

DTC	P0115	Engine Coolant Temperature Circuit
------------	--------------	---

DTC	P0117	Engine Coolant Temperature Circuit Low Input
------------	--------------	---

DTC	P0118	Engine Coolant Temperature Circuit High Input
------------	--------------	--

CIRCUIT DESCRIPTION

A thermistor built in the engine coolant temperature sensor changes the 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 circuit malfunction shown on page [DI-254](#).

If the ECM detects the DTC P0115, P0117 or P0118, it operates the fail – safe functions in which the engine coolant temperature is assumed to be 80°C (176°F)

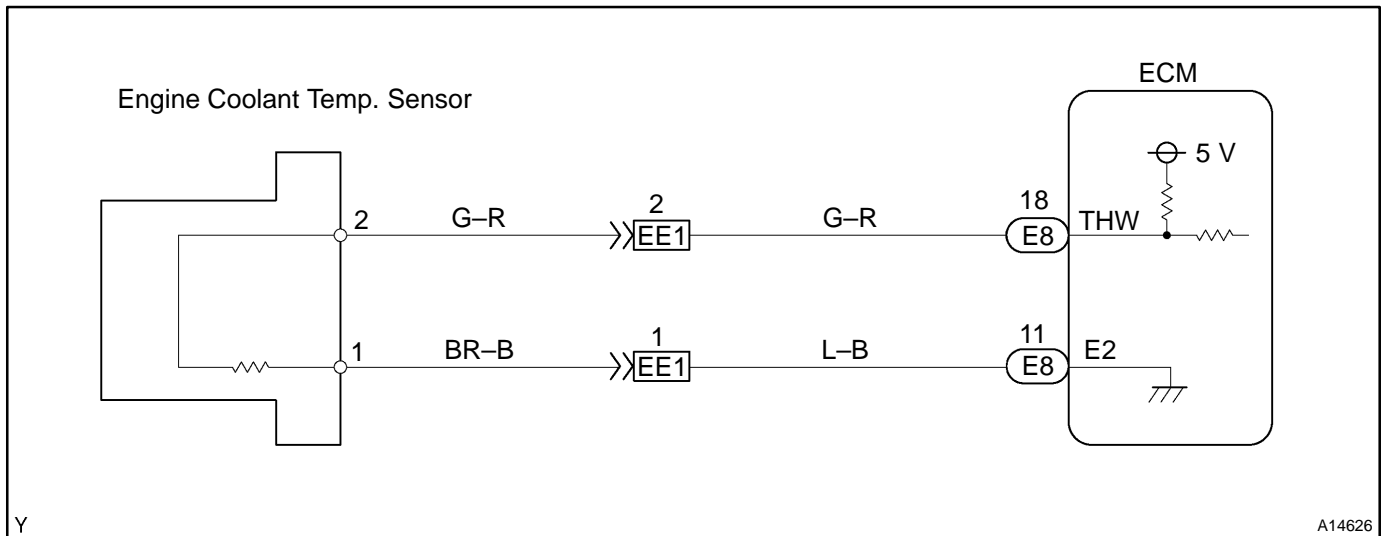
DTC No.	Proceed to	DTC Detection Condition	Trouble Area
P0115	Step 1	Open or short in engine coolant temp. sensor circuit for 0.5 sec.	<ul style="list-style-type: none"> • Open or short in engine coolant temp. sensor circuit • Engine coolant temp. sensor • ECM
P0117	Step 4	Short in engine coolant temp. sensor circuit for 0.5 sec.	
P0118	Step 2	Open in engine coolant temp. sensor circuit for 0.5 sec.	

HINT:

After confirming DTC P0115, P0117 or P0118 use the hand-held tester or the OBD II scan tool to confirm the engine coolant temperature from the "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL".

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

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If different DTCs that are related to different systems are output simultaneously while terminal E2 is used as a ground terminal, terminal E2 may be open.
- Read freeze frame data using the hand-held tester or the OBD II scan tool, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

1	Connect OBD II scan tool or hand-held tester, and read value of engine coolant temperature.
----------	--

PREPARATION:

- Connect the OBD II scan tool or hand-held tester to the DLC3.
- Turn the ignition switch ON and push the OBD II scan tool or hand-held tester main switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/COOLANT TEMP".

CHECK:

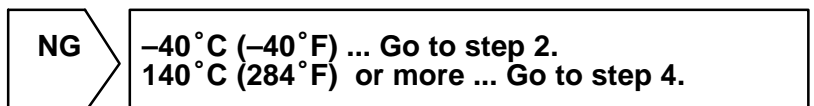
Read the temperature value on the OBD II scan tool or the hand-held tester.

OK:

Same as actual engine coolant temperature.

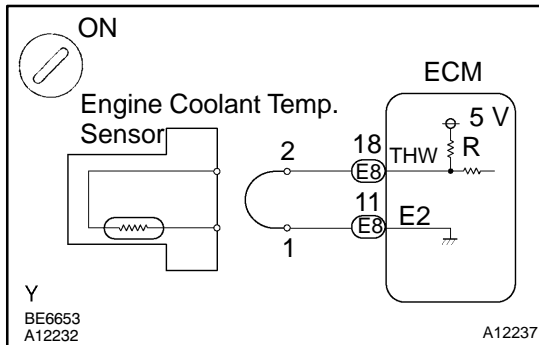
HINT:

- If there is open circuit, OBD II scan tool or hand-held tester indicates -40°C (-40°F).
- If there is short circuit, OBD II scan tool or hand-held tester indicates 140°C (284°F) or more.



