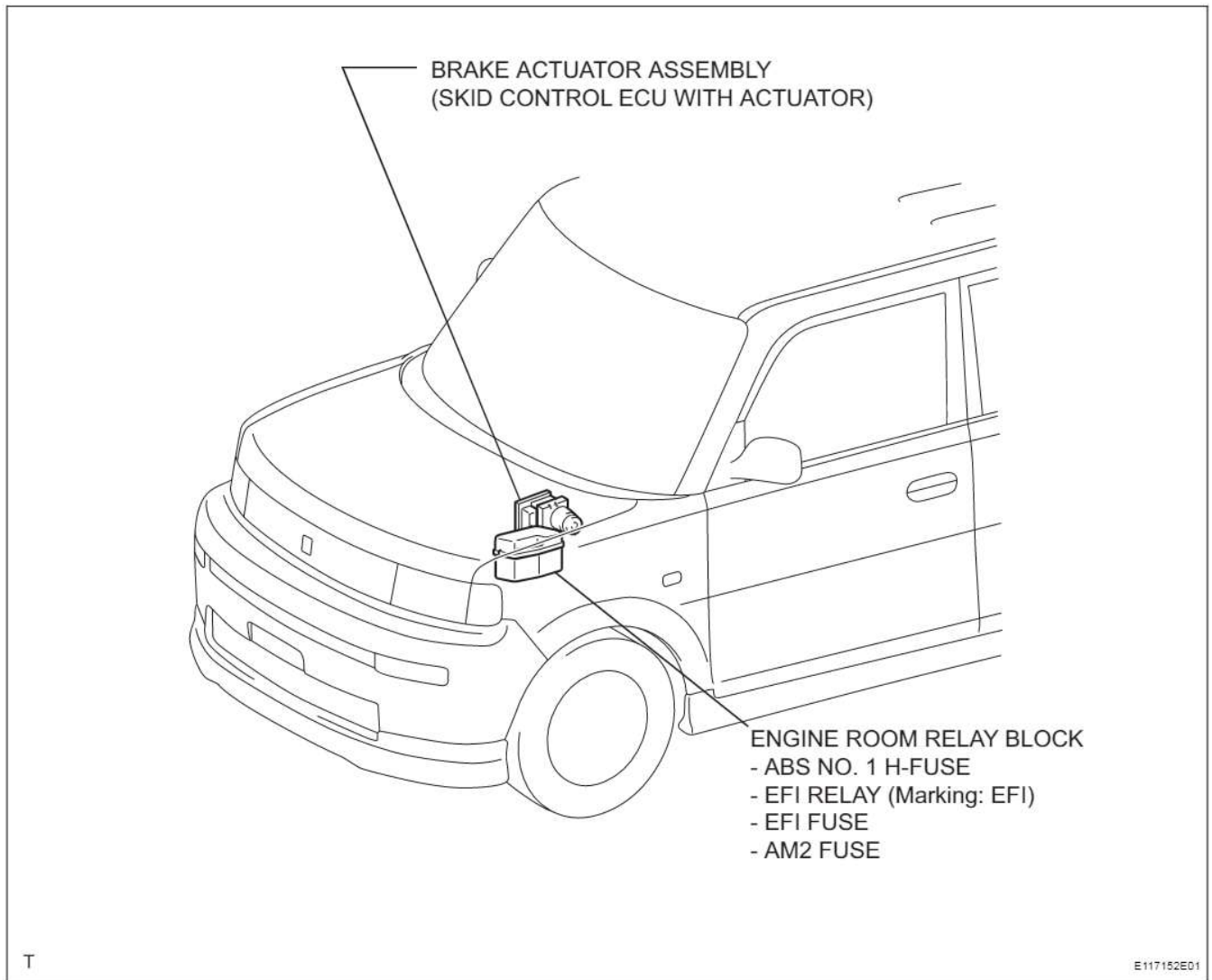
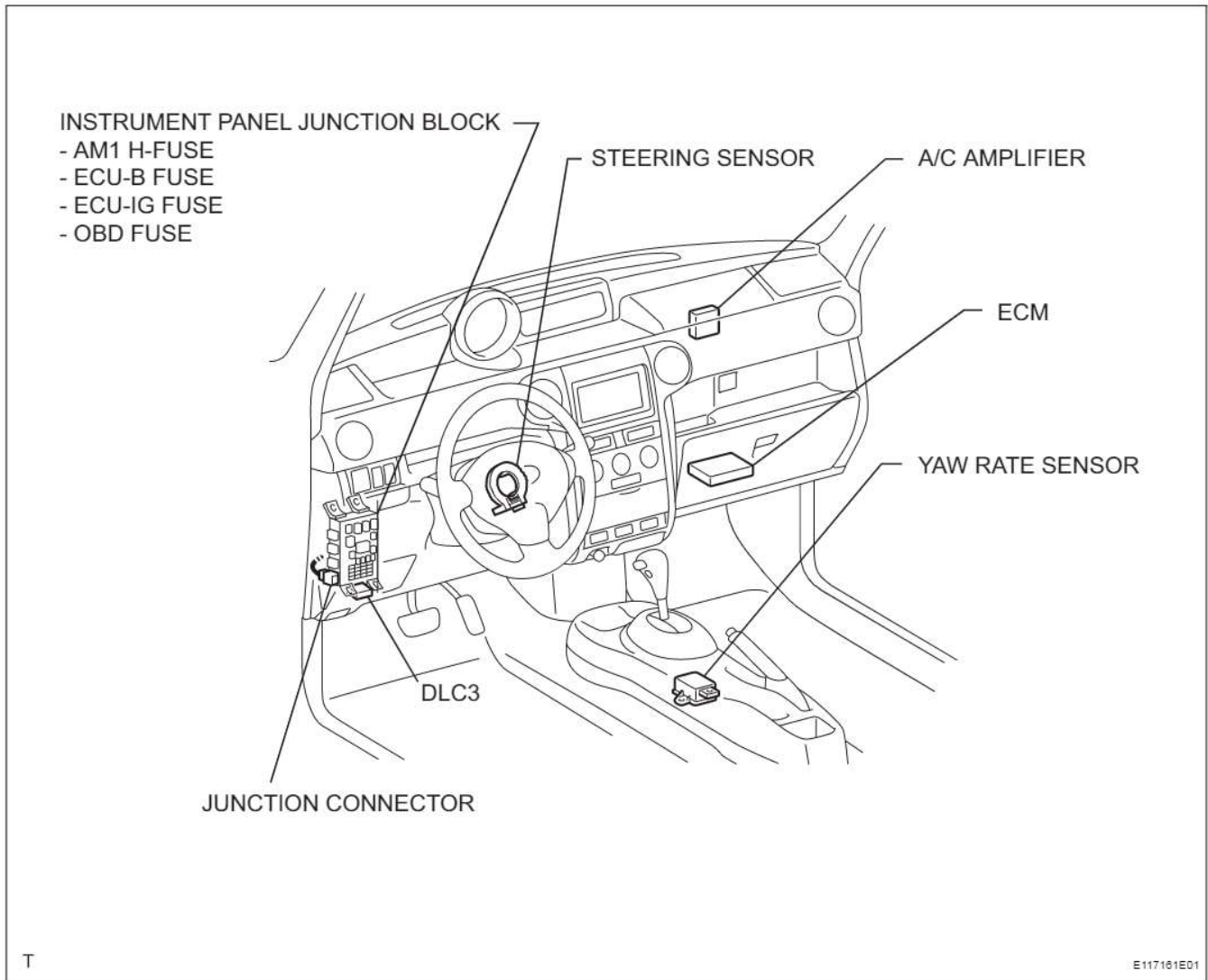
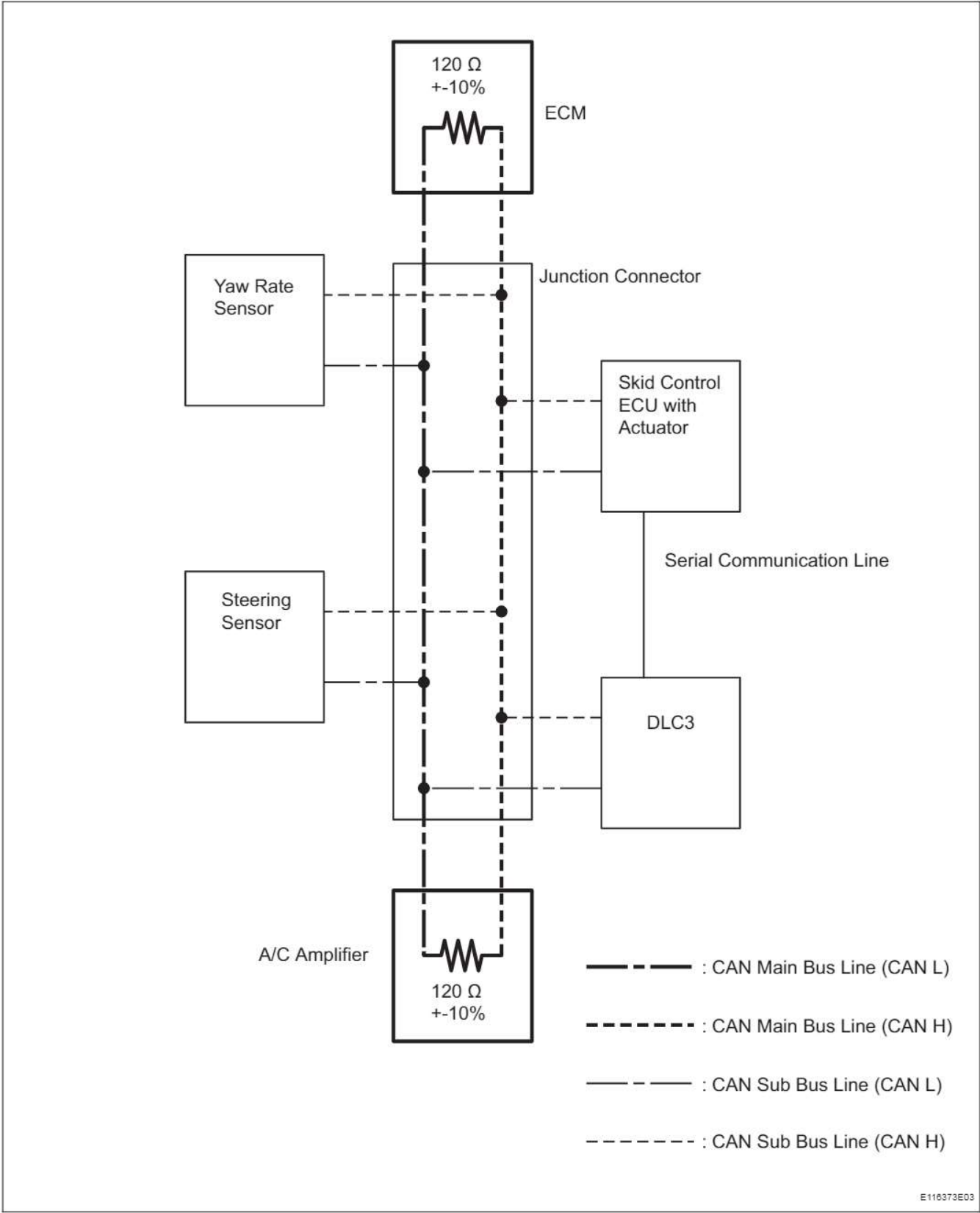


PARTS LOCATION



CA-4**CAN COMMUNICATION – CAN COMMUNICATION SYSTEM****CA**

SYSTEM DIAGRAM



CA

CA-6**CAN COMMUNICATION – CAN COMMUNICATION SYSTEM**

HINT:

The skid control ECU stores DTCs and performs DTC communication by receiving information from the steering sensor and yaw rate sensor. These sensors cannot store DTCs or perform DTC communication.

SYSTEM DESCRIPTION

1. BRIEF DESCRIPTION

- (a) The Controller Area Network (CAN) is a serial data communication system for real time applications. It is a vehicle multiplex communication system which has a high communication speed (500 kbps) and the ability to detect malfunctions.
- (b) By pairing the CANH and CANL bus lines, the CAN performs the communication based on the differential voltage.
- (c) Many ECUs (sensors) installed on the vehicle operate by sharing information and communicating with each other.
- (d) The CAN has 2 resistors of 120 Ω which are necessary to communicate with the main bus line.

2. DEFINITION OF TERMS

- (a) Main bus line
 - (1) The main bus line is a wire harness between the two terminus circuits on the bus (communication line). This is the main bus in the CAN communication system.
- (b) Sub bus line
 - (1) The sub bus line is a wire harness which diverges from the main bus line to an ECU or sensor.
- (c) Terminus circuit
 - (1) The terminus circuit is a circuit which is placed to convert communication current of the CAN communication into bus voltage. It consists of a resistor and condenser. Two terminus circuits are necessary on a bus.

3. ECUS OR SENSORS WHICH COMMUNICATE THROUGH CAN COMMUNICATION SYSTEM

- (a) Skid Control ECU
- (b) Yaw Rate Sensor
- (c) Steering Sensor
- (d) ECM
- (e) A/C Amplifier

4. DIAGNOSTIC CODES FOR CAN COMMUNICATION SYSTEM

- (a) DTCs for the CAN communication system are as follows: U0073/94 (C1223/43), U0100/65, U0123/62, U0124/95 (C1223/43), U0126/63, B1499.

5. REMARKS FOR TROUBLESHOOTING

- (a) Trouble in the CAN bus (communication line) can be checked from the DLC3 (except when there is a wire break other than in the sub bus line of the DLC3).
- (b) DTCs of the CAN communication system can be checked using the intelligent tester via the CAN VIM.

CA

CA-8**CAN COMMUNICATION – CAN COMMUNICATION SYSTEM**

- (c) The CAN communication system cannot detect trouble in the sub bus line of the DLC3 even though the DLC3 is also connected to the CAN communication system.

CA-30

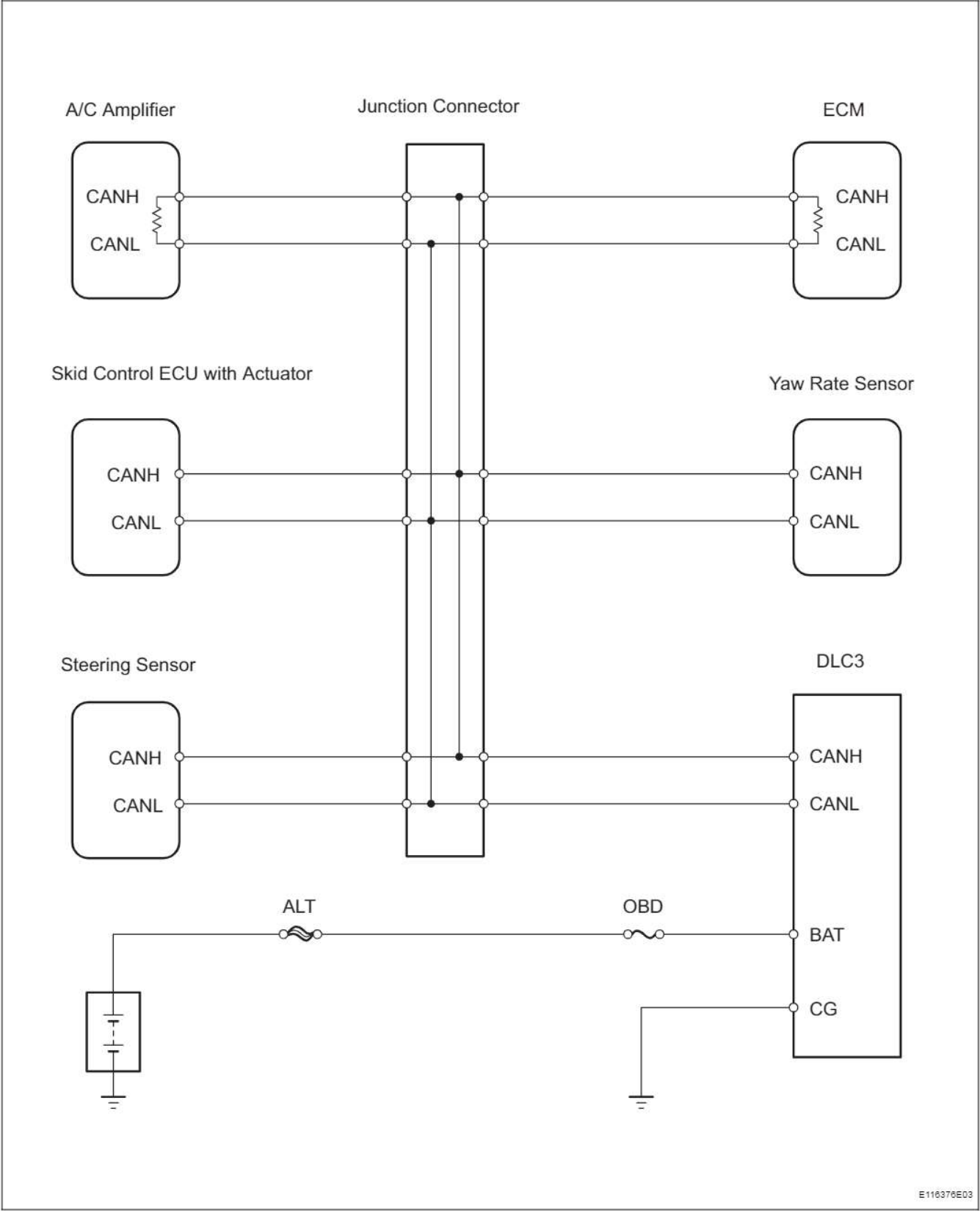
CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CAN Bus Line**DESCRIPTION**

When a CAN communication DTC is output, first measure the resistance between the terminals of the DLC3 to determine the trouble area.

CA

WIRING DIAGRAM



CA

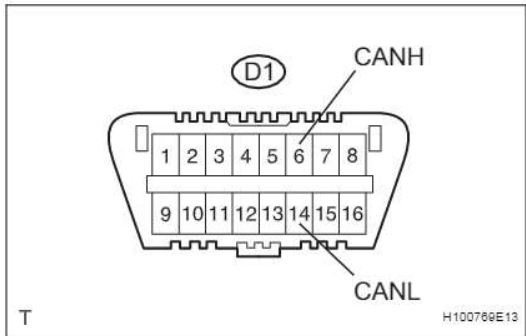
CA-32

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE (MAIN BUS LINE FOR DISCONNECTION, BUS LINES FOR SHORT CIRCUIT)



(a) Measure the resistance of the DLC3.
Standard resistance

Tester Connection	Condition	Specified Condition	Proceed to
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	54 to 69 Ω	OK
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	69 Ω or higher	NG-A
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	Below 54 Ω	NG-B

NG-A

CHECK CAN MAIN BUS LINE (FOR DISCONNECTION)

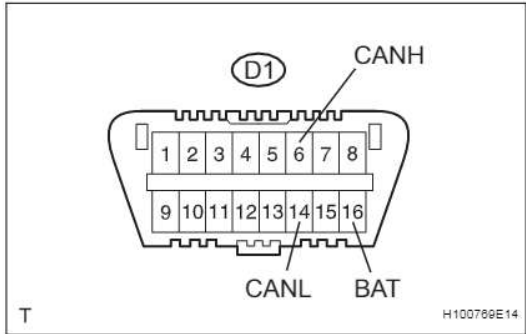
NG-B

CHECK CAN BUS LINE (FOR SHORT CIRCUIT)

OK

2

CHECK CAN BUS LINE (FOR SHORT TO B+)



(a) Measure the resistance of the DLC3.
Standard resistance

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

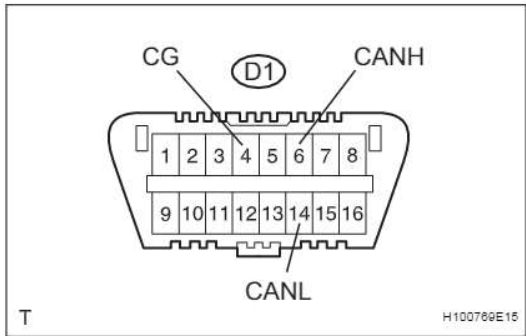
NG

CHECK CAN BUS LINE (FOR SHORT TO B+)

OK

3

CHECK CAN BUS LINE (FOR SHORT TO GND)



(a) Measure the resistance of the DLC3.
Standard resistance

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

NG

CHECK CAN BUS LINE (FOR SHORT TO GND)



HOW TO PROCEED WITH TROUBLESHOOTING

CA-34

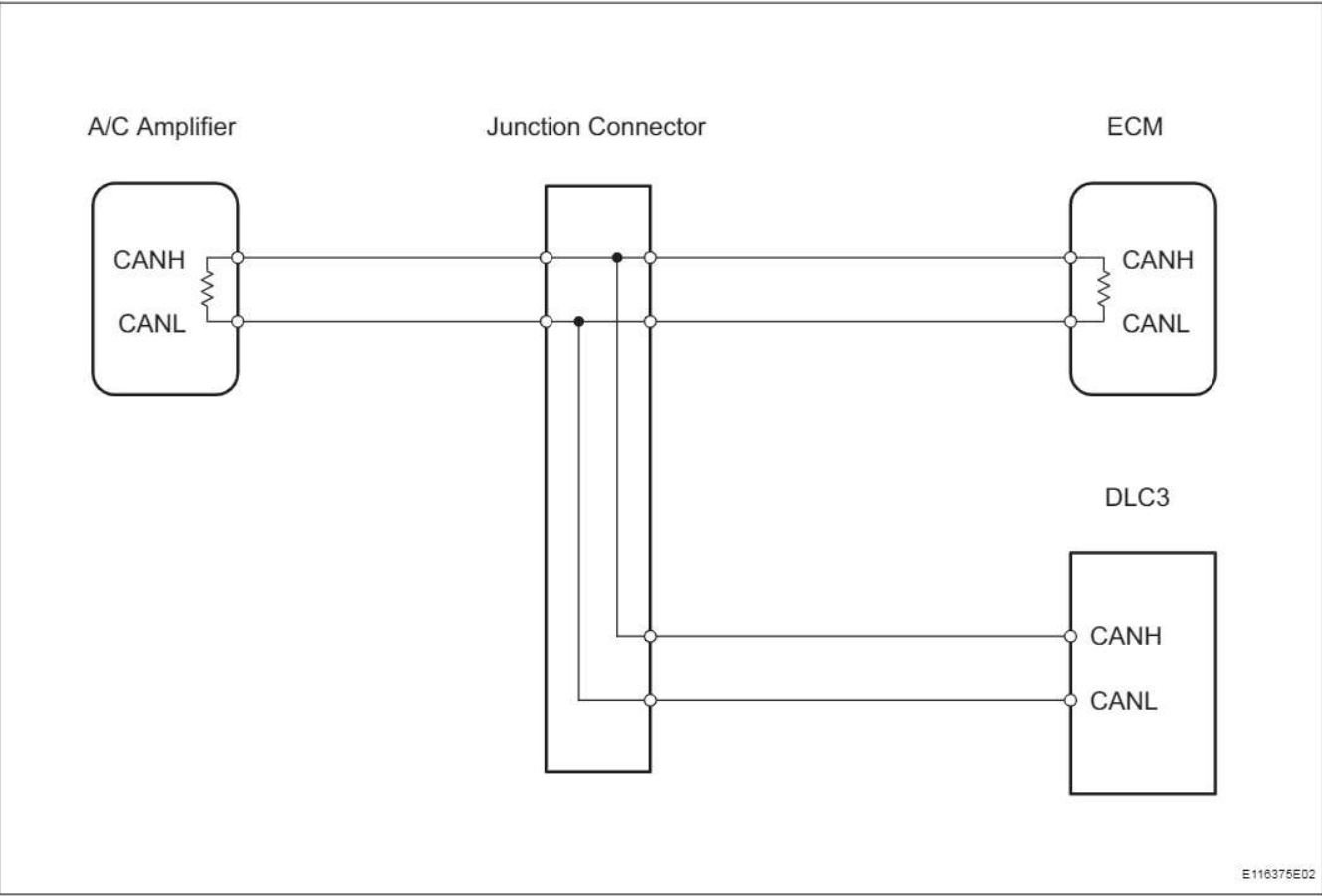
CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

Open in CAN Main Bus Line

DESCRIPTION
The CAN main bus line and DLC3 sub bus line may be disconnected when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 69 Ω or higher.

Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of DLC3 is more than 69 Ω	- CAN main bus line or connector - ECM - A/C amplifier - DLC3 sub bus line and connector - Junction connector

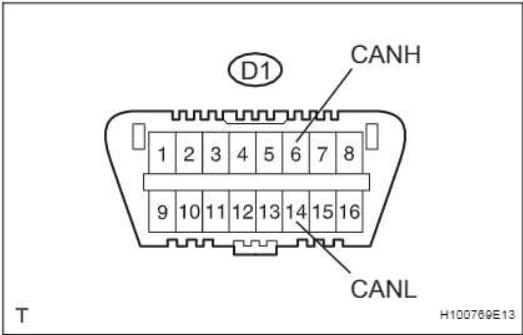
WIRING DIAGRAM



INSPECTION PROCEDURE

1

CHECK DLC3



(a) Measure the resistance of the DLC3.

Standard resistance

Tester Connection	Condition	Specified Condition	Proceed to
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	108 to 132 Ω	A
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	132 Ω or higher	B

NOTICE:
When the measured value is 132 Ω or more and a CAN communication system DTC is output, there may be a fault other than the disconnection of the DLC3 sub bus line. After repairing the trouble area, perform the "How to Proceed with Troubleshooting" procedures (see page CA-5).

A

B

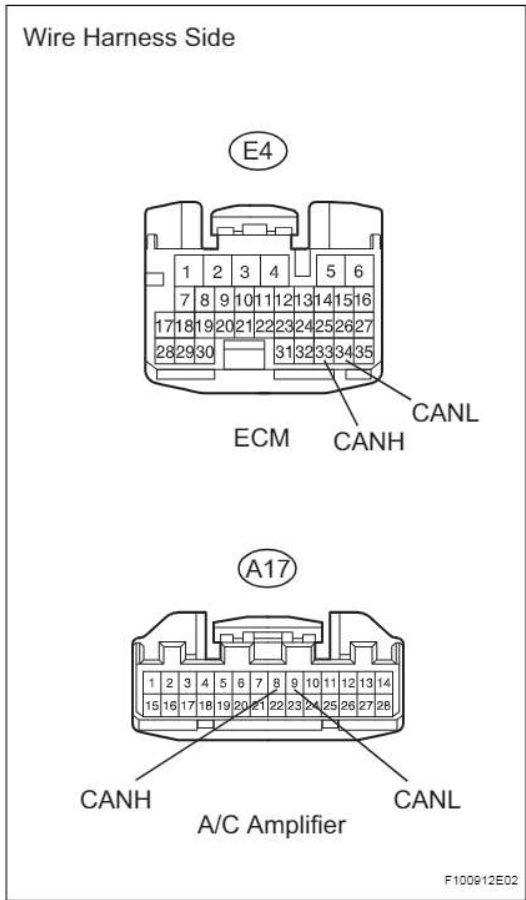
REPAIR OR REPLACE DLC3 SUB BUS LINE AND CONNECTOR (CANH, CANL)

CA-36

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

2

CHECK CAN MAIN BUS LINE FOR DISCONNECTION (ECM - A/C AMPLIFIER)



- (a) Disconnect the E4 ECM and A17 amplifier connectors.
(b) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Condition	Specified Condition
E4-33 (CANH) - A17-8 (CANH)	Ignition switch OFF	Below 1 Ω
E4-34 (CANL) - A17-9 (CANL)	Ignition switch OFF	Below 1 Ω

NG

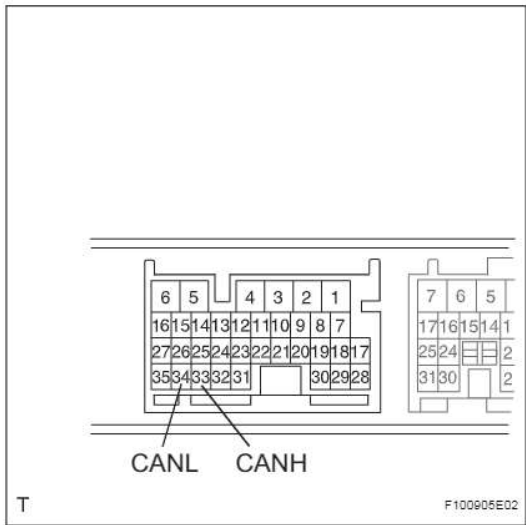
REPAIR OR REPLACE CAN MAIN BUS LINE AND CONNECTOR (ECM - A/C AMPLIFIER) OR JUNCTION CONNECTOR

OK

CA

3

INSPECT ECM



- (a) Measure the resistance of the ECM.
Standard resistance

Tester Connection	Condition	Specified Condition
33 (CANH) - 34 (CANL)	Ignition switch OFF	108 to 132 Ω

NG

REPLACE ECM

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CA-37

OK

REPLACE A/C AMPLIFIER

CA

CAN COMMUNICATION SYSTEM

PRECAUTION

1. HANDLING PRECAUTIONS FOR STEERING SYSTEM

- (a) Care must be taken when replacing parts. Incorrect replacement could affect the performance of the steering system and result in hazardous driving.

2. HANDLING PRECAUTIONS FOR SRS AIRBAG SYSTEM

- (a) This vehicle is equipped with a Supplemental Restraint System (SRS), which includes a driver airbag and front passenger airbag. Failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal, installation, inspection or replacement of parts), be sure to read the SRS section's PRECAUTION (see page RS-1).

3. WIRE HARNESS REPAIR

- (a) After repairing the wire bus line with solder, wrap the repaired area with vinyl tape.

NOTICE:

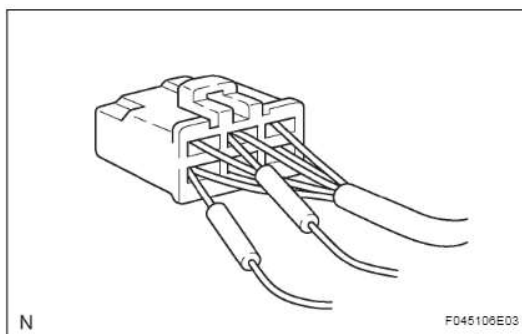
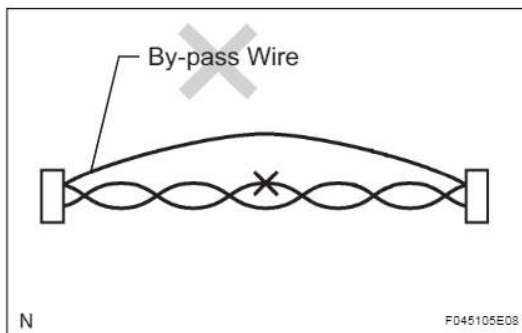
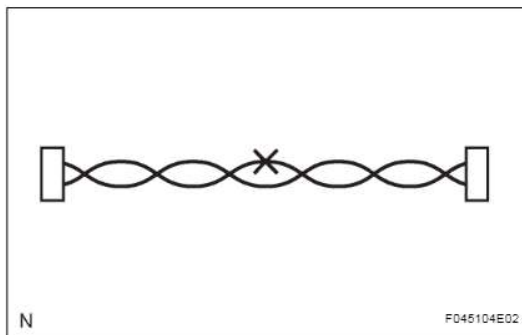
- The CANL bus line and CANH bus line must always be installed. When installing the lines, make sure to twist them.
- The difference in length of the CANL bus line and CANH bus line should be less than 100 mm (3.93 in.).
- Make sure the length between each twist of the wire connecting the connectors is 80 mm (3.15 in.) or less.

- (b) Do not use by-pass wiring between the connectors.

NOTICE:

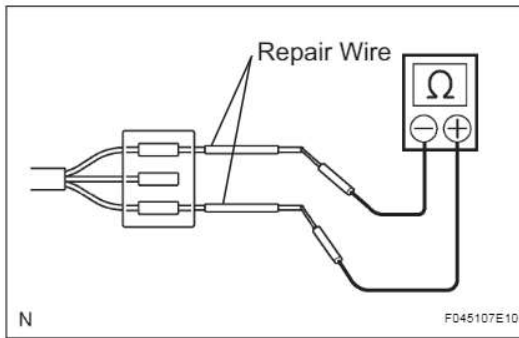
If you perform by-pass wiring, the characteristic of the twisted wire harness will be lost.

CA



4. CONNECTOR HANDLING

- (a) When checking the resistance of a connector, insert tester probes into the backside of the connector.

CA-2**CAN COMMUNICATION – CAN COMMUNICATION SYSTEM**

- (b) If the tester probes cannot be inserted, use repair wires to check the resistance as shown in the illustration.

CA

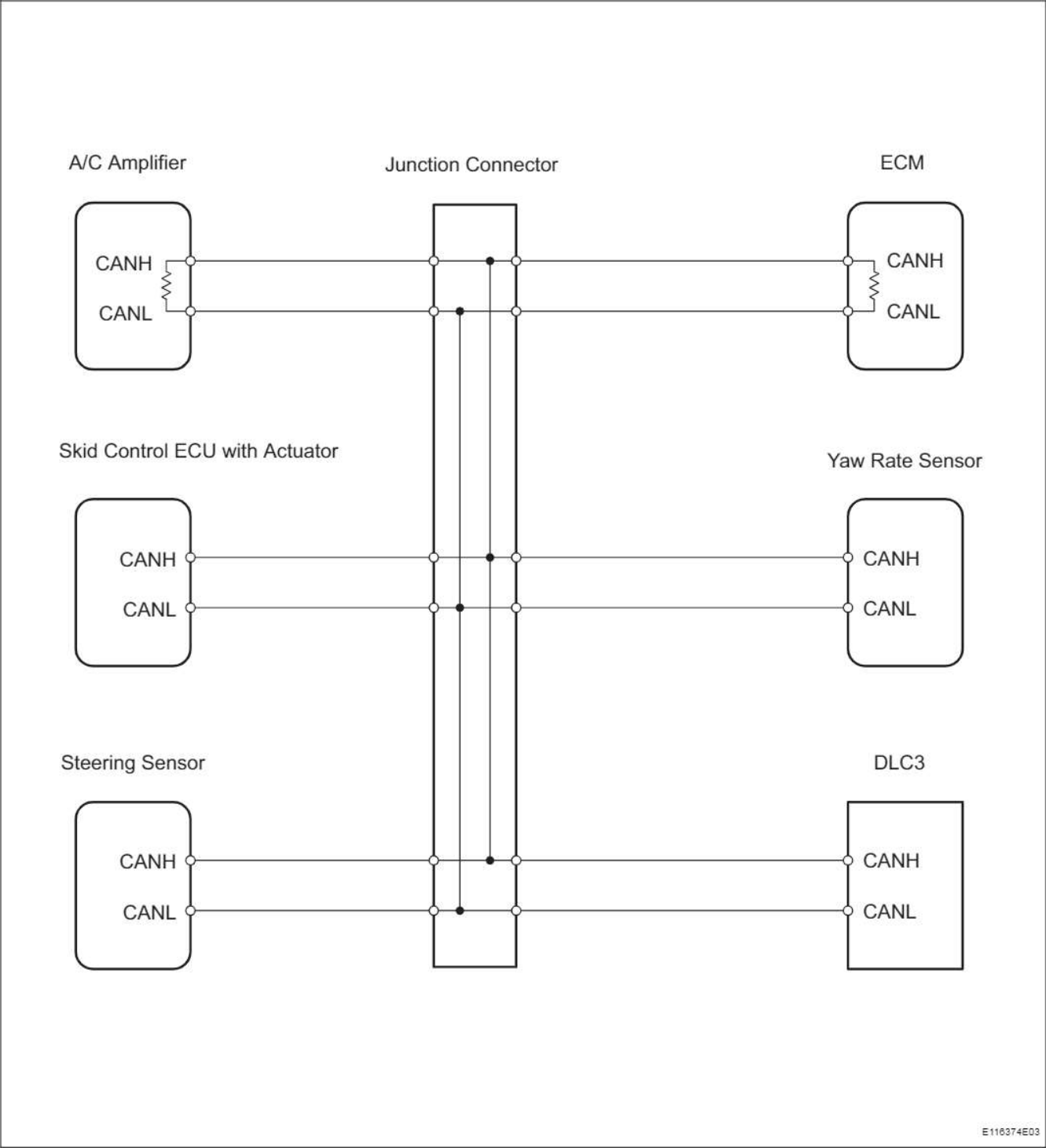
Short in CAN Bus Lines

DESCRIPTION

The CAN bus lines are considered to be shorted when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.

Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of DLC3 is below 54 Ω	• Short in CAN bus lines • Skid control ECU with actuator • Steering sensor • Yaw rate sensor • ECM • A/C amplifier • Junction connector

WIRING DIAGRAM



CA

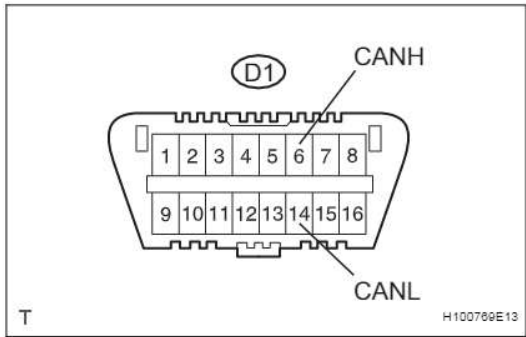
CA-40

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE FOR SHORT (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) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

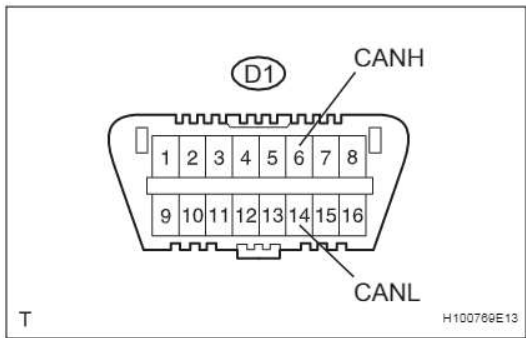
NG

REPAIR OR REPLACE DLC3 SUB BUS LINE AND CONNECTOR (CANH, CANL)

OK

2

CHECK CAN BUS LINE FOR SHORT (ECM)



- (a) Reconnect the J5 junction connector.
 - (b) Disconnect the E4 ECM connector.
 - (c) Measure the resistance of the DLC3.
- Standard resistance**

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

OK

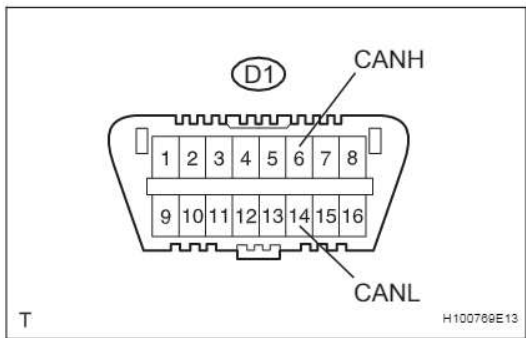
REPLACE ECM

NG

CA

3

CHECK CAN BUS LINE FOR SHORT (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) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

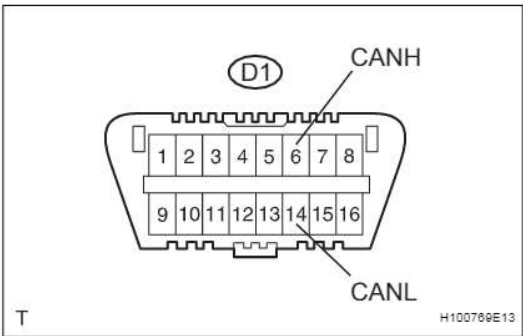
OK

REPLACE A/C AMPLIFIER

NG

4

CHECK CAN BUS LINE FOR SHORT (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) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

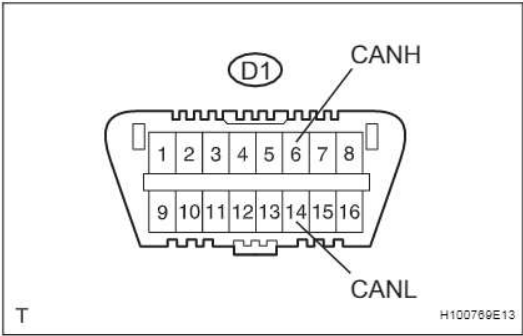
OK

REPLACE BRAKE ACTUATOR ASSEMBLY

NG

5

CHECK CAN BUS LINE FOR SHORT (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) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

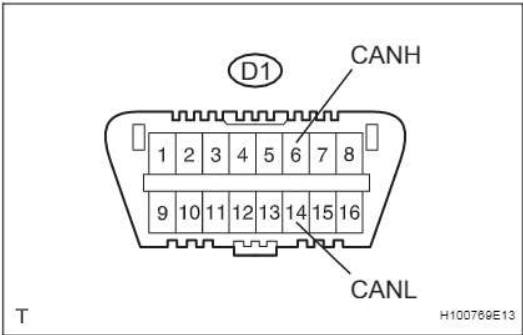
OK

REPLACE STEERING SENSOR

NG

6

CHECK CAN BUS LINE FOR SHORT (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) - D1-14 (CANL)	Ignition switch OFF	1 MΩ or higher

OK

REPLACE YAW RATE SENSOR

NG

CA

CA-42

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

7

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



- (a) Reconnect the Y1 sensor connector.
- (b) Disconnect the J5 connector from the junction block.
- (c) Disconnect the E4 ECM connector.
- (d) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Condition	Specified Condition
E4-33 (CANH) - E4-34 (CANL)	Ignition switch OFF	1 MΩ or higher

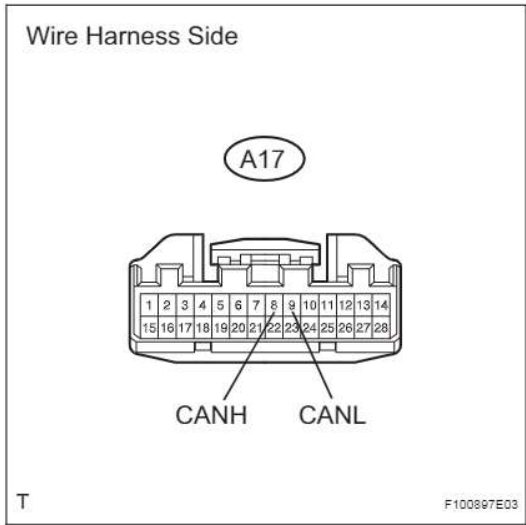
NG

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

OK

8

CHECK CAN BUS LINE FOR SHORT (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) - A17-9 (CANL)	Ignition switch OFF	1 MΩ or higher

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

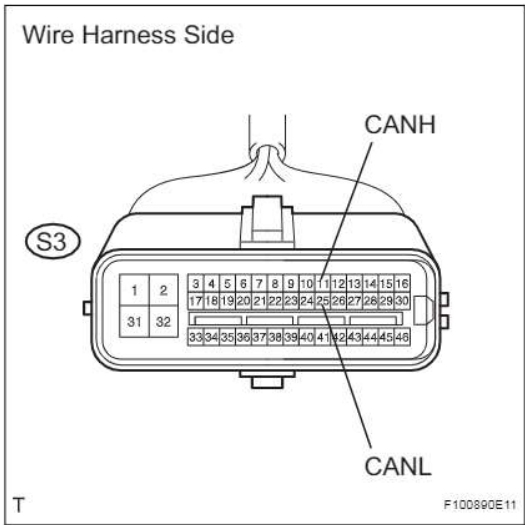
NG

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

OK

9

CHECK CAN BUS LINE FOR SHORT (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) - S3-25 (CANL)	Ignition switch OFF	1 MΩ or higher

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

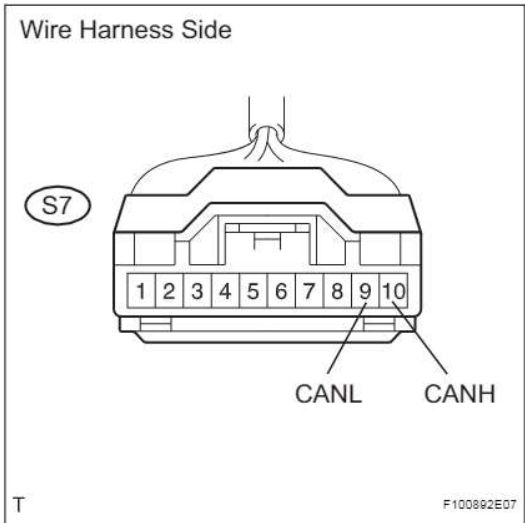
NG

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

OK

10

CHECK CAN BUS LINE FOR SHORT (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) - S7-9 (CANL)	Ignition switch OFF	1 MΩ or higher

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

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

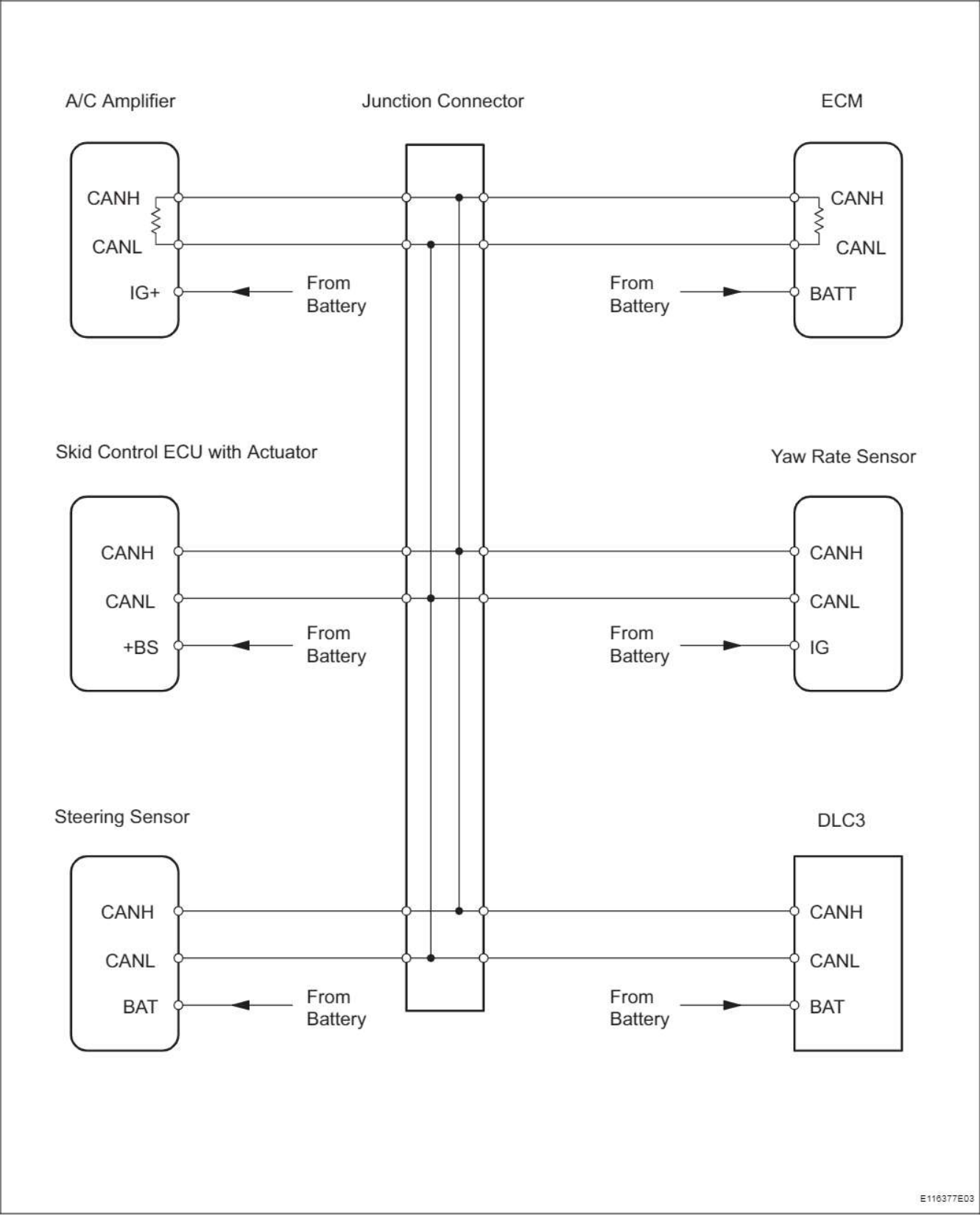
Short to B+ in CAN Bus Line

DESCRIPTION

A short to B+ may be occurring in the CAN bus line when there is a short between terminals 16 (BAT) and 6 (CANH) or terminals 16 (BAT) and 14 (CANL) of the DLC3.

Symptom	Trouble Area
Short between terminals 16 (BAT) and 6 (CANH) or 16 (BAT) and 14 (CANL) of DLC3	• Short to B+ • Skid control ECU with actuator • Steering sensor • Yaw rate sensor • ECM • A/C amplifier

WIRING DIAGRAM



CA

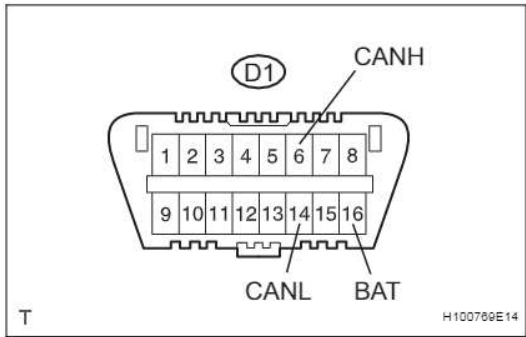
CA-46

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE FOR SHORT TO B+ (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) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

NG

REPAIR OR REPLACE DLC3 SUB BUS LINE AND CONNECTOR

OK

2

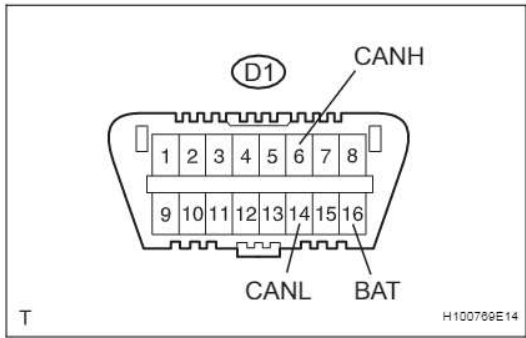
CONNECT CONNECTOR

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

NEXT

3

CHECK CAN BUS LINE FOR SHORT TO B+ (ECM)



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

Tester Connection	Condition	Specified Condition
D1-6 (CANH) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

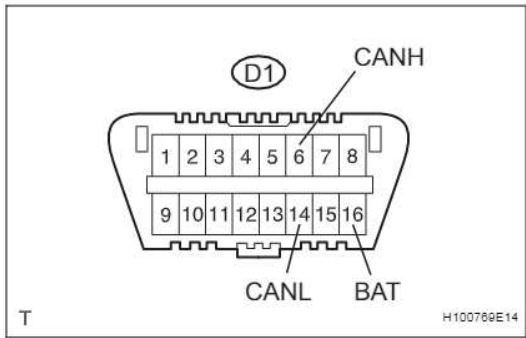
OK

REPLACE ECM

NG

4

CHECK CAN BUS LINE FOR SHORT TO B+ (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) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

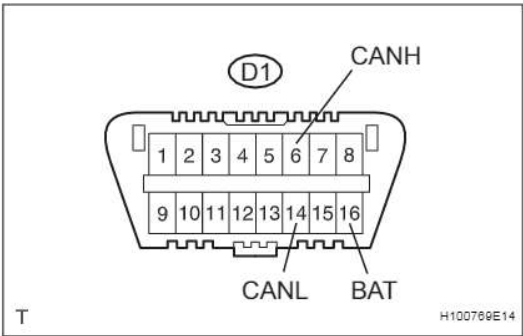
OK

REPLACE A/C AMPLIFIER

NG

5

CHECK CAN BUS LINE FOR SHORT TO B+ (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) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

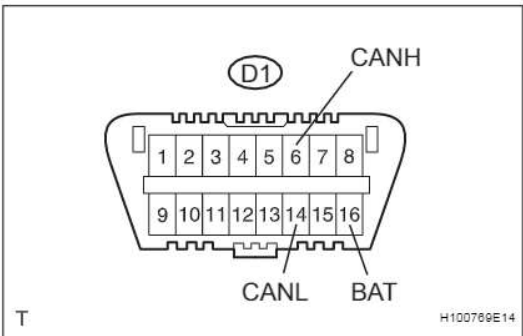
OK

REPLACE BRAKE ACTUATOR ASSEMBLY

NG

6

CHECK CAN BUS LINE FOR SHORT TO B+ (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) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

OK

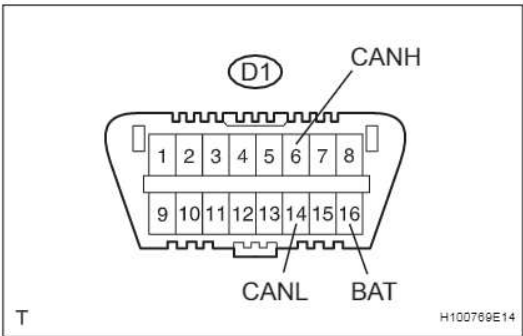
REPLACE STEERING SENSOR

CA

NG

7

CHECK CAN BUS LINE FOR SHORT TO B+ (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) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
D1-14 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

OK

REPLACE YAW RATE SENSOR

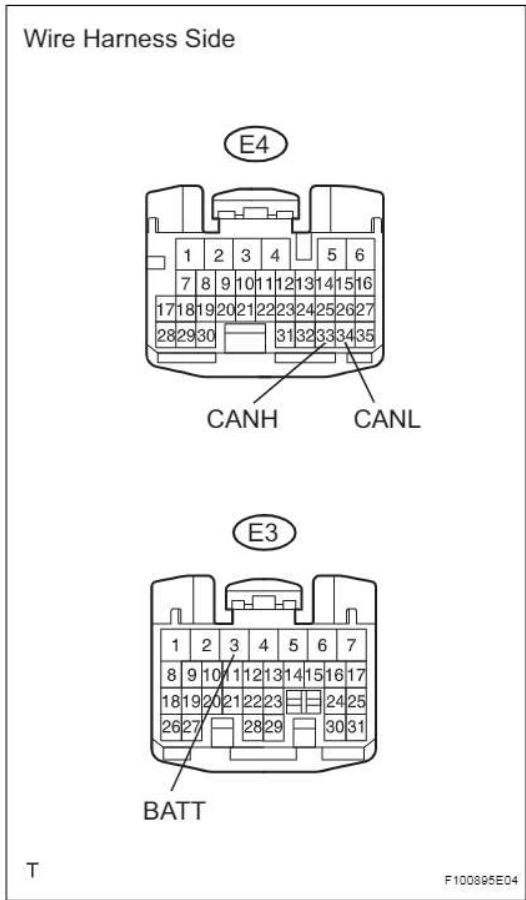
NG

CA-48

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

8

CHECK CAN BUS LINE FOR SHORT TO B+ (ECM - JUNCTION CONNECTOR)



- (a) Reconnect the Y1 sensor connector.
- (b) Disconnect the J5 junction connector.
- (c) Disconnect the E4 and E3 ECM connectors.
- (d) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Condition	Specified Condition
E4-33 (CANH) - E3-3 (BATT)	Ignition switch OFF	1 MΩ or higher
E4-34 (CANL) - E3-3 (BATT)	Ignition switch OFF	1 MΩ or higher

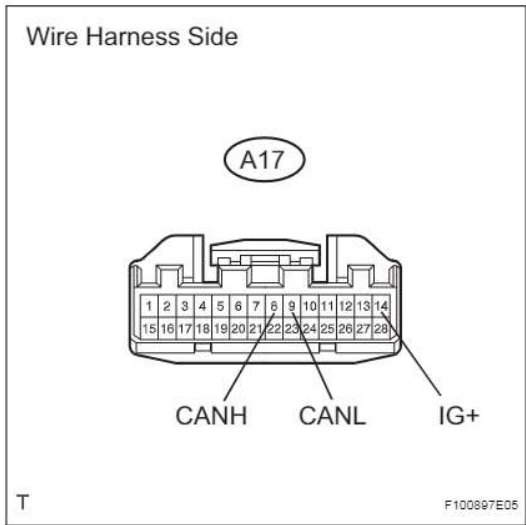
NG REPAIR OR REPLACE CAN MAIN BUS LINE AND CONNECTOR (ECM - JUNCTION CONNECTOR)

OK

CA

9

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



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

Standard resistance

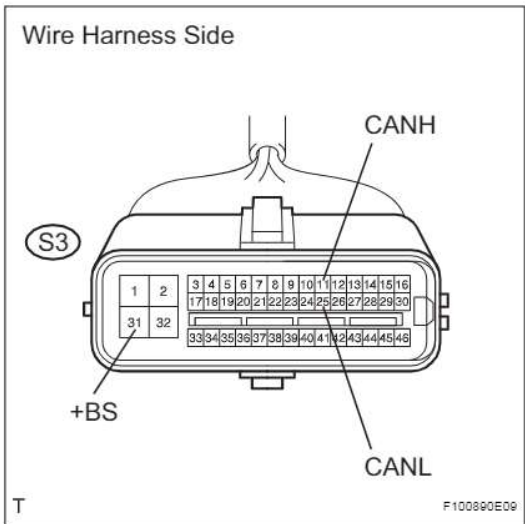
Tester Connection	Condition	Specified Condition
A17-8 (CANH) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher
A17-9 (CANL) - D1-16 (BAT)	Ignition switch OFF	1 MΩ or higher

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)

OK

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



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

Standard resistance

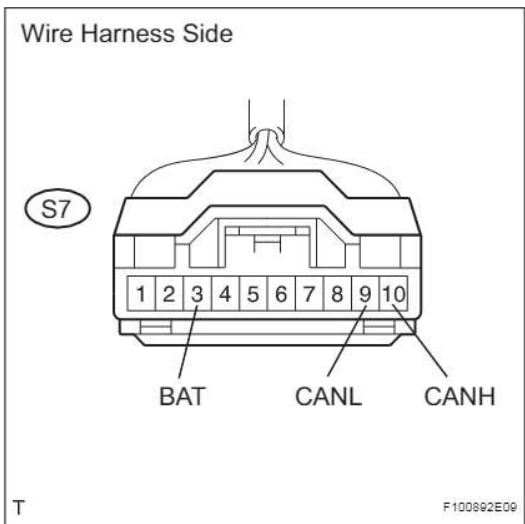
Tester Connection	Condition	Specified Condition
S3-11 (CANH) - S3-31 (+BS)	Ignition switch OFF	1 MΩ or higher
S3-25 (CANL) - S3-31 (+BS)	Ignition switch OFF	1 MΩ or higher

NG

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

OK

11 CHECK CAN BUS LINE FOR SHORT TO B+ (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) - S7-3 (BAT)	Ignition switch OFF	1 MΩ or higher
S7-9 (CANL) - S7-2 (ESS)	Ignition switch OFF	1 MΩ or 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

CA-50

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

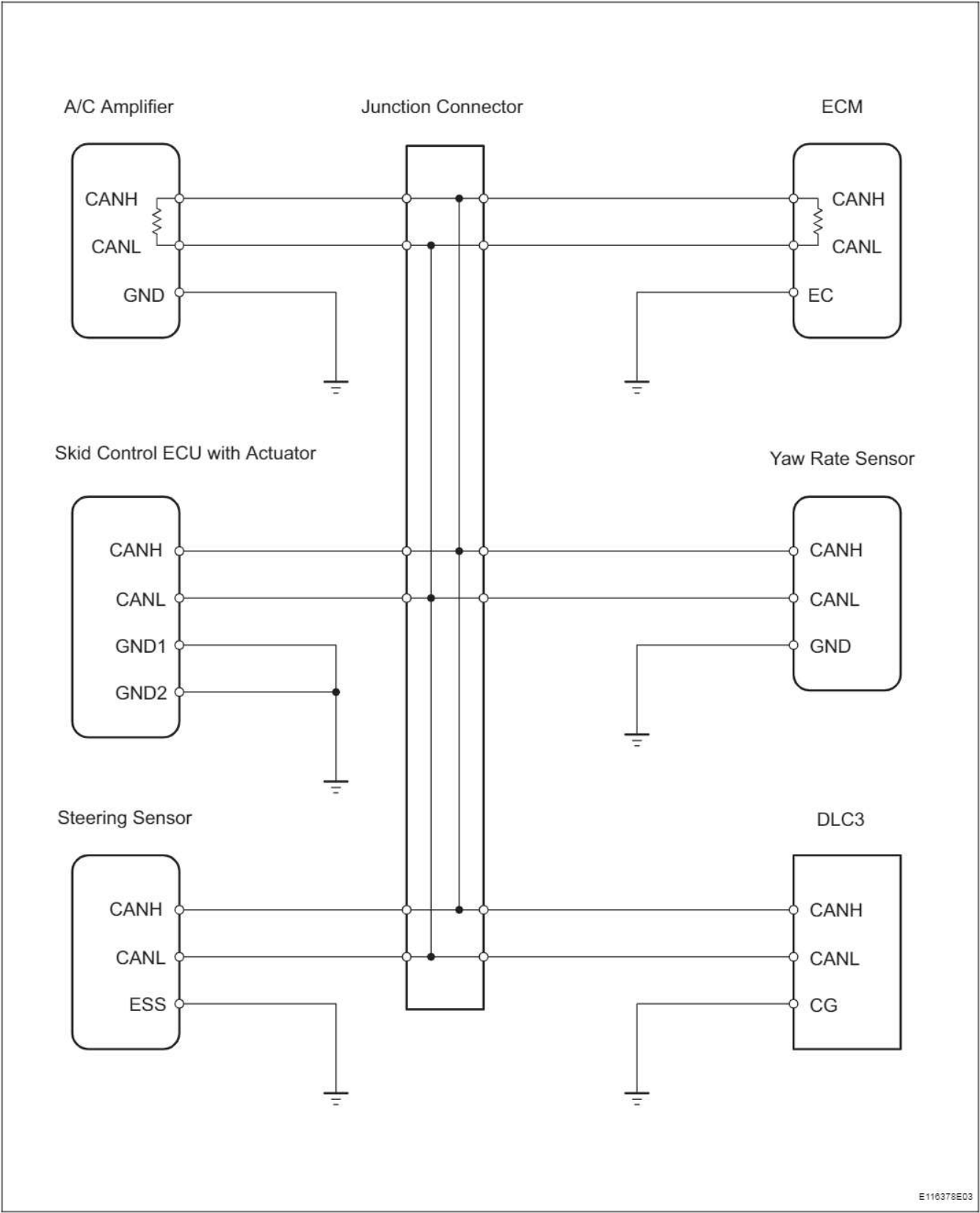
Short to GND in CAN Bus Line

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



CA

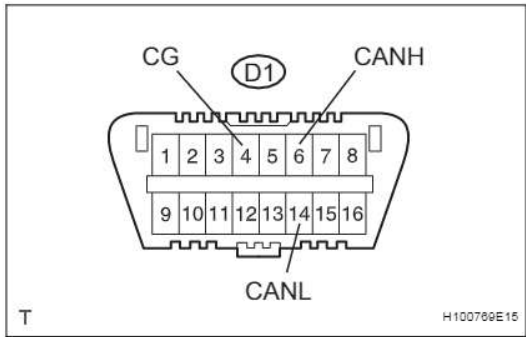
CA-52

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

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 MΩ or higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	1 MΩ or higher

NG

REPAIR OR REPLACE DLC3 SUB BUS LINE AND CONNECTOR

OK

2

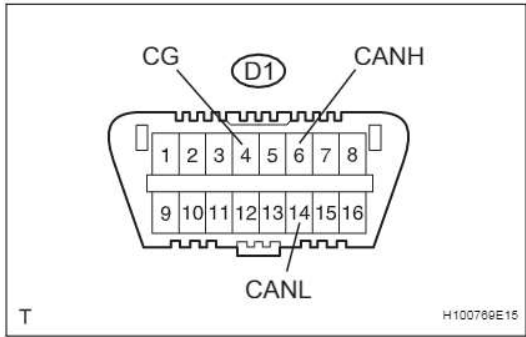
CONNECT CONNECTOR

- (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 kΩ or higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩ or higher

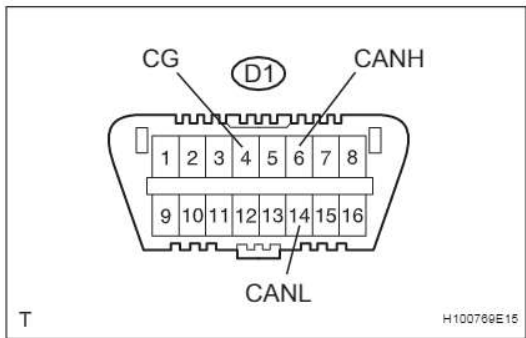
OK

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 kΩ or higher
D1-14 (CANL) - D1-4 (CG)	Ignition switch OFF	3 kΩ or higher

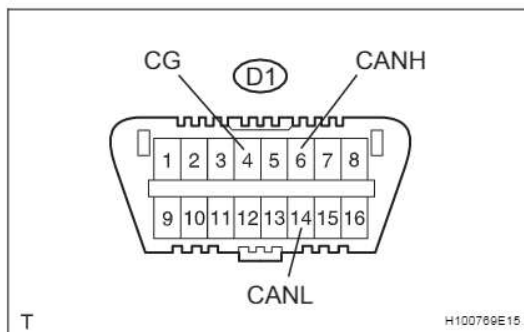
OK

REPLACE A/C AMPLIFIER

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CA-53

NG

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

- Reconnect the A17 amplifier connector.
- Disconnect the S3 ECU connector.
- Measure the resistance of the DLC3.

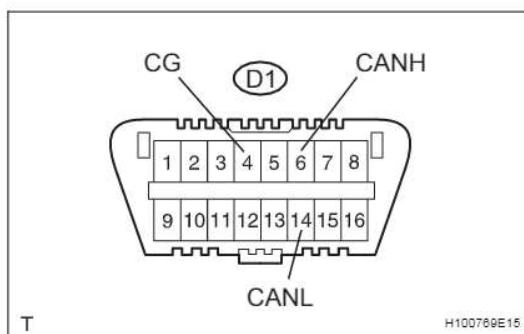
Standard resistance

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

OK

REPLACE BRAKE ACTUATOR ASSEMBLY

NG

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

- Reconnect the S3 ECU connector.
- Disconnect the S7 sensor connector.
- Measure the resistance of the DLC3.

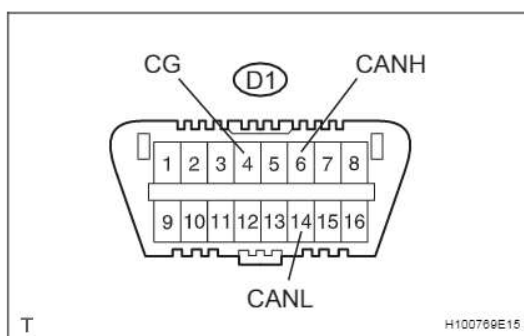
Standard resistance

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

OK

REPLACE STEERING SENSOR

NG

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

- Reconnect the S7 sensor connector.
- Disconnect the Y1 sensor connector.
- Measure the resistance of the DLC3.

Standard resistance

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

OK

REPLACE YAW RATE SENSOR

NG

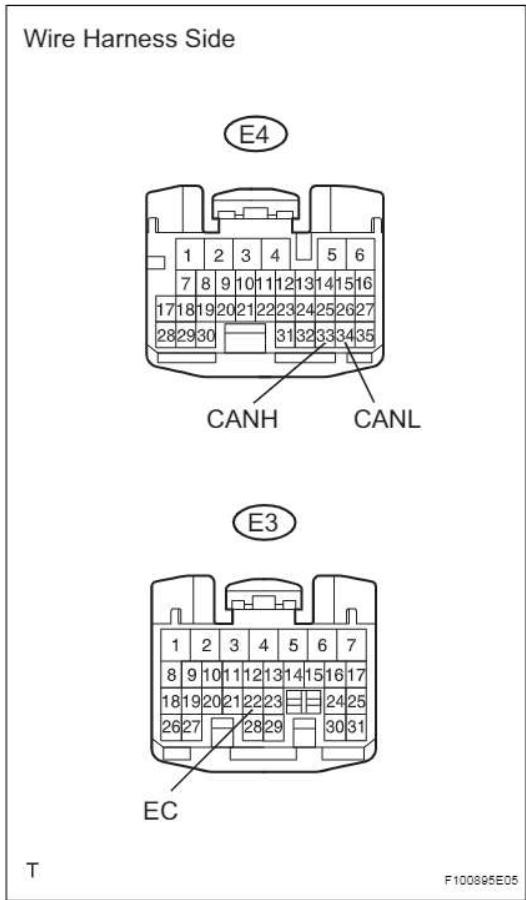
CA

CA-54

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

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 kΩ or higher
E4-34 (CANL) - E6-22 (EC)	Ignition switch OFF	3 kΩ or higher

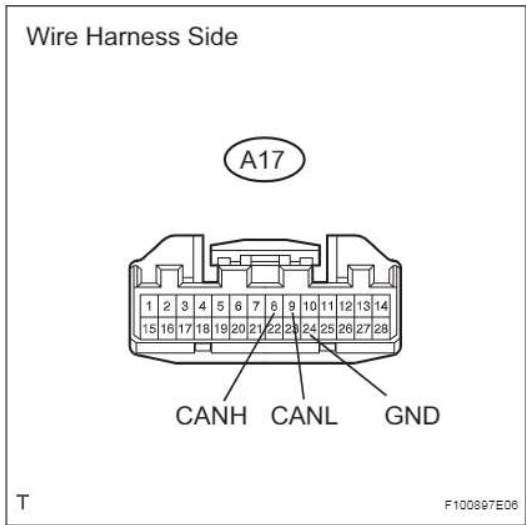
NG REPAIR OR REPLACE CAN MAIN BUS LINE AND CONNECTOR (ECM - JUNCTION CONNECTOR)

OK

CA

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 kΩ or higher
A17-9 (CANL) - A17-24 (GND)	Ignition switch OFF	3 kΩ or higher

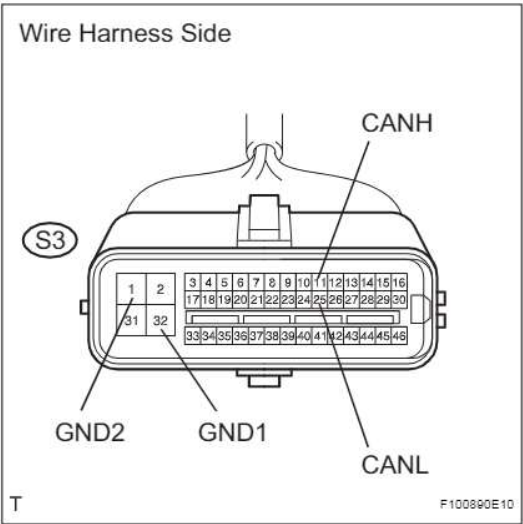
HINT:
Check the wire harness of the connector that was connected to the junction connector.

