

COMBINATION METER PARTS LOCATION

BE2WA-01

LHD models :

Combination Meter

● Meter Circuit

● Fuel Filter Warning Buzzer

● Speed Warning Chaim

Manual Switch (OK Monitor)

Seat Belt
Warning Relay

Relay Block

Parking Brake Switch

Vacuum Switch

Brake Fluid Level Warning Switch

RHD models :

Brake Fluid Level Warning Switch

Combination Switch

● Meter Circuit

● Fuel Filter Warning Buzzer

Manual Switch (OK Monitor)

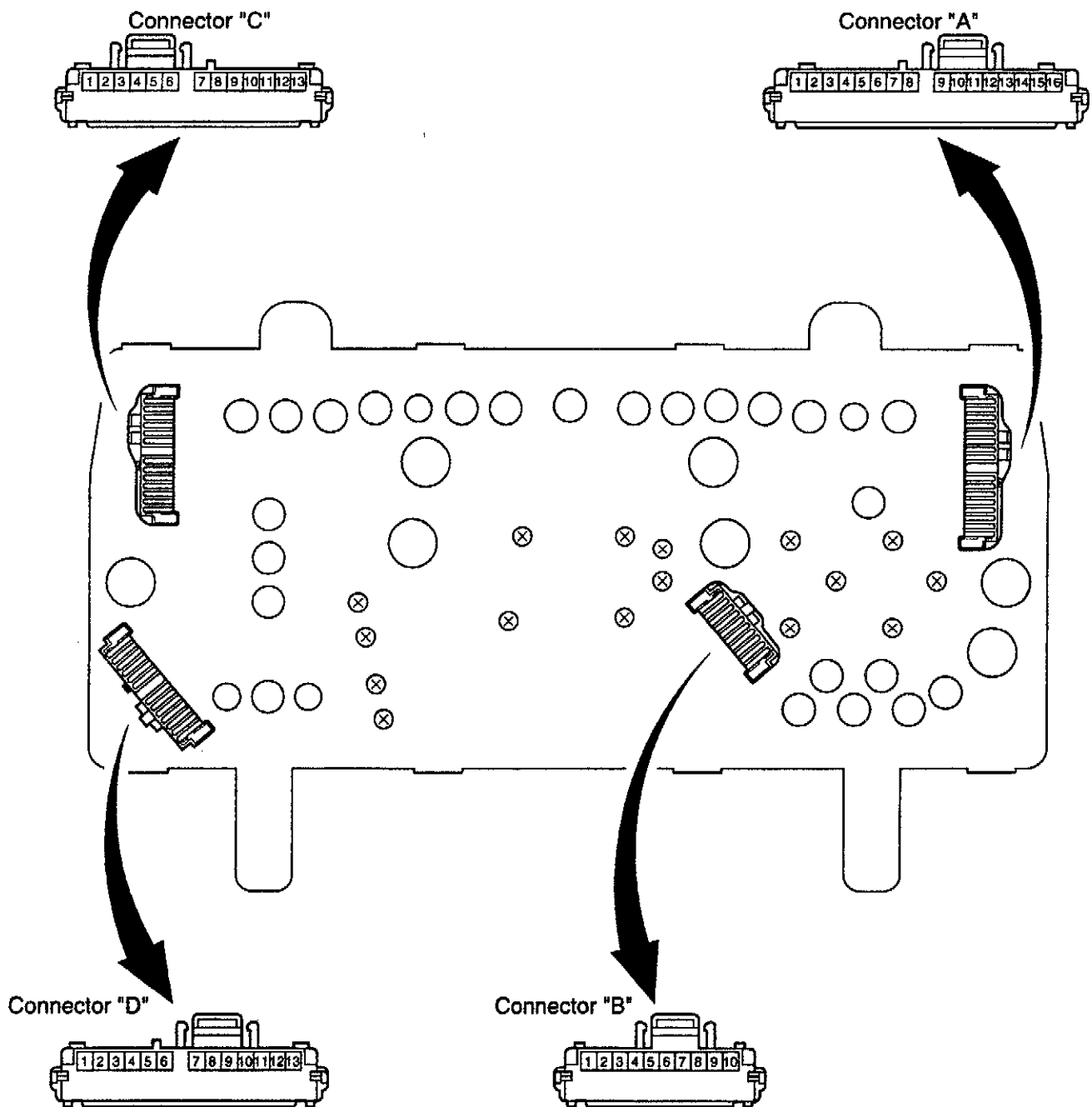
Light Control Rheostat

Vacuum Switch

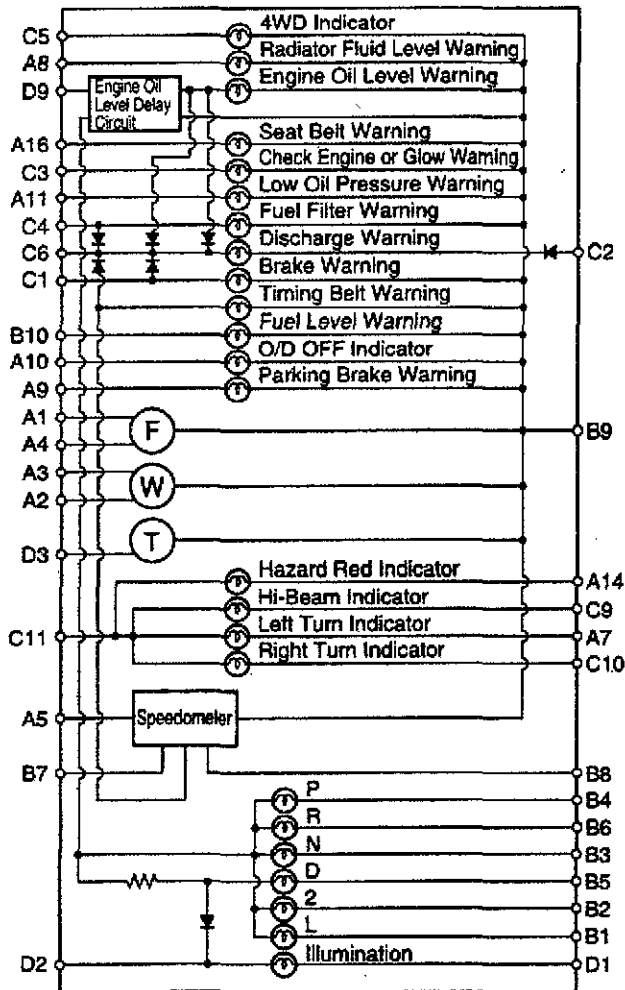
Relay Block

METER CIRCUIT

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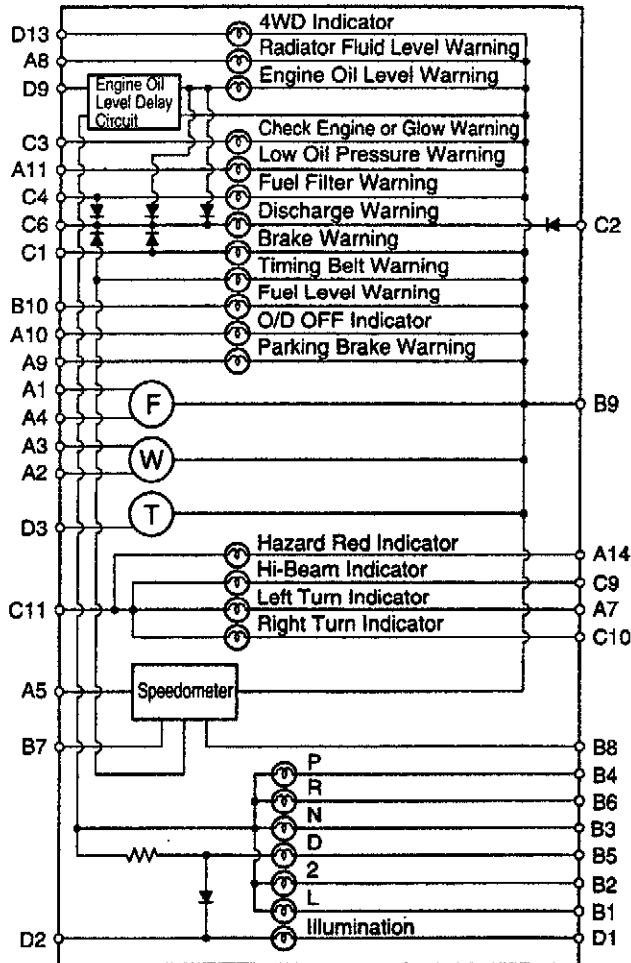
LHD models :



No.	Wiring Connector Side
A	1 Fuel Sender Gauge
	2 Water Temperature Sender Gauge
	3 Ground
	4 Ground
	5 Ground
	7 Turn Signal Switch (Left)
	8 Radiator Fluid Level Sensor
	9 Parking Brake Switch
	10 O/D OFF Switch
	11 Low Oil Pressure Warning Switch
	14 Hazard Warning Switch
	16 Seat Belt Warning Relay
B	1 Neutral Start Switch (L)
	2 Neutral Start Switch (2)
	3 Neutral Start Switch (N)
	4 Neutral Start Switch (P)
	5 Neutral Start Switch (D)
	6 Neutral Start Switch (R)
	7 Vehicle Speed Sensor
	8 ECM
	9 GAUGE Fuse
	10 Fuel Sender Gauge
C	1 Brake Fluid Level Warning Switch
	2 Ignition Switch
	3 Gasoline Engine : ECM Diesel Engine : Pre-Heating Timer
	4 Fuel Filter Warning Switch
	5 4WD Switch
	6 Choke
	9 Headlight Dimmer Switch
	10 Turn Signal Switch (Right)
	11 Ground
D	1 TAIL Fuse
	2 Ground
	3 Gasoline Engine : Igniter Diesel Engine : Tacho Pick-Up Sensor
	9 Engine Oil Level Switch

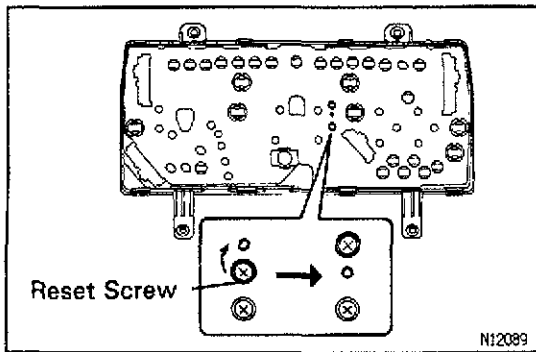
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RHD models :



(F) : Fuel Receive Gauge
 (W) : Water Temperature Receiver Gauge
 (T) : Tachometer

No.	Wiring Connector Side
A	1 Fuel Sender Gauge
	2 Water Temperature Sender Gauge
	3 Ground
	4 Ground
	5 Ground
	7 Turn Signal Switch (Left)
	8 Radiator Fluid Level Sensor
	9 Parking Brake Switch
	10 O/D OFF Switch
	11 Low Oil Pressure Warning Switch
	14 Hazard Warning Switch
B	1 Neutral Start Switch (L)
	2 Neutral Start Switch (2)
	3 Neutral Start Switch (N)
	4 Neutral Start Switch (P)
	5 Neutral Start Switch (D)
	6 Neutral Start Switch (R)
	7 Vehicle Speed Sensor
	8 ECM
	9 GAUGE Fuse
	10 Fuel Sender Gauge
C	1 Brake Fluid Level Warning Switch
	2 Ignition Switch
	3 Gasoline Engine : ECM Diesel Engine : Pre-Heating Timer
	4 Fuel Filter Warning Switch
	6 Choke
	9 Headlight Dimmer Switch
	10 Turn Signal Switch (Right)
	11 Ground
D	1 TAIL Fuse
	2 Ground
	3 Gasoline Engine : Igniter Diesel Engine : Tacho Pick-Up Sensor
	9 Engine Oil Level Switch
	13 4WD Switch

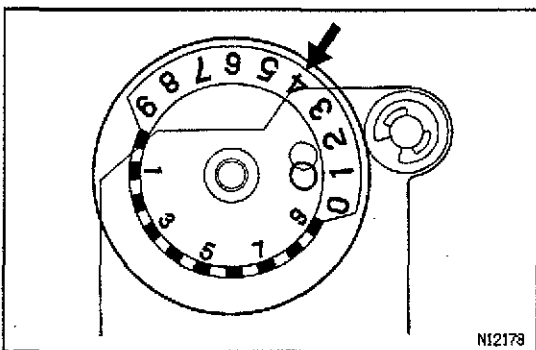


T-BELT WARNING RESETTING

RESET CANCEL SWITCH

- The T-BELT warning light lights up when the vehicle has run 100,000 km or 60,000 miles. When the belt has been replaced, remove the reset screw from the lower position at the rear of the meter and install it in the upper position.
- After the engine starts, check that the warning light does not light up.

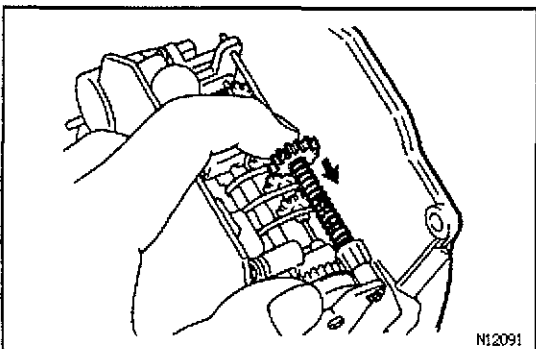
HINT: When the warning light lights up after 200,000 km or 120,000 miles, remove the screw from the upper position and install the reset screw back at the lower position.

