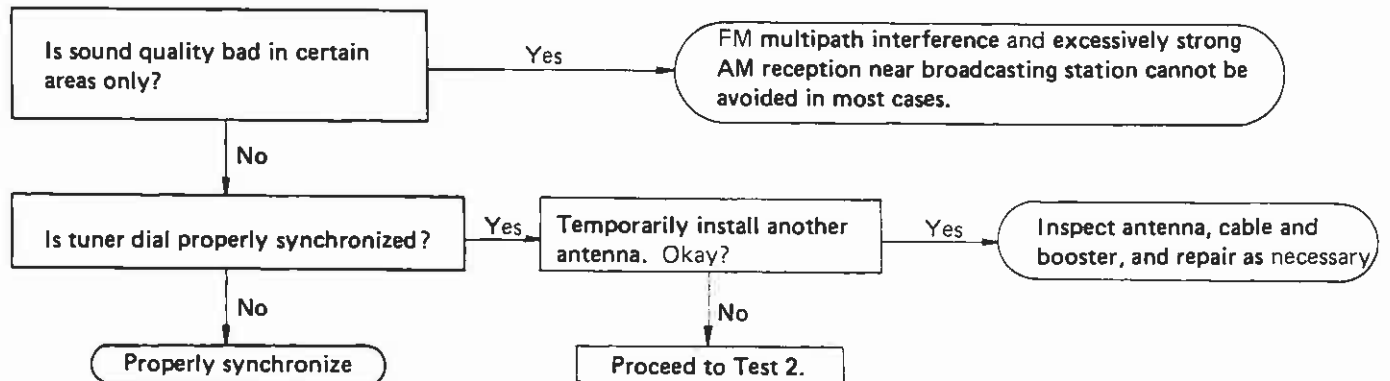
### 3. BAD SOUND QUALITY

(a) Sound quality bad when radio played.

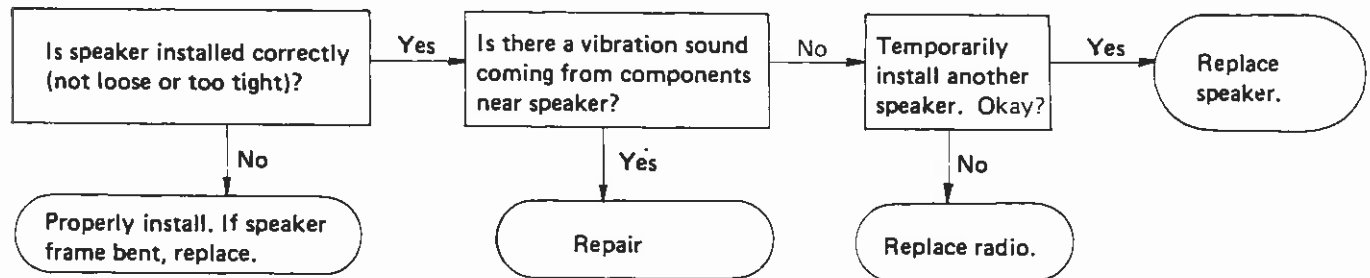
Possible causes:

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

#### TEST 1



#### TEST 2



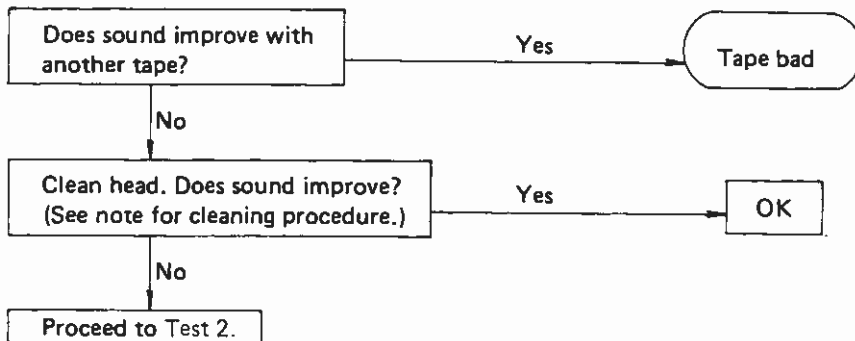
NOTE: FM distortion tends to increase sharply if the tuner is not synchronized.

