

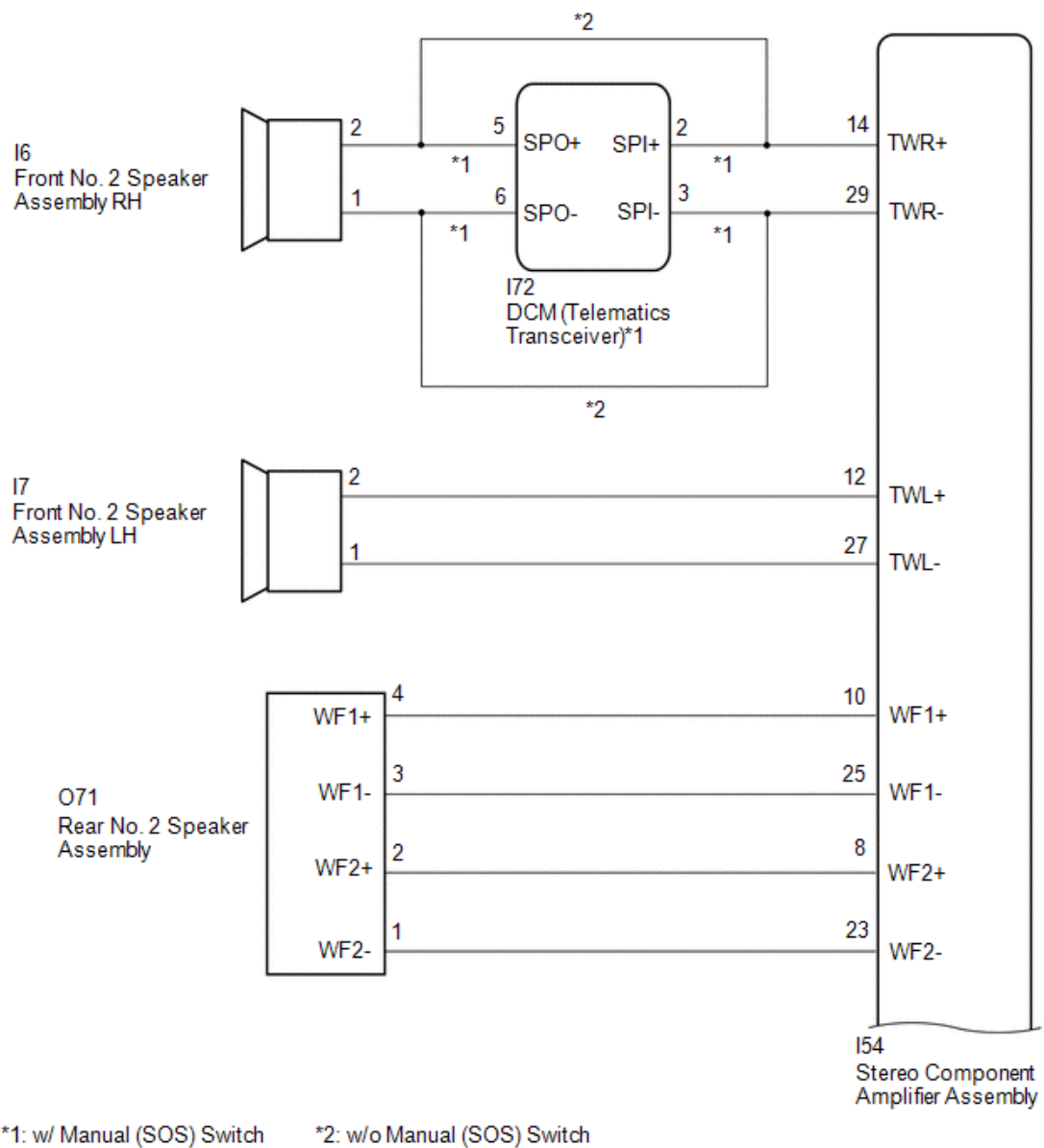


Fig. 2: Speaker Circuit Diagram - Except 6 Speakers (1 Of 2)

Courtesy of B© TOYOTA, LICENSE AGREEMENT TMS1002

OK

END

Result:

NG

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to [PROBLEM SYMPTOMS TABLE \[01/2019 - 09/2019\]](#)

8. CHECK HARNESS AND CONNECTOR (RADIO AND DISPLAY RECEIVER ASSEMBLY - REAR SPEAKER ASSEMBLY)

- a. Disconnect the I71 radio and display receiver assembly connector.
- b. Disconnect the N4 and M4 rear speaker assembly connectors.
- c. Measure the resistance according to the value (s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
I71-4 (RR+) - M4-2	Always	Below 1 Ω
I71-9 (RR-) - M4-1	Always	Below 1 Ω
I71-3 (RL+) - N4-2	Always	Below 1 Ω
I71-8 (RL-) - N4-1	Always	Below 1 Ω
I71-4 (RR+) or M4-2 - Body ground	Always	10 k Ω or higher
I71-9 (RR-) or M4-1 - Body ground	Always	10 k Ω or higher
I71-3 (RL+) or N4-2 - Body ground	Always	10 k Ω or higher
I71-8 (RL-) or N4-1 - Body ground	Always	10 k Ω or higher

Result

Proceed to
OK
NG

Result:

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

Result:

OK

See step [2](#)

9. INSPECT REAR SPEAKER ASSEMBLY

- a. Remove the rear speaker assembly.

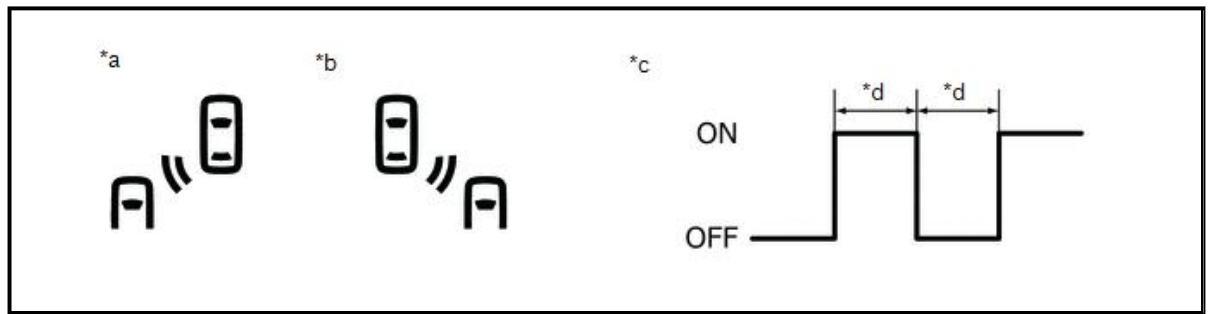
Refer to [REMOVAL \[06/2018 - \]](#)

- b. Inspect the rear speaker assembly.