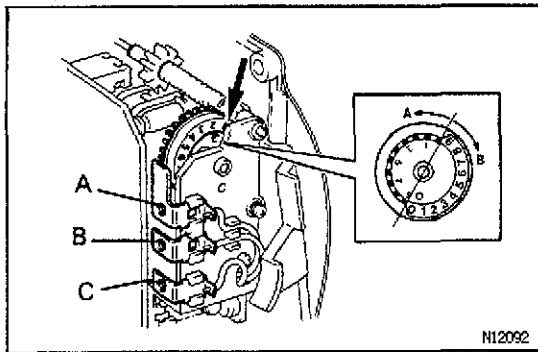


T-BELT WARNING MICROSWITCH INSPECTION

INSPECT T-BELT WARNING MICROSWITCH

- Remove the combination meter assembly, then remove the speedometer.
- Read the number indicated by the T-BELT microswitch. In the example in the illustration, the microswitch reading is "4".
- Disengage the gear on top of the odometer.





- (d) Check the continuity between terminals when the cam for the microswitch is rotated.

When the arrow in the illustration indicates the A side:

B ↔ C: No continuity

A ↔ C: Continuity

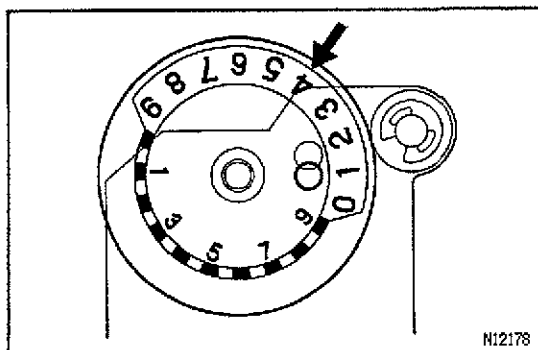
When the arrow in the illustration indicates the B side:

B ↔ C: Continuity

A ↔ C: No continuity

- (e) Disengage the gear on top of the odometer, reset the T-BELT warning microswitch to the reading in (b) above, then engage the gear.

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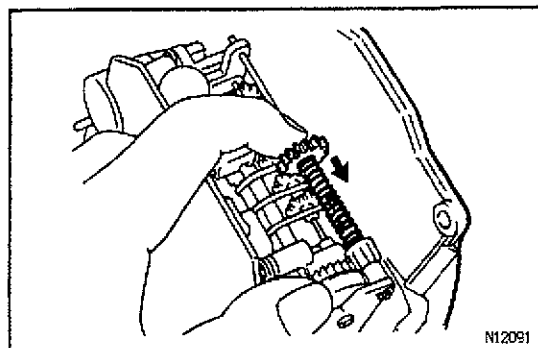


T-BELT WARNING ADJUSTMENT

BE2WE-01

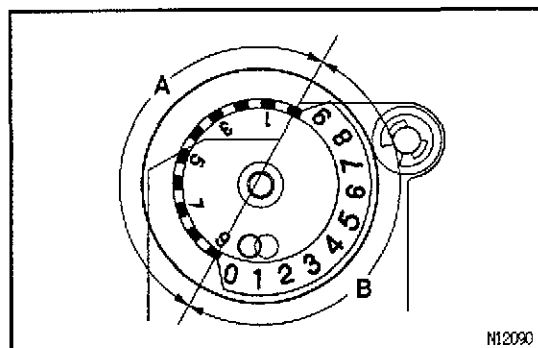
1. IF REPLACING SPEEDOMETER

- (a) Remove the combination meter assembly, then remove the speedometer.
- (b) Read the number indicated by the T-BELT microswitch in the speedometer.



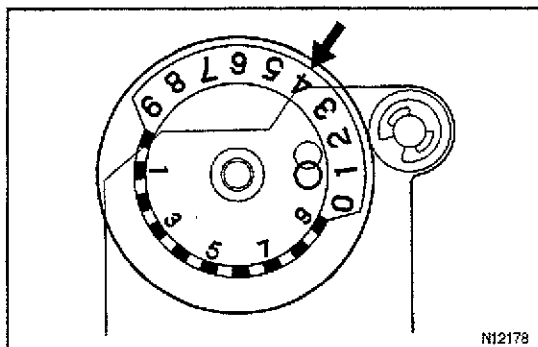
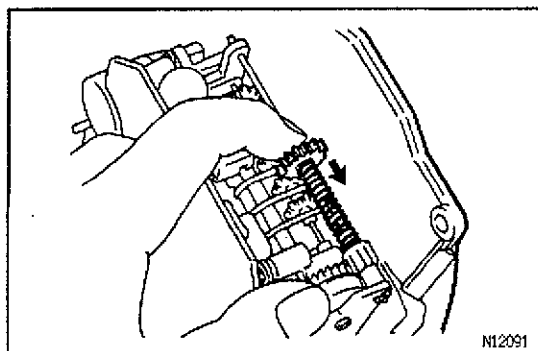
- (c) Disengage the gear on top of the odometer, reset the T-BELT microswitch to the reading in (b) above, then engage the gear.

