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<b>Model Year Start:</b> 2023	<b>Model:</b> Prius Prime	<b>Prod Date Range:</b> [12/2022 - ]
<b>Title:</b> HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): U011187; Lost Communication with Hybrid/EV Battery Energy Control Module "A" Missing Message; 2023 - 2024 MY Prius Prius Prime [12/2022 - ]		

<b>DTC</b>	<b>U011187</b>	<b>Lost Communication with Hybrid/EV Battery Energy Control Module "A" Missing Message</b>
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## DESCRIPTION

The hybrid vehicle control ECU transmits and receives signals via CAN communication to and from the battery ECU assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
U011187	Lost Communication with Hybrid/EV Battery Energy Control Module "A" Missing Message	The hybrid vehicle control ECU cannot receive signals from the battery ECU assembly  (1 trip detection logic)	<ul style="list-style-type: none"> <li>Battery ECU assembly</li> <li>Hybrid vehicle control ECU</li> <li>Wire harness or connector</li> </ul>	Comes on	Master Warning: Comes on	Hybrid Control	B	SAE Code: U0111

## MONITOR DESCRIPTION

If the hybrid vehicle control ECU detects a problem with CAN communication with the ECU, it will illuminate the MIL and store a DTC.

## MONITOR STRATEGY

Related DTCs	U0111 (INF U011187): Lost communication with BECM (Battery bus) verify communication
Required sensors/components	Main: Battery ECU assembly Sub: Hybrid vehicle control ECU
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	Immediately
Sequence of operation	None

## TYPICAL ENABLING CONDITIONS

The monitor will run whenever the following DTCs are not stored	TMC's intellectual property
Other conditions belong to TMC's intellectual property	-

## TYPICAL MALFUNCTION THRESHOLDS

TMC's intellectual property	-
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## COMPONENT OPERATING RANGE

Hybrid vehicle control ECU	DTC U0111 (INF U011187) is not detected
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## CONFIRMATION DRIVING PATTERN

### HINT:

- After repair has been completed, clear the DTC and then check that the vehicle has returned to normal by performing the following All Readiness check procedure.

Click here [INFO](#)

- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

Click here [INFO](#)

- Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
- Turn the ignition switch off and wait for 2 minutes or more.
- Turn the ignition switch to ON (READY) and wait for 2 minutes or more. [\*1]

### HINT:

[\*1] : Normal judgment procedure.

