

DTC	P0115	ENGINE COOLANT TEMPERATURE CIRCUIT
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CIRCUIT DESCRIPTION

A thermistor built into the engine coolant temperature sensor changes its resistance value according to the engine coolant temperature.

The structure of the sensor and connection to the ECM is the same as those of the intake air temperature sensor.

DTC No.	DTC Detection Condition	Trouble Area
P0115	Open or short in engine coolant temperature sensor circuit for 0.5 seconds (1 trip detection logic)	<ul style="list-style-type: none"> • Open or short in engine coolant temperature sensor circuit • Engine coolant temperature sensor • ECM

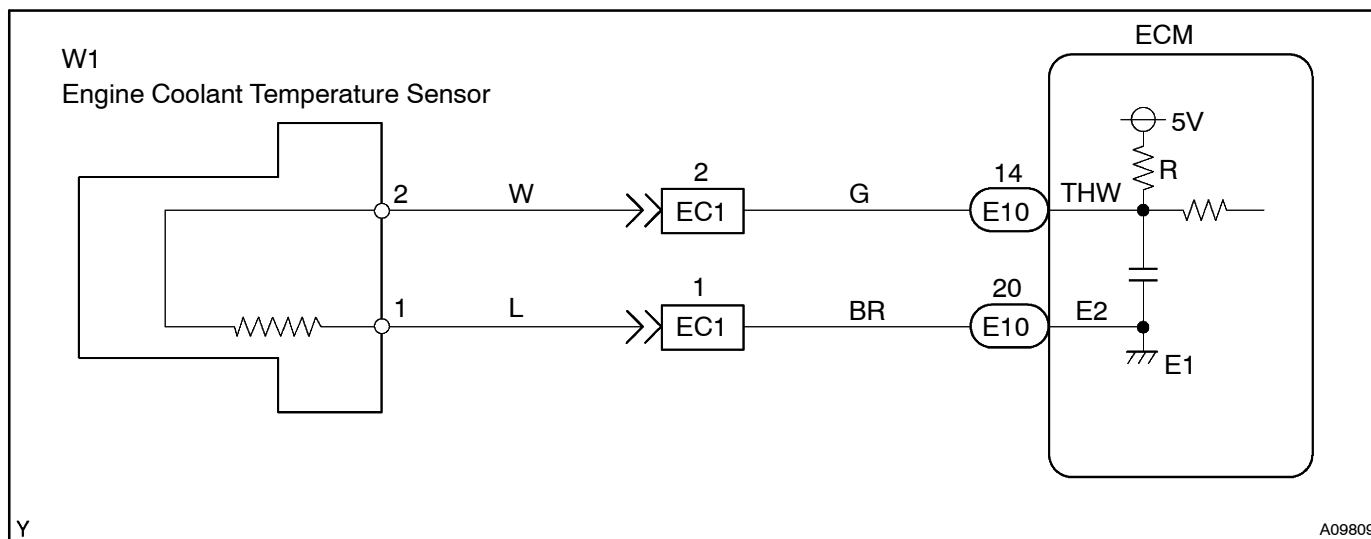
HINT:

When DTC P0115 is detected, check the engine coolant temperature by selecting Powertrain / Engine and ECT / Data List / Coolant Temp on the intelligent tester II.

Reference:

Temperature Displayed	Malfunction
-40°C (-40°F)	Open circuit
140°C (284°F) or more	Short circuit

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If different DTCs related to different systems that have terminal E2 as the ground terminal are output simultaneously, terminal E2 may have an open circuit.
- Read freeze frame data using the intelligent tester II. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, if the engine was warmed up or not, and other data from the time the malfunction occurred.

1 READ VALUE OF INTELLIGENT TESTER II (ENGINE COOLANT TEMPERATURE)

- Connect the intelligent tester II to the DLC3.
- Turn the ignition switch to ON and turn the intelligent tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / Data List / Coolant Temp.
- Read the value.