Reference: When the number indicated by the arrow in the illustration reads "0", the microswitch changes over to the next unit.



- (d) Install the speedometer in the combination meter and install the combination meter in the vehicle.

NOTE: When the arrow in the illustration indicates the A side, install the reset screw at the lower position. For the B side, install the reset screw at the upper position.



2. IF REPLACING TIMING BELT BEFORE WARNING LIGHT LIGHTS UP

- Remove the combination meter assembly, then remove the speedometer.
- Disengage the gear on top of the odometer, and adjust the cam location as shown in the illustration.
- Install the speedometer in the combination meter and install the combination meter in the vehicle.
- After the engine starts, check that the warning light does not light up.

SPEEDOMETER INSPECTION

BE090-01

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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.

- Check the speedometer for pointer vibration and abnormal noise.

If error is excessive, replace the speedometer.
(mph)

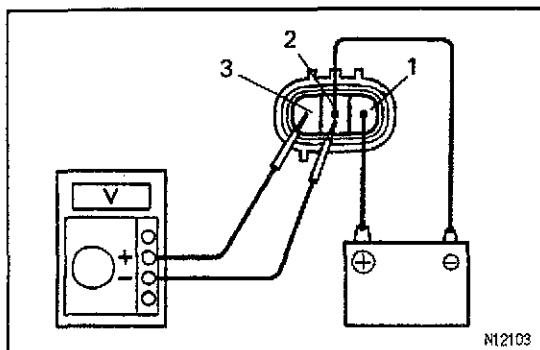
Standard indication	Allowable range
20	18 - 24
40	38 - 44
60	58 - 66
80	78 - 88
100	98 - 110
120	118 - 132

(km/h)

Standard indication	Allowable range
20	17 – 27
40	38 – 46 (36 – 44)
60	57.5 – 67 (54 – 66)
80	77 – 88 (72 – 88)
100	96 – 109 (90 – 110)
120	115 – 130 (108 – 132)
140	134 – 151.5 (126 – 154)
160	153 – 173 (144 – 176)

(): Australia models

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VEHICLE SPEED SENSOR INSPECTION

BE1DP-0E

INSPECT SENSOR OPERATION

- Connect the positive (+) lead from battery to terminal 1 and negative (–) lead to terminal 2.
 - Connect the positive (+) lead from tester to terminal 3 and negative (–) lead to terminal 2.
 - Rotate shaft.
 - Check that there is a voltage change from approx. 0 V to 11 V or more between terminals 2 and 3.
- HINT:** The voltage change should be 4 times for every revolution of the speed sensor shaft.
- If operation is not as specified, replace the sensor.

TACHOMETER INSPECTION

1. INSPECT TACHOMETER
ON—VEHICLE

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

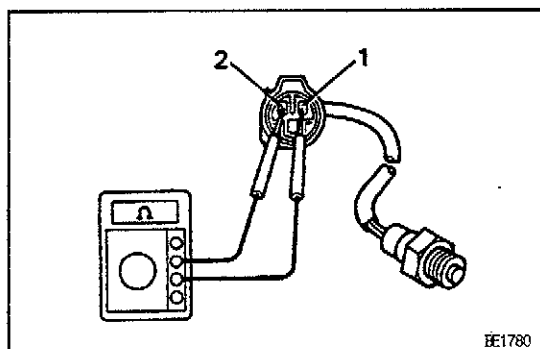
NOTICE: Reversing the connection of the tachometer will damage the transistors and diodes inside.

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

RPM (DC 13.5 V, 25 °C (77°F))

Standard indication	Allowable range
700	630 — 770
1,000	900 — 1,100
2,000	1,850 — 2,150
3,000	2,800 — 3,200
4,000	3,800 — 4,200
5,000	4,800 — 5,200
6,500	5,800 — 6,200
7,000	6,700 — 7,300