Symptom	Suspected Area	Link
check mode	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
Reverse signal does not change in vehicle signal check mode	Proceed to "Reverse Signal Circuit"	Refer to Reverse Signal Circuit [01/2019 -]
	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
Valet mode cannot be canceled	Proceed to "Valet Mode Cancel" in Operation Check	Refer to OPERATION CHECK [04/2020 -]
	Radio and display receiver assembly	Refer to OPERATION CHECK [04/2020 -]

GENERAL AUDIO FUNCTION

Symptom	Suspected Area	Link
Pressing power switch does not turn on system	Proceed to "Radio Receiver Power Source Circuit"	Refer to Radio Receiver Power Source Circuit [01/2019 -]
	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
No sound can be heard from speakers	Proceed to "No Sound can be Heard from Speakers"	Refer to No Sound can be Heard from Speakers [01/2019 -]
	Proceed to "Mute Signal Circuit between Radio Receiver and Telematics Transceiver"*	Refer to Mute Signal Circuit between Radio Receiver and Telematics Transceiver [04/2020 -]
	Proceed to "Speaker Circuit"	Refer to Speaker Circuit [04/2020 -]
	DCM (telematics transceiver)*	Refer to REMOVAL [04/2020 -]
	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
Abnormal noise occurs	Proceed to "Noise Occurs"	Refer to Noise Occurs [01/2019 -]
	Proceed to "Mute Signal Circuit between Radio Receiver and Telematics Transceiver"*	Refer to Mute Signal Circuit between Radio Receiver and Telematics Transceiver [04/2020 -]
	DCM (telematics transceiver)*	Refer to REMOVAL [04/2020 -]
	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
Sound quality is bad in all modes (volume is too low)	Check that the ASL function is off	-
	Proceed to "Poor Sound Quality in All Modes (Low Volume)"	Refer to Poor Sound Quality in All Modes (Low Volume) [01/2019 -]
	Proceed to "Mute Signal Circuit between Radio Receiver and Telematics Transceiver"*	Refer to Mute Signal Circuit between Radio Receiver and Telematics Transceiver [04/2020 -]
	Proceed to "Speaker Circuit"	Refer to Speaker Circuit [04/2020 -]
	DCM (telematics transceiver)*	Refer to REMOVAL [04/2020 -]
	Radio and display receiver assembly	Refer to REMOVAL [03/2019 -]
ASL does not function	Check that the ASL function is on	-
	Proceed to "Vehicle Speed Signal Circuit between Radio Receiver and Combination Meter"	Refer to Vehicle Speed Signal Circuit between Radio Receiver



*a	Outer rear view mirror indicator LH	*b	Outer rear view mirror indicator RH
*c	Blinking speed	*d	0.125 seconds

SYSTEM DESCRIPTION [04/2020 -]

SYSTEM DESCRIPTION [04/2020 -]

1. GENERAL

a. The blind spot monitor system has a blind spot monitor function and RCTA function.

1. Blind spot monitor function

- The blind spot monitor function is a function that assists the driver when changing lanes.

This function uses quasi-millimeter wave radar to detect vehicles that are traveling in adjacent lanes in the areas that are not visible (blind spots) using the outer rear view mirror assemblies and vehicles that are approaching rapidly from up to 60 m behind this vehicle in the areas that are not visible using the outer rear view mirror assemblies (blind spots).

The function advises the driver of the existence of a vehicle by illuminating the outer rear view mirror indicator on the outer rear view mirror assembly.

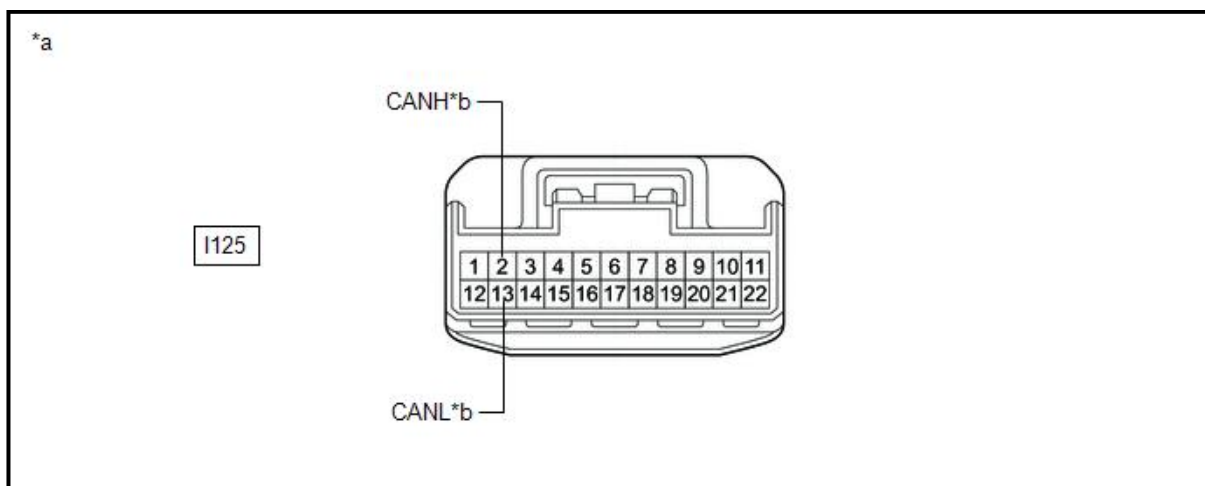
- If the turn signal switch is operated while the outer rear view mirror indicator on an outer rear view mirror assembly is illuminated, the indicator starts blinking to give additional warning to the driver.

2. RCTA function

- The RCTA function is a function that informs the driver a vehicle is approaching from the left or the right at the rear of the vehicle. The function uses quasi-millimeter wave radar to detect the position and relative speed of other vehicles. When the function determines that a vehicle is approaching this vehicle, this function informs the driver using the outer rear view mirror indicators and blind spot monitor buzzer.

2. FUNCTION OF COMPONENTS

Component	Function
Blind Spot Monitor Sensor	- Consists of a 24 GHz radar module and an integrated processing module. - Illuminates or blinks the outer rear view mirror indicator on an outer rear view mirror assembly. - Sounds the RCTA buzzer (blind spot monitor buzzer) when the RCTA function is operating. - Changes the outer rear view mirror indicator on an outer rear view mirror assembly from illuminated to blinking when a turn signal switch operation signal is received from the



*a	Front view of wire harness connector (to No. 3 CAN Junction Connector)	*b	to Combination Meter Assembly
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Standard Resistance

Tester Connection	Condition	Specified Condition
I125-2 (CANH) - I125-13 (CANL)	Cable disconnected from negative (-) battery terminal	1 MΩ or higher

Result

Result
OK
NG

Result:

OK

REPLACE COMBINATION METER ASSEMBLY. Refer to [REMOVAL \[01/2019 - 03/2019\]](#) , or refer to [REMOVAL \[03/2019 - \]](#)

Result:

NG

REPAIR OR REPLACE CAN MAIN BUS LINES OR CONNECTOR (NO. 3 CAN JUNCTION CONNECTOR - COMBINATION METER ASSEMBLY)

8. CHECK FOR SHORT IN CAN BUS LINES (ECU OR SENSOR)

- Reconnect all wire harness connectors.
- Disconnect the connector that includes terminals CANH and CANL from the ECU or sensor to which the short circuited branch line is connected.

