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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for M20A-FXS): U115087; Lost Communication with Hybrid Powertrain Control Module (Hybrid/EV Battery Local Bus) Missing Message; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	U115087	Lost Communication with Hybrid Powertrain Control Module (Hybrid/EV Battery Local Bus) Missing Message
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DESCRIPTION

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

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
U115087	Lost Communication with Hybrid Powertrain Control Module (Hybrid/EV Battery Local Bus) Missing Message	The battery ECU assembly does not receive any signals from the hybrid vehicle control ECU for 1 second or more. (1 trip detection logic)	<ul style="list-style-type: none"> Battery ECU assembly Hybrid vehicle control ECU Wire harness or connector 	Comes on	Master Warning: Comes on	HV Battery	B	SAE Code: U1150

MONITOR DESCRIPTION

If the battery ECU assembly cannot communicate with the hybrid vehicle control ECU via CAN communication, it will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	U1150 (INF U115087): Lost communication with hybrid control module (battery bus)
Required sensors/components	Battery ECU assembly
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

Battery ECU assembly	DTC U1150 (INF U115087) 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.
- With ignition switch ON and wait for 2 minutes or more.[*1]

HINT:

[*1]: Normal judgment procedure.

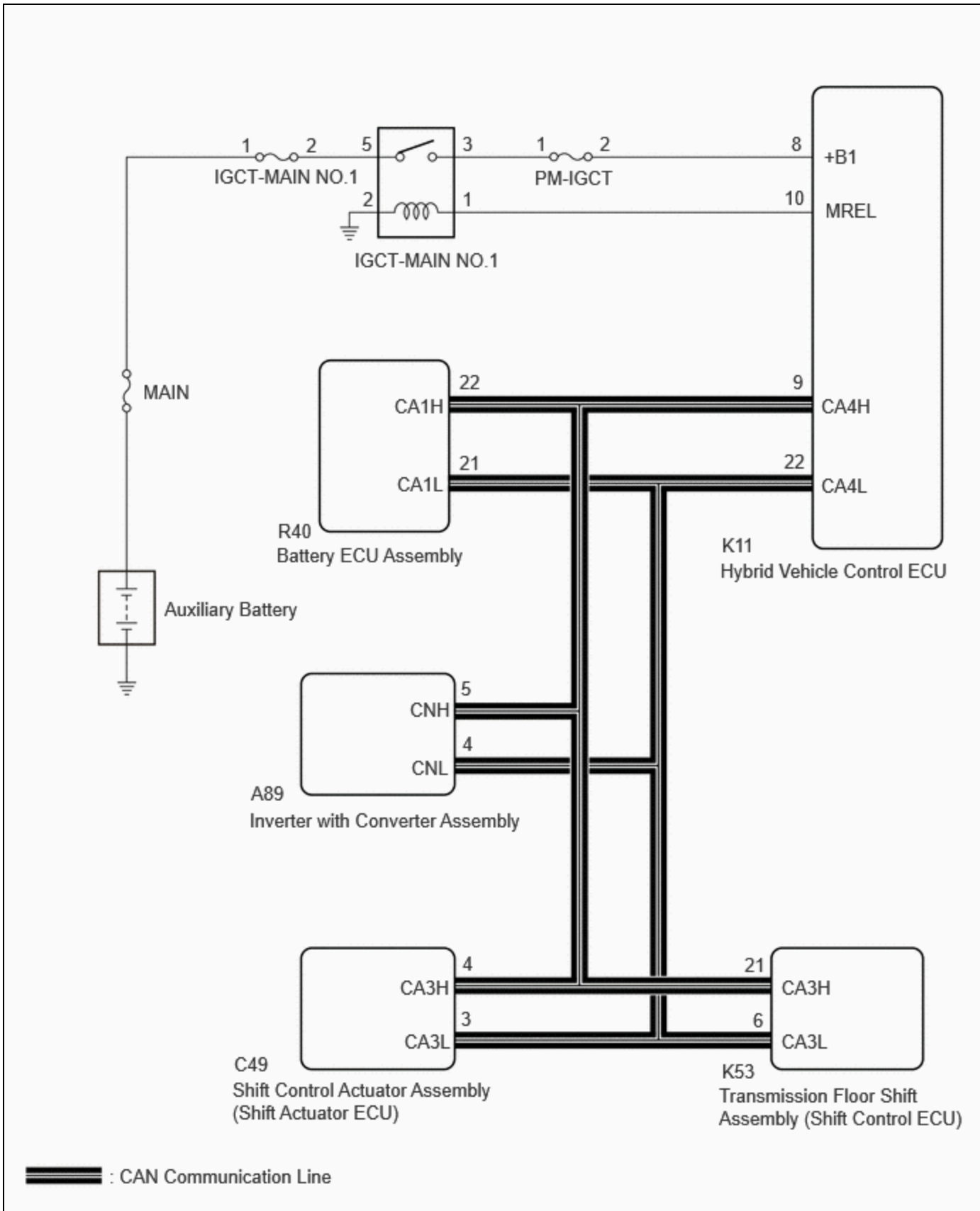
The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

