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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for PHEV Model): P0E6D15; Hybrid/EV Battery Charging System Precharge Contactor Control Circuit Short to Auxiliary Battery or Open; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	P0E6D15	Hybrid/EV Battery Charging System Precharge Contactor Control Circuit Short to Auxiliary Battery or Open
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DESCRIPTION

Refer to the description for DTC P0D0A11.

Click here [INFO](#)

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0E6D15	Hybrid/EV Battery Charging System Precharge Contactor Control Circuit Short to Auxiliary Battery or Open	Open or short to +B in CHRP circuit: Primary circuit of CHRP is malfunctioning. (1 trip detection logic)	<ul style="list-style-type: none"> No. 1 traction battery device box assembly Battery ECU assembly Wire harness or connector 	Comes on / Does not come on	Master Warning: Comes on	HV Battery	A	SAE Code: P0E70

MONITOR DESCRIPTION

If the battery ECU assembly detects a malfunction of its HV battery charging system precharge contactor control circuit (CHRP), the battery ECU assembly illuminates the MIL and stores a DTC.

MONITOR STRATEGY

Related DTCs	P0E70 (INF P0E6D15): Battery Charging System Precharge Contactor Control Circuit
Required sensors/components	Charge relay
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 P0E70 (INF P0E6D15) 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 and wait for 5 seconds 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 or N/A, perform the normal judgment procedure again.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P0D0A11.

[Click here](#) INFO

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 auxiliary negative (-) 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.	READ VALUE USING GTS (AC CHARGING PRECHARGE RELAY STATUS)
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Pre-procedure1

(a) None

Procedure1

(b) Read the Data List.

Powertrain > HV Battery > Data List

TESTER DISPLAY
AC Charging Precharge Relay Status

Standard:

TESTER DISPLAY	CONDITION	SPECIFIED CONDITION
AC Charging Precharge Relay Status	Ignition switch ON	OFF

RESULT	PROCEED TO
The value of AC Charging Precharge Relay Status is OFF	A
The value of AC Charging Precharge Relay Status is ON	B

Post-procedure1

(c) Turn the ignition switch off.

B  **GO TO STEP 4**

A


2. CHECK CONNECTOR CONNECTION CONDITION (BATTERY ECU ASSEMBLY)Click here [INFO](#)**NG**  **CONNECT SECURELY****OK****3. CHECK CONNECTOR CONNECTION CONDITION (NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY)**Click here [INFO](#)**OK**  **CHECK FOR INTERMITTENT PROBLEMS****NG**  **CONNECT SECURELY****4. CHECK CONNECTOR CONNECTION CONDITION (BATTERY ECU ASSEMBLY)**Click here [INFO](#)**NG**  **CONNECT SECURELY****OK****5. CHECK HARNESS AND CONNECTOR (CHRP VOLTAGE)****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) Connect the SST.

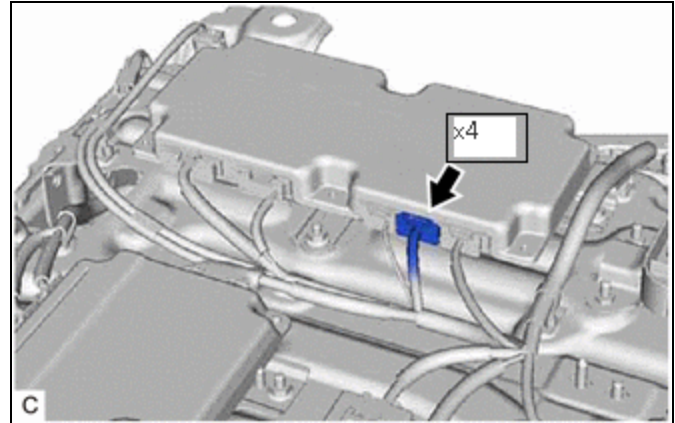
HINT:

[Click here](#) INFO

(c) Disconnect the battery ECU assembly connector.

NOTICE:

Before disconnecting the connector, check that it is not loose or disconnected.



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

(e) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:



[Click Location & Routing\(x4\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x4-7 (CHRP) - 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

(g) Turn the ignition switch off.

