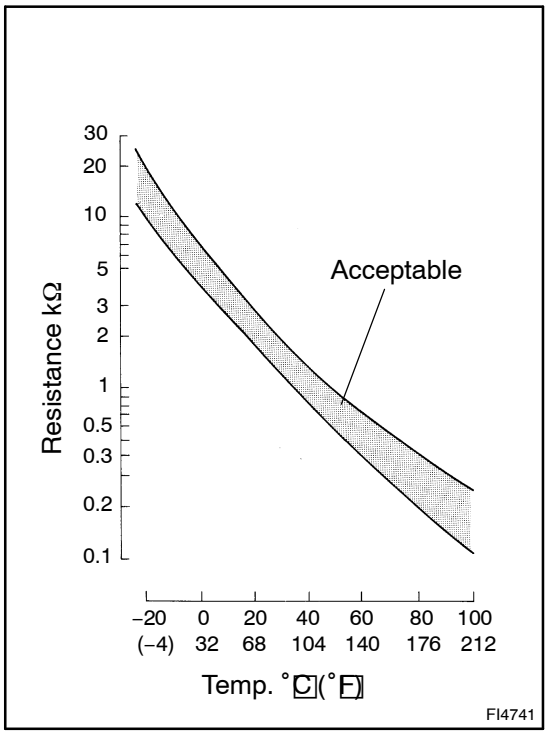
DI9S3–01

DTC	24	Atmospheric Temp. Sensor Circuit Malfunction

CIRCUIT DESCRIPTION



The atmospheric temperature sensor is built in the air flow meter and senses the atmospheric temperature. A thermistor built in the sensor changes the resistance value according to the atmospheric temperature as shown in the illustration. Based on this resistance, the engine ECU controls the fuel injection volume to improve driveability.

DTC No.	DTC Detecting Condition	Trouble Area
24	Open or short in atmospheric temp. sensor circuit for 0.5 sec. or more	• Open or short in air flow meter circuit • Atmospheric temp. sensor (built in air flow meter) • Engine ECU

HINT:
After confirming DTC 24, use the hand–held tester to confirm the atmospheric temperature from the CURRENT DATA.

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

WIRING DIAGRAM

Refer to DTC 31 (1) on page DI–56

INSPECTION PROCEDURE

HINT:
Read freeze frame data on the hand–held tester. Because freeze frame data records the engine conditions when the malfunction is detected. When troubleshooting it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, etc. at the time of the malfunction.

When using hand–held tester:

1	**Read value of atmospheric temperature on hand–held tester.**

OK:

The same as the actual atmospheric temperature.

HINT:

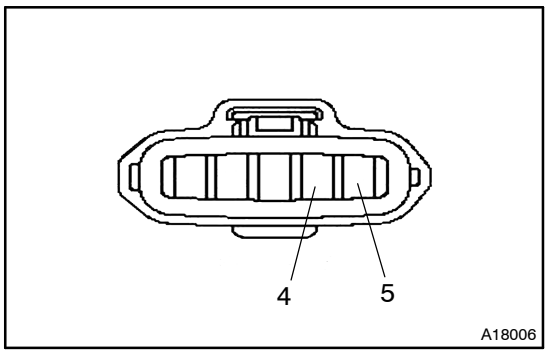
- If there is an open circuit, the hand–held tester indicates –40°C (–40°F).
- If there is a short circuit, the hand–held tester indicates 140°C (284°F) or more.

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–4).

2	**Check for open in harness or engine ECU.**



PREPARATION:

(a) Disconnect the air flow meter connector.
(b) Connect terminal 4 and 5 of the air flow meter connector.
(c) Turn the ignition switch ON.

CHECK:

Read the temperature value on the hand–held tester.

