

DTC	P0115	Engine Coolant Temp. Circuit Malfunction
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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 intake air temperature circuit malfunction shown on page DI-29.

If the ECM detects DTC P0115, it operates the fail safe function in which the engine coolant temperature is assumed to be 80°C (176°F).

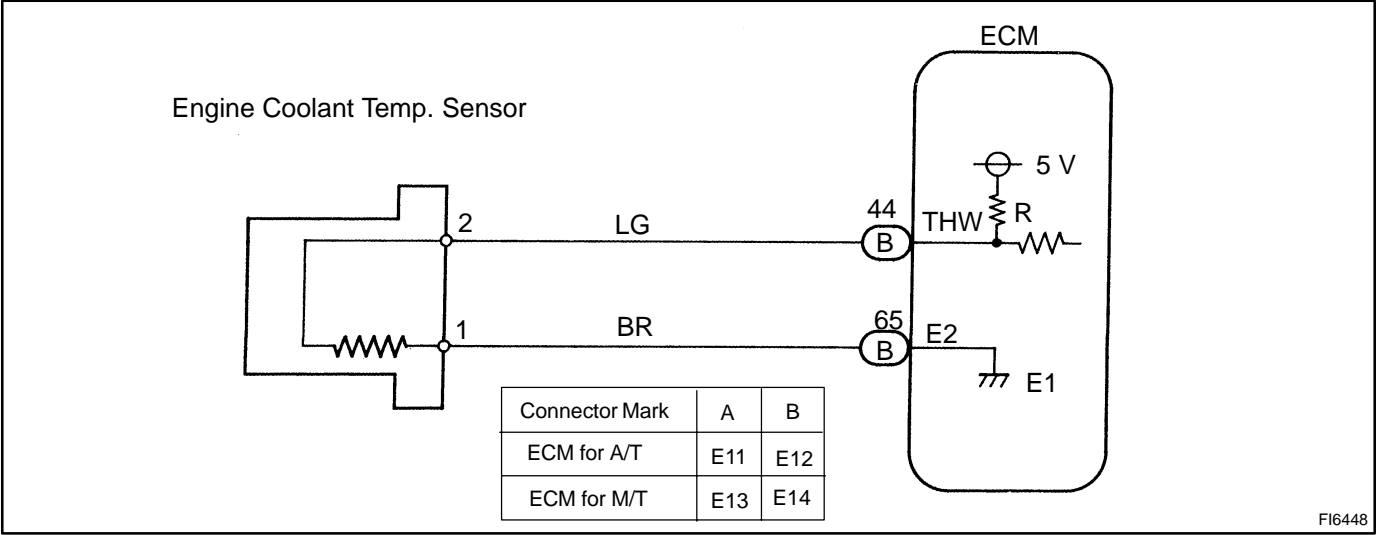
DTC No.	DTC Detecting Condition	Trouble Area
P0115	Open or short in engine coolant temp. sensor circuit	<ul style="list-style-type: none"><li>• Open or short in engine coolant temp. sensor circuit</li><li>• Engine coolant temp. sensor</li><li>• ECM</li></ul>

HINT:

After confirming DTC P0115 use the OBD II scan tool or LEXUS hand-held tester to confirm the engine coolant temperature from "CURRENT DATA".

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

WIRING DIAGRAM



## INSPECTION PROCEDURE

### HINT:

If DTC "P0110" (Intake Air Temp. Circuit Malfunction), "P0115" (Engine Coolant Temp. Circuit Malfunction), "P0120" (Throttle/Pedal Position Sensor/Switch "A" Circuit Malfunction) are output simultaneously, E2 (sensor ground) may be open.

- |   |                                                                                                              |
|---|--------------------------------------------------------------------------------------------------------------|
| 1 | <b>Connect the OBD II scan tool or LEXUS hand-held tester, and read value of engine coolant temperature.</b> |
|---|--------------------------------------------------------------------------------------------------------------|

### PREPARATION:

- Connect the OBD II scan tool or LEXUS hand-held tester to the DLC3.
- Turn ignition switch ON and OBD II scan tool or LEXUS hand-held tester main switch ON.

### CHECK:

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

### OK:

**Same as actual engine coolant temperature.**

### HINT:

- If there is open circuit, OBD II scan tool or LEXUS hand-held tester indicates  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ).
- If there is short circuit, OBD II scan tool or LEXUS hand-held tester indicates  $140^{\circ}\text{C}$  ( $284^{\circ}\text{F}$ ) or more.

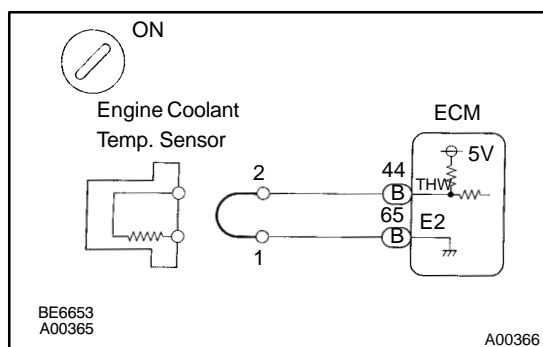
**NG**

$-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ) ..... Go to step 2.  
 $140^{\circ}\text{C}$  ( $284^{\circ}\text{F}$ ) or more .... Go to step 4.

**OK**

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

- |   |                                          |
|---|------------------------------------------|
| 2 | <b>Check for open in harness or ECM.</b> |
|---|------------------------------------------|



### PREPARATION:

- Disconnect the engine coolant temp. sensor connector.
- Connect sensor wire harness terminals together.
- Turn ignition switch ON.

### CHECK:

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

### OK:

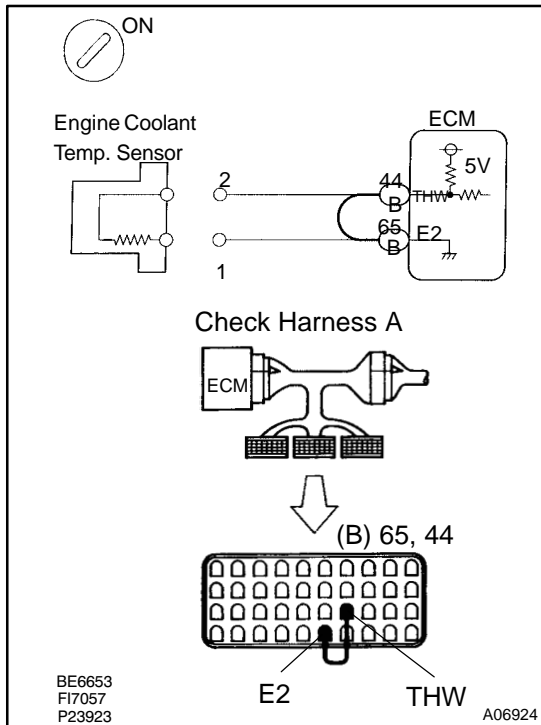
**Temperature value:  $140^{\circ}\text{C}$  ( $284^{\circ}\text{F}$ ) or more**

**OK**

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

**NG**

### 3 Check for open in harness or ECM.



#### PREPARATION:

- Connect Check Harness A (See page [DI-18](#)).
- Connect between terminals THW and E2 of ECM connector.

#### HINT:

Engine coolant temp. sensor connector is disconnected. Before checking, do a visual and contact pressure check for the ECM connector (See page [IN-29](#)).

- Turn ignition switch ON.

#### CHECK:

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

#### OK:

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

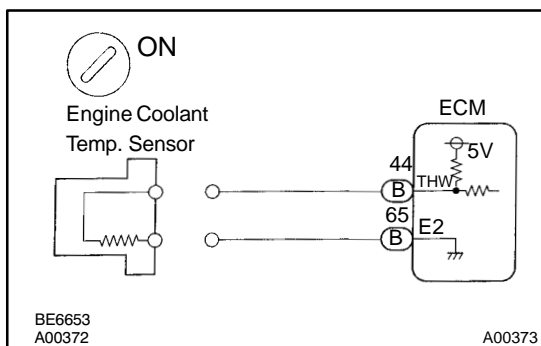
OK

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

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

### 4 Check for short in harness and ECM.



#### PREPARATION:

- Disconnect the engine coolant temp. sensor connector.
- Turn ignition switch ON.

#### CHECK:

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

#### OK:

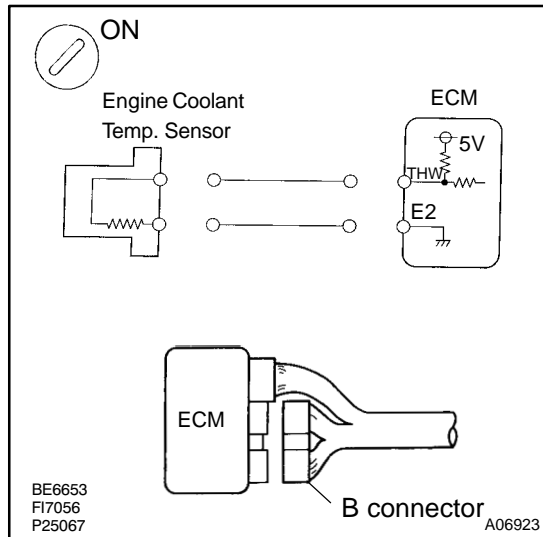
Temperature value: – 40°C (– 40°F)

OK

Replace engine coolant temp. sensor.

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# 5 Check for short in harness or ECM.



## PREPARATION:

(a) Disconnect the B connector from ECM (See page [DI-18](#)).

## HINT:

Engine coolant temp. sensor connector is disconnected.

(b) Turn ignition switch ON.

## CHECK:

Read temperature value on the OBD II scan tool or LEXUS 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-29](#)).