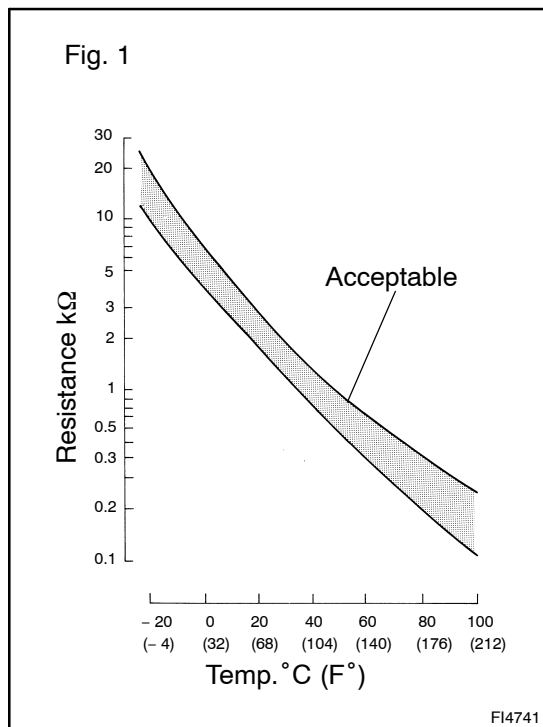


DTC**P0110****Intake Air Temp. Circuit Malfunction****CIRCUIT DESCRIPTION**

The intake air temperature sensor is built into the air flow meter and sensors the intake air temperature.

A thermistor built in the sensor changes the resistance value according to the intake air temperature. The lower the intake air temp., the greater the thermistor resistance value, and the higher the intake air temperature, the lower the thermistor resistance value (See fig.1).

The intake air temperature sensor is connected to the ECM (See next page). The 5V power source voltage in the ECM is applied to the intake air temperature sensor from the terminal THA via a resistor R.

That is, the resistor R and the intake air temperature sensor are connected in series. When the resistance value of the intake air temperature sensor changes in accordance with changes in the intake air temperature, the potential at terminal THA also changes. Based on this signal, the ECM increases the fuel injection volume to improve driveability during cold engine operation.

If the ECM detects the DTC P0110, it operates the fail safe function in which the intake air temperature is assumed to be 20°C (68°F).

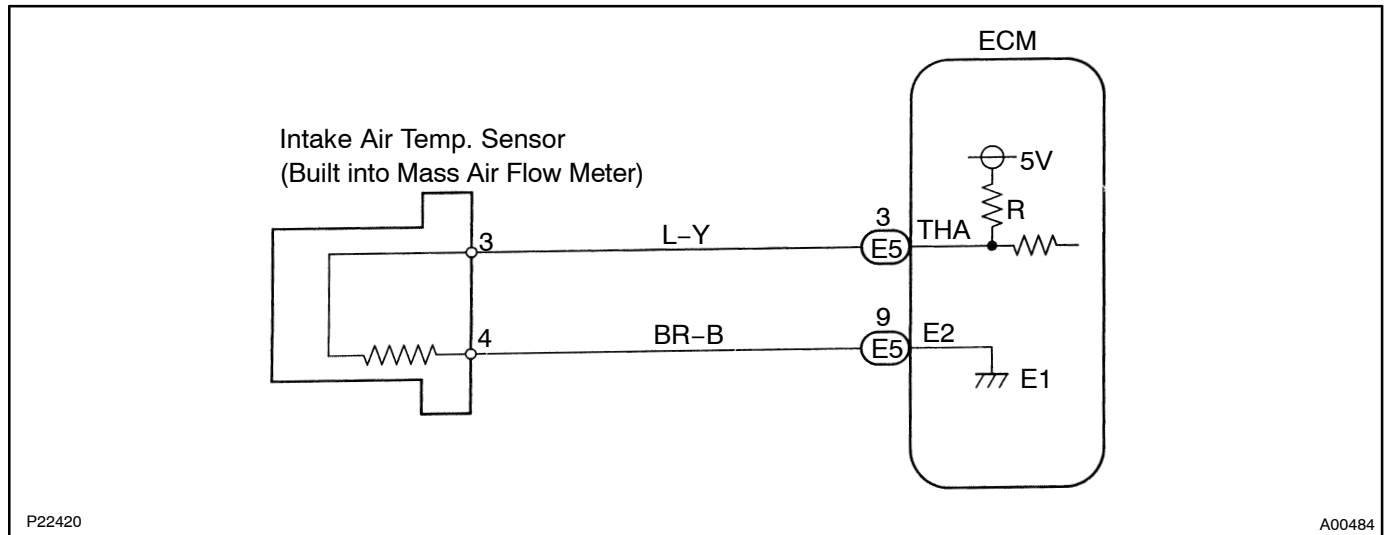
DTC No.	DTC Detection Condition	Trouble Area
P0110	Open or short in intake air temp. sensor circuit	• Open or short in intake air temp. sensor circuit • Intake air temp. sensor • ECM

HINT:

After confirming DTC P110, use the OBD II scan tool or LEXUS hand-held tester to confirm the intake air temp. from the CURRENT DATA.

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

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

If DTC P0110, P0115, P0116, P0120 and P0121 are output simultaneously, E2 (sensor ground) may be open.