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

(i) Reconnect the battery ECU assembly connector.

(j) Disconnect the SST.

OK ▶ REPLACE BATTERY ECU ASSEMBLY

NG**6. CHECK HARNESS AND CONNECTOR (BATTERY ECU ASSEMBLY - BODY GROUND)**Click here [INFO](#)**NG** **GO TO STEP 9****OK****7. CHECK CONNECTOR CONNECTION CONDITION (NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY)**Click here [INFO](#)**NG** **CONNECT SECURELY****OK****8. CHECK HARNESS AND CONNECTOR (SHORT TO POWER SUPPLY WIRES)****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.

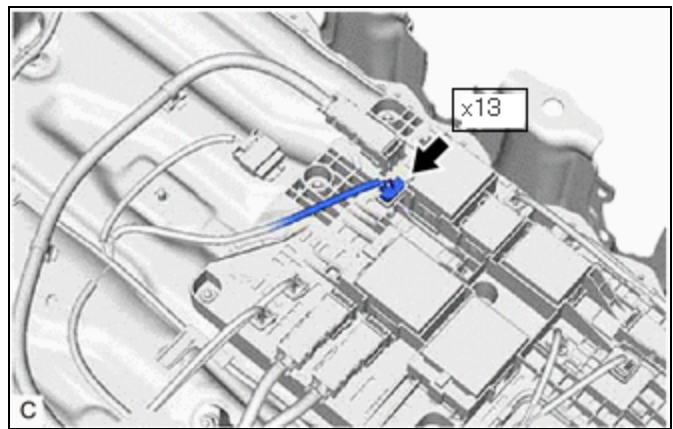
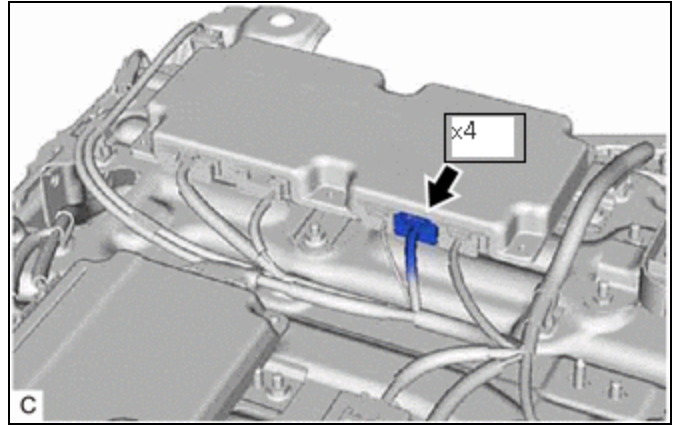
(b) Connect the SST.

HINT:Click here [INFO](#)

(c) Disconnect the battery ECU assembly connector.

NOTICE:

Before disconnecting the connector, check that it is not loose or disconnected.



(d) Disconnect the No. 1 traction battery device box assembly connector.

NOTICE:

Before disconnecting the connector, check that it is not loose or disconnected.

Procedure1

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

Standard Resistance (Check for Open):



[Click Location & Routing\(x13,x4\)](#)

[Click Connector\(x13\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) - x4-7 (CHRP)	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):



[Click Location & Routing\(x13,x4\)](#)

[Click Connector\(x13\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) and x4-7 (CHRP) - Body ground and other terminals	Ignition switch off	10 k Ω or higher	k Ω

Pre-procedure2

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

(g) Turn the ignition switch to ON.

Procedure2

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

Standard Voltage:



[Click Location & Routing\(x13,x4\)](#)

[Click Connector\(x13\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) and x4-7 (CHRP) - 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 No. 1 traction battery device box assembly connector.

(l) Reconnect the battery ECU assembly connector.

(m) Disconnect the SST.

OK ► REPLACE BATTERY ECU ASSEMBLY

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

9.	CHECK CONNECTOR CONNECTION CONDITION (NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY)
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Click here

NG ► CONNECT SECURELY

OK**10.**
CHECK HARNESS AND CONNECTOR (BATTERY ECU ASSEMBLY - NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY)
CAUTION:

Be sure to wear insulated gloves and protective goggles.

