PRECAUTION

1. PRECAUTION FOR DISCONNECTING BATTERY CABLE

NOTICE:

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

System	See Procedure
Advanced Parking Guide System	INFO

2. PRECAUTIONS FOR STEERING SYSTEM HANDLING

(a) Be careful when replacing parts. Incorrect replacement could affect the performance of the steering system and result in hazardous driving.

3. PRECAUTIONS FOR SRS AIRBAG SYSTEM HANDLING

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

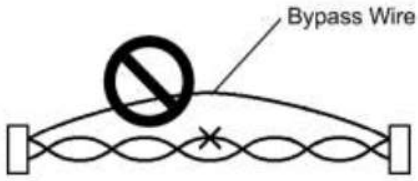
4. BUS WIRE REPAIR



N F45104

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

- The CANL bus wire and CANH bus wire must be installed together at all times.
- When installing, make sure that these wires are twisted, because CAN bus wires are likely to be influenced by electrical noise if the bus wires are not twisted.
- The difference in length between the CANL bus wire and CANH bus wire should be 100 mm (3.937 in.) or less.
- Leave approximately 80 mm (3.150 in.) loose in the twisted wires around the connector.



N

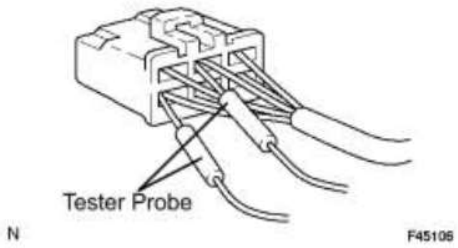
(b) Do not use bypass wiring between connectors.

NOTICE:

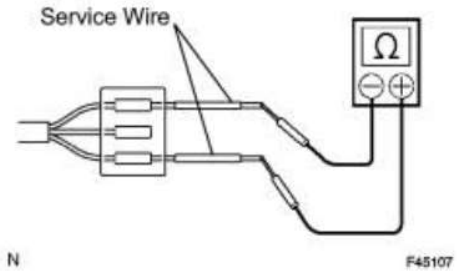
The ability of the twisted bus wires to resist interference will be lost if bypass wiring is used.

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5. 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.

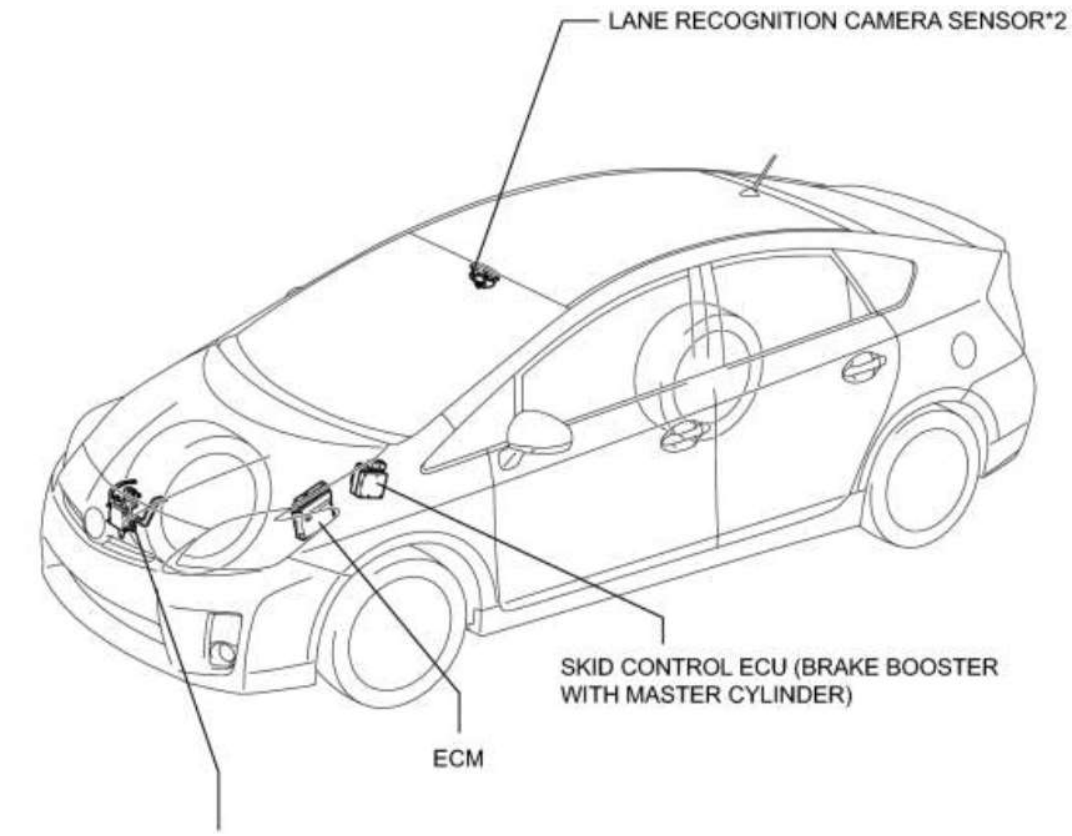
6. PRECAUTIONS FOR INSPECTING OR REPLACING CAN JUNCTION CONNECTOR

(a) If the CAN junction connector is removed from the vehicle for inspection or replacement, make sure to install the CAN junction connector and all wire harnesses to their original locations with tape and the clamps.

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PARTS LOCATION

ILLUSTRATION



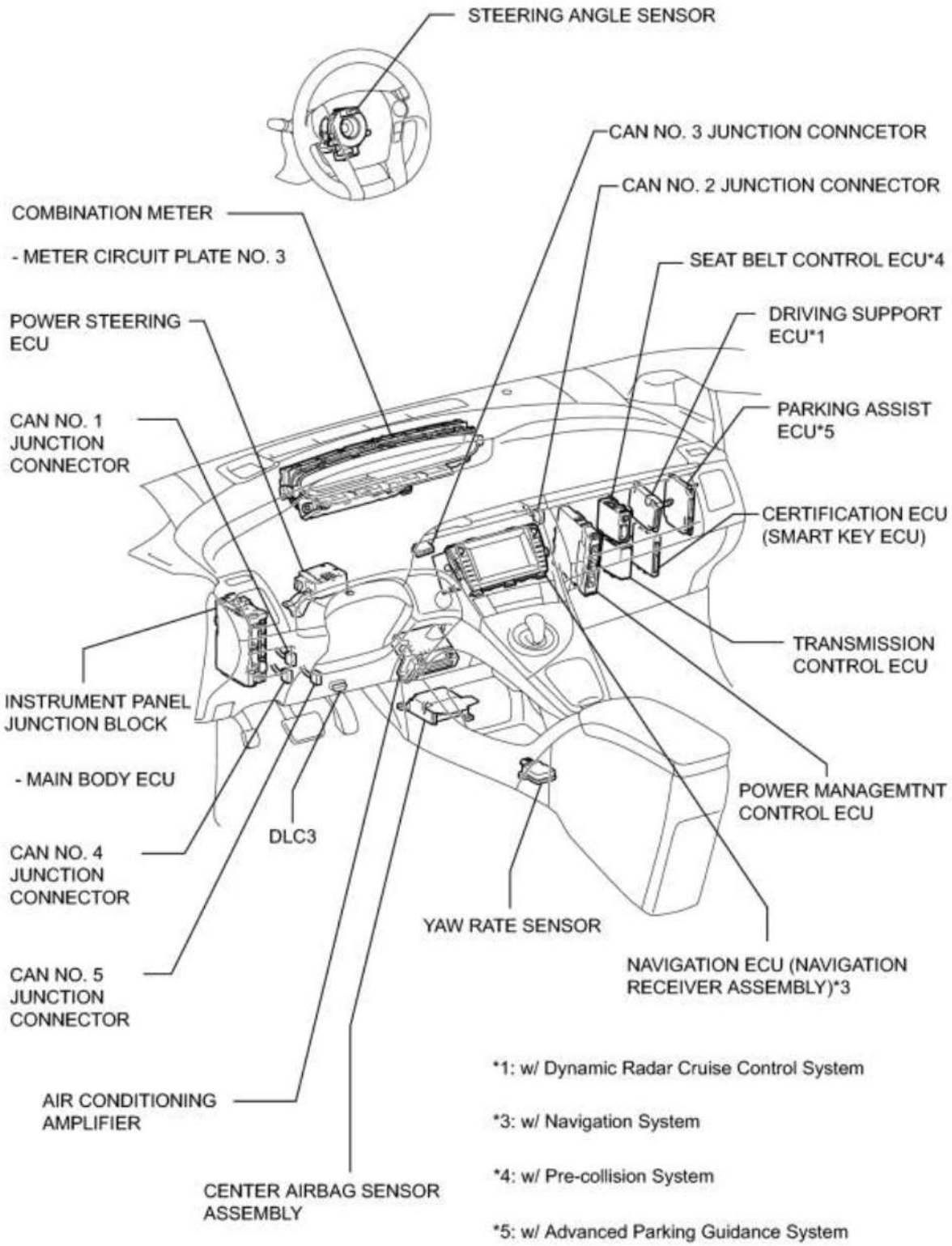
*1: w/ Dynamic Radar Cruise Control System

*2: w/ Lane-keeping Assist System

H

ILLUSTRATION

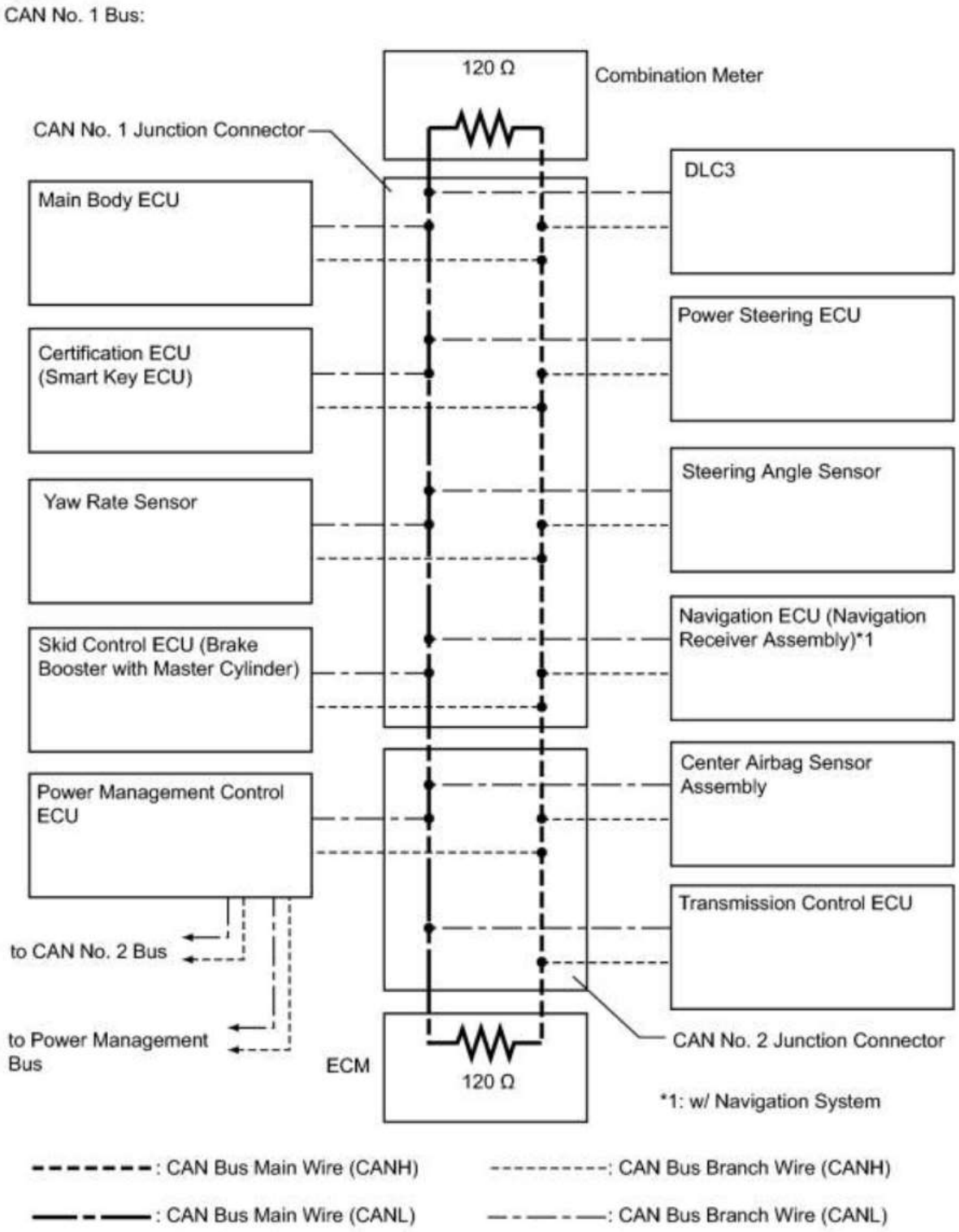
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SYSTEM DIAGRAM

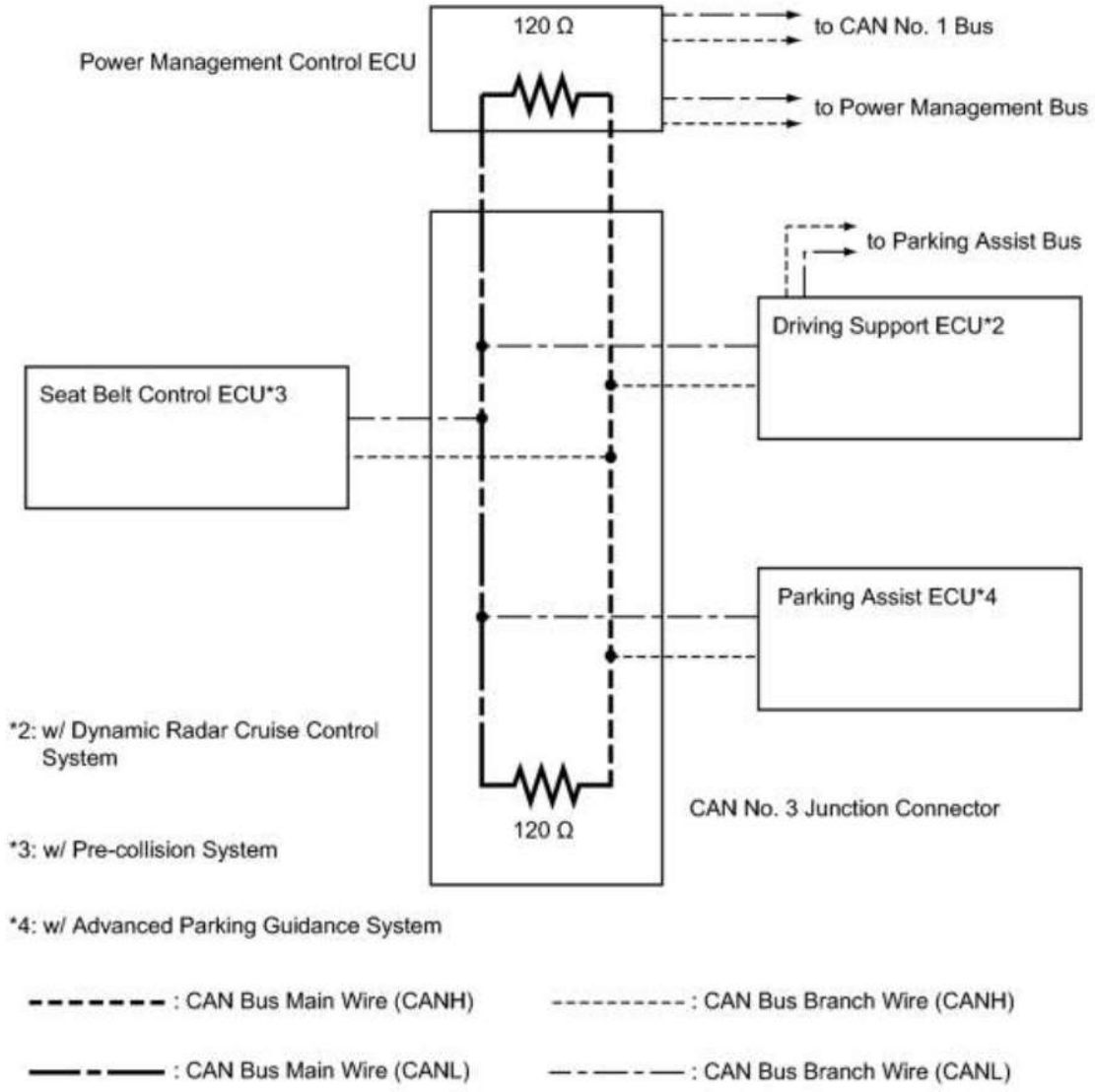
1. CAN No. 1 BUS



2. CAN No. 2 BUS

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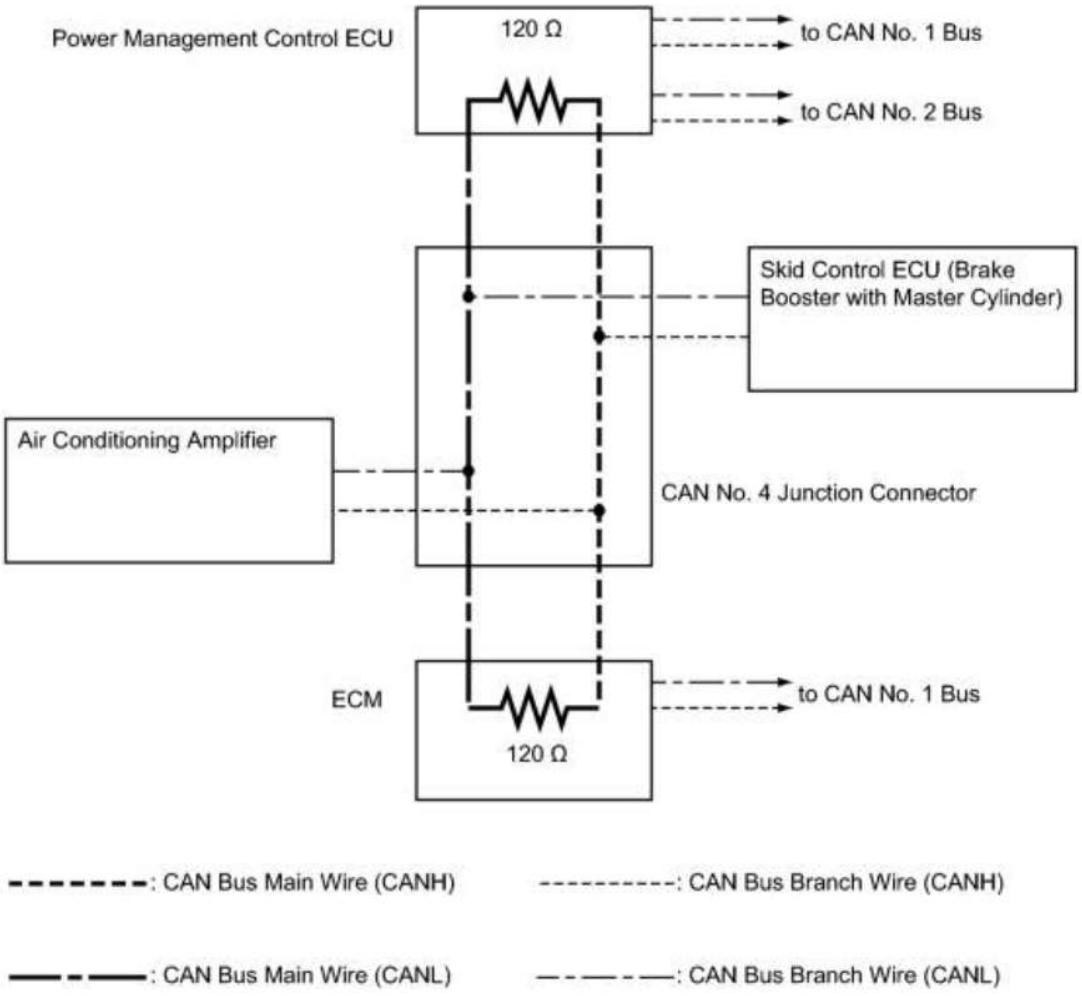
CAN No. 2 Bus:



3. POWER MANAGEMENT BUS

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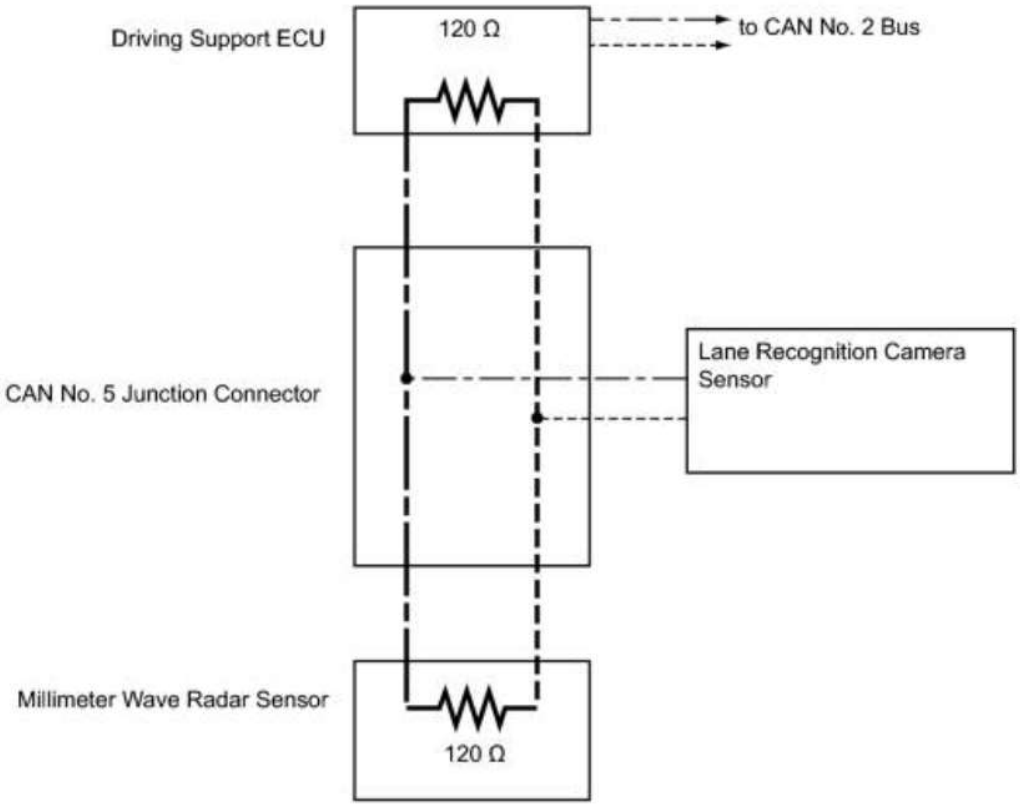
Power Management Bus:



4. PARKING ASSIST BUS

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Parking Assist Bus (w/ Dynamic Radar Cruise Control System):



: CAN Bus Main Wire (CANH)

: CAN Bus Branch Wire (CANH)

: CAN Bus Main Wire (CANL)

: CAN Bus Branch Wire (CANL)

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SYSTEM DESCRIPTION

1. BRIEF DESCRIPTION

(a) The Control Area Network (CAN) is a serial data communication system for real time application. It is a vehicle multiplex communication system which has a high communication speed and the ability to detect malfunctions.

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

(c) Many ECUs or 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 communicate with the main bus wire.

2. DEFINITION OF TERMS

(a) Main bus wire

(1) The main bus wire is a wire harness between the two terminating resistors on the bus (communication wire). This is the main bus in the CAN communication system.

(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) The termination circuit is a circuit which converts the communication current of CAN communication into the bus voltage. It consists of a resistor and condenser. Two termination circuits are necessary on the bus.

3. ECUS OR SENSORS WHICH COMMUNICATE THROUGH CAN COMMUNICATION SYSTEM

(a) CAN No. 1 Bus

(1) ECM

(2) Power management control ECU

(3) Combination meter

(4) Skid control ECU (Brake booster with master cylinder)

(5) Steering angle sensor

(6) Yaw rate sensor

(7) Power steering ECU

(8) Center airbag sensor assembly

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(9) Certification ECU (Smart key ECU)

(10) Main body ECU

(11) Transmission control ECU

(12) Navigation ECU (Navigation receiver assembly)*1

(b) CAN No. 2 Bus

(1) Power management control ECU

(2) Driving support ECU*2

(3) Seat belt control ECU*3

(4) Parking assist ECU*4

(c) Power Management Bus

(1) Power management control ECU

(2) ECM

(3) Skid control ECU (Brake booster with master cylinder)

(4) Air conditioning amplifier

(d) Parking Assist Bus*2

(1) Driving support ECU

(2) Millimeter wave radar sensor

(3) Lane recognition camera sensor*5

HINT:

*1: w/ Navigation system

*2: w/ Dynamic radar cruise control system

*3: w/ Pre-collision system

*4: w/ Advanced parking guidance system

*5: w/ Lane-keeping assist system

4. CIRCUIT DESCRIPTION

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(a) The CAN No. 1 bus, CAN No. 2 bus, power management bus and parking assist bus each have termination circuits with two resistors of 120 Ω. High speed communication at 500 kbps is possible.

5. TROUBLESHOOTING REMARKS

(a) DTCs for the CAN communication system can be checked using the Techstream. 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 any trouble in the DLC3 or the DLC3 branch wires, ECUs on the CAN network cannot output codes to the Techstream.

(b) Trouble in the CAN buses (communication wires) 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 service wires.

6. DIAGNOSTIC TROUBLE CODE FOR CAN COMMUNICATION SYSTEM

(a) DTCs for the CAN communication system are as follows: U0073, U0100, U0101, U0104, U0122, U0123, U0124, U0126, U0129, U0131, U0140, U0142, U0146, U0151, U0155, U0164, U0235, U0293, U0327, U1000, U1002, U1100, U1104, U1105, U1107, U110B, U1119 and U1133.

7. NOTES REGARDING TROUBLESHOOTING

(a) Trouble in the CAN bus (communication line) can be checked through the DLC3 (except when there is a wire break other than in the branch wire of the DLC3).

NOTICE:

Do not insert the tester probes directly into the DLC3. Be sure to use service wires.

(b) DTCs regarding the CAN communication system can be checked using the Techstream.

(c) The CAN communication system cannot detect trouble in the branch wires for the DLC3 even though the DLC3 is also connected to the CAN communication system.

8. HOW TO DISTINGUISH CONNECTOR OF CAN JUNCTION CONNECTOR

(a) In the CAN communication system, the shape of connectors connected to the CAN junction connector which has an earth terminal is the same. The connectors connected to the CAN junction connector can be distinguished by the colors of the bus wires and the connecting side of the junction connector.

HINT:

See Terminals of ECU for bus wire color or the shape of connecting surface INFO.

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HOW TO PROCEED WITH TROUBLESHOOTING

NOTICE:

- DTCs for the CAN communication system are as follows: U0073, U0100, U0101, U0104, U0122, U0123, U0124, U0126, U0129, U0131, U0140, U0142, U0146, U0151, U0155, U0164, U0235, U0293, U0327, U1000, U1002, U1100, U1104, U1105, U1107, U110B, U1119 and U1133.
- Refer to troubleshooting of each system if DTCs regarding the CAN communication system are not output.

HINT:

*: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP

NEXT

▼

2.	CUSTOMER PROBLEM ANALYSIS

(a) Interview the customer and confirm the problem.

NEXT

▼

3.	CHECK BATTERY

Standard Voltage:

11 to 14 V

HINT:

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

NEXT

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4.	CHECK AND CLEAR DTCS*

HINT:

- CAN communication DTCs are stored when there is an open or short in any of the communication wires. Any problems with the power source of a corresponding ECU or sensor, or problems in the ECU or the sensor itself also cause these DTCs to be stored.
- If a CAN communication wire connector is disconnected with the power switch on (IG), the ECUs of the corresponding system and related systems store a DTC.

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NEXT

5.	CHECK FOR DLC3 BRANCH WIRE AND CAN NO. 1 BUS MAIN WIRE (CANH - CANL)

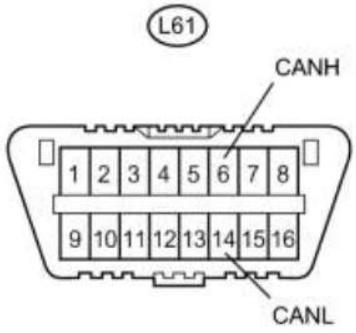
NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

*1



(a) Turn the power switch off.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-14 (CANL)	Power switch off	54 to 69 Ω

Text in Illustration

*1	DLC3

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Result:

Result	Proceed to
OK	A
NG (70 Ω or higher)	B
NG (Below 54 Ω)	C

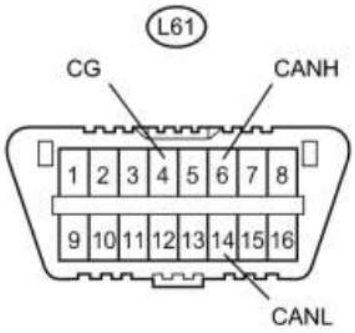
B INFO GO TO OPEN IN CAN MAIN BUS WIRE

C INFO GO TO SHORT IN CAN BUS LINES

A

6.	CHECK FOR SHORT TO GND IN CAN NO. 1 BUS (CANH, CANL - CG)

*1



(a) Turn the power switch off.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher
L61-14 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher

Text in Illustration

*1	DLC3

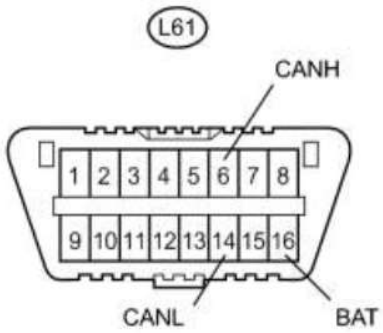
NG INFO GO TO SHORT TO GND IN CAN BUS WIRE

OK

7.	CHECK FOR SHORT TO +B IN CAN NO. 1 BUS (CANH, CANL - BAT)

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*1



(a) Disconnect the cable from the negative (-) battery terminal.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L61-6 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L61-14 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

Text in Illustration

*1	DLC3

NG INFO GO TO SHORT TO +B IN CAN BUS WIRE

OK

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8.	CHECK INSTALLED SYSTEMS (ECU AND SENSOR) THAT USE CAN COMMUNICATION

(a) Based on the vehicle equipment and specifications, confirm the systems that use CAN communication INFO .

NEXT

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9.	CHECK ECUS CONNECTED TO CAN BUS*

(a) Select "CAN Bus Check" from the screen on the Techstream INFO.

(b) Observe the screen for approximately 1 minute to check the ECUs and sensors displayed on the screen.

Result:

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Result	Proceed to
All ECUs and sensors connected to the CAN communication system are displayed on the screen. (CAN bus circuit is currently normal.)	A
• All ECUs except the power management control ECU connected to the CAN No. 2 bus are not displayed on the screen. • The power management control ECU (power management1) outputs DTC U1002. (Open or short in CAN No. 2 bus main wires.)	B
• All ECUs except the power management control ECU connected to the power management bus are not displayed on the screen. • The power management control ECU (power management2) outputs DTC U1002. (Open or short in power management bus main wires.)	C
The driving support ECU (Pre-Collision2) outputs DTC U1002. (Open or short in parking assist bus main wires.)	D
All ECUs connected to the CAN No. 2 bus and power management bus are not displayed on the screen. (Open in power management control ECU branch wires or power management control ECU malfunction.)	E
One of the ECUs and sensors connected to the CAN No. 1 bus is not displayed on the screen. (Open in ECU or sensor branch wires, or communication interrupted.)	F
One of the ECUs and sensors connected to the CAN No. 2 bus or power management bus is not displayed on the screen. (Open in ECU or sensor branch wires, or communication interrupted.)	G
Some ECUs and sensors repeatedly appear and disappear on the screen during this check. (Open in one side of ECU or sensor branch wires.)	H

NOTICE:

- The systems (ECUs and sensors) that adopt CAN communication vary depending on the vehicle and optional equipment. Check which systems (ECUs and sensors) are installed on the vehicle INFO.
- Non-installed ECUs or sensors will not be displayed. Do not mistake them for being in communication stop mode.
- The ECUs and sensors that repeatedly appear and disappear from the screen during this check are considered normal. (The response to the Techstream and its display are affected by signals output from other ECUs which have an open circuit in either of their CAN bus branch wires.)

HINT:

The ECUs connected to the CAN No. 2 bus and power management bus are displayed on the screen by the power management control ECU.

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B INFO GO TO U1002 (POWER MANAGEMENT1)

C INFO GO TO U1002 (POWER MANAGEMENT2)

D INFO GO TO U1002 (PARKING ASSIST BUS)

E INFO GO TO POWER MANAGEMENT CONTROL ECU COMMUNICATION STOP MODE

F INFO GO TO COMMUNICATION STOP MODE TABLE

G INFO GO TO DIAGNOSTIC TROUBLE CODE CHART

H INFO GO TO OPEN IN ONE SIDE OF CAN BRANCH LINE

A

10.	RECHECK DTC

HINT:

- Sometimes CAN communication system DTCs are output, but all ECUs and sensors connected to the CAN communication system are displayed on the Techstream. In this case, previous or history DTCs may indicate the cause of the problem.
- ECUs related to a problem in the CAN bus will store DTCs to indicate communication malfunctions. Communication stop mode in the CAN bus can be determined by comparing the combination of DTCs that have been set. Refer to DTC Combination Table for the CAN bus.
- The power management control ECU will store communication error DTCs when the ECUs connected to the CAN No. 2 bus and power management bus cannot communicate, or if a network malfunction occurs.

Result:

Result	Proceed to
Communication error DTCs other than the codes output from the power management control ECU are output. (A malfunction occurred in the CAN No. 1 bus.)	A
The power management control ECU (Power Management1) outputs DTC 1002. (A malfunction occurred in the CAN No. 2 bus.)	B
The power management control ECU (Power Management2) outputs DTC 1002. (A malfunction occurred in the power management bus.)	C
The driving support ECU (Pre-Collision2) outputs DTC 1002. (A malfunction occurred in the driving support bus.)	D
The power management ECU outputs DTCs other than DTC 1002.	E

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Result	Proceed to
(A malfunction occurred in an ECU branch wire connected to the CAN No. 2 bus or power management bus.)	

B INFO GO TO U1002 (POWER MANAGEMENT1)

C INFO GO TO U1002 (POWER MANAGEMENT2)

D INFO GO TO U1002 (PARKING ASSIST BUS)

E INFO GO TO DIAGNOSTIC TROUBLE CODE CHART

A

▼

11.	DTC COMBINATION TABLE

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

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 "CAN Bus Check" of the Techstream.

NEXT

▼

12.	CIRCUIT INSPECTION

NEXT

▼

13.	IDENTIFICATION OF PROBLEM

NEXT

▼

14.	REPAIR OR REPLACEMENT

NEXT

▼

15.	CONFIRMATION TEST*

NEXT ▶ **END**

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PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Result of CAN No. 1 Bus Check

Symptom	Suspected Area	See page
Open in CAN Main Bus Wire	CAN Main Bus Wire	INFO
Short in CAN Bus Wires	CAN Bus Wires	INFO
Short to +B in CAN Bus Wire	CAN Bus Wire	INFO
Short to GND in CAN Bus Wire	CAN Bus Wire	INFO
Open in One Side of CAN Branch Wire	CAN Branch Wire	INFO

HINT:

Refer to How to Proceed with Troubleshooting for the CAN No. 1 Bus Check procedure.

Communication Stop Mode Table

Symptom	Suspected Area	See page
"ABS/VSC/TRAC" is not displayed on the Techstream.	Skid Control ECU Communication Stop Mode	INFO
"EPS" is not displayed on the Techstream.	Power Steering ECU Communication Stop Mode	INFO
"Steering Angle Sensor" is not displayed on the Techstream.	Steering Angle Sensor Communication Stop Mode	INFO
"Yaw Rate/Deceleration Sensor" is not displayed on the Techstream.	Yaw Rate Sensor Communication Stop Mode	INFO
"Engine" is not displayed on the Techstream.	ECM Communication Stop Mode	INFO
"Transmission Control" is not displayed on the Techstream.	Transmission Control ECU Communication Stop Mode	INFO
"Main Body" is not displayed on the Techstream.	Main Body ECU Communication Stop Mode	INFO
"Hybrid Control" and "Electric Power Control" are not displayed on the Techstream.	Power Management Control ECU Communication Stop Mode	INFO
"Combination Meter" is not displayed on the Techstream.	Combination Meter ECU Communication Stop Mode	INFO
"Smart Access/Smart Key/Wireless Tuner" is not displayed on the Techstream.	Certification ECU Communication Stop Mode	INFO
"SRS Airbag" is not displayed on the Techstream.	Center Airbag Sensor Communication Stop	INFO

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Symptom	Suspected Area	See page
	Mode	
"AVN1" is not displayed on the Techstream.	Navigation ECU Communication Stop Mode	INFO

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TERMINALS OF ECU

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- This section describes the standard CAN values for all CAN related components.

HINT:

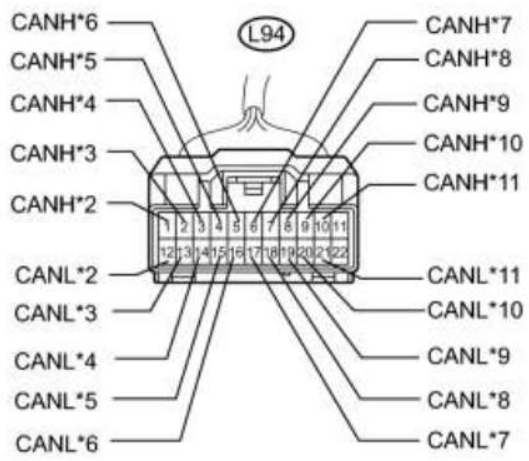
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

1. CAN NO. 1 JUNCTION CONNECTOR

(a) Check the CAN No. 1 junction connector.

(1) Connection diagram

*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)	*2	to Combination Meter
*3	to Steering Angle Sensor	*4	to Main Body ECU
*5	to Power Steering ECU	*6	to DLC3

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*7	to Navigation ECU	*8	to CAN No. 2 Junction Connector
*9	to Yaw Rate Sensor	*10	to Certification ECU
*11	to Skid Control ECU	-	-

(b) Check the connection diagram of the components which are connected to the CAN No. 1 junction connector.

Terminal No. (Symbol)	Wiring Color	Connected to
L94-1 (CANH)	P	Combination meter
L94-12 (CANL)	W	
L94-2 (CANH)	L	Steering angle sensor
L94-13 (CANL)	W	
L94-3 (CANH)	BR	Main body ECU
L94-14 (CANL)	W	
L94-4 (CANH)	R	Power steering ECU
L94-15 (CANL)	W	
L94-5 (CANH)	W	DLC3
L94-16 (CANL)	Y	
L94-6 (CANH)	G	Navigation ECU
L94-17 (CANL)	W	
L94-7 (CANH)	V	CAN No. 2 junction connector
L94-18 (CANL)	W	
L94-8 (CANH)	Y	Yaw rate sensor
L94-19 (CANL)	L	
L94-9 (CANH)	BE	Certification ECU
L94-20 (CANL)	P	
L94-10 (CANH)	LG	Skid Control ECU
L94-21 (CANL)	L	

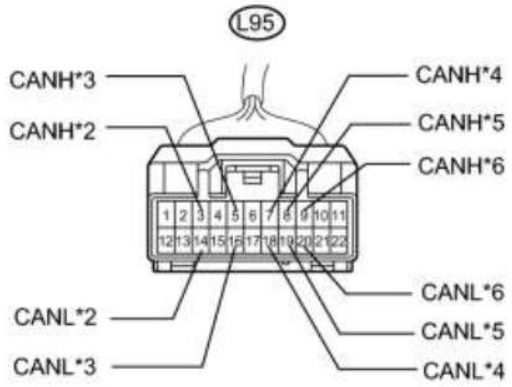
2. CAN NO. 2 JUNCTION CONNECTOR

(a) Check the CAN No. 2 junction connector.

(1) Connection diagram

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*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)	*2	to CAN No. 1 Junction Connector
*3	to Center Airbag Sensor Assembly	*4	to Transmission Control ECU
*5	to Power Management Control ECU	*6	to ECM

(b) Check the connection diagram of the components which are connected to the CAN No. 2 junction connector.

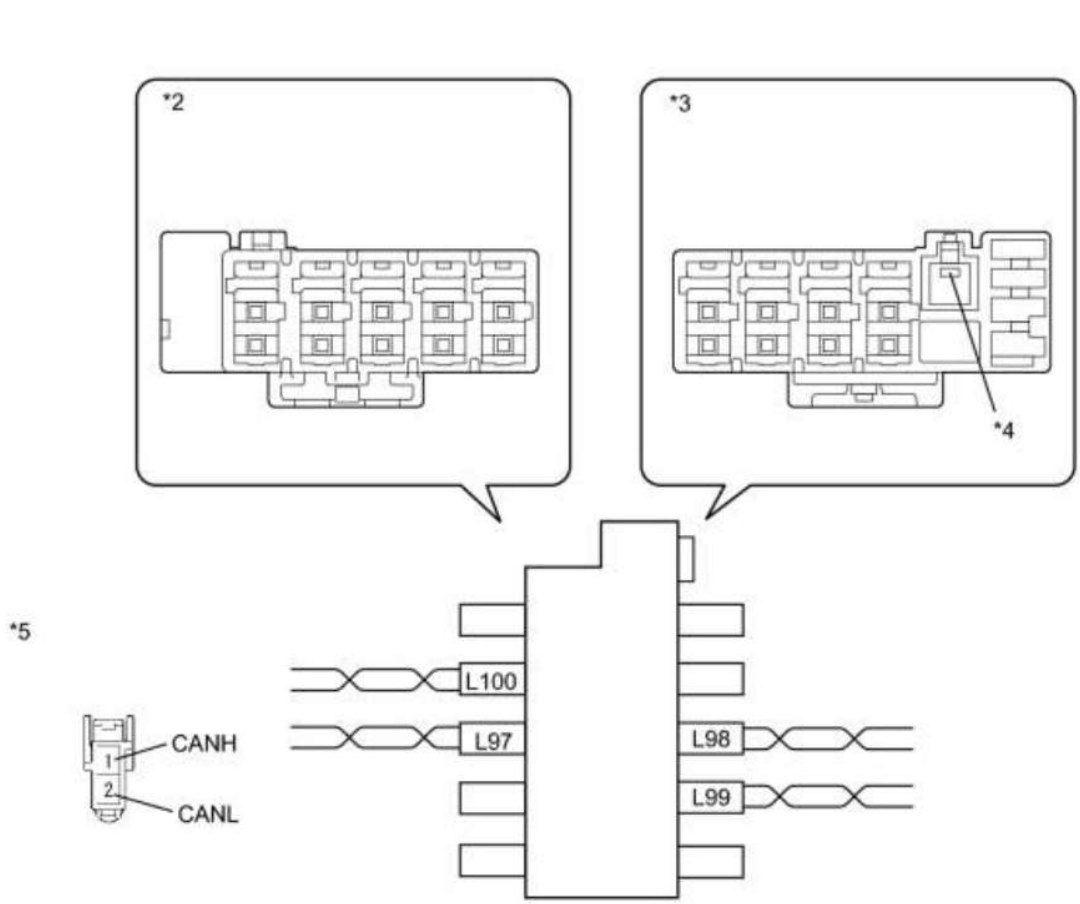
Terminal No. (Symbol)	Wiring Color	Connected to
L95-3 (CANH)	V	CAN No. 1 junction connector
L95-14 (CANL)	W	
L95-5 (CANH)	R	Center airbag sensor assembly
L95-16 (CANL)	G	
L95-7 (CANH)	Y	Transmission control ECU
L95-18 (CANL)	BR	
L95-8 (CANH)	B	Power management control ECU
L95-19 (CANL)	W	
L95-9 (CANH)	P	ECM
L95-20 (CANL)	V	

3. CAN NO. 3 JUNCTION CONNECTOR

(a) Check the CAN No. 3 junction connector.

(1) Connection diagram

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Text in Illustration

*1	CAN No. 3 Junction Connector	*2	Junction Connector B Side
*3	Junction Connector A Side	*4	Earth Terminal
*5	Front view of wire harness connector (to CAN No. 3 Junction Connector)	-	-

(b) Check the connection diagram of the components which are connected to the CAN No. 3 junction connector.

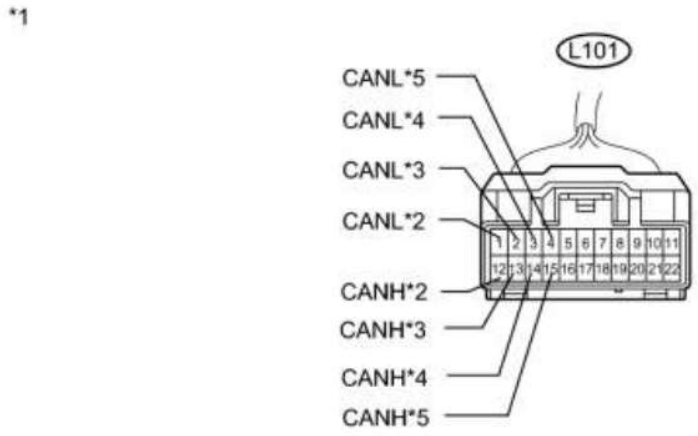
Terminal No. (Symbol)	Wiring Color	Connected to
L97-1 (CANH)	P	Power management control ECU
L97-2 (CANL)	V	
L98-1 (CANH)	LG	Seat belt control ECU
L98-2 (CANL)	L	
L99-1 (CANH)	B	Driving support ECU
L99-2 (CANL)	W	
L100-1 (CANH)	Y	Parking assist ECU
L100-2 (CANL)	BR	

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4. CAN NO. 4 JUNCTION CONNECTOR

(a) Check the CAN No. 4 junction connector.

(1) Connection diagram



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)	*2	to Power Management Control ECU
*3	to Air Conditioning Amplifier	*4	to Skid Control ECU
*5	to ECM	-	-

(b) Check the connection diagram of the components which are connected to the CAN No. 4 junction connector.

Terminal No. (Symbol)	Wiring Color	Connected to
L101-12 (CANH)	LG	Power management control ECU
L101-1 (CANL)	L	
L101-13 (CANH)	Y	Air conditioning amplifier
L101-2 (CANL)	BR	
L101-14 (CANH)	P	Skid control ECU
L101-3 (CANL)	V	
L101-15 (CANH)	B	ECM
L101-4 (CANL)	W	

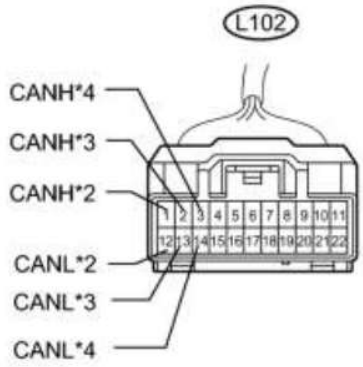
5. CAN NO. 5 JUNCTION CONNECTOR

(a) Check the CAN No. 5 junction connector.

(1) Connection diagram

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*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 5 Junction Connector)	*2	to Millimeter Wave Radar Sensor
*3	to Lane Recognition Camera Sensor	*4	to Driving Support ECU

(b) Check the connection diagram of the components which are connected to the CAN No. 5 junction connector.

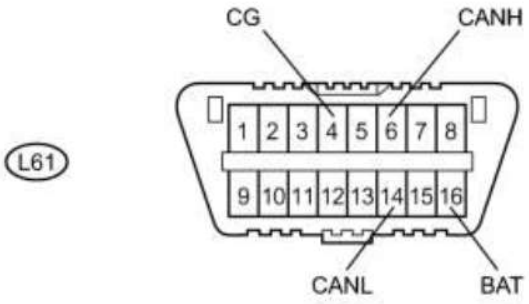
Terminal No. (Symbol)	Wiring Color	Connected to
L102-1 (CANH)	LG	Millimeter wave radar sensor
L102-12 (CANL)	P	
L102-2 (CANH)	B	Lane recognition camera sensor
L102-13 (CANL)	W	
L102-3 (CANH)	Y	Driving support ECU
L102-14 (CANL)	L	

6. DLC3

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

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*1



Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L61-6 (CANH) - L61-14 (CANL)	W - Y	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L61-6 (CANH) - L61-4 (CG)	W - G	HIGH-level CAN bus line - Chassis ground	Power switch off	200 Ω or higher
L61-14 (CANL) - L61-4 (CG)	Y - G	LOW-level CAN bus line - Chassis ground	Power switch off	200 Ω or higher
L61-6 (CANH) - L61-16 (BAT)	W - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L61-14 (CANL) - L61-16 (BAT)	Y - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

Text in Illustration

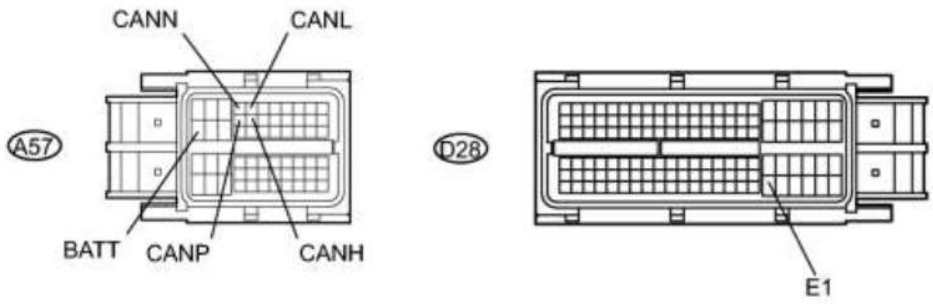
*1	DLC3

7. ECM

(a) Disconnect the ECM connectors.

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*1



Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

for CAN No. 1 Bus Main Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A57-13 (CANH) - A57-5 (CANL)	P - V	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
A57-13 (CANH) - D28-104 (E1)	P - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
A57-5 (CANL) - D28-104 (E1)	V - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A57-13 (CANH) - A57-20 (BATT)	P - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
A57-5 (CANL) - A57-20 (BATT)	V - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

for Power Management Bus Main Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A57-12 (CANP) - A57-4 (CANN)	B - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
A57-12 (CANP) - D28-104 (E1)	B - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
A57-4 (CANN) - D28-104 (E1)	W - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A57-12 (CANP) -	B - R	HIGH-level CAN bus line -	Cable disconnected from	6 kΩ or higher

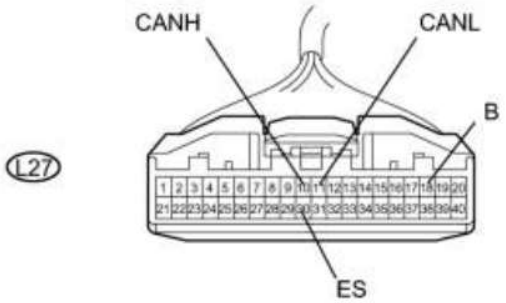
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Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A57-20 (BATT)		Battery positive (+)	negative (-) battery terminal	
A57-4 (CANN) - A57-20 (BATT)	W - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

8. COMBINATION METER

(a) Disconnect the combination meter connector.

*1



Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

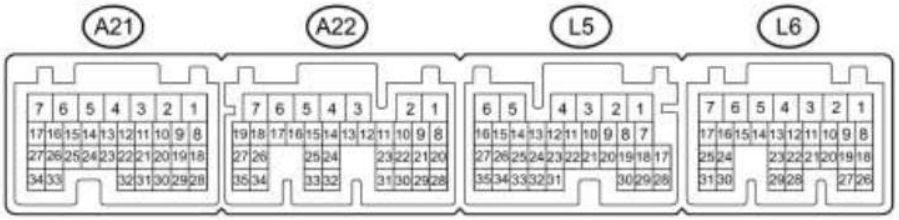
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L27-10 (CANH) - L27-11 (CANL)	P - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
L27-10 (CANH) - L27-30 (ES)	P - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L27-11 (CANL) - L27-30 (ES)	W - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L27-10 (CANH) - L27-18 (B)	P - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L27-11 (CANL) - L27-18 (B)	W - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

9. POWER MANAGEMENT CONTROL ECU

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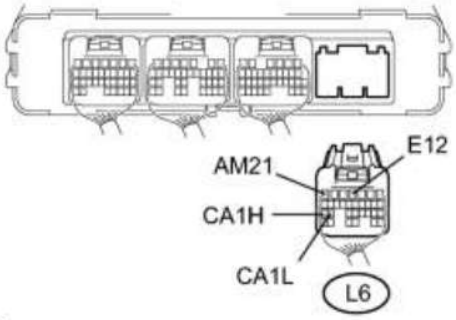


Y

(a) CAN No. 1 Bus Branch Wire

*1

(1) Disconnect the power management control ECU connector.



P

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

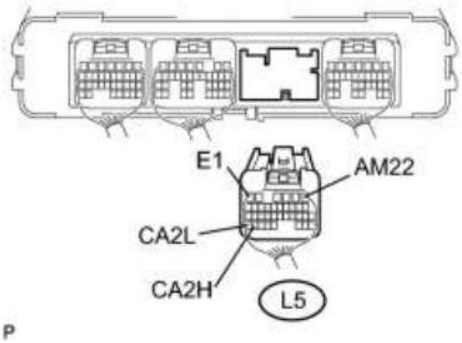
for CAN No. 1 Bus Branch Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L6-25 (CA1H) - L6-24 (CA1L)	B - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L6-25 (CA1H) - L6-4 (E12)	B - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L6-24 (CA1L) - L6-4 (E12)	W - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L6-25 (CA1H) - L6-7 (AM21)	B - W	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L6-24 (CA1L) - L6-7 (AM21)	W - W	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

(b) CAN No. 2 Bus Main Wire

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*1



(1) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

for CAN No. 2 Bus Main Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L5-34 (CA2H) - L5-35 (CA2L)	P - V	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
L5-34 (CA2H) - L5-6 (E1)	P - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L5-35 (CA2L) - L5-6 (E1)	V - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L5-34 (CA2H) - L5-1 (AM22)	P - W	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L5-35 (CA2L) - L5-1 (AM22)	V - W	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

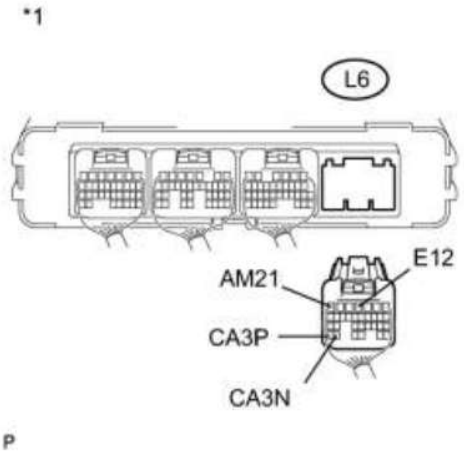
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(c) Power Management Bus Main Wire

(1) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)



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

Standard Resistance:

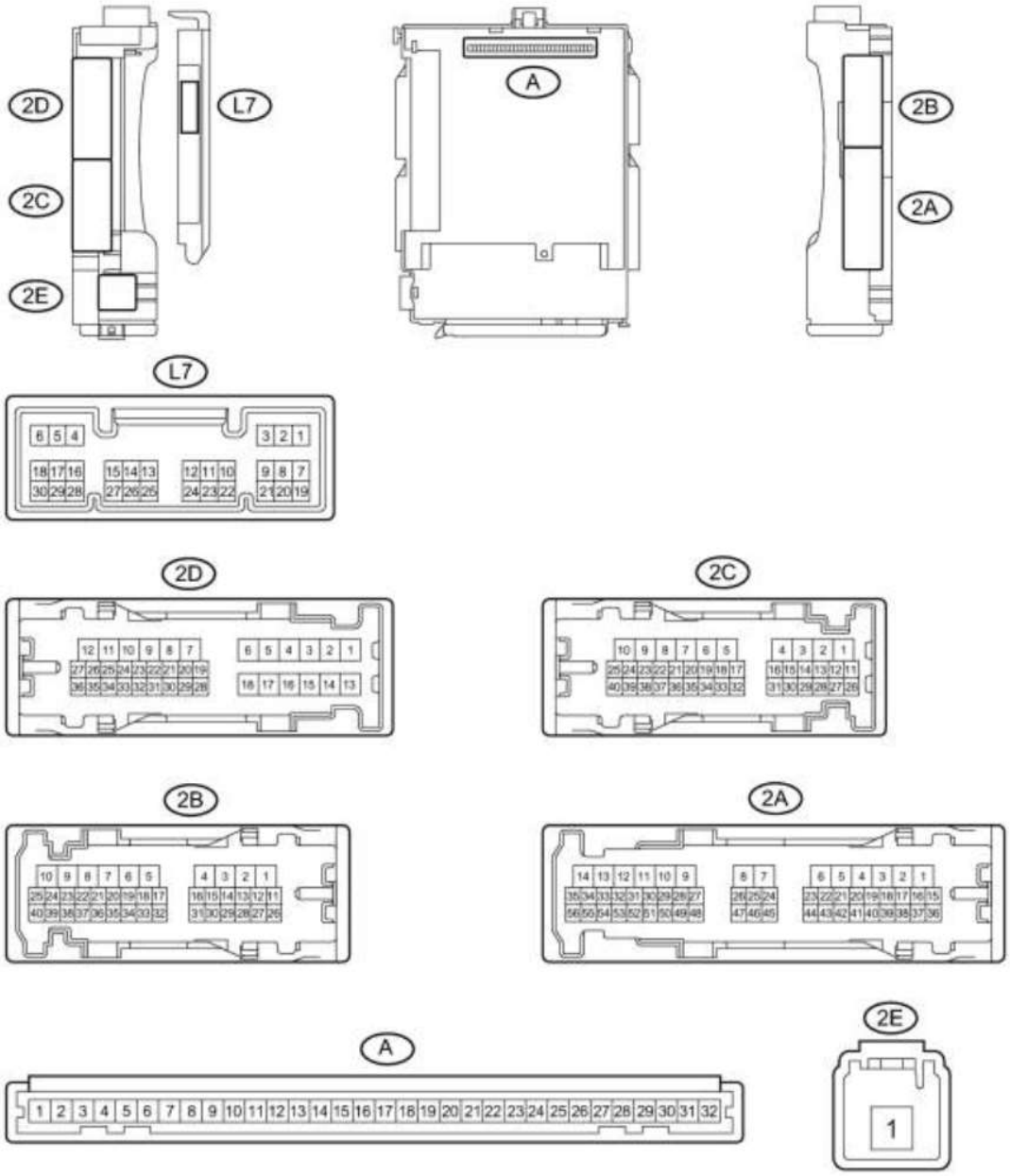
for Power Management Bus Main Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L6-31 (CA3P) - L6-30 (CA3N)	LG - L	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
L6-31 (CA3P) - L6-4 (E12)	LG - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L6-30 (CA3N) - L6-4 (E12)	L - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L6-31 (CA3P) - L6-7 (AM21)	LG - W	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L6-30 (CA3N) - L6-7 (AM21)	L - W	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

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10. MAIN BODY ECU

*1



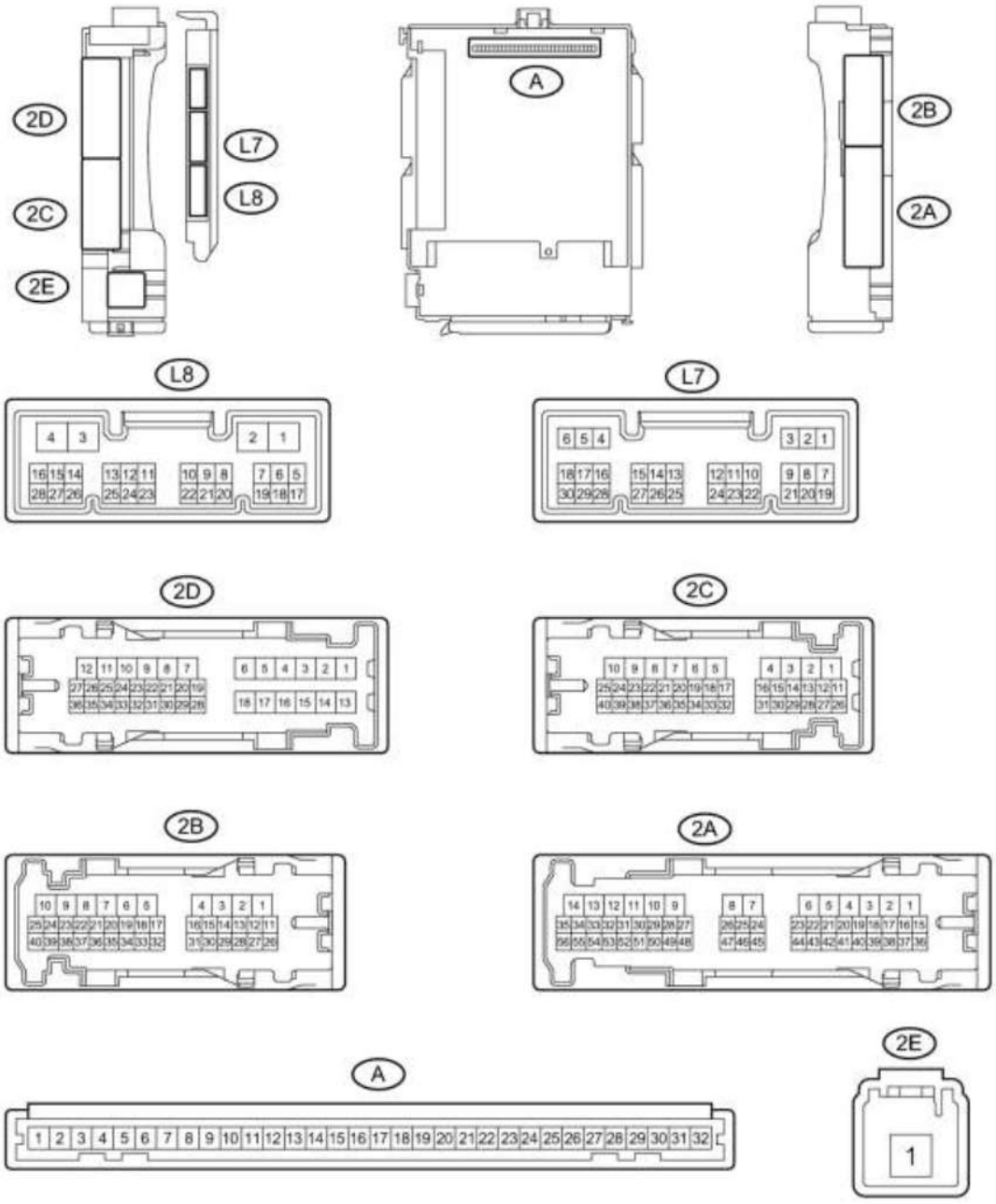
H

Text in Illustration

*1	Instrument Panel Junction Block and Main Body ECU (except Korea, w/o LED Headlight System and w/o Remote Air Conditioning System)

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*2



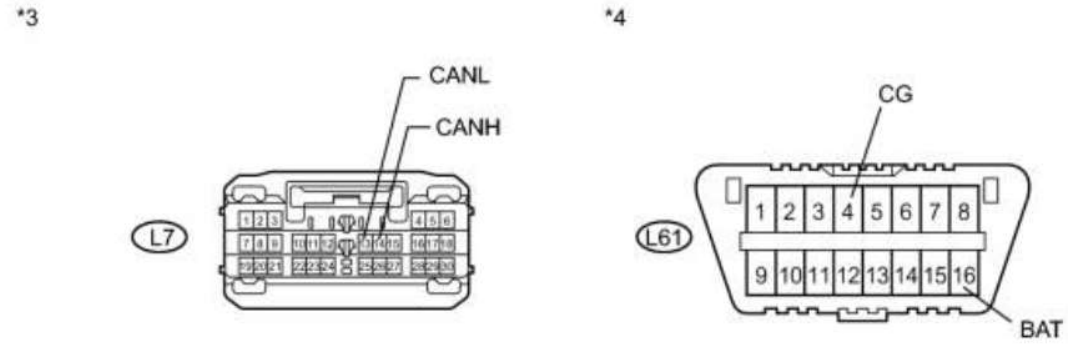
H

Text in Illustration

*2	Instrument Panel Junction Block and Main Body ECU (for Korea, w/ LED Headlight System or w/ Remote Air Conditioning System)

(a) Disconnect the main body ECU connector.

