

AMBIENT TEMPERATURE SENSOR CIRCUIT

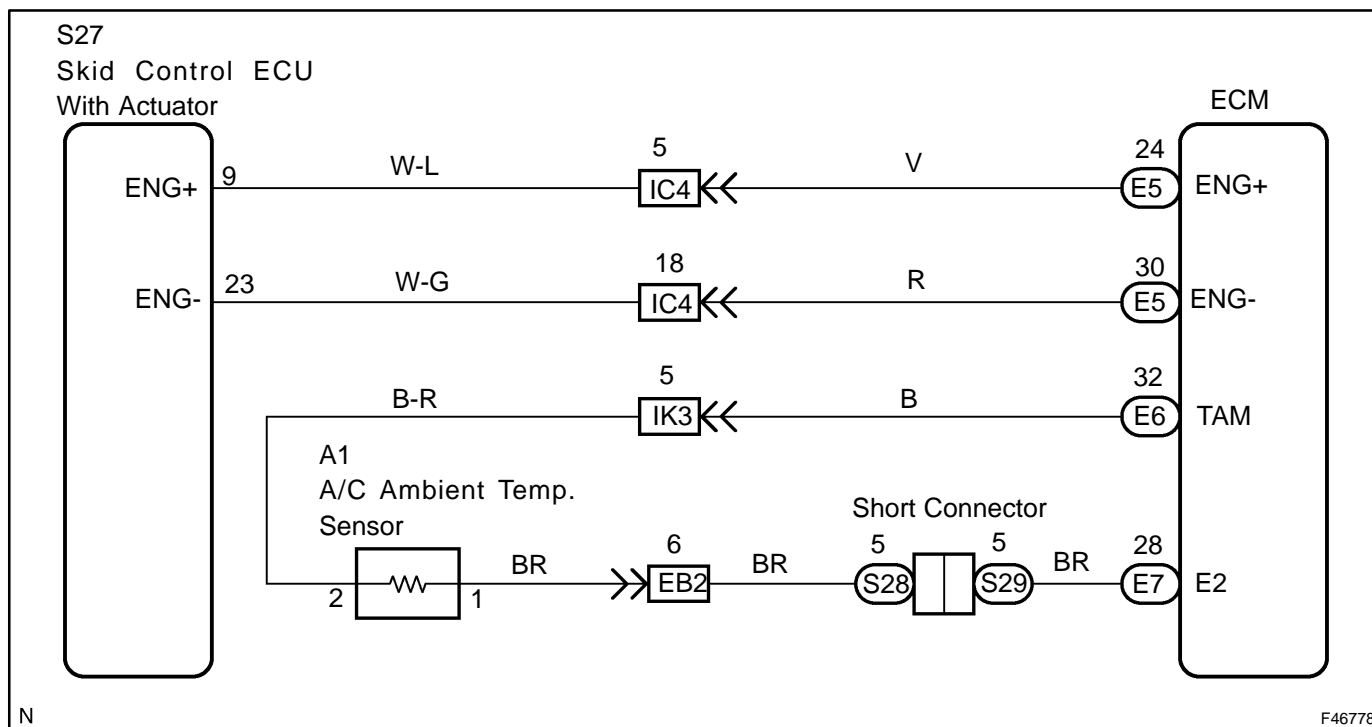
CIRCUIT DESCRIPTION

The ambient temperature sensor sends the outside temperature signal to the ECM. The ECM transmits the signal to the skid control ECU as a communication signal. The skid control ECU controls the tire pressure warning system, depending on the changes of the outside temperature.

HINT:

The signal sent from the ambient temperature sensor is also used in the A/C.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK DIAGNOSTIC CODE OUTPUT

- (a) Check if the normal code is output by air conditioning system (see page 05-1 117).

OK:

DTC is not output.

NG

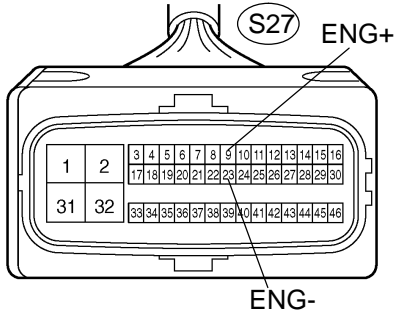
REPAIR CIRCUIT INDICATED BY OUTPUT CODE

OK

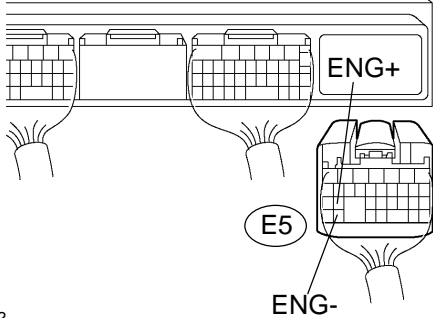
2

CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - ECM)
(SEE PAGE 01-36)

Wire Harness Side:



Wire Harness Side:



F45562
F45165

F45563

(a) Disconnect the brake actuator assy S27 connector and ECM E5 connector.