Check for intermittent problems (See page DI-218).

2 Check for open in harness or ECM.



PREPARATION:

- Disconnect the engine coolant temperature sensor connector.
- Connect the sensor wire harness terminals together.
- Turn the ignition switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/COOLANT TEMP".

CHECK:

Read the temperature value on the OBD II scan tool or the hand-held tester.

OK:

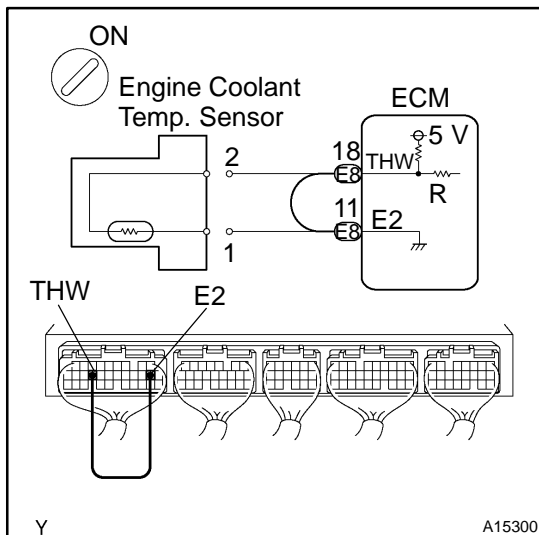
Temperature value: 140°C (284°F) or more

OK

Confirm good connection at sensor. If OK, replace engine coolant temperature sensor.

NG

3 Check for open in harness or ECM.



PREPARATION:

- Disconnect the engine coolant temperature sensor connector.
- Remove the glove compartment (See page SF-63).
- Connect terminals THW and E2 of the ECM connector.

HINT:

The engine coolant temperature sensor connector is disconnected. Before checking, do a visual and contact pressure check of the pressure of the ECM connector (See page IN-28).

- Turn the ignition switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/COOLANT TEMP".

CHECK:

Read the temperature value on the OBD II scan tool or the hand-held tester.

OK:

Temperature value: 140°C (284°F) or more

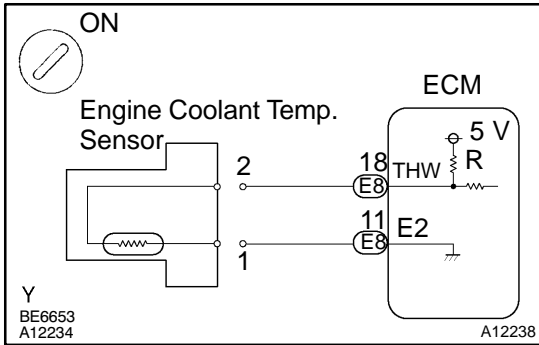
OK

Open in harness between terminals E2 and THW, repair or replace harness.

NG

Confirm good connection at ECM. If OK, check and replace ECM (See page [IN-28](#)).

4 Check for short in harness and ECM.



PREPARATION:

- Disconnect the engine coolant temperature sensor connector.
- Turn the ignition switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/COOLANT TEMP".

CHECK:

Read the temperature value on the OBD II scan tool or the hand-held tester.

OK:

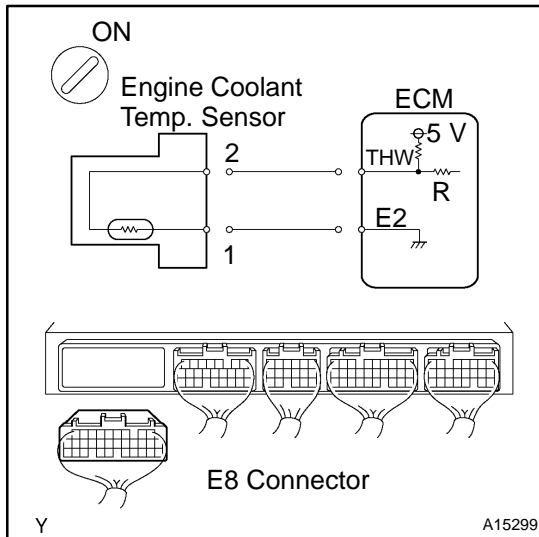
Temperature value: -40°C (-40°F)

OK

Replace engine coolant temperature sensor (See page [SF-53](#)).

NG

5 Check for short in harness or ECM.



PREPARATION:

- Remove the glove compartment (See page [SF-63](#)).
- Disconnect the E8 ECM connector.

HINT:

The engine coolant temperature sensor connector is disconnected.

- Turn the ignition switch ON.
- Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST/ALL/COOLANT TEMP".

CHECK:

Read the temperature value on the OBD II scan tool or the hand-held tester.

OK:

Temperature value: -40°C (-40°F)

OK

Repair or replace harness or connector.

NG

Check and replace ECM (See page [IN-28](#)).