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Text in Illustration

*3	Front view of wire harness connector (to Main Body ECU)	*4	DLC3

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

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L7-14 (CANH) - L7-13 (CANL)	BR - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L7-14 (CANH) - L61-4 (CG)	BR - G	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L7-13 (CANL) - L61-4 (CG)	W - G	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L7-14 (CANH) - L61-16 (BAT)	BR - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L7-13 (CANL) - L61-16 (BAT)	W - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

11. SKID CONTROL ECU (BRAKE BOOSTER WITH MASTER CYLINDER)

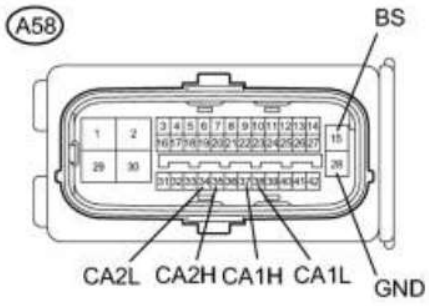
(a) Disconnect the skid control ECU (brake booster with master cylinder) connector.

Text in Illustration

*1	Front view of wire harness connector

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*1	(to Skid Control ECU)



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

Standard Resistance:

for CAN No. 1 Bus Branch Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A58-37 (CA1H) - A58-38 (CA1L)	LG - L	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
A58-37 (CA1H) - A58-28 (GND)	LG - W	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
A58-38 (CA1L) - A58-28 (GND)	L - W	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A58-37 (CA1H) - A58-15 (BS)	LG - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
A58-38 (CA1L) - A58-15 (BS)	L - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

for Power Management Bus Branch Wire

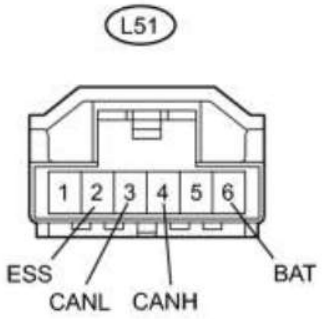
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A58-35 (CA2H) - A58-34 (CA2L)	P - V	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
A58-35 (CA2H) - A58-28 (GND)	P - W	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
A58-34 (CA2L) - A58-28 (GND)	V - W	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A58-35 (CA2H) - A58-15 (BS)	P - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
A58-34 (CA2L) - A58-15 (BS)	V - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

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12. STEERING ANGLE SENSOR

*1

(a) Disconnect the steering angle sensor connector.



Text in Illustration

*1	Front view of wire harness connector (to Steering Angle Sensor)

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

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L51-4 (CANH) - L51-3 (CANL)	L - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L51-4 (CANH) - L51-2 (ESS)	L - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L51-3 (CANL) - L51-2 (ESS)	W - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L51-4 (CANH) - L51-6 (BAT)	L - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L51-3 (CANL) - L51-6 (BAT)	W - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

13. YAW RATE SENSOR

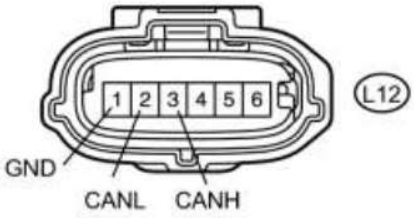
(a) Disconnect the yaw rate sensor connector.

Text in Illustration

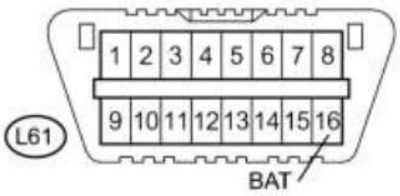
*1	Front view of wire harness connector (to Yaw Rate Sensor)
*2	DLC3

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*1



*2



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

Standard Resistance:

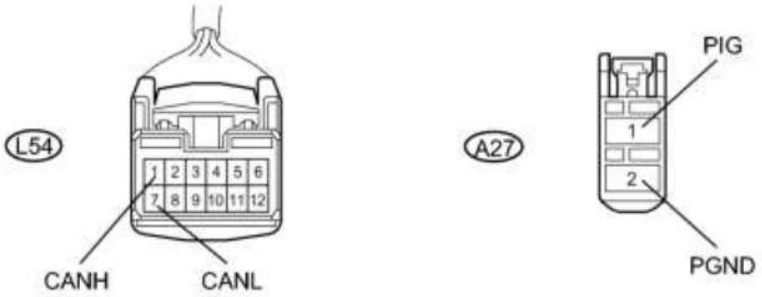
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L12-3 (CANH) - L12-2 (CANL)	Y - L	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L12-3 (CANH) - L12-1 (GND)	Y - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L12-2 (CANL) - L12-1 (GND)	L - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L12-3 (CANH) - L61-16 (BAT)	Y - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L12-2 (CANL) - L61-16 (BAT)	L - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

14. POWER STEERING ECU

(a) Disconnect the power steering ECU connectors.

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*1



Text in Illustration

*1	Front view of wire harness connector (to Power Steering ECU)

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

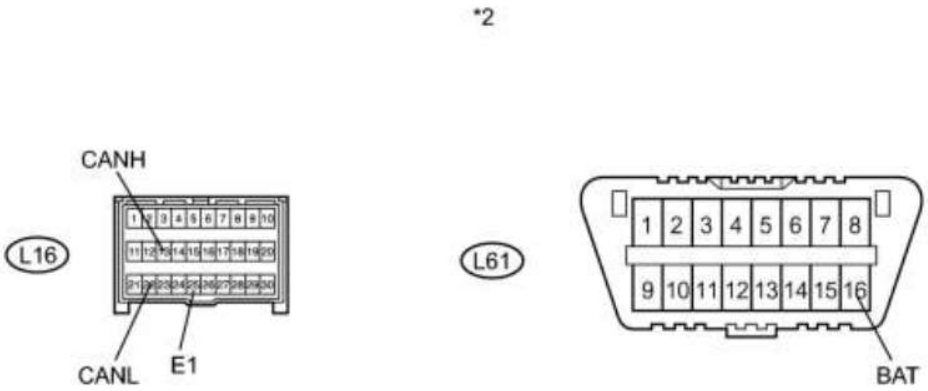
Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L54-1 (CANH) - L54-7 (CANL)	R - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L54-1 (CANH) - A27-2 (PGND)	R - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L54-7 (CANL) - A27-2 (PGND)	W - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L54-1 (CANH) - A27-1 (PIG)	R - W	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L54-7 (CANL) - A27-1 (PIG)	W - W	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

15. CENTER AIRBAG SENSOR ASSEMBLY

(a) Disconnect the center airbag sensor assembly connector.

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Text in Illustration

*1	Front view of wire harness connector (to Center Airbag Sensor Assembly)	*2	DLC3

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

Standard Resistance:

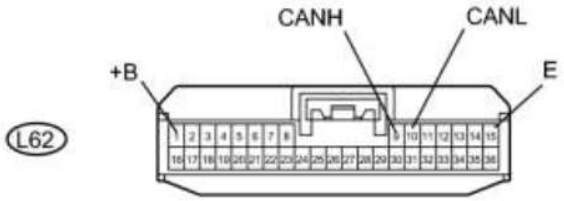
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L16-13 (CANH) - L16-22 (CANL)	R - G	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L16-13 (CANH) - L16-25 (E1)	R - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L16-22 (CANL) - L16-25 (E1)	G - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L16-13 (CANH) - L61-16 (BAT)	R - R	CAN communication line H - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L16-22 (CANL) - L61-16 (BAT)	G - R	CAN communication line L - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

16. CERTIFICATION ECU (SMART KEY ECU)

(a) Disconnect the certification ECU connector.

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*1



Text in Illustration

*1	Front view of wire harness connector (to Certification ECU)

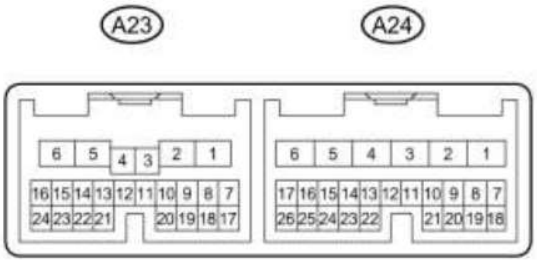
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L62-9 (CANH) - L62-10 (CANL)	BE - P	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L62-9 (CANH) - L62-15 (E)	BE - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L62-10 (CANL) - L62-15 (E)	P - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L62-9 (CANH) - L62-1 (+B)	BE - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L62-10 (CANL) - L62-1 (+B)	P - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

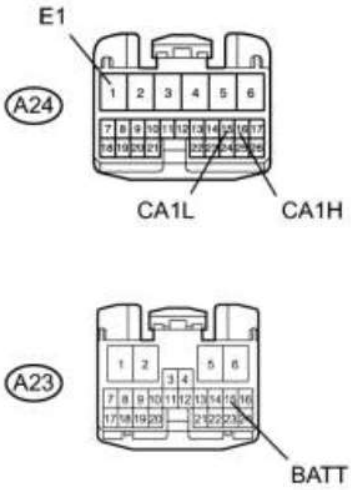
17. TRANSMISSION CONTROL ECU

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H

*1



(a) Disconnect the transmission control ECU connectors.

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU)

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

Standard Resistance:

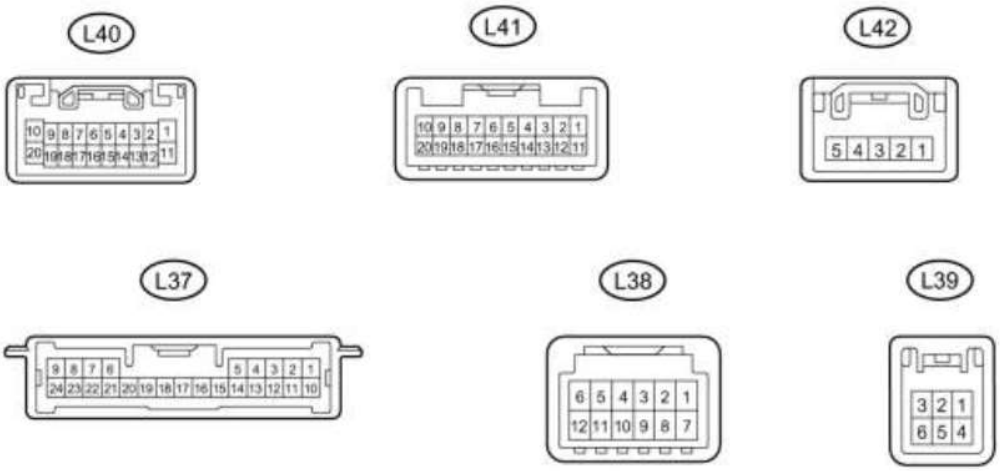
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A24-16 (CA1H) - A24-15 (CA1L)	Y - BR	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
A24-16 (CA1H) - A24-1 (E1)	Y - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
A24-15 (CA1L) - A24-1 (E1)	BR - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A24-16 (CA1H) - A23-15 (BATT)	Y - SB	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

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Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A24-15 (CA1L) - A23-15 (BATT)	BR - SB	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

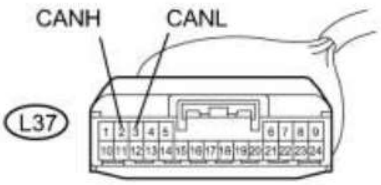
18. NAVIGATION ECU (NAVIGATION RECEIVER ASSEMBLY) (w/ Navigation System)

(a) w/ "Bluetooth" Audio System



H

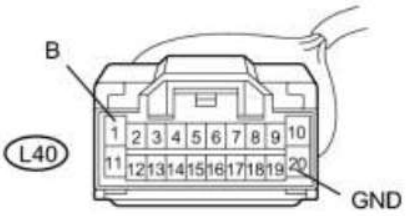
*1



(1) Disconnect the navigation ECU connectors.

Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)



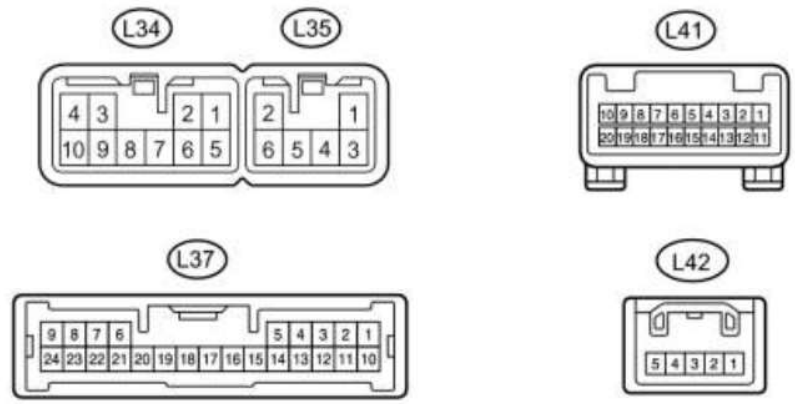
(2) Measure the resistance according to the value(s) in the table below.

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Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L37-2 (CANH) - L37-3 (CANL)	G - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L37-2 (CANH) - L40-20 (GND)	G - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L37-3 (CANL) - L40-20 (GND)	W - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L37-2 (CANH) - L40-1 (B)	G - SB	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L37-3 (CANL) - L40-1 (B)	W - SB	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

(b) w/o "Bluetooth" Audio System



P

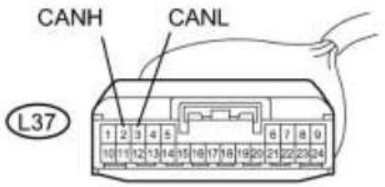
(1) Disconnect the navigation ECU connectors.

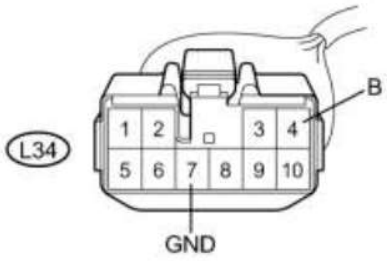
Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

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*1





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

Standard Resistance:

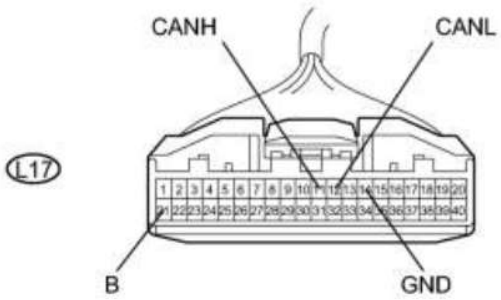
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L37-2 (CANH) - L37-3 (CANL)	G - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L37-2 (CANH) - L34-7 (GND)	G - BR	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L37-3 (CANL) - L34-7 (GND)	W - BR	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L37-2 (CANH) - L34-4 (B)	G - SB	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L37-3 (CANL) - L34-4 (B)	W - SB	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

19. AIR CONDITIONING AMPLIFIER

(a) Disconnect the air conditioning amplifier connector.

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*1



Text in Illustration

*1	Front view of wire harness connector (to Air Conditioning Amplifier)

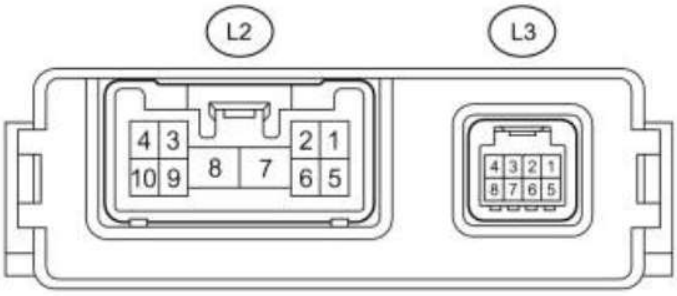
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

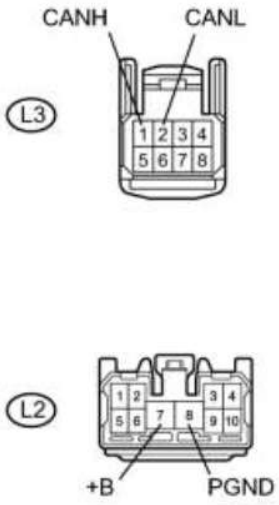
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L17-11 (CANH) - L17-12 (CANL)	Y - BR	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L17-11 (CANH) - L17-14 (GND)	Y - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L17-12 (CANL) - L17-14 (GND)	BR - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L17-11 (CANH) - L17-21 (B)	Y - Y	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L17-12 (CANL) - L17-21 (B)	BR - Y	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

20. SEAT BELT CONTROL ECU (w/ Pre-collision System)

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*1



(a) Disconnect the seat belt control ECU connectors.

Text in Illustration

*1	Front view of wire harness connector (to Sear Belt Control ECU)

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

Standard Resistance:

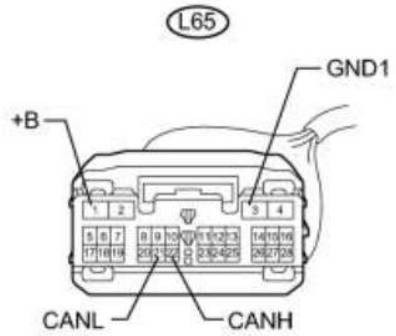
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L3-1 (CANH) - L3-2 (CANL)	LG - L	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L3-1 (CANH) - L2-8 (PGND)	LG - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L3-2 (CANL) - L2-8 (PGND)	L - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L3-1 (CANH) - L2-7 (+B)	LG - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

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Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L3-2 (CANL) - L2-7 (+B)	L - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

21. PARKING ASSIST ECU (w/ Advanced Parking Guidance System)

*1



H

(a) Disconnect the parking assist ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

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

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L65-22 (CANH) - L65-21 (CANL)	Y - BR	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L65-22 (CANH) - L65-3 (GND1)	Y - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L65-21 (CANL) - L65-3 (GND1)	BR - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L65-22 (CANH) - L65-1 (+B)	Y - SB	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L65-21 (CANL) - L65-1 (+B)	BR - SB	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

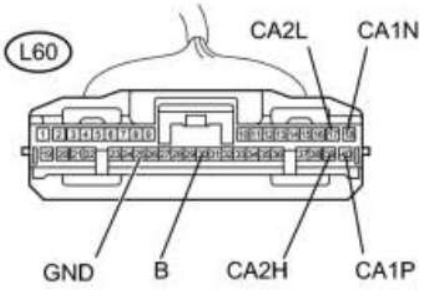
22. DRIVING SUPPORT ECU (w/ Dynamic Radar Cruise Control System)

(a) Disconnect the driving support ECU connector.

Text in Illustration

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*1



*1	Front view of wire harness connector (to Driving Support ECU)

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

Standard Resistance:

CAN No. 2 Bus Branch Wire

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L60-39 (CA2H) - L60-17 (CA2L)	B - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
L60-39 (CA2H) - L60-25 (GND)	B - W-B	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
L60-17 (CA2L) - L60-25 (GND)	W - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L60-39 (CA2H) - L60-30 (B)	B - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L60-17 (CA2L) - L60-30 (B)	W - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

Standard Resistance:

Parking Assist Bus Main Wire

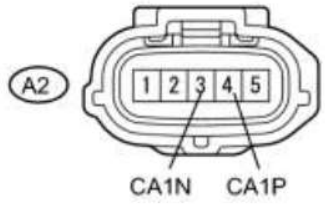
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L60-40 (CA1P) - L60-18 (CA1N)	Y - L	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
L60-40	Y - W-	HIGH-level	Power switch off	200 Ω or

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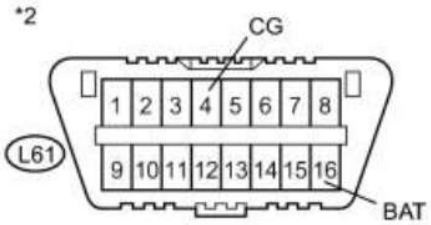
(CA1P) - L60-25 (GND)	B	CAN bus line - Ground		higher
L60-18 (CA1N) - L60-25 (GND)	L - W-B	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
L60-40 (CA1P) - L60-30 (B)	Y - B	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L60-18 (CA1N) - L60-30 (B)	L - B	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

23. MILLIMETER WAVE RADAR SENSOR (w/ Dynamic Radar Cruise Control System)

*1



*2



(a) Disconnect the millimeter wave radar sensor connector.

Text in Illustration

*1	Front view of wire harness connector (to Millimeter Wave Radar Sensor)
*2	DLC3

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

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A2-4 (CA1P) - A2-3 (CA1N)	LG - P	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	108 to 132 Ω
A2-4 (CA1P)- L61-4 (CG)	LG - G	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher

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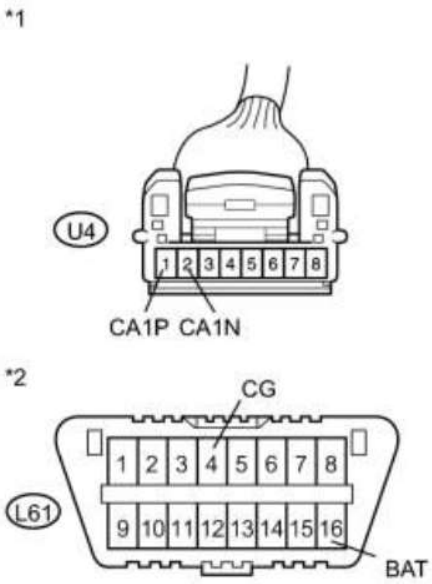
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
A2-3 (CA1N) - L61-4 (CG)	P - G	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
A2-4 (CA1P) - L61-16 (BAT)	LG - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
A2-3 (CA1N) - L61-16 (BAT)	P - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

24. LANE RECOGNITION CAMERA SENSOR (w/ Lane-keeping Assist System)

(a) Disconnect the lane recognition camera sensor connector.

Text in Illustration

*1	Front view of wire harness connector (to Lane Recognition Camera Sensor)
*2	DLC3



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

Standard Resistance:

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
U4-1 (CA1P) - U4-2 (CA1N)	B - W	HIGH-level CAN bus line - LOW-level CAN bus line	Power switch off	54 to 69 Ω
U4-1 (CA1P)- L61-4 (CG)	B - G	HIGH-level CAN bus line - Ground	Power switch off	200 Ω or higher
U4-2 (CA1N) - L61-4 (CG)	W - G	LOW-level CAN bus line - Ground	Power switch off	200 Ω or higher
U4-1 (CA1P) - L61-16 (BAT)	B - R	HIGH-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
U4-2 (CA1N) - L61-16 (BAT)	W - R	LOW-level CAN bus line - Battery positive (+)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

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DIAGNOSIS SYSTEM

1. ECUS OR SENSORS WHICH COMMUNICATE THROUGH CAN COMMUNICATION SYSTEM

(a) CAN No. 1 Bus

(1) ECM

(2) Power management control ECU

(3) Combination meter

(4) Main body ECU

(5) Power steering ECU

(6) Center airbag sensor assembly

(7) Skid control ECU (Brake booster with master cylinder)

(8) Steering angle sensor

(9) Yaw rate sensor

(10) Certification ECU (Smart key ECU)

(11) Transmission control ECU

(12) Navigation ECU (Navigation receiver assembly)*1

(b) CAN No. 2 Bus

(1) Power management control ECU

(2) Driving support ECU*2

(3) Seat belt control ECU*3

(4) Parking assist ECU*4

(c) Power Management Bus

(1) Power management control ECU

(2) ECM

(3) Skid control ECU (Brake booster with master cylinder)

(4) Air conditioning amplifier

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(d) Driving Support Bus*2

(1) Driving support ECU

(2) Millimeter wave radar sensor

(3) Lane recognition camera sensor*5

HINT:

*1: w/ Navigation system

*2: w/ Dynamic radar cruise control system

*3: w/ Pre-collision system

*4: w/ Advanced parking guidance system

*5: w/ Lane-keeping assist system

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

(a) The systems (ECUs and sensors) that adopt CAN communication vary depending on the vehicle and optional equipment. Check which systems (ECUs and sensors) are installed on the vehicle.

ECU/Sensor Name	Techstream Display	Applicability
ECM	Engine	Installed on all vehicles
Power management ECU	• Hybrid Control • Power Management1	Installed on all vehicles
Transmission control ECU	Transmission Control	Installed on all vehicles
Combination meter	Combination Meter	Installed on all vehicles
Main body ECU	Main Body	Installed on all vehicles
Power steering ECU	EPS	Installed on all vehicles
Skid control ECU	ABS/VSC/TRAC	Installed on all vehicles
Steering angle sensor	Steering Angle Sensor	Installed on all vehicles
Yaw rate sensor	Yaw Rate/Deceleration Sensor	Installed on all vehicles
Center airbag sensor assembly	SRS Airbag	Installed on all vehicles
Certification ECU	Smart Access/Smart Key/Wireless Tuner	Installed on all vehicles
Air conditioning amplifier	Air Conditioner	Installed on all vehicles
Navigation ECU	AVN1	w/ Navigation system
Driving support ECU	Cruise Control (ACC)	w/ Dynamic radar cruise control system
Millimeter wave radar sensor	-	w/ Dynamic radar cruise control

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ECU/Sensor Name	Techstream Display	Applicability
		system
Lane recognition camera sensor	-	w/ Lane-keeping assist system
Seat belt control ECU	Pre-Collision1	w/ Pre-collision system
Parking assist ECU	Advanced Parking Guidance System	w/ Advanced parking guidance system

3. CAN BUS CHECK

HINT:

The ECUs and sensors that are properly connected to the CAN communication system can be displayed using the Techstream.

(a) Using the Techstream, select "CAN Bus Check" from "System Select".

4. DTC TABLE BY ECU

HINT:

- In the CAN communication system, CAN communication system DTCs can be displayed by the ECU using the Techstream.
- If CAN communication system DTCs are output, trouble cannot be determined only by the DTCs. Perform troubleshooting according to How to Proceed with Troubleshooting INFO.

(a) Power Management Control ECU / Techstream Display "Hybrid Control"

DTC Code	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"
U0122-732*1	Lost Communication with Vehicle Dynamic Control Module
U0129-220	Lost Communication with Brake System Control Module
U0129-222	Lost Communication with Brake System Control Module
U0129-527	Lost Communication with Brake System Control Module
U0129-528	Lost Communication with Brake System Control Module
U0140-146	Communication Error from Body ECU to HV ECU
U0151-763	Communication Error from Airbag ECU to HV ECU
U0164-594	Communication Error from A/C ECU to HV ECU
U0164-827	Communication Error from A/C ECU to HV ECU
U1104-728	Lost Communication with Driving Support ECU
U1107-436	Lost Communication with Power Management Module

HINT:

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- DTC communication uses the CAN communication system.
- *1: Dynamic radar cruise control system DTC

(b) Power Management Control ECU / Techstream Display "Electric Power Control"

DTC Code	Detection Item
U0129	Vehicle Speed Signal Communication
U0140	Lost Communication with Body Control Module
U0155	Lost Communication with Instrument Panel Cluster (IPC) Control Module
U0293*2	HV ECU Communication

HINT:

- DTC communication uses the CAN communication system.
- *2: If U0293 is output alone, CAN communication is normal. Refer to Smart Key System INFO.

(c) Power Management Control ECU / Techstream Display "Power Management1"

DTC Code	Detection Item
U0104	Lost Communication with Cruise Control Module
U1002	Lost Communication with Gateway Module
U1100	Lost Communication with Pre-Collision Module
U110B	Lost Communication with Parking Assist Control Module "B"

HINT:

- DTC communication uses the CAN communication system.
- "Power Management1" output DTC is communication error in the CAN No. 2 bus.

(d) Power Management Control ECU / Techstream Display "Power Management2"

DTC Code	Detection Item
U0100	Lost Communication with ECM / PCM
U0129	Lost Communication with Brake System Control Module
U0164	Lost Communication with HVAC Control Module
U1002	Lost Communication with Gateway Module

HINT:

- DTC communication uses the CAN communication system.
- "Power Management2" output DTC is communication error in the power management bus.

(e) ECM / Techstream Display "Engine"

DTC Code	Detection Item

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DTC Code	Detection Item
U0293	Lost Communication with Hybrid Vehicle Control System

HINT:

DTC communication uses the CAN communication system.

(f) Transmission Control ECU / Techstream Display "Transmission Control"

DTC Code	Detection Item
U0146	Lost Communication with Body ECU

HINT:

DTC communication uses the CAN communication system.

(g) Power Steering ECU / Techstream Display "EPS"

DTC Code	Detection Item
U0129	Lost Communication with Brake System Control Module
U0293	Lost Communication with Hybrid Control Module
U1104	Lost Communication with Driving Support ECU
U1105	Lost Communication with Parking Assist ECU

HINT:

DTC communication uses the CAN communication system.

(h) Skid control ECU (Brake booster with master cylinder) / Techstream Display "ABS/VSC/TRAC"

DTC Code	Detection Item
U0073	Control Module Communication Bus OFF
U0123	Lost Communication with Yaw Rate Sensor Module
U0124	Lost Communication with Lateral Acceleration Sensor Module
U0126	Lost Communication with Steering Angle Sensor Module
U0293	Lost Communication with Hybrid Vehicle Control System

HINT:

DTC communication uses the CAN communication system.

(i) Steering Angle Sensor / Techstream Display "Steering Angle Sensor"

HINT:

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The steering angle sensor is connected to the CAN communication system, but CAN communication DTCs are not output.

(j) Yaw Rate Sensor / Techstream Display "Yaw Rate / Deceleration Sensor"

HINT:

The yaw rate and acceleration sensor is connected to the CAN communication system, but CAN communication DTCs are not output.

(k) Center Airbag Sensor Assembly / Techstream Display "SRS Airbag"

HINT:

The center airbag sensor assembly is connected to the CAN communication system, but CAN communication DTCs are not output.

(l) Main Body ECU (w/ LED Headlight System or w/ Remote Air Conditioning System)/ Techstream Display "Main Body"

DTC Code	Detection Item
U0100	Lost Communication with ECM/ PCM "A"
U0101	Lost Communication with TCM
U0151	Lost Communication with Restraints Control Module
U0155	Lost Communication with Instrument Panel Cluster
U0164	Lost Communication with HVAC Control Module
U0293	Lost Communication with Hybrid Powertrain Control Module
U0327	Software Incompatibility with Vehicle Security
U1133	Lost Communication with PMN Module

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HINT:

DTC communication uses the CAN communication system.

(m) Main Body ECU (w/o LED Headlight System and w/o Remote Air Conditioning System)/ Techstream Display "Main Body"

HINT:

The main body ECU (w/o LED Headlight System and w/o Remote Air Conditioning System) is connected to the CAN communication system, but CAN communication DTCs are not output.

(n) Certification ECU / Techstream Display "Smart Access/ Smart Key/ Wireless Tuner"

DTC Code	Detection Item
U0100	Lost Communication with ECM / PCM "A"
U0142	Lost Communication with Body Control Module "B"

DTC Code	Detection Item
U0155	Lost Communication with Instrument Panel Cluster (IPC) Control Module
U0293	Lost Communication with HV ECU

HINT:

DTC communication uses the CAN communication system.

(o) Air Conditioning Amplifier / Techstream Display "Air Conditioner"

DTC Code	Detection Item
U0100	Communication Malfunction (Engine ECU)
U0101	Lost Communication with TCM
U0131	Communication Malfunction (Electric Power Steering ECU)
U0142	Communication Malfunction (Main body ECU)
U0155	Communication Malfunction (Meter ECU)
U0293	Communication Malfunction (Navigation ECU)

HINT:

DTC communication uses the CAN communication system.

(p) Combination Meter / Techstream Display "Combination Meter"

DTC Code	Detection Item
U0100	Lost Communication with ECM / PCM "A"
U0129	Lost Communication with Brake System Control Module
U0131	Lost Communication with Power Steering Control Module
U0142	Lost Communication with Body Control Module "B"
U0151	Lost Communication with Restraints Control Module

HINT:

DTC communication uses the CAN communication system.

(q) Navigation ECU (Navigation receiver assembly) / Techstream Display "AVN1"

DTC Code	Detection Item
U0073	Sending Malfunction (Navigation to APGS)

HINT:

DTC communication uses the CAN communication system.

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(r) Seat Belt Control ECU / Techstream Display "Pre-Collision1"

DTC Code	Detection Item
U0122	Lost Communication with Vehicle Dynamics Control Module
U0140	Lost Communication with J/B ECU
U0151	Lost Communication with SRS Airbag ECU
U1104	Lost Communication with Driving Support ECU

HINT:

DTC communication uses the CAN communication system.

(s) Driving Support ECU / Techstream Display "Pre-Collision2"

DTC Code	Detection Item
U0122	Lost Communication with Vehicle Dynamics Control Module
U0123	Lost Communication with Yaw Rate Sensor Module
U0126	Lost Communication with Steering Angle Sensor Module
U0235*3	Lost Communication with Cruise Control Front Distance Range Sensor
U0293	Lost Communication with Hybrid Vehicle Control System
U1002	Lost Communication with Gateway Module
U1100	Lost Communication with Pre-Collision Module
U1104	Lost Communication with Driving Support ECU
U1119*3	Lost Communication with Object Recognition ECU

HINT:

- DTC communication uses the CAN communication system.
- *3: If U0235 or U1119 is output alone, CAN communication is normal. Refer to Dynamic Radar Cruise Control System INFO.

(t) Driving Support ECU / Techstream Display "Cruise Control (ACC)"

DTC Code	Detection Item
U0122	Lost Communication with Vehicle Dynamics Control Module
U0123	Lost Communication with Yaw Rate Sensor Module
U0126	Lost Communication with Steering Angle Sensor Module
U0235*3	Lost Communication with Cruise Control Front Distance Range Sensor
U0293	Lost Communication with Hybrid Vehicle Control System
U1104	Lost Communication with Driving Support ECU

HINT:

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- DTC communication uses the CAN communication system.
- *3: If U0235 is output alone, CAN communication is normal. Refer to Dynamic Radar Cruise Control System INFO.

(u) Driving Support ECU / Techstream Display "Lane Keeping Assist"

DTC Code	Detection Item
U0122	Lost Communication with Vehicle Dynamics Control Module
U0123	Lost Communication with Yaw Rate Sensor Module
U0131	Lost Communication with Power Steering Control Module
U0235*3	Lost Communication with Cruise Control Front Distance Range Sensor
U0293	Lost Communication with Hybrid Vehicle Control System
U1104	Lost Communication with Driving Support ECU
U1119*4	Lost Communication with Object Recognition ECU

HINT:

- DTC communication uses the CAN communication system.
- *3: If U0235 is output alone, CAN communication is normal. Refer to Dynamic Radar Cruise Control System INFO.
- *4: If U1119 is output alone, CAN communication is normal. Refer to Lane-keeping Assist System INFO.

(v) Parking Assist ECU / Techstream Display "Advanced Parking Guidance System"

DTC Code	Detection Item
U0073	Control Module Communication Bus Off
U0126	Lost Communication with Steering Angle Sensor Module
U0129	Lost Communication with Brake System Control Module
U0131	Lost Communication with Power Steering Control Module
U0140	Lost Communication with Body Control Module
U0293	Lost Communication with Hybrid Control Module
U1000*5	CAN Communication Failure (Message Registry)

HINT:

- DTC communication uses the CAN communication system.
- *5: If U1000 is output alone, CAN communication is normal. Refer to Parking Assist System INFO.

(w) Millimeter Wave Radar Sensor

HINT:

The millimeter wave radar sensor is connected to the CAN communication system, but CAN communication DTCs are not output.

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(x) Lane Recognition Camera Sensor

HINT:

The lane recognition camera sensor is connected to the CAN communication system, but CAN communication DTCs are not output.

5. DTC COMBINATION TABLE

(a) CAN No. 1 Bus

DTC		Trouble Mode			
Output ECU	**Output DTC**	**Power Management ECU Communication Stop Mode**	**ECM Communication Stop Mode**	**Main Body ECU Communication Stop Mode**	**Combination Meter ECU Communication Stop Mode**
Power management control ECU (Hybrid Control)	U0100	○*1	○	X	X
	U0122	○*1	X	X	X
	U0129	○*1	X	X	X
	U0140	○*1	X	○	X
	U0151	○*1	X	X	X
	U1107	○*1	X	X	X
Power management control ECU (Electric Power Control)	U0129	○*1	X	X	X
	U0140	○*1	X	○	X
	U0155	○*1	X	X	○
	U0293	○	X	X	X
ECM	U0293	○	○*1	X	X
Transmission control ECU	U0146	X	X	○	X
Main body ECU*3	U0100	X	○	○*1	X
	U0101	○	X	○*1	X
	U0151	X	X	○*1	X
	U0155	X	X	○*1	○
	U0164	○*4	X	○*1	X
	U0293	○	X	○*1	X
	U0327	X	X	○*1	X
	U1133	○	X	○*1	X
Combination meter	U0100	X	○	X	○*1
	U0129	X	X	X	○*1
	U0131	X	X	X	○*1
	U0142	X	X	○	○*1

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DTC		Trouble Mode			
Output ECU	Output DTC	Power Management ECU Communication Stop Mode	ECM Communication Stop Mode	Main Body ECU Communication Stop Mode	Combination Meter ECU Communication Stop Mode
	U0151	X	X	X	○*1
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
Power steering ECU	U0129	X	X	X	X
	U0293	○	X	X	X
	U1104	○*5	X	X	X
	U1105	○*5	X	X	X
Certification ECU	U0100	X	○	X	X
	U0142	X	X	○	X
	U0155	X	X	X	○
	U0293	○	X	X	X
Navigation ECU	U0073	X	X	X	X

DTC		Trouble Mode			
Output ECU	Output DTC	Power Steering ECU Communication Stop Mode	Skid Control ECU Communication Stop Mode	Steering Angle Sensor Communication Stop Mode	Yaw Rate Sensor Communication Stop Mode
Power management control ECU (Hybrid Control)	U0100	X	X	X	X
	U0122	X	○	X	X
	U0129	X	○	X	X
	U0140	X	X	X	X
	U0151	X	X	X	X
	U1107	X	X	X	X
Power management control ECU (Electric Power Control)	U0129	X	○	X	X
	U0140	X	X	X	X
	U0155	X	X	X	X
	U0293	X	X	X	X
ECM	U0293	X	X	X	X
Transmission control ECU	U0146	X	X	X	X
Main body	U0100	X	X	X	X

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DTC		Trouble Mode			
Output ECU	Output DTC	Power Steering ECU Communication Stop Mode	Skid Control ECU Communication Stop Mode	Steering Angle Sensor Communication Stop Mode	Yaw Rate Sensor Communication Stop Mode
ECU*3	U0101	X	X	X	X
	U0151	X	X	X	X
	U0155	X	X	X	X
	U0164	X	X	X	X
	U0293	X	X	X	X
	U0327	X	X	X	X
	U1133	X	X	X	X
Combination meter	U0100	X	X	X	X
	U0129	X	○	X	X
	U0131	○	X	X	X
	U0142	X	X	X	X
	U0151	X	X	X	X
Skid control ECU	U0073	X	○*1, 2	X	○
	U0123	X	○*1	X	○
	U0124	X	○*1	X	○
	U0126	X	○*1	○	X
	U0293	X	○*1	X	X
Power steering ECU	U0129	○*1	○	○	○
	U0293	○*1	X	X	X
	U1104	○*1	X	X	X
	U1105	○*1	X	X	X
Certification ECU	U0100	X	X	X	X
	U0142	X	X	X	X
	U0155	X	X	X	X
	U0293	X	X	X	X
Navigation ECU	U0073	X	X	X	X

DTC					
Output ECU	Output DTC	Center Airbag Sensor Communication Stop Mode	Certification ECU Communication Stop Mode	Transmission control Communication Stop Mode	Navigation ECU Communication Stop Mode
Power management	U0100	X	X	X	X
	U0122	X	X	X	X
	U0129	X	X	X	X

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DTC					
Output ECU	Output DTC	Center Airbag Sensor Communication Stop Mode	Certification ECU Communication Stop Mode	Transmission control Communication Stop Mode	Navigation ECU Communication Stop Mode
control ECU (Hybrid Control)	U0140	X	X	X	X
	U0151	○	X	X	X
	U1107	X	X	X	X
Power management control ECU (Electric Power Control)	U0129	X	X	X	X
	U0140	X	X	X	X
	U0155	X	X	X	X
	U0293	X	X	X	X
ECM	U0293	X	X	X	X
Transmission control ECU	U0146	X	X	○*1	X
Main body ECU*3	U0100	X	X	X	X
	U0101	X	X	X	X
	U0151	○	X	X	X
	U0155	X	X	X	X
	U0164	X	X	X	X
	U0293	X	X	X	X
	U0327	X	○	X	X
	U1133	X	X	X	X
Combination meter	U0100	X	X	X	X
	U0129	X	X	X	X
	U0131	X	X	X	X
	U0142	X	X	X	X
	U0151	○	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	U0129	X	X	X	X
	U0293	X	X	X	X
	U1104	X	X	X	X
	U1105	X	X	X	X
Certification	U0100	X	○*1	X	X

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DTC					
Output ECU	Output DTC	Center Airbag Sensor Communication Stop Mode	Certification ECU Communication Stop Mode	Transmission control Communication Stop Mode	Navigation ECU Communication Stop Mode
ECU	U0142	X	○*1	X	X
	U0155	X	○*1	X	X
	U0293	X	○*1	X	X
Navigation ECU	U0073	X	X	X	○*1

HINT:

- ○: Set
- X: Not set or may be set according to the malfunctioning part when one side of the CAN branch wire opens.
- *1: DTC is not output during communication error, but will be output as a history DTC (past DTC) when communication returns to normal.
- *2: DTC U0100, U0123, U0124 and U0126 are not stored when DTC U0073 has already been stored.
- *3: w/ LED headlight system or w/ remote air conditioning system
- *4: If the power management bus circuit is normal
- *5: If the CAN No. 2 bus circuit is normal
- Skid Control ECU Communication Stop Mode INFO
- Power Steering ECU Communication Stop Mode INFO
- Steering Angle Sensor Communication Stop Mode INFO
- Yaw Rate Sensor Communication Stop Mode INFO
- ECM Communication Stop Mode INFO
- Transmission Control ECU Communication Stop Mode INFO
- Main Body ECU Communication Stop Mode INFO
- Combination Meter ECU Communication Stop Mode INFO
- Center Airbag Sensor Communication Stop Mode INFO
- Certification ECU Communication Stop Mode INFO
- Power Management ECU Communication Stop Mode INFO

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FAIL-SAFE CHART

1. FAIL-SAFE FUNCTION

(a) When communication fails in any of the CAN bus wires (communication wires), a fail-safe function(s) will operate. The fail-safe function that is specified for each system operates to prevent those systems from malfunctioning.

(b) The following table shows the effects on each system when communication is impossible. (For further details, see the pages for each system.)

Function (Function Description)	Control Master	System Related	Fail-safe Operation	DTC (Driver Detectable)
Power switch (Power source control)	Power management control ECU	• Transmission control ECU • Skid control ECU • Main body ECU	• Power switch does not change to on (READY) even when power switch is pressed with the brake pedal depressed • Power switch off is prohibited	U0073 U0129 U0293 (Warning and indicator lights come on)
Hybrid driving control	Power management control ECU	ECM	Only motor operation is used (Engine is not used)	U0100 (Warning and indicator lights come on)
Shift position indicator display	Transmission control ECU	• Transmission control ECU • Main body ECU • Combination meter	Shift position indicator is not displayed	U0146 (Warning and indicator lights come on)
Regenerative braking control	Power management control ECU	Skid control ECU	Regenerative braking will stop (ABS/VSC control gradually stops)	U0073 U0129 U0293 (Warning and indicator lights come on)
VSC control	Skid control ECU	• Power management	ABS/VSC control is	U0073

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Function (Function Description)	Control Master	System Related	Fail-safe Operation	DTC (Driver Detectable)
(Controls driving force while VSC operating)		control ECU • Yaw rate sensor • Steering angle sensor	inoperative (ABS/VSC control gradually stops)	U0123 U0124 U0126 U0293 (Warning and indicator lights come on)
ABS control (Controls driving force while ABS operating)	Skid control ECU	Yaw rate sensor	ABS control is inoperative (ABS control gradually stops)	U0073 U0123 U0124 (Warning and indicator lights come on)
TRAC control (Engine power control by VSC/TRAC)	Skid control ECU	• Power management control ECU • Yaw rate sensor • Steering angle sensor	ABS/VSC control is inoperative (ABS/VSC control gradually stops)	U0073 U0123 U0124 U0126 U0293 (Warning and indicator lights come on)
Electric power steering control (Speed of vehicle induction type torque control)	Power steering ECU	• Power management control ECU • Skid control ECU	Depression of EPS assist (Deterioration of steering assist)	U0129 U0293 (Warning light comes on)
Air conditioning	Air conditioning amplifier	• Power management	Air conditioning function and PTC heater function	U0100

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Function (Function Description)	Control Master	System Related	Fail-safe Operation	DTC (Driver Detectable)
control (Air conditioning control is in cabin)		control ECU • ECM • Combination meter • Main body ECU	stop	U0142 U0155 U0293 (Air conditioning is inoperative)
Entry function/Power door lock control	• Certification ECU • Main Body ECU	• ECM • Combination meter • Power management control ECU	Unlock permitted	U0100 U0142 U0155 U0293 U0327 (Wireless door lock cannot operate)
Vehicle-to-vehicle distance control	Driving support ECU	• Power management control ECU • Skid control ECU • ECM • Steering angle sensor • Yaw rate sensor	Vehicle-to-vehicle distance control does not operate	U0122 U0123 U0126 U0293 (Warning and indicator lights come on)
Lane keeping assist system	Driving support ECU	• Main body ECU • Skid control ECU • Yaw rate sensor • EPS ECU	Lane-keeping assist is inoperative	U0122 U0123 U0131 (Warning and indicator lights come on)

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Function (Function Description)	Control Master	System Related	Fail-safe Operation	DTC (Driver Detectable)
Pre-collision system	Driving support ECU	• Power management control ECU • Skid control ECU • ECM • Steering angle sensor • Yaw rate sensor • Seat belt control ECU	Pre-collision control is inoperative	U0122 U0123 U0126 U0293 U1104 U1100 (Warning and indicator lights come on)
	Seat belt control ECU	• Skid control ECU • Driving support ECU • Center airbag sensor • Main body ECU	Pre-collision control is inoperative	U0122 U0140 U0151 U1104 (Warning and indicator lights come on)
Advanced parking guidance system	Parking assist ECU	• Power management control ECU • EPS ECU • Skid control ECU • Steering angle sensor • Main body ECU • Air conditioning amplifier	Advanced parking guidance is inoperative	U0073 U0126 U0129 U0131 U0140 U0293

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DIAGNOSTIC TROUBLE CODE CHART

Power Management Control ECU Output DTCs (Techstream Display/Power Management1)

DTC Code	Detection Item	Trouble Area	See page
U0104	Lost Communication with Driving Support ECU	1. Driving support ECU branch wire or connector 2. Power source circuit of driving support ECU 3. Driving support ECU	INFO
U1002	Lost Communication with Gateway Module (Power Management1)	1. Open or short in CAN No. 2 bus main wire or connector 2. Open or short in CAN No. 2 bus branch wire or connector 3. Power management control ECU 4. Driving support ECU 5. Seat belt control ECU 6. Parking assist ECU 7. CAN No. 3 junction connector	INFO
U1100	Lost Communication with Seat Belt Control ECU	1. Seat belt control ECU branch wire or connector 2. Power source circuit of seat belt control ECU 3. Seat belt control ECU	INFO
U110B	Lost Communication with Parking Assist Control Module "B"	1. Parking assist ECU branch wire or connector 2. Power source circuit of parking assist ECU 3. Parking assist ECU	INFO

Power Management Control ECU Output DTCs (Techstream Display/Power Management2)

DTC Code	Detection Item	Trouble Area	See page
U0100	Lost Communication with ECM / PCM	1. ECM main wire or connector	INFO

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DTC Code	Detection Item	Trouble Area	See page
		2. Power source circuit of ECM 3. ECM	
U0129	Lost Communication with Brake System Control Module	1. Skid control ECU branch wire or connector 2. Power source circuit of skid control ECU 3. Skid control ECU	INFO
U0164	Lost Communication with A/C ECU	1. Air conditioning amplifier branch wire or connector 2. Power source circuit of air conditioning amplifier 3. Air conditioning amplifier	INFO
U1002	Lost Communication with Gateway Module (Power Management2)	1. Open or short in power management bus main wire or connector 2. Open or short in power management bus branch wire or connector 3. Power management control ECU 4. ECM 5. Air conditioning amplifier 6. Skid control ECU 7. CAN No. 4 junction connector	INFO

Driving Support ECU Output DTCs (Techstream Display/Pre-Collision2)

DTC Code	Detection Item	Trouble Area	See page
U1002	Lost Communication with Gateway Module (Parking Assist Bus)	1. Open or short in parking assist bus main wire or connector 2. Open or short in parking assist bus branch wire or connector 3. Driving support ECU 4. CAN No. 5 junction connector	INFO

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DTC	U0100	Lost Communication with ECM / PCM

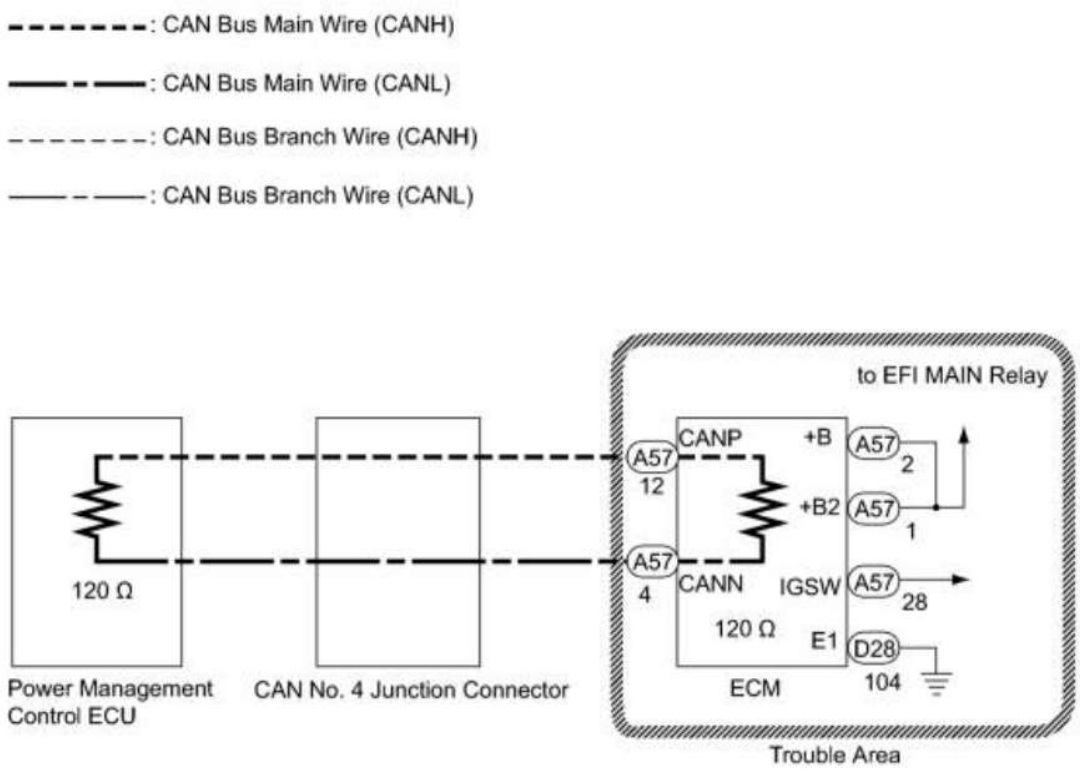
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U0100	No communication from the ECM continues.	• ECM main wire or connector • Power source circuit of ECM • ECM

HINT:

The diagnosis procedure is for when DTC U0100 is output by the power management control ECU (Techstream display: Power Management2).

WIRING DIAGRAM



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INSPECTION PROCEDURE

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NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If CAN power management bus DTC U1002 is output from the power management control ECU (Techstream display/Power Management2), troubleshoot for U1002 and check for malfunctions in the power management main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management2)	A
U1002 is output from power management control ECU (Techstream display/Power Management2)	B

B ▶ REPAIR CIRCUITS INDICATED BY OUTPUT DTCS

A ▼

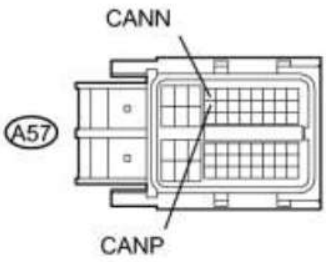
2.	CHECK CAN BUS WIRE FOR DISCONNECTION (ECM MAIN WIRE/POWER MANAGEMENT BUS)

(a) Turn the power switch off.

(b) Disconnect the ECM connector.

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*1



Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A57-12 (CANP) - A57-4 (CANN)	Power switch off	108 to 132 Ω

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (ECM MAIN WIRE)

OK ▼

3.	CHECK ECM POWER SOURCE CIRCUIT

(a) Check for the ECM power source circuit INFO.

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▶ **REPLACE ECM**

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DTC	U0104	Lost Communication with Driving Support ECU

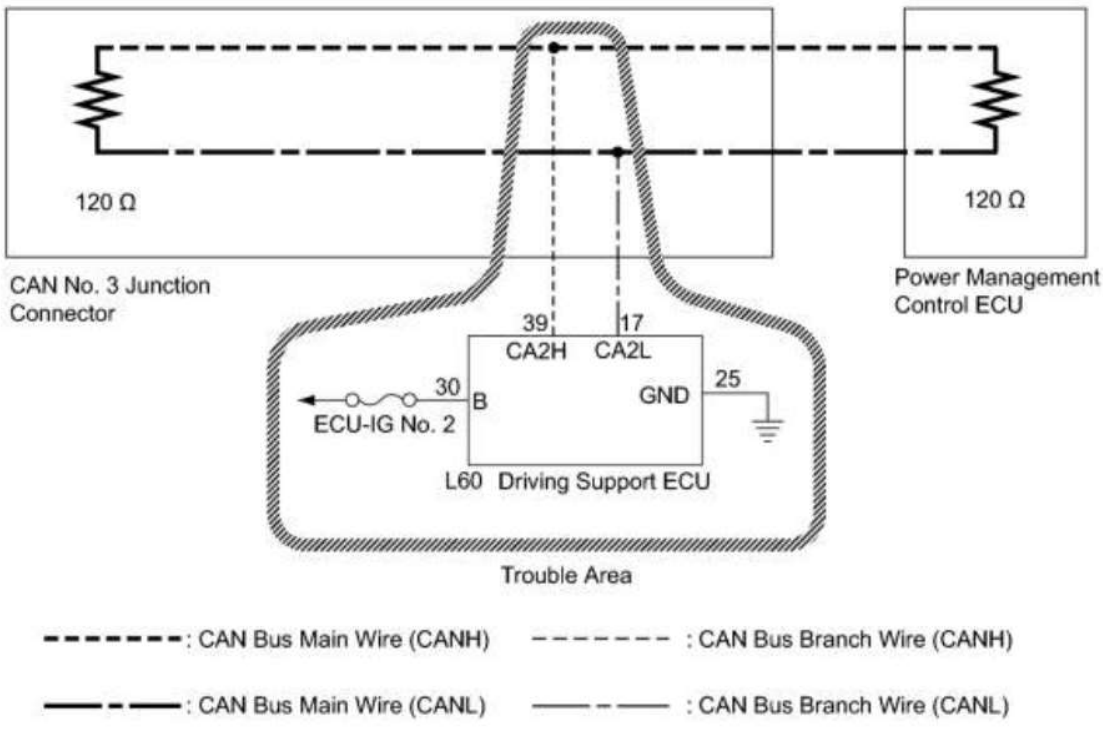
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U0104	No communication from the driving support ECU continues.	• Driving support ECU branch wire or connector • Power source circuit of driving support ECU • Driving support ECU

HINT:

The diagnosis procedure is for when DTC U0104 is output by the power management control ECU (Techstream display: Power Management1).

