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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: PLUG-IN CHARGE CONTROL SYSTEM (for PHEV Model): P0D5615; Charging Connector Proximity Detection Circuit Short to Auxiliary Battery or Open; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0D5615**	**Charging Connector Proximity Detection Circuit Short to Auxiliary Battery or Open**

DESCRIPTION

Refer to the description for DTC P0D5611.

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0D5615	Charging Connector Proximity Detection Circuit Short to Auxiliary Battery or Open	PISW terminal voltage remains more than 4.7 V for a certain period of time. (1 trip detection logic)	• AC charger inlet cable • Charging cable (Electric vehicle charger cable assembly) • Plugin charge control ECU assembly • Wire harness or connector	Comes on	Master Warning: Comes on	Plug-in Control	A	SAE Code: P0D59

MONITOR DESCRIPTION

The plug-in charge control ECU monitors the PISW signal. If it detects a malfunction, it illuminates the MIL and stores a DTC.

MONITOR STRATEGY

Related DTCs	P0D59: Proximity Detection Circuit
Required sensors/components	Plug-in charge 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	-

COMPONENT OPERATING RANGE

Plug-in charge control ECU	DTC P0D5615 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.

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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. With ignition switch 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.

4. Enter the following menus: Powertrain / Plug-in 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 or N/A, perform the normal judgment procedure again.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P0D5611.

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 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.	**CUSTOMER ANALYSIS**

(a) In accordance with the result of the customer problem analysis shown in the following table, confirm which electric vehicle charger cable assembly was used when the malfunction occurred.

RESULT	PROCEED TO
Charging station or electric vehicle charger cable assembly other than one provided with the vehicle was used when malfunction occurred	A
Electric vehicle charger cable assembly provided with the vehicle was used when malfunction occurred	B

B ▶ **GO TO STEP 3**

A ▼

2.	**CHECK PLUG-IN CHARGE STATE (USING THE ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY PROVIDED WITH THE VEHICLE)**

NOTICE:

- Make sure to use a known good AC power source.
- Plug-in charge the vehicle using the electric vehicle charger cable assembly provided with the vehicle.
- Use the same voltage power that the customer used to plug-in charge the vehicle.

Pre-procedure1

(a) Enter the following menus: Health Check.

(b) Clear DTCs.

(c) Turn the Charge Now on.

HINT:

- If no charge schedule has been registered, the above step is not necessary.
- Refer to the customization function for how to set "Setting Charge Now to ON".

Click here INFO

(d) Plug-in charge the vehicle using the electric vehicle charger cable assembly that was provided with the vehicle.

(e) Enter the following menus: Health Check.

Procedure1

(f) Check DTCs.

RESULT	PROCEED TO
DTCs not stored and plug-in charging started	A
DTCs output	B

Post-procedure1

(g) Turn the power switch off.

(h) Disconnect the electric vehicle charger cable assembly.

A ▶ **CAUSE ANALYSIS (ENVIRONMENT RELATED CAUSE)**

(a) Analyze the cause according to the following table.

Environment Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Open or short to +B in PISW circuit of charging station	1) Check charging station 2) Charge with the electric vehicle charger cable assembly provided with the vehicle
Open or short to +B in PISW circuit of electric vehicle charger cable assembly other than one provided with vehicle	1) Inspect the charging cable that the customer used 2) Charge with the charging cable provided with the vehicle

(b) Take appropriate action in accordance with the result of the cause analysis.

B ▶ **GO TO STEP 3**

3.	**INSPECT CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY)**

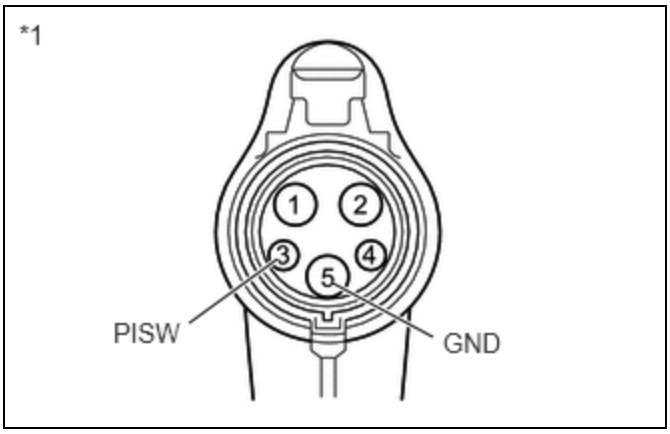
HINT:

Perform the inspection with the charging cable (electric vehicle charger cable assembly) disconnected the plug.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
3 (PISW) - 5 (GND)	Latch release button (PISW) is pressed	430 to 530 Ω	Ω
3 (PISW) - 5 (GND)	Latch release button (PISW) is not pressed	135 to 165 Ω	Ω



*1	Charging Cable (Electric Vehicle Charger Cable Assembly)

Result:

PROCEED TO
OK
NG

NG ▶ **REPLACE CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY)**

OK ▼

4.	**CHECK CONNECTOR CONNECTION CONDITION (AC CHARGER INLET CABLE CONNECTOR)**

(a) Check the connector connection and contact pressure of the relevant terminals of the Rs1 AC charger inlet cable connector.

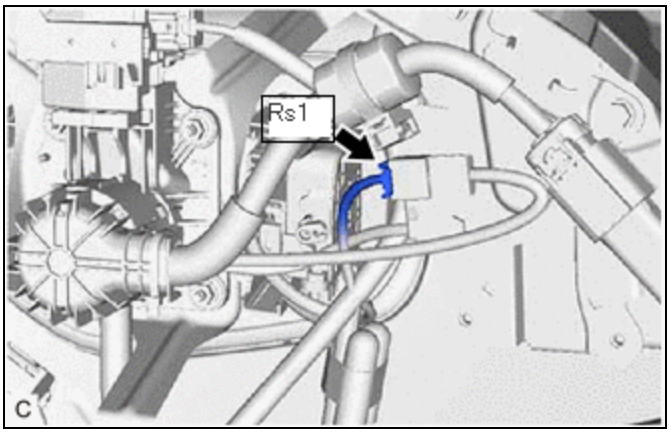
HINT:

Click here INFO

OK:

The connector is connected securely and there are no contact pressure problems.

Result:



PROCEED TO
OK
NG

NG ▶ **CONNECT SECURELY**

OK ▼

5.	**CHECK AC CHARGER INLET CABLE (BODY GROUND TERMINAL CONNECTION CONDITION)**

(a) Check the installation condition of the ground wire sA.

OK:

The ground wire is securely installed.

NG ▶ **CONNECT SECURELY**

OK ▼

6.	**CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - CHARGING INLET)**

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 R62 plugin charge control ECU assembly connector.

Procedure1

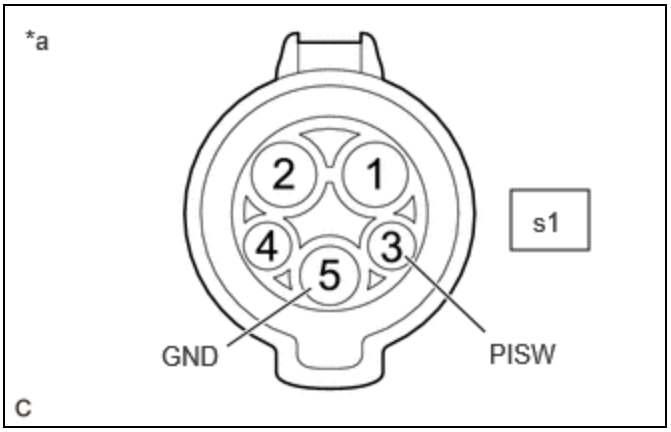
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(s1)
Click Connector(s1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
s1-3 (PISW) - s1-5 (GND)	Ignition switch off	2.3 to 3.0 kΩ	kΩ
s1-3 (PISW) - Body ground	Ignition switch off	2.3 to 3.0 kΩ	kΩ



*a	AC Charger Inlet Cable (Charging Inlet)

Result:

PROCEED TO
OK
NG

Post-procedure1

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

NG ▶ **GO TO STEP 9**

OK ▼

7.	**CHECK AC CHARGER INLET CABLE**

Pre-procedure1

(a) Disconnect the Rs1 AC charger inlet cable connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(s1,Rs1)
Click Connector(s1)
Click Connector(Rs1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
s1-3 (PISW) - s1-5 (GND)	Ignition switch off	2.3 to 3.0 kΩ	kΩ
s1-5 (GND) - Body ground	Ignition switch off	Below 1 Ω	Ω
s1-3 (PISW) - Rs1-1 (PISW)	Ignition switch off	Below 1 Ω	Ω

Post-procedure1

(c) Reconnect the AC charger inlet cable connector.

