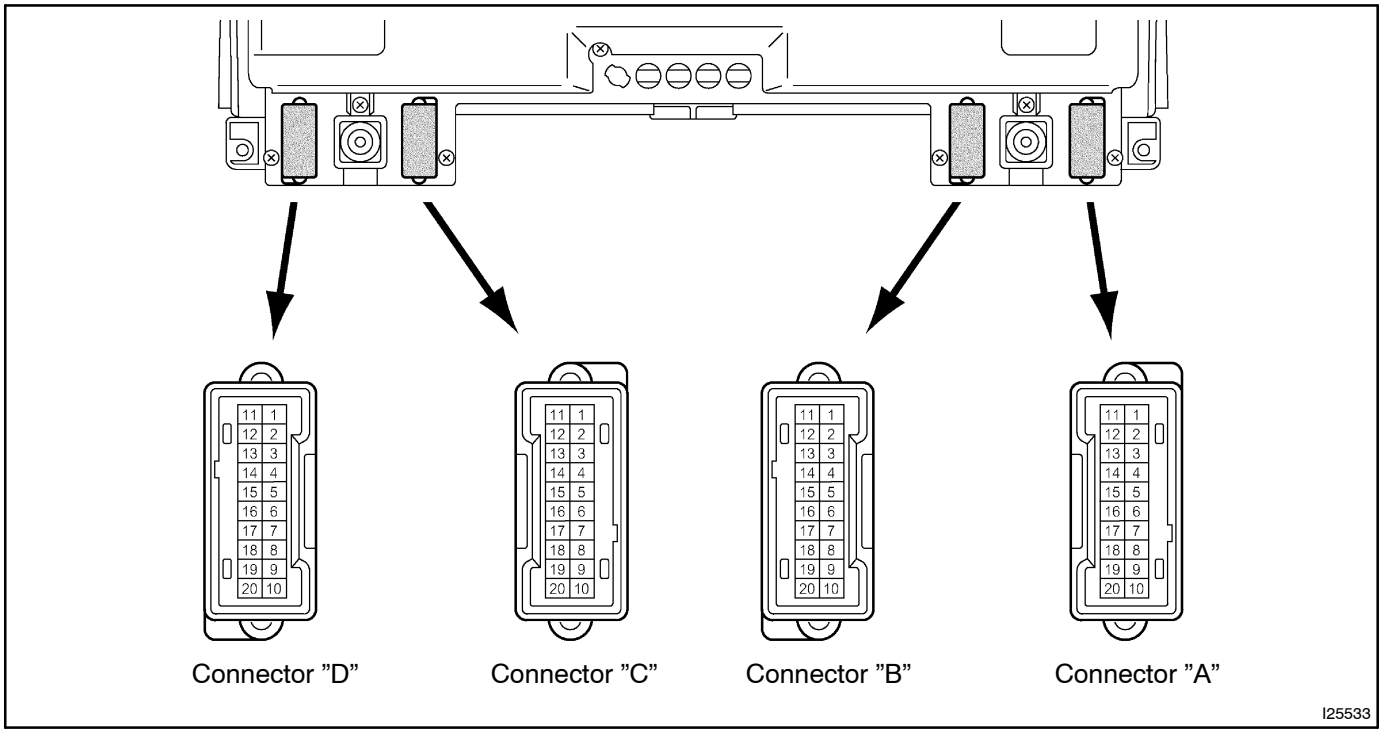
BE2F9–01

INSPECTION

1. INSPECT COMBINATION METER CIRCUIT

Connect the connector ”A” , ”B”, ”C” and ”D” to the combination meter and inspect the wire harness side connectors from the back side as shown in the table.



Tester connection	Condition	Specified condition
A1 (CHG+) – Ground	Ignition switch OFF	Below 1 V
	Ignition switch ON	10 – 14 V
A4 (BEAM–) – Ground	Ignition switch ON, light control switch ON	Below 1 V
A5 (TURN–R) – Ground	Ignition switch ON and turn signal switch OFF or LEFT	Below 1 V
	Ignition switch ON and turn signal switch RIGHT	10 – 14 V
A6 (BEAM+) – Ground	Ignition switch ON, light control switch OFF	Below 1 V
	Ignition switch ON, light control switch ON	10 – 14 V
A7 (TURN–L) – Ground	Ignition switch ON and turn signal switch OFF or RIGHT	Below 1 V
	Ignition switch ON and turn signal switch LEFT	10 – 14 V
A8 (DOOR–) – Ground	Either door is opened	Below 1 V
	Either door is closed	10 – 14 V
A11 (HEAD LIGHT+) – Ground	Ignition switch ON, light control switch OFF	Below 1 V
	Ignition switch ON, light control switch ON	10 – 14 V
A19 (ABS) – Ground w/o VSC	Ignition switch ON and ABS warning light lights up	Below 1 V
	Ignition switch ON and ABS warning light does not light up	10 – 14 V

