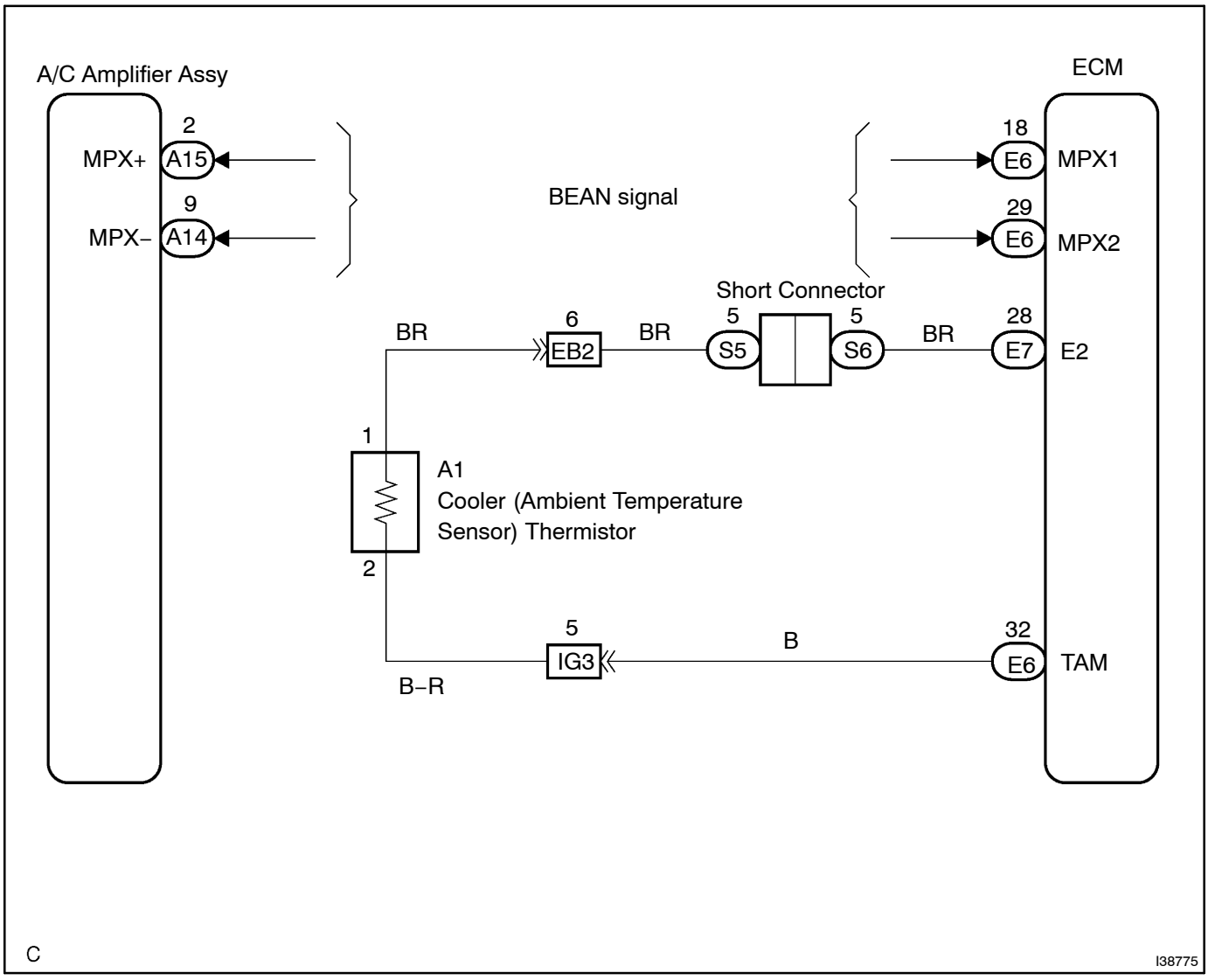
DTC B1412/12 AMBIENT TEMPERATURE SENSOR CIRCUIT

CIRCUIT DESCRIPTION

The ECM and A/C amplifier communicate via BEAN.
This sensor detects the temperature outside the cabin and sends the appropriate signals to the A/C amplifier assy.

DTC No.	Detection item	Trouble Area
B1412/12	Open or short in ambient temperature sensor circuit	• Cooler (ambient temperature sensor) thermistor • Harness or connector between cooler (ambient temperature sensor) thermistor and ECM • ECM • A/C amplifier assy

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
In case of using the intelligent tester II, start the inspection from step 1, and in case of not using the intelligent tester II, start from step 2.

1 READ VALUE ON INTELLIGENT TESTER II

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the ignition switch ON 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.

A C:

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

Result:

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

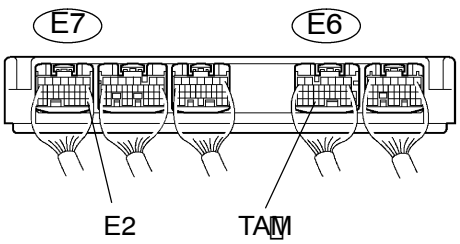
B → **REPLACE ECM**

C → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05–435)**

A

2 INSPECT ECM(TAM, E2)

ECM Connector Wire Harness View:



(a) Remove 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
E6–32 (TAM) – E7–28 (E2)	at 25°C (77°F)	1.4 to 1.8 V
E6–32 (TAM) – E7–28 (E2)	at 40°C (104°F)	0.8 to 1.2 V

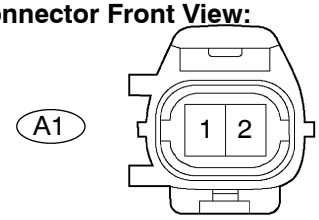
HINT:
As the temperature increases, the voltage decreases.

OK → **REPLACE ECM**

NG

3 INSPECT COOLER (AMBIENT TEMP. SENSOR) THERMISTOR

Ambient Temperature Sensor Connector Front View:



H I30487

(a) Remove cooler (ambient temperature sensor) thermistor.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

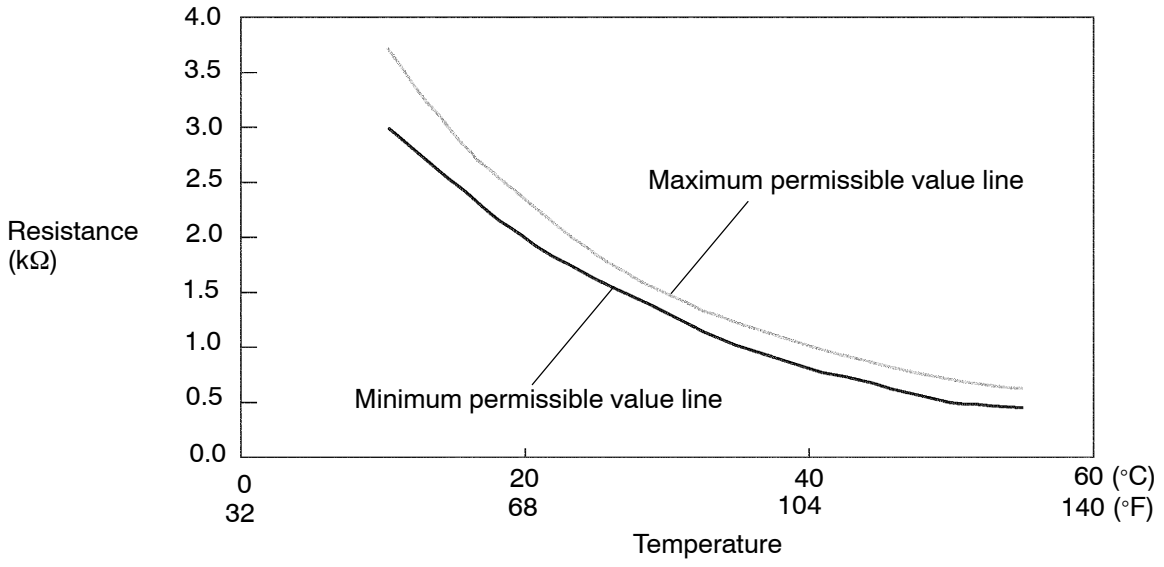
Tester connection	Condition	Specified condition
A1–1 – A1–2	10°C (50°F)	3.00 to 3.73 kΩ
A1–1 – A1–2	15°C (59°F)	2.45 to 2.88 kΩ
A1–1 – A1–2	20°F (68°F)	1.95 to 2.30 kΩ
A1–1 – A1–2	25°C (77°F)	1.60 to 1.80 kΩ
A1–1 – A1–2	30°C (86°F)	1.28 to 1.47 kΩ
A1–1 – A1–2	35°C (95°F)	1.00 to 1.22 kΩ
A1–1 – A1–2	40°C (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, it must be the same as the ambient temperature.**

HINT:

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



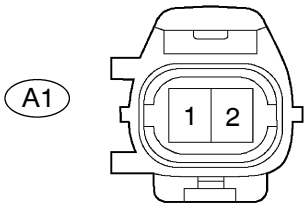
I38777
H I40673

NG	REPLACE COOLER (AMBIENT TEMP. SENSOR) THERMISTOR

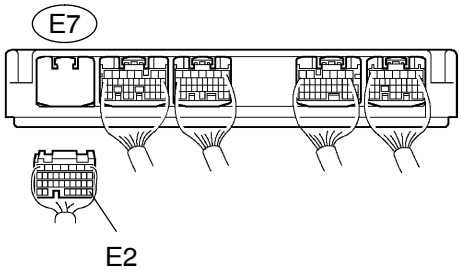
OK

4	CHECK HARNESS AND CONNECTOR(COOLER (AMBIENT TEMPERATURE SENSOR) THERMISTOR – ECM)

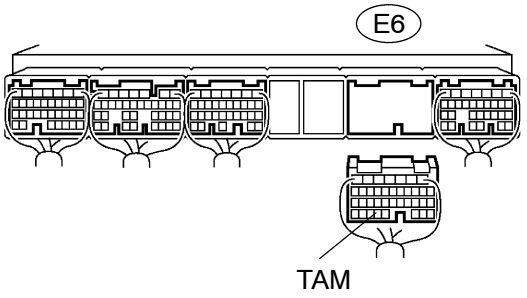
Ambient Temperature Sensor Connector Front View:



ECM Connector Wire Harness 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
E7–28 (E2) – A1–1	Always	Below 1 Ω
E6–32 (TAM) – A1–2	Always	Below 1 Ω
E7–28 (E2) – Body ground	Always	10 kΩ or higher
E6–32 (TAM) – Body ground	Always	10 kΩ or higher

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM