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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: ADVANCED DRIVER ASSISTANCE SYSTEM: FRONT RADAR SENSOR SYSTEM: U010487; Lost Communication with Cruise Control Module Missing Message; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	U010487	Lost Communication with Cruise Control Module Missing Message
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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	PRIORITY
U010487	Lost Communication with Cruise Control Module Missing Message	<p>Detection condition:</p> <p>Ignition switch ON</p> <p>Malfunction status:</p> <p>Communication malfunction with the forward recognition camera is detected</p> <p>Malfunction duration:</p> <p>10 seconds or more</p>	<ul style="list-style-type: none"> • Front camera system • Harness or connector • Forward recognition camera • Millimeter wave radar sensor assembly 	Front Radar Sensor	B

HINT:

If the DTCs are output simultaneously, the inspection area can be narrowed down.

w/ Advanced Park

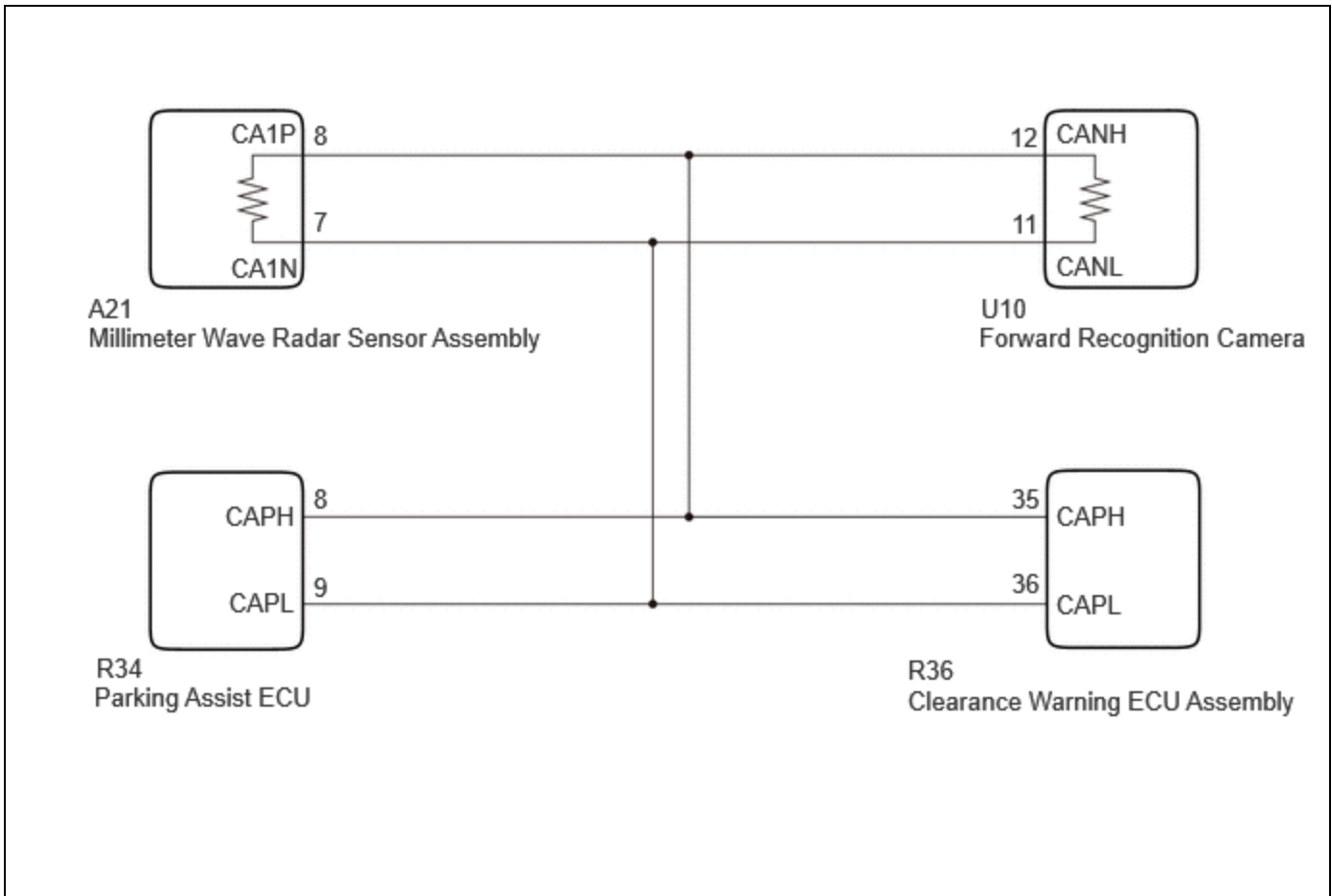
PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)				SUSPECTED AREA (MALFUNCTION STATUS)
	MILLIMETER WAVE RADAR SENSOR ASSEMBLY	FORWARD RECOGNITION CAMERA	CLEARANCE WARNING ECU ASSEMBLY	PARKING ASSIST ECU	
	FRONT RADAR SENSOR	FRONT RECOGNITION CAMERA	CLEARANCE WARNING	CIRCUMFERENCE MONITORING CAMERA CONTROL MODULE	
	U010487	U023587	U117987	U11B687	
Pattern 1	○	○	○	○	Connector (Poor connector)
					Harness or connector (Open or short)
					Millimeter wave radar sensor assembly (Internal malfunction)
					Clearance warning ECU assembly (Internal malfunction)
					Parking assist ECU (Internal malfunction)
					Forward recognition camera (Internal malfunction)
Pattern 2	○	-	-	-	Connector (Poor connector)
					Harness or connector (Open)
					Millimeter wave radar sensor assembly (Internal malfunction)
					Forward recognition camera (Internal malfunction)
○: DTC is output -: DTC is not output					

