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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): P0D5E00; Hybrid/EV Battery Charger Hybrid/EV System Discharge Time Too Long; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0D5E00**	**Hybrid/EV Battery Charger Hybrid/EV System Discharge Time Too Long**

DTC SUMMARY

MALFUNCTION DESCRIPTION

After plug-in charging has ended, the plugin charge control ECU assembly detects that the high-voltage capacitor of the solar energy control ECU assembly has not discharged.

The cause of this malfunction may be one of the following:

Solar energy control ECU assembly internal voltage sensor (VSOL) circuit malfunction

- Voltage sensor (VSOL) malfunction
- Solar energy control ECU assembly malfunction
- Communication (wire harness) malfunction

Discharge resistance malfunction

- Solar energy control ECU assembly discharge resistance malfunction

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0D5E00	Hybrid/EV Battery Charger Hybrid/EV System Discharge Time Too Long	The charging voltage (VSOL) does not drop even though a certain amount of time has passed since charging ended. (1 trip detection logic)	• Solar energy control ECU assembly • Plugin charge control ECU assembly • No. 1 traction battery device box	Comes on	Master Warning: Comes on	Plug-in Control	B	SAE Code: P0D5E

MONITOR DESCRIPTION

The plugin charge control ECU assembly monitors the high voltage condenser of the solar energy control ECU assembly before solar charging starts. If the electrical load stored in the high voltage condenser is not discharged

before the connection of the CHR relay, the plugin charge control ECU assembly judges that there is a malfunction and illuminates the MIL and stores a DTC.

MONITOR STRATEGY

Related DTCs	P0D5E: Battery Charger Hybrid/EV System Discharge Time Too Long
Required sensors/components	HV battery assembly No. 1 traction battery device box Electric vehicle charger assembly Solar energy control ECU assembly Plugin charge control ECU assembly
Frequency of operation	-
Duration	TMC's intellectual property
MIL operation	1 driving cycle
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 P0D5E00 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.

  Click here INFO
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

  Click here INFO

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. Confirm to start solar charging and wait for 30 seconds or more. [*1]
4. Stop solar charging and wait 30 seconds or more. [*2]
5. Confirm to start solar charging and wait for 30 seconds or more. [*3]
6. Stop solar charging and wait 30 seconds or more. [*4]

HINT:

[*1] to [*4]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

7. Enter the following menus: Powertrain / Plug-in Control / Utility / All Readiness.
8. 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.

PROCEDURE

1.	**CHECK DTC OUTPUT (HYBRID CONTROL, HV BATTERY, PLUG-IN CONTROL, SOLAR CHARGING CONTROL)**

Pre-procedure1

(a) Enter the following menus:

Powertrain > Hybrid Control > Trouble Codes
Powertrain > HV Battery > Trouble Codes
Powertrain > Plug-in Control > Trouble Codes
Powertrain > Solar Charging Control > Trouble Codes

Procedure1

(b) Check for DTCs.

RESULT	PROCEED TO
P0D5E00 only is output, or DTCs except the ones in the table below are also output.	A
DTCs of Hybrid Control System in the tables below are output.	B
DTCs of Hybrid Battery System in the tables below are output.	C
DTCs of Plug-in Charge Control System in the tables below are output.	D
DTCs of Solar Charging Control System in the tables below are output.	E

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Microcomputer malfunction	Plug-in Charge Control System	P060B49	Plug-in Control Module A/D Processing Internal Electronic Failure
		P1C1F49	Hybrid/EV Battery Charger Control Module A/D Processing Internal Electronic Failure
	Solar Charging Control System	P1EDB49	Solar Charger Control Module A/D Processing Internal Electronic Failure

