BE1H6–01

INSPECTION

1. INSPECT SPEEDOMETER ON VEHICLE

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.
If error is excessive, replace the speedometer.

Europe (km/h)

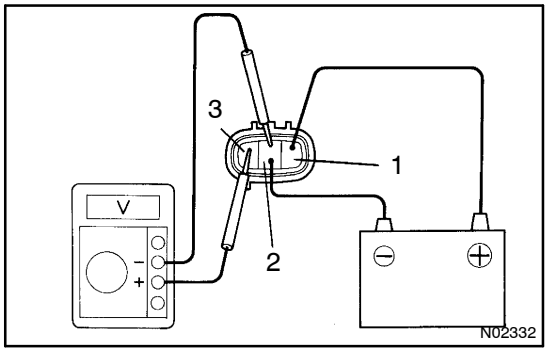
standard indication	Allowable range
20	17 – 24
40	38 – 46
60	57.5 – 67
80	77 – 88
100	96 – 109
120	115 – 130
140	134 – 151.5
160	153 – 173

Europe (mPh)

standard indication	Allowable range
20	18 – 24
40	38 – 44
60	58 – 66
80	78 – 88
100	98 – 110
120	118 – 132

Australia (km/h)

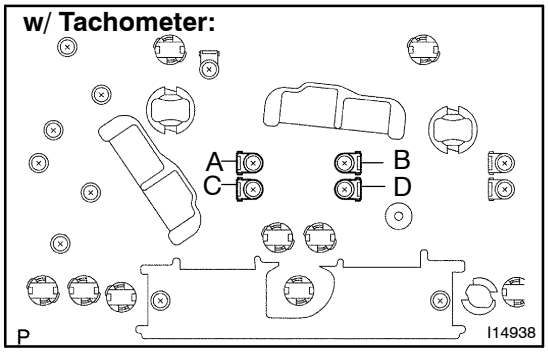
standard indication	Allowable range
40	36 – 44
60	54 – 66
80	72 – 88
100	90 – 100
120	108 – 132
140	126 – 154
160	144 – 176

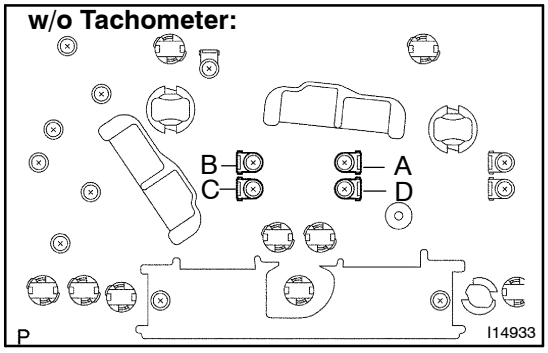


2. INSPECT VEHICLE SPEED SENSOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2.
(b) Connect the positive (+) lead from the tester to terminal 3 and the negative (–) lead to terminal 2.
(c) Rotate the shaft.
(d) Check that there is voltage change from approx. 0 V to 11 V or more between terminals 2 and 3.

HINT:
The voltage change should be performed 4 times for every revolution of the speed sensor shaft.
If operation is not as specified, replace the sensor.





3. INSPECT SPEEDOMETER RESISTANCE

Measure the resistance between terminals while fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A – D	160
B – C	160

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

4. INSPECT TACHOMETER ON–VEHICLE

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

NOTICE:

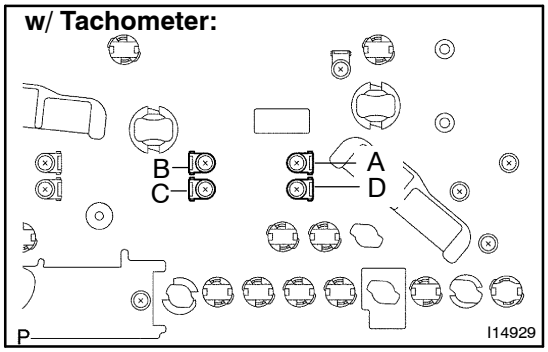
Reversing the connecting of the tachometer will damage the transistors and diodes inside.

(b) Compare the tester and tachometer indications.

If an error is excessive, replace the tachometer.

DC 13.5 V, 25˚C (77˚F)

Standard indication (rpm)	Allowable range (rpm)
700	630 – 770
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
6,000	5,820 – 6,180
7,000	6,790 – 7,210

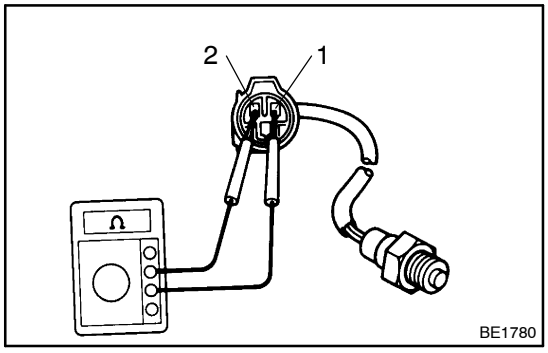


5. INSPECT TACHOMETER RESISTANCE

Measure the resistance between terminals with fixing pointer to the stopper.

Tester connection	Resistance (Ω)
A – D	160
B – C	160

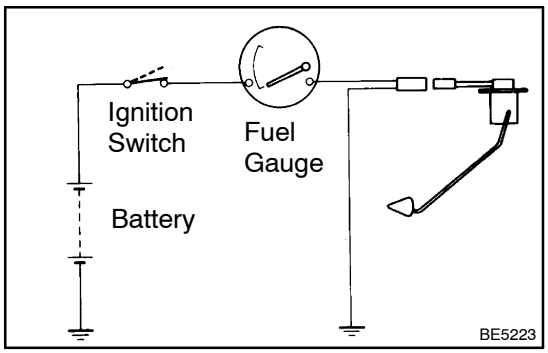
If resistance value is not as specified, replace the meter.



6. Diesel Engine :
INSPECT PICK–UP SENSOR

Measure the resistance between terminals 1 and 2.

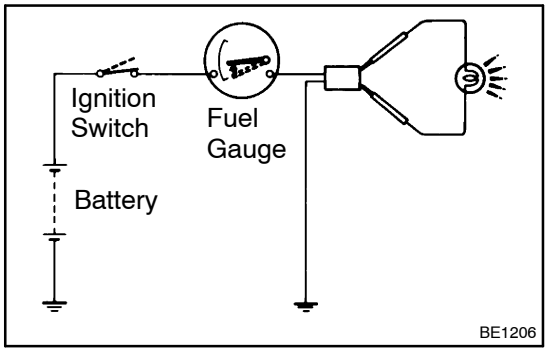
Resistance: Approx. 730Ω



7. Main Fuel Gauge:
INSPECT FUEL RECEIVER GAUGE OPERATION

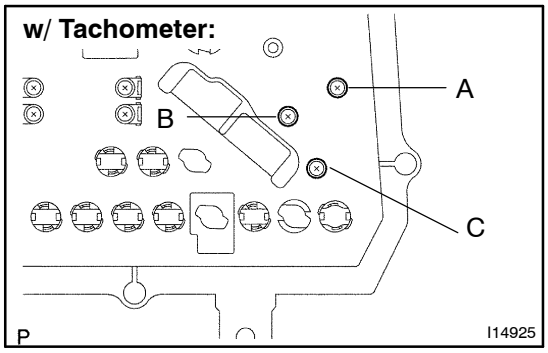
(a) Disconnect the connector from the sender gauge assembly.

(b) Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.



(c) Connect terminals 1 and 3 on the wire harness side connector through a 3.4–W test bulb.
(d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves toward the full side.

HINT:
Because of the silicon oil in the gauge, it will take a short time for the needle to stabilize.
If operation is not as specified, inspect the receiver gauge resistance.

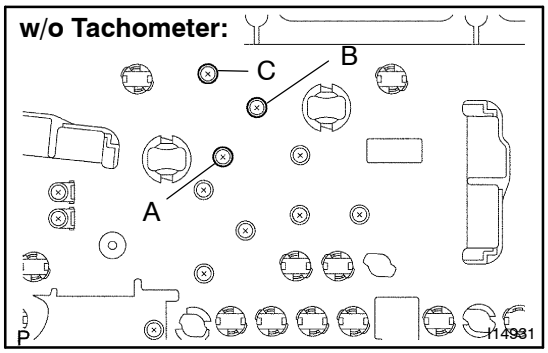


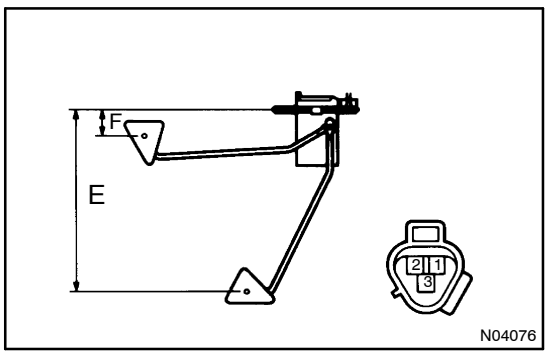
8. Main Fuel Gauge:
INSPECT FUEL RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals.

