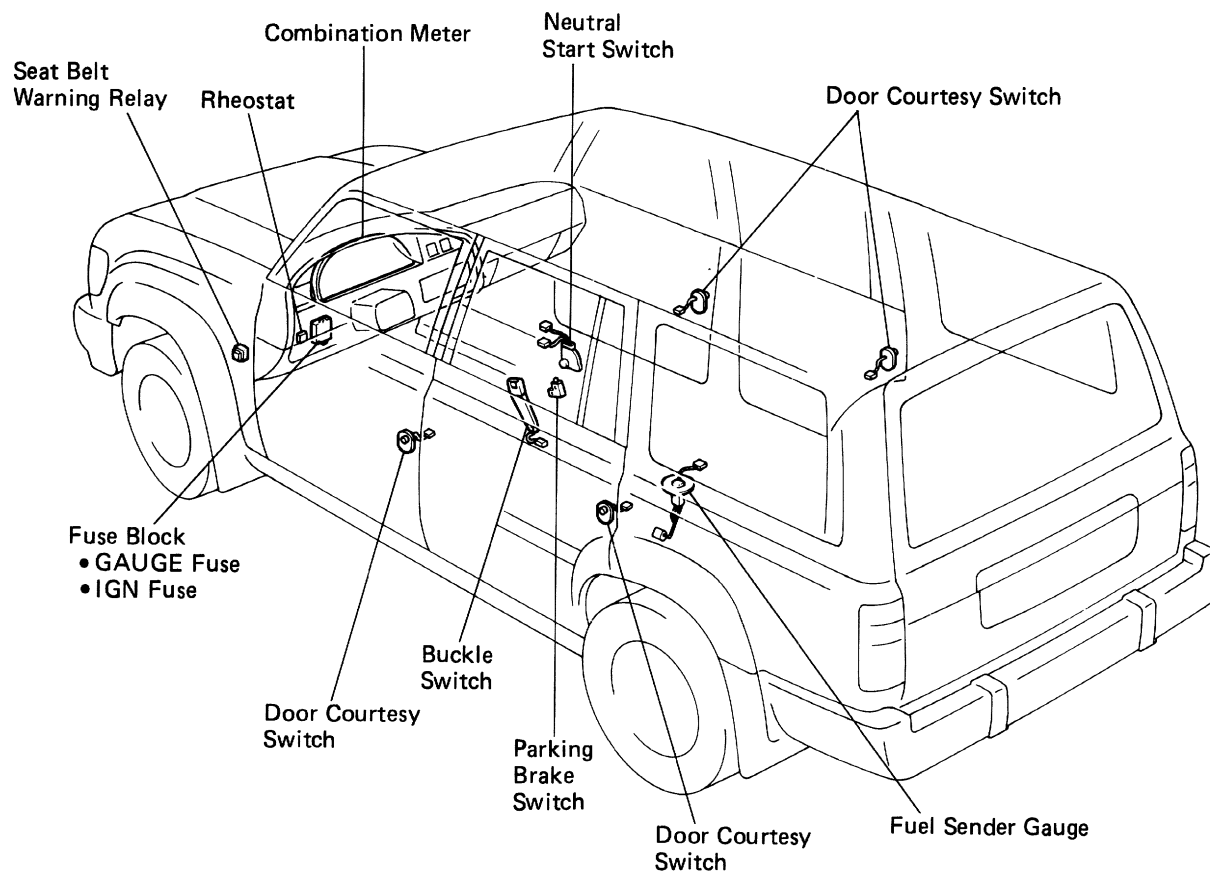
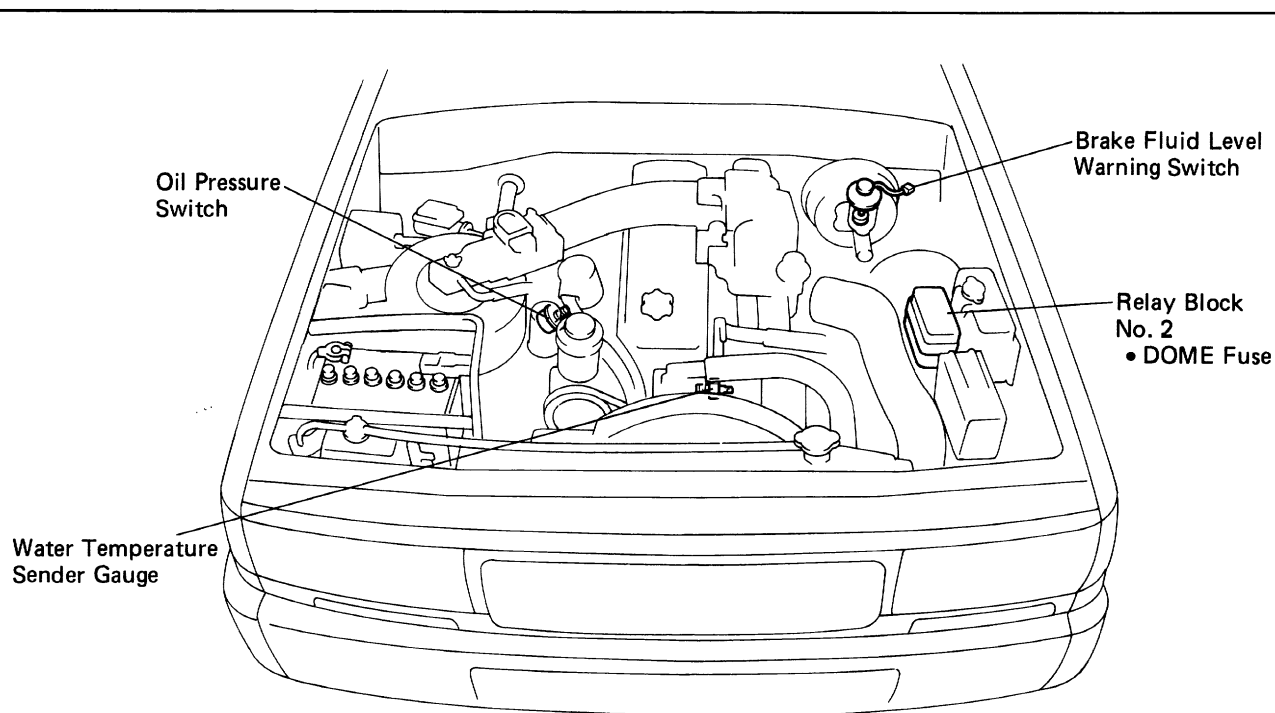
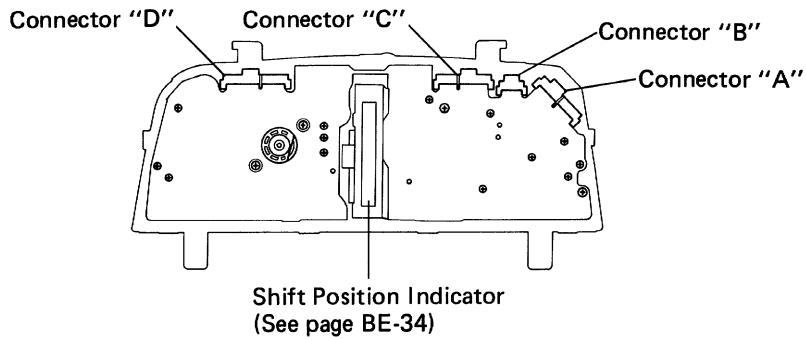
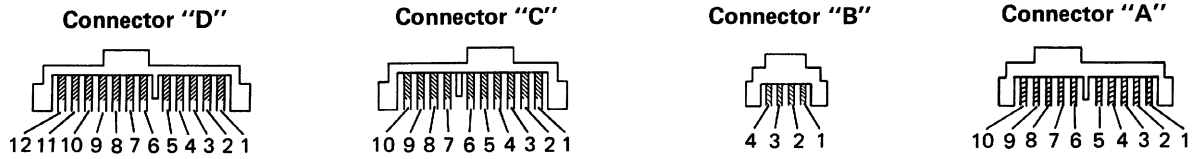