Standard: 75° to 95° C (167° to 203° F) after warming up the engine.

Result:

Temperature Displayed	Proceed To
-40° C (-40° F)	A
140° C (284° F) or more	B
OK (Same as actual engine coolant temperature)	C

HINT:

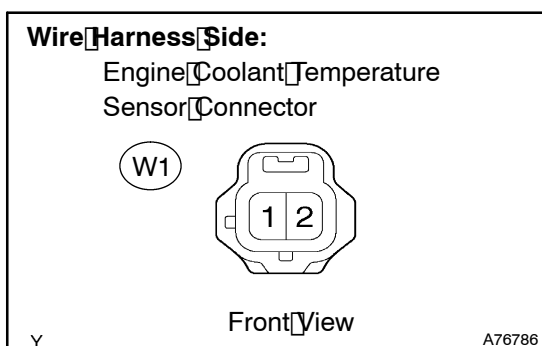
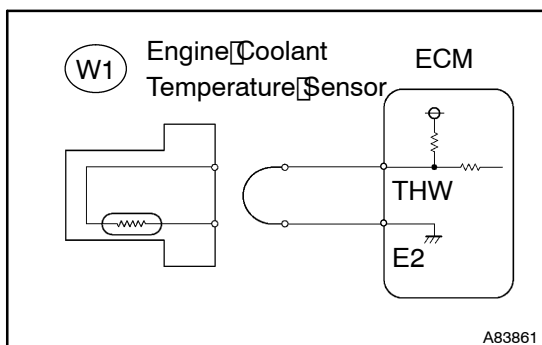
- If there is an open circuit, the intelligent tester II indicates -40° C (-40° F).
- If there is a short circuit, the intelligent tester II indicates 140° C (284° F) or more.

B Go to step 4

C CHECK FOR INTERMITTENT PROBLEMS
(See page 05-440)

A

2 READ VALUE OF INTELLIGENT TESTER II (CHECK FOR OPEN IN WIRE HARNESS)



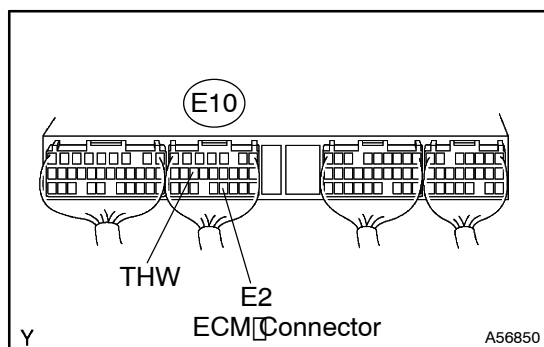
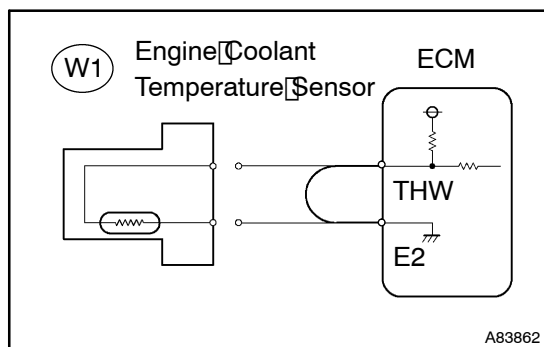
- Disconnect the W1 engine coolant temperature sensor connector.
 - Connect terminals 1 and 2 of the engine coolant temperature sensor wire harness side connector.
 - Connect the intelligent tester II to the DLC3.
 - Turn the ignition switch to ON and turn the intelligent tester II ON.
 - Select the following menu items: Powertrain / Engine and ECT / Data List / Coolant Temp.
 - Read the value.
- Standard:** 140° C (284° F) or more
- Reconnect the engine coolant temperature sensor connector.