Refer to [TERMINALS OF ECU \[01/2019 - 03/2019\]](#) , or refer to [TERMINALS OF ECU \[03/2019 - 09/2019\]](#) , or refer to [TERMINALS OF ECU \[09/2019 - 04/2020\]](#) , or refer to [TERMINALS OF ECU \[04/2020 - \]](#)

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

Standard Resistance

Symptom	Suspected Area	Link
screen of the Techstream. (The Lost Communication Time value for "Head Up Display" is 6 or more.)		
Either of the following is met: - Communication stop for "Front Radar" is indicated on the "Communication Bus Check" screen of the Techstream. - Communication stop history for "Front Radar" is indicated on the "Communication Bus Check (Detail)" screen of the Techstream. (The Lost Communication Time value for "Front Radar" is 6 or more.)	Millimeter Wave Radar Sensor Communication Stop Mode	Refer to Millimeter Wave Radar Sensor Communication Stop Mode [06/2018 -]
Either of the following is met: - Communication stop for "Occupant Detection" is indicated on the "Communication Bus Check" screen of the Techstream. - Communication stop history for "Occupant Detection" is indicated on the "Communication Bus Check (Detail)" screen of the Techstream. (The Lost Communication Time value for "Occupant Detection" is 6 or more.)	Restraints Occupant Classification System Module Communication Stop Mode	Refer to Restraints Occupant Classification System Module Communication Stop Mode [06/2018 - 01/2019] , or refer to Restraints Occupant Classification System Module Communication Stop Mode [01/2019 -]
Either of the following is met: - Communication stop for "Front Camera Module" is indicated on the "Communication Bus Check" screen of the Techstream. - Communication stop history for "Front Camera Module" is indicated on the "Communication Bus Check (Detail)" screen of the Techstream. (The Lost Communication Time value for "Front Camera Module" is 6 or more.)	Front Camera Module Communication Stop Mode	Refer to Front Camera Module Communication Stop Mode [06/2018 -]

DTC COMBINATION TABLE

Symptom	Suspected Area	Link
Although CAN communication is currently normal, an ECU connected to the CAN communication system has CAN communication DTCs.	The probable part for which communication is interrupted can be determined using DTC Combination Table and comparing the DTCs output from ECUs connected to the CAN communication system.	Refer to DTC COMBINATION TABLE [06/2018 - 01/2019] , or refer to DTC COMBINATION TABLE [01/2019 - 09/2019] , or refer to DTC COMBINATION TABLE [09/2019 - 04/2020] , or refer to DTC COMBINATION TABLE [04/2020 -]

TERMINALS OF ECU [06/2018 - 01/2019]

TERMINALS OF ECU [06/2018 - 01/2019]

NOTE:

- After turning the engine switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notices before proceeding with work.

Refer to [INITIALIZATION \[06/2018 - 01/2019\]](#)

- Before measuring the resistance of the CAN bus, turn the engine switch off and leave the vehicle for 1 minute or more without operating the key or any switches, or opening or closing the doors. After that, disconnect the cable from the negative (-) battery terminal and leave the vehicle for 1 minute or more before measuring the resistance.
- This information describes the standard values for all CAN related components.

HINT:

- The systems (ECUs and sensors) that use CAN communication vary depending on the vehicle and optional equipment. Check which systems (ECUs and sensors) installed to the vehicle.

Refer to [DIAGNOSIS SYSTEM \[06/2018 - 01/2019\]](#)

- Operating the engine 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 case, wiggling the ECUs or wire harness while performing the inspection below may help determine the cause of the malfunction.

1. NO. 1 CAN JUNCTION CONNECTOR

- Check the No. 1 CAN junction connector.

1. Connection diagram

- c. Confirm that the "Communication Malfunction Check" screen is displayed and CAN communication DTCs for each ECU are displayed.

HINT:

When there are no CAN communication DTCs stored, no DTCs will be displayed.

5. How to Use "Communication Bus Check" Screen in Inspection

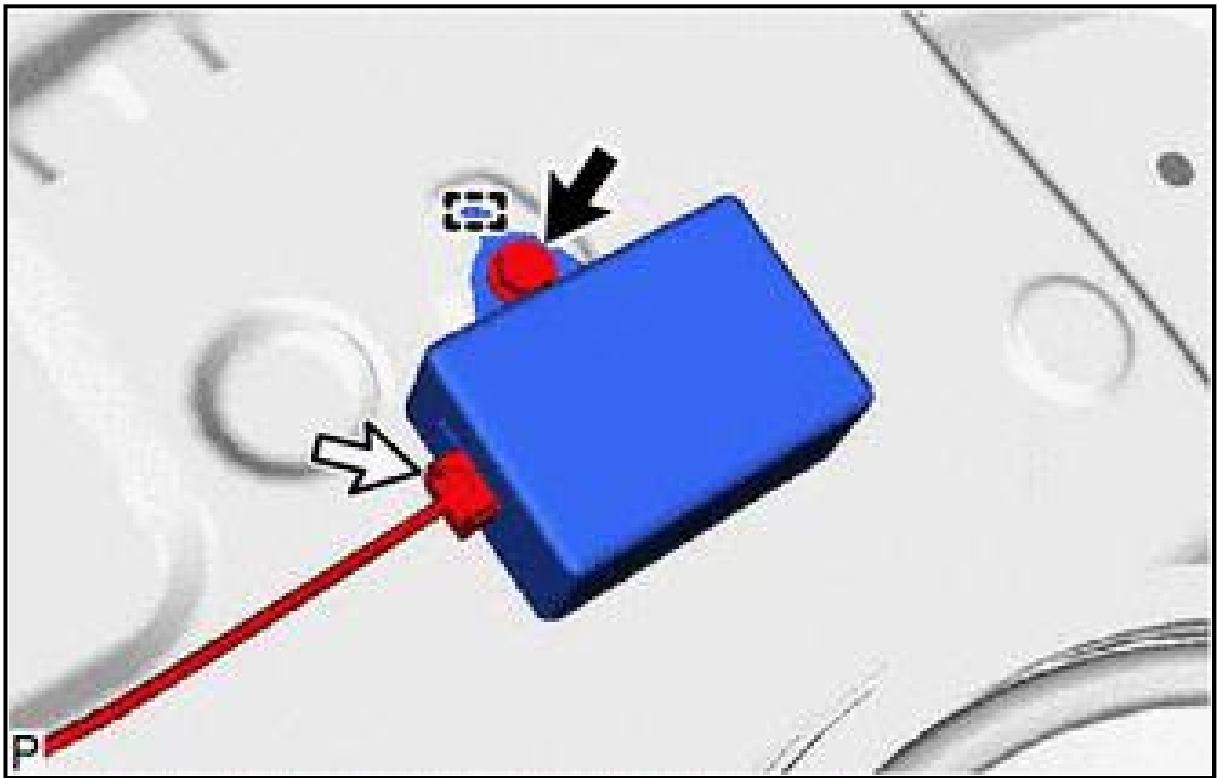
NOTE: The following CAN bus wiring diagram or communication bus check screen is provided only as an example. This wiring diagram or screen differs from the actual one for this vehicle.

