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<b>Model Year Start:</b> 2023	<b>Model:</b> Prius Prime	<b>Prod Date Range:</b> [03/2023 - ]
<b>Title:</b> HYBRID / BATTERY CONTROL: PLUG-IN CHARGE CONTROL SYSTEM (for PHEV Model): Cannot Unlock Charging Connector; 2023 - 2024 MY Prius Prime [03/2023 - ]		

## Cannot Unlock Charging Connector

## DESCRIPTION

Refer to the description for Cannot Lock Charging Connector.

Click here [INFO](#)

## WIRING DIAGRAM

Refer to the wiring diagram for Cannot Lock Charging Connector.

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](#)

- When the doors are unlocked, the door unlocking by the smart key system operation is not possible, so the charging connector cannot be unlocked.

If the charging connector is locked while the doors are unlocked, unlock the charging connector by following operations.

- Lock the doors, and perform unlocking operation subsequently. (by using the smart key system)
- Unlock all doors with pressing the unlock switch. (by using wireless door lock control system)
- To protect the charging port lid lock motor and charging connector lock motor, if the charging port lid lock or charging connector lock is operated repeatedly, operation of the lock will be prohibited. Wait for 3 minutes or more to allow the motor to cool and then resume the inspection.
- To protect the charging port lid lock motor and charging connector lock motor, if the charging port lid lock and charging connector lock are operated repeatedly in quick succession, operation of the lock will be prohibited for a certain amount of time. Wait for 3 seconds or more after operation was prohibited and then resume the inspection.
- If the charging connector lock is dirty or frozen, or if foreign matter is caught between the charging connector and charging connector lock, the charging connector may not be able to be locked/unlocked. Clean the charging connector lock before performing the inspection.

- If a charging cable other than the charging cable provided with the vehicle is used, the charging connector lock may not operate correctly. Check that the lock and unlock functions of the charging connector lock operate properly using the charging cable provided with the vehicle before proceeding with the inspection.
- While charging connector is connected, cannot change the charging connector setting.
- When the charging connector is connected, the "Connector Lock" setting in customize parameters cannot be modified.
- Because door unlock operation is used to unlock the charging connector, if door unlock does not operate, perform troubleshooting for the door lock system first.

[Click here](#) 

## PROCEDURE

<b>1.</b>	<b>CHECK DTC OUTPUT (HEALTH CHECK)</b>
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(a) Enter the following menus: Health Check.

(b) Check DTCs.

RESULT	PROCEED TO
No DTCs are output	A
DTCs are output	B

(c) Turn the ignition switch off.

**B**  **GO TO DTC CHART**

**A**  


<b>2.</b>	<b>CHECK ELECTRIC VEHICLE CHARGER ASSEMBLY (WITH CHARGING PORT LID OPEN AND CHARGING CONNECTOR UNLOCKED)</b>
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**CAUTION:**

Be sure to wear insulated gloves.

**HINT:**

- WITH CHARGING PORT LID OPEN AND CHARGING CONNECTOR UNLOCKED: Status when the charging port lid is opened and the electric vehicle charger cable assembly is connected.
- w/ Charging Connector Lock customize:

Check that the "Connector Lock" setting is set to "Auto Lock".

[Click here](#) 

(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 cable to the negative (-) auxiliary battery terminal.
- (c) Unlock of the doors.
- (d) Open the charging port lid.
- (e) Check that the charging connector lock is unlocked (lock pin is not extended).

**HINT:**

If the charging connector lock is locked (the lock pin is extended), unlock it using the charging connector lock emergency release lever.

- (f) Connect the charging cable (electric vehicle charger cable assembly).

**NOTICE:**

Make sure to connect the GTS before connecting the charging connector.

**HINT:**

Fully insert and securely connect the charging connector. (If the connector is not fully connected, the charging connector lock function may not operate correctly)

- (g) Enter the following menus.

**Powertrain > Plug-in Control > Data List**

TESTER DISPLAY
Charging Connector Connect Status Voltage
Charging Connector Lock Pin Status
Charging Connector Lock Motor Unlock Direction Revolution Request Current
Charging Connector Lock Motor Lock Direction Revolution Request Current

- (h) Put the doors in an unlocked condition.

**HINT:**

The charging connector is unlocked by the door unlock operation.

- (i) Read the value displayed on the GTS.