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BE1780

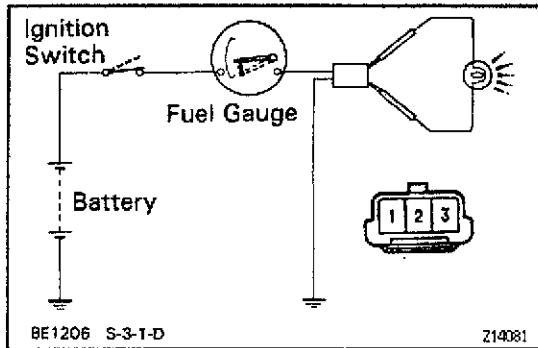
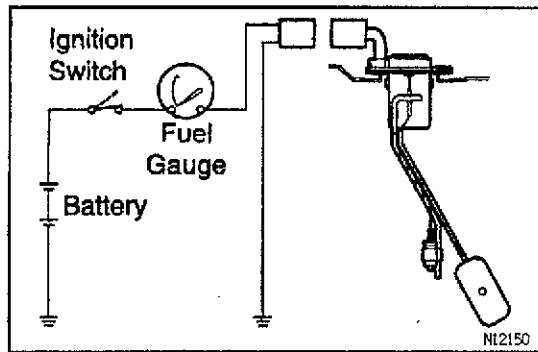
2. INSPECT PICK—UP SENSOR (Diesel Engine)

Measure the resistance between terminals 1 and 2.

Resistance:

Approx. 730 Ω

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



FUEL GAUGE INSPECTION

1. INSPECT RECEIVER GAUGE OPERATION

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

- Connect terminals 1 and 3 on the wire harness side, and connector through a 3.4 W test bulb.
- Turn the ignition switch ON, and 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.

2. INSPECT RECEIVER GAUGE RESISTANCE

Inspect resistance between terminals.

Between terminals	Resistance (Ω)
GND $\ominus$ $\leftrightarrow$ F $\oplus$	Approx. 103.0
GND $\ominus$ $\leftrightarrow$ IGN $\oplus$	Approx. 393.0
F $\ominus$ $\leftrightarrow$ IGN $\oplus$	Approx. 153.0

$\oplus$: Connect the positive (+) lead from the tester.

$\ominus$: Connect the negative (−) lead from the tester.

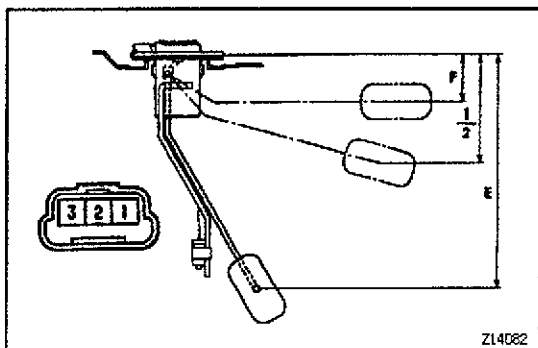
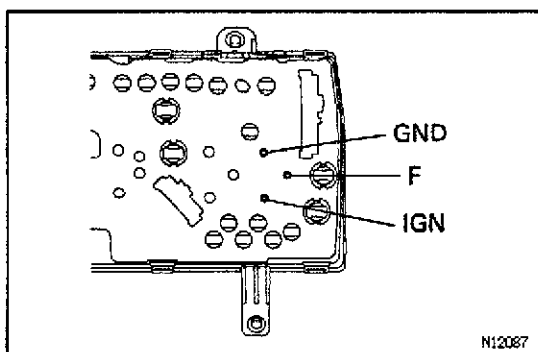
If resistance is not as specified, replace the sender gauge.

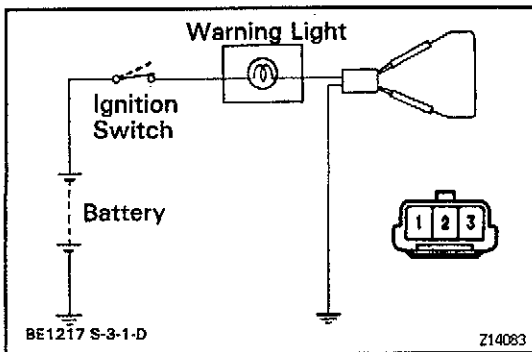
3. INSPECT SENDER GAUGE RESISTANCE

Measure the resistance between terminals 1 and 3 for each float position.

Float position: mm (in.)	Resistance (Ω)
F: Approx. 38.5 (1.516)	1.0 ~ 4.0
1/2: Approx. 138.0 (5.433)	29.5 ~ 35.5
E: Approx. 195.4 (7.693)	105.0 ~ 115.0

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





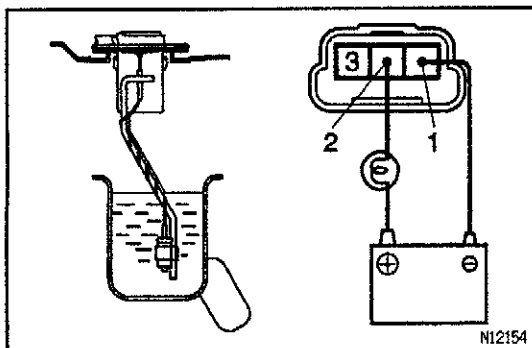
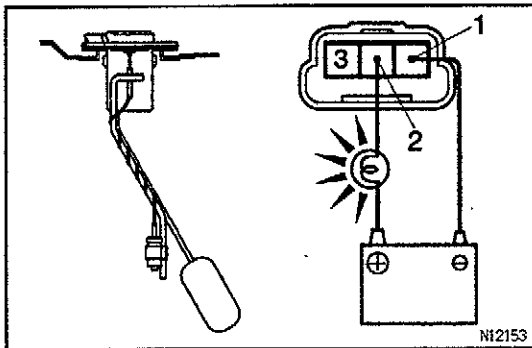
FUEL LEVEL WARNING INSPECTION