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

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

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

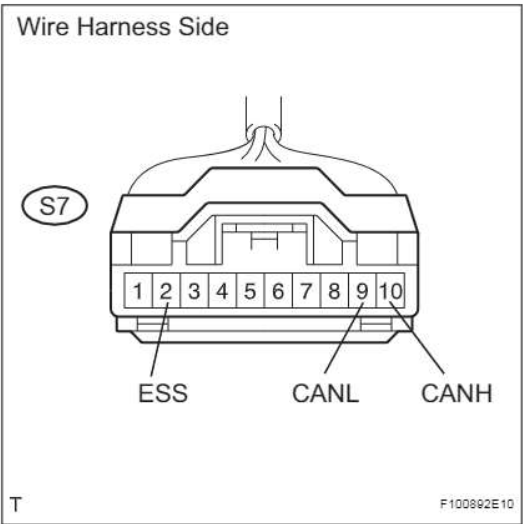
Tester Connection	Condition	Specified Condition
S3-11 (CANH) - S3-32 (GND1)	Ignition switch OFF	3 kΩ or higher
S3-11 (CANH) - S3-1 (GND2)	Ignition switch OFF	3 kΩ or higher
S3-25 (CANL) - S3-32 (GND1)	Ignition switch OFF	3 kΩ or higher
S3-25 (CANL) - S3-1 (GND2)	Ignition switch OFF	3 kΩ or higher

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 kΩ or higher
S7-9 (CANL) - S7-2 (ESS)	Ignition switch OFF	3 kΩ or 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

CA-56

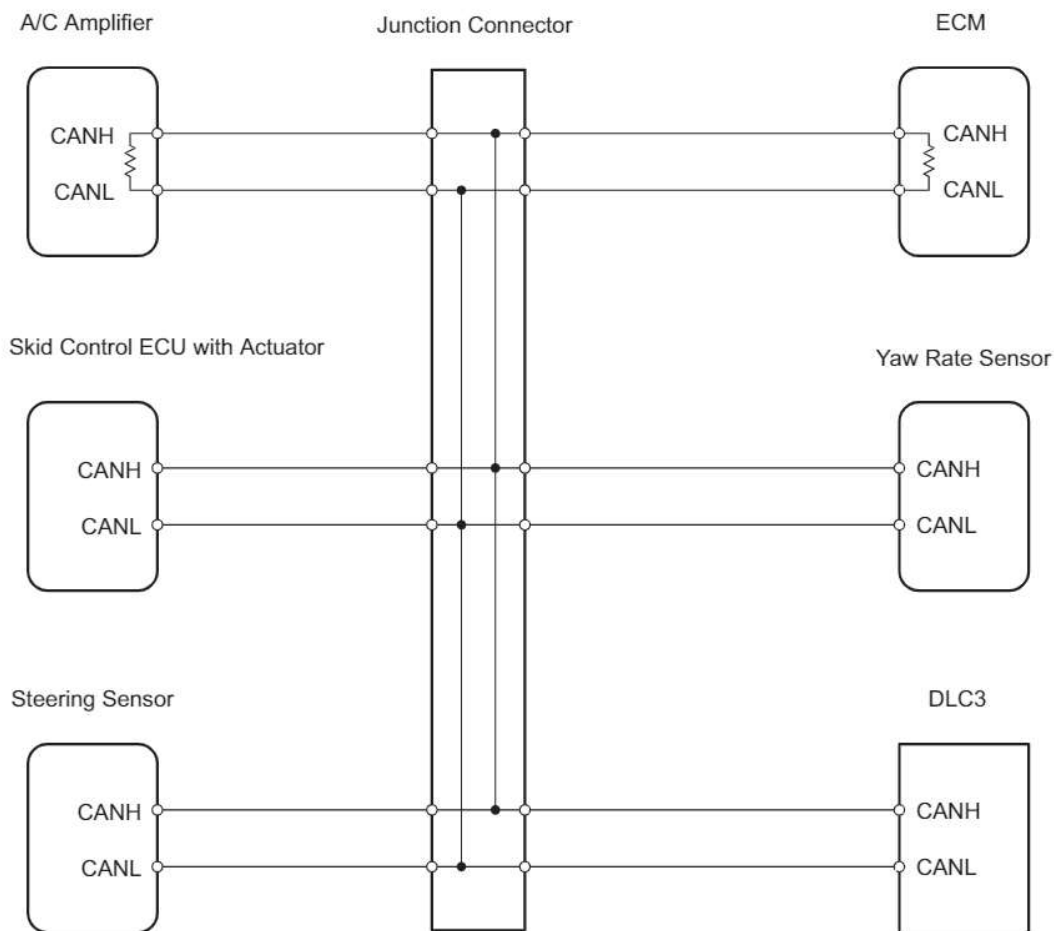
CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

Open in One Side of CAN Sub Bus Line

DESCRIPTION

If 2 or more ECUs and/or sensors do not appear on the intelligent tester's "BUS CHECK" screen via the CAN VIM, one side of the CAN sub bus line may be open (One side of the CANH [sub bus line] /CANL [sub bus line] of the ECU and/or sensor is open).

WIRING DIAGRAM



E116374E04

INSPECTION PROCEDURE

HINT:

- Perform the following inspection for the ECUs (sensors) which are not displayed on the intelligent tester. If a malfunction cannot be identified, perform the following inspections for the ECUs (sensors) connected to the CAN communication system.

- Do not remove the A/C amplifier and ECM, as they are the end parts of the circuit. If removed, CAN communication will not be possible.
- The open circuit confirmation of the A/C amplifier, ECM and main bus is performed in the CHECK CAN BUS LINE procedure of HOW TO PROCEED WITH TROUBLESHOOTING. This inspection only has procedures for checking for an open circuit on one side of the sub bus line.

1

CHECK FOR OPEN IN ONE SIDE OF CAN SUB BUS LINE (SKID CONTROL ECU)

- (a) Disconnect the S3 ECU connector.
- (b) Select "BUS CHECK" on the intelligent tester display via the CAN VIM (see page CA-13).

Result

Result	Proceed to
ABS/VSC/TRAC are not displayed on intelligent tester.	A
Several ECUs and sensors other than ABS/VSC/TRAC are not displayed on intelligent tester.	B

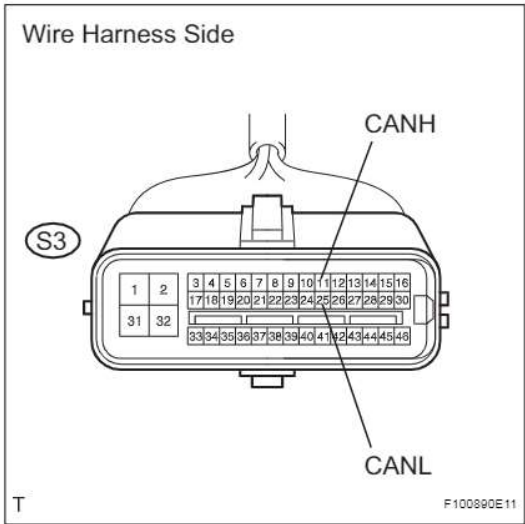
B

Go to step 3

A

2

CHECK FOR OPEN IN ONE SIDE OF CAN SUB BUS LINE (SKID CONTROL ECU)



- (a) Measure the resistance of the wire harness side connector.
- Standard resistance:
54 to 69 Ω

NG

REPAIR OR REPLACE CAN SUB BUS LINE AND CONNECTOR (SKID CONTROL ECU)

OK

REPLACE BRAKE ACTUATOR ASSEMBLY

3

CHECK FOR OPEN IN ONE SIDE OF CAN SUB BUS LINE (STEERING SENSOR)

- (a) Disconnect the S7 sensor connector.
- (b) Select "BUS CHECK" on the intelligent tester display via the CAN VIM (see page CA-13).

CA-58

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

Result

Result	Proceed to
STEERING SENSOR is not displayed on intelligent tester.	A
Several ECUs and sensors other than STEERING SENSOR are not displayed on intelligent tester.	B

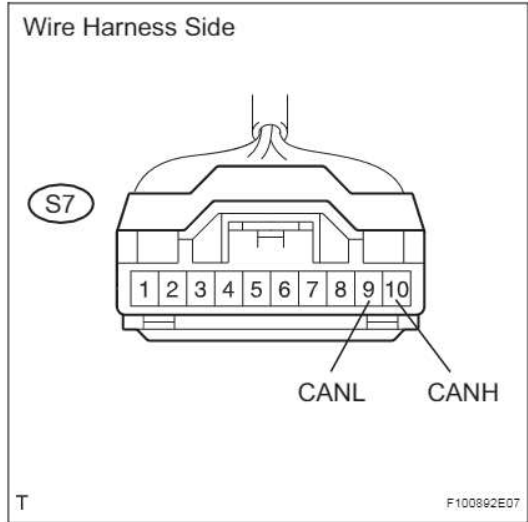
B

Go to step 5

A

4

CHECK FOR OPEN IN ONE SIDE OF CAN SUB BUS LINE (STEERING SENSOR)



- (a) Measure the resistance of the wire harness side connector.
- Standard resistance:**
54 to 69 Ω

NG

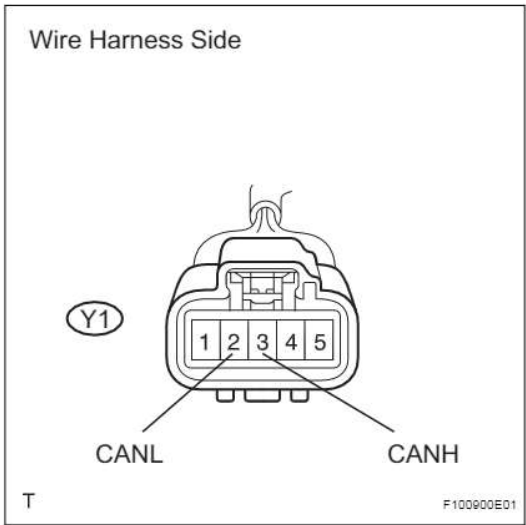
REPAIR OR REPLACE CAN SUB BUS LINE AND CONNECTOR (STEERING SENSOR)

OK

CA

REPLACE STEERING SENSOR

5 CHECK FOR OPEN IN ONE SIDE OF CAN SUB BUS LINE (YAW RATE SENSOR)



- (a) Disconnect the Y1 sensor connector.
 - (b) Measure the resistance of the wire harness side connector.
- Standard resistance:**
54 to 69 Ω

NG → **REPAIR OR REPLACE CAN SUB BUS LINE AND CONNECTOR (YAW RATE SENSOR)**

OK

REPLACE YAW RATE SENSOR

HOW TO PROCEED WITH TROUBLESHOOTING

NOTICE:

When DTCs other than U0073/94 (C1223/43), U0100/65, U0123/62, U0124/95 (1223/43), U0126/63, and B1499 are output, inspect and repair the trouble areas indicated by the DTCs from other systems first.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3 CHECK AND CLEAR DTC

HINT:

When checking the DTCs for the skid control ECU (see page [BC-16](#)).

NEXT

4 CHECK CAN BUS LINE

(a) Check CAN bus line (see page [CA-27](#)).

NEXT

5 CHECK INTELLIGENT TESTER VIA CAN VIM

(a) Select "BUS CHECK" (see page [CA-13](#)).

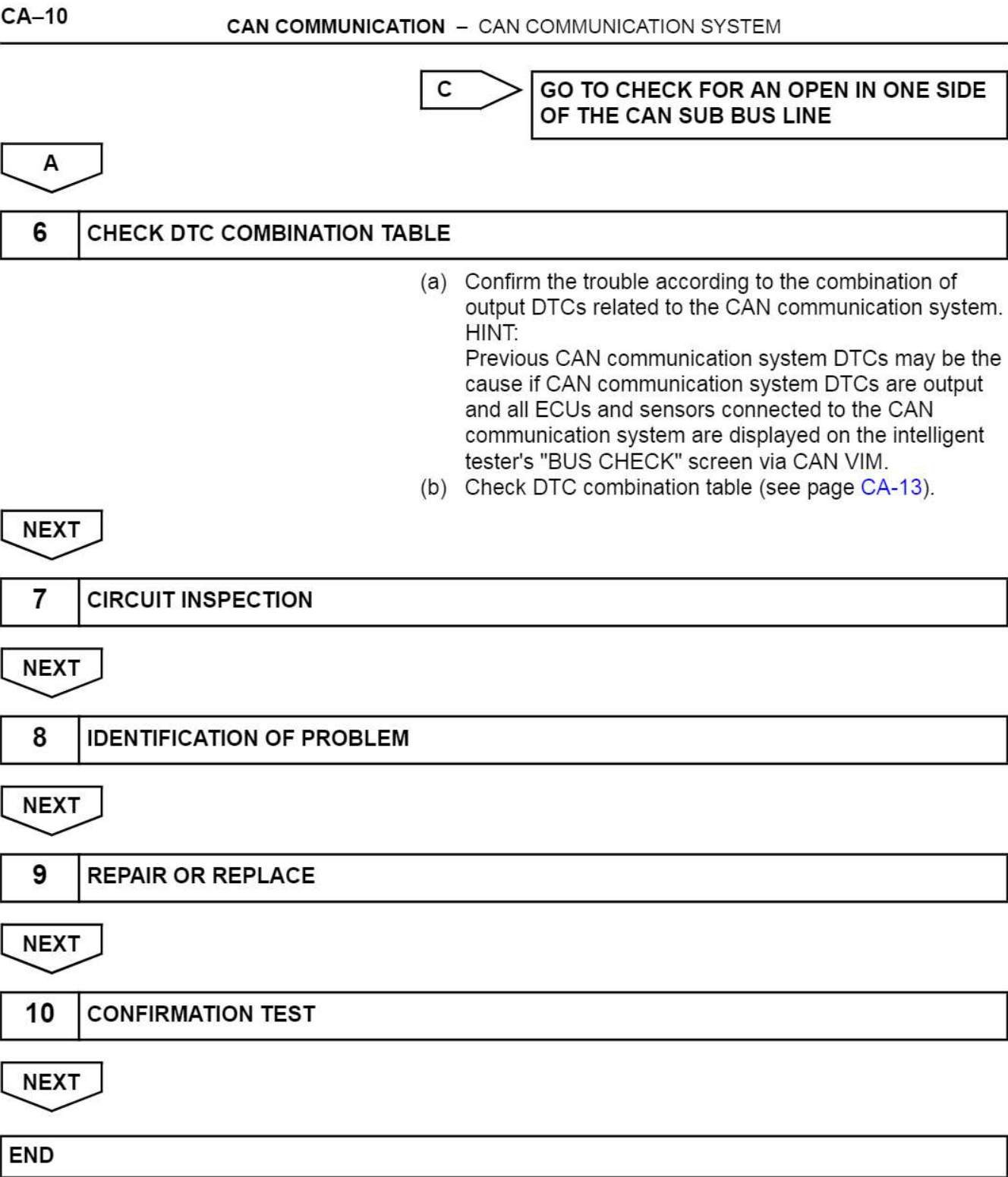
Result

Result	Proceed to
All ECUs and sensors connected to the CAN communication system are displayed.	A
An ECU or sensor not connected to the CAN communication system is displayed.	B
A few ECUs or sensors not connected to the CAN communication system are displayed.	C

B

GO TO PROBLEM SYMPTOMS TABLE
(COMMUNICATION STOP MODE TABLE)

CA



CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CA-11

PROBLEM SYMPTOMS TABLE**Result list of how to proceed with troubleshooting**

Symptom	Suspected area	See page
Open in CAN Main Bus Line	CHECK CAN MAIN BUS LINE FOR DISCONNECTION	CA-31
Short in CAN Bus Line	CHECK CAN BUS LINE FOR SHORT CIRCUIT	CA-35
Short to B+ CAN Bus Line	CHECK CAN BUS LINE FOR SHORT TO B+	CA-41
Short to GND in CAN Bus Line	CHECK CAN BUS LINE FOR SHORT TO GND	CA-47
Open in One Side of CAN Sub Bus Line	CHECK FOR AN OPEN IN ONE SIDE OF THE CAN SUB BUS LINE	CA-53

