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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for M20A-FXS): P31B300; Hybrid/EV Battery Voltage High; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**P31B300**	**Hybrid/EV Battery Voltage High**

DESCRIPTION

If the voltage of any HV battery cell exceeds the threshold, charging will be prohibited. If charging cannot be prohibited due to a hybrid battery system malfunction, this DTC will be stored.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P31B300	Hybrid/EV Battery Voltage High	Charging cannot be prohibited when the voltage of any HV battery cell has exceeded the specified threshold. (1 trip detection logic)	• Hybrid vehicle control ECU • No. 1 traction battery device box	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P31B3

MONITOR DESCRIPTION

If the maximum voltage of any HV battery cell exceeds the threshold but charging continues to be performed, the battery ECU assembly will determine that there is a malfunction, illuminate the MIL and store this DTC.

MONITOR STRATEGY

Related DTCs	P31B3 (INF P31B300): Battery cell Voltage high
Required sensors/components	Battery current sensor
Frequency of operation	Continuous
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

Battery ECU assembly	DTC P31B3 (INF P31B300) 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. Drive the vehicle on urban roads for approximately 10 minutes.[*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 / HV Battery / 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, perform the normal judgment procedure again.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P0AA649.

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 BATTERY, HYBRID CONTROL)**

Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

Powertrain > HV Battery > Trouble Codes

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
"P31B300" only is output.	A
DTCs except "P31B300" of hybrid battery system are output.	B
DTCs except "P31B300" of hybrid control system are output.	C

Post-procedure1

(c) Turn the ignition switch off.

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

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

A ▼

2.	**CHECK FREEZE FRAME DATA (READY SIGNAL, SMR CONTROL STATUS, HYBRID/EV BATTERY CURRENT)**

Pre-procedure1

(a) None

Procedure1

(b) Read the freeze frame data of DTC P31B300.

Powertrain > HV Battery > Trouble Codes

RESULT	PROCEED TO
OFF is displayed for "Ready Signal", "SMRB Control Status" and "SMRG Control Status" and -0.5 A or less is displayed for "Hybrid/EV Battery Current".	A
Other than above	B

HINT:

As the ignition switch ON state may cause the DTC to be stored, freeze frame data is used to judge the cause of the DTC output.

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **REPLACE HYBRID VEHICLE CONTROL ECU** INFO

A

3.	**INSPECT NO.1 TRACTION BATTERY DEVICE BOX (SMRB, SMRG)**

Click here INFO

NG ▶ **REPLACE NO.1 TRACTION BATTERY DEVICE BOX**

OK

4.	**PERFORM INITIALIZATION (CURRENT SENSOR OFFSET LEARNING)**

Click here INFO

NEXT ▶ **END**