# COMBINATION METER

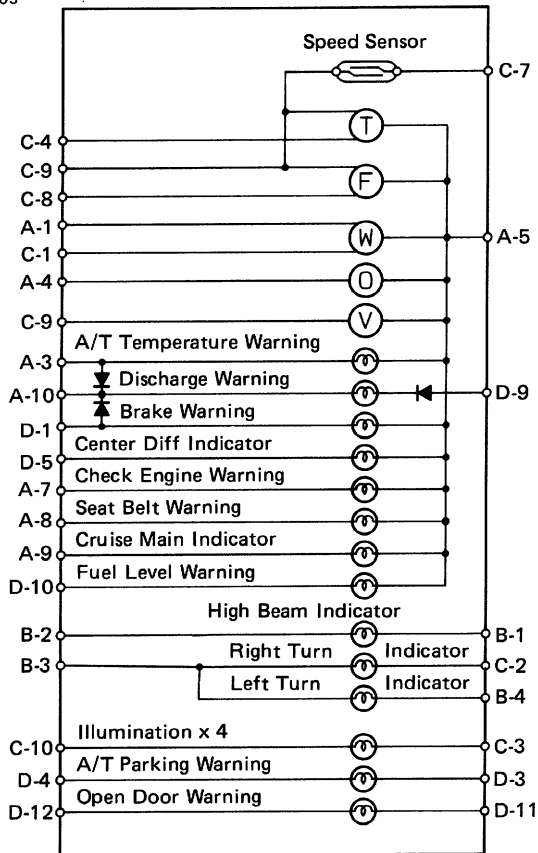
## Parts Location



## Meter Circuit (Combination Meter)



BE1266 BE1270 BE5017 BE2576  
 BE5005

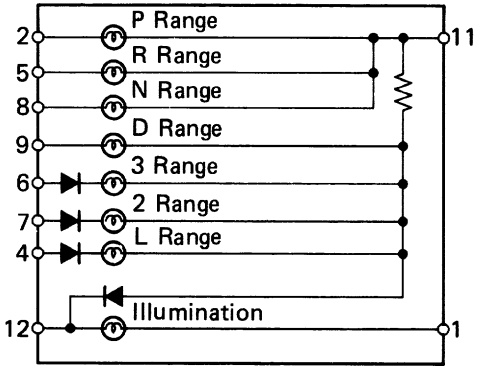
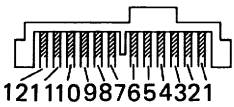


Ⓣ : Tachometer Ⓥ : Voltmeter  
 Ⓣ : Fuel Gauge Ⓦ : Water temperature Gauge  
 Ⓞ : Oil Pressure Gauge