1. INSPECT WARNING LIGHT OPERATION

- Disconnect the connector from the sender gauge.
- Connect terminals 1 and 2 on the wire harness side connector.
- Turn the ignition switch ON, check that the warning light lights up.
If the warning light does not light up, test the bulb or inspect wire harness.

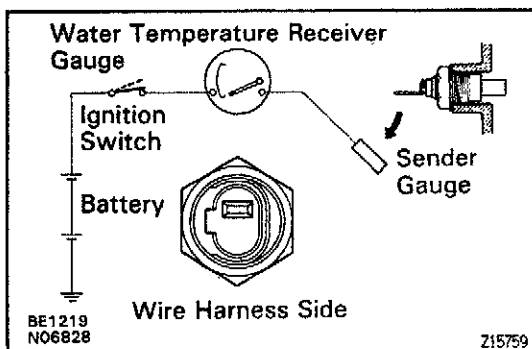
2. INSPECT WARNING SWITCH OPERATION

- Apply battery positive (+) voltage between terminals 1 and 2 through a 3.4 W test bulb, and check that the bulb lights up.
HINT: It will take a short time for the bulb to light up.



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

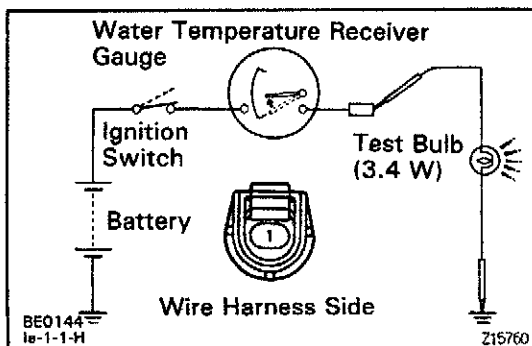
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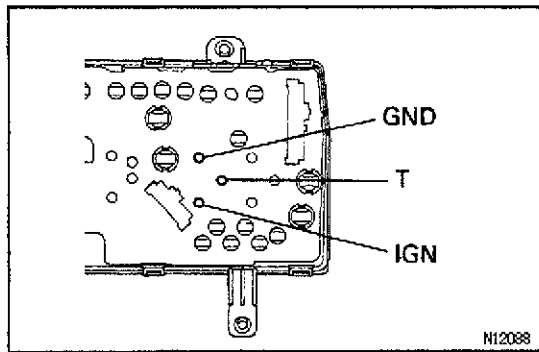
WATER TEMPERATURE GAUGE SYSTEM INSPECTION

1. INSPECT RECEIVER GAUGE OPERATION

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



- Ground terminal on the wire harness side connector through a 3.4W test bulb.
- Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves toward the hot side.
If operation is not as specified, measure the receiver gauge resistance.



2. INSPECT RECEIVER GAUGE RESISTANCE

Inspect resistance between terminals.

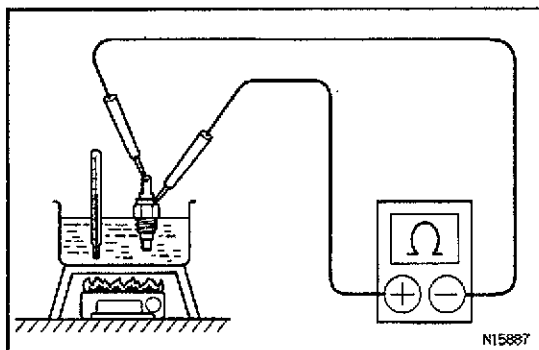
Between terminals	Resistance (Ω)
GND $\ominus$ $\leftrightarrow$ T $\oplus$	Approx. 386.0
GND $\ominus$ $\leftrightarrow$ IGN $\oplus$	Approx. 256.0
T $\ominus$ $\leftrightarrow$ IGN $\oplus$	Approx. 94.0

$\oplus$: Connect the positive (+) lead from the tester.

$\ominus$: Connect the negative (−) lead from the tester.

