

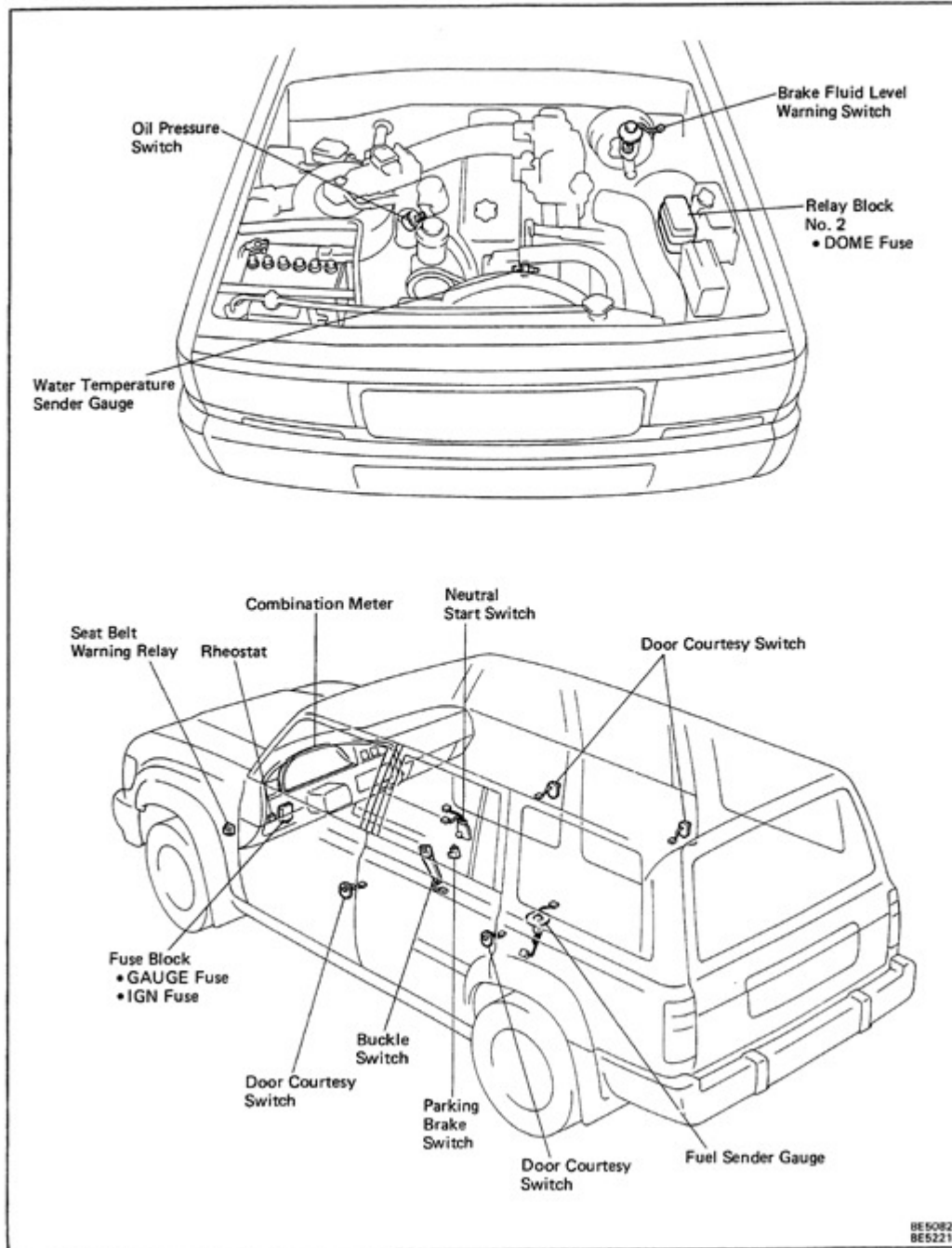
CLOCK
Troubleshooting

As shown in the illustration, those are clock circuit and connector diagrams. Inspect each terminal for applicable trouble.

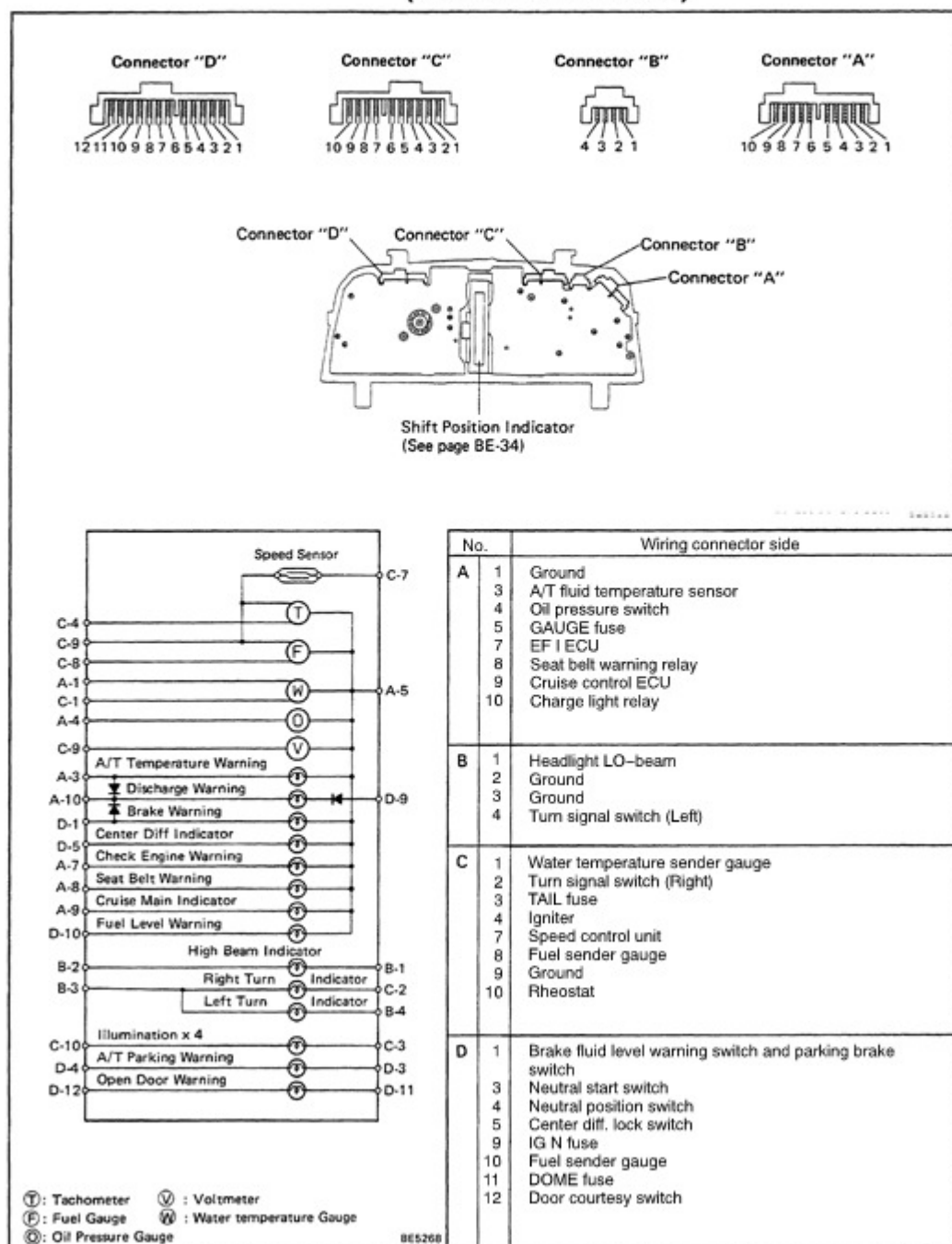
Terminal		Condition	Specified value
1	E	Constant	Continuity
2	ILL	Turn light control switch ON	Battery Voltage
3	B	Constant	
4	ACC	Turn ignition switch ON	