(b) Measure the resistance between each terminal of brake actuator assy and ECM wire harness side connectors.

Standard:

Tester connection	Specified condition
S27-9 (ENG+) - E5-24 (ENG+)	Below 1 Ω
S27-23 (ENG-) - E5-30 (ENG-)	Below 1 Ω

(c) Measure the resistance between each terminal of the brake actuator assy wire harness side connector and body ground.

Standard:

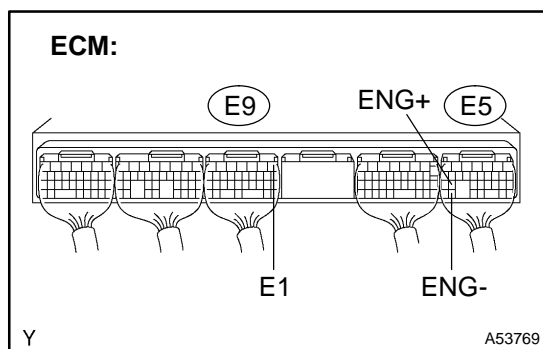
Tester connection	Specified condition
S27-9 (ENG+) - Body ground	10 k Ω or higher
S27-23 (ENG-) - Body ground	10 k Ω or higher

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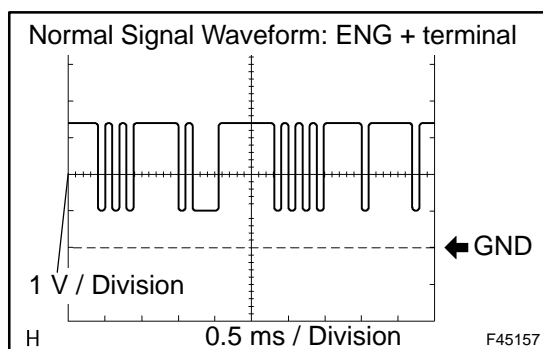
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3 INSPECT ECM(ENG+, ENG- OUTPUT)



- Connect the brake actuator assy S27 connector and ECM E5 connector.
- Remove the ECM with the connectors connected.
- Turn the ignition switch to the ON position.



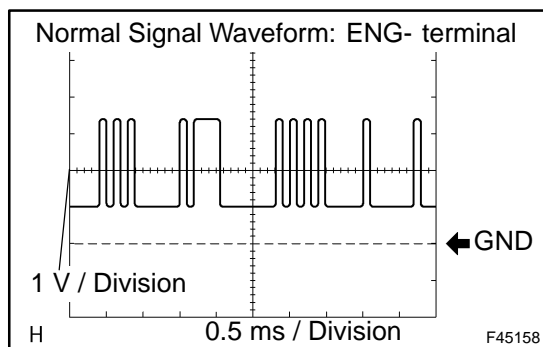
- Using an oscilloscope, connect the terminals, as shown in the chart below.

Tester Connection
E5-24 (ENG+) - E9-1 (E1)

- With the engine idling, check the output waveform.
OK:
Signal waveform appears as shown in the illustration.

HINT:

As the vehicle speed increases, the waveform cycle narrows.



- Using an oscilloscope, connect the terminals, as shown in the chart below.

Tester Connection
E5-30 (ENG-) - E9-1 (E1)

- With the engine idling, check the output waveform.
OK:
Signal waveform appears as shown in the illustration.

HINT:

As the engine speed increases, the waveform cycle narrows.

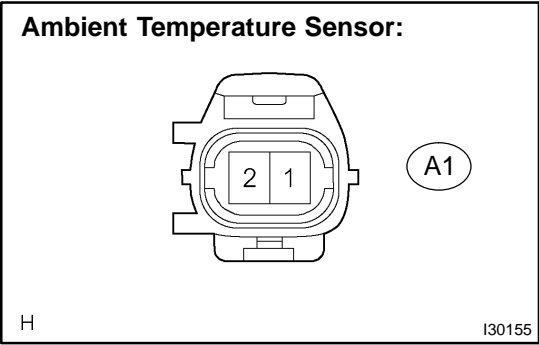
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REPLACE ECM