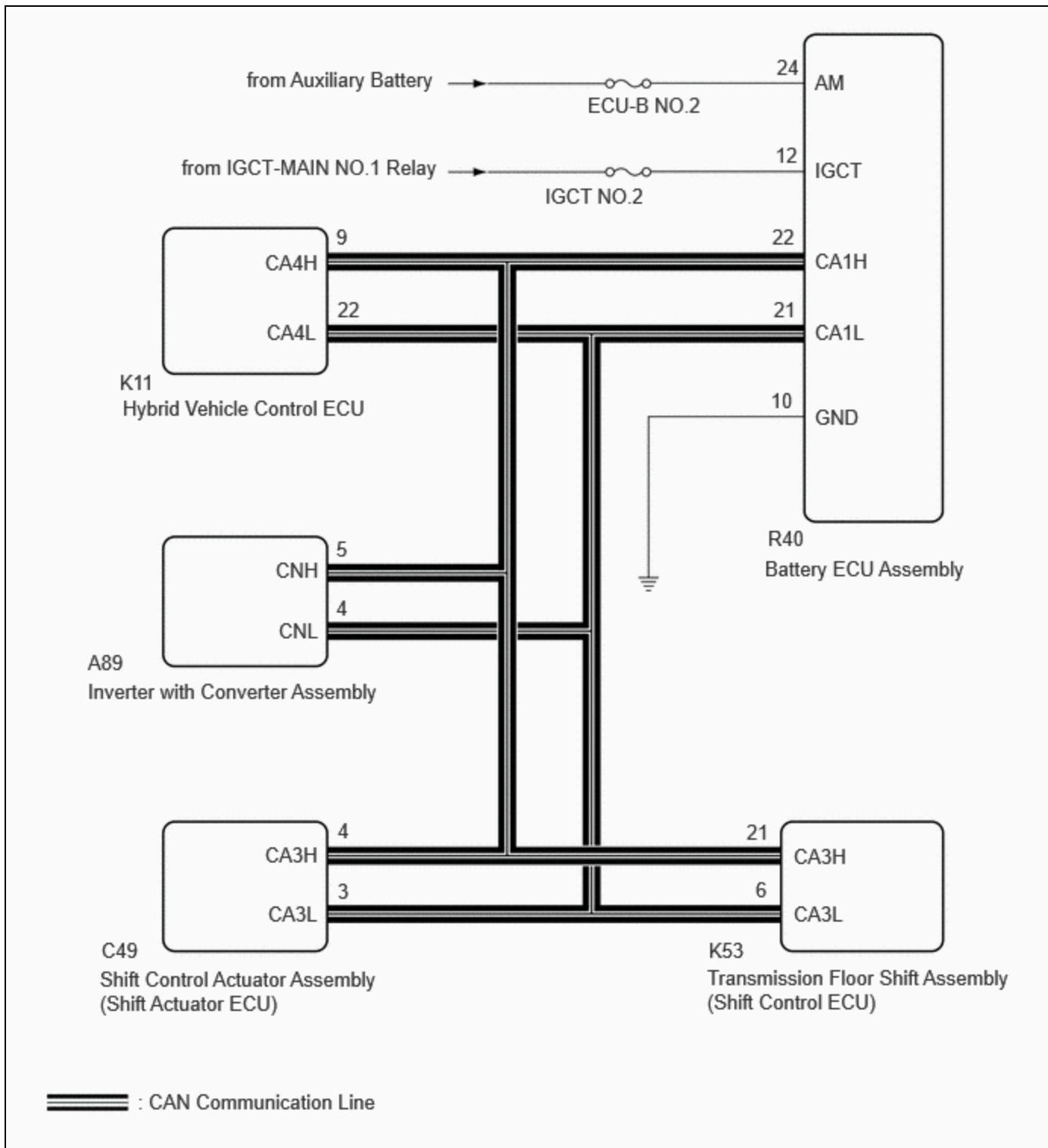
The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

- Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
- Check the DTC judgment result.

### HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE, perform the normal judgment procedure again.

## WIRING DIAGRAM



## CAUTION / NOTICE / HINT

### CAUTION:

Refer to the precautions before inspecting high voltage circuit.

Click here [INFO](#)

### NOTICE:

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

[Click here](#) INFO

- When disconnecting and reconnecting the auxiliary battery

**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. CHECK DTC OUTPUT (HV BATTERY)**

Pre-procedure1

- (a) None.

Procedure1

- (b) Check and record any HV Battery DTCs and freeze frame data. Check for DTCs.

**Powertrain > HV Battery > Trouble Codes**

RESULT	PROCEED TO
DTCs related to Hybrid Battery System are not output.	A
DTCs related to Hybrid Battery System are output.	B

Post-procedure1

- (c) Turn the ignition switch off.

**B** [GO TO DTC CHART \(HYBRID BATTERY SYSTEM\)](#)

A

**2. CHECK BATTERY ECU ASSEMBLY (IGCT VOLTAGE)**

**CAUTION:**

Be sure to wear insulated gloves.

Pre-procedure1

- (a) Check that the service plug grip is not installed.

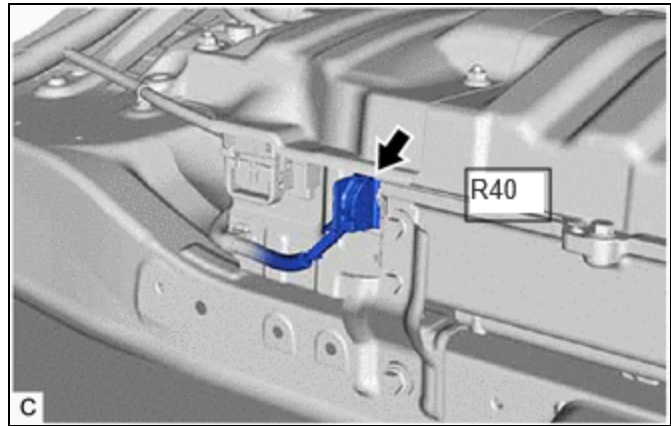
**NOTICE:**

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the battery ECU assembly connector.