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If CAN No. 2 bus DTC U1002 is output from the power the management control ECU (Techstream display/Power Management1), troubleshoot for U1002 and check for malfunctions in the CAN No. 2 main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management1)	A
U1002 is output from power management control ECU (Techstream display/Power Management1)	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

A

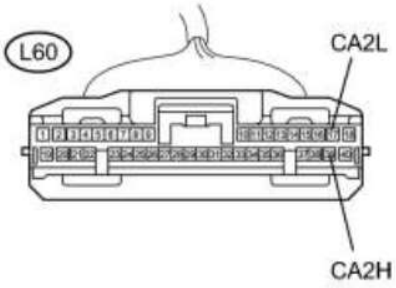
▼

2.	CHECK CAN BUS WIRE FOR DISCONNECTION (DRIVING SUPPORT ECU BRANCH WIRE)

(a) Turn the power switch off.

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*1



(b) Disconnect the driving support ECU connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L60-39 (CA2H) - L60-17 (CA2L)	Power switch off	54 to 69 Ω

Text in Illustration

*1	Front view of wire harness connector (to Driving Support ECU)

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (DRIVING SUPPORT ECU BRANCH WIRE)

OK

▼

3.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) Turn the power switch on (IG).

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

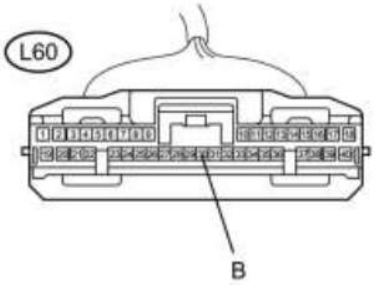
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L60-30 (B) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

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*1



*1	Front view of wire harness connector (to Driving Support ECU)

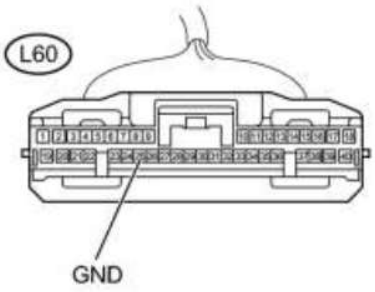
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK

▼

4.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

*1



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L60-25 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Driving Support ECU)

NG ▶ HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE DRIVING SUPPORT ECU**

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DTC	U0129	Lost Communication with Brake System Control Module

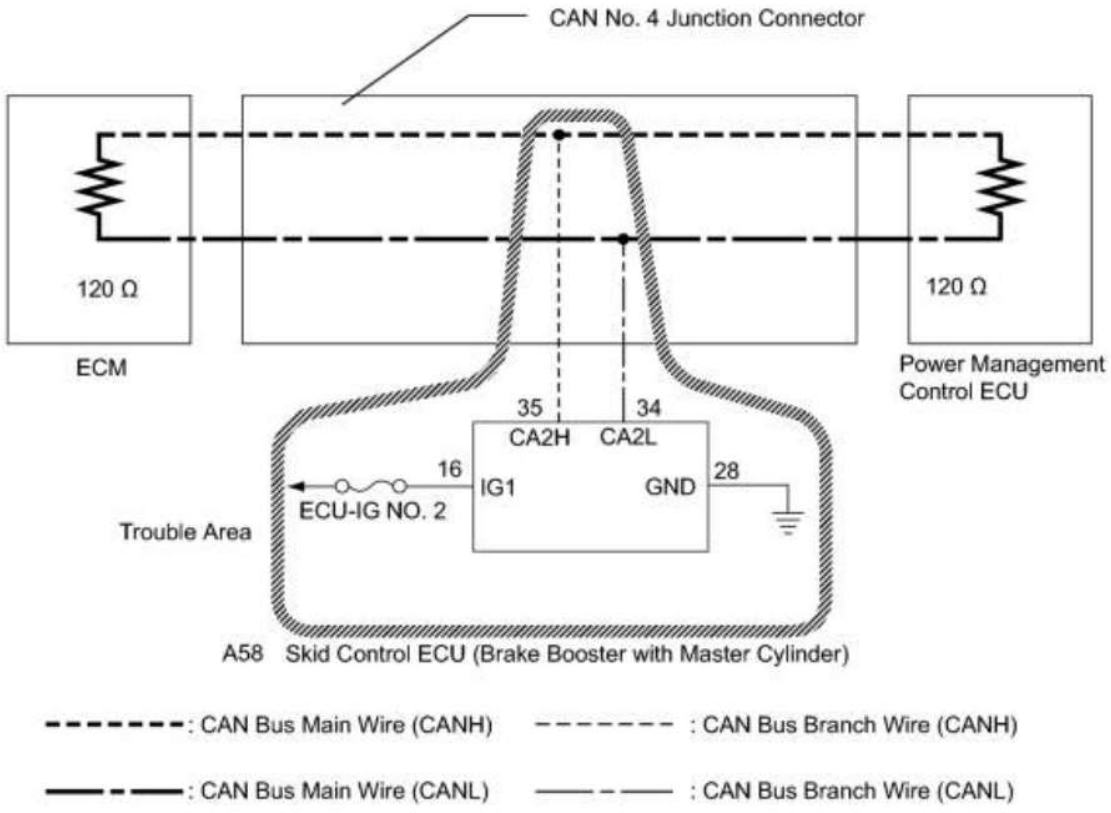
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U0129	No communication from the skid control ECU continues.	• Skid control ECU branch wire or connector • Power source circuit of skid control ECU • Skid control ECU (Brake booster with master cylinder)

HINT:

The diagnosis procedure is for when DTC U0129 is output by the power management control ECU (Techstream display: Power Management2).

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If power management bus DTC U1002 is output from the power management control ECU (Techstream display/Power Management2), troubleshoot for U1002 and check for malfunctions in the power management main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management2)	A
U1002 is output from power management control ECU (Techstream display/Power Management2)	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

A ▼

2.	CHECK DTC (BRAKE SYSTEM)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

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(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Trouble Codes.

OK:

DTC C1241 is not output.

NG ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

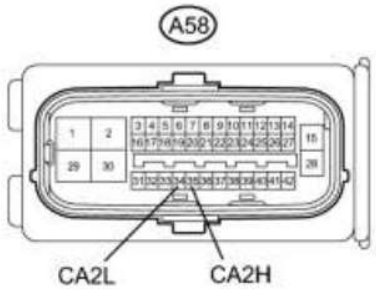
OK ▼

3.	CHECK CAN BUS WIRE FOR DISCONNECTION (SKID CONTROL ECU)

(a) Turn the power switch off.

*1

(b) Disconnect the skid control ECU connector.



Text in Illustration

*1	Front view of wire harness connector (to Skid Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A58-35 (CA2H) - A58-34 (CA2L)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (SKID CONTROL ECU BRANCH WIRE)

OK ▶ **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER (SKID CONTROL ECU)**

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DTC	U0164	Lost Communication with A/C ECU

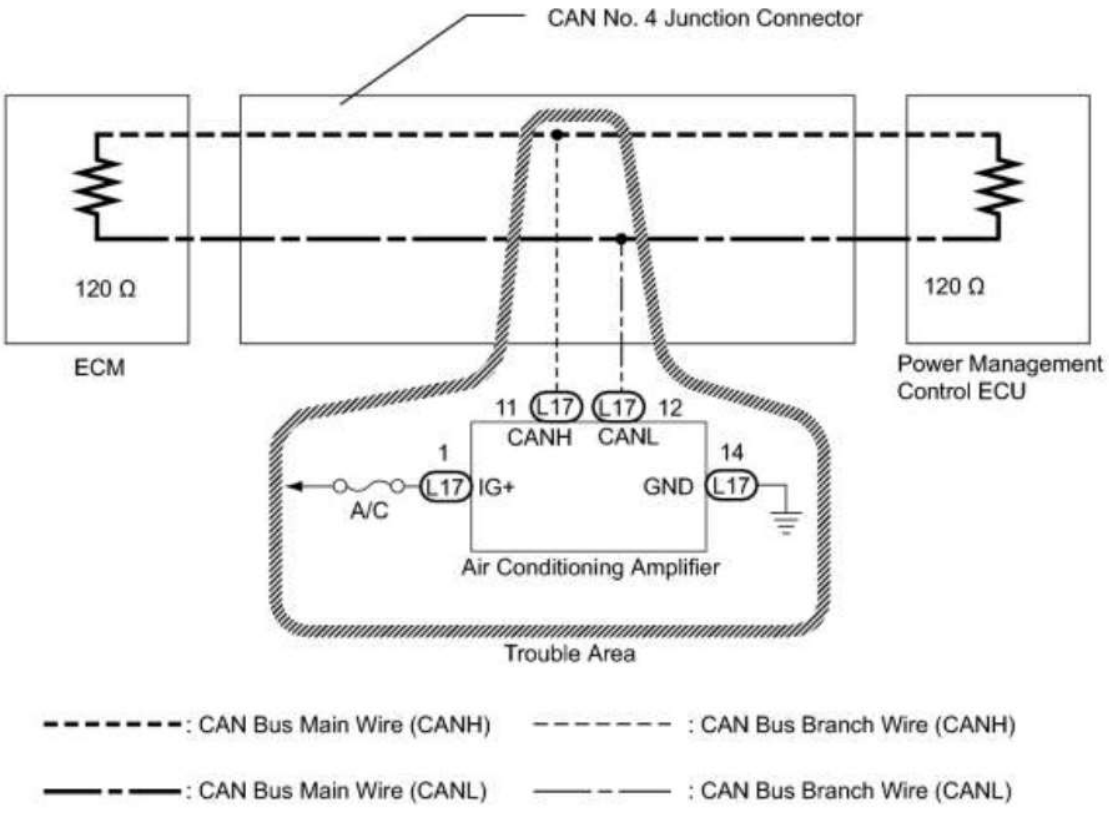
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U0164	No communication from the air conditioning amplifier continues.	• Air conditioning amplifier branch wire or connector • Power source circuit of air conditioning amplifier • Air conditioning amplifier

HINT:

The diagnosis procedure is for when DTC U0164 is output by the power management control ECU (Techstream display: Power Management2).

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If power management bus DTC U1002 is output from the power management control ECU (Techstream display/Power Management2), troubleshoot for U1002 and check for malfunctions in the power management main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management2)	A
U1002 is output from power management control ECU (Techstream display/Power Management2)	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

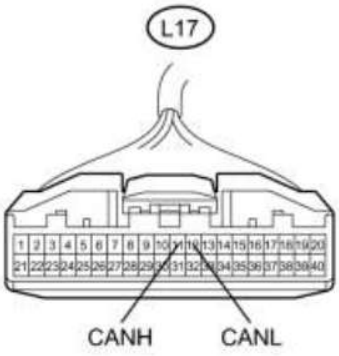
A ▼

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

(a) Turn the power switch off.

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*1



(b) Disconnect the air conditioning amplifier connector.

Text in Illustration

*1	Front view of wire harness connector (to Air Conditioning Amplifier)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L17-11 (CANH) - L17-12 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (AIR CONDITIONING AMPLIFIER BRANCH WIRE)

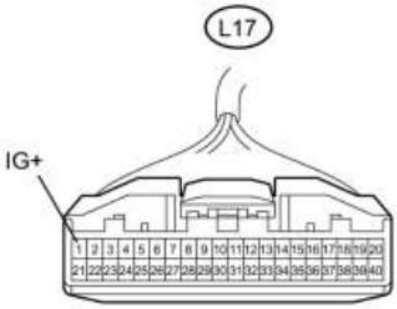
OK ▼

3.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) Turn the power switch on (IG).

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

*1



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L17-1 (IG+) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Air Conditioning Amplifier)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▼

4.	CHECK FRONT AND SIDE MONITOR SYSTEM (GROUND TERMINAL)

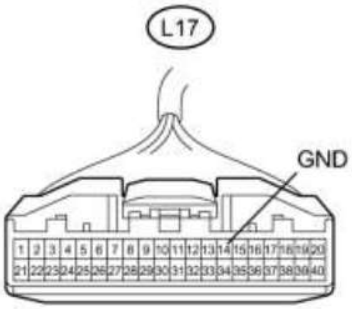
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(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L17-14 (GND) - Body ground	Always	Below 1 Ω

*1



Text in Illustration

*1	Front view of wire harness connector (to Air Conditioning Amplifier)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)
OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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DTC	U1002	Lost Communication with Gateway Module (Power Management1)

DESCRIPTION

- The power management control ECU will store this DTC when no signals can be received from the ECUs that have been memorized as those that are connected to the CAN No. 2 bus.
- When the power management control ECU receives a response signal from the ECUs connected to the CAN No. 2 bus, the power management control ECU recognizes and memorizes that the ECU is connected to the CAN No. 2 bus. Based on this memorized data, the power management control ECU monitors for malfunctions in the ECUs connected to the CAN No. 2 bus when communicating with those ECUs. If the power management control ECU cannot receive response signals from the ECUs that have been memorized as those connected to the CAN No. 2 bus, the power management control ECU determines that a malfunction exists.

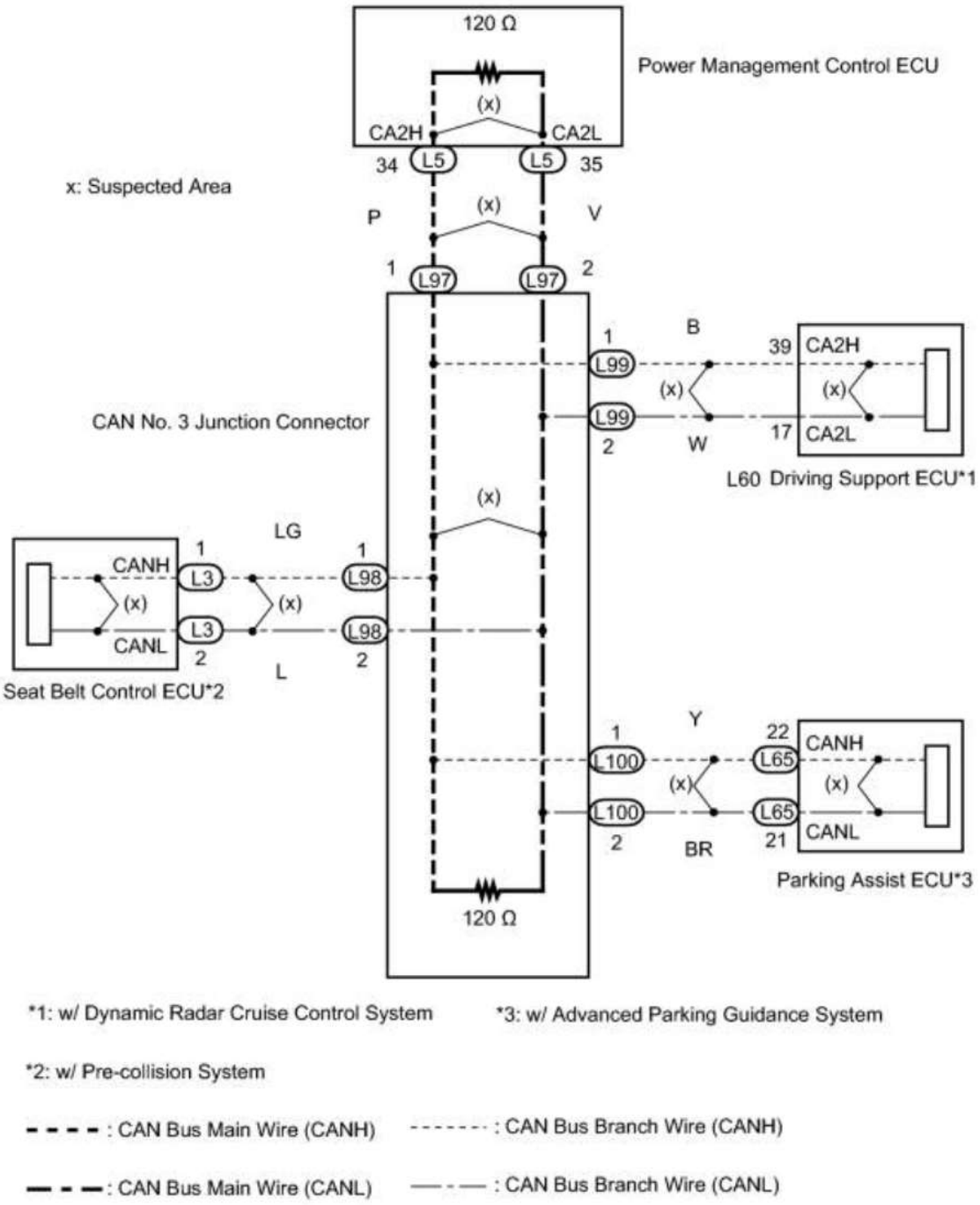
DTC No.	DTC Detection Condition	Trouble Area
U1002	Power management control ECU cannot receive signals from all ECUs that have been memorized as those connected to the CAN No. 2 bus.	• Open or short in CAN No. 2 bus main wire or connector • Open or short in CAN No. 2 bus branch wire or connector • Power management control ECU • Driving support ECU • Seat belt control ECU • Parking assist ECU • CAN No. 3 junction connector

HINT:

The diagnosis procedure is for when DTC U1002 is output by the power management control ECU (Techstream display: Power Management1).

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN NO. 2 BUS WIRE

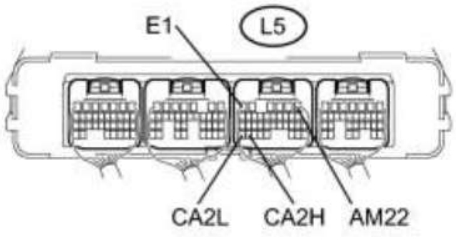
(a) Turn the power switch off.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Result
L5-34 (CA2H) - L5-35 (CA2L)	Power switch off	54 to 69 Ω	Below 54 Ω: Short circuit between bus lines
			70 Ω or higher: Open circuit in a main bus line
L5-34 (CA2H) - L5-6 (E1)	Power switch off	200 Ω or higher	Below 200 Ω: CANH ground short
L5-35 (CA2L) - L5-6 (E1)	Power switch off	200 Ω or higher	Below 200 Ω: CANL ground short

*1



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Text in Illustration

*1	Component with harness connected

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	(Power Management Control ECU)

(c) Disconnected the cable from the negative (-) battery terminal.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Result
L5-34 (CA2H) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANH +B short
L5-35 (CA2L) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANL +B short

Result:

Result	Proceed to
OK	A
Open circuit in CAN main bus line	B
Short circuit between bus lines	C
• Ground short • +B short	D

D ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (POWER MANAGEMENT CONTROL ECU)

C ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (POWER MANAGEMENT CONTROL ECU)

B ▶ CHECK FOR OPEN IN CAN NO. 2 BUS MAIN WIRE (POWER MANAGEMENT CONTROL ECU MAIN WIRE)

A

▼

2.	CHECK CAN BUS BRANCH WIRE

HINT:

For vehicles with the dynamic radar cruise control system, go to the next step.

(a) For vehicles without the dynamic radar cruise control system:

(1) Check for the parking assist ECU branch wire and ECU power source circuit INFO.

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NG ▶ REPAIR OR REPLACE WIRE HARNESS

OK

▼

3.	CHECK DTC OUTPUT

(a) Clear the DTC.

(b) Turn the power switch off.

(c) Turn the power switch on (IG), recheck the DTC.

Result:

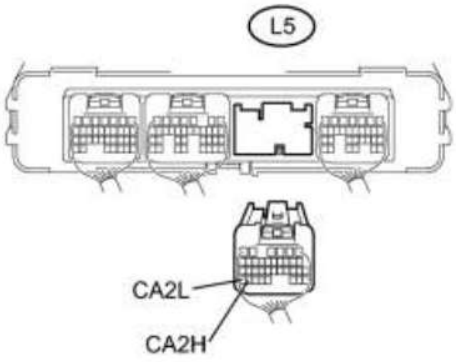
Result	Proceed to
U1002 is output from power management control ECU (Techstream display/ Power Management1)	A
Other DTC is output	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

A ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

4.	CHECK FOR OPEN IN CAN NO. 2 BUS MAIN WIRE (POWER MANAGEMENT CONTROL ECU MAIN WIRE)

*1



P

(a) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition

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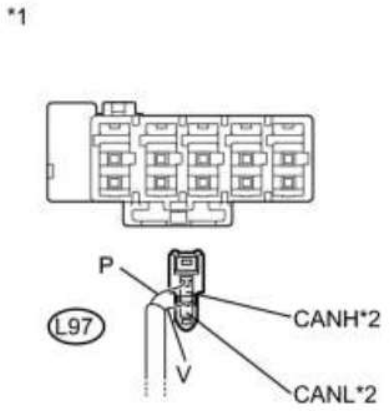
Tester Connection	Switch Condition	Specified Condition
L5-34 (CA2H) - L5-35 (CA2L)	Power switch off	108 to 132 Ω

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

OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

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

(a) Reconnect the power management control ECU connector.



(b) Disconnect the power management control ECU main wire connector from the CAN No. 3 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 3 Junction Connector)
*2	to Power Management Control ECU

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Connected to
L97-1 (CANH) - L97-2 (CANL)	Power switch off	108 to 132 Ω	Power management control ECU

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

OK ▶ **REPLACE CAN NO. 3 JUNCTION CONNECTOR**

6.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (POWER MANAGEMENT CONTROL ECU)

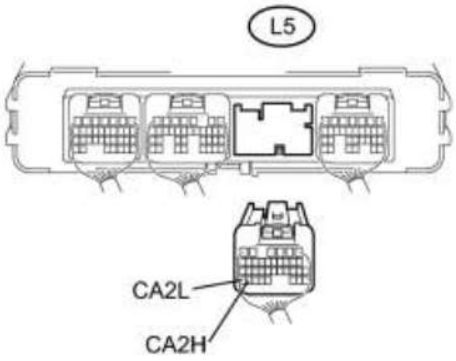
(a) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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*1



P

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L5-34 (CA2H) - L5-35 (CA2L)	Power switch off	108 to 132 Ω

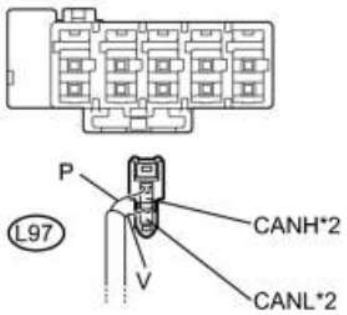
NG ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

7.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

(a) Reconnect the power management control ECU connector.

*1



(b) Disconnect the power management control ECU main wire connector from the CAN No. 3 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 3 Junction Connector)
*2	to Power Management Control ECU

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition	Connected to
L97-1 (CANH) - L97-2 (CANL)	Power switch off	108 to 132 Ω	Power management control ECU

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

OK

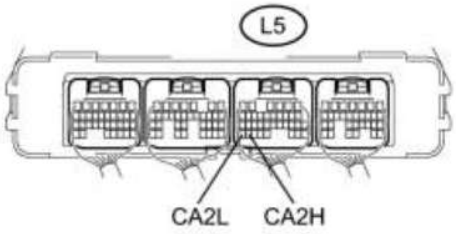
▼

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

(a) Reconnect the power management control ECU main wire connector to the CAN No. 3 junction connector.

*1

(b) Connect the probes of an ohmmeter to terminals 34 (CA2H) and 35 (CA2L) of the power management control ECU.



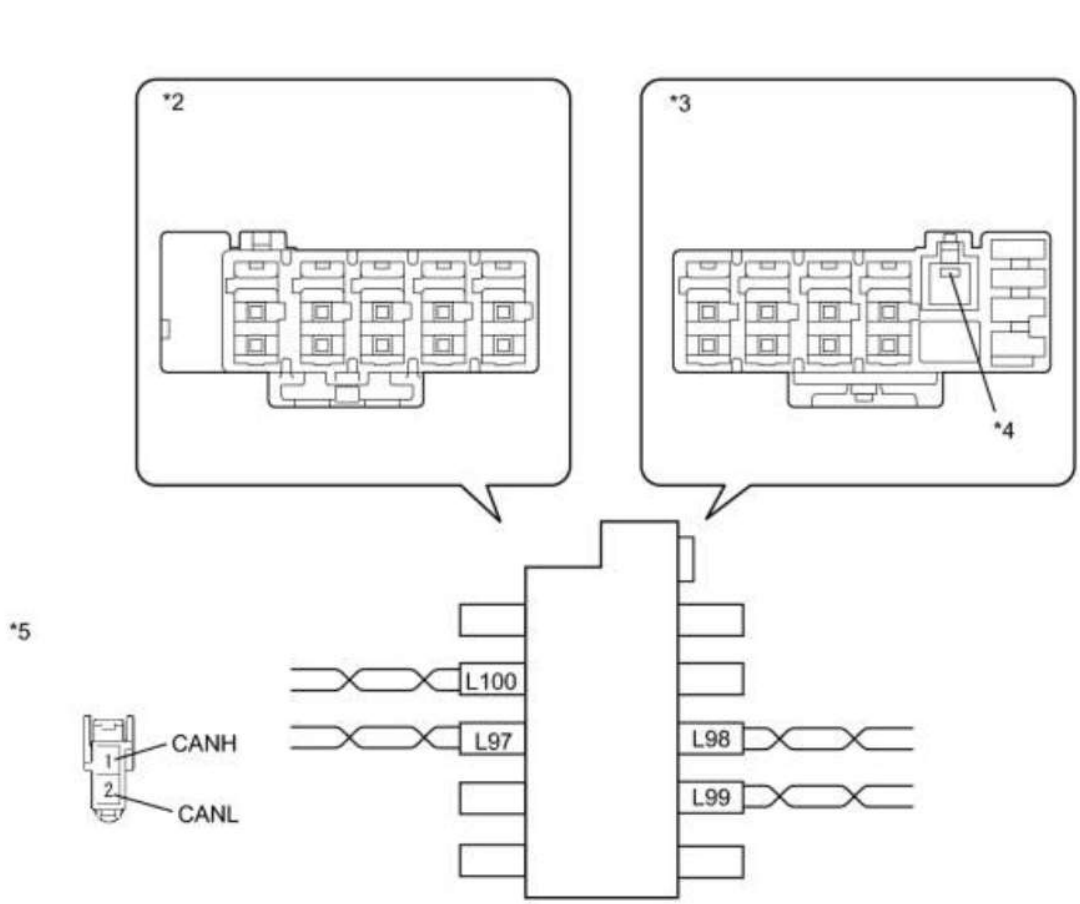
Text in Illustration

*1	Component with harness connector (Power Management Control ECU)

P

(c) While observing the resistance value shown on the ohmmeter, disconnect branch wire connectors (except L97) from the CAN No. 3 junction connector until the resistance becomes normal (between 54 and 69 Ω).

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Text in Illustration

*1	CAN No. 3 Junction Connector	*2	Junction Connector B Side
*3	Junction Connector A Side	*4	Earth Terminal
*5	Front view of wire harness connector (to CAN No. 3 Junction Connector)	-	-

Terminal No. (Symbol)	Wiring Color	Connected to
L97-1 (CANH)	P	Power management control ECU
L97-2 (CANL)	V	
L98-1 (CANH)	LG	Seat belt control ECU
L98-2 (CANL)	L	
L99-1 (CANH)	B	Driving support ECU
L99-2 (CANL)	W	
L100-1 (CANH)	Y	Parking assist ECU
L100-2 (CANL)	BR	

HINT:

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- The connectors connected to the CAN junction connector can be distinguished by the colors of the bus wire.
- Reconnecting the connectors to non-specified positions on the CAN junction connector does not affect system operation.

Result:

Result	Proceed to
The resistance is still below 54 Ω when all the specified connectors are disconnected. (There is no short 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

B ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (ECUS)

A ▶ **REPLACE CAN NO. 3 JUNCTION CONNECTOR**

9.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (ECUS)

(a) Reconnect the connector for the short-circuited branch wire to the CAN junction connector (the connector that caused the bus wire resistance to become normal (between 54 and 69 Ω) when it was disconnected).

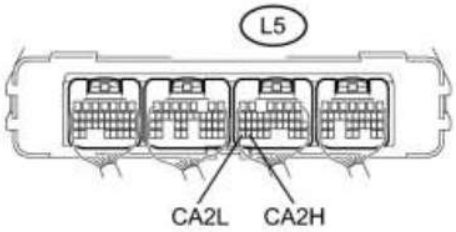
(b) Disconnect the connector that includes terminals CANH and CANL from the ECU to which the short-circuited branch wire is connected.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L5-34 (CA2H) - L5-35 (CA2L)	Power switch off	54 to 69 Ω

*1



P

Text in Illustration

*1	Component with harness connector (Power Management Control ECU)

HINT:

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

NG ▶ REPAIR OR REPLACE CORRESPONDING ECU OR SENSOR BRANCH WIRE OR CONNECTOR

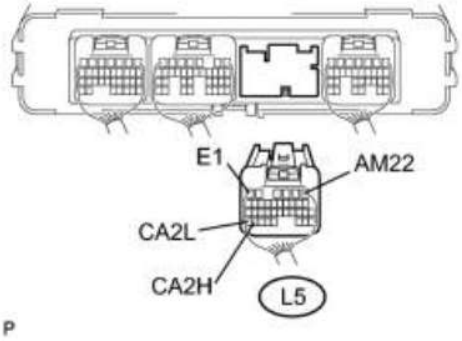
OK ▶ **REPLACE CORRESPONDING ECU OR SENSOR**

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10.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (POWER MANAGEMENT CONTROL ECU)

*1

(a) Disconnect the power management control ECU connector.



P

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Purpose
L5-34 (CA2H) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANH ground short
L5-35 (CA2L) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANL ground short
L5-34 (CA2H) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short
L5-35 (CA2L) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short

HINT:

It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN No. 2 Bus Wire inspection.

Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN No. 2 Bus Wire inspection.

NG ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

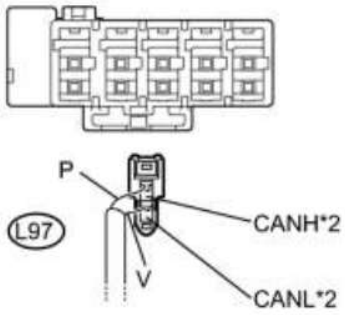
11.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

(a) Disconnect the power management control ECU main wire connector

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from the CAN No. 3 junction connector.

*1



Text in Illustration

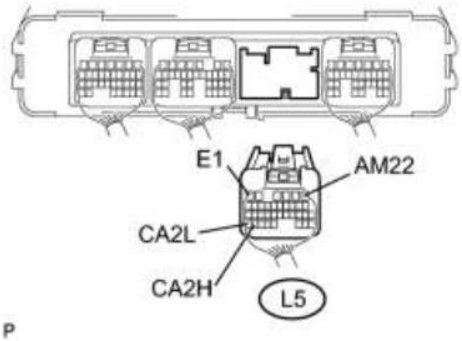
*1	Front view of wire harness connector (to CAN No. 3 Junction Connector)
*2	to Power Management Control ECU

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Purpose
L5-34 (CA2H) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANH ground short
L5-35 (CA2L) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANL ground short
L5-34 (CA2H) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short
L5-35 (CA2L) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short

*1



P

HINT:

It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN No. 2 Bus Wire inspection.

Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN No. 2 Bus Wire inspection.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 3 J/C - POWER MANAGEMENT CONTROL ECU)

OK

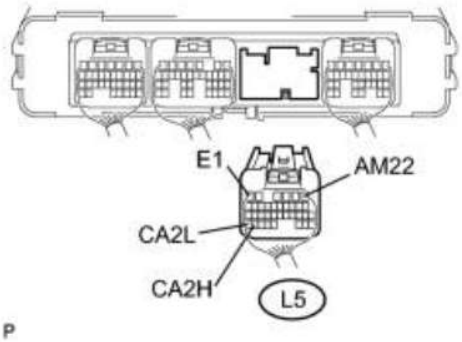
▼

12.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (CAN NO. 3 J/C)

(a) Reconnect the power management control ECU main wire connector to the CAN No. 3 junction connector.

*1

(b) Connect the probes of an ohmmeter to terminals CANH or CANL and GND or +B (AM22) of the power management control ECU.



P

Text in Illustration

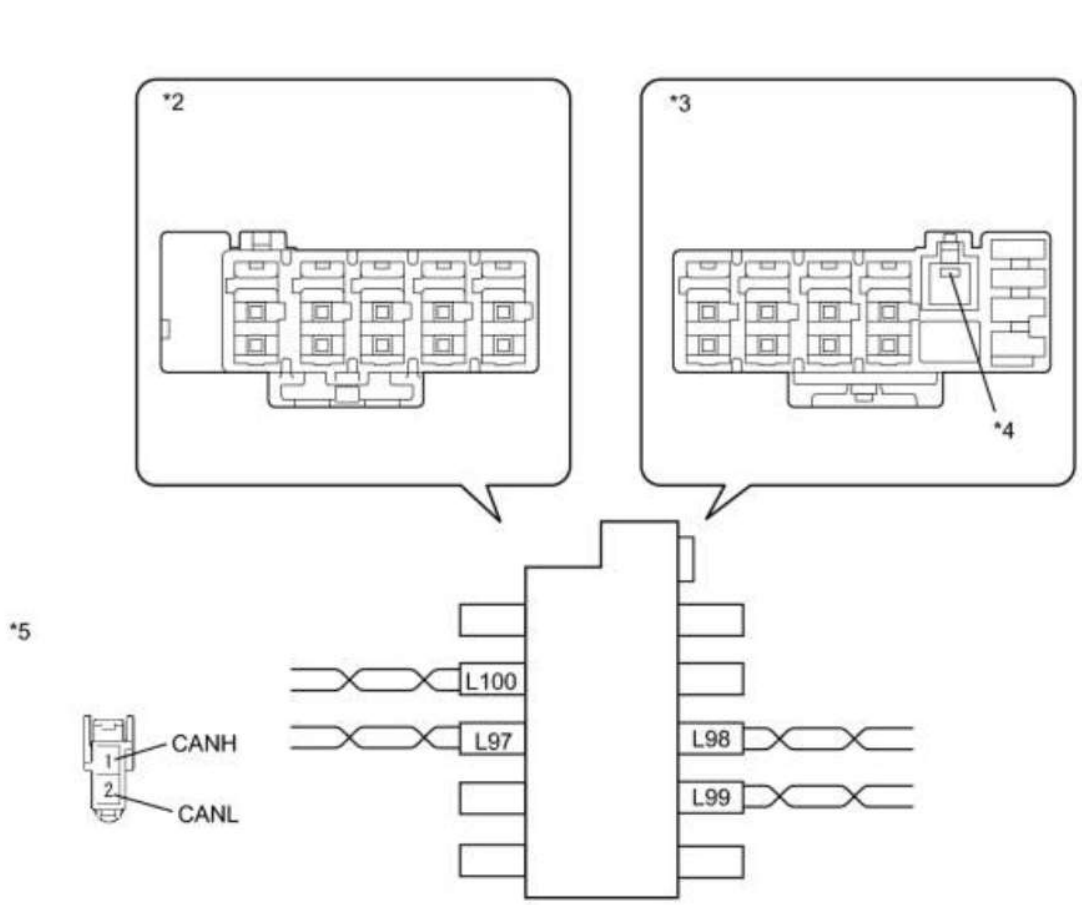
*1	Rear view of wire harness connector (to Power Management Control ECU)

HINT:

It is only necessary to perform the inspection for the result (short circuit) that was obtained in the Check CAN No. 2 Bus Wire inspection.

(c) While observing the resistance value shown on the ohmmeter, disconnect branch wire connector (except L97) from the CAN No. 3 junction connector until the resistance becomes normal (6 kΩ or higher (for +B short) or 200 Ω or higher (for ground short)).

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Text in Illustration

*1	CAN No. 3 Junction Connector	*2	Junction Connector B Side
*3	Junction Connector A Side	*4	Earth Terminal
*5	Front view of wire harness connector (to CAN No. 3 Junction Connector)	-	-

Terminal No. (Symbol)	Wiring Color	Connected to
L97-1 (CANH)	P	Power management control ECU
L97-2 (CANL)	V	
L98-1 (CANH)	LG	Seat belt control ECU
L98-2 (CANL)	L	
L99-1 (CANH)	B	Driving support ECU
L99-2 (CANL)	W	
L100-1 (CANH)	Y	Parking assist ECU
L100-2 (CANL)	BR	

HINT:

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- The connectors connected to the CAN junction connector can be distinguished by the colors of the bus wire.
- Reconnecting the connectors to non-specified positions on the CAN junction connector does not affect system operation.

Result:

Result	Proceed to
The resistance between terminals CANP and BAT, or the resistance between terminals CANN and BAT is still below 6 kΩ when all the specified connectors are disconnected from the CAN junction connector. (There is no short to +B in the branch wires.)	A
The resistance between terminals CANP and GND, or the resistance between terminals CANN and GND is still below 200 Ω when all the specified connectors are disconnected from the CAN junction connector. (There is no short to GND in the branch wires.)	
The resistance between terminals CANP and BAT, or the resistance between terminals CANN and BAT becomes normal (6 kΩ or higher) when a connector is disconnected from the CAN junction connector. (There is a short to +B in one of the areas related to one or more of the disconnected branch wires.)	B
The resistance between terminals CANP and GND, or the resistance between terminals CANN and GND becomes normal (200 Ω or higher) when a connector is disconnected from the CAN junction connector. There is a short to GND in one of the areas related to one or more of the disconnected branch wires.)	

B ▶ CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (ECUS)

A ▶ **REPLACE CAN NO. 3 JUNCTION CONNECTOR**

13.	CHECK FOR SHORT IN CAN NO. 2 BUS WIRE (ECUS)

(a) Reconnect the connector for the bus wire that is shorted to +B or GND to the CAN junction connector (the connector that caused the bus wire resistance to change to 6 kΩ or higher (for +B short) or 200 Ω or higher (for ground short) when it was disconnected).

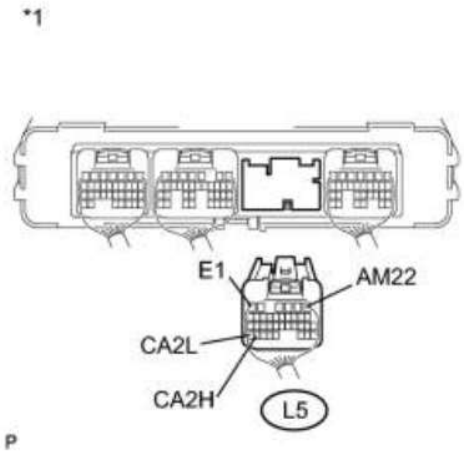
(b) Disconnect the connector that includes terminals CANH and CANL from the ECU to which the bus wire shorted to +B or GND is connected.

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

Standard Resistance:

Tester	Condition	Specified	Purpose

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Connection		Condition	
L5-34 (CA2H) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANH ground short
L5-35 (CA2L) - L5-6 (E1)	Power switch off	200 Ω or higher	Inspection for CANL ground short
L5-34 (CA2H) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short
L5-35 (CA2L) - L5-1 (AM22)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short

HINT:

It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN No. 2 Bus Wire inspection.

Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN No. 2 Bus Wire inspection.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

NG ▶ REPAIR OR REPLACE CORRESPONDING ECU OR SENSOR BRANCH WIRE OR CONNECTOR

OK ▶ **REPLACE CORRESPONDING ECU OR SENSOR**

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DTC	U1002	Lost Communication with Gateway Module (Power Management2)

DESCRIPTION

- The power management control ECU will store this DTC when no signals can be received from the ECUs that have been memorized as those that are connected to the power management bus.
- When the power management control ECU receives a response signal from the ECUs connected to the power management bus, the power management control ECU recognizes and memorizes that the ECU is connected to the power management bus. Based on this memorized data, the power management control ECU monitors for malfunctions in the ECUs connected to the power management bus when communicating with those ECUs. If the power management control ECU cannot receive response signals from the ECUs that have been memorized as those connected to the power management bus, the power management control ECU determines that a malfunction exists.

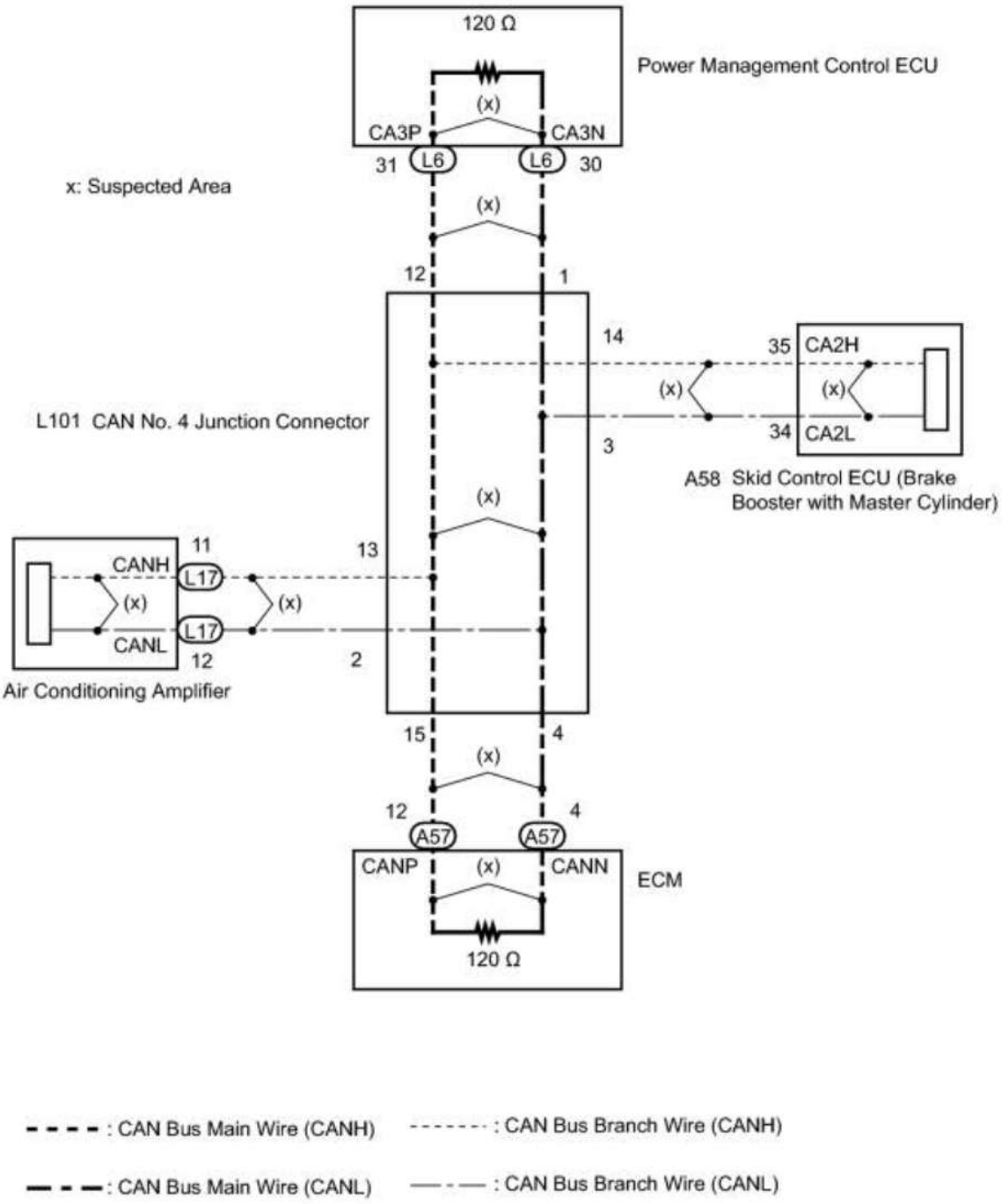
DTC No.	DTC Detection Condition	Trouble Area
U1002	Power management control ECU cannot receive signals from all ECUs that have been memorized as those connected to the power management bus.	• Open or short in power management bus main wire or connector • Open or short in power management bus branch wire or connector • Power management control ECU • ECM • Air conditioning amplifier • Skid control ECU (Brake booster with master cylinder) • CAN No. 4 junction connector

HINT:

The diagnosis procedure is for when DTC U1002 is output by the power management control ECU (Techstream display: Power Management2).

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

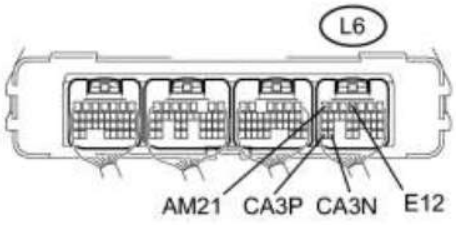
1.	CHECK CAN BUS WIRE

(a) Turn the power switch off.

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

Standard Resistance:

*1



P

Tester Connection	Switch Condition	Specified Condition	Result
L6-31 (CA3P) - L6-30 (CA3N)	Power switch off	54 to 69 Ω	Below 54 Ω: Short circuit between bus lines
			70 Ω or higher: Open circuit in a main bus line
L6-31 (CA3P) - L6-4 (E12)	Power switch off	200 Ω or higher	Below 200 Ω: CANH ground short
L6-30 (CA3N) - L6-4 (E12)	Power switch off	200 Ω or higher	Below 200 Ω: CANL ground short

(c) Disconnect the cable from the negative (-) battery terminal.

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

Standard Resistance:

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Tester Connection	Condition	Specified Condition	Result
L6-31 (CA3P) - L6-7 (AM21)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANH +B short
L6-30 (CA3N) - L6-7 (AM21)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANL +B short

Text in Illustration

*1	Component with harness connector (Power Management Control ECU)

Result:

Result	Proceed to
OK	A
Open circuit in CAN main bus wire	B
Short circuit between bus lines	C
• Ground short • +B short	D

D ▶ CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C)

C ▶ CHECK FOR SHORT IN CAN BUS WIRES (POWER MANAGEMENT CONTROL ECU)

B ▶ CHECK FOR OPEN IN CAN BUS WIRE (POWER MANAGEMENT CONTROL ECU)

A

▼

2.	CHECK DTC OUTPUT

(a) Clear the DTCs.

(b) Turn the power switch off.

(c) Turn the power switch on (IG), recheck the DTC.

Result:

Result	Proceed to

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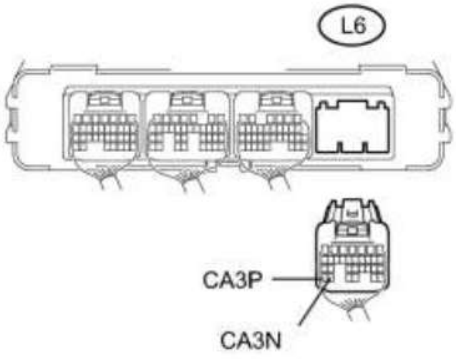
Result	Proceed to
U1002 is output from power management control ECU (Techstream display/Power Management2)	A
Other DTC is output	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

A ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

3.	CHECK FOR OPEN IN CAN BUS WIRE (POWER MANAGEMENT CONTROL ECU)

*1



P

(a) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L6-31 (CA3P) - L6-30 (CA3N)	Power switch off	108 to 132 Ω

NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (ECM)

OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

4.	CHECK FOR OPEN IN CAN BUS WIRE (ECM)

(a) Reconnect the power management control ECU connector.

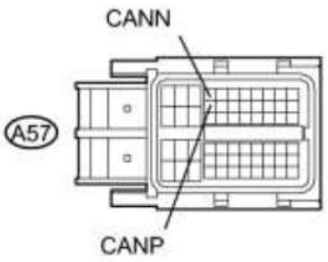
(b) Disconnect the ECM connector.

Text in Illustration

*1	Front view of wire harness connector (to ECM)

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*1



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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A57-12 (CANP) - A57-4 (CANN)	Power switch off	108 to 132 Ω

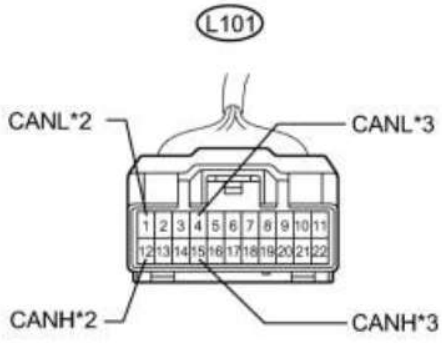
NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (CAN NO. 4 J/C MAIN WIRE)

OK ▶ **REPLACE ECM**

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

(a) Reconnect the ECM connector.

*1



(b) Disconnect the CAN No. 4 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)
*2	to Power Management Control ECU
*3	to ECM

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition	Connected to
L101-12 (CANH) - L101-1 (CANL)	Power switch off	108 to 132 Ω	Power management control ECU
L101-15 (CANH) - L101-4 (CANL)	Power switch off	108 to 132 Ω	ECM

Result:

Result	Proceed to
OK	A
NG (to power management ECU main wire)	B
NG (to ECM main wire)	C

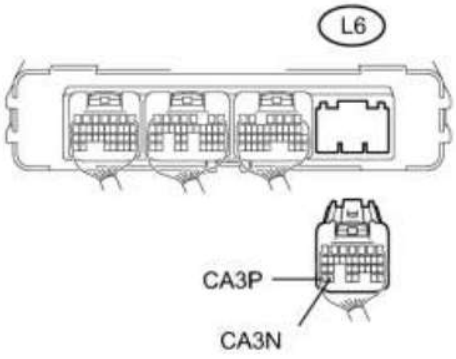
C ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 4 J/C - ECM)

B ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 4 J/C - POWER MANAGEMENT CONTROL ECU)

A ▶ **REPLACE CAN NO. 4 JUNCTION CONNECTOR**

6.	CHECK FOR SHORT IN CAN BUS WIRES (POWER MANAGEMENT CONTROL ECU)

*1



P

(a) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L6-31 (CA3P) - L6-30 (CA3N)	Power switch off	108 to 132 Ω

NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (ECM)

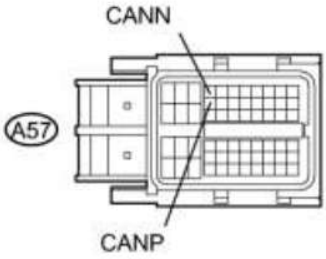
OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

7.	CHECK FOR SHORT IN CAN BUS WIRES (ECM)

(a) Reconnect the power management control ECU connector.

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*1



(b) Disconnect the ECM connector.

Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A57-12 (CANP) - A57-4 (CANN)	Power switch off	108 to 132 Ω

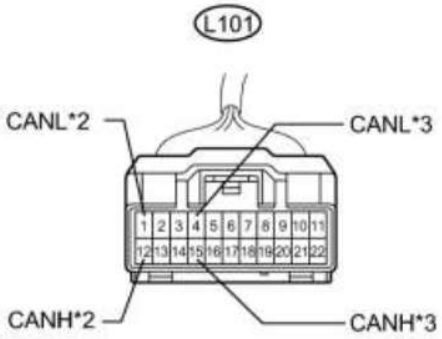
NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C MAIN WIRE)

OK ▶ **REPLACE ECM**

8.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C MAIN WIRE)

(a) Reconnect the ECM connector.

*1



(b) Disconnect the CAN No. 4 junction connector.

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition	Connected to
L101-12 (CANH) - L101-1 (CANL)	Power switch off	108 to 132 Ω	Power management control ECU
L101-15 (CANH) - L101-4 (CANL)	Power switch off	108 to 132 Ω	ECM

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)
*2	to power Management Control ECU
*3	to ECM

Result:

Result	Proceed to
OK	A
NG (to Power management ECU main wire)	B
NG (to ECM main wire)	C

C ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 4 J/C - ECM)

B ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 4 J/C - POWER MANAGEMENT CONTROL ECU)

A

▼

9.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C - SKID CONTROL ECU)

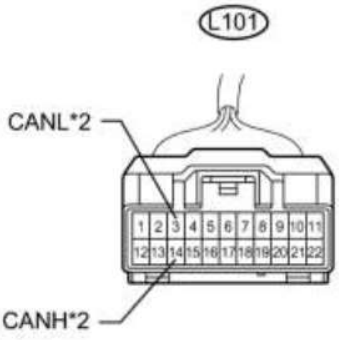
(a) Disconnect the skid control ECU (brake booster with master cylinder) connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L101-14 (CANH) - L101-3 (CANL)	Power switch off	1 MΩ or higher

*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)
*2	to Skid Control ECU

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NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 4 J/C - SKID CONTROL ECU)

OK

▼

10.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C - A/C ECU)

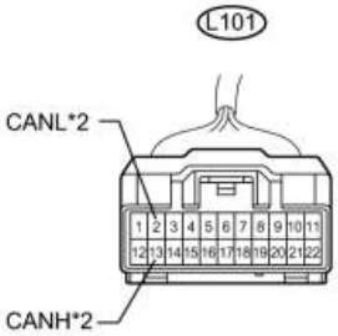
(a) Disconnect the air conditioning amplifier connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L101-13 (CANH) - L101-2 (CANL)	Power switch off	1 MΩ or higher

*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)
*2	to Air Conditioning Amplifier

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 4 J/C - A/C ECU)

OK

▼

11.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C)

(a) Reconnect the CAN No. 4 junction connector.

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

Standard Resistance:

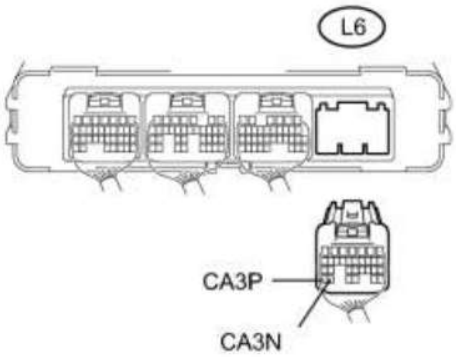
Tester Connection	Switch Condition	Specified Condition
L6-31 (CA3P) - L6-30 (CA3N)	Power switch off	108 to 132 Ω

Text in Illustration

*1	Rear view of wire harness connector

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*1	(to Power Management Control ECU)



P

- The resistance must be measured after the ECM and CAN No. 4 J/C wire harness connector are reconnected.
- The resistance must be measured after the skid control ECU and air conditioning amplifier connector are disconnected.

NG ▶ REPLACE CAN NO. 4 JUNCTION CONNECTOR

OK

▼

12.	CHECK FOR SHORT IN CAN BUS WIRES (AIR CONDITIONING AMPLIFIER)

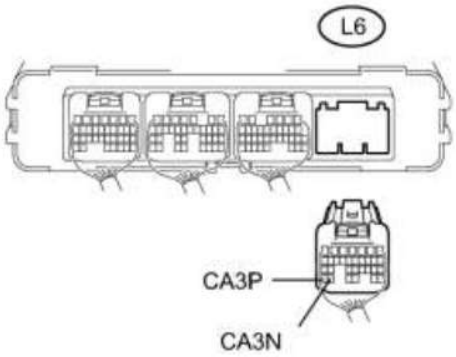
(a) Reconnect the air conditioning amplifier connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L6-31 (CA3P) - L6-30 (CA3N)	Power switch off	108 to 132 Ω

*1



P

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

- The resistance must be measured after the air conditioning amplifier connector is reconnected.
- The resistance must be measured after the skid control ECU connector is disconnected.

NG ▶ REPLACE AIR CONDITIONING AMPLIFIER

OK ▶ **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER (SKID CONTROL ECU)**

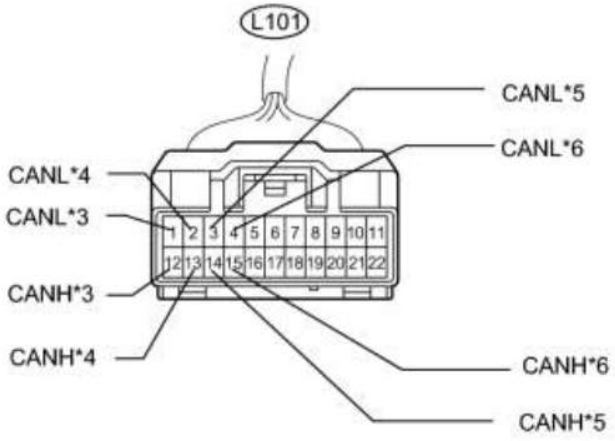
13.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 4 J/C)

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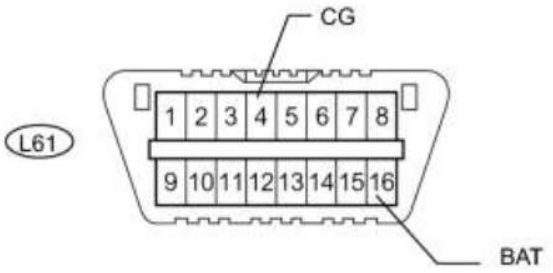
(a) Disconnect the CAN No. 4 junction connector.

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

*1



*2



Standard Resistance:

Tester Connection	Condition	Specified Condition	Purpose	Connected to
L101-12 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Power management control ECU
L101-1 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANL ground short	
L101-13 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Air conditioning amplifier
L101-2 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANL ground short	
L101-14 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Skid control ECU
L101-3 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANL ground short	
L101-15 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	ECM
L101-4 (CANL) -	Power switch off	200 Ω or	Inspection for	

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Tester Connection	Condition	Specified Condition	Purpose	Connected to
L61-4 (CG)		higher	CANL ground short	
L101-12 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Power management control ECU
L101-1 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	
L101-13 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Air conditioning amplifier
L101-2 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	
L101-14 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Skid control ECU
L101-3 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	
L101-15 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	ECM
L101-4 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	

HINT:

- It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN Bus Wire inspection.
- Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN Bus Wire inspection.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 4 Junction Connector)	*2	DLC3
*3	to Power Management Control ECU	*4	to Air Conditioning Amplifier
*5	to Skid Control ECU	*6	to ECM

NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (ECU)

OK ▶ **REPLACE CAN NO. 4 JUNCTION CONNECTOR**

14.	CHECK FOR SHORT IN CAN BUS WIRES (ECU)

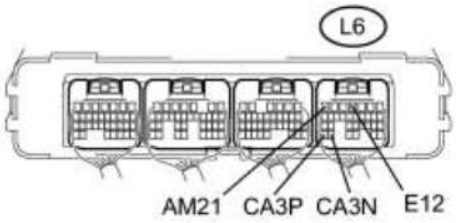
(a) Disconnect the connector that includes terminals CANH and CANL from the ECU to which the bus wire shorted to B+ or shorted to GND is connected INFO.

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

Standard Resistance:

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*1



P

Tester Connection	Switch Condition	Specified Condition	Purpose
L6-31 (CA3P) - L6-4 (E12)	Power switch off	200 Ω or higher	Below 200 Ω: CANH ground short
L6-30 (CA3N) - L6-4 (E12)	Power switch off	200 Ω or higher	Below 200 Ω: CANL ground short
L6-31 (CA3P) - L6-7 (AM21)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANH +B short
L6-30 (CA3N) - L6-7 (AM21)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANL +B short

- It is only necessary to perform the inspection in the above table for the result (open or short circuit) that was obtained in the Check CAN Bus Wire inspection.

  Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN Bus Wire inspection.

- If the resistance changes to normal when the connector is disconnected from the ECU, there may be a short in the ECU.

Text in Illustration

*1	Component with harness connector (Power Management Control ECU)

NG ▶ REPAIR OR REPLACE CORRESPONDING ECU WIRE

OK ▶ **REPLACE CORRESPONDING ECU**

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DTC	U1002	Lost Communication with Gateway Module (Parking Assist Bus)

DESCRIPTION

The driving support ECU will store this DTC when no signals can be received from the ECUs that have been memorized as those that are connected to the parking assist bus.