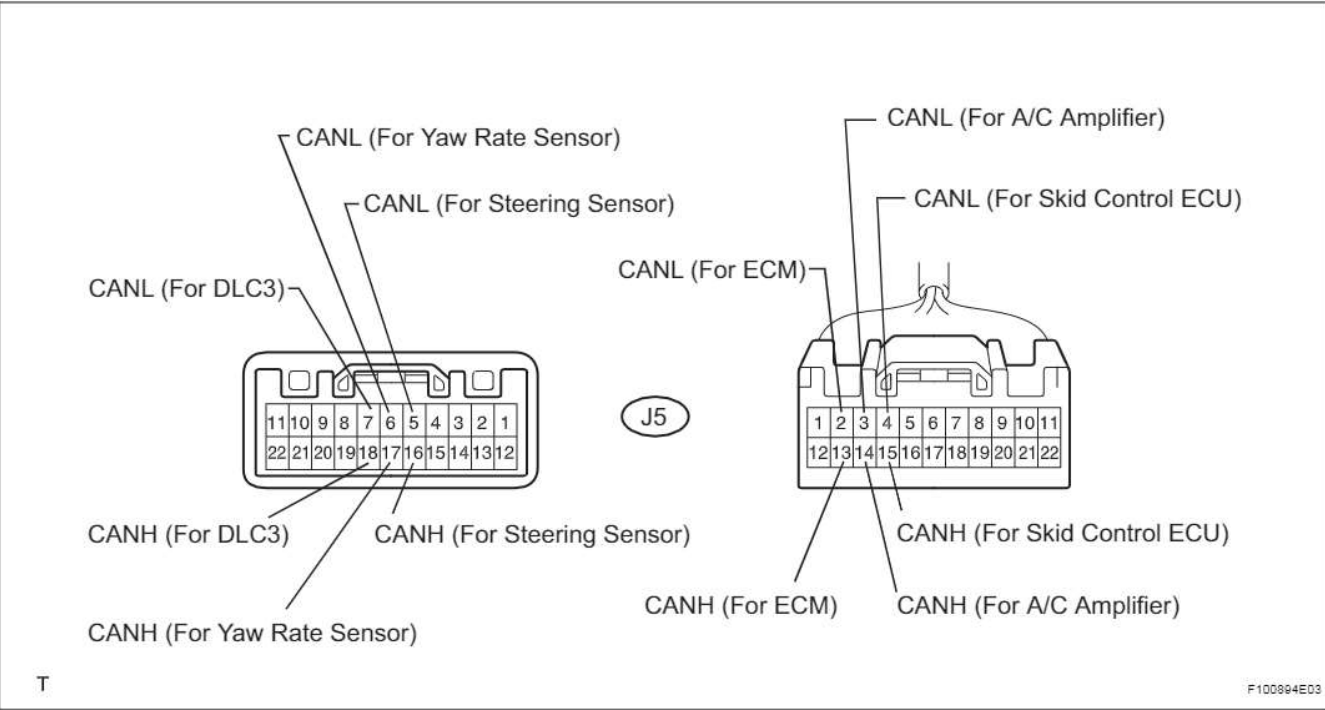
Communication stop mode table

Symptom	Suspected area	See page
ENGINE is not displayed on the intelligent tester via CAN VIM	ECM COMMUNICATION STOP MODE	CA-24
SKID CONTROL ECU is not displayed on the intelligent tester via CAN VIM	SKID CONTROL ECU COMMUNICATION STOP MODE	CA-16
STEERING SENSOR is not displayed on the intelligent tester via CAN VIM	STEERING SENSOR COMMUNICATION STOP MODE	CA-20
YAW RATE SENSOR is not displayed on the intelligent tester via CAN VIM	YAW RATE SENSOR COMMUNICATION STOP MODE	CA-22
A/C AMPLIFIER is not displayed on the intelligent tester via CAN VIM	A/C CONDITIONING AMPLIFIER COMMUNICATION STOP MODE	CA-18

CA

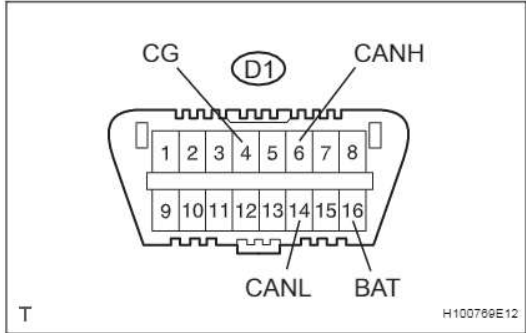
TERMINALS OF ECU

1. JUNCTION CONNECTOR



Junction Connector	Wiring Color	Connect to
CANH (J5-13)	B	ECM
CANL (J5-2)	W	ECM
CANH (J5-14)	B	A/C Amplifier
CANL (J5-3)	W	A/C Amplifier
CANH (J5-15)	B	Skid Control ECU
CANL (J5-4)	W	Skid Control ECU
CANH (J5-16)	B	Steering Sensor
CANL (J5-5)	W	Steering Sensor
CANH (J5-17)	B	Yaw Rate Sensor
CANL (J5-6)	W	Yaw Rate Sensor
CANH (J5-18)	B	DLC3
CANL (J5-7)	W	DLC3

2. CHECK DLC3
- (a) Measure the resistance of the connector.



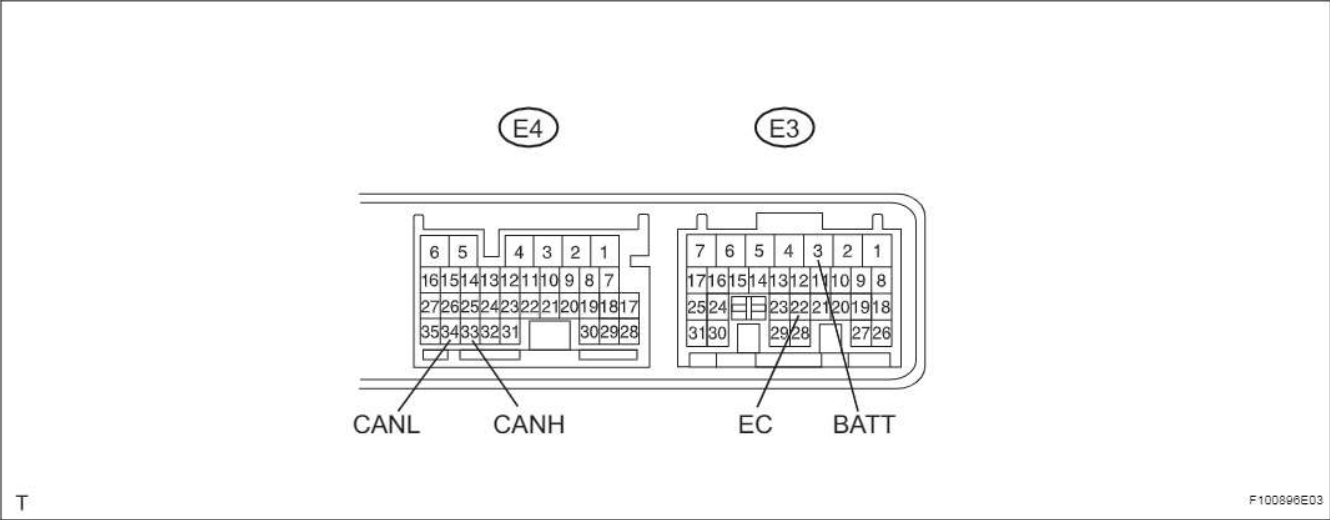
Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (D1-6) - CANL (D1-14)	B - W	Ignition switch OFF	54 to 69 Ω
CANH (D1-6) - CG (D1-4)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (D1-14) - CG (D1-4)	W - W-B	Ignition switch OFF	3 kΩ or higher

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CA-13

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (D1-6) - BAT (D1-16)	B - B-O	Ignition switch OFF	1 MΩ or higher
CANL (D1-14) - BAT (D1-16)	W - B-O	Ignition switch OFF	1 MΩ or higher

3. CHECK ECM



(a) Measure the resistance of the connector.

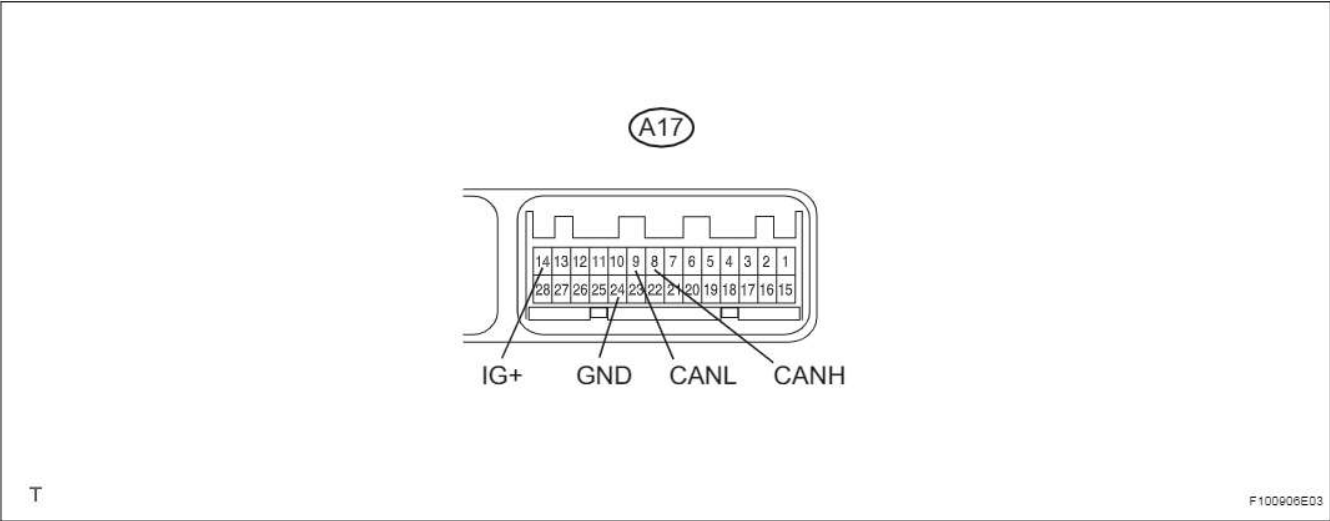
Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (E4-33) - CANL (E4-34)	B - W	Ignition switch OFF	54 to 69 Ω

- (b) Disconnect the E4 and E3 ECM connectors.
(c) Measure the resistance of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (E4-33) - CANL (E4-34)	B - W	Ignition switch OFF	108 to 132 Ω
CANH (E4-33) - EC (E3-22)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (E4-34) - EC (E3-22)	W - W-B	Ignition switch OFF	3 kΩ or higher
CANH (E4-33) - BATT (E3-3)	B - B-Y	Ignition switch OFF	1 MΩ or higher
CANL (E4-34) - BATT (E3-3)	W - B-Y	Ignition switch OFF	1 MΩ or higher

CA

4. CHECK A/C AMPLIFIER



CA-14

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

(a) Measure the resistance of the connector.

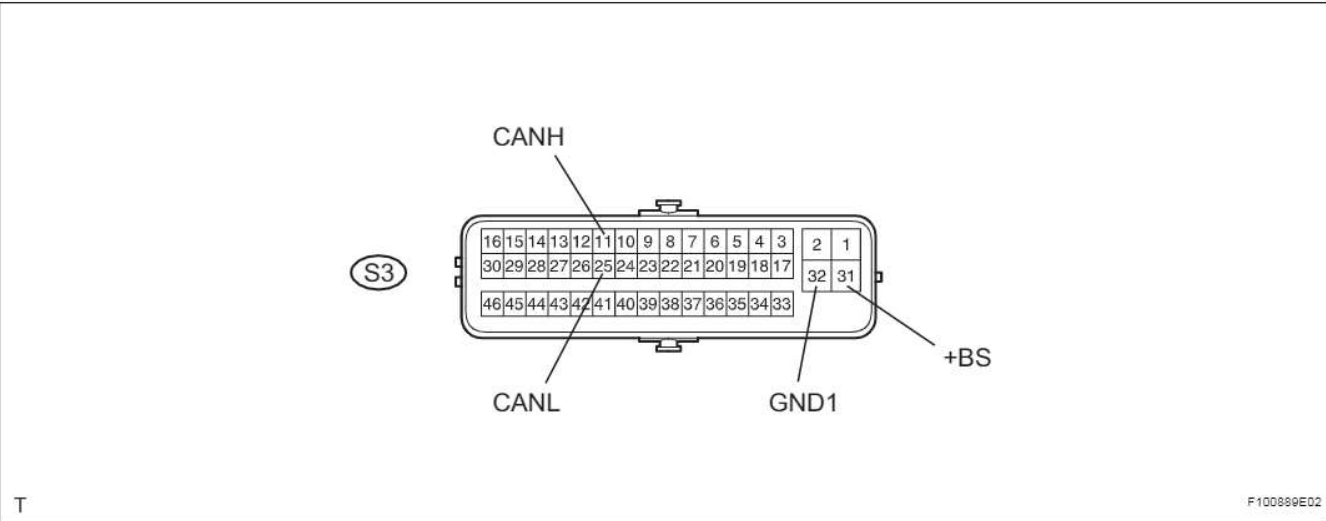
Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (A17-8) - CANL (A17-9)	B - W	Ignition switch OFF	54 to 69 Ω

(b) Disconnect the A17 amplifier connector.

(c) Measure the resistance of the wire harness side connector.

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (A17-8) - CANL (A17-9)	B - W	Ignition switch OFF	108 to 132 Ω
CANH (A17-8) - GND (A17-24)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (A17-9) - GND (A17-24)	W - W-B	Ignition switch OFF	3 kΩ or higher
CANH (A17-8) - IG+ (A17-14)	B - L	Ignition switch OFF	1 MΩ or higher
CANL (A17-9) - IG+ (A17-14)	W - L	Ignition switch OFF	1 MΩ or higher

5. CHECK BRAKE ACTUATOR ASSEMBLY (SKID CONTROL ECU WITH ACTUATOR)



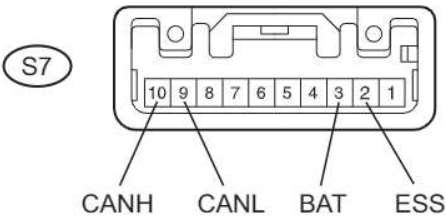
(a) Disconnect the S3 ECU connector.

(b) Measure the resistance of the wire harness side connector.

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (S3-11) - CANL (S3-25)	B - W	Ignition switch OFF	54 to 69 Ω
CANH (S3-11) - GND1 (S3-32)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (S3-25) - GND1 (S3-32)	W - W-B	Ignition switch OFF	3 kΩ or higher
CANH (S3-11) - +BS (S3-31)	B - B	Ignition switch OFF	1 MΩ or higher
CANL (S3-25) - +BS (S3-31)	W - B	Ignition switch OFF	1 MΩ or higher

CA

6. CHECK STEERING SENSOR



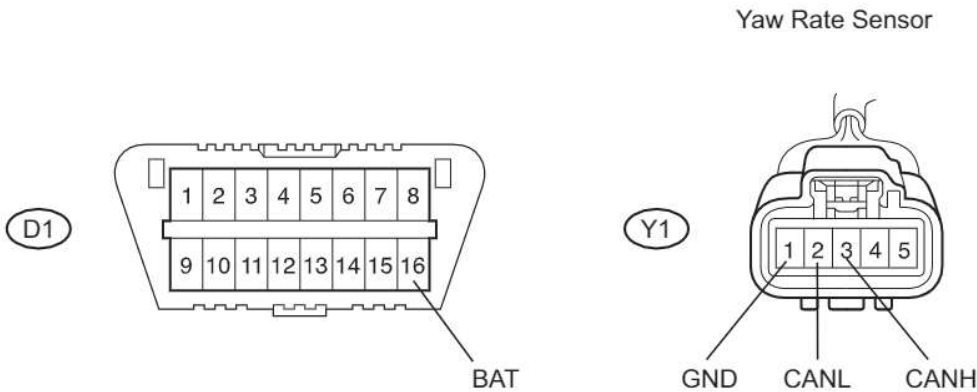
T

F100891E02

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

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (S7-10) - CANL (S7-9)	B - W	Ignition switch OFF	54 to 69 Ω
CANH (S7-10) - ESS (S7-2)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (S7-9) - ESS (S7-2)	W - W-B	Ignition switch OFF	3 kΩ or higher
CANH (S7-10) - BAT (S7-3)	B - W-R	Ignition switch OFF	1 MΩ or higher
CANL (S7-9) - BAT (S7-3)	W - W-R	Ignition switch OFF	1 MΩ or higher

7. CHECK YAW RATE SENSOR



T

F100893E01

- (a) Disconnect the Y1 sensor connector.
- (b) Measure the resistance of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CANH (Y1-3) - CANL (Y1-2)	B - W	Ignition switch OFF	54 to 69 Ω
CANH (Y1-3) - GND (Y1-1)	B - W-B	Ignition switch OFF	3 kΩ or higher
CANL (Y1-3) - GND (Y1-1)	W - W-B	Ignition switch OFF	3 kΩ or higher
CANH (Y1-3) - BAT (D1-16)	B - B-O	Ignition switch OFF	1 MΩ or higher
CANL (Y1-2) - BAT (D1-16)	W - B-O	Ignition switch OFF	1 MΩ or higher

CA-16

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

DIAGNOSIS SYSTEM

1. BUS CHECK

- (a) Select "BUS CHECK" from the "OBD/MOBD MENU" screen.

HINT:

The ECUs and sensors that are properly connected to the CAN communication system can be displayed using the intelligent tester via the CAN VIM.

- (b) Press "ENTER" on the intelligent tester.

- (c) The screen displays the ECUs that are properly connected to the CAN communication system.

HINT:

There is a communication stop in the system of any properly connected ECUs that are not displayed.

2. DTC TABLE BY ECU

HINT:

- In the CAN communication system, CAN communication system DTCs can be displayed by the ECU using the intelligent tester.
- If CAN communication system DTCs are output, the trouble cannot be determined only by checking the DTCs.

Perform troubleshooting according to "HOW TO PROCEED WITH TROUBLESHOOTING" (see page CA-5).

