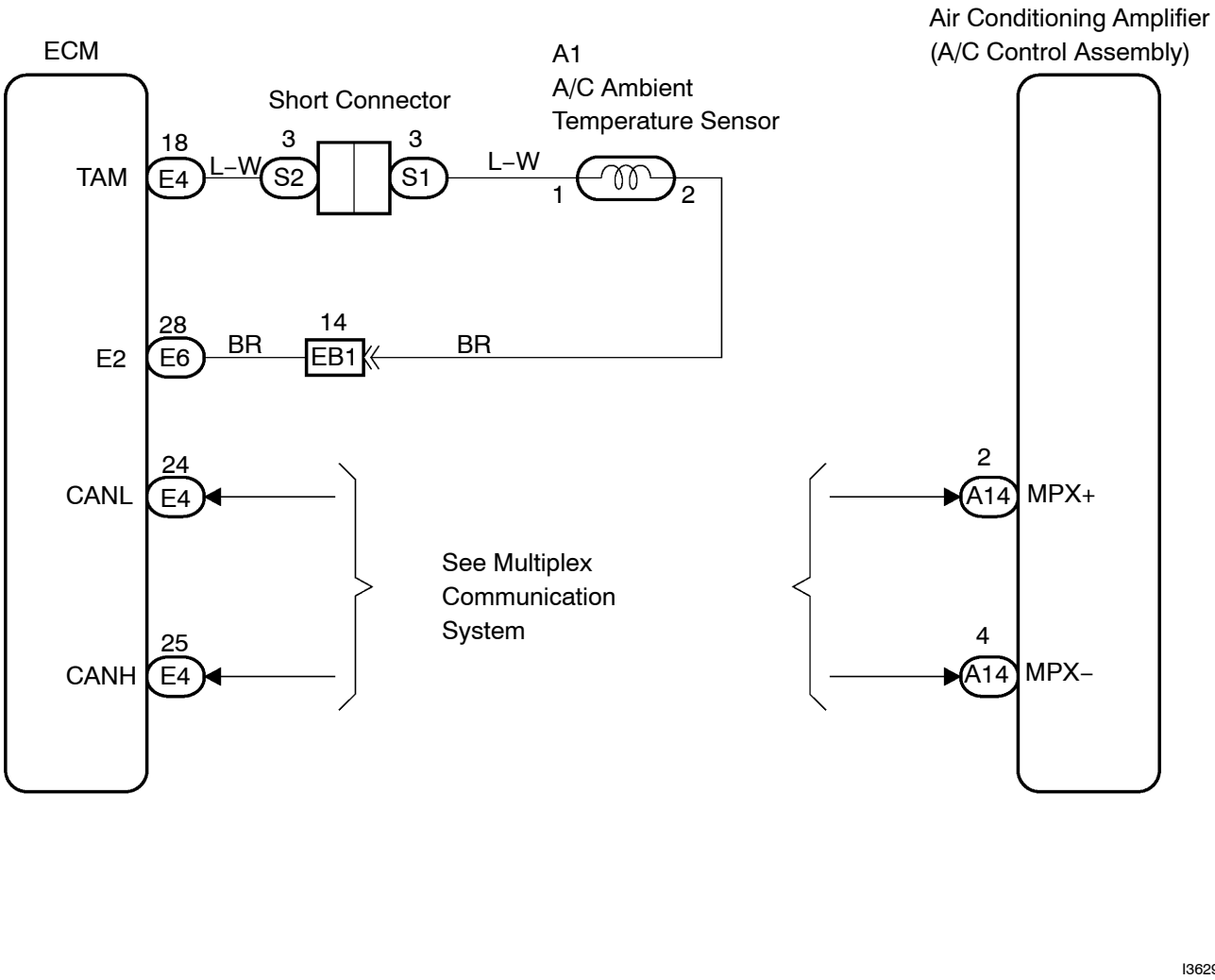
DTC B1412 AMBIENT TEMPERATURE SENSOR CIRCUIT

CIRCUIT DESCRIPTION

The sensor connected to the ECM detects fluctuations in the ambient temperature that is used for controlling the interior temperature. The sensor sends a signal to the A/C amplifier via the ECM.

DTC No.	Detection item	Trouble Area
B1412	Ambient temperature sensor circuit (Open or short)	• A/C ambient temperature sensor • Harness or connector between cooler A/C ambient temperature sensor and ECM • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE ON INTELLIGENT TESTER II

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch to the ON position and push the intelligent tester II main switch on.
(c) Select the item below in the DATA LIST, and read the display on the intelligent tester II.