BE5268

| No. | Wiring connector side                                       |
|-----|-------------------------------------------------------------|
| A   | 1 Ground                                                    |
|     | 3 A/T fluid temperature sensor                              |
|     | 4 Oil pressure sender gauge                                 |
|     | 5 GAUGE fuse                                                |
|     | 7 EFI ECU                                                   |
|     | 8 Seat belt warning relay                                   |
|     | 9 Cruise control ECU                                        |
|     | 10 Charge light relay                                       |
| B   | 1 Headlight LO-beam                                         |
|     | 2 Ground                                                    |
|     | 3 Ground                                                    |
|     | 4 Turn signal switch (Left)                                 |
| C   | 1 Water temperature sender gauge                            |
|     | 2 Turn signal switch (Right)                                |
|     | 3 TAIL fuse                                                 |
|     | 4 Igniter                                                   |
|     | 7 Speed control unit                                        |
|     | 8 Fuel sender gauge                                         |
|     | 9 Ground                                                    |
|     | 10 Rheostat                                                 |
| D   | 1 Brake fluid level warning switch and parking brake switch |
|     | 3 Neutral start switch                                      |
|     | 4 Neutral position switch                                   |
|     | 5 Center diff. lock switch                                  |
|     | 9 IGN fuse                                                  |
|     | 10 Fuel level warning switch                                |
|     | 11 DOME fuse                                                |
|     | 12 Door courtesy switch                                     |

(Shift Position Indicator)



BE1267  
BE4981

| No. | Wiring connector side              |
|-----|------------------------------------|
| 1   | Light control rheostat -terminal A |
| 2   | Neutral start switch-terminal 6    |
| 4   | Neutral start switch-terminal 8    |
| 5   | Neutral start switch-terminal 1    |
| 6   | Neutral start switch-terminal 4    |
| 7   | Neutral start switch -terminal 3   |
| 8   | Neutral start switch -terminal 5   |
| 9   | Neutral start switch-terminal 7    |
| 11  | Ground                             |
| 12  | TAIL fuse                          |

## Troubleshooting

| Problem                                            | Possible cause                                                                                           | Remedy                                                              | Page           |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------|
| Combination meter do not operate                   | GAUGE fuse blown<br>Wiring or ground faulty                                                              | Replace fuse and check for short<br>Repair as necessary             | BE-4, BE-6     |
| Speedometer does not operate                       | Speedometer cable faulty<br>Speedometer faulty                                                           | Check cable<br>Check speedometer                                    | BE-38          |
| Tachometer does not operate                        | Tachometer faulty<br>Igniter faulty<br>Wiring or ground faulty                                           | Check tachometer<br>Check igniter<br>Repair as necessary            | BE-38          |
| Fuel gauge does not operate                        | Receiver gauge faulty<br>Sender gauge faulty<br>Wiring or ground faulty                                  | Check gauge<br>Check gauge<br>Repair as necessary                   | BE-38<br>BE-39 |
| Fuel level warning light does not light up         | Bulb burned out<br>Warning switch faulty<br>Wiring or ground faulty                                      | Replace bulb<br>Check switch<br>Repair as necessary                 | BE-40          |
| Water temperature gauge does not operate           | Receiver gauge faulty<br>Sender gauge faulty<br>Wiring or ground faulty                                  | Check gauge<br>Check gauge<br>Repair as necessary                   | BE-40<br>BE-40 |
| Oil pressure gauge does not operate                | Receiver gauge faulty<br>Sender gauge faulty<br>Wiring or ground faulty                                  | Check gauge<br>Check gauge<br>Repair as necessary                   | BE-41<br>BE-41 |
| Voltmeter does not operate                         | Receiver gauge faulty<br>Wiring or ground faulty                                                         | Check gauge<br>Repair as necessary                                  | BE-42          |
| Breake warning light does not light up             | Bulb burned out<br>Level Warning switch faulty<br>Parking brake switch faulty<br>Wiring or ground faulty | Replace bulb<br>Check switch<br>Check switch<br>Repair as necessary | BE-42<br>BE-42 |
| Seat belt warning light does not light up          | Bulb burned out<br>Warning switch faulty<br>Warning relay faulty<br>Wiring or ground faulty              | Replace bulb<br>Check switch<br>Check relay<br>Repair as necessary  | BE-44<br>BE-44 |
| Open door warning light does not light up          | Bulb burned out<br>Courtesy switch faulty<br>Wiring or ground faulty                                     | Replace bulb<br>Check switch<br>Repair as necessary                 | BE-43          |
| Meter illumination control system does not operate | Bulb burned out<br>Rheostat faulty<br>Wiring or ground faulty                                            | Replace bulb<br>Check rheostat<br>Repair as necessary               | BE-45          |
| Shift position indicator light does not light up   | Bulb burned out<br>Neutral start switch faulty<br>Wiring or ground faulty                                | Replace bulb<br>Check switch<br>Repair as necessary                 | AT-26          |

## Parts Inspection

### Speedometer System

#### 1. INSPECT SPEEDOMETER (ON-VEHICLE)

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

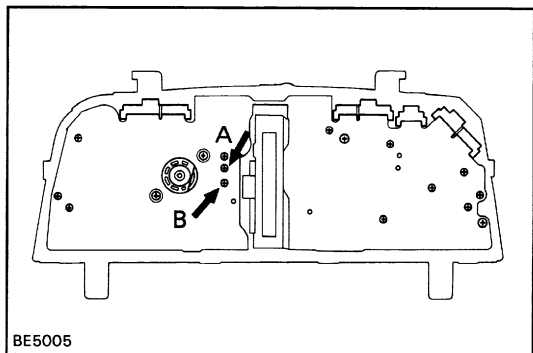
HINT: Tire wear and tire over or under inflation will increase the indication error.