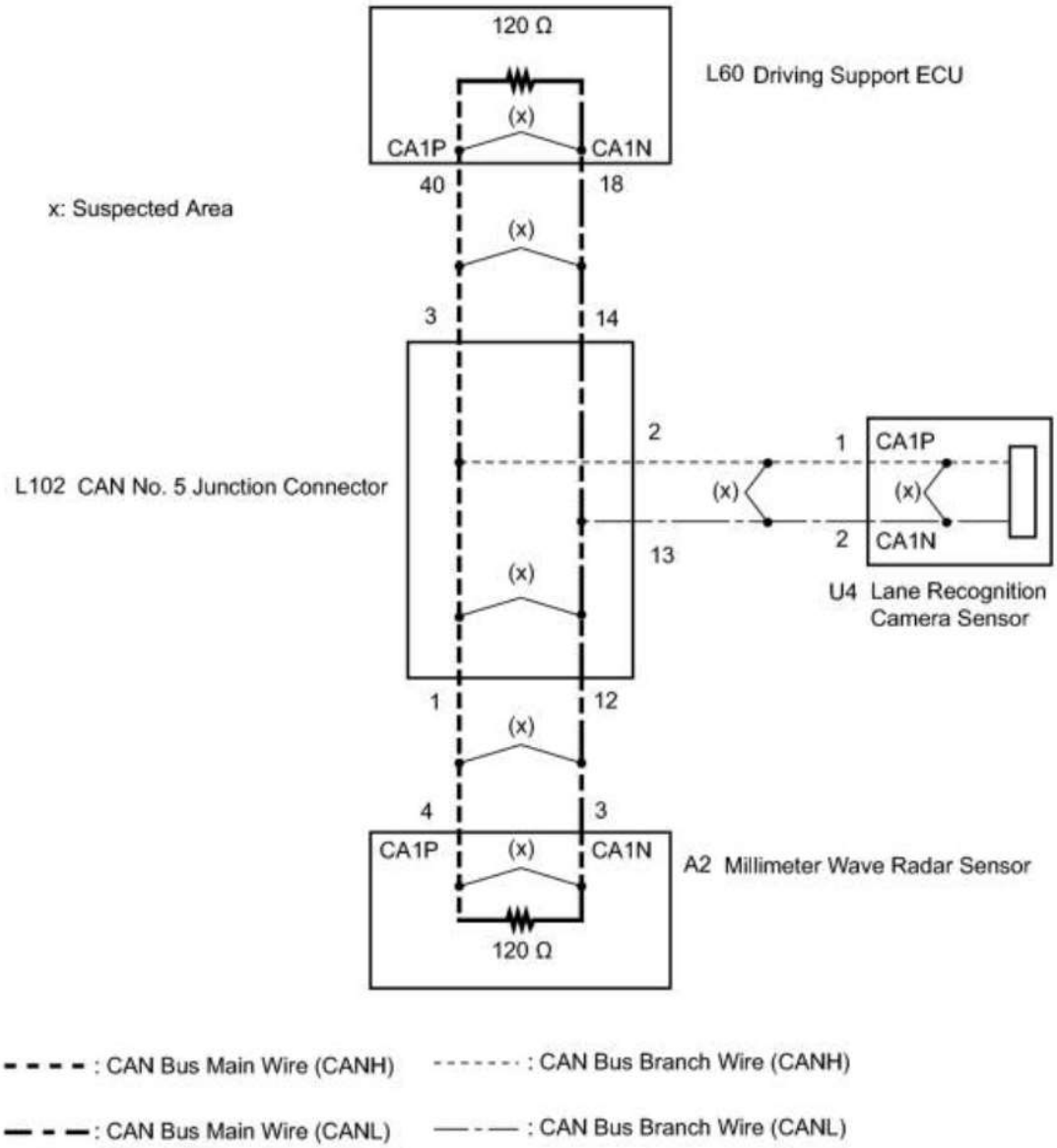
DTC No.	DTC Detection Condition	Trouble Area
U1002	Driving support ECU cannot receive signals from all ECUs that have been memorized as those connected to the parking assist bus.	• Open or short in parking assist bus main wire or connector • Open or short in parking assist bus branch wire or connector • Driving support ECU • CAN No. 5 junction connector

HINT:

The diagnosis procedure is for when DTC U1002 is output by the driving support ECU (Techstream display: Pre-Collision2).

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.

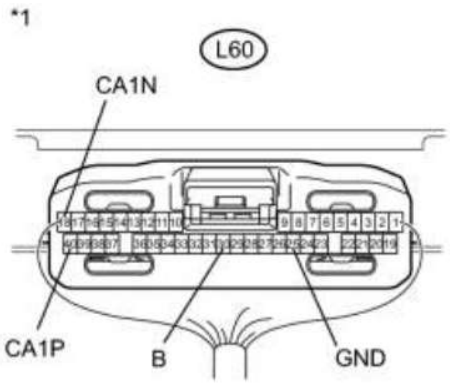
HINT:

- 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN 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	Switch Condition	Specified Condition	Result
L60-40 (CA1P) - L60-18 (CA1N)	Power switch off	54 to 69 Ω	Below 54 Ω: Short circuit between bus lines
			70 Ω or more: Open circuit in a main bus line
L60-40 (CA1P) - L60-25 (GND)	Power switch off	200 Ω or higher	Below 200 Ω: CANH ground short
L60-18 (CA1N) - L60-25 (GND)	Power switch off	200 Ω or higher	Below 200 Ω: CANL ground short

Text in Illustration

*1	Component with harness connected (Driving Support ECU)

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(c) Disconnect the cable from the negative (-) battery terminal.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Result
L60-40 (CA1P) - L60-30 (B)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANH +B short
L60-18 (CA1N) - L60-30 (B)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANL +B short

Result:

Result	Proceed to
OK	A
Open circuit in CAN main bus line	B
Short circuit between bus lines	C
• Ground short • +B short	D

D ▶ CHECK CAN BUS WIRE (CAN NO. 5 J/C)

C ▶ CHECK FOR SHORT IN CAN BUS WIRES (DRIVING SUPPORT ECU)

B ▶ CHECK FOR OPEN IN CAN BUS WIRE (DRIVING SUPPORT ECU)

A

▼

2.	CHECK CAN BUS BRANCH WIRE (LANE RECOGNITION CAMERA SENSOR)

(a) Check for a lane recognition camera sensor communication malfunction INFO.

NG ▶ REPAIR OR REPLACE CORRESPONDING ECU OR SENSOR WIRE OR CONNECTOR

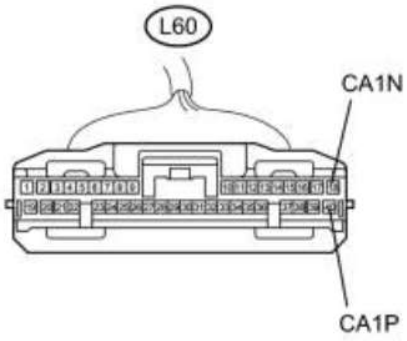
OK ▶ **REPLACE DRIVING SUPPORT ECU**

3.	CHECK FOR OPEN IN CAN BUS WIRE (DRIVING SUPPORT ECU)

(a) Disconnect the driving support ECU connector.

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*1



Text in Illustration

*1	Front view of wire harness connector (to Driving Support ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L60-40 (CA1P) - L60-18 (CA1N)	Power switch off	108 to 132 Ω

NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (MILLIMETER WAVE RADAR SENSOR)

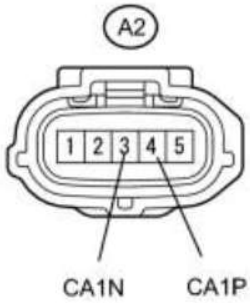
OK ▶ **REPLACE DRIVING SUPPORT ECU**

4.	CHECK FOR OPEN IN CAN BUS WIRE (MILLIMETER WAVE RADAR SENSOR)

(a) Reconnect the driving support ECU connector.

*1

(b) Disconnect the millimeter wave radar sensor connector.



Text in Illustration

*1	Front view of wire harness connector (to Millimeter Wave Radar Sensor)

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition
A2-4 (CA1P) - A1-3 (CA1N)	Power switch off	108 to 132 Ω

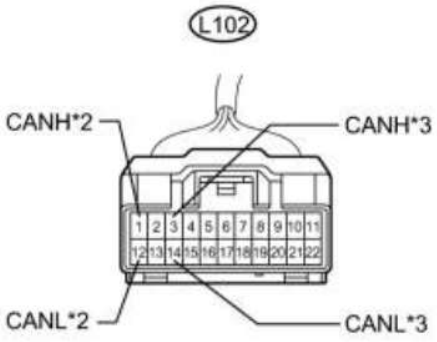
NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (CAN NO. 5 J/C)

OK ▶ **REPLACE MILLIMETER WAVE RADAR SENSOR ASSEMBLY**

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

(a) Reconnect the millimeter wave radar sensor connector.

*1



(b) Disconnect the CAN No. 5 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 5 Junction Connector)
*2	to Millimeter Wave Radar Sensor
*3	to Driving Support ECU

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Connected to
L102-1 (CANH) - L102-12 (CANL)	Power switch off	108 to 132 Ω	Millimeter wave radar sensor
L102-3 (CANH) - L102-14 (CANL)	Power switch off	108 to 132 Ω	Lane recognition camera sensor

Result:

Result	Proceed to
OK	A
NG (to Driving support ECU main wire)	B
NG (to Millimeter wave radar sensor main wire)	C

C ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE (CAN NO. 5 J/C - MILLIMETER WAVE RADAR SENSOR)

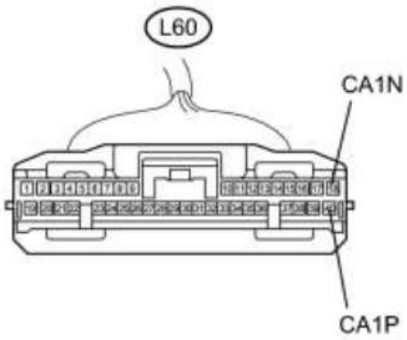
B ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE (CAN NO. 5 J/C - DRIVING SUPPORT ECU)

A ▶ **REPLACE CAN NO. 5 JUNCTION CONNECTOR**

6.	CHECK FOR SHORT IN CAN BUS WIRES (DRIVING SUPPORT ECU)

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*1



(a) Disconnect the driving support ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Driving Support ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L60-40 (CA1P) - L60-18 (CA1N)	Power switch off	108 to 132 Ω

NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (MILLIMETER WAVE RADAR SENSOR)

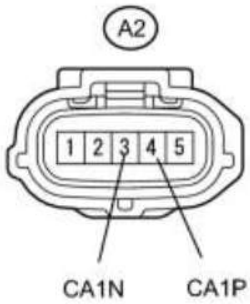
OK ▶ **REPLACE DRIVING SUPPORT ECU**

7.	CHECK FOR SHORT IN CAN BUS WIRES (MILLIMETER WAVE RADAR SENSOR)

(a) Reconnect the driving support ECU connector.

*1

(b) Disconnect the millimeter wave radar sensor connector.



Text in Illustration

*1	Front view of wire harness connector (to Millimeter Wave Radar Sensor)

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition
A2-4 (CA1P) - A1-3 (CA1N)	Power switch off	108 to 132 Ω

NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 5 J/C MAIN WIRE)

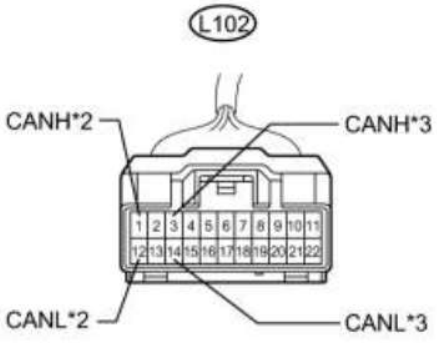
OK

▼

8.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 5 J/C MAIN WIRE)

(a) Reconnect the millimeter wave radar sensor connector.

*1



(b) Disconnect the CAN No. 5 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 5 Junction Connector)
*2	to Millimeter Wave Radar Sensor
*3	to Driving Support ECU

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Connected to
L102-1 (CANH) - L102-12 (CANL)	Power switch off	108 to 132 Ω	Millimeter wave radar sensor
L102-3 (CANH) - L102-14 (CANL)	Power switch off	108 to 132 Ω	Lane recognition camera sensor

Result:

Result	Proceed to
OK	A
NG (to driving support ECU)	B
NG (to millimeter wave radar sensor)	C

C ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE (CAN NO. 5 J/C - MILLIMETER WAVE RADAR SENSOR)

B ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE (CAN NO. 5 J/C - DRIVING SUPPORT ECU)

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A

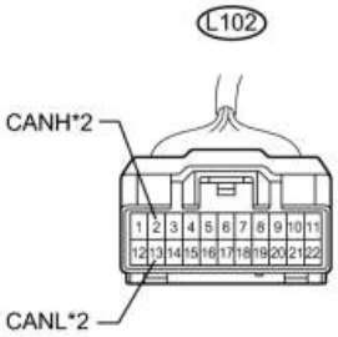
▼

9.	CHECK FOR SHORT IN CAN BUS WIRES (LANE RECOGNITION CAMERA SENSOR BRANCH WIRE)

(a) Disconnect the lane recognition camera sensor connector.

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

*1



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L102-2 (CANH) - L102-13 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 5 Junction Connector)

NG ▶ REPAIR OR REPLACE CAN BUS WIRE (LANE RECOGNITION CAMERA SENSOR BRANCH WIRE)

OK

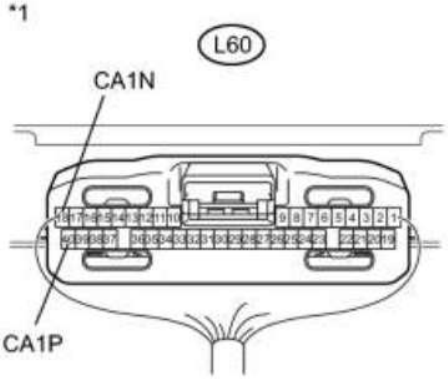
▼

10.	CHECK CAN BUS WIRE (LANE RECOGNITION CAMERA SENSOR)

(a) Reconnect the CAN No. 5 junction connector.

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

*1



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L60-40 (CA1P) - L60-18 (CA1N)	Power switch off	54 to 69 Ω

Text in Illustration

*1	Component with harness connected

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	(Driving Support ECU)

- The resistance must be measured after the CAN No. 5 junction connector is reconnected.
- The resistance must be measured after the lane recognition camera sensor connector is disconnected.

NG ▶ REPLACE CAN NO. 5 JUNCTION CONNECTOR

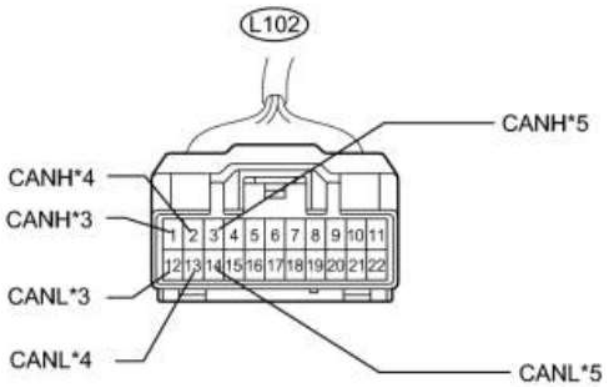
OK ▶ **REPLACE LANE RECOGNITION CAMERA SENSOR**

11.	CHECK CAN BUS WIRE (CAN NO. 5 J/C)

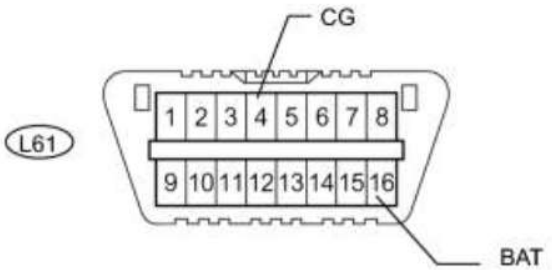
(a) Disconnect the CAN No. 5 junction connector.

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

*1



*2



Standard Resistance:

Tester Connection	Condition	Specified Condition	Purpose	Connected to
L102-1 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Millimeter wave radar sensor
L102-12 (CANL) -	Power switch off	200 Ω or	Inspection for	

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Tester Connection	Condition	Specified Condition	Purpose	Connected to
L61-4 (CG)		higher	CANL ground short	
L102-2 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Lane recognition camera sensor
L102-13 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANL ground short	
L102-3 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANH ground short	Driving support ECU
L102-14 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	Inspection for CANL ground short	
L102-1 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Millimeter wave radar sensor
L102-12 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	
L102-2 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Lane recognition camera sensor
L102-13 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	
L102-3 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANH +B short	Driving support ECU
L102-14 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Inspection for CANL +B short	

HINT:

- It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN Bus Wire inspection.
- Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN Bus Wire inspection.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 5 junction connector)	*2	DLC3
*3	to Millimeter Wave Radar Sensor	*4	to Lane Recognition Camera Sensor
*5	to Driving Support ECU	-	-

NG ▶ CHECK CAN BUS WIRE (ECU, SENSOR)

OK ▶ **REPLACE CAN NO. 5 JUNCTION CONNECTOR**

12.	CHECK CAN BUS WIRE (ECU, SENSOR)

(a) Disconnect the ECU or sensor connected to the CAN bus wire that is shorted to B+ or shorted to GND.

HINT:

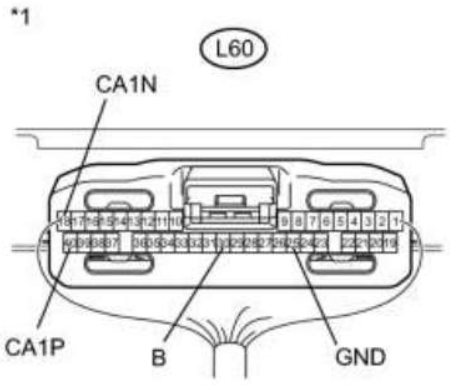
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If the ECU or sensor has multiple connectors, disconnect the connector that includes the CAN bus wires. To determine the ECU or sensor that is connected to shorted bus wire, refer to Terminals of ECU tables INFO.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Purpose
L60-40 (CA1P) - L60-25 (GND)	Power switch off	200 Ω or higher	Below 200 Ω: CANH ground short
L60-18 (CA1N) - L60-25 (GND)	Power switch off	200 Ω or higher	Below 200 Ω: CANL ground short
L60-40 (CA1P) - L60-30 (B)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANH +B short
L60-18 (CA1N) - L60-30 (B)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Below 6 kΩ: CANL +B short



- It is only necessary to perform the inspection in the above table for the result (short circuit) that was obtained in the Check CAN Bus Wire inspection.

  Find the necessary inspection from the Purpose column that matches the result in the Result column from the Check CAN Bus Wire inspection.

- If the resistance changes to normal when the connector is disconnected from the ECU, there may be a short in the ECU.

Text in Illustration

*1	Component with harness connected (Driving Support ECU)

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NG ▶ REPAIR OR REPLACE CORRESPONDING ECU OR SENSOR WIRE OR CONNECTOR

OK ▶ **REPLACE CORRESPONDING ECU**

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DTC	U1100	Lost Communication with Seat Belt Control ECU

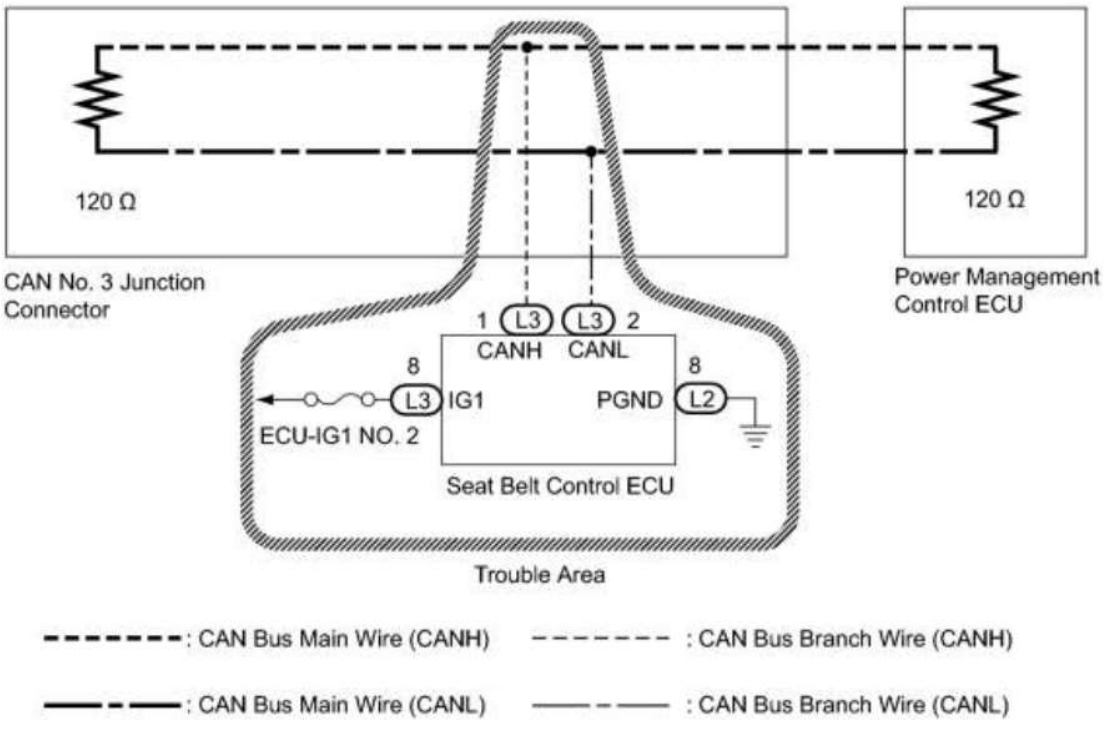
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U1100	No communication from the seat belt control ECU continues.	• Seat belt control ECU branch wire or connector • Power source circuit of seat belt control ECU • Seat belt control ECU

HINT:

The diagnosis procedure is for when DTC U1100 is output by the power management control ECU (Techstream display: Power Management1).

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If CAN No. 2 bus DTC U1002 is output from the power management control ECU (Techstream display/Power Management1), troubleshoot for U1002 and check for malfunctions in the CAN No. 2 main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management1)	A
U1002 is output from power management control ECU (Techstream display/Power Management1)	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

A ▼

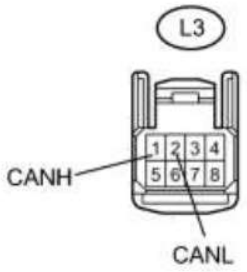
2.	CHECK CAN BUS WIRE FOR DISCONNECTION (SEAT BELT CONTROL ECU BRANCH WIRE)

(a) Turn the power switch off.

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*1

(b) Disconnect the seat belt control ECU connector.



Text in Illustration

*1	Front view of wire harness connector (to Seat Belt Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L3-1 (CANH) - L3-2 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE SEAT BELT CONTROL ECU BRANCH WIRE OR CONNECTOR (SEAT BELT CONTROL ECU BRANCH WIRE)

OK ▼

3.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) Turn the power switch on (IG).

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

*1

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L3-8 (IG1) - Body ground	Power switch on (IG)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Seat Belt Control ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▼

4.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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*1



(a) Disconnect the seat belt control ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Seat Belt Control ECU)

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L2-8 (PGND) - Body ground	Always	Below 1 Ω

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)
OK ▶ **REPLACE SEAT BELT CONTROL ECU**

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DTC	U110B	Lost Communication with Parking Assist Control Module "B"

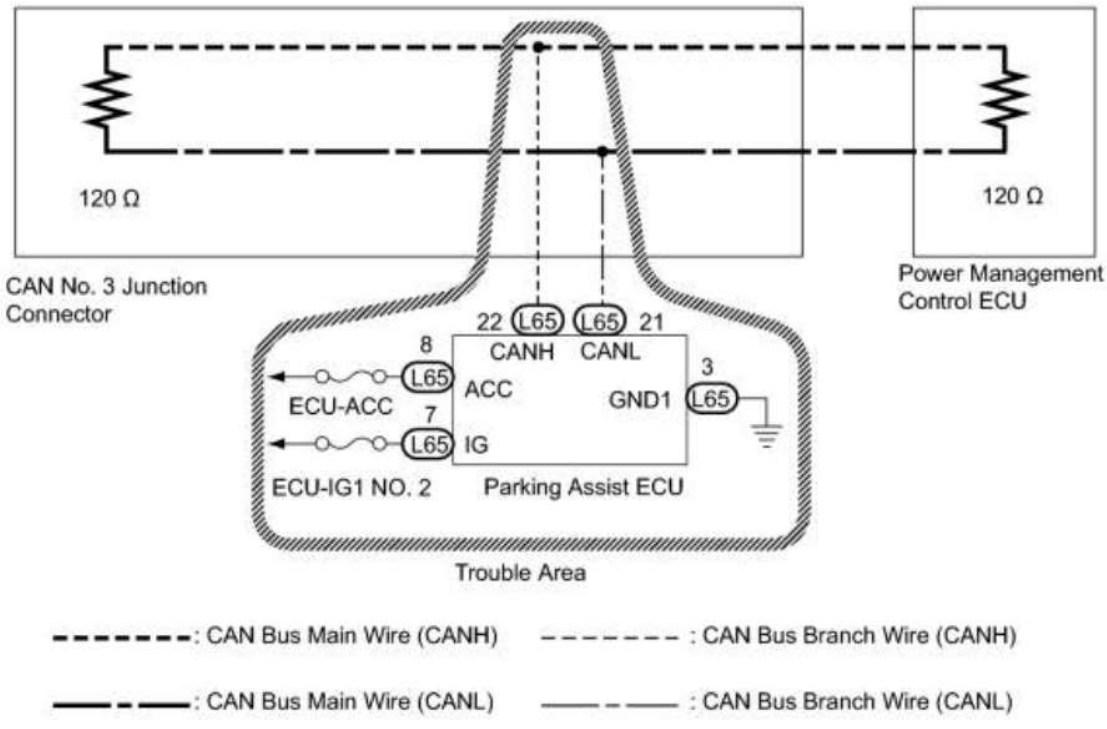
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
U110B	No communication from the parking assist ECU continues.	• Parking assist ECU branch wire or connector • Power source circuit of parking assist ECU • Parking assist ECU

HINT:

The diagnosis procedure is for when DTC U110B is output by the power management control ECU (Techstream display: Power Management1).

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	RECONFIRM DTC OUTPUT

(a) Reconfirm DTCs.

HINT:

If CAN No. 2 bus DTC U1002 is output from the power management control ECU (Techstream display/Power Management1), troubleshoot for U1002 and check for malfunctions in the CAN No. 2 main bus circuit.

Result:

Result	Proceed to
U1002 is not output from power management control ECU (Techstream display/Power Management1)	A
U1002 is output from power management control ECU (Techstream display/Power Management1)	B

B ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

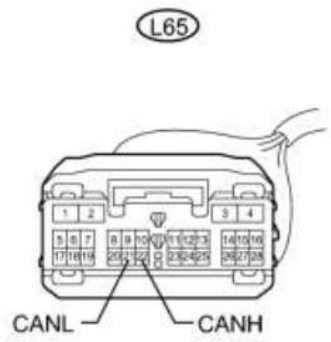
A ▼

2.	CHECK CAN BUS WIRE FOR DISCONNECTION (PARKING ASSIST ECU BRANCH WIRE)

(a) Turn the power switch off.

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*1



H

(b) Disconnect the parking assist ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L65-22 (CANH) - L65-21 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (PARKING ASSIST ECU BRANCH WIRE)

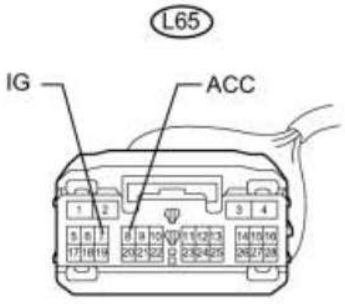
OK ▼

3.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

Standard Voltage:

*1



H

Tester Connection	Switch Condition	Specified Condition
L65-8 (ACC) - Body ground	Power switch on (ACC)	11 to 14 V
L65-7 (IG) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

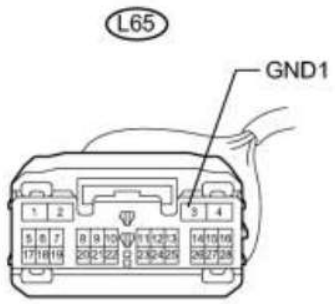
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▼

4.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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*1



H

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L65-3 (GND1) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE PARKING ASSIST ECU**

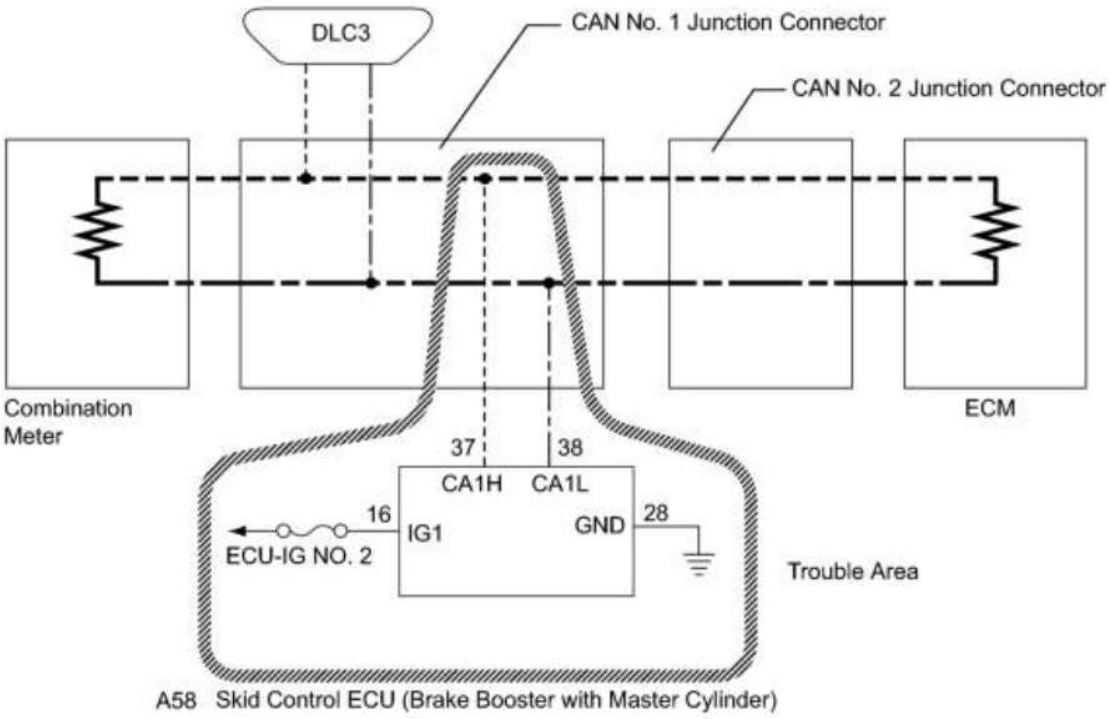
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Skid Control ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Skid Control ECU Communication Stop Mode	• "ABS/VSC/TRAC" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Skid Control ECU Communication Stop Mode in DTC Combination Table.	• Skid control ECU branch wire or connector • Power source circuit of skid control ECU • Skid control ECU (Brake booster with master cylinder)

WIRING DIAGRAM



H

INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK DTC (BRAKE SYSTEM)

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Chassis / ABS/VSC/TRAC / Trouble Codes.

OK:

DTC C1241 is not output.

NG ▶ GO TO CIRCUITS INDICATED BY OUTPUT DTCS

OK ▼

2.	CHECK CAN BUS WIRE FOR DISCONNECTION (SKID CONTROL ECU BRANCH WIRE)

(a) Turn the power switch off.

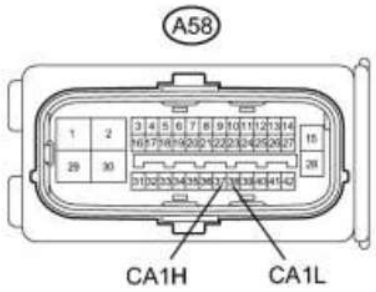
(b) Disconnect the skid control ECU (brake booster with master cylinder) connector.

Text in Illustration

*1	Front view of wire harness connector (to Skid Control ECU)

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*1



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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A58-37 (CA1H) - A58-38 (CA1L)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (SKID CONTROL ECU BRANCH WIRE)

OK ▶ **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER**

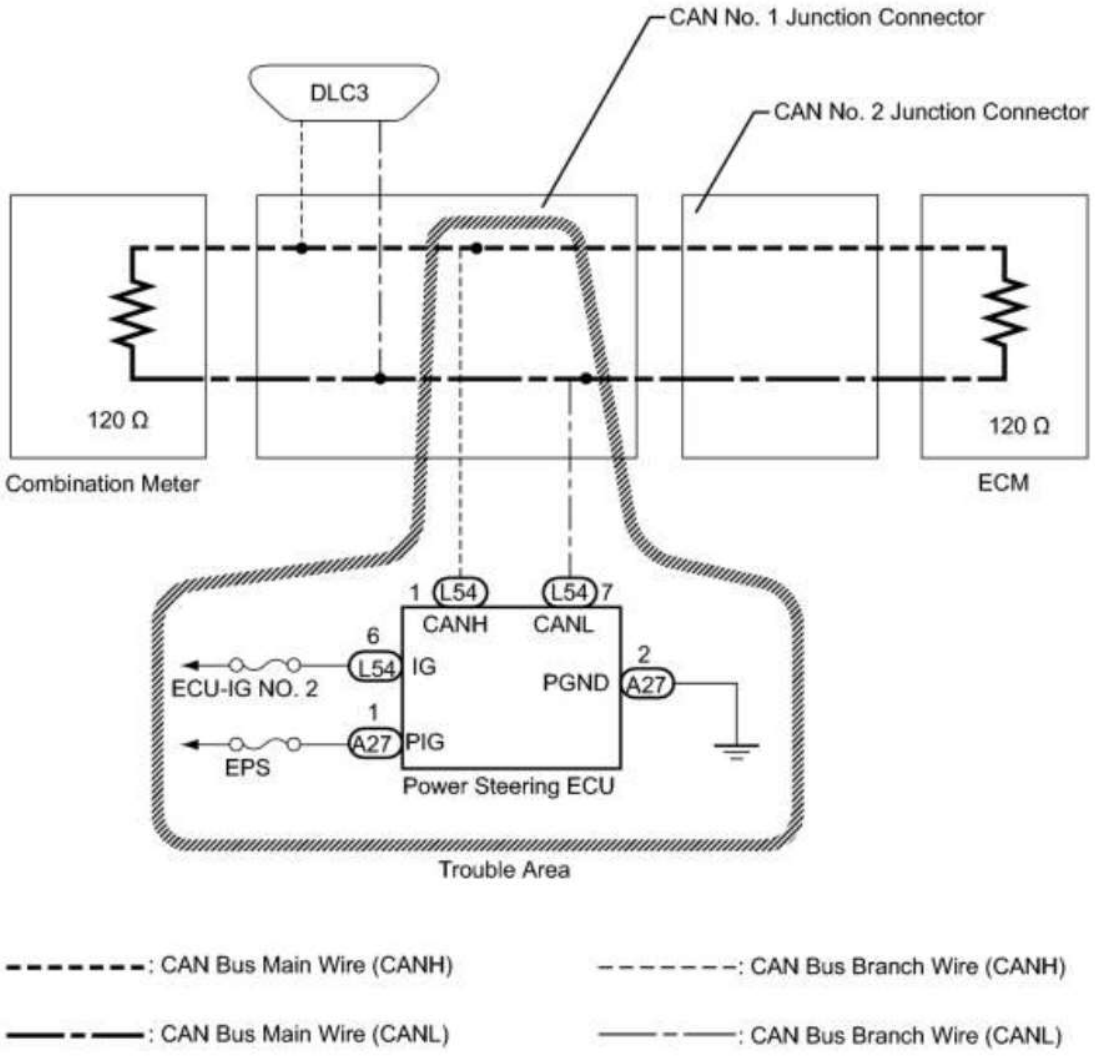
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Power Steering ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Power Steering ECU Communication Stop Mode	• "EPS" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Power Steering ECU Communication Stop Mode in DTC Combination Table.	• Power steering ECU branch wire or connector • Power source circuit of power steering ECU • Power steering ECU

WIRING DIAGRAM



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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.

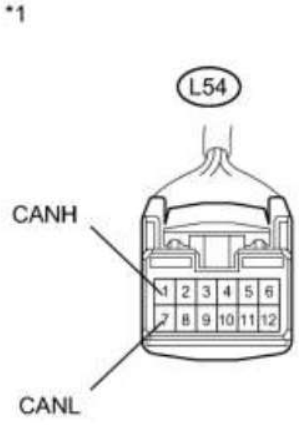
HINT:

- 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (POWER STEERING ECU BRANCH WIRE)

(a) Turn the power switch off.



(b) Disconnect the power steering ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Power Steering ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L54-1 (CANH) - L54-7 (CANL)	Power switch off	54 to 69 Ω

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NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (POWER STEERING ECU BRANCH WIRE)

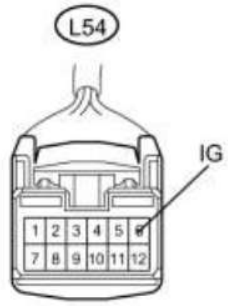
OK ▼

2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) Turn the power switch on (IG).

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

*1



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L54-6 (IG) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Power Steering ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▼

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

(a) Turn the power switch off.

*1

(b) Disconnect the power steering ECU connector.



Text in Illustration

*1	Front view of wire harness connector (to Power Steering ECU)

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

Standard Resistance:

Tester Connection	Condition	Specified Condition

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Tester Connection	Condition	Specified Condition
A27-2 (PGND) - Body ground	Always	Below 1 Ω

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)
OK ▶ **REPLACE POWER STEERING ECU**

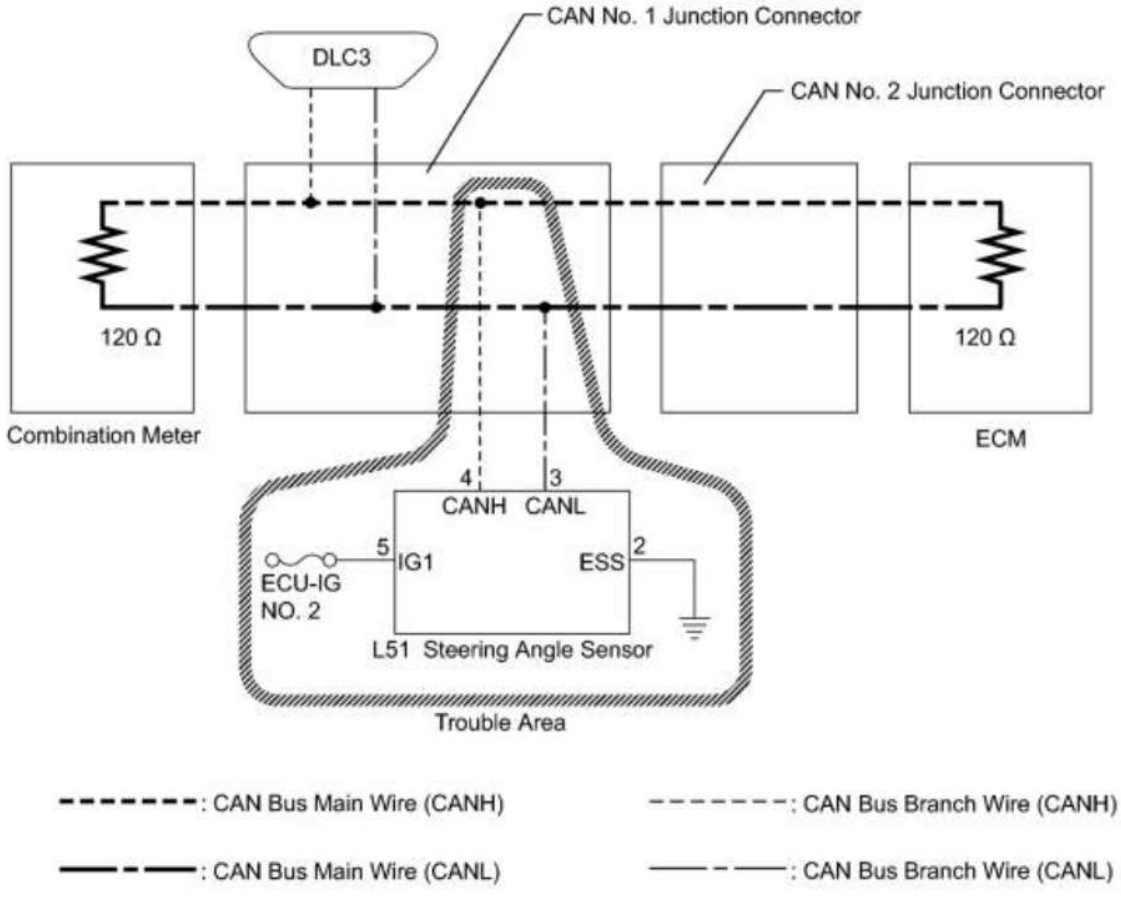
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Steering Angle Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Steering Angle Sensor Communication Stop Mode	• "Steering Angle Sensor" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Steering Angle Sensor Communication Stop Mode in DTC Combination Table.	• Steering angle sensor branch wire or connector • Power source circuit of steering angle sensor • Steering angle sensor

WIRING DIAGRAM



H

INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

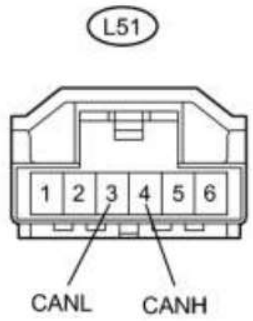
PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (STEERING ANGLE SENSOR BRANCH WIRE)

(a) Turn the power switch off.

*1

(b) Disconnect the steering angle sensor connector.



Text in Illustration

*1	Front view of wire harness connector (to Steering Angle Sensor)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L51-4 (CANH) - L51-3 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (STEERING ANGLE SENSOR BRANCH WIRE)

OK ▼

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2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

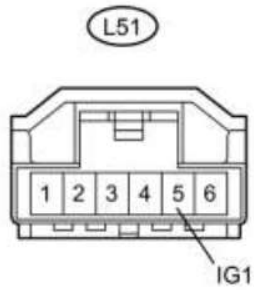
(a) Turn the power switch on (IG).

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L51-5 (IG1) - Body ground	Power switch on (IG)	11 to 14 V

*1



Text in Illustration

*1	Front view of wire harness connector (to Steering Angle Sensor)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK ▼

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

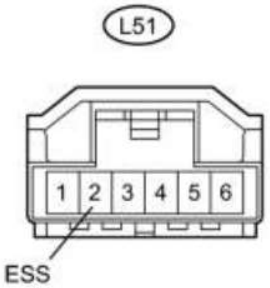
(a) Turn the power switch off.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L51-2 (ESS) - Body ground	Always	Below 1 Ω

*1



Text in Illustration

*1	Front view of wire harness connector (to Steering Angle Sensor)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE SPIRAL CABLE WITH STEERING ANGLE SENSOR SUB-ASSEMBLY**

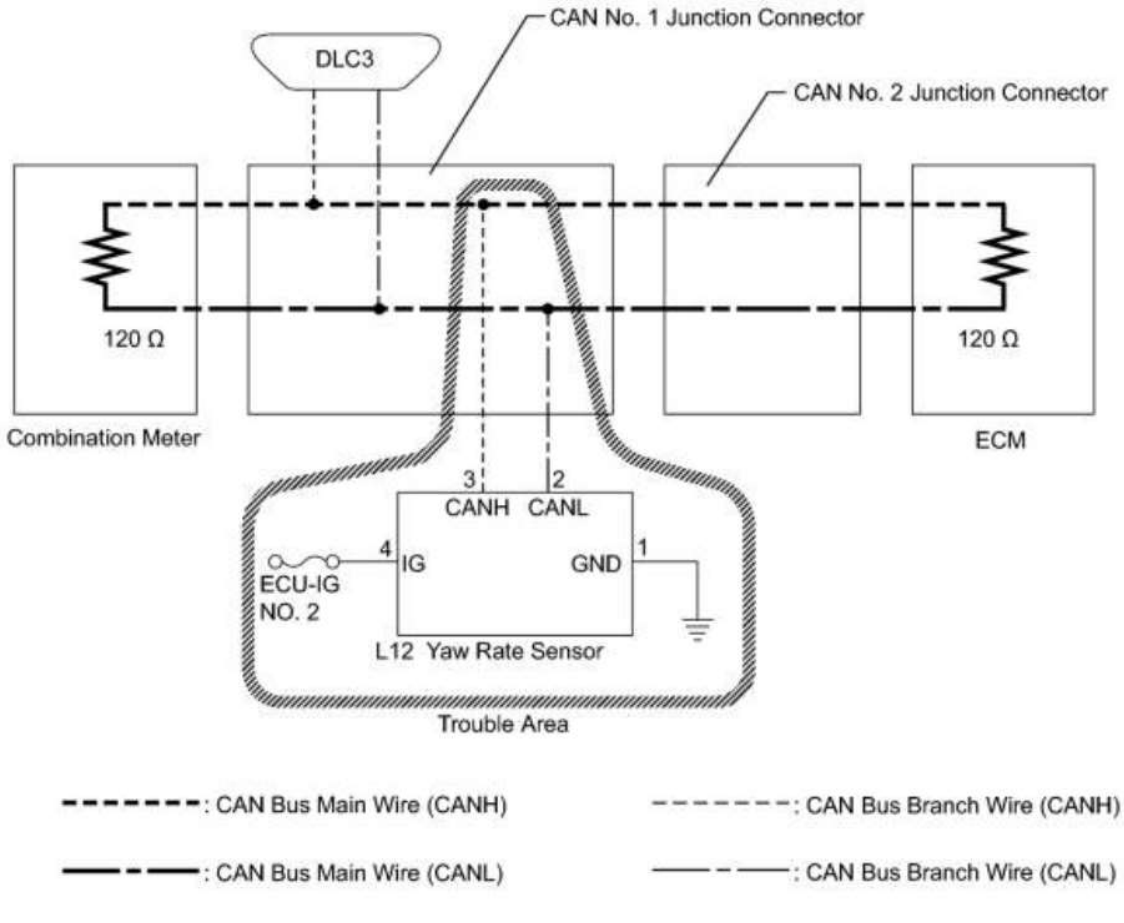
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Yaw Rate Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Yaw Rate Sensor Communication Stop Mode	• "Yaw Rate/Decelerate Sensor" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Yaw Rate Sensor Communication Stop Mode in DTC Combination Table.	• Yaw rate sensor branch wire or connector • Power source circuit of yaw rate sensor • Yaw rate sensor

WIRING DIAGRAM



H

INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

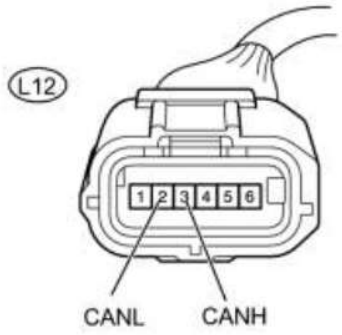
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (YAW RATE SENSOR BRANCH WIRE)

(a) Turn the power switch off.

*1



(b) Disconnect the yaw rate sensor connector.

Text in Illustration

*1	Front view of wire harness connector (to Yaw Rate Sensor)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L12-3 (CANH) - L12-2 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (YAW RATE SENSOR BRANCH WIRE)

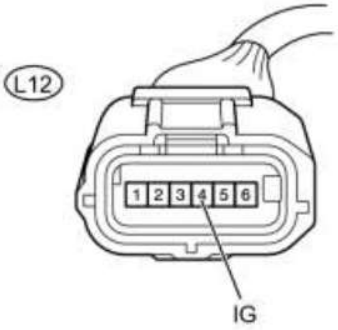
OK

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2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) Turn the power switch on (IG).

*1



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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L12-4 (IG) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Yaw Rate Sensor)

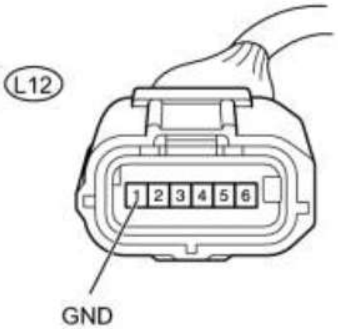
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

(a) Turn the power switch off.

*1



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L12-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector

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	(to Yaw Rate Sensor)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE YAW RATE SENSOR**

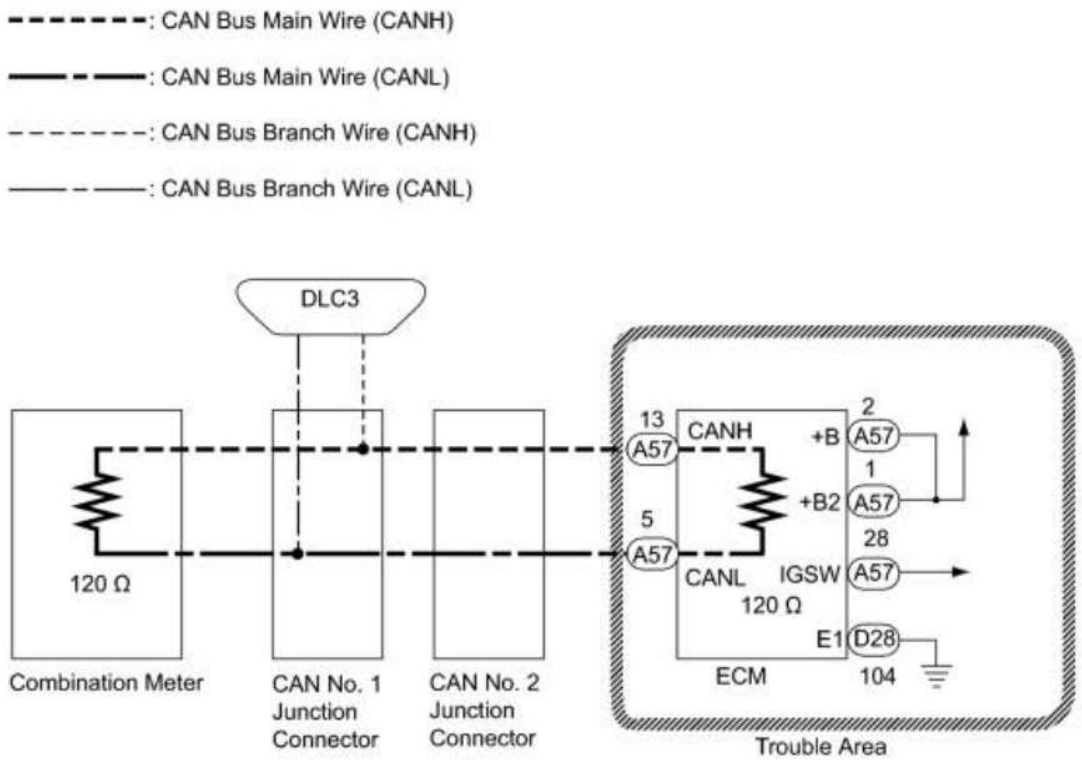
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ECM Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
ECM Communication Stop Mode	• "Engine" and "ECT" are not displayed on "CAN Bus Check" screen of the Techstream. • Applies to ECM Communication Stop Mode in DTC Combination Table.	• Power source circuit of ECM • ECM main wire or connector • ECM

WIRING DIAGRAM



H

INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

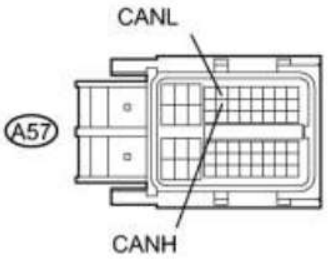
PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (ECM MAIN WIRE)

(a) Turn the power switch off.

*1

(b) Disconnect the ECM connector.



Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A57-13 (CANH) - A57-5 (CANL)	Power switch off	108 to 132 Ω

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (ECM MAIN WIRE)

OK ▼

2.	CHECK ECM POWER SOURCE CIRCUIT

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(a) Check the ECM power source circuit INFO.

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)
OK ▶ **REPLACE ECM**

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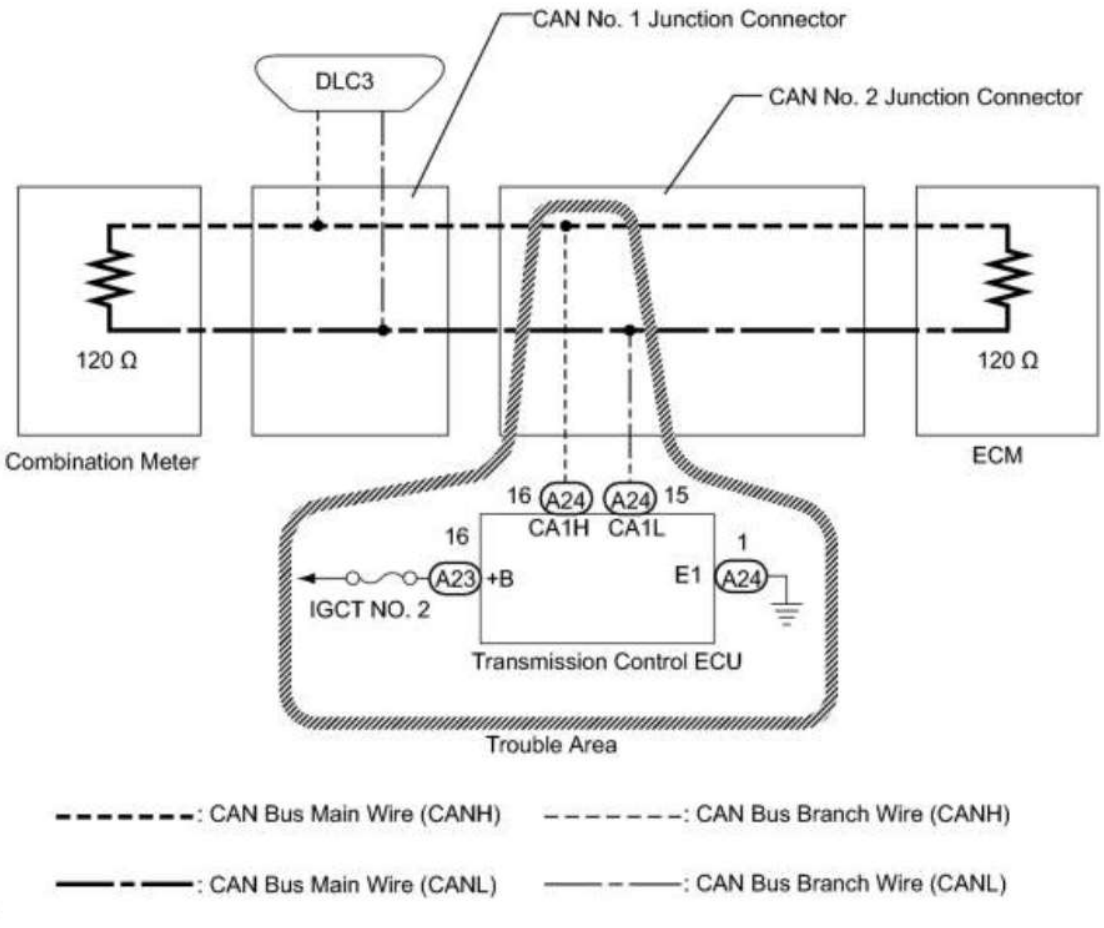
Transmission Control ECU Communication Stop Mode

DESCRIPTION

The transmission control ECU drives the parking lock actuator in accordance with signals from the power management control ECU.

Detection Item	Symptom	Trouble Area
Transmission Control ECU Communication Stop Mode	• "Transmission Control " is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Transmission Control Communication Stop Mode in DTC Combination Table.	• Transmission control ECU branch wire or connector • Power source circuit of transmission control ECU • Transmission control ECU

WIRING DIAGRAM



H

INSPECTION PROCEDURE

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NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

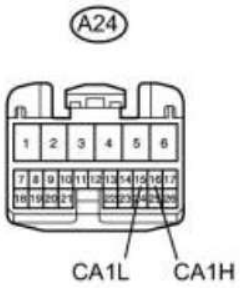
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (TRANSMISSION CONTROL ECU BRANCH WIRE)

(a) Turn the power switch off.

*1



(b) Disconnect the transmission control ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A24-16 (CA1H) - A24-15 (CA1L)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (ECM MAIN WIRE)

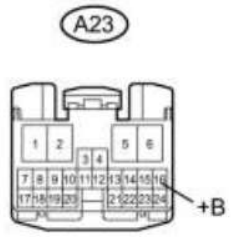
OK

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2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

*1



Standard Voltage:

Tester Connection	Condition	Specified Condition
A23-16 (+B) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

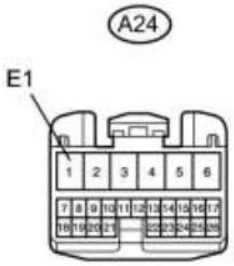
*1	Front view of wire harness connector (to Transmission Control ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

*1



(a) Disconnect the transmission control ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU)

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
A24-1 (E1) - Body ground	Always	Below 1 Ω

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE TRANSMISSION CONTROL ECU**

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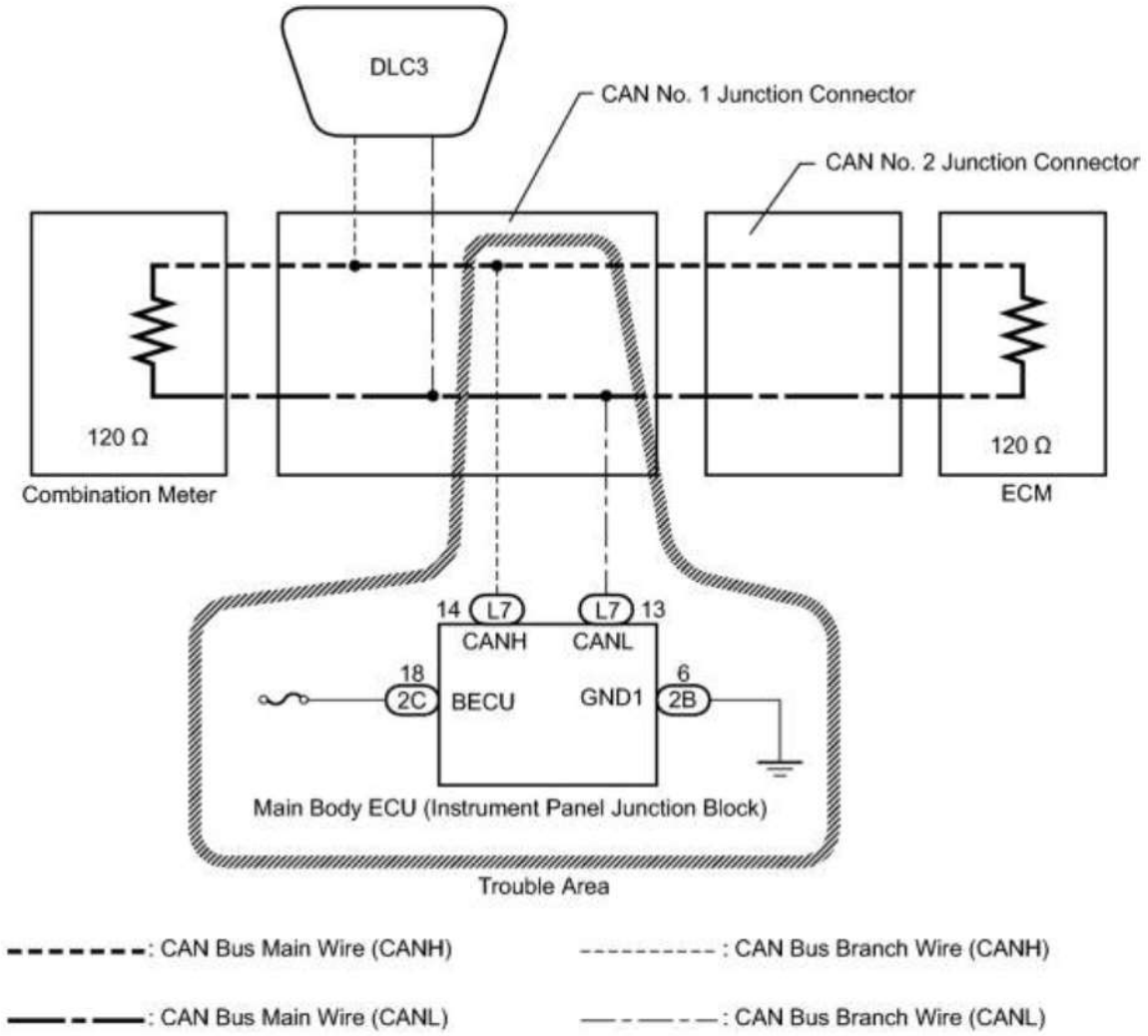
Main Body ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Main Body ECU Communication Stop Mode	• "Main Body" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Main Body ECU Communication Stop Mode in DTC Combination Table.	• Main body ECU branch wire or connector • Power source circuit of main body ECU • Main body ECU

WIRING DIAGRAM

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c

INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.

