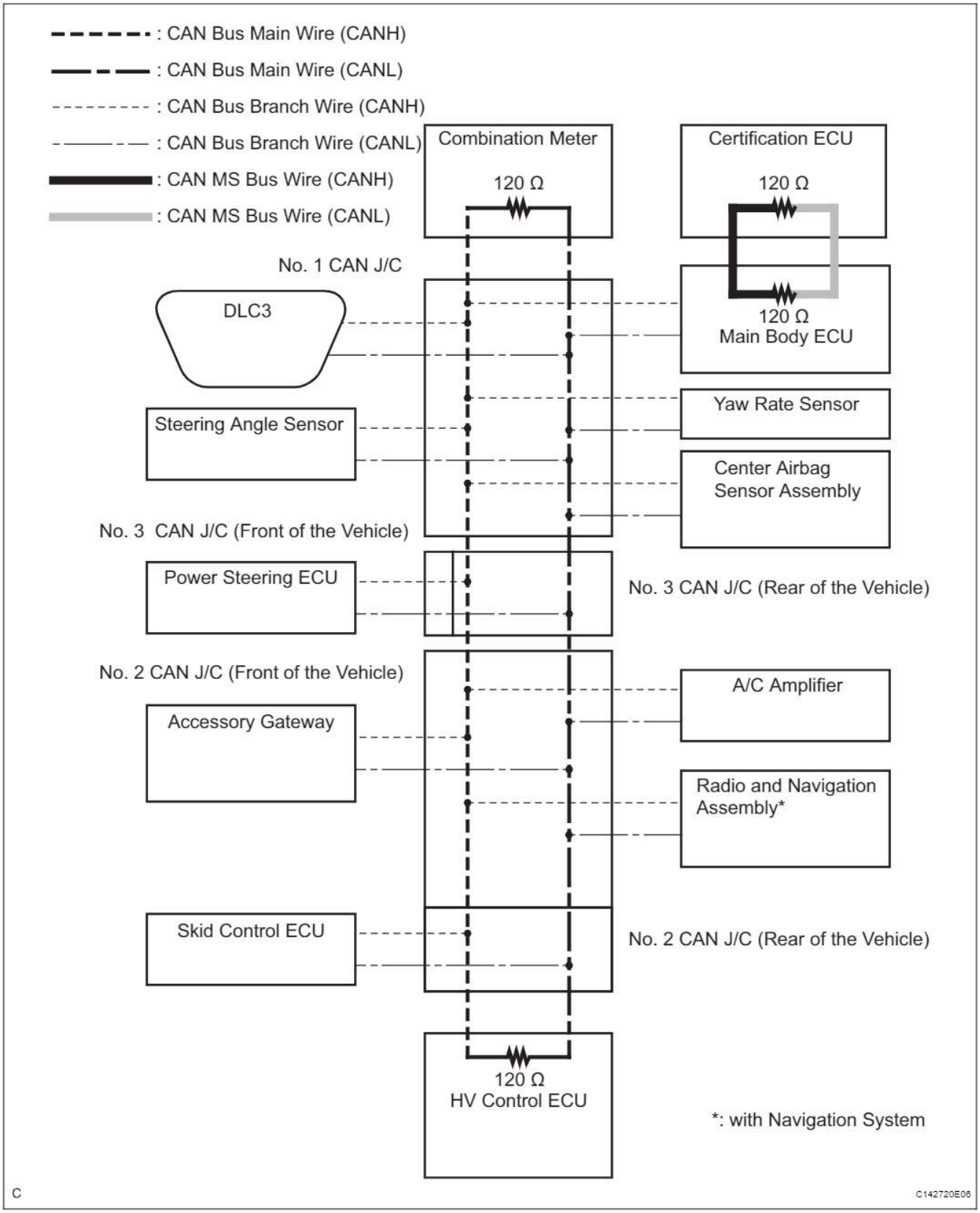
SYSTEM DIAGRAM



CA

HINT:

- The skid control ECU detects and stores steering angle sensor and yaw rate sensor DTCs and allows DTC communication by receiving information from the steering angle sensor and yaw rate sensor.

SYSTEM DESCRIPTION

1. BRIEF DESCRIPTION

(a) Two different types of CAN buses are used. The CAN buses are classified into two types based on typical communication speed.
The HS-CAN bus is a high-speed communication bus that is used for powertrain, chassis, and some body electrical communication. The HS-CAN bus is referred to as the "CAN bus" and it operates at speeds of approximately 500 kbps. Terminating resistors for the HS-CAN bus are located in the HV control ECU and combination meter.
The MS-CAN bus is a medium-speed communication bus that is used for body electrical communication. The MS-CAN bus is referred to as the "CAN MS bus" and it operates at speeds of approximately 250 kbps. Terminating resistors for the MS-CAN bus are located in the main body ECU and the certification ECU. The resistance of the MS-CAN bus cannot be measured from the DLC3 connector.
Communication between these networks is handled via the main body ECU, which acts as a gateway.

(b) By pairing the CANH and CANL bus wires, the CAN performs communication based on differential voltage.

(c) Many ECUs (sensors) installed on the vehicle operate by sharing information and communicating with each other.

(d) The CAN has two resistors of 120 Ω which are necessary to enable communication on the main bus wire.

2. DEFINITION OF TERMS

(a) Main bus wire
(1) The main bus wire is a wire harness between the two terminus circuits on the bus (communication line).

(b) Branch wire
(1) The branch wire is a wire harness which diverges from the main bus wire to an ECU or sensor.

(c) Terminating resistors
(1) Two resistors of 120 Ω are installed in parallel across the ends of the CAN main bus wires. They are called terminating resistors. These resistors allow the changes of the voltage differential between the CAN bus wires to be accurately judged. To allow proper function of CAN communication, it is necessary to have both terminating resistors installed. Since the two resistors are installed in parallel, a measurement of resistance between the two CAN bus wires should produce a reading of approximately 60 Ω.

CA

3. ECUS OR SENSORS WHICH COMMUNICATE THROUGH CAN COMMUNICATION SYSTEM

(a) Skid control ECU
(b) Air conditioning amplifier
(c) Main body ECU
(d) Combination meter ECU
(e) Yaw rate sensor
(f) Steering angle sensor
(g) Center airbag sensor
(h) HV control ECU
(i) Certification ECU (with smart key system)
(j) Radio and navigation assembly
(k) Power steering ECU
(l) Accessory gateway

4. DIAGNOSTIC CODE FOR CAN COMMUNICATION SYSTEM

(a) DTCs for the CAN communication system are as follows: U0001, U0073, U0100, U0100-211, U0100-212, U0100-530, U0100-774, U0100-784, U0123, U0124, U0126, U0129, U0129-220, U0129-222, U0129-528, U0129-529, U0140-146, U0151-763, U0164-594, U0164-827, U0293, U0424-537, B1207 and B2326.

5. TROUBLESHOOTING REMARKS

(a) DTCs for the CAN communication system can be checked using the intelligent tester via the CAN VIM. The DLC3 is connected to the CAN communication system, but no DTCs exist regarding problems in the DLC3 or the DLC3 branch wires. If there is trouble in the DLC3 or the DLC3 branch wires, ECUs on the CAN network cannot output codes to the intelligent tester via the CAN VIM.

(b) Trouble in the CAN buses (communication lines) can be checked by measuring the resistance between terminals of the DLC3. However, an open circuit in a branch wire other than the DLC3 branch wires cannot be checked from the DLC3.
NOTICE:
Do not insert the tester probes directly into the DLC3. Be sure to use a service wires.

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 wire and the connecting side of the junction connector.
HINT:
See "TERMINALS OF ECU" (See page CA-10) for bus wire color or the type of connecting surface.

CA

HOW TO PROCEED WITH TROUBLESHOOTING

NOTICE:

- **DTCs for the CAN communication system are as follows: U0001, U0073, U0100, U0100-211, U0100-212, U0100-530, U0100-774, U0100-784, U0123, U0124, U0129, U0129-220, U0129-222, U0129-528, U0129-529, U0140-146, U0151-763, U0164-594, U0164-827, U0293, U0424-537, B1207 and B2326.**
- **Refer to troubleshooting of each system if DTCs regarding the CAN communication system are not output.**

1	CHECK AND CLEAR DTCS

NEXT

2	CHECK FOR INSTALLED SYSTEMS (ECUS & SENSORS) THAT ADOPT CAN COMMUNICATION)

(a) Check which of the following is adopted: Navigation system and accessory gateway (See page CA-22).

NEXT

3	CHECK CAN BUS WIRE

(a) Check the CAN bus wires (See page CA-64).

NEXT

4	CHECK INTELLIGENT TESTER

(a) Select "BUS CHECK" (See page CA-22).

Result

Symptom	Proceed to
All the ECUs and sensors connected to the CAN communication system are displayed on the screen.	A (Go to step 5)
An ECU or sensor not connected to the CAN communication system is displayed on the screen.	B (CA-9)
More than one of the ECUs and sensors not connected to the CAN communication system are displayed on the screen. (If the displayed ECUs and sensors are only those relating to the "Engine" and "ECT", proceed to B.)	C (CA-134)

CA

NOTICE:

- **The systems (ECUs, sensors) that adopt CAN communication vary depending on the vehicle and option settings. Check which systems (ECUs, sensors) are installed on the vehicle (See page CA-22).**

- **Non-installed ECUs or sensors are not displayed. Do not mistake ECUs that are not installed for being in communication stop mode.**
- **If 2 or more ECUs or sensors are not displayed on the intelligent tester, perform troubleshooting for communication stop mode for each undisplayed ECU or sensor. (Open in one side of the CAN branch wires.)**

B	**GO TO "COMMUNICATION STOP MODE TABLE"**
C	**GO TO "OPEN IN ONE SIDE OF CAN BRANCH LINE"**

A

5	**DTC COMBINATION TABLE**

(a) Confirm trouble according to the combination of output DTCs regarding the CAN communication system (See page CA-22).
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 "BUS CHECK" screen.

NEXT

6	**CIRCUIT INSPECTION**

NEXT

7	**IDENTIFICATION OF PROBLEM**

NEXT

8	**REPAIR OR REPLACE**

NEXT

9	**CONFIRMATION TEST**

NEXT

END

CA

PROBLEM SYMPTOMS TABLE

RESULT LIST OF HOW TO PROCEED WITH TROUBLESHOOTING:

Symptom	Suspected Area	See page
The result of "HOW TO PROCEED WITH TROUBLESHOOTING" is "Open in CAN Main Bus Line"	Open in CAN Main Bus Line	CA-68
The result of "HOW TO PROCEED WITH TROUBLESHOOTING" is "Short in CAN Bus Lines"	Short in CAN Bus Lines	CA-74
The result of "HOW TO PROCEED WITH TROUBLESHOOTING" is "Short to +B in CAN Bus Line"	Short to B+ in CAN Bus Line	CA-94
The result of "HOW TO PROCEED WITH TROUBLESHOOTING" is "Short to GND in CAN Bus Line"	Short to GND in CAN Bus Line	CA-114
The result of "HOW TO PROCEED WITH TROUBLESHOOTING" is "Open in One Side of CAN Branch Line"	Open in One Side of CAN Branch Line	CA-134

COMMUNICATION STOP MODE TABLE:

Symptom	Suspected Area	See page
"ABS/VSC/TRAC" is not displayed on the intelligent tester	Skid Control ECU Communication Stop Mode	CA-42
"A/C" is not displayed on the intelligent tester	Air Conditioning Amplifier Communication Stop Mode	CA-45
"MAIN BODY" is not displayed on the intelligent tester	Main Body ECU Communication Stop Mode	CA-54
"STEERING SENSOR" is not displayed on the intelligent tester	Steering Angle Sensor Communication Stop Mode	CA-50
"YAW/DECELERAT" is not displayed on the intelligent tester	Yaw Rate Sensor Communication Stop Mode	CA-52
"HYBRID CONTROL" is not displayed on the intelligent tester	Hybrid Vehicle Control ECU Communication Stop Mode	CA-40
"METER" is not displayed on the intelligent tester	Combination Meter ECU Communication Stop Mode	CA-58
"SRS AIRBAG" is not displayed on the intelligent tester	Center Airbag Sensor Communication Stop Mode	CA-60
"EPS" is not displayed on the intelligent tester	Power Steering ECU Communication Stop Mode	CA-48
"AVN" is not displayed on the intelligent tester	Radio and Navigation Assembly Communication Stop Mode	CA-62
"SMART ACCESS/KEY" is not displayed on the intelligent tester	Certification ECU Communication Malfunction	CA-30

CA

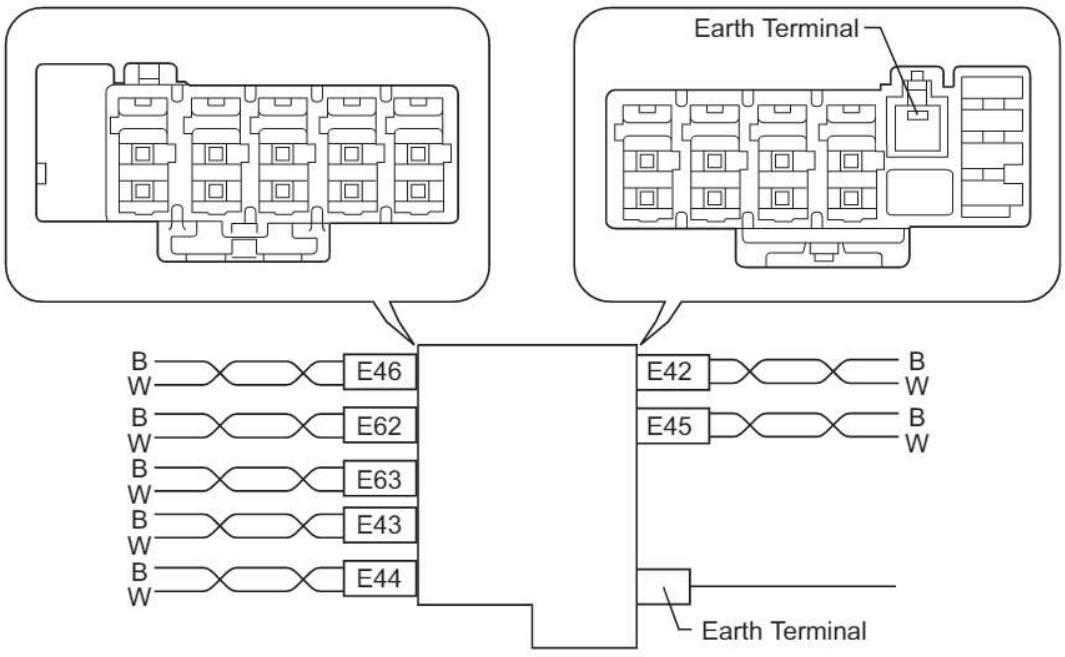
TERMINALS OF ECU

NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

1. **JUNCTION CONNECTOR (NO. 1 CAN J/C, NO. 2 CAN J/C)**
   (a) No. 1 CAN J/C

No. 1 CAN J/C "B" Side (without Earth Terminal): **No. 1 CAN J/C "A" Side (with Earth Terminal):**



No. 1 CAN J/C Connector ("A" side, with earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
CAN Main Bus Wire (E42)	White	B	W
Center Airbag Sensor Assembly (E45)	Black	B	W

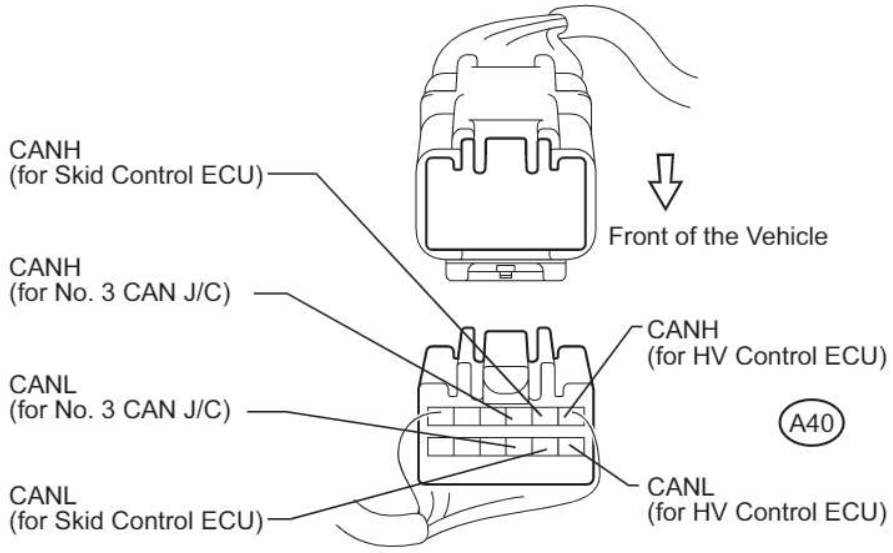
No. 1 CAN J/C Connector ("B" side, without earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Yaw Rate Sensor (E46)	Blue	B	W
DLC3 (E62)	Gray	B	W
Steering Angle Sensor (E63)	Brown	B	W

CA

No. 1 CAN J/C Connector ("B" side, without earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Combination Meter (E43)	White	B	W
Main Body ECU (E44)	Black	B	W

(b) No. 2 CAN J/C (FRONT OF THE VEHICLE)

No. 2 CAN J/C (Front of the Vehicle) Wire Harness View:

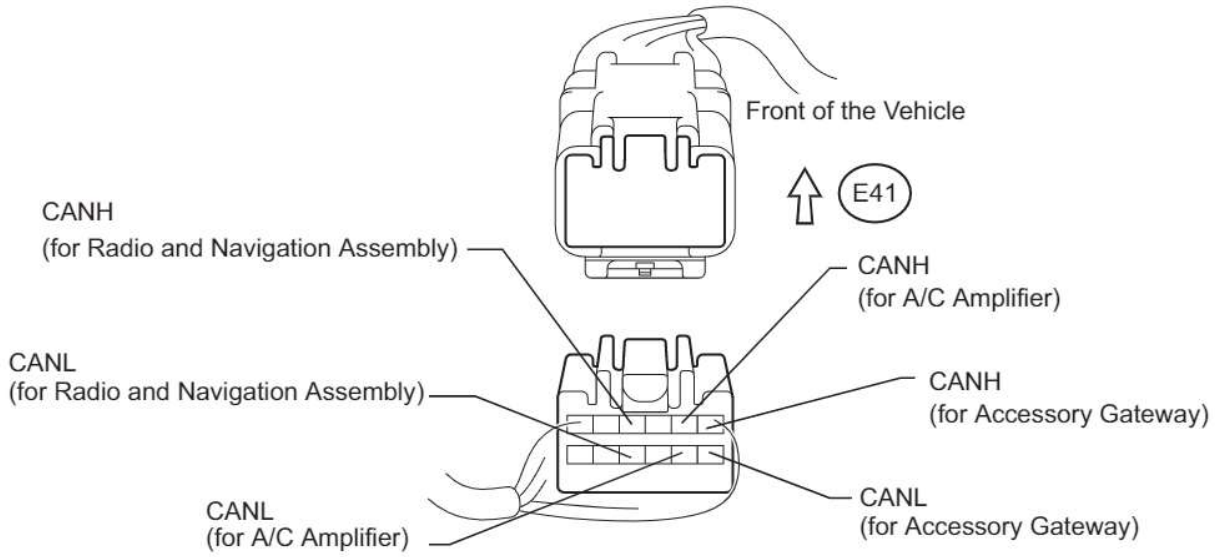


Terminal	Wiring Color	Destination
A40-1 (CANH)	B	HV control ECU (CANH)
A40-7 (CANL)	W	HV control ECU (CANL)
A40-2 (CANH)	B	Skid Control ECU (CANH)
A40-8 (CANL)	W	Skid Control ECU (CANL)
A40-3 (CANH)	B	No. 3 CAN J/C
A40-9 (CANL)	W	No. 3 CAN J/C

CA

(c) No. 2 CAN J/C (REAR OF THE VEHICLE)

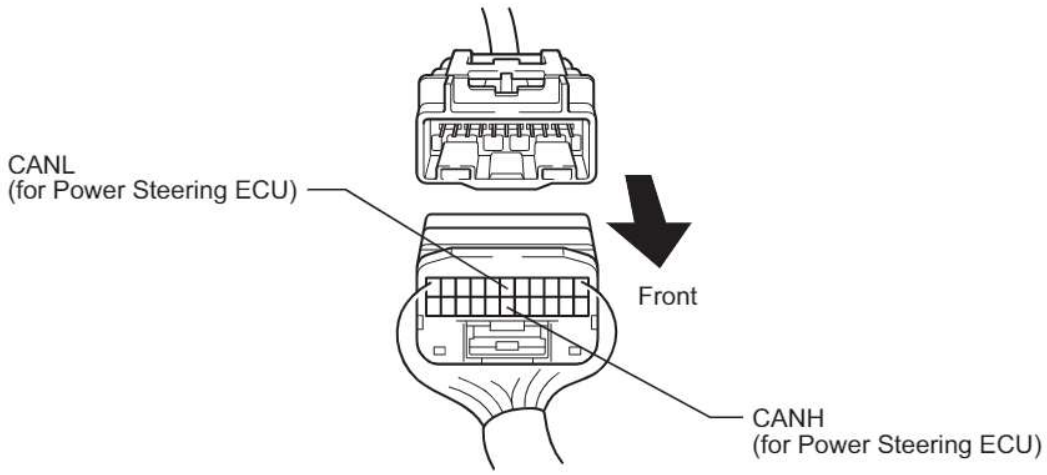
No. 2 CAN J/C (Rear of the Vehicle) Wire Harness View:



Terminal	Wiring Color	Destination
E41-1 (CANH)	B	Accessory Gateway (CANH)
E41-7 (CANL)	W	Accessory Gateway (CANL)
E41-2 (CANH)	B	A/C Amplifier (CANH)
E41-8 (CANL)	W	A/C Amplifier (CANL)
E41-4 (CANH)	B	Radio and Navigation Assembly (CANH)
E41-10 (CANL)	W	Radio and Navigation Assembly (CANL)

(d) No. 3 CAN J/C (FRONT OF THE VEHICLE)

No. 3 CAN J/C (Front of the Vehicle) Wire Harness View:

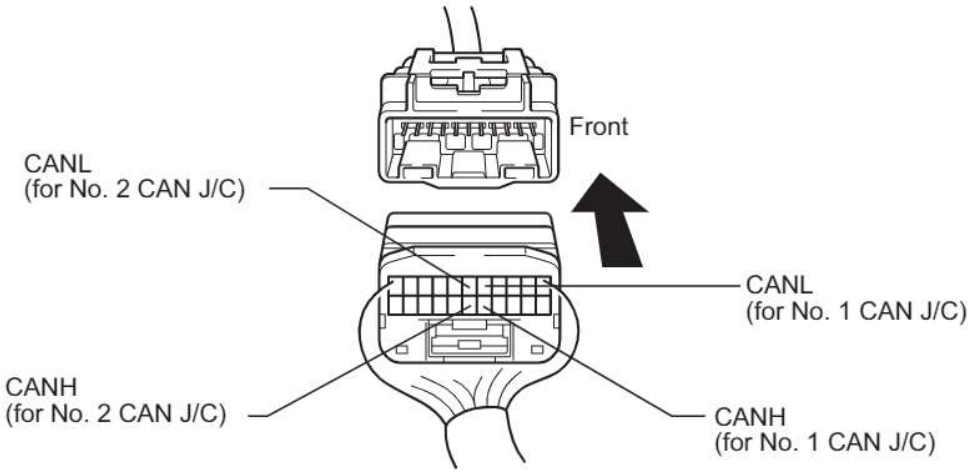


CA

Terminal	Wiring Color	Destination
A41-6 (CANH)	W	Power Steering ECU (CANH)
A41-17 (CANL)	B	Power Steering ECU (CANL)

(e) No. 3 CAN J/C (REAR OF THE VEHICLE)

No. 3 CAN J/C (Rear of the Vehicle) Wire Harness View:



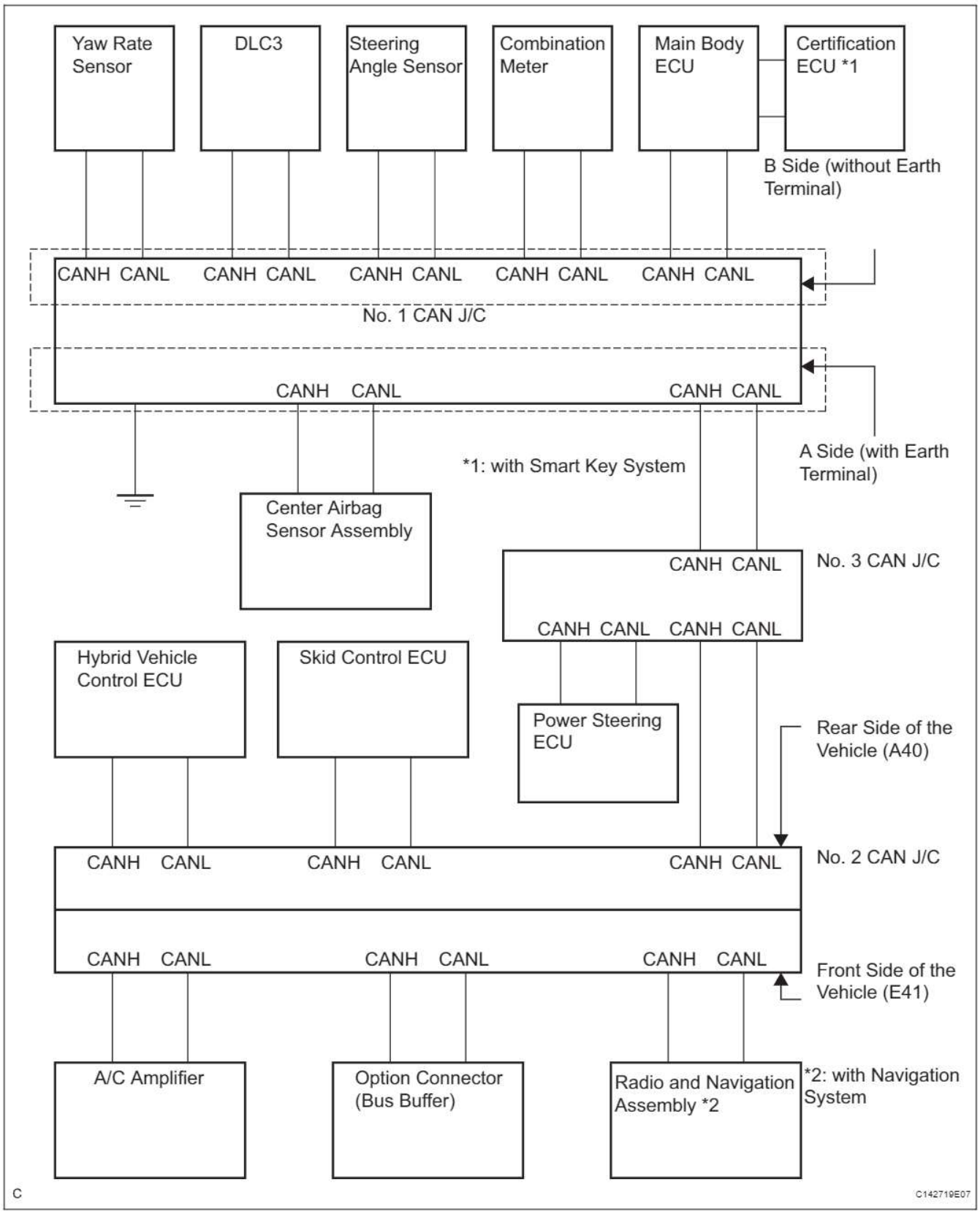
N

C142727E01

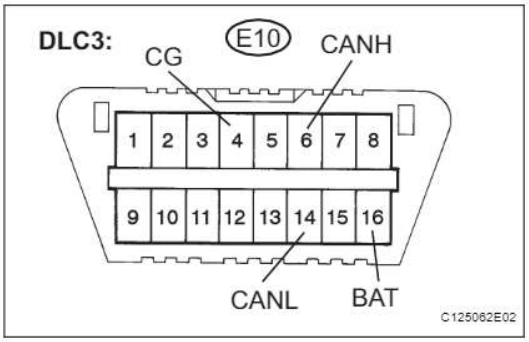
Terminal	Wiring Color	Destination
A42-6 (CANH)	W	No. 2 CAN J/C (CANH)
A42-17 (CANL)	B	No. 2 CAN J/C (CANL)
A42-7 (CANH)	W	No. 1 CAN J/C (CANH)
A42-18 (CANL)	B	No. 1 CAN J/C (CANL)

CA

(f) The connection diagram of the components which are connected to the CAN J/C



CA

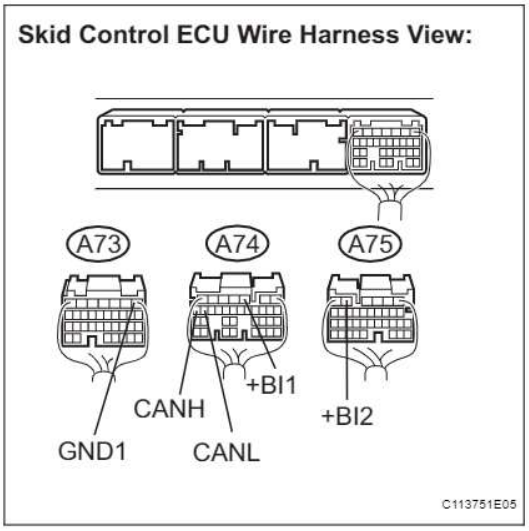


2. DLC3

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

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E10-6 (CANH) - E10-14 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω
E10-6 (CANH) - E10-4 (CG)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E10-14 (CANL) - E10-4 (CG)	W - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E10-6 (CANH) - E10-16 (BAT)	B - L	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	W - L	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher



3. SKID CONTROL ECU

(a) Disconnect the connectors from the skid control ECU.

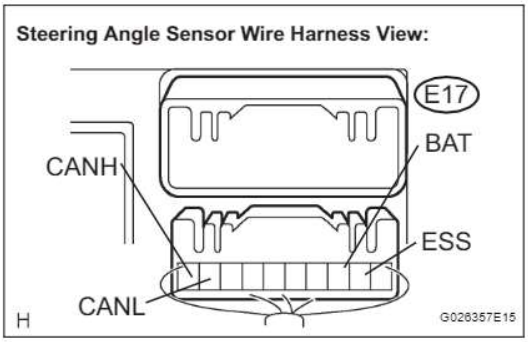
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Wiring Color	Condition	Specified Condition
A74-19 (CANH) - A74-18 (CANL)	B - W	Disconnect the negative battery cable	54 to 69 Ω
A74-19 (CANH) - A73-1 (GND1)	B - W-B	Disconnect the negative battery cable	200 Ω or higher
A74-18 (CANL) - A73-1 (GND1)	W - W-B	Disconnect the negative battery cable	200 Ω or higher
A74-19 (CANH) - A74-3 (+BI1)	B - L	Disconnect the negative battery cable	6 kΩ or higher
A74-18 (CANL) - A74-3 (+BI1)	W - L	Disconnect the negative battery cable	6 kΩ or higher
A74-19 (CANH) - A75-5 (+BI2)	B - L-B	Disconnect the negative battery cable	6 kΩ or higher
A74-18 (CANL) - A75-5 (+BI2)	W - L-B	Disconnect the negative battery cable	6 kΩ or higher

CA

Steering Angle Sensor Wire Harness View:



4. STEERING ANGLE SENSOR

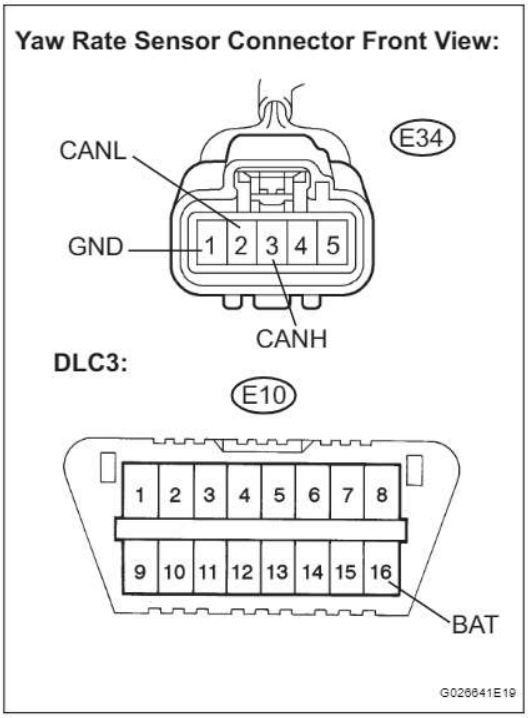
(a) Disconnect the E17 connector from the steering angle sensor.

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

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E17-10 (CANH) - E17-9 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω
E17-10 (CANH) - E17-2 (ESS)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E17-9 (CANL) - E17-2 (ESS)	W - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E17-10 (CANH) - E17-3 (BAT)	B - W	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher
E17-9 (CANL) - E17-3 (BAT)	W - W	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

Yaw Rate Sensor Connector Front View:



5. YAW RATE SENSOR

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

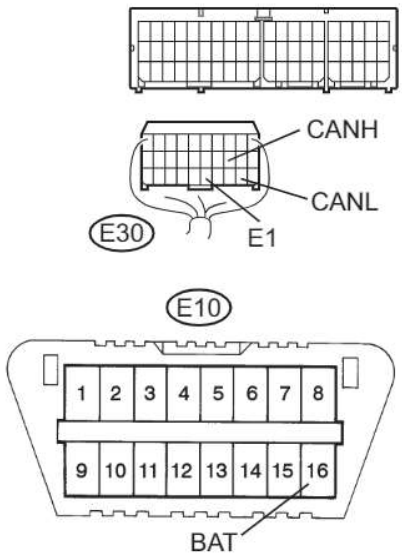
Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E34-3 (CANH) - E34-2 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω
E34-3 (CANH) - E34-1 (GND)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E34-2 (CANL) - E34-1 (GND)	W - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E34-3 (CANH) - E10-16 (BAT)	B - O	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

CA

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E34-2 (CANL) - E10-16 (BAT)	W - O	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

Center Airbag Sensor Wire Harness View :



6. CENTER AIRBAG SENSOR ASSEMBLY

(a) Disconnect the E30 connector from the center airbag sensor assembly.

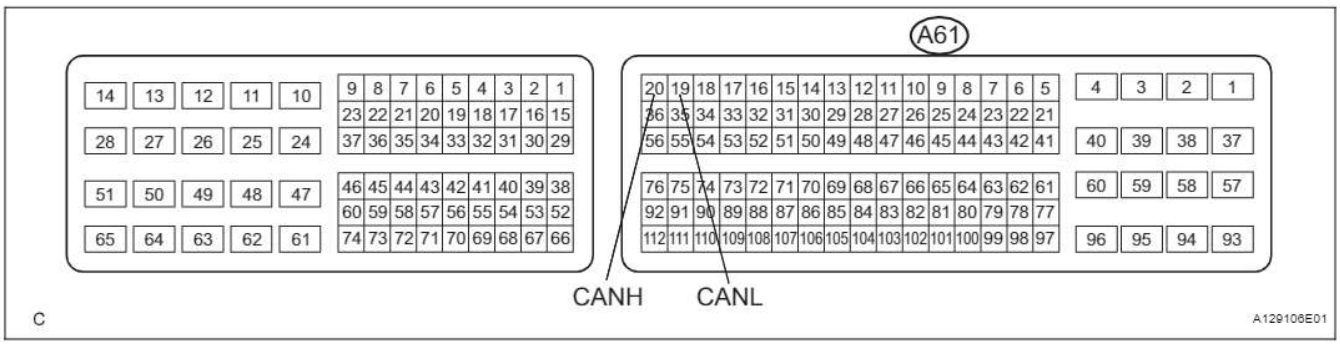
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E30-13 (CANH) - E30-22 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power Switch off	54 to 69 Ω
E30-13 (CANH) - E30-25 (E1)	B - W-B	HIGH-level CAN bus wire - Ground	Power Switch off	200 Ω or higher
E30-22 (CANL) - E30-25 (E1)	W - W-B	LOW-level CAN bus wire - Ground	Power Switch off	200 Ω or higher
E30-13 (CANH) - E10-16 (BAT)	B - L	HIGH-level CAN bus wire - Battery positive	Power Switch off	6 kΩ or higher
E30-22 (CANL) - E10-16 (BAT)	W - L	LOW-level CAN bus wire - Battery positive	Power Switch off	6 kΩ or higher

7. HV CONTROL ECU

(a) Disconnect the A61 connector from the HV control ECU.

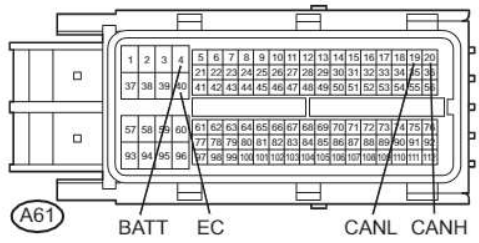


(1) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Condition	Specified Condition
A61-20 (CANH) - A61-19 (CANL)	Power switch off	108 to 132 Ω

HV Control ECU (Wire Harness Side View):

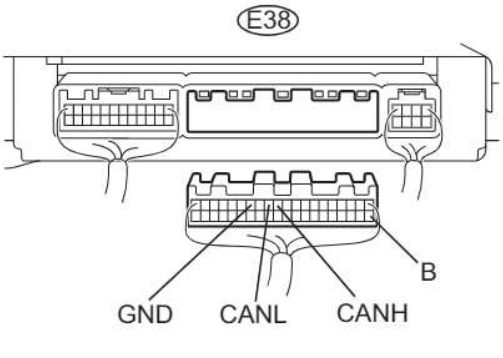


(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
A61-20 (CANH) - A61-19 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	108 to 132 Ω
A61-20 (CANH) - A61-40 (EC)	B - W	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
A61-19 (CANL) - A61-40 (EC)	B - W	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
A61-20 (CANH) - A61-4 (BATT)	B - W	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher
A61-19 (CANL) - A61-4 (BATT)	B - W	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

Air Conditioning Amplifier (Wire Harness Side):



8. AIR CONDITIONING AMPLIFIER

(a) Check harness side connector E38 of the air conditioning amplifier.

(1) Disconnect connector E38 from the air conditioning amplifier.

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

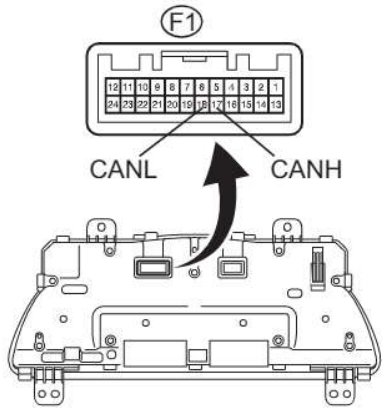
Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E38-11 (CANH) - E38-12 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω
E38-11 (CANH) - E38-14 (GND)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E38-12 (CANL) - E38-14 (GND)	W - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E38-11 (CANH) - E38-21 (B)	B - GR	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

CA

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E38-12 (CANL) - E38-21 (B)	W - GR	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

Combination Meter (Component Side):



9. COMBINATION METER ECU

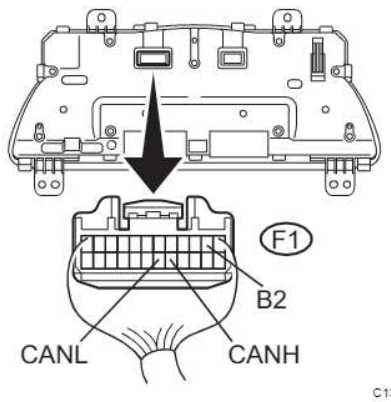
(a) Disconnect the F1 connector from the combination meter.

