

DTC	AUTO,B/L	AMBIENT TEMPERATURE SENSOR CIRCUIT
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CIRCUIT DESCRIPTION

RHD 2AZ-FE models:

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 BEAN.

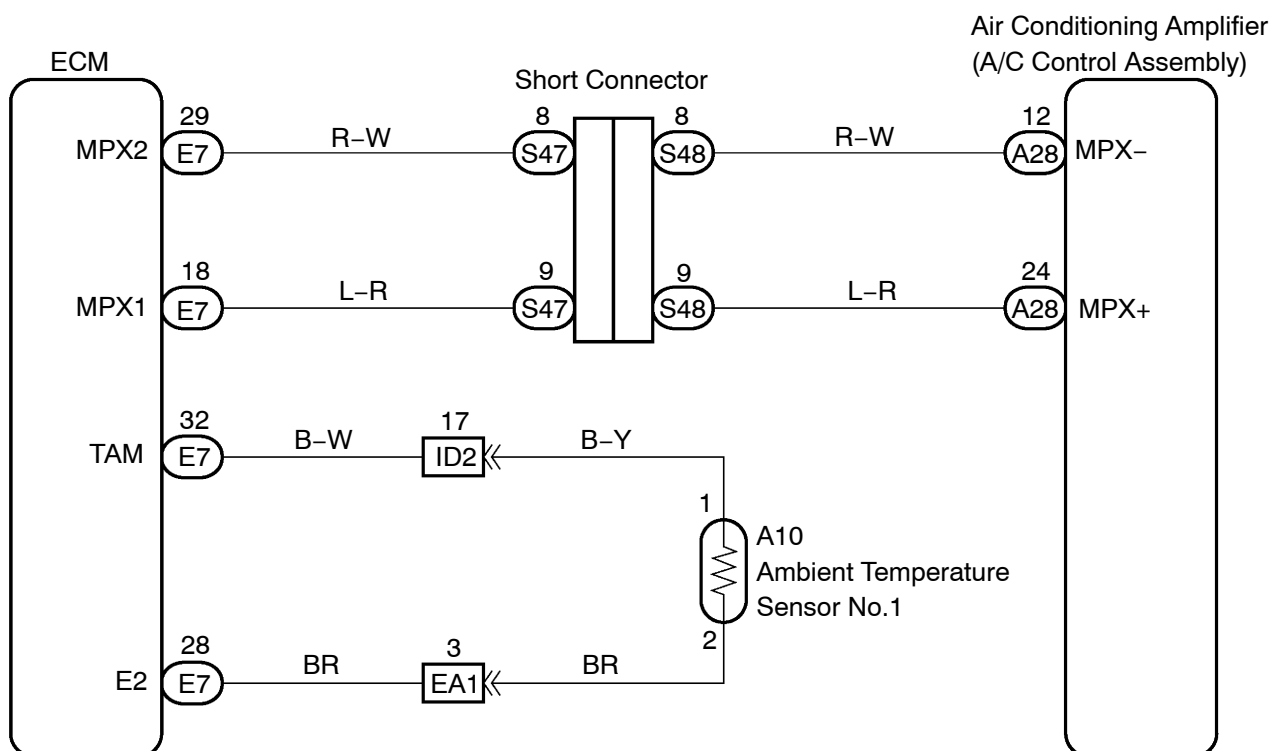
LHD, RHD Except 2AZ-FE models:

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

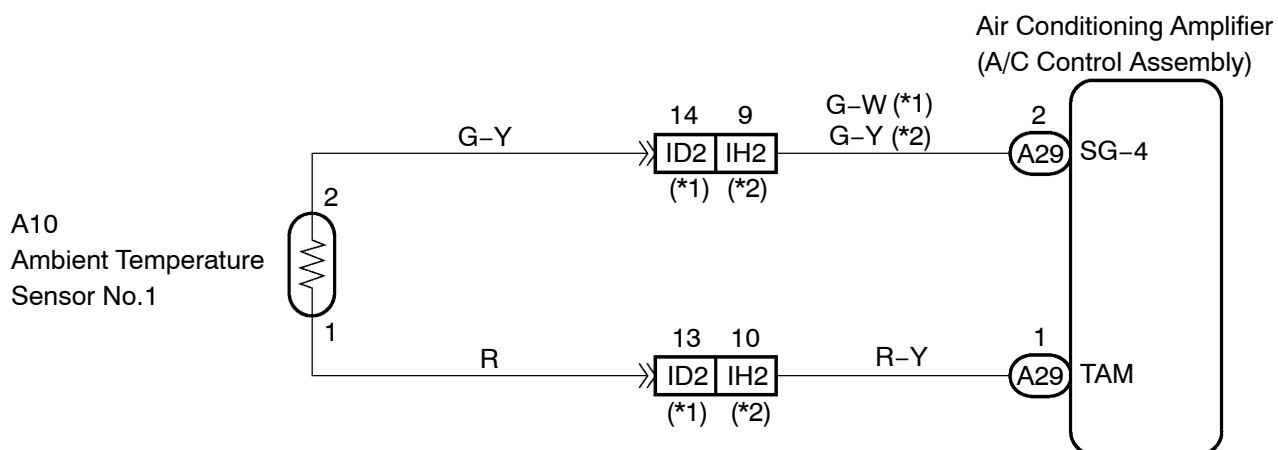
DTC No.	Detection item	Trouble Area
AUTO, B/L	Open or short in ambient temperature sensor circuit	<ul style="list-style-type: none">• A/C ambient temperature sensor RHD 2AZ-FE: <ul style="list-style-type: none">• Harness or connector between A/C ambient temperature sensor and ECM • ECM <ul style="list-style-type: none">• Multiplex communication system LHD, RHD Except 2AZ-FE: <ul style="list-style-type: none">• Harness or connector between A/C ambient temperature sensor and A/C amplifier• A/C amplifier

WIRING DIAGRAM

RHD 2AZ-FE model:



LHD, RHD Except 2AZ-FE model:



*1: LHD

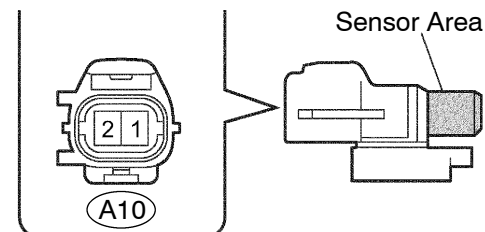
*2 RHD Except 2AZ-FE

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INSPECTION PROCEDURE

1 INSPECT A/C AMBIENT TEMPERATURE SENSOR

A/C Ambient Temperature
Sensor Connector Front View:

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- (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
A10-1 - A10-2	10°C (50°F)	3.00 to 3.73 kΩ
A10-1 - A10-2	15°C (59°F)	2.45 to 2.88 kΩ
A10-1 - A10-2	20°C (68°F)	1.95 to 2.30 kΩ
A10-1 - A10-2	25°C (77°F)	1.60 to 1.80 kΩ
A10-1 - A10-2	30°C (86°F)	1.28 to 1.47 kΩ
A10-1 - A10-2	35°C (95°F)	1.00 to 1.22 kΩ
A10-1 - A10-2	40°C (104°F)	0.80 to 1.00 kΩ
A10-1 - A10-2	45°C (113°F)	0.65 to 0.85 kΩ
A10-1 - A10-2	50°C (122°F)	0.50 to 0.70 kΩ
A10-1 - A10-2	55°C (131°F)	0.44 to 0.60 kΩ
A10-1 - A10-2	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 on the left).

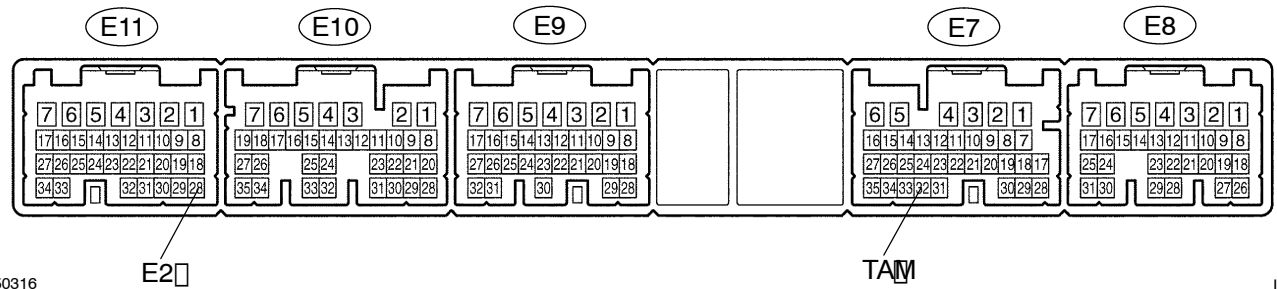
NG**REPLACE A/C AMBIENT TEMPERATURE SENSOR****OK**

2 CONFIRM MODEL

Result:**A: RHD 2AZ-FE****B: LHD, RHD Except 2AZ-FE****B****Go to step 5****A**

3 INSPECT ECM (TAM - E2)

ECM Connector Wire Harness View:



- (a) Remove the ECM with the 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
E7-32 (TAM) - E11-28 (E2)	Ignition switch ON at 25°C (77°F)	1.8 to 2.2 V
E7-32 (TAM) - E11-28 (E2)	Ignition switch ON at 40°C (104°F)	1.2 to 1.6 V

HINT:
As the temperature increases, the voltage decreases.