A19 (ABS) – Ground w/ VSC	Ignition switch ON and ABS warning light lights up	10 – 14 V
	Ignition switch ON and ABS warning light does not light up	Below 1 V
A20 (WASHER) – Ground	Ignition switch ON and window washer level warning switch float UP	Below 1 V
	Ignition switch ON and window washer level warning switch float DOWN	10 – 14 V
B1 (CHECK E/G) – Ground	Ignition switch ON and engine is stopped	Below 1 V
	Ignition switch ON and engine is running	10 – 14 V
B4 (CTR DIFF/4WD) – Ground	Ignition switch ON and center diff. lock switch OFF	Below 1 V
B4 (CTR DIFF/4WD) – Ground	Ignition switch ON and center diff. lock switch ON	Battery positive voltage
B5 (SLIP) – Ground	Ignition switch ON, SLIP warning light ON	Below 1.5 V
	Ignition switch ON, SLIP warning light OFF	10 – 14 V
B6 (VSC TRC) – Ground	Ignition switch ON, off road TRC indicator light ON	Below 1.5 V
	Ignition switch ON, off road TRC indicator light OFF	10 – 14 V
B7 (VSC OFF) – Ground	Ignition switch ON, VSC OFF indicator light ON	Below 1.5 V
	Ignition switch ON, VSC OFF indicator light OFF	10 – 14 V
B8 (ACTIVE TRC) – Ground	Ignition switch ON, TRC OFF indicator light ON	Below 1.5 V
	Ignition switch ON, TRC OFF indicator light OFF	10 – 14 V
B9 (RSCA OFF) – Ground	Ignition switch ON, RSCA warning light ON	Below 2.0 V
	Ignition switch ON, RSCA warning light OFF	10 – 14 V
B12 (Fr DIFF) – Ground	Ignition switch ON and front diff. lock switch OFF	Below 1 V
B12 (Fr DIFF) – Ground	Ignition switch ON and front diff. lock switch ON	Battery positive voltage
B13 (Rr DIFF) – Ground	Ignition switch ON and rear diff. lock switch OFF	Below 1 V
B13 (Rr DIFF) – Ground	Ignition switch ON and rear diff. lock switch ON	Battery positive voltage
B18 (ILL+) – Ground	Ignition switch OFF	Below 1 V
	Ignition switch ON	10 – 14 V
C1 (T/M PULSE) – Ground	Engine is Running	Pulse generation
C4 (OIL PRS SDR) – Ground	Ignition switch ON and indicator ON	Below 1 V
	Ignition switch ON and indicator OFF	10 – 14 V
C7 (AIR BAG–) – Ground	Ignition switch ON and ABS indicator light lights up	Pulse generation (60±5ms)
C7 (AIR BAG–) – Ground	Ignition switch ON and ABS indicator does not light up	Pulse generation (130±5ms)
C11 (BRAKE) – Ground	Ignition switch ON and indicator ON	Below 1 V
	Ignition switch ON and indicator OFF	10 – 14 V
C13 (PKB SW) – Ground	Ignition switch ON and parking brake lever is pulled	Below 1 V
	Ignition switch ON and parking brake lever is released	10 – 14 V
C19 (ABS BZ) – Ground	Ignition switch ON and ABS is error	Below 1 V
	Ignition switch ON and ABS is normal	10 – 14 V

C20 (D–BKL SW) – Ground	Ignition switch ON and seat belt is unfastened	10 – 14 V
	Ignition switch ON and seat belt is fastened	Below 1 V
D1 (IGN+) – Ground	Ignition switch OFF	Below 1 V
	Ignition switch ON	10 – 14 V
D2 (ECU–B2) – Ground	Constant	10 – 14 V
D3 (ACC+) – Ground	Ignition switch OFF	Below 1 V
	Ignition switch ACC or ON	10 – 14 V
D4 (DOOR+) – Ground	Constant	10 – 14 V
D5 (SP IN) – Ground	Ignition switch ON and slowly move the wheel	Pulse signal is output below 1.5 V ↔ battery positive voltage
D6 (4P OUT) – Ground	Ignition switch ON and slowly move the wheel	Pulse signal is output below 1.5 V ↔ aprox. 5 V or below 1.5 V ↔ battery positive voltage
D11 (E/G EARTH) – Ground	Constant	Continuity
D12 (MAIN FE) – Ground	Constant	Continuity
D14 (MAIN FV) – Ground	Ignition switch ON	4.5 – 5.5 V
D16 (MAIN FR) – Ground	Ignition switch ON and fuel sender gauge float UP	Approx. 0.5 V
	Ignition switch ON and fuel sender gauge float DOWN	Approx. 5.5 V
D17 (ILL–) – Ground	Ignition switch ON and light control rheostat volume minimum	Below 1 V
	Ignition switch ON and light control rheostat volume maximum	10 – 14 V
D19 (KEY SW) – Ground	Key unlock warning switch ON (Key is inserted)	Below 1 V
	Key unlock warning switch OFF (Key is removed)	10 – 14 V
D20 (D–CTY SW) – Ground	Ignition switch ON and driver door is opened	Below 1 V
	Ignition switch ON and driver door is closed	10 – 14 V

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

2. INSPECT SPEEDOMETER/ ON–VEHICLE

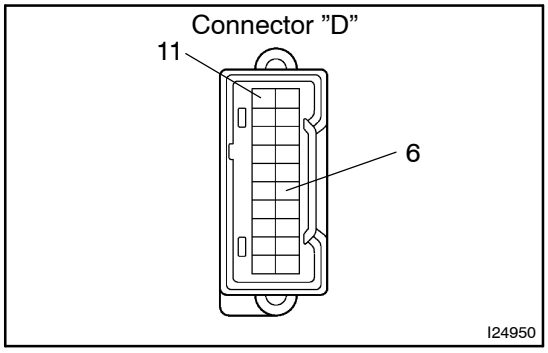
Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

HINT:

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

(mph)		(km/h)	
Standard indication	Allowable range	Standard indication	Allowable range
20	18 – 24	20	17 – 24
40	38 – 44	40	38 – 46
60	56 – 66	60	57.5 – 67
80	78 – 88	80	77 – 88
100	98 – 110	100	96 – 109
120	118 – 132	120	115 – 130
		140	134 – 151.5
		160	153 – 173

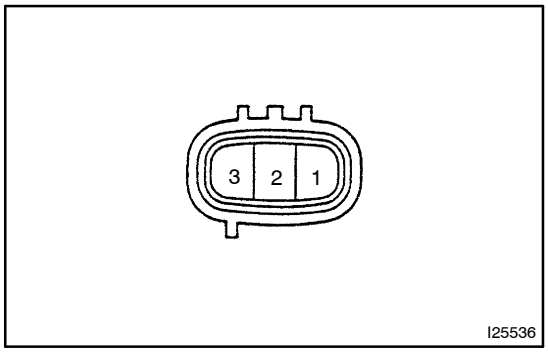
If error is excessive, replace the speedometer.



3. INSPECT SPEEDOMETER RESISTANCE

(a) While driving the vehicle at the speed of 10 km/h, check the voltage between the terminals 6 and 11 of the combination meter assy.

STANDARD: Fluctuation between 10 to 14V or less is repeated 7 times within 1 sec.



4. 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. 0V to 11 V or more between terminals 2 and 3.

HINT:

The voltage change should be performed 4 times for every revolution is not as specified, replace the sensor.

5. INSPECT TACHOMETER / ON–VEHICLE

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

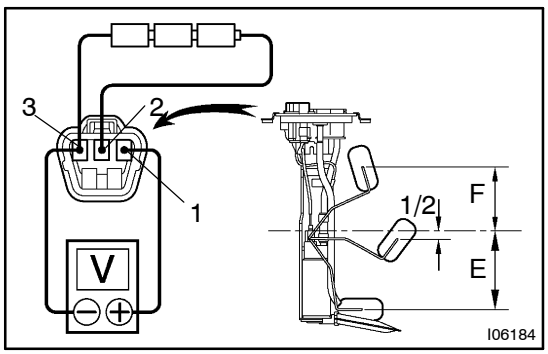
NOTICE:

- **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.

DC 13.5 V 25 ˚C at (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
6,000	5,750 – 6,250
7,000	6,700 – 7,300

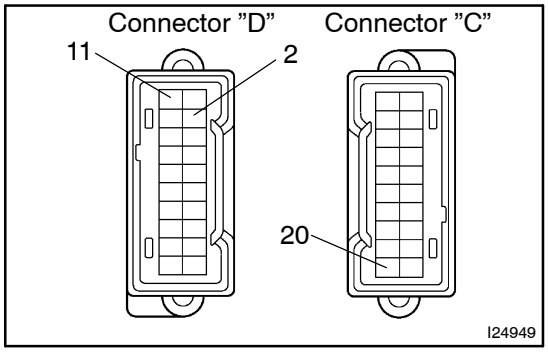


6. INSPECT FUEL SENDER GAUGE RESISTANCE

(a) Apply voltage between terminals 2 and 3.

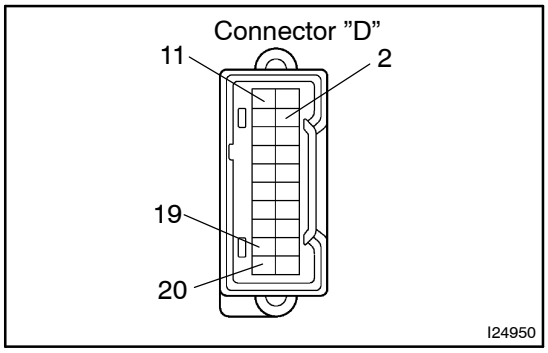
(b) Measure voltage between terminals 1 and 2 for each float position.

Float position mm (in.)	Voltage (V)
F: Approx. 85.3 (3.36)	Approx. 4.60 ± 0.1
1/2: Approx. 1.7 (0.67)	Approx. 2.45 ± 0.1
E: Approx. 91.9 (3.62)	Approx. 0.30 ± 0.1



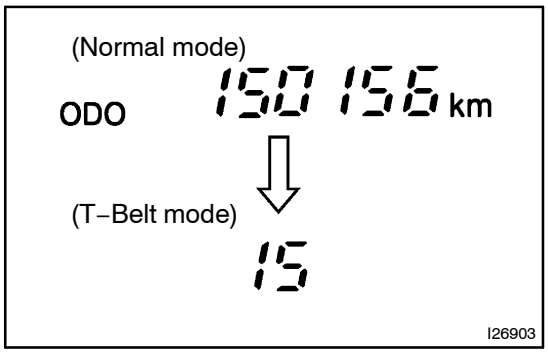
7. INSPECT SEAT BELT WARNING BUZZER

(a) Disconnect the connector from the combination meter.
(b) Connect the positive (+) lead from the baterry terminal 2 and negative (–) lead terminal 11.
(c) Check that the buzzer stop after 4 to 8 seconds.
(d) Chech that the buzzer stops when connecting the terminal 20 to the GND.



8. INSPECT KEY UNLOCK WARNING BUZZER

(a) Disconnect the connector from the combination meter.
(b) Connect the positive (+) lead from the baterry terminal 2 and negative (–) lead terminal 11.
(c) Connect the negative (–) lead from baterry terminal 19 and 20, check that the buzzer sound.



9. INSPECT T–BELT MODE DISPLAY

(a) Turn the ignition switch ON.
(b) Turn ODO/TRIP display screen to ODO, and turn the ignition switch OFF.
(c) While pressing the trip switch, turn the ignition switch ON and hold it for 5 secs.
(d) Release the trip switch, then press the trip switch again within 5 secs.
(e) Transfer to T–BELT mode, and the following initial setting value is displayed.

km : 15 (0,000 km) or 9 (0,000 mile)

HINT:

If the meter has been replaced before, the displayed value might not be the same as the initial setting value.

10. REWRITING REPLACEMENT SETTING VALUE

Press the trip switch and rewrite the replacement setting value.

Conditions	Setting value
When a belt is replaced	km : 15 (0,000 km) mile : 9 (0,000 mile)
When a meter is replaced	km : (15 (0,000 km)) – (Mileage when the meter is replaced.) mile : (9 (0,000 km)) – (Mileage when the meter is replaced.)

HINT:

Every press of the trip switch adds 10,000 km or 10,000 mile and the meter returns to 10,000 km or 10,000 mile when 200,000 km or 200,000 mile is reached. If switch operation is not performed within than 30 secs, the setting value will not be changed, the display screen turns to ”ODO”, and the mode returns to the normal mode.

11. T–BELT MODE COMPLETION

NOTICE:

If T–BELT mode is completed, even though belt replacement or meter replacement has not been performed, the T–BELT warning is reset.

(a) After setting the replacement setting value, hold the trip switch ON for more than 5 secs. then release the trip switch.

(b) Check that the display has changed to ”ODO” and warning light has gone OFF.