DTC	B1412/12	Ambient Temperature Sensor Circuit

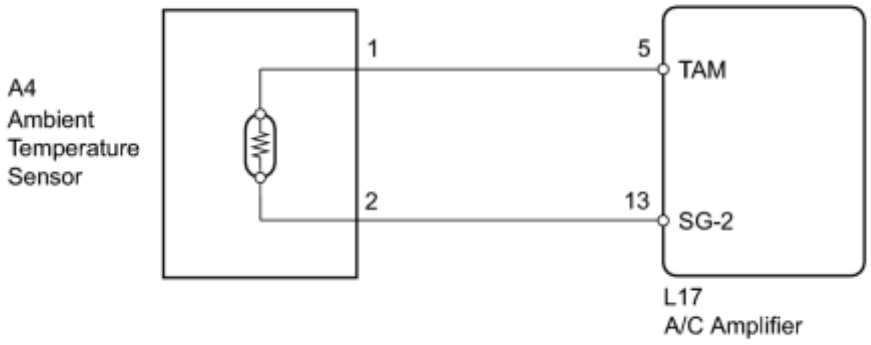
DESCRIPTION

The ambient temperature sensor is installed in front of the condenser. It detects the ambient temperature to control air conditioning AUTO mode. This sensor is connected to the A/C amplifier and detects fluctuations in the ambient temperature. This data is used for controlling the cabin temperature. The sensor sends a signal to the A/C amplifier. The resistance of the ambient temperature sensor changes in accordance with the ambient temperature. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The A/C amplifier applies voltage (5 V) to the ambient temperature sensor and reads voltage changes as the resistance of the ambient temperature sensor changes.

DTC No.	DTC Detection Condition	Trouble Area
B1412/12	Open or short in ambient temperature sensor circuit	• Ambient temperature sensor • Harness or connector between ambient temperature sensor and A/C amplifier • A/C amplifier

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Check the value(s) by referring to the table below.

Air Conditioner

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Ambient Temp Sensor	Ambient temperature sensor / Min: -23.3°C (-9.94°F) Max: 65.95°C (150.71°F)	Actual ambient temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

Result:

Result	Proceed to
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC)	C

C REPLACE A/C AMPLIFIER

B PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

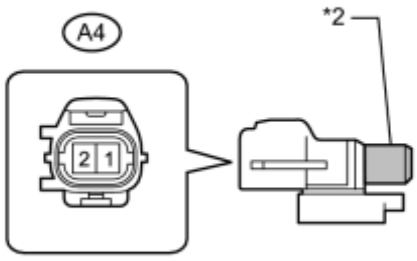
A

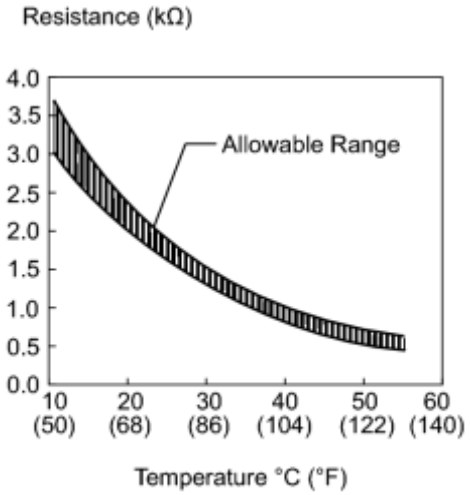
2.	INSPECT AMBIENT TEMPERATURE SENSOR

(a) Remove the ambient temperature sensor.

(b) Disconnect the ambient temperature sensor connector.

*1





(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A4-1 - A4-2	10°C (50°F)	3.00 to 3.73 kΩ
A4-1 - A4-2	15°C (59°F)	2.45 to 2.88 kΩ
A4-1 - A4-2	20°C (68°F)	1.95 to 2.30 kΩ
A4-1 - A4-2	25°C (77°F)	1.60 to 1.80 kΩ
A4-1 - A4-2	30°C (86°F)	1.28 to 1.47 kΩ
A4-1 - A4-2	35°C (95°F)	1.00 to 1.22 kΩ
A4-1 - A4-2	40°C (104°F)	0.80 to 1.00 kΩ
A4-1 - A4-2	45°C (113°F)	0.65 to 0.85 kΩ
A4-1 - A4-2	50°C (122°F)	0.50 to 0.70 kΩ
A4-1 - A4-2	55°C (131°F)	0.44 to 0.60 kΩ
A4-1 - A4-2	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph).

Text in Illustration

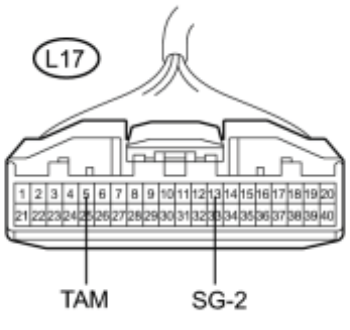
*1	Component without harness connected (Ambient Temperature Sensor)
*2	Sensing Portion

NG REPLACE AMBIENT TEMPERATURE SENSOR

OK

3.	CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR - A/C AMPLIFIER)

*1



H

(a) Disconnect the A/C amplifier connector.

*2

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L17-5 (TAM) - A4-1	Always	Below 1 Ω
L17-13 (SG-2) - A4-2	Always	Below 1 Ω
L17-5 (TAM) - Body ground	Always	10 kΩ or higher
L17-13 (SG-2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to A/C Amplifier)
*2	Front view of wire harness connector (to Ambient Temperature Sensor)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ **REPLACE A/C AMPLIFIER**