DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:
Using the intelligent tester to read the DATA LIST allows the values or states of switches, sensors, actuators, and other items to be read without removing any parts. This non intrusive inspection can be very useful as intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the DATA LIST information early in troubleshooting is one way to save diagnostic time.

(a) Warm up the engine.
(b) Ignition switch off.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Turn the tester ON.
(f) Enter following menus: DIAGNOSIS / OBD/MOBD / ENGINE / DATA LIST
(g) Check the values by referring to the table below.

ENGINE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed / Min.: 0 rpm, Max.: 16,383 rpm	Almost the same as the actual engine speed (When engine is running)	-
COOLANT TEMP	Coolant temperature / Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140°C (284°F)", sensor circuit is open or shorted.

ABS/TRAC/VSC:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR/FL/RR/RL WHEEL SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

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ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check the operation.

(1) Using a speedometer tester (calibrated chassis dynamometer), check the speedometer indication according to the table below.

Reference:

for U.S.A.

Chassis dynamometer indication	Allowable range
20 mph	20 to 23 mph
40 mph	40 to 43.5 mph
60 mph	60 to 64 mph
80 mph	80.0 to 84.5 mph
100 mph	100 to 105 mph
120 mph	120 to 125.5 mph
140 mph	140 to 146 mph

for CANADA

Chassis dynamometer indication	Allowable range
20 km/h	17.5 to 21.5 km/h
40 km/h	38 to 42 km/h
60 km/h	58 to 63 km/h
80 km/h	78 to 84 km/h
100 km/h	98.5 to 104.5 km/h
120 km/h	119 to 125 km/h
140 km/h	139 to 146 km/h
160 km/h	159 to 167 km/h
180 km/h	179 to 188 km/h
200 km/h	199 to 209 km/h
220 km/h	219 to 230 km/h

NOTICE:

Tire wear as well as over or under inflation will cause errors.

(2) Check the deviation from the acceptable range.

Reference:

Less than 0.5 km/h (0.3 mph)

HINT:

If the indication is not as specified, go to problem symptoms table (See page ME-4).

2. INSPECT OUTPUT SIGNAL OF VEHICLE SPEED

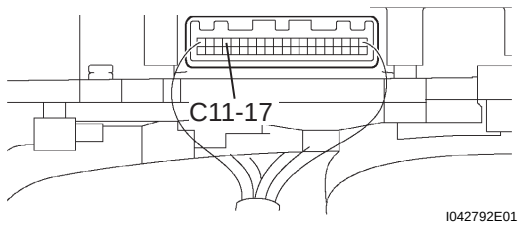
(a) Check the input signal waveform.

(1) Remove the combination meter with connectors still connected.

(2) Connect the oscilloscope to the terminal C11-17 and the body ground.

(3) Start the engine.

Combination Meter Assembly Wire Harness View:



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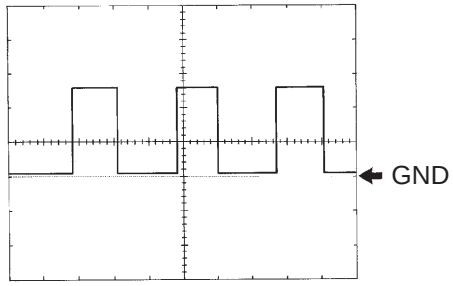


(4) Check the signal waveform according to the condition(s) in the table below.

Item	Condition
Tool setting	5 V/DIV., 20 ms/DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

OK:
As shown in the illustration
HINT:
As vehicle speed increases, the cycle of the signal waveform narrows.

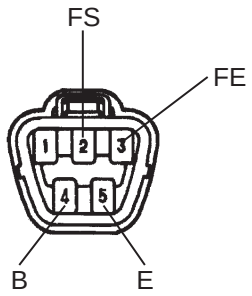
3. INSPECT TACHOMETER
(a) Check the operation
(1) Connect a tune-up tachometer, and start the engine.
(2) Compare the test results with the tachometer indications.
Reference:
DC 13.5 V, at 25 °C (77°F)

ME

Tune-up test tachometer indication	Allowable range (r/min) Data in ( ) are for reference
700	630 to 770
1,000	(900 to 1,100)
2,000	(1,850 to 2,150)
3,000	2,800 to 3,200
4,000	(3,800 to 4,200)
51,000	4,800 to 5,200
6,000	(5,750 to 6,250)
7,000	6,700 to 7,300

HINT:
If the indication is not as specified, go to problem symptoms table (See page ME-4).

Fuel Sender Gauge Connector Front View:



4. INSPECT FUEL RECEIVER GAUGE
(a) Disconnect the connector from the sender gauge.
(b) Turn the ignition switch to the ON position, then check the position of the receiver gauge needle.
OK:
Needle position is on EMPTY.
(c) Connect terminal 2 and 3 on the wire harness side connector and turn the ignition switch ON, then check the position of the receiver gauge needle.
OK:
Needle position is on FULL.

5. INSPECT FUEL LEVEL WARNING LIGHT
(a) Disconnect the connector from the sender gauge.
(b) Turn the ignition switch to the ON position, check the fuel level needle indicates EMPTY and fuel level warning lights light up.
OK:
Fuel level warning light comes on.

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6. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE

(a) Disconnect the connector from the sender gauge.

(b) Turn the ignition switch to the ON position, check the position of the water temperature receiver gauge needle.

OK:

Needle position is on COOL.

7. INSPECT LOW ENGINE OIL PRESSURE WARNING LIGHT

(a) Disconnect the connector from the low oil pressure switch.

(b) Turn the ignition switch to the ON position.

(c) Connect the terminal of wire harness side connector and ground, then check the warning low oil pressure warning light.

OK:

Low oil pressure warning light comes on.

8. INSPECT BRAKE WARNING LIGHT

(a) Inspect the parking brake warning light.

(1) Disconnect the connector from the parking brake switch.

(2) Turn the ignition switch to the ON position.

(3) Ground the terminal of the wire harness side connector, then check the parking brake warning light.

OK:

Brake warning light comes on.

(b) Inspect the brake fluid level warning light.

(1) Disconnect the connector from the brake fluid level warning switch.

(2) Turn the ignition switch to the ON position.

(3) Connect a terminal to the other terminal of the wire harness side connector, then check the brake fluid level warning switch.

OK:

Brake warning light comes on.

9. INSPECT BRAKE FLUID LEVEL WARNING SWITCH

(a) Remove the reservoir tank cap and strainer.

(b) Disconnect the connector.

(c) Measure the resistance between the terminals.

Standard resistance:

Float up (switch off):

10 kΩ or higher

(d) Use a syphon, etc. to take fluid out of the reservoir tank.

(e) Measure the resistance between the terminals.

Standard resistance:

Float down (switch on):

Below 1 Ω

(f) Pour the fluid back in the reservoir tank.

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10. INSPECT WASHER LEVEL INDICATOR LIGHT

(a) Inspect the circuit.

(1) Disconnect the connector from the washer level switch.

(2) Turn the ignition switch to the ON position.

(3) Connect the terminal of the wire harness side connector and ground, then check that the indicator light comes on.

OK:

Washer level indicator light comes on.

HINT:

If the indicator light does not come on, inspect the bulb or the wire harness.

11. INSPECT WASHER LEVEL WARNING SWITCH

(a) Remove the washer level warning switch.

(b) Disconnect the connector.

(c) Measure the resistance between the terminals.

Standard resistance:

Float up (switch off):

10 kΩ or higher

(d) Measure the resistance between the terminals.

Standard resistance:

Float down (switch on):

Below 1 Ω

HINT:

If the operation is not as specified, replace the switch.

12. OIL MAINTENANCE INDICATOR RESETTING PROCEDURE

Indicator Condition

State	Condition	Specified State
Blinking	The vehicle runs 4,500 miles after the previous setting	The indicator blinks for 15 seconds after the ignition switch is on (including 3 seconds for a bulb check).
Continuously illuminated	The vehicle runs 5,000 miles after the previous setting	The indicator is continuously illuminated after the ignition switch is on.

(a) Set the display window to ODO.

(b) Turn the ignition switch off.

(c) Pressing the reset switch, turn the ignition switch to the ON position (keep pressing for at least 5 seconds).

(d) Reset procedure is completed.

HINT:

- If the ignition switch is turned off during the reset procedure.
  LCD: off
  IND: off
- If the reset switch is pressed off during the reset procedure.
  LCD: return to ODO
  IND: Keep the previous state of reset

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