- Enter the following menus: Powertrain / HV Battery / 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

- When removing or installing the shift control ECU and shift actuator ECU, make sure there is no power supplied*1 when disconnecting or connecting the connectors.

*1: Auxiliary battery, sub-battery, integrated capacitor, etc.

- When disconnecting a wire harness of any component connected to the supply power of the integrated capacitor or when removing the integrated capacitor, make sure to wait 5 minutes or more after turning the ignition switch off for self-diagnosis to complete and the voltage of the integrated capacitor to discharge.

PROCEDURE

1.	CHECK DTC OUTPUT (HYBRID CONTROL)
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Pre-procedure1

(a) None

Procedure1

(b) Check and record any Hybrid Control DTCs and freeze frame data. Check for DTCs.

Powertrain > Hybrid Control > Trouble Codes

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

Post-procedure1

(c) Turn the ignition switch off.

B **GO TO DTC CHART (HYBRID CONTROL SYSTEM)**

A

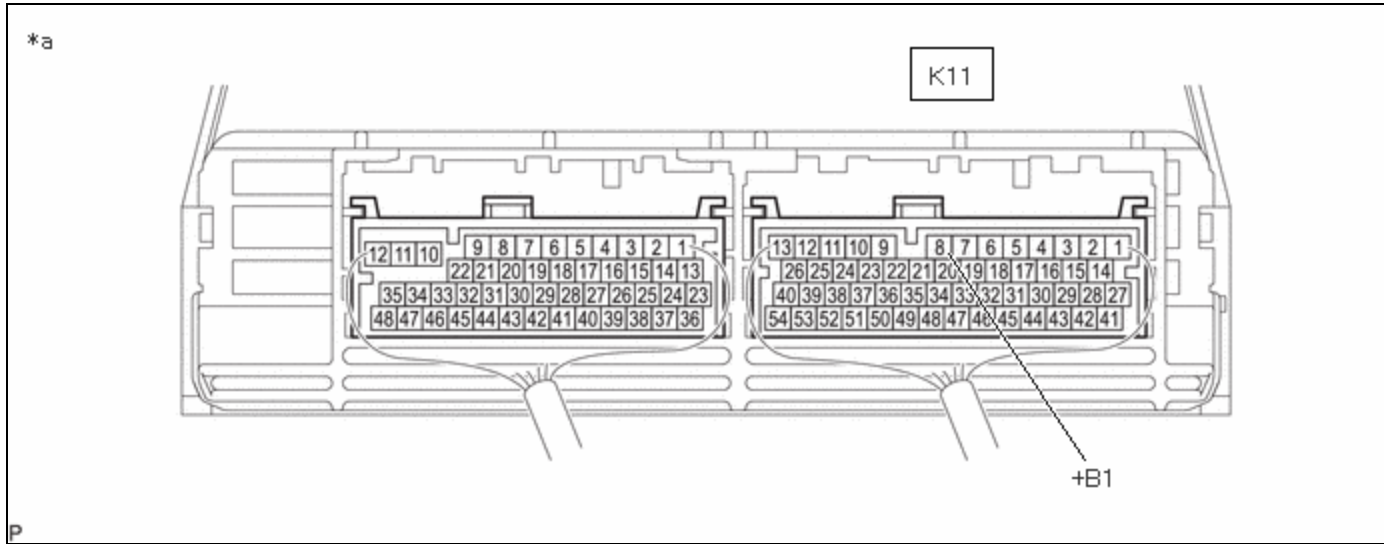
2. CHECK HYBRID VEHICLE CONTROL ECU (VOLTAGE)

Pre-procedure1

(a) Turn the ignition switch to ON.