OK

4

INSPECT AMBIENT TEMPERATURE SENSOR



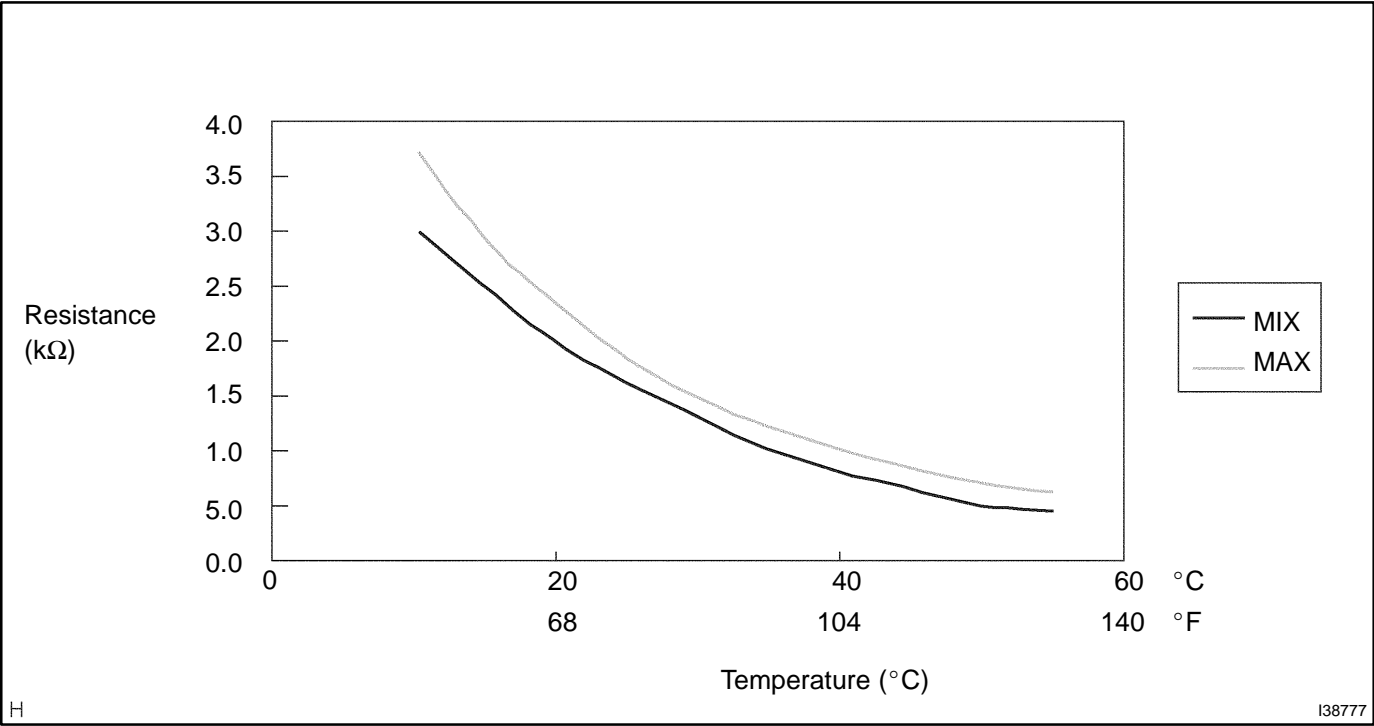
- (a) Remove the ambient temperature sensor and disconnect the A1 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

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

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

NOTICE:
Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.



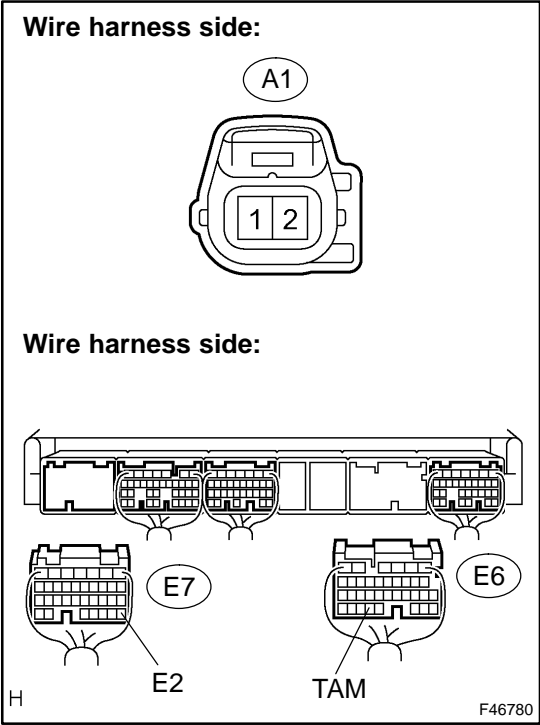
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REPLACE AMBIENT TEMPERATURE SENSOR

OK

5

CHECK HARNESS AND CONNECTOR(ECM - AMBIENT TEMPERATURE SENSOR)
(SEE PAGE 01-36)



- (a) Disconnect the ECM E6 and E7 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
E6-32 (TAM) - A1-2	Always	Below 1 Ω
E7-28 (E2) - A1-1	Always	Below 1 Ω
E6-32 (TAM) - Body ground	Always	10 kΩ or higher
E7-28 (E2) - Body ground	Always	10 kΩ or higher

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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM (SEE PAGE 10-9 OR 10-24)