Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BI4E
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for PHEV Model): U115387; Lost Communication with Hybrid/EV Battery Charger Control Module "A" (ch2) Missing Message; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**U115387**	**Lost Communication with Hybrid/EV Battery Charger Control Module "A" (ch2) Missing Message**

DESCRIPTION

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

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
U115387	Lost Communication with Hybrid/EV Battery Charger Control Module "A" (ch2) Missing Message	A CAN communication error between the hybrid vehicle control ECU and plugin charge control ECU assembly (CAN communication system malfunction) occurs The hybrid vehicle control ECU cannot receive signals from the plugin charge control ECU assembly (1 trip detection logic)	• Plugin charge control ECU assembly • Wire harness or connector	Comes on	Master Warning: Comes on	Hybrid Control	B	SAE Code: U1153

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	U1153 (INF U115387): Lost communication with Battery Charger Control Module "A" verify communication

Required sensors/components	Main: Hybrid vehicle control ECU Sub: CAN bus line
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	-

COMPONENT OPERATING RANGE

Hybrid vehicle control ECU	DTC U1153 (INF U115387) is not detected

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

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

HINT:

[*1]: Normal judgment procedure.

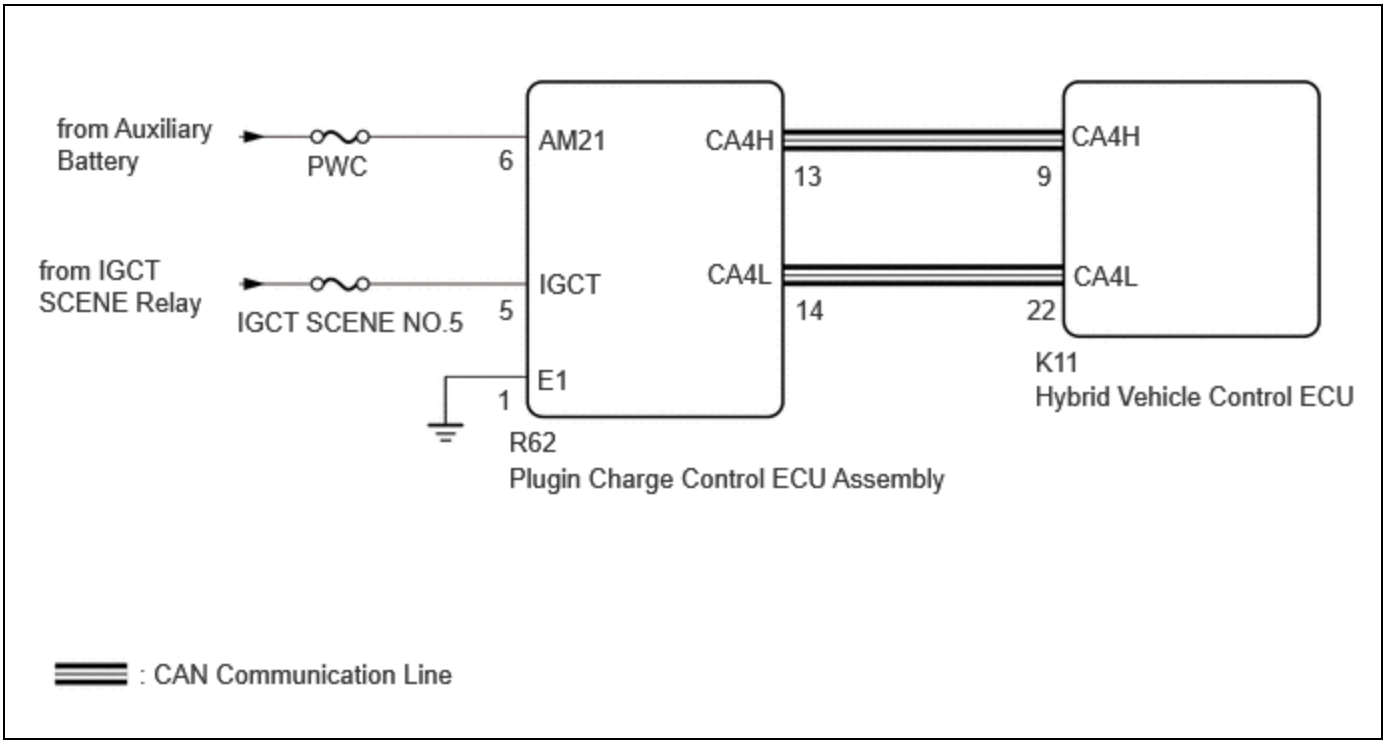
The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

4. Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
5. 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
- Ensure there is no power being supplied to the vehicle when disconnecting or reconnecting the connector of the shift control ECU or shift control actuator ECU, and when removing or installing the shift control ECU or shift control actuator ECU.

PROCEDURE

1.	**CHECK DTC OUTPUT (PLUG-IN CONTROL)**

Pre-procedure1

(a) None.

Procedure1

(b) Check for DTCs.

Powertrain > Plug-in Control > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO DTC CHART (PLUG-IN CONTROL)**

A ▼

2.	**CHECK PLUGIN CHARGE CONTROL ECU ASSEMBLY (IGCT, AM21 VOLTAGE)**

Pre-procedure1

(a) Disconnect the plugin charge control ECU assembly connector.

Procedure1

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

Standard Voltage:

EWD INFO

Click Location & Routing(R62)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-6 (AM21) - R62-1 (E1)	Ignition switch off	11 to 14 V	V

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

(d) Turn the ignition switch to ON.

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

Standard Voltage:

EWD INFO

Click Location & Routing(R62)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-5 (IGCT) - R62-1 (E1)	Ignition switch on	11 to 14 V	V

NOTICE:

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, inspect the following items even if the measured voltage is as specified.

- Installation condition of fuse(s) (before removing fuse(s)) (AM21, IGCT circuit)
- Fuse condition (before and after removing fuse(s)) (AM21, IGCT circuit)
- Connection condition of connectors (AM21, IGCT circuit)
- Wire harness condition (AM21, IGCT circuit)
- Wire harness condition (E1 circuit)

Post-procedure1

(f) Turn the ignition switch off.

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

(h) Reconnect the plugin charge control ECU assembly connector.

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

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - PLUGIN CHARGE CONTROL ECU ASSEMBLY)**

Pre-procedure1

(a) 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.

(b) Disconnect the plugin charge control 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 resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(R62,K11)
Click Connector(R62)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-13 (CA4H) - K11-9 (CA4H)	Ignition switch off	Below 1 Ω	Ω
R62-14 (CA4L) - K11-22 (CA4L)	Ignition switch off	Below 1 Ω	Ω
K11-9 (CA4H) - Other terminals and body ground	Ignition switch off	10 kΩ or higher	kΩ
K11-22 (CA4L) - Other terminals and body ground	Ignition switch off	10 kΩ or higher	kΩ

NOTICE:

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

(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:

EWD INFO

Click Location & Routing(R62)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-13 (CA4H) - Body ground	Ignition switch ON	Below 1 V	V
R62-14 (CA4L) - Body ground	Ignition switch ON	Below 1 V	V

NOTICE:

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

(g) Turn the ignition switch off.

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

(i) Reconnect the plugin charge control ECU assembly connector.

(j) Reconnect the hybrid vehicle control ECU connector.

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

OK ▼

4.	**CHECK HYBRID VEHICLE CONTROL ECU**

Pre-procedure1

(a) Disconnect the plugin charge control 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.

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

(c) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

Click Location & Routing(R62)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-13 (CA4H) - R62-1 (E1)	Ignition switch ON	2.5 to 3.5 V	V
R62-14 (CA4L) - R62-1 (E1)	Ignition switch ON	1.5 to 2.5 V	V

NOTICE:

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.

(e) Turn the ignition switch off.

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

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

Standard Resistance:

EWD INFO

Click Location & Routing(R62)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-13 (CA4H) - R62-14 (CA4L)	Ignition switch off	108 to 132 Ω	Ω

Post-procedure1

(h) Reconnect the plugin charge control ECU assembly connector.

OK ▶ **REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY**

NG ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**