

CAN COMMUNICATION SYSTEM

PRECAUTION

1. HANDLING PRECAUTIONS ON 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 ON SRS AIRBAG SYSTEM

- (a) This vehicle is equipped with an SRS (Supplemental Restraint System), such as the driver airbag and front passenger airbag. Failure to carry out service operations in the correct sequence could cause the SRS airbag to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notice for the SRS (See page [RS-1](#)).

3. WIRE HARNESS REPAIR

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

NOTICE:

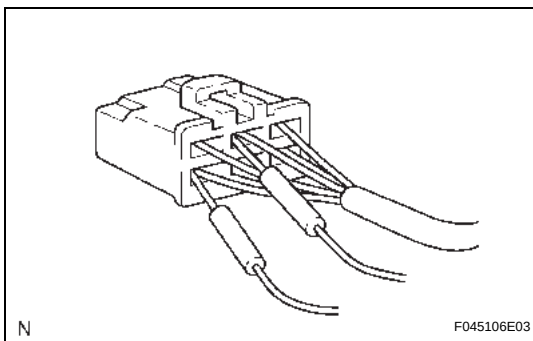
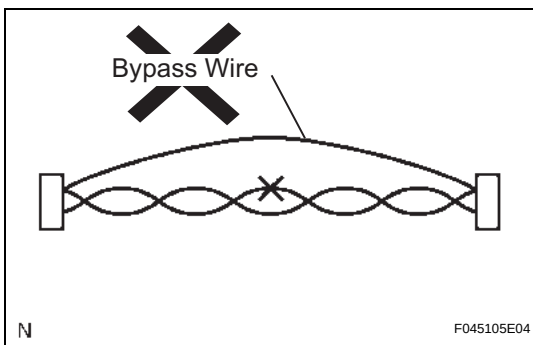
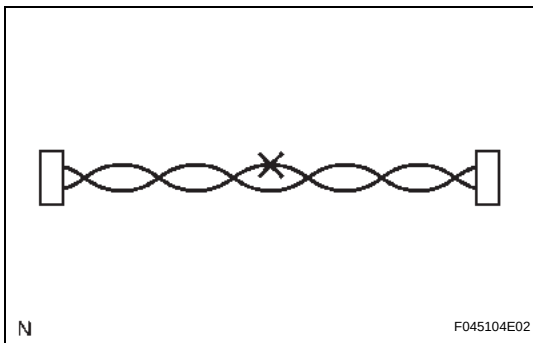
- The CANL bus line and CANH bus line must be installed together all the time. When installing, make sure to twist them.
- The difference in length of the CANL bus line and CANH bus line should be within 100 mm (3.93 in.).
- Untwisted parts around the connector should be within 80 mm (3.15 in.).

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

NOTICE:

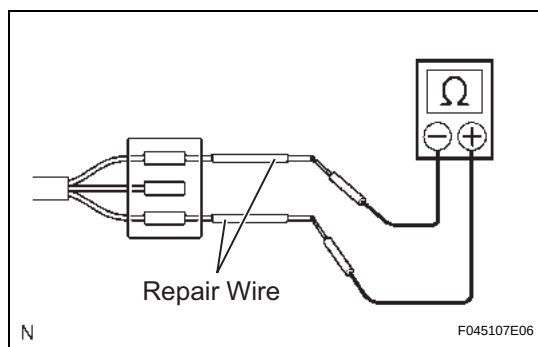
If you use a bypass wire, the characteristic of the twisted wire harness will be lost.

CA



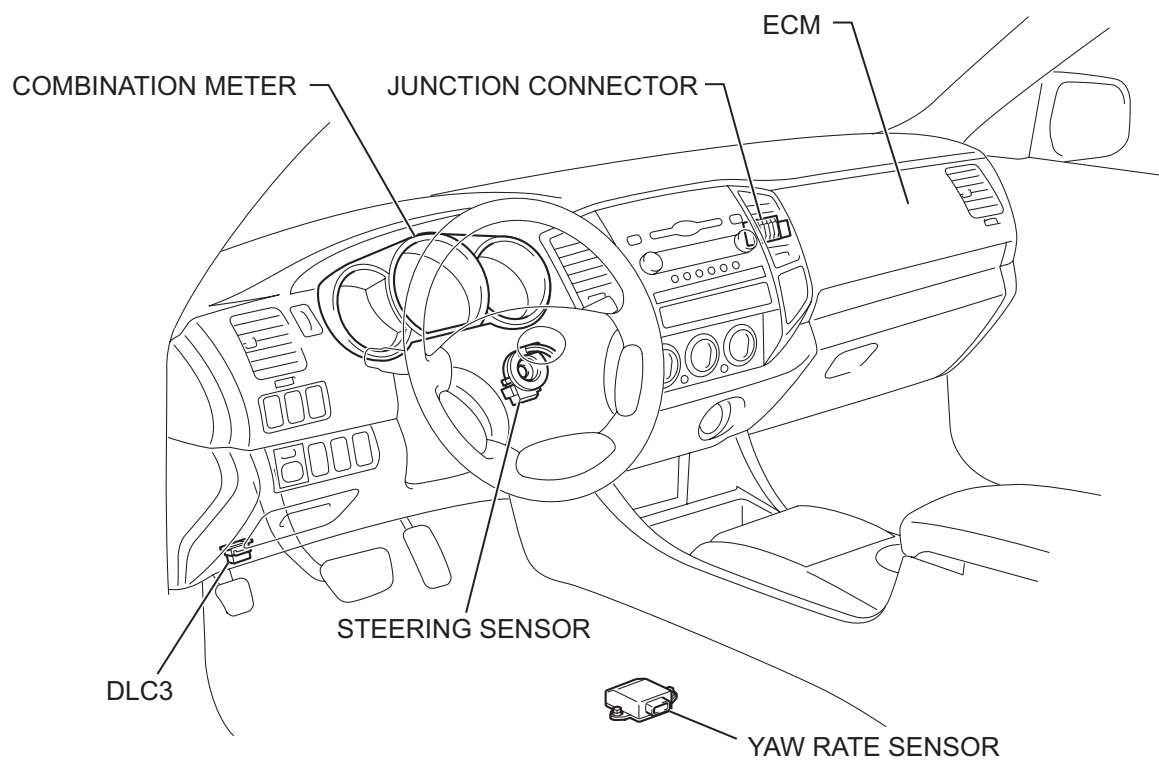
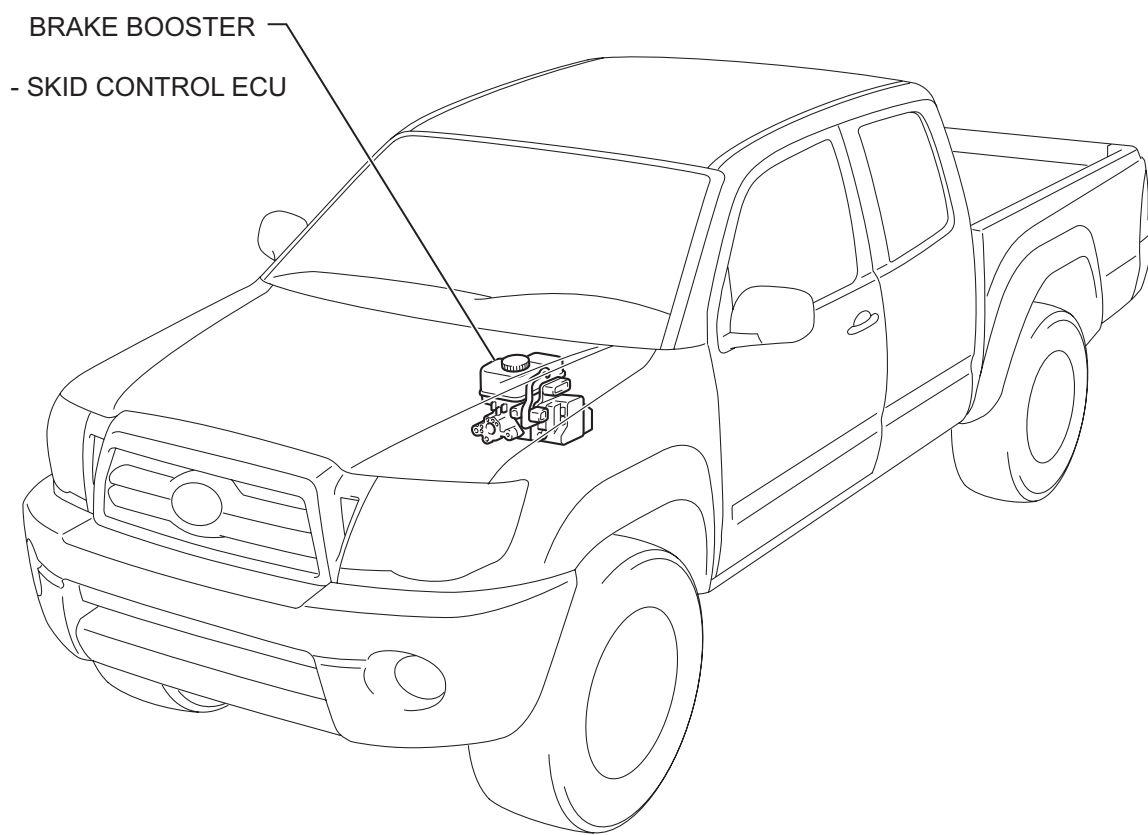
4. CONNECTOR HANDLING

- (a) When inserting tester probes into a connector, insert them from the rear of the connector.



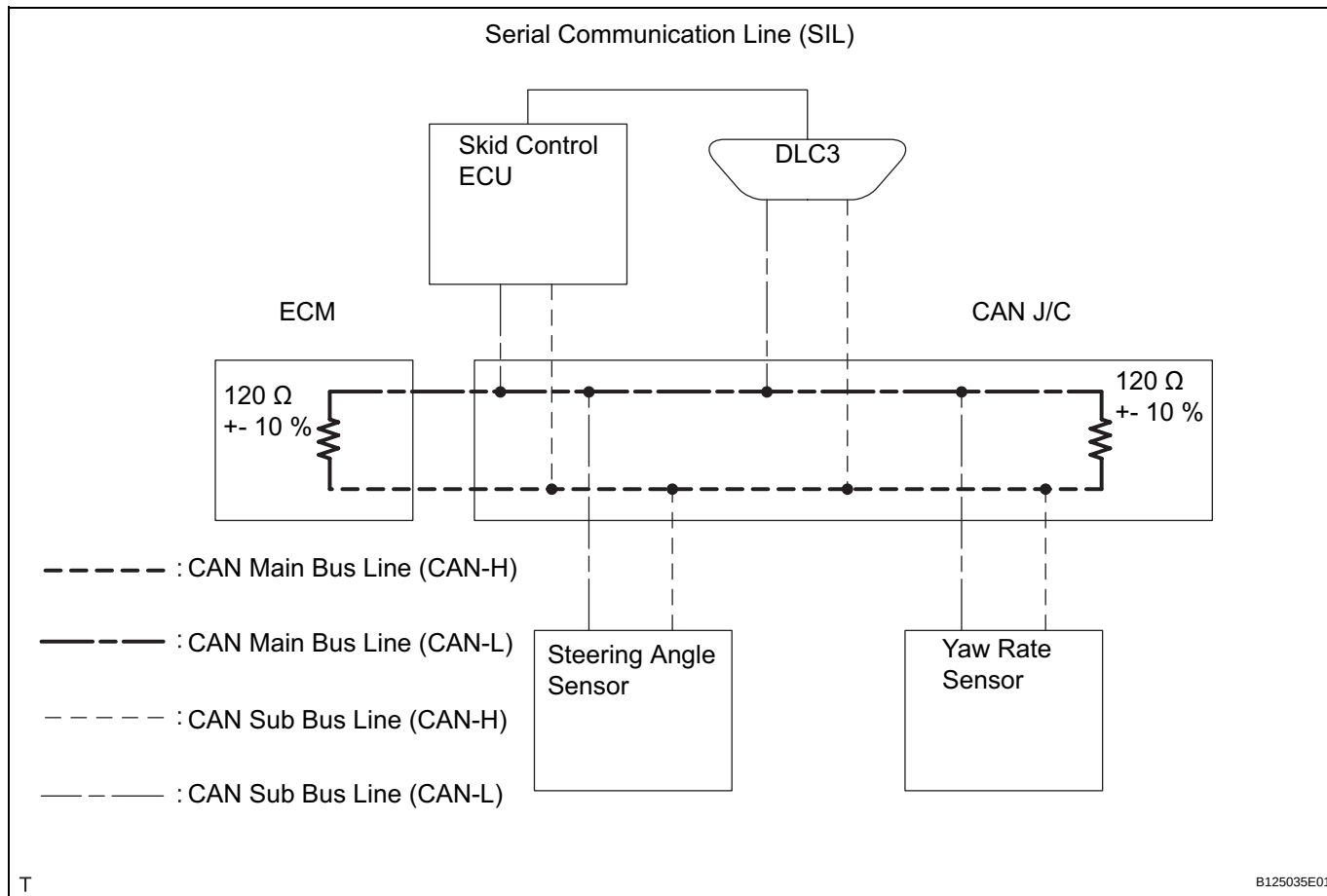
- (b) Use a repair wire to check the connector if it is impossible to check continuity from the rear of the connector.

PARTS LOCATION



CA

SYSTEM DIAGRAM



HINT:

- The skid control ECU stores DTCs and performs DTC communication by receiving information from the steering angle sensor and yaw rate sensor. These sensors cannot store DTCs or perform DTC communication.
- The ECM uses the CAN communication system to perform DTC communication instead of the conventional serial communication line (SIL).

SYSTEM DESCRIPTION

1. BRIEF DESCRIPTION

- (a) CAN (Controller Area Network) is a serial data communication system for real time application. It is an in-vehicle multiplex communication system which has a high communication speed (500 kbps) and a function to detect malfunctions.
- (b) The CAN performs communication based on differential voltage by pairing the CANH bus line and CANL bus line.
- (c) This vehicle uses the CAN communication system for communication between the components in the ABS with EBD & BA & TRAC & VSC system.
- (d) The CAN has two resistors of 120 Ω that are necessary for communication 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.
- (d) CAN J/C
 - (1) The CAN J/C is a junction designed for CAN communication, which stores a terminus circuit.

3. COMPONENTS WHICH COMMUNICATE THROUGH THE CAN COMMUNICATION SYSTEM

- (a) Skid control ECU
- (b) Steering angle sensor
- (c) Yaw rate sensor
- (d) ECM

4. DIAGNOSTIC CODES FOR THE CAN COMMUNICATION SYSTEM

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

5. REMARKS FOR TROUBLESHOOTING

- (a) Trouble in the CAN bus (communication line) can be checked from the DLC3 (except a wire break in lines other than the DLC3 sub bus line).

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

6. HOW TO DISTINGUISH THE CAN J/C CONNECTOR

- (a) In the CAN communication system, the shape of all connectors connected to the CAN J/C is the same. The connectors connected to the CAN J/C can be distinguished by the colors of the bus line and the connecting side of the connector.

HINT:

See "TERMINALS OF ECU" (See page [CA-8](#)) for bus line color or the type of connecting surface.

HOW TO PROCEED WITH TROUBLESHOOTING

NOTICE:

- DTCs for the CAN communication system are as follows: U0073/94, U0100/65, U0123/62, U0124/95, U0126/63.
- Refer to troubleshooting of each system if DTCs regarding the CAN communication system are not output.