Allowable error: ± 1.5 seconds/day

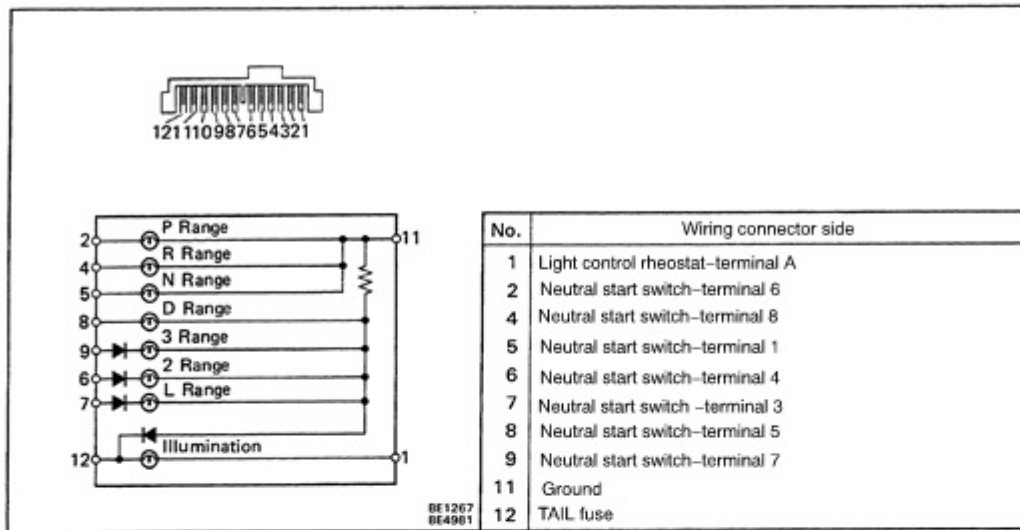
COMBINATION METER Parts Location



Meter Circuit (Combination Meter)



(Shift Position Indicator)



BE-34

BODY ELECTRICAL - Combination Meter

Troubleshooting

Problem	Possible cause	Remedy	Page
Combination meter do not operate	GAUGE fuse blown Wiring or ground faulty	Replace fuse and check for short Repair as necessary	BE-4, 6
Speedometer does not operate	Speedometer cable faulty Speedometer faulty	Check cable Check speedometer	BE-35
Tachometer does not operate	Tachometer faulty Igniter faulty Wiring or ground faulty	Check tachometer Check igniter Repair as necessary	BE-35
Fuel gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE-35 BE-36
Fuel level warning light does not light up	Bulb burned out Warning switch faulty Wiring or ground faulty	Replace bulb Check switch Repair as necessary	BE-37
Water temperature gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE-37 BE-37
Oil pressure gauge does not operate	Receiver gauge faulty Sender gauge faulty Wiring or ground faulty	Check gauge Check gauge Repair as necessary	BE-38 BE-38
Voltmeter does not operate	Receiver gauge faulty Wiring or ground faulty	Check gauge Repair as necessary	BE-39
Brake warning light does not light up	Bulb burned out Level Warning switch faulty Parking brake switch faulty Wiring or ground faulty	Replace bulb Check switch Check switch Repair as necessary	BE-39 BE-39
Seat belt warning light does not light up	Bulb burned out Warning switch faulty Warning relay faulty Wiring or ground faulty	Replace bulb Check switch Check relay Repair as necessary	BE-41 BE-41
Open door warning light does not light up	Bulb burned out Courtesy switch faulty Wiring or ground faulty	Replace bulb Check switch Repair as necessary	BE-40
Meter illumination control system does not operate	Bulb burned out Rheostat faulty Wiring or ground faulty	Replace bulb Check rheostat Repair as necessary	BE-42
Shift position indicator light does not light up	Bulb burned out Neutral start switch faulty Wiring or ground faulty	Replace bulb Check switch Repair as necessary	AT-25

(mph)

Standard indication	Allowable range
20	20 - 23
40	40 - 43.5
60	60 - 64
80	80 - 84.5
100	100 - 105

Parts Inspection

Speedometer System

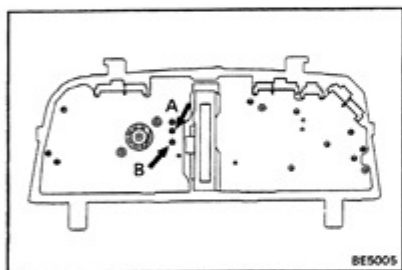
1. INSPECT SPEEDOMETER (ON-VEHICLE)

- (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.



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" (68°F) rpm	
Standard indication	Allowable range
700	610 - 750
1,000	900 - 1,000
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.

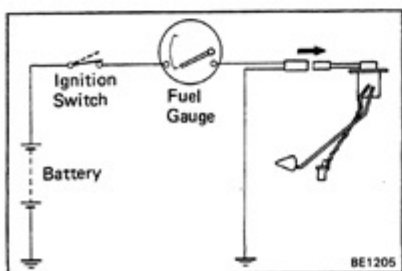
- (b) Compare the tester and tachometer indications. If error is excessive, replace the tachometer.