(b) Sound quality bad when tape player played.

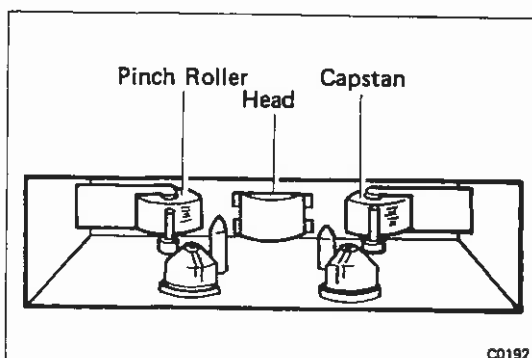
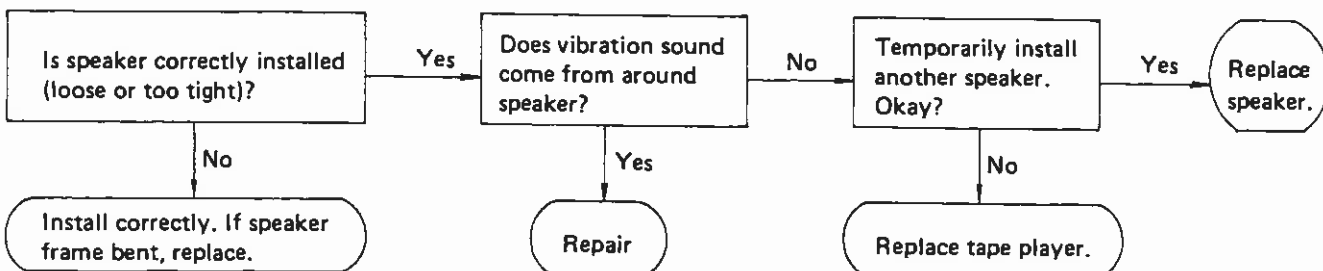
Possible causes:

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

### TEST 1



### TEST 2



C0192

NOTE: Head cleaning procedure.

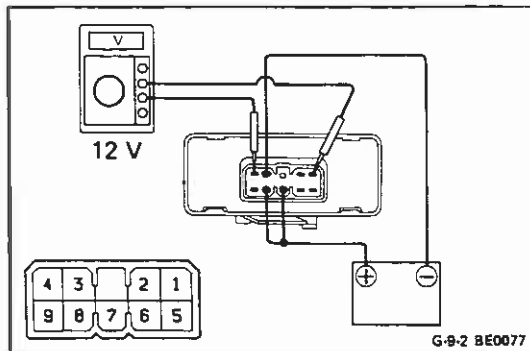
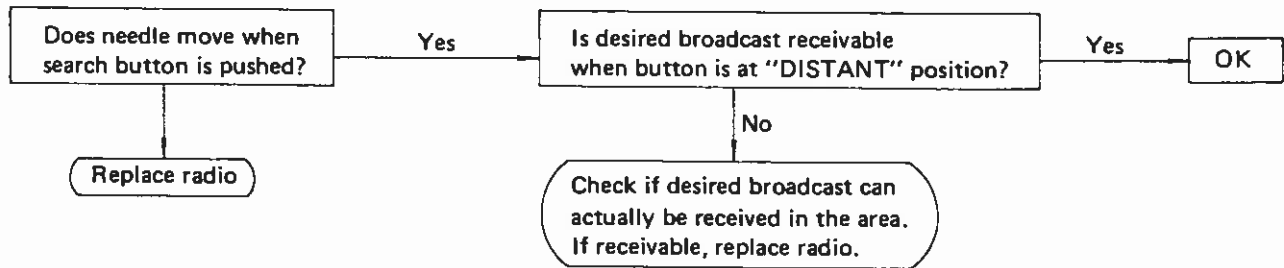
- (1) Raise the cassette door with your finger. Next, using a pencil or like object, push in the guide as shown.
- (2) Using a cleaning pen or cotton applicator soaked in alcohol, clean the head surface, pinch rollers and capstans.
- (3) Push in the eject button.

