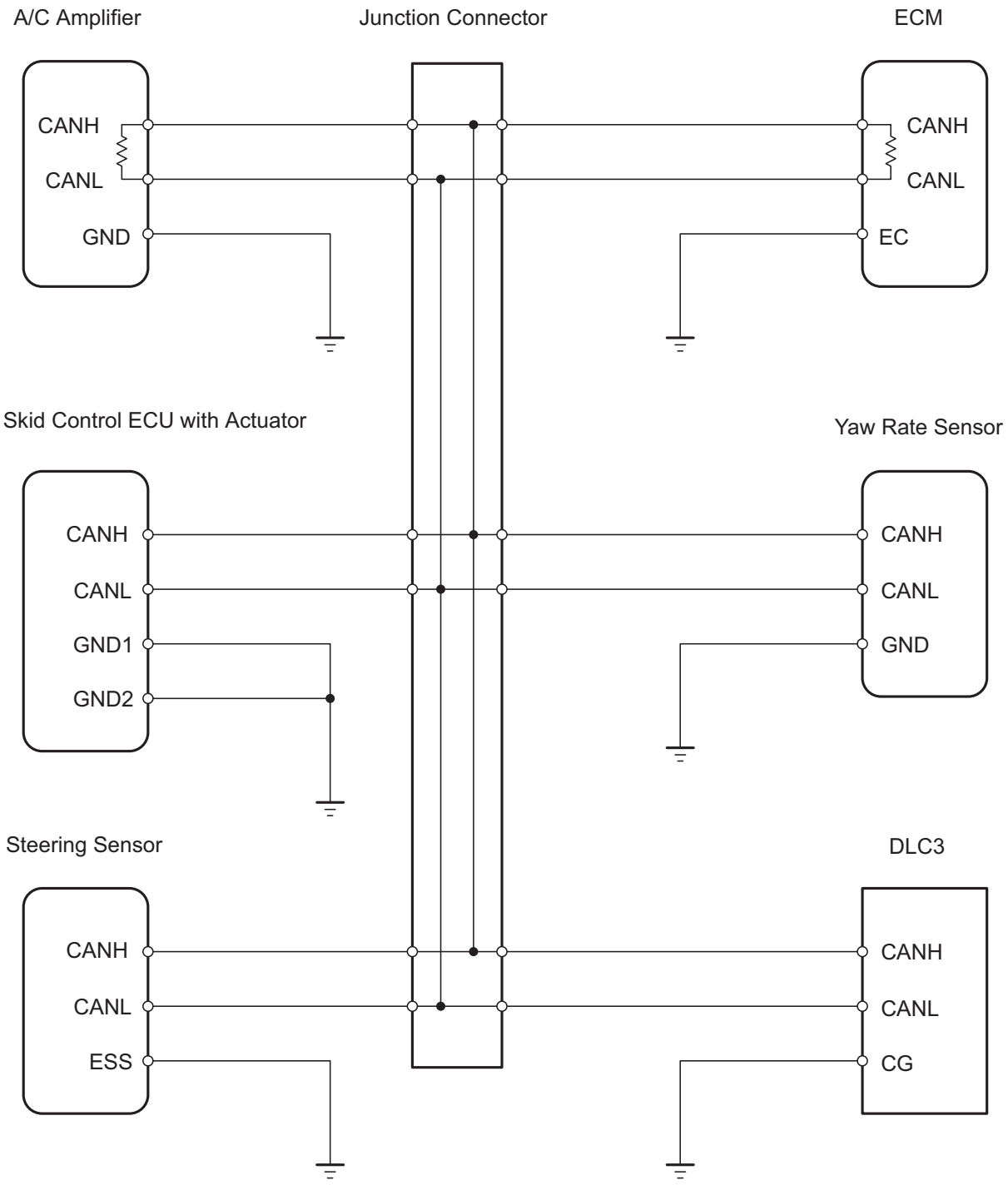
Short to GND in CAN Bus Line

DESCRIPTION

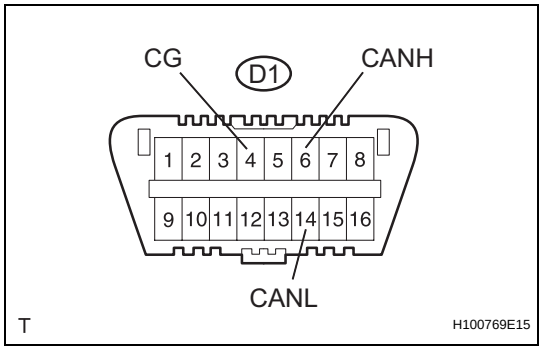
A short to GND may be occurring in the CAN bus line when there is a short between terminals 4 (CG) and 6 (CANH) or terminals 4 (CG) and 14 (CANL) of the DLC3.