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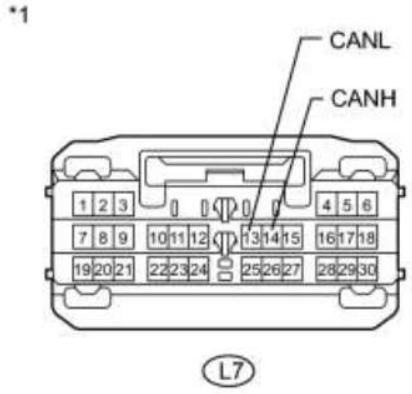
HINT:

- 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (MAIN BODY ECU BRANCH WIRE)

(a) Turn the power switch off.



(b) Disconnect the main body ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Main Body ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L7-14 (CANH) - L7-13 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (MAIN BODY ECU BRANCH WIRE)

OK ▼

2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

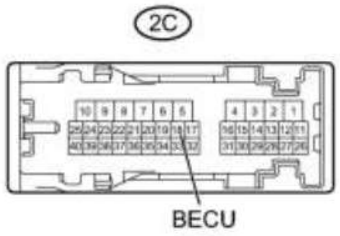
(a) Disconnect the instrument panel junction block connector.

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block)

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*1



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
2C-18 (BECU) - Body ground	Always	11 to 14 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

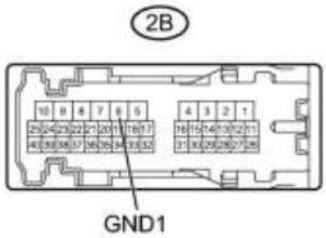
OK ▼

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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

Standard Resistance:

*1



Tester Connection	Condition	Specified Condition
2B-6 (GND1) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE MAIN BODY ECU**

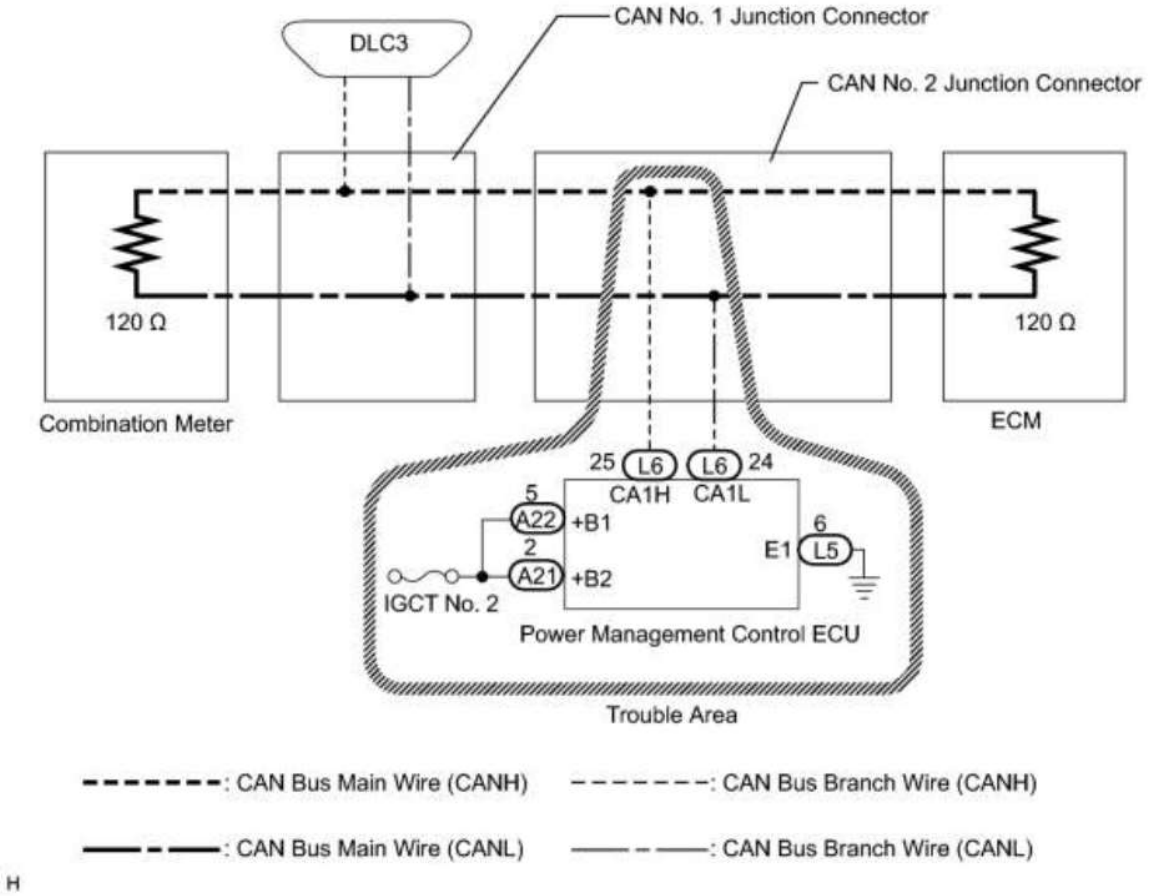
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Power Management Control ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Power Management Control ECU Communication Stop Mode	• "Electric Power Control" is not displayed on the CAN Bus Check screen of the Techstream. • Applies to Power Management Control ECU Communication Stop Mode in DTC Combination Table.	• Power management control ECU branch wire or connector • Power source circuit of power management control ECU • Power management control ECU

WIRING DIAGRAM



H

INSPECTION PROCEDURE

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NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.

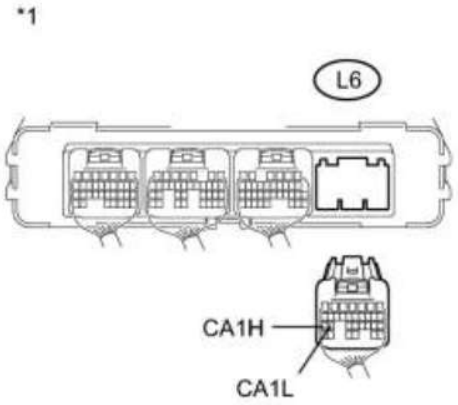
HINT:

- 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (POWER MANAGEMENT CONTROL ECU BRANCH WIRE)

(a) Turn the power switch off.



(b) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Value
L6-25 (CA1H) - L6-24 (CA1L)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN NO. 1 BUS BRANCH WIRE OR CONNECTOR (POWER MANAGEMENT CONTROL ECU)

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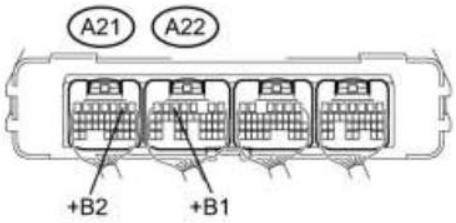
OK

2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

*1

Standard Voltage:



Tester Connection	Condition	Specified Value
A21-2 (+B2) - Body Ground	Always	11 to 14 V
A22-5 (+B1) - Body Ground	Always	11 to 14 V

Text in Illustration

*1	Component with harness connected (to Power Management Control ECU)

P

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE TERMINAL)

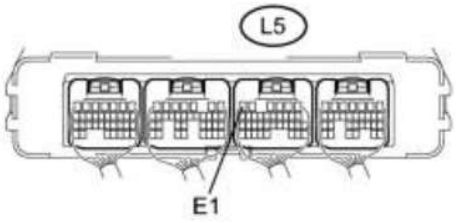
OK

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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

*1

Standard Resistance:



Tester Connection	Condition	Specified Value
L5-6 (E1) - Body Ground	Always	Below 1 Ω

Text in Illustration

*1	Component with harness connected (to Power Management Control ECU)

P

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND TERMINAL)

OK ▶ **REPLACE POWER MANAGEMENT CONTROL ECU**

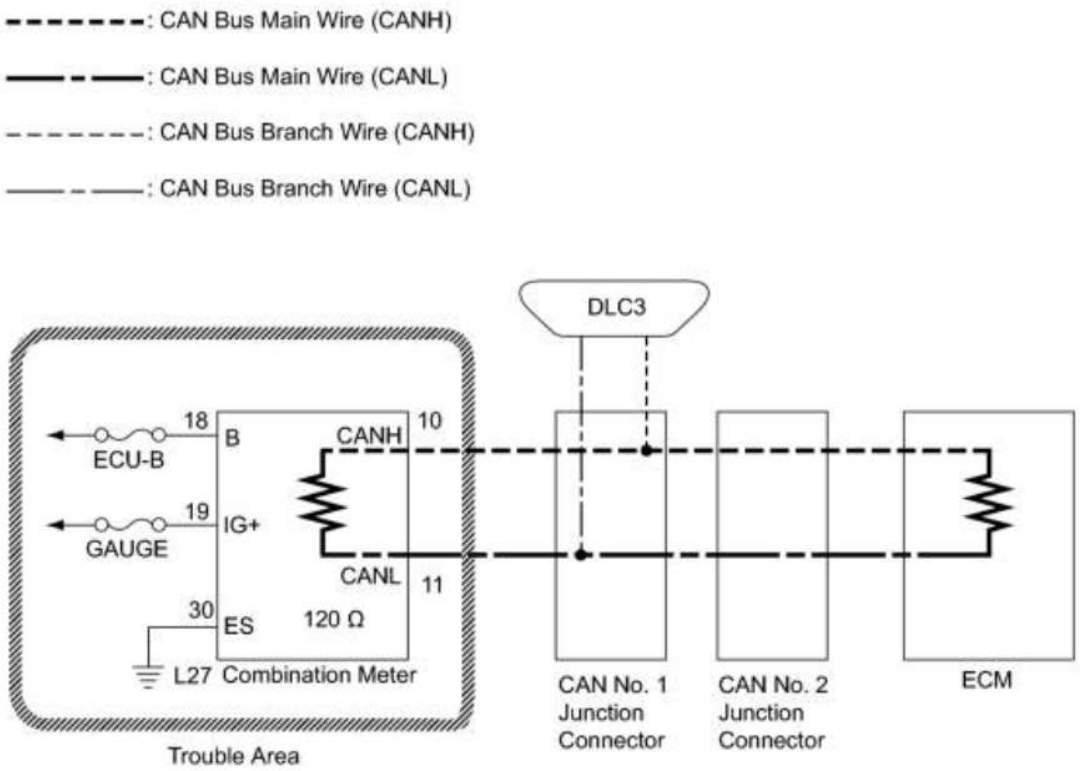
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Combination Meter ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Combination Meter ECU Communication Stop Mode	• "Combination Meter" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Combination Meter ECU Communication Stop Mode in DTC Combination Table.	• Combination meter main wire or connector • Power source circuit of combination meter • Combination meter

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

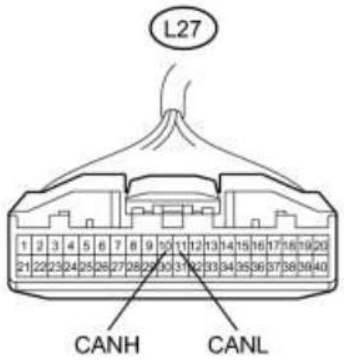
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (COMBINATION METER MAIN WIRE)

(a) Turn the power switch off.

*1



(b) Disconnect the combination meter connector.

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L27-10 (CANH) - L27-11 (CANL)	Power switch off	108 to 132 Ω

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (COMBINATION METER ECU)

OK ▼

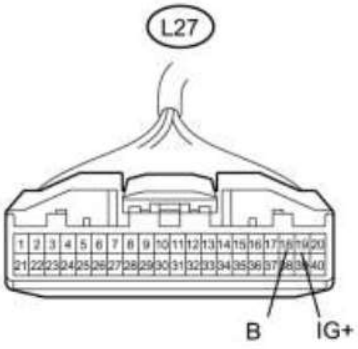
2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

Standard Voltage:

*1



Tester Connection	Condition	Specified Condition
L27-19 (IG+) - Body ground	Power switch on (IG)	11 to 14 V
L27-18 (B) - Body ground	Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

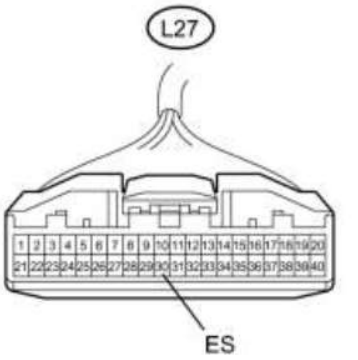
OK ▼

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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

*1

Standard Resistance:



Tester Connection	Condition	Specified Condition
L27-30 (ES) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE METER CIRCUIT PLATE NO. 3 (COMBINATION METER ECU)**

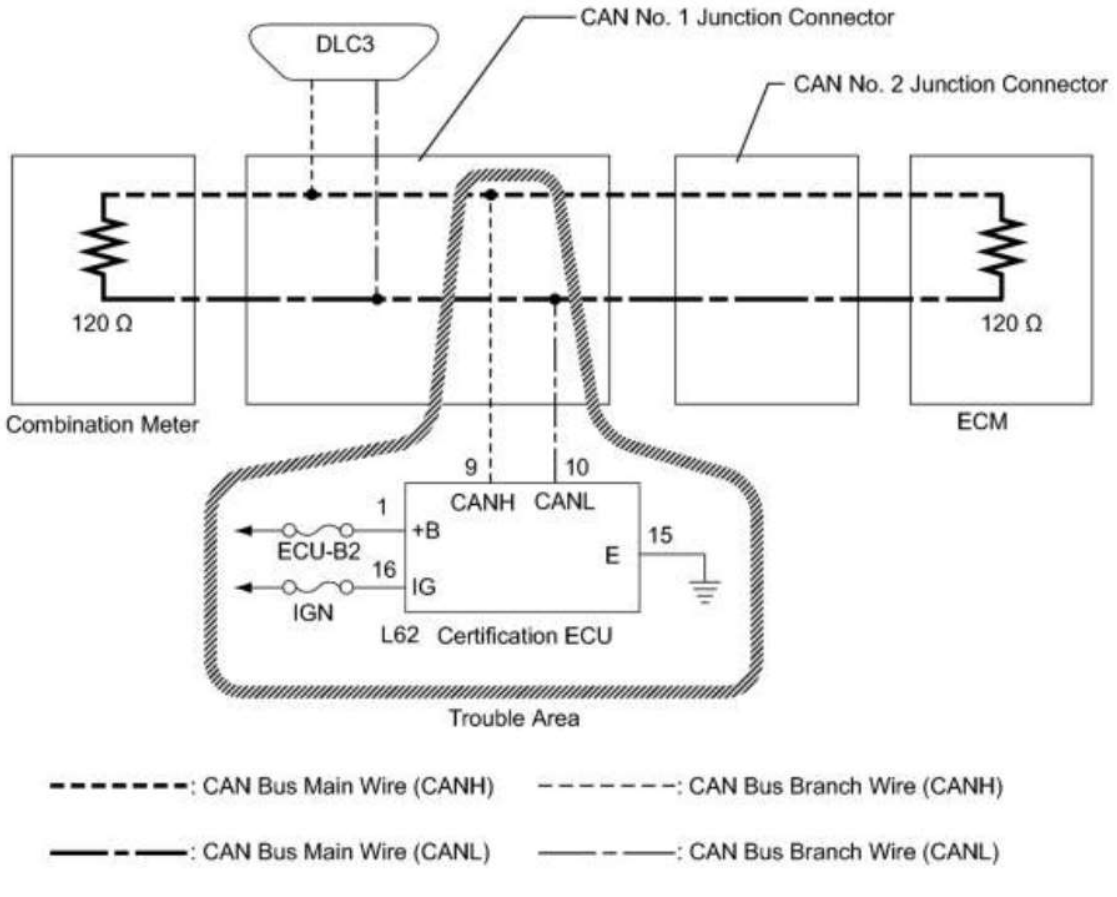
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Certification ECU Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Certification ECU Communication Stop Mode	• "Smart Access/Smart Key/Wireless Tuner" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Certification ECU Communication Stop Mode in DTC Combination Table.	• Power source circuit of certification ECU • Certification ECU branch wire or connector • Certification ECU

WIRING DIAGRAM



H

INSPECTION PROCEDURE

NOTICE:

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- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

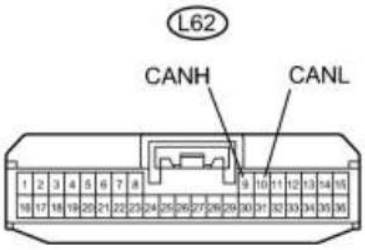
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (CERTIFICATION ECU BRANCH WIRE)

(a) Turn the power switch off.

*1



(b) Disconnect the certification ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L62-9 (CANH) - L62-10 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CERTIFICATION ECU BRANCH WIRE)

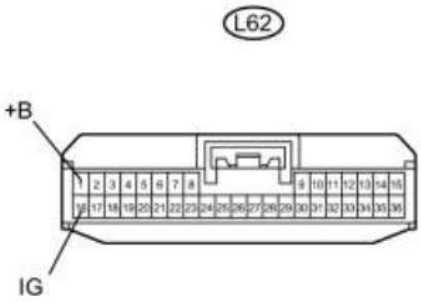
OK ▼

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2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

*1



Standard Voltage:

Tester Connection	Condition	Specified Condition
L62-1 (+B) - Body ground	Always	11 to 14 V
L62-16 (IG) - Body ground	Power switch on (IG)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

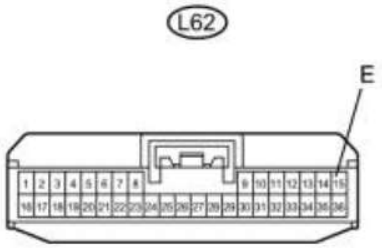
OK

▼

3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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

*1



Standard Resistance:

Tester Connection	Condition	Specified Condition
L62-15 (E) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE SMART KEY ECU (CERTIFICATION ECU)**

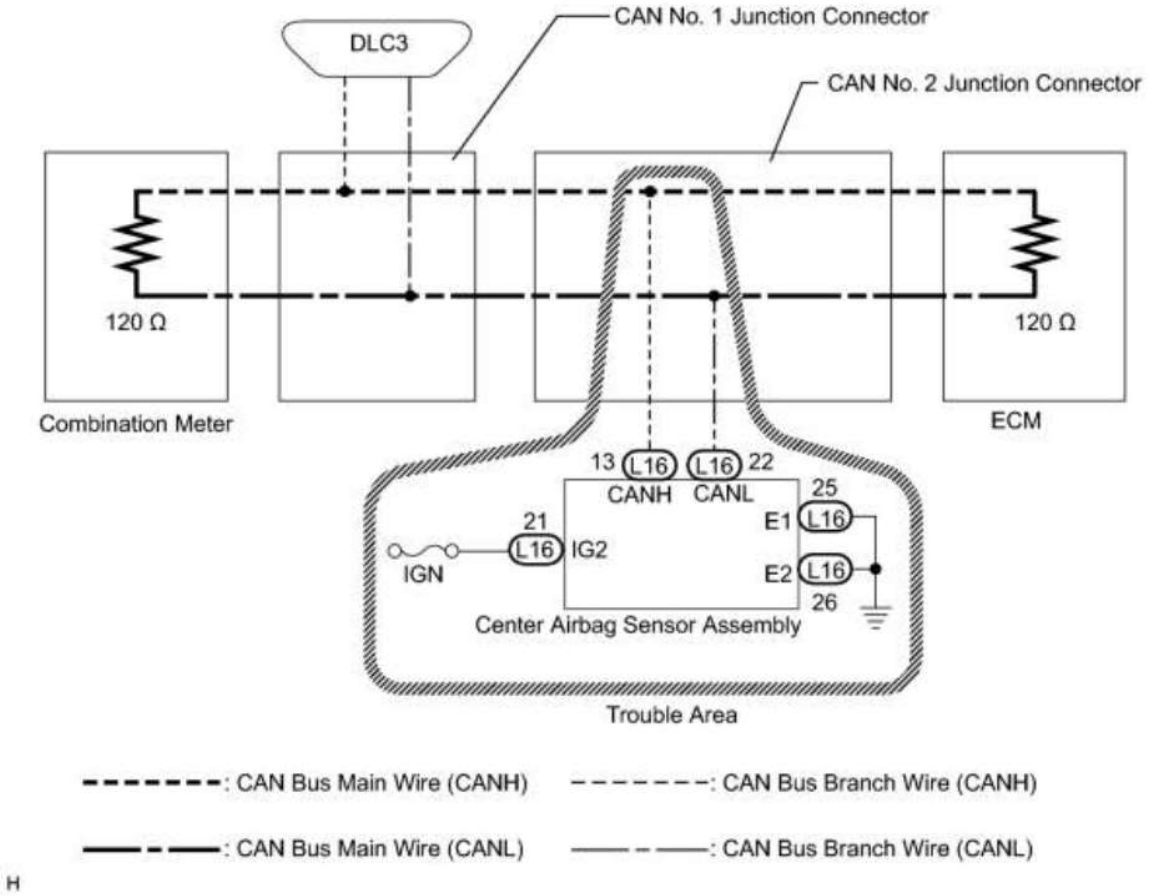
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Center Airbag Sensor Communication Stop Mode

DESCRIPTION

Detection Item	Symptom	Trouble Area
Center Airbag Sensor Communication Stop Mode	• "SRS Airbag" is not displayed on "CAN Bus Check" screen of the Techstream. • Applies to Center Airbag Sensor Communication Stop Mode in DTC Combination Table.	• Center airbag sensor assembly branch wire or connector • Power source circuit of center airbag sensor assembly • Center airbag sensor assembly

WIRING DIAGRAM



H

INSPECTION PROCEDURE

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NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

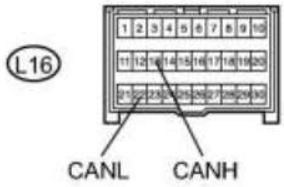
1.	CHECK CAN BUS WIRE FOR DISCONNECTION (CENTER AIRBAG SENSOR ASSEMBLY BRANCH WIRE)

(a) Turn the power switch off.

*1

(b) Disconnect the center airbag sensor assembly connector.

Text in Illustration



*1	Front view of wire harness connector (to Center Airbag Sensor Assembly)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L16-13 (CANH) - L16-22 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CENTER AIRBAG SENSOR ASSEMBLY BRANCH WIRE)

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OK

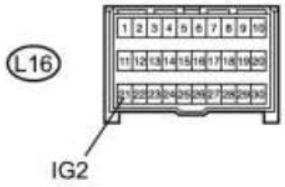
2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

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

*1

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L16-21 (IG2) - Body ground	Power switch on (IG)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Center Airbag Sensor Assembly)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)

OK

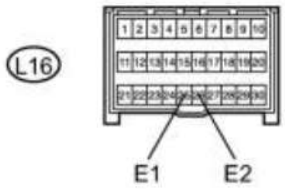
3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

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

*1

Standard Resistance:

Tester Connection	Condition	Specified Condition
L16-25 (E1) - Body ground	Always	Below 1 Ω
L16-26 (E2) - Body ground	Always	Below 1 Ω



Text in Illustration

*1	Front view of wire harness connector (to Center Airbag Sensor Assembly)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND CIRCUIT)

OK ▶ **REPLACE CENTER AIRBAG SENSOR ASSEMBLY**

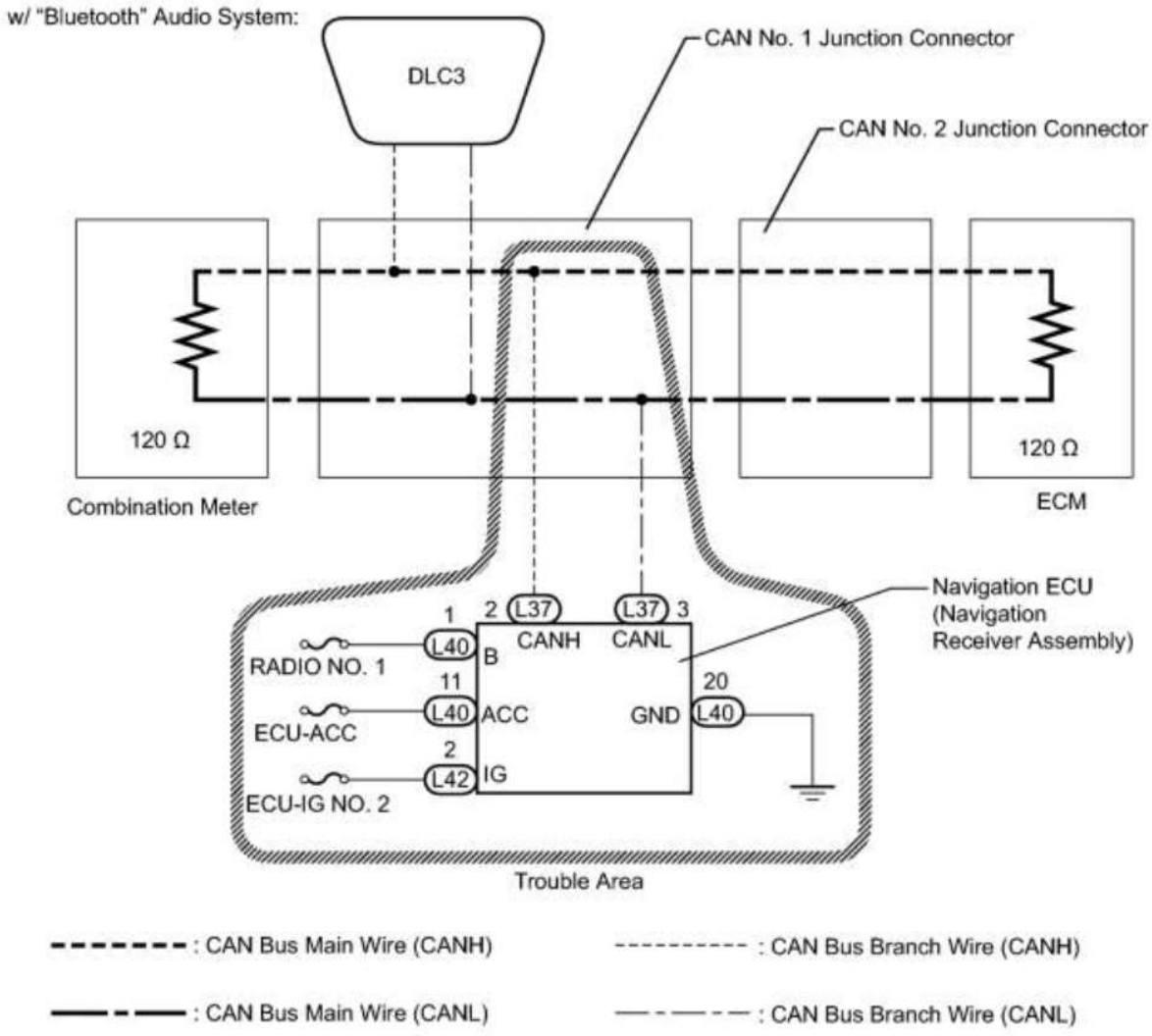
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Navigation ECU Communication Stop Mode

DESCRIPTION

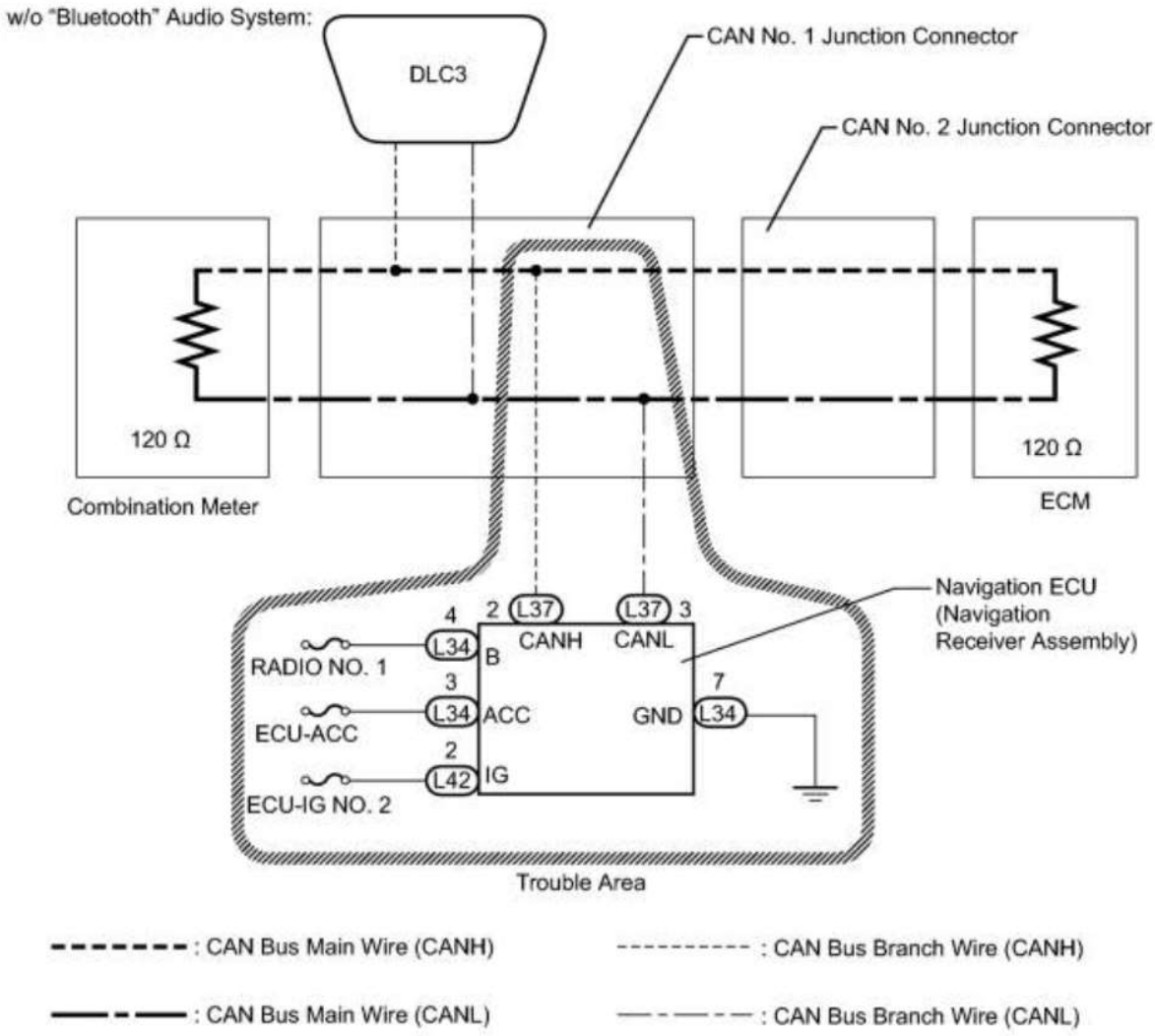
Detection Item	Symptom	Trouble Area
Navigation ECU Communication Stop Mode	• "AVN1" is not displayed on the "CAN Bus Check" screen of the Techstream • Applies to Navigation ECU Communication Stop Mode in DTC Combination Table	• Display and navigation ECU branch wire or connector • Power source circuit of navigation ECU • Navigation ECU (Navigation receiver assembly)

WIRING DIAGRAM



c

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c

INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.
- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.

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- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

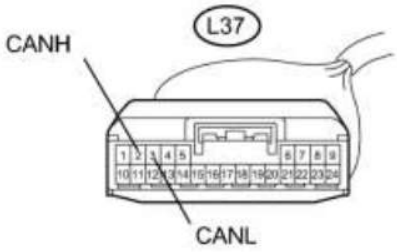
PROCEDURE

1.	CHECK CAN BUS WIRE FOR DISCONNECTION (NAVIGATION ECU BRANCH WIRE)

(a) Turn the power switch off.

*1

(b) Disconnect the navigation ECU connector.



Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

H

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L37-2 (CANH) - L37-3 (CANL)	Power switch off	54 to 69 Ω

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (NAVIGATION ECU BRANCH WIRE)

OK ▼

2.	CHECK HARNESS AND CONNECTOR (POWER SOURCE TERMINAL)

(a) w/ "Bluetooth" Audio System

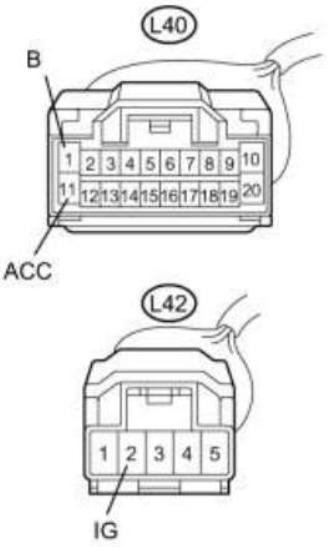
(1) Measure the voltage according to the value(s) in the table below.

Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

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*1



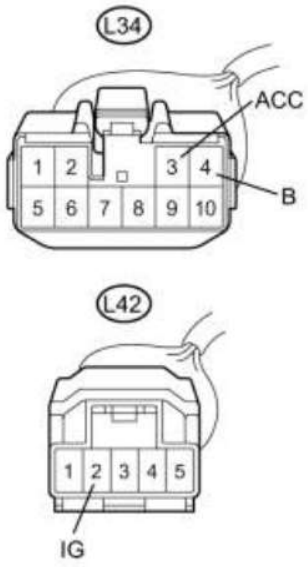
Standard Voltage:

Tester Connection	Condition	Specified Condition
L40-1 (B) - Body ground	Always	11 to 14 V
L40-11 (ACC) - Body ground	Power switch on (ACC)	11 to 14 V
L42-2 (IG) - Body ground	Power switch on (IG)	11 to 14 V

(b) w/o "Bluetooth" Audio System

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

*1



Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

Standard Voltage:

Tester Connection	Condition	Specified Condition
L34-4 (B) - Body ground	Always	11 to 14 V
L34-3 (ACC) - Body ground	Power switch on (ACC)	11 to 14 V
L42-2 (IG) - Body ground	Power switch on (IG)	11 to 14 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE TERMINAL)

OK ▼

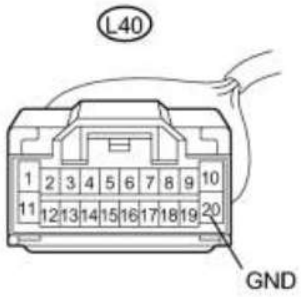
3.	CHECK HARNESS AND CONNECTOR (GROUND TERMINAL)

(a) w/ "Bluetooth" Audio System

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

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*1



Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

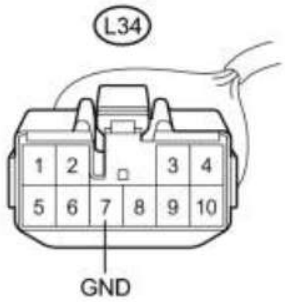
Standard Resistance:

Tester Connection	Condition	Specified Condition
L40-20 (GND) - Body ground	Always	Below 1 Ω

(b) w/o "Bluetooth" Audio System

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

*1



Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

Standard Resistance:

Tester Connection	Condition	Specified Condition
L34-7 (GND) - Body ground	Always	Below 1 Ω

H

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (GROUND TERMINAL)

OK ▶ **REPLACE NAVIGATION RECEIVER ASSEMBLY (NAVIGATION ECU)**

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Open in CAN Main Bus Line

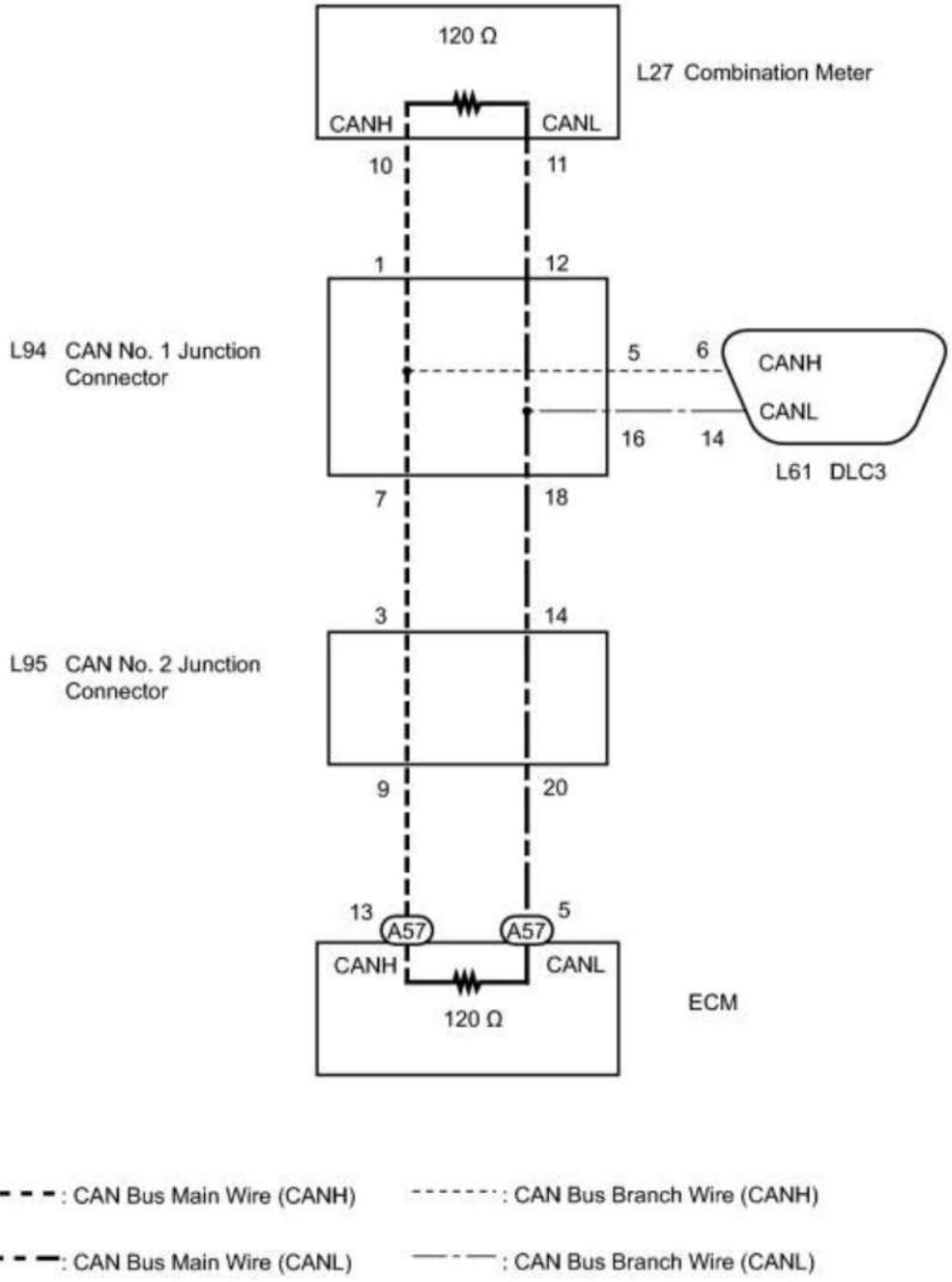
DESCRIPTION

There may be an open circuit in the CAN bus main wire and/or the DLC3 branch wire when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is 70 Ω or higher.

Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of DLC3 is 70 Ω or higher.	• DLC3 branch wire or connector • CAN bus main wire or connector • Combination meter • ECM • CAN No. 1 junction connector • CAN No. 2 junction connector

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK FOR OPEN IN CAN BUS WIRE (DLC3 BRANCH WIRE)

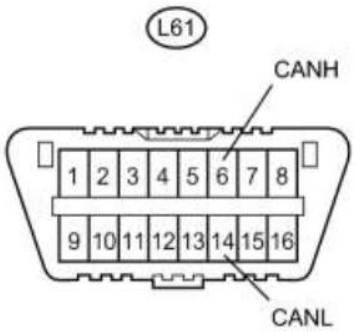
(a) Turn the power switch off.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-14 (CANL)	Power switch off	108 to 132 Ω

*1



Text in Illustration

*1	DLC3

NOTICE:

When the measured value is 133 Ω or higher and a CAN communication system DTC 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 after repairing the trouble area INFO.

NG ▶ REPAIR OR REPLACE CAN BRANCH WIRE CONNECTED TO DLC3

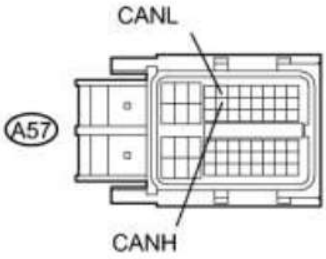
OK

▼

2.	CHECK FOR OPEN IN CAN BUS WIRE (ECM)

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*1



(a) Disconnect the ECM connector.

Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
A57-13 (CANH) - A57-5 (CANL)	Power switch off	108 to 132 Ω

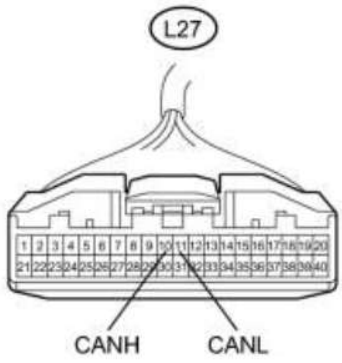
NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (COMBINATION METER)

OK ▶ **REPLACE ECM**

3.	CHECK FOR OPEN IN CAN BUS WIRE (COMBINATION METER)

(a) Reconnect the ECM connector.

*1



(b) Disconnect the combination meter connector.

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

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

Standard Resistance:

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Tester Connection	Switch Condition	Specified Condition
L27-10 (CANH) - L27-11 (CANL)	Power switch off	108 to 132 Ω

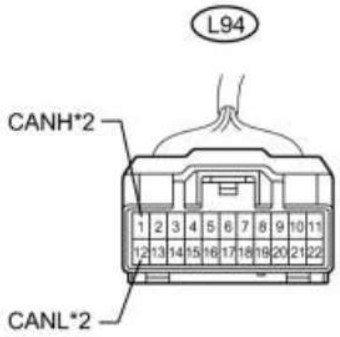
NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (CAN NO. 1 J/C)

OK ▶ **REPLACE METER CIRCUIT PLATE NO. 3 (COMBINATION METER ECU)**

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

(a) Reconnect the combination meter connector.

*1



(b) Disconnect the CAN No. 1 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*2	to Combination Meter

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-1 (CANH) - L94-12 (CANL)	Power switch off	108 to 132 Ω

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

OK

▼

5.	CHECK FOR OPEN IN CAN BUS WIRE (CAN NO. 1 J/C - CAN NO. 2 J/C)

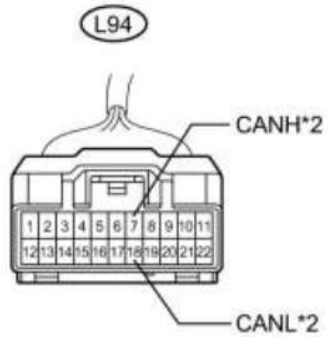
(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-7 (CANH) - L94-18 (CANL)	Power switch off	108 to 132 Ω

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*1



Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*2	to CAN No. 2 Junction Connector

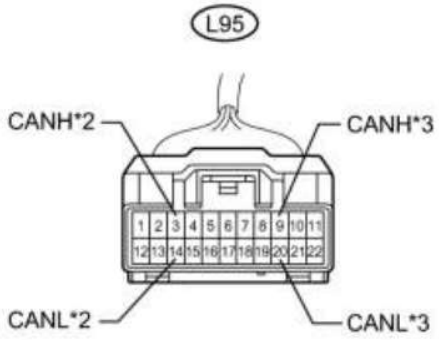
NG ▶ CHECK FOR OPEN IN CAN BUS WIRE (CAN NO. 2 J/C)

OK ▶ **REPLACE CAN NO. 1 JUNCTION CONNECTOR**

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

(a) Reconnect the CAN No. 1 junction connector.

*1



(b) Disconnect the CAN No. 2 junction connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition	Connected to
L95-3 (CANH) - L95-14 (CANL)	Power switch off	108 to 132 Ω	CAN No. 1 junction connector
L95-9 (CANH) - L95-20 (CANL)	Power switch off	108 to 132 Ω	ECM

Text in Illustration

*1	Front view of wire harness connector

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	(to CAN No. 2 Junction Connector)
*2	to CAN No. 1 Junction Connector
*3	to ECM

Result:

Result	Proceed to
OK	A
NG (to ECM main wire)	B
NG (to CAN No. 1 junction connector main wire)	C

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

B ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 2 J/C - ECM)

A ▶ **REPLACE CAN NO. 2 JUNCTION CONNECTOR**

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Check CAN Bus Lines for Short Circuit

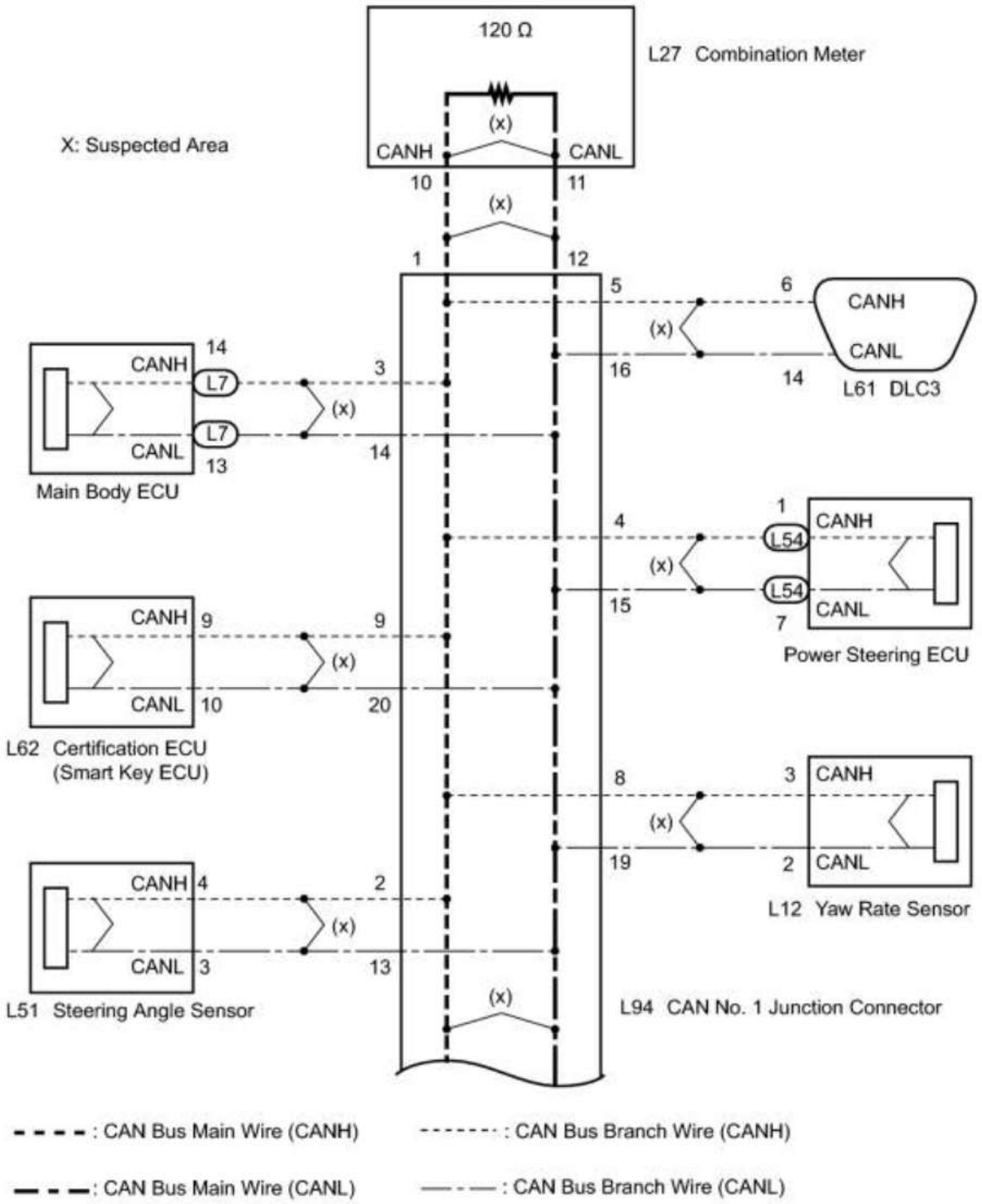
DESCRIPTION

There may be a short circuit in the CAN bus main wire and/or CAN branch wire when the resistance between terminals 6 (CANH) and 14 (CANL) of the DLC3 is below 54 Ω.

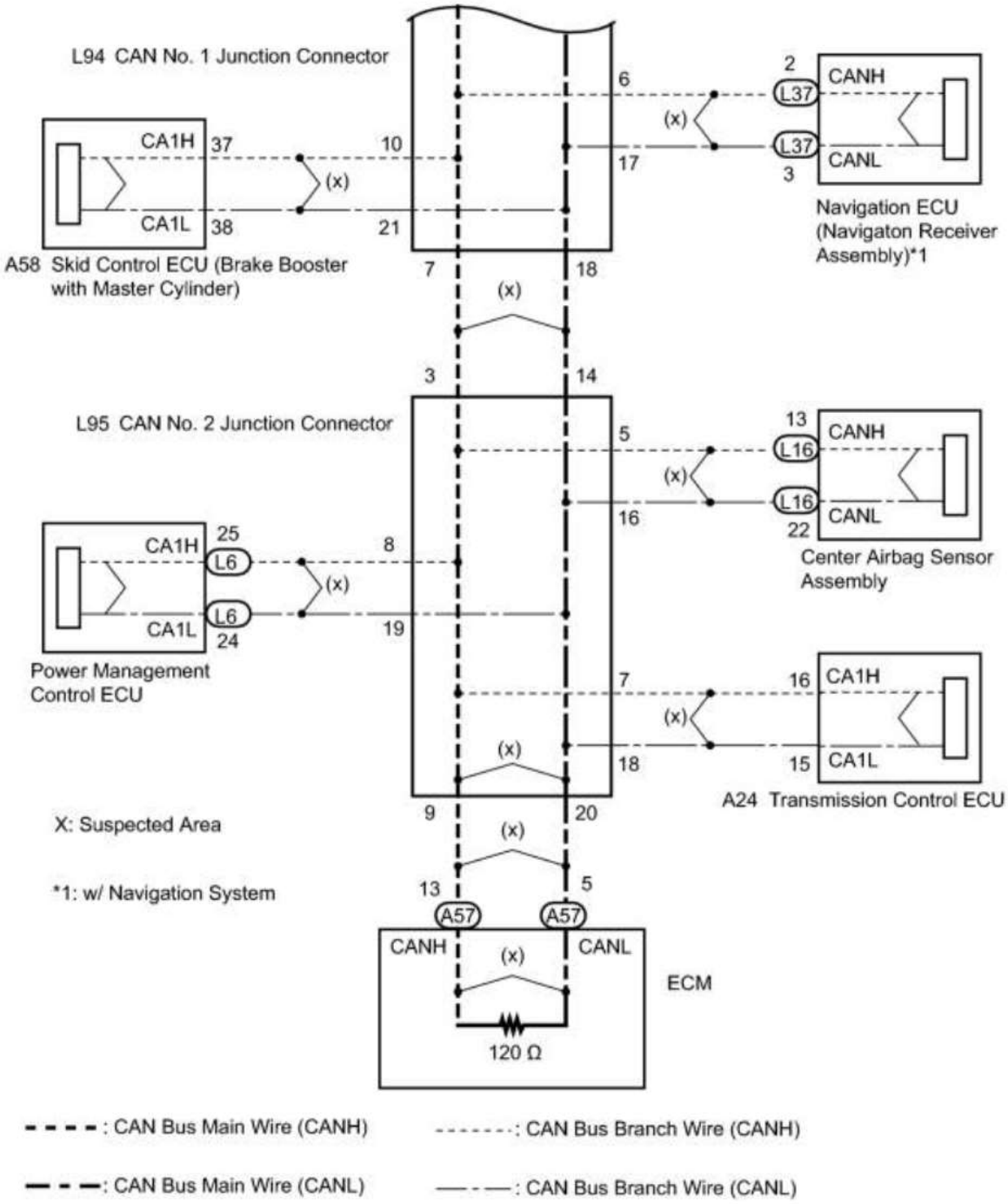
Symptom	Trouble Area
Resistance between terminals 6 (CANH) and 14 (CANL) of DLC3 is below 54 Ω.	• Short in CAN bus main wire • Short in CAN bus branch wire • Power management control ECU • ECM • Main body ECU • Combination meter • Skid control ECU (Brake booster with master cylinder) • Steering angle sensor • Yaw rate sensor • Power steering ECU • Center airbag sensor assembly • Transmission control ECU • Certification ECU (Smart key ECU) • Navigation ECU (Navigation receiver assembly) • CAN No. 1 junction connector • CAN No. 2 junction connector

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

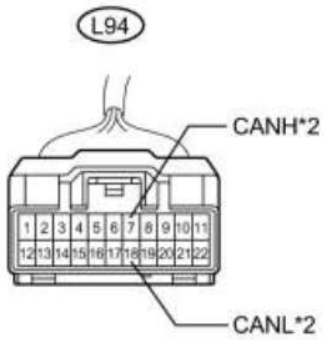
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

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

(a) Turn the power switch off.

*1



(b) Disconnect the CAN No. 1 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No.1 Junction Connector)
*2	to CAN No. 2 Junction Connector

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-7 (CANH) - L94-18 (CANL)	Power switch off	108 to 132 Ω

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

OK

▼

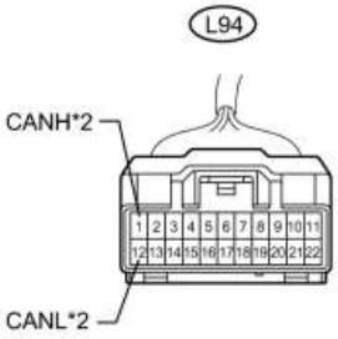
2.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - COMBINATION METER)

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

Standard Resistance:

*1



Tester Connection	Switch Condition	Specified Condition
L94-1 (CANH) - L94-12 (CANL)	Power switch off	108 to 132 Ω

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*2	to Combination Meter

NG ▶ CHECK FOR SHORT IN CAN BUS WIRES (COMBINATION METER)

OK

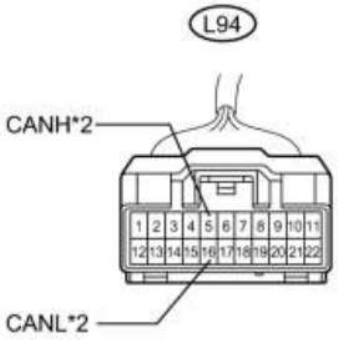
▼

3.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - DLC3)

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

Standard Resistance:

*1



Tester Connection	Switch Condition	Specified Condition
L94-5 (CANH) - L94-16 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*2	to DLC3

NG ▶ REPAIR OR REPLACE CAN BRANCH WIRE CONNECTED TO DLC3

OK

▼

4.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - SKID CONTROL ECU)

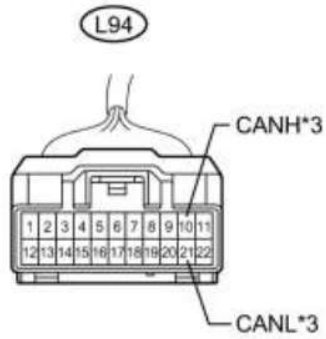
(a) Disconnect the skid control ECU (brake booster with master cylinder) connector.

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

Standard Resistance:

*2



Tester Connection	Switch Condition	Specified Condition
L94-10 (CANH) - L94-21 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Skid Control ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - SKID CONTROL ECU)

OK

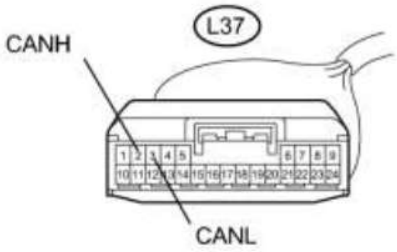
▼

5.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - NAVIGATION ECU)

HINT:

For vehicles without the navigation system, go to the next step.

*1



(a) Disconnect the navigation ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Navigation ECU)

H

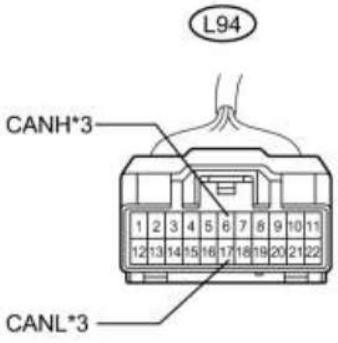
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch	Specified

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*2



	Condition	Condition
L94-6 (CANH) - L94-17 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1Junction Connector)
*3	to Navigation ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - NAVIGATION ECU)

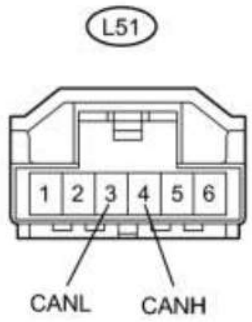
OK

▼

6.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - STEERING ANGLE SENSOR)

*1

(a) Disconnect the steering angle sensor connector.

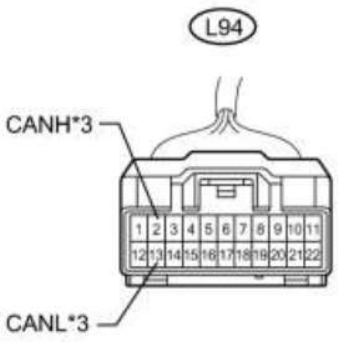


Text in Illustration

*1	Front view of wire harness connector (to Steering Angle Sensor)

*2

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



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-2 (CANH) - L94-13 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

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*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Steering Angle Sensor

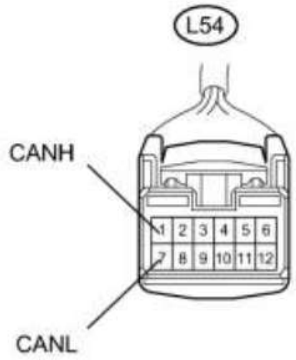
NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - STEERING ANGLE SENSOR)

OK

▼

7.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - POWER STEERING ECU)

*1



(a) Disconnect the power steering ECU connector.

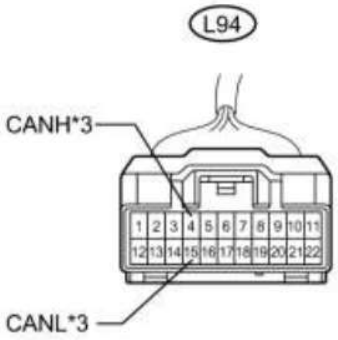
Text in Illustration

*1	Front view of wire harness connector (to Power Steering ECU)

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

*2

Standard Resistance:



Tester Connection	Switch Condition	Specified Condition
L94-4 (CANH) - L94-15 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Power Steering ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - POWER STEERING ECU)

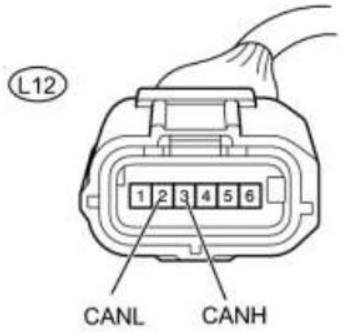
OK

▼

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8.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - YAW RATE SENSOR)

*1



(a) Disconnect the yaw rate sensor connector.

