Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BHUU
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for PHEV Model): P1A6017,P1A6317,P31AA17; Hybrid/EV Battery Stack 2 Cell Circuit Voltage Above Threshold; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P1A6017**	**Hybrid/EV Battery Stack 2 Cell Circuit Voltage Above Threshold**

DTC	**P1A6317**	**Hybrid/EV Battery Stack 3 Cell Circuit Voltage Above Threshold**

DTC	**P31AA17**	**Hybrid/EV Battery Stack 1 Cell Circuit Voltage Above Threshold**

DESCRIPTION

The HV battery is composed of 72 cells (3.7 V each) in series. The battery ECU assembly monitors the voltage of each HV battery cell to detect malfunctions of the HV battery.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P1A6017	Hybrid/EV Battery Stack 2 Cell Circuit Voltage Above Threshold	Charging continues to be performed after the voltage of any cell of the No. 2 HV supply stack sub-assembly has exceeded the threshold. (1 trip detection logic)	• No. 2 HV supply stack sub-assembly • Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P1A60
P1A6317	Hybrid/EV Battery Stack 3 Cell Circuit Voltage Above Threshold	Charging continues to be performed after the voltage of any cell of the No. 3 HV supply stack sub-assembly has exceeded the threshold. (1 trip detection logic)	• No. 3 HV supply stack sub-assembly • Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P1A63

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P31AA17	Hybrid/EV Battery Stack 1 Cell Circuit Voltage Above Threshold	Charging continues to be performed after the voltage of any cell of the No. 1 HV supply stack sub-assembly has exceeded the threshold. (1 trip detection logic)	• No. 1 HV supply stack sub-assembly • Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P31AA

MONITOR DESCRIPTION

If the battery ECU assembly detects that the voltage of a HV battery cell is excessively high, the battery ECU assembly will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P1A60 (INF P1A6017), P1A63 (INF P1A6317), P31AA (INF P31AA17): Cell voltage high
Required sensors/components	Battery ECU assembly
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 P1A60 (INF P1A6017) is not detected DTC P1A63 (INF P1A6317) is not detected DTC P31AA (INF P31AA17) 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 or N/A, perform the normal judgment procedure again.

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 auxiliary negative (-) 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)**

Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

Powertrain > HV Battery > Trouble Codes

RESULT	PROCEED TO
P0C3000 or P31B300 is not output	A
P0C3000 or P31B300 is output	B

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO STEP 3**

A ▼

2.	**CHECK DTC**

(a) Check the DTCs that were output when the vehicle was brought to the workshop.

RESULT	PROCEED TO
"P1A6017" is also output.	A
"P1A6317" is also output.	B
"P31AA17" is also output.	C

A ▶ **REPLACE NO. 2 HV SUPPLY STACK SUB-ASSEMBLY**

B ▶ **REPLACE NO. 3 HV SUPPLY STACK SUB-ASSEMBLY**

C ▶ **REPLACE NO. 1 HV SUPPLY STACK SUB-ASSEMBLY**

3.	**CHECK DTC**

(a) Check the DTCs that were output when the vehicle was brought to the workshop.

RESULT	PROCEED TO
"P1A6017" is also output.	A
"P1A6317" is also output.	B
"P31AA17" is also output.	C

B ▶ **GO TO STEP 5**

C ▶ **GO TO STEP 6**

A

4.	**REPLACE NO. 2 HV SUPPLY STACK SUB-ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

5.	**REPLACE NO. 3 HV SUPPLY STACK SUB-ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

6.	**REPLACE NO. 1 HV SUPPLY STACK SUB-ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**