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

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

(mph)

| Standard indication | Allowable range |
|---------------------|-----------------|
| 20                  | 18.5 – 21.5     |
| 40                  | 38 – 41.5       |
| 60                  | 58 – 62         |
| 80                  | 78 – 82.5       |
| 100                 | 98 – 103        |



#### 2. INSPECT SPEED SENSOR

Check that there is continuity between terminals A and B four times per each revolution of the speedometer shaft. If operation is not as specified, replace the speedometer.

| DC 13.5V 20°C (68°F) |                 | rpm |
|----------------------|-----------------|-----|
| Standard indication  | Allowable range |     |
| 700                  | 610 – 750       |     |
| 1,000                | 900 – 1,100     |     |
| 2,000                | 1,875 – 2,125   |     |
| 3,000                | 2,850 – 3,150   |     |
| 4,000                | 3,850 – 4,150   |     |
| 5,000                | 4,850 – 5,150   |     |

### Tachometer System

#### 1. INSPECT TACHOMETER (ON-VEHICLE)

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

##### NOTICE:

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

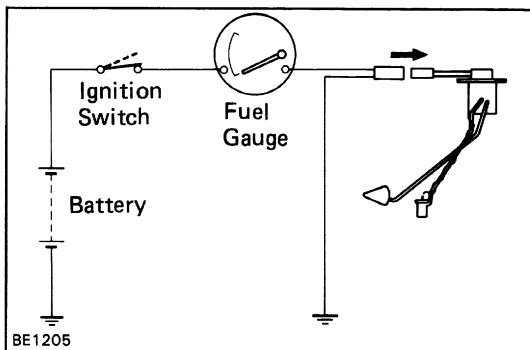
- (b) Compare the tester and tachometer indications. If error is excessive, replace the tachometer.

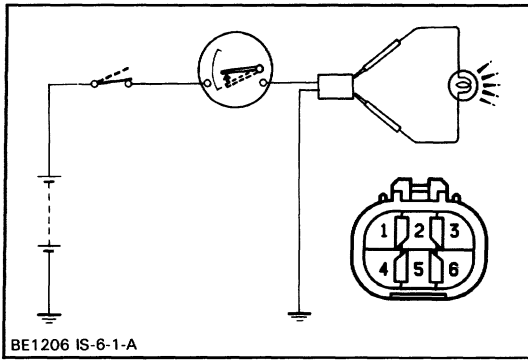
#### Fuel Gauge System

#### 1. INSPECT RECEIVER GAUGE

##### (Operation)

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





- (c) Connect terminals 4 and 5 on the wire harness side connector through a 3.4 watts test bulb.
- (d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves towards the full side.

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

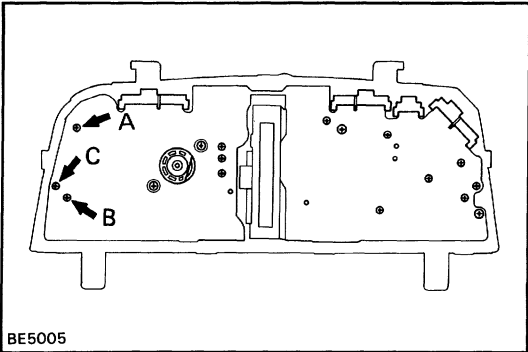
If operation is not as specified, inspect the receiver gauge resistance.

### (Resistance)

Measure the resistance between terminals.

| Between terminals                 | Resistance ( $\Omega$ ) |
|-----------------------------------|-------------------------|
| A-B                               | 85.5 - 105.5            |
| A-C                               | 126 - 150               |
| C-B                               | *90 - 110               |
| * : Include voltmeter resistance. |                         |

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



## 2. INSPECT SENDER GAUGE

### (Operation)

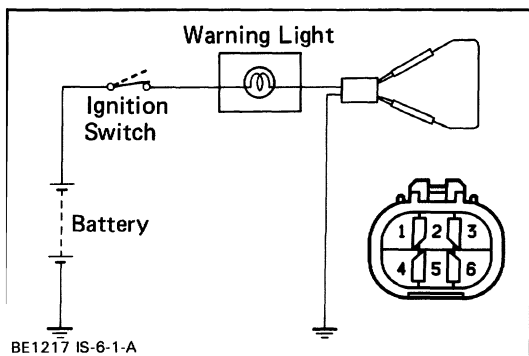
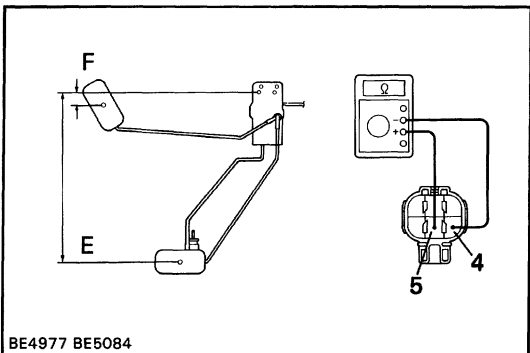
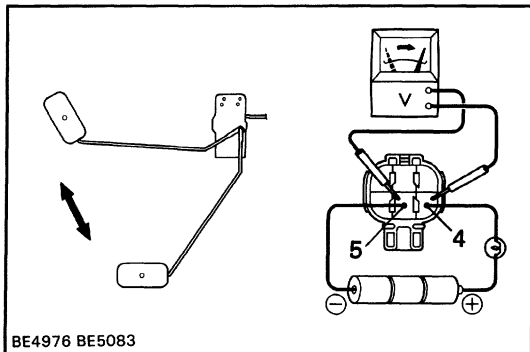
- (a) Connect a series of three 1.5 volts dry cell batteries.
- (b) Connect the positive (+) lead from the dry cell batteries to terminal 4 through a 3.4 watts test bulb and the negative (-) lead to terminal 5.
- (c) Connect the positive (+) lead from the voltmeter to terminal 4 and the negative (-) lead to terminal 5.
- (d) Check that the voltage rises as the float is moved from the full to empty position.

