Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BMEF
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (BATTERY / CHARGING): SOLAR CHARGING SYSTEM: P1ECA00; Solar Charging Permission Signal Stuck On; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P1ECA00**	**Solar Charging Permission Signal Stuck On**

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 assembly 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
P1ECA00	Solar Charging Permission Signal Stuck On	When SSEN (direct line) is stuck ON, divergence with SSEN (CAN signal) occurs for 3 seconds or more (1 trip detection logic)	• Solar energy control ECU assembly • Plugin charge control ECU • Wire harness or connector	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:

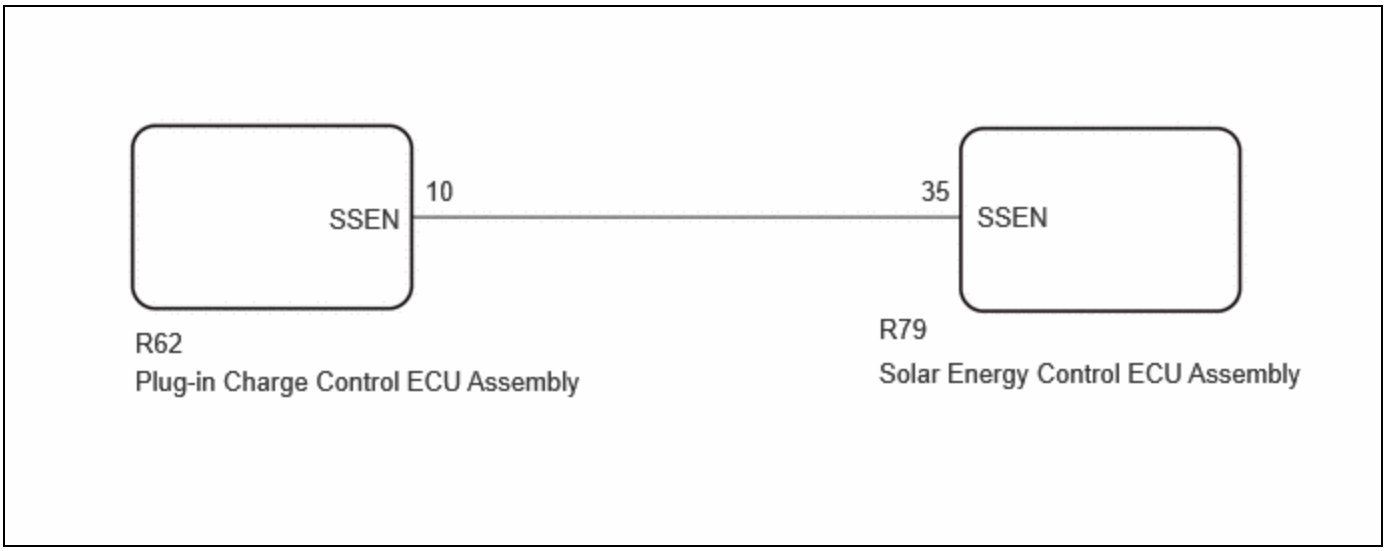
- While waiting, the HV battery will be charged by the solar charging system. However, depending on certain conditions, charging may not be performed.
- When the HV battery is fully charged, high voltage charging to the HV battery is not performed.
- If any of the following conditions is met, the HV 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



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 P1ECA00 is output.	A
DTC P1ECA00 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 LOW VOLTAGE 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 low voltage connectors and the contact pressure of each terminal. Check the terminals for deformation, and check each connector for water ingress and foreign matter.

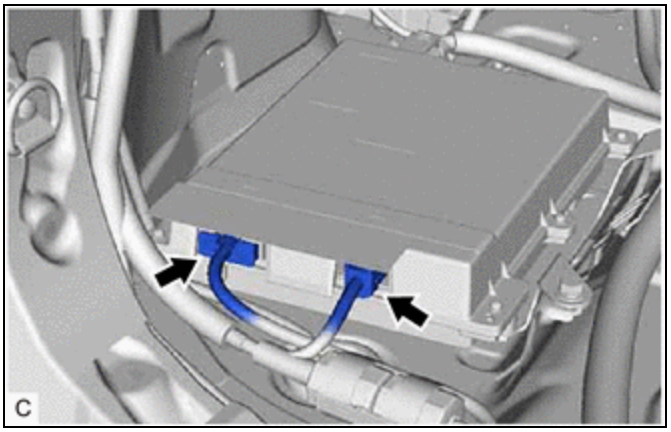
HINT:

Click here INFO

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 (PIUG IN 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 plug in 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.

