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ADVANCED DRIVER ASSISTANCE SYSTEM: FRONT CAMERA SYSTEM: U023287, U123687; Lost Communication with Side Ob...

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Model Year Start: 2023 Model: Prius Prime Prod Date Range: [12/2022 -]					
Title: ADVANCED DRIVER ASSISTANCE SYSTEM: FRONT CAMERA SYSTEM: U023287,U123687; Lost					
Communication with Side Obstacle Detection Control Module "A" Missing Message; 2023 - 2024 MY Prius Prius					
Prime [12/2022 -]					

DTC	U023287	Lost Communication with Side Obstacle Detection Control Module "A" Missing Message
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DTC	U123687	Lost Communication with Cruise Control Front Distance Range Sensor Front Side "B" Missing Message	
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DESCRIPTION

Forward recognition camera is connected to the blind spot monitor sensor*1 and front side radar sensor*2 by CAN communication line.

If communication with the blind spot monitor sensor stops, the forward recognition camera stores DTC U023287.*1

If communication with the front side radar sensor stops, the forward recognition camera stores DTC U123687.*2

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY
U023287	Lost Communication with Side Obstacle Detection Control Module "A" Missing Message	When a communication error between forward recognition camera and blind spot monitor sensor RH (A) is detected	 Harness or connector Blind spot monitor sensor RH (A)*1 Blind spot monitor sensor LH (B)*1 Front side radar sensor (A)*2 Front side radar sensor (B)*2 Clearance warning ECU assembly Forward recognition camera No. 1 CAN junction terminal 	Front Recognition Camera	A

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY
U123687	Lost Communication with Cruise Control Front Distance Range Sensor Front Side "B" Missing Message	When a communication error between forward recognition camera and front side radar sensor (B) is detected	 Harness or connector Blind spot monitor sensor RH (A)*1 Blind spot monitor sensor LH (B)*1 Front side radar sensor (A)*2 Front side radar sensor (B)*2 Clearance warning ECU assembly Forward recognition camera No. 1 CAN junction terminal 	Front Recognition Camera	A

*1: w/ Blind Spot Monitor System

*2: w/ Front Cross Traffic Alert

HINT:

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

w/ Blind Spot Monitor System with Front Cross Traffic Alert

PATTERN	DTC OUTPUT PART NAME		SUSPECTED AREA (MALFUNCTION STATUS)
	(DISPLAY ON GTS)		
	FORWARD RECOGNITION CAMERA		
	FRONT RECOGNITION CAMERA		
	U023287	U123687	
Pattern 1	0	0	Connector (Poor connector)
			Harness or connector (Open or short)
			Blind spot monitor sensor RH (A) (Internal malfunction)
			Blind spot monitor sensor LH (B) (Communication malfunction)
o: DTC is output			
-: DTC is n	ot output		

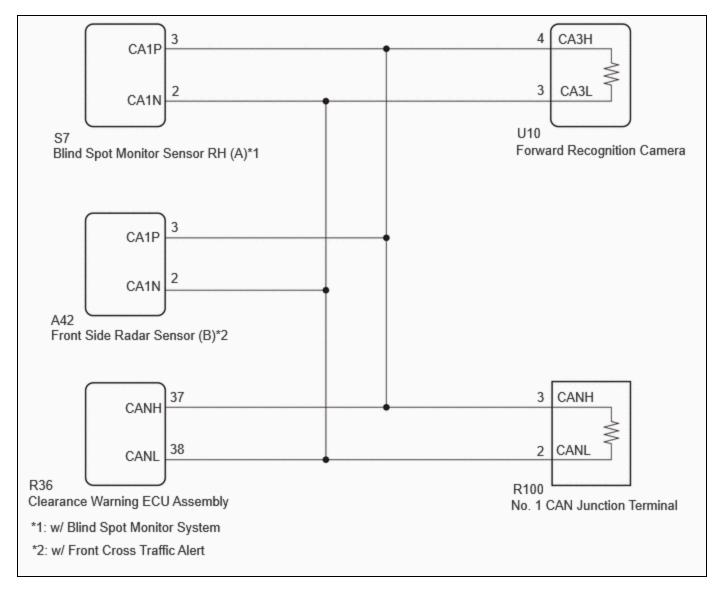
ADVANCED DRIVER ASSISTANCE SYSTEM: FRONT CAMERA SYSTEM: U023287,U123687; Lost Communication with Side Ob...

PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)		SUSPECTED AREA (MALFUNCTION STATUS)
	FORWARD RECOGNITION CAMERA		
	FRONT RECOGNITION CAMERA		
	U023287	U123687	
			Front side radar sensor (A) (Communication malfunction)
			Front side radar sensor (B) (Internal malfunction)
			Clearance warning ECU assembly (Internal malfunction)
			No. 1 CAN junction terminal (Internal malfunction)
			Forward recognition camera (Internal malfunction)
			Connector (Poor connector)
Pattern 2			Harness or connector (Open)
	0	-	Blind spot monitor sensor RH (A) (Internal malfunction)
			Blind spot monitor sensor LH (B) (Communication malfunction)
			Connector (Poor connector)
Pattern 3		_	Harness or connector (Open)
Pattern 5	-	0	Front side radar sensor (A) (Communication malfunction)
			Front side radar sensor (B) (Internal malfunction)
o: DTC is o	utput		
-: DTC is no	ot output		

w/ Blind Spot Monitor System without Front Cross Traffic Alert

PATTERN	DTC OUTPUT PART NAME	SUSPECTED AREA (MALFUNCTION STATUS)
	(DISPLAY ON GTS)	
	FORWARD RECOGNITION CAMERA	
	FRONT RECOGNITION CAMERA	
	U023287	
		Connector (Poor connector)
		Harness or connector (Open or short)
		Blind spot monitor sensor RH (A) (Internal malfunction)
Pattern 1	0	Blind spot monitor sensor LH (B) (Communication malfunction)
		Clearance warning ECU assembly (Internal malfunction)
		No. 1 CAN junction terminal (Internal malfunction)
		Forward recognition camera (Internal malfunction)
o: DTC is o	utput	
-: DTC is n	ot output	

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- 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

Driving Adjustment: Click here

Camera Axis Adjustment Value Write: Click here

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

Click here

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

Click here

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

PROCEDURE

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

RESULT	PROCEED TO
w/ Blind Spot Monitor System with Front Cross Traffic Alert	A
w/ Blind Spot Monitor System without Front Cross Traffic Alert	В

B GO TO STEP 22

A

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

Chassis > Front Recognition Camera > Trouble Codes

PATTERN	DTC OUTPUT PART NAME (DISPLAY ON GTS)			
	FRONT RECOGNITION CAMERA			
Pattern 1	U023287 U123687			
Pattern 2	U023287 -			
Pattern 3	-	U123687		

RESULT	PROCEED TO
Pattern 1	A

RESULT	PROCEED TO
Pattern 2	В
Pattern 3	С



A

3.

CHECK CONNECTION OF CONNECTORS

(a) Check that the connectors are properly connected to the forward recognition camera, blind spot monitor sensor RH (A), front side radar sensor (B) and No. 1 CAN junction terminal.

OK:

The connectors are properly connected.

NG CONNECT THE CONNECTORS CORRECTLY

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4.	CLEAR DTC	
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(a) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs



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.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
U023287 and U123687 are output	В

Post-procedure1

(e) None

B

AR DTC

Pre-procedure1

(a) Disconnect the S7 blind spot monitor sensor RH (A) connector

Procedure1

(b) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs

Post-procedure1

(c) None



7. **INSPECT BLIND SPOT MONITOR SENSOR RH (A)**

(a) Check for DTCs.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
U023287 is output	A
U023287 and U123687 are output	В



Α	
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8. CHECK FOR DTCs (HEALTH CHECK)

(a) Perform a health check.

OK:

There is a response from blind spot monitor sensor LH (B).

RESULT	PROCEED TO
There is a response from blind spot monitor sensor LH (B)	A
No response from blind spot monitor sensor LH (B)	В

B GO TO CAN COMMUNICATION SYSTEM

A

9. CHECK FOR DTCs (BLIND SPOT MONITOR SYSTEM))

(a) Check for DTCs.

Body Electrical > Blind Spot Monitor "B" > Trouble Codes

RESULT	PROCEED TO
U023287 is output	A

RESULT	PROCEED TO
U023287 is not output	В

A GO TO BLIND SPOT MONITOR SYSTEM

B GO TO STEP 13

10. CHECK CONNECTION OF CONNECTORS

(a) Check that the connectors are properly connected to the forward recognition camera and blind spot monitor sensor RH (A).

OK:

The connectors are properly connected.