### (Resistance)

Measure the resistance between terminals 4 and 5.

| Float position mm (in.) | Resistance ( $\Omega$ ) |
|-------------------------|-------------------------|
| F approx. 15 (0.59)     | approx. 3               |
| E approx. 200 (7.87)    | approx. 110             |

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

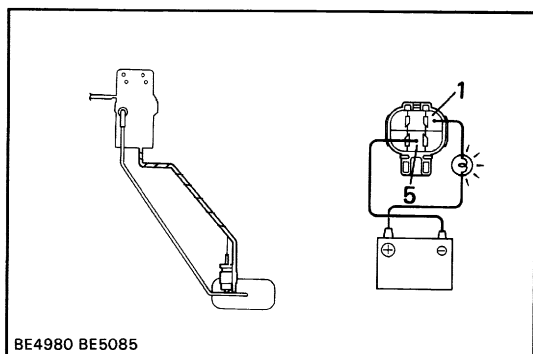


## Fuel Level Warning System

### 1. INSPECT WARNING LIGHT

- (a) Disconnect the connector from the sender gauge.
- (b) Connect terminals 1 and 5 on the wire harness side connector.
- (c) Turn the ignition switch ON, check that the warning light lights up.

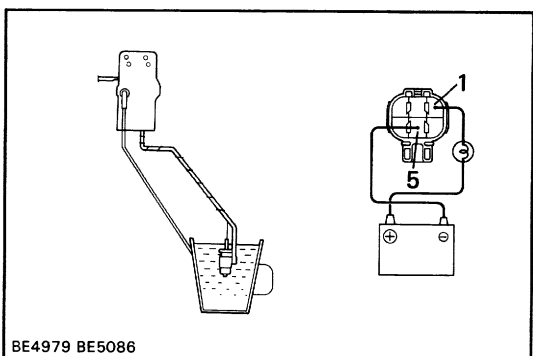
If the warning light does not light up, test the bulb.



## 2. INSPECT WARNING SWITCH

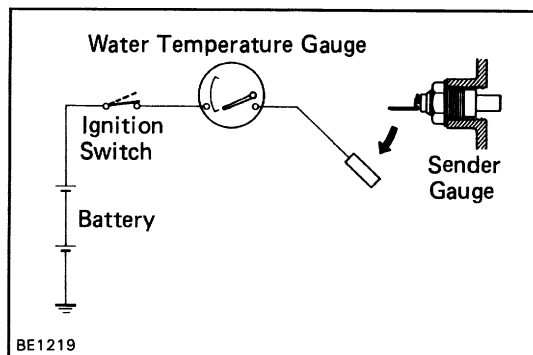
- (a) Apply battery voltage between terminals 1 and 5 through a 3.4 watts test bulb, check that the bulb lights up.

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



- (b) Submerge the switch in fuel, check that the bulb goes out.

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



## Water Temperature Gauge System

### INSPECT RECEIVER GAUGE

#### (Operation)

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

- (c) Ground terminal on the wire harness side connector through a 3.4 watts test bulb.

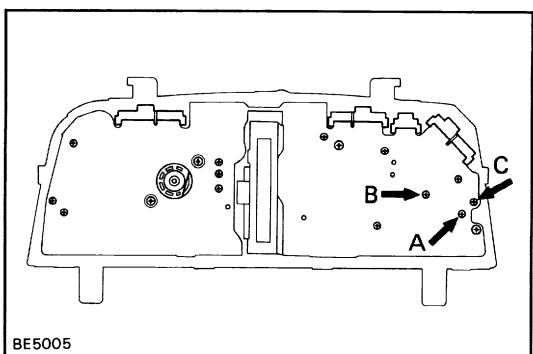
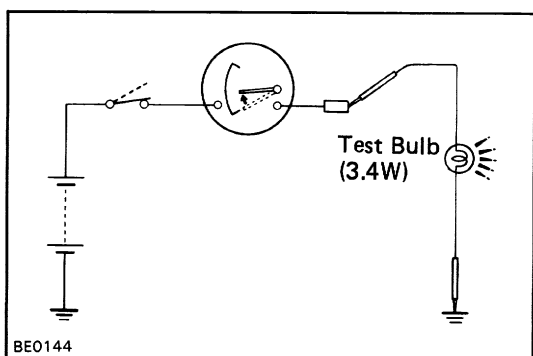
- (d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves to the hot side.

If operation is as specified, replace the sender gauge. Then recheck the system.

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

#### (Resistance)

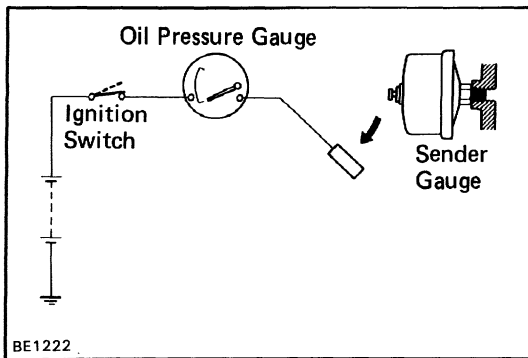
Measure the resistance between terminals.



| Between terminals | Resistance ( $\Omega$ ) |
|-------------------|-------------------------|
| A – B             | 71 – 79                 |
| A–C               | 117 – 141               |
| C – A             | 185 – 215               |

HINT: Connect the test leads so that the current from the ohmmeter can flow according to the above order. This circuit include the diode.