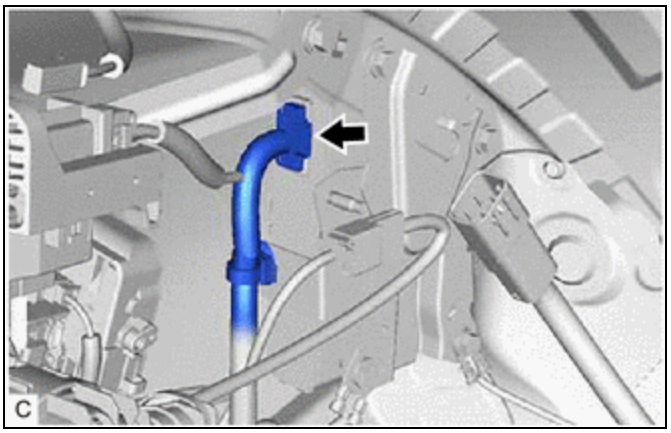
HINT:

Click here INFO

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 (PLUG IN 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.

(b) Disconnect the plug in charge control ECU assembly connector.

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

(d) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

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

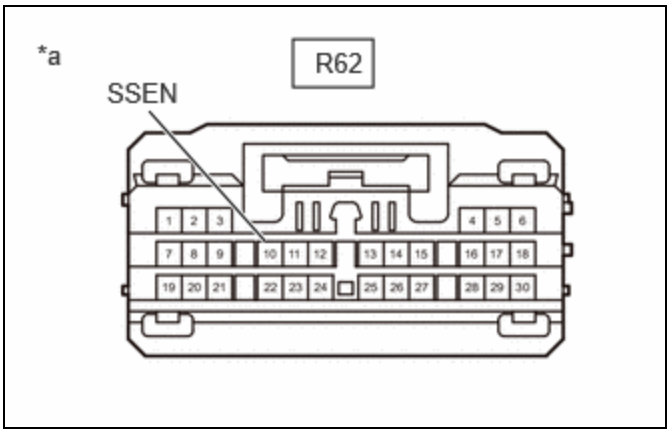
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R62-10 (SSEN) - Body ground	Ignition switch ON	Below 1 V	V

NOTICE:

Turning the ignition switch ON (IG) with the plug in charge control ECU assembly connector disconnected will cause other DTCs to be stored, so clear the DTCs after performing the inspection.

Result:

RESULT
OK
NG



*a	Front view of wire harness connector (to Plug in Charge Control ECU Assembly)

Post-procedure1

(f) Turn the ignition switch off.

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

(h) Reconnect the plug in charge control ECU assembly connector.

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

OK ▼

5.	**CHECK HARNESS AND CONNECTOR (SOLAR ENERGY CONTROL ECU ASSEMBLY - PLUG IN 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 plug in charge control ECU assembly connector.

(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:

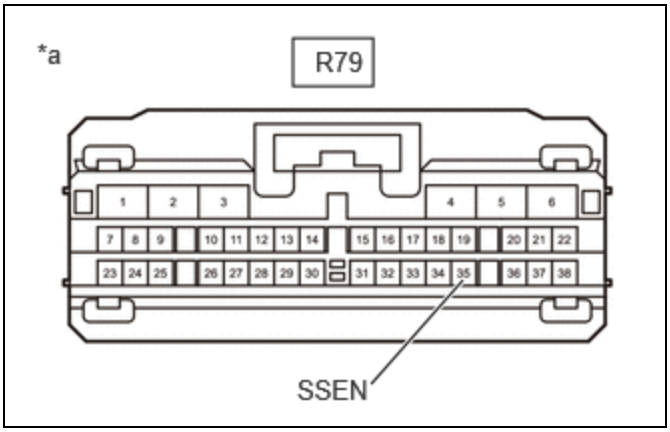
EWD INFO

Click Location & Routing(R79,R62)
Click Connector(R79)
Click Connector(R62)

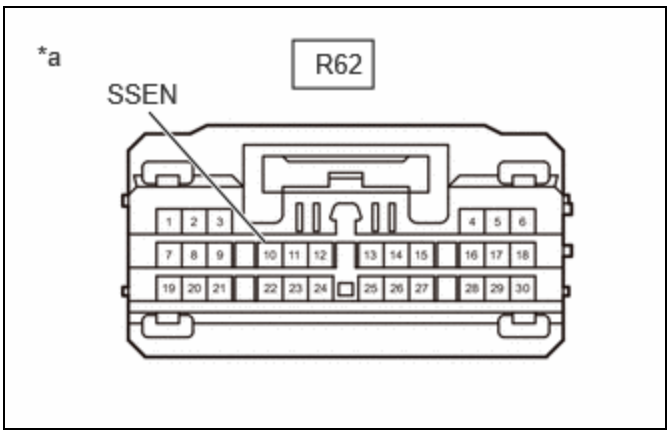
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R79-35 (SSEN) or R62-10 (SSEN) - Body ground	Ignition switch ON	Below 1 V	V

NOTICE:

Turning the ignition switch ON (IG) with the plug in charge control ECU assembly connector disconnected will cause other DTCs to be stored, so clear the DTCs after performing the inspection.



*a	Front view of wire harness connector (to Solar Energy Control ECU Assembly)



*a	Front view of wire harness connector (to Plug in Charge Control ECU Assembly)

Post-procedure1

(g) Turn the ignition switch off.

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

(i) Reconnect the plug in charge control ECU assembly connector.

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

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

NG ▶ **REPLACE PLUGIN CHARGE CONTROL ECU**