

<b>DTC</b>	<b>P0115</b>	<b>Engine Coolant Temperature Circuit</b>
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## CIRCUIT DESCRIPTION

A thermistor built into 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 in the DTC P0110 shown on page DI-33.

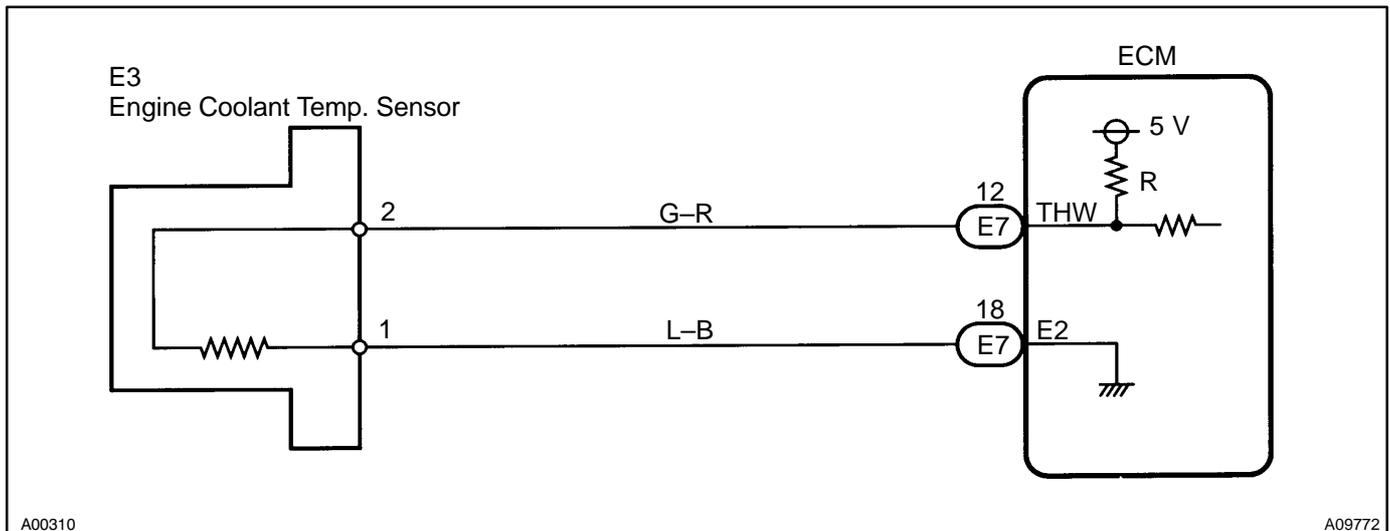
DTC No.	DTC Detection Condition	Trouble Area
P0115	Open or short in engine coolant temp. sensor circuit	<ul style="list-style-type: none"> <li>• Open or short in engine coolant temp. sensor circuit</li> <li>• Engine coolant temp. sensor</li> <li>• ECM</li> </ul>

### HINT:

After confirming DTC P0115, 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°C (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 hand-held tester or OBD II scan tool, and read value of engine coolant temperature.

**PREPARATION:**

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

**CHECK:**

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

**OK:**

Same as actual engine coolant temperature.

**HINT:**

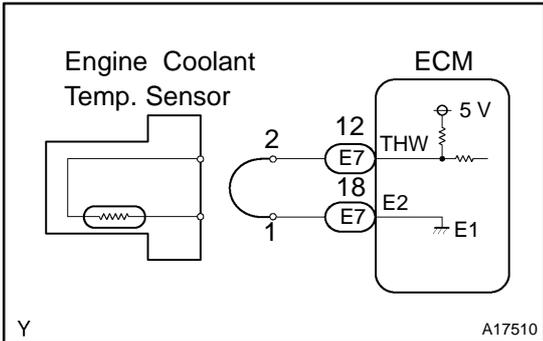
- If there is open circuit, hand-held tester or OBD II scan tool indicates -40°C (-40°F).
- If there is open circuit, hand-held tester or OBD II scan tool indicates 140°C (284°F) or more.

**NG** -40°C (-40°F) ..... Go to step 2.  
140°C (284°F) or more ..... Go to step 4.

**OK**

Check for intermittent problems (See page DI-3).