**Powertrain > Plug-in Control > Data List**

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION
Charging Connector Connect Status Voltage	PISW terminal voltage used for checking electric vehicle charger cable assembly connection condition  (PISW)	Charging cable (Electric vehicle charger cable assembly) connected: 0.35 to 2.02 V  Charging cable (Electric vehicle charger cable assembly) inserted and the latch release button (PI switch) engaged: 2.02 to 3.57 V

TESTER DISPLAY	MEASUREMENT ITEM	NORMAL CONDITION
Charging Connector Lock Pin Status	Charging connector lock pin status (CBSW)	Charging connector lock pin not extended: Unlock
Charging Connector Lock Motor Unlock Direction Revolution Request Current	Output of current to operate charging connector lock motor in reverse (CBMN)	Charging connector lock motor not operated: OFF  <b>HINT:</b> After the doors are unlocked, it turns on for approximately 600 ms
Charging Connector Lock Motor Lock Direction Revolution Request Current	Output of current to operate charging connector lock motor forward (CBMP)	Charging connector lock motor not operated: OFF

RESULT	PROCEED TO
OK	A
NG (PISW)	B
NG (CBSW)	C
NG (CBMP, CBMN)	D

(j) Turn the ignition switch off.

(k) Disconnect the charging cable (electric vehicle charger cable assembly).

(l) Close the charging port lid.

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

**B** ► GO TO STEP 4

**C** ► GO TO STEP 9

**D** ► GO TO STEP 12

**A**



### 3. INSPECT CABLE EV CHARGER LOCK ASSEMBLY (CHARGING CONNECTOR LOCK PIN)

#### HINT:

[Click here](#) INFO

#### OK ▶ CAUSE ANALYSIS (USER / ENVIRONMENT RELATED CAUSE)

(a) Perform cause analysis in the order of "User" and "Environment" categories as specified in the following tables.

##### User Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Attempt to unlock the charging connector with unlocked doors by using smart key system	<p>Explain to the customer that the unlocking operation by the smart key system is not possible while the doors are unlocked, and the charging connector also cannot be unlocked.</p> <p>If the charging connector is locked while the doors are unlocked, unlock the charging connector by following operations.</p> <ul style="list-style-type: none"> <li>◦ Lock the doors, and perform unlocking operation subsequently. (by using the smart key system)</li> <li>◦ Unlock all doors with pressing the unlock switch. (by using wireless door lock control system)</li> </ul>
Charging connector lock/unlock was operated repeatedly	Explain to the customer that to protect the charging connector lock motor, if the charging connector lock/unlock was operated repeatedly, operation may be temporarily prohibited.
Charging connector lock/unlock operation was attempted after auxiliary battery was replaced or cable	Explain to the customer that charging connector lock/unlock operation may be prohibited after the auxiliary battery has been replaced or the cable has been disconnected and reconnected to the negative (-) auxiliary battery terminal.

POSSIBLE CAUSE	ACTION TO BE TAKEN
disconnected and connected	Operate the charging connector lock/unlock again.
Charging was completed with the "Connector Lock" setting in customize parameters set to "Auto Lock"	Explain to the customer that the auto unlock function will not operate if the "Connector Lock" setting in customize parameters is not set to "Auto Lock & Unlock" when charging is complete.

**Environment Related Cause**

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging connector lock motor temperature high	<p>Explain to the customer that, due to the temperature of the charging connector lock motor becoming high, to protect the charging connector lock motor, charging connector lock operation was prohibited.</p> <p>Wait 3 minutes or more after lock/unlock operation is prohibited, then resume inspection.</p>
Charging connector lock cannot operate due to foreign matter, ice, etc.	Explain to the customer that the charging connector cannot be locked or unlocked if foreign matter, ice, etc. are stuck on the lock pin or charging connector.

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

**NG**  **REPLACE CABLE EV CHARGER LOCK ASSEMBLY**

<b>4.</b>	<b>CHECK PLUGIN CHARGE CONTROL ECU ASSEMBLY (PISW TERMINAL VOLTAGE)</b>
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**HINT:**

Click here 

**NG**  **GO TO STEP 6**

**OK**  


## 5. INSPECT CHARGING CABLE (ELECTRIC VEHICLE CHARGER CABLE ASSEMBLY) (PISW)

### HINT:

[Click here](#) 

### OK CAUSE ANALYSIS (USER / ENVIRONMENT RELATED CAUSE)

(a) Perform cause analysis in the order of "User" and "Environment" categories as specified in the following tables.