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

Standard resistance

Terminals	Condition	Specified Condition
F1-17 (CANH) - F1-18 (CANL)	Power switch off	108 to 132 Ω

Combination Meter (Wire Harness Side):



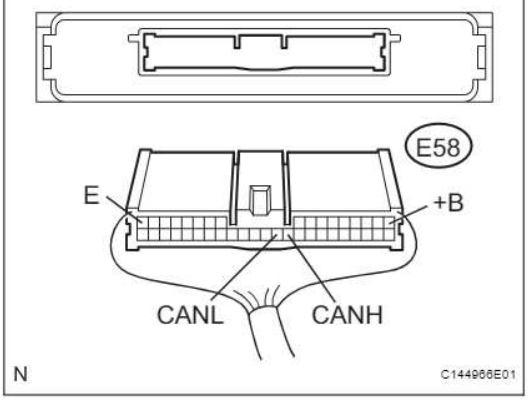
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
F1-17 (CANH) - F1-18 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	108 to 132 Ω
F1-17 (CANH) - F1-12 (E2)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
F1-18 (CANL) - F1-12 (E2)	B - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
F1-17 (CANH) - F1-2 (B2)	B - R	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher
F1-18 (CANL) - F1-2 (B2)	B - R	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

CA

Certification ECU (Wire Harness Side):



10. CERTIFICATION ECU

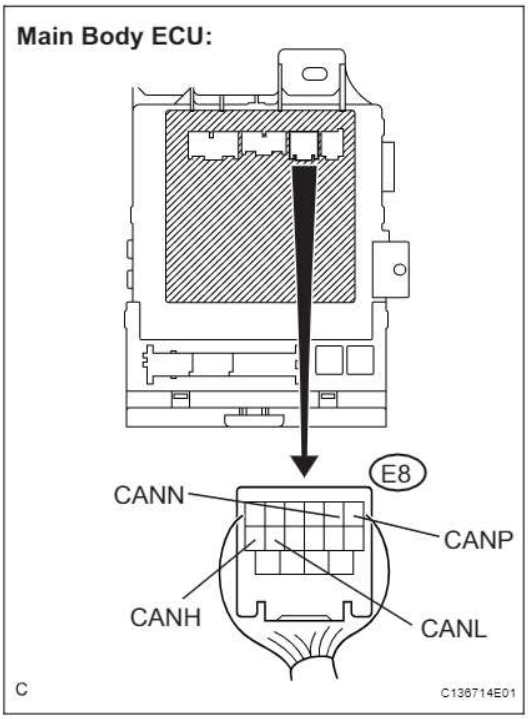
(a) Disconnect the E58 connector from the certification ECU.

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

Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E58-27 (CANH) - E58-28 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	108 to 132 Ω
E58-27 (CANH) - E58-17 (E)	B - W-B	HIGH-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E58-28 (CANL) - E58-17 (E)	B - W-B	LOW-level CAN bus wire - Ground	Power switch off	200 Ω or higher
E58-27 (CANH) - E58-1 (+B)	B - W	HIGH-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-1 (+B)	W - W	LOW-level CAN bus wire - Battery positive	Power switch off	6 kΩ or higher

Main Body ECU:



11. MAIN BODY ECU (INSTRUMENT PANEL J/B)

(a) Disconnect the E8 connector from the main body ECU.

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

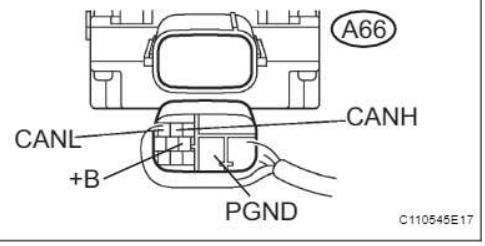
Standard resistance

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E8-5 (CANH) - E8-6 (CANL)	B - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω

CA

Terminals	Wiring Color	Terminal Description	Condition	Specified Condition
E8-16 (CANP) - E8-15 (CANN)	W - L	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	108 to 132 Ω

Power Steering ECU Wire Harness View:



12. POWER STEERING ECU

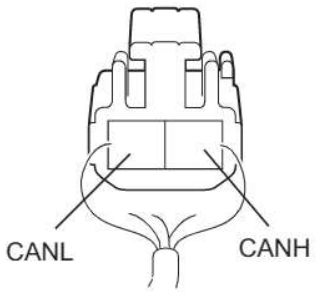
(a) Disconnect the A66 connector from the power steering ECU.

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

Standard resistance

Terminals	Wiring Color	Condition	Specified Condition
A66-2 (CANH) - A66-3 (CANL)	B - W	Power switch off	54 to 69 Ω
A66-2 (CANH) - A66-9 (PGND)	B - B	Power switch off	200 Ω or higher
A66-3 (CANL) - A66-9 (PGND)	W - B	Power switch off	200 Ω or higher
A66-2 (CANH) - A66-6 (+B)	B- B-W	Power switch off	6 kΩ or higher
A66-3 (CANL) - A66-6 (+B)	W - B-W	Power switch off	6 kΩ or higher

Accessory Gateway:



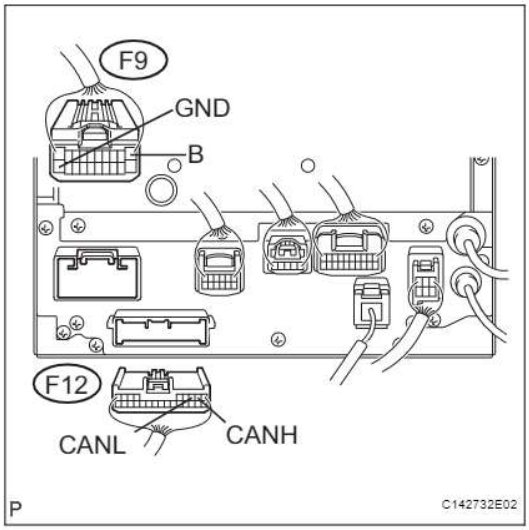
13. ACCESSORY GATEWAY

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

Standard resistance

Terminals	Terminal Description	Condition	Specified Condition
E61-1 (CANH) - E61-2 (CANL)	HIGH-level CAN bus wire - LOW-level CAN bus wire	Power switch off	54 to 69 Ω

CA

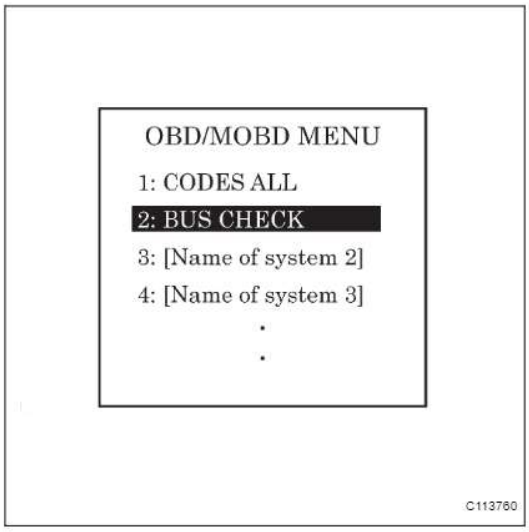


14. RADIO AND NAVIGATION ASSEMBLY (W/ NAVIGATION SYSTEM)

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

Standard resistance

Terminals	Wiring Color	Condition	Specified Condition
F12-2 (CANH) - F12-3 (CANL)	B - W	Power switch off	54 to 69 Ω
F12-2 (CANH) - F9-20 (GND)	B - B	Power switch off	200 Ω or higher
F12-3 (CANL) - F9-20 (GND)	W - B	Power switch off	200 Ω or higher
F12-2 (CANH) - F9-1 (B)	B- B-W	Power switch off	6 kΩ or higher
F12-3 (CANL) - F9-1 (B)	W - B-W	Power switch off	6 kΩ or higher

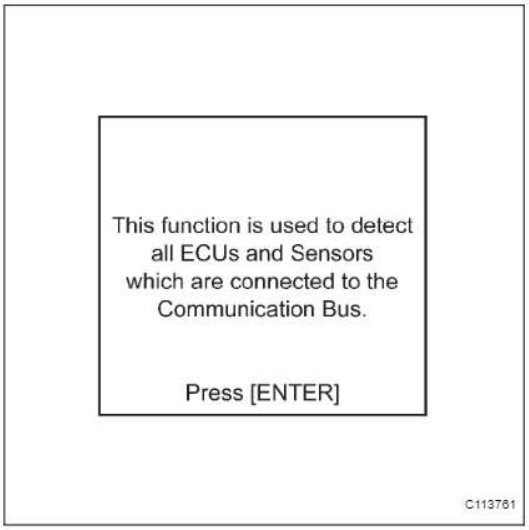


DIAGNOSIS SYSTEM

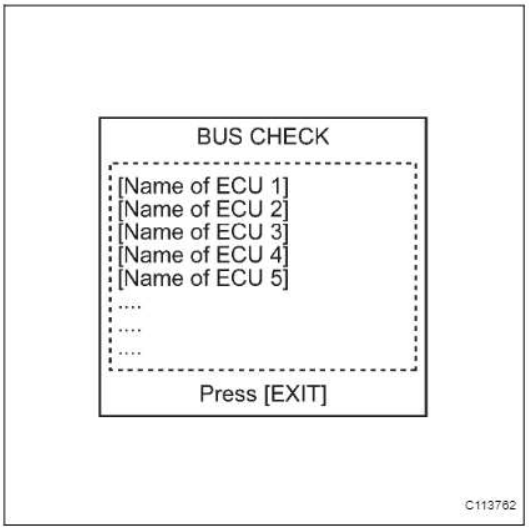
1. BUS CHECK

(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.

CA



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



(c) The screen displays the ECUs and sensors that are properly connected to the CAN communication system.
HINT:
Properly connected ECUs or sensors that are not displayed on the screen indicate that a communication stop is occurring in the system, sensor, or ECU which is not displayed.

2. CHECK FOR INSTALLED SYSTEMS (ECUS AND SENSORS) THAT USE CAN COMMUNICATION

(a) Systems (ECUs, sensors) that use CAN communication vary depending on the vehicle's optional equipment. Check which systems (ECUs, sensors) are installed on the vehicle.

ECU/Sensor name	Check method
ABS/VSC/TRC	Installed on all vehicles
STEERING SENSOR	Installed on all vehicles
YAW / DECELERAT	Installed on all vehicles
HYBRID CONTROL	Installed on all vehicles
AVN	With navigation system
SRS AIRBAG	Installed on all vehicles
A/C	Installed on all vehicles
METER	Installed on all vehicles
MAIN BODY	Installed on all vehicles
ACCESSORY G/W	With dealer option
SMART ACCESS/KEY	Installed on all vehicles
EPS	Installed on all vehicles

CA

3. DTC TABLE BY ECU

HINT:

- For the CAN communication system, CAN communication system DTCs stored in certain ECUs can be displayed using the intelligent tester.

- 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-7).

(a) HV CONTROL ECU (Engine)

DTC No.	Detection Item
U0001*	Control Module Communication Bus Off
U0293	Communication Error from HV ECU

HINT:
- DTC communication uses the CAN communication system.
- *: The HV control ECU is malfunctioning if only U0001 is output. Replace the HV control ECU.

(b) HV CONTROL ECU (Hybrid control)

DTC No.	Detection Item
U0100-211	Lost Communication with ECM/PCM "A"
U0100-212	Lost Communication with ECM/PCM "A"
U0100-530	Lost Communication with ECM/PCM "A"
U0100-774	Lost Communication with ECM/PCM "A"
U0100-784	Lost Communication with ECM/PCM "A"
U0129-220	Lost Communication with Brake System Control Module
U0129-222	Lost Communication with Brake System Control Module
U0129-528	Lost Communication with Brake System Control Module
U0129-529	Lost Communication with Brake System Control Module
U0140-146	Lost Communication with Body Control Module
U0164-594	Lost Communication with HVAC Control Module
U0164-827	Lost Communication with HVAC Control Module
U0151-763	Lost Communication with Restraints Control Module
U0424-537	Invalid Data Received From HVAC Control Module

- Check for INFORMATION (See page HV-65)
- U0110-159, U0110-160, U0110-656, and U0110-657 are not CAN communication system DTCs. Therefore, refer to the troubleshooting procedures for the hybrid control system.

(c) SKID CONTROL ECU

DTC No.	Detection Item
U0073	Control Module Communication Bus Off
U0293	Lost Communication with HV Control ECU
U0123	Lost Communication with Yaw Rate Sensor Module
U0124	Lost Communication with Lateral Acceleration Sensor Module
U0126	Lost Communication with Steering Angle Sensor Module
U0131	Lost Communication with Power Steering Control Module

CA

HINT:
DTC communication uses the CAN communication system.

(d) COMBINATION METER ECU

DTC No.	Detection Item
U0100	Lost Communication with ECM/PCM "A"
U0129	Lost Communication with Brake System Control Module

HINT:
DTC communication uses the CAN communication system.

(e) MAIN BODY ECU

DTC No.	Detection Item
B1207*	Certification ECU Communication Malfunction
B2326*	CAN MS Bus Line Communication Malfunction

HINT:
- DTC communication uses the CAN communication system.
- *: The main body ECU is malfunctioning if B1207 and/or B2326 are output alone. Refer to the DTC chart (See page CA-29).

(f) POWER STEERING ECU

DTC No.	Detection Item
U0073	Control Module Communication off
U0100	Lost Communication with ECM/PCM "A"
U0129	Lost Communication with Brake System Control Module
U0293	CAN Error from HV ECU

HINT:
DTC communication uses the CAN communication system.

(g) RADIO AND NAVIGATION ASSEMBLY
HINT:
Although the radio and navigation assembly is connected to the CAN communication system, CAN communication DTCs are not output.

(h) CENTER AIRBAG SENSOR
HINT:
Although the center airbag sensor is connected to the CAN communication system, CAN communication DTCs are not output.

(i) CERTIFICATION ECU
HINT:
Although the certification ECU is connected to the CAN communication system, CAN communication DTCs are not output.

CA

4. DTC COMBINATION TABLE

(a) DTC COMBINATION TABLE

DTC		Trouble Mode			
Output from	Output DTC	HV Control ECU Communication Stop Mode	Skid Control ECU Communication Stop Mode	Steering Angle Sensor Communication Stop Mode	Yaw Rate Sensor Communication Stop Mode
HV Control ECU (HV Control)	U0100-211 *1	X	X	X	X
	U0100-212 *1	X	X	X	X
	U0100-530 *1	X	X	X	X
	U0100-774 *1	X	X	X	X
	U0100-784 *1	X	X	X	X
	U0129-220	X	O	X	X
	U0129-222 *2	X	X	X	X
	U0129-528	X	O	X	X
	U0129-529 *3	X	X	X	X
	U0140-146	X	X	X	X
	U0164-594	X	X	X	X
	U0164-827	X	X	X	X
	U0151-763	X	X	X	X
	U0424-537	X	X	X	X
HV Control ECU (Engine Control)	U0001 *1	X	X	X	X
	U0293 *1	X	X	X	X
Skid Control ECU	U0073	X	X	X	X
	U0123	X	X	X	O
	U0124	X	X	X	O
	U0126	X	X	O	X
	U0293	O	X	X	X
Power Steering ECU	U0073	X	X	X	X
	U0100	O	X	X	X
	U0129	X	X	X	X
	U0293	O	X	X	X
Combination Meter	U0100	O	X	X	X
	U0129	X	O	X	X
Main Body ECU	B1207	X	X	X	X
	B2326	X	X	X	X

HINT:

- O: Set
- X: Not set or may be set according to the malfunctioning part when one side of the CAN bus wire opens
- *1: If only these DTC are output, refer to troubleshooting for hybrid vehicle control system.
- *2: If DTC U0129-222 is output, refer to troubleshooting for DTC U0293 of the brake control system.
- *3: If DTC U0129-529 is output, check for brake control system.

CA

DTC		Trouble Mode			
Output from	Output DTC	A/C Amplifier Communication Stop Mode	Center Airbag Sensor Assembly Communication Stop Mode	Main Body ECU Communication Stop Mode	Certification ECU Communication Stop Mode
HV Control ECU (HV Control)	U0100-211 *1	X	X	X	X
	U0100-212 *1	X	X	X	X
	U0100-530 *1	X	X	X	X
	U0100-774 *1	X	X	X	X
	U0100-784 *1	X	X	X	X
	U0129-220	X	X	X	X
	U0129-222 *2	X	X	X	X
	U0129-528	X	X	X	X
	U0129-529 *3	X	X	X	X
	U0140-146	X	X	X	X
	U0164-594	O	X	X	X
	U0164-827	O	X	X	X
	U0151-763	X	X	X	X
	U0424-537	X	X	X	X
HV Control ECU (Engine Control)	U0001 *1	X	X	X	X
	U0293 *1	X	X	X	X
Skid Control ECU	U0073	X	X	X	X
	U0123	X	X	X	X
	U0124	X	X	X	X
	U0126	X	X	X	X
	U0293	X	X	X	X
Power Steering ECU	U0073	X	X	X	X
	U0100	X	X	X	X
	U0129	X	X	X	X
	U0293	X	X	X	X
Combination Meter	U0100	X	X	X	X
	U0129	X	X	X	X
Main Body ECU	B1207	X	X	X	O
	B2326	X	X	X	O

HINT:

- O: Set
- X: Not set or may be set according to the malfunctioning part when one side of the CAN bus wire opens
- *1: If only these DTC are output, refer to troubleshooting for hybrid vehicle control system.
- *2: If DTC U0129-222 is output, refer to troubleshooting for DTC U0293 of the brake control system.
- *3: If DTC U0129-529 is output, check for brake control system.

(b) Perform troubleshooting depending on the combination of DTCs output.

HINT:

- HV Control ECU Communication Stop Mode (See page CA-40)

CA

- Skid Control ECU Communication Stop Mode (See page CA-42)
- Steering Angle Sensor Communication Stop Mode (See page CA-50)
- Yaw Rate Sensor Communication Stop Mode (See page CA-52)
- Certification ECU Communication Stop Mode (See page CA-30)
- Center Airbag Sensor Communication Stop Mode (See page CA-60)
- Air Conditioner Amplifier ECU Communication Stop Mode (See page CA-45)
- Main Body ECU Communication Stop Mode (See page CA-54)

CA

FAIL-SAFE CHART

1. FAIL-SAFE FUNCTION

(a) When communication fails in any of the CAN bus wire (communication lines) due to a short circuit or other causes, the fail-safe function, which is specified for each system operates to prevent the system from malfunctioning.

(b) The following chart shows the relationships between components, system functions, and effects of communication failure on these functions. (For further details, see the pages for each system.)

Function (Function Description)	Control Master	System Related	Fail-safe Operation	DTC (Driver Detectable)
Toyota Hybrid System-II (THS-II) Control (to optimize the combination between the engine and motor drive power for driving)	HV Control ECU (HV control)	HV Control ECU (Engine control)	Safe running	U0100 (Master warning light and MIL come on)
Gradient Determination (Hill start assist operation)	HV Control ECU (HV control)	Skid Control ECU	Hill start assist function stops	U0129 (VSC warning light comes on)
Regenerative Braking (the motor acts as a generator that depends on wheel rotation and generates electricity to be stored in the HV battery)	Skid Control ECU	HV Control ECU (HV control)	Regenerative braking will stop	U0073, U0293 (VSC, ABS, and ECB warning lights come on)
VDIM Control (Controls driving force while VDIM is in operation)	Skid Control ECU	• HV Control ECU (HV control) • Power Steering ECU • Steering Angle Sensor • Yaw Rate Sensor	VDIM function will stop	U0073, U0293, U0123, U0124, U0126 (VSC, ABS, and ECB warning lights come on)
Vehicle Information Display	HV Control ECU (HV control)	• Combination Meter • Radio and Navigation Assembly	Vehicle information is not displayed	None (Vehicle information is not displayed)
Smart Entry / Power Door Lock Control	Certification ECU	• Main Body ECU • Combination Meter	Unlock permitted	B1207, B2326 (Wireless door lock cannot operate)
Security Function	Certification ECU	Main Body ECU	Security function is inoperative (Theft deterrent system cannot be set)	B1207, B2326 (Security indicator light does not come on)
Illumination Control	Main Body ECU	• HV Control ECU (HV control) • Combination Meter	Light illumination rheostat inoperative	None (Rheostat inoperative)
Air Conditioning Control	A/C Amplifier	• HV Control ECU (HV control) • HV Control ECU (Engine control) • Combination Meter • Main Body ECU	Air conditioning function will stop	B1499 (Air Conditioning inoperative)
Buzzer Control	Combination Meter	• HV Control ECU (HV control) • Skid Control ECU • Certification ECU • Main Body ECU	Buzzer function will stop	U0100, U0129 (Buzzer does not sound)
Meter Display (Displays vehicle status and controls indicator lights)	Combination Meter	• HV Control ECU (HV control) • Skid Control ECU • Certification ECU • Main Body ECU • Center Airbag Sensor Assembly • Power Steering ECU	Light does not come on, illuminates abnormally, or blinks abnormally	U0100, U0129 (Abnormal operation of the indicator lights)

CA

DIAGNOSTIC TROUBLE CODE CHART

CAN COMMUNICATION SYSTEM:

DTC Code	Detection Item	Trouble Area	See page
B1207	Certification ECU Communication Malfunction	1. CAN MS bus wire or connector 2. Certification ECU power source circuit 3. Certification ECU 4. Main body ECU	CA-30
B2326	CAN MS Bus Line Communication Malfunction	1. CAN MS bus wire or connector 2. Certification ECU power source circuit 3. Certification ECU 4. Main body ECU	CA-30

CA

DTC	B1207	Certification ECU Communication Malfunction

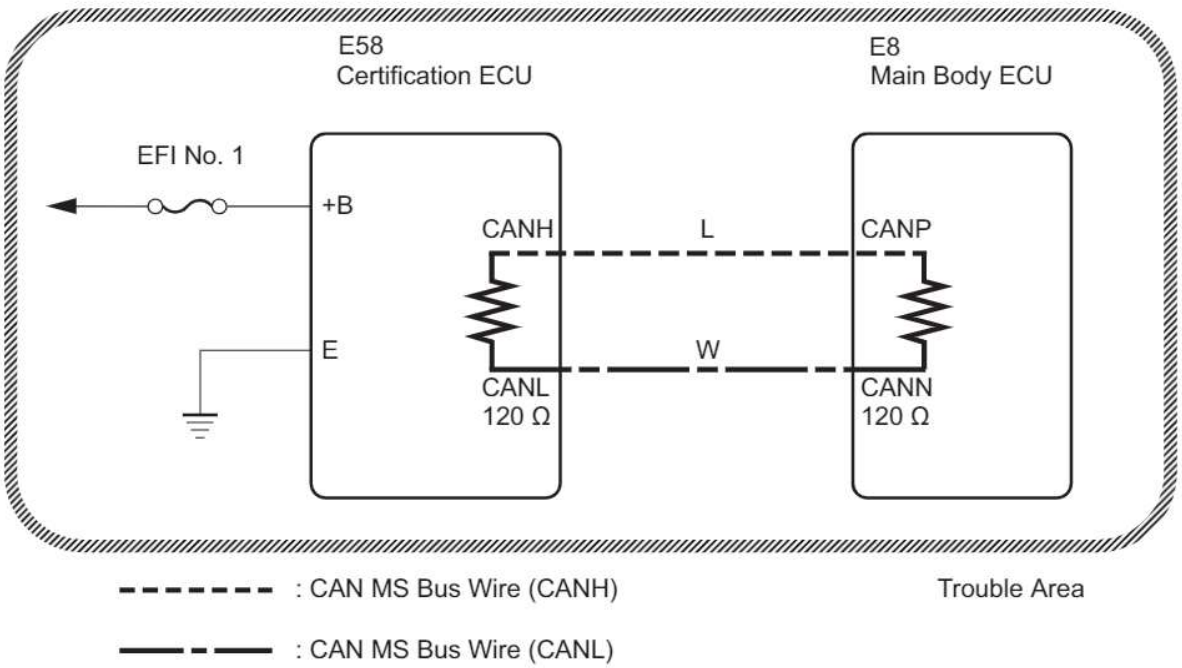
DTC	B2326	CAN MS Bus Line Communication Malfunction

DESCRIPTION

The main body ECU and certification ECU perform 2-way communication with each other via the Controller Area Network (CAN). If the certification ECU cannot communicate with the main body ECU, the main body ECU will conclude that there is a malfunction in the CAN system, and set a DTC.

DTC No.	DTC Detection Condition	Trouble Area
B1207 B2326	No communication from certification ECU	• CAN MS bus wire or connector • Certification ECU power source circuit • Certification ECU • Main body ECU

WIRING DIAGRAM



C C133252E02

CA

INSPECTION PROCEDURE

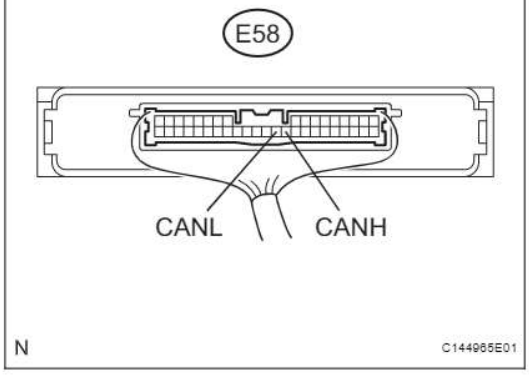
NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause resistance value to change.

1 CHECK CAN MS BUS WIRE

Certification ECU Connector:



(a) Turn the power switch off.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition	Proceed to
E58-27 (CANH) - E58-28 (CANL)	Power switch off	54 to 69 Ω	A
E58-27 (CANH) - E58-28 (CANL)	Power switch off	69 Ω or more	B
E58-27 (CANH) - E58-28 (CANL)	Power switch off	54 Ω or less	C

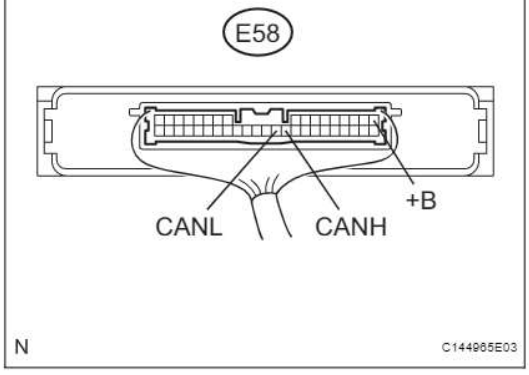
B → Go to step 9

C → Go to step 11

A

2 CHECK FOR SHORT TO +B IN CAN MS BUS WIRE

Certification ECU Connector:



(a) Turn the power switch off.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

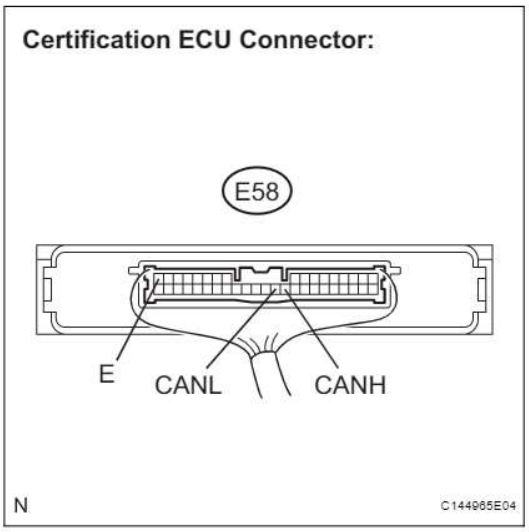
Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-1 (+B)	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-1 (+B)	Power switch off	6 kΩ or higher

NG → Go to step 5

OK

CA

3 CHECK FOR SHORT TO GND IN CAN MS BUS WIRE



(a) Turn the power switch off.
(b) Measure the resistance according to the value(s) in the table below.

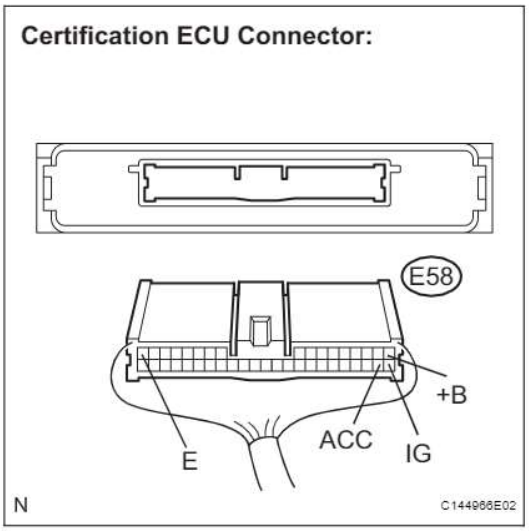
Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-17 (E)	Power switch off	200 Ω or higher
E58-28 (CANL) - E58-17 (E)	Power switch off	200 Ω or higher

NG → Go to step 7

OK

4 CHECK CERTIFICATION ECU (POWER SOURCE CIRCUIT)



(a) Turn the power switch off.
(b) Disconnect the E58 certification ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
E58-17 (E) - Body ground	Always	Below 1 Ω

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

Standard voltage

Tester Connection	Condition	Specified Condition
E58-1 (B) - Body ground	Always	10 to 14 V
E58-18 (IG) - Body ground	Power switch on (IG)	10 to 14 V
E58-19 (ACC) - Body ground	Power switch on (ACC)	10 to 14 V

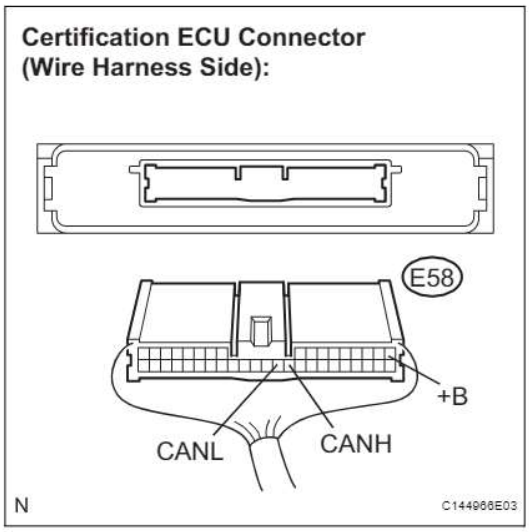
OK → REPLACE CERTIFICATION ECU

NG

REPLACE HARNESS OR CONNECTOR (FUSES - ECU, ECU - BODY GROUND)

CA

5	CHECK FOR SHORT TO +B IN CAN MS BUS WIRE (CERTIFICATION ECU)



(a) Turn the power switch off.
(b) Disconnect the E58 certification ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

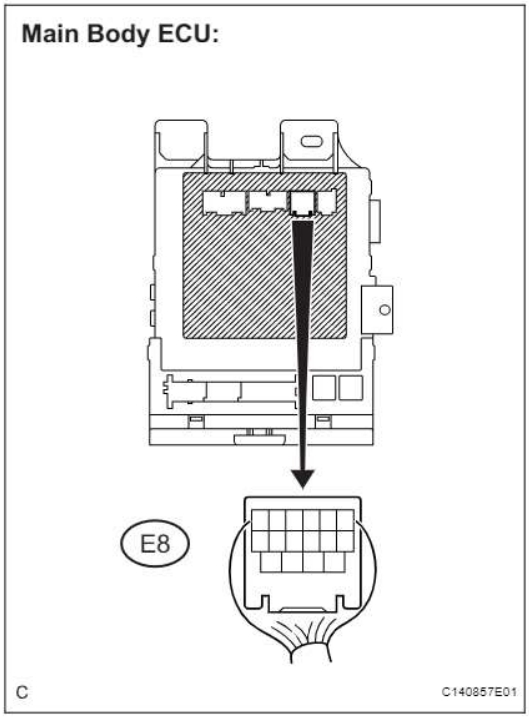
Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-1 (+B)	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-1 (+B)	Power switch off	6 kΩ or higher

OK → REPLACE CERTIFICATION ECU

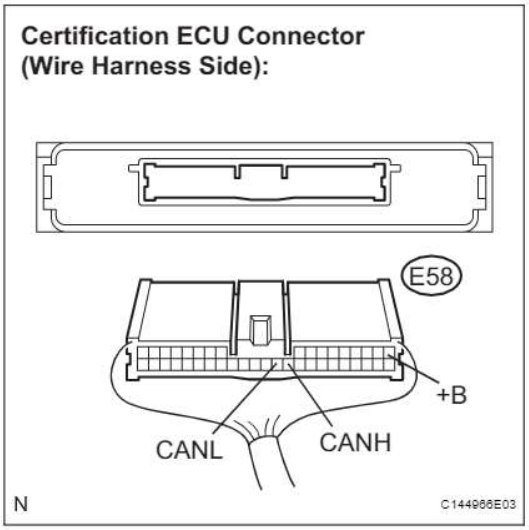
NG

6	CHECK FOR SHORT TO +B IN CAN MS BUS WIRE (CERTIFICATION ECU - MAIN BODY ECU)



(a) Turn the power switch off.
(b) Disconnect the E8 main body ECU connector.

CA



(c) Measure the resistance according to the value(s) in the table below.
HINT:
The resistance must be measured after the E58 certification ECU connector is disconnected.
Standard resistance

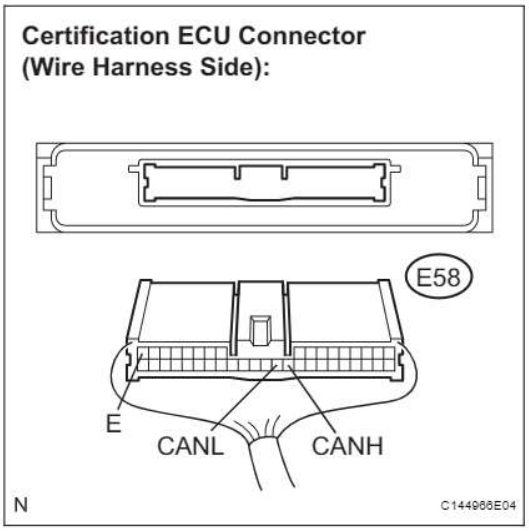
Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-1 (+B)	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-1 (+B)	Power switch off	6 kΩ or higher

OK → REPLACE MAIN BODY ECU

NG

REPLACE CAN MS BUS MAIN WIRE OR CONNECTOR

7 CHECK FOR SHORT TO GND IN CAN MS BUS WIRE (CERTIFICATION ECU)



(a) Turn the power switch off.
(b) Disconnect the E58 certification ECU connector.
(c) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-17 (E)	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-17 (E)	Power switch off	6 kΩ or higher

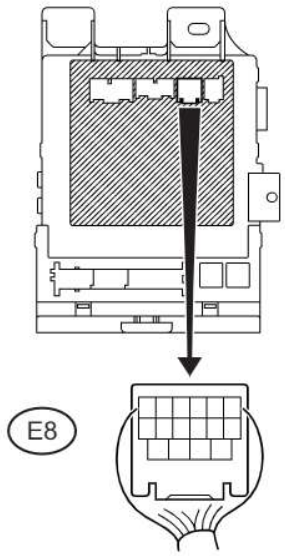
OK → REPLACE CERTIFICATION ECU

CA

NG

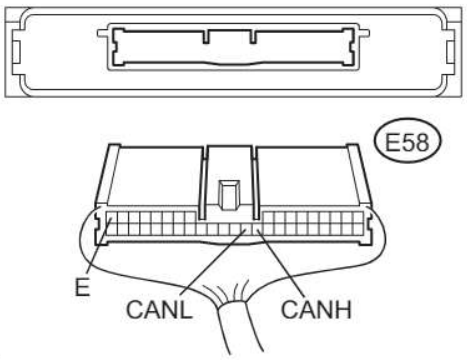
8	CHECK FOR SHORT TO GND IN CAN MS BUS WIRE

Main Body ECU:



(a) Turn the power switch off.
(b) Disconnect the E8 main body ECU connector.

Certification ECU Connector (Wire Harness Side):



(c) Measure the resistance according to the value(s) in the table below.
HINT:
The resistance must be measured after the E58 certification ECU connector is disconnected.

Standard resistance

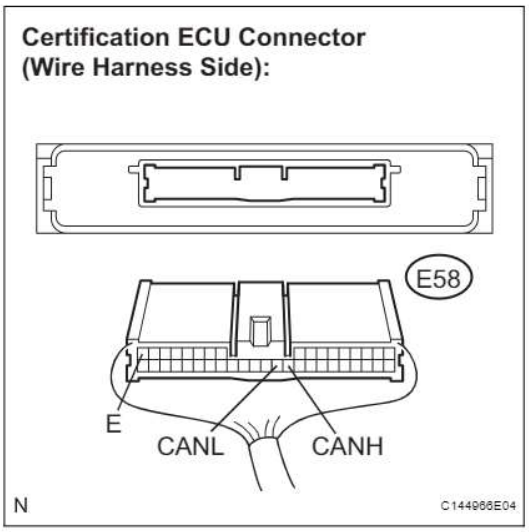
Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-17 (E)	Power switch off	6 kΩ or higher
E58-28 (CANL) - E58-17 (E)	Power switch off	6 kΩ or higher

OK → REPLACE MAIN BODY ECU

NG → REPLACE CAN MS BUS MAIN WIRE OR CONNECTOR

CA

9	CHECK CAN MS BUS MAIN WIRE OR CONNECTOR (CERTIFICATION ECU)



(a) Turn the power switch off.
(b) Disconnect the E58 certification ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

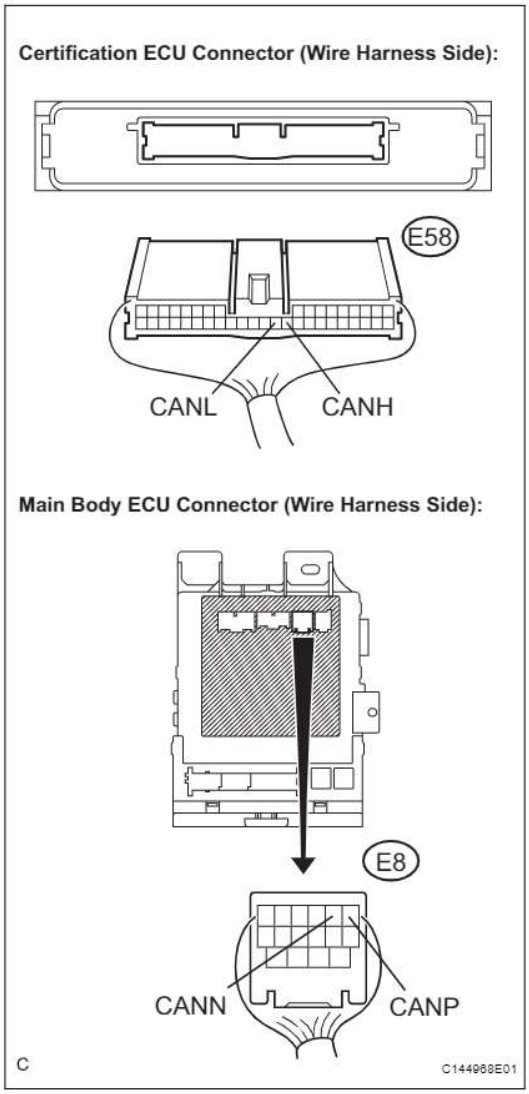
Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-28 (CANL)	Power switch off	108 to 132 Ω or higher

OK → REPLACE CERTIFICATION ECU

NG

CA

10	CHECK CAN MS BUS MAIN WIRE OR CONNECTOR (CERTIFICATION ECU - MAIN BODY ECU)



(a) Turn the power switch off.
(b) Disconnect the E8 main body ECU connector.
(c) Measure the resistance according to the value(s) in the table below.
HINT:
The resistance must be measured after the E58 certification ECU connector is disconnected.

Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E8-16 (CANP)	Always	Below 1 Ω
E58-28 (CANL) - E8-15 (CANN)	Always	Below 1 Ω

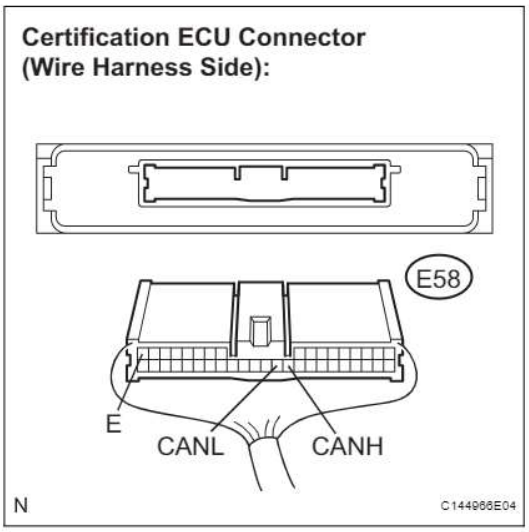
OK → REPLACE MAIN BODY ECU

NG

REPLACE CAN MS BUS MAIN WIRE OR CONNECTOR

CA

11	CHECK FOR SHORT IN CAN MS BUS WIRES (CERTIFICATION ECU)



(a) Turn the power switch off.
(b) Disconnect the E58 certification ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

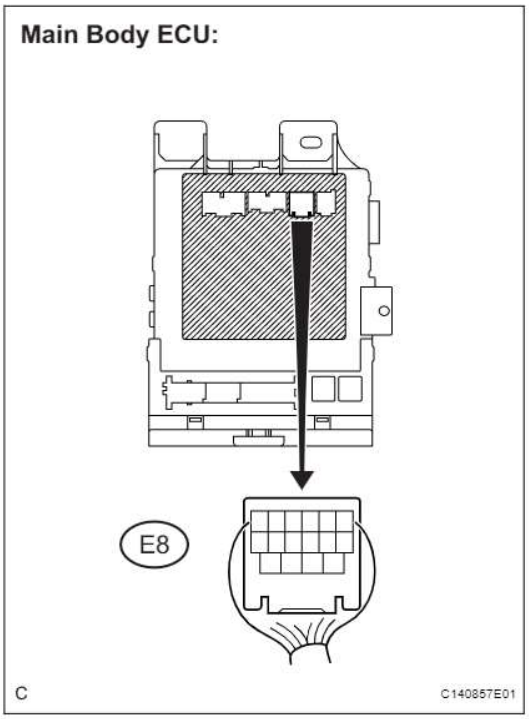
Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-28 (CANL)	Power switch off	108 to 132 Ω

OK → REPLACE CERTIFICATION ECU

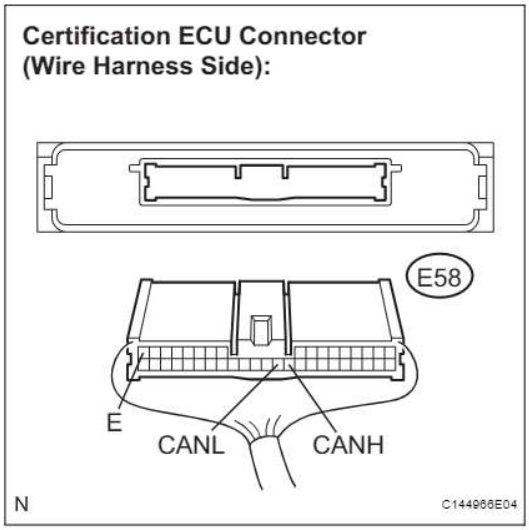
NG

12	CHECK FOR SHORT IN CAN MS BUS WIRES



(a) Turn the power switch off.
(b) Disconnect the E8 main body ECU connector.

CA



(c) Measure the resistance according to the value(s) in the table below.
HINT:
The resistance must be measured after the E58 certification ECU connector is disconnected.
Standard resistance

Tester Connection	Condition	Specified Condition
E58-27 (CANH) - E58-28 (CANL)	Power switch off	1 MΩ or higher

OK → REPLACE MAIN BODY ECU

NG

REPLACE CAN MS BUS MAIN WIRE OR CONNECTOR

CA

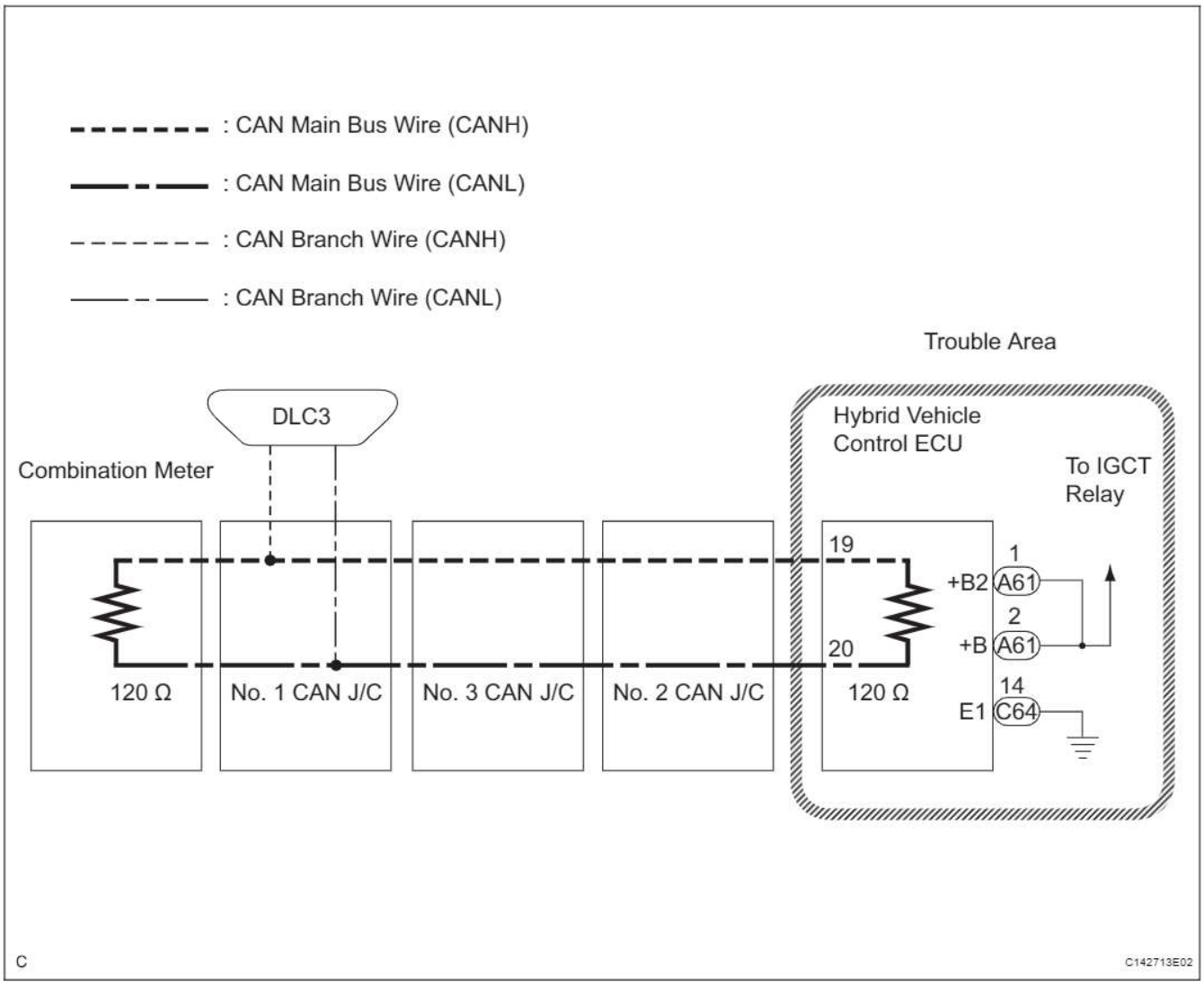
Hybrid Vehicle Control ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
HV Control ECU Communication Stop Mode	• "HYBRID CONTROL" is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "Hybrid Vehicle Control Communication Stop Mode" in the "DTC COMBINATION TABLE"	• Power source circuit of the HV control ECU • HV control ECU main bus wire or connector • HV control ECU

HINT:
"HYBRID CONTROL" refers to the circuit that includes the hybrid vehicle control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

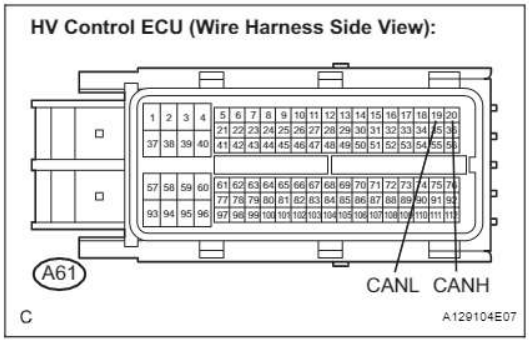
NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (HV CONTROL ECU MAIN WIRE)



(a) Disconnect HV control ECU connector A61.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A61-19 (CANH) - A61-20 (CANL)	Power switch off	108 to 132 Ω

NG → **REPLACE HV CONTROL ECU MAIN WIRE OR CONNECTOR**

OK

2 CHECK ECM POWER SOURCE CIRCUIT

(a) Check the ECM power source circuit (See page ES-356).

NG → **REPAIR OR REPLACE ECM POWER SOURCE CIRCUIT**

OK

REPLACE HV CONTROL ECU

CA

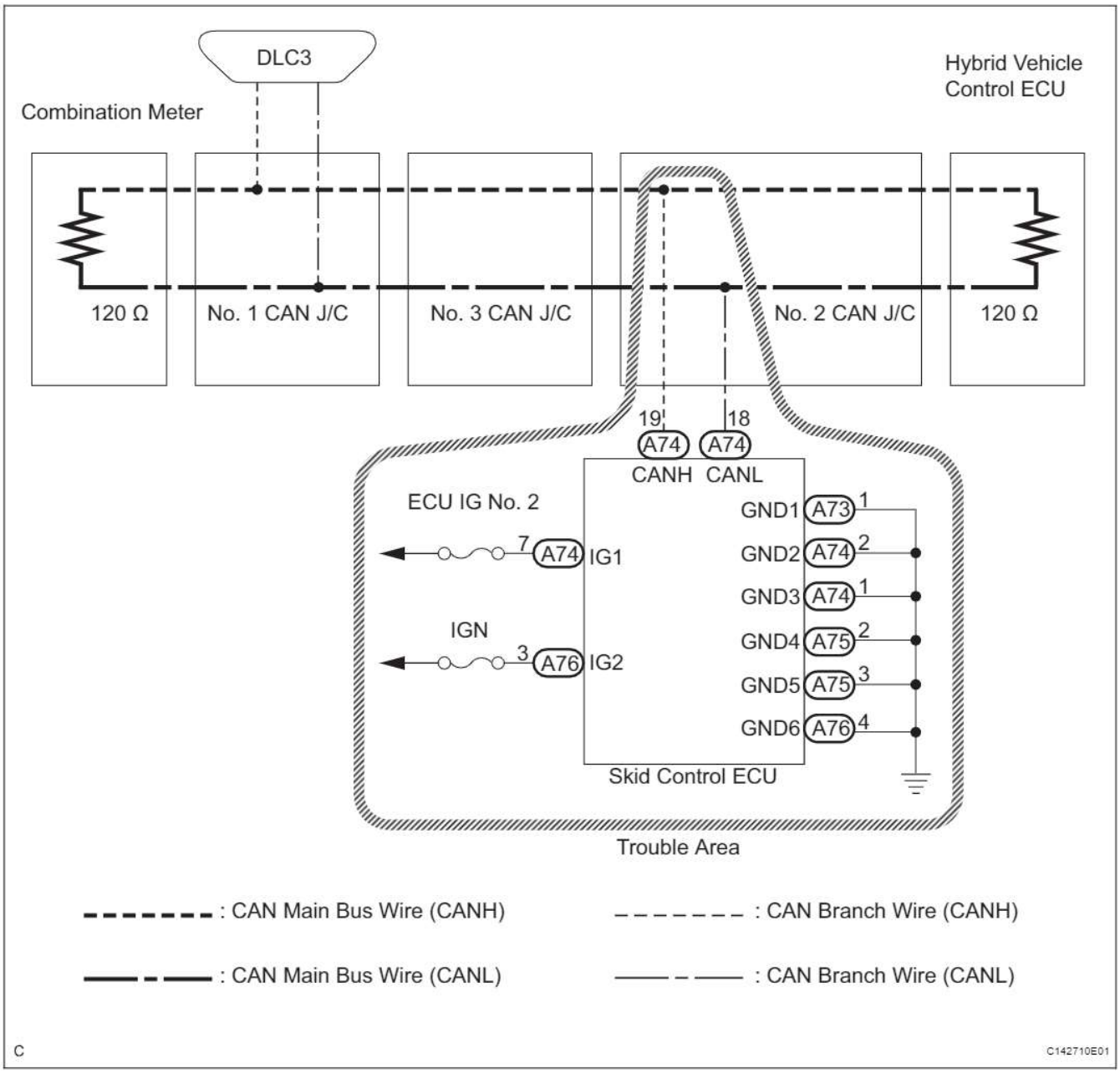
Skid Control ECU Communication Stop Mode

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 COMBINATION TABLE"	• Power source circuit of the skid control ECU • Skid control ECU branch wire or connector • Skid control ECU

HINT:
"ABS/VSC/TRAC" refers to the circuit that includes the skid control ECU.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

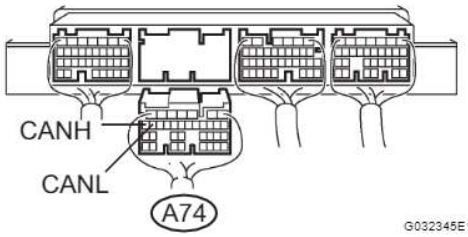
- **Turn the power switch off before measuring the resistances of the CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:

Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (SKID CONTROL ECU BRANCH WIRE)

Skid Control ECU Wire Harness View:



(a) Turn the ignition switch off.
(b) Disconnect the skid control ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

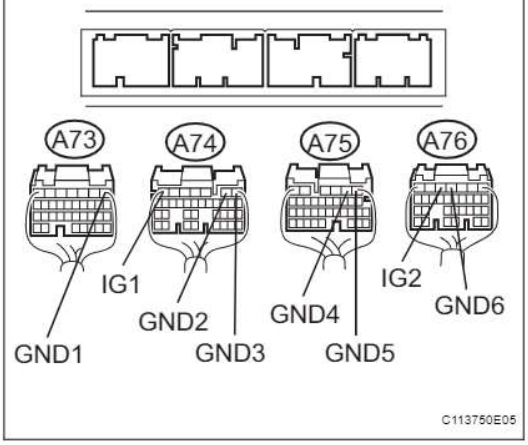
Tester Connection	Condition	Specified Value
A74-19 (CANH) - A74-18 (CANL)	Disconnect the negative battery cable	54 to 69 Ω

NG → **REPLACE SKID CONTROL ECU BRANCH WIRE OR CONNECTOR (CAN-H, CAN-L)**

OK

2 CHECK WIRE HARNESS (IG1, GND1, GND2)

Skid Control ECU Wire Harness View:



(a) Disconnect skid control ECU connectors A73, A75, and A76.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A73-1 (GND1) - Body ground	Always	Below 1 Ω
A74-2 (GND2) - Body ground	Always	Below 1 Ω
A74-1 (GND3) - Body ground	Always	Below 1 Ω
A75-2 (GND4) - Body ground	Always	Below 1 Ω
A75-1 (GND5) - Body ground	Always	Below 1 Ω
A76-4 (GND6) - Body ground	Always	Below 1 Ω

HINT:

Measure the resistance with skid control ECU connector A74 disconnected.

CA

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

Standard voltage

Tester Connection	Condition	Specified Value
A74-7 (IG1) - Body ground	Power switch on (IG)	10 to 14 V
A76-5 (IG2) - Body ground	Power switch on (IG)	10 to 14 V

HINT:
Measure the voltage with skid control ECU connector A74 disconnected.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE BRAKE ACTUATOR ASSEMBLY

CA

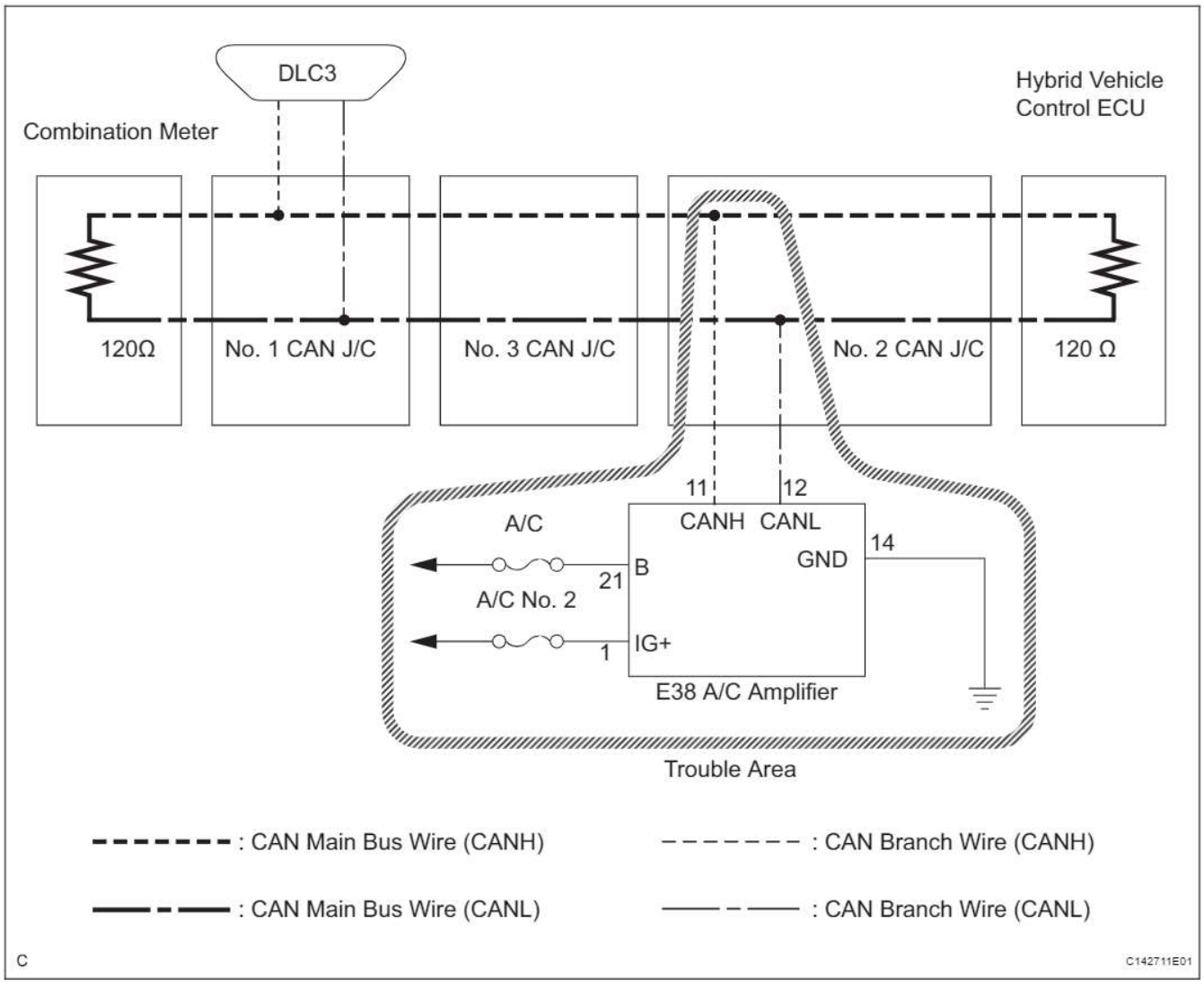
Air Conditioning Amplifier Communication Stop Mode

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 COMBINATION TABLE"	• Power source circuit of the air conditioning amplifier • Air conditioning amplifier branch wire or connector • Air conditioning amplifier

HINT:
"A/C" refers to the circuit that includes the air conditioning amplifier.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

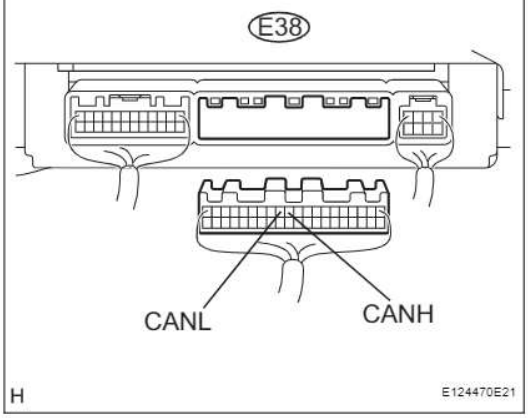
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1	CHECK CAN BUS WIRE FOR DISCONNECTION (AIR CONDITIONING AMPLIFIER BRANCH WIRE)

Air Conditioning Amplifier (Wire Harness Side):



(a) Turn the power switch off.
(b) Disconnect the air conditioning amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

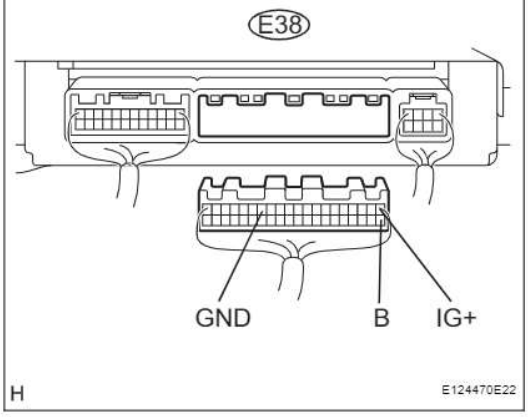
Tester Connection	Condition	Specified Condition
E38-11 (CANH) - E38-12 (CANL)	Power switch off	54 to 69 Ω

NG → **REPLACE CAN BRANCH WIRE CONNECTED TO AIR CONDITIONING AMPLIFIER (CAN-H, CAN-L)**

OK

2	CHECK HARNESS AND CONNECTOR (IG+, B, GND)

Air Conditioning Amplifier (Wire Harness Side):



(a) Disconnect the air conditioning amplifier connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
E38-14 (GND) - Body Ground	Always	Below 1 Ω

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

Standard voltage

Tester Connection	Condition	Specified Condition
E38-1 (IG+) - Body Ground	Power switch on (IG)	10 to 14 V
E38-21 (B)- Body Ground	Always	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

CA

OK

REPLACE AIR CONDITIONING AMPLIFIER

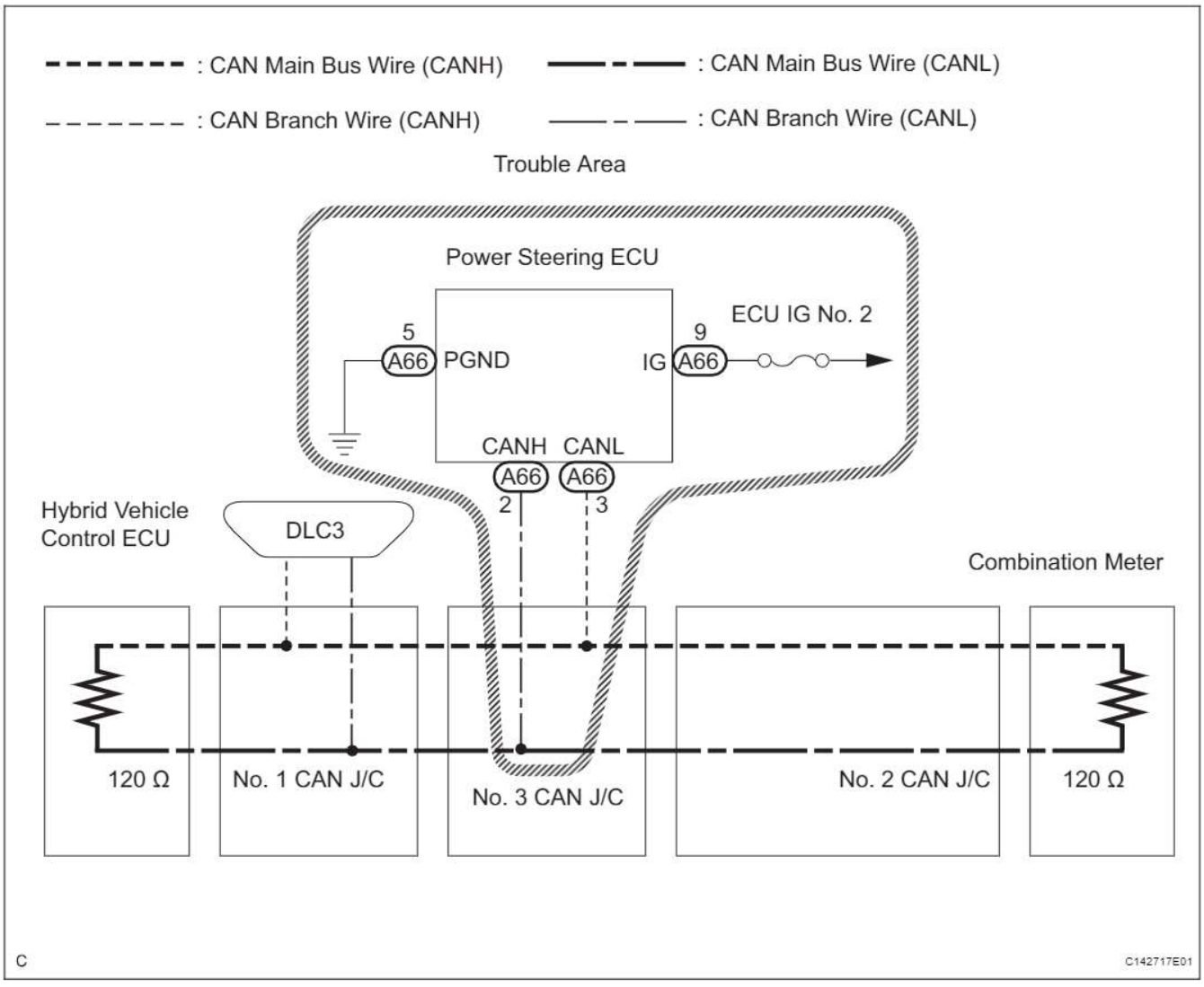
Power Steering ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Power Steering ECU Communication Stop Mode	"EPS" is not displayed on the "BUS CHECK" screen of the intelligent tester	• Power source circuit of the power steering ECU • Power steering ECU branch wire or connector • Power steering ECU

HINT:
"EPS" refers to the circuit that includes the power steering ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

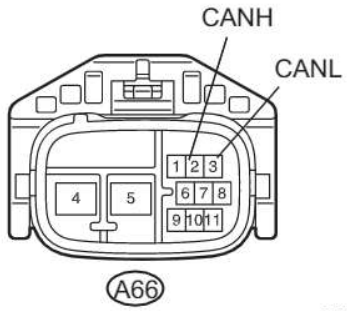
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK OPEN IN CAN BUS WIRE (POWER STEERING ECU BRANCH WIRE)

Power Steering ECU Connector Front View:



(a) Turn the power switch off.
(b) Disconnect power steering ECU connector A66.
(c) Measure the resistance according to the value(s) in the table below.
Standard resistance

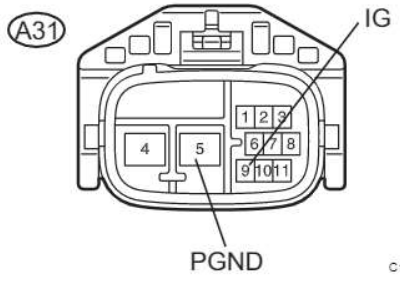
Tester Connection	Condition	Specified Value
A66-2 (CANH) - A66-3 (CANL)	Power switch off	54 to 69 Ω

NG → **REPAIR OR REPLACE POWER STEERING ECU BRANCH WIRE OR CONNECTOR (CANH, CANL)**

OK

2 CHECK WIRE HARNESS (IG, PGND)

Power Steering ECU Connector Front View:



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

Tester Connection	Condition	Specified Value
A66-5 (PGND) - 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
A66-9 (IG) - Body ground	Power switch on (IG)	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE POWER STEERING ECU

CA

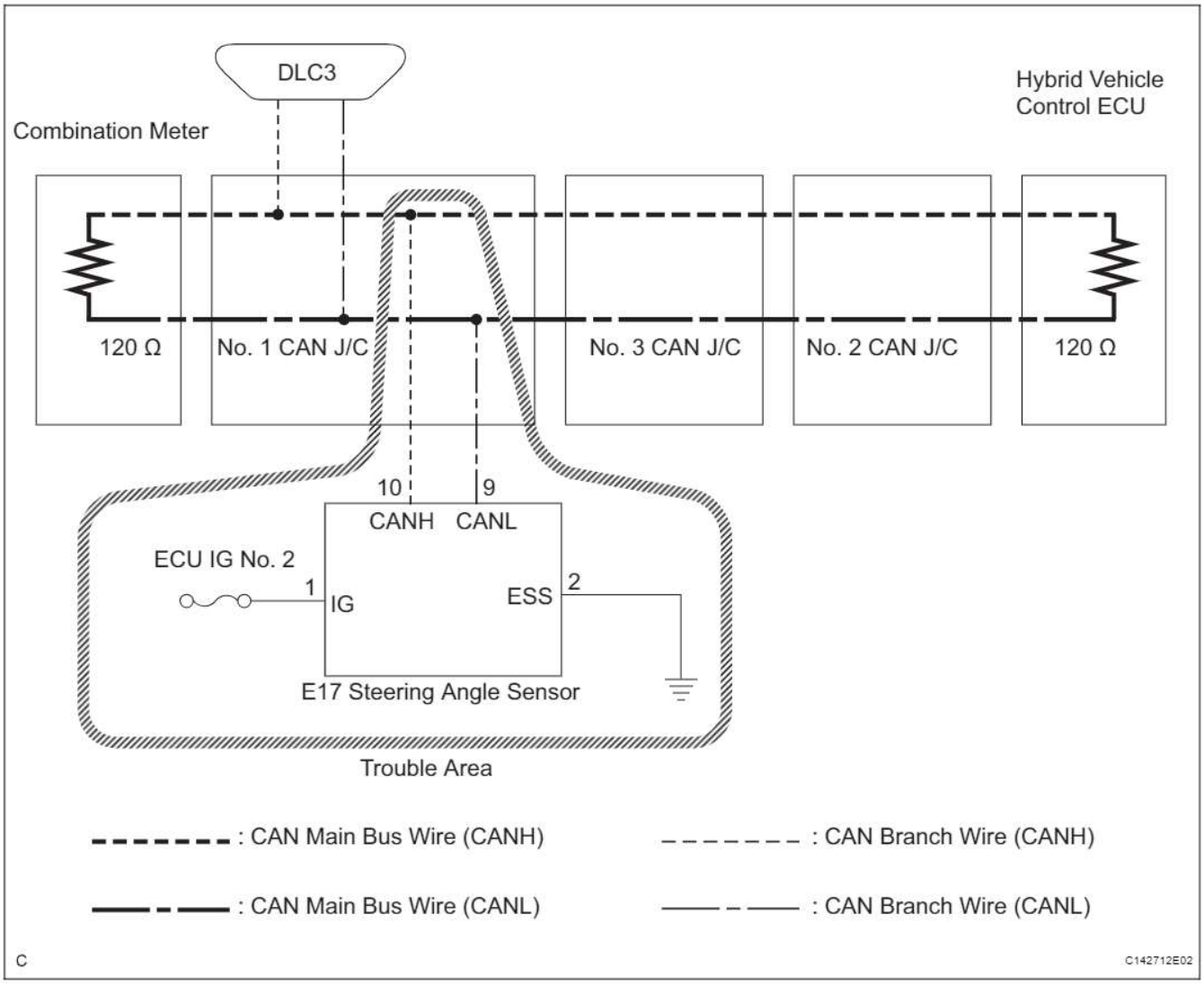
Steering Angle Sensor Communication Stop Mode

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 • Applies to "Steering Angle Sensor Communication Stop Mode" in the "DTC COMBINATION TABLE"	• Power source circuit of the steering angle sensor • Steering angle sensor branch wire or connector • Steering angle sensor

HINT:
"STEERING SENSOR" refers to the circuit that includes the steering angle sensor.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

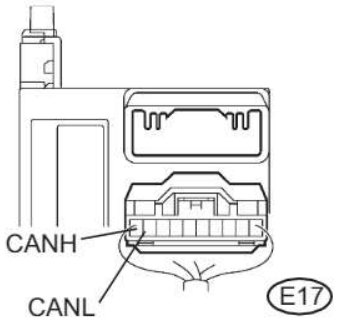
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**

- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (STEERING ANGLE SENSOR BRANCH WIRE)

Steering Angle Sensor Connector (Wire Harness View):



(a) Turn the power switch off.
(b) Disconnect the steering angle sensor connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

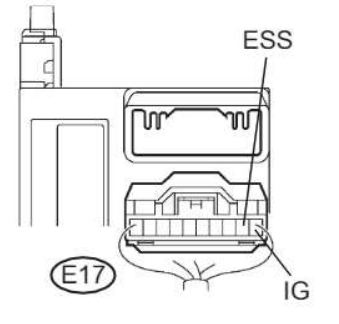
Tester Connection	Condition	Specified Value
E17-10 (CANH) - E17-9 (CANL)	Power switch off	54 to 69 Ω

NG → **REPLACE STEERING ANGLE SENSOR BRANCH WIRE OR CONNECTOR**

OK

2 CHECK WIRE HARNESS (POWER SOURCE CIRCUIT)

Steering Angle Sensor Connector (Wire Harness View):



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

Standard resistance

Tester Connection	Condition	Specified Value
E17-2 (ESS) - 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
E17-1 (IG) - Body ground	Power switch on (IG)	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE STEERING ANGLE SENSOR

CA

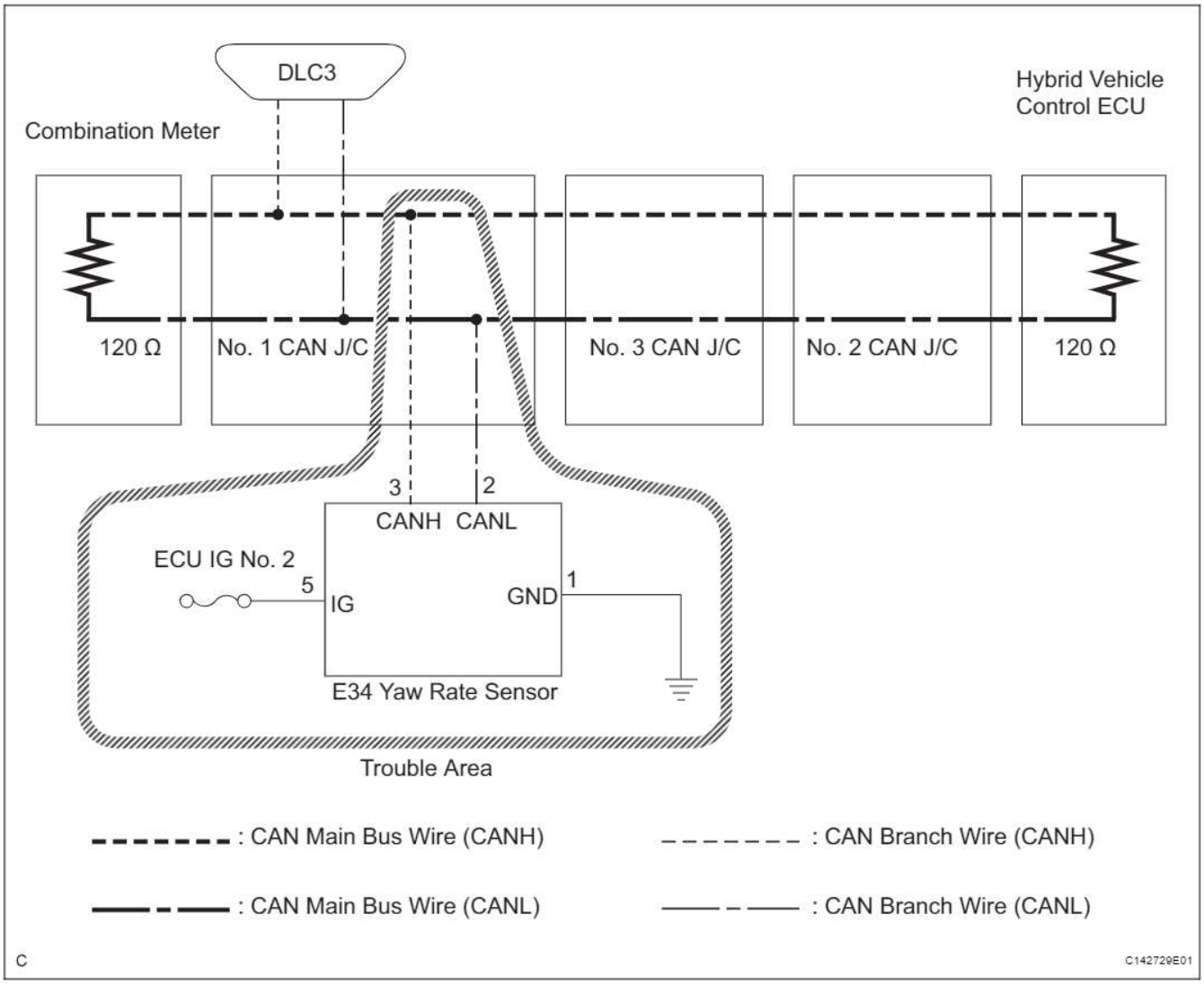
Yaw Rate Sensor Communication Stop Mode

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 • Applies to "Yaw Rate Sensor Communication Stop Mode" in the "DTC COMBINATION TABLE"	• Power source circuit of the yaw rate sensor • Yaw rate sensor branch wire or connector • Yaw rate sensor

HINT:
"YAW/DECELERAT" refers to the circuit that includes the yaw rate sensor.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

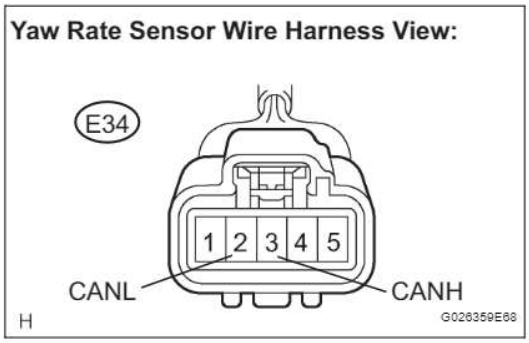
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**

- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (YAW RATE SENSOR BRANCH WIRE)

Yaw Rate Sensor Wire Harness View:



(a) Turn the power switch off.
(b) Disconnect the yaw rate sensor connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

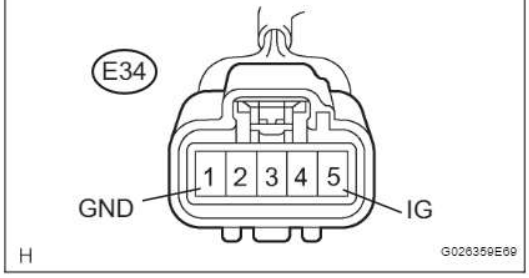
Tester Connection	Condition	Specified Value
E34-3 (CANH) - E34-2 (CANL)	Power switch off	54 to 69 Ω

NG → **REPLACE YAW RATE SENSOR BRANCH WIRE OR CONNECTOR**

OK

2 CHECK WIRE HARNESS (POWER SOURCE CIRCUIT)

Yaw Rate Sensor Wire Harness View:



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

Standard resistance

Tester Connection	Condition	Specified Value
E34-1 (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
E34-5 (IG) - Body ground	Power switch on (IG)	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE YAW RATE AND ACCELERATION SENSOR