- (a) ECM

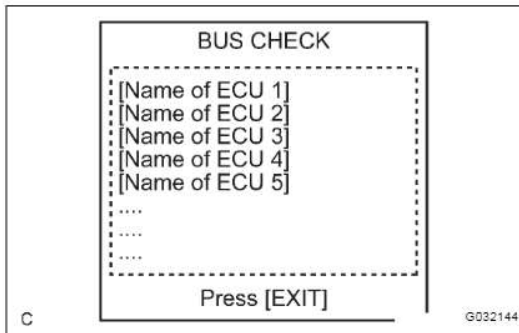
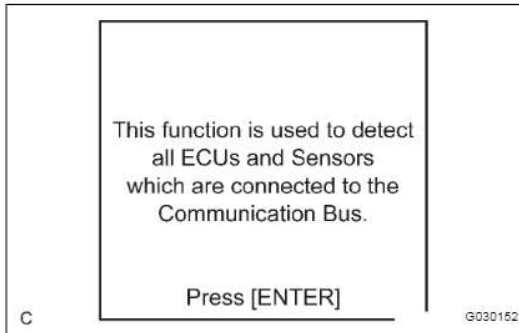
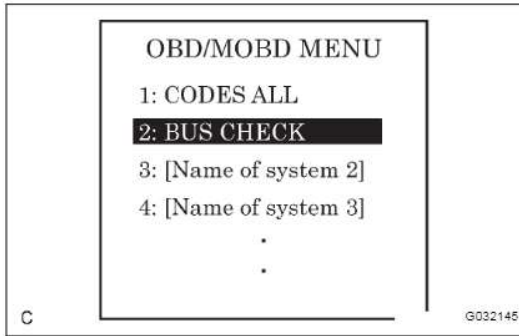
HINT:

The ECM is connected to the CAN communication system, but CAN communication system DTCs are not output.

- (b) SKID CONTROL ECU

HINT:

DTC communication uses the SIL Line.



CA

DTC No.	Detection Item
U0073/94 (C1223/43)	Control Module Communication Bus OFF
U0100/65	LOST Communication with ECM/PCM
U0123/62	LOST Communication with Yaw Rate Sensor Module
U0124/95 (C1223/43)	LOST Communication with Lateral Acceleration Sensor Module
U0126/63	LOST Communication with Steering Angle Sensor Module

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

CA-17

(c) A/C AMPLIFIER

HINT:

The A/C amplifier is connected to the CAN communication system but CAN communication DTCs are not output.

DTC No.	Detection Item
B1499	LOST Communication with ECM Module

3. DTC, BUS CHECK COMBINATION TABLE

-	Output from	Output DTC	ECM COMMUNICATION STOP MODE	SKID CONTROL ECU COMMUNICATION STOP MODE	STEERING SENSOR COMMUNICATION STOP MODE	YAW RATE SENSOR COMMUNICATION STOP MODE	A/C AMPLIFIER COMMUNICATION STOP MODE
DTC	Skid Control ECU	U0073/94 (C1223/43)	X	○	X	X	X
		U0100/65	▲ During driving	▲ During driving	X	X	X
		U0123/62	X	○	X	○	X
		U0124/95 (C1223/43)	X	○	X	○	X
		U0126/63	X	○	○	X	X
	A/C Amplifier*	B1499	○	X	X	X	X
Bus Check	ECM	-	X	○	○	○	○
	Skid Control ECU	-	○	X	○	○	○
	Steering Sensor	-	○	○	X	○	○
	Yaw Rate Sensor	-	○	○	○	X	○
	A/C Amplifier	-	○	○	○	○	X

HINT:

- : Output
- ▲: Outputs under the specified condition
- X: Not output
- *: When the BUS CHECK is performed but A/C is not displayed, refer to A/C AMPLIFIER COMMUNICATION STOP MODE.

(a) Perform troubleshooting according to the combination of DTCs that are output.

HINT:

- ECM COMMUNICATION STOP MODE (see page CA-24).
- SKID CONTROL ECU COMMUNICATION STOP MODE (see page CA-16).
- STEERING SENSOR COMMUNICATION STOP MODE (see page CA-20).
- YAW RATE SENSOR COMMUNICATION STOP MODE (see page CA-22).
- A/C AMPLIFIER COMMUNICATION STOP MODE (see page CA-18).

CA

CA-18

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

FAIL-SAFE CHART**1. FAIL-SAFE FUNCTION**

- (a) When communication fails in any of the CAN bus lines (communication lines) due to a short circuit or for another reason, the fail-safe function, which is specified for each system, operates to prevent the system from malfunctioning.
- (b) The fail-safe function activates on each system when communication is impossible. (For further details, refer to the relevant systems of each part.)

ECM	Skid Control ECU	Steering Sensor	Yaw Rate Sensor	A/C Amplifier	Normal condition	Conditions when communication is impossible	DTC detection (Driver detectable)
B	A	B	B	-	VSC Control (Controls driving force while VSC is in operation)	VSC function stops	Detectable (Light comes on)
B	A	-	-	-	TRC control (Activation control and engine torque control usage during acceleration slip)	TRC function stops	Detectable (Light comes on)
B	-	-	-	A	A/C and PTC heater control	A/C control stops PTC heater control stops	Not Detectable (Detected when A/C is not effective)

HINT:

- Fail-safe function operation during an A-B communication error is shown in the above chart.
- A: Main control system
B: Related system

CA

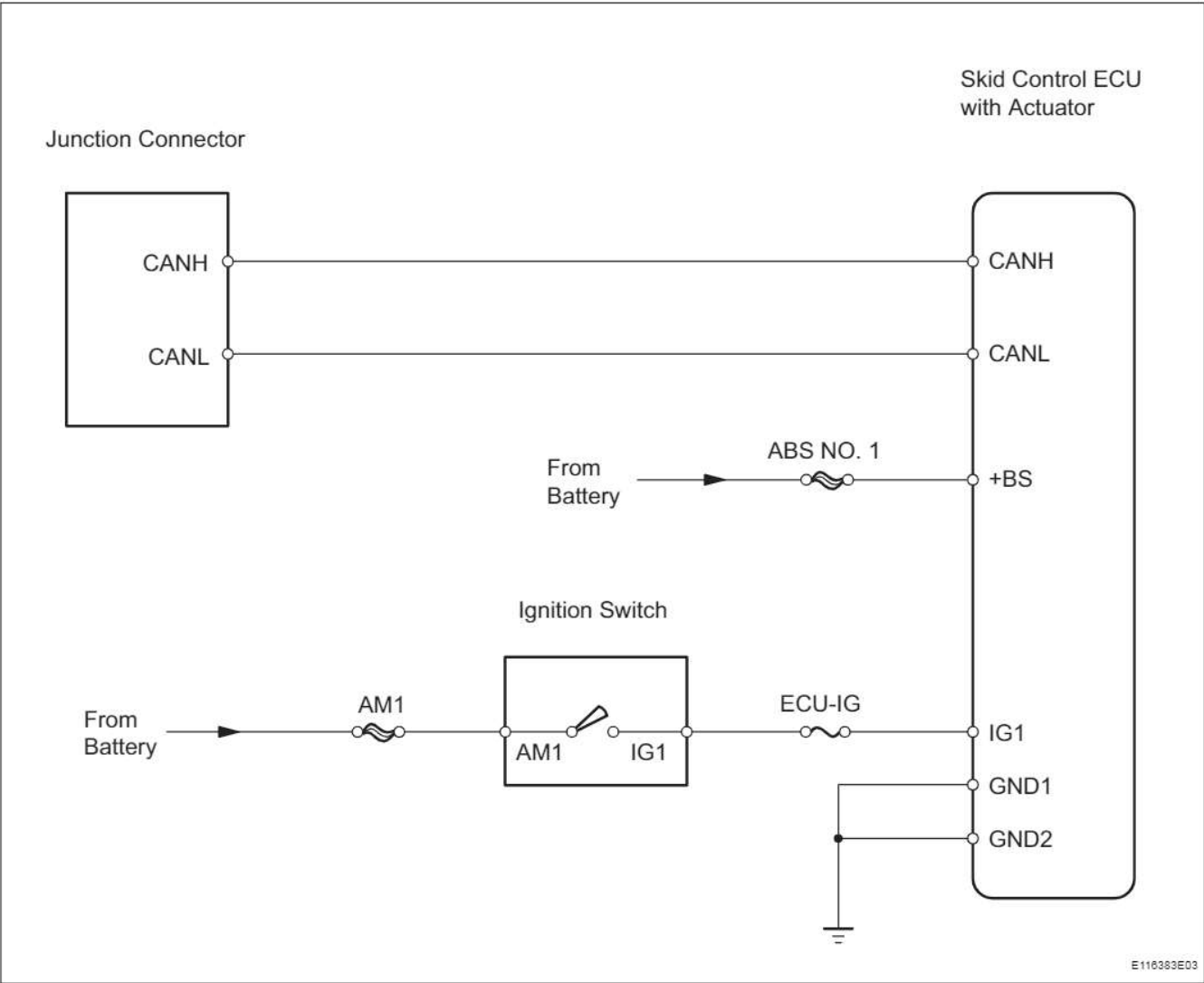
CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

Skid Control ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
SKID CONTROL ECU COMMUNICATION STOP MODE	• ABS/VSC/TRAC is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "SKID CONTROL ECU COMMUNICATION STOP MODE" in the "DTC, BUS CHECK COMBINATION TABLE"	• Power source or inside the skid control ECU • Skid control ECU sub bus line and connector

WIRING DIAGRAM



CA

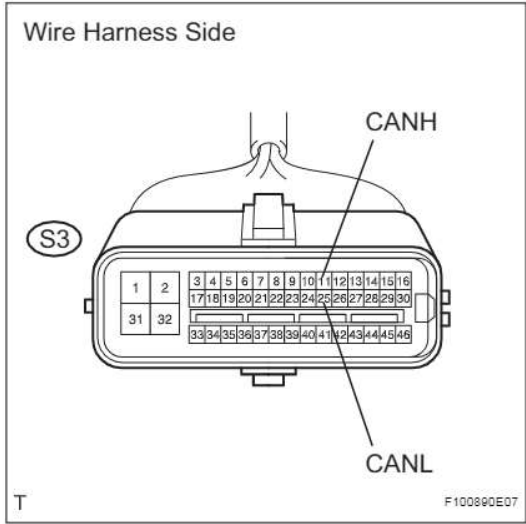
CA-20

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE FOR DISCONNECTION (SKID CONTROL ECU SUB BUS LINE)



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

Standard resistance

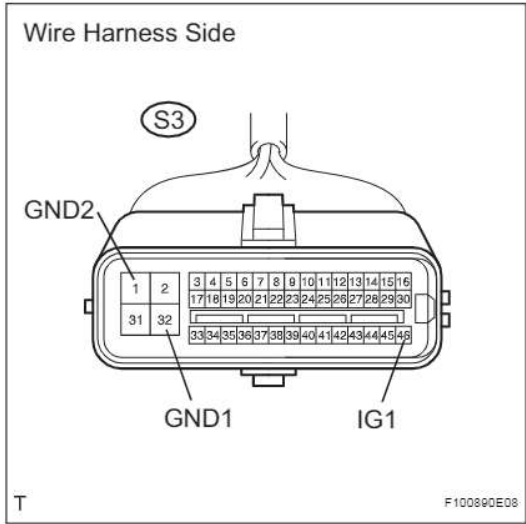
Tester Connection	Condition	Specified Condition
S3-11 (CANH) - S3-25 (CANL)	Ignition switch OFF	54 to 69 Ω

NG REPAIR OR REPLACE SKID CONTROL ECU SUB BUS LINE AND CONNECTOR (CANH, CANL)

OK

2

CHECK WIRE HARNESS (SKID CONTROL ECU - BATTERY AND BODY GROUND)



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

Standard resistance

Tester Connection	Specified Condition
S3-32 (GND1) - Body ground	Below 1 Ω
S3-1 (GND2) - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
S3-46 (IG1) - Body ground	Ignition switch ON	10 to 14 V

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

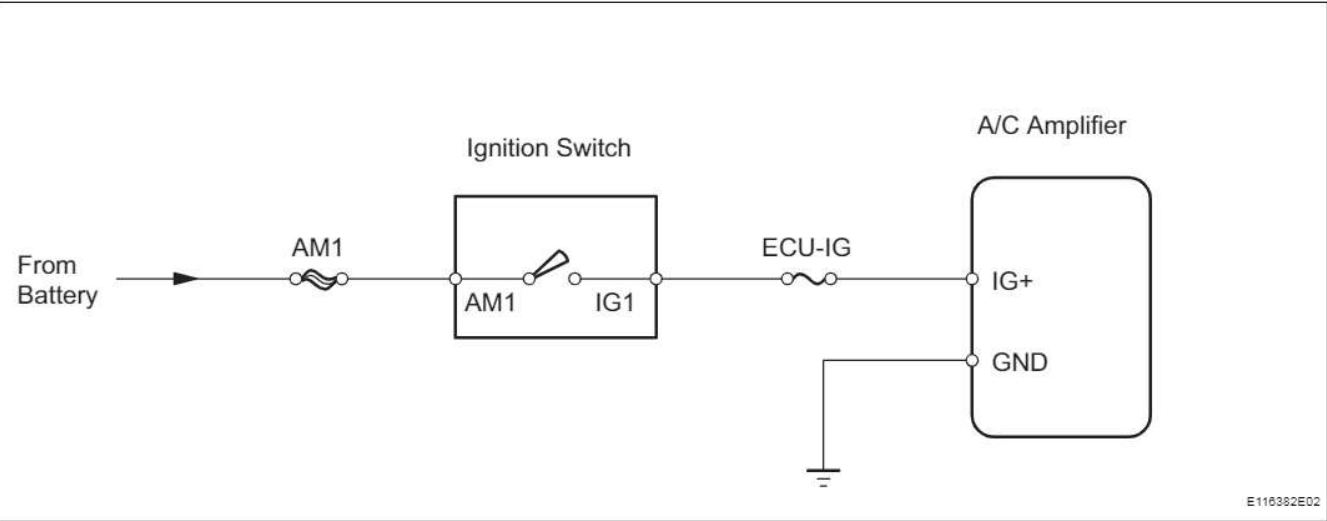
REPLACE BRAKE ACTUATOR ASSEMBLY

Air Conditioning Amplifier Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
AIR CONDITIONING AMPLIFIER COMMUNICATION STOP MODE	- A/C is not displayed on the "BUS CHECK" screen of the intelligent tester - Applies to "AIR CONDITIONING AMPLIFIER COMMUNICATION STOP MODE" in the "DTC, BUS CHECK COMBINATION TABLE" - A/C control stops - PTC heater control stops	Power source or inside the A/C amplifier

WIRING DIAGRAM

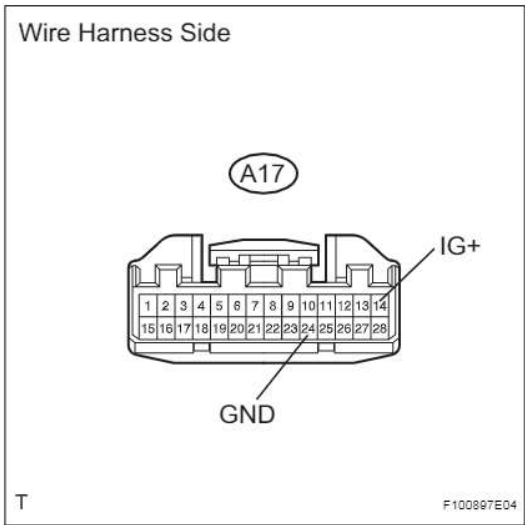


INSPECTION PROCEDURE

1

CHECK WIRE HARNESS (A/C AMPLIFIER - BATTERY AND BODY GROUND)

CA



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

Standard resistance

Tester Connection	Specified Condition
A17-24 (GND) - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
A17-14 (IG+) - Body ground	Ignition switch ON	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

CA-22

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM



REPLACE A/C AMPLIFIER

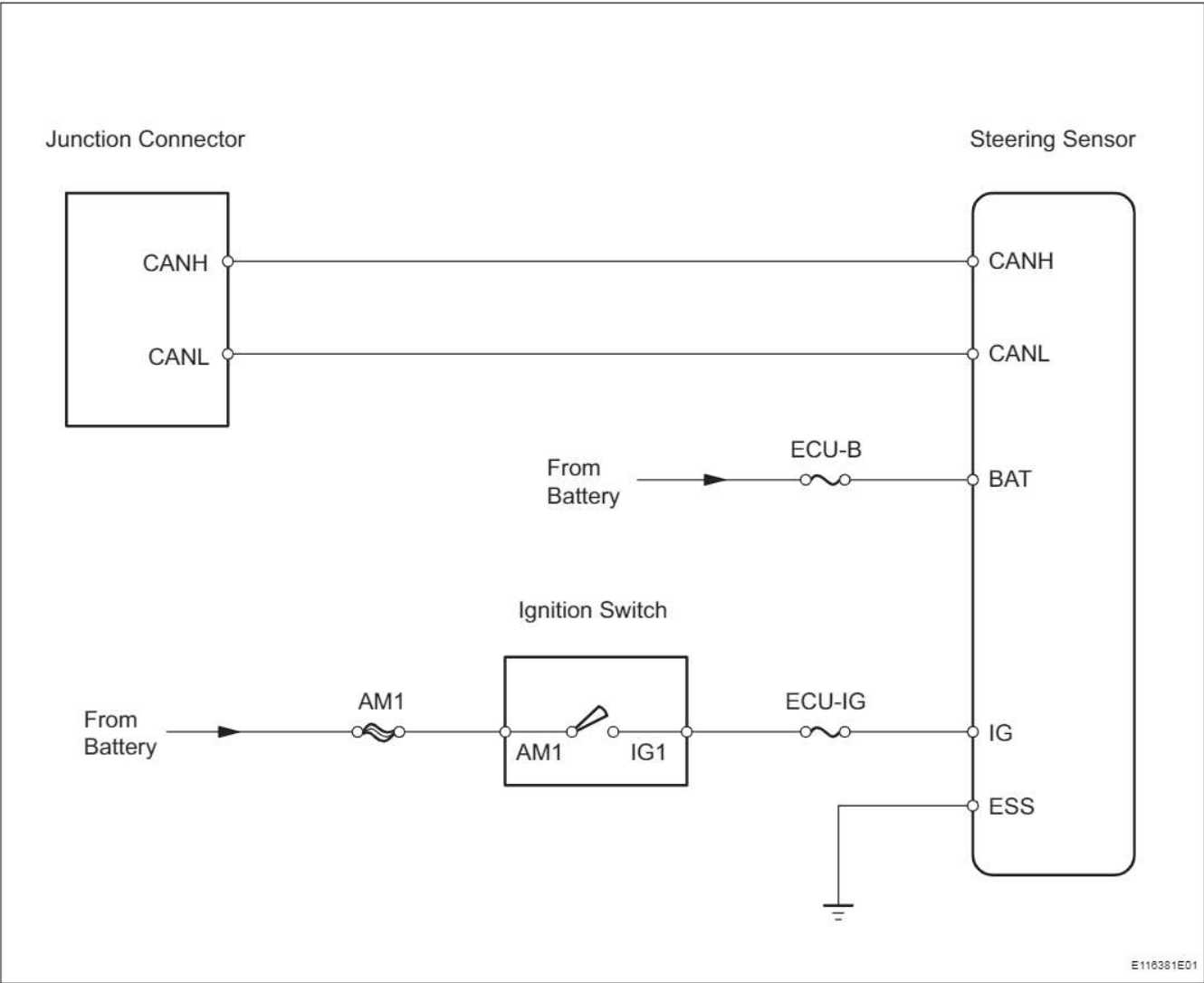
CA

Steering Angle Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
STEERING SENSOR COMMUNICATION STOP MODE	- STEERING SENSOR is not displayed on the "BUS CHECK" screen of the intelligent tester. - Applies to "STEERING SENSOR COMMUNICATION STOP MODE" in the "DTC, BUS CHECK COMBINATION TABLE"	- Power source or inside the steering sensor - Steering sensor sub bus line and connector