DATA LIST / AIR CONDITIONER:

Item	Measurement Item/Display (Range)	Normal Condition	Diagnostic Note
Ambient temperature sensor (AmbiTemp Sens)	Ambient temperature sensor / min.: –23.3°C (–9.94°F) max.: 65.95°C (150.71°F)	Actual ambient temperature is displayed	–

OK:

The display is as specified in the normal condition.

Result:

NG	A
OK (Checking from the PROBLEM SYMPTOM TABLE)	B
OK (Checking from the DTC)	C

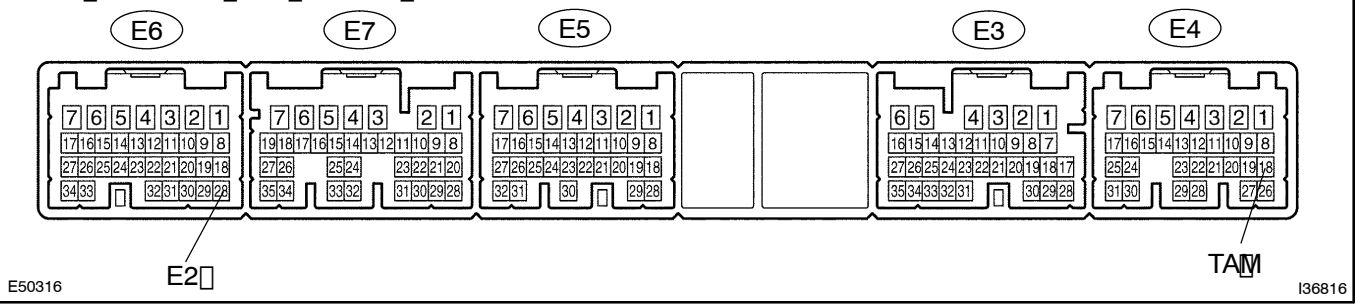
B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05–778)**

C → **REPLACE AIR CONDITIONING AMPLIFIER (SEE PAGE 55–15)**

A

2	INSPECT ECM (TAM – E2)

ECM Connector Wire Harness View:



(a) Remove the ECM with connectors still connected.

(b) Turn the ignition switch to the ON position.

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

Standard:

Tester connection	Condition	Specified condition
E4–18 (TAM) – E6–28 (E2)	Ignition switch ON at 25°C (77°F)	2.0 ± 0.2 V
E4–18 (TAM) – E6–28 (E2)	Ignition switch ON at 40°C (104°F)	1.4 ± 0.2 V

HINT:

As the temperature increases, the voltage decreases.

Result:

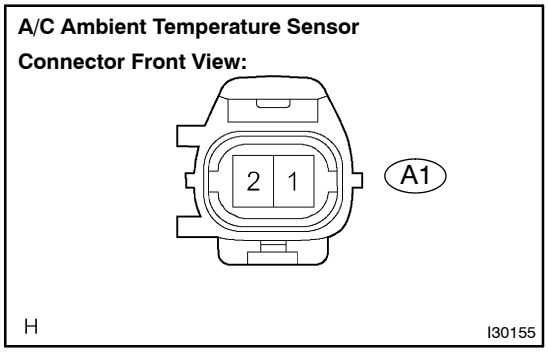
NG	A
OK (Checking from the PROBLEM SYMPTOM TABLE)	B
OK (Checking from the DTC)	C

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05–778)**

C → **REPLACE ECM (SEE PAGE 10–21)**

A

3 INSPECT A/C AMBIENT TEMPERATURE SENSOR



(a) Remove the A/C ambient temperature sensor.

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

Standard:

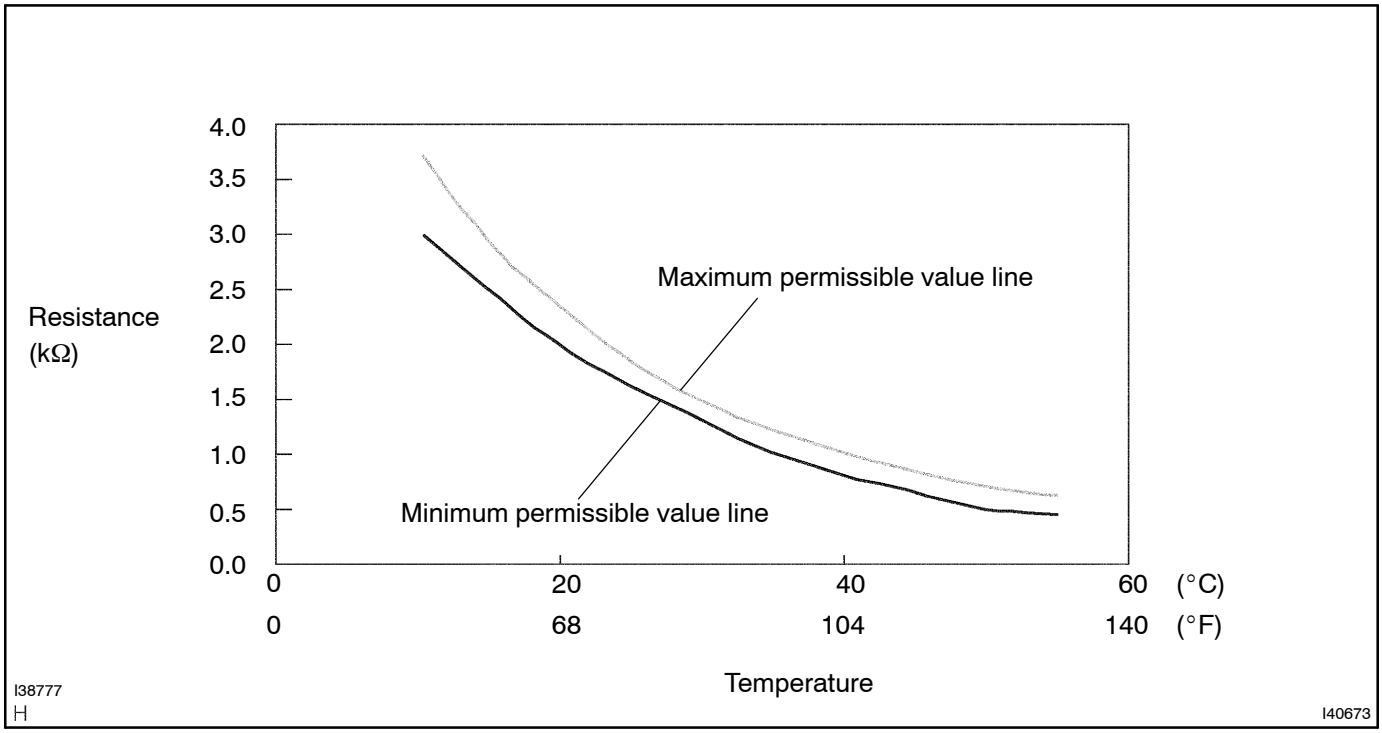
Tester connection	Condition	Specified condition
A1–1 – A1–2	10°C (50°F)	3.00 to 3.73 kΩ
A1–1 – A1–2	15°C (59°F)	2.45 to 2.88 kΩ
A1–1 – A1–2	20°C (68°F)	1.95 to 2.30 kΩ
A1–1 – A1–2	25°C (77°F)	1.60 to 1.80 kΩ
A1–1 – A1–2	30°C (86°F)	1.28 to 1.47 kΩ
A1–1 – A1–2	35°C (95°F)	1.00 to 1.22 kΩ
A1–1 – A1–2	40°C (104°F)	0.80 to 1.00 kΩ
A1–1 – A1–2	45°C (113°F)	0.65 to 0.85 kΩ
A1–1 – A1–2	50°C (122°F)	0.50 to 0.70 kΩ
A1–1 – A1–2	55°C (131°F)	0.44 to 0.60 kΩ
A1–1 – A1–2	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- **Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.**
- **When measuring, the sensor temperature must be the same as the ambient temperature.**

HINT:

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

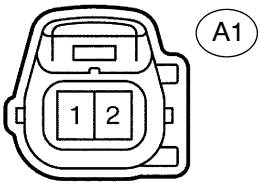


NG → REPLACE A/C AMBIENT TEMPERATURE SENSOR

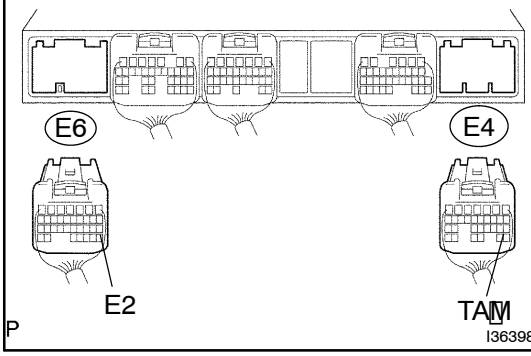
OK

4	CHECK HARNESS AND CONNECTOR(ECM–A/C AMBIENT TEMPERATURE SENSOR) (SEE PAGE 01–44)

A/C Ambient Temperature Sensor Connector Front View:



ECM Connector Wire Harness View:



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

Standard:

Tester connection	Condition	Specified condition
E4–18 (TAM) – A1–1	Always	Below 1 Ω
E6–28 (E2) – A1–2	Always	Below 1 Ω
E4–18 (TAM) – Body ground	Always	10 kΩ or higher
E6–28 (E2) – Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (SEE PAGE 10–21)