**NOTICE:**

- Before disconnecting the connector, check that it is not loose or disconnected.
- Check the terminals of the connector for deformation and corrosion.



Procedure1

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

Standard Voltage:



[Click Location & Routing\(R40\)](#)

[Click Connector\(R40\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-24 (AM) - R40-10 (GND)	Ignition switch off	11 to 14 V	V

(d) Connect the cable to the negative (-) auxiliary battery terminal.

(e) Turn the ignition switch to ON.

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

Standard Voltage:



[Click Location & Routing\(R40\)](#)

[Click Connector\(R40\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-12 (IGCT) - R40-10 (GND)	Ignition switch ON	11 to 14 V	V

**NOTICE:**

- Turning the ignition switch to ON with the service plug grip removed causes other DTCs to be stored. Clear the DTCs after performing this inspection.
- If the ignition switch is turned to ON with the connectors disconnected, other DTCs will be stored. Be sure to clear the DTCs after the inspection.

**HINT:**

As there might be an intermittent malfunction in the battery ECU assembly power source circuit, inspect the following even if the measured voltage is as specified:

- Installation condition of fuse(s) (before removing fuse(s)) (IGCT circuit)

- Fuse condition (before and after removing fuse(s)) (IGCT circuit)
- Connection condition of connectors (IGCT circuit)
- Wire harness condition (IGCT circuit)
- Wire harness condition (GND circuit)

Post-procedure1

- (g) Turn the ignition switch off.
- (h) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (i) Reconnect the battery ECU assembly connector.

**NG** ► **REPAIR OR REPLACE HARNESS OR CONNECTOR  
(BATTERY ECU ASSEMBLY POWER SOURCE CIRCUIT)**

**OK**



**3.**

**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - BATTERY ECU ASSEMBLY)**

**CAUTION:**

Be sure to wear insulated gloves.

Pre-procedure1

- (a) Check that the service plug grip is not installed.

**NOTICE:**

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

- (b) Disconnect the hybrid vehicle control ECU connector.

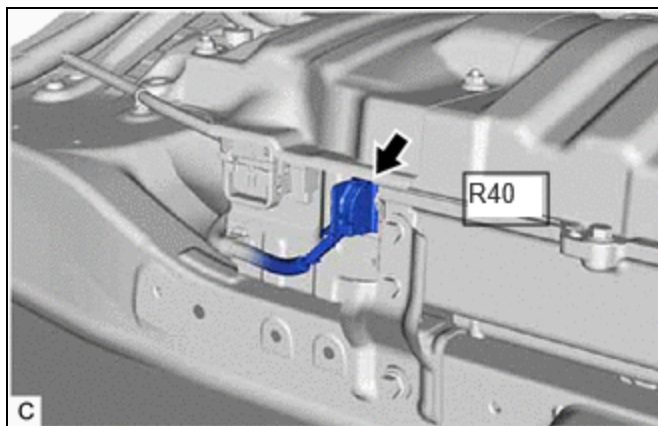
**NOTICE:**

- Before disconnecting the connector, check that it is not loose or disconnected.
- Check that each connector between the hybrid vehicle control ECU and battery ECU assembly is not loose or disconnected.

- (c) Disconnect the battery ECU assembly connector.

**NOTICE:**

- Before disconnecting the connector, check that it is not loose or disconnected.
- Check the terminals of the connector for deformation and corrosion.



(d) Disconnect the inverter with converter assembly connector.