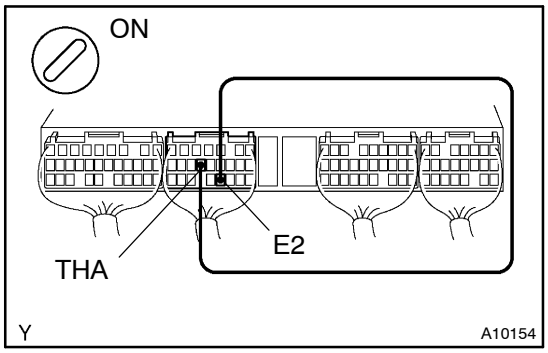
OK:

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

OK → **Confirm good connection at sensor. If OK, replace air flow meter.**

NG

3	Check for open in harness or engine ECU.



PREPARATION:

(a) Remove the glove compartment box.
(b) Connect terminals THA and E2.
(c) Disconnect the air flow meter connector
(d) Turn the ignition switch ON.

CHECK:

Read the temperature value on the hand–held tester.

OK:

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

OK	Open in harness between terminal E2 or THA, repair or replace harness.

NG

Confirm good connection at engine ECU. If OK, replace engine ECU.

4	Check for short in harness and engine ECU.

PREPARATION:

(a) Disconnect the air flow meter connector.
(b) Turn the ignition switch ON.

CHECK:

Read the temperature value on the hand–held tester.

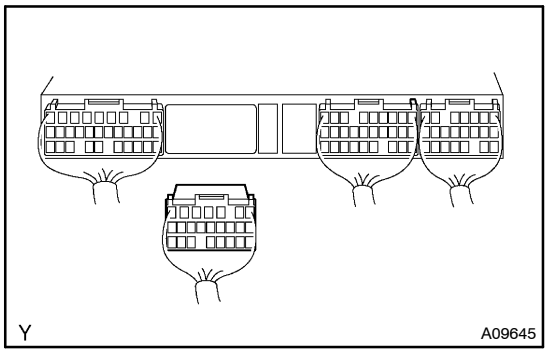
OK:

Temperature value: –40°C (–40°F)

OK	Replace air flow meter.

NG

5	Check for short in harness or engine ECU.



PREPARATION:

(a) Remove the glove compartment box.
(b) KLH:
Disconnect the E16 connector from the engine ECU.
(c) KDN:
Disconnect the E5 connector from the engine ECU.
(d) Disconnect the air flow meter connector.
(e) Turn the ignition switch ON.

CHECK:

Read the temperature value on the hand–held tester.

OK:

Temperature value: –40°C (–40°F)

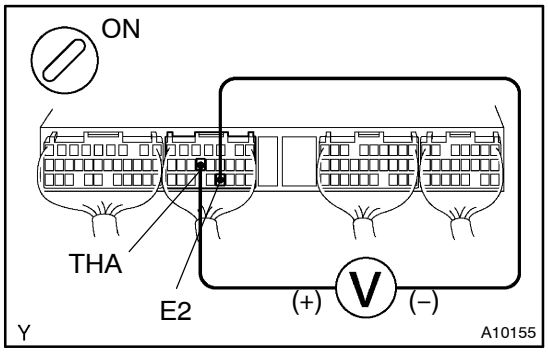
OK	Repair or replace harness or connector.

NG

Check and replace engine ECU (See page IN–20).

When not using hand–held tester:

1	Check voltage between terminals THA and E2 of engine ECU connector.



PREPARATION:

(a) Remove the glove compartment box.
(b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals THA and E2.

OK:

Atmospheric Temperature	Standard voltage
20 °C (68 °F)	0.2 – 3.8 V
80 °C (176 °F)	0.1 – 1.5 V

OK	Check for intermittent problems (See page DI–4).

NG

2	Check atmospheric temperature sensor (See page ED–14).

NG → Replace air flow meter.

OK

3	Check for open and short in harness and connector between engine ECU and atmospheric temperature sensor (See page IN–20).

NG → Repair or replace harness or connector.

OK

Check and replace engine ECU (See page IN–20).