Fuel Gauge System

1. INSPECT RECEIVER GAUGE

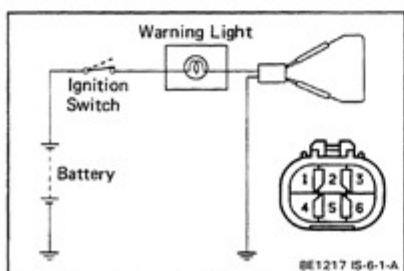
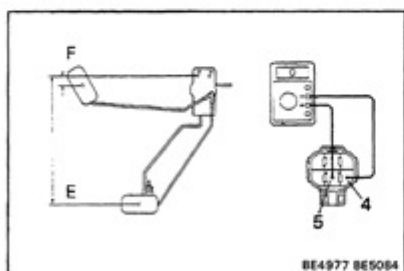
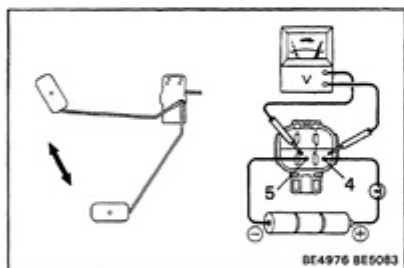
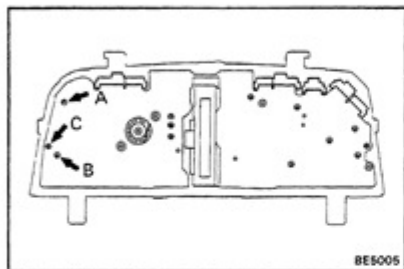
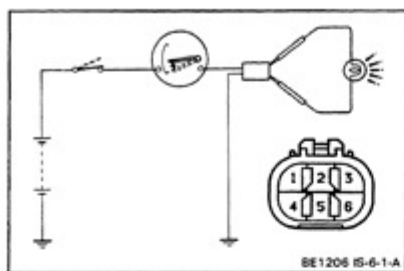
(Operation)

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



BE-36

BODY ELECTRICAL - Combination Meter



- (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 (Ω)
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)

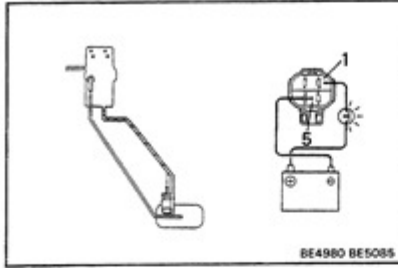
Measure the resistance between terminals 4 and 5.

Float position mm (in.)	Resistance (Ω)
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**

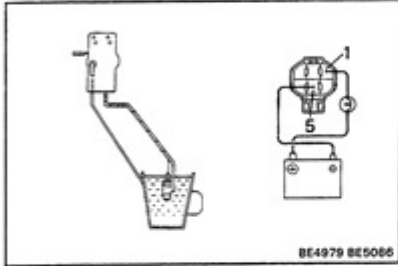
- (a) Disconnect the connector from the sender gauge.
 - (b) Connect terminals 1 and 5 on the wire harness side connector.
 - (c) Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light up, test the bulb.



2. INSPECT WARNING SWITCH

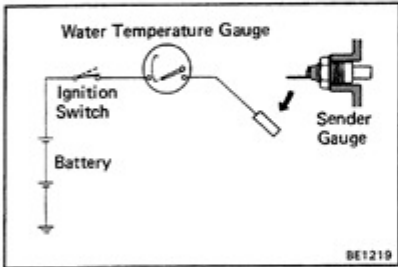
- (a) Apply battery voltage between terminals 1 and 5 through a 3.4 watts test bulb, check that the bulb lights up.

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.

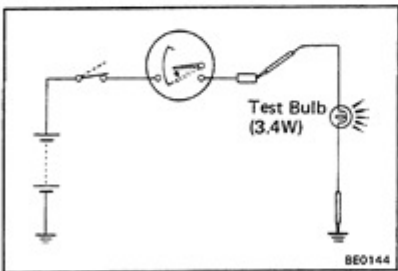


Water Temperature Gauge System

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.

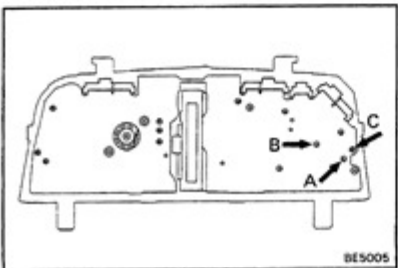
If operation is as specified, replace the sender gauge. Then recheck the system.

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

(Resistance)

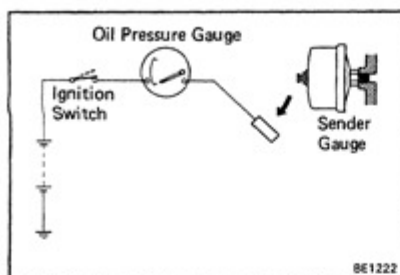
Measure the resistance between terminals.

Between terminals	Resistance (Ω)
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.

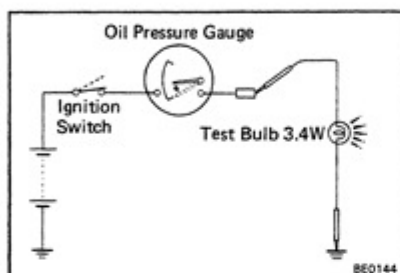


Oil Pressure Gauge System

1. INSPECT RECEIVER GAUGE

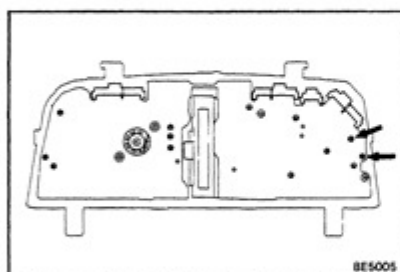
(Operation)

- 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.

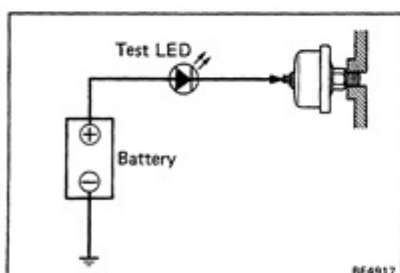


(Resistance)

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

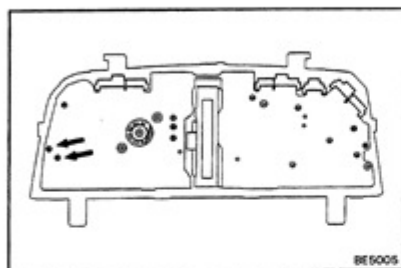
- Disconnect the connector from the sender gauge.
- Apply battery voltage to the sender gauge terminal through a test LED.
- Check that the bulb does not light when the engine is stopped.
- Check that the LED flashes when the engine is running. The number of flashed should vary with engine speed.

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.