HINT:

- If the CAN communication system is currently malfunctioning, it is recommended to use Communication Bus Check rather than Communication DTCs for determining the suspected area.
- Turn the ignition switch to ON, or perform the necessary operations to reproduce the problem symptom, select "Communication Bus Check" and wait approximately 2 minutes. Check the communication status of each ECU or sensor on the screen while performing this operation.
- a. If the CAN communication system is currently malfunctioning, determine the suspected area using Communication Bus Check as follows:

PROBLEM SYMPTOMS TABLE

Problem Symptom Pattern	Display on Communication Bus Check Screen	Suspected Area
A	Almost all of the ECUs and sensors connected to the malfunctioning CAN bus are displayed as not communicating on the "Communication Bus Check" screen.	• Short between CAN bus lines (CANH and CANL) • Short to +B in a CAN bus line (CANH or CANL) • Short to ground in a CAN bus line (CANH or CANL)
B	ECUs or sensors farther from the central gateway ECU (network gateway ECU) than the open in the wires are displayed as not communicating on the "Communication Bus Check" screen.	Open in both wires of a main bus line in the central bus
C	One ECU or sensor is displayed as not communicating on the "Communication Bus Check" screen.	• Open in both wires of a branch line connected to an ECU or sensor in the central bus • Internal malfunction of an ECU or sensor in the central bus • Malfunction in the power supplied to an ECU or sensor in the central bus
D	No ECUs or sensors are displayed on the "Communication Bus Check" screen.	• Internal malfunction of the central gateway ECU (network gateway ECU) • Malfunction in the power supplied to the central gateway ECU (network gateway ECU) • Open in both wires of the branch line in the diagnosis bus (DLC3 - Central gateway ECU (network gateway ECU)) • Short between CAN bus lines (CANH and CANL) in the diagnosis bus (DLC3 - Central gateway ECU (network gateway ECU)) • Short to +B in a CAN bus line (CANH or CANL) in the diagnosis bus (DLC3 - Central gateway ECU (network gateway ECU)) • Short to ground in a CAN bus line (CANH or CANL) in the diagnosis bus (DLC3 - Central gateway ECU (network gateway ECU))
E	One ECU or sensor is displayed as not communicating in multiple buses on the "Communication Bus Check" screen.	• Internal malfunction of an ECU or sensor connected to multiple buses • Malfunction in the power supplied to an ECU or sensor connected to multiple buses
F	Some ECUs or sensors are displayed as not communicating in the central bus and other ECUs or sensors are displayed as not communicating in a sub bus.	• Open in a wire of a branch line connected to an ECU or sensor in the central bus • Internal malfunction of an ECU or sensor in the central bus



d. Disengage the guide.

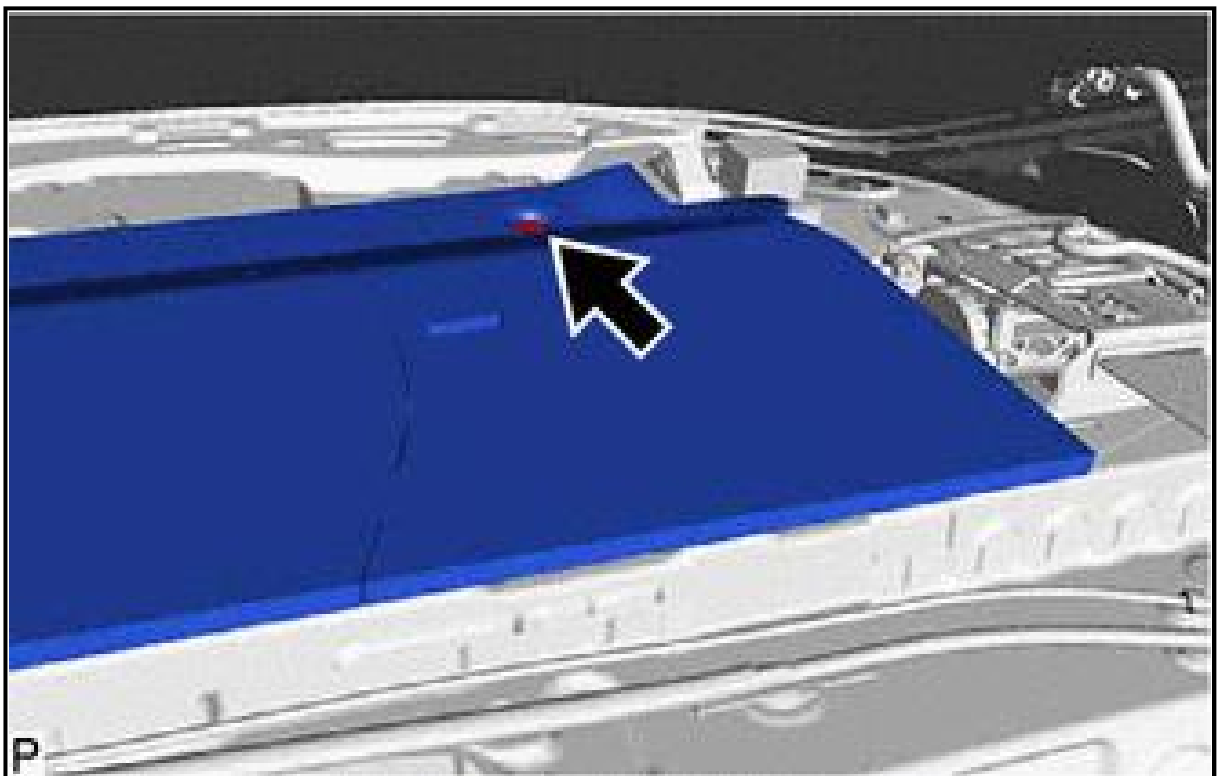
e. Disconnect the connector to remove the door control receiver.