CA

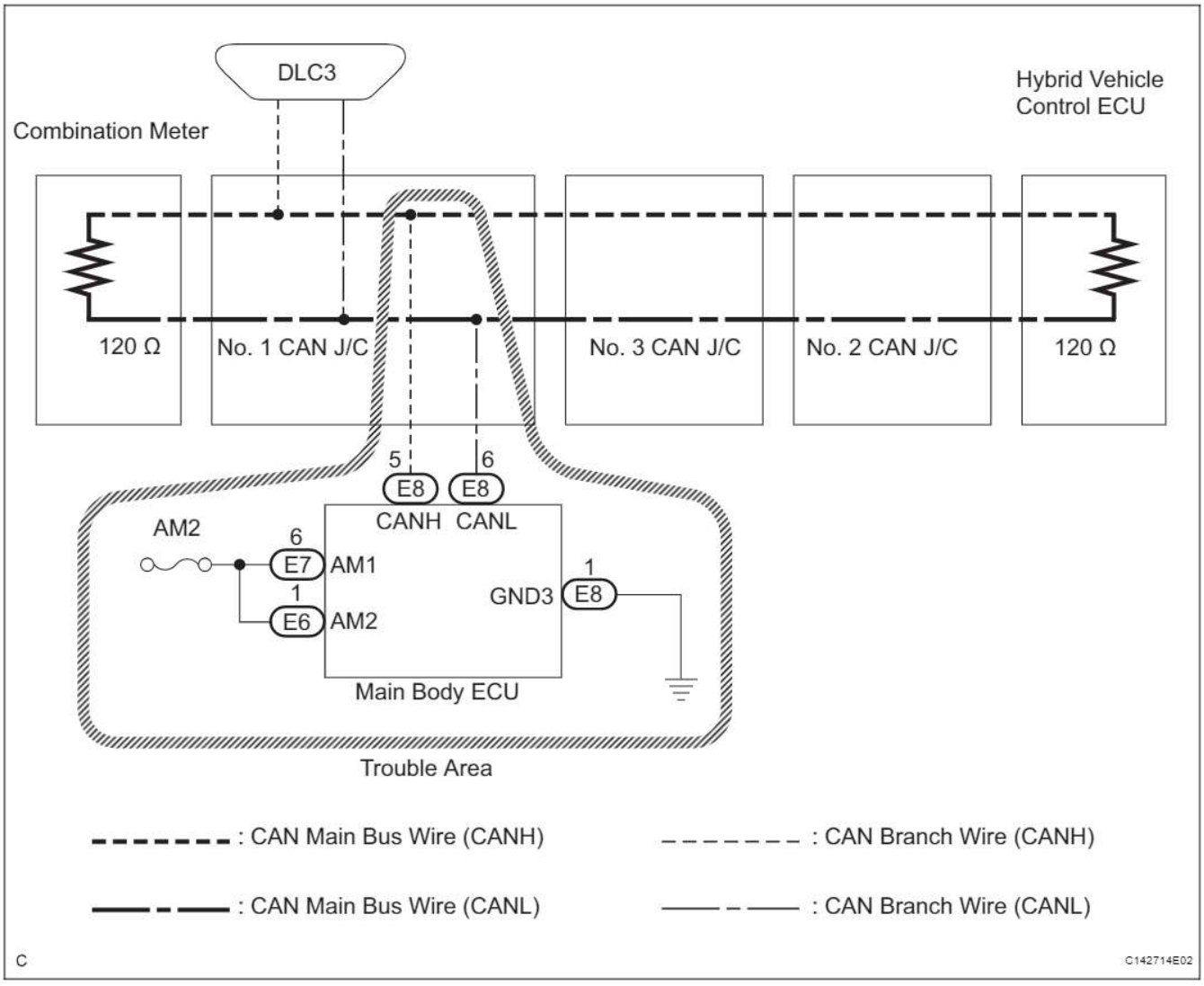
Main Body ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Main Body ECU Communication Stop Mode	• "MAIN BODY" is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "Main Body ECU Communication Stop Mode" in the "DTC COMBINATION TABLE"	• Power source circuit of the main body ECU • Main body ECU branch wire or connector • Main body ECU

HINT:
"MAIN BODY" refers to the circuit that includes the main body ECU.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

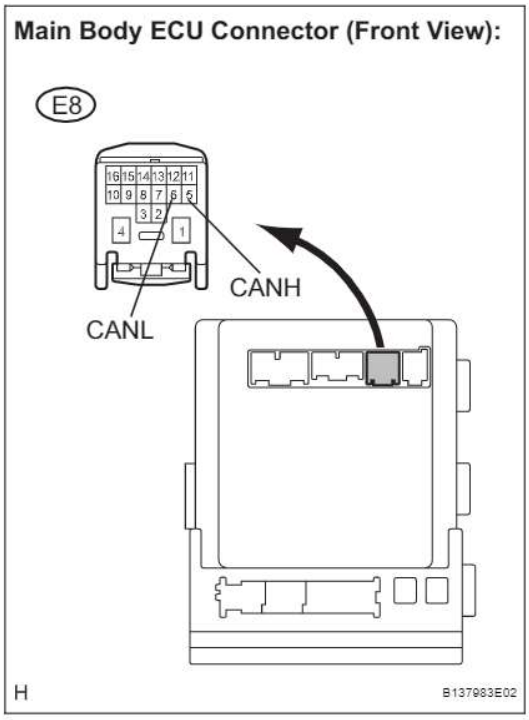
NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**

- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1	CHECK FOR OPEN IN CAN BUS WIRE (MAIN BODY ECU BRANCH WIRE)



(a) Turn the power switch off.
(b) Disconnect the main body ECU connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

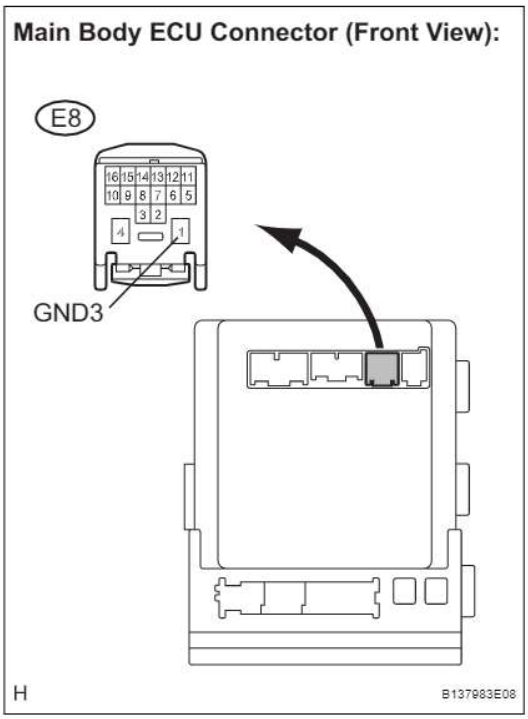
Tester Connection	Condition	Specified Condition
E8-5 (CANH) - E8-6 (CANL)	Power switch off	54 to 69 Ω

NG → **REPLACE CAN BRANCH WIRE CONNECTED TO MAIN BODY ECU**

OK

CA

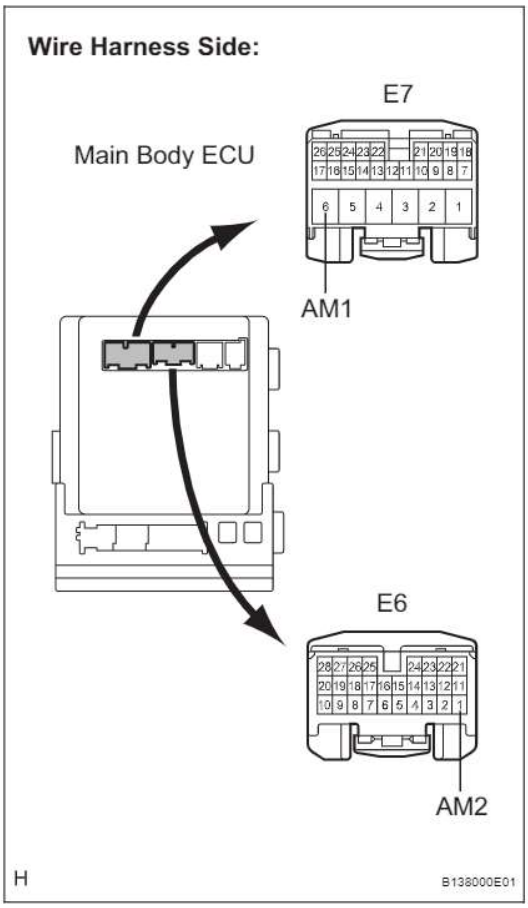
2	CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)



(a) Disconnect the E8 main body ECU connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
E8-1 (GND3) - Body ground	Always	Below 1 Ω



(c) Disconnect the E6 and E7 main body ECU connectors.
(d) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
E7-6 (AM1) - Body ground	Always	10 to 14 V
E6-1 (AM2) - Body ground	Always	10 to 14 V

(e) Reconnect the main body ECU connectors.

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

CA

OK

REPLACE MAIN BODY ECU

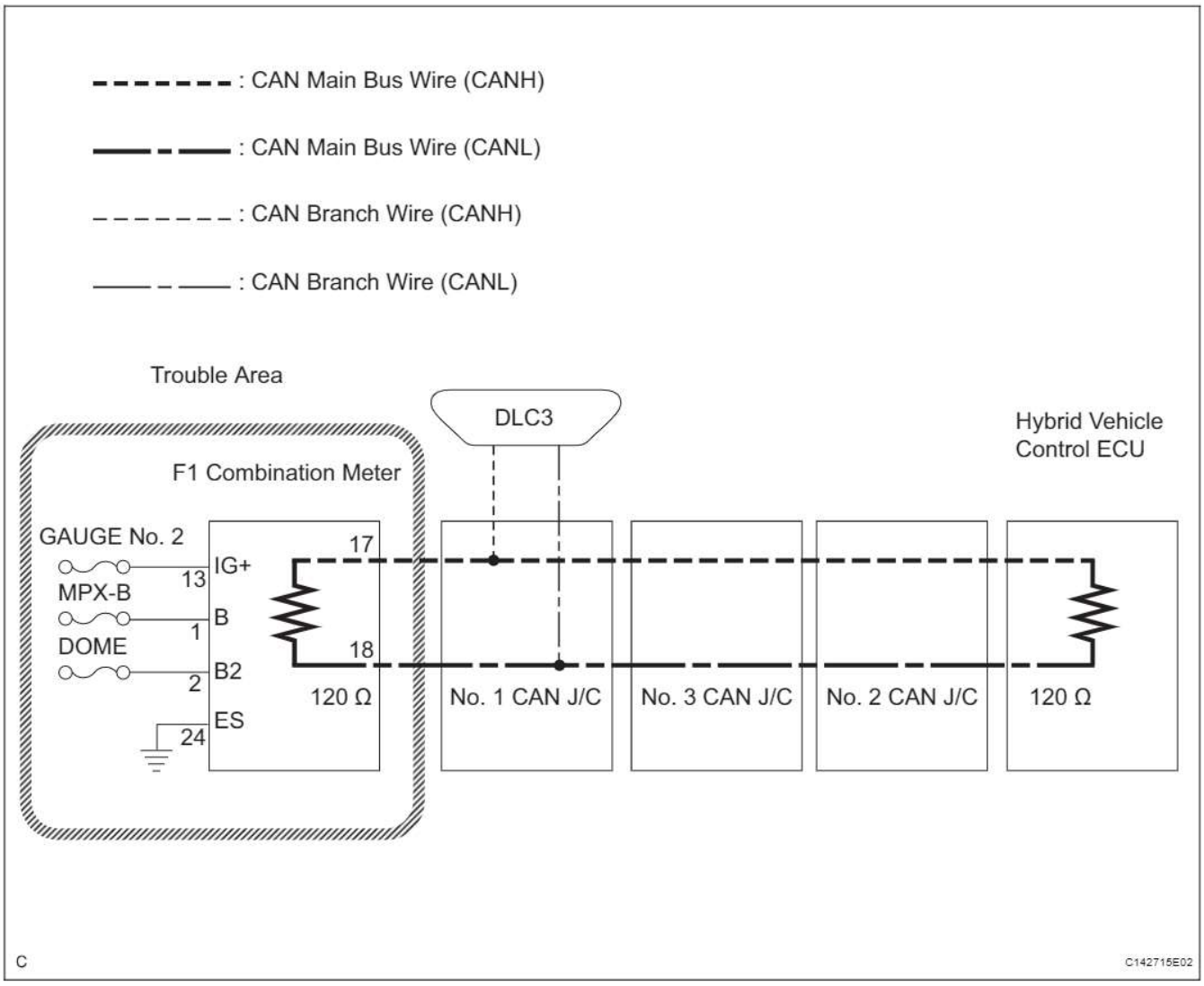
Combination Meter ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Combination Meter ECU Communication Stop Mode	"METER" is not displayed on the "BUS CHECK" screen of the intelligent tester	• Power source circuit of the combination meter • Combination meter main bus wire or connector • Combination meter

HINT:
"METER" refers to the circuit that includes the combination meter.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

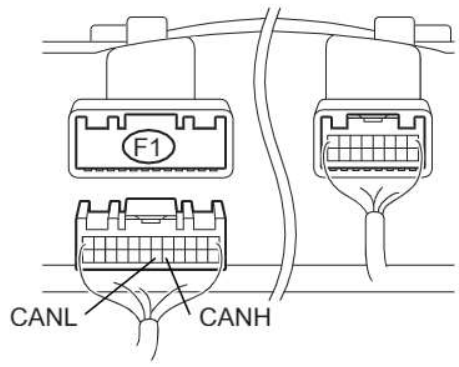
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (COMBINATION METER MAIN BUS WIRE)

Combination Meter Connector (Wire Harness Side View):



(a) Turn the power switch off.
(b) Disconnect the combination meter connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

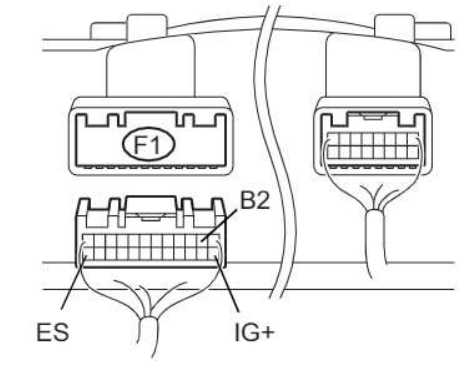
Tester Connection	Condition	Specified Condition
F1-17 (CANH) - F1-18 (CANL)	Power switch off	108 to 132 Ω

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (COMBINATION METER MAIN BUS WIRE)**

OK

2 CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

Combination Meter Connector (Wire Harness Side View):



(a) Disconnect the combination meter connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
F1-24 (ES) - Body ground	Always	Below 1 Ω

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

Standard voltage

Tester Connection	Condition	Specified Condition
F1-13 (IG+) - Body ground	Power switch on (IG)	10 to 14 V
F1-2 (B2) - Body ground	Always	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE COMBINATION METER

CA

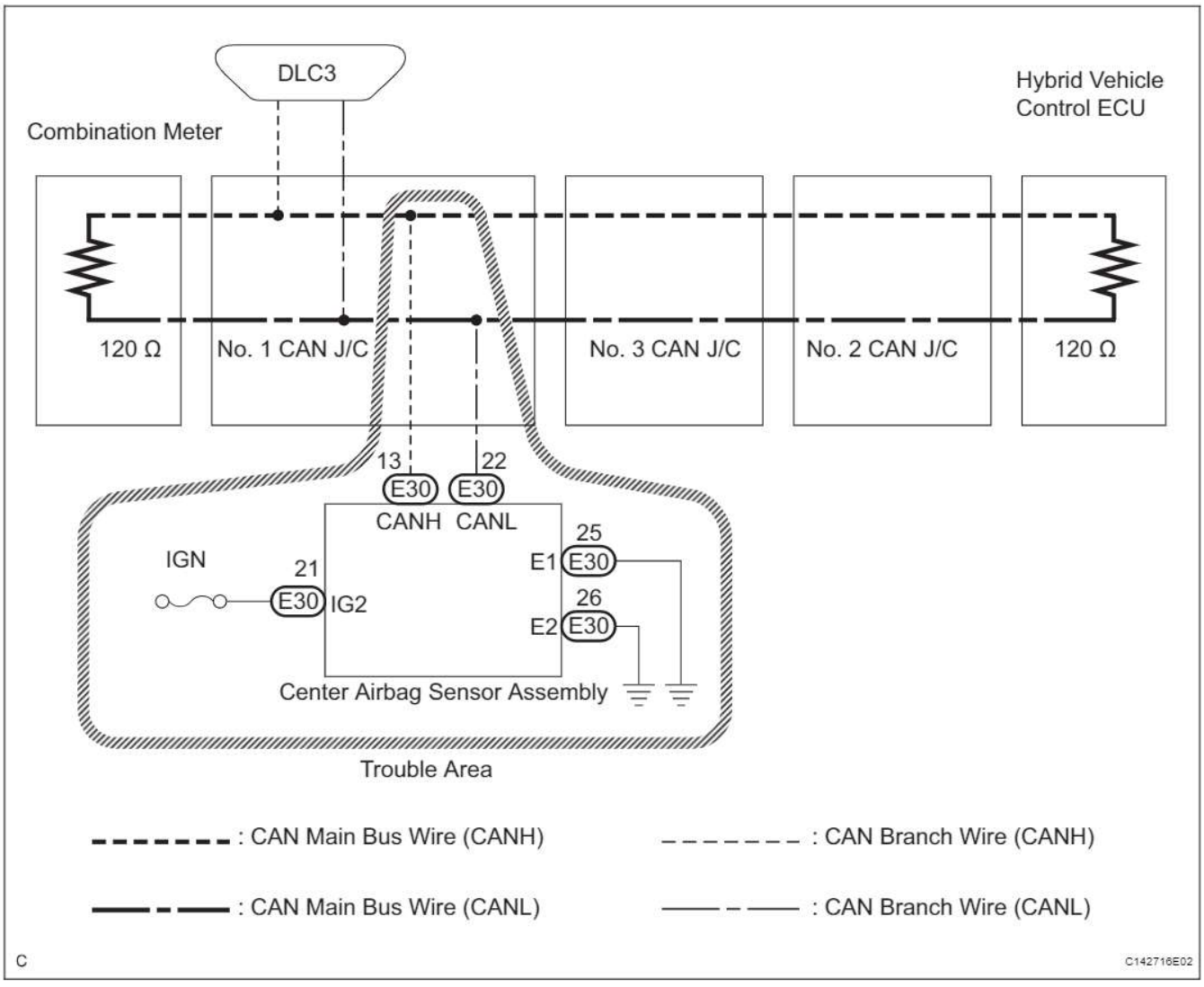
Center Airbag Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Center Airbag Sensor Communication Stop Mode	• "SRS AIRBAG" is not displayed on the "BUS CHECK" screen of the intelligent tester • Applies to "Center Airbag Sensor Communication Stop Mode" in the "DTC COMBINATION TABLE"	• Power source circuit of the center airbag sensor • Center airbag sensor branch wire or connector • Center airbag sensor

HINT:
"SRS AIRBAG" refers to the circuit that includes the center airbag sensor.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

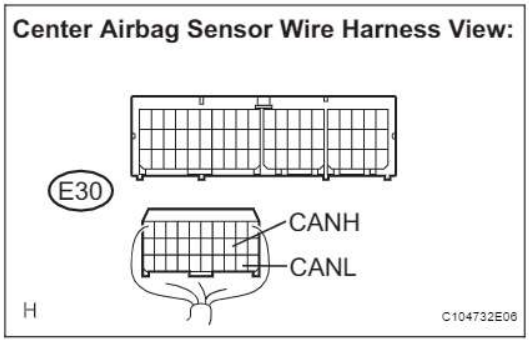
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK FOR OPEN IN CAN BUS WIRE (CENTER AIRBAG SENSOR BRANCH WIRE)

Center Airbag Sensor Wire Harness View:



(a) Turn the power switch off.
(b) Disconnect the center airbag sensor connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

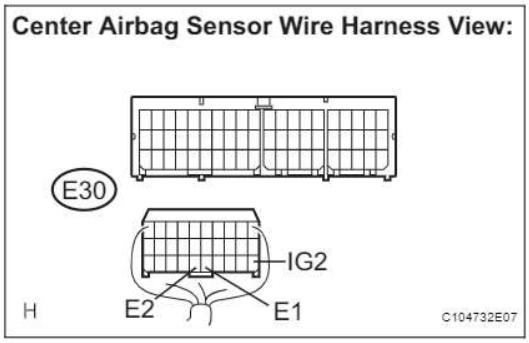
Tester Connection	Condition	Specified Value
E30-13 (CANH) - E30-22 (CANL)	Power switch off	54 to 69 Ω

NG → **REPLACE CENTER AIRBAG SENSOR BRANCH WIRE OR CONNECTOR**

OK

2 CHECK WIRE HARNESS (POWER SOURCE CIRCUIT)

Center Airbag Sensor Wire Harness View:



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

Standard resistance

Tester Connection	Condition	Specified Value
E30-25 (E1) - Body ground	Always	Below 1 Ω
E30-26 (E2) - 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
E30-21 (IG2) - Body ground	Power switch on (IG)	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE CENTER AIRBAG SENSOR

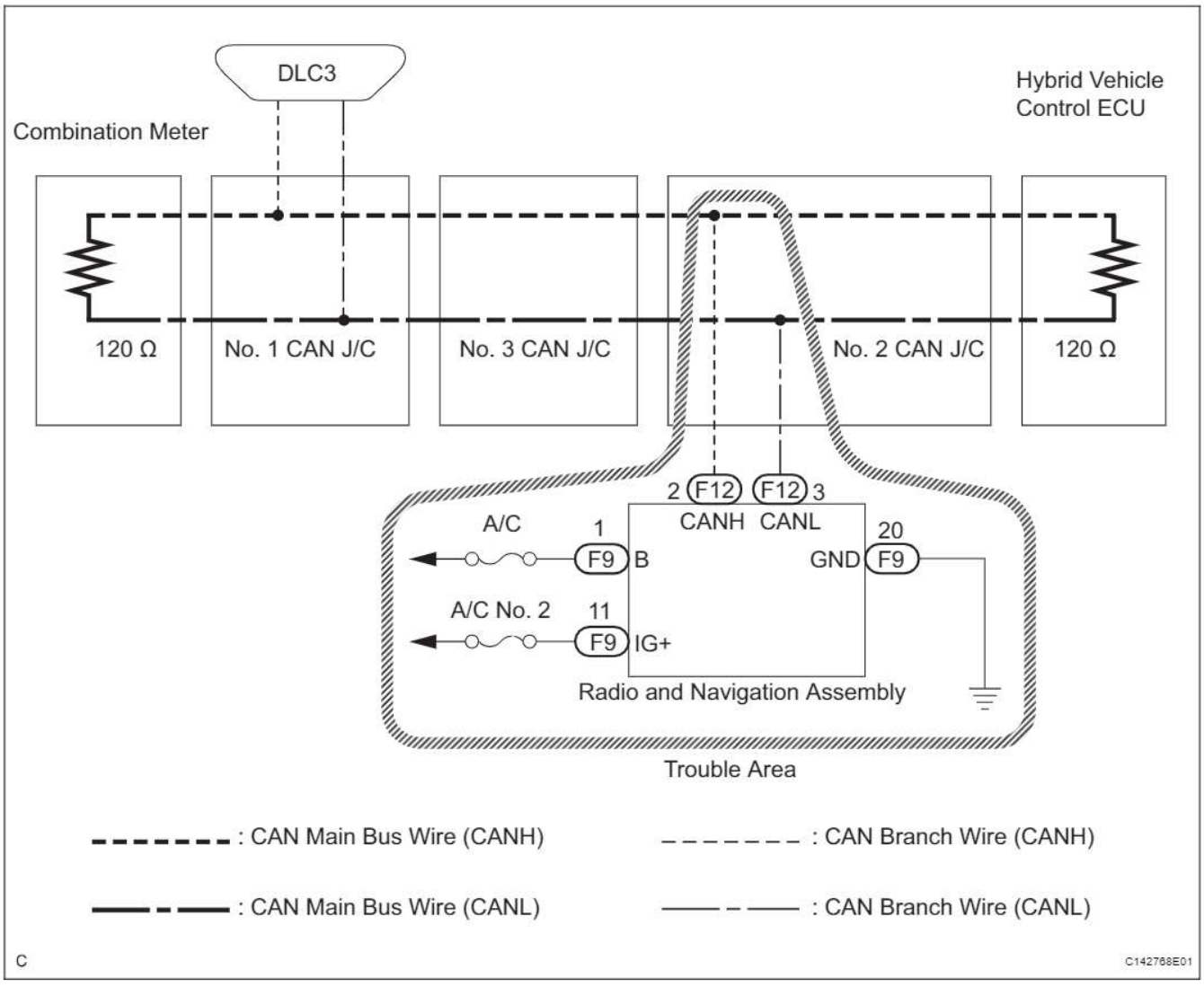
Radio and Navigation Assembly Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Radio and Navigation Assembly Communication Stop Mode	"AVN" is not displayed on the "BUS CHECK" screen of the intelligent tester	• Power source circuit of the radio and navigation assembly • Radio and navigation assembly branch wire or connector • Radio and navigation assembly

HINT:
"AVN" refers to the circuit that includes the radio and navigation assembly.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**

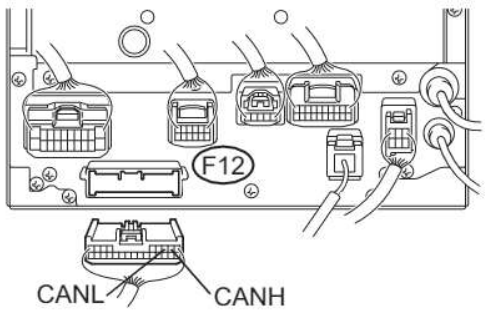
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK OPEN IN CAN BUS WIRE (RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE)

Wire Harness View:

Radio and Navigation Assembly



(a) Turn the power switch off.
(b) Disconnect the radio and navigation assembly connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
F12-2 (CANH) - F12-3 (CANL)	Power switch off	54 to 69 Ω

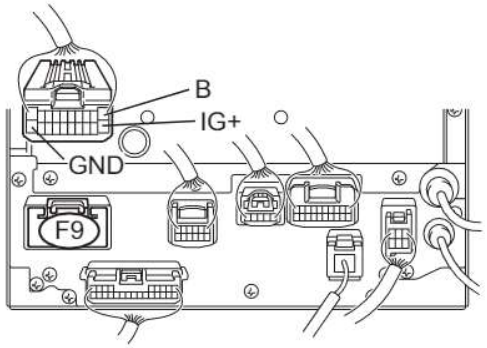
NG → **REPLACE RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE OR CONNECTOR**

OK

2 CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

Wire Harness View:

Radio and Navigation Assembly



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

Standard resistance

Tester Connection	Condition	Specified Value
F9-20 (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
F9-1 (B) - Body Ground	Always	10 to 14 V
F9-11 (IG+) - Body Ground	Power switch on (ACC)	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE RADIO AND NAVIGATION ASSEMBLY

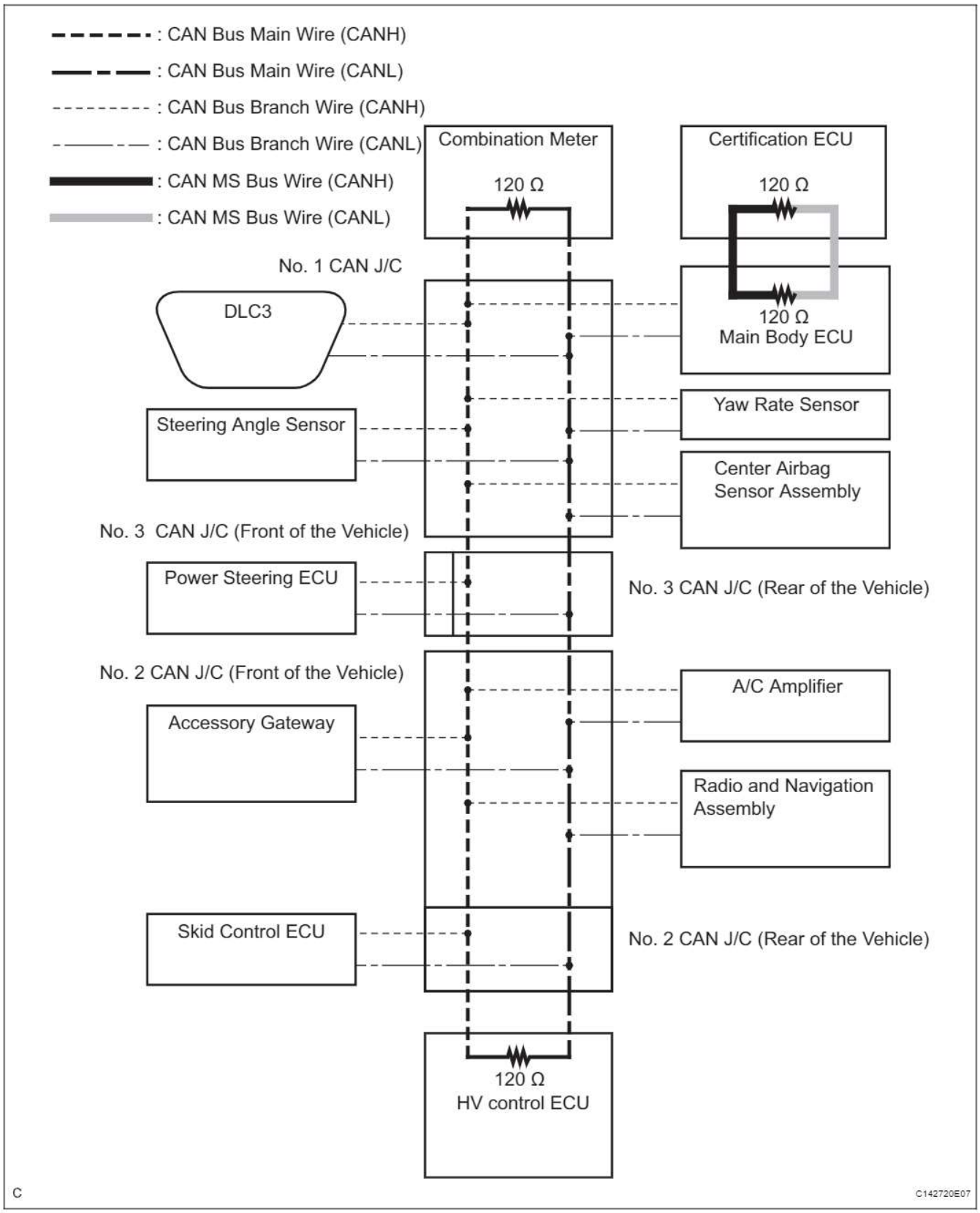
CA

CAN Bus Line

DESCRIPTION

When any DTC of the CAN communication system is output, first measure the resistance between the terminals of the DLC3 to confirm the trouble area.

WIRING DIAGRAM



CA

INSPECTION PROCEDURE

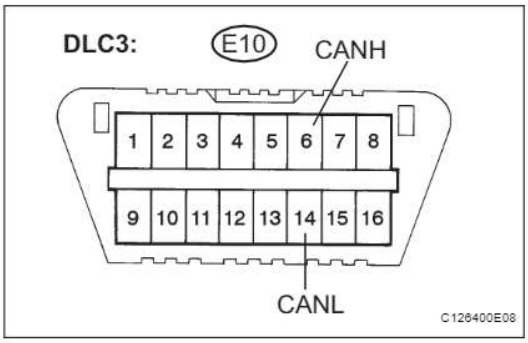
NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:

Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK CAN BUS WIRE (MAIN BUS WIRE FOR DISCONNECTION, BUS WIRES FOR SHORT CIRCUIT)



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

Standard resistance

Tester Connection	Condition	Specified Value	Result
E10-6 (CANH) - E10-14 (CANL)	Power switch off	54 to 69 Ω	OK

Result

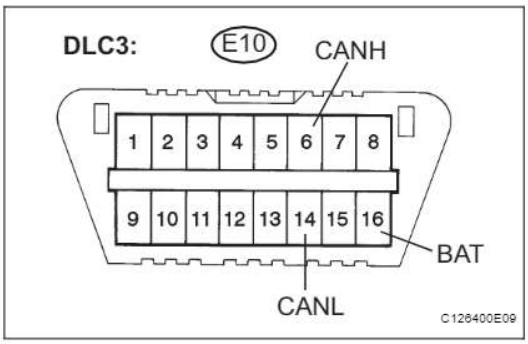
Result	Proceed to
OK	A
69 Ω or higher	B
Below 54 Ω	C

B → **OPEN IN CAN BUS MAIN WIRE (See page CA-68)**

C → **SHORT IN CAN BUS WIRES (See page CA-74)**

A

2 CHECK CAN BUS WIRE (SHORT TO B+ IN CAN BUS WIRE)



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

Standard resistance

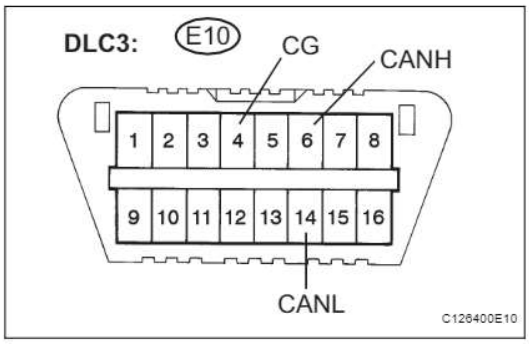
Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

NG → **SHORT TO B+ IN CAN BUS WIRE (See page CA-94)**

OK

CA

3	CHECK CAN BUS WIRE (SHORT TO GND IN CAN BUS WIRE)



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-4 (CG) - E10-6 (CANH)	Power switch off	200 Ω or higher
E10-4 (CG) - E10-14 (CANL)	Power switch off	200 Ω or higher

NG → SHORT TO GND IN CAN BUS WIRE (See page CA-114)

OK

GO TO "HOW TO PROCEED WITH TROUBLESHOOTING" (See page CA-7)

CA

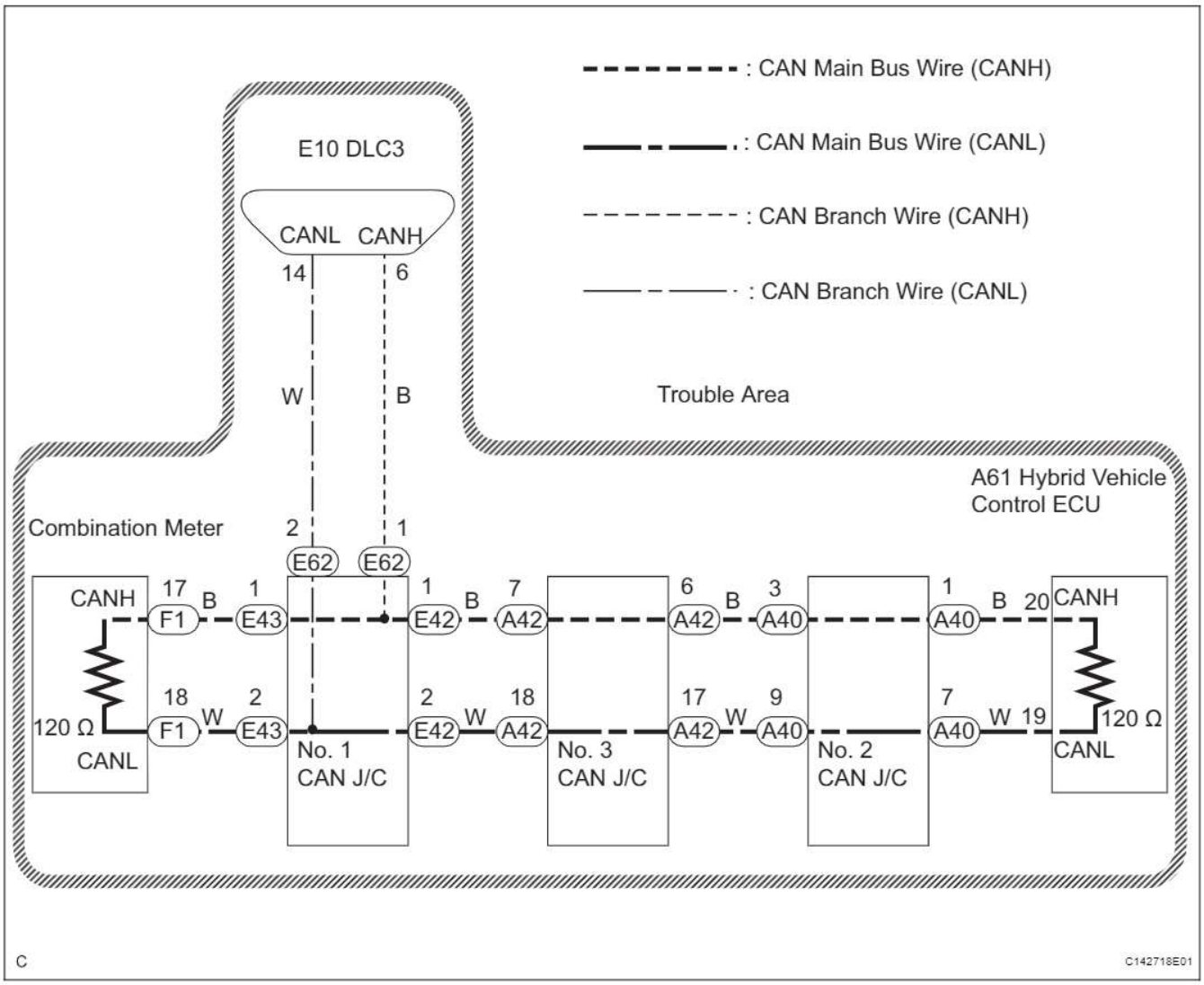
Open in CAN Main Bus Line

DESCRIPTION

There may be an open circuit in the CAN main bus wire and/or the DLC3 branch wire when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 69 Ω or more.

Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 69 Ω or more.	• CAN main bus wire or connector • No. 1 CAN J/C • No. 2 CAN J/C • No. 3 CAN J/C • DLC3 branch wire or connector • Combination meter • HV control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

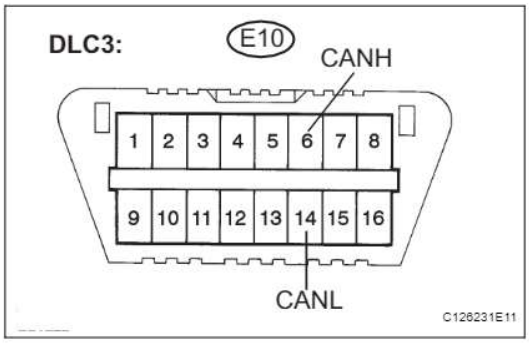
NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**

- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1 CHECK DLC3



(a) Turn the power switch off.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

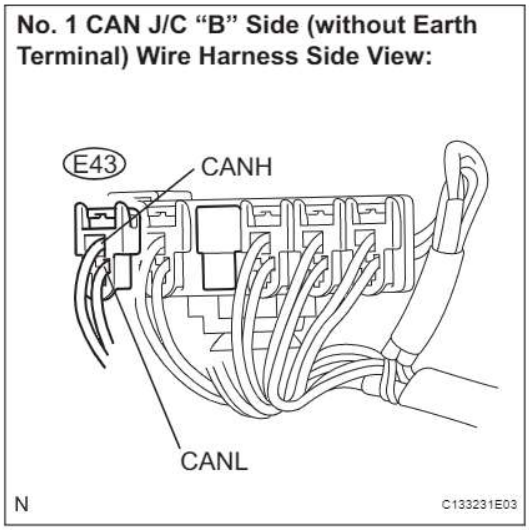
Tester Connection	Condition	Specified Value	Result
E10-6 (CANH) - E10-14 (CANL)	Power switch off	108 to 132 Ω	A
E10-6 (CANH) - E10-14 (CANL)	Power switch off	132 Ω or higher	B

NOTICE:
When the measured value is 132 Ω or more and a CAN communication system diagnostic trouble code is output, there may be a fault besides disconnection of the DLC3 branch wire. For that reason, troubleshooting should be performed again from "HOW TO PROCEED WITH TROUBLESHOOTING" (See page CA-7) after repairing the trouble area.