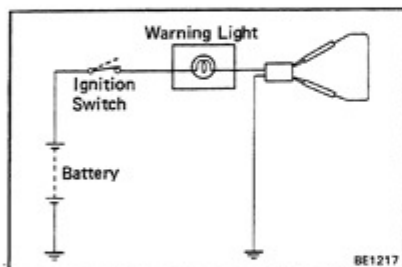
(Resistance)

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.

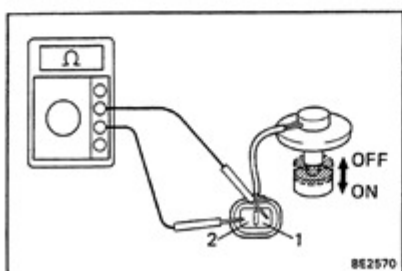
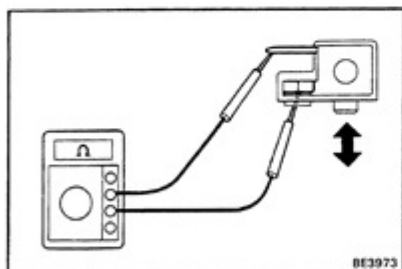
If the warning light does not light up, test the bulb.

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.



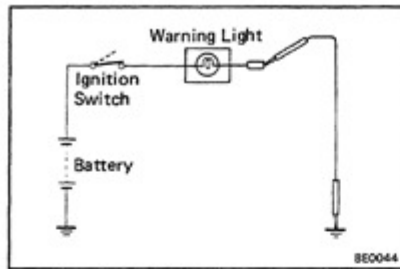
(Brake Fluid Level Warning Switch)

- 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.

BE-40

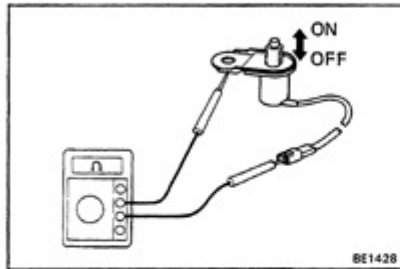
BODY ELECTRICAL - Combination Meter



Open Door Warning System

1. INSPECT WARNING LIGHT

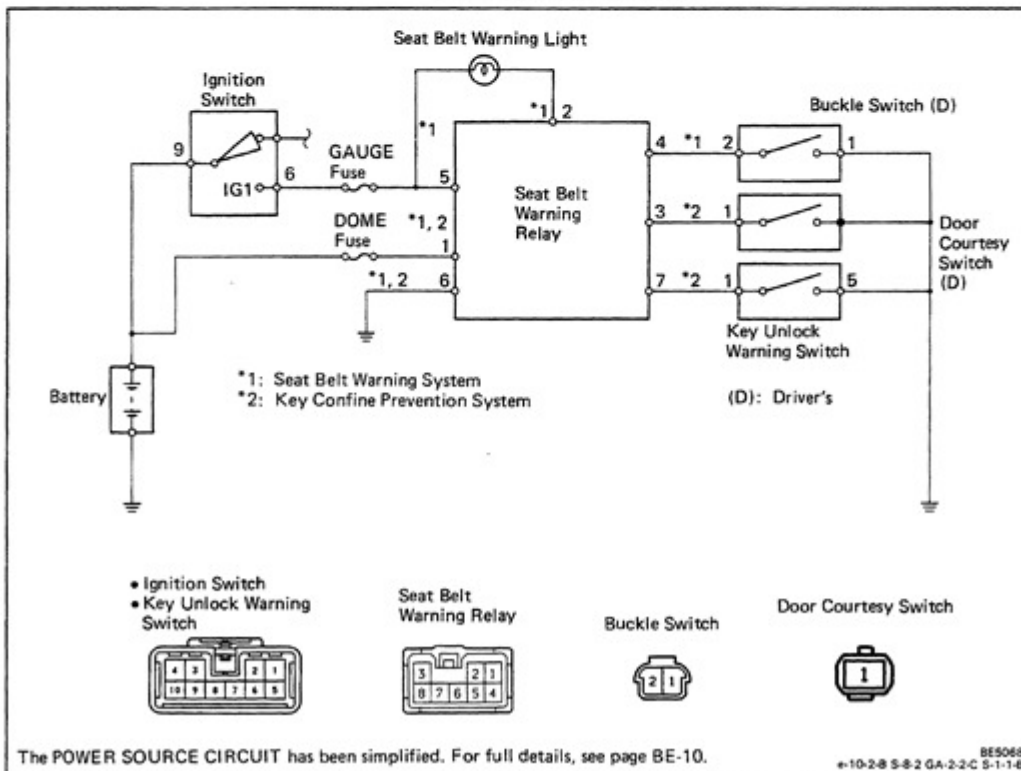
- Disconnect the connector from the door courtesy switch and ground terminal on the wire harness side connector.
 - Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light up, test the bulb.

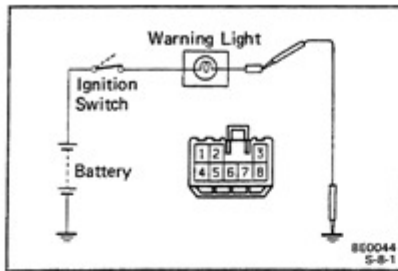


2. INSPECT COURTESY SWITCH

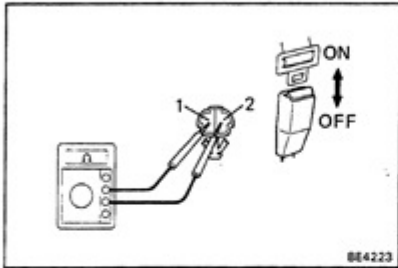
at Check that there is continuity between terminal and the switch body with the ON (switch pin released/opened door).
V Check that there is no continuity between terminal and the switch body with the OFF (switch pin pushed in/closed door).

If operation is not as specified, replace the switch.

Seat Belt Warning System
(Wiring Diagram)

**1. INSPECT WARNING LIGHT**

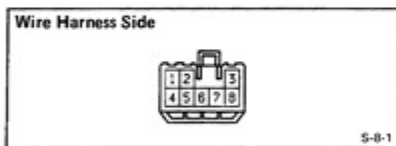
- Disconnect the connector from the seat belt warning relay.
 - Ground terminal 2 on the wire harness side connector.
 - Turn the ignition switch ON, check that the warning light lights up.
- If the warning light does not light, test the bulb.

**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)

(Courtesy Switch)See page [BE-40](#).**(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.



