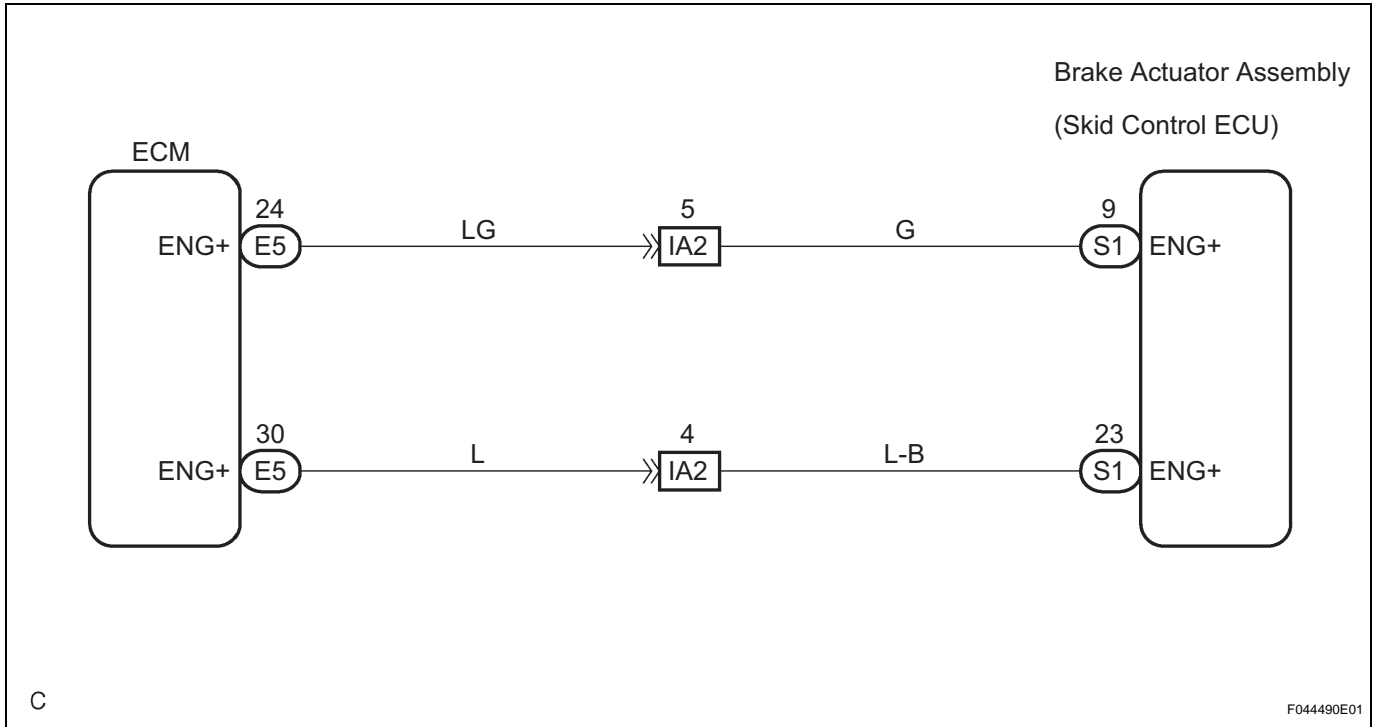## Ambient Temperature Sensor Circuit

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

Brake Actuator Assembly
(Skid Control ECU)

ECM

24 E5 ENG+ — LG — 5 IA2 — G — 9 S1 ENG+

30 E5 ENG+ — L — 4 IA2 — L-B — 23 S1 ENG+

C

F044490E01

1	CHECK DTC OUTPUT

(a) Check if the normal code is output by SFI system (See page ES-37).
OK:
    Normal code is output.

NG >	REPAIR CIRCUITS INDICATED BY OUTPUT DTCS

OK

TW

| 2 | CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - ECM) |

Brake Actuator Assembly Wire Harness Side Connector:

ENG+
ENG-

S1

1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16
31	32		17	18	19	20	21	22	23	24	25	26	27	28	29	30
			33	34	35	36	37	38	39	40	41	42	43	44	45	46

ECM Wire Harness Side Connector:

ENG+

E5

ENG-

F045563E01
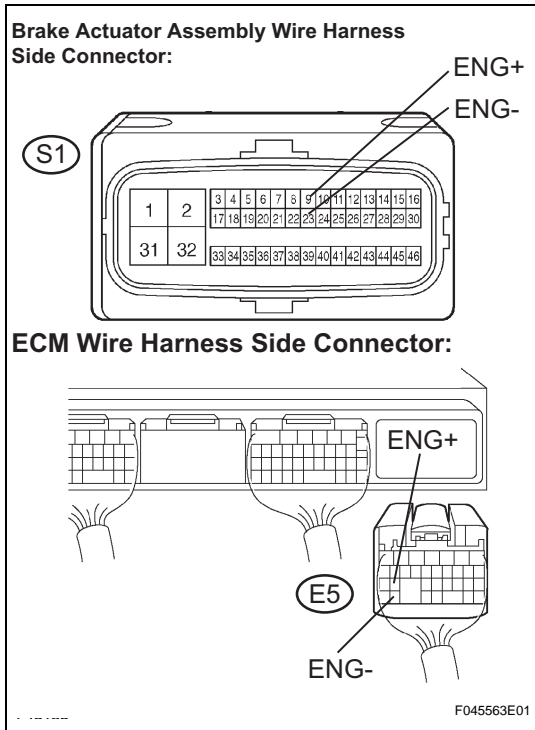
(a) Disconnect the brake actuator assembly S1 connector and ECM E5 connector.
(b) Measure the resistance between each terminal of brake actuator assembly and ECM wire harness side connectors.
Resistance

Tester connection	Specified condition
S1-9 (ENG+) - E5-24 (ENG+)	Below 1 Ω
S1-23 (ENG-) - E5-30 (ENG-)	Below 1 Ω

(c) Measure the resistance between each terminal brake actuator assembly wire harness side connector and body ground.
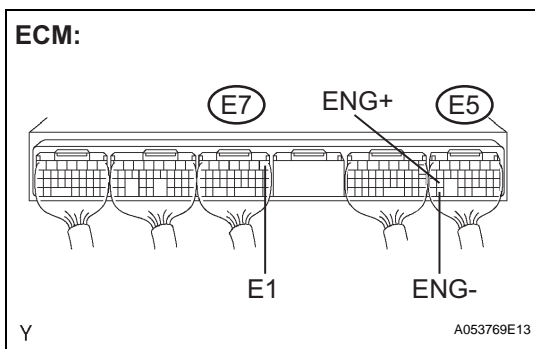**Resistance**

| Tester connection	Specified condition
S1-9 (ENG+) - Body ground	10 kΩ or higher
S1-23 (ENG-) - Body ground	10 kΩ or higher

| NG > | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

| 3 | INSPECT ECM (ENG+, ENG- OUTPUT) |

ECM:

E7   ENG+   E5

E1   ENG-

Y   A053769E13

(a) Connect the brake actuator assembly S1 connector and ECM E5 connector.
(b) Remove the ECM with the connectors connected.
(c) Turn the ignition switch to the ON position.
(d) Using an oscilloscope, connect the terminals, as shown in the chart below.

Tester Connection
E5-24 (ENG+) - E7-1 (E1)

Normal Signal Waveform

← GND

1 V/Division

0.5 ms/Division

H   F045157E01
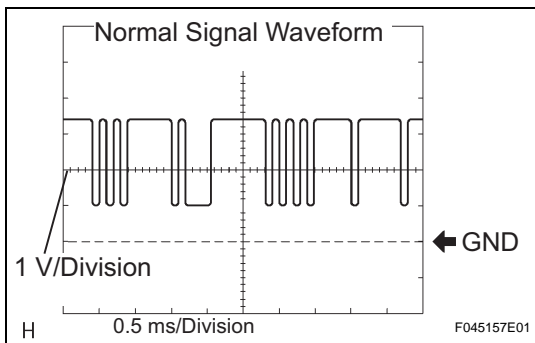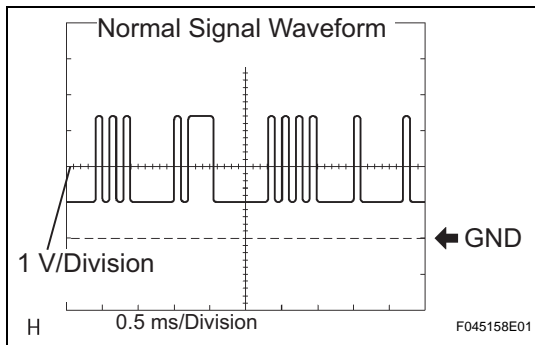
(e) With the engine idling, check the output waveform.
OK:
Signal waveform appears as shown in the illustration.
HINT:
As the vehicle speed increases, the waveform cycle narrows.
(f) Using an oscilloscope, connect the terminals, as shown in the chart below.

Tester Connection
E5-30 (ENG-) - E7-1 (E1)

TW

Normal Signal Waveform

← GND

1 V/Division

H   0.5 ms/Division   F045158E01

(g) 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.

NG ▷ **REPLACE ECM**

OK

REPLACE BRAKE ACTUATOR ASSEMBLY

TW