**4. DEFECTIVE AUTO-SEARCH MECHANISM**

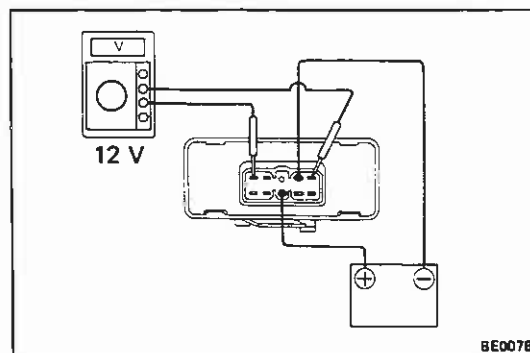
Manual search possible but automatic search mechanism does not function or does not stop at all receivable stations.

Possible causes:

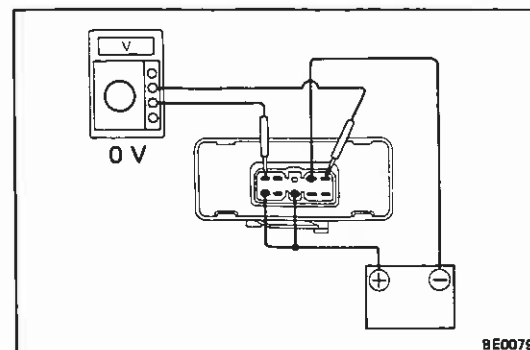
- Poor search sensitivity (SENS button)
- Defective radio

**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 7 and 8. Connect the negative (−) lead to terminal 3.
- Check that there is battery voltage.

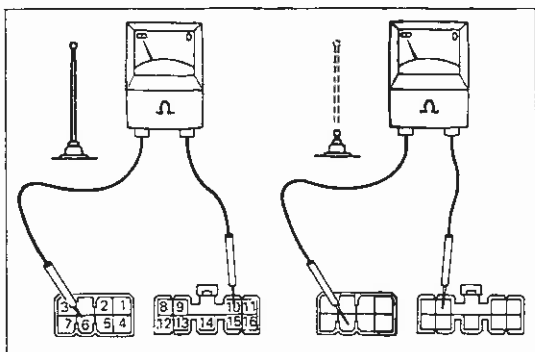
**2. INSPECT RELAY OPERATION (ANTENNA DOWN)**