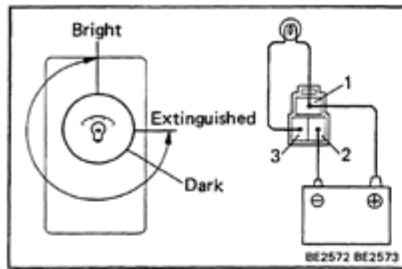
Check for	Tester connection	Condition		Specified value
Voltage	5 - Ground	Ignition switch position	ON	Battery voltage
			LOCK or ACC	No voltage
	1 - Ground	Constant		Battery voltage
Continuity	3 - Ground	Driver's door	Open	Continuity
			Close	No continuity
	4 - Ground	Driver's seat belt	Fasten	Continuity
			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-41](#) wiring diagram and inspect the circuits connected to other parts.

BE-42

BODY ELECTRICAL - Combination Meter



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.

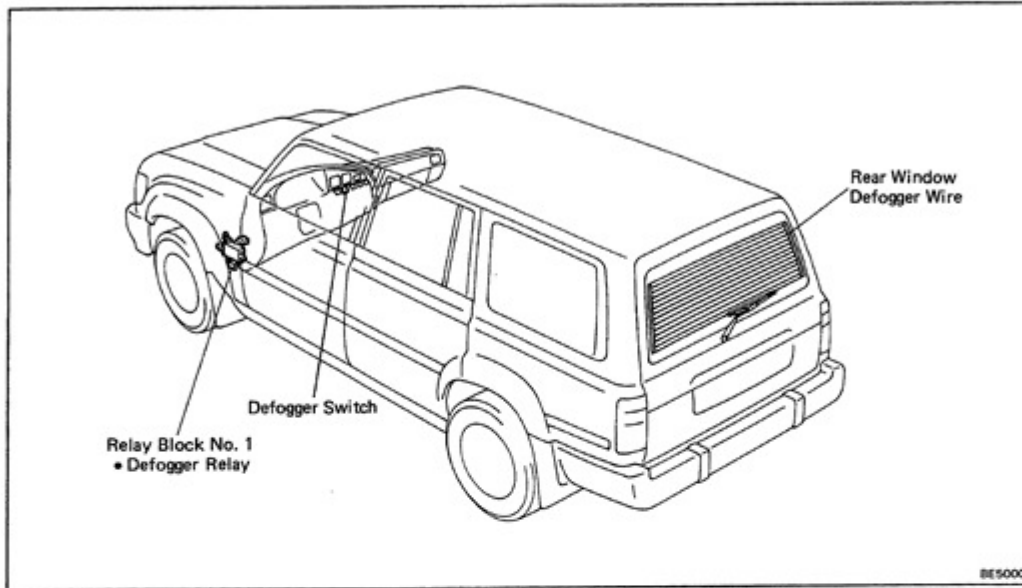
If operation is not as specified, replace the rheostat.

HINT: Illumination lights with adjustable brightness.

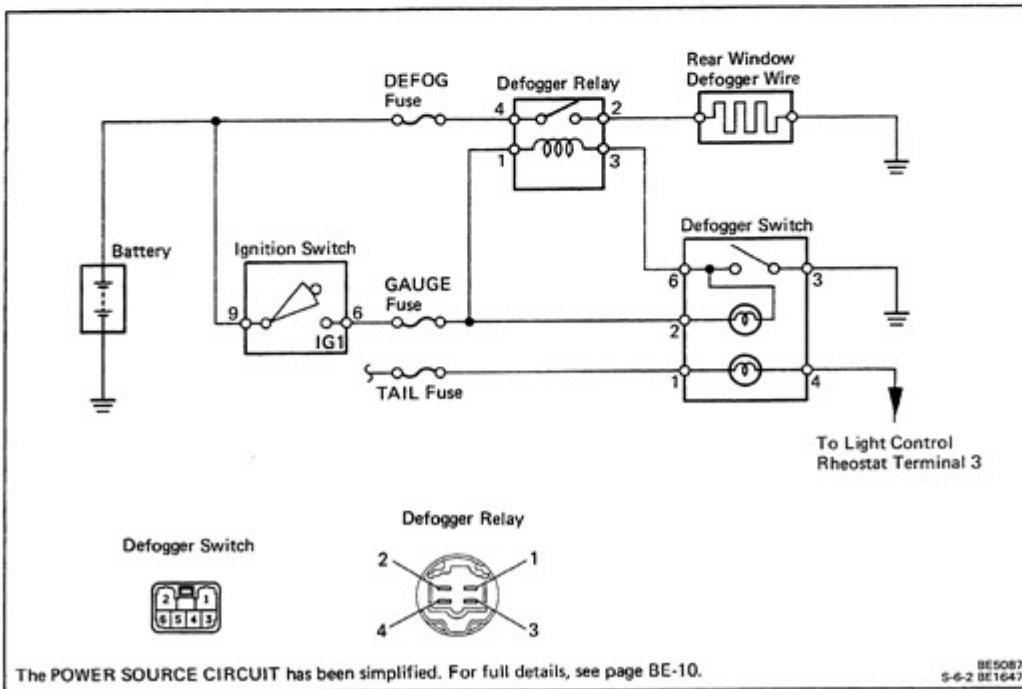
- Cigarette Lighter
- Ash Receptacle
- Antenna Switch
- Defogger Switch
- Headlight Cleaner Switch
- Audio
- A/C Control Assembly
- Center Diff. Lock Switch
- Hazard Warning Light Switch
- Shift Lever

DEFOGGER SYSTEM

Parts Location



Wiring and Connector Diagrams

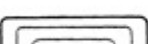





Troubleshooting

Problem	Possible cause	Remedy	Page
Rear window defogger system do not operate	DEFOG fuse blown GAUGE fuse blown Defogger switch faulty Defogger relay faulty Defogger wire broken Wiring or ground faulty	Replace fuse and check for short Replace fuse and check for short Check switch Check relay Check wires Repair as necessary	BE-4, 6 BE-4, 6 BE-44 BE-44 BE-44 BE-44

Parts Inspection

1. INSPECT DEFOGGER SWITCH (Continuity)

 ↑ ON		Terminal	2	3	6	Illumination	
		Switch position				1	4
		OFF					
ON							

BE4995 S-6-2

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

2. INSPECT DEFOGGER RELAY

See Power main relay on Page [BE-52](#).

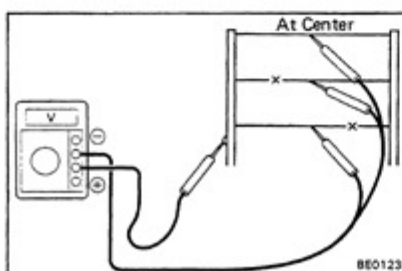
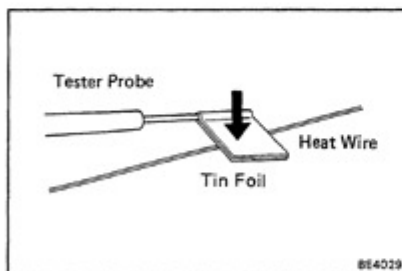
3. INSPECT DEFOGGER WIRES

NOTICE:

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

- Turn the ignition switch ON.
- Push in the defogger switch.
- Inspect the voltage at the center of each heat wire as shown.

Voltage	Criteria
approx. 5V	Okey (No break in wire)
approx. 10V or 0V	Broken wire

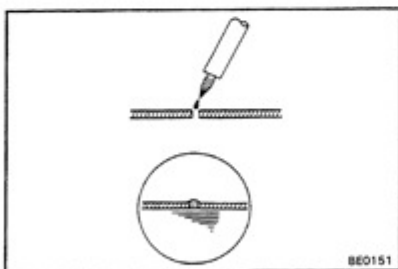
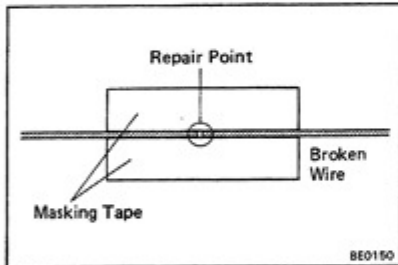
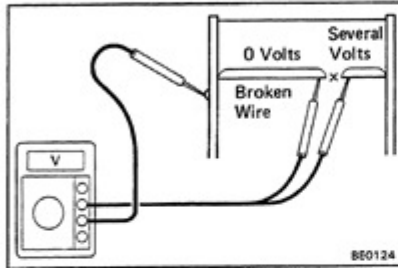


HINT: If there is 10V, the wire is broken between the center of the wire and positive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.

(Wire Breakage Point)