Pre-procedure1

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

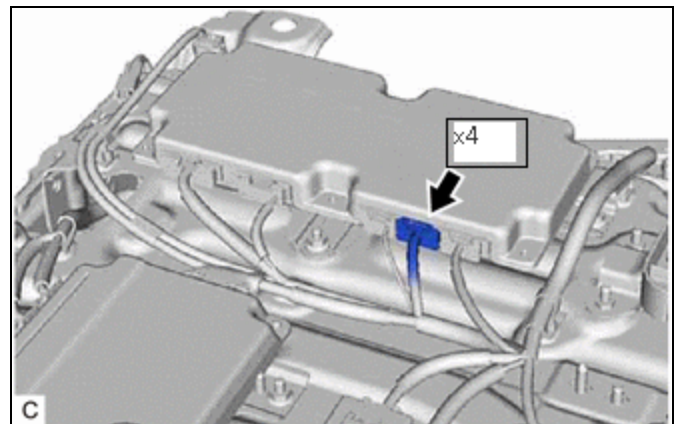
NOTICE:

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:

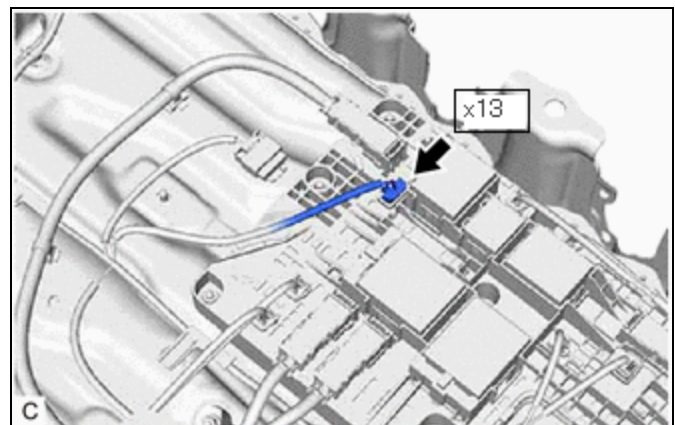
Before disconnecting the connector, check that it is not loose or disconnected.



(c) Disconnect the No. 1 traction battery device box assembly connector.

NOTICE:

Before disconnecting the connector, check that it is not loose or disconnected.



Procedure1

(d) Measure the resistance according to the value(s) in the tables below.

Standard Resistance (Check for Open):



[Click Location & Routing\(x13,x4\)](#)

[Click Connector\(x13\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) - x4-7 (CHRP)	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):



[Click Location & Routing\(x13,x4\)](#)

[Click Connector\(x13\)](#)

[Click Connector\(x4\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) and x4-7 (CHRP) - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ

Post-procedure1

(e) Reconnect the No. 1 traction battery device box assembly connector.

(f) Reconnect the battery ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR



11.	CHECK HARNESS AND CONNECTOR (NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY - BODY GROUND)
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Click here

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR



12. INSPECT NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY (CHRP)

CAUTION:

Be sure to wear insulated gloves and protective goggles.

Pre-procedure1

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

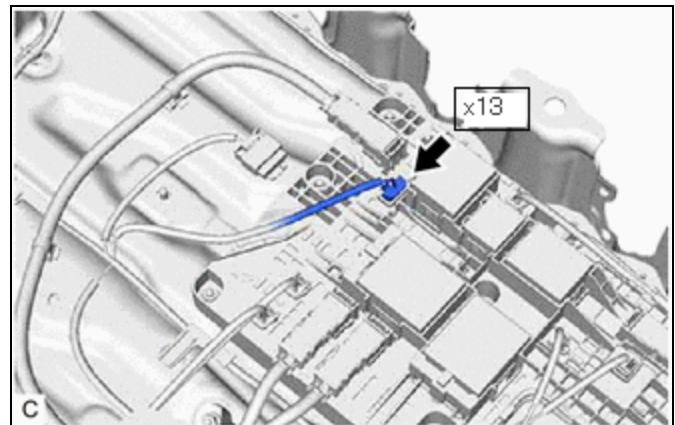
NOTICE:

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 No. 1 traction battery device box assembly connector.