Result:

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

B

PROCEED TO NEXT CIRCUIT INSPECTION
SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-862)

C

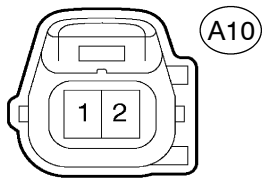
REPLACE ECM

A

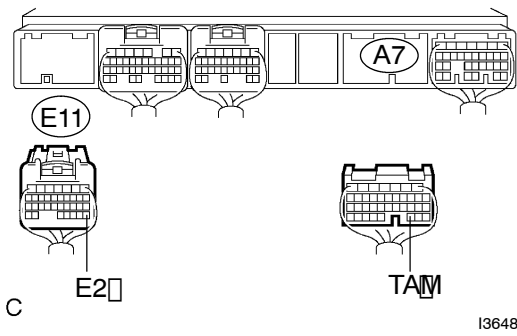
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CHECK HARNESS AND CONNECTOR (A/C AMBIENT TEMPERATURE SENSOR – ECM) (SEE PAGE 01-32)

A/C Ambient Temperature Sensor Connector Front View:



ECM Connector Wire Harness View:



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- (a) Disconnect the connectors from the A/C ambient temperature sensor and ECM.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
E7-32 (TAM) – A10-1	Always	Below 1 Ω
E11-28 (E2) – A10-2	Always	Below 1 Ω
E7-32 (TAM) – Body ground	Always	10 kΩ or higher
E11-28 (E2) – Body ground	Always	10 kΩ or higher

NG

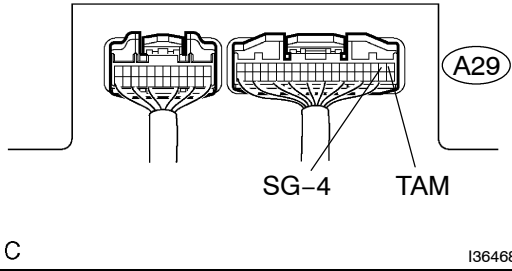
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM

5 INSPECT AIR CONDITIONING AMPLIFIER (TAM - SG-4)

Air Conditioning Amplifier Connector Wire Harness View:



- (a) Remove the A/C amplifier with the 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
A29-1 (TAM) - A29-2 (SG-4)	Ignition switch ON at 25°C (77°F)	1.8 to 2.2 V
A29-1 (TAM) - A29-2 (SG-4)	Ignition switch ON at 40°C (104°F)	1.2 to 1.6 V

HINT:
As the temperature increases, the voltage decreases.

Result:

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

B

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-862)

C

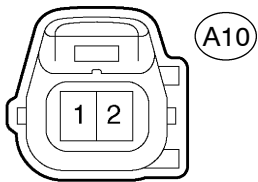
REPLACE AIR CONDITIONING AMPLIFIER (SEE PUB. NO. RM864E ON PAGE 55-96)

A

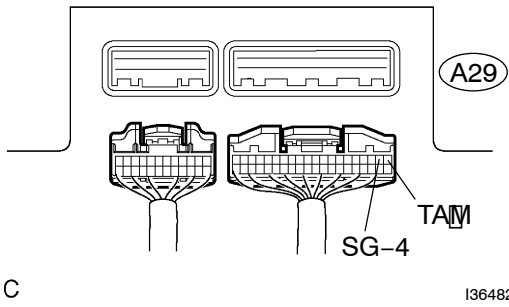
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CHECK HARNESS AND CONNECTOR (A/C AMBIENT TEMPERATURE SENSOR – AIR CONDITIONING AMPLIFIER) (SEE PAGE 01-32)

A/C Ambient Temperature Sensor Connector Front View:



Air Conditioning Amplifier Connector Wire Harness View:



- (a) Disconnect the connectors from the A/C ambient temperature sensor and A/C amplifier.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A29-1 (TAM) – A10-1	Always	Below 1 Ω
A29-2 (SG-4) – A10-2	Always	Below 1 Ω
A29-1 (TAM) – Body ground	Always	10 kΩ or higher
A29-2 (SG-4) – Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER (SEE PUB. NO. RM864E ON PAGE 55-96)