1 CHECK AND CLEAR DTCs

NEXT

2 CHECK CAN BUS LINE

NEXT

3 CHECK USING INTELLIGENT TESTER VIA CAN VIM(a) Select "BUS CHECK" (See page [CA-14](#))**Result:**

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

B

COMMUNICATION STOP MODE TABLE

C

CHECK FOR AN OPEN IN ONE SIDE OF THE CAN BUS LINE

A

4 DTC COMBINATION TABLE

(a) Confirm trouble according to the combination of output DTCs regarding the CAN communication system.

HINT:

Previous CAN communication system DTCs may be the cause if CAN communication system DTCs are output and all ECUs and sensors connected to the CAN communication system are displayed on the intelligent tester's "BUS CHECK" screen via the CAN VIM.

NEXT

5	CIRCUIT INSPECTION
---	--------------------

NEXT

6	IDENTIFICATION OF PROBLEM
---	---------------------------

NEXT

7	REPAIR OR REPLACE
---	-------------------

NEXT

8	CONFIRMATION TEST
---	-------------------

NEXT

CA	END
----	-----

PROBLEM SYMPTOMS TABLE

1. COMMUNICATION STOP MODE TABLE

- (a) Complete "CHECK CAN BUS LINE" to confirm that there is no malfunction in the CAN bus line. Select "BUS CHECK" on the hand-held tester via the CAN VIM.
- (b) Check the communication stop mode of the ECUs or sensors not displayed among the following: "ENGINE", "ABS/VSC/TRAC", "YAW / DECELERAT" or "STEERING SENSOR".

NOTICE:

If 2 or more ECUs or sensors are not displayed on the hand-held tester via the CAN VIM, perform troubleshooting for the communication stop mode of each undisplayed ECU or sensor. (Either side of the CAN sub bus lines may be open.)

Symptom	Suspected area	See page
"ENGINE" is not displayed on the handheld tester via CAN VIM.	ECM COMMUNICATION STOP MODE	*1
"ABS/VSC/TARC" is not displayed on the hand-held tester via CAN VIM.	SKID CONTROL ECU COMMUNICATION STOP MODE	CA-16
"STEERING SENSOR" is not displayed on the hand-held tester via CAN VIM.	STEERING ANGLE SENSOR COMMUNICATION STOP MODE	CA-18
"YAW /DECELERAT" is not displayed on the hand-held tester via CAN VIM.	YAW RATE SENSOR COMMUNICATION STOP MODE	CA-20

HINT:

*1

"ENGINE" is not displayed on the intelligent tester via the CAN VIM if no power is supplied to the ECM.

2. DTC COMBINATION TABLE

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

Trouble Mode	U0100/65	U0073/94	U0123/62	U0124/95	U0126/63
SKID CONTROL COMMUNICATION STOP MODE	○	○	○	○	○
YAW RATE SENSOR COMMUNICATION STOP MODE	-	-	○	○	-
STEERING ANGLE SENSOR COMMUNICATION STOP MODE	-	-	-	-	○
ECM COMMUNICATION STOP MODE *2	○	-	-	-	-

HINT:

- Previous CAN communication system DTCs may be the cause if CAN communication system DTCs are output and all ECUs and sensors connected to the CAN communication system are displayed on the intelligent tester's "BUS CHECK" screen via the CAN VIM.

- U0073/94, U0123/62, U0124/95, U0126/63 and U0100/65 are the DTCs in the CAN communication system.
- *2
- U0100/65 is output if no power is supplied to the ECM.
- The above table shows combination of these DTCs.
- O: DTCs that are being output.
- -: DTCs that are not being output.
- SKID CONTROL ECU COMMUNICATION STOP MODE
- STEERING ANGLE SENSOR COMMUNICATION STOP MODE
- YAW RATE SENSOR COMMUNICATION STOP MODE
- ECM COMMUNICATION STOP MODE

TERMINALS OF ECU

HINT:

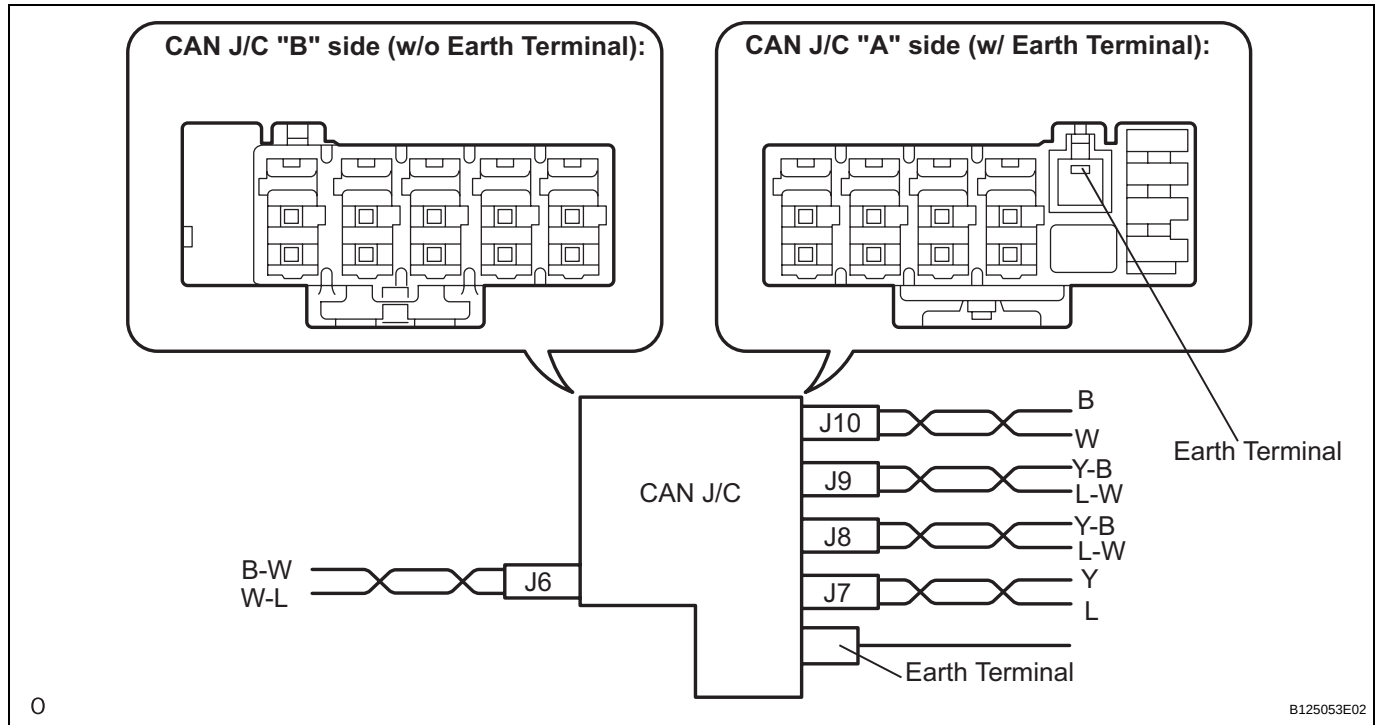
This section describes the standard CAN values for all CAN related components.

1. CAN JUNCTION CONNECTOR

(a) CAN J/C connectors.

HINT:

- The connectors connected to the CAN J/C can be distinguished by the colors of the bus lines and the connecting side of the connector.
- J7, J8, J9 and J10 are interchangeable.



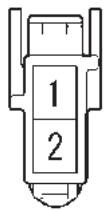
Wiring color

CAN J/C connectors ("A" side, w/ earth terminal)	Color (CAN-H Side)	Color (CAN-L Side)
ECM (J10)	B	W
DLC3 (J9)	Y-B	L-W
Steering angle sensor (J8)	Y-B	L-W
Yaw rate sensor (J7)	W	R

Wiring color

CAN J/C connectors (B side, w/o earth terminal)	Color (CAN-H Side)	Color (CAN-L Side)
Skid control ECU (J6)	B	W

CAN J/C Connector Front View:

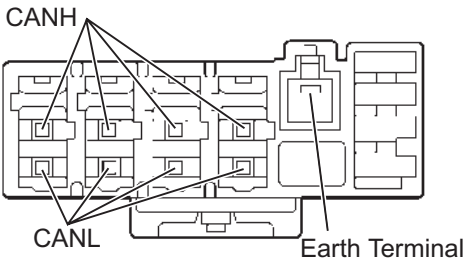


G026205E01

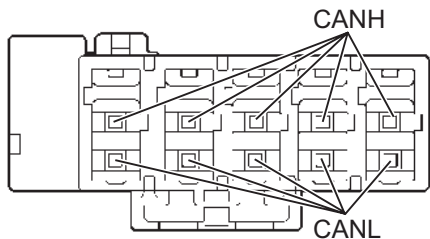
(b) The terminals of the CAN J/C connectors.

Terminal	Terminal symbol
1	CANH
2	CANL

CAN J/C "A" Side (w/ Earth Terminal):



CAN J/C "B" Side (w/o Earth Terminal):



G026214E08

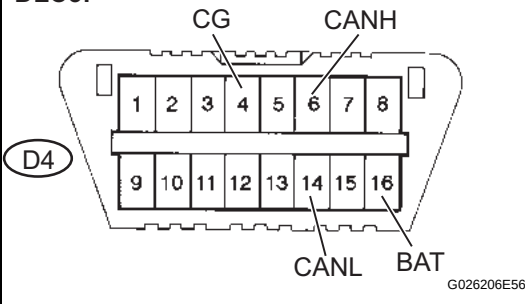
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance

Terminal	Specified value
CANH - CANL	108 to 132 Ω

CA

DLC3:



G026206E56

2. DLC3

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance

Terminals	Terminal Description	Condition	Specified Condition
D4-6 (CANH) - D4-14 (CANL)	HIGH-level CAN bus line - LOW-level CAN bus line	IG switch OFF Stop light switch OFF	54 to 69 Ω
D4-6 (CANH) - D4-16 (BAT)	HIGH-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 MΩ or higher
D4-14 (CANL) - D4-16 (BAT)	LOW-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 MΩ or higher
D4-6 (CANH) - D4-4 (CG)	HIGH-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 kΩ or higher

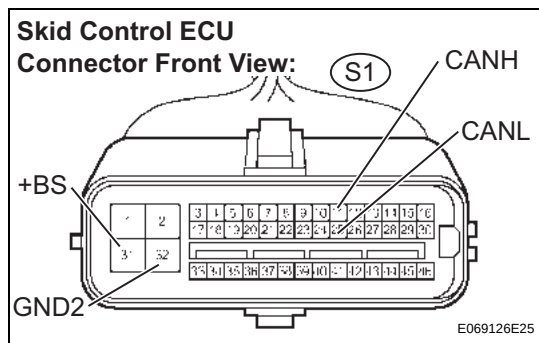
Terminals	Terminal Description	Condition	Specified Condition
D4-14 (CANL) - D4-4 (CG)	LOW-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher

3. SKID CONTROL ECU

(a) Check the skid control ECU harness side connector (S1).

(1) Disconnect the connector (S1) from the skid control ECU.

(2) Measure the resistance according to the value(s) in the table below.



Standard Resistance

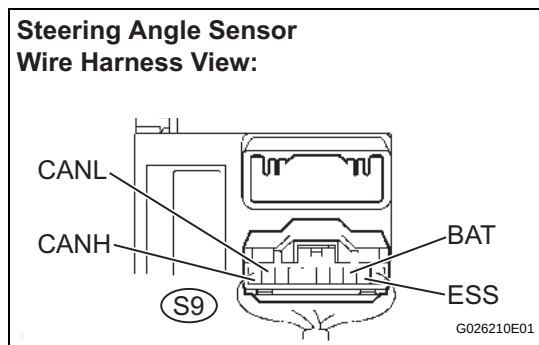
Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
S1-11 (CANH) - S1-25 (CANL)	B-W - W-L	HIGH-level CAN bus line - LOW-level CAN bus line	IG switch OFF Stop light switch OFF	54 to 69 Ω
S1-11 (CANH) - S1-32 (GND2)	B-W - W-B	HIGH-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
S1-25 (CANL) - S1-32 (GND2)	W-B - W-B	LOW-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
S1-11 (CANH) - S1-31 (+BS)	B-W - R	HIGH-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher
S1-25 (CANL) - S1-31 (+BS)	W-L - R	LOW-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher

4. STEERING ANGLE SENSOR

(a) Check the harness side connector (S9) of the steering angle sensor.

(1) Disconnect the connector (S9) from the steering angle sensor.

(2) Measure the resistance according to the value(s) in the table below.



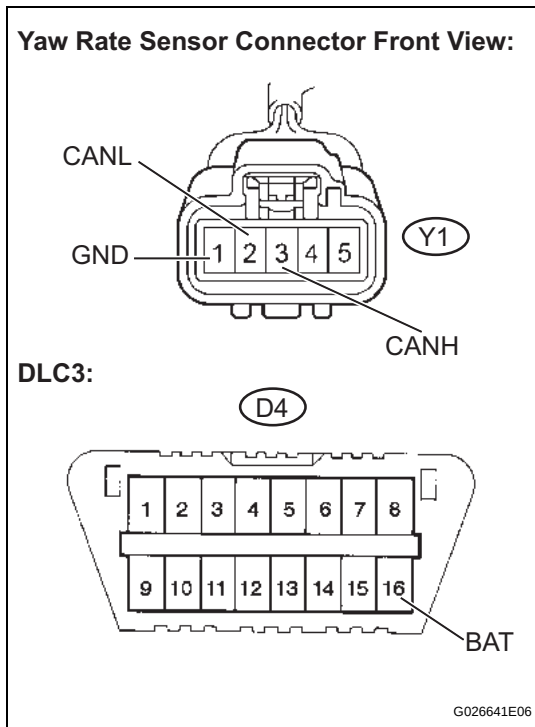
Standard Resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
S9-3 (CANH) - S9-11 (CANL)	Y-B - L-W	HIGH-level CAN bus line - LOW-level CAN bus line	IG switch OFF Stop light switch OFF	54 to 69 Ω

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
S9-3 (CANH) - S9-2 (ESS)	Y-B - W-B	HIGH-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
S9-11 (CANL) - S9-21 (ESS)	L-W - W-B	LOW-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
S9-3 (CANH) - S9-9 (BAT)	Y-B - R	HIGH-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher
S9-11 (CANL) - S9-9 (BAT)	L-W - R	LOW-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher

5. YAW RATE SENSOR

- (a) Check the yaw rate sensor harness side connector (Y1).
- (1) Disconnect the connector (Y1) from the yaw rate sensor.
 - (2) Measure the resistance according to the value(s) in the table below.