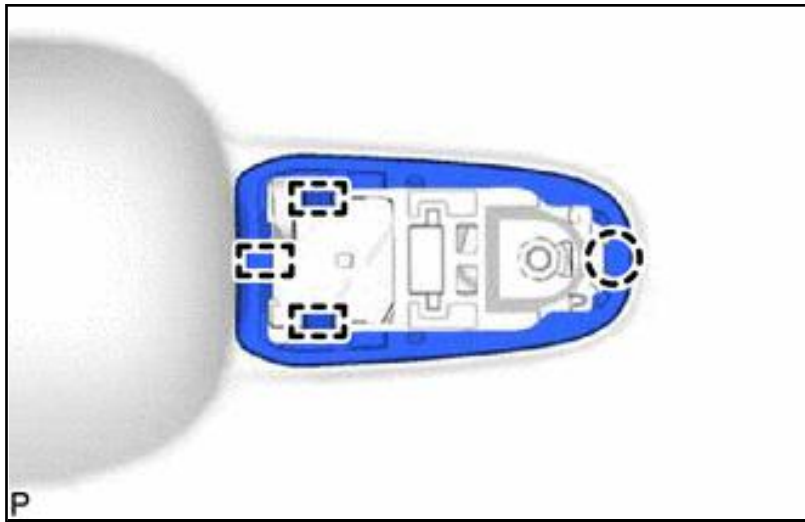
22. REMOVE SMART DOOR CONTROL RECEIVER ASSEMBLY (w/ Smart Key System)

NOTE:

- Do not drop, strike or otherwise subject the smart door control receiver assembly to impact.
- If the smart door control receiver assembly is subjected to an impact, replace it with a new one.

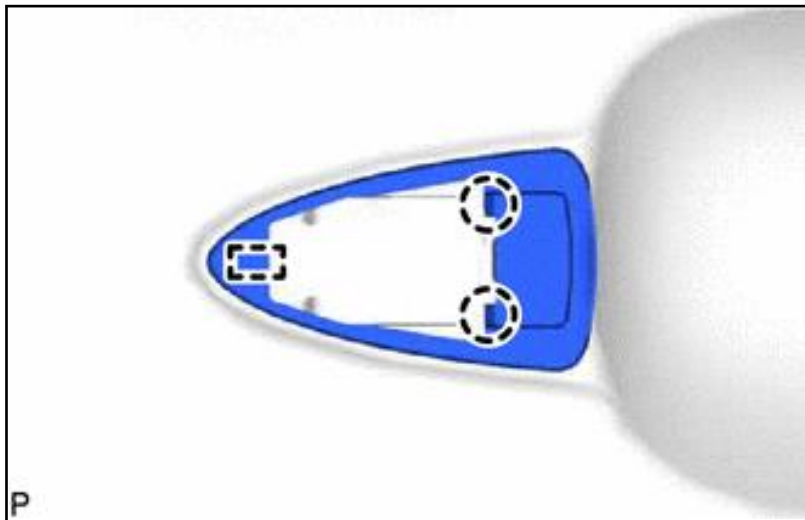
a. Remove the clip.





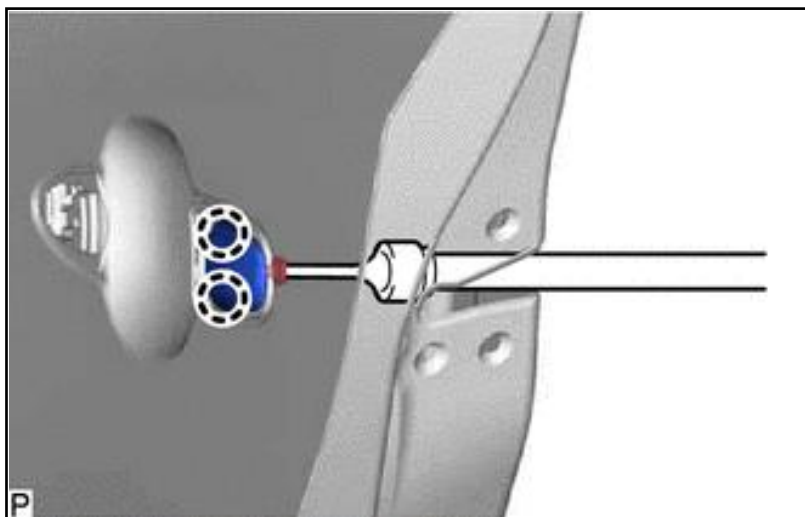
13. INSTALL REAR DOOR FRONT OUTSIDE HANDLE PAD

- a. Engage the guide and 2 claws to install the rear door front outside handle pad.



14. INSTALL REAR DOOR OUTSIDE HANDLE COVER

- a. Engage the 2 claws.



- b. Using a T30 "TORX" socket wrench, install the rear door outside handle cover with the screw.

Torque: 4.0 N*m (41 kgf*cm, 35 in.*lbf)

15. INSTALL REAR DOOR OUTSIDE HANDLE ASSEMBLY

- a. Insert the front end of the rear door outside handle assembly into the rear door outside handle frame sub-assembly.

NOTE:

- When replacing the millimeter wave radar sensor assembly, always replace it with a new one. If a millimeter wave radar sensor assembly which was installed to another vehicle is used, the information stored in the millimeter wave radar sensor assembly will not match the information from the vehicle and a DTC may be stored.
- When the millimeter wave radar sensor assembly is replaced with a new one, adjustment of the millimeter wave radar sensor beam axis must be performed.

Refer to [ADJUSTMENT \[01/2019 - 03/2019\]](#) , or refer to [ADJUSTMENT \[03/2019 - \]](#)

PROCEDURE**1. REPLACE MILLIMETER WAVE RADAR SENSOR ASSEMBLY**

- a. Replace the millimeter wave radar sensor assembly with a new one.

Refer to [REMOVAL \[01/2019 - \]](#)

Result

Proceed to
NEXT

Result:

NEXT

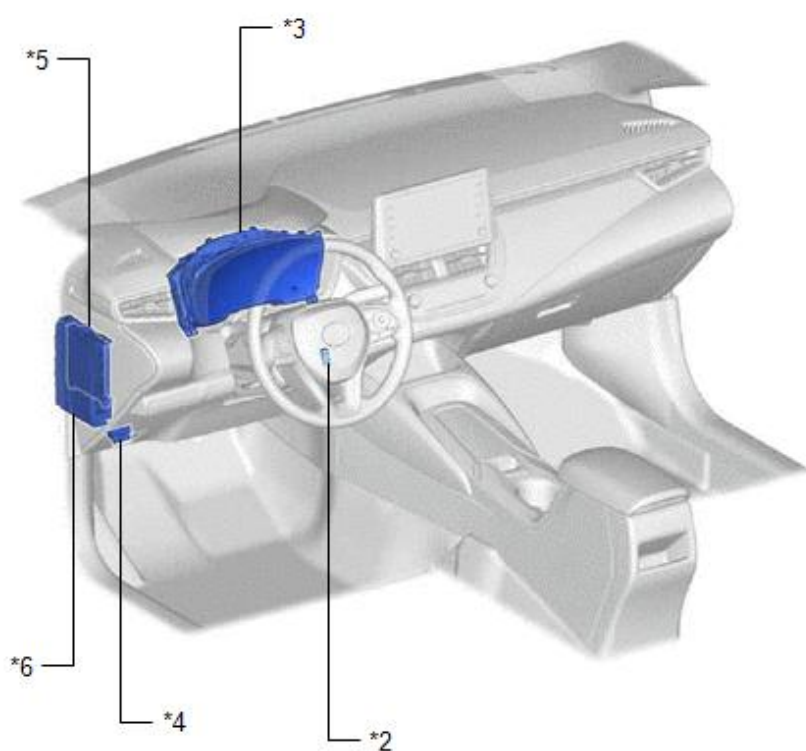
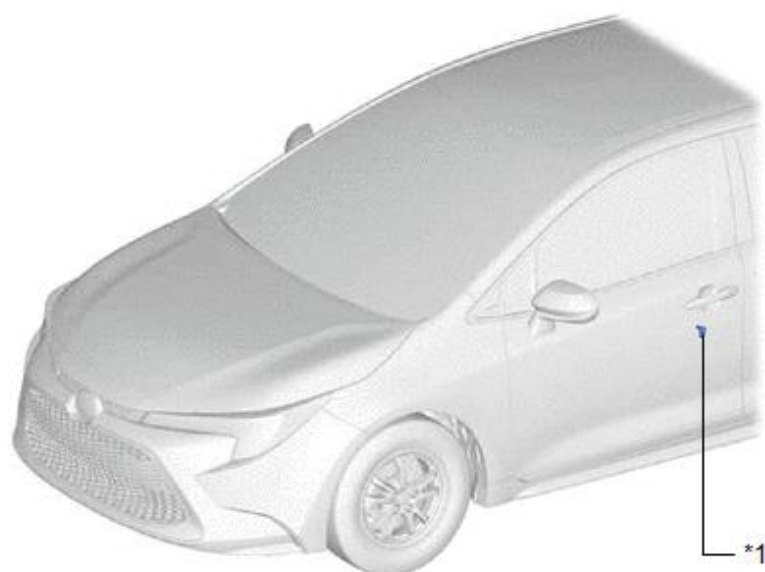
END

DTC U0104-87: LOST COMMUNICATION WITH CRUISE CONTROL MODULE MISSING MESSAGE [01/2019 -]**DESCRIPTION**

The millimeter wave radar sensor assembly communicates with the forward recognition camera via CAN communication.

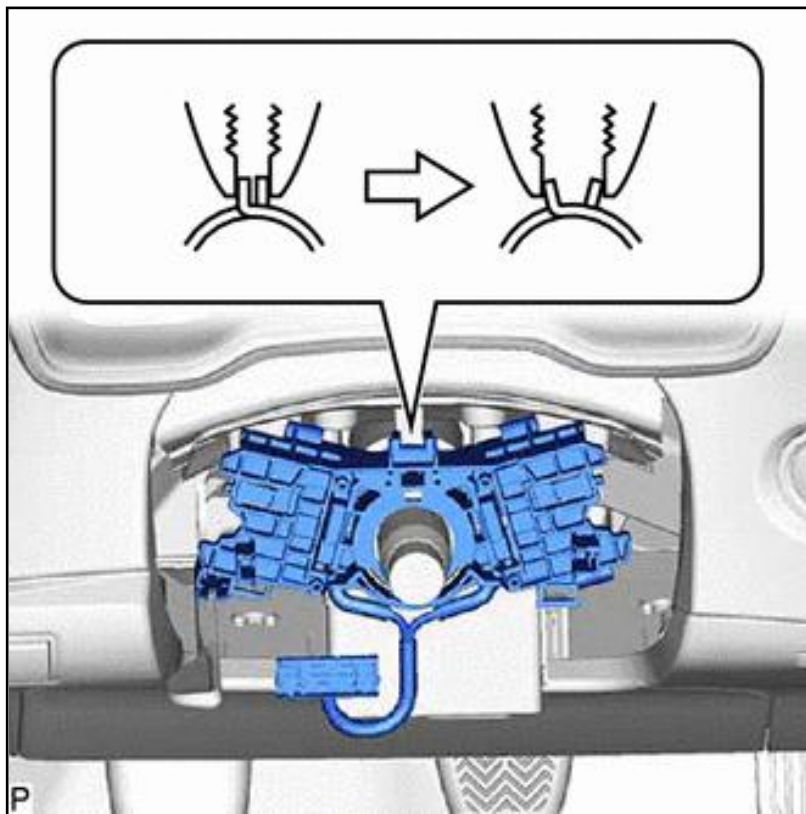
If a communication error is detected between the forward recognition camera and millimeter wave radar sensor assembly, the millimeter wave radar sensor assembly stores this DTC.

DTC No.	Detection Item	DTC Detection Condition	Trouble Area	DTC Output from
U0104-87	Lost Communication with Cruise Control Module Missing Message	Detection condition: Power switch on (IG) Malfunction status: Communication malfunction with the forward recognition camera is detected Malfunction duration:	• CAN bus line • Forward recognition camera • Millimeter wave radar sensor assembly	Front Radar Sensor