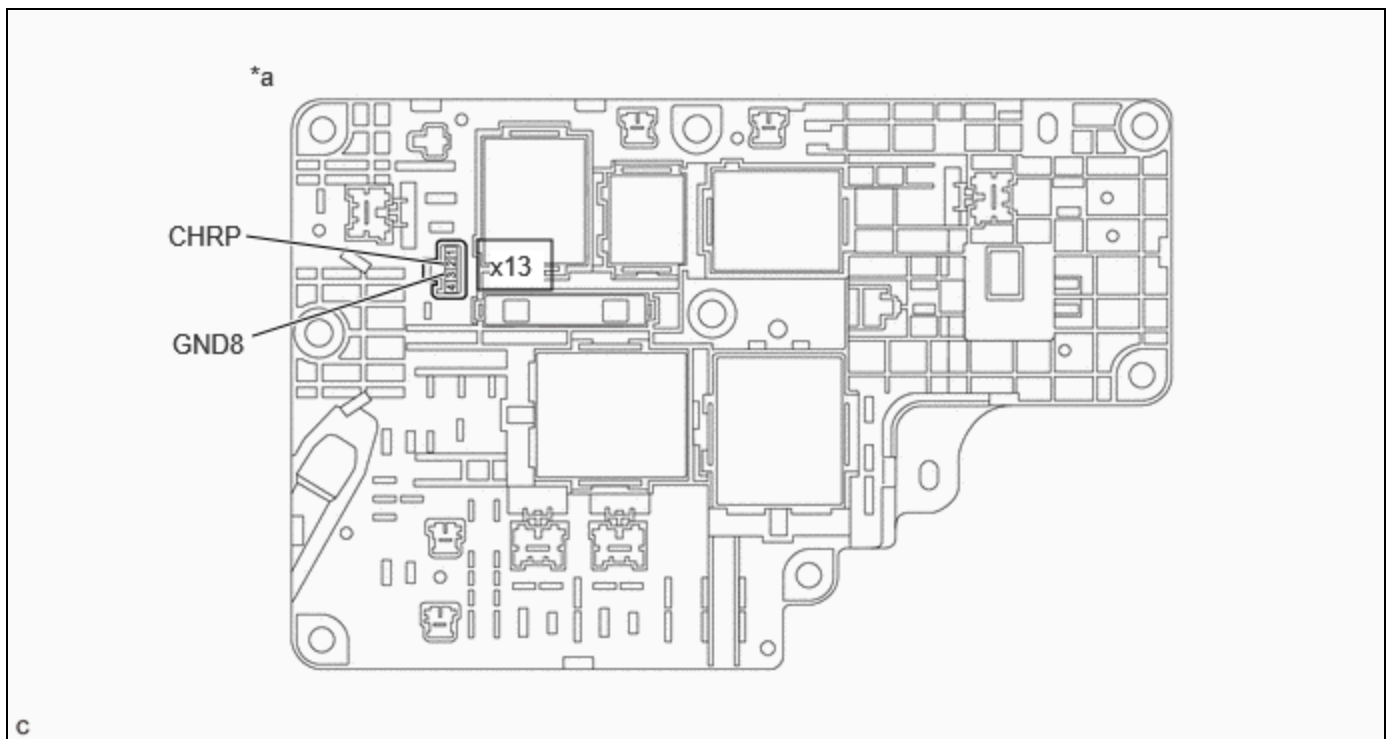
NOTICE:

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.



*a	Component without harness connected (No. 1 Traction Battery Device Box Assembly)	-	-
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Standard Resistance:



[Click Location & Routing\(x13\)](#)

[Click Connector\(x13\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
x13-2 (CHRP) - x13-3 (GND8)	-40 to 80°C (-40 to 176°F)	140 to 290 Ω	Ω

Post-procedure1

(d) Reconnect the No. 1 traction battery device box assembly connector.

OK ► CHECK FOR INTERMITTENT PROBLEMS

NG ► REPLACE NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY

