Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BHSN
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: MOTOR GENERATOR CONTROL SYSTEM (for PHEV Model): P0D2D16,P0D2D17,P0D2D1F; Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Voltage Below Threshold; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0D2D16**	**Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Voltage Below Threshold**

DTC	**P0D2D17**	**Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Voltage Above Threshold**

DTC	**P0D2D1F**	**Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Intermittent**

DESCRIPTION

The motor generator control ECU (MG ECU) uses an inverter voltage sensor, which is built into the inverter, to detect boosted high voltage (VH) and allow control of the voltage boost.

The inverter voltage sensor outputs voltage that fluctuates between 0 to 5 V according to changes in VH.

The motor generator ECU monitors the inverter voltage sensor and detects the following malfunctions.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0D2D16	Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Voltage Below Threshold	Inverter voltage (VH) signal is stuck low: DTC stored when the VH sensor signal is excessively low. (1 trip detection logic)	Inverter with converter assembly	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P0D2F
P0D2D17	Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Voltage Above Threshold	Inverter voltage (VH) signal is stuck high: DTC stored when the VH sensor signal is excessively high. (1 trip detection logic)	Inverter with converter assembly	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P0D30
P0D2D1F	Drive Motor "A" Inverter Voltage Sensor(VH) Circuit Intermittent	An excessively high or low voltage signal is output from the inverter voltage sensor (VH) when DTC P0C7917, P0E5717, P0D3319, P1C5D19,	Inverter with converter assembly	Does not come on	Master Warning: Does not come on	Motor Generator	A	SAE Code: P0D31

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
		P1C5F19 or P1C5E19 is stored. (1 trip detection logic)						

MONITOR DESCRIPTION

The motor generator control ECU monitors the inverter voltage (VH) sensor circuit. If the motor generator control ECU detects an open or short in the VH sensor circuit, the ECU will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P0D2F (INF P0D2D16): Drive Motor "A" Inverter Voltage Sensor Range check (Low voltage) P0D30 (INF P0D2D17): Drive Motor "A" Inverter Voltage Sensor Range check (High voltage)
Required sensors/components	Motor inverter voltage sensor
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	Immediately
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

Motor generator control ECU	DTC P0D2F (INF P0D2D16) is not detected DTC P0D30 (INF P0D2D17) 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. Turn the ignition switch to ON (READY) and wait for 5 seconds or more. [*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 / Motor Generator / 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.

PROCEDURE

1.	**REPLACE INVERTER WITH CONVERTER ASSEMBLY**

Click here INFO

NEXT **COMPLETED**