#### User Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Attempt to unlock the charging connector with unlocked doors by using smart key system	<p>Explain to the customer that the unlocking operation by the smart key system is not possible while the doors are unlocked, and the charging connector also cannot be unlocked.</p> <p>If the charging connector is locked while the doors are unlocked, unlock the charging connector by following operations.</p> <ul style="list-style-type: none"> <li>◦ Lock the doors, and perform unlocking operation subsequently. (by using the smart key system)</li> <li>◦ Unlock all doors with pressing the unlock switch. (by using wireless door lock control system)</li> </ul>
Charging connector lock/unlock was operated repeatedly	Explain to the customer that to protect the charging connector lock motor, if the charging connector lock/unlock was operated repeatedly, operation may be temporarily prohibited.
Charging connector lock/unlock operation was attempted after auxiliary battery was replaced or cable	Explain to the customer that charging connector lock/unlock operation may be prohibited after the auxiliary battery has been replaced or the cable has been disconnected and reconnected to the negative (-) auxiliary battery terminal.

POSSIBLE CAUSE	ACTION TO BE TAKEN
disconnected and connected	Operate the charging connector lock/unlock again.
Charging was completed with the "Connector Lock" setting in customize parameters set to "Auto Lock" (w/ Charging Connector Lock customize)	Explain to the customer that the auto unlock function will not operate if the "Connector Lock" setting in customize parameters is not set to "Auto Lock & Unlock" when charging is complete.

**Environment Related Cause**

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging connector lock motor temperature high	Explain to the customer that, due to the temperature of the charging connector lock motor becoming high, to protect the charging connector lock motor, charging connector lock operation was prohibited.  Wait 3 minutes or more after lock/unlock operation is prohibited, then resume inspection.
Charging connector lock cannot operate due to foreign matter, ice, etc.	Explain to the customer that the charging connector cannot be locked or unlocked if foreign matter, ice, etc. are stuck on the lock pin or charging connector.

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

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

<b>6.</b>	<b>CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - CHARGING INLET)</b>
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**HINT:**

Click here 

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



**NG****7. CHECK AC CHARGER INLET CABLE (BODY GROUND TERMINAL CONNECTION CONDITION)****HINT:**Click here [INFO](#)**NG** ► **CONNECT SECURELY****OK****8. CHECK AC CHARGER INLET CABLE****HINT:**Click here [INFO](#)**OK** ► **REPAIR OR REPLACE HARNESS OR CONNECTOR****NG** ► **REPLACE AC CHARGER INLET CABLE****9. CHECK PLUGIN CHARGE CONTROL ECU ASSEMBLY (CBSW TERMINAL VOLTAGE)****HINT:**Click here [INFO](#)**NG** ► **GO TO STEP 11****OK****10. INSPECT CABLE EV CHARGER LOCK ASSEMBLY (CHARGING CONNECTOR LOCK DETECTION SWITCH)****HINT:**Click here [INFO](#)

## OK ► CAUSE ANALYSIS (USER / ENVIRONMENT RELATED CAUSE)

(a) Perform cause analysis in the order of "User" and "Environment" categories as specified in the following tables.

### User Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Attempt to unlock the charging connector with unlocked doors by using smart key system	<p>Explain to the customer that the unlocking operation by the smart key system is not possible while the doors are unlocked, and the charging connector also cannot be unlocked.</p> <p>If the charging connector is locked while the doors are unlocked, unlock the charging connector by following operations.</p> <ul style="list-style-type: none"> <li>◦ Lock the doors, and perform unlocking operation subsequently. (by using the smart key system)</li> <li>◦ Unlock all doors with pressing the unlock switch. (by using wireless door lock control system)</li> </ul>
Charging connector lock/unlock was operated repeatedly	Explain to the customer that to protect the charging connector lock motor, if the charging connector lock/unlock was operated repeatedly, operation may be temporarily prohibited.
Charging connector lock/unlock operation was attempted after auxiliary battery was replaced or cable disconnected and connected	<p>Explain to the customer that charging connector lock/unlock operation may be prohibited after the auxiliary battery has been replaced or the cable has been disconnected and reconnected to the negative (-) auxiliary battery terminal.</p> <p>Operate the charging connector lock/unlock again.</p>
Charging was completed with the "Connector Lock" setting in customize	Explain to the customer that the auto unlock function will not operate if the "Connector Lock" setting in customize parameters is not set to "Auto Lock & Unlock" when charging is complete.