Between terminals	Resistance (Ω)
A – B	Approx. 124
A – C	Approx. 228
B – C	Approx. 103

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



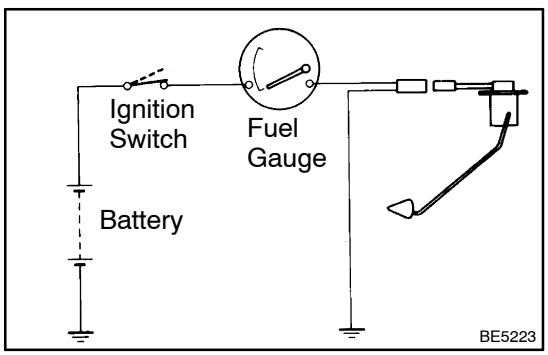


9. Main Fuel Gauge:
INSPECT FUEL SENDER GAUGE RESISTANCE

Measure the resistance between terminals 1 and 2 for each float position.

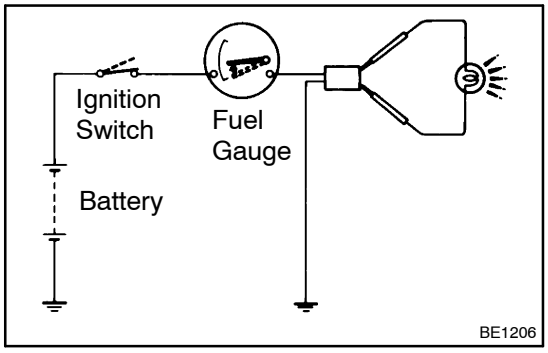
Float position mm (in.)	Resistance (Ω)
F: Approx. 41 (1.33)	Approx. 3.0
E:Approx. 306.3(12.06)	Approx. 110

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



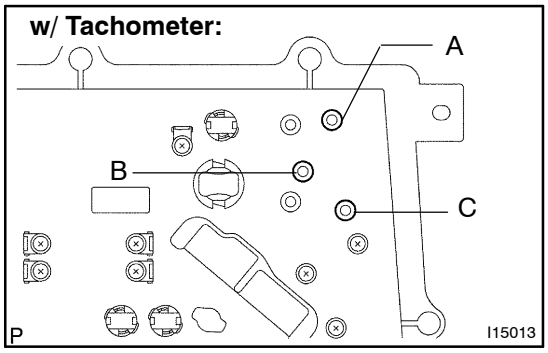
10. Sub Fuel Gauge:
INSPECT FUEL RECEIVER GAUGE OPERATION

(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 2 and 3 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 toward 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.

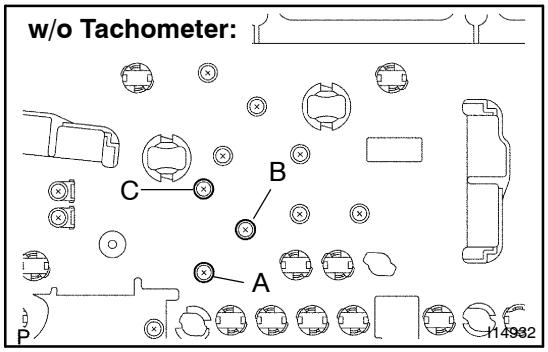


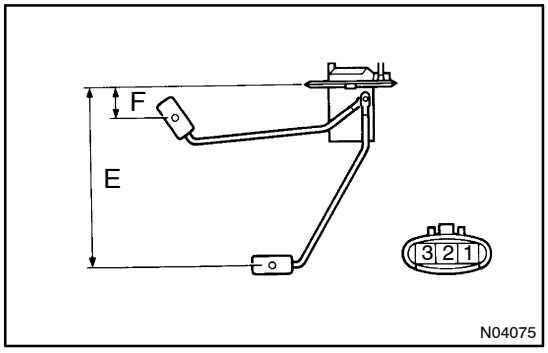
11. Sub Fuel Gauge:
INSPECT FUEL RECEIVER GAUGE RESISTANCE

Measure the resistance between terminals.