B → **REPLACE DLC3 BRANCH WIRE OR CONNECTOR (CANH, CANL)**

A

2 CHECK FOR OPEN IN CAN BUS MAIN WIRE (COMBINATION METER MAIN BUS WIRE)



(a) Disconnect CAN main bus wire white connector E43 from the No. 1 CAN J/C "B" side (without earth terminal).

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
E43-1 (CANH) - E43-2 (CANL)	Power switch off	108 to 132 Ω

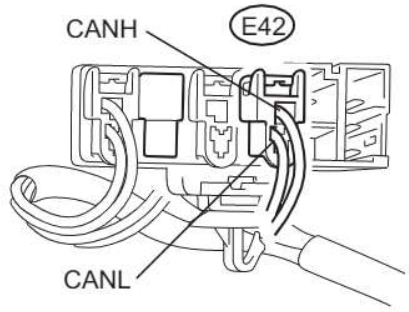
NG → **Go to step 9**

CA

OK

3	CHECK FOR OPEN IN CAN BUS MAIN WIRE (NO. 1 CAN J/C)

No. 1 CAN J/C "A" Side (with Earth Terminal):



(a) Reconnect CAN main bus wire connector E43 to the No. 1 CAN J/C "B" side (without earth terminal).
(b) Disconnect CAN main bus wire white connector E42 from the No. 1 CAN J/C "A" side (with earth terminal).
NOTICE:
- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**

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

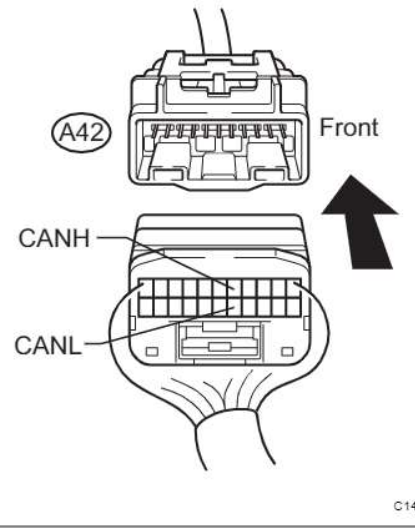
Tester Connection	Condition	Specified Value
E42-1 (CANH) - E42-2 (CANL)	Power switch off	108 to 132 Ω

OK → REPLACE NO. 1 CAN J/C

NG

4	CHECK FOR OPEN IN CAN BUS MAIN WIRE (NO. 2 CAN J/C - NO. 3 CAN J/C)

No. 3 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Reconnect CAN main bus wire connector E42 to the No. 1 CAN J/C "A" side (with earth terminal).
(b) Disconnect CAN main bus wire connector A42 from the No. 3 CAN J/C (rear of the vehicle).
(c) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester Connection	Condition	Specified Value
A42-7 (CANH) - A42-18 (CANL)	Power switch off	108 to 132 Ω

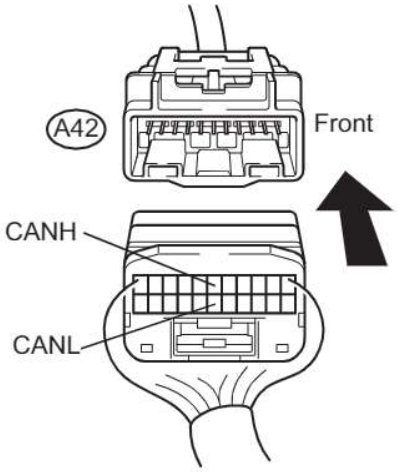
NG → REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 1 CAN J/C - NO. 2 CAN J/C)

CA

OK

5	CHECK FOR OPEN IN CAN BUS MAIN WIRE (NO. 3 CAN J/C)

No. 3 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side:



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

Standard resistance

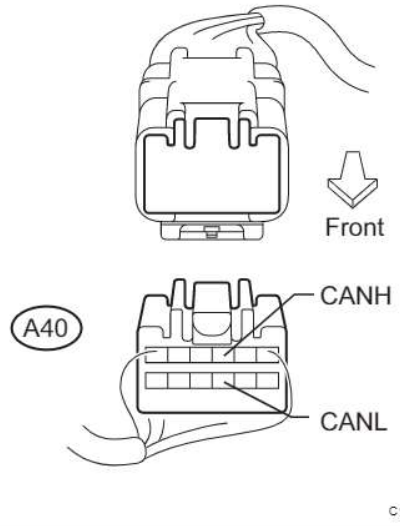
Tester Connection	Condition	Specified Value
A42-6 (CANH) - A42-17 (CANL)	Power switch off	108 to 132 Ω

OK → **REPLACE NO. 3 CAN J/C**

NG

6	CHECK FOR OPEN IN CAN BUS MAIN WIRE (NO. 2 CAN J/C - NO. 3 CAN J/C)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Reconnect CAN main bus wire connector A42 to the No. 3 CAN J/C (rear of the vehicle).
(b) Disconnect CAN main bus wire connector A40 from the No. 2 CAN J/C (front of the vehicle).
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A40-3 (CANH) - A40-9 (CANL)	Power switch off	108 to 132 Ω

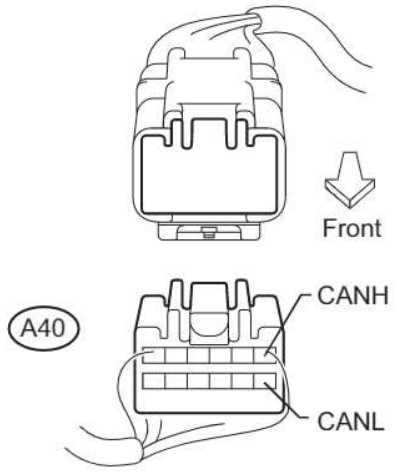
NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 2 CAN J/C - NO. 3 CAN J/C)**

CA

OK

7 CHECK FOR OPEN IN CAN BUS MAIN WIRE (HV CONTROL ECU CAN MAIN BUS WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



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

Standard resistance

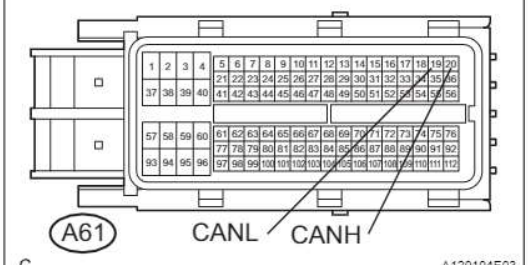
Tester Connection	Condition	Specified Value
A40-1 (CANH) - A40-7 (CANL)	Power switch off	108 to 132 Ω

OK → REPLACE NO. 2 CAN J/C

NG

8 CHECK FOR OPEN IN CAN BUS MAIN WIRE (HV CONTROL ECU)

HV Control ECU Connector (Front View):



(a) Reconnect CAN main bus wire connector A40 to the No. 2 CAN J/C (front of the vehicle).
(b) Disconnect HV control ECU connector A61.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A61-20 (CANH) - A61-19 (CANL)	Power switch off	108 to 132 Ω

OK → REPLACE HYBRID VEHICLE CONTROL ECU

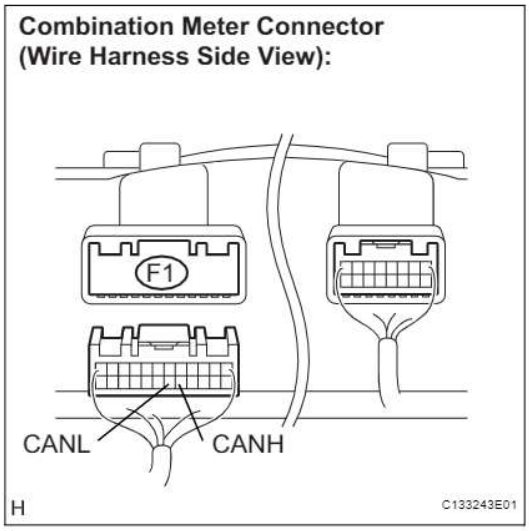
NG

REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 2 CAN J/C - HV CONTROL ECU)

CA

9	CHECK FOR OPEN IN CAN BUS MAIN WIRE (COMBINATION METER - NO. 1 CAN J/C)

Combination Meter Connector (Wire Harness Side View):



(a) Reconnect CAN main bus wire connector E43 to the No. 1 CAN J/C "B" side (without earth terminal).
(b) Disconnect combination meter connector F1.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
F1-17 (CANH) - F1-18 (CANL)	Power switch off	108 to 132 Ω

OK → REPLACE COMBINATION METER

NG

REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 1 CAN J/C - COMBINATION METER)

CA

Short in CAN Bus Lines

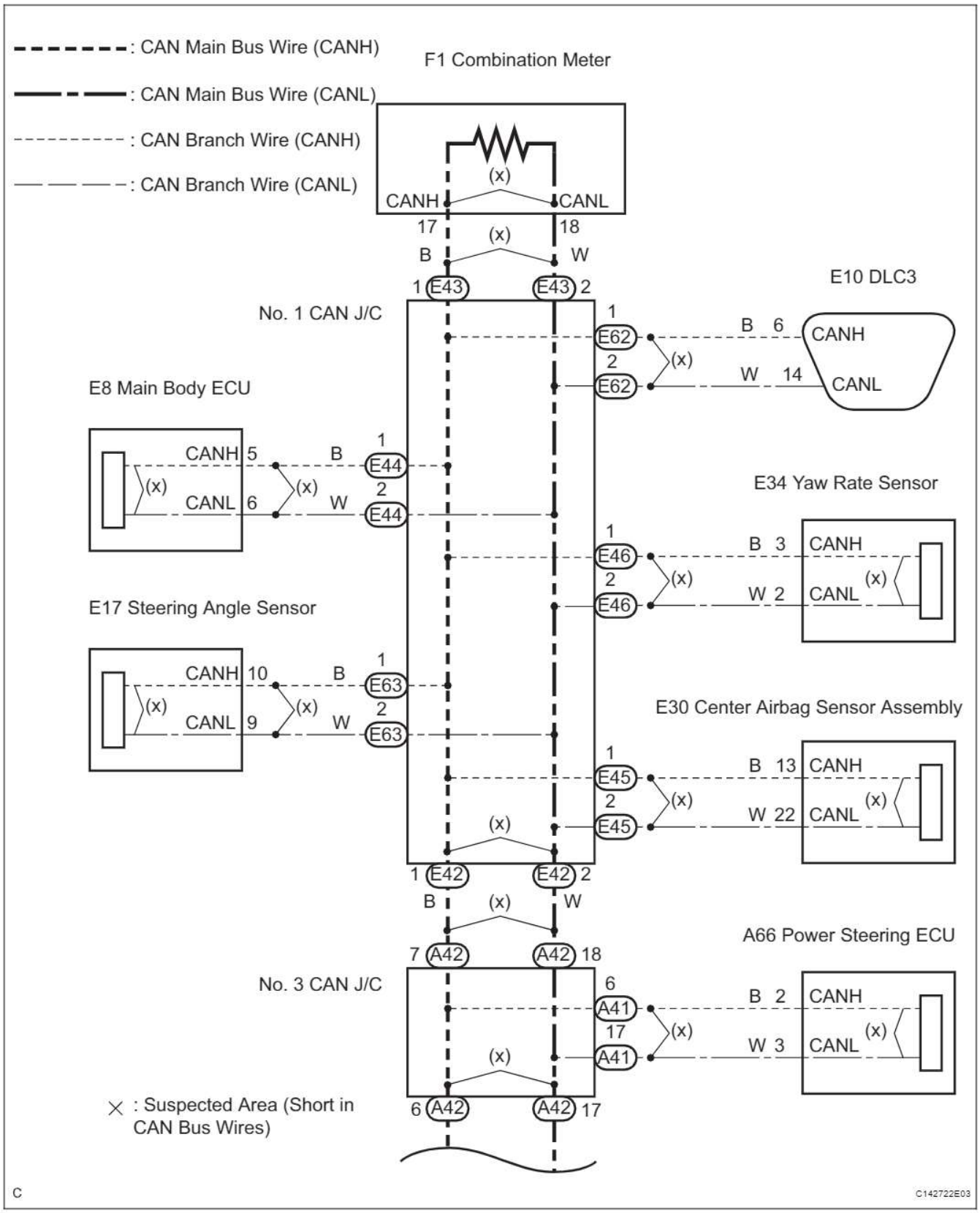
DESCRIPTION

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

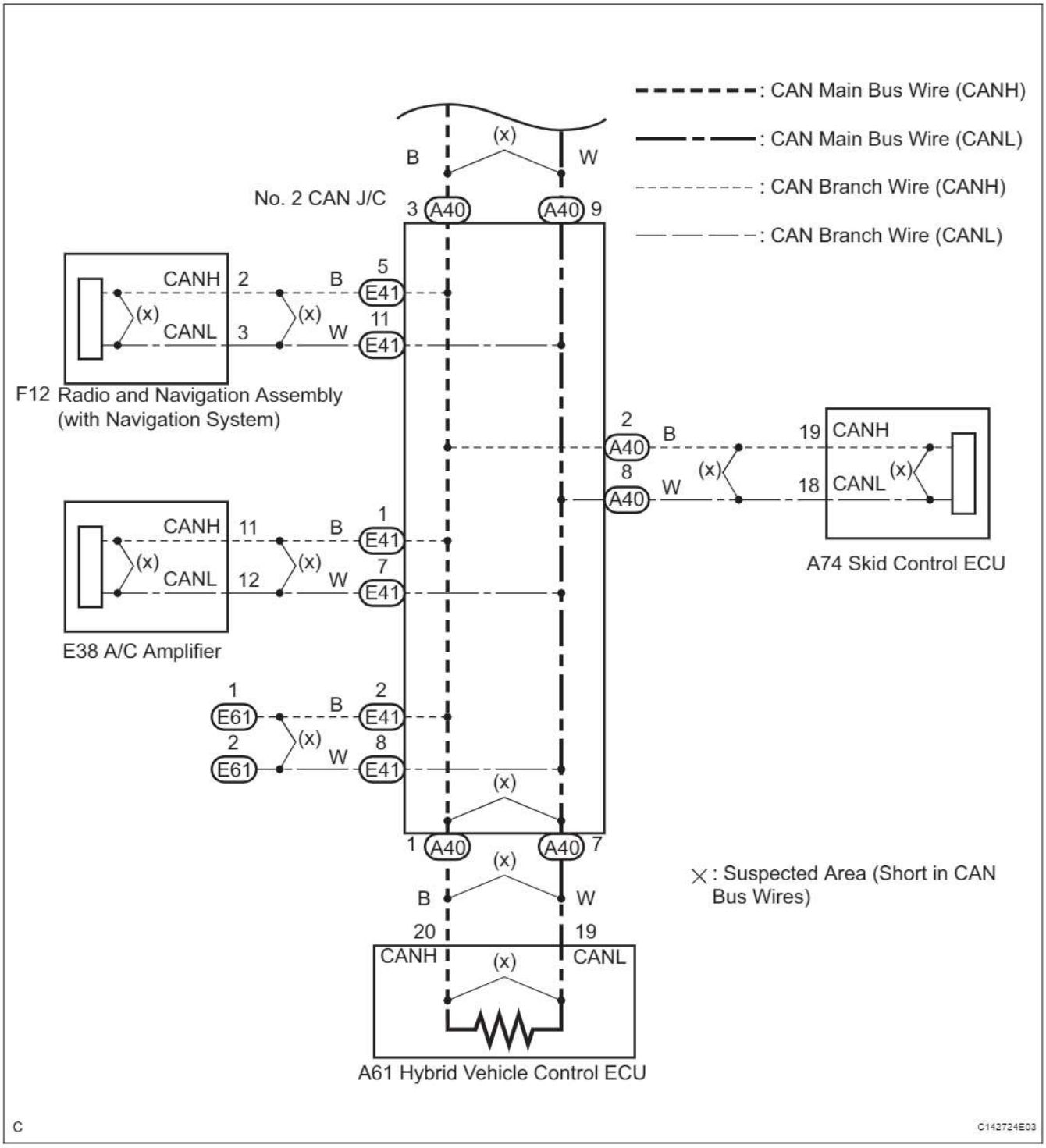
Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.	• Short in CAN bus wires • Skid control ECU • Steering angle sensor • Yaw rate sensor • HV control ECU • Combination meter • Main body ECU • A/C amplifier • Center airbag sensor • Radio and navigation assembly (with Navigation System) • Power steering ECU • No. 1 CAN J/C • No. 2 CAN J/C • No. 3 CAN J/C

CA

WIRING DIAGRAM



CA



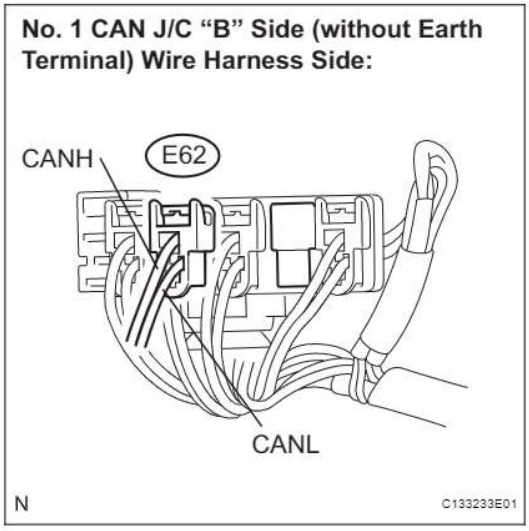
INSPECTION PROCEDURE

NOTICE:

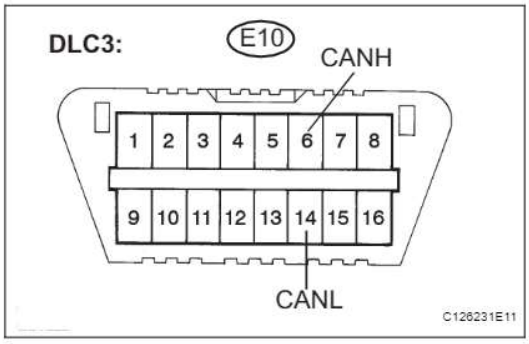
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1	CHECK FOR SHORT IN CAN BUS WIRES (DLC3 BRANCH WIRE)



(a) Turn the power switch off.
(b) Disconnect DLC3 branch wire gray connector E62 from the No. 1 CAN J/C "B" side (without earth terminal).
NOTICE:
- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



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

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	1 MΩ or higher

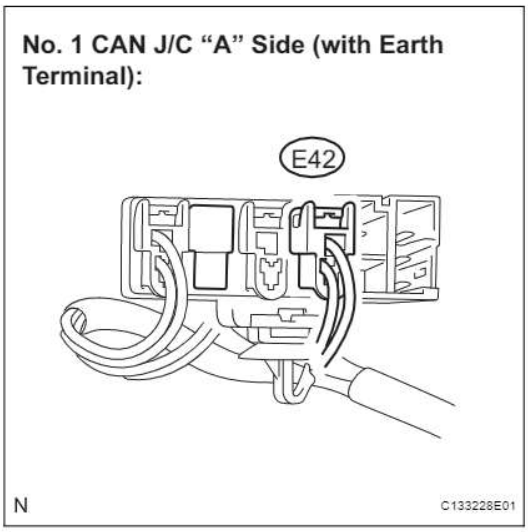
(d) Reconnect DLC3 branch wire connector E62 to the No. 1 CAN J/C "B" side (without earth terminal).

NG → **REPLACE DLC3 BRANCH WIRE OR CONNECTOR**

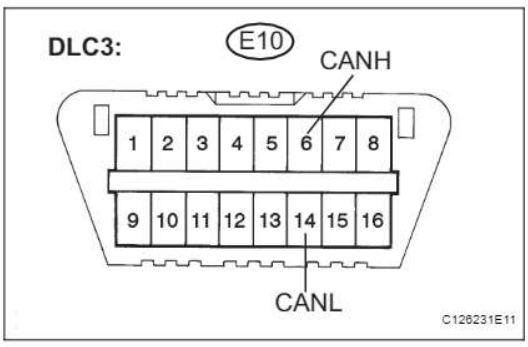
OK

CA

2	CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 CAN J/C SIDE)



(a) Disconnect CAN main bus wire white connector E42 from the No. 1 CAN J/C "A" side (with earth terminal).



(b) Connect the probes of an ohmmeter to terminals 6 (CANH) and 14 (CANL) of the DLC3.
(c) Measure the resistance according to the value(s) in the table below.

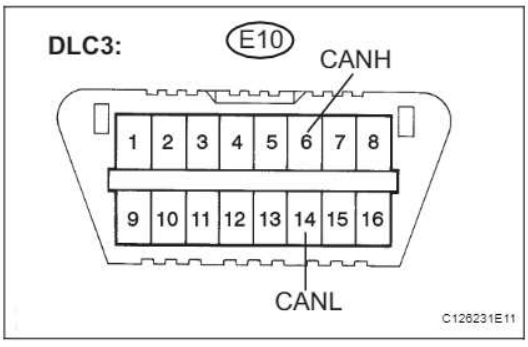
Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	108 to 132 Ω

OK → Go to step 7

NG

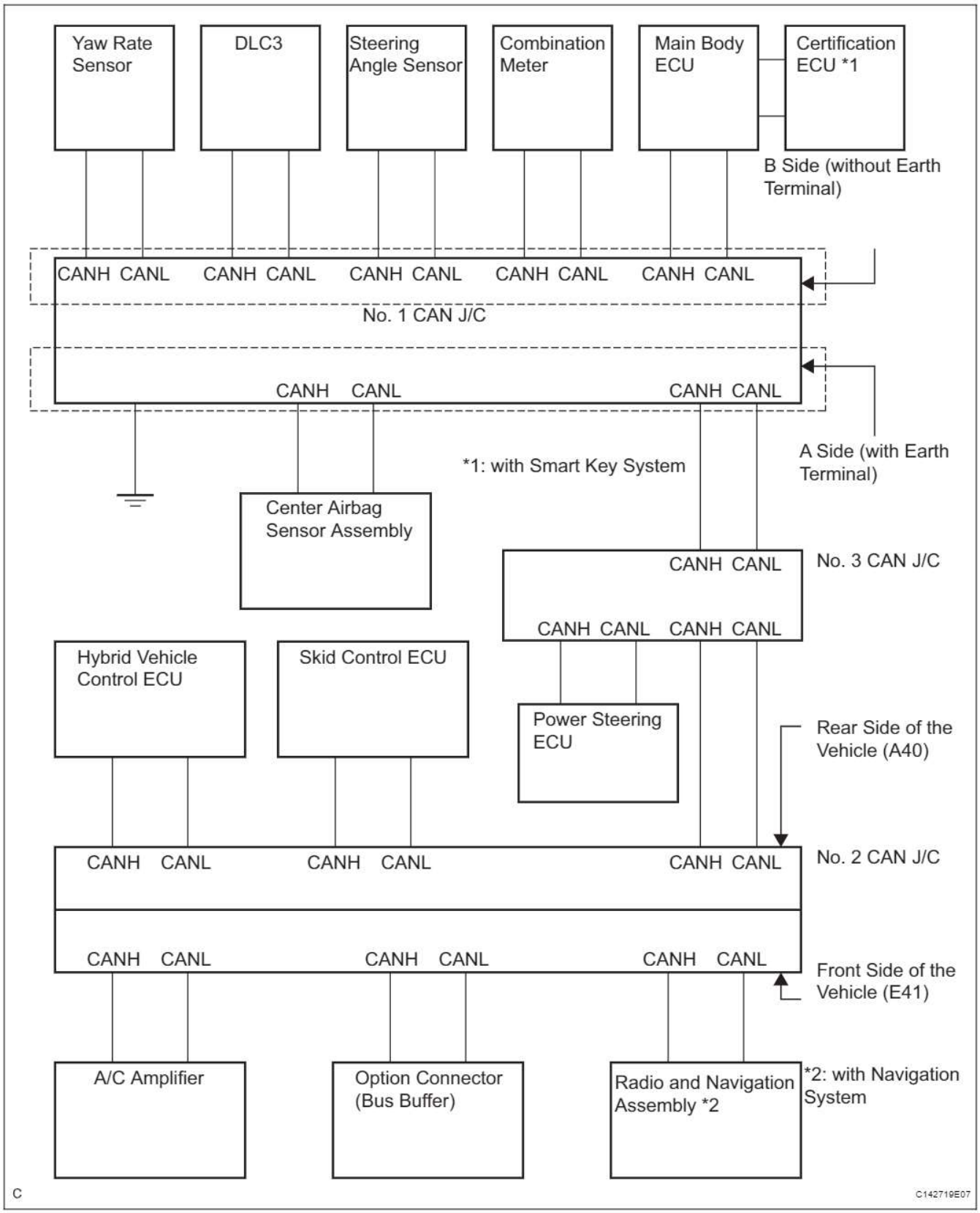
3	CHECK FOR SHORT IN CAN BUS WIRES (NO. 1 CAN J/C BRANCH WIRE)



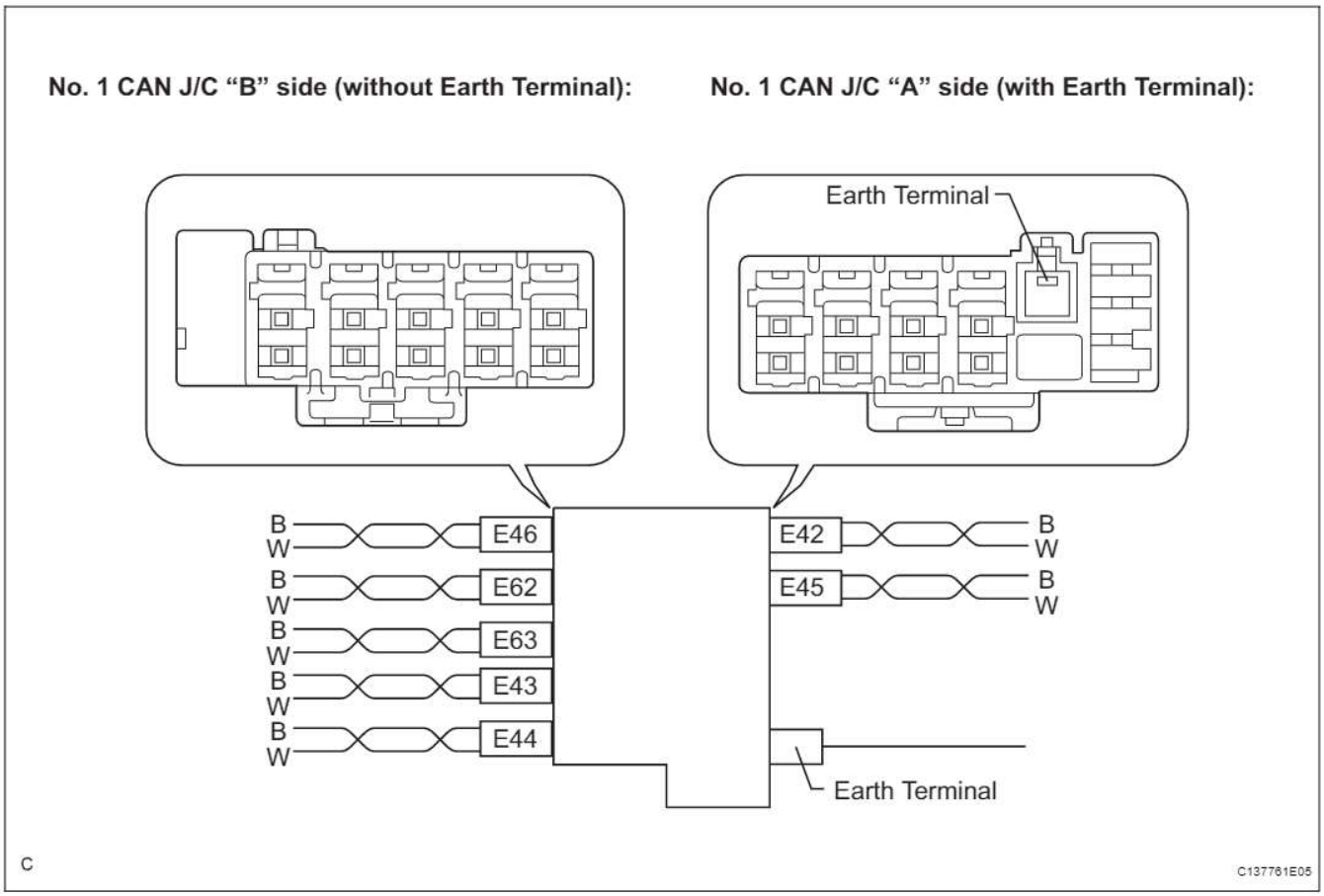
(a) Reconnect CAN main bus wire connector E42 to the No. 1 CAN J/C "A" side (with earth terminal).
(b) Connect the probes of an ohmmeter to terminals 6 (CANH) and 14 (CANL) of the DLC3.
(c) While observing the resistance value shown on the tester, disconnect connectors E44, E45, E46 and E63 from the No. 1 CAN J/C one by one until the resistance becomes normal (between 54 and 69 Ω).

HINT:
Disconnect the branch wire connectors other than those of the DLC3.

CA


Yaw Rate Sensor
DLC3
Steering Angle Sensor
Combination Meter
Main Body ECU
Certification ECU *1
B Side (without Earth Terminal)
CANH CANL
No. 1 CAN J/C
A Side (with Earth Terminal)
*1: with Smart Key System
Center Airbag Sensor Assembly
No. 3 CAN J/C
Hybrid Vehicle Control ECU
Skid Control ECU
Power Steering ECU
Rear Side of the Vehicle (A40)
No. 2 CAN J/C
Front Side of the Vehicle (E41)
A/C Amplifier
Option Connector (Bus Buffer)
Radio and Navigation Assembly *2
*2: with Navigation System
C
C142719E07

CA



CAN J/C Connector ("A" side, with earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Center Airbag Sensor Assembly (E45)	Black	B	W

CAN J/C Connector ("B" side, without earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Yaw Rate Sensor (E46)	Blue	B	W
Steering Angle Sensor (E63)	Brown	B	W
Main Body ECU (E44)	Black	B	W

NOTICE:
Do not reconnect the disconnected connectors until this inspection is complete because there may be a short in 2 or more branch wires.

CA

Result

Symptom	Proceed to
The resistance is still below 54 Ω when all the specified connectors are disconnected. (There are no shorts in the branch wires.)	**A**
The resistance becomes normal (between 54 and 69 Ω) when a connector is disconnected. (There is a short in one or more of the branch wires.)	**B**

(d) When there is a short in one or more of the branch wires:
(1) Reconnect all of the connectors to the No. 1 CAN J/C, except for the one that was disconnected last (the short-circuited bus wire). Check that the resistance shown on the tester is normal (between 54 and 69 Ω) to confirm that there is a short in one branch wire only.

HINT:

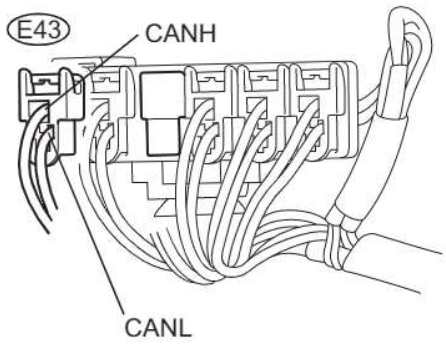
- The connectors connected to the No. 1 CAN J/C can be distinguished according to the color of the communication bus wires and the shape of the connectors.
- Reconnecting the connectors to non-specified positions on the No. 1 CAN J/C does not affect system operation. However, it is preferred to reconnect the connectors to their specified positions to avoid negative effects on the wiring such as tension on the wiring harnesses, and to make future maintenance easier.

B → Go to step 21

A

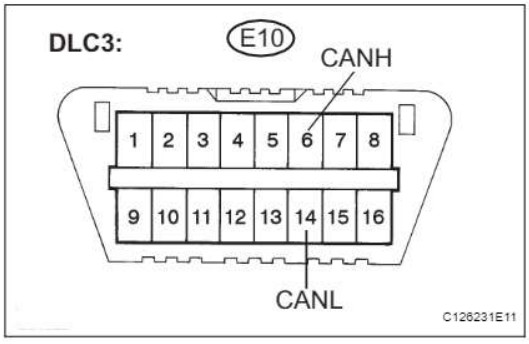
4 CHECK FOR SHORT IN CAN BUS WIRES (COMBINATION METER MAIN BUS WIRE)

No. 1 CAN J/C "B" Side (without Earth Terminal) Wire Harness Side View:



(a) Disconnect CAN main bus wire white connector E43 from the No. 1 CAN J/C "B" side (without earth terminal).
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
E10-6 (CANH) - E10-14 (CANL)	Power switch off	108 to 132 Ω

NG → REPLACE NO. 1 CAN J/C

OK

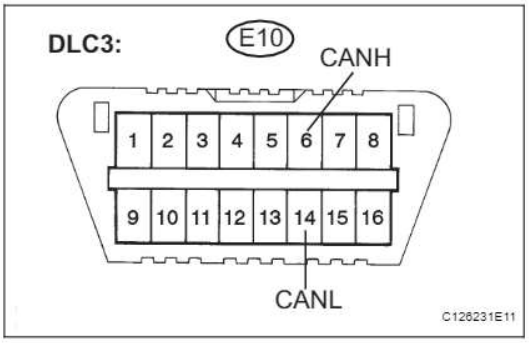
5 RECONNECT CONNECTOR

(a) Reconnect CAN main bus wire connector E43 to the No. 1 CAN J/C "B" side (without earth terminal).

CA

NEXT

6 CHECK FOR SHORT IN CAN BUS WIRES (COMBINATION METER)



(a) Disconnect combination meter connector F1.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	108 to 132 Ω

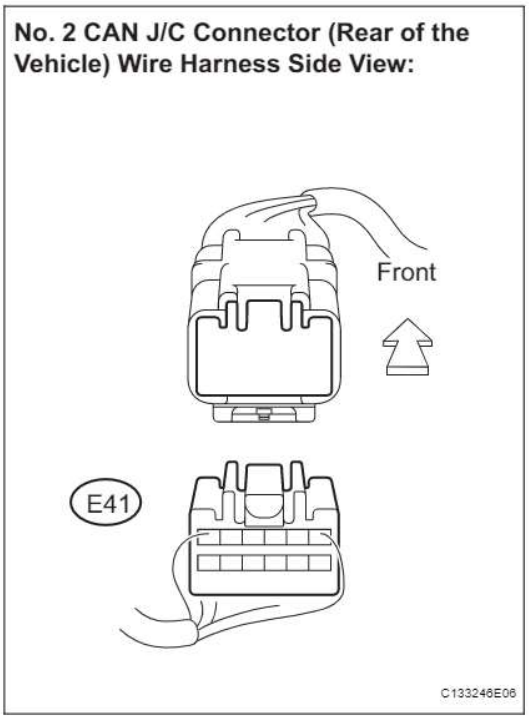
HINT:
If the resistance changes to 108 to 132 Ω when the connector is disconnected, there may be a short in the combination meter.

NG → REPLACE CAN BUS MAIN WIRE (COMBINATION METER MAIN BUS WIRE)

OK

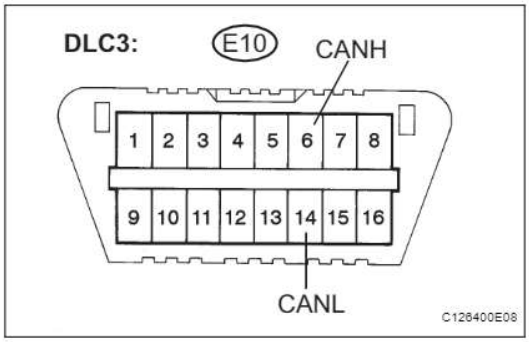
REPLACE COMBINATION METER

7 CHECK FOR SHORT IN CAN BUS WIRES



(a) Reconnect CAN main bus wire connector E42 to the No. 1 CAN J/C "A" side (with earth terminal).
(b) Disconnect No. 2 CAN J/C connector E41 (front of the vehicle).

CA



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

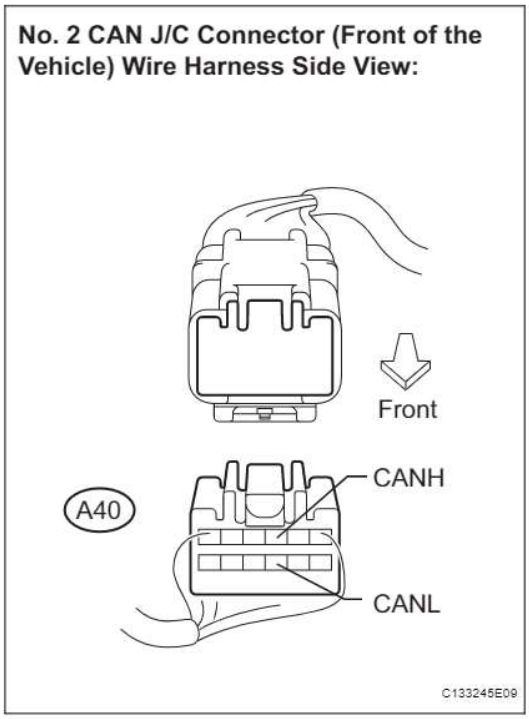
Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	54 to 69 Ω

OK → Go to step 13

NG

8 CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 CAN J/C - NO. 3 CAN J/C)



(a) Reconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

(b) Disconnect No. 2 CAN J/C connector A40 (front of the vehicle).

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

Standard resistance

Tester Connection	Condition	Specified Value
A40-3 (CANH) - A40-9 (CANL)	Power switch off	108 to 132 Ω

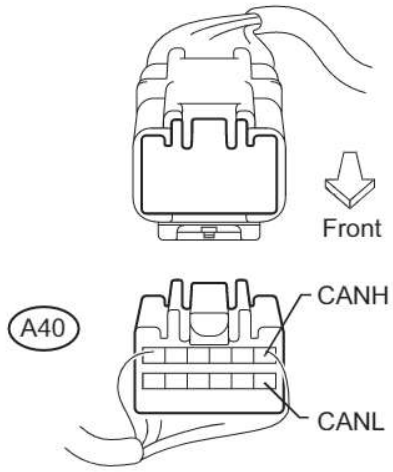
NG → Go to step 16

OK

CA

9	CHECK FOR SHORT IN CAN BUS WIRES (HV CONTROL ECU MAIN BUS WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector A40.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

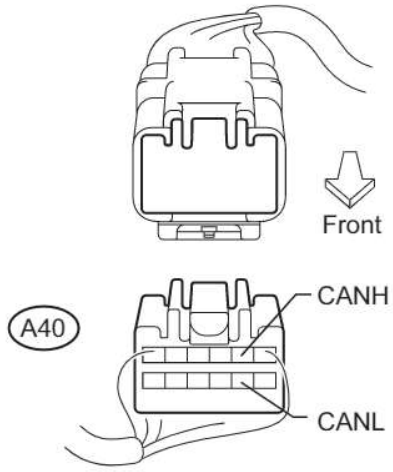
Tester Connection	Condition	Specified Value
A40-1 (CANH) - A40-7 (CANL)	Power switch off	108 to 132 Ω

NG → Go to step 12

OK

10	CHECK FOR SHORT IN CAN BUS WIRES (SKID CONTROL ECU - NO. 2 CAN J/C)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-2 (CANH) - A40-8 (CANL)	Power switch off	1 MΩ or higher

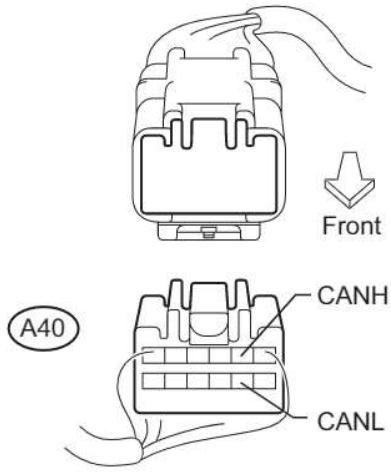
OK → REPLACE NO. 2 CAN J/C

NG

CA

11	CHECK FOR SHORT IN CAN BUS WIRES (SKID CONTROL ECU - NO. 2 CAN J/C)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect skid control ECU connector A74.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A40-2 (CANH) - A40-8 (CANL)	Power switch off	1 MΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector A40 disconnected.

OK → REPLACE SKID CONTROL ECU

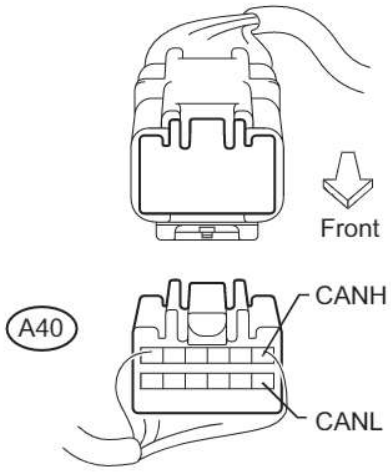
NG

REPLACE SKID CONTROL ECU BRANCH WIRE OR CONNECTOR

CA

12	CHECK FOR SHORT IN CAN BUS WIRES (HV CONTROL ECU MAIN BUS WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect HV control ECU connector A61.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A40-1 (CANH) - A40-7 (CANL)	Power switch off	1 MΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector A40 disconnected.

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (HV CONTROL ECU - NO. 2 CAN J/C)**

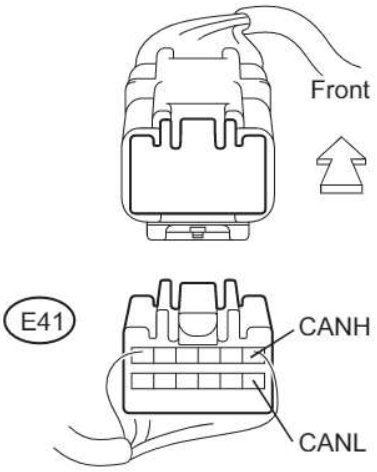
OK

REPLACE HYBRID VEHICLE CONTROL ECU

CA

13	CHECK FOR SHORT IN CAN BUS WIRES (A/C AMPLIFIER BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



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

Standard resistance

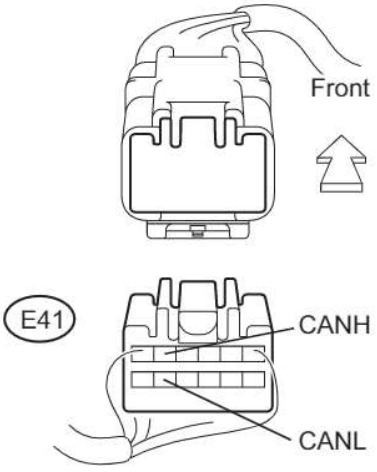
Tester Connection	Condition	Specified Value
E41-1 (CANH) - E41-7 (CANL)	Power switch off	1 MΩ or higher

NG → Go to step 15

OK

14	CHECK FOR SHORT IN CAN BUS WIRES (RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E41-11 (CANL)	Power switch off	1 MΩ or higher

NG → Go to step 20

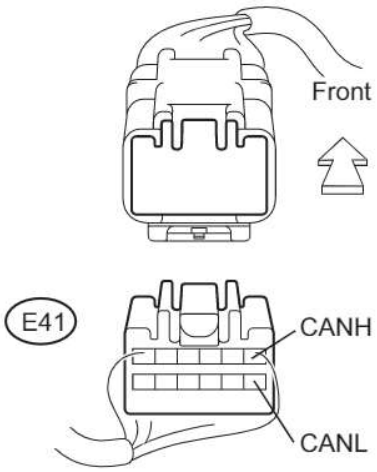
CA

OK

REPAIR OR REPLACE ACCESSORY GATEWAY BRANCH WIRE OR CONNECTOR

15 CHECK FOR SHORT IN CAN BUS WIRES (A/C AMPLIFIER - NO. 2 CAN J/C)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect A/C amplifier connector E38.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
E41-1 (CANH) - E41-7 (CANL)	Power switch off	1 MΩ or higher

NG → **REPLACE A/C AMPLIFIER BRANCH WIRE OR CONNECTOR**

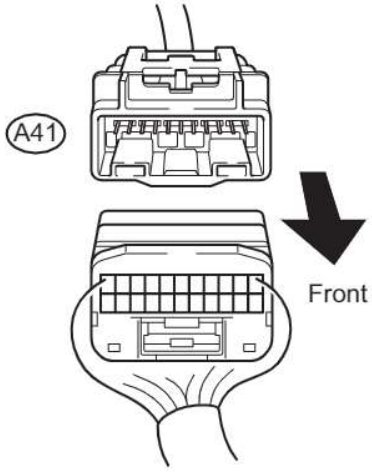
OK

REPLACE A/C AMPLIFIER

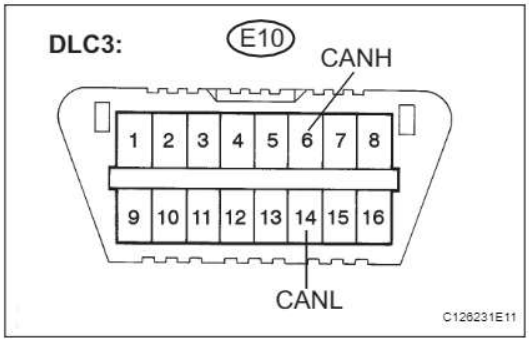
CA

16	CHECK FOR SHORT IN CAN BUS WIRES (POWER STEERING ECU BRANCH WIRE)

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Reconnect CAN main bus wire connector A40 to the No. 2 CAN J/C (rear of the vehicle).
(b) Disconnect power steering ECU branch wire connector A41 from the No. 3 CAN J/C (front of the vehicle).



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	54 to 69 Ω

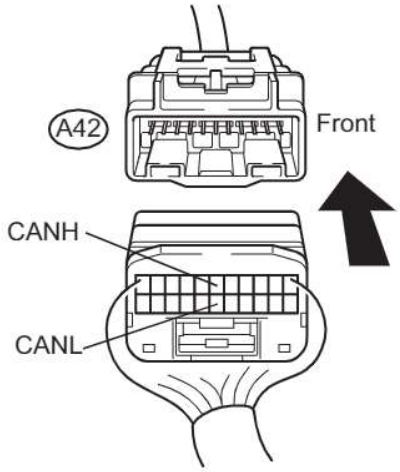
OK → Go to step 19

NG

CA

17	CHECK FOR SHORT IN CAN BUS WIRES (NO. 2 CAN J/C - NO. 3 CAN J/C)

No. 3 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side:



(a) Reconnect power steering ECU branch wire connector A41 to the No. 2 CAN J/C (front of the vehicle).
(b) Disconnect CAN main bus wire connector A42 from the No. 3 CAN J/C (front of the vehicle).
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

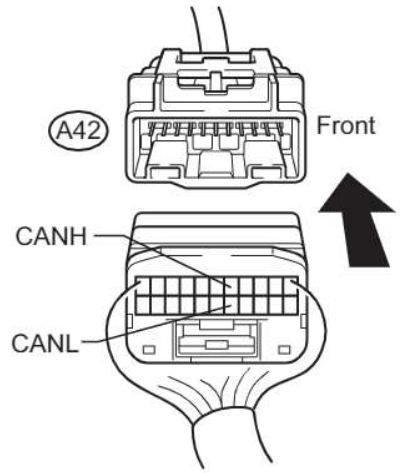
Tester Connection	Condition	Specified Value
A42-6 (CANH) - A42-17 (CANL)	Power switch off	108 to 132 Ω

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 2 CAN J/C - NO. 3 CAN J/C)**

OK

18	CHECK FOR OPEN IN CAN BUS MAIN WIRE (NO. 1 CAN J/C - NO. 3 CAN J/C)

No. 3 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



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

Standard resistance

Tester Connection	Condition	Specified Value
A42-7 (CANH) - A42-18 (CANL)	Power switch off	108 to 132 Ω

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 1 CAN J/C - NO. 2 CAN J/C)**

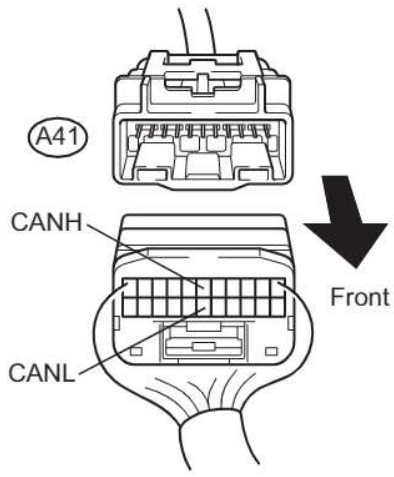
CA

OK

REPLACE NO. 3 CAN J/C

19 CHECK FOR SHORT IN CAN BUS WIRES (POWER STEERING ECU BRANCH WIRE)

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect the A66 power steering ECU connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
A41-6 (CANH) - A41-17 (CANL)	Power switch off	1 MΩ or higher

HINT:
Measure the resistance with No. 3 CAN J/C connector A41 disconnected.

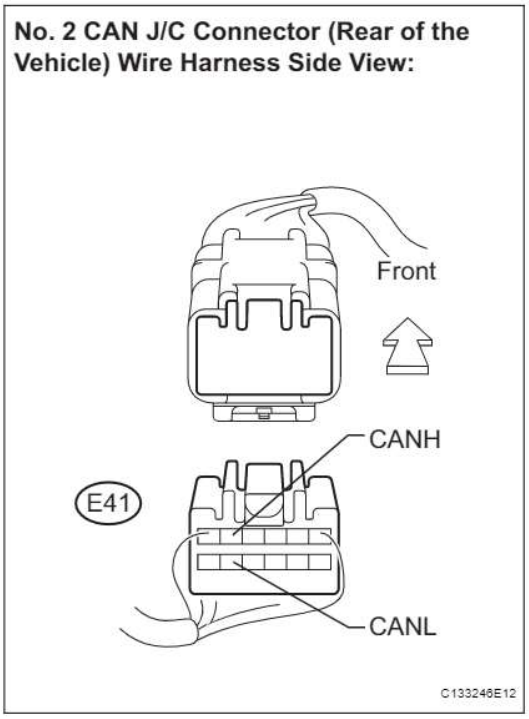
OK → REPLACE POWER STEERING ECU ASSY

NG

REPLACE POWER STEERING ECU BRANCH WIRE OR CONNECTOR

CA

20	CHECK FOR SHORT IN CAN BUS WIRES (RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE)



(a) Disconnect the F12 radio and navigation assembly connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E41-11 (CANL)	Power switch off	1 MΩ or higher

NG → REPLACE POWER STEERING ECU BRANCH WIRE OR CONNECTOR

OK

REPLACE RADIO AND NAVIGATION ASSEMBLY

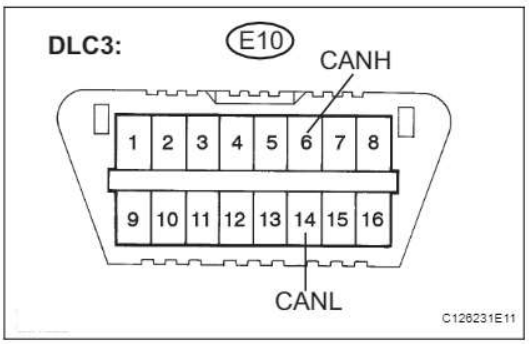
21	RECONNECT CONNECTOR

(a) Reconnect the connector for the short-circuited branch wire to the No. 1 CAN J/C (the connector that caused the bus wire resistance to become normal (between 54 and 69 Ω) when it was disconnected).

NEXT

CA

22	CHECK FOR SHORT IN CAN BUS WIRES



(a) Disconnect the connector that includes terminals CANH and CANL from the ECU (or sensor) to which the short-circuited branch wire is connected. (See page CA-9)
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-14 (CANL)	Power switch off	54 to 69 Ω

HINT:
If the resistance becomes normal (between 54 and 69 Ω) when the connector is disconnected from the ECU (or sensor), there may be a short in the ECU (or sensor).

NG → **REPLACE CORRESPONDING ECU OR SENSOR BRANCH WIRE OR CONNECTOR**

OK

REPLACE CORRESPONDING ECU OR SENSOR

CA

Short to B+ in CAN Bus Line

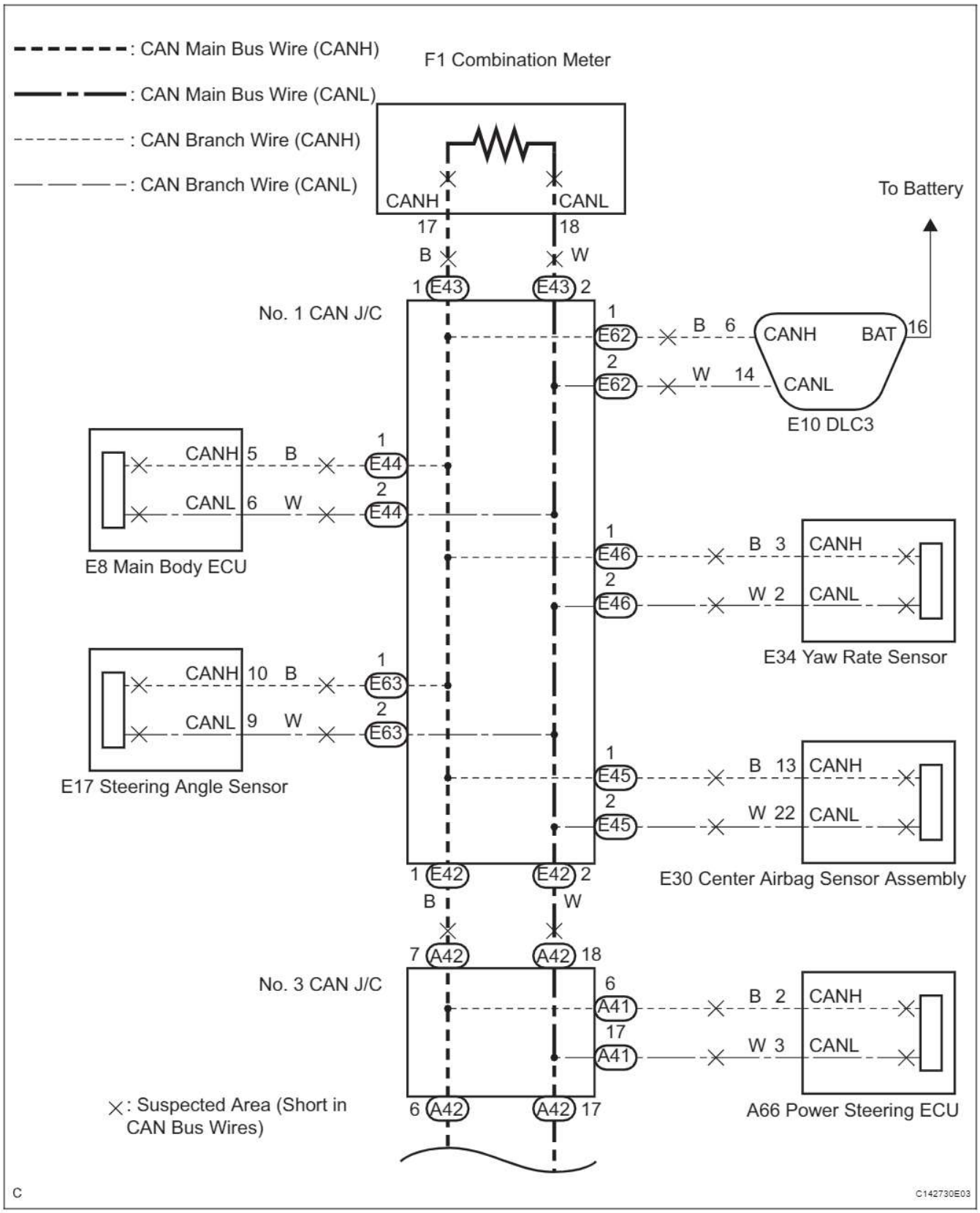
DESCRIPTION

A short to B+ is suspected in the CAN bus wire when the resistance between terminals 6 (CANH) and 16 (BAT), or terminals 14 (CANL) and 16 (BAT) of the DLC3 is below 6 kΩ.

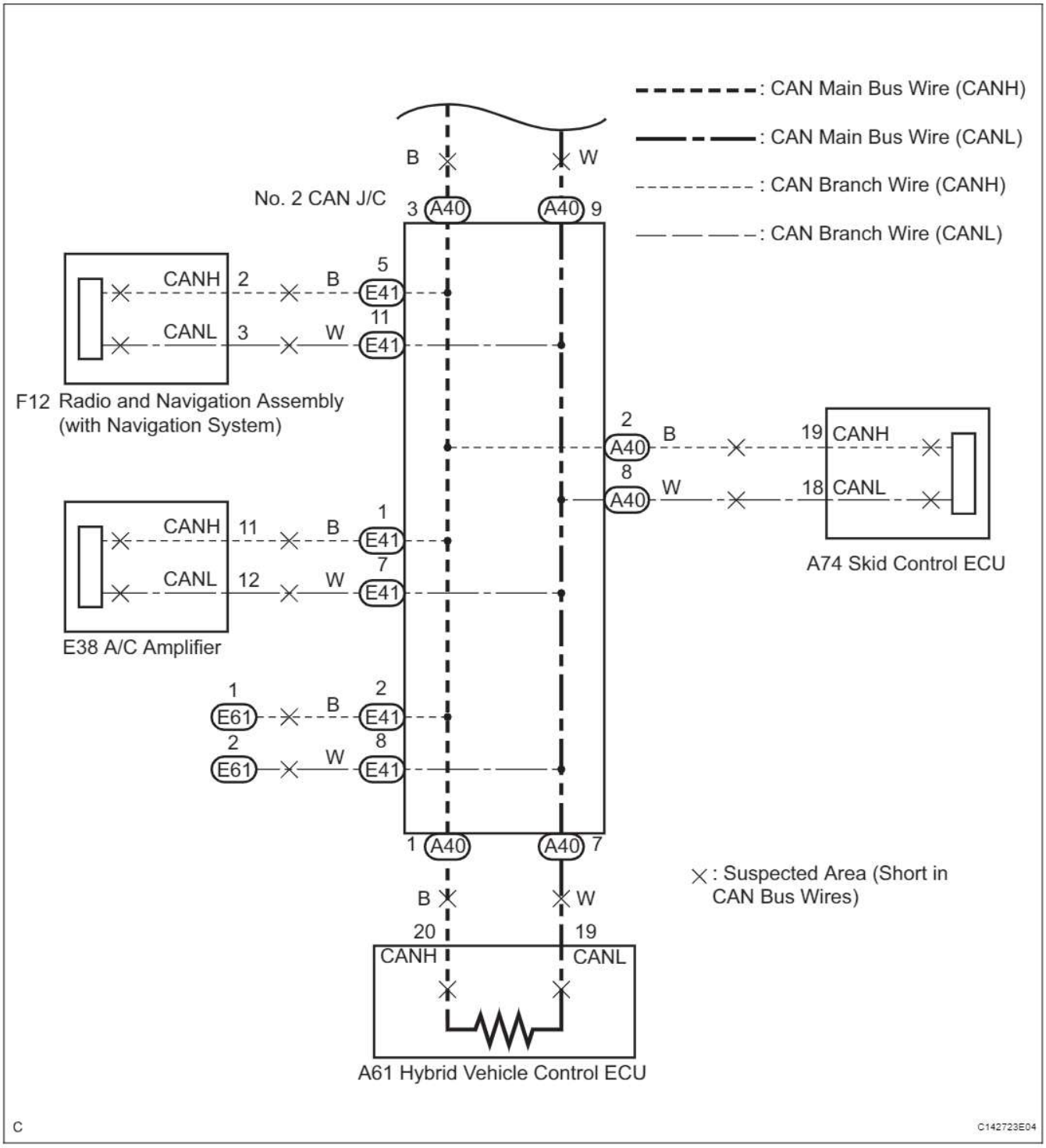
Symptom	Trouble Area
The resistance between terminals 6 (CANH) and 16 (BAT), or terminals 14 (CANL) and 16 (BAT) of the DLC3 is below 6 kΩ.	• Short to B+ in CAN bus wire • Skid control ECU • Steering angle sensor • Yaw rate sensor • HV control ECU • Combination meter • Main body ECU • A/C amplifier • Center airbag sensor • Radio and navigation assembly • Power steering ECU

CA

WIRING DIAGRAM



CA



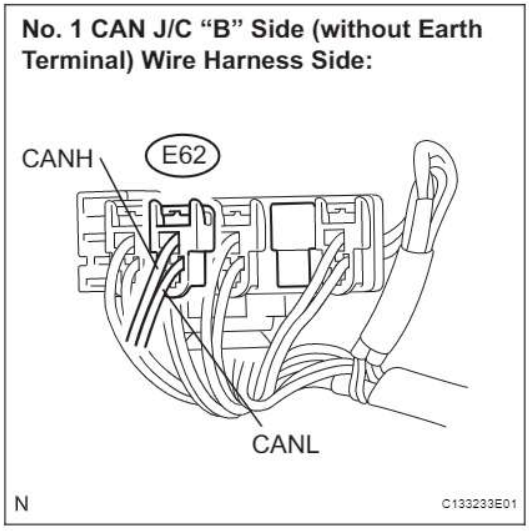
INSPECTION PROCEDURE

NOTICE:

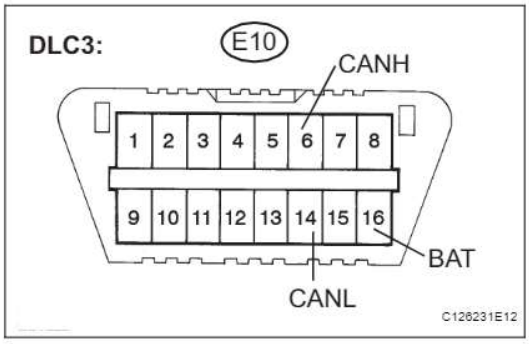
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (DLC3 BRANCH WIRE)



(a) Turn the power switch off.
(b) Disconnect DLC3 branch wire gray connector E62 from the No. 1 CAN J/C "B" side (without earth terminal).
NOTICE:
- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



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

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

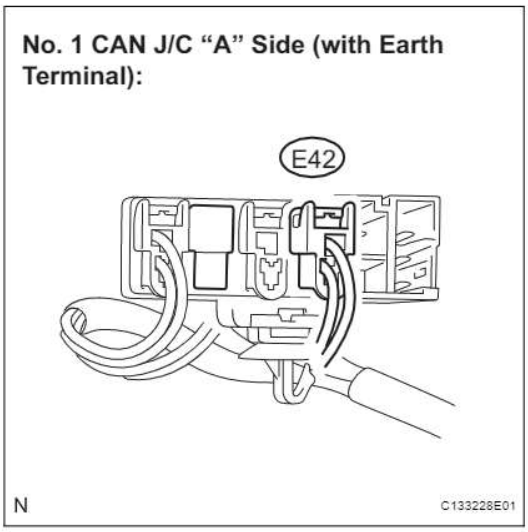
(d) Reconnect DLC3 branch wire connector E62 to the No. 1 CAN J/C "B" side (without earth terminal).

NG → **REPLACE DLC3 BRANCH WIRE OR CONNECTOR**

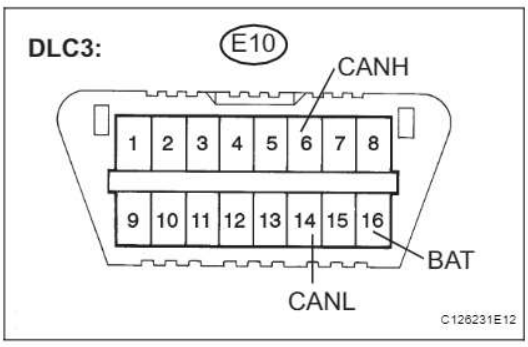
OK

CA

2	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (NO. 1 CAN J/C SIDE)



(a) Disconnect CAN main bus wire white connector E42 from the No. 1 CAN J/C "A" side (with earth terminal).



(b) Measure the resistance between terminals 6 (CANH) and 16 (BAT), and between terminals 14 (CANL) and 16 (BAT) of the DLC3 each time a connector is disconnected.

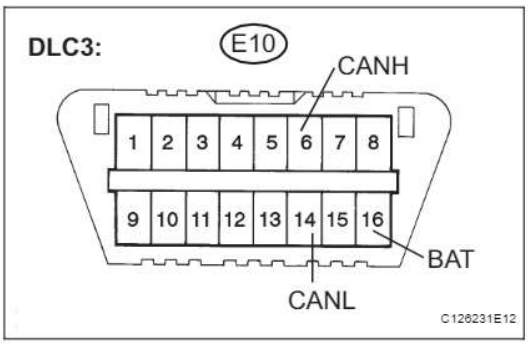
Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

OK → Go to step 6

NG

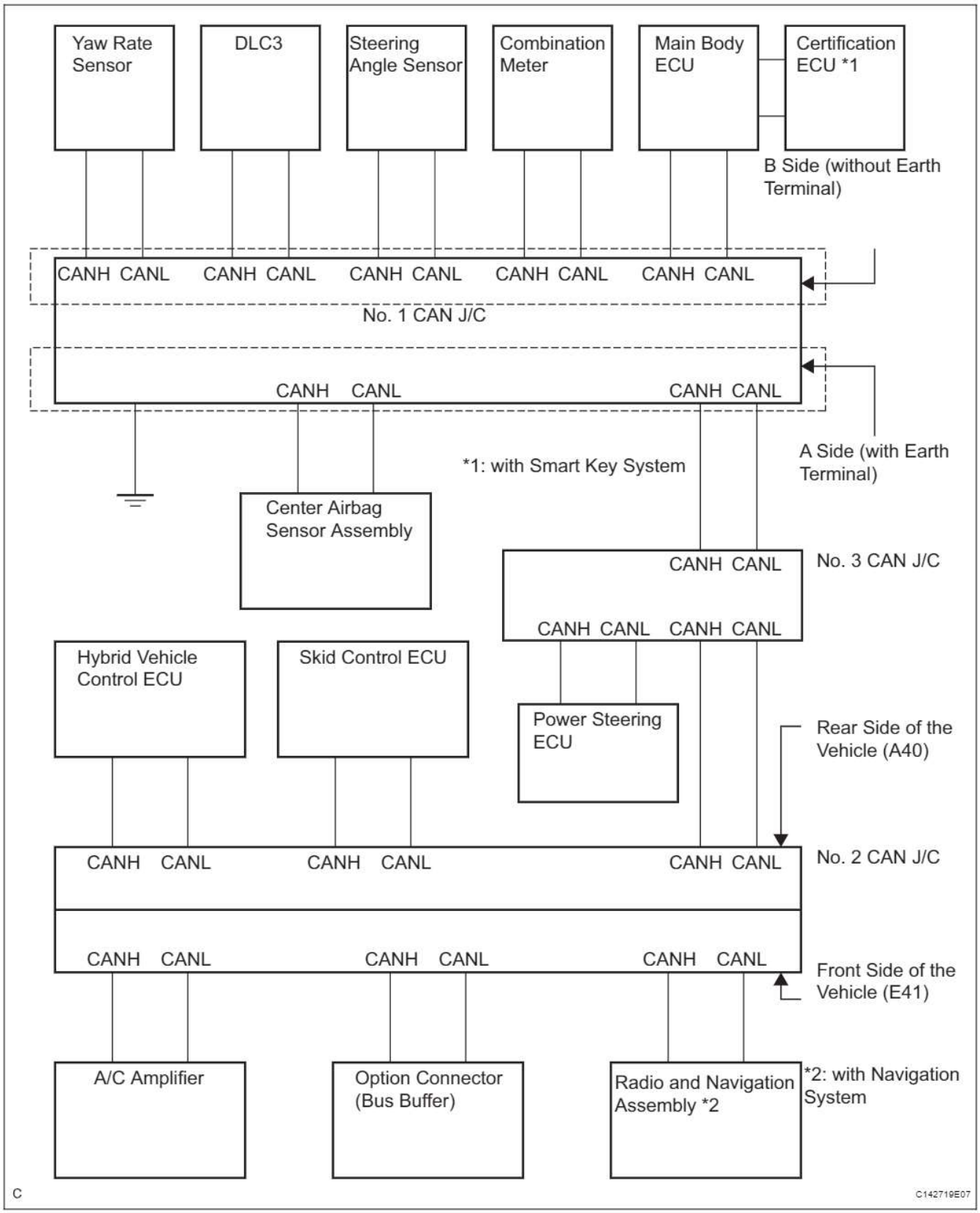
3	CHECK FOR SHORT TO B+ IN CAN BUS WIRE



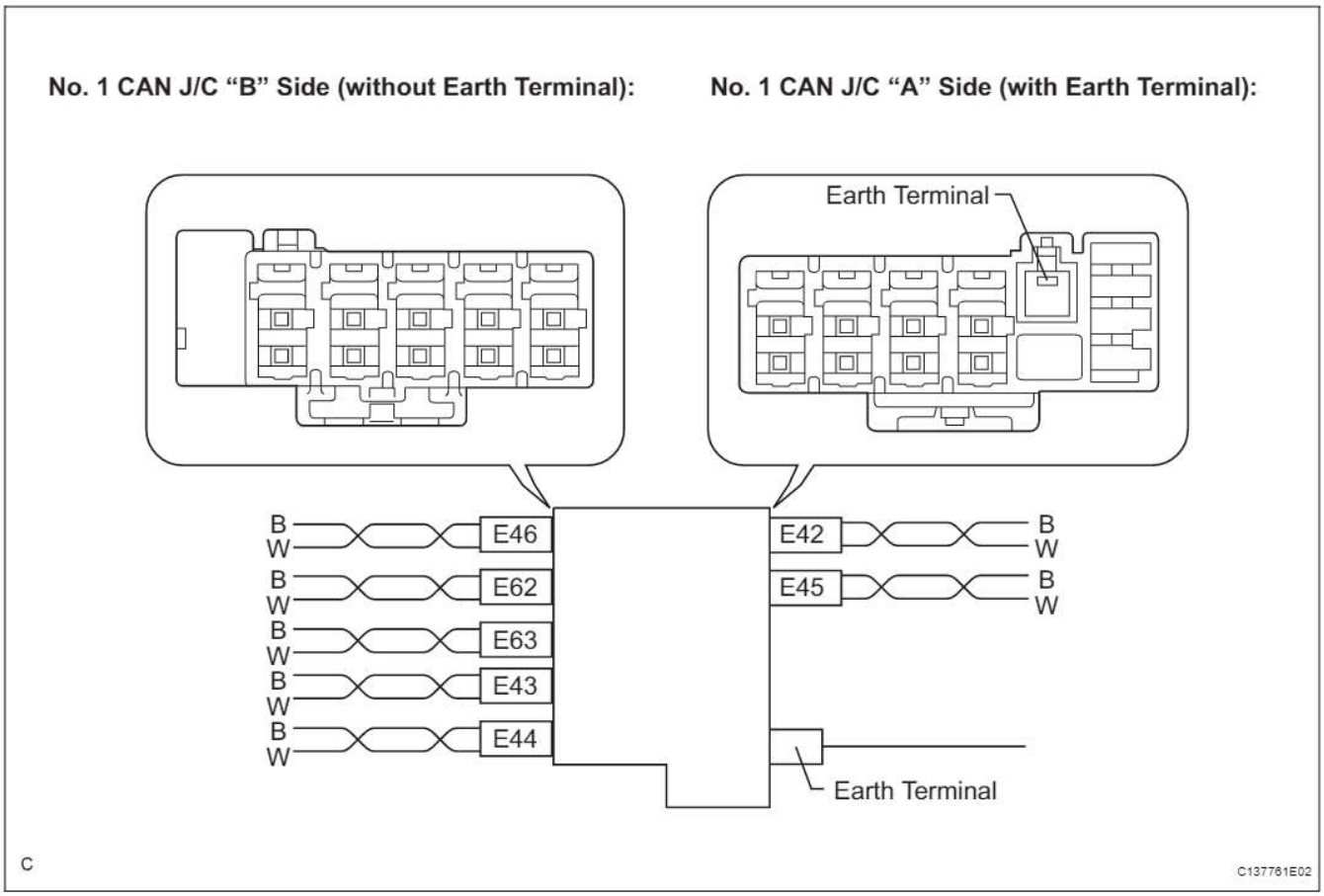
(a) Disconnect connectors from the No. 1 CAN J/C one at a time.
HINT:
Disconnect the ECU and sensor connectors other than the DLC3 branch wires and CAN main bus wires between the No. 1 CAN J/C and No. 3 CAN J/C.

(b) Measure the resistance between terminals 6 (CANH) and 16 (BAT), and between terminals 14 (CANL) and 16 (BAT) of the DLC3 each time a connector is disconnected.

CA


Yaw Rate Sensor
DLC3
Steering Angle Sensor
Combination Meter
Main Body ECU
Certification ECU *1
B Side (without Earth Terminal)
CANH CANL
No. 1 CAN J/C
A Side (with Earth Terminal)
*1: with Smart Key System
Center Airbag Sensor Assembly
No. 3 CAN J/C
Hybrid Vehicle Control ECU
Skid Control ECU
Power Steering ECU
Rear Side of the Vehicle (A40)
No. 2 CAN J/C
Front Side of the Vehicle (E41)
A/C Amplifier
Option Connector (Bus Buffer)
Radio and Navigation Assembly *2
*2: with Navigation System
C
C142719E07

CA



No. 1 CAN J/C Connector ("A" side, with earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Center Airbag Sensor Assembly (E45)	Black	B	W

No. 1 CAN J/C Connector ("B" side, without earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Yaw Rate Sensor (E46)	Blue	B	W
Steering Angle Sensor (E63)	Brown	B	W
Combination Meter (E43)	White	B	W
Main Body ECU (E44)	Black	B	W

NOTICE:
Do not reconnect the disconnected connectors until this inspection is complete because there may be a short to B+ in 2 or more CAN bus wires.

(c) When there is a short to B+ in one or more of the bus wires that connect to an ECU (or sensor):
(1) Reconnect all of the connectors to the No. 1 CAN J/C, except for the one that was disconnected last (the bus wire that is shorted to B+). Check that the resistance shown on the tester is normal (6 kΩ or more) to confirm that there is a short to B+ in one bus wire only.

CA

HINT:

- The connectors connected to the No. 1 CAN J/C can be distinguished according to the color of the communication bus wires and the shape of the connectors.
- Reconnecting the connectors to non-specified positions on the No. 1 CAN J/C does not affect system operation. However, it is preferred to reconnect the connectors to their specified positions to avoid negative effects on the wiring such as tension on the wiring harnesses, and to make future maintenance easier.

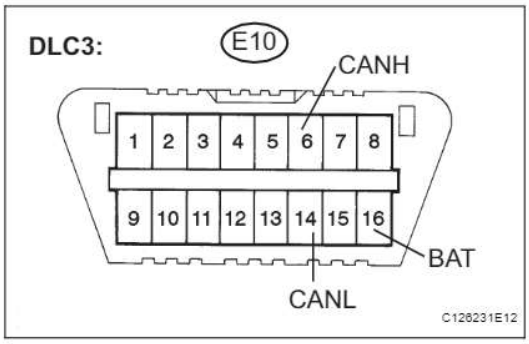
NEXT

4	RECONNECT CONNECTOR

(a) Reconnect the connector of the bus wire that is shorted to B+ to the No. 1 CAN J/C (the connector that caused the bus wire resistance to change to 6 kΩ or more when it was disconnected).

NEXT

5	CHECK FOR SHORT TO B+ IN CAN BUS WIRE



(a) Disconnect the connector that includes terminals CANH and CANL from the ECU (or sensor) to which the bus wire shorted to B+ is connected. (See page CA-9)

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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:

If the resistance changes to 6 kΩ or higher when the connector is disconnected from the ECU (or sensor), there may be a short in the ECU (or sensor).

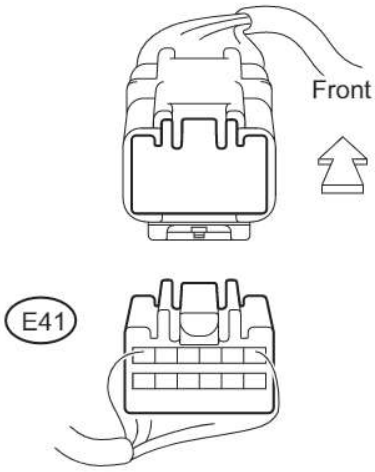
NG → REPLACE CORRESPONDING ECU OR SENSOR BUS WIRE OR CONNECTOR

OK

REPLACE CORRESPONDING ECU OR SENSOR

6	CHECK FOR SHORT TO B+ IN CAN BUS WIRE

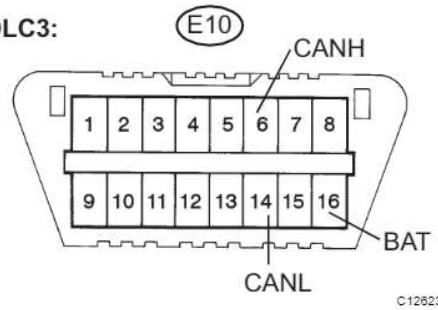
No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Reconnect CAN main bus wire connector E42 to the No. 1 CAN J/C "A" side (with earth terminal).