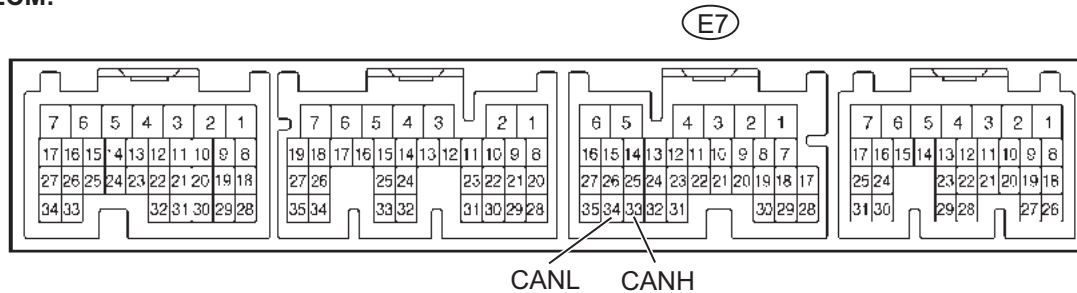
Standard Resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
Y1-3 (CANH) - Y1-2 (CANL)	Y - L	HIGH-level CAN bus line - LOW-level CAN bus line	IG switch OFF Stop light switch OFF	54 to 69 Ω
Y1-3 (CANH) - Y1-1 (GND)	Y - W-B	HIGH-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
Y1-2 (CANL) - Y1-1 (GND)	L - W-B	LOW-level CAN bus line - Ground	IG switch OFF Stop light switch OFF	3 k Ω or higher
Y1-3 (CANH) - D4-16 (BAT)	Y - Y	HIGH-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher
Y1-2 (CANL) - D4-16 (BAT)	L - Y	LOW-level CAN bus line - Battery positive	IG switch OFF Stop light switch OFF	1 M Ω or higher

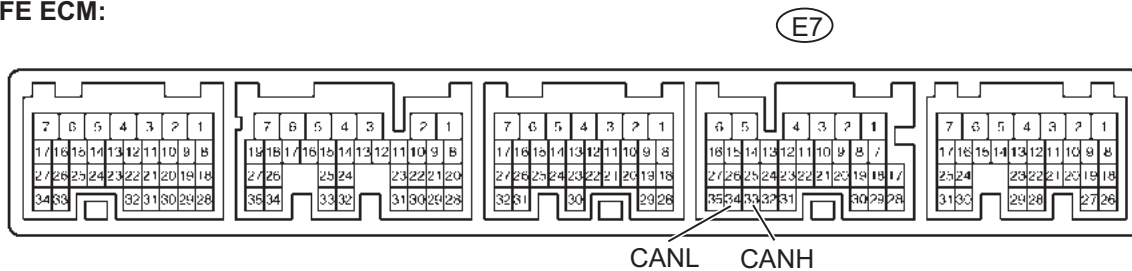
6. ECM

- (a) Measure the resistance according to the value(s) in the table below.

2TR-FE ECM:



1GR-FE ECM:



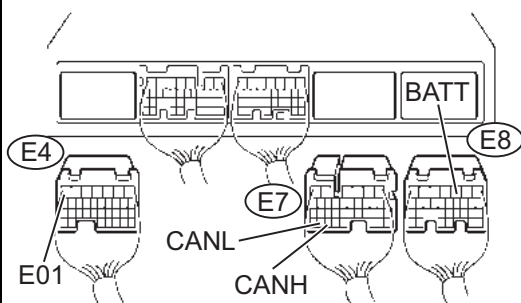
G100738E01

CA

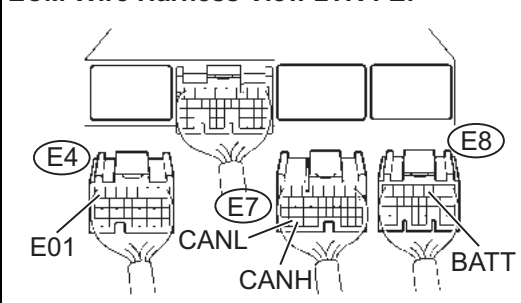
Standard resistance

Terminals	Condition	Specified Condition
E7-33 (CANH) - E7-34 (CANL)	IG switch OFF Stop light switch OFF	108 to 132 Ω

ECM Wire Harness View 1GR-FE:



ECM Wire Harness View 2TR-FE:



G100737E01

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Wiring Color	Condition	Specified Condition
E7-33 (CANH) - E7-34 (CANL)	B - W	IG switch OFF Stop light switch OFF	108 to 132 Ω

Terminals	Wiring Color	Condition	Specified Condition
E7-33 (CANH) - E4-7 (E01)	B - W-B	IG switch OFF Stop light switch OFF	3 kΩ or more
E7-34 (CANL) - E4-7 (E01)	W - W-B	IG switch OFF Stop light switch OFF	3 kΩ or more
E7-33 (CANH) - E8-3 (BATT)	B - L	IG switch OFF Stop light switch OFF	1 MΩ or more
E7-34 (CANL) - E8-3 (BATT)	W - L	IG switch OFF Stop light switch OFF	1 MΩ or more

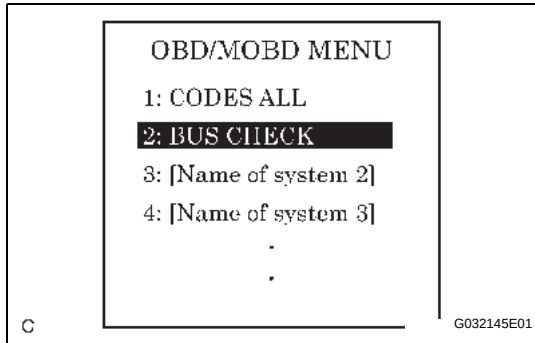
DIAGNOSIS SYSTEM

1. BUS CHECK

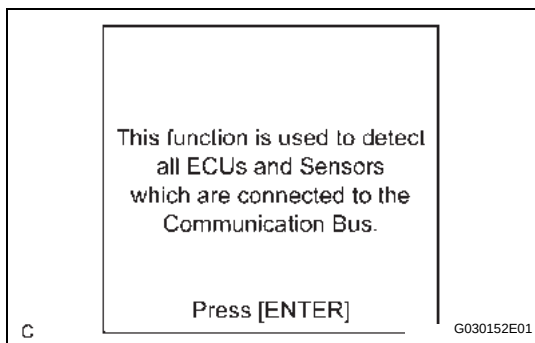
HINT:

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

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



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



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

HINT:

There is a communication stop in the system of any properly connected ECUs or sensors that are not displayed (See page [CA-7](#)).

2. DTC TABLE BY ECU

HINT:

If CAN communication system DTCs are output, trouble cannot be determined only by the DTCs. Perform troubleshooting according to "HOW TO PROCEED WITH TROUBLESHOOTING" (See page [CA-6](#)).

- (a) Skid Control ECU

HINT:

DTC communication uses the SIL line.

DTC No.2	Detection Item
U0073/94	Control Module Communication Bus Off
U0100/65	Lost Communication With ECM/PCM "A"
U0123/62	Lost Communication With Yaw Rate Sensor Module
U0124/95	Lost Communication With Lateral Acceleration Sensor Module
U0126/63	Lost Communication With Steering Angle Sensor Module

(b) ECM

HINT:

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

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 any other causes, the fail-safe function, which is specified for each system, operates to prevent the system from malfunctioning.
- (b) This function operates for each system when communication is impossible. (For further details, see the pages for each system.)

Function	ECM	Skid Control ECU	Steering Angle Sensor	Yaw Rate Sensor	Action when unable to communicate	DTC detection (Driver detectable)
VSC Control (Controls VSC/TRAC engine output)	-	Rx	Tx	Tx	VSC function stops	Detectable (Light comes on)
VSC Control (Controls VSC/TRAC engine output)	Rx	Tx	-	-	VSC function stops	Detectable (Light comes on)

HINT:

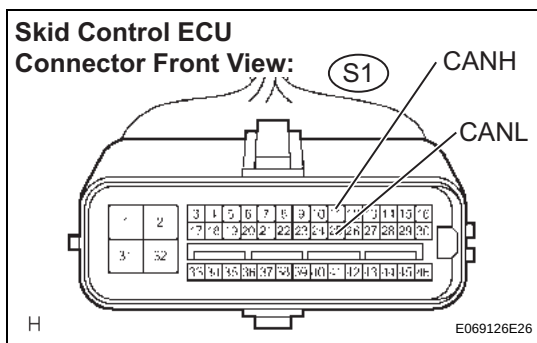
- Rx: Reception from each ECU (sensor)
- Tx: Transmission to each ECU (sensor)

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

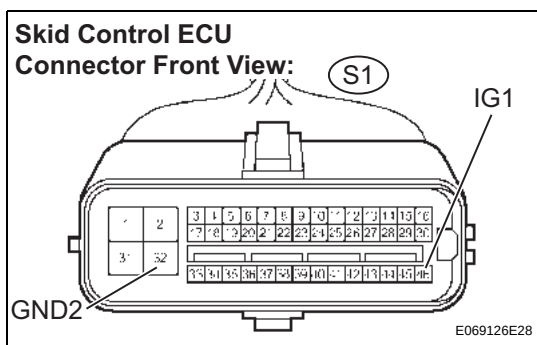
- Turn the ignition switch to the LOCK position.
- Disconnect the skid control ECU connector (S1).
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
S1-11 (CANH) - S1-25 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

**NG**

REPAIR OR REPLACE SKID CONTROL ECU BRANCH LINE OR CONNECTOR (CAN-H, CAN-L)

OK**2 CHECK WIRE HARNESS (IG, GND2)**

- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
S1-32 (GND2) - Body ground	Always	Below 1 Ω

- Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Value
S1-46 (IG1) - Body ground	- Ignition switch ON - Stop light switch OFF	10 to 14 V

NG

REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

REPLACE MASTER CYLINDER SOLENOID

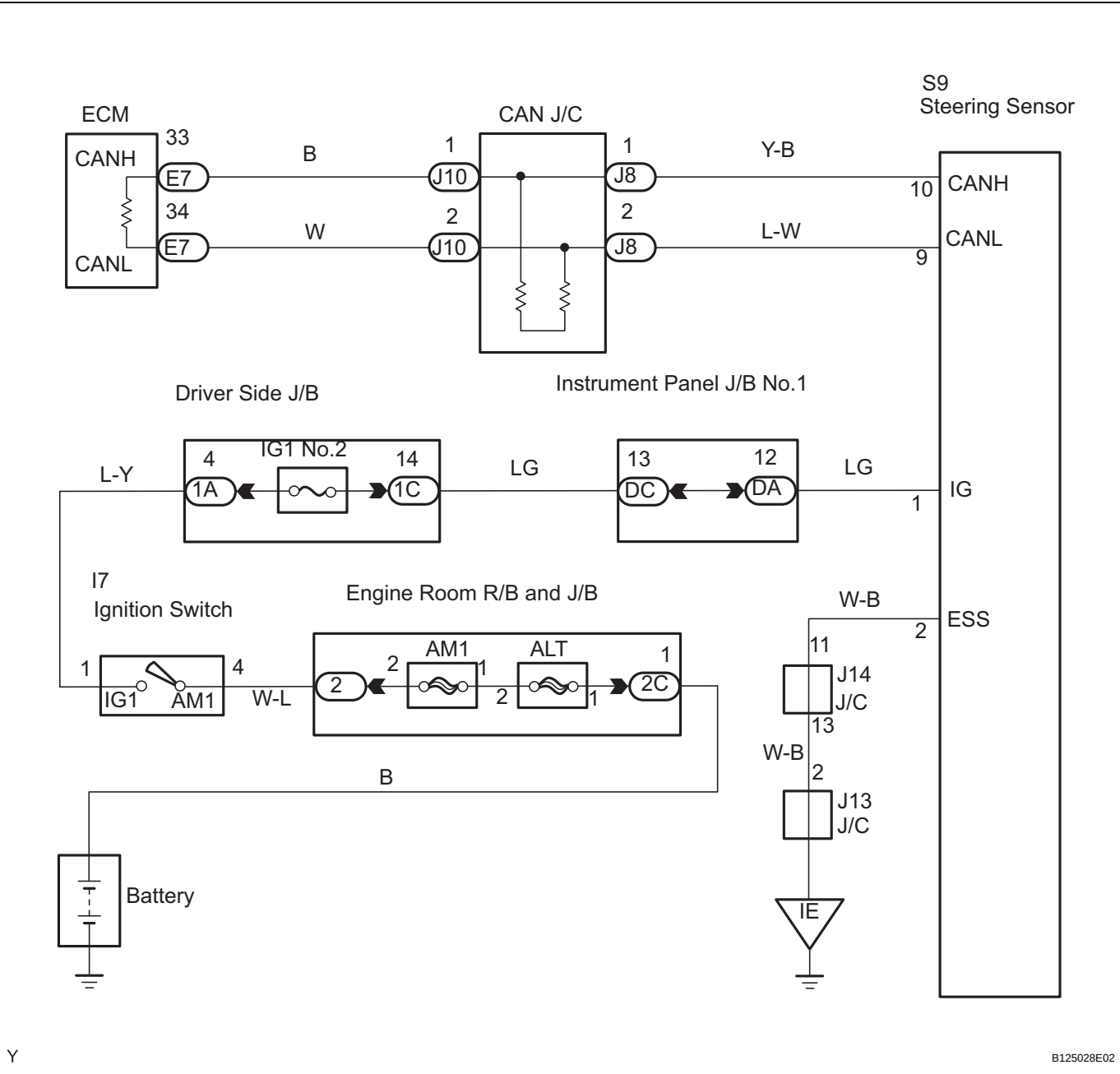
CA

Steering Angle Sensor Communication Stop Mode

DESCRIPTION

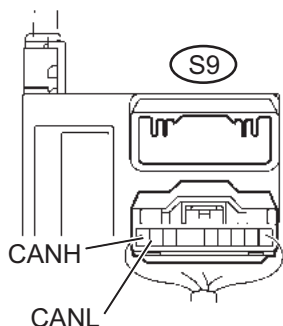
Detection Item	Symptom	Trouble Area
STEERING ANGLE SENSOR COMMUNICATION STOP MODE	"STEERING SENSOR" is not displayed on the "Bus Check "screen of the intelligent tester via the CAN VIM. - DTCs are output from each ECU in steering angle sensor communication stop mode as shown in the "DTC COMBINATION TABLE" (See page CA-7).	- Power source or inside the steering angle sensor - Steering angle sensor sub bus line or connector

WIRING DIAGRAM



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

Steering Angle Sensor Wire Harness View:



- Turn the ignition switch to the LOCK position.
- Disconnect the steering angle sensor connector (S9).
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
S9-10 (CANH) - S9-9 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

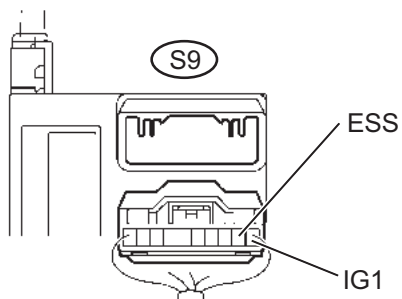
NG

REPAIR OR REPLACE STEERING ANGLE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

OK

2 CHECK WIRE HARNESS (IG1, ESS)

Steering Angle Sensor Wire Harness View:



- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
S9-2 (ESS) - Body ground	Always	Below 1 Ω

- Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Value
S9-1 (IG) - Body ground	- Ignition switch ON - Stop light switch OFF	10 to 14 V