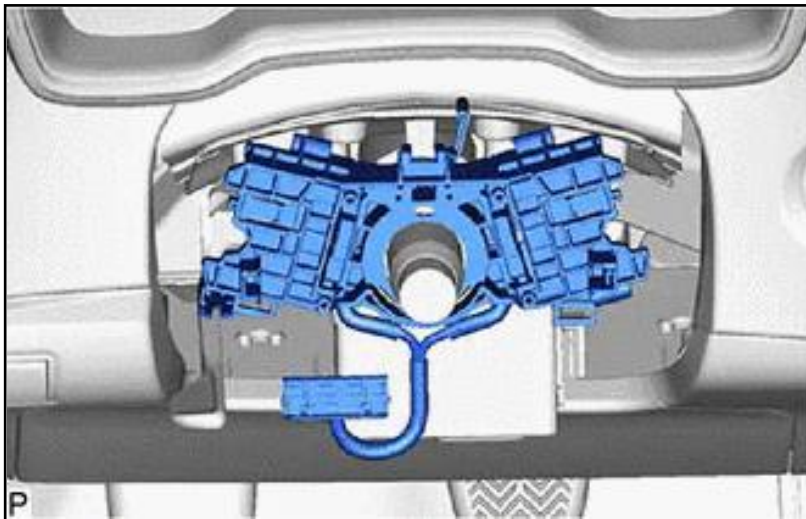


H

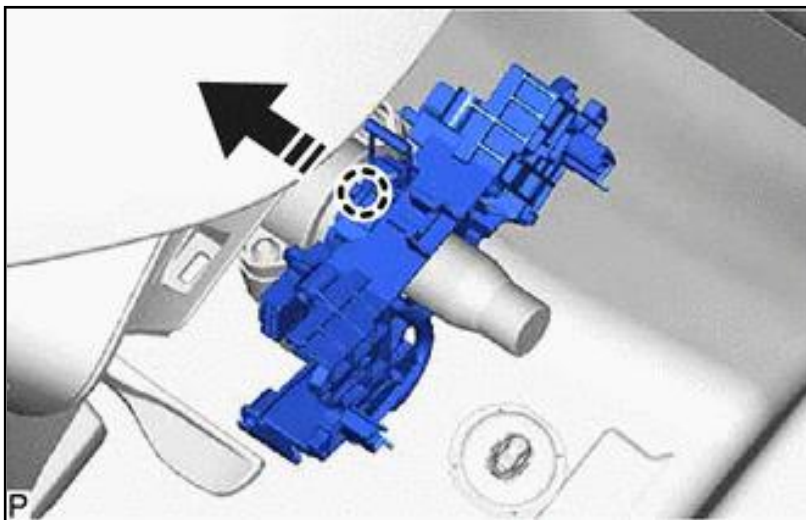
*1	FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (for LH)	*2	UNLOCK WARNING SWITCH ASSEMBLY
*3	COMBINATION METER ASSEMBLY	*4	DLC3
*5	MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)	*6	INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY - ECU-ACC FUSE - ECU-IG1 NO. 4 FUSE - ECU-DCC NO. 2 FUSE



- b. When installing a new steering wheel switch housing:
1. Temporarily install the steering wheel switch housing.



2. Engage the claw as shown in the illustration.



Proceed to
OK
NG

Result:

OK

REPLACE COMBINATION METER ASSEMBLY. Refer to [REMOVAL \[03/2019 - \]](#)

Result:

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

ENGINE OIL LEVEL SENSOR CIRCUIT [01/2019 -]

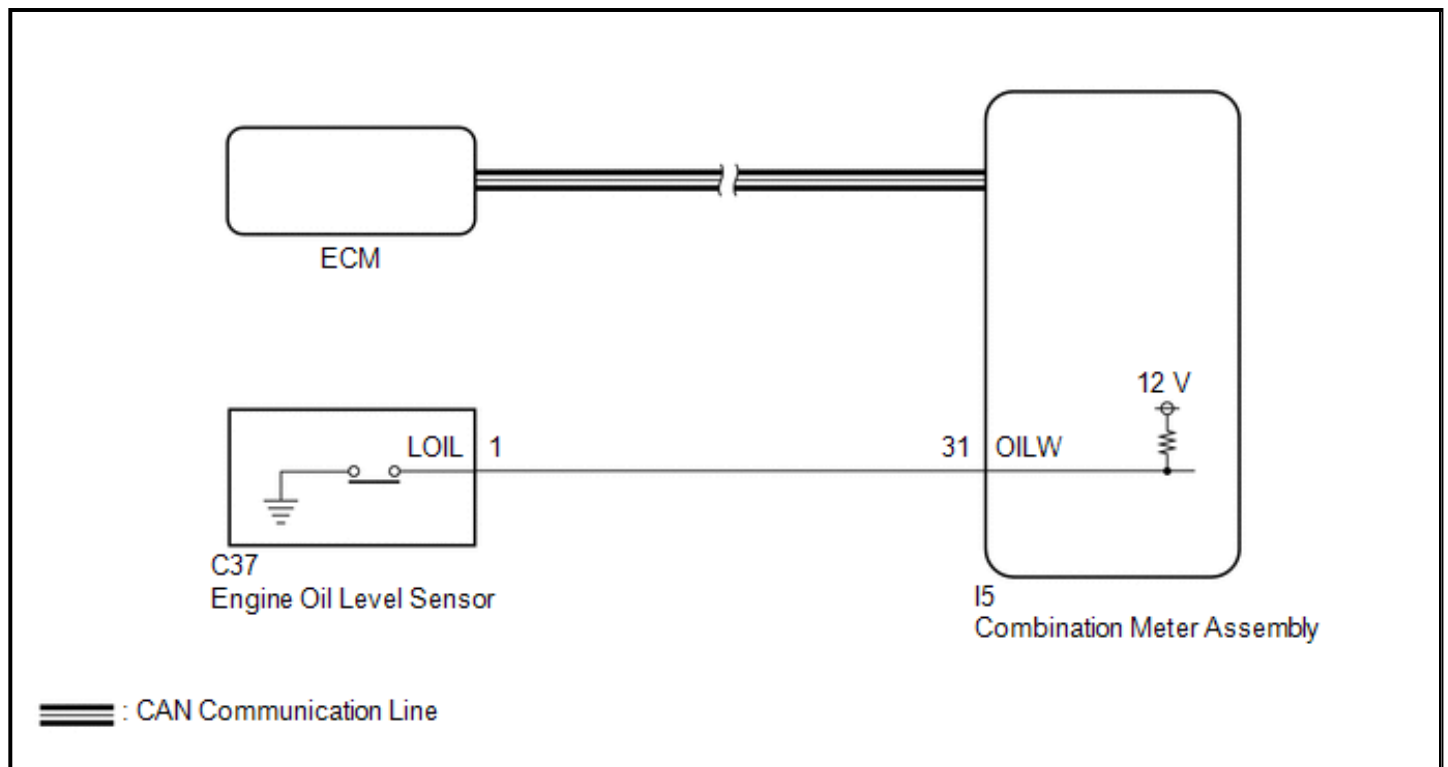
DESCRIPTION

The combination meter assembly and engine oil level sensor are connected via direct line. The combination meter assembly determines the engine oil level based on the engine oil level sensor signal.

HINT:

As the engine oil level may be unstable when the engine is cold or running at high speeds, the combination meter assembly receives the engine coolant temperature signal and engine speed signal from the ECM via CAN communication in order to prevent the oil level warnings from being output erroneously.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTE:

- When replacing the combination meter assembly, always replace it with a new one. If a combination meter assembly which was installed to another vehicle is used, the information stored in it will not match the information from the vehicle and a DTC may be stored.

Result:

OK

See step [3](#)

3. INSPECT STEERING PAD SWITCH ASSEMBLY

- a. Remove the steering pad switch assembly.

Refer to [REMOVAL \[03/2019 - \]](#)

- b. Inspect the steering pad switch assembly.

Refer to [INSPECTION \[03/2019 - \]](#)

Result

Proceed to
OK
NG

Result:

NG

REPLACE STEERING PAD SWITCH ASSEMBLY. Refer to [REMOVAL \[03/2019 - \]](#)

Result:

OK

See step [4](#)

4. INSPECT SPIRAL CABLE SUBASSEMBLY

- a. Remove the spiral cable subassembly.

Refer to [REMOVAL \[03/2019 - \]](#)

- b. Inspect the spiral cable subassembly.

Refer to [INSPECTION \[06/2018 - \]](#)

Result

Proceed to
OK
NG

Result:

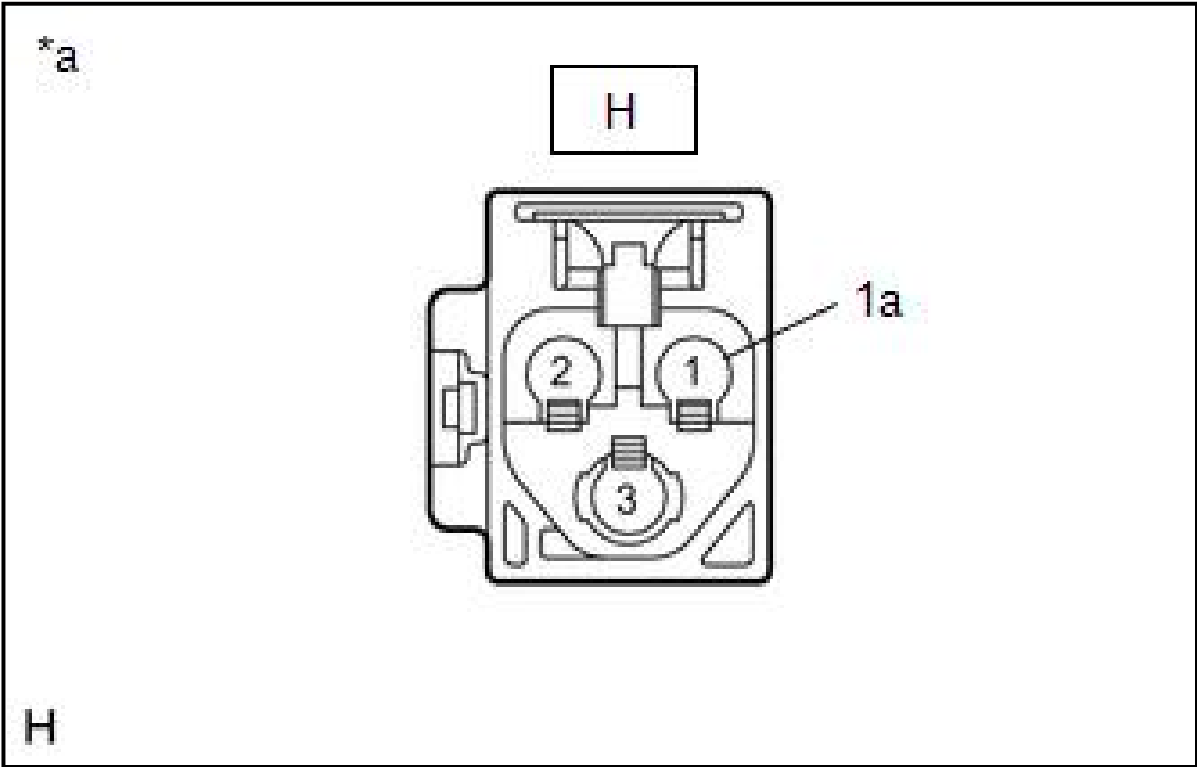
OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (SPIRAL CABLE SUBASSEMBLY - RADIO AND DISPLAY RECEIVER ASSEMBLY, COMBINATION METER ASSEMBLY)

Result:

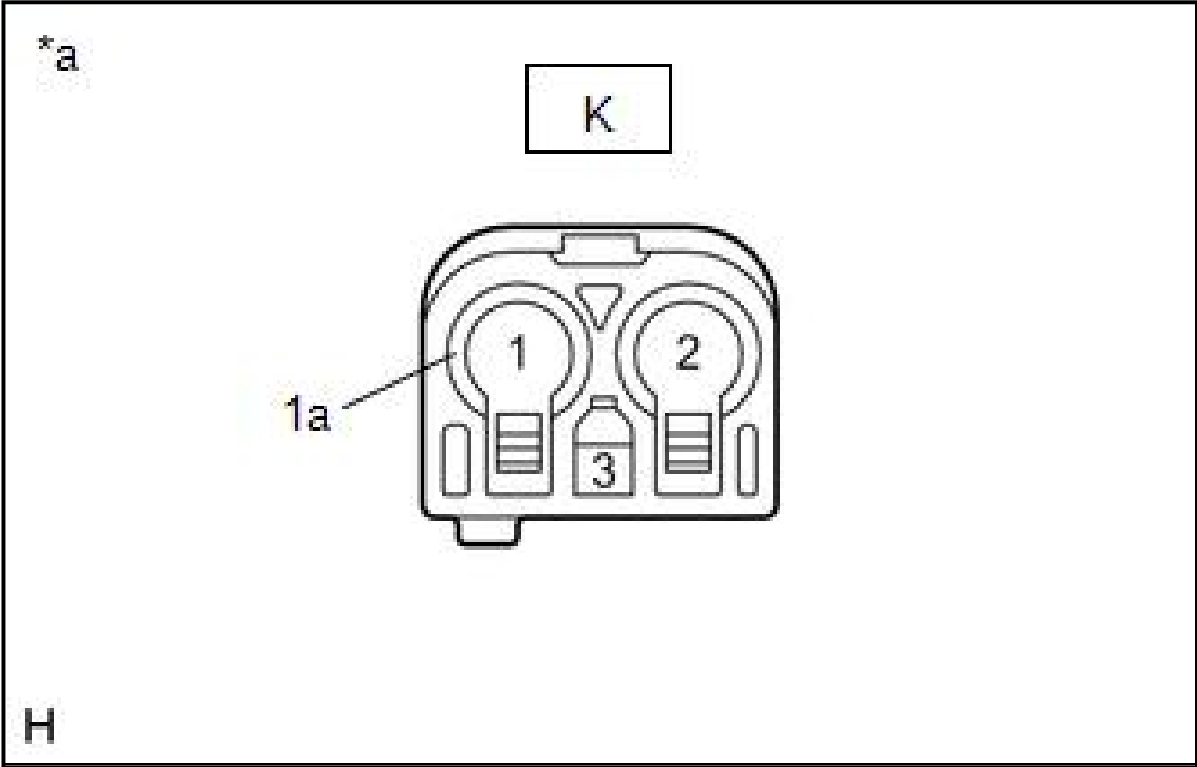
NG

w/ SXM Function



*a	Component without harness connected (Telephone and GPS Antenna Cord (Antenna Cord Sub-assembly (for Type B)))
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w/o SXM Function



*a	Component without harness connected (Telephone and GPS Antenna Cord (Antenna Cord Sub-assembly (for Type B)))
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c. Measure the resistance according to the value(s) in the table below.

Standard Resistance