**2** Check for open in harness or ECM.



**PREPARATION:**

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

**CHECK:**

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

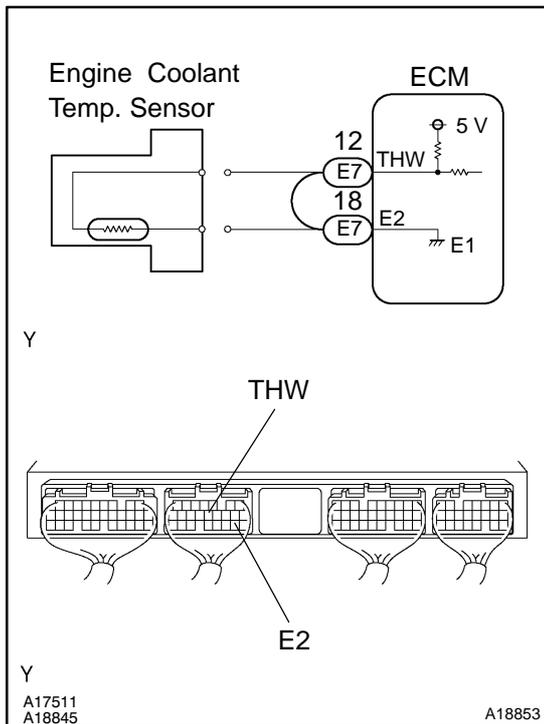
**OK:**

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-55](#)).
- Connect between 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 for 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 hand-held tester or OBD II scan tool.

#### OK:

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

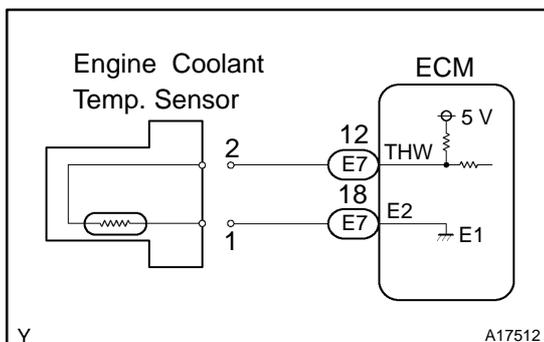
OK

**Open in harness between terminal E2 or THW, repair or replace harness.**

NG

**Confirm good connection at ECM. If OK, replace ECM.**

### 4 Check for open in harness or 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 hand-held tester or OBD II scan tool.

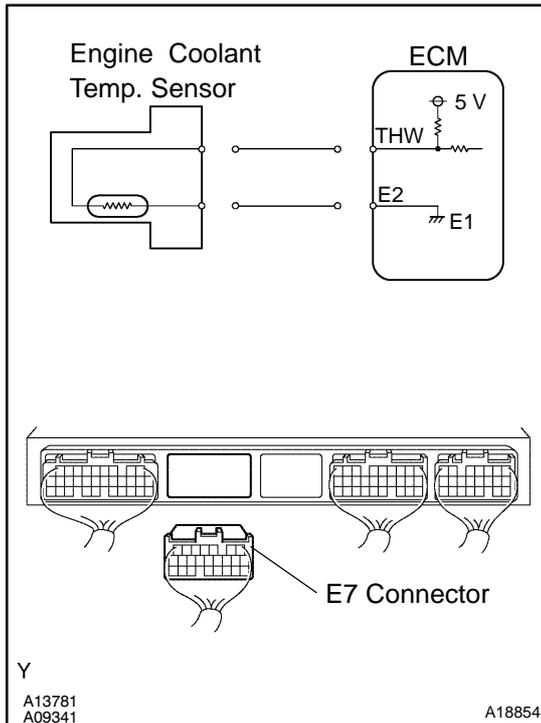
#### OK:

**Temperature value: -40°C (-40°F)**

OK

Replace engine coolant temperature sensor.

NG

**5 Check for short in harness or ECM.****PREPARATION:**

- Remove the glove compartment (See page [SF-55](#)).
- Disconnect the E7 ECM.

**HINT:**

The engine coolant temp. sensor connector is disconnected.

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

**CHECK:**

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

**OK:**

Temperature value:  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ )

OK

Repair or replace harness or connector.

NG

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