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

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

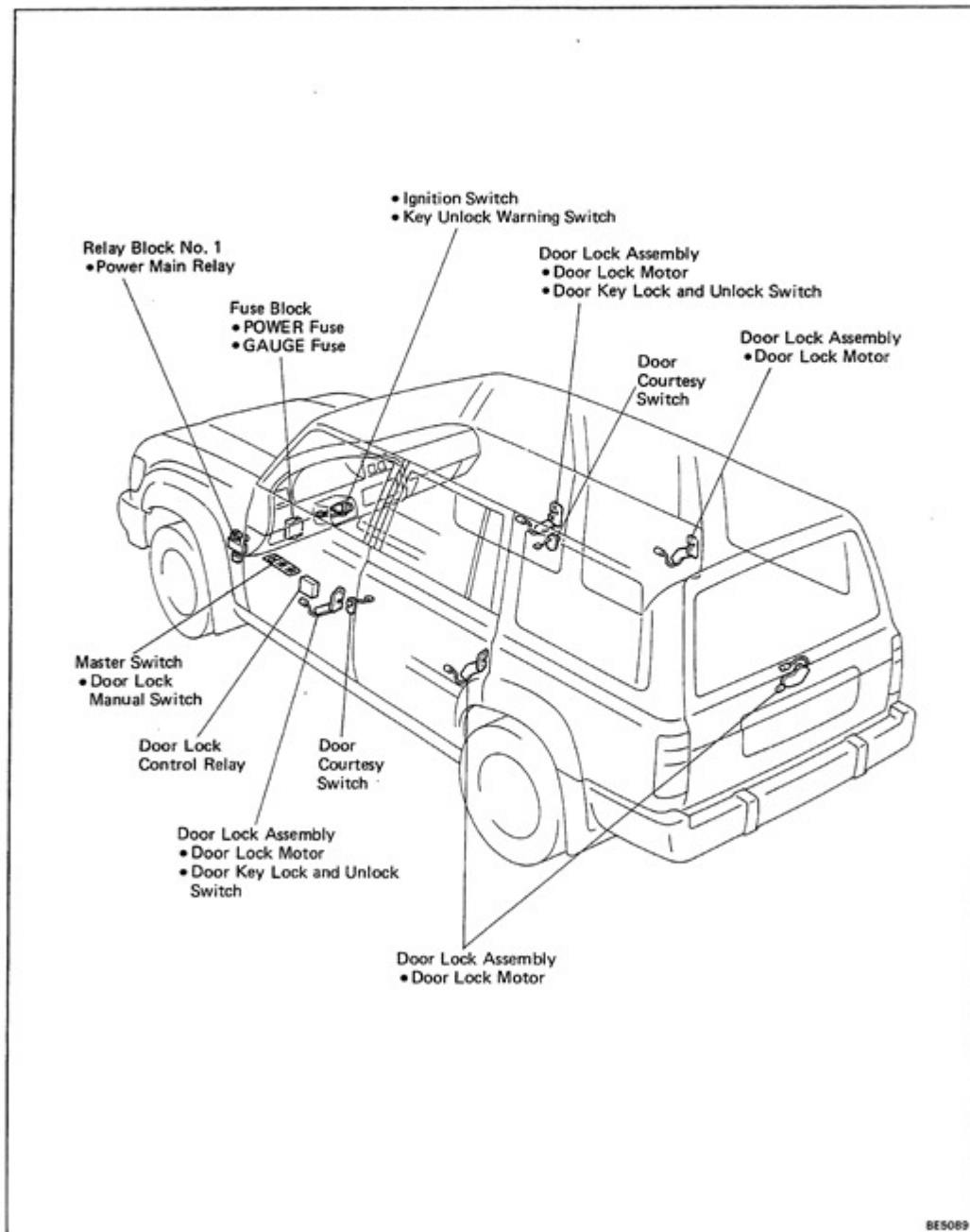


4. REPAIR DEFOGGER WIRES

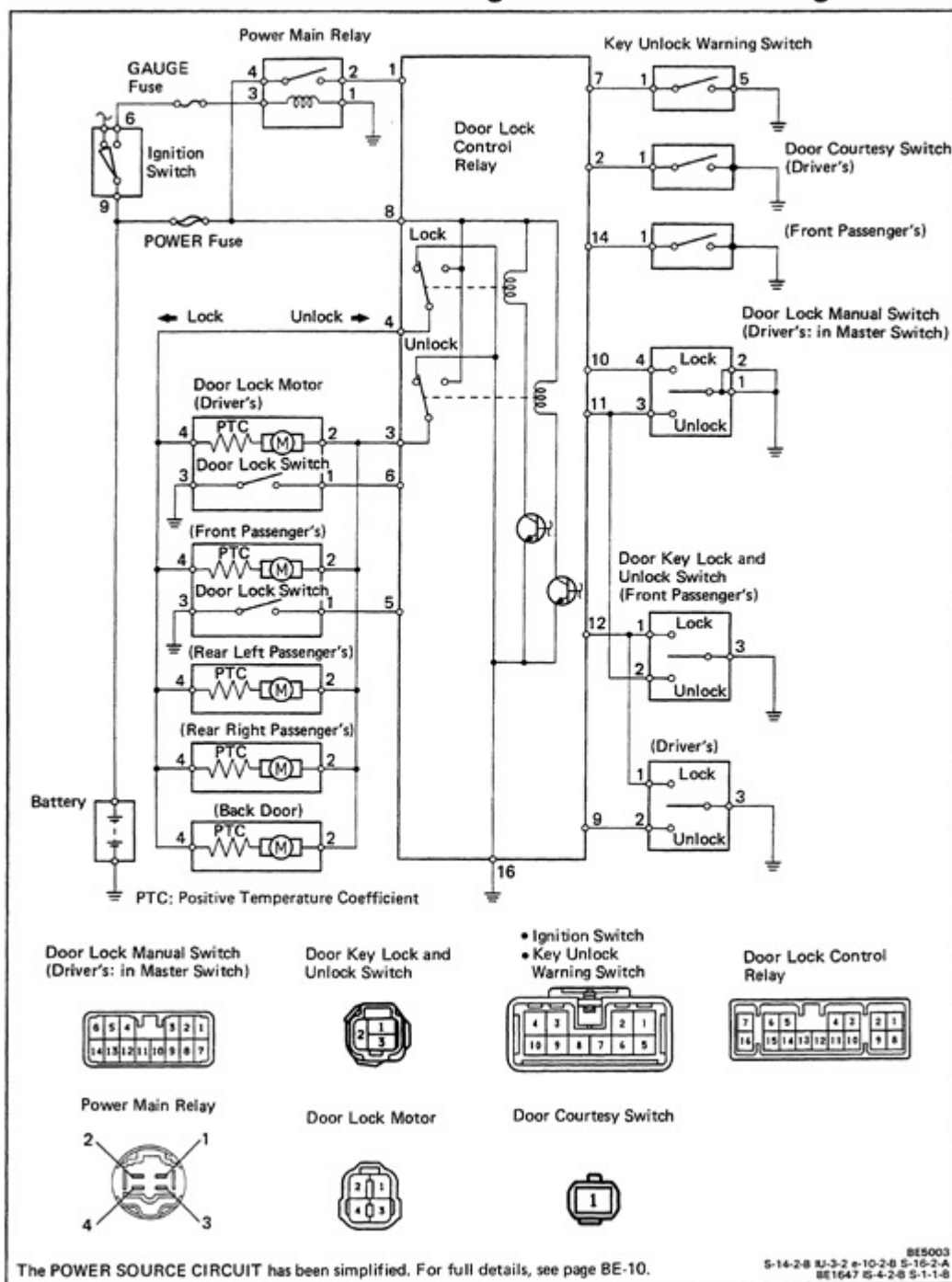
- (a) Clean the broken wire tips with a grease, wax and silicone remover.
- (b) Place the masking tape along both sides of the wire to be repaired.
- (c) Thoroughly mix the repair agent (Dupont paste No.4817 or equivalent).
- (d) Using a fine tip brush, apply a small amount to the wire.
- (e) After a few minutes, remove the masking tape.
- (f) Allow the repair to stand at least 24 hours.

POWER DOOR LOCK CONTROL SYSTEM

Parts Location



Wiring and Connector Diagrams



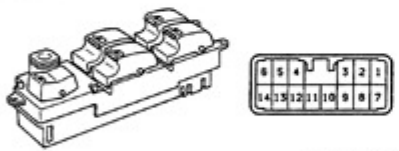
Troubleshooting

Problem	Possible cause	Remedy	Page
Door lock system does not operate at all	POWER fuse blown Door lock motor faulty Door lock control relay faulty Wiring or ground faulty Power main relay fault	Replace fuse and check for short Check motor Check relay Repair as necessary Check relay	BE-4, 6 BE-56 BE-58 BE-57
Door lock system does not operate by manual switch	Door lock manual switch faulty Door lock control relay faulty Wiring faulty	Check switch Check relay Repair as necessary	BE-55 BE-58
Door lock system does not operate by door key	Door key lock and unlock switch faulty Door lock control relay faulty Wiring faulty Door lock link disconnected	Check switch Check relay Repair as necessary Connect link	BE-55 BE-58
Fault in key confine prevention operation	Door lock control relay faulty Key unlock warning switch faulty Door courtesy switch faulty Wiring faulty	Check relay Check switch Check switch Repair as necessary	BE-58 BE-55 BE-55

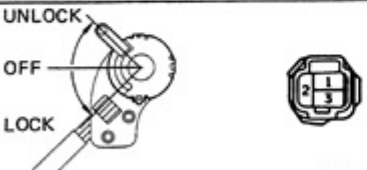
Parts Inspection

1. INSPECT SWITCHES

(Master Switch: Driver's Door Lock Manual Switch/
Continuity)

 BE2594 S-14-2-B	Terminal Switch position	1 and 2	3	4
	LOCK	○		○
	OFF			
	UNLOCK	○	○	

(Door Key Lock and Unlock Switch/Continuity)

 BE2596 RJ-3-2	Terminal Switch position	1	2	3
	LOCK	○		○
	OFF			
	UNLOCK		○	○

If continuity is not as specified, replace the switch.

HINT: Door key lock and unlock switch is built into the front door lock assembly.

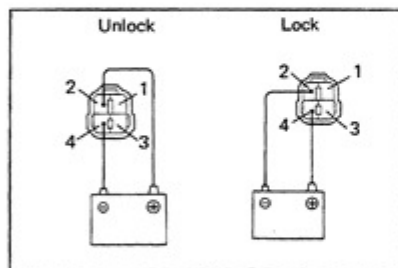
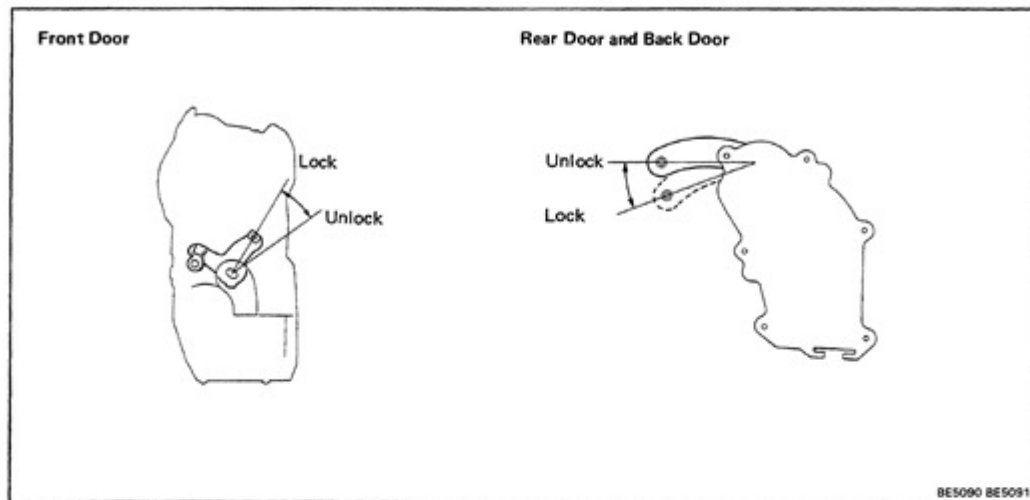
(Key Unlock Warning Switch/Continuity)