NG

REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

REPLACE STEERING ANGLE SENSOR

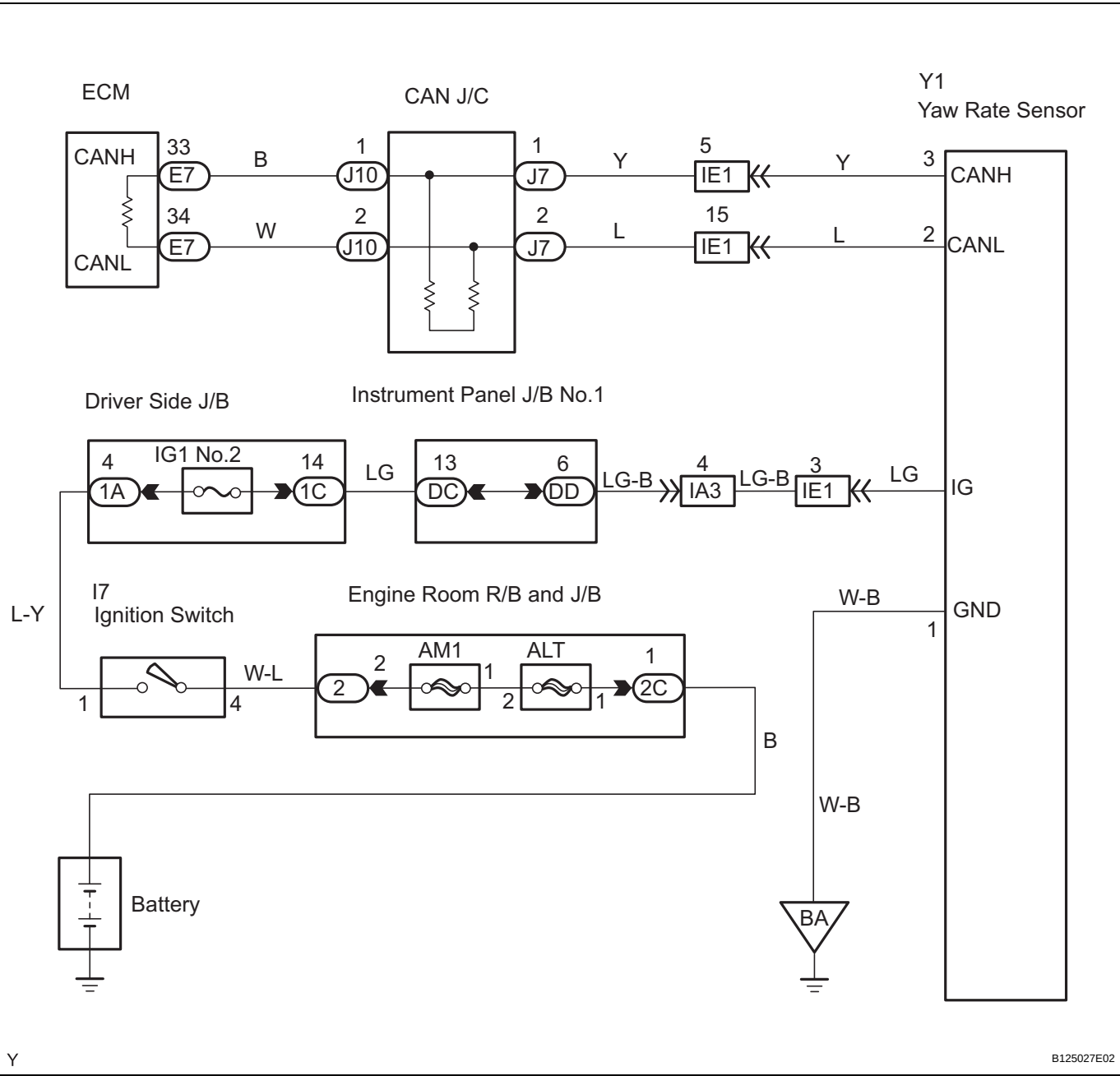
CA

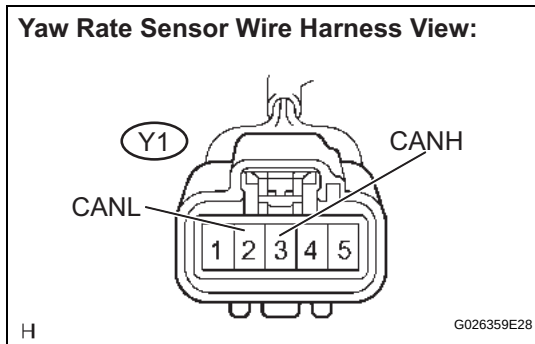
Yaw Rate Sensor Communication Stop Mode

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 via the CAN VIM • "CHECK" screen of the intelligent tester via the CAN VIM. DTCs are output from each ECU in yaw rate sensor communication stop mode as shown in the "DTC COMBINATION TABLE" (See page CA-7).	• Power source or inside the yaw rate sensor • Yaw rate sensor sub bus line or connector

WIRING DIAGRAM

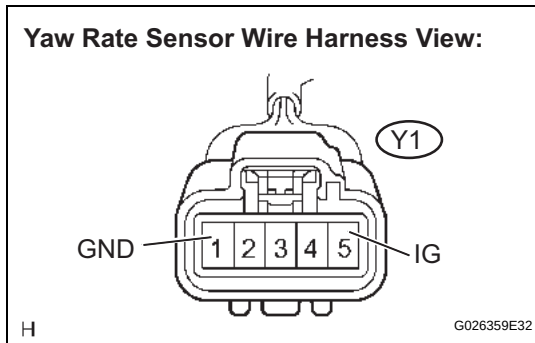


1 CHECK CAN BUS LINE FOR DISCONNECTION (YAW RATE SENSOR SUB BUS LINE)

- (a) Turn the ignition switch to the LOCK position.
(b) Disconnect the yaw rate sensor connector (Y1).
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

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

NG**REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)****OK****2 CHECK WIRE HARNESS (IG, GND)**

- (a) Measure the resistance according to the value(s) in the table below.

Standard resistance

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

- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage

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

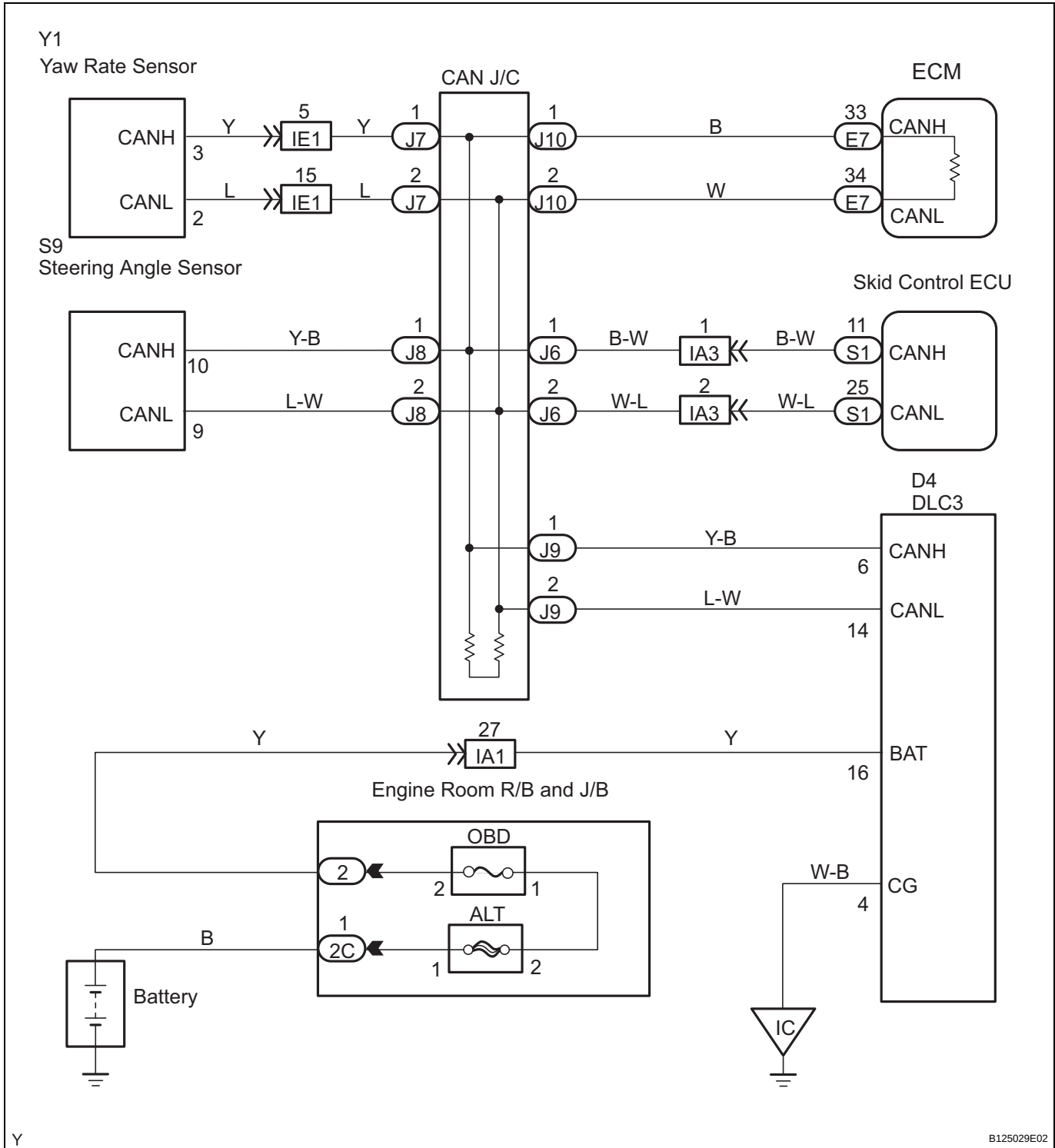
OK**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE YAW RATE SENSOR****CA**

CAN Bus Line

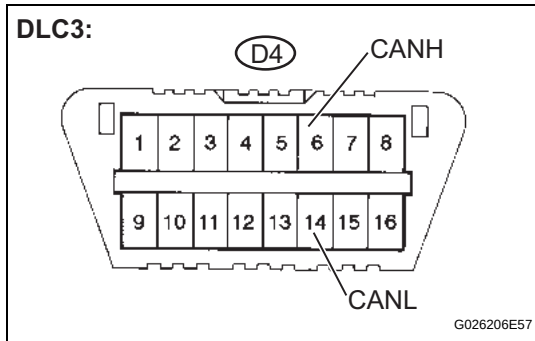
DESCRIPTION

When any DTC of the CAN communication system is output, first measure the resistance between the terminals of the DLC3 and the yaw rate sensor connector to specify the trouble area.

WIRING DIAGRAM



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



(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value	Result
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω	OK
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	69 Ω or higher	NG-A
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	Below 54 Ω	NG-B

NG-A

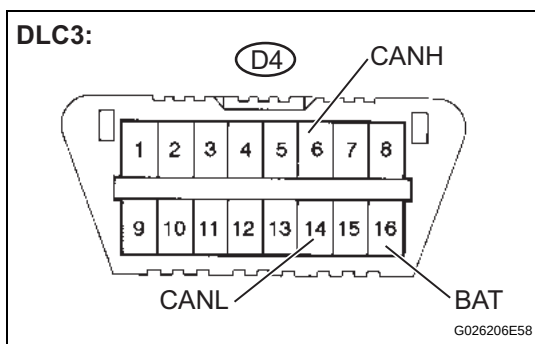
CHECK CAN MAIN BUS LINE (FOR DISCONNECTION)

NG-B

CHECK CAN BUS LINE (FOR SHORT CIRCUIT)

OK

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



(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	- Ignition switch OFF - Stop light switch OFF	1 M Ω or higher
D4-14 (CANL) - D4-16 (BAT)	- Ignition switch OFF - Stop light switch OFF	1 M Ω or higher

NG

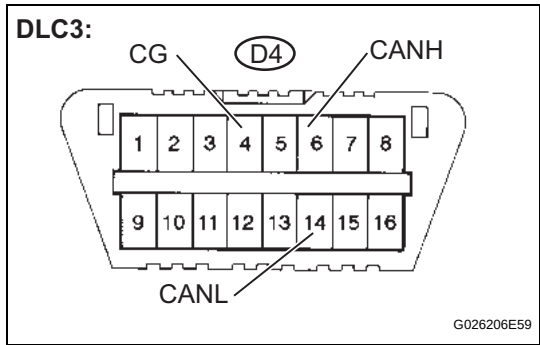
CHECK CAN BUS LINE (FOR SHORT TO +B)

OK

CA

3

CHECK CAN BUS LINE (FOR SHORT TO GND)



(a) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-4 (CG) - D4-6 (CANH)	- Ignition switch OFF - Stop light switch OFF	3 kΩ or higher
D4-4 (CG) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	3 kΩ or higher

NG

CHECK CAN BUS LINE (FOR SHORT TO GND)

OK

GO TO HOW TO PROCEED WITH TROUBLESHOOTING

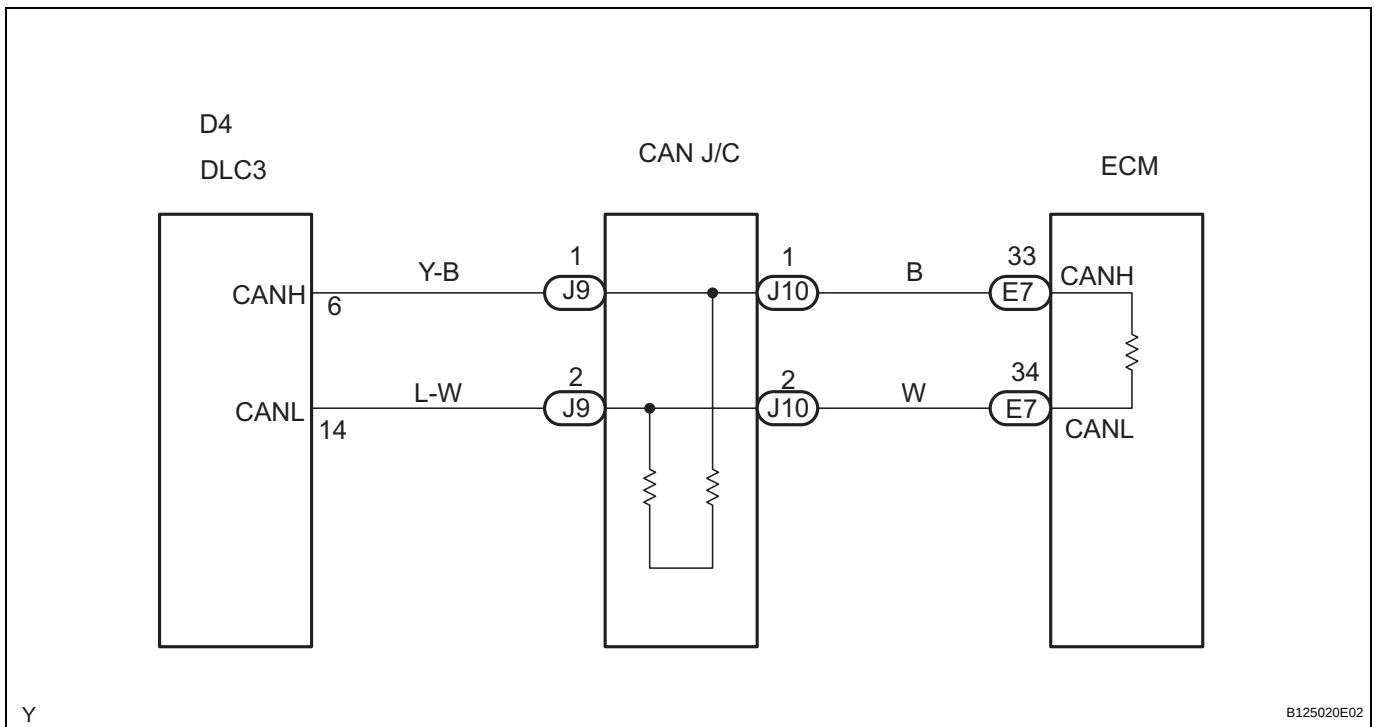
Can Main Bus Line for Disconnection

DESCRIPTION

The CAN main bus line and DLC3 sub bus line may have a disconnection when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is more than 69 Ω .

Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is more than 69 Ω .	- CAN main bus line - ECM - CAN J/C

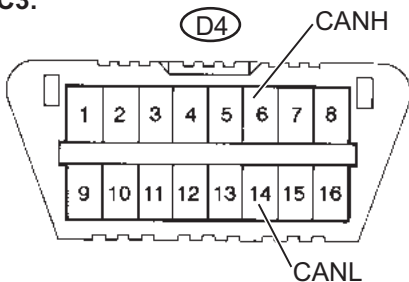
WIRING DIAGRAM



1

CHECK DLC3

DLC3:



G026206E57

(a) Measure the resistance according to the value(s) in the table below.

Result

Tester connection	Condition	Specified value	Result
D4-6 (CANH) - D4-14 (CANL)	- IG switch OFF - Stop light switch OFF	108 to 132 Ω	A
D4-6 (CANH) - D4-14 (CANL)	- IG switch OFF - Stop light switch OFF	132 Ω or higher	B

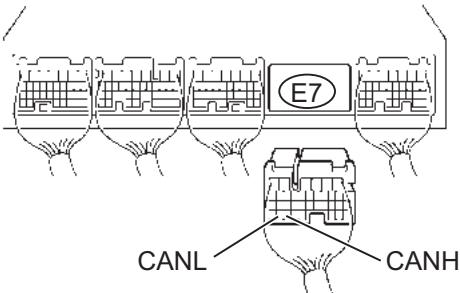
NOTICE:
When the measured value is 132 Ω or more and a CAN communication system diagnostic code is output, there may be a fault other than a disconnection of the DLC3 sub bus line. For that reason, troubleshooting should be performed again from "How to Proceed with Troubleshooting" after repairing the trouble area.

B REPAIR OR REPLACE DLC3 BRANCH LINE OR CONNECTOR (CAN-H, CAN-L)

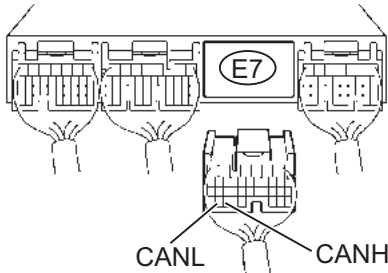
A

2 CHECK CAN MAIN BUS LINE FOR DISCONNECTION (ECM - CAN J/C)

ECM Wire Harness View 1GR-FE:



ECM Wire Harness View 2TR-FE:



I101322E03

- (a) Disconnect the connector (E7) from the ECM.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
E7-33 (CANH) - E7-34 (CANL)	- IG switch OFF - Stop light switch OFF	108 to 132 Ω

OK REPLACE ECM

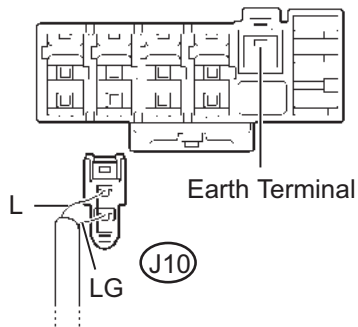
NG

CA

3

INSPECT CAN J/C

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



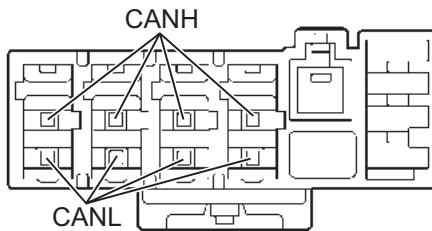
G031933E12

- (a) Disconnect the CAN main bus line connector (J10) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

CAN J/C "A" Side (w/ Earth Terminal):



G026370E02

- (b) Measure the resistance according to the value in the table below.

Standard resistance

Between the terminals where the connector (J10) was connected	Condition	Specified value
CANH - CANL	•IG switch OFF •Stop light switch OFF	108 to 132 Ω

NG

REPLACE CAN J/C

OK

REPAIR OR REPLACE CAN MAIN BUS LINE OR CONNECTOR (CAN J/C - ECM)

CA

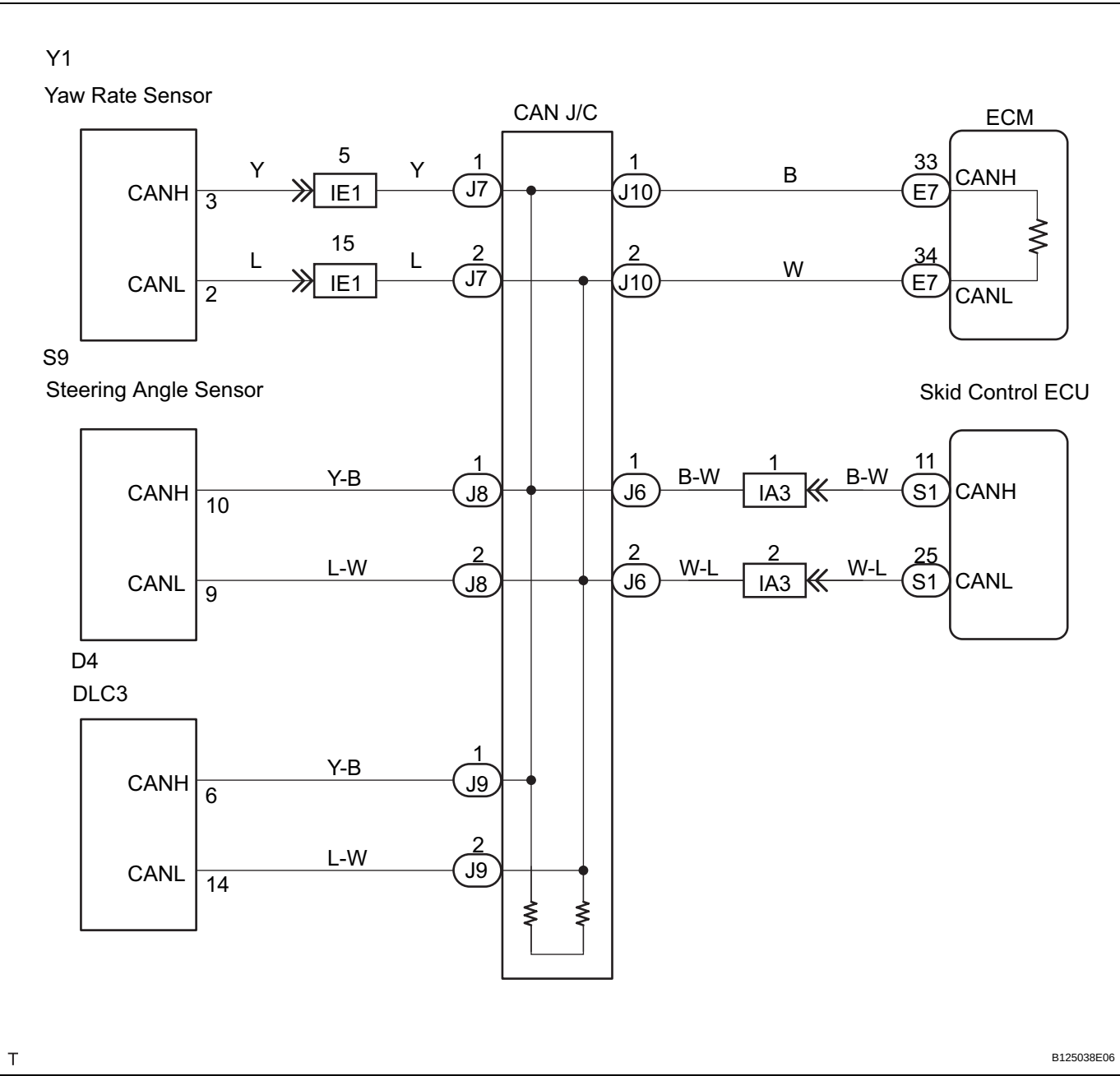
Short in CAN Bus Lines

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.

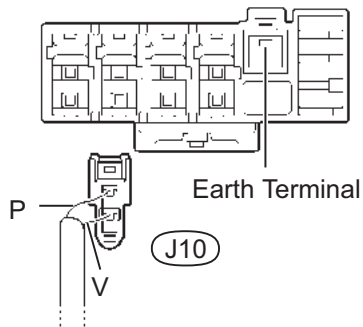
Symptom	Trouble Area
Resistance between terminals 6(CANH) and 14(CANL) of the DLC3 is below 54 Ω.	- Short in CAN bus lines - Skid control ECU - Steering angle sensor - Yaw rate sensor - ECM - CAN junction connector

WIRING DIAGRAM



1 CHECK CAN BUS LINES FOR SHORT CIRCUIT (DLC3 SUB BUS LINE)

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



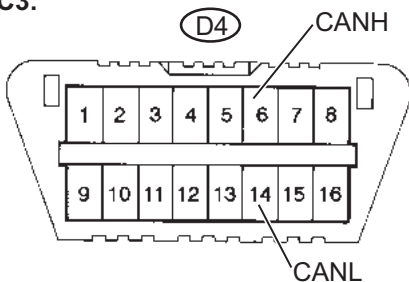
G031933E09

- (a) Disconnect the DLC3 sub bus line connector (J10) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:



G026206E57

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more

CA

NG

REPAIR OR REPLACE DLC3 BRANCH LINE OR CONNECTOR (CAN-H, CAN-L)

OK

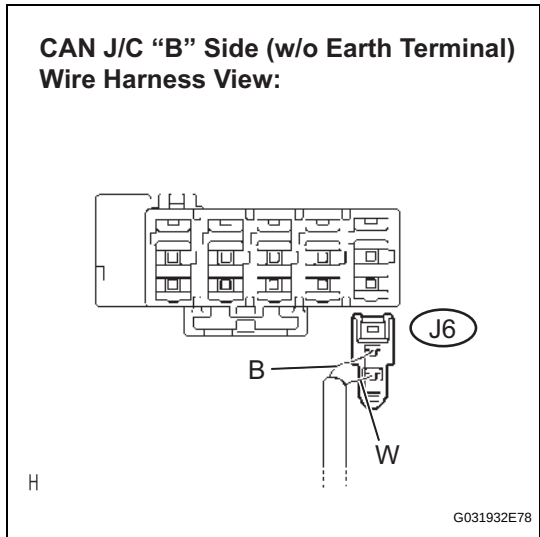
2 CONNECT CONNECTOR

- (a) Reconnect the DLC3 sub bus line connector (J10) to the CAN J/C.

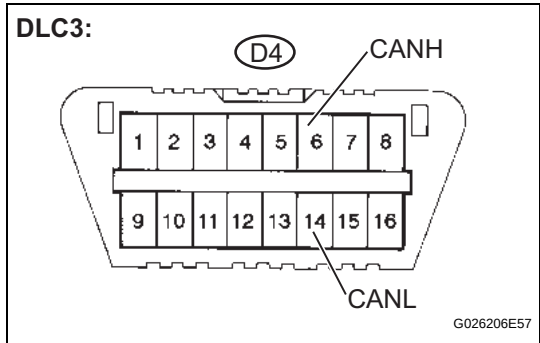
NEXT

3

CHECK CAN BUS LINES FOR SHORT CIRCUIT (SKID CONTROL ECU SUB BUS LINE)



- (a) Disconnect the skid control ECU sub bus line connector (J6) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	•Ignition switch OFF •Stop light switch OFF	54 to 69 Ω

OK

Go to step 10

NG

4

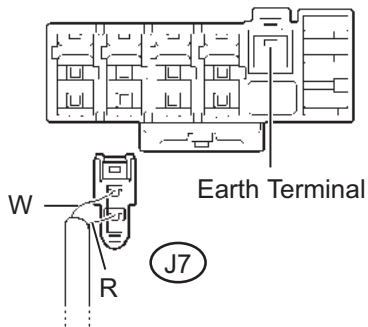
CONNECT CONNECTOR

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT

5 CHECK CAN BUS LINES FOR SHORT CIRCUIT (YAW RATE SENSOR SUB BUS LINE)

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



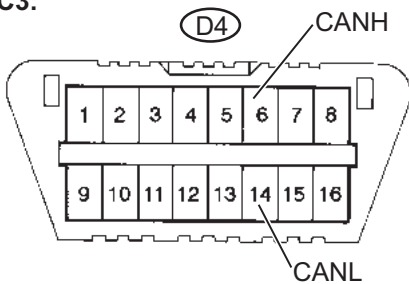
G031933E10

- (a) Disconnect the yaw rate sensor sub bus line connector (J7) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:



G026206E57

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	•Ignition switch OFF •Stop light switch OFF	54 to 69 Ω

OK

Go to step 12

NG

6 CONNECT CONNECTOR

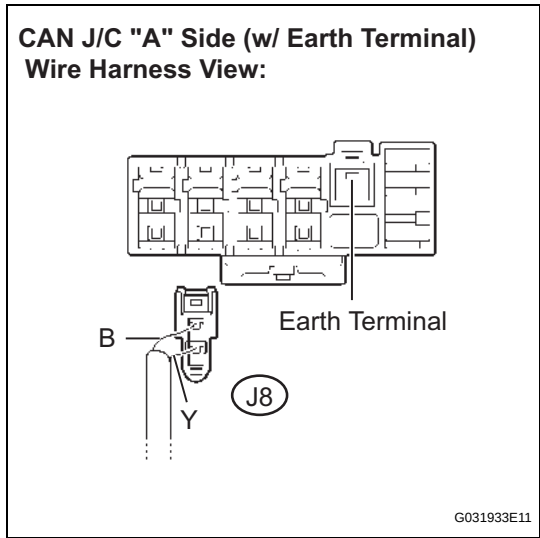
- (a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

NEXT

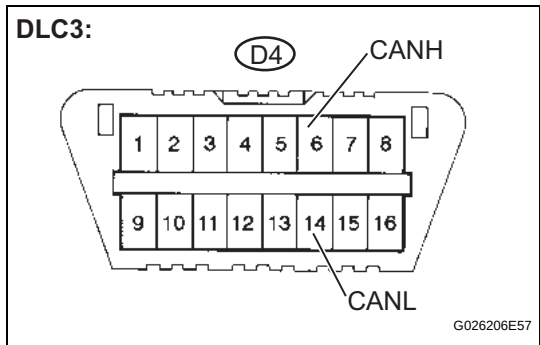
CA

7

CHECK CAN BUS LINES FOR SHORT CIRCUIT (STEERING ANGLE SENSOR SUB BUS LINE)



- (a) Disconnect the steering angle sensor sub bus line connector (J8) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	•Ignition switch OFF •Stop light switch OFF	54 to 69 Ω

OK

Go to step 14

NG

8

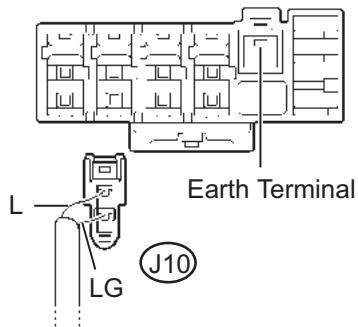
CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

9**CHECK CAN BUS LINES FOR SHORT CIRCUIT (ECM MAIN BUS LINE)**

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:

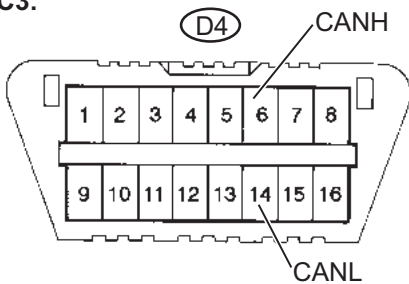


G031933E12

- (a) Disconnect the ECM main bus line connector (J10) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:

G026206E57

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

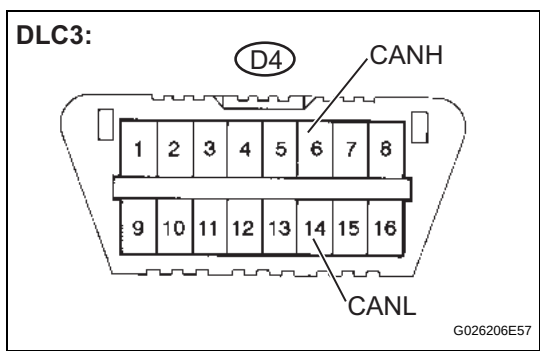
Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	•Ignition switch OFF •Stop light switch OFF	108 to 132 Ω

OK**Go to step 16****NG****REPLACE CAN J/C****10****CONNECT CONNECTOR**

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT**11****CHECK CAN BUS LINES FOR SHORT CIRCUIT (SKID CONTROL ECU SUB BUS LINE)**

- (a) Disconnect the skid control ECU connector (S1).