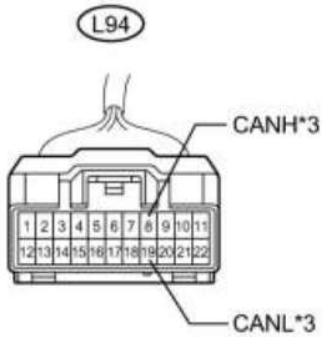
Text in Illustration

*1	Front view of wire harness connector (to Yaw Rate Sensor)

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

*2

Standard Resistance:



Tester Connection	Switch Condition	Specified Condition
L94-8 (CANH) - L94-19 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Yaw Rate Sensor

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - YAW RATE SENSOR)

OK

▼

9.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - CERTIFICATION ECU)

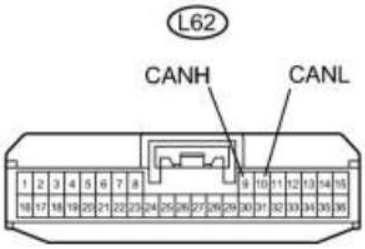
(a) Disconnect the certification ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU)

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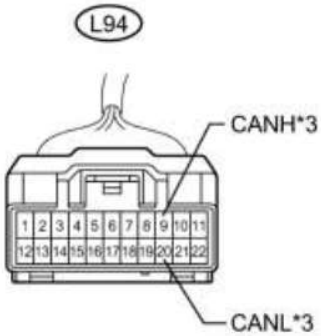
*1



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

*2

Standard Resistance:



Tester Connection	Switch Condition	Specified Condition
L94-9 (CANH) - L94-20 (CANL)	Power switch off	108 to 132 Ω

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Certification ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - CERTIFICATION ECU)

OK

▼

10.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 1 J/C - MAIN BODY ECU)

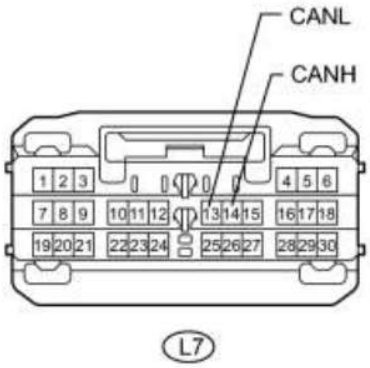
(a) Disconnect the main body ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Main Body ECU)

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*1

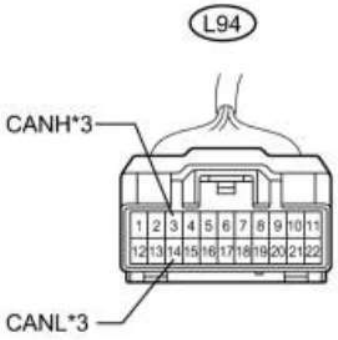


(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-3 (CANH) - L94-14 (CANL)	Power switch off	1 MΩ or higher

*2



Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Main Body ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 1 J/C - MAIN BODY ECU)

OK

▼

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

(a) Reconnect the CAN No. 1 junction connector.

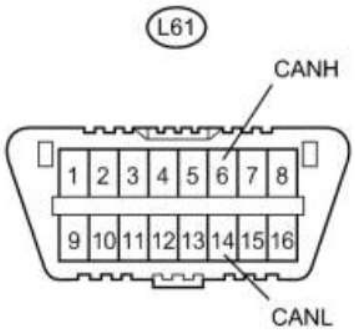
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-14 (CANL)	Power switch off	54 to 69 Ω

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*1



Text in Illustration

*1	DLC3

- The resistance must be measured after the main wire connected ECUs (ECM and combination meter), CAN No. 1 junction connector and No. 2 junction connector are reconnected.
- The resistance must be measured after the CAN No. 1 junction connector branch wire connected ECU and sensor connectors are disconnected.

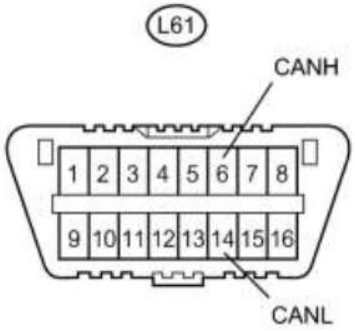
NG ▶ REPLACE CAN NO. 1 JUNCTION CONNECTOR

OK

▼

12.	CHECK FOR SHORT IN CAN BUS WIRES (ECU, SENSOR)

*1



(a) Connect the probes of an ohmmeter to terminals 6 (CANH) and 14 (CANL) of the DLC3.

Text in Illustration

*1	DLC3

(b) While observing the resistance value shown on the ohmmeter, reconnect each ECU and sensor connector until the resistance becomes abnormal (Below 54 Ω).

HINT:

If the resistance becomes abnormal when an ECU connector is reconnected, there may be a short in the ECU.

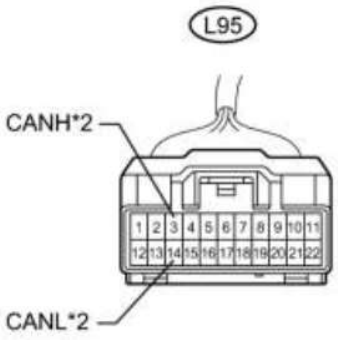
NEXT ▶ **REPLACE CORRESPONDING ECU OR SENSOR**

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

(a) Reconnect the CAN No. 1 junction connector.

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*1



(b) Disconnect the CAN No. 2 junction connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L95-3 (CANH) - L95-14 (CANL)	Power switch off	108 to 132 Ω

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*2	to CAN No. 1 Junction Connector

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

OK

▼

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

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

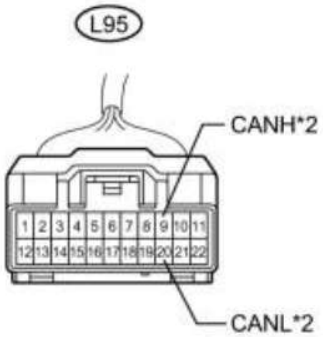
Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L95-9 (CANH) - L95-20 (CANL)	Power switch off	108 to 132 Ω

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*2	to ECM

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*1

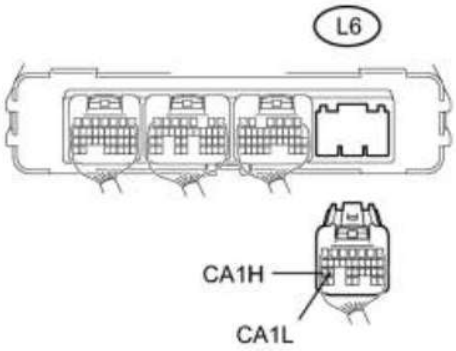


NG CHECK FOR SHORT IN CAN BUS WIRES (ECM)

OK

15.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 2 J/C - POWER MANAGEMENT CONTROL ECU)

*1



P

(a) Disconnect the power management control ECU connector.

Text in Illustration

*1	Rear view of wire harness connector (to Power Management Control ECU)

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

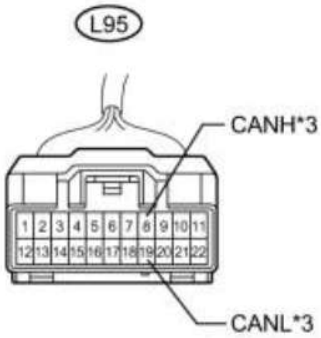
Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L95-8 (CANH) - L95-19 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

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*2



*2	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*3	to Power Management Control ECU

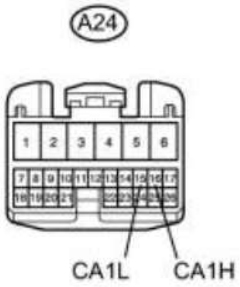
NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 2 J/C - POWER MANAGEMENT CONTROL ECU)

OK

▼

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

*1



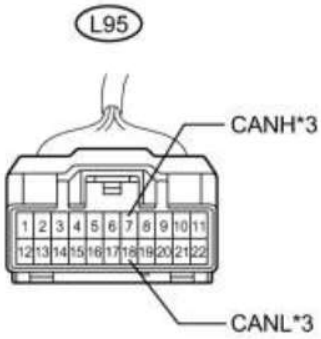
(a) Disconnect the transmission control ECU connector.

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU)

*2

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



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L95-7 (CANH) - L95-18 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

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*2	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*3	to Transmission Control ECU

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 2 J/C - TRANSSMISSION CONTROL ECU)

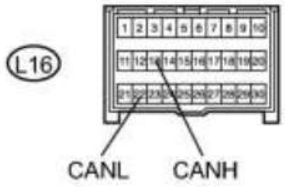
OK

▼

17.	CHECK FOR SHORT IN CAN BUS WIRES (CAN NO. 2 J/C - CENTER AIRBAG SENSOR ASSEMBLY)

*1

(a) Disconnect the center airbag sensor assembly connector.



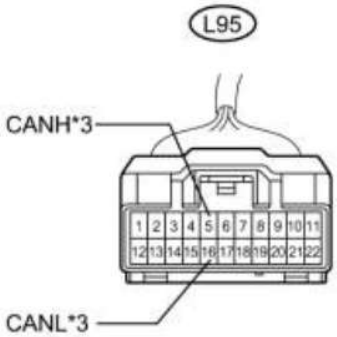
Text in Illustration

*1	Front view of wire harness connector (to Center Airbag Sensor Assembly)

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

*2

Standard Resistance:



Tester Connection	Switch Condition	Specified Condition
L95-5 (CANH) - L95-16 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*3	to Center Airbag Sensor Assembly

NG ▶ REPAIR OR REPLACE CAN BUS BRANCH WIRE OR CONNECTOR (CAN NO. 2 J/C - CENTER AIRBAG SENSOR ASSEMBLY)

OK

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

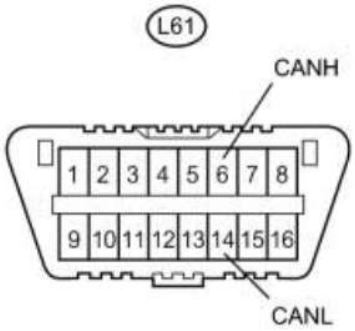
(a) Reconnect the CAN No. 2 junction connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-14 (CANL)	Power switch off	54 to 69 Ω

*1



Text in Illustration

*1	DLC3

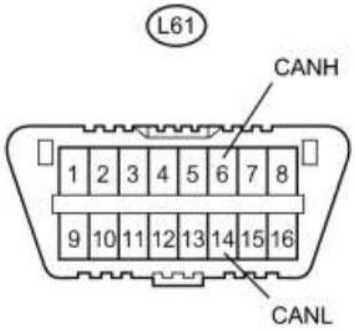
- The resistance must be measured after the main wire connected ECUs (ECM and combination meter), CAN No. 1 junction connector and No. 2 junction connector are reconnected.
- The resistance must be measured after the CAN No. 2 junction connector branch wire connected ECU and sensor connectors are disconnected.

NG ▶ REPLACE CAN NO. 2 JUNCTION CONNECTOR

OK

19.	CHECK FOR SHORT IN CAN BUS WIRES (ECU, SENSOR)

*1



(a) Connect the probes of an ohmmeter to terminals 6 (CANH) and 14 (CANL) of the DLC3.

Text in Illustration

*1	DLC3

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(b) While observing the resistance value shown on the ohmmeter, reconnect each ECU and sensor connector until the resistance becomes abnormal (Below 54 Ω).

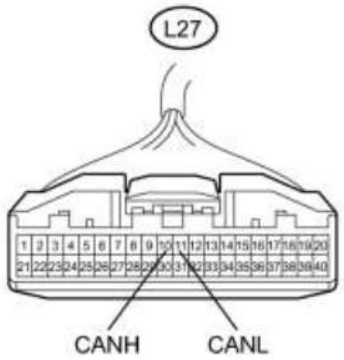
HINT:

If the resistance becomes abnormal when an ECU connector is reconnected, there may be a short in the ECU.

NEXT ▶ **REPLACE CORRESPONDING ECU OR SENSOR**

20.	CHECK FOR SHORT IN CAN BUS WIRES (COMBINATION METER)

*1



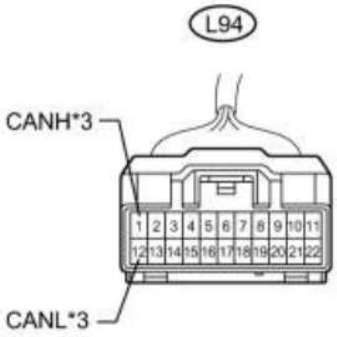
(a) Disconnect the combination meter connector.

Text in Illustration

*1	Front view of wire harness connector (to Combination Meter)

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

*2



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L94-1 (CANH) - L94-12 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 1 Junction Connector)
*3	to Combination Meter

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

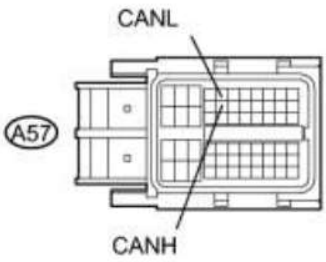
OK ▶ **REPLACE METER CIRCUIT PLATE NO. 3 (COMBINATION METER ECU)**

21.	CHECK FOR SHORT IN CAN BUS WIRES (ECM)

(a) Disconnect the ECM connector.

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*1



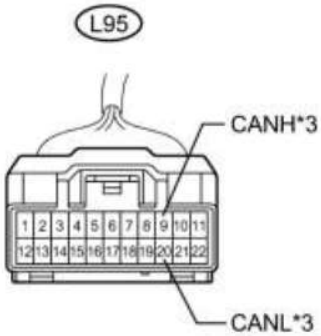
Text in Illustration

*1	Front view of wire harness connector (to ECM)

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

Standard Resistance:

*2



Tester Connection	Switch Condition	Specified Condition
L95-9 (CANH) - L95-20 (CANL)	Power switch off	1 MΩ or higher

Text in Illustration

*2	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*3	to ECM

NG ▶ REPAIR OR REPLACE CAN BUS MAIN WIRE OR CONNECTOR (CAN NO. 2 J/C - ECM)

OK ▶ **REPLACE ECM**

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Check CAN Bus Line for Short to +B

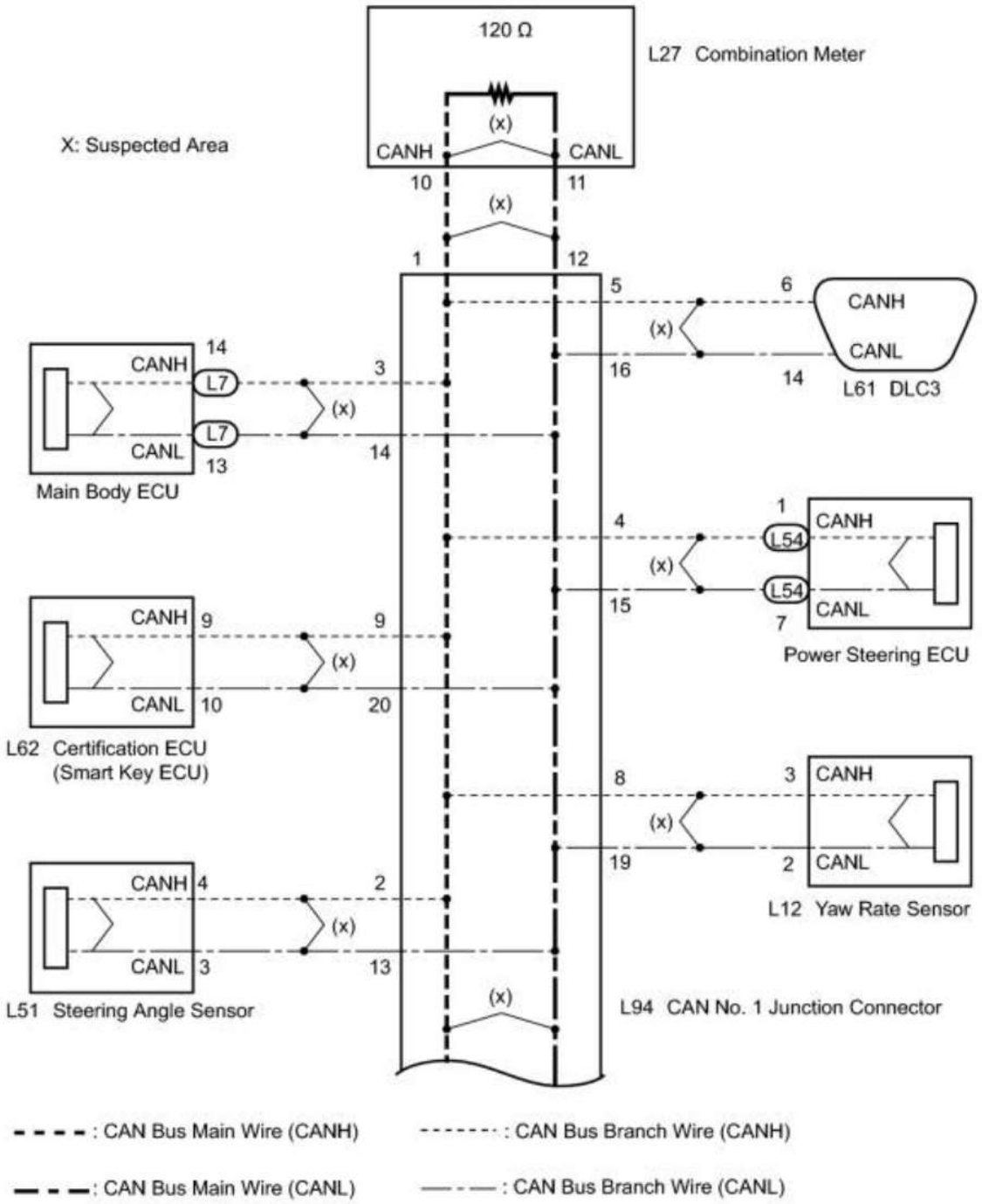
DESCRIPTION

There may be a short circuit between the CAN bus main wire and +B when no resistance exists between terminals 6 (CANH) and 16 (BAT) or 14 (CANL) and 16 (BAT) of the DLC3.

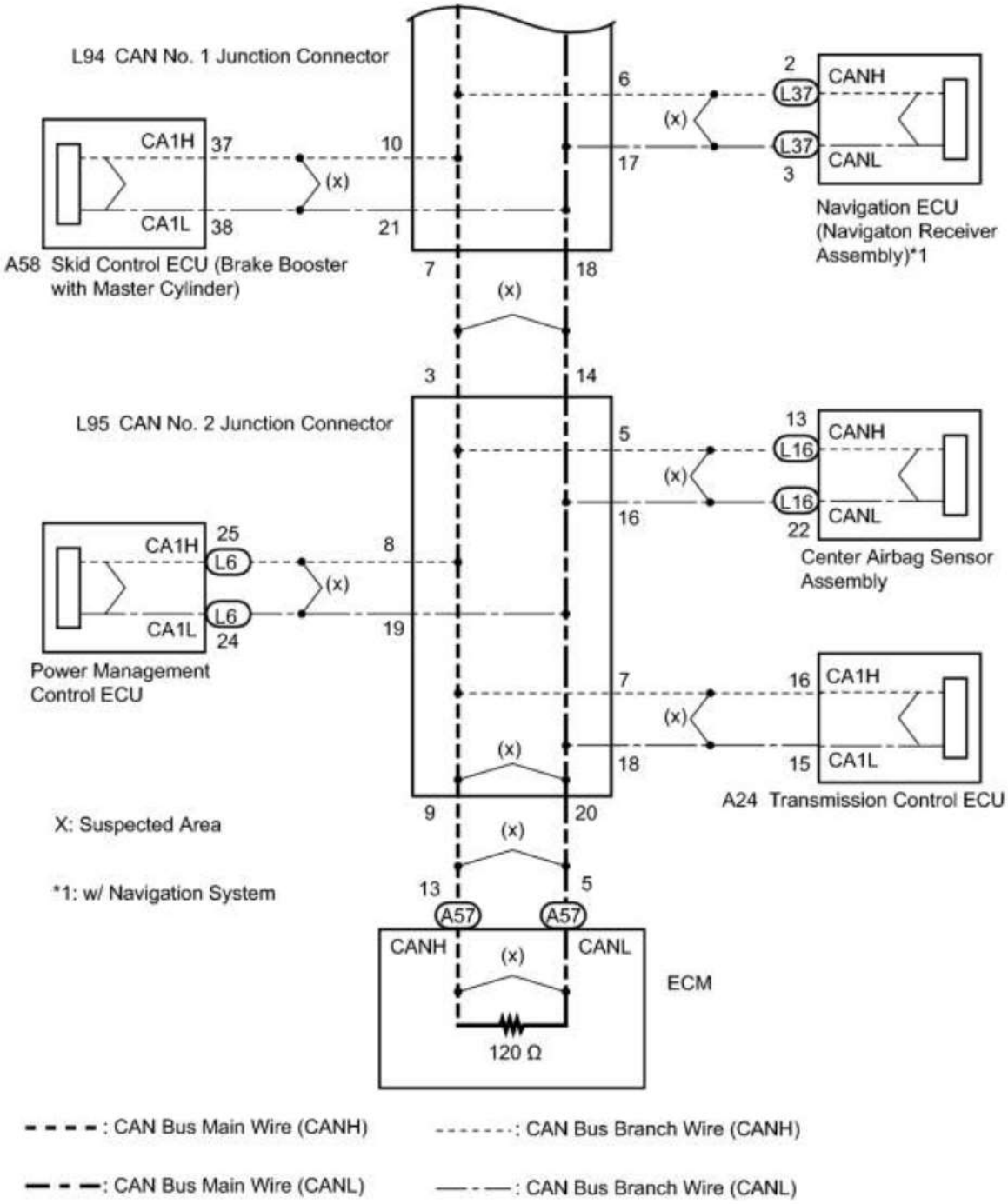
Symptom	Trouble Area
No resistance exists between terminals 6 (CANH) and 16 (BAT) or 14 (CANL) and 16 (BAT) of DLC3.	• Short to +B in CAN bus main wire • Short to +B in CAN bus branch wire • Power management control ECU • ECM • Main body ECU • Combination meter • Skid control ECU (Brake booster with master cylinder) • Steering angle sensor • Yaw rate sensor • Power steering ECU • Center airbag sensor assembly • Transmission control ECU • Certification ECU (Smart key ECU) • Navigation ECU (Navigation receiver assembly) • CAN No. 1 junction connector • CAN No. 2 junction connector

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

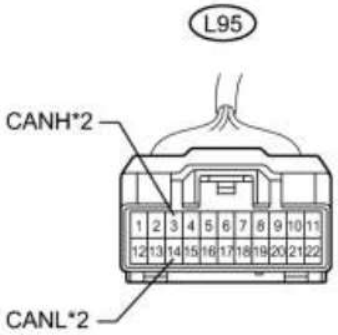
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

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

(a) Disconnect the cable from the negative (-) battery terminal.

*1



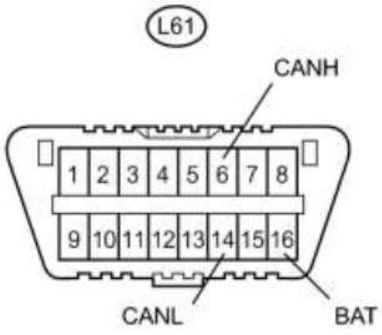
(b) Disconnect the CAN No. 2 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*2	to CAN No. 1 Junction Connector

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

*3



Standard Resistance:

Tester Connection	Condition	Specified Condition
L61-6 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L61-14 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

Text in Illustration

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*3	DLC3

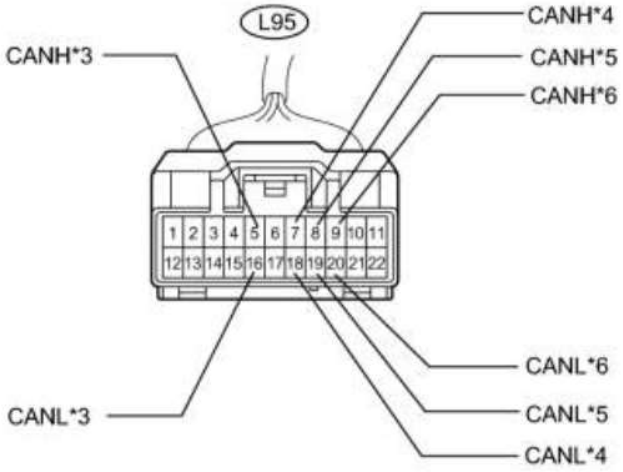
NG ▶ CHECK FOR SHORT TO +B IN CAN BUS WIRE (CAN NO. 1 J/C)

OK

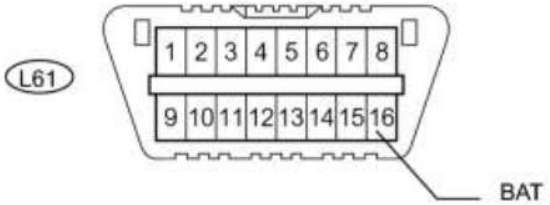
▼

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

*1



*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Connected to
L95-5 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Center airbag sensor assembly
L95-16 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L95-7 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Transmission control ECU
L95-18 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L95-8 (CANH) - L61-16	Cable disconnected from negative (-)	6 kΩ or higher	Power management

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Tester Connection	Condition	Specified Condition	Connected to
(BAT)	battery terminal		control ECU
L95-19 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L95-9 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	ECM
L95-20 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)	*2	DLC3
*3	to Center Airbag Sensor Assembly	*4	to Transmission Control ECU
*5	to Power Management Control ECU	*6	to ECM

Result:

Result	Proceed to
OK	A
NG (to ECU or sensor wire)	B

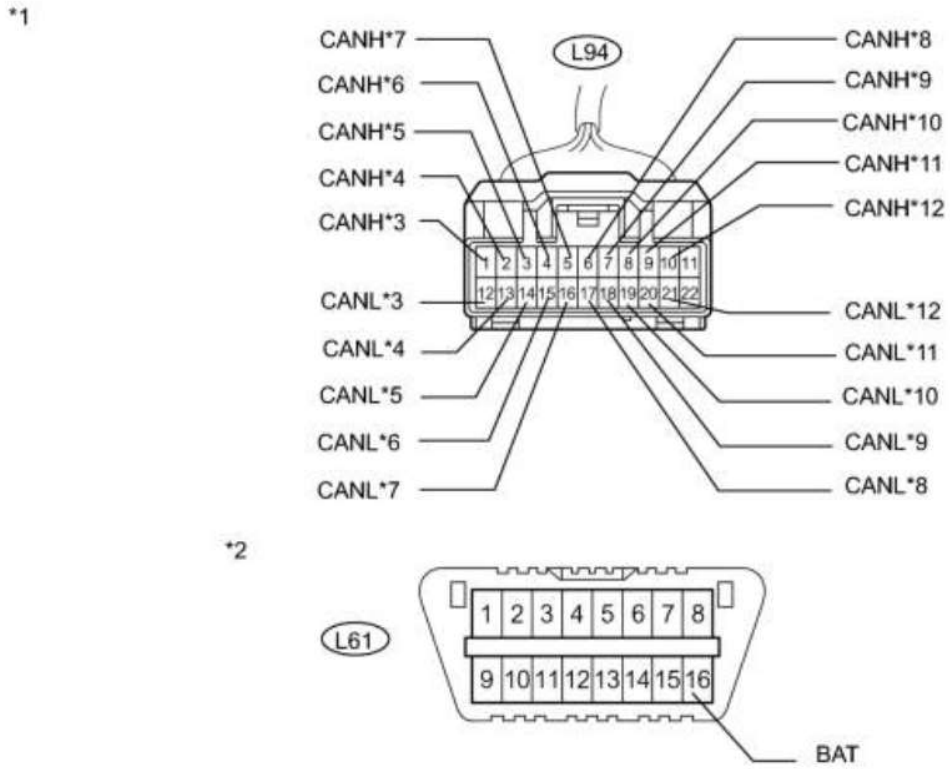
B CHECK FOR SHORT TO +B IN CAN BUS WIRE (ECU, SENSOR)

A **REPLACE CAN NO. 2 JUNCTION CONNECTOR**

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

(a) Disconnect the CAN No. 1 junction connector.

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Text in Illustration

*1	Front view of wire harness connector (to CAN No. 1 Junction Connector)	*2	DLC3
*3	to Combination Meter	*4	to Steering Angle Sensor
*5	to Main Body ECU	*6	to Power Steering ECU
*7	to DLC3	*8	to Navigation ECU
*9	to CAN No. 2 Junction Connector	*10	to Yaw Rate Sensor
*11	to Certification ECU	*12	to Skid Control ECU

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Connected to
L94-1 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Combination meter
L94-12 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-2 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Steering angle sensor

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Tester Connection	Condition	Specified Condition	Connected to
L94-13 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-3 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Main body ECU
L94-14 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-4 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Power steering ECU
L94-15 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-5 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	DLC3
L94-16 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-6 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Navigation ECU
L94-17 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-7 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	CAN No. 2 junction connector
L94-18 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-8 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Yaw rate sensor
L94-19 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-9 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Certification ECU
L94-20 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	
L94-10 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	Skid control ECU
L94-21 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher	

Result:

Result	Proceed to
OK	A
NG (to DLC3 branch wire)	B
NG (to CAN No. 2 J/C main wire)	C

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Result	Proceed to
NG (to ECU or sensor wire)	D

D CHECK FOR SHORT TO +B IN CAN BUS WIRE (ECU, SENSOR)

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

B REPAIR OR REPLACE CAN BRANCH WIRE CONNECTED TO DLC3

A **REPLACE CAN NO. 1 JUNCTION CONNECTOR**

4.	CHECK FOR SHORT TO +B IN CAN BUS WIRE (ECU, SENSOR)

(a) Reconnect the CAN No. 1 Junction connector and CAN No. 2 junction connector.

(b) Disconnect the ECU or sensor connected to the CAN bus wire that is shorted to B+.

HINT:

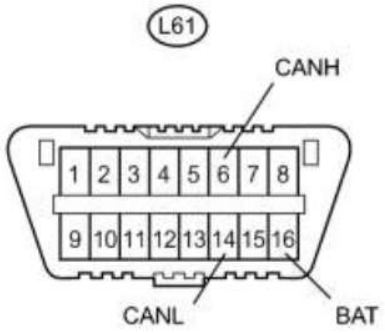
If the ECU or sensor has multiple connectors, disconnect the connector that includes the CAN bus wires. To determine the ECU or sensor that is connected to the shorted bus wire, refer to the terminals of ECU tables INFO.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L61-6 (CANH) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher
L61-14 (CANL) - L61-16 (BAT)	Cable disconnected from negative (-) battery terminal	6 kΩ or higher

*1



Text in Illustration

*1	DLC3

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 REPAIR OR REPLACE CORRESPONDING ECU/SENSOR WIRE OR CONNECTOR

OK **REPLACE CORRESPONDING ECU OR SENSOR**

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Check CAN Bus Line for Short to GND

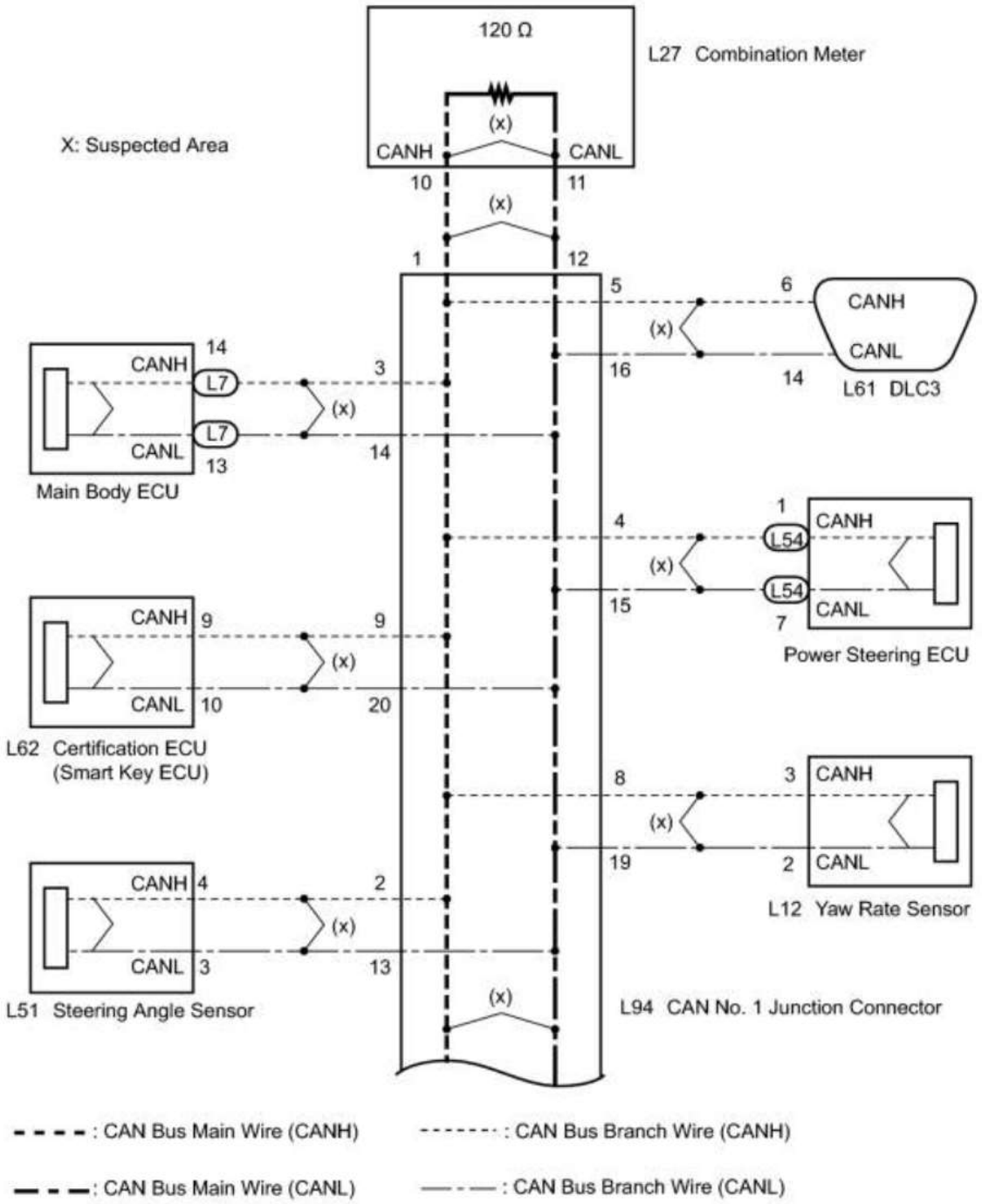
DESCRIPTION

There may be a short circuit between the CAN bus main wire and GND when there is no resistance between terminals 6 (CANH) and 4 (CG) or 14 (CANL) and 4 (CG) of the DLC3.

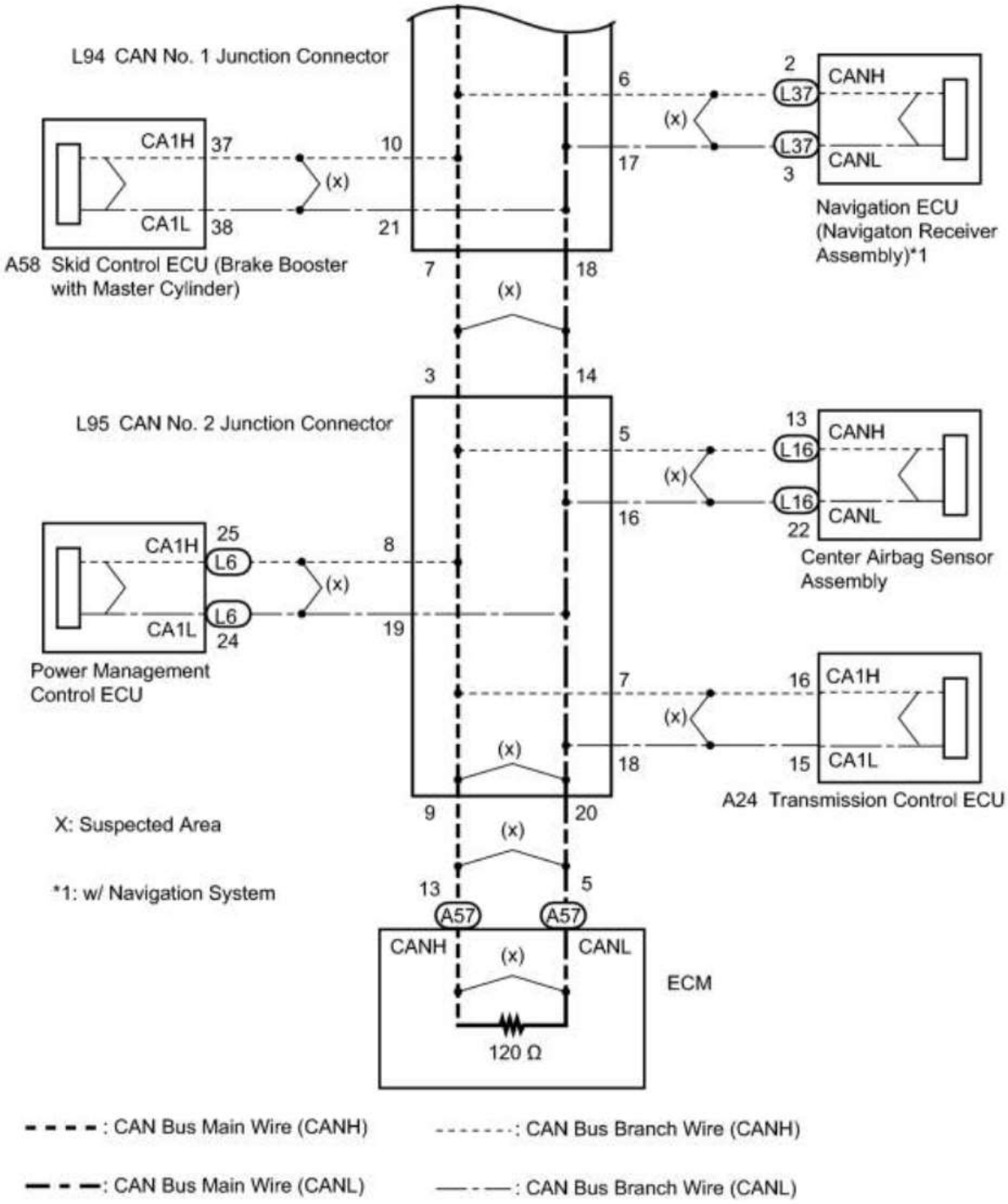
Symptom	Trouble Area
No resistance exists between terminals 6 (CANH) and 4 (CG) or 14 (CANL) and 4 (CG) of DLC3.	• Short to GND in CAN bus main wire • Short to GND in CAN bus branch wire • Power management control ECU • ECM • Main body ECU • Combination meter • Power steering ECU • Skid control ECU (Brake booster with master cylinder) • Steering angle sensor • Yaw rate sensor • Center airbag sensor assembly • Transmission control ECU • Certification ECU (Smart key ECU) • Navigation ECU (Navigation receiver assembly) • CAN No. 1 junction connector • CAN No. 2 junction connector

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- Turn the power switch off before measuring the resistances between CAN bus main wires and between CAN bus branch wires.
- Turn the power switch off before inspecting CAN bus wires for a ground short.

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- After the power switch is turned off, check that the key reminder warning system and light reminder warning 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:

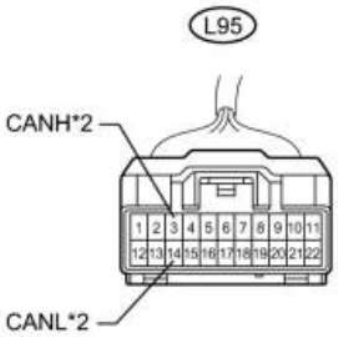
- Operating the power switch, any other switches or a door triggers related ECU and sensor communication on the CAN. This communication will cause the resistance value to change.
- Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

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

(a) Turn the power switch off.

*1

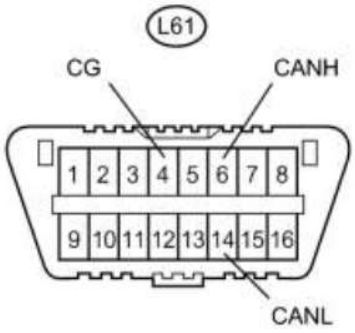


(b) Disconnect the CAN No. 2 junction connector.

Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)
*2	to CAN No. 1 Junction Connector

*3



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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher
L61-14 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher

Text in Illustration

*3	DLC3

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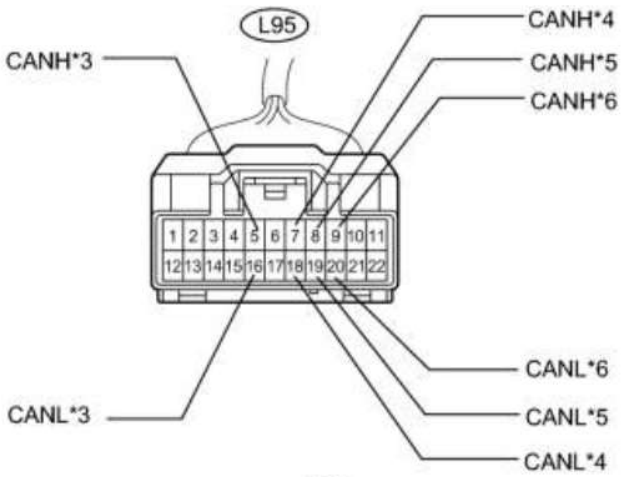
NG ▶ CHECK FOR SHORT TO GND IN CAN BUS WIRE (CAN NO. 1 J/C)

OK

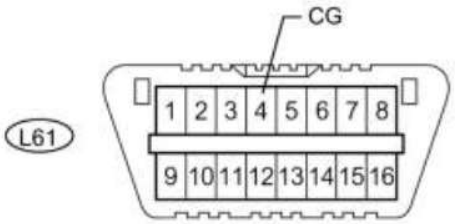
▼

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

*1



*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Connected to
L95-5 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Center airbag sensor assembly
L95-16 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L95-7 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Transmission control ECU
L95-18 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L95-8 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Power management control ECU
L95-19 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L95-9 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	ECM
L95-20 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	

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Text in Illustration

*1	Front view of wire harness connector (to CAN No. 2 Junction Connector)	*2	DLC3
*3	to Center Airbag Sensor Assembly	*4	to Transmission Control ECU
*5	to Power Management Control ECU	*6	to ECM

Result:

Result	Proceed to
OK	A
NG (to ECU or sensor wire)	B

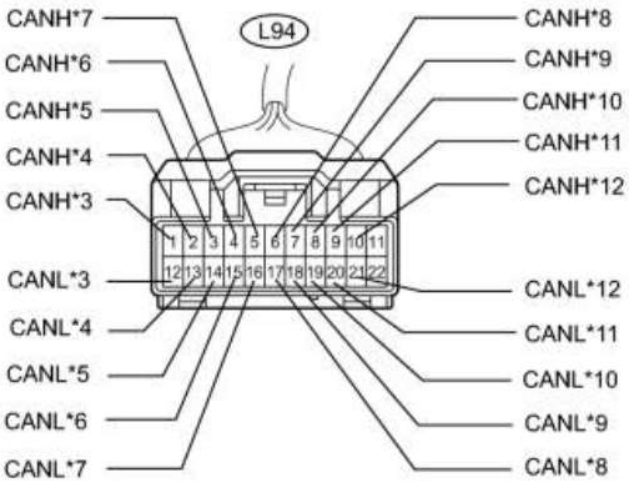
B CHECK FOR SHORT TO GND IN CAN BUS WIRE (ECU, SENSOR)

A **REPLACE CAN NO. 2 JUNCTION CONNECTOR**

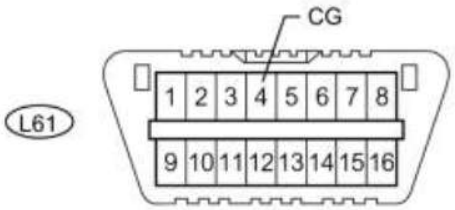
3.	CHECK FOR SHORT TO GND IN CAN BUS WIRE (CAN NO. 1 J/C)

(a) Disconnect the CAN No. 1 junction connector.

*1



*2



Text in Illustration

*1	Front view of wire harness connector	*2	DLC3

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	(to CAN No. 1 Junction Connector)		
*3	to Combination Meter	*4	to Steering Angle Sensor
*5	to Main Body ECU	*6	to Power Steering ECU
*7	to DLC3	*8	to Navigation ECU
*9	to CAN No. 2 Junction Connector	*10	to Yaw Rate Sensor
*11	to Certification ECU	*12	to Skid Control ECU

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

Standard Resistance:

Tester Connection	Condition	Specified Condition	Connected to
L94-1 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Combination meter
L94-12 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-2 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Steering angle sensor
L94-13 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-3 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Main body ECU
L94-14 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-4 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Power steering ECU
L94-15 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-5 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	DLC3
L94-16 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-6 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Navigation ECU
L94-17 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-7 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	CAN No. 2 Junction Connector
L94-18 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-8 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Yaw rate sensor
L94-19 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-9 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Certification ECU
L94-20 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	
L94-10 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher	Skid control ECU
L94-21 (CANL) - L61-4 (CG)	Power switch off	200 Ω or higher	

Result:

Result	Proceed to
OK	A
NG (to DLC3 branch wire)	B
NG (to CAN No. 2 J/C main wire)	C
NG (to ECU or sensor wire)	D

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D CHECK FOR SHORT TO GND IN CAN BUS WIRE (ECU, SENSOR)

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

B REPAIR OR REPLACE CAN BRANCH WIRE CONNECTED TO DLC3

A **REPLACE CAN NO. 1 JUNCTION CONNECTOR**

4.	CHECK FOR SHORT TO GND IN CAN BUS WIRE (ECU, SENSOR)

(a) Reconnect the CAN No. 1 junction connector and CAN No. 2 junction connector wire harness connector.

(b) Disconnect the ECU or sensor connected to the CAN bus wire that is shorted to ground.

HINT:

If the ECU or sensor has multiple connectors, disconnect the connector that includes the CAN bus wires. To determine the ECU or sensor that is connected to the shorted bus wire, refer to the terminals of ECU tables INFO.

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

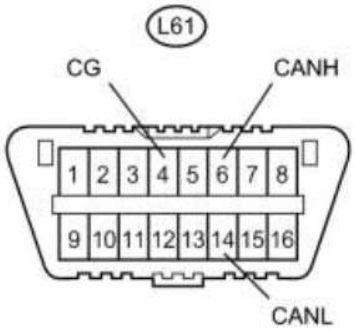
Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
L61-6 (CANH) - L61-4 (CG)	Power switch off	200 Ω or higher
L61-14 (CANL) - L61-4 (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).

*1



Text in Illustration

*1	DLC3

NG REPAIR OR REPLACE CORRESPONDING ECU/SENSOR WIRE OR CONNECTOR

OK **REPLACE CORRESPONDING ECU OR SENSOR**

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Open in One Side of CAN Branch Line

DESCRIPTION

If some ECUs and sensors are not displayed on the "CAN Bus Check" screen of the Techstream and some ECUs and sensors repeatedly appear and disappear from the screen when the CAN main bus wires are normal (there is no open, short, short to B+ or short to GND in the main bus wires), there may be an open circuit in either of the CAN branch wires.

HINT:

If some ECUs and sensors repeatedly appear and disappear from the "CAN Bus Check" screen, communication between the normal ECUs (sensors) and the Techstream may be affected by the incomplete signals that are output from the ECU that has an open circuit in either of its CAN branch wires. In this case, the CAN branch wires for the ECUs and sensors that repeatedly appear and disappear from the screen are normal and the ECU that is not displayed on the screen may be the main cause of the problem (this ECU may have an open circuit in either of its CAN branch wires).

Symptom	Trouble Area
2 or more ECUs and/or sensors do not appear on the Techstream "Communication Bus Check" screen.	One side of CAN branch wire is open, or output signals are incomplete. • Power management control ECU • ECM • Main body ECU • Combination meter • Power steering ECU • Skid control ECU (Brake booster with master cylinder) • Steering angle sensor • Yaw rate sensor • Center airbag sensor assembly • Transmission control ECU • Certification ECU (Smart key ECU) • Navigation ECU (Navigation receiver assembly)

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INSPECTION PROCEDURE

HINT:

Even after DTCs are cleared, if a DTC is stored again after driving the vehicle for a while, the malfunction may be occurring due to vibration of the vehicle. In such a case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

PROCEDURE

1.	CHECK FOR OPEN IN ONE SIDE OF CAN NO. 1 BUS BRANCH WIRE

(a) Confirm the systems (ECUs and sensors), which use CAN communication, equipped on the vehicle INFO.

(b) Using the Techstream, select and perform "CAN Bus Check" INFO.

(c) Observe the screen for approximately 1 minute to check the ECUs and sensors that are not displayed on the screen and also those that repeatedly appear and disappear from the screen.

(d) Check that the ECUs and sensors, which are connected to the ECUs or sensors that are not displayed on the screen.

(e) Check that the ECUs and sensors, which repeatedly appeared and disappeared from the "CAN Bus Check" screen, are constantly displayed.

NEXT ▶ **GO TO CORRESPONDING COMMUNICATION STOP MODE**

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PRECAUTION

NOTICE:

When disconnecting the cable from the negative (-) battery terminal, initialize the following system after the cable is reconnected.

System Name	See Procedure
Advanced Parking Guidance System	INFO

1. PRECAUTIONS WHEN USING TECHSTREAM

(a) When using the Techstream to troubleshoot with the power switch off:

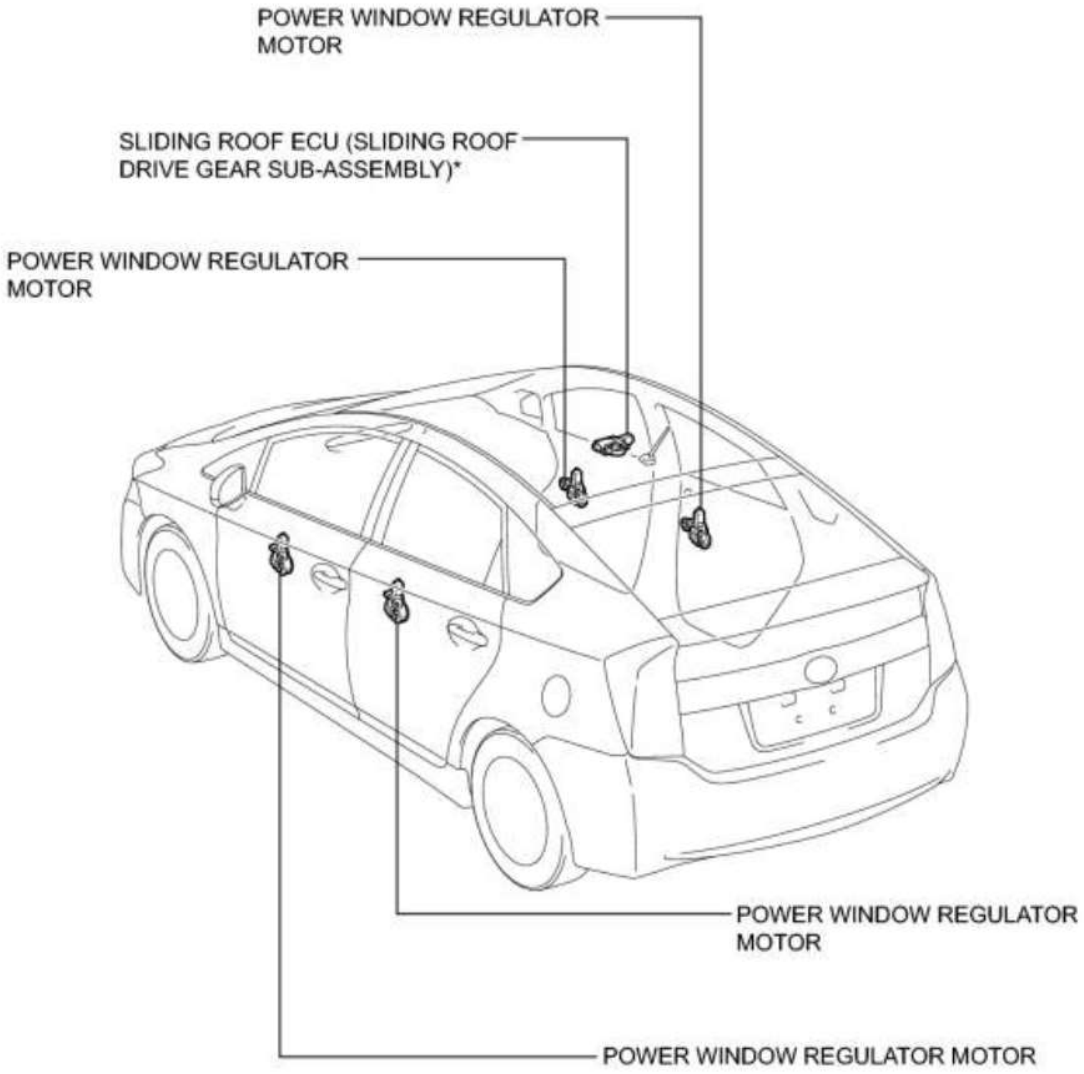
Connect the Techstream to the DLC3, and turn the courtesy light switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

(b) After all DTCs are cleared, check if the trouble occurs again 6 seconds after the power switch is turned on (IG).

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PARTS LOCATION

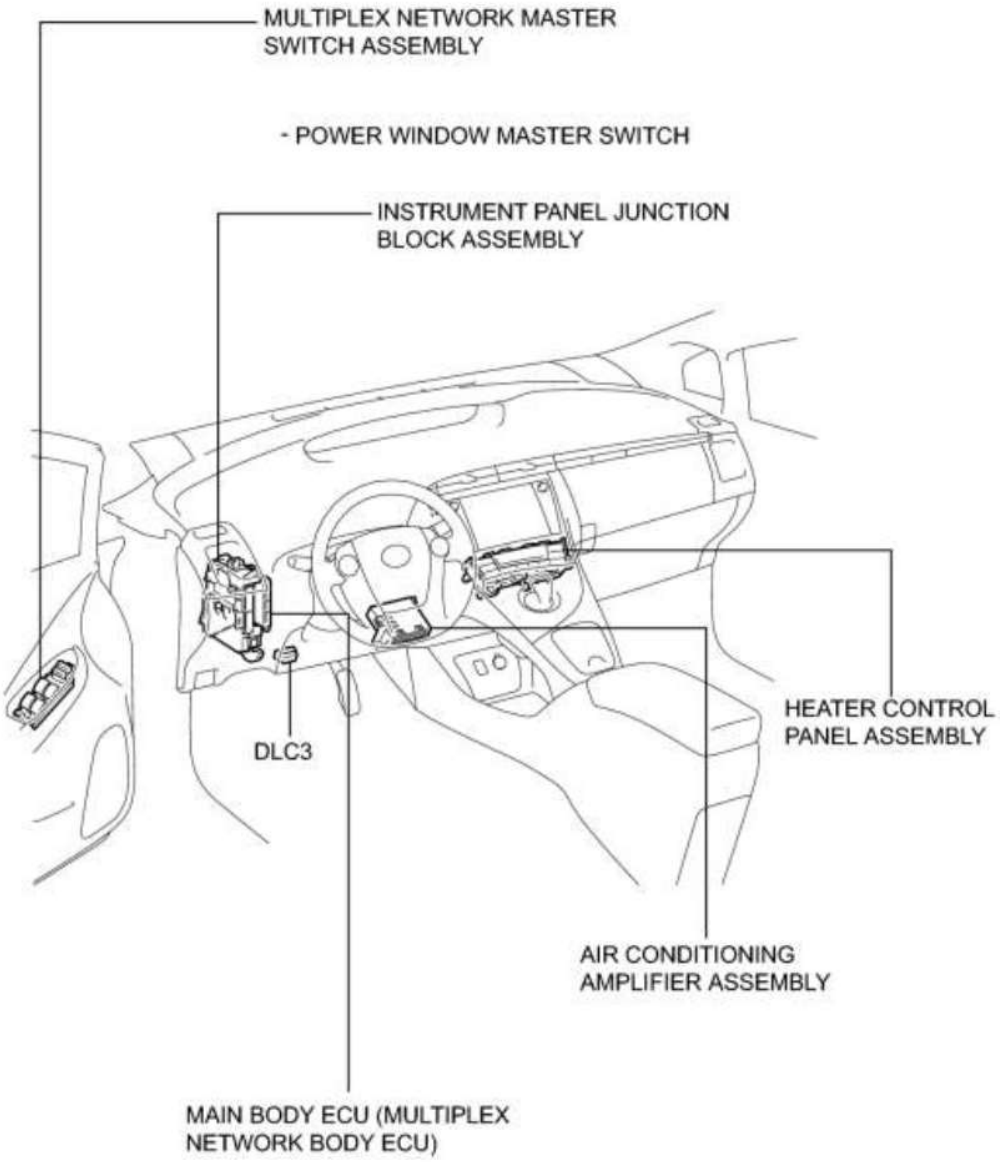
ILLUSTRATION



*: w/ Moonroof with Solar Panel

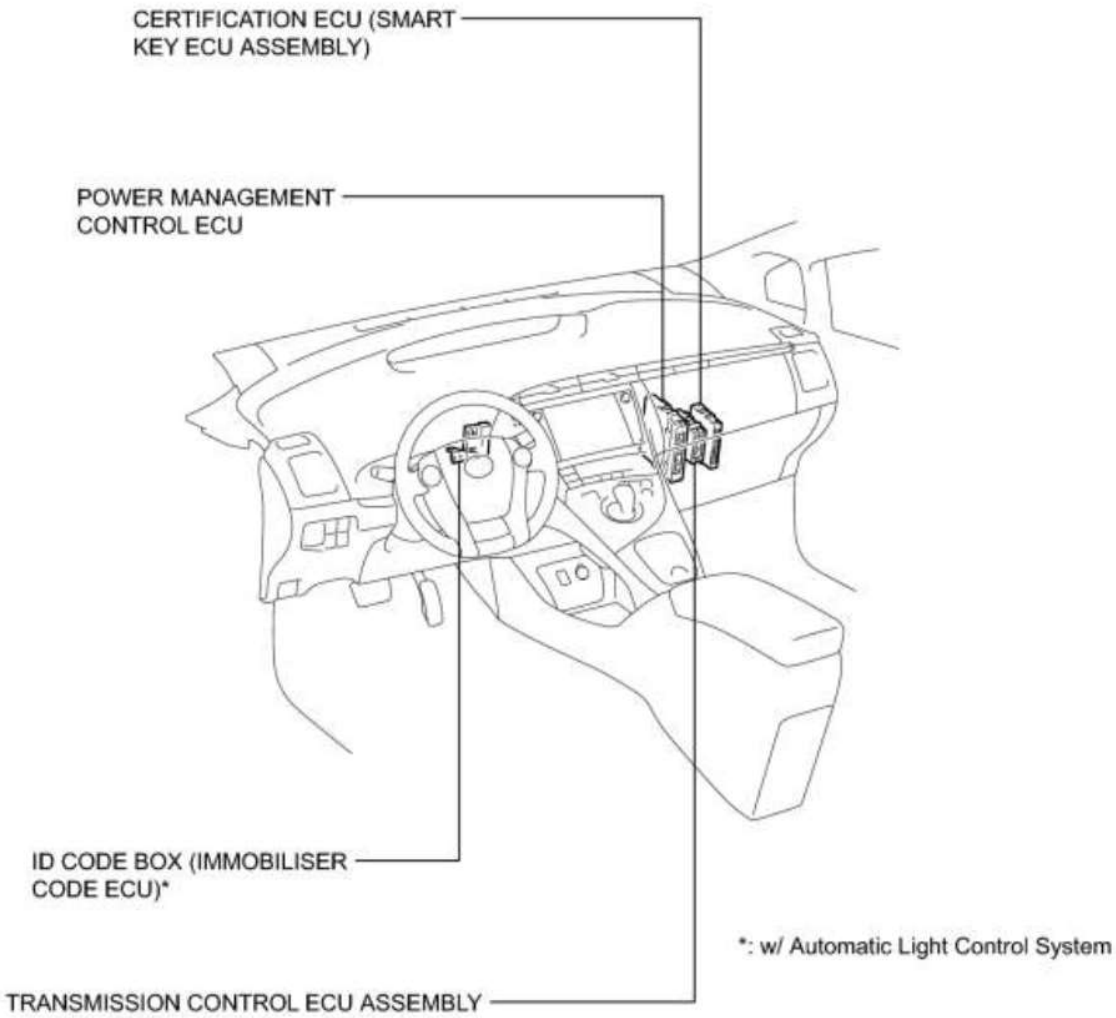
ILLUSTRATION

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ILLUSTRATION

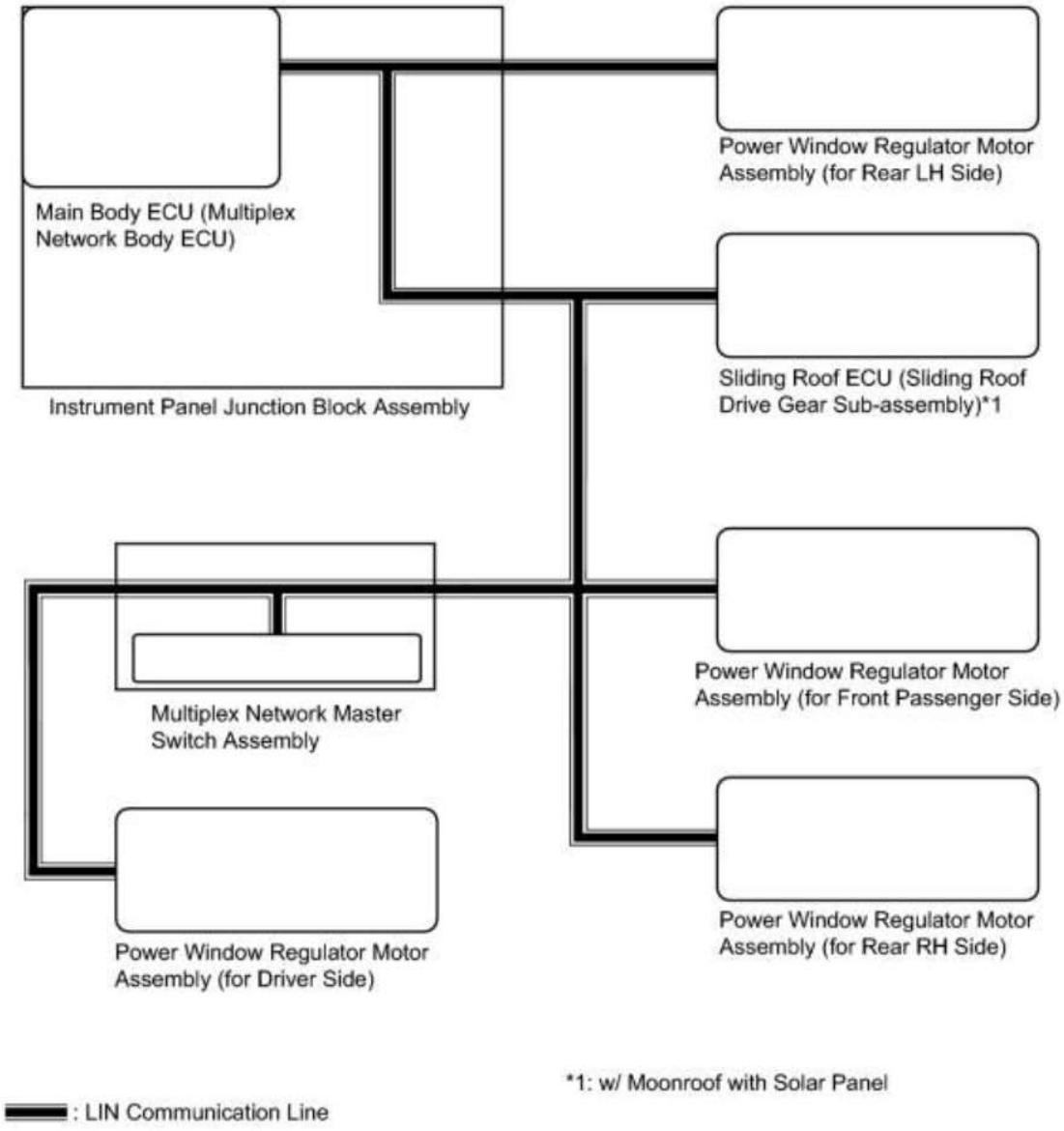


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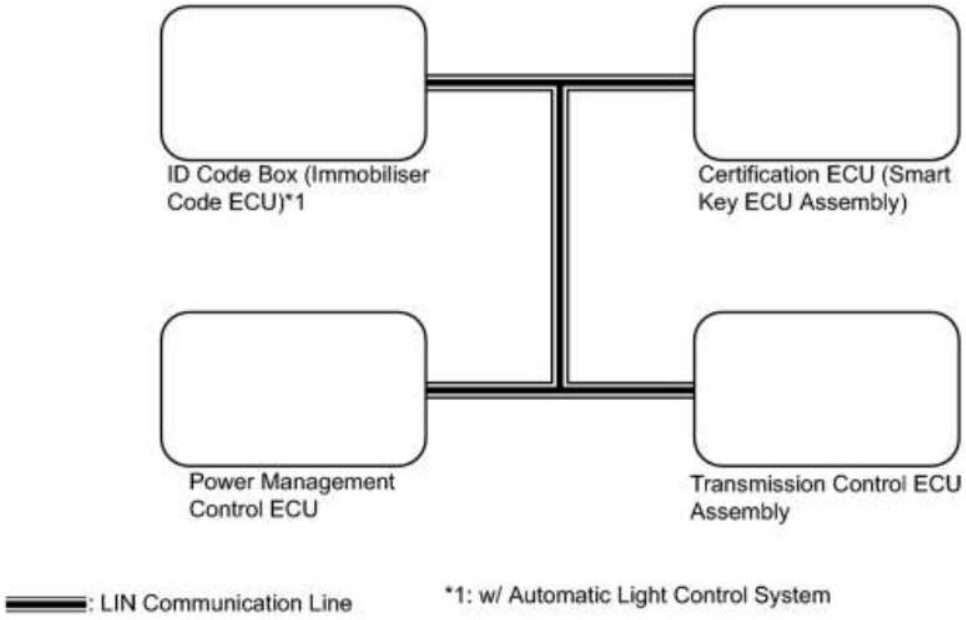
SYSTEM DIAGRAM

1. DOOR BUS LINES

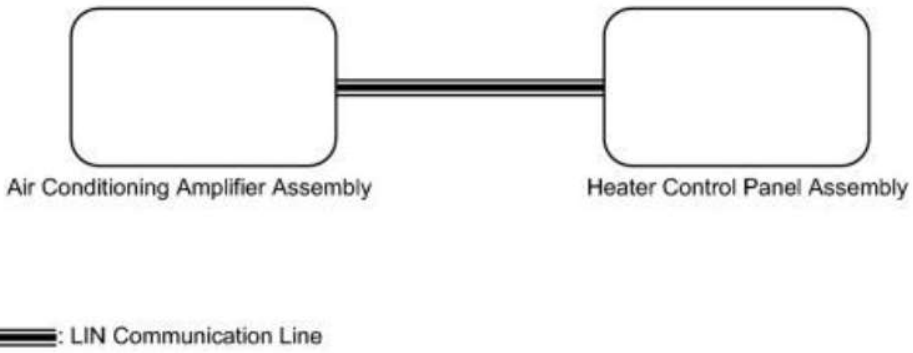


2. CERTIFICATION BUS LINES

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3. AIR CONDITIONING BUS LINES



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SYSTEM DESCRIPTION

1. LIN COMMUNICATION SYSTEM DESCRIPTION

The LIN communication system is used for communication between the components in the tables below. If communication cannot be performed through LIN communication because of an open in the communication lines or other reasons, the master control ECU of the relevant system will store a DTC. Refer to the table below about the communication bus lines and connected components.