WIRING DIAGRAM



CA

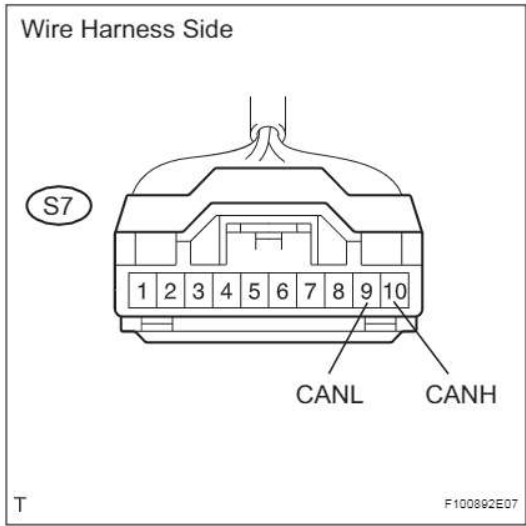
CA-24

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE FOR DISCONNECTION (STEERING SENSOR SUB BUS LINE)



- (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) - S7-9 (CANL)	Ignition switch OFF	54 to 69 Ω

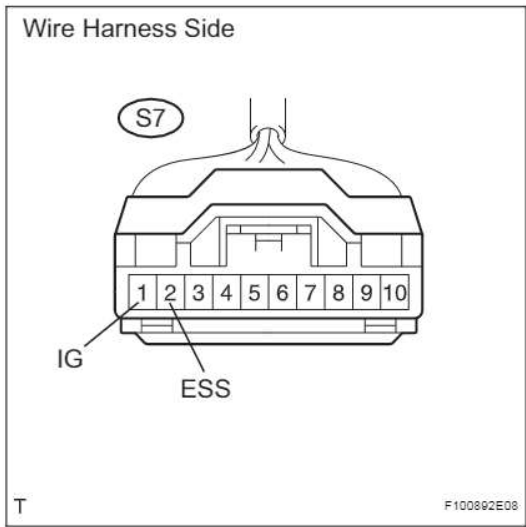
NG

REPAIR OR REPLACE STEERING SENSOR SUB BUS LINE AND CONNECTOR (CANH, CANL)

OK

2

CHECK WIRE HARNESS (STEERING SENSOR - BATTERY AND BODY GROUND)



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

Standard resistance

Tester Connection	Specified Condition
S7-2 (ESS) - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
S7-1 (IG) - Body ground	Ignition switch ON	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

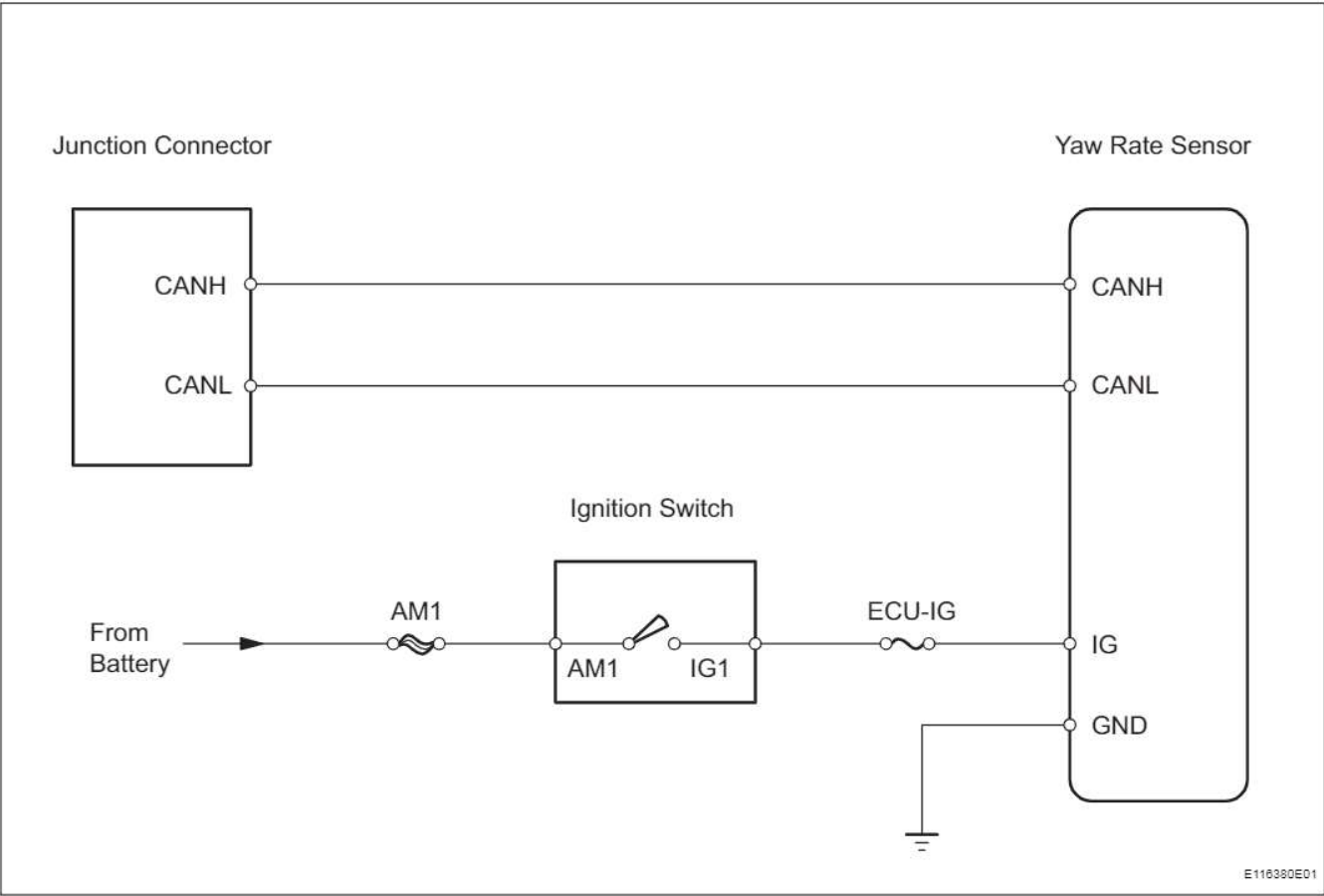
REPLACE STEERING SENSOR

Yaw Rate Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
YAW RATE SENSOR COMMUNICATION STOP MODE	• YAW / DECELERAT is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "YAW RATE SENSOR COMMUNICATION STOP MODE" in the "DTC, BUS CHECK COMBINATION TABLE"	• Power source or inside the yaw rate sensor • Yaw rate sensor sub line and connector

WIRING DIAGRAM



CA

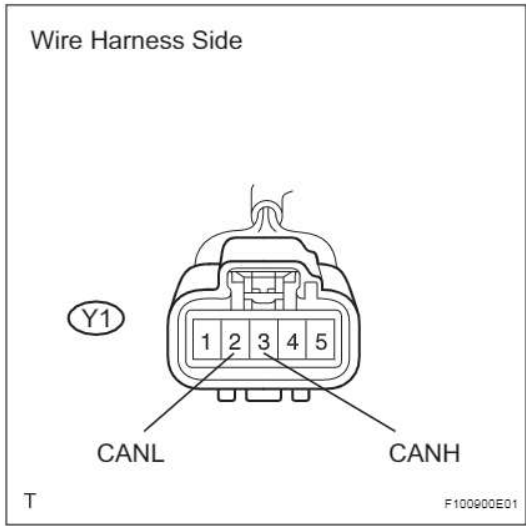
CA-26

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

CHECK CAN BUS LINE FOR DISCONNECTION (YAW RATE SENSOR SUB BUS LINE)



- (a) Disconnect the Y1 sensor connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Condition	Specified Condition
Y1-2 (CANL) - Y1-3 (CANH)	Ignition switch OFF	54 to 69 Ω

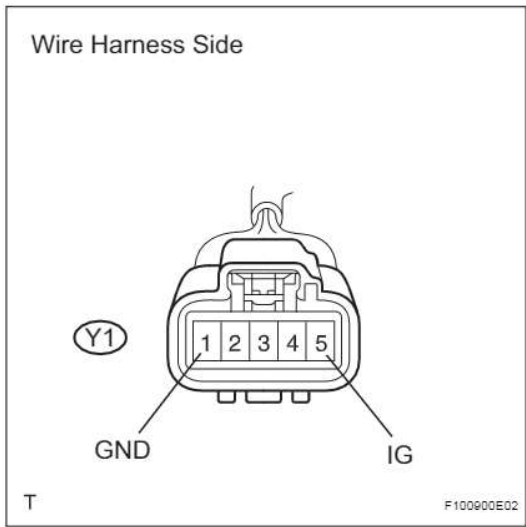
NG

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE AND CONNECTOR (CANH, CANL)

OK

2

CHECK WIRE HARNESS (YAW RATE SENSOR - BATTERY AND BODY GROUND)



- (a) Disconnect the Y1 sensor connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
Y1-1 (GND) - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
Y1-5 (IG) - Body ground	Ignition switch ON	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

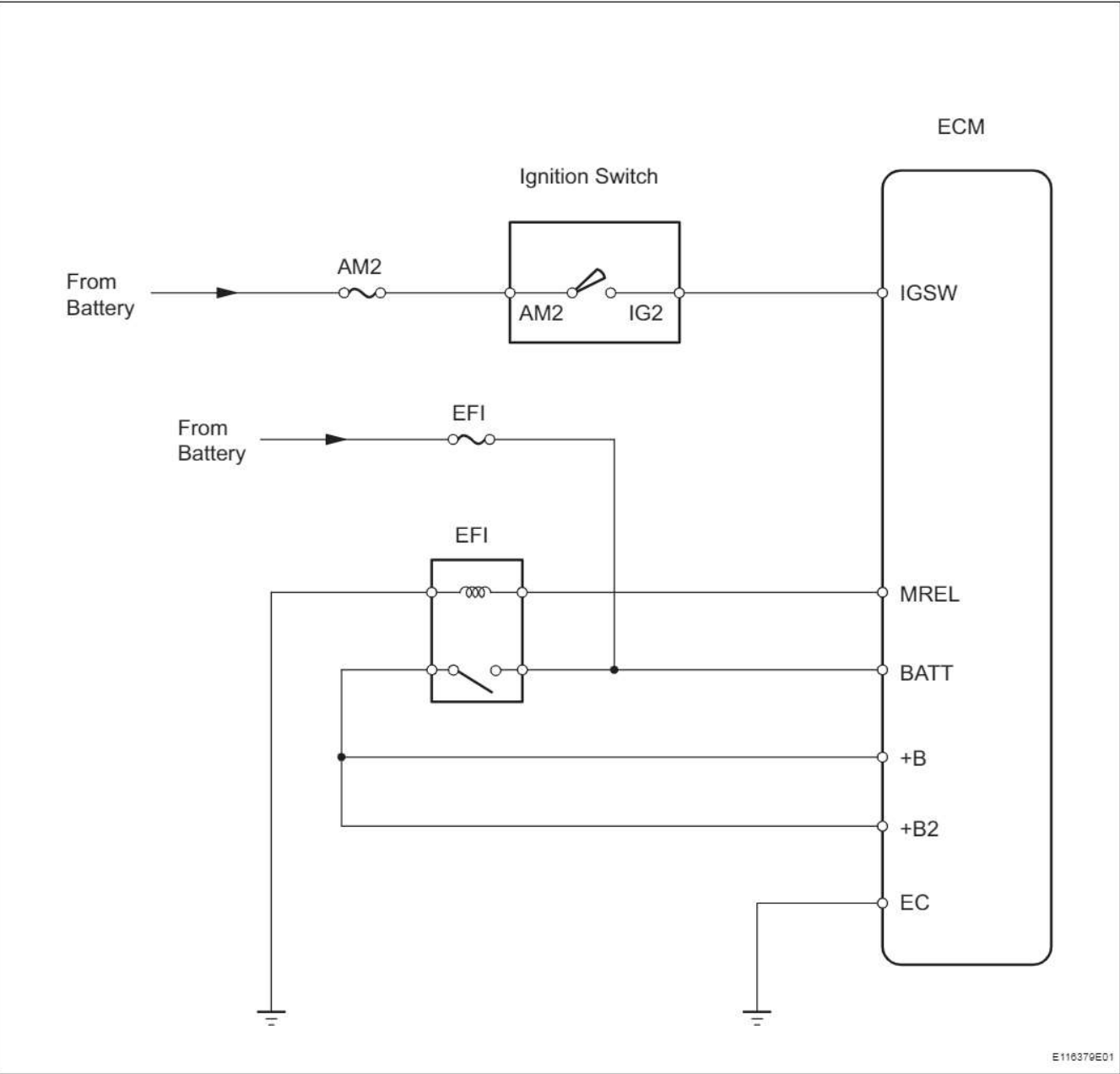
REPLACE YAW RATE SENSOR

ECM Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
ECM COMMUNICATION STOP MODE	• "ENGINE" is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "ECM COMMUNICATION STOP MODE" in the "DTC, BUS CHECK COMBINATION TABLE" • VSC function stops • TRC function stops • A/C control stops	• Power source or inside the ECM

WIRING DIAGRAM



CA

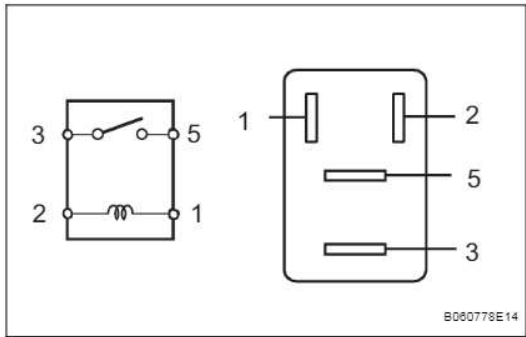
CA-28

CAN COMMUNICATION – CAN COMMUNICATION SYSTEM

INSPECTION PROCEDURE

1

INSPECT EFI RELAY (Marking: EFI)



- (a) Remove the EFI relay from the engine room relay block.
- (b) Measure the resistance of the relay.

Standard resistance

Tester Connection	Specified Condition
3 - 5	10 k Ω or higher
3 - 5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

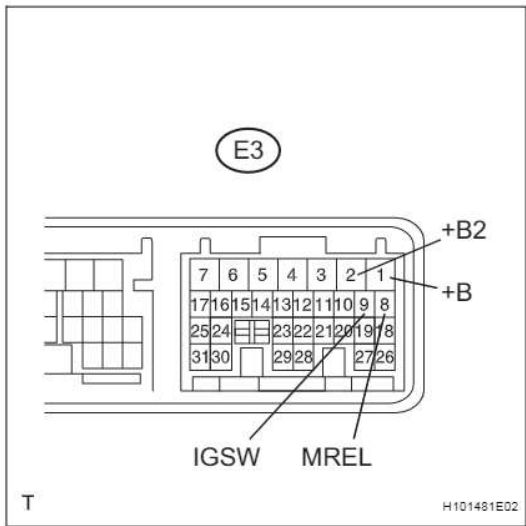
NG

REPLACE EFI RELAY

OK

2

CHECK POWER SOURCE CIRCUIT



- (a) Turn the ignition switch ON.
- (b) Measure the voltage of the wire harness side connector.

Standard voltage

Tester Connection	Specified Condition
E3-9 (IGSW) - Body ground	10 to 14 V
E3-8 (MREL) - Body ground	10 to 14 V
E3-1 (+B) - Body ground	10 to 14 V
E3-2 (+B2) - Body ground	10 to 14 V

NG

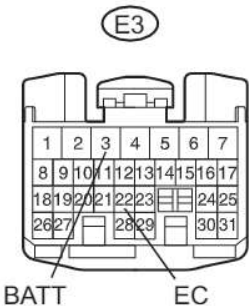
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

3

CHECK WIRE HARNESS (ECM - BATTERY AND BODY GROUND)

Wire Harness Side



T

F100903E05

- (a) Disconnect the E3 ECM connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
E3-22 (EC) - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
E3-3 (BATT) - Body ground	Ignition switch OFF	10 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE ECM