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

**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

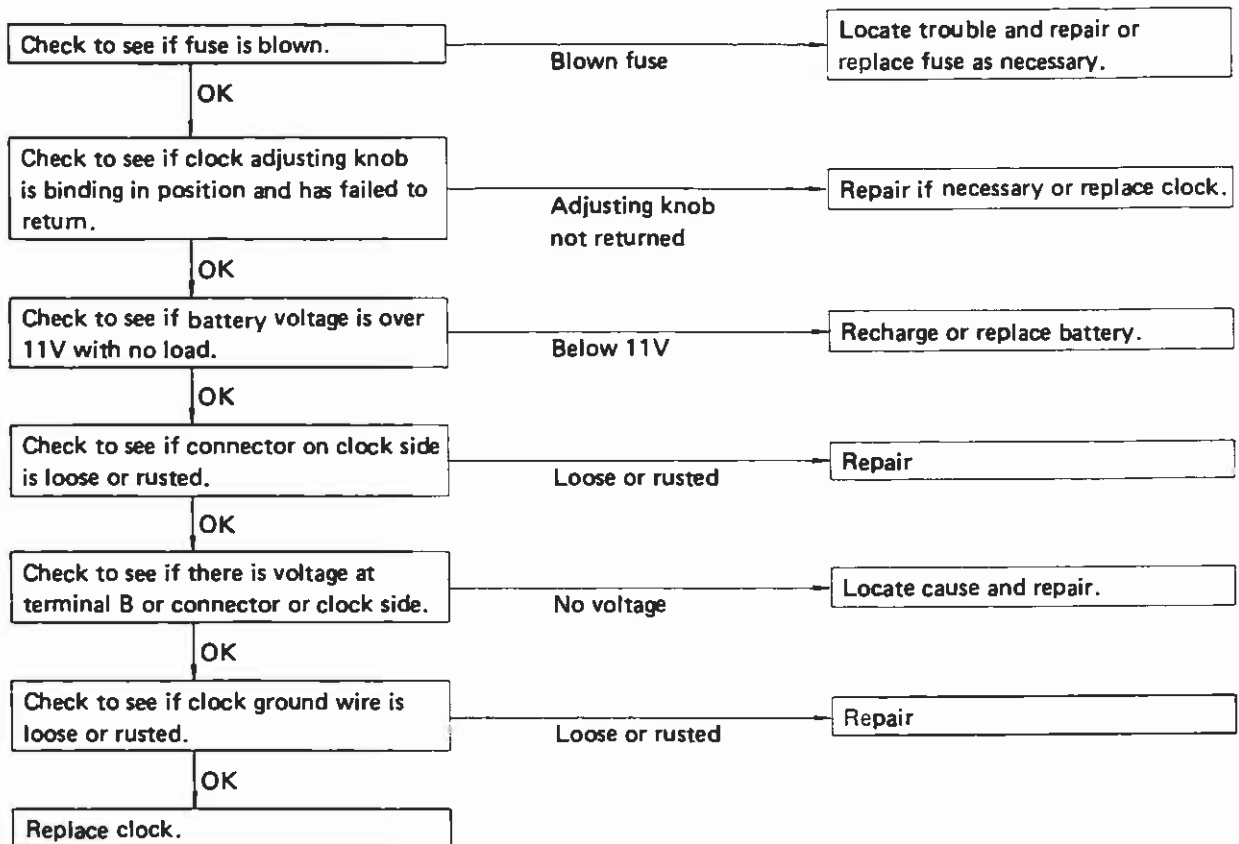
#### INSPECT LIMIT SWITCH OPERATION

- (a) If the motor stops with the antenna up, check that there is no continuity between terminals 6 and 10.
- (b) If the motor stops with the antenna down, check that there is no continuity between terminals 6 and 9.

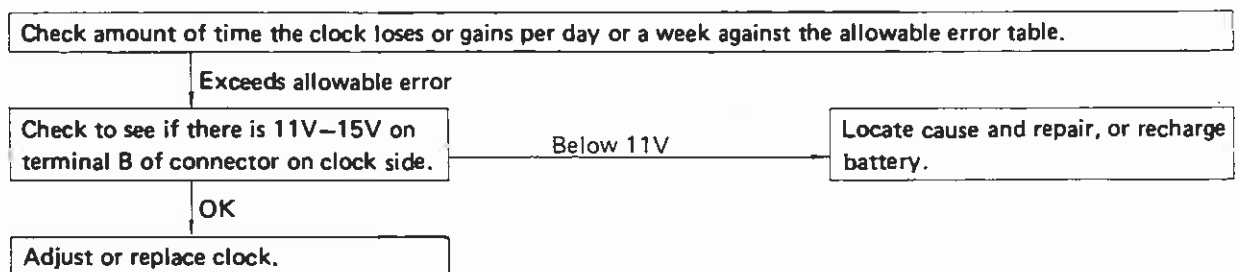
# CLOCK

## Troubleshooting

### CLOCK WILL NOT OPERATE



### CLOCK LOSES OR GAINS TIME



**1. INSPECT ALLOWABLE ERROR OF CLOCK**

| Type           | Allowable Error (per day) |
|----------------|---------------------------|
| 3-hand quartz  | ±4.0 seconds              |
| Digital quartz | ±2.5 seconds              |

**2. ADJUSTMENT OF CLOCK**

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

**3. STARTING OF CLOCK**

(a) Connect the battery terminal.

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

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