Procedure1

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



*a	Component with harness connected (Hybrid Vehicle Control ECU)	-	-
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Standard Voltage:



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

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K11-8 (+B1) - Body ground	Ignition switch ON	11 to 14 V	V

Post-procedure1

(c) Turn the ignition switch off.

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

OK
▼

3. CHECK HYBRID VEHICLE CONTROL ECU

CAUTION:

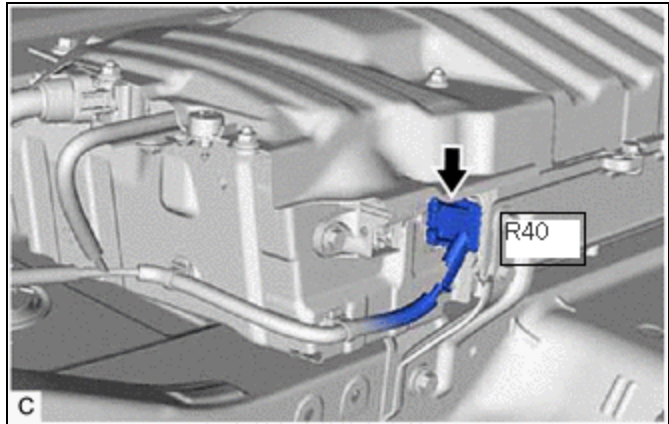
Be sure to wear insulated gloves and protective goggles.

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.

Procedure1

(c) 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

(d) Reconnect the battery ECU assembly connector.

OK ► **REPLACE BATTERY ECU ASSEMBLY**

NG



4.	CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - BATTERY ECU ASSEMBLY)
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CAUTION:

Be sure to wear insulated gloves and protective goggles.

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.

(c) Disconnect the A89 inverter with converter assembly connector.

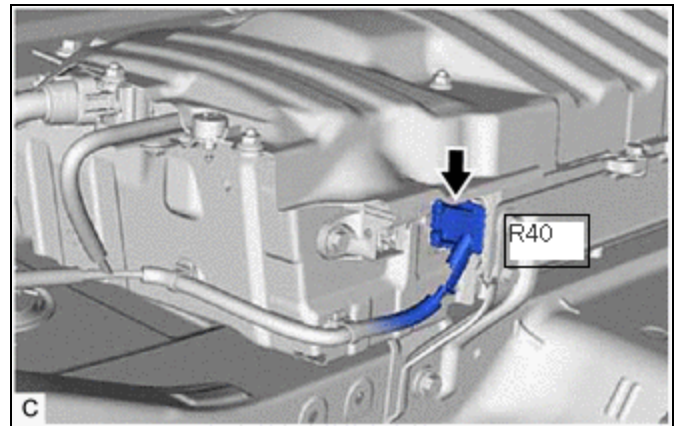
(d) Disconnect the K53 transmission floor shift assembly (shift control ECU) connector.

(e) Disconnect the C49 shift control actuator assembly (shift actuator ECU) connector.

(f) 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

(g) 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 Ω	Ω
R40-21 (CA1L) - K11-22 (CA4L)	Ignition switch off	Below 1 Ω	Ω

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

Post-procedure1

- (h) Reconnect the battery ECU assembly connector.
- (i) Reconnect the shift control actuator assembly (shift actuator ECU) connector.
- (j) Reconnect the transmission floor shift assembly (shift control ECU) connector.
- (k) Reconnect the inverter with converter assembly connector.
- (l) Reconnect the hybrid vehicle control ECU connector.

OK  **REPLACE HYBRID VEHICLE CONTROL ECU** 

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