OK

CONFIRM GOOD CONNECTION AT SENSOR. IF OK, REPLACE ENGINE COOLANT TEMPERATURE SENSOR

NG

3 READ VALUE OF INTELLIGENT TESTER II (CHECK FOR OPEN IN ECM)



- Disconnect the W1 engine coolant temperature sensor connector.
- Connect terminals THW and E2 of the E10 ECM connector.

HINT:

Before checking, do a visual and contact pressure check on the ECM connector.

- Connect the intelligent tester II to the DLC3.
- Turn the ignition switch to ON and turn the intelligent tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / Data List / Coolant Temp.
- Read the value.
Standard: 140°C (284°F) or more
- Reconnect the engine coolant temperature sensor connector.

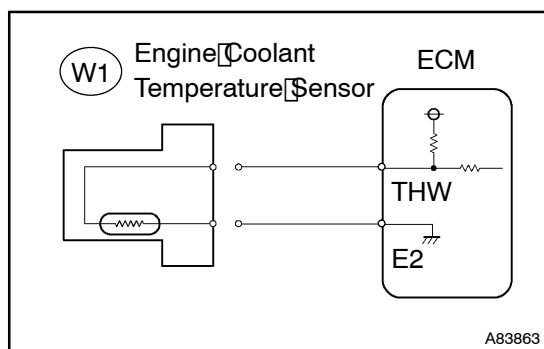
OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

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CONFIRM GOOD CONNECTION AT ECM. IF OK, REPLACE ECM (See page 10-30)

4 READ VALUE OF INTELLIGENT TESTER II (CHECK FOR SHORT IN WIRE HARNESS)



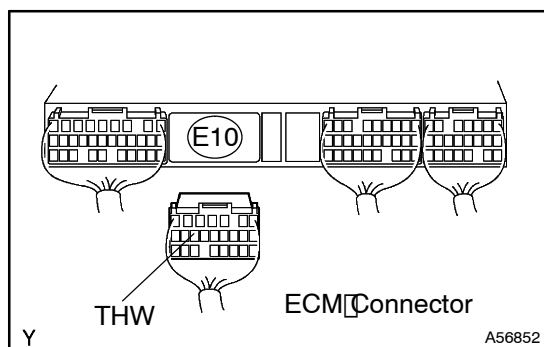
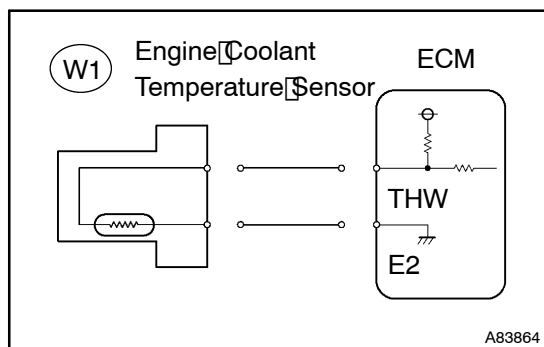
- Disconnect the W1 engine coolant temperature sensor connector.
- Connect the intelligent tester II to the DLC3.
- Turn the ignition switch to ON and turn the intelligent tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / Data List / Coolant Temp.
- Read the value.
Standard: -40°C (-40°F)
- Reconnect the engine coolant temperature sensor connector.

OK

REPLACE ENGINE COOLANT TEMPERATURE SENSOR

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5 READ VALUE OF INTELLIGENT TESTER (CHECK FOR SHORT IN ECM)



- Disconnect the W1 engine coolant temperature sensor connector.
- Disconnect the E10 ECM connector.
- Connect the Intelligent Tester II to the DLC3.
- Turn the Ignition switch to ON and turn the Intelligent Tester II ON.
- Select the following menu items: Powertrain / Engine and ECT / Data List / Coolant Temp.
- Read the value.
Standard: -40°C (-40°F)
- Reconnect the engine coolant temperature sensor connector.
- Reconnect the ECM connector.

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

NG

REPLACE ECM (See page 10-30)