HINT:

- Each component has a fail-safe function which activates to maintain the minimum performance of the system and protect the system.
- In the following table, "○" indicates that the function applies, and "-" indicates that it does not.

Door Bus Lines

Component	Master Control	LIN Communication DTC Output Function
Main Body ECU (Multiplex Network Body ECU)	○	○
Power Window Regulator Motor Assembly (for Driver Side)	-	-
Power Window Regulator Motor Assembly (for Front Passenger Side)	-	-
Power Window Regulator Motor Assembly (for Rear LH Side)	-	-
Power Window Regulator Motor Assembly (for Rear RH Side)	-	-
Multiplex Network Master Switch Assembly	-	-
Sliding Roof ECU (Sliding Roof Drive Gear Sub-assembly)*1	-	-

- *1: w/ Moonroof with Solar Panel

Certification Bus Lines

Component	Master Control	LIN Communication DTC Output Function
Certification ECU (Smart Key ECU Assembly)	○	○
Power Management Control ECU	-	○
Transmission Control ECU Assembly	-	-
ID Code Box (Immobiliser Code ECU)*2	-	-

- *2: w/ Automatic Light Control System

Air Conditioning Bus Lines

Component	Master Control	LIN Communication DTC Output Function
Air Conditioning Amplifier Assembly	○	-

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Component	Master Control	LIN Communication DTC Output Function
Heater Control Panel Assembly	-	-

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HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedure to troubleshoot the LIN communication system.
- *: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP

NEXT

2.	CUSTOMER PROBLEM ANALYSIS

- In troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.
- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in problem analysis:

What	Vehicle model, system name
When	Date, time, occurrence frequency
Where	Road conditions
Under what conditions?	Driving conditions, weather conditions
How did it happen?	Problem symptoms

NEXT

3.	INSPECT BATTERY VOLTAGE

(a) Measure the battery voltage with the power switch off.

Standard Voltage:

11 to 14 V

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

NEXT

4.	CHECK COMMUNICATION FUNCTION OF LIN COMMUNICATION SYSTEM*

(a) Using the Techstream, inspect the LIN communication function to ensure there are no malfunctions in the communication system INFO.

Result:

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Result	Proceed to
DTC is not output	A
DTC is output	B

B ▶ INFO GO TO DIAGNOSTIC TROUBLE CODE CHART

A ▼

5.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO.

Result:

Result	Proceed to
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B ▶ Go to step 7

A ▼

6.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Terminals of ECU INFO

(b) Data List / Active Test INFO

NEXT ▼

7.	REPAIR OR REPLACE

NEXT ▼

8.	CONFIRMATION TEST

NEXT ▶ **END**

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PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

LIN Communication System

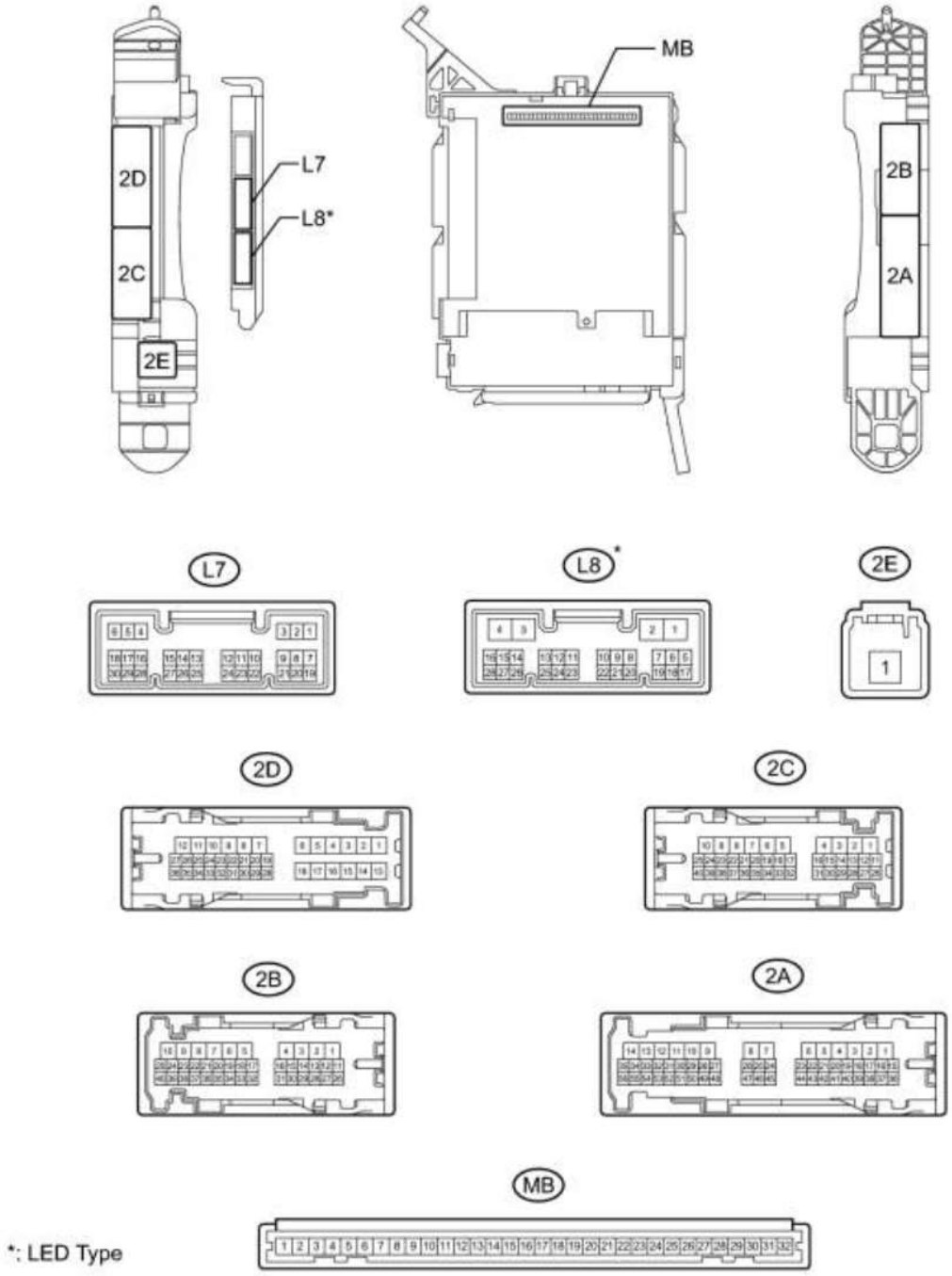
Symptom	Suspected Area	See page
LIN communication of the air conditioning system is malfunctioning	LIN communication line	INFO
	Heater control panel assembly	-
	Air conditioning amplifier assembly	-

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TERMINALS OF ECU

1. CHECK MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

(a) Disconnect the 2C and 2B instrument panel junction block assembly connectors.



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

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HINT:

Measure the values on the wire harness side with the connectors disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
2C-18 (BECU) - Body ground	Y - Body ground	Battery power supply	Power switch off	11 to 14 V
2B-6 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the 2C and 2B instrument panel junction block assembly connectors.

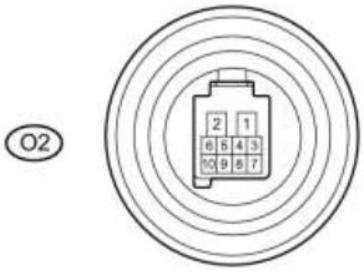
(d) Check for pulses according to the value(s) in the table below.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
2D-26 (LIN2) - 2B-6 (GND1)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation
2A-27 (LIN2) - 2B-6 (GND1)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the main body ECU (multiplex network body ECU) or instrument panel junction block assembly may be malfunctioning.

2. CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Driver Side)

(a) Disconnect the O2 power window regulator motor assembly (for driver side) connector.



H

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

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Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
O2-2 (B) - O2-1 (GND)	L - W-B	Battery power supply	Power switch off	11 to 14 V
O2-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the O2 power window regulator motor assembly (for driver side) connector.

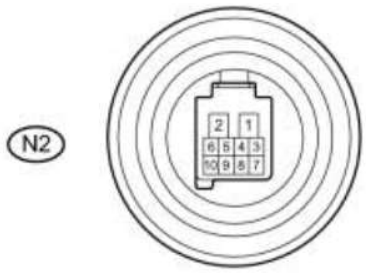
(d) Check for pulses according to the value(s) in the table below.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
O2-9 (LIN) - O2-1 (GND)	B - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the power window regulator motor assembly (for driver side) may be malfunctioning.

3. CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Front Passenger Side)

(a) Disconnect the N2 power window regulator motor assembly (for front passenger side) connector.



H

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
N2-2 (B) - N2-1 (GND)	R - W-B	Battery power supply	Power switch off	11 to 14 V
N2-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

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If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the N2 power window regulator motor assembly (for front passenger side) connector.

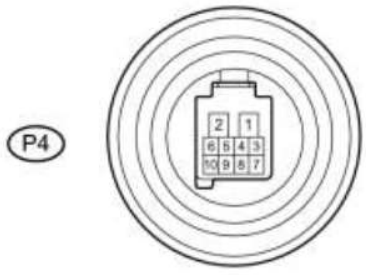
(d) Check for pulses according to the value(s) in the table below.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
N2-9 (LIN) - N2-1 (GND)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the power window regulator motor assembly (for front passenger side) may be malfunctioning.

4. CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Rear RH Side)

(a) Disconnect the P4 power window regulator motor assembly (for rear RH side) connector.



H

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
P4-2 (B) - P4-1 (GND)	R - W-B	Battery power supply	Power switch off	11 to 14 V
P4-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the P4 power window regulator motor assembly (for rear RH side) connector.

(d) Check for pulses according to the value(s) in the table below.

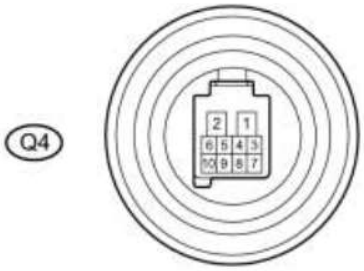
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
P4-9 (LIN) - P4-1 (GND)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

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If the result is not as specified, the power window regulator motor assembly (for rear RH side) may be malfunctioning.

5. CHECK POWER WINDOW REGULATOR MOTOR ASSEMBLY (for Rear LH Side)

(a) Disconnect the Q4 power window regulator motor assembly (for rear LH side) connector.



H

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
Q4-2 (B) - Q4-1 (GND)	R - W-B	Battery power supply	Power switch off	11 to 14 V
Q4-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the Q4 power window regulator motor assembly (for rear LH side) connector.

(d) Check for pulses according to the value(s) in the table below.

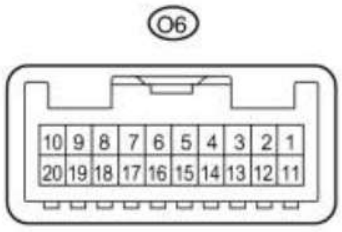
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
Q4-9 (LIN) - Q4-1 (GND)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the power window regulator motor assembly (for rear LH side) may be malfunctioning.

6. CHECK MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

(a) Disconnect the O6 multiplex network master switch assembly connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
O6-11 (B) - O6-12 (GND)	L - W-B	Battery power supply	Power switch off	11 to 14 V
O6-12 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the O6 multiplex network master switch assembly connector.

(d) Check for pulses according to the value(s) in the table below.

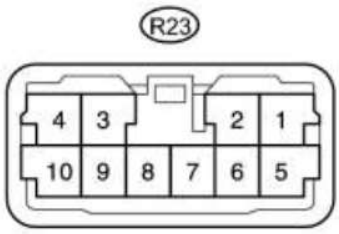
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
O6-17 (LIN1) - O6-12 (GND)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the multiplex network master switch assembly may be malfunctioning.

7. CHECK SLIDING ROOF ECU (SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY) (w/ Moonroof with Solar Panel)

(a) Disconnect the R23 sliding roof ECU (sliding roof drive gear sub-assembly) connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
R23-1 (B) - R23-2 (E)	R - W-B	Battery power supply	Power switch off	11 to 14 V
R23-2 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the R23 sliding roof ECU (sliding roof drive gear sub-assembly) connector.

(d) Check for pulses according to the value(s) in the table below.

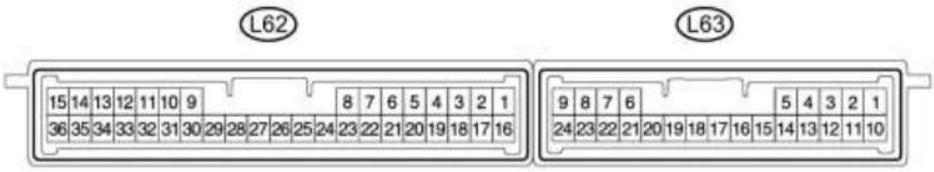
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
R23-4 (MPX1) - R23-2 (E)	P - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the sliding roof ECU (sliding roof drive gear sub-assembly) may be malfunctioning.

8. CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Disconnect the L62 certification ECU (smart key ECU assembly) connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L62-1 (+B) - L62-15 (E)	B - W-B	Battery power supply	Power switch off	11 to 14 V
L62-15 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the L62 certification ECU (smart key ECU assembly) connector.

(d) Measure the voltage and check for pulses according to the value(s) in the table below.

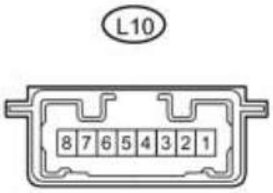
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L62-16 (IG) - L62-15 (E)	BE - W-B	Power switch power supply	Power switch on (IG)	11 to 14 V
L62-16 (IG) - L62-15 (E)	BE - W-B	Power switch power supply	Power switch off	Below 1 V
L62-29 (LIN) - L62-15 (E)	L - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the certification ECU (smart key ECU assembly) may be malfunctioning.

9. CHECK ID CODE BOX (IMMOBILISER CODE ECU) (w/ Automatic Light Control System)

(a) Disconnect the L10 ID code box (immobiliser code ECU) connector.

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

HINT:

Measure the values on the wire harness side with the connector disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L10-1 (+B) - L10-8 (GND)	B - W-B	Battery power supply	Power switch off	11 to 14 V
L10-8 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the L10 ID code box (immobiliser code ECU) connector.

(d) Check for pulses according to the value(s) in the table below.

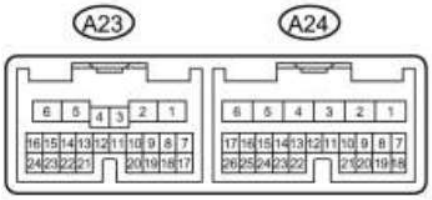
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L10-3 (LIN1) - L10-8 (GND)	L - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the ID code box (immobiliser code ECU) may be malfunctioning.

10. CHECK TRANSMISSION CONTROL ECU ASSEMBLY

(a) Disconnect the A23 and A24 transmission control ECU assembly connectors.

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H

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
A23-15 (BATT) - Body ground	SB - Body ground	Battery power supply	Power switch off	11 to 14 V
A24-1 (E1) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
A24-5 (E02) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
A24-6 (E01) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the A23 and A24 transmission control ECU assembly connectors.

(d) Check for pulses according to the value(s) in the table below.

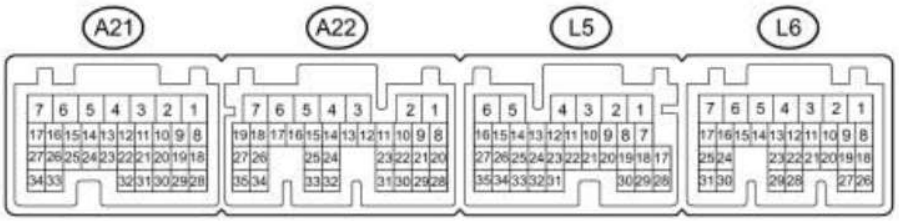
Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
A24-24 (LIN) - A24-1 (E1)	L - W-B	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the transmission control ECU assembly may be malfunctioning.

11. CHECK POWER MANAGEMENT CONTROL ECU

(a) Disconnect the L5 and L6 power management control ECU connectors.

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Y

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

HINT:

Measure the values on the wire harness side with the connectors disconnected.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L5-1 (AM22) - Body ground	W - Body ground	Battery power supply	Power switch off	11 to 14 V
L6-7 (AM21) - Body ground	W - Body ground	Battery power supply	Power switch off	11 to 14 V
L5-6 (E1) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

(c) Reconnect the L5 and L6 power management control ECU connectors.

(d) Check for pulses according to the value(s) in the table below.

Tester Connection	Wiring Color	Terminal Description	Condition	Specified Condition
L6-11 (LIN2) - L5-6 (E1)	L - BR	LIN communication line	Power switch on (IG)	Pulse generation

If the result is not as specified, the power management control ECU may be malfunctioning.

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DIAGNOSIS SYSTEM

1. DESCRIPTION

The main body ECU (multiplex network body ECU) and certification ECU (smart key ECU assembly) control the LIN communication system. LIN communication system data and Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3).

When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform repairs.

2. CHECK DLC3

(a) Check the DLC3 INFO.

3. INSPECT BATTERY VOLTAGE

(a) Measure the battery voltage with the power switch off.

Standard Voltage:

11 to 14 V

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

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DTC CHECK / CLEAR

1. CHECK DTC

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Power Source Control, Smart Key or Main Body / Trouble Codes.

(e) Check the details of the DTC(s) INFO.

2. CLEAR DTC

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Power Source Control, Smart Key or Main Body / Trouble Codes.

(e) Clear the DTC(s).

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DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body (Main Body ECU (Multiplex Network Body ECU))

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Communication D-Door Motor	Connection status between power window regulator motor assembly (for driver side) and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.
Communication P-Door Motor	Connection status between power window regulator motor assembly (for front passenger side) and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.
Communication RR-Door Motor	Connection status between power window regulator motor assembly (for rear RH side) and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.
Communication RL-Door Motor	Connection status between power window regulator motor assembly (for rear LH side) and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.

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Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Communication Slide Roof*1	Connection status between sliding roof ECU (sliding roof drive gear sub-assembly) and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.
Communication Master SW	Connection status between multiplex network master switch assembly and main body ECU (multiplex network body ECU)/OK or STOP	OK: Connected STOP: Not Connected	DTC is output if an error occurs in LIN communication.

- *1: w/ Moonroof with Solar Panel

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DIAGNOSTIC TROUBLE CODE CHART

1. MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) DIAGNOSTIC TROUBLE CODE

Main Body ECU (Multiplex Network Body ECU)

DTC Code	Detection Item	Trouble Area	See page
B1206	P/W Master Switch Communication Stop	1. Multiplex network master switch assembly 2. Main body ECU (multiplex network body ECU) 3. Instrument panel junction block assembly 4. Wire harness or connector 5. D FR DOOR fuse	INFO
B1273 *1	Sliding Roof ECU Communication Stop	1. Sliding roof ECU (sliding roof drive gear sub-assembly) 2. Main body ECU (multiplex network body ECU) 3. Instrument panel junction block assembly 4. Wire harness or connector 5. S/ROOF fuse	INFO
B2321	Driver Side Door ECU Communication Stop	1. Power window regulator motor assembly (for driver side) 2. Main body ECU (multiplex network body ECU) 3. Multiplex network master switch assembly 4. Wire harness or connector 5. D FR DOOR fuse	INFO
B2322	Front Passenger Side Door ECU Communication Stop	1. Power window regulator motor assembly (for front passenger side) 2. Main body ECU (multiplex network body ECU) 3. Instrument panel junction block assembly 4. Wire harness or connector	INFO

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DTC Code	Detection Item	Trouble Area	See page
		5. P FR DOOR fuse	
B2323	Rear Door RH ECU Communication Stop	1. Power window regulator motor assembly (for rear RH side) 2. Main body ECU (multiplex network body ECU) 3. Instrument panel junction block assembly 4. Wire harness or connector 5. DOOR RR fuse	INFO
B2324	Rear Door LH ECU Communication Stop	1. Power window regulator motor assembly (for rear LH side) 2. Main body ECU (multiplex network body ECU) 3. Instrument panel junction block assembly 4. Wire harness or connector 5. DOOR RL fuse	INFO
B2325	LIN Communication Bus Malfunction	1. Power window regulator motor assembly (for driver side) 2. Power window regulator motor assembly (for front passenger side) 3. Power window regulator motor assembly (for rear RH side) 4. Power window regulator motor assembly (for rear LH side) 5. Multiplex network master switch assembly 6. Sliding roof ECU (sliding roof drive gear sub-assembly)*1 7. Main body ECU (multiplex network body ECU) 8. Instrument panel junction block assembly 9. Wire harness or connector	INFO

- *1: w/ Moonroof with Solar Panel

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2. CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) DIAGNOSTIC TROUBLE CODE

Certification ECU (Smart Key ECU Assembly)

DTC Code	Detection Item	Trouble Area	See page
B2785	Communication Malfunction between ECUs Connected by LIN	1. Certification ECU (smart key ECU assembly) 2. Power management control ECU 3. Transmission control ECU assembly 4. ID code box (immobiliser code ECU)*3 5. Wire harness or connector	INFO
B2786 *2	No Response from Steering Lock ECU	1. Transmission control ECU assembly 2. Certification ECU (smart key ECU assembly) 3. Wire harness or connector 4. P CON MAIN fuse	INFO
B2789 *3	No Response from ID BOX	1. ID code box (immobiliser code ECU) 2. Certification ECU (smart key ECU assembly) 3. Wire harness or connector 4. ECU-B2 fuse	INFO
B278C	Lost Communication with Power Source Control	1. Power management control ECU 2. Certification ECU (smart key ECU assembly) 3. Wire harness or connector 4. AM2 fuse	INFO

- *2: Although "No Response from Steering Lock ECU" is displayed on the tester, this message is shown if the certification ECU (smart key ECU assembly) cannot communicate with the transmission control ECU assembly.
- *3: w/ Automatic Light Control System

3. POWER MANAGEMENT CONTROL ECU DIAGNOSTIC TROUBLE CODE

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Power Management Control ECU

DTC Code	Detection Item	Trouble Area	See page
B2287	LIN Communication Master Malfunction	1. Power management control ECU 2. Certification ECU (smart key ECU assembly) 3. Wire harness or connector	INFO

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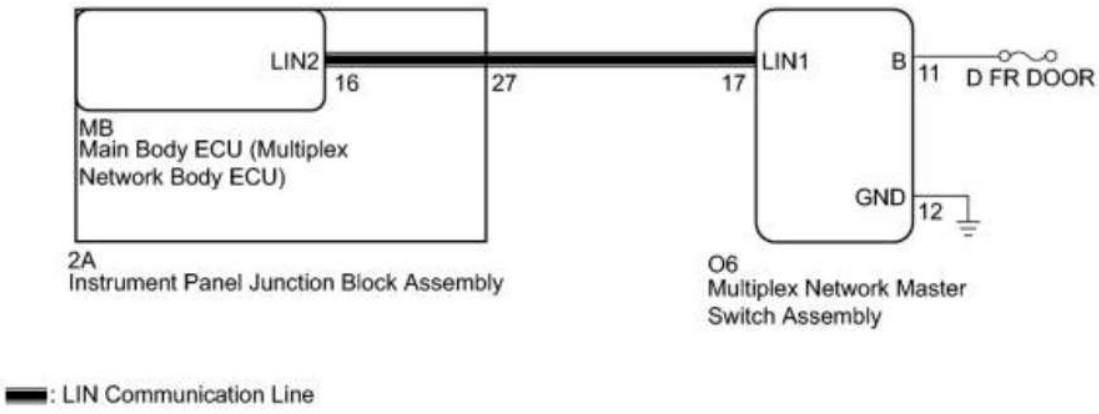
DTC	B1206	P/W Master Switch Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the multiplex network master switch assembly and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B1206	No communication between multiplex network master switch assembly and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Multiplex network master switch assembly • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector • D FR DOOR fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When using the Techstream to troubleshoot with the power switch off:

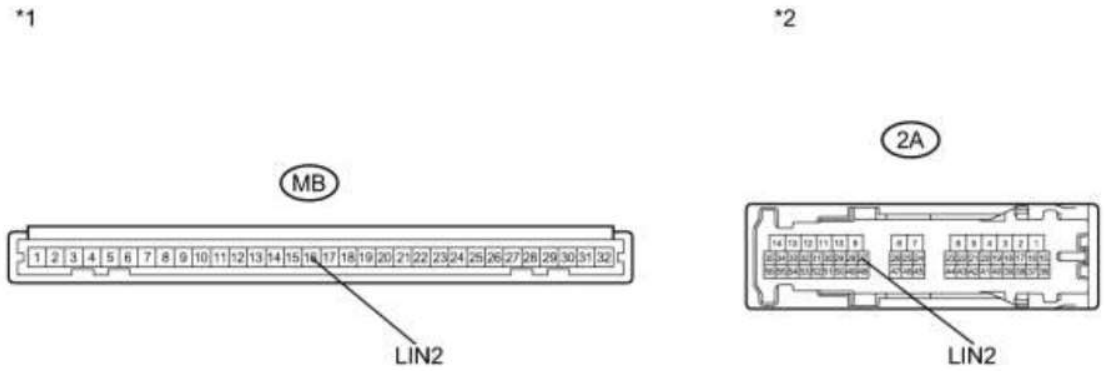
  Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

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1.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.



(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Instrument Panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)

NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

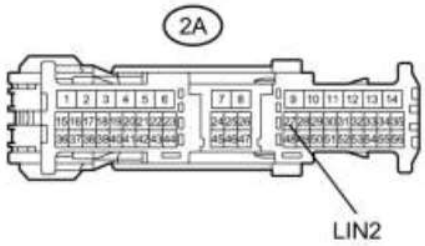
OK

▼

2.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - MULTIPLEX NETWORK MASTER SWITCH)

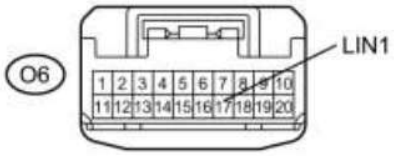
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*1



(a) Disconnect the O6 multiplex network master switch assembly connector.

*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - O6-17 (LIN1)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
*2	Front view of wire harness connector (to Multiplex Network Master Switch Assembly)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

3.	CHECK HARNESS AND CONNECTOR (MULTIPLEX NETWORK MASTER SWITCH - BATTERY, BODY GROUND)

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

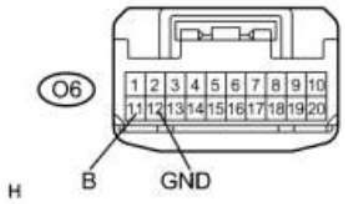
Standard Voltage:

Tester Connection	Condition	Specified Condition

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*1

O6-11 (B) - O6-12 (GND)	Power switch off	11 to 14 V



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
O6-12 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Multiplex Network Master Switch Assembly)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

(a) Replace the multiplex network master switch assembly INFO.

NEXT

▼

5.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B1206 is not output.

NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (MULTIPLEX NETWORK MASTER SWITCH WAS DEFECTIVE)**

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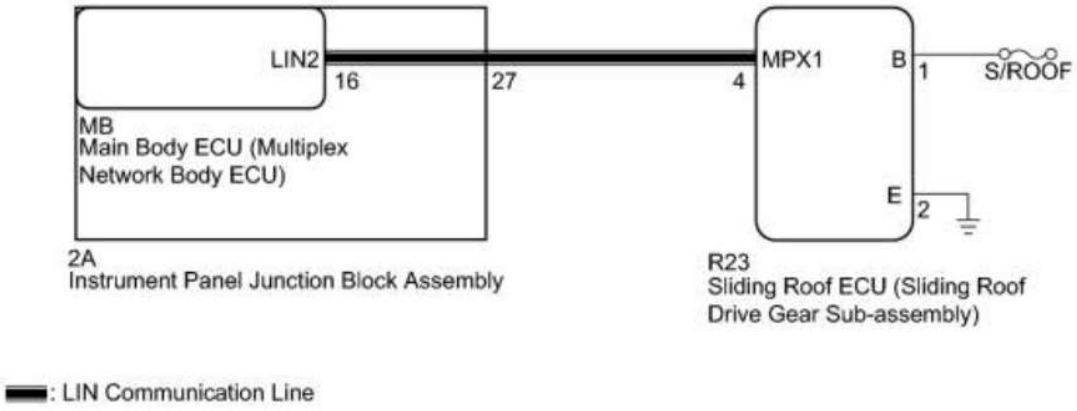
DTC	B1273	Sliding Roof ECU Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the sliding roof ECU (sliding roof drive gear sub-assembly) and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B1273	No communication between sliding roof ECU (sliding roof drive gear sub-assembly) and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Sliding roof ECU (sliding roof drive gear sub-assembly) • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector • S/ROOF fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When the sliding roof ECU (sliding roof drive gear sub-assembly) is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

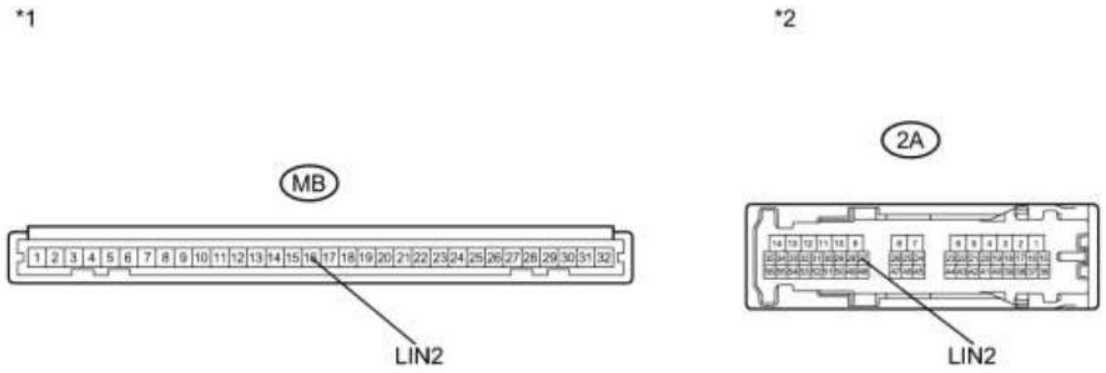
  Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

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PROCEDURE

1.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.



(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2)- MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Instrument Panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)

NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

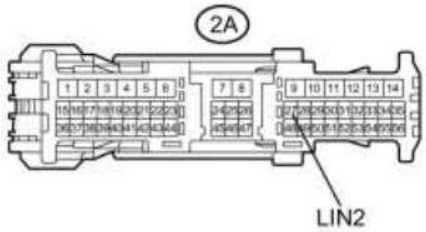
OK

▼

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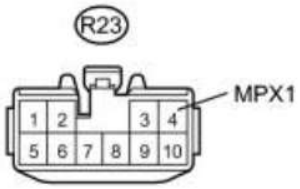
2.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - SLIDING ROOF ECU)

*1



(a) Disconnect the R23 sliding roof ECU (sliding roof drive gear sub-assembly) connector.

*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - R23-4 (MPX1)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
*2	Front view of wire harness connector (to Sliding Roof ECU (Sliding Roof Drive Gear Sub-assembly))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

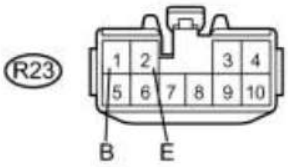
3.	CHECK HARNESS AND CONNECTOR (SLIDING ROOF ECU - BATTERY, BODY GROUND)

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

Standard Voltage:

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*1



Tester Connection	Condition	Specified Condition
R23-1 (B) - R23-2 (E)	Power switch off	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
R23-2 (E) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Sliding Roof ECU (Sliding Roof Drive Gear Sub-assembly))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE SLIDING ROOF ECU (SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY)

(a) Replace the sliding roof ECU (sliding roof drive gear sub-assembly) INFO.

NEXT

▼

5.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B1273 is not output.

NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (SLIDING ROOF ECU WAS DEFECTIVE)**

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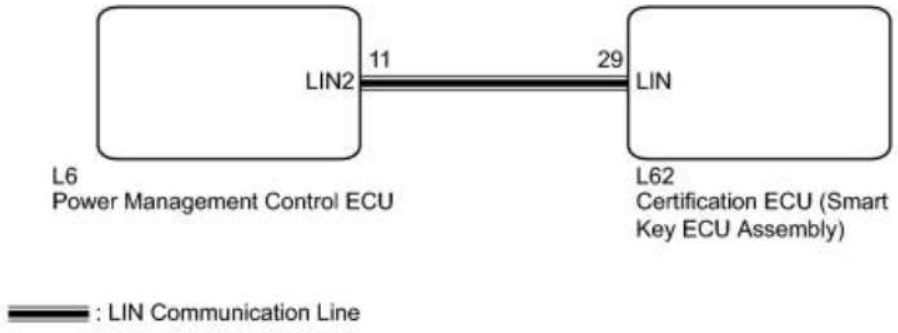
DTC	B2287	LIN Communication Master Malfunction

DESCRIPTION

This DTC is stored when there is an open, short or ECU communication malfunction between the power management control ECU and certification ECU (smart key ECU assembly).

DTC No.	DTC Detection Condition	Trouble Area
B2287	There is an open, short or ECU communication malfunction between power management control ECU and certification ECU (smart key ECU assembly).	• Power management control ECU • Certification ECU (smart key ECU assembly) • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- If the certification ECU (smart key ECU assembly) is replaced, register the key.
- When using the Techstream to troubleshoot with the power switch off:

  Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	CHECK DTC OUTPUT

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(a) Clear the DTC INFO.

(b) Recheck for DTCs.

HINT:

Check the both "Smart Key" and "Power Source Control" DTCs.

Result:

Result	Proceed to
Only DTC B2287 is output.	A
DTC B2287 and B2785 are output simultaneously.	B

HINT:

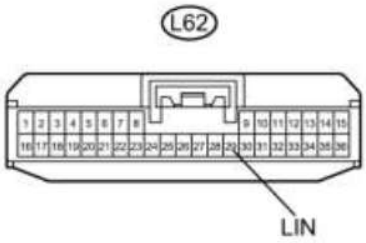
When DTC B2287 and B2785 are output simultaneously, perform troubleshooting for DTC B2785 first.

B GO TO DTC B2785

A

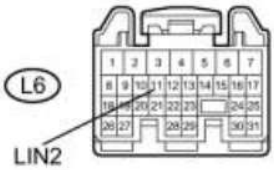
2.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - POWER MANAGEMENT CONTROL ECU)

*1



(a) Disconnect the L6 power management control ECU and L62 certification ECU (smart key ECU assembly) connectors.

*2



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

Standard Resistance:

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Tester Connection	Condition	Specified Condition
L6-11 (LIN2) - L62-29 (LIN)	Always	Below 1 Ω
L6-11 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU (Smart Key ECU Assembly))
*2	Front view of wire harness connector (to Power Management Control ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

3.	REPLACE POWER MANAGEMENT CONTROL ECU

(a) Replace the power management control ECU INFO.

NEXT

▼

4.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B2287 is not output.

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ **END (POWER MANAGEMENT CONTROL ECU WAS DEFECTIVE)**

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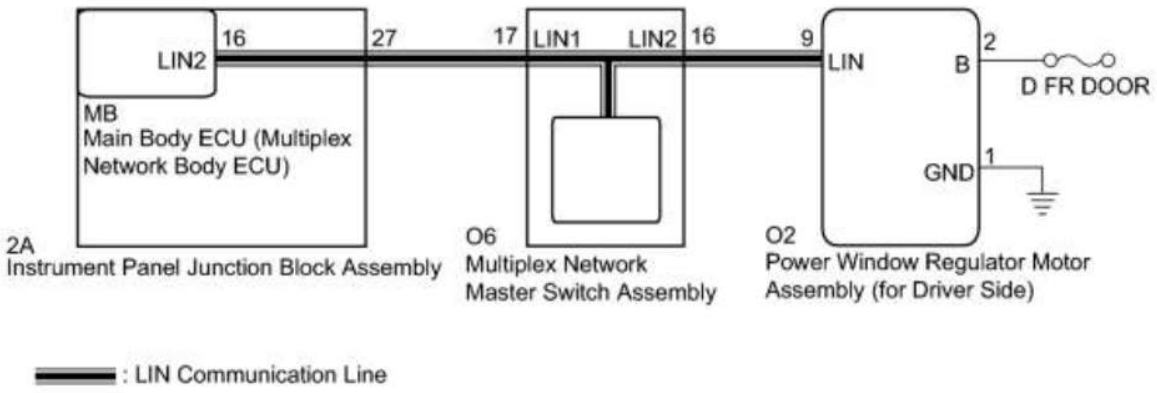
DTC	B2321	Driver Side Door ECU Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the power window regulator motor assembly (for driver side) and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2321	No communication between power window regulator motor assembly (for driver side) and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Power window regulator motor assembly (for driver side) • Main body ECU (multiplex network body ECU) • Multiplex network master switch assembly • Wire harness or connector • D FR DOOR fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When a power window regulator motor assembly is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

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Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

Result:

Result	Proceed to
Only DTC B2321 is output.	A
DTC B1206 and B2321 are output simultaneously.	B

HINT:

When DTC B1206 and B2321 are output simultaneously, perform troubleshooting for DTC B1206 first.

B GO TO DTC B1206

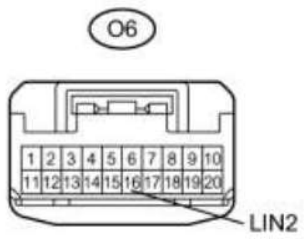
A

2.	CHECK HARNESS AND CONNECTOR (MASTER SWITCH - DRIVER SIDE POWER WINDOW REGULATOR MOTOR)

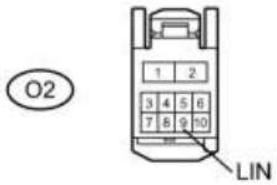
(a) Disconnect the O6 multiplex network master switch connector.

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*1



*2



(b) Disconnect the O2 power window regulator motor (for driver side) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
O6-16 (LIN2) - O2-9 (LIN)	Always	Below 1 Ω
O6-16 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Multiplex Network Master Switch Assembly)
*2	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Driver Side))

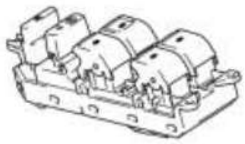
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

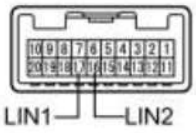
3.	INSPECT MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

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*1

(a) Remove the multiplex network master switch assembly INFO.



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
16 (LIN2) - 17 (LIN1)	Always	Below 1 Ω
16 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

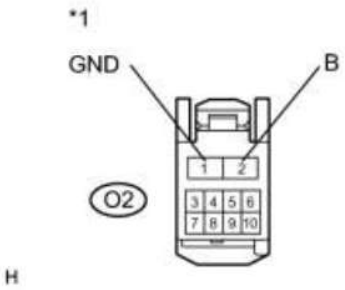
*1	Component without harness connected (Multiplex Network Master Switch Assembly)

NG ▶ REPLACE MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

OK

▼

4.	CHECK HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MOTOR - BATTERY, BODY GROUND)



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
O2-2 (B) - Body ground	Power switch off	11 to 14 V

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

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Standard Resistance:

Tester Connection	Condition	Specified Condition
O2-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Driver Side))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

5.	REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for DRIVER SIDE)

(a) Replace the power window regulator motor assembly (for driver side) INFO.

NEXT

▼

6.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Check for DTCs.

OK:

DTC B2321 is not output.

NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (POWER WINDOW REGULATOR MOTOR ASSEMBLY WAS DEFECTIVE)**

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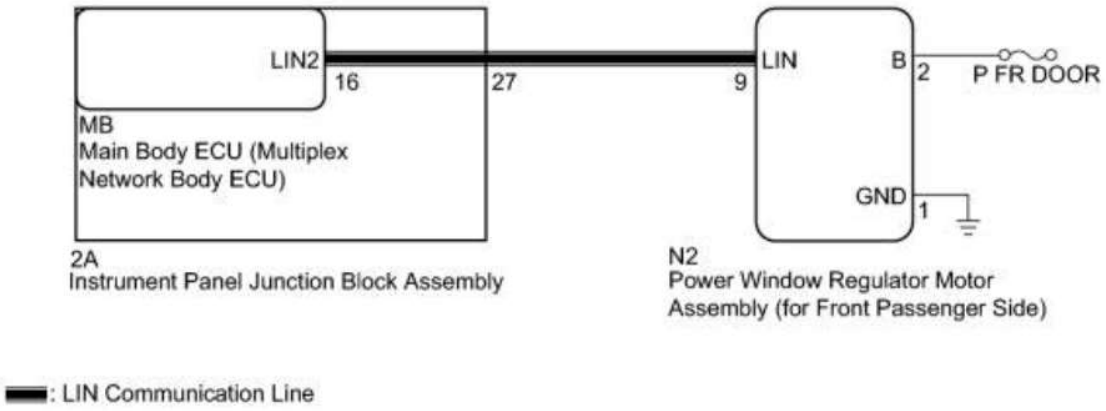
DTC	B2322	Front Passenger Side Door ECU Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the power window regulator motor assembly (for front passenger side) and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2322	No communication between power window regulator motor assembly (for front passenger side) and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Power window regulator motor assembly (for front passenger side) • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector • P FR DOOR fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When a power window regulator motor assembly is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

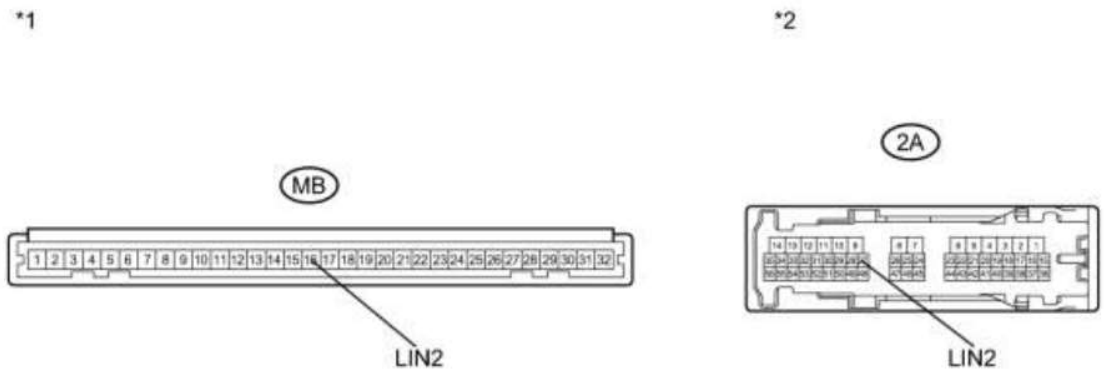
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Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.



(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Instrument panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)

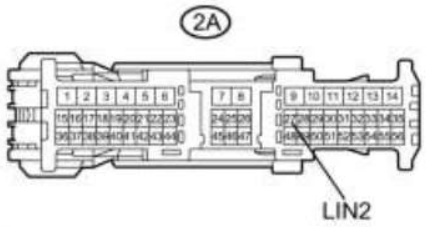
NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

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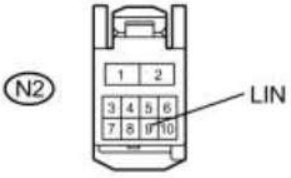
OK

2.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - POWER WINDOW REGULATOR MOTOR)

*1



*2



(a) Disconnect the N2 power window regulator motor assembly (for front passenger side) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - N2-9 (LIN)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
*2	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Front Passenger Side))

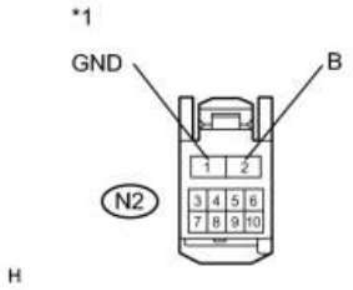
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.	CHECK HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MOTOR - BATTERY,

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	BODY GROUND)



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
N2-2 (B) - Body ground	Power switch off	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
N2-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Front Passenger Side))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for FRONT PASSENGER SIDE)

(a) Replace the power window regulator motor assembly (for front passenger side) INFO.

NEXT

▼

5.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Check for DTCs.

OK:

DTC B2322 is not output.

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NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (POWER WINDOW REGULATOR MOTOR ASSEMBLY WAS DEFECTIVE)**

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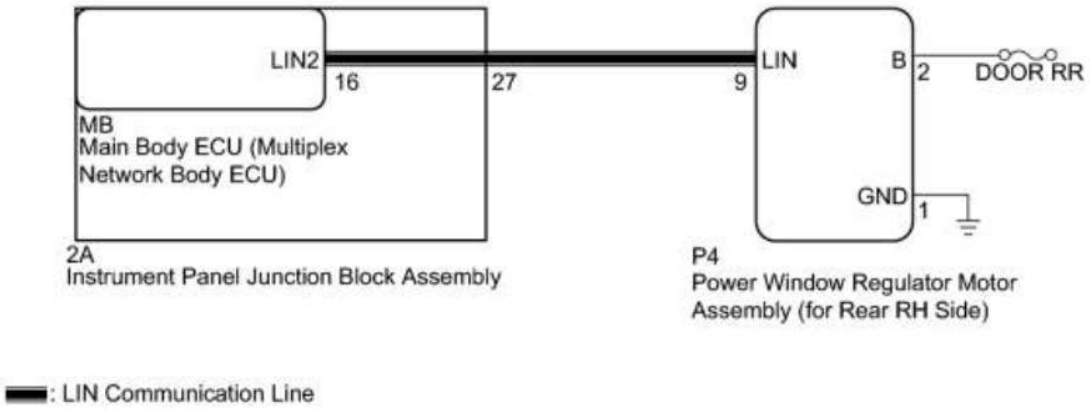
DTC	B2323	Rear Door RH ECU Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the power window regulator motor assembly (for rear RH side) and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2323	No communication between power window regulator motor assembly (for rear RH side) and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Power window regulator motor assembly (for rear RH side) • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector • DOOR RR fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When a power window regulator motor assembly is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

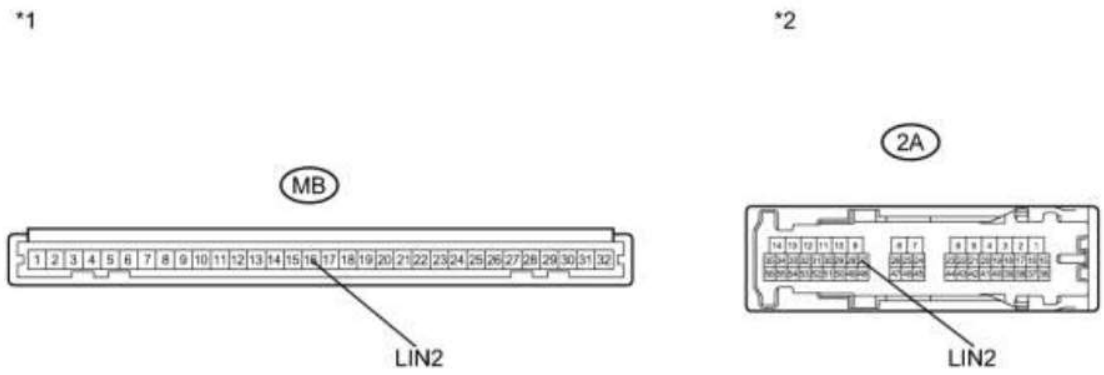
cardiagn.com

Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.



(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Instrument Panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)

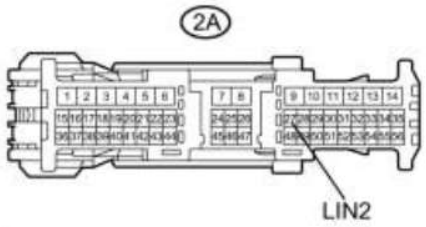
NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

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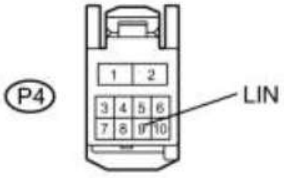
OK

2.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - POWER WINDOW REGULATOR MOTOR)

*1



*2



(a) Disconnect the P4 power window regulator motor assembly (for rear RH side) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2A-27 (LIN2) - P4-9 (LIN)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
*2	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Rear RH Side))

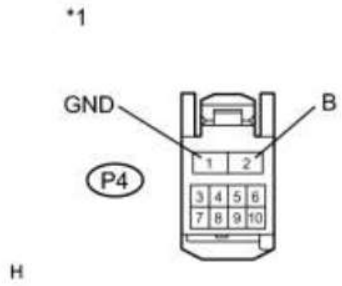
NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.	CHECK HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MOTOR - BATTERY,

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	BODY GROUND)



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
P4-2 (B) - Body ground	Power switch off	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
P4-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Rear RH Side))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE POWER WINDOW REGULATOR MOTOR (for REAR RH SIDE)

(a) Replace the power window regulator motor assembly (for rear RH side) INFO.

NEXT

▼

5.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Check for DTCs.

OK:

DTC B2323 is not output.

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NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (POWER WINDOW REGULATOR MOTOR ASSEMBLY WAS DEFECTIVE)**

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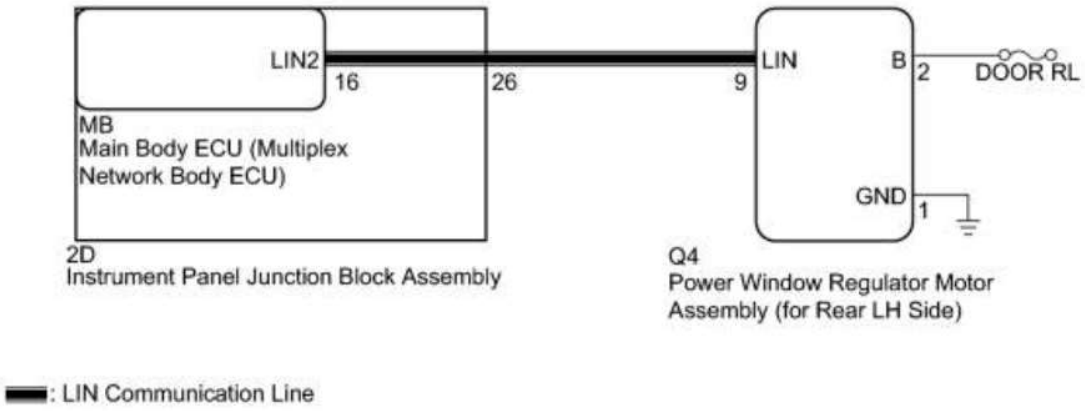
DTC	B2324	Rear Door LH ECU Communication Stop

DESCRIPTION

This DTC is stored when LIN communication between the power window regulator motor assembly (for rear LH side) and main body ECU (multiplex network body ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2324	No communication between power window regulator motor assembly (for rear LH side) and main body ECU (multiplex network body ECU) for 10 seconds or more.	• Power window regulator motor assembly (for rear LH side) • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector • DOOR RL fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- When a power window regulator motor assembly is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

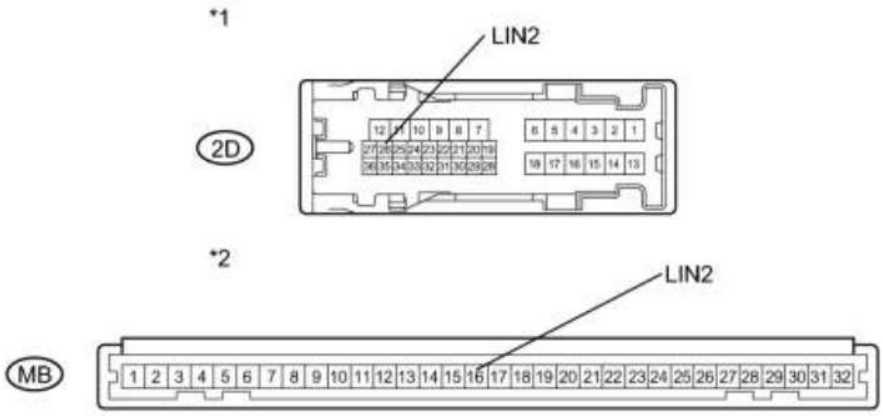
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Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.



(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2D-26 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2D-26 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

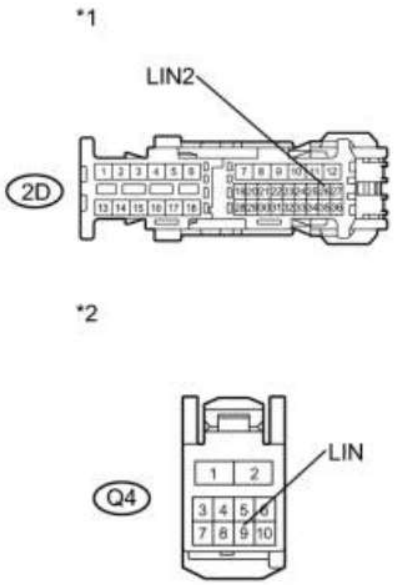
*1	Component without harness connected (Instrument Panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)

NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

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OK

2.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - POWER WINDOW REGULATOR MOTOR)



(a) Disconnect the Q4 power window regulator motor assembly (for rear LH side) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2D-26 (LIN2) - Q4-9 (LIN)	Always	Below 1 Ω
2D-26 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness or connector (to Instrument Panel Junction Block Assembly)
*2	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Rear LH Side))

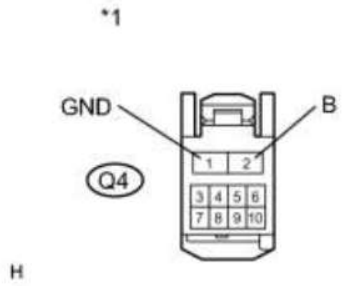
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.	CHECK HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MOTOR - BATTERY,

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	BODY GROUND)



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
Q4-2 (B) - Body ground	Power switch off	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
Q4-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness or connector (to Power Window Regulator Motor Assembly (for Rear LH Side))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

4.	REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for REAR LH SIDE)

(a) Replace the power window regulator motor assembly (for rear LH side) INFO.

NEXT

▼

5.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Check for DTCs.

OK:

DTC B2324 is not output.

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NG ▶ REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

OK ▶ **END (POWER WINDOW REGULATOR MOTOR ASSEMBLY WAS DEFECTIVE)**

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DTC	B2325	LIN Communication Bus Malfunction

DESCRIPTION

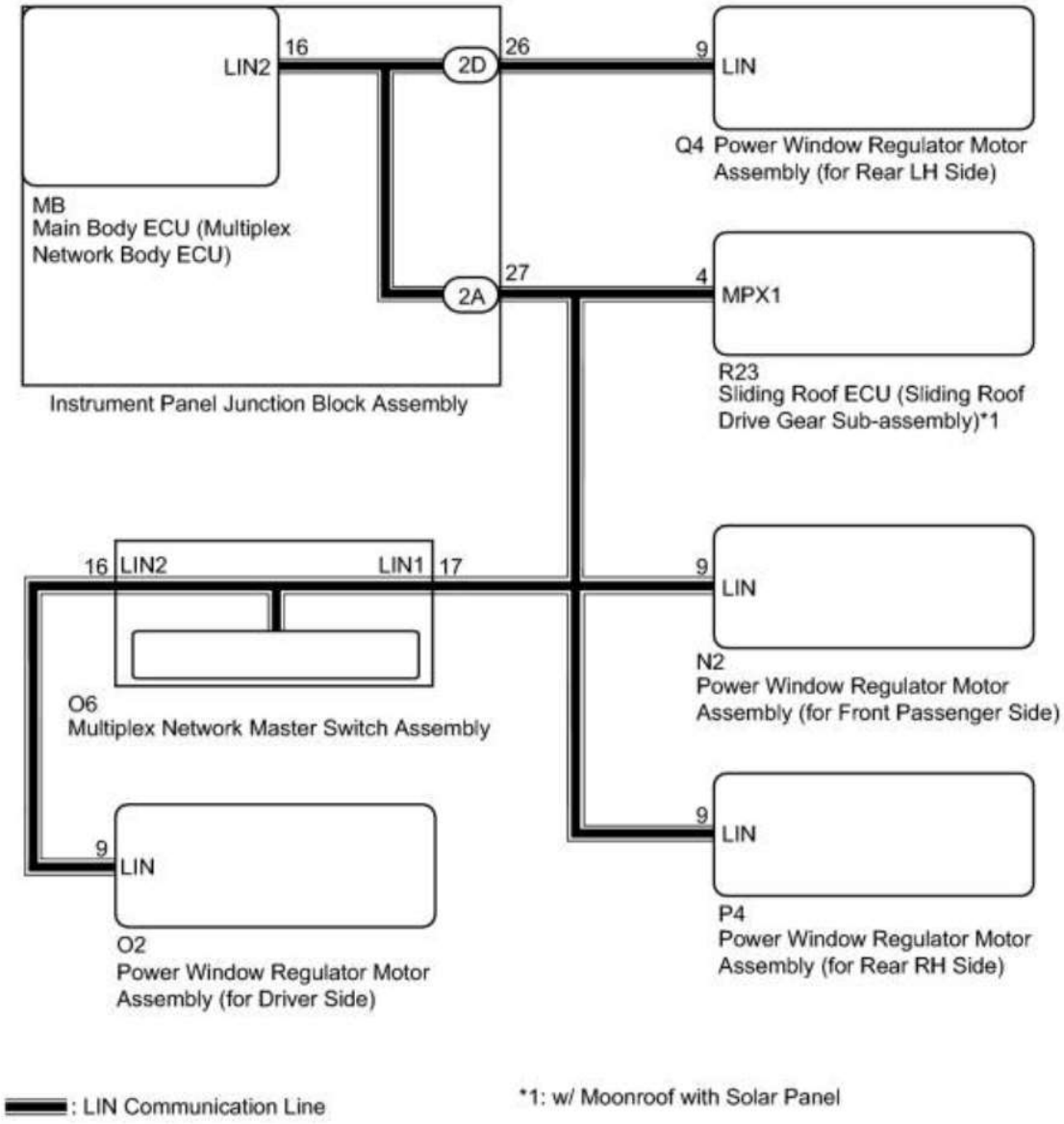
The main body ECU (multiplex network body ECU) monitors communication between all the ECUs connected to the door bus lines. When the main body ECU (multiplex network body ECU) detects errors in communication with all the ECUs connected to the door bus lines at 2.6-second intervals and 3 times in a row, DTC B2325 will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B2325	Main body ECU (multiplex network body ECU) detects errors in communication with the ECUs connected to the door bus lines 3 times in a row.	• Power window regulator motor assembly (for driver side) • Power window regulator motor assembly (for front passenger side) • Power window regulator motor assembly (for rear RH side) • Power window regulator motor assembly (for rear LH side) • Multiplex network master switch assembly • Sliding roof ECU (sliding roof drive gear sub-assembly)*1 • Main body ECU (multiplex network body ECU) • Instrument panel junction block assembly • Wire harness or connector

- *1: w/ Moonroof with Solar Panel

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

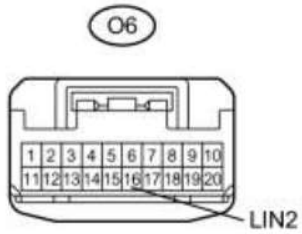
- When the sliding roof ECU (sliding roof drive gear assembly) is replaced or removed and reinstalled, it requires initialization INFO.
- When a power window regulator motor assembly is replaced or removed and reinstalled, it requires initialization INFO.
- When using the Techstream to troubleshoot with the power switch off:

Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

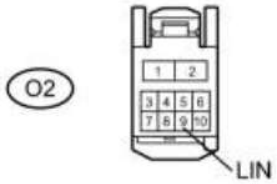
1.	CHECK HARNESS AND CONNECTOR (POWER WINDOW REGULATOR MOTOR (DRIVER SIDE) - MASTER SWITCH)

*1



(a) Disconnect the O6 multiplex network master switch connector.

*2



(b) Disconnect the O2 power window regulator motor (for driver side) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
O6-16 (LIN2) - O2-9 (LIN)	Always	Below 1 Ω
O6-16 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Multiplex Network Master Switch Assembly)
*2	Front view of wire harness connector

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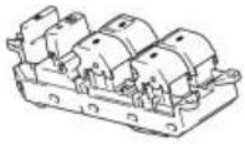
	(to Power Window Regulator Motor Assembly (for Driver Side))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

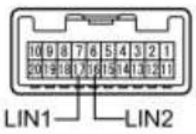
▼

2.	INSPECT MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY



*1

(a) Remove the multiplex network master switch assembly INFO.



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
16 (LIN2) - 17 (LIN1)	Always	Below 1 Ω
16 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Multiplex Network Master Switch Assembly)

NG ▶ REPLACE MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

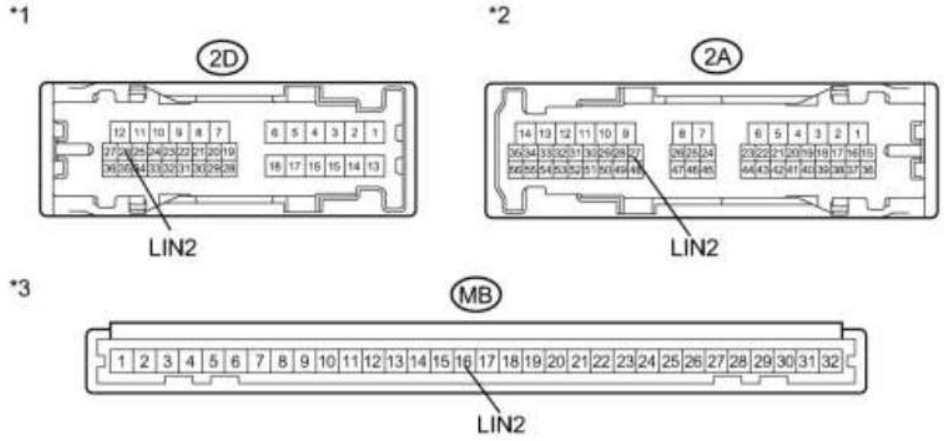
OK

▼

3.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly INFO.

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(b) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly.

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

HINT:

This inspection is to check the LIN line in the instrument panel junction block assembly that connects the wire harness to the built-in main body ECU (multiplex network body ECU).

Standard Resistance:

Tester Connection	Condition	Specified Condition
2D-26 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - MB-16 (LIN2)	Always	Below 1 Ω
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Instrument Panel Junction Block Assembly)	*2	Component without harness connected (Instrument Panel Junction Block Assembly)
*3	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-

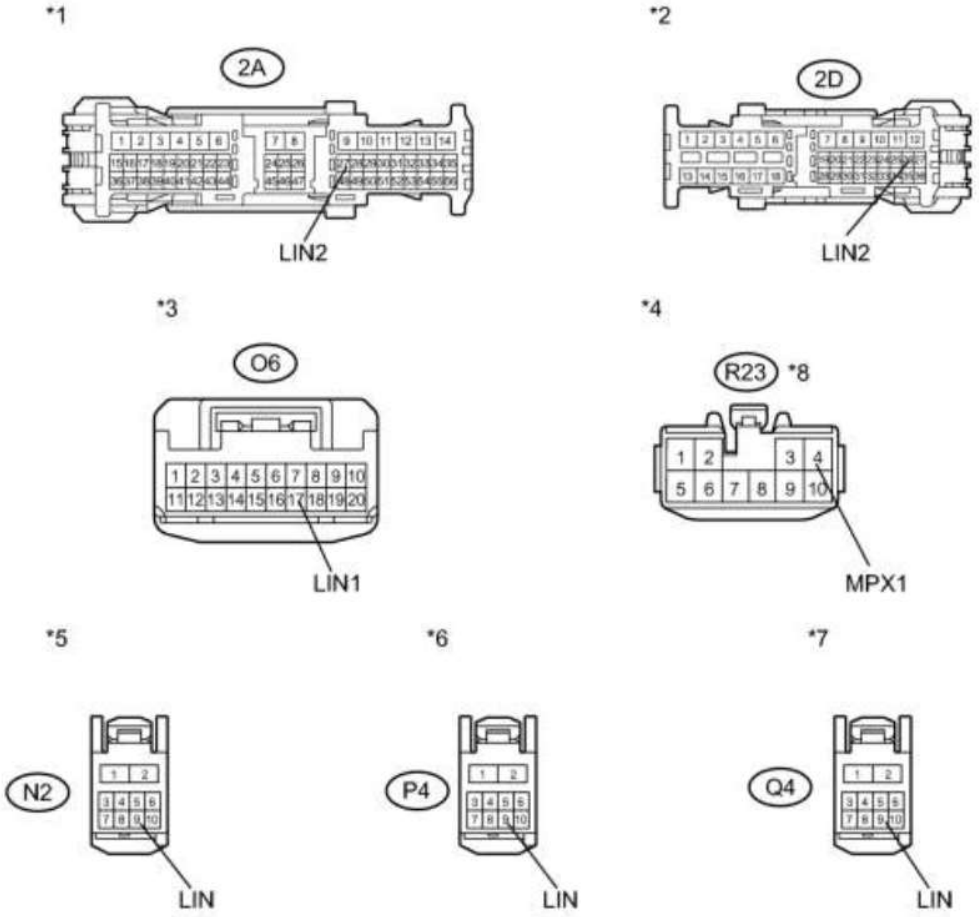
NG ▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK

▼

4.	CHECK HARNESS AND CONNECTOR (INSTRUMENT JUNCTION BLOCK - EACH ECU)

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(a) Disconnect the R23*1, N2, P4 and Q4 connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
2D-26 (LIN2) - Q4-9 (LIN)	Always	Below 1 Ω
2A-27 (LIN2) - P4-9 (LIN)	Always	Below 1 Ω
2A-27 (LIN2) - O6-17 (LIN1)	Always	Below 1 Ω
2A-27 (LIN2) - N2-9 (LIN)	Always	Below 1 Ω
2A-27 (LIN2) - R23-4 (LIN)*1	Always	Below 1 Ω
2D-26 (LIN2) - Body ground	Always	10 kΩ or higher
2A-27 (LIN2) - Body ground	Always	10 kΩ or higher

- *1 w/ Moonroof with Solar Panel

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Text in Illustration

*1	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)	*2	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
*3	Front view of wire harness connector (to Multiplex Network Master Switch Assembly)	*4	Front view of wire harness connector (to Sliding Roof ECU (Sliding Roof Driver Gear Sub-assembly))
*5	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Front Passenger Side))	*6	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Rear RH Side))
*7	Front view of wire harness connector (to Power Window Regulator Motor Assembly (for Rear LH Side))	*8	w/ Moonroof with Solar Panel

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

5.	CHECK DTC OUTPUT (POWER WINDOW REGULATOR MOTOR ASSEMBLY (for REAR LH SIDE))

(a) Reconnect the O6, 2A, 2D, R23*1, P4, O2 and N2 connectors.

- *1: w/ Moonroof with Solar Panel

(b) Clear the DTC INFO.

(c) After 10 seconds have elapsed, check if the trouble occurs again.

(d) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output	A
DTC B2325 is not output	B

B ▶ REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for REAR LH SIDE)

A

▼

6.	CHECK DTC OUTPUT (MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY)

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(a) Reconnect the Q4 connector.

(b) Disconnect the O6 connector.

(c) Clear the DTC INFO.

(d) After 10 seconds have elapsed, check if the trouble occurs again.

(e) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output	A
DTC B2325 is not output	B

B REPLACE MULTIPLEX NETWORK MASTER SWITCH ASSEMBLY

A

7.	CHECK DTC OUTPUT (POWER WINDOW REGULATOR MOTOR ASSEMBLY (for REAR RH SIDE))

(a) Reconnect the O6 connector.

(b) Disconnect the P4 connector.

(c) Clear the DTC INFO.

(d) After 10 seconds have elapsed, check if the trouble occurs again.

(e) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output	A
DTC B2325 is not output	B

B REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for REAR RH SIDE)

A

8.	CHECK DTC OUTPUT (POWER WINDOW REGULATOR MOTOR ASSEMBLY (for DRIVER SIDE))

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(a) Reconnect the P4 connector.

(b) Disconnect the O2 connector.

(c) Clear the DTC INFO.

(d) After 10 seconds have elapsed, check if the trouble occurs again.

(e) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output	A
DTC B2325 is not output	B

B REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for DRIVER SIDE)

A

9.	CHECK DTC OUTPUT (POWER WINDOW REGULATOR MOTOR ASSEMBLY (for FRONT PASSENGER SIDE))

(a) Reconnect the O2 connector.

(b) Disconnect the N2 connector.

(c) Clear the DTC INFO.

(d) After 10 seconds have elapsed, check if the trouble occurs again.

(e) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output (w/ Moonroof with Solar Panel)	A
DTC B2325 is output (w/o Moonroof with Solar Panel)	B
DTC B2325 is not output	C

C REPLACE POWER WINDOW REGULATOR MOTOR ASSEMBLY (for FRONT PASSENGER SIDE)

B REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)

A

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10.	CHECK DTC OUTPUT (SLIDING ROOF ECU (SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY))

(a) Reconnect the N2 connector.

(b) Disconnect the R23 connector.

(c) Clear the DTC INFO.

(d) After 10 seconds have elapsed, check if the trouble occurs again.

(e) Check for DTCs again.

Result:

Result	Proceed to
DTC B2325 is output	A
DTC B2325 is not output	B

B REPLACE SLIDING ROOF ECU (SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY)

A **REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

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DTC	B2785	Communication Malfunction between ECUs Connected by LIN

DESCRIPTION

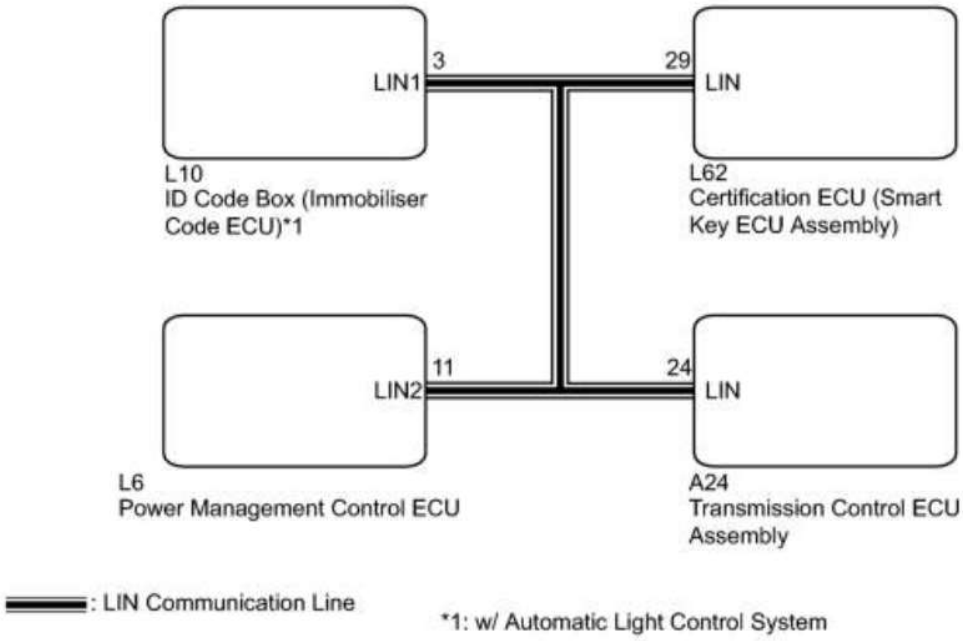
The certification ECU (smart key ECU assembly) monitors communication between all the ECUs connected to the certification bus lines. When the certification ECU (smart key ECU assembly) detects errors in communication with all the ECUs connected to the certification bus lines at a set interval and 3 times in a row, DTC B2785 will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B2785	• Errors in LIN communication between ECUs and an open or short in communication lines • LIN communication from the certification ECU (smart key ECU assembly) detects errors in communication 3 times in a row.	• Certification ECU (smart key ECU assembly) • Power management control ECU • Transmission control ECU assembly • ID code box (immobiliser code ECU)*1 • Wire harness or connector

- *1: w/ Automatic Light Control System

WIRING DIAGRAM

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INSPECTION PROCEDURE

NOTICE:

- If the certification ECU (smart key ECU assembly) is replaced, register the key.
- If the transmission control ECU assembly is replaced, register the ECU code.
- If the ID code box (immobiliser code ECU) is replaced, register the ECU code and ECU communication ID.
- When using the Techstream to troubleshoot with the power switch off:

  Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

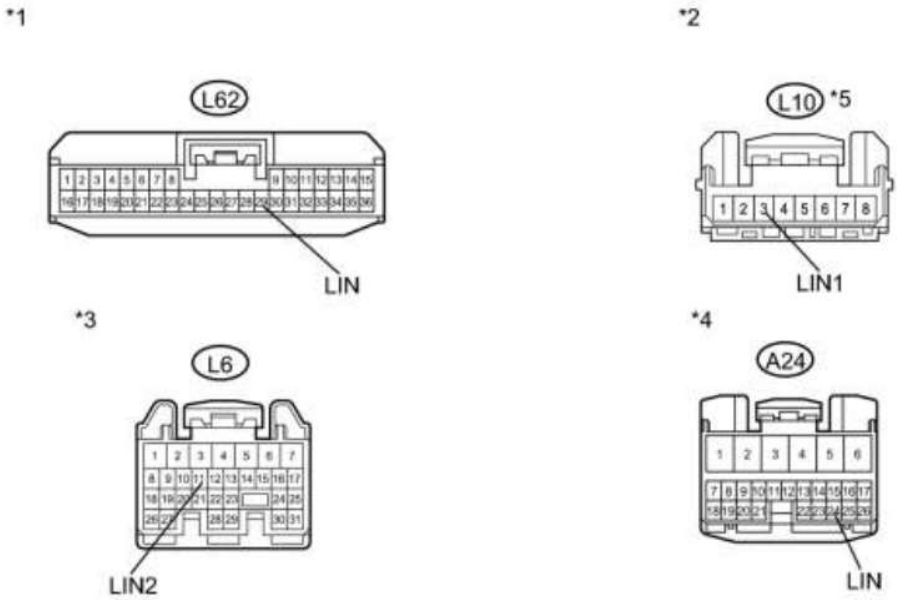
PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - EACH ECU)

(a) Disconnect the L62, L6, L10*1 and A24 connectors.

- *1: w/ Automatic Light Control System

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L62-29 (LIN) - A24-24 (LIN)	Always	Below 1 Ω
L62-29 (LIN) - L6-11 (LIN2)	Always	Below 1 Ω
L62-29 (LIN) - L10-3 (LIN1)*1	Always	Below 1 Ω
L62-29 (LIN) - Body ground	Always	10 kΩ or higher

Standard Voltage:

Tester Connection	Condition	Specified Condition
L62-29 (LIN) - Body ground	Always	Below 1 V

- *1: w/ Automatic Light Control System

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU (Smart Key ECU Assembly))	*2	Front view of wire harness connector (to ID code box (Immobiliser Code ECU))
*3	Front view of wire harness connector (to Power Management Control ECU)	*4	Front view of wire harness connector (to Transmission Control ECU Assembly)
*5	w/ Automatic Light Control System	-	-

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

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OK

▼

2.	CHECK DTC OUTPUT (TRANSMISSION CONTROL ECU ASSEMBLY)

(a) Reconnect the L62, L6 and L10*1 connectors.

- *1: w/ Automatic Light Control System

(b) Clear the DTC INFO.

(c) Recheck for DTCs.

Result:

Result	Proceed to
DTC B2785 is output	A
DTC B2785 is not output	B

B ▶ REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

A

▼

3.	CHECK DTC OUTPUT (POWER MANAGEMENT CONTROL ECU)

(a) Reconnect the A24 connector.

(b) Disconnect the L6 connector.

(c) Clear the DTC INFO.

(d) Recheck for DTCs.

Result:

Result	Proceed to
DTC B2785 is output (w/ Automatic Light Control System)	A
DTC B2785 is output (w/o Automatic Light Control System)	B
DTC B2785 is not output	C

C ▶ REPLACE POWER MANAGEMENT CONTROL ECU

B ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

A

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4.	CHECK DTC OUTPUT (ID CODE BOX (IMMOBILISER CODE ECU))

(a) Reconnect the L6 connector.

(b) Disconnect the L10 connector.

(c) Clear the DTC INFO.

(d) Recheck for DTCs.

Result:

Result	Proceed to
DTC B2785 is output	A
DTC B2785 is not output	B

B REPLACE ID CODE BOX (IMMOBILISER CODE ECU)

A **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

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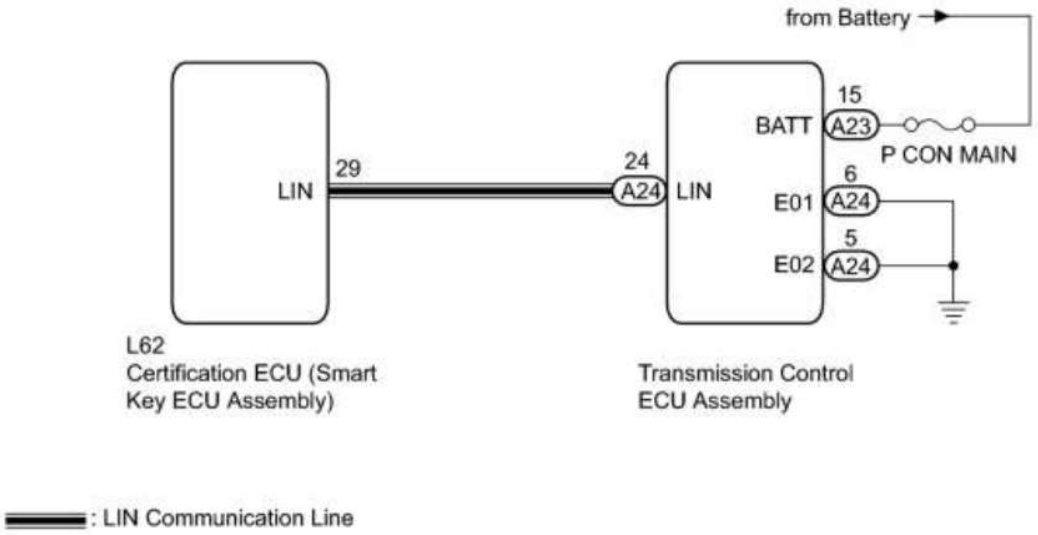
DTC	B2786	No Response from Steering Lock ECU

DESCRIPTION

This DTC is stored when LIN communication between the certification ECU (smart key ECU assembly) and transmission control ECU assembly stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2786	No communication between transmission control ECU assembly and certification ECU (smart key ECU assembly) for 10 seconds or more.	• Transmission control ECU assembly • Certification ECU (smart key ECU assembly) • Wire harness or connector • P CON MAIN fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Although "No Response from Steering Lock ECU" is displayed on the Techstream, this message is shown if the certification ECU (smart key ECU assembly) cannot communicate with the transmission control ECU assembly.

NOTICE:

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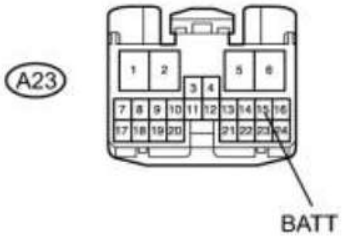
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- If the certification ECU (smart key ECU assembly) is replaced, register the key.
- If the transmission control ECU assembly is replaced, register the ECU code.
- When using the Techstream to troubleshoot with the power switch off:

  Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

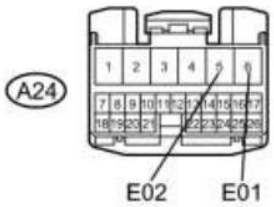
PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - BATTERY AND BODY GROUND)

*1



(a) Disconnect the A23 and A24 transmission control ECU assembly connectors.



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
A24-6 (E01) - Body ground	Always	Below 1 Ω
A24-5 (E02) - Body ground	Always	Below 1 Ω

Standard Voltage:

Tester Connection	Condition	Specified Condition
A23-15 (BATT) - Body ground	Power switch off	11 to 14 V

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Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)

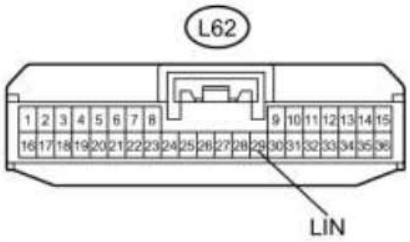
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

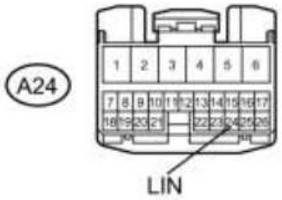
▼

2.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - TRANSMISSION CONTROL ECU ASSEMBLY)

*1



*2



(a) Disconnect the L62 certification ECU (smart key ECU assembly) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L62-29 (LIN) - A24-24 (LIN)	Always	Below 1 Ω
L62-29 (LIN) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU (Smart Key ECU Assembly))
*2	Front view of wire harness connector (to Transmission Control ECU Assembly)

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NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

3.	REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

(a) Replace the transmission control ECU assembly INFO.

NEXT

▼

4.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B2786 is not output.

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ **END (TRANSMISSION CONTROL ECU ASSEMBLY WAS DEFECTIVE)**

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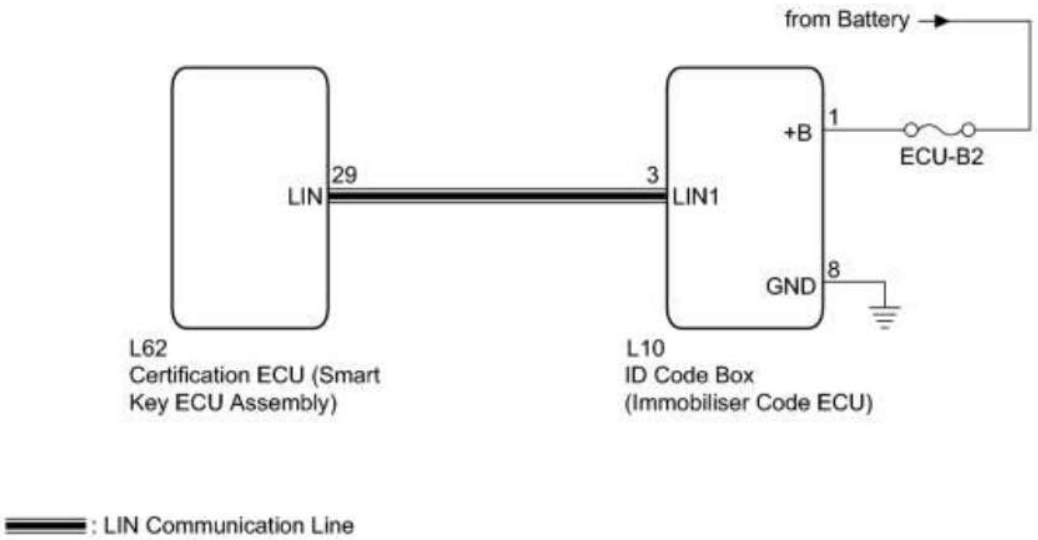
DTC	B2789	No Response from ID BOX

DESCRIPTION

This DTC is stored when LIN communication between the certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU) stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2789	No communication between certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU) for 10 seconds or more.	• ID code box (immobiliser code ECU) • Certification ECU (smart key ECU assembly) • Wire harness or connector • ECU-B2 fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- If the certification ECU (smart key ECU assembly) is replaced, register the key.
- If the ID code box (immobiliser code ECU) is replaced, register the ECU code and ECU communication ID.
- When using the Techstream to troubleshoot with the power switch off:

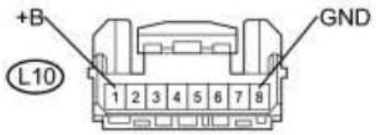
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Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (ID CODE BOX - BATTERY AND BODY GROUND)

*1



(a) Disconnect the L10 ID code box connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L10-8 (GND) - Body ground	Always	Below 1 Ω

Standard Voltage:

Tester Connection	Condition	Specified Condition
L10-1 (+B) - Body ground	Power switch off	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to ID Code Box (Immobiliser Code ECU))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

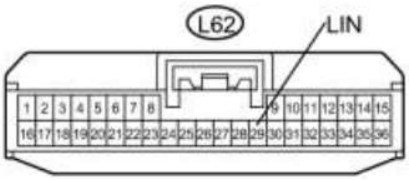
▼

2.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - ID CODE BOX)

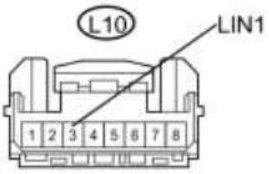
(a) Disconnect the L62 certification ECU (smart key ECU assembly) connector.

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*1



*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L62-29 (LIN) - L10-3 (LIN1)	Always	Below 1 Ω
L62-29 (LIN) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU (Smart Key ECU Assembly))
*2	Front view of wire harness connector (to ID Code Box (Immobiliser Code ECU))

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

3.	REPLACE ID CODE BOX (IMMOBILISER CODE ECU)

(a) Replace the ID code box (immobiliser code ECU) INFO.

NEXT

▼

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4.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B2789 is not output.

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

OK ▶ **END (ID CODE BOX (IMMOBILISER CODE ECU) WAS DEFECTIVE)**

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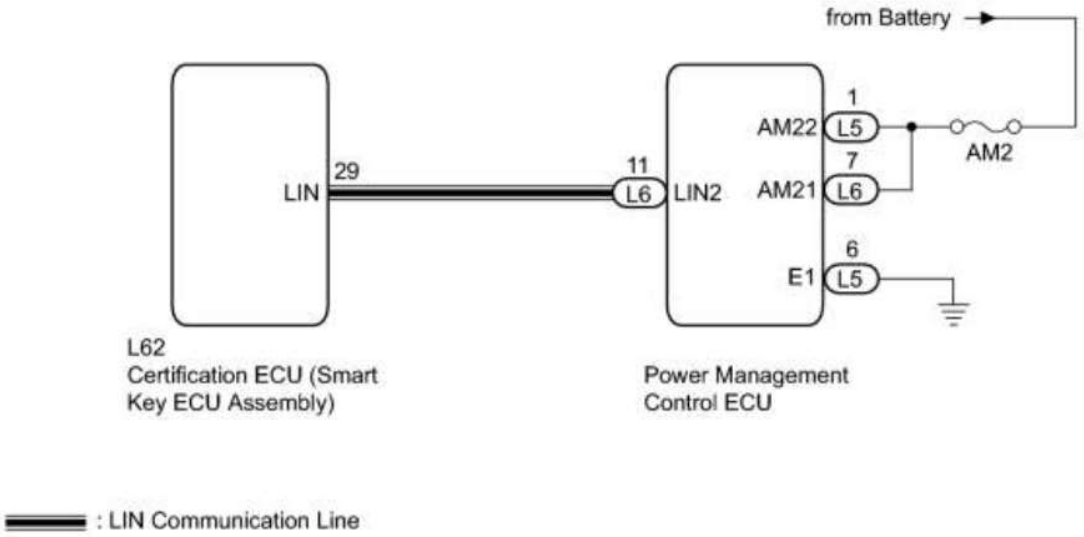
DTC	B278C	Lost Communication with Power Source Control

DESCRIPTION

This DTC is stored when LIN communication between the certification ECU (smart key ECU assembly) and power management control ECU stops for 10 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B278C	No communication between the certification ECU (smart key ECU assembly) and power management control ECU for 10 seconds or more.	• Power management control ECU • Certification ECU (smart key ECU assembly) • Wire harness or connector • AM2 fuse

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- If the certification ECU (smart key ECU assembly) is replaced, register the key.
- When using the Techstream to troubleshoot with the power switch off:

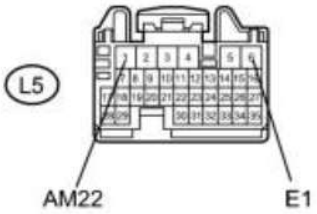
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Connect the Techstream to the DLC3, and turn the courtesy switch on and off at 1.5-second intervals until communication between the Techstream and vehicle begins.

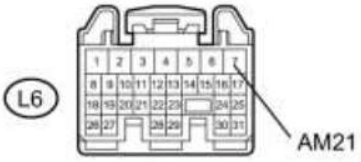
PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (POWER MANAGEMENT CONTROL ECU - BATTERY AND BODY GROUND)

*1



(a) Disconnect the L5 and L6 power management control ECU connectors.



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L5-6 (E1) - Body ground	Always	Below 1 Ω

Standard Voltage:

Tester Connection	Condition	Specified Condition
L5-1 (AM22) - Body ground	Power switch off	11 to 14 V
L6-7 (AM21) - Body ground	Power switch off	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Power Management Control ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

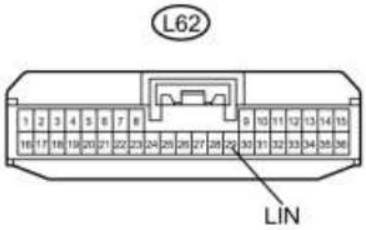
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OK

▼

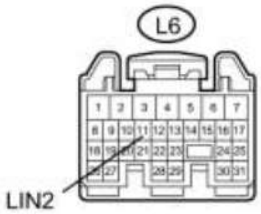
2.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU - POWER MANAGEMENT CONTROL ECU)

*1



(a) Disconnect the L62 certification ECU (smart key ECU assembly) connector.

*2



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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L62-29 (LIN) - L6-11 (LIN2)	Always	Below 1 Ω
L62-29 (LIN) - Body ground	Always	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Certification ECU (Smart Key ECU Assembly))
*2	Front view of wire harness connector (to Power Management Control ECU)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

3.	REPLACE POWER MANAGEMENT CONTROL ECU

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(a) Replace the power management control ECU INFO.

NEXT

4.	CHECK DTC OUTPUT

(a) Clear the DTC INFO.

(b) Recheck for DTCs.

OK:

DTC B278C is not output.

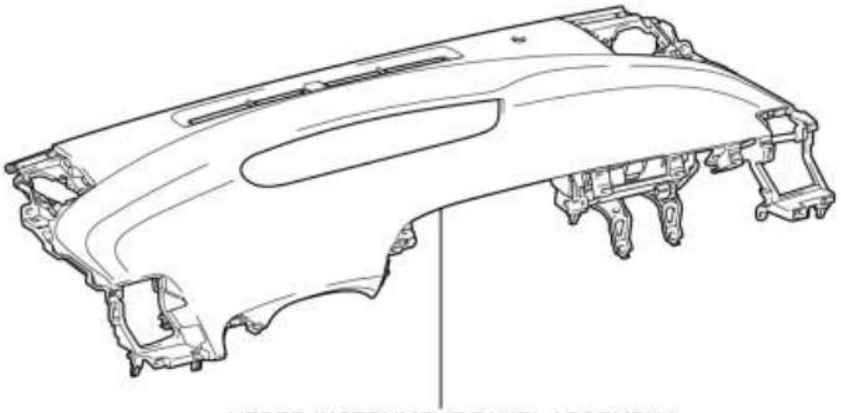
NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

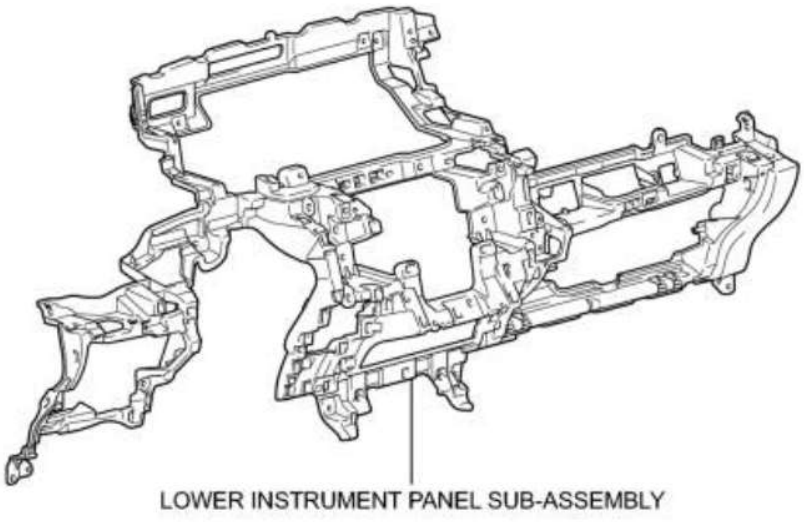
OK ▶ **END (POWER MANAGEMENT CONTROL ECU WAS DEFECTIVE)**

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COMPONENTS

ILLUSTRATION

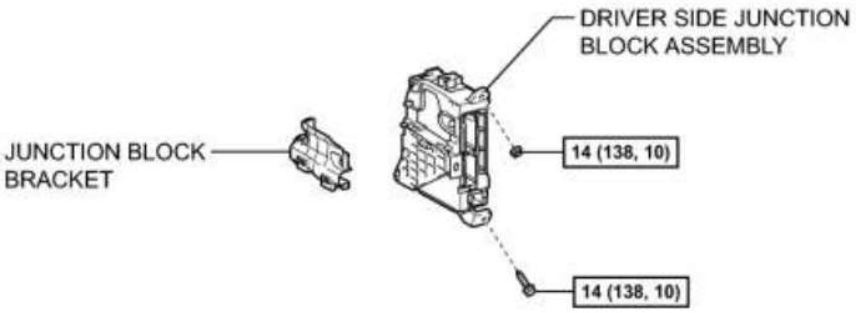


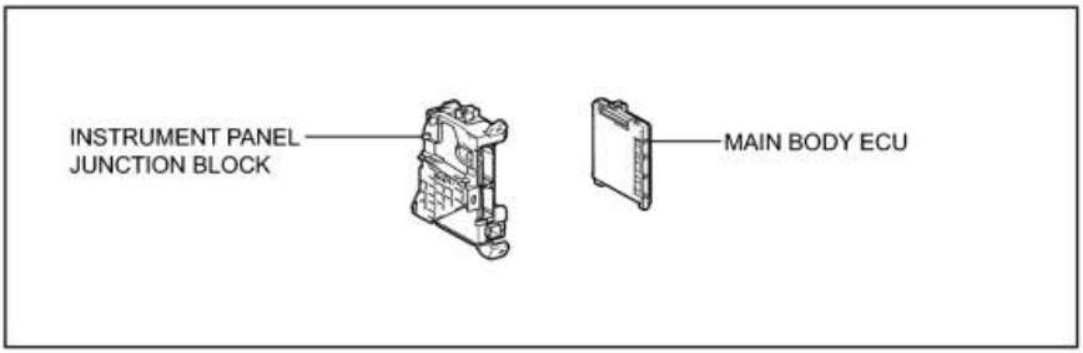


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ILLUSTRATION

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N*m (kgf*cm, ft.*lbf): Specified torque

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REMOVAL

1. REMOVE UPPER INSTRUMENT PANEL ASSEMBLY

HINT:

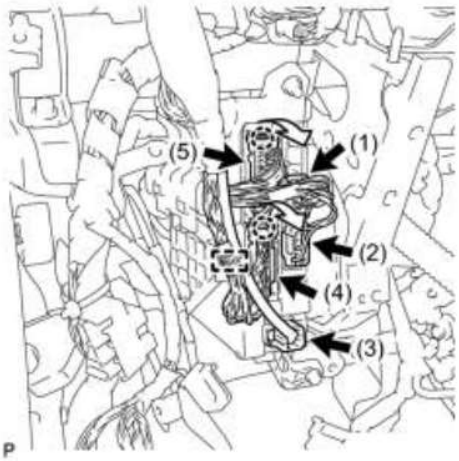
Refer to the procedure up to Remove Upper Instrument Panel Assembly INFO.

2. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY

HINT:

Refer to the procedure up to Remove Lower Instrument Panel Sub-assembly INFO.

3. REMOVE DRIVER SIDE JUNCTION BLOCK ASSEMBLY



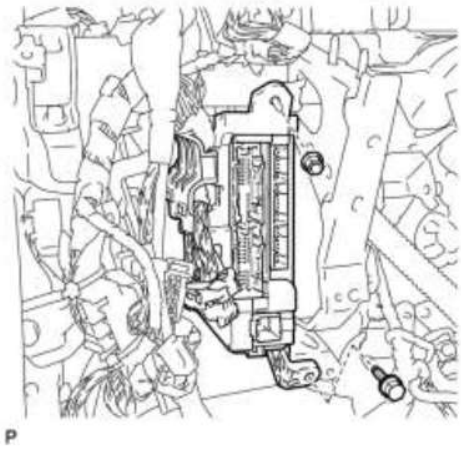
(a) Disengage the clamp and disconnect the wire harness.

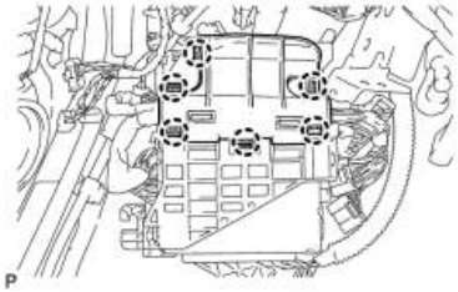
(b) Disconnect the 3 connectors (1), (2) and (3).

(c) Disengage the 2 claws and disconnect the 2 connectors (4) and (5) as shown in the illustration.

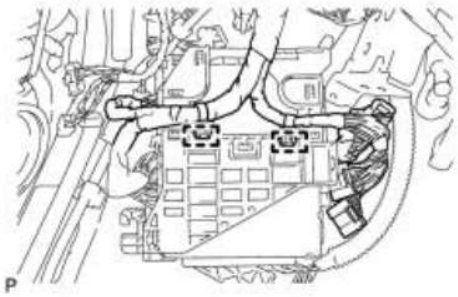
(d) Remove the bolt and nut, and disconnect the driver side junction block assembly.

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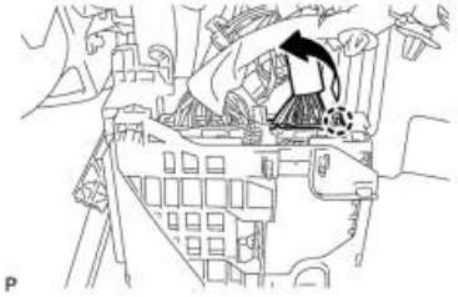




(e) Disengage the 6 claws and remove the junction block bracket.



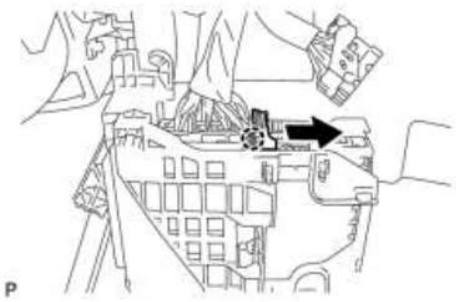
(f) Disengage the 2 clamps and disconnect the wire harness.

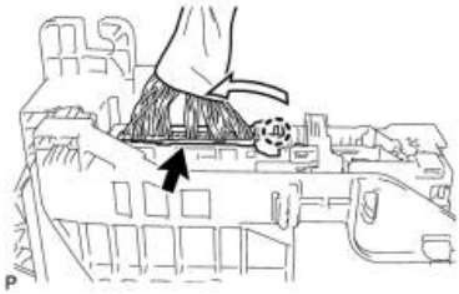


(g) Disengage the claw and disconnect the connector as shown in the illustration.

(h) Disengage the claw and release the connector lock as shown in the illustration.

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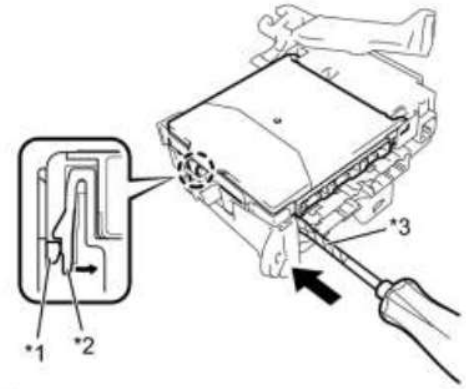




(i) Disengage the claw and disconnect the connector as shown in the illustration.

(j) Remove the driver side junction block assembly.

4. REMOVE MAIN BODY ECU



(a) Press the claw of the junction block as shown in the illustration to release the lock.

Text in Illustration

*1	Main Body ECU
*2	Driver Side Junction Block
*3	Protective Tape

(b) With the junction block lock released, insert a screwdriver with its tip taped horizontally between the main body ECU and junction block.

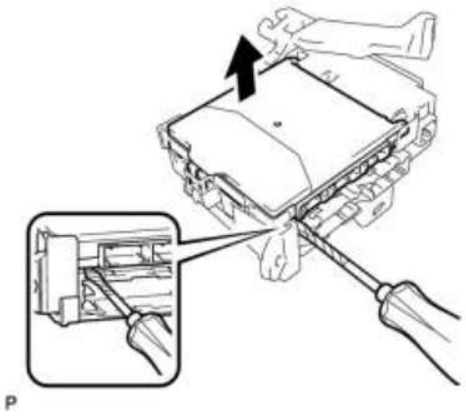
NOTICE:

Use a screwdriver with a radius of between 5.0 mm (0.197 in.) and 6.3 mm (0.248 in.) and a length of approximately 90 mm (3.54 in.).

(c) Using the screwdriver, carefully raise the main body ECU up to the

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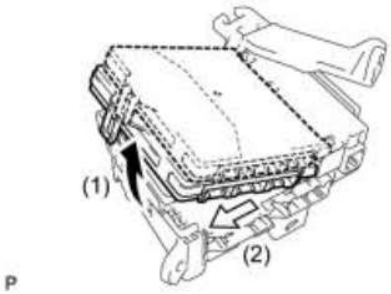
position where the connector becomes disengaged.



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NOTICE:

Do not twist the screwdriver to raise the multiplex network body ECU.



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(d) Raise the main body ECU as shown by arrow (1), and then pull it out as shown by arrow (2) shown in the illustration.

NOTICE:

Do not touch the ECU connector.

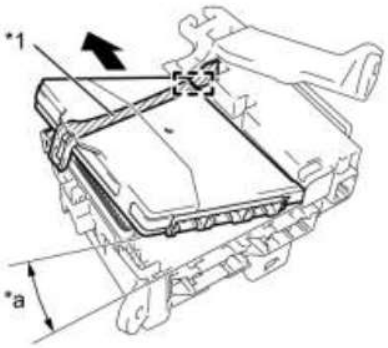
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INSTALLATION

1. INSTALL MAIN BODY ECU

NOTICE:

- Make sure that no foreign objects get on the connecting surfaces.
- Do not touch the ECU connector.



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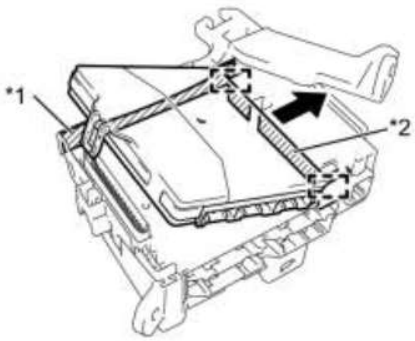
(a) Insert the main body ECU up to the position it contacts the housing sidewall of the guide as shown in the illustration.

Text in Illustration

*1	Housing Sidewall
*a	20°

HINT:

Make sure to keep the angle 20° or more as shown in the illustration.

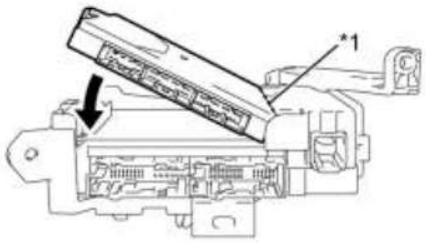


P

(b) Slide the guide of the main body ECU along the housing sidewall so that it contacts junction block fuses as shown in the illustration.

Text in Illustration

*1	Housing Sidewall
*2	Junction Block Fuse



P

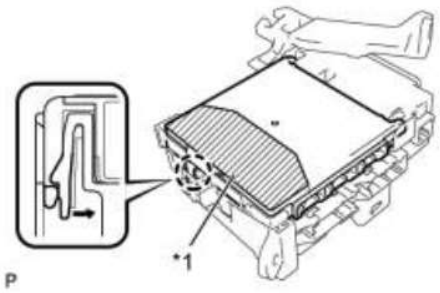
(c) While contacting the main body ECU to side A of the junction block (point of rotation), rotate it downward as shown in the illustration.

Text in Illustration

*1	Side A Contact Portion

(d) Press the push area until the claw engages to install the main body ECU.

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Text in Illustration

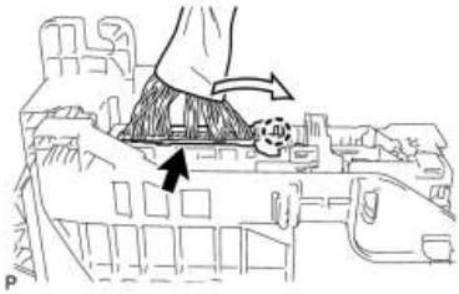
*1	Push Area

- Make sure to press only the push area.
- Confirm the engagement of the main body ECU and junction block by listening for the lock sound.

HINT:

If a lock sound cannot be heard, visually check the lock part engagement. The engagement can also be confirmed if the main body ECU and junction block are flush.

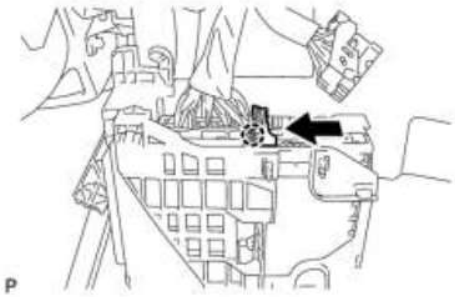
2. INSTALL DRIVER SIDE JUNCTION BLOCK ASSEMBLY



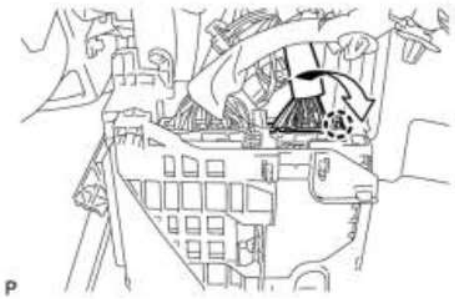
(a) Engage the claw to install the connector as shown in the illustration.

NOTICE:

Be sure to engage each connector securely.



(b) Engage the claw to lock the connector lock as shown in the illustration.



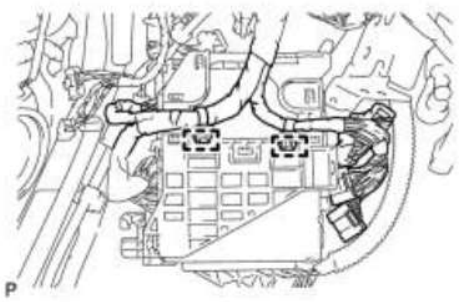
(c) Engage the claw to connect the connector as shown in the illustration.

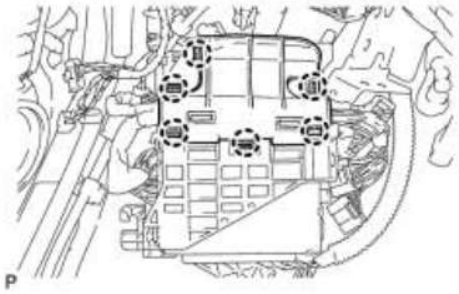
NOTICE:

Be sure to engage each connector securely.

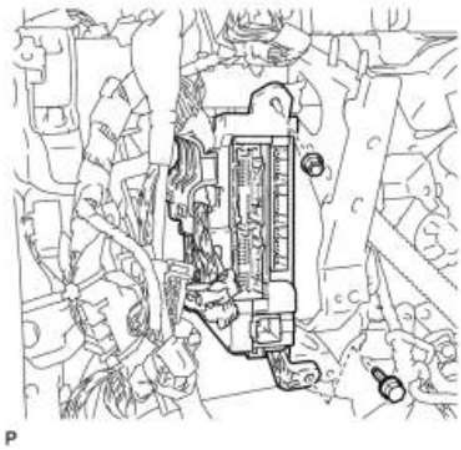
(d) Engage the 2 clamps to connect the wire harness.

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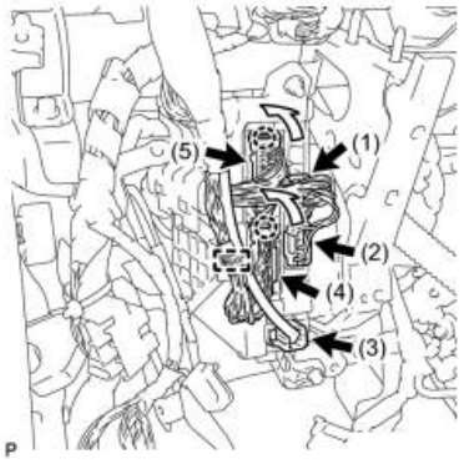


(e) Engage the 6 claws to install the junction block cover.



(f) Install the driver side junction block assembly with the bolt and nut.

Torque: **14 N·m (138 kgf·cm, 10ft·lbf)**



(g) Engage the 2 claws to connect the 2 connectors (5) and (4) as shown in the illustration.

NOTICE:

Be sure to engage each connector securely.

(h) Connect the 3 connectors (3), (2) and (1) as shown in the illustration.

NOTICE:

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Be sure to engage each connector securely.

(i) Engage the clamp to connect the wire harness.

3. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY

HINT:

Refer to the procedure from Install Lower Instrument Panel Sub-assembly INFO.

4. INSTALL UPPER INSTRUMENT PANEL ASSEMBLY

HINT:

Refer to the procedure from Install Upper Instrument Panel Assembly INFO.

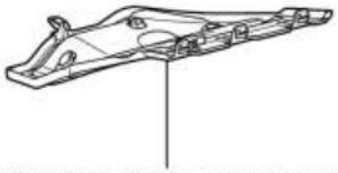
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COMPONENTS

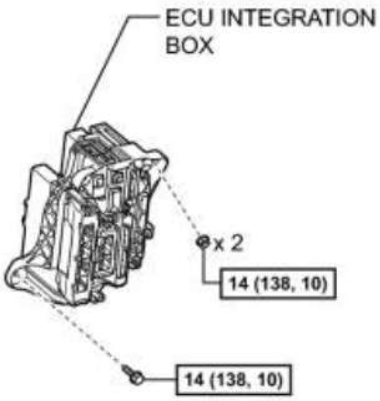
ILLUSTRATION



GLOVE COMPARTMENT DOOR ASSEMBLY



NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY



N*m (kgf*cm, ft.*lbf): Specified torque

P

ILLUSTRATION

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P

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REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

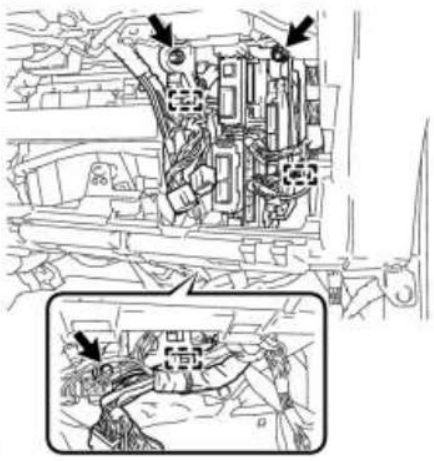
When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

2. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

3. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO

4. REMOVE ECU INTEGRATION BOX

(a) Disconnect each connector.

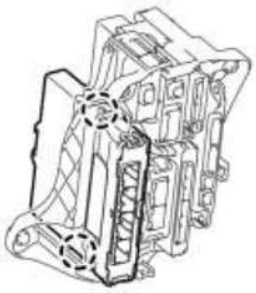


P

(b) Disengage the 3 clamps and disconnect the wire harness.

(c) Remove the bolt, 2 nuts and ECU integration box.

5. REMOVE POWER MANAGEMENT CONTROL ECU



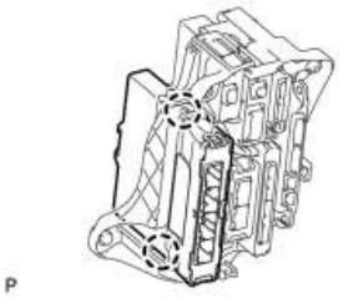
P

(a) Disengage the 2 claws and remove the power management control ECU.

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INSTALLATION

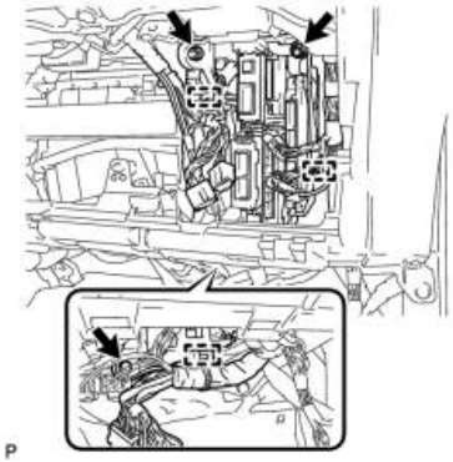
1. INSTALL POWER MANAGEMENT CONTROL ECU



P

(a) Engage the 2 claws to install the power management control ECU.

2. INSTALL ECU INTEGRATION BOX



P

(a) Install the ECU integration box with the 2 nuts and bolt.

Torque: **14 N·m (138 kgf·cm, 10ft·lbf)**

(b) Engage the 3 clamps to connect the wire harness.

(c) Connect each connector.

3. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

4. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO.

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