(b) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

OK → **Go to step 11**

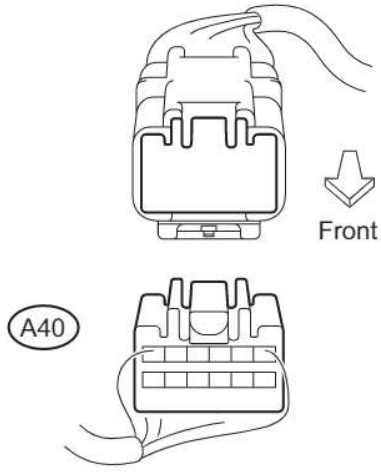
NG

7	CHECK FOR SHORT TO B+ IN CAN BUS WIRE

CA

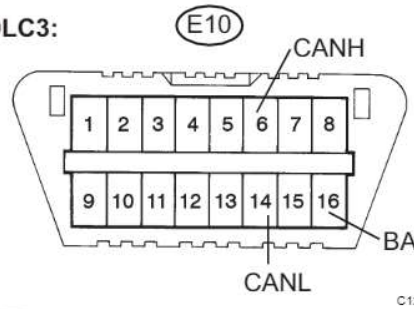
(a) Reconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(b) Disconnect No. 2 CAN J/C connector A40 (front of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

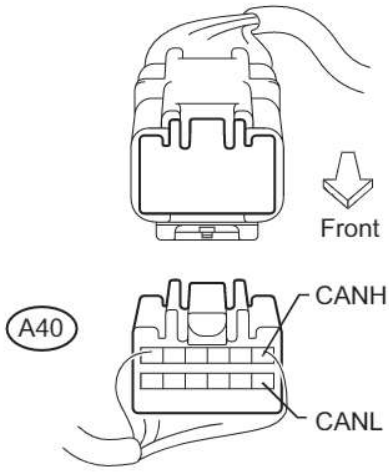
NG → **Go to step 15**

OK

CA

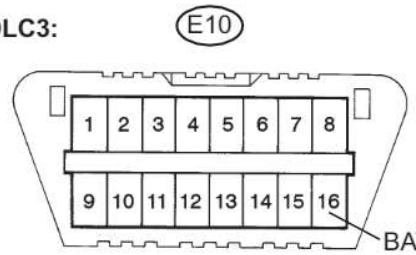
8	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (HV CONTROL ECU MAIN BUS WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector A40 (front of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-1 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
A40-7 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

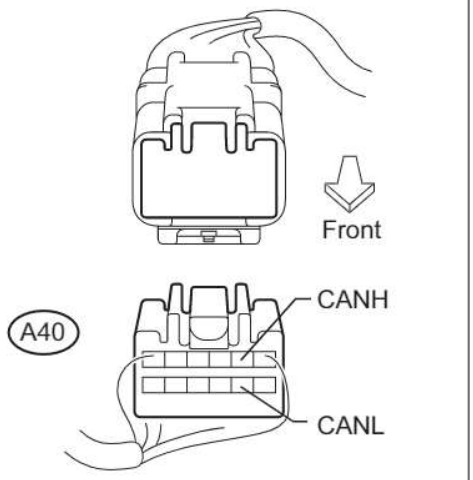
NG → Go to step 10

OK

CA

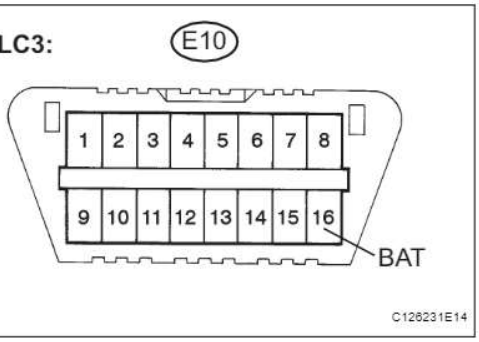
9	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (SKID CONTROL ECU)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect skid control ECU connector A74.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-2 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
A40-8 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector A40 disconnected.

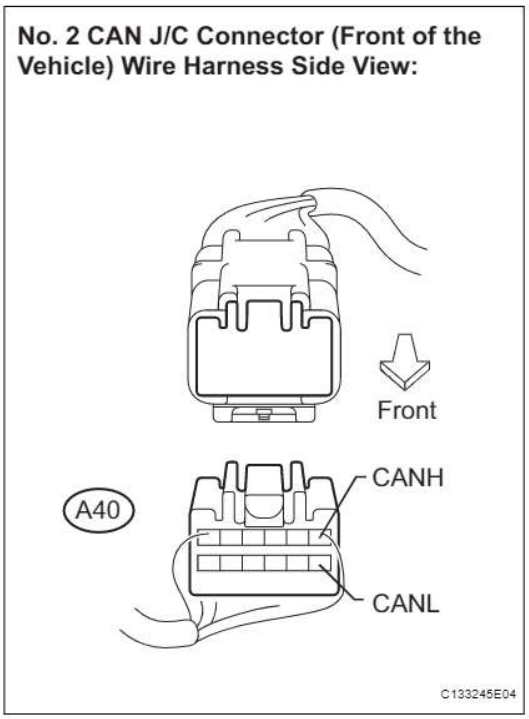
OK → REPLACE SKID CONTROL ECU ASSY

NG

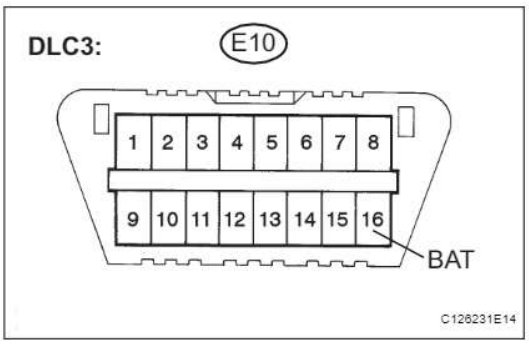
REPLACE SKID CONTROL ECU BRANCH WIRE OR CONNECTOR

CA

10	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (HV CONTROL ECU)



(a) Disconnect HV control ECU connector A61.



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-1 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
A40-7 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector A40 disconnected.

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (HV CONTROL ECU - NO. 2 CAN J/C)**

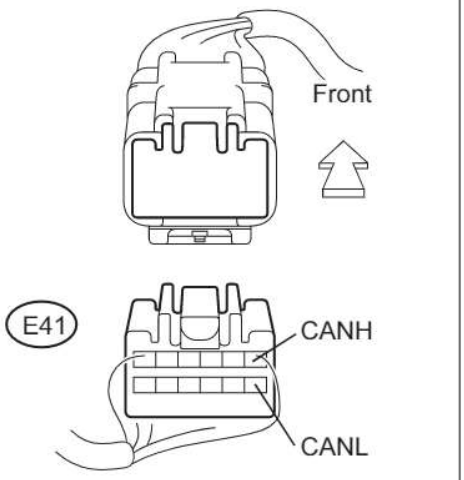
OK

REPLACE HYBRID VEHICLE CONTROL ECU

CA

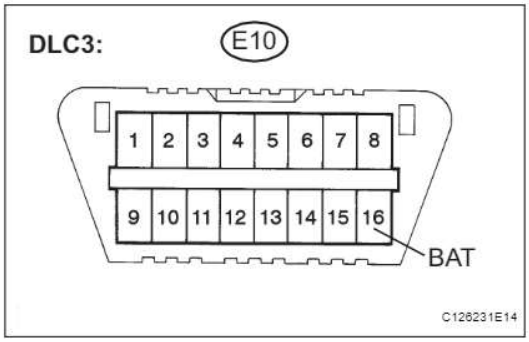
11	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (A/C AMPLIFIER BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-1 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E41-7 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

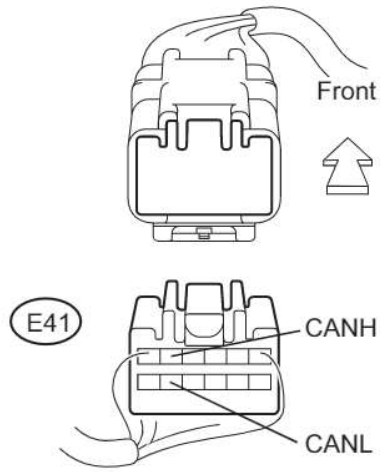
NG → Go to step 13

OK

CA

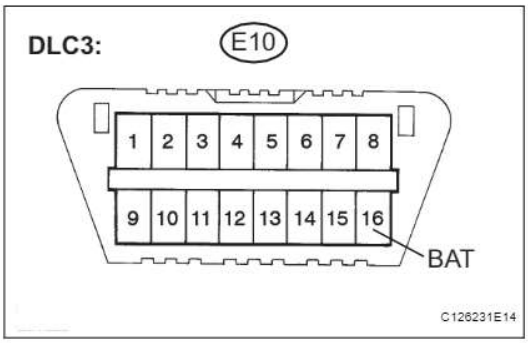
12	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E41-11 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

NG → **Go to step 14**

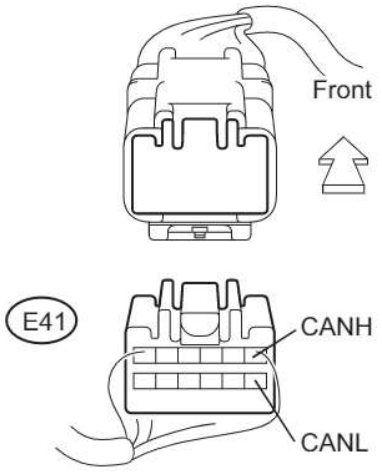
OK

REPLACE ACCESSORY GATEWAY BRANCH WIRE OR CONNECTOR

CA

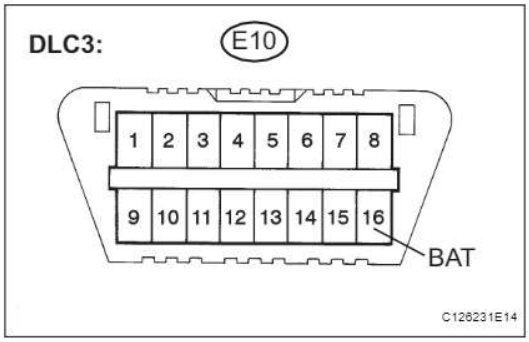
13	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (A/C AMPLIFIER)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect A/C amplifier connector E38.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-1 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E41-7 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector E41 disconnected.

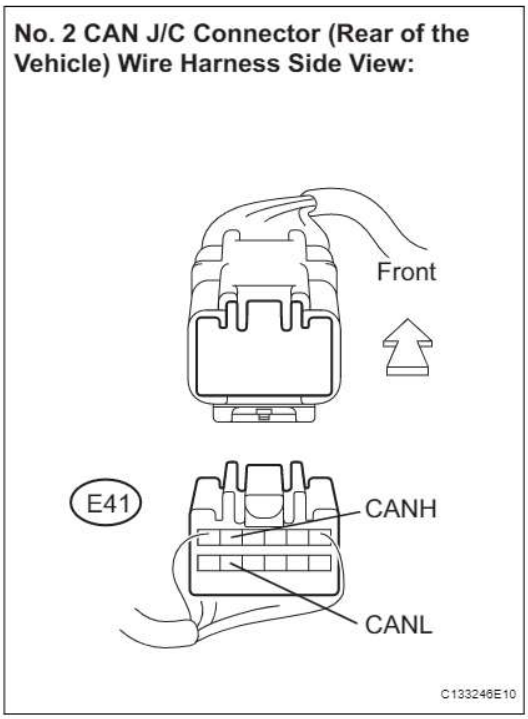
NG → **REPLACE A/C AMPLIFIER BRANCH WIRE OR CONNECTOR**

OK

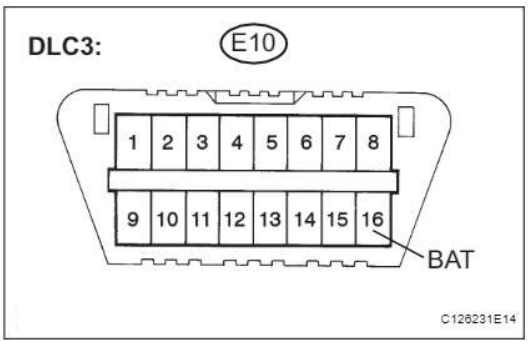
REPLACE A/C AMPLIFIER

CA

14	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (RADIO AND NAVIGATION ASSEMBLY)



(a) Disconnect radio and navigation assembly connector F12.



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E41-11 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:
Measure the resistance with No. 2 CAN J/C connector E41 disconnected.

NG → REPLACE RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE OR CONNECTOR

OK

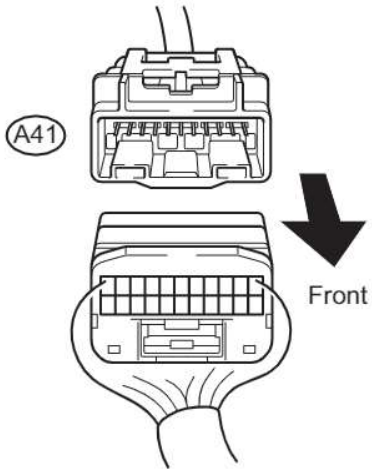
CA

REPLACE RADIO AND NAVIGATION ASSEMBLY

15	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (POWER STEERING ECU BRANCH WIRE)

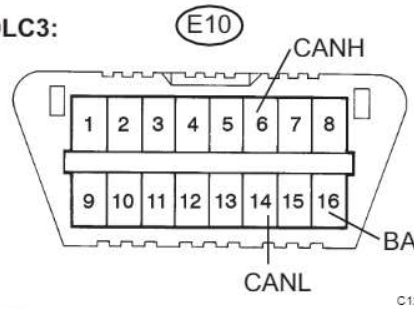
(a) Reconnect No. 2 CAN J/C connector A40 (front of the vehicle).

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(b) Disconnect No. 3 CAN J/C connector A41 (front of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
E10-14 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

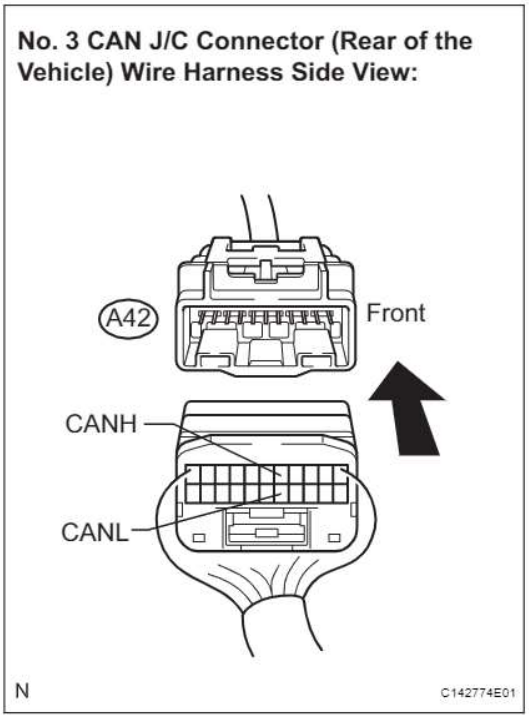
OK → Go to step 17

NG

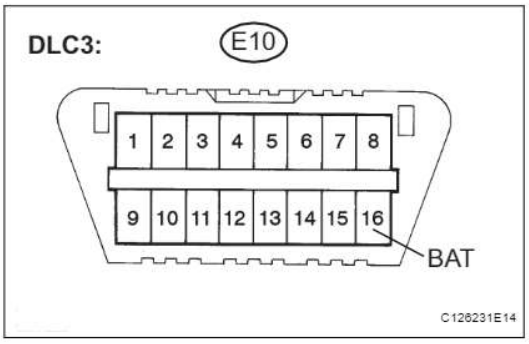
16	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (NO. 1 CAN J/C - NO. 3 CAN J/C)

(a) Reconnect No. 3 CAN J/C connector A41 (front of the vehicle).

CA



(b) Disconnect No. 3 CAN J/C connector A42 (rear of the vehicle).



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

Standard resistance

Tester Connection	Condition	Specified Value
A42-7 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
A42-18 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

NG → **REPLACE CAN BUS MAIN WIRE (NO. 1 CAN J/C - NO. 3 CAN J/C)**

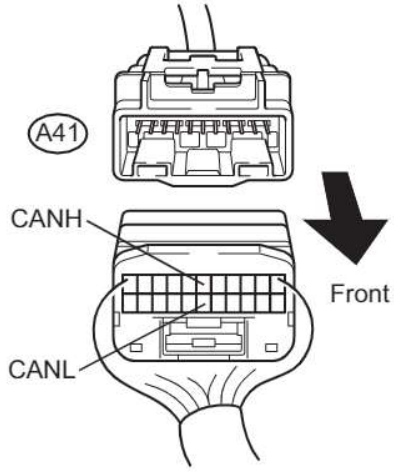
OK

REPLACE CAN BUS MAIN WIRE (NO. 2 CAN J/C - NO. 3 CAN J/C)

CA

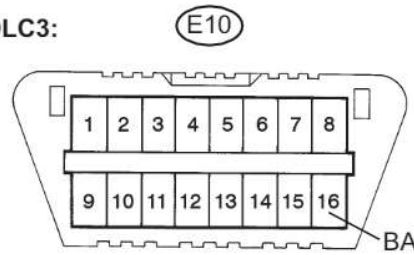
17	CHECK FOR SHORT TO B+ IN CAN BUS WIRE (POWER STEERING ECU)

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect power steering ECU connector A66.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A41-6 (CANH) - E10-16 (BAT)	Power switch off	6 kΩ or higher
A41-17 (CANL) - E10-16 (BAT)	Power switch off	6 kΩ or higher

HINT:
Measure the resistance with No. 3 CAN J/C connector A41 disconnected.

NG → **REPLACE POWER STEERING ECU BRANCH WIRE OR CONNECTOR**

OK

REPLACE POWER STEERING ECU

CA

Short to GND in CAN Bus Line

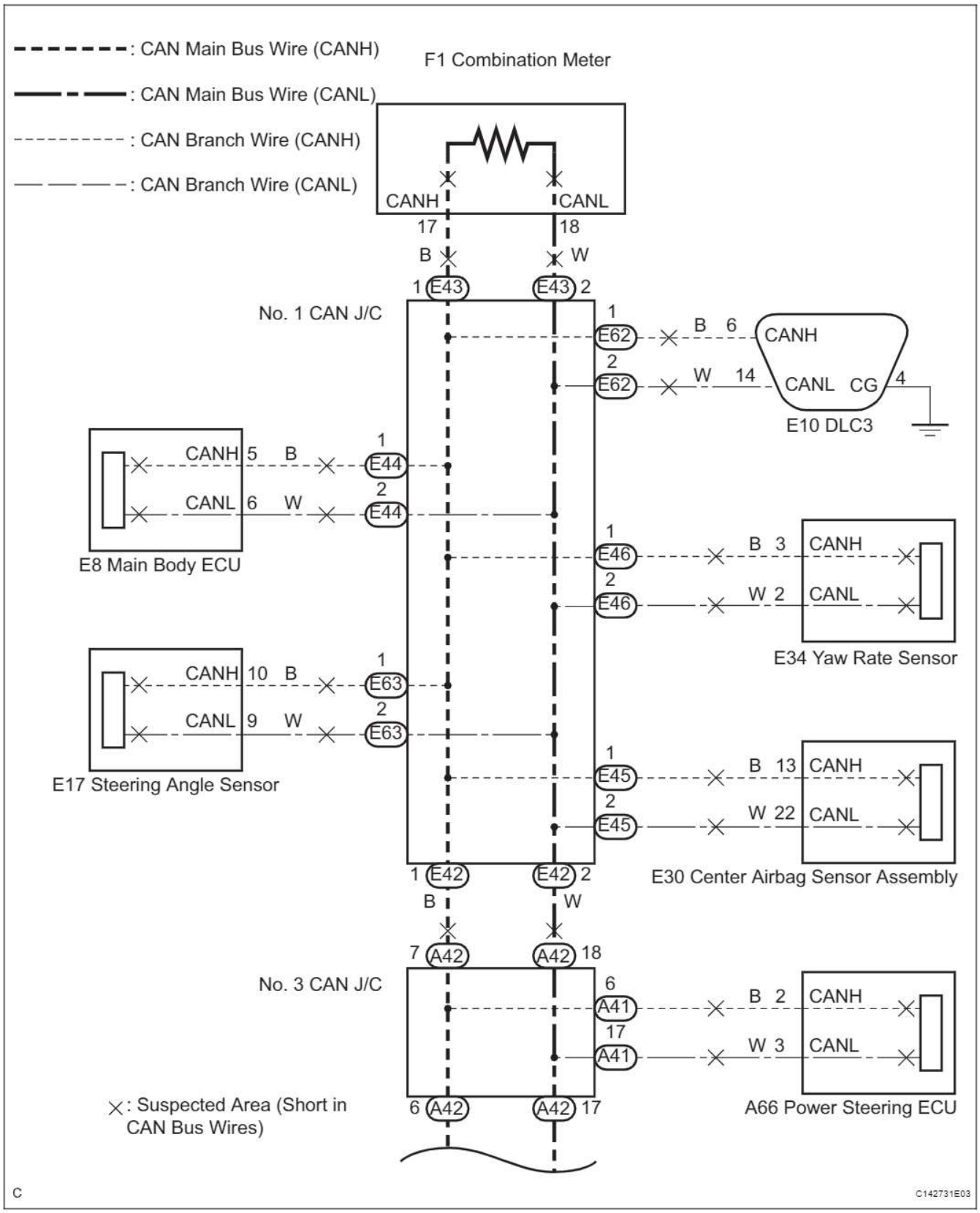
DESCRIPTION

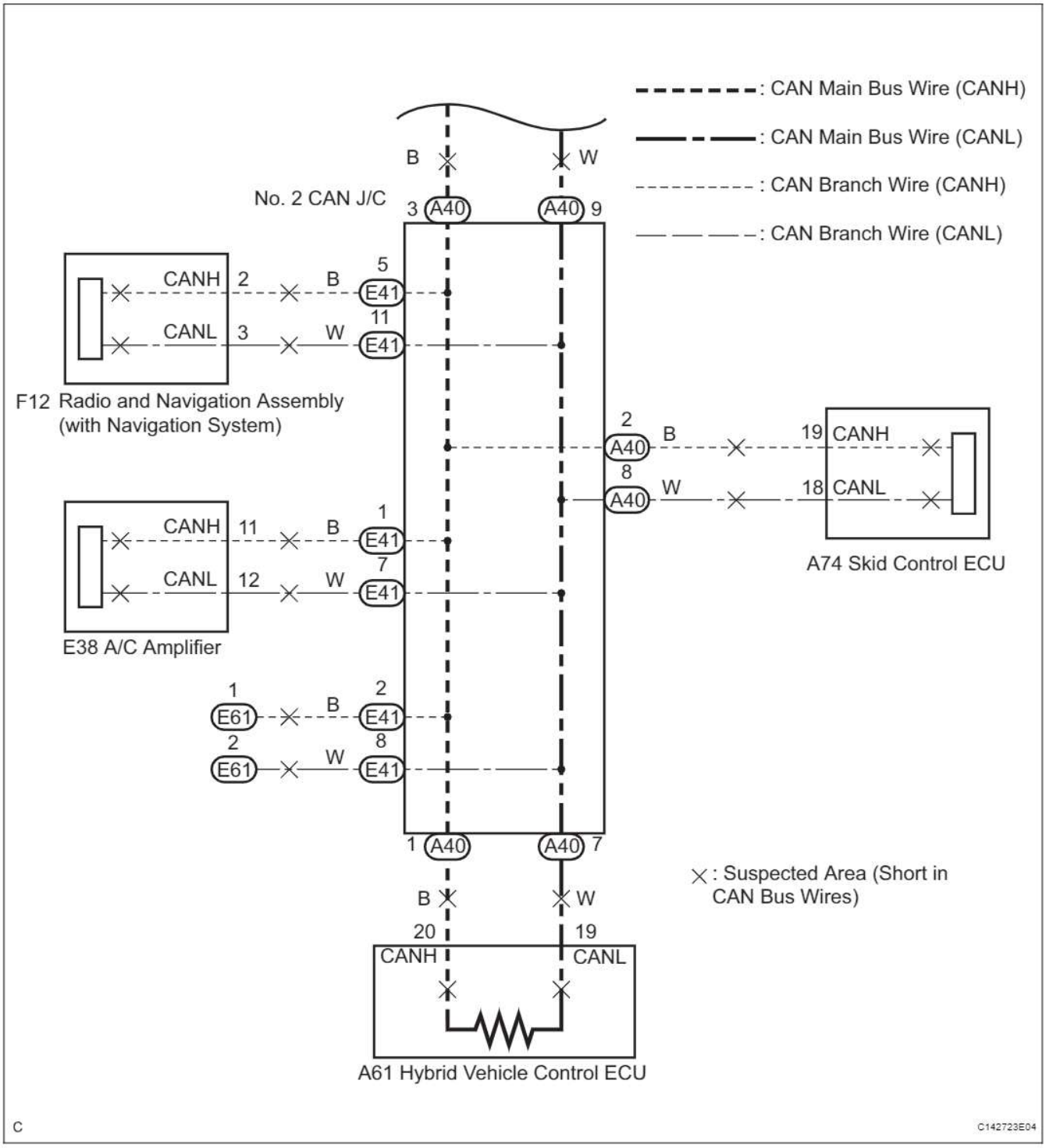
A short to GND is suspected in the CAN bus wire when the resistance between terminals 4 (CG) and 6 (CANH), or terminals 4 (CG) and 14 (CANL) of the DLC3 is below 200 Ω.

Symptoms	Trouble Area
The resistance between terminals 6 (CANH) and 4 (CG), or terminals 14 (CANL) and 4 (CG) of the DLC3 is below 200 Ω.	• Short to GND in CAN bus wire • HV control ECU • Skid control ECU • Steering angle sensor • Yaw rate sensor • Main body ECU • A/C amplifier • Combination meter • Center airbag sensor • Power steering ECU • Radio and navigation assembly

CA

WIRING DIAGRAM





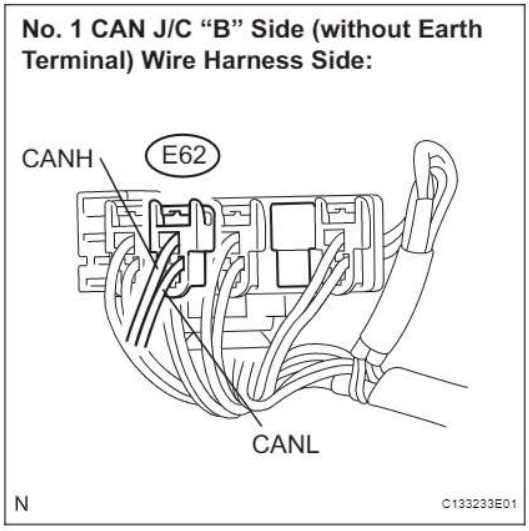
INSPECTION PROCEDURE

NOTICE:

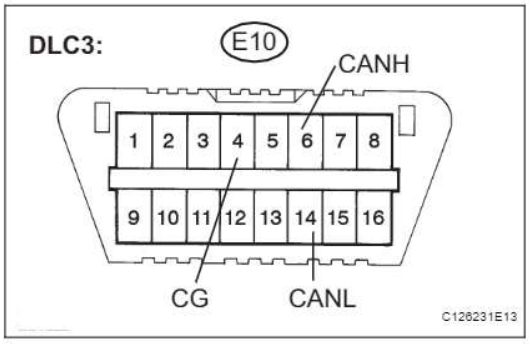
- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

HINT:
Operating the power switch, any other switches, or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.

1	CHECK FOR SHORT TO GND IN CAN BUS WIRE (DLC3 BRANCH WIRE)



(a) Turn the power switch off.
(b) Disconnect DLC3 branch wire gray connector E62 from the No. 1 CAN J/C "B" side (without earth terminal).
NOTICE:
- **Before disconnecting the connector, make a note of where it is connected.**
- **Reconnect the connector to its original position.**



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

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E10-14 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

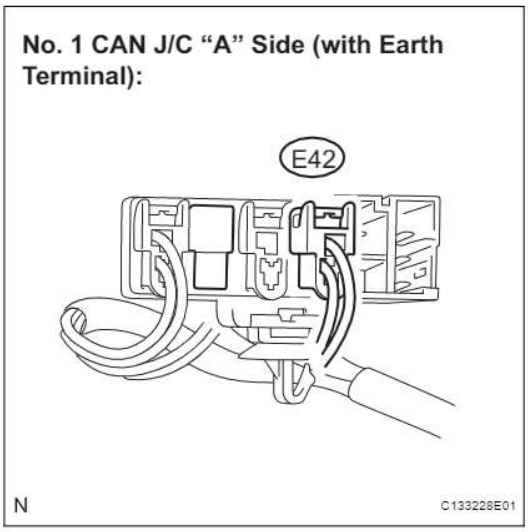
(d) Reconnect DLC3 branch wire connector E62 to the No. 1 CAN J/C "B" side (without earth terminal).

NG → **REPLACE DLC3 BRANCH WIRE OR CONNECTOR**

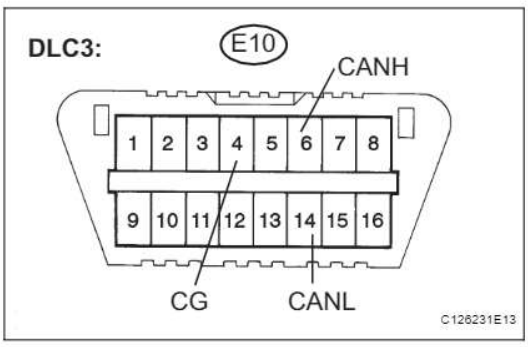
OK

CA

2	CHECK FOR SHORT TO GND IN CAN BUS WIRE (NO. 1 CAN J/C WIRE)



(a) Disconnect CAN main bus wire white connector E42 from the No. 1 CAN J/C "A" side (with earth terminal).



(b) Measure the resistance between terminals 6 (CANH) and 4 (CG), and between terminals 14 (CANL) and 4 (CG) of the DLC3 each time a connector is disconnected.

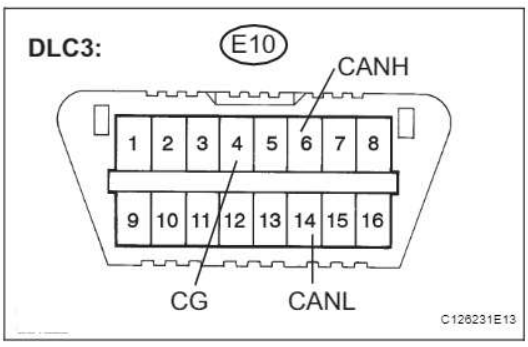
Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E10-14 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

OK → Go to step 6

NG

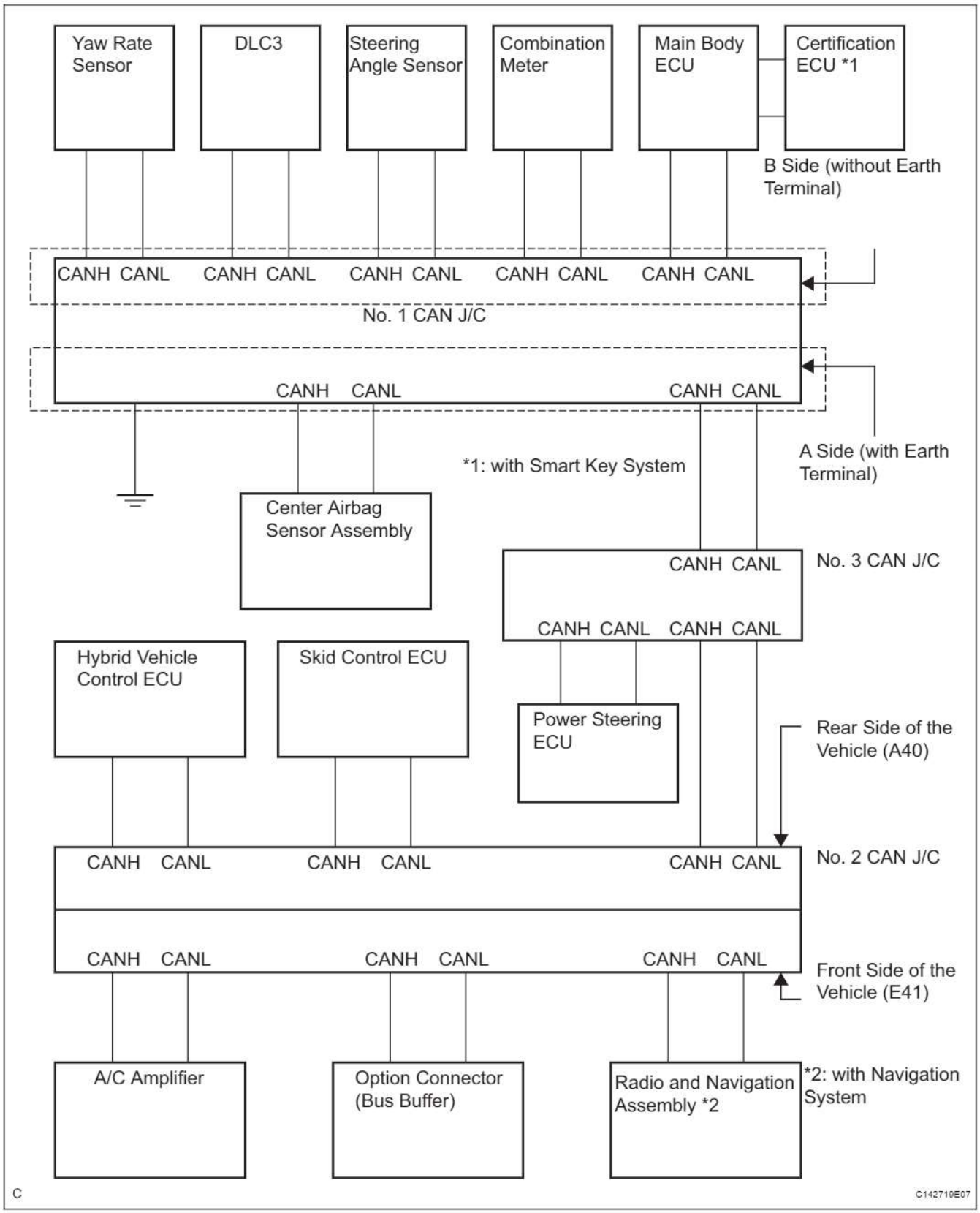
3	CHECK FOR SHORT TO GND IN CAN BUS WIRE



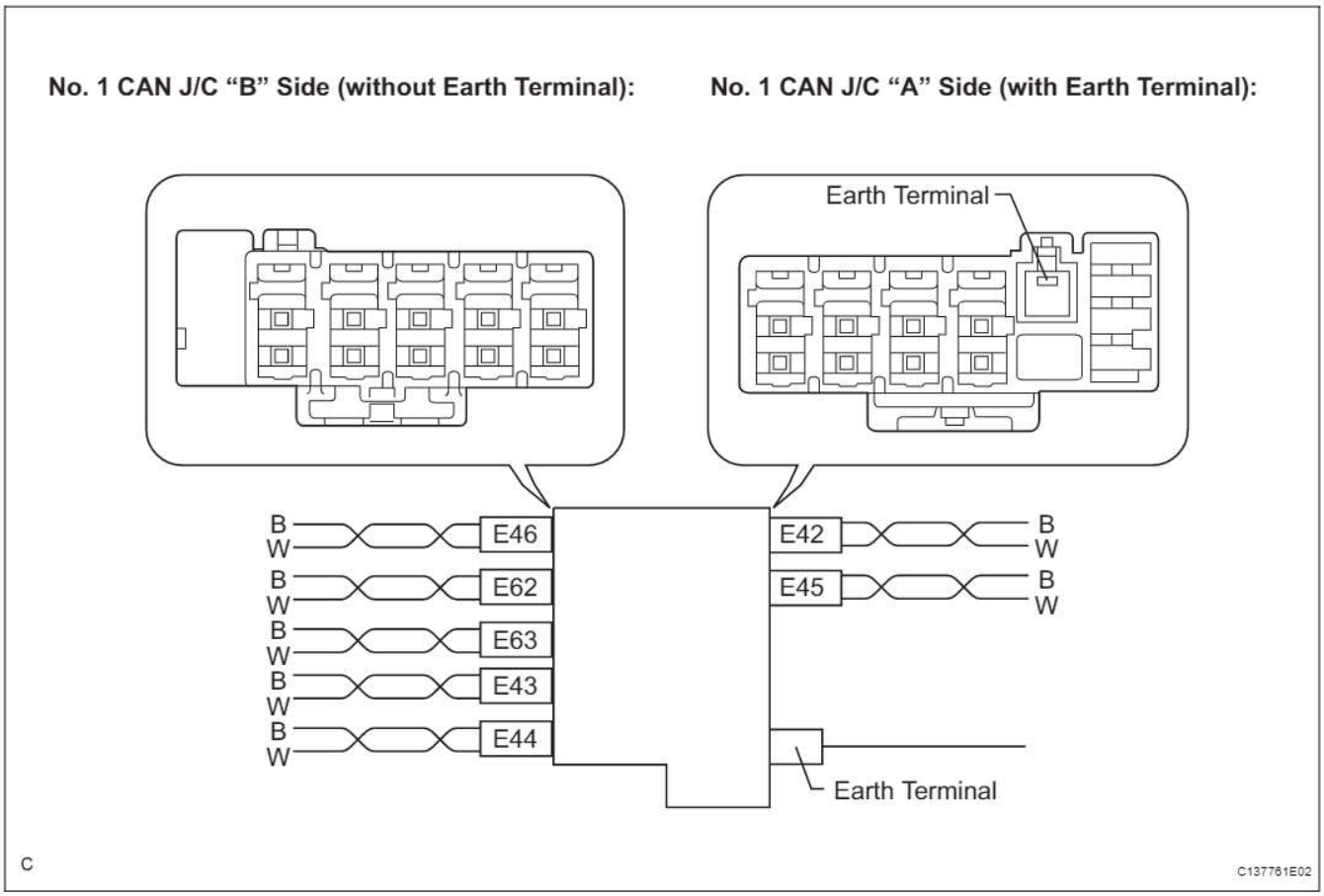
(a) Disconnect connectors from the No. 1 CAN J/C one at a time.
HINT:
Disconnect the ECU and sensor connectors other than the DLC3 branch wires and CAN main bus wires between the No. 1 CAN J/C and No. 3 CAN J/C.

(b) Measure the resistance between terminals 6 (CANH) and 4 (CG), and between terminals 14 (CANL) and 4 (CG) of the DLC3 each time a connector is disconnected.

CA


Yaw Rate Sensor
DLC3
Steering Angle Sensor
Combination Meter
Main Body ECU
Certification ECU *1
B Side (without Earth Terminal)
CANH CANL
No. 1 CAN J/C
A Side (with Earth Terminal)
*1: with Smart Key System
Center Airbag Sensor Assembly
No. 3 CAN J/C
Hybrid Vehicle Control ECU
Skid Control ECU
Power Steering ECU
Rear Side of the Vehicle (A40)
No. 2 CAN J/C
Front Side of the Vehicle (E41)
A/C Amplifier
Option Connector (Bus Buffer)
Radio and Navigation Assembly *2
*2: with Navigation System
C
C142719E07

CA



No. 1 CAN J/C Connector ("A" side, with earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Center Airbag Sensor Assembly (E45)	Black	B	W

No. 1 CAN J/C Connector ("B" side, without earth terminal)	Connector Color	Wire Color (CAN-H)	Wire Color (CAN-L)
Yaw Rate Sensor (E46)	Blue	B	W
Steering Angle Sensor (E63)	Brown	B	W
Combination Meter (E43)	White	B	W
Main Body ECU (E44)	Black	B	W

NOTICE:
Do not reconnect the disconnected connectors until this inspection is complete because there may be a short to GND in 2 or more CAN bus wires.

(c) When there is a short to GND in one or more of the bus wires that connect to an ECU (or sensor):
(1) Reconnect all of the connectors to the No. 1 CAN J/C, except for the one that was disconnected last (the bus wire that is shorted to GND). Check that the resistance shown on the tester is normal (200 Ω or more) to confirm that there is a short to GND in one branch wire only.

CA

HINT:

- The connectors connected to the No. 1 CAN J/C can be distinguished according to the color of the communication bus wires and the shape of the connectors.
- Reconnecting the connectors to non-specified positions on the No. 1 CAN J/C does not affect system operation. However, it is preferred to reconnect the connectors to their specified positions to avoid negative effects on the wiring such as tension on the wiring harnesses, and to make future maintenance easier.

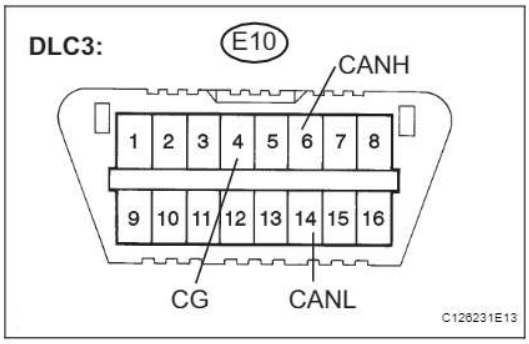
NEXT

4	RECONNECT CONNECTOR

(a) Reconnect the connector of the bus wire that is shorted to GND to the No. 1 CAN J/C (the connector that caused the bus wire resistance to change to 200 Ω or more when it was disconnected).