**NOTICE:**

- Before disconnecting the connector, check that it is not loose or disconnected.
- Check the terminals of the connector for deformation and corrosion.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(R40,K11\)](#)

[Click Connector\(R40\)](#)

[Click Connector\(K11\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-22 (CA1H) - K11-9 (CA4H)	Ignition switch off	Below 1 $\Omega$	$\Omega$
R40-21 (CA1L) - K11-22 (CA4L)	Ignition switch off	Below 1 $\Omega$	$\Omega$
K11-9 (CA4H) - Other terminals and body ground	Ignition switch off	10 k $\Omega$ or higher	k $\Omega$
K11-22 (CA4L) - Other terminals and body ground	Ignition switch off	10 k $\Omega$ or higher	k $\Omega$

**NOTICE:**

Make sure that each connector between the battery ECU assembly and hybrid vehicle control ECU is not loose or disconnected and its terminals are not deformed or corroded.

(f) Connect the cable to the negative (-) auxiliary battery terminal.

(g) Turn the ignition switch to ON.

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

Standard Voltage:



[Click Location & Routing\(R40\)](#)

[Click Connector\(R40\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-22 (CA1H) - Body ground	Ignition switch ON	Below 1 V	V
R40-21 (CA1L) - Body ground	Ignition switch ON	Below 1 V	V

**NOTICE:**

- Turning the ignition switch to ON with the service plug grip removed causes other DTCs to be stored. Clear the DTCs after performing this inspection.
- If the ignition switch is turned to ON with the connectors disconnected, other DTCs will be stored. Be sure to clear the DTCs after the inspection.

Post-procedure1

- (i) Turn the ignition switch off.
- (j) Disconnect the cable from the negative (-) auxiliary battery terminal.
- (k) Reconnect the inverter with converter assembly connector.
- (l) Reconnect the battery ECU assembly connector.
- (m) Reconnect the hybrid vehicle control ECU connector.

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

**OK**



<b>4.</b>	<b>CHECK HYBRID VEHICLE CONTROL ECU</b>
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**CAUTION:**

Be sure to wear insulated gloves.

Pre-procedure1

- (a) Check that the service plug grip is not installed.

**NOTICE:**

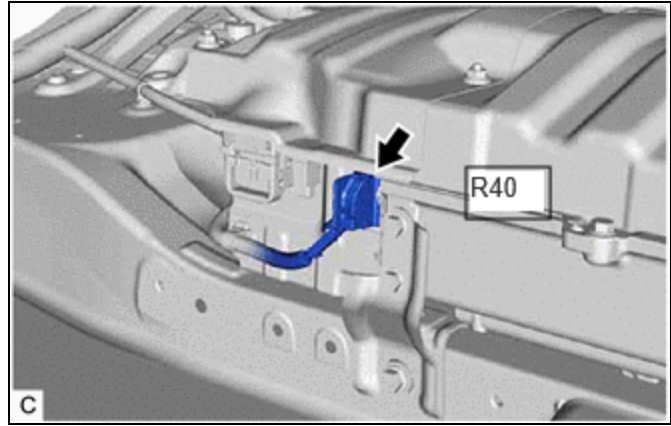
After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

- (b) Disconnect the battery ECU assembly connector.

**NOTICE:**

- Before disconnecting the connector, check that it is not loose or disconnected.
- Check the terminals of the connector for deformation and corrosion.





(c) Connect the cable to the negative (-) auxiliary battery terminal.

(d) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:



[Click Location & Routing\(R40\)](#)

[Click Connector\(R40\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-22 (CA1H) - R40-10 (GND)	Ignition switch ON	2.5 to 3.5 V	V
R40-21 (CA1L) - R40-10 (GND)	Ignition switch ON	1.5 to 2.5 V	V

**NOTICE:**

- Turning the ignition switch to ON with the service plug grip removed causes other DTCs to be stored. Clear the DTCs after performing this inspection.
- If the ignition switch is turned to ON with the connectors disconnected, other DTCs will be stored. Be sure to clear the DTCs after the inspection.

(f) Turn the ignition switch off.

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

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

Standard Resistance:



[Click Location & Routing\(R40\)](#)

[Click Connector\(R40\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R40-22 (CA1H) - R40-21 (CA1L)	Ignition switch off	108 to 132 Ω	Ω

Post-procedure1

(i) Reconnect the battery ECU assembly connector.

**OK** ▶ **REPLACE BATTERY ECU ASSEMBLY**

**NG** ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

Click here [INFO](#)