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

OK → REPLACE MASTER CYLINDER SOLENOID

NG

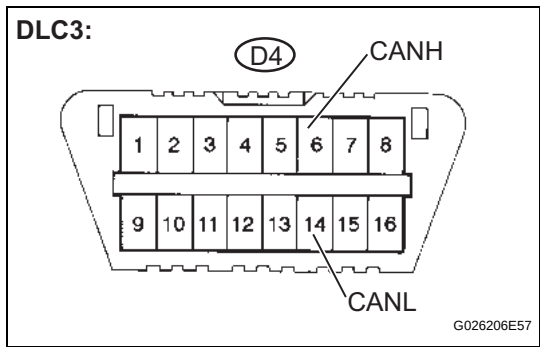
REPAIR OR REPLACE SKID CONTROL ECU WITH ACTUATOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

12 CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

NEXT

13 CHECK CAN BUS LINES FOR SHORT CIRCUIT (YAW RATE SENSOR SUB BUS LINE)



- (a) Disconnect the yaw rate sensor connector (Y1).
- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

OK → REPLACE YAW RATE SENSOR

NG

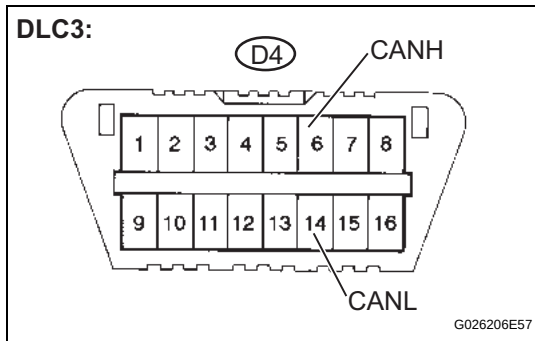
REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H, CAN-L)

14 CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

15 CHECK CAN BUS LINES FOR SHORT CIRCUIT (STEERING ANGLE SENSOR SUB BUS LINE)



- (a) Disconnect the steering angle sensor connector (S9).
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

OK

REPLACE STEERING ANGLE SENSOR

NG

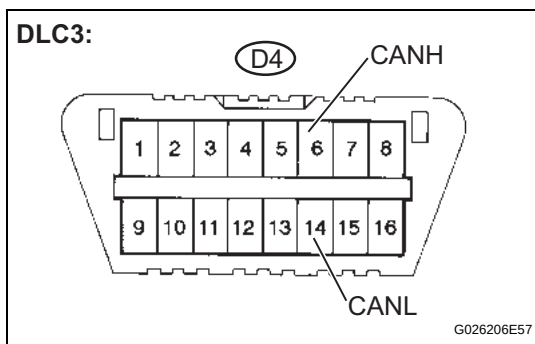
REPAIR OR REPLACE STEERING ANGLE SENSOR BRANCH LINE OR CONNECTOR (CAN-H, CAN-L)

16 CONNECT CONNECTOR

- (a) Reconnect the ECM main bus line connector (J10) to the CAN J/C.

NEXT

17 CHECK CAN BUS LINES FOR SHORT CIRCUIT (ECM MAIN BUS LINE)



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

Standard Resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-14 (CANL)	- Ignition switch OFF - Stop light switch OFF	108 to 132 Ω

OK

REPLACE ECM

NG

REPAIR OR REPLACE ECM MAIN BUS LINE OR CONNECTOR (CAN -H, CAN-L)

CA

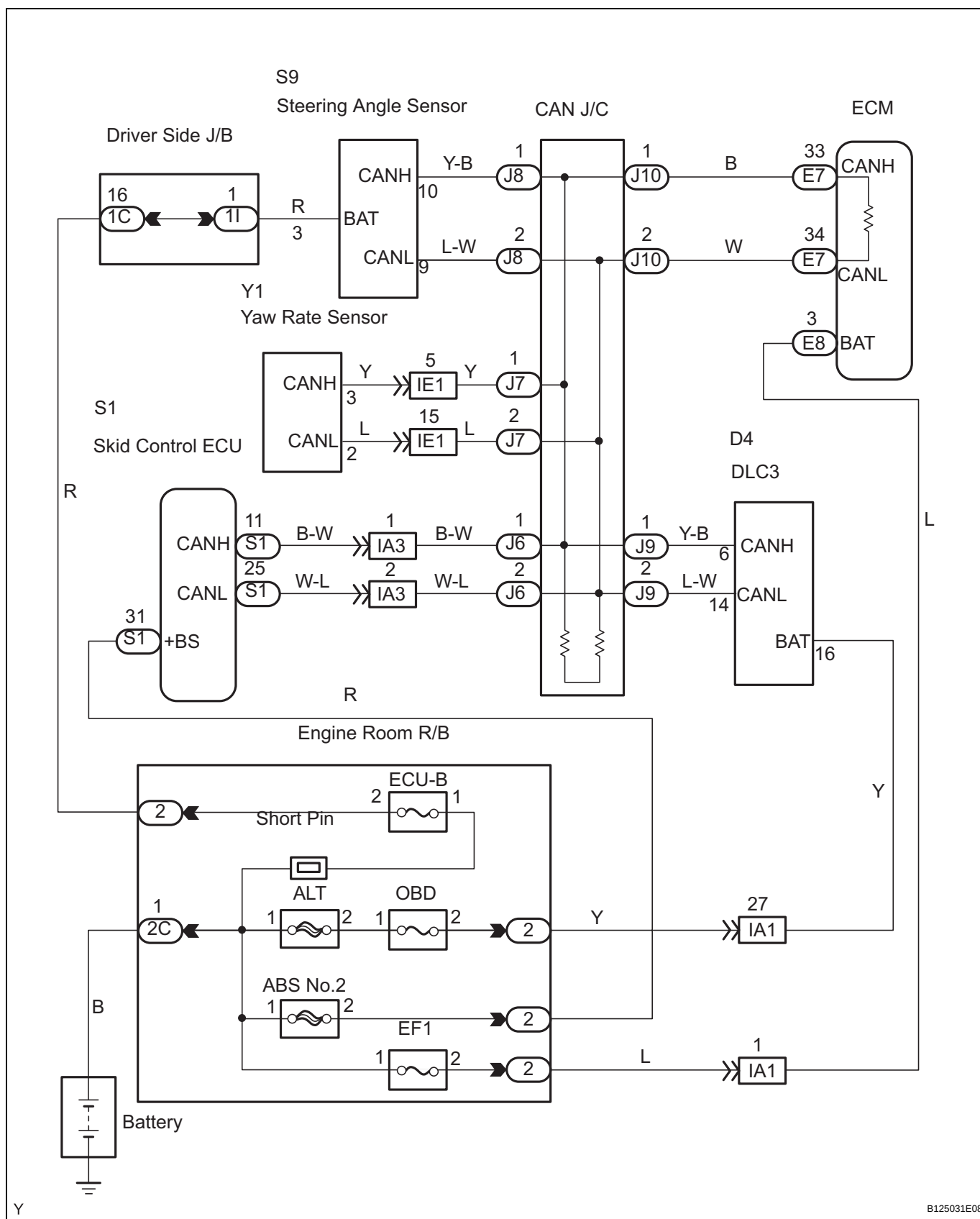
Short to B+ in CAN Bus Line

DESCRIPTION

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

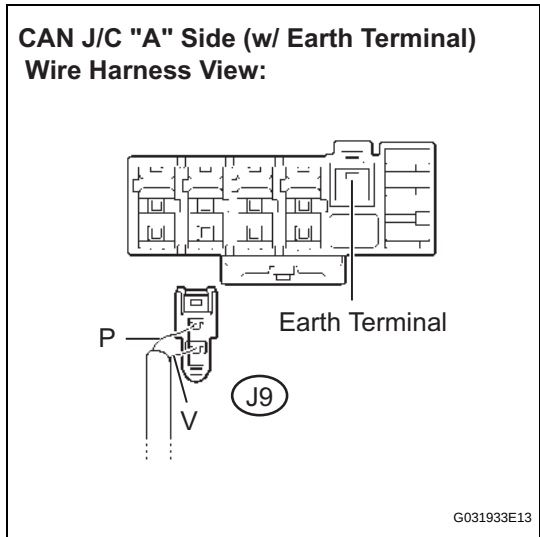
Symptom	Trouble Area
There is continuity between terminals 16 (BAT) and 6 (CANH) or 16 (BAT) and 14 (CANL) of the DLC3.	• Short to +B in CAN bus line • ECM • Skid control ECU • Steering angle sensor • Yaw rate sensor

CA

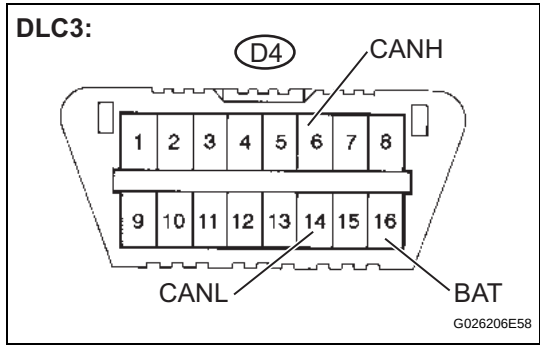


1

CHECK CAN BUS LINES FOR SHORT TO +B (DLC3 SUB BUS LINE)



- (a) Disconnect the DLC3 sub bus line connector (J9) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

NG

REPAIR OR REPLACE DLC3 BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

OK

2

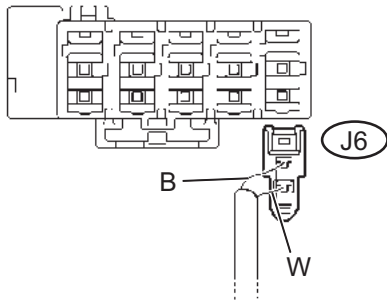
CONNECT CONNECTOR

- (a) Reconnect the DLC3 sub bus line connector (J9) to the CAN J/C.

NEXT

3 CHECK CAN BUS LINES FOR SHORT TO +B (SKID CONTROL ECU SUB BUS LINE)

CAN J/C "B" Side (w/o Earth Terminal)
Wire Harness View:



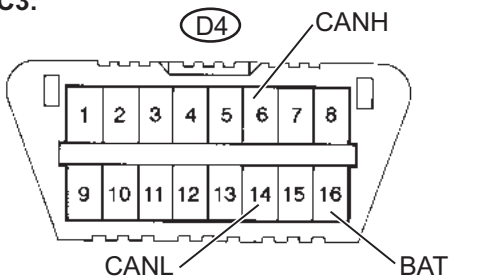
G031932E78

- (a) Disconnect the skid control ECU sub bus line connector (J6) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:



G026206E58

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK

Go to step 10

NG

4 CONNECT CONNECTOR

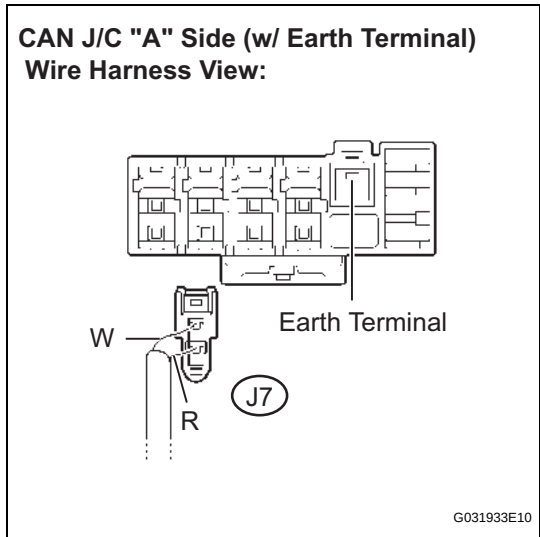
- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT

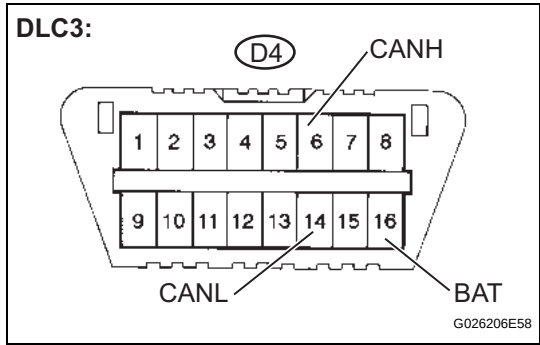
CA

5

CHECK CAN BUS LINES FOR SHORT TO +B (YAW RATE SENSOR SUB BUS LINE)



- (a) Disconnect the yaw rate sensor sub bus line connector (J7) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	•Ignition switch OFF •Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK

Go to step 12

NG

6

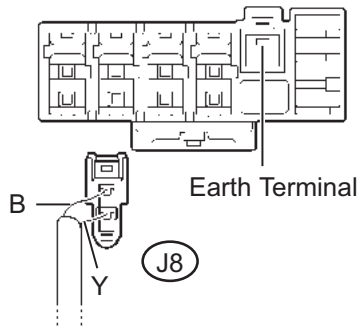
CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor sub bus line connector (J7) to CAN J/C.

NEXT

7 CHECK CAN BUS LINES FOR SHORT TO +B (STEERING ANGLE SENSOR SUB BUS LINE)

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



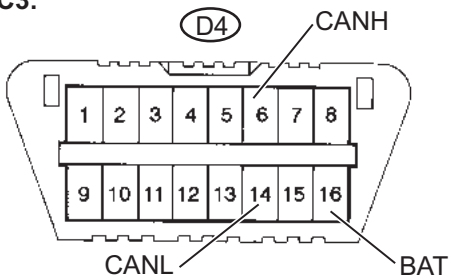
G031933E11

- (a) Disconnect the steering angle sensor sub bus line connector (J8) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:



G026206E58

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK

Go to step 14

NG

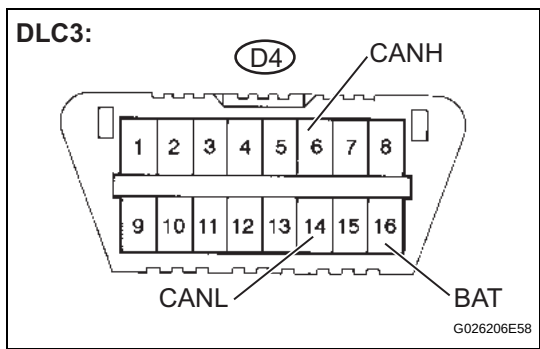
8 CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

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

- (a) Disconnect the ECM sub bus line connector (E7).