Between terminals	Resistance (Ω)
A – B	Approx. 124
A – C	Approx. 228
B – C	Approx. 103

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



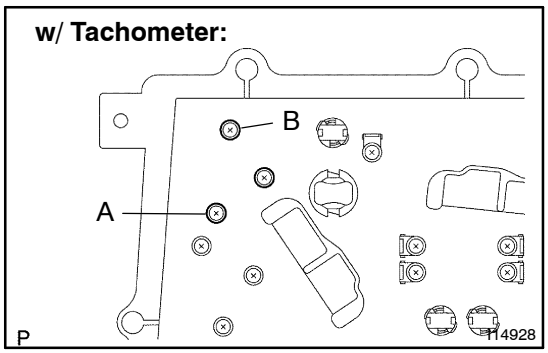


12. Sub Fuel Gauge:
INSPECT FUEL SENDER GAUGE RESISTANCE

Measure the resistance between terminals 1 and 2 for each float position.

Float position mm (in.)	Resistance (Ω)
F: Approx. 61.0 (2.402)	Approx. 3.0
E:Approx. 239.0 (9.401)	Approx. 110

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

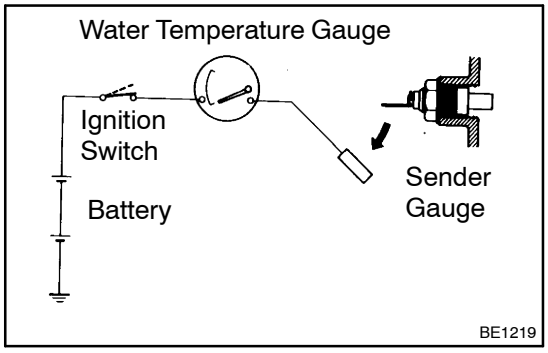


13. INSPECT VOLT GAUGE SYSTEM

Measure the resistance between terminals A and B.

Resistance: Approx. 295 Ω

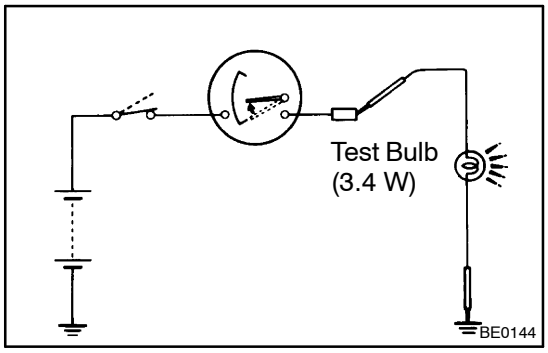
If resistance value is not as specified, replace the gauge.



14. INSPECT WATER TEMPERATURE 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.

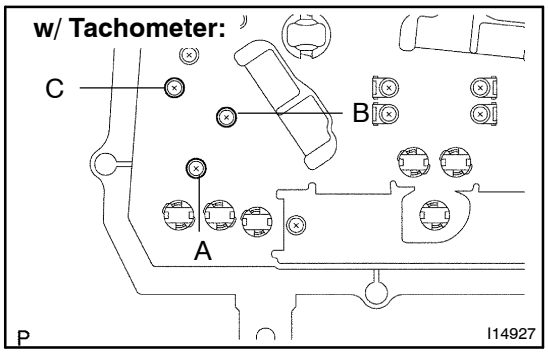


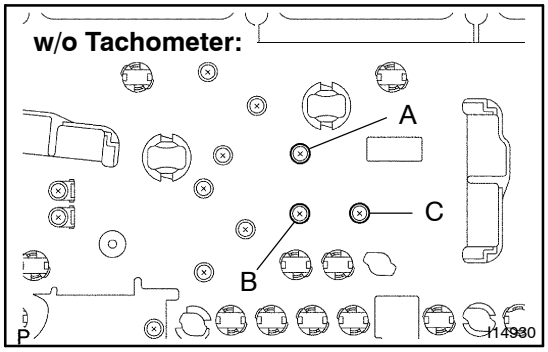
(c) Ground terminal on the wire harness side connector through a 3.4–W test bulb.

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

If operation is as specified, replace the sender gauge, them re-check the system.

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





15. INSPECT WATER TEMPERATURE RECEIVER GAUGE RESISTANCE

Measure the resistance between the terminals.

HINT:

Connect the test leads so that the current from the ohmmeter can flow according to the chart order.