NEXT

5	CHECK FOR SHORT TO GND IN CAN BUS WIRE



(a) Disconnect the connector that includes terminals CANH and CANL from the ECU (or sensor) to which the bus wire shorted to GND is connected (See page CA-9).

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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E10-14 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

HINT:

If the resistance changes to 200 Ω or higher when the connector is disconnected from the ECU (or sensor), there may be a short in the ECU (or sensor).

NG → REPLACE CORRESPONDING ECU OR SENSOR BUS WIRE OR CONNECTOR

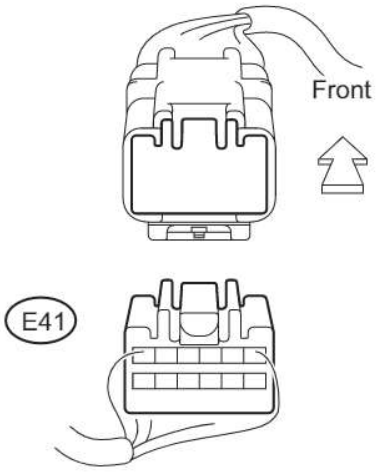
CA

OK

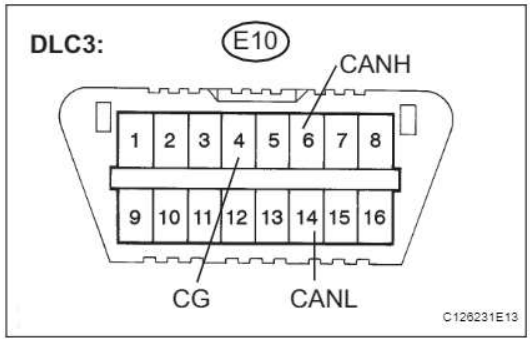
REPLACE CORRESPONDING ECU OR SENSOR

6	CHECK FOR SHORT TO GND IN CAN BUS WIRE (NO. 2 CAN J/C WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Reconnect CAN main bus wire connector E42 to the No. 1 CAN J/C "A" side (with earth terminal).
(b) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E10-14 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

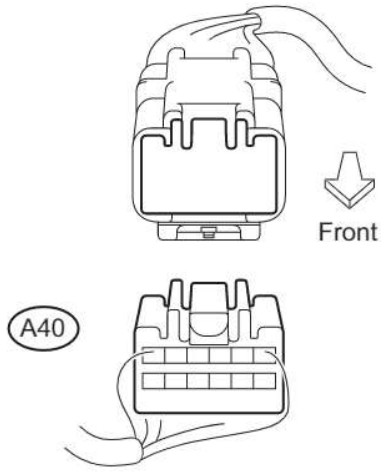
OK → Go to step 11

NG

CA

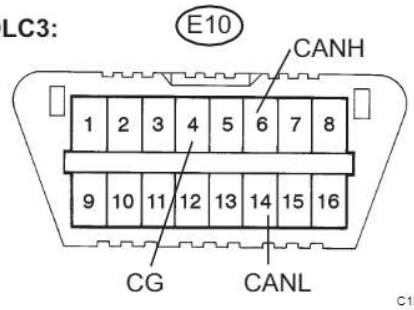
7	CHECK FOR SHORT TO GND IN CAN BUS WIRE (NO. 2 CAN J/C WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector A40 (front of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E10-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E10-6 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

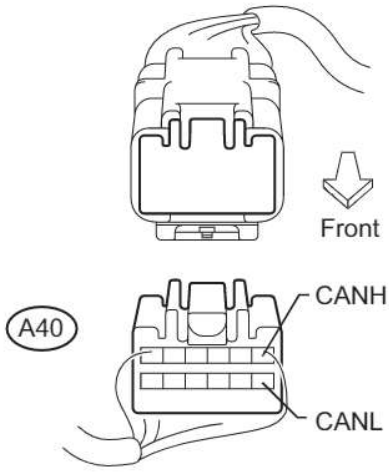
NG → **Go to step 15**

OK

CA

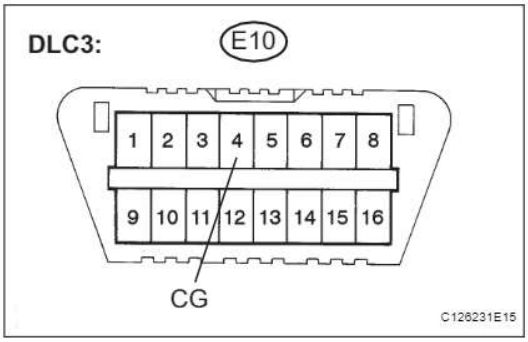
8	CHECK FOR SHORT TO GND IN CAN BUS WIRE (HV CONTROL ECU MAIN BUS WIRE)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Reconnect No. 2 CAN J/C connector A41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-1 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A40-7 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

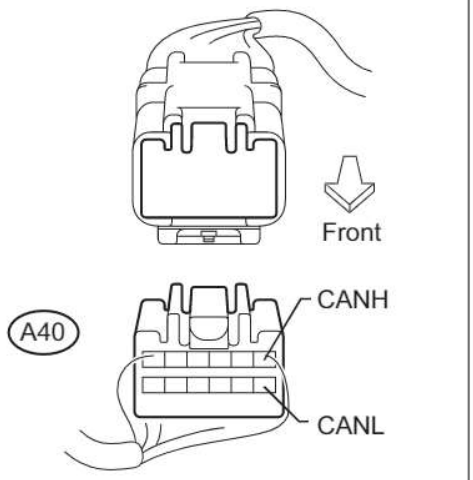
OK → **Go to step 10**

NG

CA

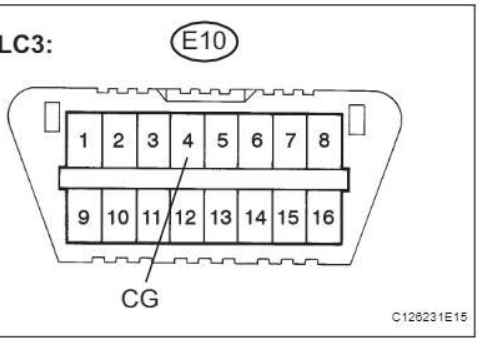
9	CHECK FOR SHORT TO GND IN CAN BUS WIRE (HV CONTROL ECU)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect HV control ECU connector A61.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-1 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A40-7 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

NG → **REPLACE CAN BUS MAIN WIRE OR CONNECTOR (HV CONTROL ECU - NO. 2 CAN J/C)**

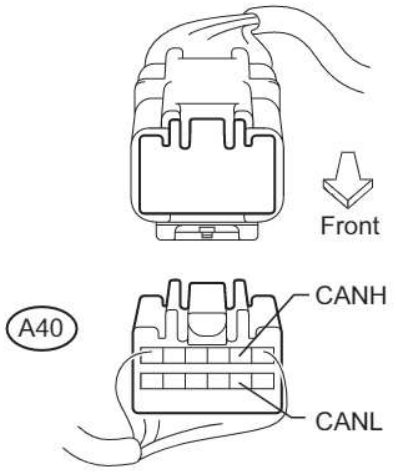
OK

REPLACE ACCESSORY GATEWAY BRANCH WIRE OR CONNECTOR

CA

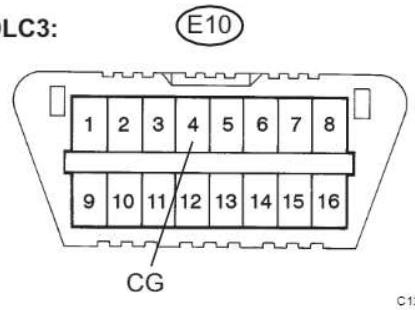
10	CHECK FOR SHORT TO GND IN CAN BUS WIRE (SKID CONTROL ECU)

No. 2 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect skid control ECU connector A74.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A40-2 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A40-8 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

OK → REPLACE SKID CONTROL ECU ASSY

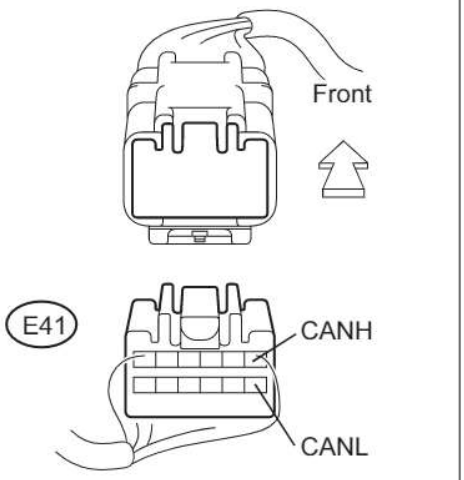
NG

REPLACE SKID CONTROL ECU BRANCH WIRE OR CONNECTOR

CA

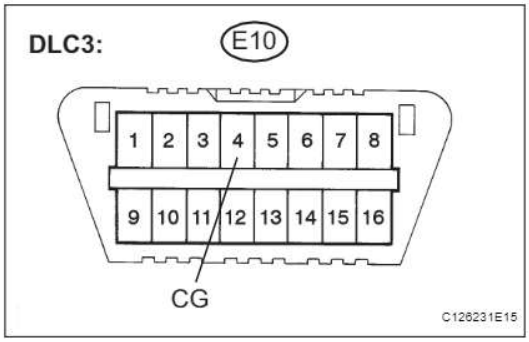
11	CHECK FOR SHORT TO GND IN CAN BUS WIRE (A/C AMPLIFIER BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-1 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E41-7 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

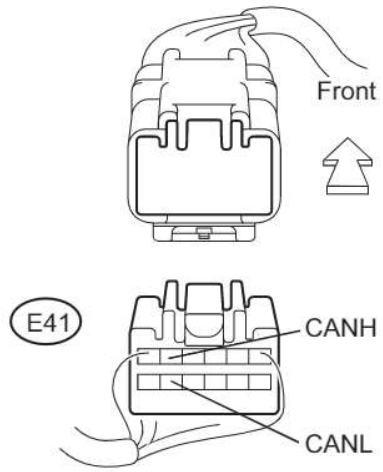
NG → **Go to step 13**

OK

CA

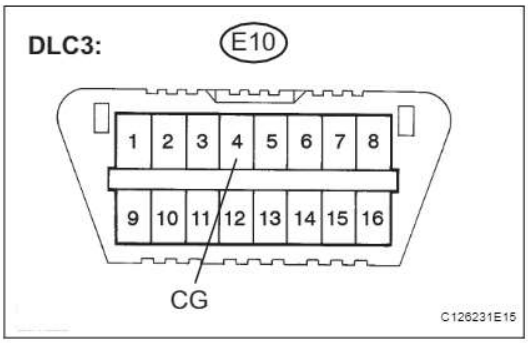
12	CHECK FOR SHORT TO GND IN CAN BUS WIRE (RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 2 CAN J/C connector E41 (rear of the vehicle).

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E41-11 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

NG → **Go to step 14**

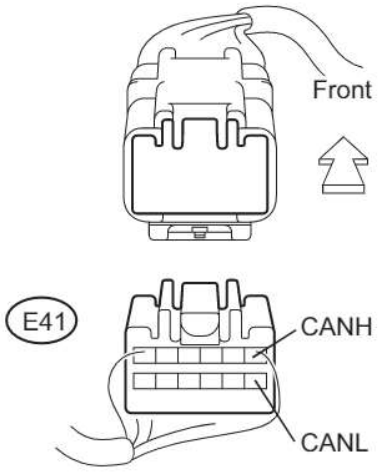
OK

REPLACE ACCESSORY GATEWAY BRANCH WIRE OR CONNECTOR

CA

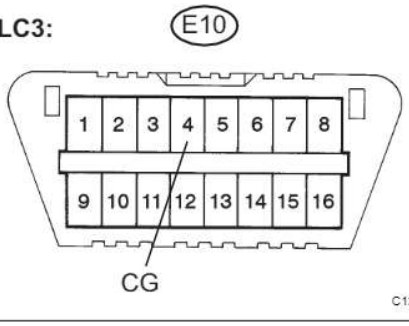
13	CHECK FOR SHORT TO GND IN CAN BUS WIRE (A/C AMPLIFIER)

No. 2 CAN J/C Connector (Rear of the Vehicle) Wire Harness Side View:



(a) Disconnect A/C amplifier connector E38.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-1 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E41-7 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

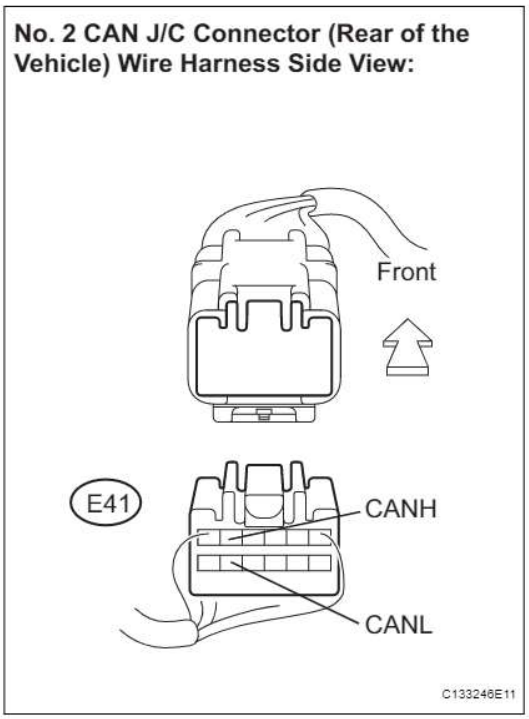
NG → **REPLACE A/C AMPLIFIER BRANCH WIRE OR CONNECTOR**

OK

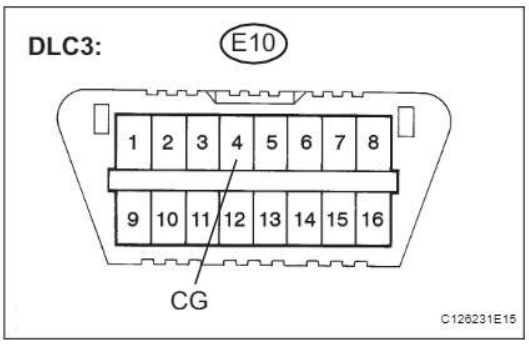
REPLACE A/C AMPLIFIER

CA

14	CHECK FOR SHORT TO GND IN CAN BUS WIRE (RADIO AND NAVIGATION ASSEMBLY)



(a) Disconnect the radio and navigation assembly connector F12.



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

Standard resistance

Tester Connection	Condition	Specified Value
E41-5 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
E41-11 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

NG → REPLACE RADIO AND NAVIGATION ASSEMBLY BRANCH WIRE OR CONNECTOR

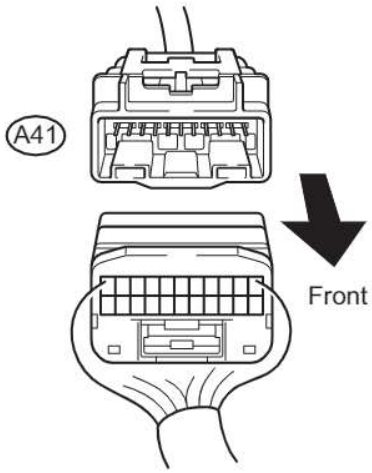
OK

REPLACE RADIO AND NAVIGATION ASSEMBLY

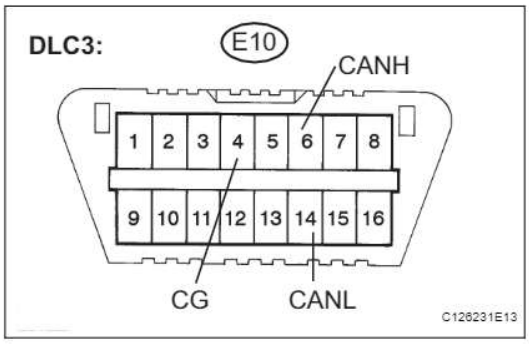
CA

15	CHECK FOR SHORT TO GND IN CAN BUS WIRE (POWER STEERING ECU BRANCH WIRE)

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect No. 3 CAN J/C connector A41 (front of the vehicle).



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

Standard resistance

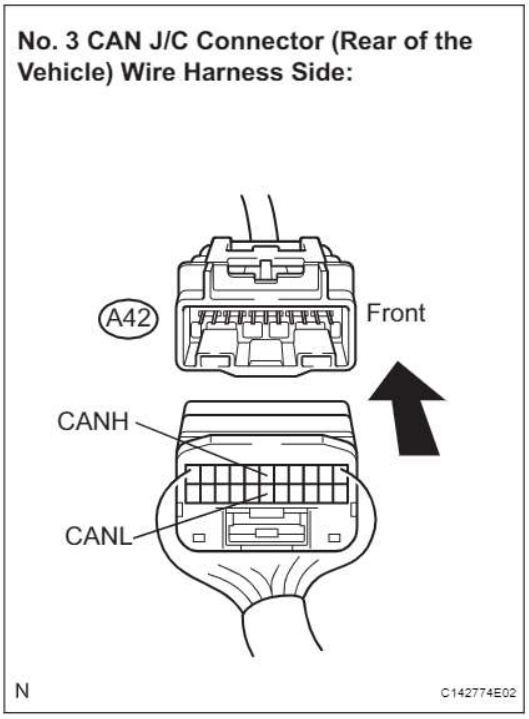
Tester Connection	Condition	Specified Value
A41-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A41-17 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

OK → Go to step 17

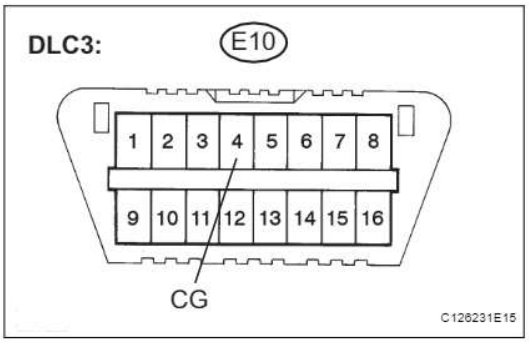
NG

16	CHECK FOR SHORT TO GND IN CAN BUS WIRE (CAN MAIN BUS WIRE)

(a) Reconnect No. 3 CAN J/C connector A41 (front of the vehicle).



(b) Disconnect No. 3 CAN J/C connector A42 (rear of the vehicle).



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

Standard resistance

Tester Connection	Condition	Specified Value
A42-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A42-17 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

OK → **REPLACE CAN BUS MAIN WIRE (NO. 1 CAN J/C - NO. 3 CAN J/C)**

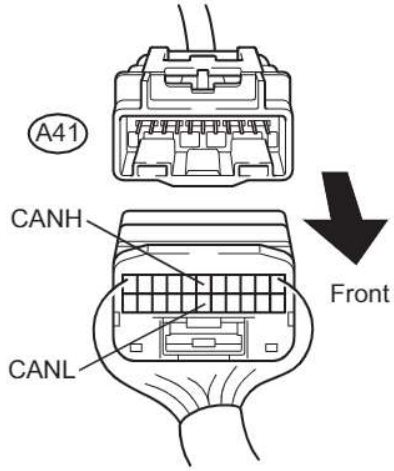
NG

REPLACE CAN BUS MAIN WIRE OR CONNECTOR (NO. 2 CAN J/C - NO. 3 CAN J/C)

CA

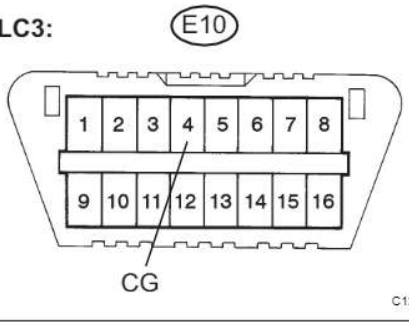
17	CHECK FOR SHORT TO GND IN CAN BUS WIRE (POWER STEERING ECU)

No. 3 CAN J/C Connector (Front of the Vehicle) Wire Harness Side View:



(a) Disconnect power steering ECU connector A66.

DLC3:



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

Standard resistance

Tester Connection	Condition	Specified Value
A41-6 (CANH) - E10-4 (CG)	Power switch off	200 Ω or higher
A41-17 (CANL) - E10-4 (CG)	Power switch off	200 Ω or higher

NG → REPLACE POWER STEERING ECU BRANCH WIRE OR CONNECTOR

OK

REPLACE POWER STEERING ECU

CA

Open in One Side of CAN Branch Line

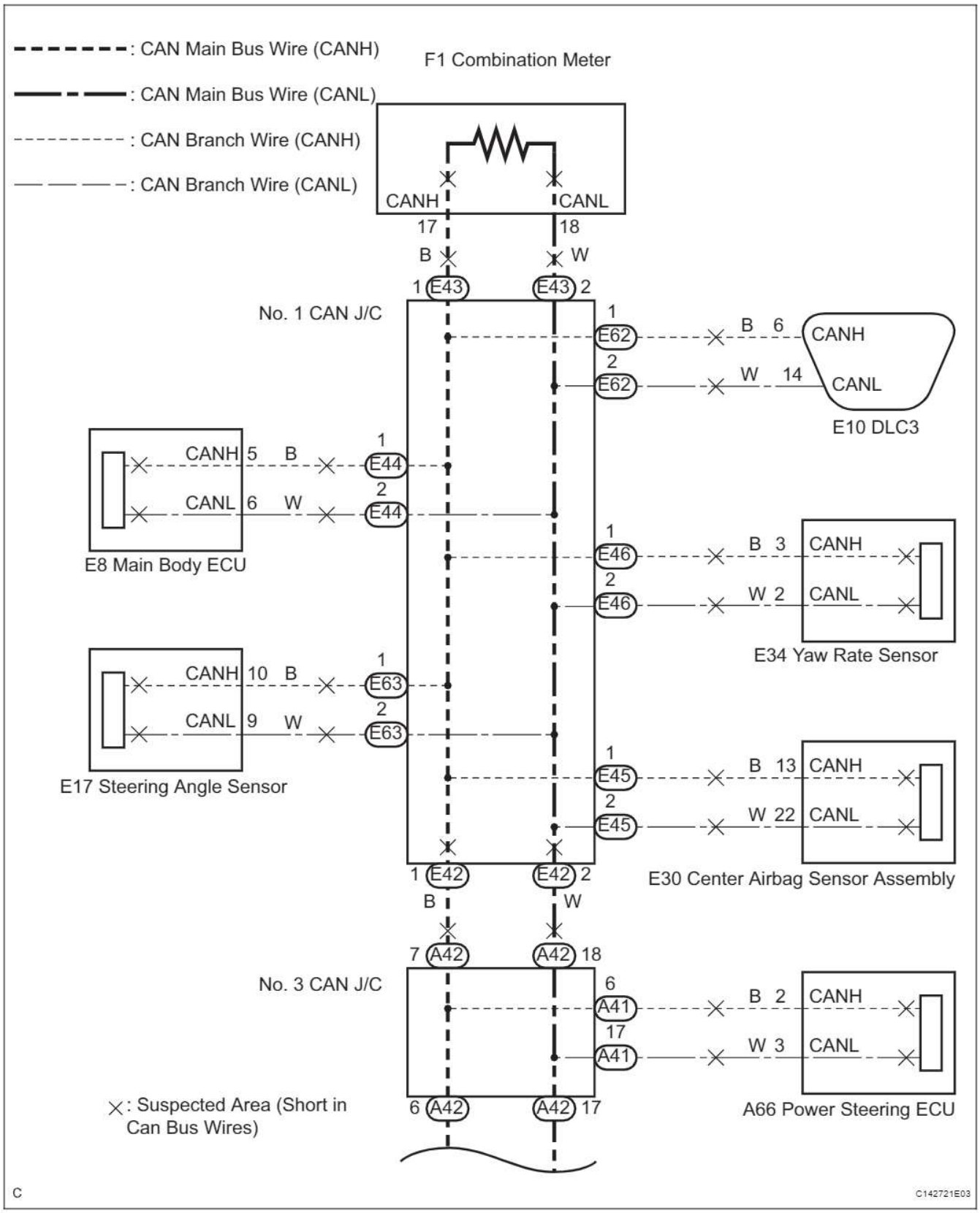
DESCRIPTION

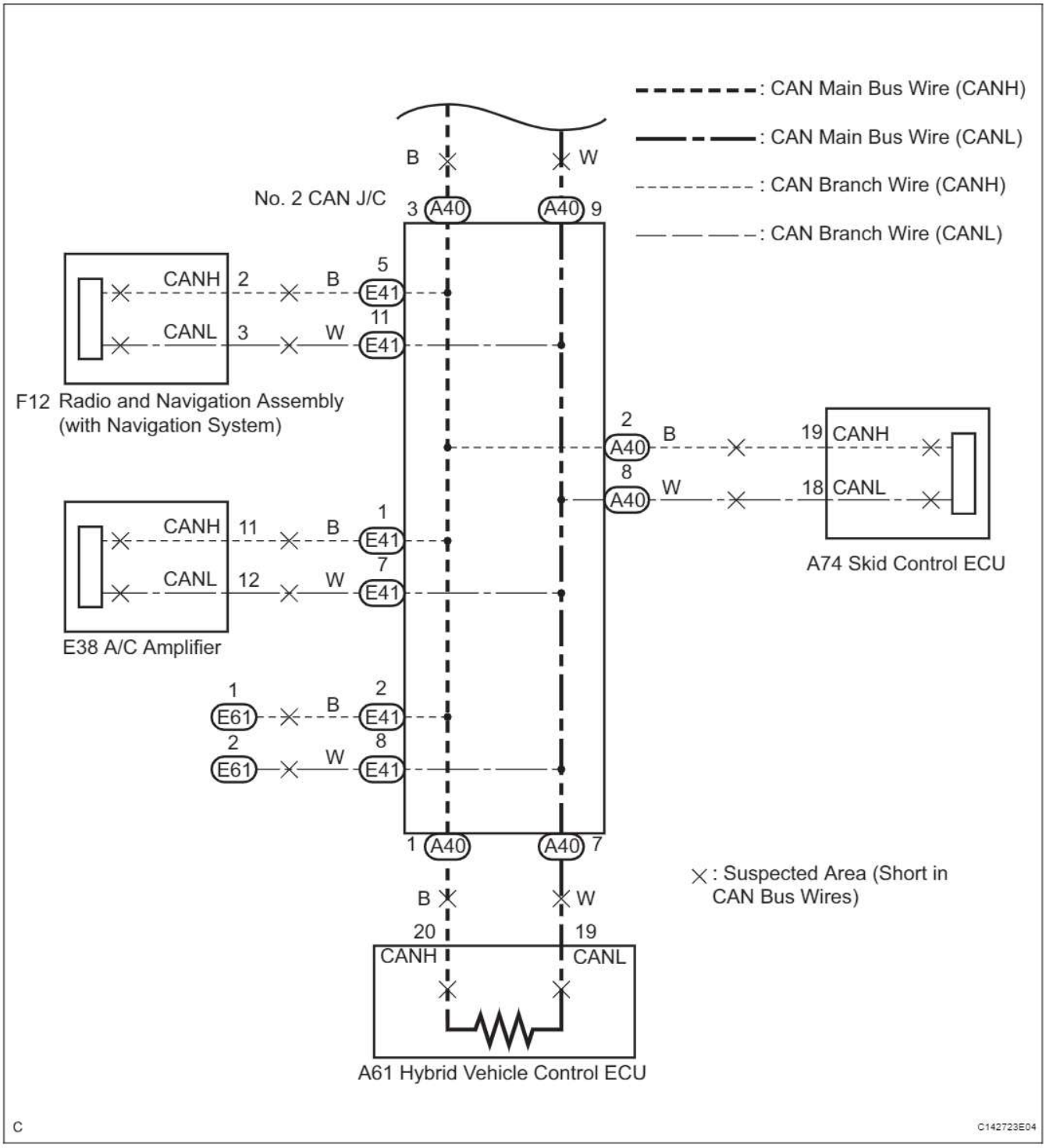
If 2 or more ECUs and/or sensors do not appear on the intelligent tester "BUS CHECK" screen, there may be an open circuit in either of the CAN branch wires. (One side of the CAN-H [branch wire]/CAN-L [branch wire] of the ECU and/or sensor is open.)

Symptom	Trouble Area
2 or more ECUs and/or sensors do not appear on the intelligent tester "BUS CHECK" screen.	• One side of the CAN branch wire is open • Steering angle sensor • Skid control ECU • HV control ECU • Yaw rate sensor • Main body ECU • A/C amplifier • Center airbag sensor • Combination meter • Power steering ECU • Radio and navigation assembly

CA

WIRING DIAGRAM





INSPECTION PROCEDURE

NOTICE:

- **Turn the power switch off before measuring the resistances of CAN bus main wires and CAN bus branch wires.**
- **After the power switch is turned off, check that the key reminder warning system and lighting system are not operating.**
- **Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors. If any doors need to be opened in order to check connectors, open the doors and leave them open.**

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

1	CHECK FOR OPEN IN ONE SIDE OF CAN BRANCH WIRE

(a) Confirm the systems (ECUs and sensors), which use CAN communication, equipped on the vehicle. (See page CA-22)
(b) Using the intelligent tester, select and perform "BUS CHECK". (See page CA-22) [*1]
(c) Disconnect the connectors from the ECUs or sensors that are not displayed on the screen. [*2]
(d) Check that only the ECUs and sensors from which the connectors were disconnected in the previous step are not displayed on the "BUS CHECK" screen. [*3]
HINT:
If any ECUs or sensors, other than those from which the connectors were disconnected in the previous step, are not displayed on the "BUS CHECK" screen, reconnect the disconnected connectors and repeat the procedures [*1], [*2], and [*3].
(e) Perform the communication stop mode check for the ECUs and sensors which correspond to the disconnected connectors. (See page CA-9)

NEXT

GO TO CORRESPONDING COMMUNICATION STOP MODE

CA

CAN COMMUNICATION SYSTEM

PRECAUTION

NOTICE:
When disconnecting the negative (-) battery cable, initialize the following systems after the terminal is reconnected.

System	See procedure
SFI system	IN-43

1. STEERING SYSTEM HANDLING PRECAUTIONS

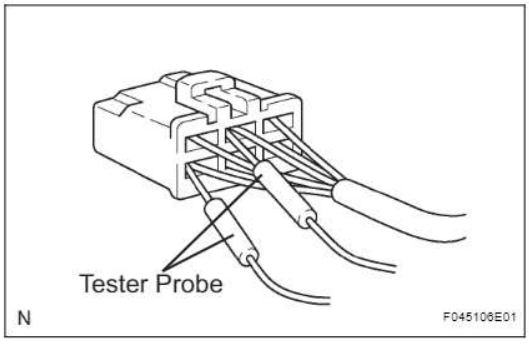
(a) Care must be taken when replacing parts. Incorrect replacement could affect the performance of the steering system and result in hazardous driving.

2. SRS AIRBAG SYSTEM HANDLING PRECAUTIONS

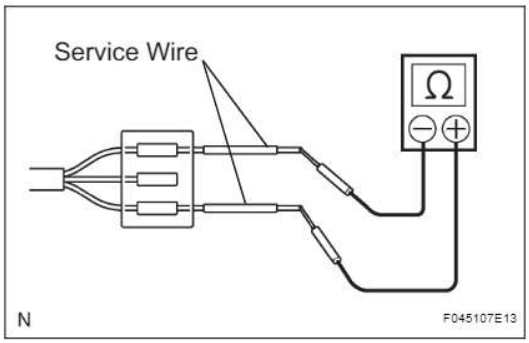
(a) This vehicle is equipped with an SRS (Supplemental Restraint System) which includes parts such as the driver airbag and front passenger airbag. Failure to carry out service operations in the correct sequence could cause unexpected SRS deployment during servicing and may lead to a serious accident.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

3. CONNECTOR HANDLING

(a) When checking resistance with a tester, insert the tester probes from the backside (harness side) of the connector.

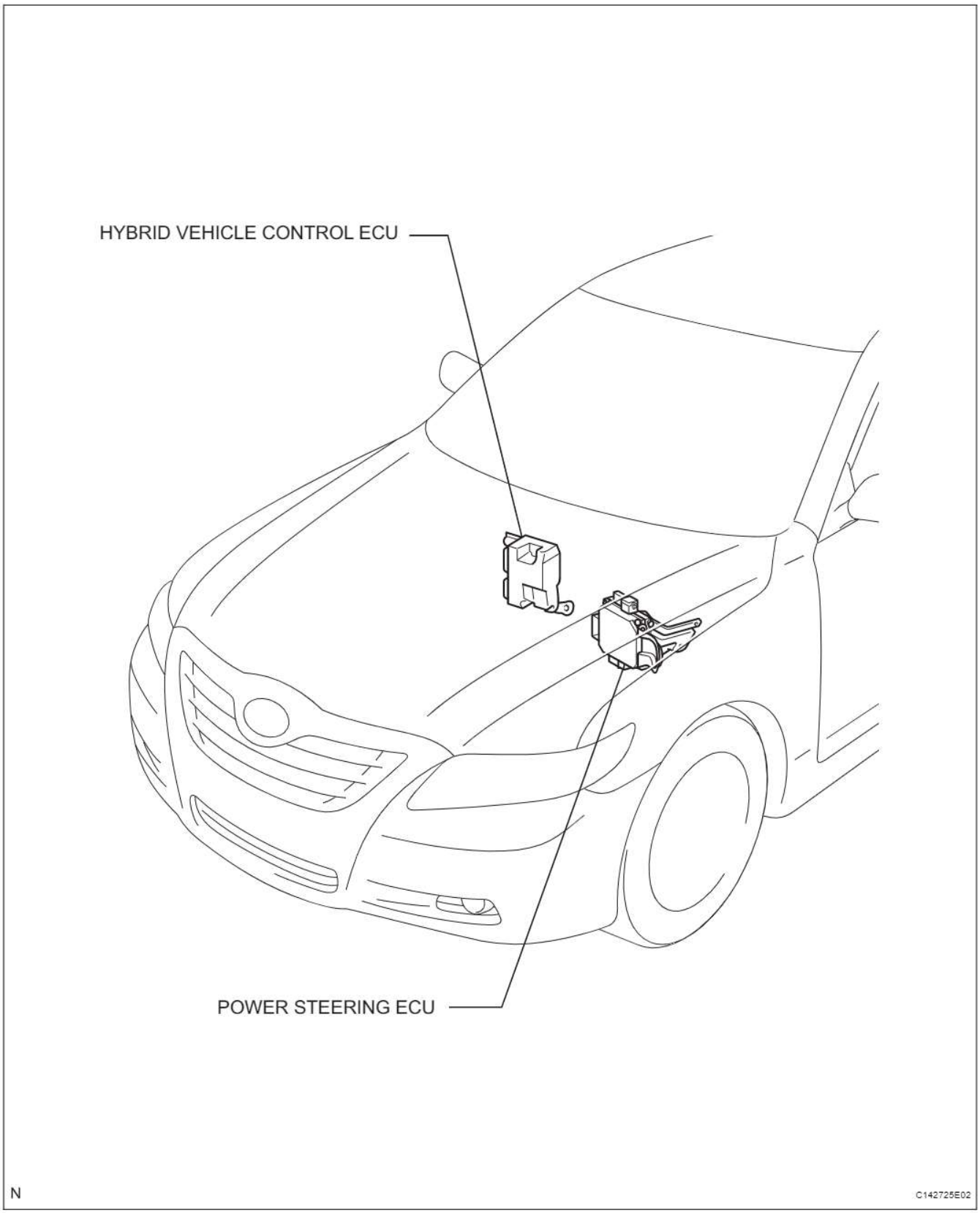


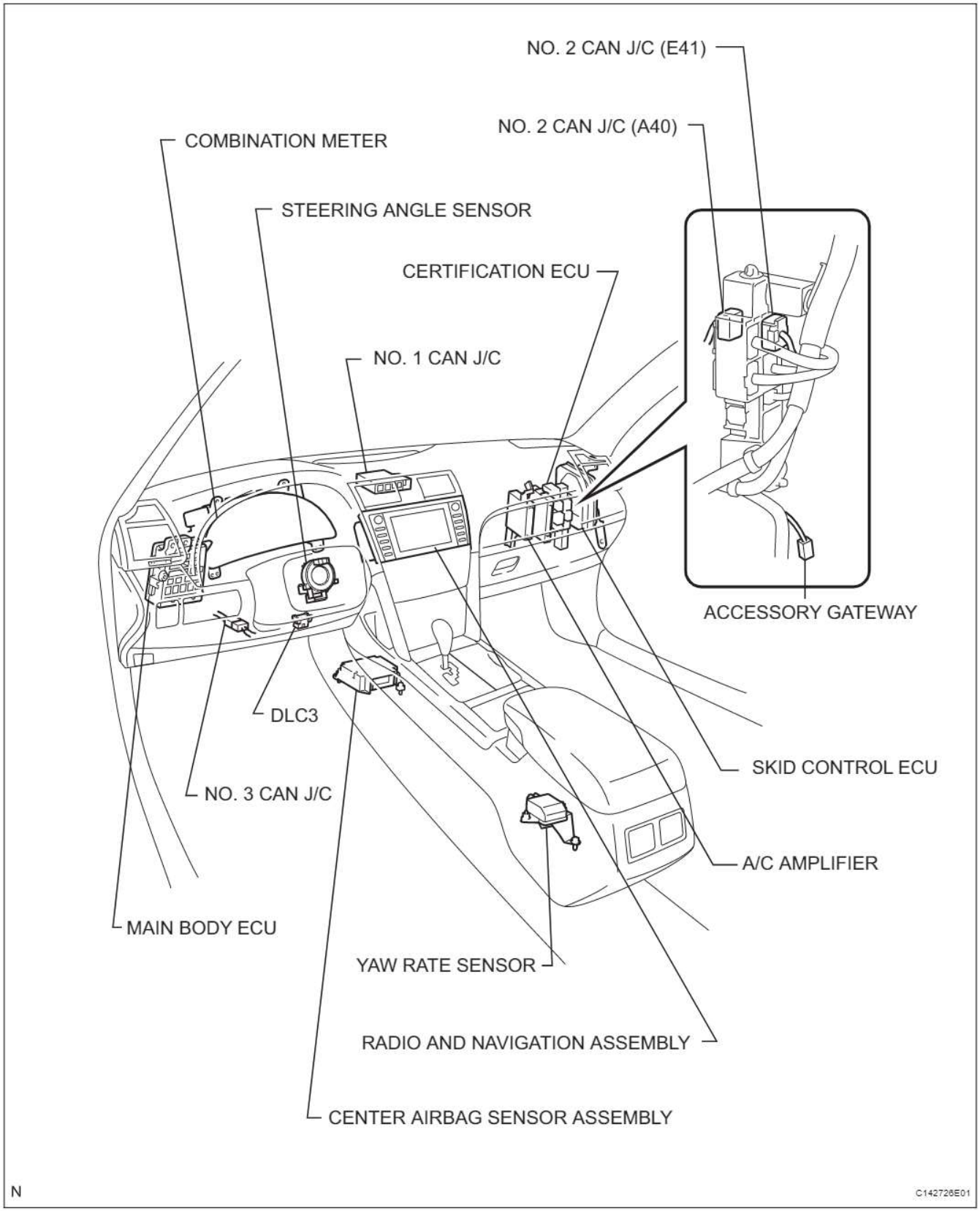
(b) Use service wires to check the connector if it is impossible to check continuity from the rear of the connector.



CA

PARTS LOCATION




NO. 2 CAN J/C (E41)
NO. 2 CAN J/C (A40)
COMBINATION METER
STEERING ANGLE SENSOR
CERTIFICATION ECU
NO. 1 CAN J/C
ACCESSORY GATEWAY
DLC3
SKID CONTROL ECU
NO. 3 CAN J/C
A/C AMPLIFIER
MAIN BODY ECU
YAW RATE SENSOR
RADIO AND NAVIGATION ASSEMBLY
CENTER AIRBAG SENSOR ASSEMBLY
N
C142726E01

CA