POSSIBLE CAUSE	ACTION TO BE TAKEN
parameters set to "Auto Lock" (w/ Charging Connector Lock customize)	

**Environment Related Cause**

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging connector lock motor temperature high	Explain to the customer that, due to the temperature of the charging connector lock motor becoming high, to protect the charging connector lock motor, charging connector lock operation was prohibited.  Wait 3 minutes or more after lock/unlock operation is prohibited, then resume inspection.
Charging connector lock cannot operate due to foreign matter, ice, etc.	Explain to the customer that the charging connector cannot be locked or unlocked if foreign matter, ice, etc. are stuck on the lock pin or charging connector.

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

**NG** ► **REPLACE CABLE EV CHARGER LOCK ASSEMBLY**

<b>11.</b>	<b>CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - CABLE EV CHARGER LOCK ASSEMBLY (CBSW))</b>
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**HINT:**

Click here [INFO](#)

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

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

<b>12.</b>	<b>CHECK PLUGIN CHARGE CONTROL ECU ASSEMBLY (CBMP, CBMN TERMINAL VOLTAGE)</b>
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**HINT:**

Click here [INFO](#)

**NG**  **GO TO STEP 14**

**OK**  


**13. INSPECT CABLE EV CHARGER LOCK ASSEMBLY (CHARGING CONNECTOR LOCK RELAY)**

**HINT:**

Click here 

**OK**  **CAUSE ANALYSIS (USER / ENVIRONMENT RELATED CAUSE)**

(a) Perform cause analysis in the order of "User" and "Environment" categories as specified in the following tables.

**User Related Cause**

POSSIBLE CAUSE	ACTION TO BE TAKEN
Attempt to unlock the charging connector with unlocked doors by using smart key system	Explain to the customer that the unlocking operation by the smart key system is not possible while the doors are unlocked, and the charging connector also cannot be unlocked.  If the charging connector is locked while the doors are unlocked, unlock the charging connector by following operations. <ul style="list-style-type: none"> <li>◦ Lock the doors, and perform unlocking operation subsequently. (by using the smart key system)</li> <li>◦ Unlock all doors with pressing the unlock switch. (by using wireless door lock control system)</li> </ul>
Charging connector lock/unlock was operated repeatedly	Explain to the customer that to protect the charging connector lock motor, if the charging connector lock/unlock was operated repeatedly, operation may be temporarily prohibited.

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging connector lock/unlock operation was attempted after auxiliary battery was replaced or cable disconnected and connected	Explain to the customer that charging connector lock/unlock operation may be prohibited after the auxiliary battery has been replaced or the cable has been disconnected and reconnected to the negative (-) auxiliary battery terminal.  Operate the charging connector lock/unlock again.
Charging was completed with the "Connector Lock" setting in customize parameters set to "Auto Lock" (w/ Charging Connector Lock customize)	Explain to the customer that the auto unlock function will not operate if the "Connector Lock" setting in customize parameters is not set to "Auto Lock & Unlock" when charging is complete.

#### Environment Related Cause

POSSIBLE CAUSE	ACTION TO BE TAKEN
Charging connector lock motor temperature high	Explain to the customer that, due to the temperature of the charging connector lock motor becoming high, to protect the charging connector lock motor, charging connector lock operation was prohibited.  Wait 3 minutes or more after lock/unlock operation is prohibited, then resume inspection.
Charging connector lock cannot operate due to foreign matter, ice, etc.	Explain to the customer that the charging connector cannot be locked or unlocked if foreign matter, ice, etc. are stuck on the lock pin or charging connector.

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

**NG**  **REPLACE CABLE EV CHARGER LOCK ASSEMBLY**

**14.****CHECK HARNESS AND CONNECTOR (PLUGIN CHARGE CONTROL ECU ASSEMBLY - CABLE EV CHARGER LOCK ASSEMBLY (CBMP, CBMN))****HINT:**Click here **OK** ► **REPLACE PLUGIN CHARGE CONTROL ECU ASSEMBLY****NG** ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**