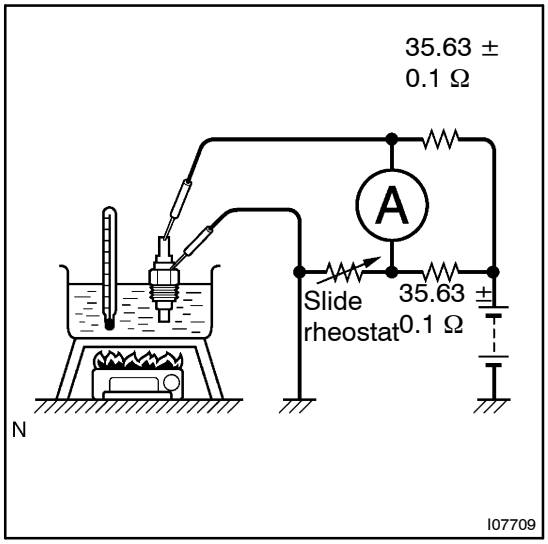
G.C.C. countries:

Between terminals	Resistance (Ω)
A – B	Approx. 90
A – C	Approx. 20.7
B – C	Approx. 267

Except G.C.C. countries:

Between terminals	Resistance (Ω)
A – B	Approx. 90
A – C	Approx. 175
B – C	Approx. 235

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

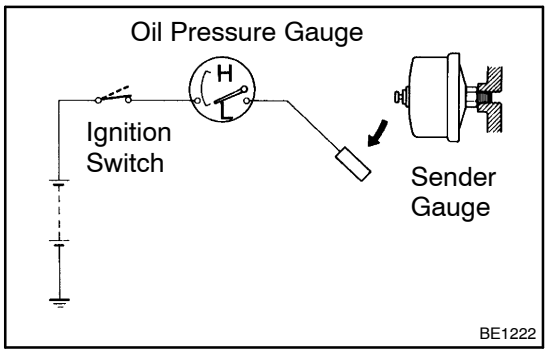


16. INSPECT WATER TEMPERATURE SENDER GAUGE RESISTANCE

Connect the wire harness as shown in the illustration, and adjust the ammeter pointer to indicate ”0” using the slide rheostat, then read the rheostat indication.

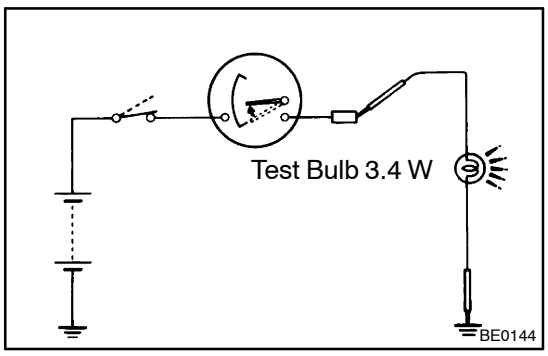
Temperature ˚C (˚F)	Resistance (Ω)
50 (122.0)	160 – 240
120 (248.0)	17.1 – 21.2

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



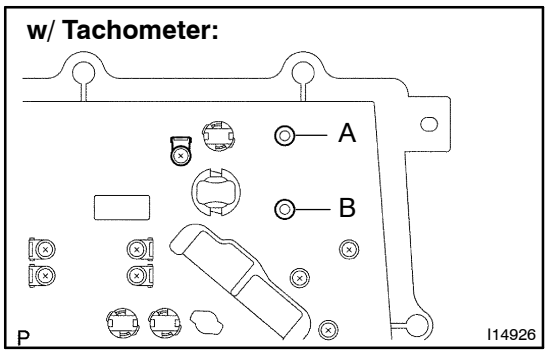
17. INSPECT OIL PRESSURE RECEIVER GAUGE

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



(c) Ground terminal on the wire harness side connector through a 3.4–W test bulb.
(d) Turn the receiver gauge needle moves toward the high (H) 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.

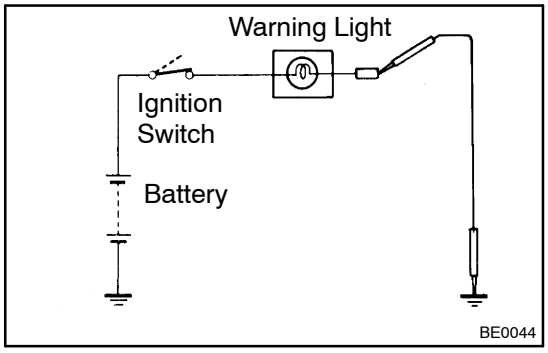


18. INSPECT OIL PRESSURE GAUGE RESISTANCE

Measure resistance between terminals A and B.

Between terminals	Resistance (Ω)
A – B	Approx. 44

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

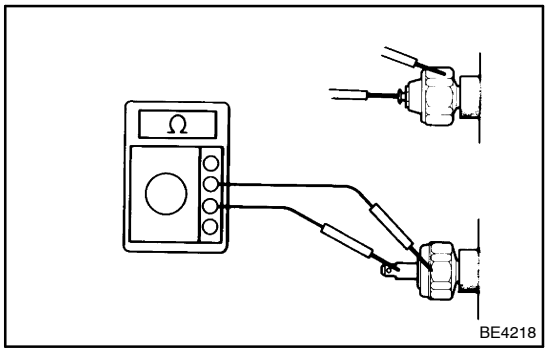


19. INSPECT LOW OIL PRESSURE WARNING LIGHT

(a) Disconnect the connector from the warning switch and ground terminal on the wire harness side connector.

(b) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light up, test the bulb or inspect wire harness.



20. INSPECT OIL PRESSURE SWITCH CONTINUITY

(a) Disconnect the connector from the switch.

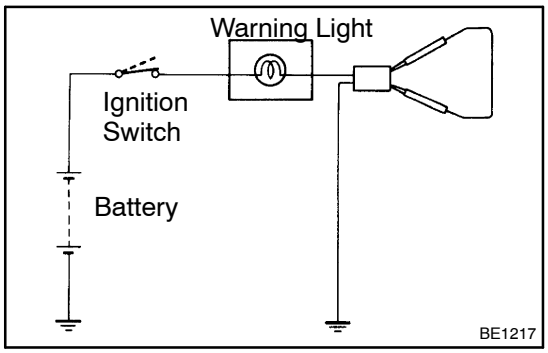
(b) Check that continuity exists between terminal and ground with the engine stopped.

(c) Check that no continuity exists between terminal and ground with the engine running.

HINT:

Oil pressure should be over 24.5 kPa (0.25 kgf/cm^2, 3.55 psi).

If operation is not as specified, replace the switch.



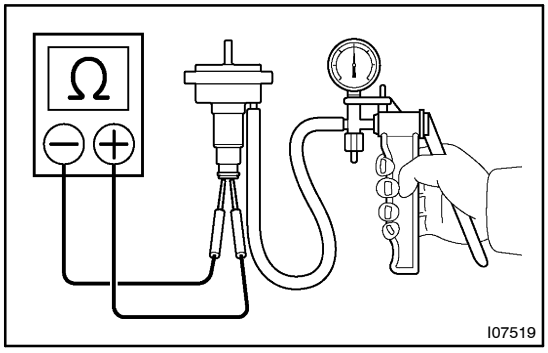
21. INSPECT BRAKE WARNING LIGHT

(a) Disconnect the connector from the brake fluid warning switch.

(b) Release the parking brake lever.

(c) Connect the terminals on the harness side of the level warning switch connector.

If warning light does not light up, test the bulb or wire harness.

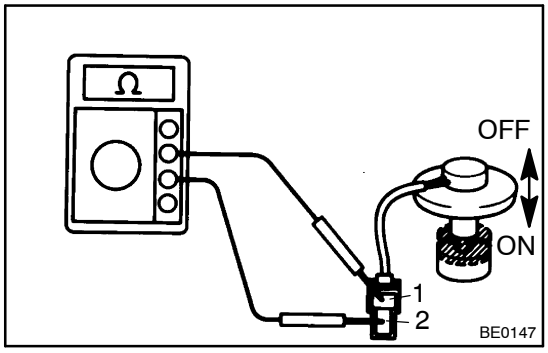


22. Diesel engine:
INSPECT VACUUM SENSOR OPERATION

(a) With a vacuum of 3.9 ±0.5 kPa (29.4 ± 3.7 mmHg, 1.157 ± 0.146 in.Hg) or above, check that there is continuity between terminals.

(b) Check that there is not continuity between terminals with no vacuum.

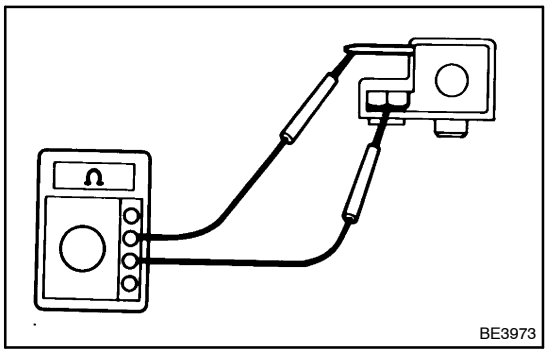
If operation is not as specified, replace the sensor.



23. INSPECT BRAKE FLUID LEVEL WARNING SWITCH CONTINUITY

(a) Remove the reservoir tank cap and strainer.
(b) Disconnect the connector.
(c) Check that no continuity exists between the terminals with the switch OFF (float up).
(d) Use siphon, etc. to take fluid out of the reservoir tank.
(e) Check that continuity exists between the terminals with the switch ON (float down)
(f) Pour the fluid back in the reservoir tank.