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

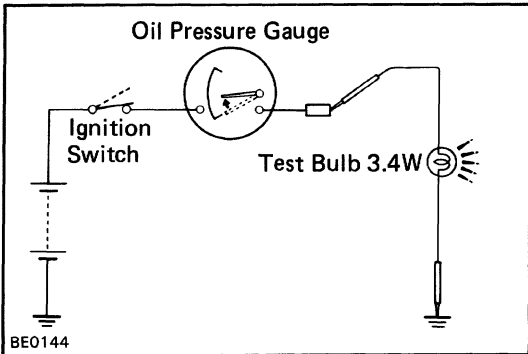


## Oil Pressure Gauge System

### 1. INSPECT RECEIVER GAUGE

#### (Operation)

- Disconnect the connector from the sender gauge.
- Turn the ignition switch ON, check that the receiver gauge needle indicates LOW.



- Ground terminal on the wire harness side through a 3.4 W test bulb.
- Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle, moves to the high side.

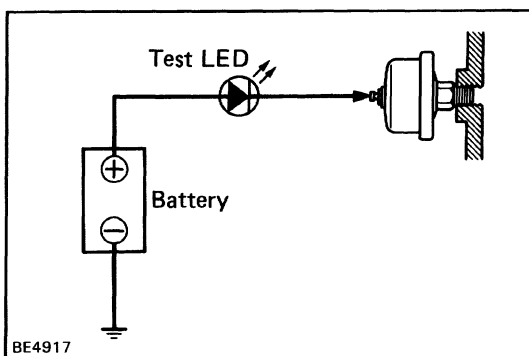
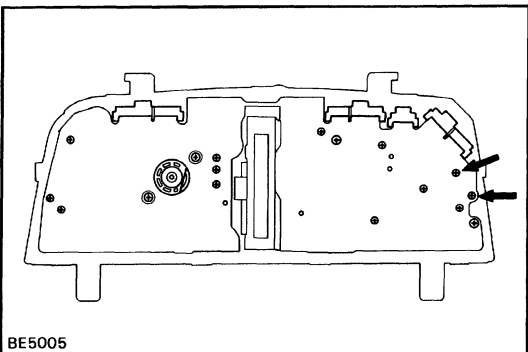
If operation is not as specified, measure the receiver gauge resistance.

#### (Resistance)

Measure the receiver gauge resistance between terminals.

**Resistance: 22 – 28Ω**

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



### 2. INSPECT SENDER GAUGE

- Disconnect the connector from the sender gauge.
- Apply battery voltage to the sender gauge terminal through a test LED.
- Check that the bulb does not light when the engine is stopped.
- Check that the LED flashes when the engine is running. The number of flashed should vary with engine speed.

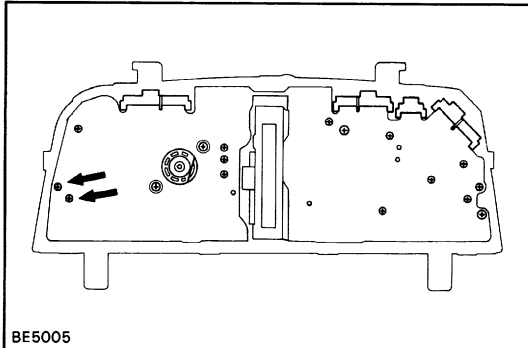
If operation is not as specified, replace the sender gauge.

## Voltmeter System

### INSPECT VOLTMETER (ON-VEHICLE)

Compare the tester and voltmeter indications.

If error is excessive, replace the voltmeter.



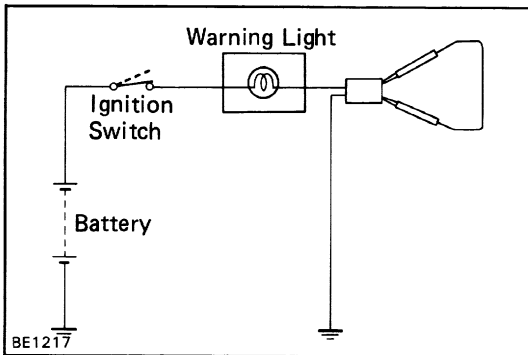
#### (Resistance)

Measure the receiver gauge resistance between terminals.

**Resistance: 90 – 110Ω**

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

HINT: This resistance include fuel receiver gauge resistance.

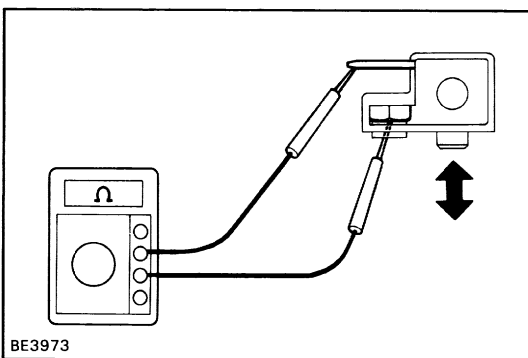


## Brake Warning System

### 1. INSPECT WARNING LIGHT

- Disconnect the connectors from the level warning switch, parking brake switch.
- Connect terminals on the wire harness side connector of the level warning switch connector.
- Turn the ignition switch ON, check that the warning light lights up.