1	Connect OBD II scan tool or LEXUS hand-held tester, and read value of intake air temp.
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PREPARATION:

- Remove the fuse cover on the instrument panel.
- Connect the OBD II scan tool or LEXUS hand-held tester to DLC3.
- Turn the ignition switch ON and push the OBD II scan tool or LEXUS hand-held tester main switch ON.

CHECK:

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

OK:

Same as actual intake temperature

HINT:

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

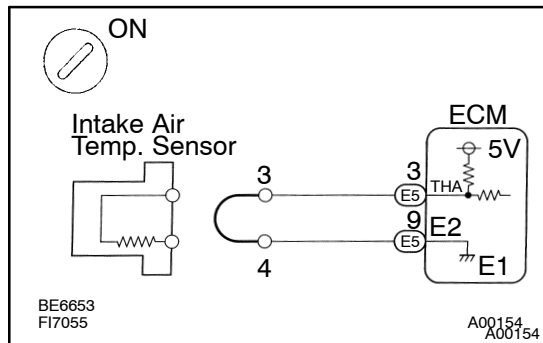
NG

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

OK

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

2 Check for open in harness or ECM.



PREPARATION:

- Disconnect the mass air flow meter connector.
- Connect sensor wire harness terminals together.
- Turn the ignition switch ON.

CHECK:

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

OK:

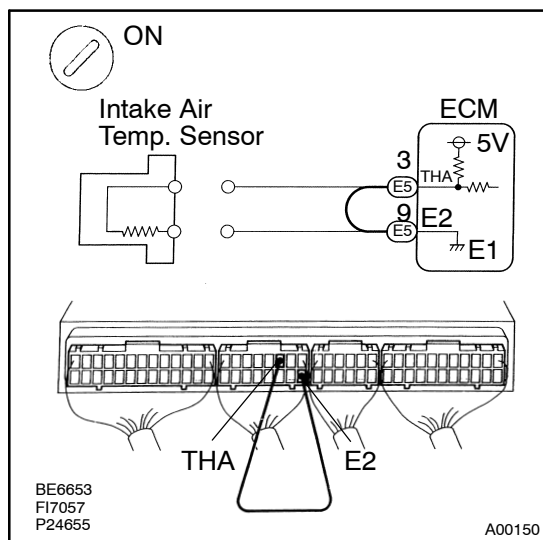
Temperature value: 140°C (284°F) or more

OK

Confirm good connection at sensor.
If OK, replace intake air temp. sensor.

NG

3 Check for open in harness or ECM.



PREPARATION:

- Remove the instrument panel speaker No.1 panel (See page [SF-63](#)).
- Connect between terminals THA and E2 of ECM connector.

HINT:

The mass air flow meter connector is disconnected.

Before checking, do a visual and contact pressure check for the ECM connector (See page [IN-27](#)).

- Turn the ignition switch ON.

CHECK:

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

OK:

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

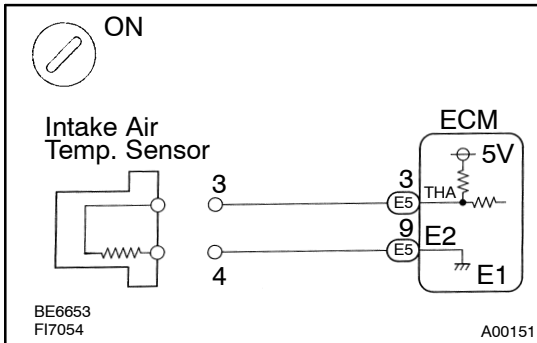
OK

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

NG

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

4 Check for open in harness and ECM.



PREPARATION:

- Disconnect the mass air flow meter connector.
- Turn the ignition switch ON.

CHECK:

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

OK:

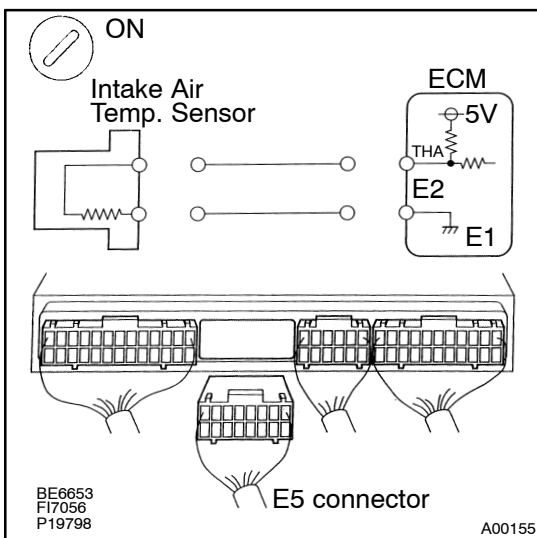
Temperature value: -40°C (-40°F)

OK

Replace intake air temp. sensor.

NG

5 Check for short in harness or ECM.



PREPARATION:

- Remove the instrument panel speaker No.1 panel (See page [SF-63](#))
- Disconnect the E5 connector of ECM.

HINT:

The mass air flow meter connector is disconnected.

- Turn the ignition switch ON.

CHECK:

Read the 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-27](#)).