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| Model Year Start: 2023 | Model: Prius Prime | Prod Date Range: [03/2023 -] |
| Title: M20A-FXS (BATTERY / CHARGING): SOLAR CHARGING SYSTEM: P1ECB00; Solar Charging Permission Signal Stuck Off; 2023 - 2024 MY Prius Prius Prime [03/2023 -] | | |

| | | |
|------------|----------------|---|
| DTC | P1ECB00 | Solar Charging Permission Signal Stuck Off |
|------------|----------------|---|

DESCRIPTION

The solar charging permission signal (SSEN) from the plugin charge control ECU, which permits electrical power from solar generation to be sent to the HV battery, is sent via a redundant circuit using both a direct line and CAN communication, thereby making certain that high voltage solar charging is not performed in situations when high voltage charging is not permitted.

The solar energy control ECU uses divergence in the redundant circuit for the SSEN signal to detect a malfunction.

| DTC NO. | DETECTION ITEM | DTC DETECTION CONDITION | TROUBLE AREA | WARNING INDICATE | DTC OUTPUT FROM | PRIORITY |
|---------|--|---|--|--|------------------------|----------|
| P1ECB00 | Solar Charging Permission Signal Stuck Off | When SSEN (direct line) is stuck ON, divergence with SSEN (CAN signal) occurs for 2 seconds or more (1 trip detection logic) | <ul style="list-style-type: none"> Wire harness or connector Solar energy control ECU Plugin charge control ECU | Solar Charging Warning Light: Comes on | Solar Charging Control | A |

CONFIRMATION DRIVING PATTERN

HINT:

After completing repairs, clear the DTCs and then check that the vehicle has returned to normal by performing the following All Readiness check procedure.

Click here [INFO](#)

1. Park the vehicle in an area where the solar radiation will be steady.

| | |
|---------|--|
| Weather | Clear or mostly clear and sunny |
| Time | Between 11:00 and 14:00 |
| Place | An area where sunlight strikes the solar roof directly |

HINT:

- Make sure no part of the solar roof is shaded.
 - If the solar roof is dirty, clean it.
2. Turn the ignition switch off and then disconnect the cable from the negative (-) auxiliary battery terminal.
 3. Wait for 5 seconds or more, then disconnect the power source connector and then all other low voltage connectors the solar energy control ECU assembly.

4. Wait for 30 seconds or more, then connect the low voltage connectors of the solar energy control ECU assembly except the power source connector and then connect the power source connector.
5. Connect the cable to the negative (-) auxiliary battery terminal.
6. Turn the ignition switch to ON, wait for 5 to 10 seconds, and then turn the ignition switch off.

HINT:

Make sure to turn the ignition switch off within 10 seconds.

7. Wait for 20 minutes and then check for DTCs to check that no DTCs have been stored.

HINT:

- While waiting, the HV battery will be charged by the solar charging system. However, depending on certain conditions, charging may not be performed.
- When the HV battery is fully charged, high voltage charging to the HV battery is not performed.
- If any of the following conditions is met, the HV battery will not be charged by the solar charging system:
 - The HV battery is charged via an external power source.
 - The ignition switch is turned to ACC.
 - The ignition switch is turned to ON.
 - The ignition switch is turned to ON (READY).
 - The HV battery heating system is operating.
 - The remote air conditioning system is operating.

8. Check that solar charging is being performed.

HINT:

Be sure to check that high voltage battery charging is being performed by the solar roof.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P1ECA00.

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. | CHECK DTC OUTPUT (HV, HV BATTERY, PLUG-IN CONTROL) |
|-----------|---|

Pre-procedure1

(a) None

Procedure1

(b) Enter the following menus.

Powertrain > Hybrid Control > Trouble Codes

Powertrain > HV Battery > Trouble Codes

Powertrain > Plug-in Control > Trouble Codes

| RESULT | RESULT |
|--|--------|
| Only P1ECB00 is output. | A |
| DTC P1ECB00 and other DTCs are output. | B |

Post-procedure1

(c) Turn the ignition switch off.

B  **GO TO DTC CHART**

A



| | |
|-----------|---|
| 2. | CHECK CONNECTOR CONNECTION CONDITION (SOLAR ENERGY CONTROL ECU ASSEMBLY CONNECTOR) |
|-----------|---|

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.

Procedure1

(b) Check the connection condition of the solar energy control ECU assembly connectors and the contact pressure of each terminal. Check the terminals for deformation, and check each connector for water ingress and foreign matter.