NG

(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK **REPLACE ECM**

REPAIR OR REPLACE ECM MAIN BUS LINE OR CONNECTOR (CAN-H,CAN-L)

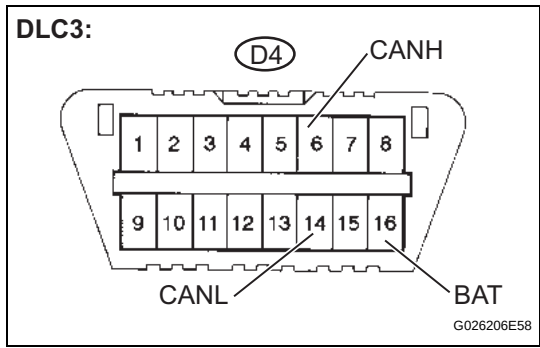
10 CONNECT CONNECTOR

(a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT

CA

11 CHECK CAN BUS LINES FOR SHORT TO +B (SKID CONTROL ECU SUB BUS LINE)



NG

(a) Disconnect the skid control ECU connector (S1).
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	• Ignition switch OFF • Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

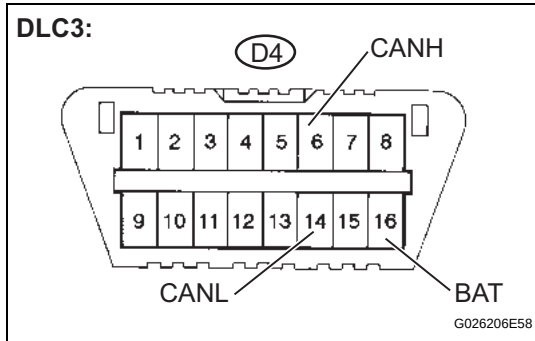
OK **REPLACE MASTER CYLINDER SOLENOID**

REPAIR OR REPLACE SKID CONTROL ECU BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

12 CONNECT CONNECTOR

(a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

NEXT

13 CHECK CAN BUS LINES FOR SHORT TO +B (YAW RATE SENSOR SUB BUS LINE)

- (a) Disconnect the yaw rate sensor connector (Y1).
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	- Ignition switch OFF - Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK

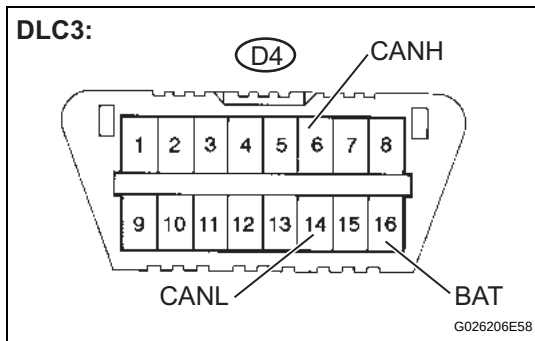
REPLACE YAW RATE SENSOR

NG

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE CONNECTOR (CAN-H,CAN-L)**14 CONNECT CONNECTOR**

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

15 CHECK CAN BUS LINES FOR SHORT TO +B (STEERING SENSOR SUB BUS LINE)

- (a) Disconnect the steering angle sensor connector (S9).
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-16 (BAT)	- Ignition switch OFF - Stop light switch OFF	1 MΩ or more
D4-14 (CANL) - D4-16 (BAT)		

OK

REPLACE STEERING ANGLE SENSOR

NG

REPAIR OR REPLACE STEERING ANGLE SENSOR BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

CA

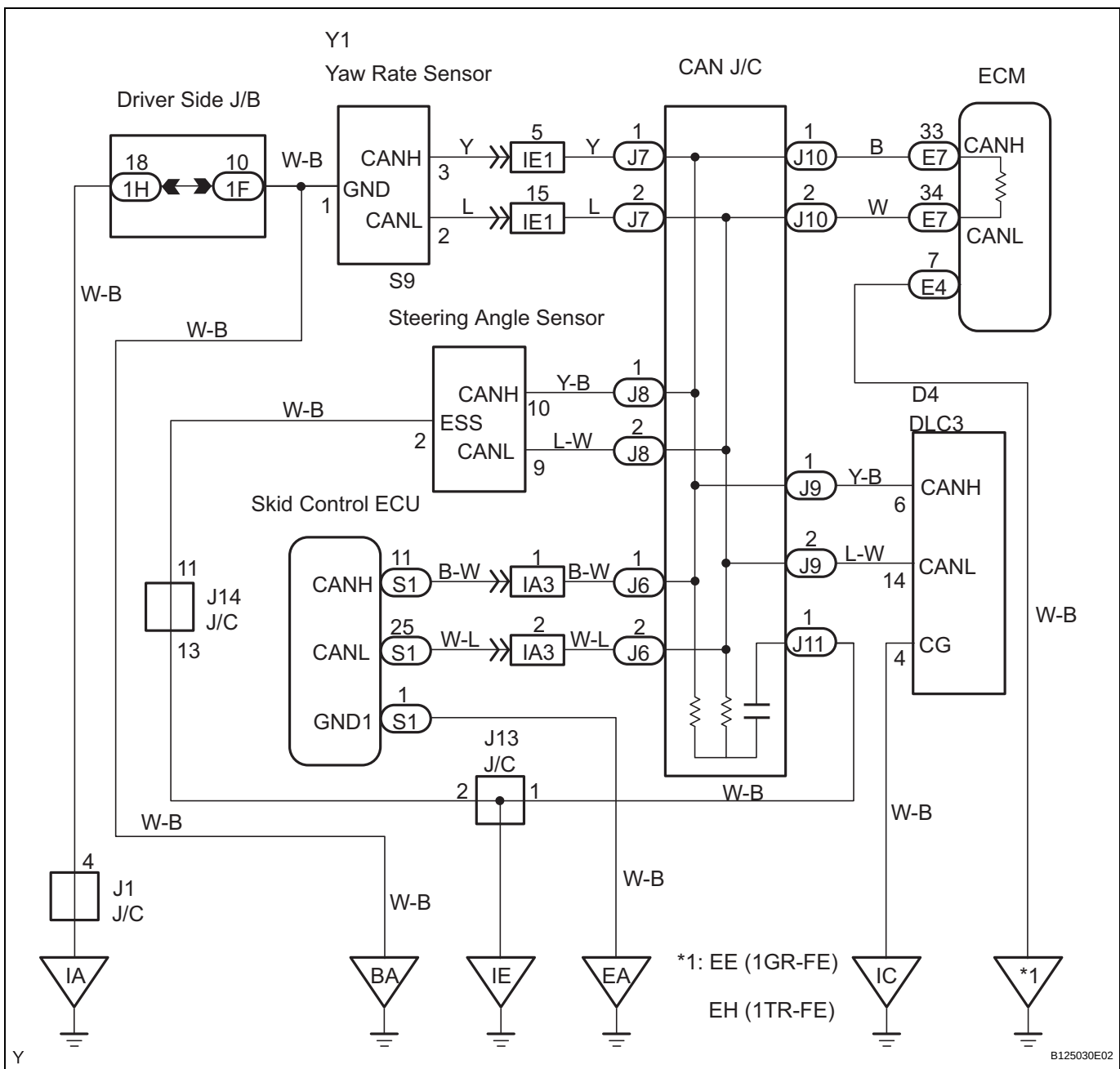
Short to GND in CAN Bus Line

DESCRIPTION

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

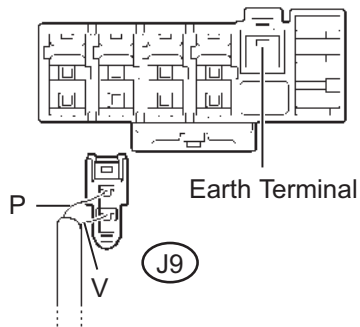
Symptoms	Trouble Area
There is continuity between terminals 4 (CG) and 6 (CANH) or terminals 4 (CG) and 14 (CANL) of the DLC3.	- Short to GND in CAN bus line - ECM - Skid control ECU - Steering angle sensor - Yaw rate sensor - CAN J/C

WIRING DIAGRAM



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

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



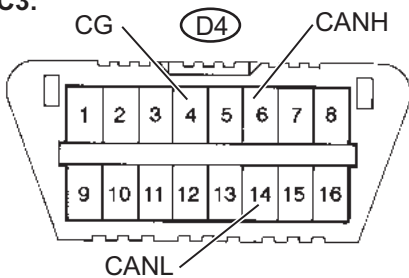
G031933E13

- (a) Disconnect the DLC3 sub bus line connector (J9) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:



G026206E59

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	•Ignition switch OFF •Stop light switch OFF	1 MΩ or more
KD4-14 (CANL) - D4-4 (CG)		

NG

REPAIR OR REPLACE DLC3 BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

OK

2 CONNECT CONNECTOR

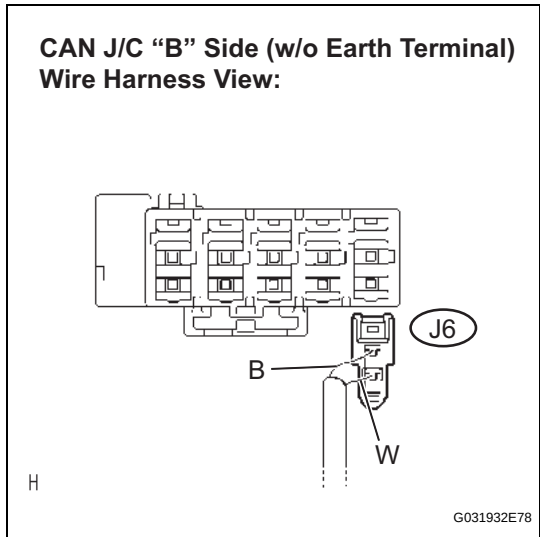
- (a) Reconnect the DLC3 sub bus line connector (J9) to the CAN J/C.

NEXT

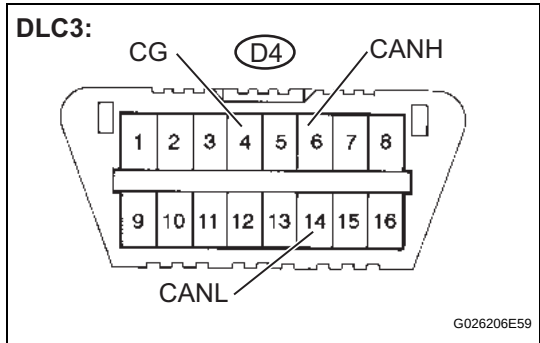
CA

3

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



- (a) Disconnect the skid control ECU sub bus line connector (J6) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	•Ignition switch OFF •Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

OK

Go to step 10

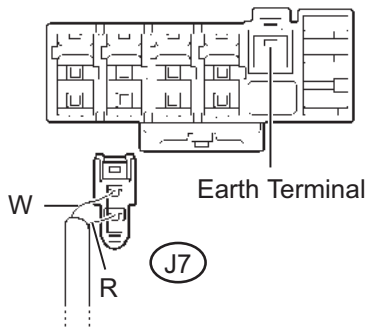
NG

4

CONNECT CONNECTOR

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

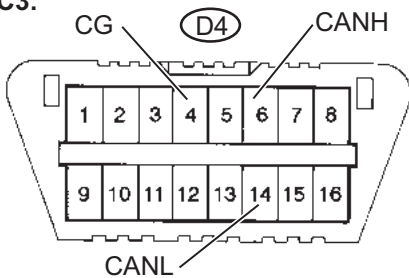
NEXT

5 CHECK CAN BUS LINE FOR SHORT TO GND (YAW RATE SENSOR SUB BUS LINE)**CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:**

- (a) Disconnect the yaw rate sensor sub bus line connector (J7) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	• Ignition switch OFF • Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

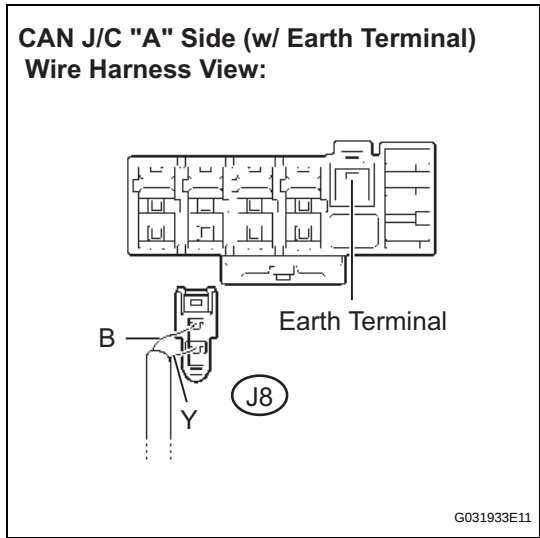
NG**Go to step 12****OK****6 CONNECT CONNECTOR**

- (a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

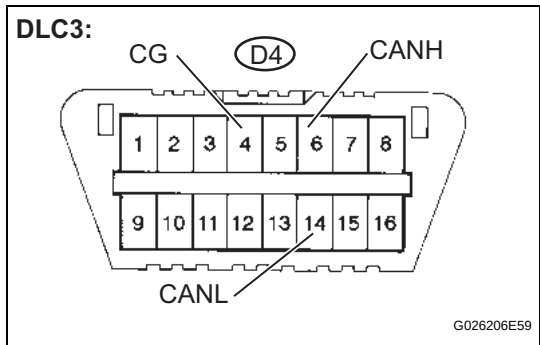
NEXT**CA**

7

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



- (a) Disconnect the steering angle sensor sub bus line connector (J8) from the CAN J/C.
- NOTICE:**
- Before disconnecting the connector, make a note of where it is connected.
 - Reconnect the connector to its original position.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	• Ignition switch OFF • Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

OK

Go to step 14

NG

8

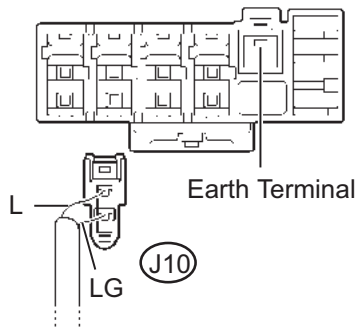
CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

9**CHECK CAN BUS LINE FOR SHORT TO GND (ECM MAIN BUS LINE)**

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:

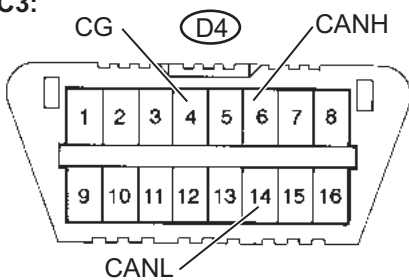


G031933E12

- (a) Disconnect the ECM main bus line connector (J10) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

DLC3:

G026206E59

- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

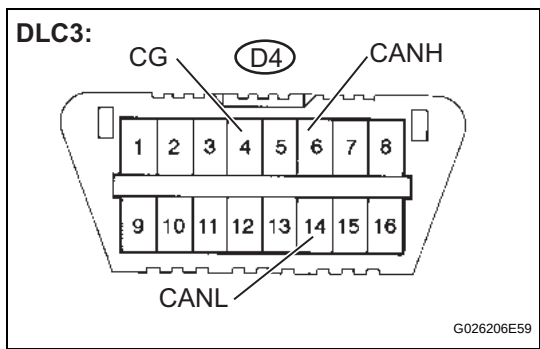
Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	• Ignition switch OFF • Stop light switch OFF	3 k Ω or more
D4-14 (CANL) - D4-4 (CG)		

OK**Go to step 16****NG****REPLACE CAN J/C****10****CONNECT CONNECTOR**

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT**11****CHECK CAN BUS LINE FOR SHORT TO GND (SKID CONTROL ECU SUB BUS LINE)**

- (a) Disconnect the skid control ECU connector (S1).