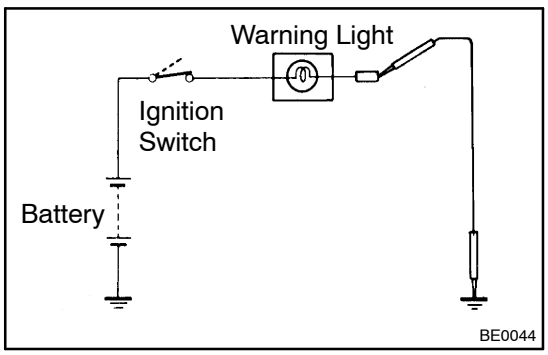
If operation is not as specified, replace switch.



24. INSPECT PARKING BRAKE SWITCH CONTINUITY

(a) Check that there is continuity terminals with the switch ON (switch pin released).
(b) Check that there is no continuity between terminals with the switch OFF (switch pin pushed in).

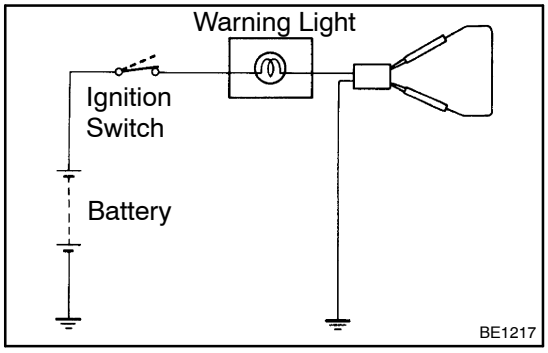
If operation is not as specified, replace the switch.



25. INSPECT OPEN DOOR WARNING LIGHT

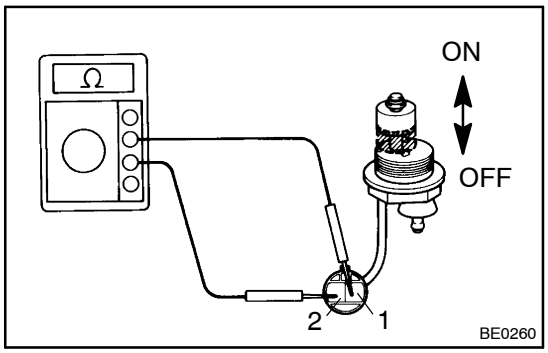
(a) Disconnect the connector from the door courtesy switch and ground terminal on the wire harness side connector.
(b) Turn the ignition switch ON, check that the warning light lights up.

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



26. Diesel Engine :
INSPECT FUEL SEDIMENTER WARNING LIGHT

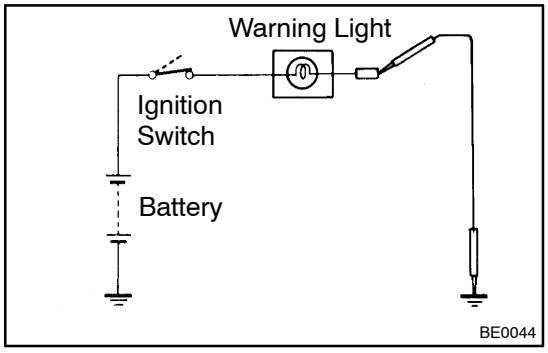
(a) Disconnect the connector from the warning switch and connect terminals on the wire harness side connector.
(b) Remove the CHARGE fuse and turn the ignition switch ON.
(c) Except europe:
Check that the warning light lights up and the warning buzzer sounds.
(d) Europe:
Check that the warning light lights up.



27. Diesel Engine :
INSPECT FUEL SEDIMENTER WARNING SWITCH

(a) Check that no continuity exists between terminals with the warning switch OFF (float down).
(b) Check that continuity exists between terminals with the warning switch ON (float up).

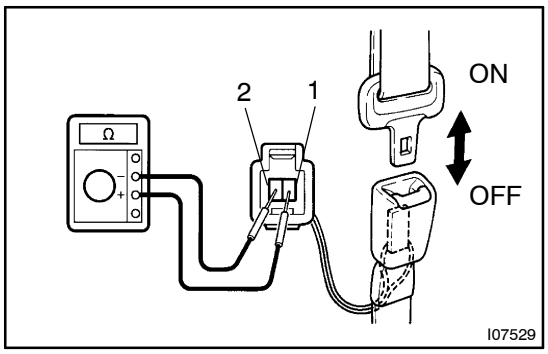
If operation is not as specified, replace the switch.



28. INSPECT SEAT BELT WARNING LIGHT

(a) Disconnect the connector from the seat belt warning relay connector.
(b) Ground terminal 2 on the wire harness side connector.
(c) Turn the ignition switch ON and check that the warning light blinking light up, inspect the bulb or wire harness.