NG CONNECT THE CONNECTORS CORRECTLY

0	Κ
	7

11. CLEAR DTC

(a) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs



12. 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.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
U023287 is not output	A
U023287 is output	В

Post-procedure1

(e) None



13. CHECK CAN MAIN WIRE (BLIND SPOT MONITOR SENSOR RH (A))

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the S7 blind spot monitor sensor RH (A) connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(S7) Click Connector(S7)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
S7-3 (CA1P) - S7-2 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	54 to 69 Ω	Ω

Post-procedure1

(d) None



Click here

NG REPAIR OR REPLACE HARNESS OR CONNECTOR



(a) Check that the connectors are properly connected to the forward recognition camera and front side radar sensor (B).

OK:

The connectors are properly connected.

NG CONNECT THE CONNECTORS CORRECTLY

0	Κ

15. CLEAR DTC

(a) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs



16.	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.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
U123687 is not output	A
U123687 is output	В

Post-procedure1

(e) None



17.	CLEAR DTC	
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Pre-procedure1

(a) Disconnect the A42 front side radar sensor (B) connector.

Procedure1

(b) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs

Post-procedure1

(c) None

NEXT



(a) Check for DTCs.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
U123687 is output	А
U023287 and U123687 are output	В





19. CHECK FOR DTCs (HEALTH CHECK)

(a) Perform a health check.

OK:

There is a response from front side radar sensor (A).

RESULT	PROCEED TO
There is a response from front side radar sensor (A)	A
No response from front side radar sensor (A)	В

A	
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20.	CHECK FOR DTCs (FRONT SIDE RADAR SENSOR SYSTEM)
20.	CHECK FOR DTCs (FRONT SIDE RADAR SENSOR SYSTEM)

(a) Check for DTCs.

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Body Electrical > Front Side Radar "A" > Trouble Codes

RESULT	PROCEED TO	
U123687 is output	A	
U123687 is not output	В	

A GO TO FRONT SIDE RADAR SENSOR SYSTEM

B

21. CHECK CAN MAIN WIRE (FRONT SIDE RADAR SENSOR (B))

Pre-procedure1

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

(b) Disconnect the A42 front side radar sensor (B) connector.

Procedure1

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

Standard Resistance:



Click Location & Routing(A42) Click Connector(A42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A42-3 (CA1P) - A42-2 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	54 to 69 Ω	Ω

Post-procedure1

(d) None



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

22.	CHECK CONNECTION OF CONNECTORS	

(a) Check that the connectors are properly connected to the forward recognition camera and blind spot monitor sensor RH (A).

OK:

The connectors are properly connected.





23. CLEAR DTC

(a) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs



24. CHECK FOR DTCs

(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.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO	
U023287 is not output	Α	
U023287 is output	В	

Post-procedure1

(e) None



В

25. CHECK FOR DTCs (HEALTH CHECK)

(a) Perform a health check.

OK:

There is a response from blind spot monitor sensor LH (B).

RESULT	PROCEED TO
There is a response from blind spot monitor sensor LH (B)	A
No response from blind spot monitor sensor LH (B)	В

B GO TO CAN COMMUNICATION SYSTEM

26. CHECK FOR DTCs (BLIND SPOT MONITOR SYSTEM))

(a) Check for DTCs.

Body Electrical > Blind Spot Monitor "B" > Trouble Codes

RESULT	PROCEED TO	
U023287 is output	A	
U023287 is not output	В	

A GO TO BLIND SPOT MONITOR SYSTEM



27.

Pre-procedure1

(a) Disconnect the A42 front side radar sensor (B) connector.

Procedure1

(b) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs

Post-procedure1

(c) None



28. INSPECT FRONT SIDE RADAR SENSOR (B)

(a) Check for DTCs.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
U123687 is output	А
U023287 and U123687 are output	В



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29.	CHECK FOR DTCs (HEALTH CHECK)	
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(a) Perform a health check.

OK:

There is a response from front side radar sensor (A).

RESULT	PROCEED TO
There is a response from front side radar sensor (A)	A
No response from front side radar sensor (A)	В

B GO TO CAN COMMUNICATION SYSTEM

Α
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30.	CHECK FOR DTCs (FRONT SIDE RADAR SENSOR SYSTEM)
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(a) Check for DTCs.

Body Electrical > Front Side Radar "A" > Trouble Codes

RESULT	PROCEED TO
U123687 is output	A
U123687 is not output	В

A GO TO FRONT SIDE RADAR SENSOR SYSTEM

B GO TO STEP 32

31.

. CHECK CAN MAIN WIRE (BLIND SPOT MONITOR SENSOR RH (A))

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the S7 blind spot monitor sensor RH (A) connector.

Procedure1

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

Standard Resistance:



Click Location & Routing(S7) Click Connector(S7)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
S7-3 (CA1P) - S7-2 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	54 to 69 Ω	Ω

Post-procedure1

(d) None



Click here

NG GO TO STEP 33

32. CHECK CAN MAIN WIRE (FRONT SIDE RADAR SENSOR (B))

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the A42 front side radar sensor (B) connector.

Procedure1

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

Standard Resistance:



Click Location & Routing(A42) Click Connector(A42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A42-3 (CA1P) - A42-2 (CA1N)	Cable disconnected from negative (-) auxiliary battery terminal	54 to 69 Ω	Ω

Post-procedure1

(d) None

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NG REPAIR OR REPLACE HARNESS OR CONNECTOR

33.	CHECK CAN MAIN WIRE (FORWARD RECOGNITION CAMERA)
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Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the U10 forward recognition camera connector.

Procedure1

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

Standard Resistance:

EWD INFO

<u>Click Location & Routing(U10)</u> <u>Click Connector(U10)</u>

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
U10-3 (CA3L) - U10-4 (CA3H)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω
U10-3 (CA3L) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
U10-4 (CA3H) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
U10-3 (CA3L) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
U10-4 (CA3H) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ

Post-procedure1

(d) None

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OK REPLACE FORWARD RECOGNITION CAMERA

Click here

NG

34. CHECK CAN MAIN WIRE (NO. 1 CAN JUNCTION TERMINAL)

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the R100 No. 1 CAN junction terminal connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(R100) Click Connector(R100)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R100-2 (CANL) - R100-3 (CANH)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω
R100-2 (CANL) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
R100-3 (CANH) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
R100-2 (CANL) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ
R100-3 (CANH) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ

Post-procedure1

(d) None



NG REPAIR OR REPLACE HARNESS OR CONNECTOR



Pre-procedure1

(a) Disconnect the R36 clearance warning ECU assembly connector.

Procedure1

(b) Clear the DTCs.

Chassis > Front Recognition Camera > Clear DTCs

Post-procedure1

(c) None

36. INSPECT CLEARANCE WARNING ECU ASSEMBLY

(a) Check for DTCs.

Chassis > Front Recognition Camera > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
U023287 and U123687 are output	В

A REPLACE CLEARANCE WARNING ECU ASSEMBLY

В

37. CHECK CAN MAIN WIRE (FORWARD RECOGNITION CAMERA)

Pre-procedure1

ADVANCED DRIVER ASSISTANCE SYSTEM: FRONT CAMERA SYSTEM: U023287,U123687; Lost Communication with Side Ob...

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

(b) Disconnect the U10 forward recognition camera connector.

Procedure1

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

Standard Resistance:



Click Location & Routing(U10) Click Connector(U10)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
U10-3 (CA3L) - U10-4 (CA3H)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω
U10-3 (CA3L) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
U10-4 (CA3H) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
U10-3 (CA3L) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ
U10-4 (CA3H) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ

Post-procedure1

(d) None

OK REPLACE FORWARD RECOGNITION CAMERA

Click here

NG

38. CHECK CAN MAIN WIRE (NO. 1 CAN JUNCTION TERMINAL)

Pre-procedure1

- (a) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (b) Disconnect the R100 No. 1 CAN junction terminal connector.

Procedure1

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

Standard Resistance:



Click Location & Routing(R100) Click Connector(R100)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R100-2 (CANL) - R100-3 (CANH)	Cable disconnected from negative (-) auxiliary battery terminal	108 to 132 Ω	Ω
R100-2 (CANL) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
R100-3 (CANH) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher	Ω
R100-2 (CANL) - +B	Cable disconnected from negative (-) auxiliary battery terminal	$6 \ k\Omega$ or higher	kΩ
R100-3 (CANH) - +B	Cable disconnected from negative (-) auxiliary battery terminal	6 k Ω or higher	kΩ

Post-procedure1

(d) None

OK REPLACE NO. 1 CAN JUNCTION TERMINAL

NG > REPAIR OR REPLACE HARNESS OR CONNECTOR

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