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

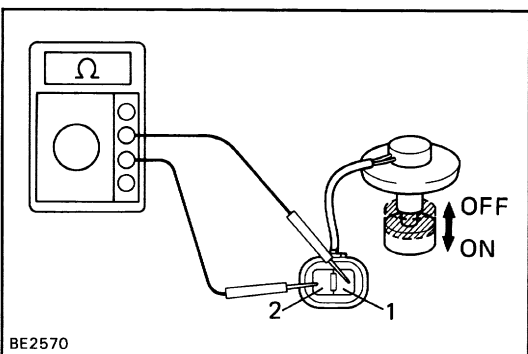


### 2. INSPECT SWITCHES

#### (Parking Brake Switch)

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

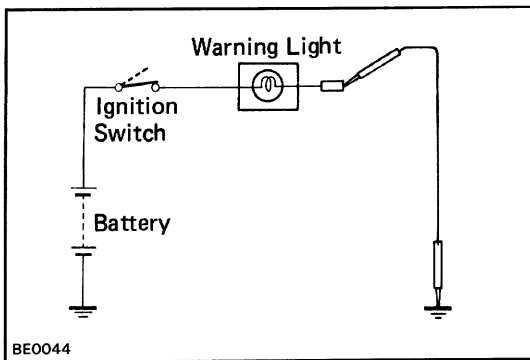
If operation is not as specified, replace the switch.



#### (Brake Fluid Level Warning Switch)

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

If operation is not as specified, replace the switch.



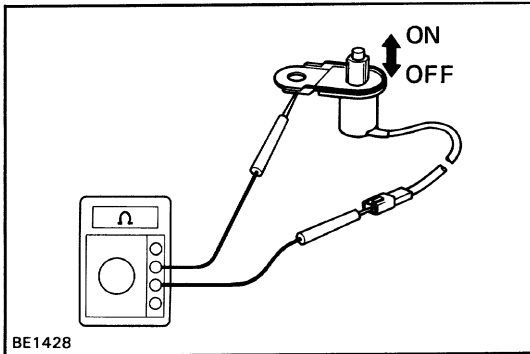
## Open Door Warning System

### 1. INSPECT WARNING LIGHT

- Disconnect the connector from the door courtesy switch and ground terminal on the wire harness side connector.

- Turn the ignition switch ON, check that the warning light lights up.