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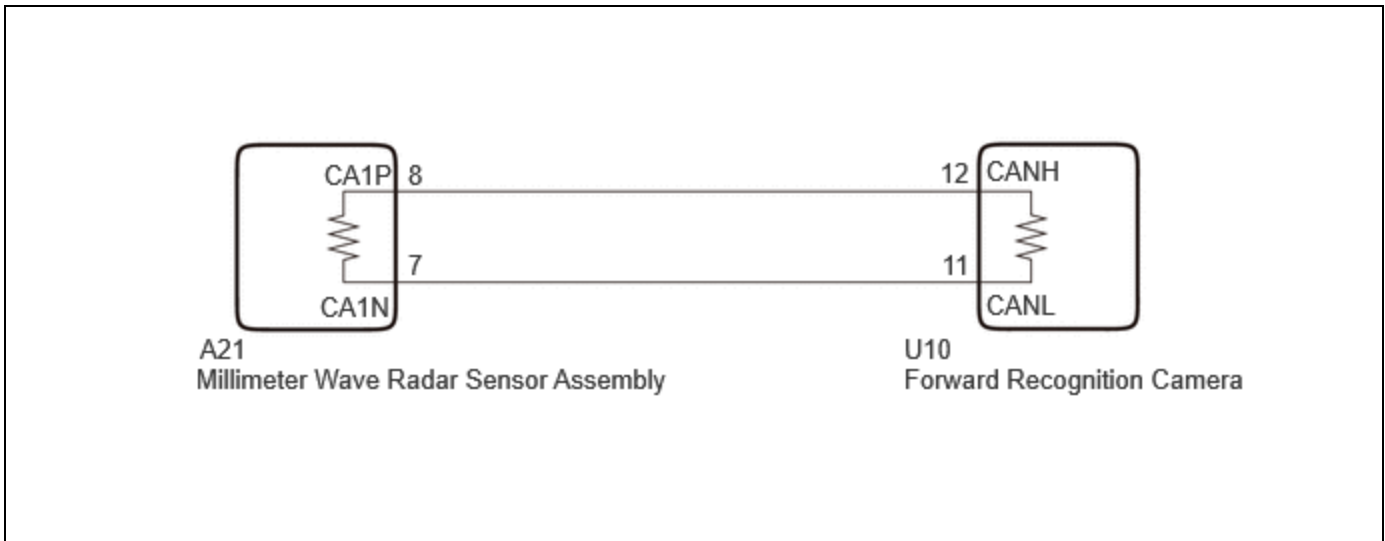
PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)		SUSPECTED AREA (MALFUNCTION STATUS)
	MILLIMETER WAVE RADAR SENSOR ASSEMBLY	FORWARD RECOGNITION CAMERA	
	FRONT RADAR SENSOR	FRONT RECOGNITION CAMERA	
	U010487	U023587	
Pattern 1	○	○	Connector (Poor connector)
			Harness or connector (Open or short)
			Millimeter wave radar sensor assembly (Internal malfunction)
			Forward recognition camera (Internal malfunction)
Pattern 2	○	-	Connector (Poor connector)
			Harness or connector (Open)
			Millimeter wave radar sensor assembly (Internal malfunction)
			Forward recognition camera (Internal malfunction)
○: DTC is output -: DTC is not output			