See Step 1 of Key Confine Prevention System on page [BE-12](#).

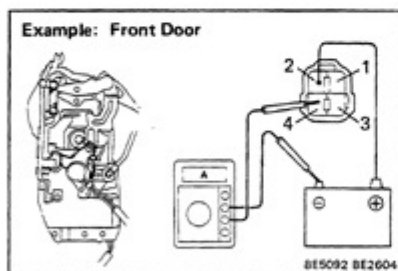
(Door Courtesy Switch/Continuity)

See Step 2 of Open Door Warning System on page [BE-40](#).

2. INSPECT DOOR LOCK MOTOR (Motor Operation)



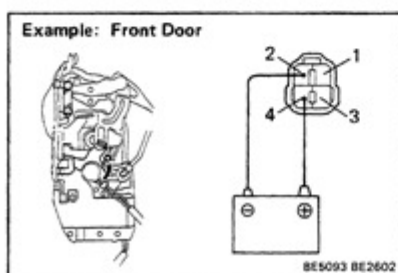
- Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 4, check that the door lock link moves to UN-LOCK position.
 - Remove the polarity, check that the door lock link move to LOCK position.
- If operation is not as specified, replace the door lock assembly.



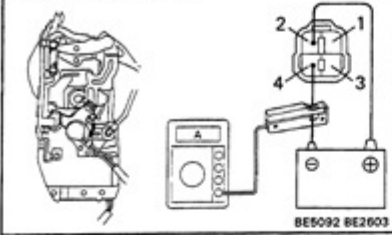
(PTC Thermistor Operation)

Inspection using an ammeter.

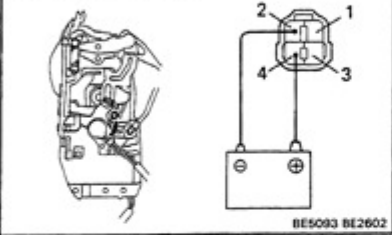
- Connect the positive (+) lead from the battery to terminal 2.
- Connect the positive (+) lead from the ammeter to terminal 4 and the negative (-) lead to battery negative (-) terminal, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere with 20 to 70 seconds.



- Disconnect the leads from terminals.
 - Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 4 and the negative (-) lead to terminal 2 check that the door lock moves to LOCK position.
- If operation is not as specified, replace the door lock assembly.

Example: Front Door**Inspection using an ammeter with a current-measuring probe.**

- Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 4.
- Attach a current-measuring probe to either the positive (+) lead or the negative (-) lead, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere within 20 to 70 seconds.

Example: Front Door

- Disconnect the leads from terminals.
- Approximately 60 seconds later, reverse the polarity, check that the door lock moves to LOCK position.

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

(Door Lock Switch /Continuity)

Terminal		1	3
Switch position			
OFF (Door lock set to LOCK)			
ON (Door lock set to UNLOCK)		○ — ○	

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

3. INSPECT POWER MAIN RELAY

See power main relay on page [BE-52](#).

BE-58

BODY ELECTRICAL - Power Door Lock Control System

Wire Harness Side



S-16-1-A

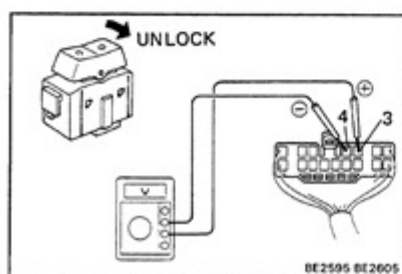
4. INSPECT DOOR LOCK CONTROL RELAY (Relay Circuit)

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

Check for	Tester connection	Condition	Specified value
Continuity	2-Ground	Driver's door courtesy switch position	OFF (Door closed) ON (Door opened)
			No continuity Continuity
	5-Ground	Passenger's door lock switch position	OFF (Door locked) ON (Door unlocked)
			No continuity Continuity
	6-Ground	Driver's door lock switch position	OFF (Door locked) ON (Door unlocked)
			No continuity Continuity
	7-Ground	Key unlock warning switch position	OFF (ignition key removed) 4N (ignition key set)
			No continuity Continuity
	9-Ground	Door key lock and unlock switch position	OFF or Lock (Door key free or turned to lock) Unlock (Door key turned to unlock)
			No continuity Continuity
	10-Ground	Door lock manual switch position	OFF or Unlock Lock
			No continuity Continuity
Voltage	11 -Ground	Door lock manual switch position	OFF or Lock Unlock
			No continuity Continuity
	12-Ground	Door key lock and unlock switch position	OFF or Unlock (Door key free or turned to unlock) Lock (Door key turned to lock)
			No continuity Continuity
	14-Ground	Passenger's door courtesy switch position	OFF (Door closed) ON (Door opened)
			No continuity Continuity
	16-Ground	Constant	
			Continuity
Voltage	1 -Ground	Ignition switch position	LOCK ACC or ON
			No voltage Battery voltage
	8-Ground	Constant	Battery voltage

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

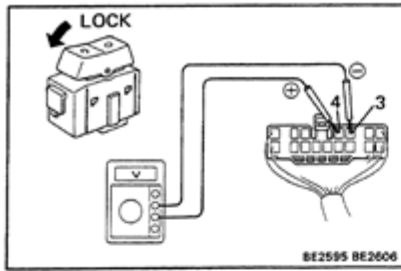
If the circuit is not as specified, refer to [BE-54](#) wiring diagram and inspect the circuits connected to other parts.



(Door Lock Signal)

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

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



- (d) Reverse the polarity of the voltmeter leads.
 - (e) Set the door lock manual switch to LOCK, check that the voltage rises from 0 volts to battery voltage for approximately 0.2 seconds.
- If operation is not as specified, replace the relay.