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

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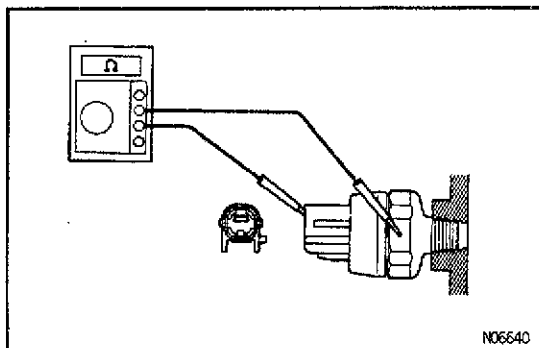


3. INSPECT SENDER GAUGE RESISTANCE

Measure the resistance between terminal and gauge body.

Temperature $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	Resistance (Ω)
50 (122.0)	160.0 ~ 240.0
120 (248.0)	17.1 ~ 21.2

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



LOW OIL PRESSURE WARNING INSPECTION

BE004-00

1. INSPECT SWITCH

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

HINT: Oil pressure should be over 20 kPa (0.2 kgf/cm², 2.9 psi)

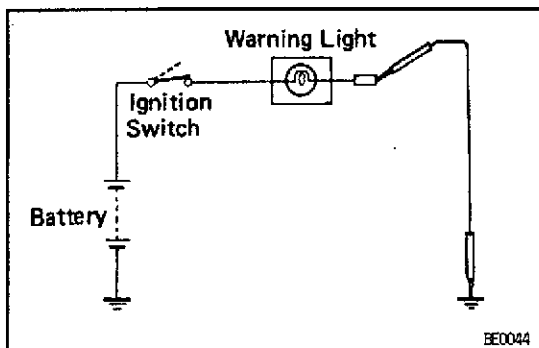
If operation is not as specified, replace the switch.

2. INSPECT WARNING LIGHT

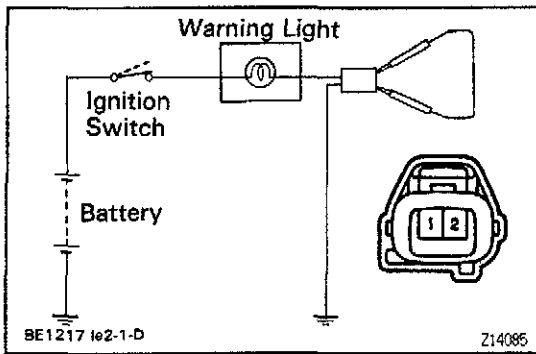
- Disconnect the connector from the warning switch and ground terminal on the wire harness side connector.

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

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



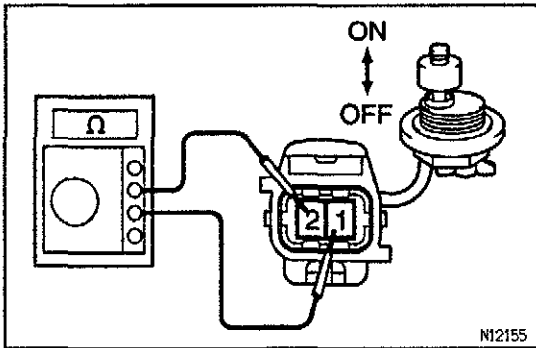
BE008-0H



FUEL FILTER WARNING INSPECTION

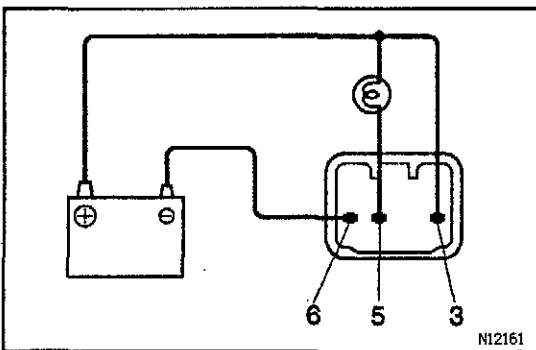
1. INSPECT WARNING LIGHT OPERATION

- Disconnect the connector from the warning switch and connect the terminals on the wire harness side connector.
- Check that the warning light lights up.
If operation is not as specified, replace the bulb.



2. INSPECT WARNING SWITCH CONTINUITY

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



METER ILLUMINATION CONTROL SYSTEM

BE009-0H

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INSPECT LIGHT CONTROL RHEOSTAT OPERATION

- Connect the positive (+) lead from the battery to terminal 3 and the negative (−) lead to terminal 6.
- Connect the positive (+) lead from the battery to terminal 5 through a 3.4 W test bulb.
- Gradually turn the rheostat knob from the bright side to the dark side, and check that the test bulb brightness changes from bright to dark.
If operation is not as specified, replace the light control rheostat.