WIRING DIAGRAM

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CAUTION / NOTICE / HINT

NOTICE:

- 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 has been replaced with a new one, it is necessary to perform millimeter wave radar sensor assembly beam axis alignment and to clear the vehicle control history. Before performing the Driving Adjustment, make sure to read Before Starting Driving Adjustment.

HINT:

Beam axis alignment of the millimeter wave radar sensor assembly can be performed using either Triangle Target, Flat Surface Target or Driving Adjustment.

Triangle Target: [Click here](#) INFO

Flat Surface Target: [Click here](#) INFO

Driving Adjustment: [Click here](#) INFO

- When replacing the forward recognition camera, always replace it with a new one. If a forward recognition camera which was installed to another vehicle is used, the information stored in the forward recognition camera will not match the information from the vehicle and a DTC may be stored.
- When the forward recognition camera has been replaced with a new one, make sure to clear all stored vehicle control history of each system and the forward recognition camera beam axis alignment data.

HINT:

Forward recognition camera beam axis alignment can be performed by using "One Time Recognition", "Driving Adjustment" or "Camera Axis Adjustment Value Write".

One Time Recognition: [Click here](#) INFO

Driving Adjustment: [Click here](#) INFO

Camera Axis Adjustment Value Write: [Click here](#) INFO

- If the forward recognition camera has been replaced with a new one, make sure to perform Software Version Confirmation.

[Click here](#) INFO

- After the ignition switch is turned off, there may be a waiting time before disconnecting the negative (-) auxiliary battery terminal.

[Click here](#) INFO

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

[Click here](#) INFO

PROCEDURE

1.	CONFIRM MODEL
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(a) Choose the model to be inspected.

RESULT	PROCEED TO
w/ Advanced Park	A
w/o Advanced Park	B

B ▶ **GO TO STEP 8**

A
▼

2. CHECK FOR DTCs

(a) Read each DTC and check the diagnosis pattern using the table below.

Body Electrical > Front Radar Sensor > Trouble Codes

Chassis > Front Recognition Camera > Trouble Codes

Body Electrical > Clearance Warning > Trouble Codes

Chassis > Circumference Monitoring Camera Control Module > Trouble Codes

PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)			
	FRONT RADAR SENSOR	FRONT RECOGNITION CAMERA	CLEARANCE WARNING	CIRCUMFERENCE MONITORING CAMERA CONTROL MODULE
Pattern 1	U010487	U023587	U117987	U11B687
Pattern 2	U010487	-	-	-

RESULT	PROCEED TO
Pattern 1	A
Pattern 2	B

A ► **GO TO FRONT CAMERA SYSTEM**

B
▼

3. CHECK CONNECTION OF CONNECTORS

(a) Check that the connectors are properly connected to the forward recognition camera and millimeter wave radar sensor assembly.

OK:

The connectors are properly connected

NG ► **CONNECT CONNECTORS PROPERLY**

OK**4. CLEAR DTC**

(a) Read each DTC and check the diagnosis pattern using the table below.

Body Electrical > Front Radar Sensor > Clear DTCs

NEXT**5. CHECK FOR DTCs**

Pre-procedure1

- (a) Turn the ignition switch off.
- (b) Turn the ignition switch to ON.
- (c) Make sure that the DTC detection conditions are met.

HINT:

If the detection conditions are not met, the system cannot detect the malfunction.

Procedure1

- (d) Check for DTCs.

Body Electrical > Front Radar Sensor > Trouble Codes

RESULT	PROCEED TO
U010487 is not output	A
U010487 is output	B

Post-procedure1

- (e) None

A **END****B**

6. CHECK CAN MAIN WIRE (MILLIMETER WAVE RADAR SENSOR ASSEMBLY)

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the A21 millimeter wave radar sensor assembly connector.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(A21\)](#)

[Click Connector\(A21\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A21-8 (CA1P) - A21-7 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω

Post-procedure1

- (d) None

NG **REPAIR OR REPLACE CAN BUS HARNESS OR CONNECTOR**

OK



7. CHECK FORWARD RECOGNITION CAMERA

Pre-procedure1

- (a) Disconnect the A21 millimeter wave radar sensor assembly connector.

Procedure1

- (b) Using an oscilloscope, check the waveform.

OK:



[Click Location & Routing\(A21\)](#)

[Click Connector\(A21\)](#)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
A21-8 (CA1P) - A21-7 (CA1N)	Ignition switch ON	1V/DIV., 100µs./DIV.	Pulse generation

Post-procedure1

(c) None

OK  **REPLACE MILLIMETER WAVE RADAR SENSOR ASSEMBLY** 

NG  **REPLACE FORWARD RECOGNITION CAMERA** 

8.	CHECK FOR DTCs
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(a) Read each DTC and check the diagnosis pattern using the table below.

Body Electrical > Front Radar Sensor > Trouble Codes

Chassis > Front Recognition Camera > Trouble Codes

PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)	
	FRONT RADAR SENSOR	FRONT RECOGNITION CAMERA
Pattern 1	U010487	U023587
Pattern 2	U010487	-

RESULT	PROCEED TO
Pattern 1	A
Pattern 2	B

A  **GO TO FRONT CAMERA SYSTEM**

B


9.	CHECK CONNECTION OF CONNECTORS
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(a) Check that the connectors are properly connected to the forward recognition camera and millimeter wave radar sensor assembly.

OK:

The connectors are properly connected

NG  **CONNECT CONNECTORS PROPERLY**

OK



10.	CLEAR DTC
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(a) Read each DTC and check the diagnosis pattern using the table below.

Body Electrical > Front Radar Sensor > Clear DTCs

NEXT



11.	CHECK FOR DTCs
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Pre-procedure1

- (a) Turn the ignition switch off.
- (b) Turn the ignition switch to ON.
- (c) Make sure that the DTC detection conditions are met.

HINT:

If the detection conditions are not met, the system cannot detect the malfunction.

Procedure1

- (d) Check for DTCs.

Body Electrical > Front Radar Sensor > Trouble Codes

RESULT	PROCEED TO
U010487 is not output	A
U010487 is output	B

Post-procedure1

- (e) None

A  **END**

B

**12. CHECK CAN MAIN WIRE (MILLIMETER WAVE RADAR SENSOR ASSEMBLY)**

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the A21 millimeter wave radar sensor assembly connector.

Procedure1

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

Standard Resistance:

[Click Location & Routing\(A21\)](#)[Click Connector\(A21\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A21-8 (CA1P) - A21-7 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω

Post-procedure1

- (d) None

NG **REPAIR OR REPLACE CAN BUS HARNESS OR CONNECTOR****OK****13. CHECK FORWARD RECOGNITION CAMERA**

Pre-procedure1

- (a) Disconnect the A21 millimeter wave radar sensor assembly connector.

Procedure1

- (b) Using an oscilloscope, check the waveform.

OK:



[Click Location & Routing\(A21\)](#)

[Click Connector\(A21\)](#)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
A21-8 (CA1P) - A21-7 (CA1N)	Ignition switch ON	1V/DIV., 100 μ s./DIV.	Pulse generation

Post-procedure1

(c) None

OK ▶ REPLACE MILLIMETER WAVE RADAR SENSOR ASSEMBLY [INFO](#)

NG ▶ REPLACE FORWARD RECOGNITION CAMERA [INFO](#)