NG ▶ **REPAIR OR REPLACE AC CHARGER INLET CABLE**

OK
▼

8.	**CHECK HARNESS AND CONNECTOR (AC CHARGER INLET CABLE - PLUGIN CHARGE CONTROL 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 Rs1 AC charger inlet cable connector.

(c) Disconnect the R62 plugin charge control ECU assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(Rs1,R62)
Click Connector(Rs1)
Click Connector(R62)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
Rs1-1 (PISW) - R62-2 (PISW)	Ignition switch off	Below 1 Ω	Ω

Post-procedure1

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

(f) Reconnect the AC charger inlet cable connector.

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

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

9.	**CHECK AC CHARGER INLET CABLE (CHECK FOR SHORT TO +B)**

Pre-procedure1

(a) Disconnect the Rs1 AC charger inlet cable connector.

(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:

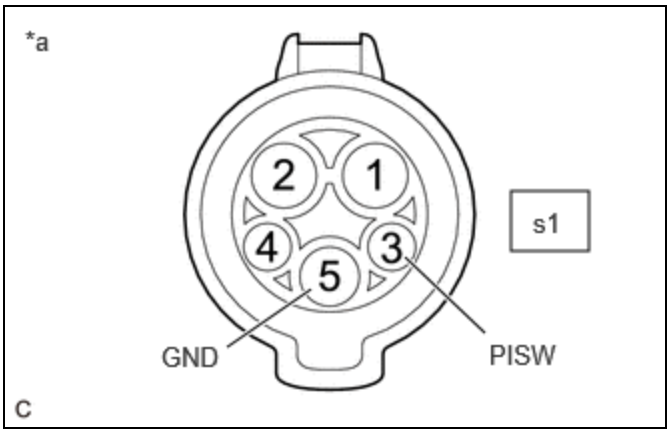
EWD INFO

Click Location & Routing(s1)
Click Connector(s1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
s1-3 (PISW) - s1-5 (GND)	Ignition switch ON	Below 1 V	V
s1-3 (PISW) - Body ground	Ignition switch ON	Below 1 V	V

NOTICE:

Turning the ignition switch to ON with the AC charger inlet cable connector disconnected causes other DTCs to be stored. Clear the DTCs after performing this inspection.



*a	AC Charger Inlet Cable (Charging Inlet)

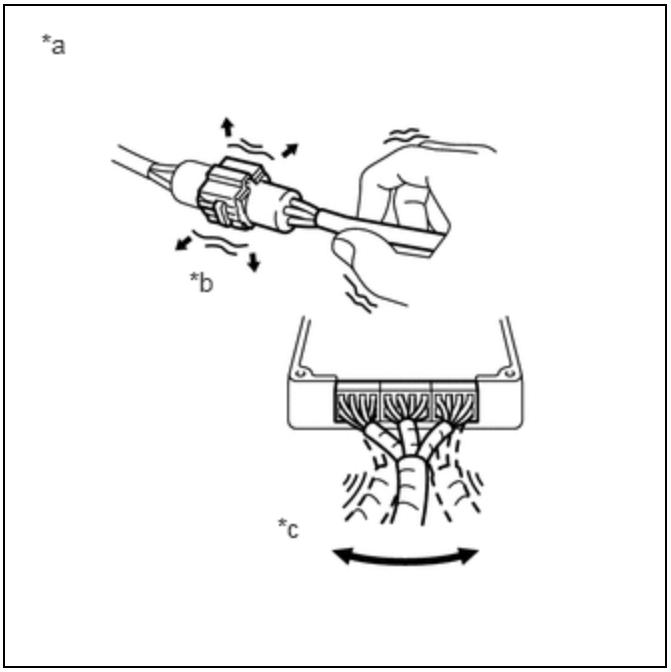
HINT:

- Connectors

- Slightly shake the connector vertically and horizontally.

- Wire harness
  - Slightly shake the wire harness vertically and horizontally.

The connector joint and fulcrum of the vibration are the major areas that should be checked thoroughly.



*a	Example
*b	Shake Slightly
*c	Vibrate Slightly

Post-procedure1

(e) Turn the ignition switch off.

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

(g) Reconnect the AC charger inlet cable connector.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - AC CHARGER INLET CABLE)**

NG ▶ **REPAIR OR REPLACE AC CHARGER INLET CABLE**