Symptom	Trouble Area
Short between terminals 4 (CG) and 6 (CANH) or 4 (CG) and 14 (CANL) of DLC3	• Short to GND • Skid control ECU with actuator • Steering sensor • Yaw rate sensor • ECM • A/C amplifier

WIRING DIAGRAM



1 CHECK CAN BUS LINE FOR SHORT TO GND (DLC3 SUB BUS LINE)



(a) Disconnect the J5 junction connector.
(b) Measure the resistance of the DLC3.
Standard resistance

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	1 MΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	1 MΩor higher

NG → **REPAIR OR REPLACE DLC3 SUB BUS LINE AND CONNECTOR**

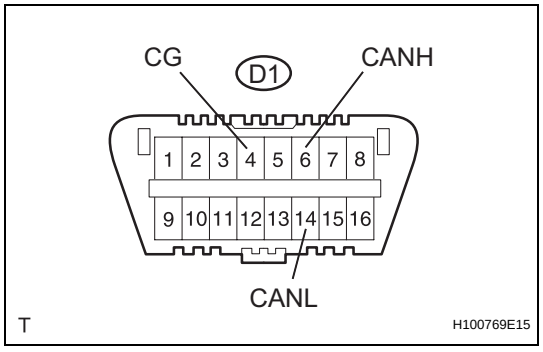
OK

2 CONNECT CONNECTOR

(a) Reconnect the J5 connector to the junction connector.

NEXT

3 CHECK CAN BUS LINE FOR SHORT TO GND (ECM)



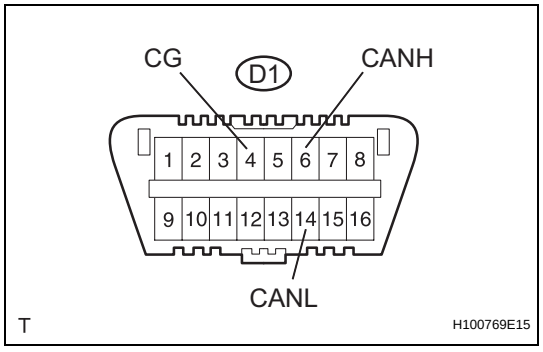
(a) Disconnect the E4 ECM connector.
(b) Measure the resistance of the DLC3.
Standard resistance

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher

OK → **REPLACE ECM**

NG

4 CHECK CAN BUS LINE FOR SHORT TO GND (A/C AMPLIFIER)



(a) Reconnect the E4 ECM connector.
(b) Disconnect the A17 amplifier connector.
(c) Measure the resistance of the DLC3.
Standard resistance

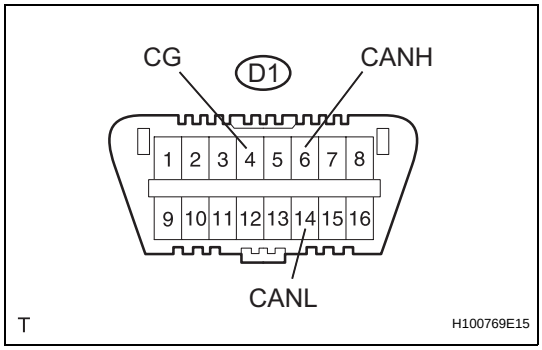
Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher

OK → **REPLACE A/C AMPLIFIER**

CA

NG

5 CHECK CAN BUS LINE FOR SHORT TO GND (SKID CONTROL ECU)



(a) Reconnect the A17 amplifier connector.
(b) Disconnect the S3 ECU connector.
(c) Measure the resistance of the DLC3.

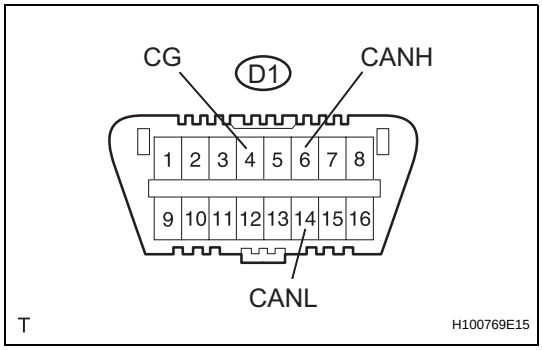
Standard resistance

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher

OK → REPLACE BRAKE ACTUATOR ASSEMBLY

NG

6 CHECK CAN BUS LINE FOR SHORT TO GND (STEERING SENSOR)



(a) Reconnect the S3 ECU connector.
(b) Disconnect the S7 sensor connector.
(c) Measure the resistance of the DLC3.

Standard resistance

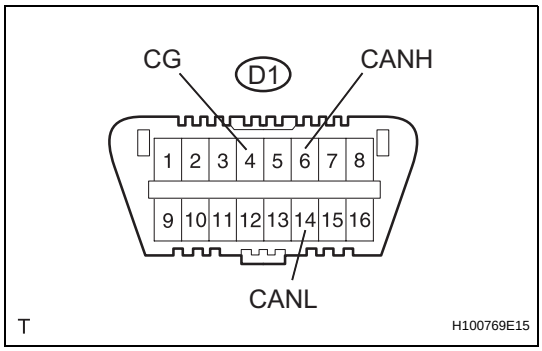
Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher

OK → REPLACE STEERING SENSOR

NG

CA

7 CHECK CAN BUS LINE FOR SHORT TO GND (YAW RATE SENSOR)



(a) Reconnect the S7 sensor connector.
(b) Disconnect the Y1 sensor connector.
(c) Measure the resistance of the DLC3.

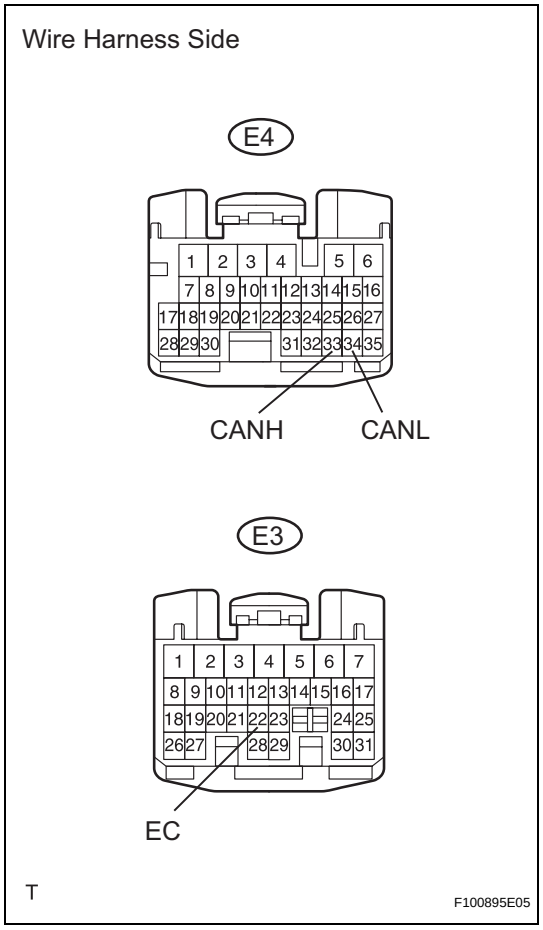
Standard resistance

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩor higher

OK → REPLACE YAW RATE SENSOR

NG

8 CHECK CAN BUS LINE FOR SHORT TO GND (ECM - JUNCTION CONNECTOR)



(a) Reconnect the Y1 sensor connector.
(b) Disconnect the J5 junction connector.
(c) Disconnect the E4 and E6 ECM connectors.
(d) Measure the resistance of the wire harness side connectors.

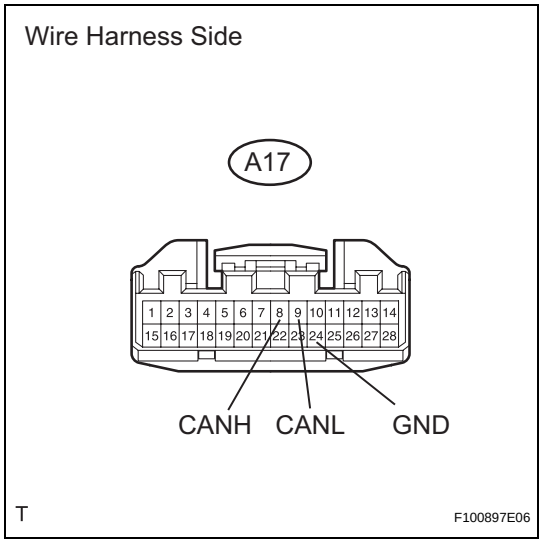
Standard resistance

Tester Connection	Condition	Specified Condition
E4-33 (CANH) - E6-22 (EC)	Ignition switch OFF	3 kΩor higher
E4-34 (CANL) - E6-22 (EC)	Ignition switch OFF	3 kΩor higher

NG → **REPAIR OR REPLACE CAN MAIN BUS LINE AND CONNECTOR (ECM - JUNCTION CONNECTOR)**

OK

9 CHECK CAN BUS LINE FOR SHORT TO GND (A/C AMPLIFIER - JUNCTION CONNECTOR)



(a) Disconnect the A17 amplifier connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Condition	Specified Condition
A17-8 (CANH) - A17-24 (GND)	Ignition switch OFF	3 kΩor higher
A17-9 (CANL) - A17-24 (GND)	Ignition switch OFF	3 kΩor higher

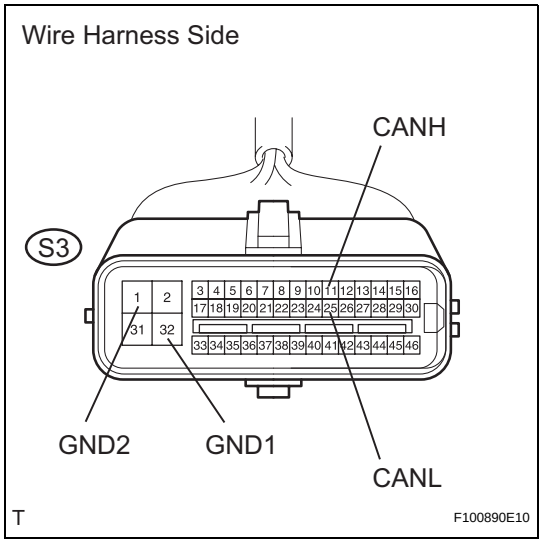
HINT:
Check the wire harness of the connector that was connected to the junction connector.

NG → **REPAIR OR REPLACE CAN MAIN BUS LINE AND CONNECTOR (A/C AMPLIFIER - JUNCTION CONNECTOR)**

CA

OK

10	CHECK CAN BUS LINE FOR SHORT TO GND (SKID CONTROL ECU - JUNCTION CONNECTOR)



(a) Disconnect the S3 ECU connector.
(b) Measure the resistance of the wire harness side connector.

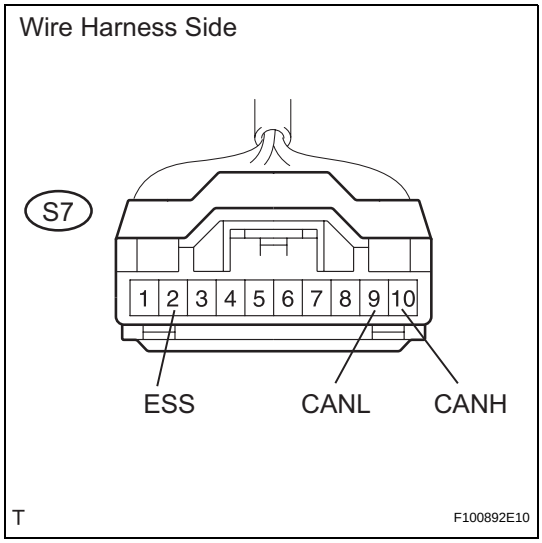
Standard resistance

Tester Connection	Condition	Specified Condition
S3-11 (CANH) - S3-32 (GND1)	Ignition switch OFF	3 kΩor higher
S3-11 (CANH) - S3-1 (GND2)	Ignition switch OFF	3 kΩor higher
S3-25 (CANL) - S3-32 (GND1)	Ignition switch OFF	3 kΩor higher
S3-25 (CANL) - S3-1 (GND2)	Ignition switch OFF	3 kΩor higher

NG → **REPAIR OR REPLACE CAN SUB BUS LINE AND CONNECTOR (SKID CONTROL ECU - JUNCTION CONNECTOR)**

OK

11	CHECK CAN BUS LINE FOR SHORT TO GND (STEERING SENSOR - JUNCTION CONNECTOR)



(a) Disconnect the S7 sensor connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Condition	Specified Condition
S7-10 (CANH) - S7-2 (ESS)	Ignition switch OFF	3 kΩor higher
S7-9 (CANL) - S7-2 (ESS)	Ignition switch OFF	3 kΩor higher

NG → **REPAIR OR REPLACE CAN SUB BUS LINE AND CONNECTOR (STEERING SENSOR - JUNCTION CONNECTOR)**

OK

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE AND CONNECTOR

CA