(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	• Ignition switch OFF • Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

OK

REPLACE MASTER CYLINDER SOLENOID

NG

REPAIR OR REPLACE SKID CONTROL ECU BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

12

CONNECT CONNECTOR

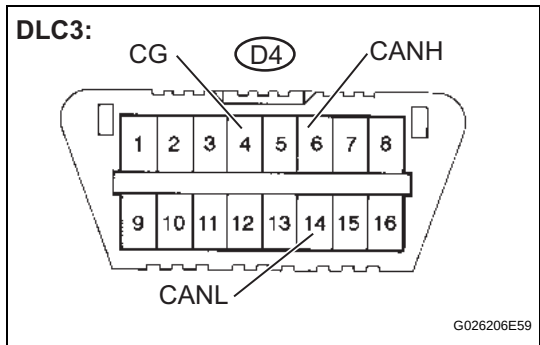
(a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

NEXT

CA

13

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



(a) Disconnect the yaw rate sensor connector (Y1).
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6(CANH) - D46-4(CG)	•Ignition switch OFF •Stop light switch OFF	3 kΩ or more
D4-14(CANL) - D4-4(CG)		

OK

REPLACE YAW RATE SENSOR

NG

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H,CAN-L)

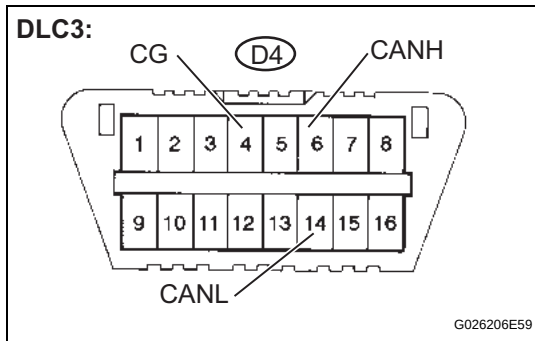
14

CONNECT CONNECTOR

(a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

15 CHECK CAN BUS LINE FOR SHORT TO GND (STEERING ANGLE SENSOR SUB BUS LINE)



- (a) Disconnect the steering angle sensor connector (S9).
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	- Ignition switch OFF - Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

OK

REPLACE STEERING ANGLE SENSOR

NG

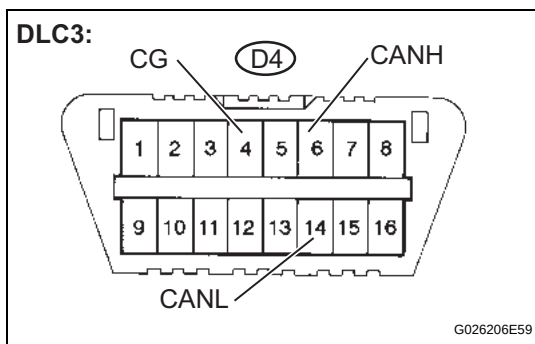
REPAIR OR REPLACE STEERING ANGLE SENSOR BRANCH LINE OR CONNECTOR (CAN-H,CAN-L)

16 CONNECT CONNECTOR

- (a) Reconnect the ECM main bus line connector (J10) to the CAN J/C.

NEXT

17 CHECK CAN BUS LINE FOR SHORT TO GND (ECM MAIN BUS LINE)



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

Standard resistance

Tester Connection	Condition	Specified Value
D4-6 (CANH) - D4-4 (CG)	- Ignition switch OFF - Stop light switch OFF	3 kΩ or more
D4-14 (CANL) - D4-4 (CG)		

OK

REPLACE ECM

NG

REPAIR OR REPLACE ECM MAIN BUS LINE OR CONNECTOR (CAN-H,CAN-L)

CA

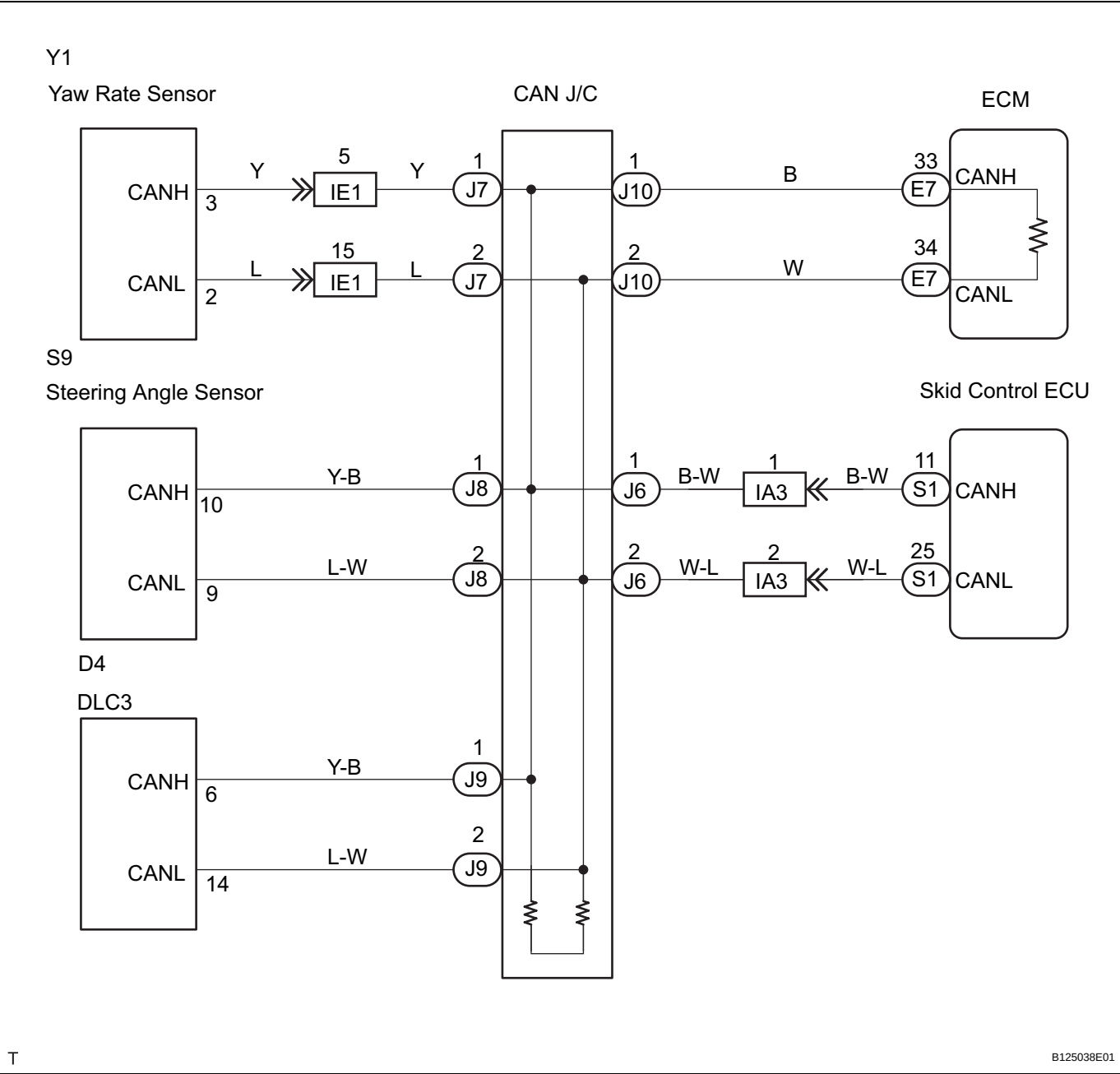
Open in One Side of CAN Sub Bus Line

DESCRIPTION

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

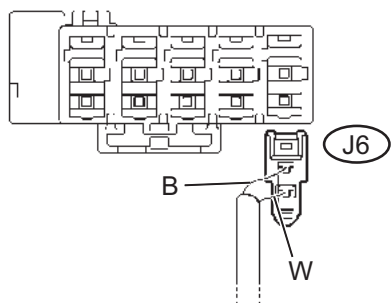
Symptom	Trouble Alrea
2 or more ECUs and/or sensors do not appear on the intelligent tester "BUS CHECK" screen via the CAN VIM.	- One side of the CAN sub-bus line is open - Skid control ECU - Steering angle sensor - Yaw rate sensor - ECM - CAN J/C

WIRING DIAGRAM



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

CAN J/C "B" Side (w/o Earth Terminal)
Wire Harness View:



- (a) Disconnect the skid control ECU sub bus line connector (J6) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

- (b) Connect the intelligent tester via the CAN VIM to the DLC3.
(c) Turn the ignition switch ON.
(d) Select "BUS CHECK" on the intelligent tester display via the CAN VIM (See page CA-14).

Result

A	"ABS/VSC/TRAC" does not appear
B	2 or more ECUs and/or sensors do not appear

A

Go to step 8

B

CA

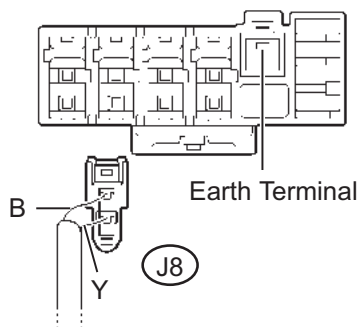
2 CONNECT CONNECTOR

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT

3 CHECK FOR AN OPEN IN ONE SIDE OF THE CAN SUB BUS LINE (STEERING ANGLE SENSOR SUB BUS LINE)

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



- (a) Disconnect the steering angle sensor sub bus line connector (J8) from the CAN J/C.

NOTICE:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

- (b) Connect the intelligent tester via the CAN VIM to the DLC3.
(c) Turn the ignition switch ON.
(d) Select "BUS CHECK" on the intelligent tester display via the CAN VIM (See page CA-14).

Result

A	"STEERING SENSOR" does not appear
B	2 or more ECUs and/or sensors do not appear

A

Go to step 10

B

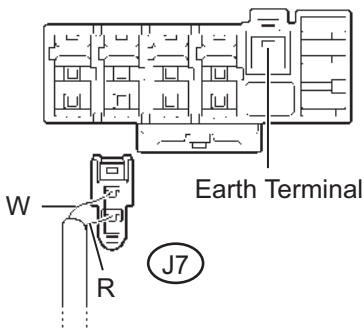
4 CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) CAN J/C.

NEXT

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

CAN J/C "A" Side (w/ Earth Terminal)
Wire Harness View:



- (a) Disconnect the yaw rate sensor sub bus line connector (J7) from the CAN J/C.

CAUTION:

- Before disconnecting the connector, make a note of where it is connected.
- Reconnect the connector to its original position.

- (b) Connect the intelligent tester via the CAN VIM to the DLC3.
(c) Turn the ignition switch ON.
(d) Select "BUS CHECK" on the intelligent tester display via the CAN VIM (See page CA-14).

Result

A	"YAW /DECELERAT" does not appear
B	2 or more ECUs and/or sensors do not appear

B

Go to step 12

A

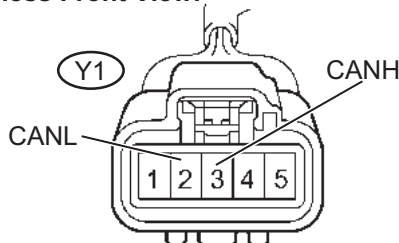
6 CONNECT CONNECTOR

- (a) Reconnect the yaw rate sensor sub bus line connector (J7) to the CAN J/C.

NEXT

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

Yaw Rate Sensor Wire
Harness Front View:



- (a) Disconnect the yaw rate sensor connector (Y1).
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified value
Y1-2 (CANL) - Y1-3 (CANH)	•Ignition switch OFF •Stop light switch OFF	54 to 69 Ω

NG

REPAIR OR REPLACE YAW RATE SENSOR SUB BUS LINE OR CONNECTOR (CAN-H or CAN-L)

OK

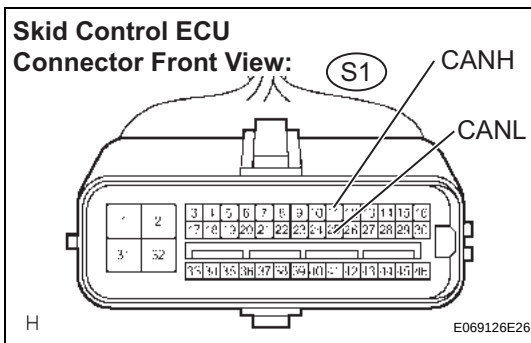
REPLACE YAW RATE SENSOR

8 CONNECT CONNECTOR

- (a) Reconnect the skid control ECU sub bus line connector (J6) to the CAN J/C.

NEXT

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



- (a) Disconnect the skid control ECU connector (S1).
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified value
S1-11 (CANH) - S1-25 (CANL)	•Ignition switch OFF •Stop light switch OFF	54 to 69 Ω

NG

REPAIR OR REPLACE SKID CONTROL ECU BRANCH LINE OR CONNECTOR (CAN-H or CAN-L)

OK

REPLACE MASTER CYLINDER SOLENOID

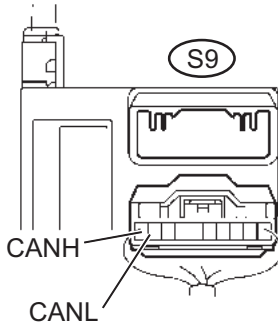
10 CONNECT CONNECTOR

- (a) Reconnect the steering angle sensor sub bus line connector (J8) to the CAN J/C.

NEXT

11 CHECK FOR AN OPEN IN ONE SIDE OF THE CAN SUB BUS LINE (STEERING ANGLE SENSOR SUB BUS LINE)

Steering Angle Sensor Wire Harness View:



- Disconnect steering angle sensor connector (S9).
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified value
S9-10 (CANH) - S9-9 (CANL)	- Ignition switch OFF - Stop light switch OFF	54 to 69 Ω

NG

REPAIR OR REPLACE STEERING ANGLE SENSOR BRANCH LINE OR CONNECTOR (CAN-H or CAN-L)

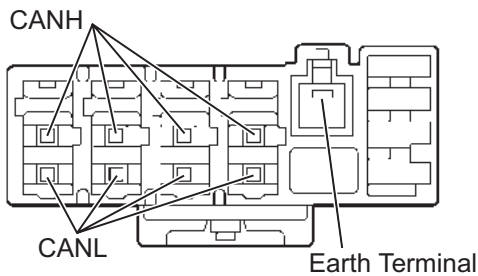
OK

CA

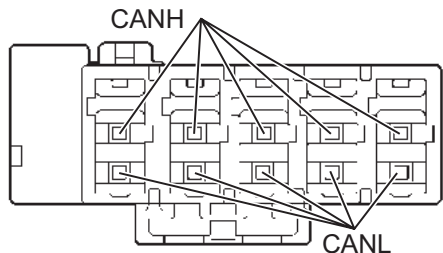
REPLACE STEERING ANGLE SENSOR

12 INSPECT CAN J/C

CAN J/C "A" Side (w/ Earth Terminal):



CAN J/C "B" Side (w/o Earth Terminal):



- Disconnect connectors (J6), (J7), (J8), (J9), and (J10) from the CAN J/C.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified value
1 (CANH) - 2 (CANL)	- Ignition switch OFF - Stop light switch OFF	108 to 132 Ω

NG

REPLACE CAN J/C

OK

REPLACE ECM

CA