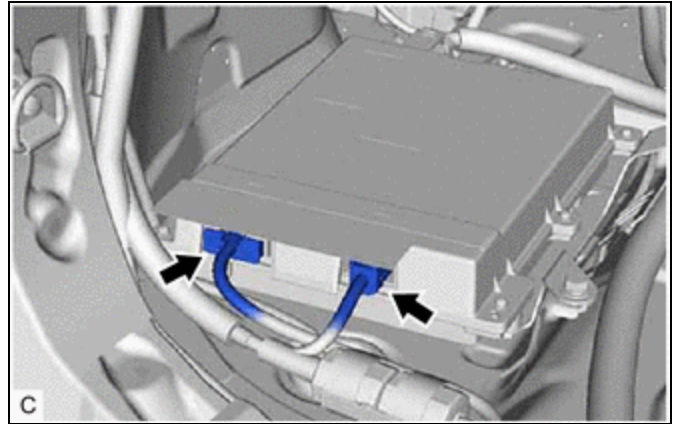
HINT:

Click here 

OK:

- Each connector is connected securely.
- The terminals are not deformed and are connected securely.
- No water or foreign matter in each connector.

Result:



| RESULT | PROCEED TO |
|---|------------|
| OK | A |
| NG (A connector is not connected securely.) | B |
| NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in a connector.) | C |

Post-procedure1

(c) None

B ▶ CONNECT SECURELY

C ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

A
▼

| | |
|-----------|--|
| 3. | CHECK CONNECTOR CONNECTION CONDITION (PLUGIN CHARGE CONTROL ECU ASSEMBLY CONNECTOR) |
|-----------|--|

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.

Procedure1

(b) Check the connection condition of the plugin charge control ECU assembly unit connectors and the contact pressure of each terminal. Check the

terminals for deformation, and check each connector for water ingress and foreign matter.

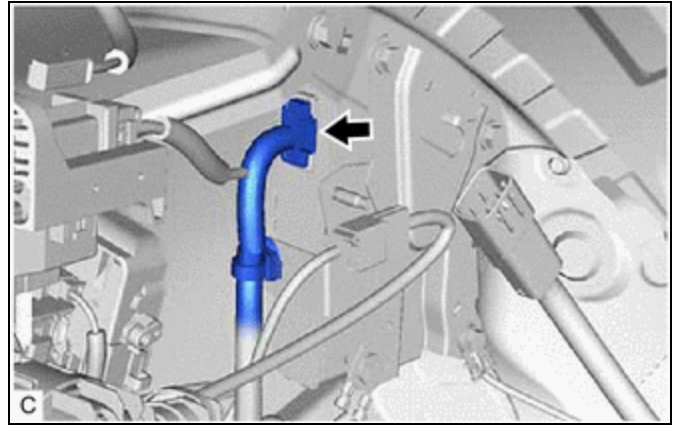
HINT:

Click here 

OK:

- Each connector is connected securely.
- The terminals are not deformed and are connected securely.
- No water or foreign matter in each connector.

Result:



| RESULT | PROCEED TO |
|---|------------|
| OK | A |
| NG (A connector is not connected securely.) | B |
| NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in a connector.) | C |

Post-procedure1

(c) None

B  **CONNECT SECURELY**

C  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A


| | |
|-----------|---|
| 4. | CHECK HARNESS AND CONNECTOR (SOLAR ENERGY CONTROL ECU ASSEMBLY - 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 solar energy control ECU assembly connector.

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

Procedure1

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

Standard Resistance:



[Click Location & Routing\(R79,R62\).](#)

[Click Connector\(R79\).](#)

[Click Connector\(R62\).](#)

| TESTER CONNECTION | CONDITION | SPECIFIED CONDITION | RESULT |
|--|---------------------|-------------------------|------------|
| R79-35 (SSEN) - R62-10 (SSEN) | Ignition switch off | Below 1 Ω | Ω |
| R79-35 (SSEN) or R62-10 (SSEN) - Body ground and other terminals | Ignition switch off | 10 k Ω or higher | k Ω |

Post-procedure1

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

(f) Reconnect the solar energy control ECU assembly connector.

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5. CHECK HARNESS AND CONNECTOR (SOLAR ENERGY 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 plugin charge control ECU assembly connector.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(R79\)](#)

[Click Connector\(R79\)](#)

| TESTER CONNECTION | CONDITION | SPECIFIED CONDITION | RESULT |
|-----------------------------|---------------------|-------------------------|------------|
| R79-35 (SEEN) - Body ground | Ignition switch off | 10 M Ω or higher | M Ω |

Post-procedure1

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

OK ► **REPLACE SOLAR ENERGY CONTROL ECU ASSEMBLY**

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