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

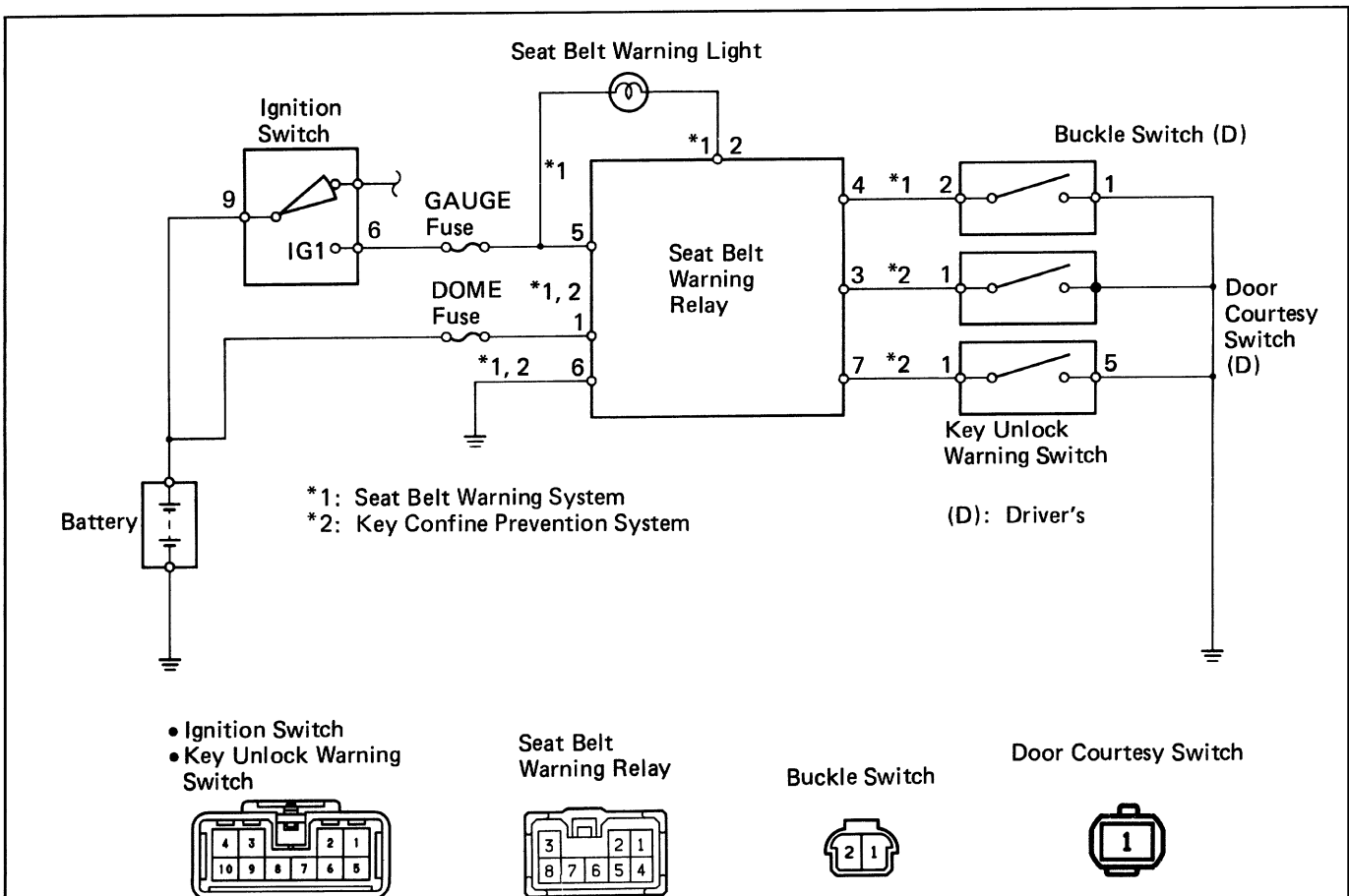


### 2. INSPECT COURTESY SWITCH

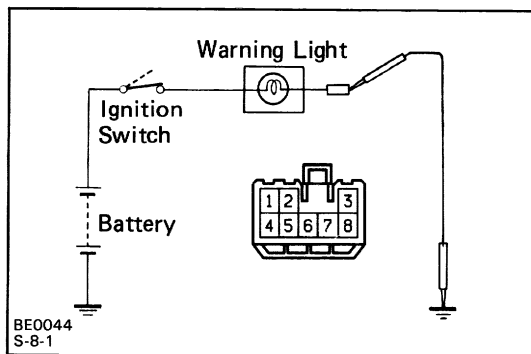
- Check that there is continuity between terminal and the switch body with the ON (switch pin released:opened door).
- Check that there is no continuity between terminal and the switch body with the OFF (switch pin pushed in:closed door).

If operation is not as specified, replace the switch.

## Seat Belt Warning System (Wiring Diagram)



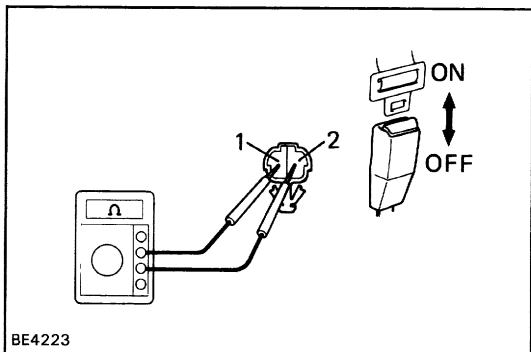
The POWER SOURCE CIRCUIT has been simplified. For full details, see page [BE-10](#).



## 1. INSPECT WARNING LIGHT

- Disconnect the connector from the seat belt warning relay.
- Ground terminal 2 on the wire harness side connector.
- Turn the ignition switch ON, check that the warning light lights up.

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



## 2. INSPECT SWITCHES

### (Buckle Switch)

- Check that there is no continuity between terminals with the switch ON (belt unfastened).
- Check that there is continuity between terminals with the switch OFF (belt fastened).

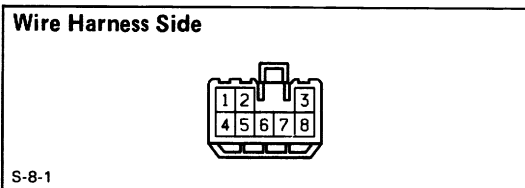
If operation is not as specified, replace the seat belt inner.

### (Courtesy Switch)

See page [BE-43](#).

### (Key Unlock Warning Switch)

See page [BE-12](#).



## 3. INSPECT SEAT BELT WARNING RELAY

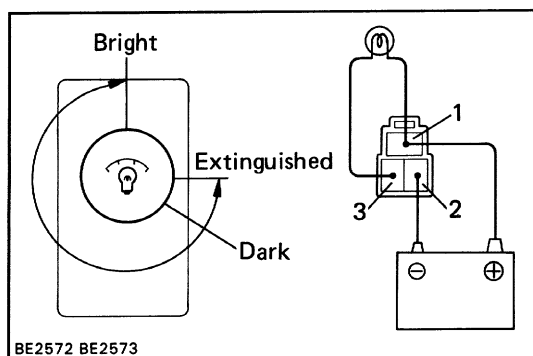
### (Relay Circuit)

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

| Check for  | Tester connection | Condition                |             | Specified value |
|------------|-------------------|--------------------------|-------------|-----------------|
| Voltage    | 5 – Ground        | Ignition switch position | ON          | Battery voltage |
|            |                   |                          | LOCK or ACC | No voltage      |
|            | 1 – Ground        | Constant                 |             | Battery voltage |
| Continuity | 3 – Ground        | Driver's door            | Open        | Continuity      |
|            |                   |                          | Close       | No continuity   |
|            | 4 – Ground        | Driver's seat belt       | Fasten      | Continuity      |
|            |                   |                          | Unfasten    | No continuity   |
|            | 7 – Ground        | Ignition key             | Set         | Continuity      |
|            |                   |                          | Remove      | No continuity   |
|            | 6 – Ground        | Constant                 |             | Continuity      |

If circuit is as specified, try another relay.

If the circuit is not as specified, refer to [BE-44](#) wiring diagram and inspect the circuits connected to other parts.



### Meter Illumination Control System

#### INSPECT LIGHT CONTROL RHEOSTAT

- Connect terminals 1 and 3 through a 3.4 watts test bulb.
- Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.
- Turn the rheostat knob to fully counterclockwise, check that the test bulb goes out.
- Gradually turn the rheostat knob to clockwise, check that the test bulb brightness changes from dark to bright.

If operation is not as specified, replace the rheostat.

HINT: Illumination lights with adjustable brightness.

- Cigarette Lighter
- Ash Receptacle
- Antenna Switch
- Defogger Switch
- Headlight Cleaner Switch
- Audio
- A/C Control Assembly
- Center Diff. Lock Switch
- Hazard Warning Light Switch
- Shift Lever