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Communication system malfunction	Plug-in Charge Control System	U113A87	Lost Communication with Solar Charging Control Module Missing Message
		U01BB87	Lost Communication with Battery Charger Control Module "B" Missing Message
		U117B87	Lost Communication with Hybrid/EV Battery Energy Control Module "A" (ch2) Missing Message
		P0E5E87	Plug-in Control Module Processor from Hybrid/EV Battery Charger Control Module Processor Missing Message
	Solar Charging Control System	U115087	Lost Communication with Hybrid/EV Powertrain Control Module (Hybrid/EV Battery Local Bus) Missing Message
		U117B87	Lost Communication with Battery Energy Control Module "A" (ch2) Missing Message
		U115387	Lost Communication with Battery Charger Control Module "A" (ch2) Missing Message
Sensor and actuator circuit malfunction	Hybrid Battery System	P0D0A11	Hybrid/EV Battery Charging System Positive Contactor Control Circuit Short to Ground
		P0D0A15	Hybrid/EV Battery Charging System Positive Contactor Control Circuit Short to Auxiliary Battery or Open
		P0D1111	Hybrid/EV Battery Charging System Negative Contactor Control Circuit Short to Ground
		P0D1115	Hybrid/EV Battery Charging System Negative Contactor Control Circuit Short to Auxiliary Battery or Open
		P0E6D11	Hybrid/EV Battery Charging System Precharge Contactor Control Circuit Short to Ground
		P0E6D15	Hybrid/EV Battery Charging System Precharge Contactor Control Circuit Short to Auxiliary Battery or Open
	Solar Charging Control System	P1EA412	Solar Charging Voltage Sensor Circuit Short to Auxiliary Battery
		P1EA414	Solar Charging Voltage Sensor Circuit Short to Ground or Open
	Plug-in Charge Control System	P0D4C12	Hybrid/EV Battery Charger Hybrid/EV Battery Input Voltage Sensor Circuit Short to Auxiliary Battery
		P0D4C14	Hybrid/EV Battery Charger Hybrid/EV Battery Input Voltage Sensor Circuit Short to Ground or Open
System malfunction	Hybrid Control System	P0A1F94	Hybrid/EV Battery Energy Control Module Unexpected Operation
		P1BAC1C	Hybrid/EV Battery Charging System Positive/Negative Contactor Enable Circuit Circuit Voltage Out of Range
	Plug-in Charge Control System	P0D4C1C	Hybrid/EV Battery Charger Hybrid/EV Battery Input Voltage Sensor Voltage Out of Range
		P1EA41C	Solar Charging Voltage Sensor Circuit Voltage Out of Range

HINT:

- P0D5E00 may be output as a result of the malfunction indicated by the DTCs above.

  a. The chart above is listed in inspection order of priority.
  b. Check DTCs that are output at the same time by following the listed order. (The main cause of the malfunction can be determined without performing unnecessary inspections.)

Post-procedure1

(c) None

B ▶ **GO TO DTC CHART (HYBRID CONTROL SYSTEM)**

C ▶ **GO TO DTC CHART (HYBRID BATTERY SYSTEM)**

D ▶ **GO TO DTC CHART (PLUG-IN CHARGE CONTROL SYSTEM)**

E ▶ **GO TO DTC CHART (SOLAR CHARGING CONTROL SYSTEM)**

A ▼

2.	**CHECK FREEZE FRAME DATA (P0D5E00)**

(a) Using the GTS, read the Freeze Frame Data of DTC P0D5E00.

Powertrain > Plug-in Control > DTC(P0D5E00) > Freeze Frame Data

TESTER DISPLAY
Solar Charging Control Mode
Solar Charging Boosting DC/DC Converter Voltage

HINT:

If Solar Charging Control Mode status is "ON", solar charging has operated when DTC was stored.

RESULT	PROCEED TO
Solar charging has operated when DTC was stored and the value of "Solar Charging Boosting DC/DC Converter Voltage" is higher than 50 V.	A
Other than above	B

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

A

3.	**CLEAR DTC**

(a) Clear the DTCs and freeze frame data.

Powertrain > Plug-in Control > Clear DTCs

NEXT

4.	**CHECK SOLAR CHARGE STATE (2 TIMES)**

Pre-procedure1

(a) None

Procedure1

(b) Confirm to start solar charging and wait for 30 seconds or more (1st time).

(c) Stop solar charging and wait 30 seconds or more.

(d) Confirm to start solar charging and wait for 30 seconds or more (2nd time).

HINT:

If the time has passed since occurrence of the malfunction, discharge due to internal resistance may make the judgment incorrect. Therefore, it is necessary to repeat solar high voltage charging.

Post-procedure1

(e) Stop solar charging.

NEXT

5.	**CHECK DTC OUTPUT (PLUG-IN CONTROL)**

Pre-procedure1

(a) Enter the following menus:

Powertrain > Plug-in Control > Trouble Codes

Procedure1

(b) Check for DTCs.

RESULT	PROCEED TO
P0D0773 is output	A
P0D5E00 is output	
Other than above	B

Post-procedure1

(c) Turn the ignition switch off.

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

A

6.	**REPLACE NO. 1 TRACTION BATTERY DEVICE BOX**

HINT:

Click here INFO

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