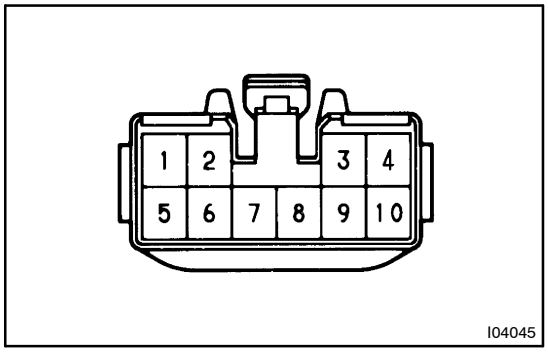
If the warning light does not blinking light upm, inspect the bulb or wire harness.



29. INSPECT SEAT BELT BUCKLE SWITCH CONTINUITY

(a) Check that no continuity exists between the terminals 1 and 2 on the switch side connector with the switch OFF (belt fastened).
(b) Check that continuity exists between the terminals 1 and 2 on the switch side connector with the switch ON (belt unfastened).

If operation is not as specified, replace the switch.

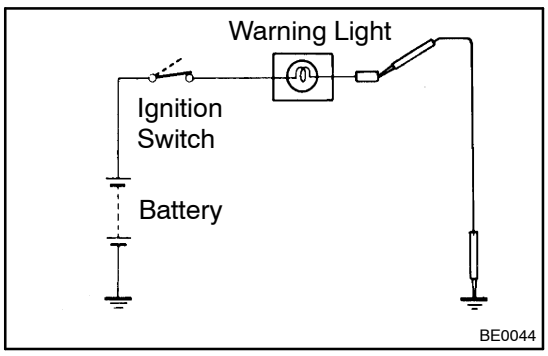


30. INSPECT SEAT BELT WARNING RELAY

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

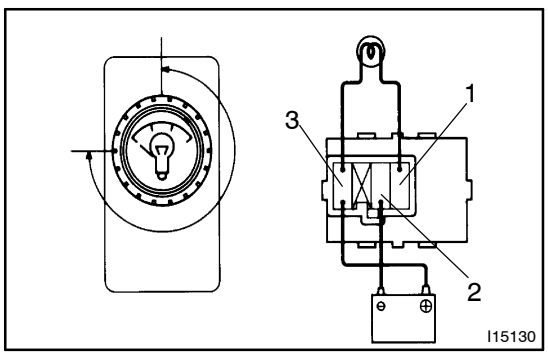
Tester connection	Condition	Specified condition
4 – Ground	Buckle switch OFF	No continuity
	Buckle Switch ON	Continuity
6 – Ground	Constant	Continuity
1 – Ground	Turn ignition switch LOCK or ACC	No voltage
	turn ignition switch ON	Battery voltage
2 – Ground	Turn ignition switch ON	Battery voltage
	Turn ignition switch LOCK or ACC	No voltage

If the circuit is not as specified, inspect the circuits connected to other parts.



31. INSPECT "FRONT DIFF LOCK, REAR DIFF LOCK" INDICATOR LIGHT

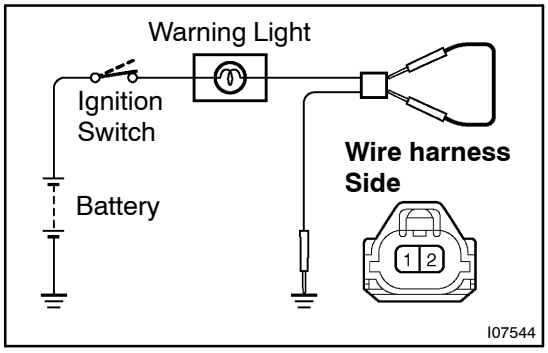
(a) Disconnect the connectors from the diff lock switch.
(b) "Front Diff Lock" indicator:
Ground terminal 4 on the wire harness side connector.
(c) "Rear Diff Lock" indicator:
Ground terminal 2 on the wire harness side connector.



32. INSPECT LIGHT CONTROL RHEOSTAT

(a) Connect terminals 1 and 3 through a 3.4 – W test bulb.
(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 2.
(c) Turn the rheostat knob to fully counterclockwise, check that the test bulb goes out.
(d) 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.



33. INSPECT AIR CLEANER WARNING LIGHT

(a) Disconnect the connector from the air filter warning switch. Connect the wire harness side connector terminals 1 and 2.

(b) Start the engine. Check that the bulb lights up.

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