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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: MOTOR GENERATOR CONTROL SYSTEM (for PHEV Model): P0DFA62,P1C691F; Generator Phase U-V-W Current Sensor Signal Compare Failure; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0DFA62**	**Generator Phase U-V-W Current Sensor Signal Compare Failure**

DTC	**P1C691F**	**Generator Phase U-V-W Current Sensor Circuit Intermittent**

DTC SUMMARY

MALFUNCTION DESCRIPTION

These DTCs indicate that the current sensor value is abnormal. The cause of this malfunction may be one of the following:

Internal inverter malfunction

- Current sensor malfunction
- Inverter with converter assembly internal circuit malfunction

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0DFA62	Generator Phase U-V-W Current Sensor Signal Compare Failure	Generator inverter current sensor characteristic malfunction: The value of the total output of the U, V and W phase current sensors exceeds the threshold.*1 (1 trip detection logic)	• Inverter with converter assembly • Hybrid vehicle transaxle assembly • Motor cable • Wire harness or connector	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P0DFA
P1C691F	Generator Phase U-V-W Current Sensor Circuit Intermittent	The value of the total output of the U, V and W phase current sensors exceeds the threshold detected when DTC P0C7917, P0E5717,	• Inverter with converter assembly • Hybrid vehicle transaxle assembly	Does not come on	Master Warning: Does not come on	Motor Generator	A	SAE Code: P1C69

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
		P0D3319, P1C5D19, P1C5F19 or P1C5E19 is stored. (1 trip detection logic)	• Motor cable • Wire harness or connector					

HINT:

*1: Under normal conditions, the value of the total output of the U, V and W phase current sensors is approximately 0

MONITOR DESCRIPTION

If the value of the total output of the U, V and W phase current sensors exceeds a threshold, a malfunction will be detected, the motor generator control ECU will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P0DFA (INF P0DFA62): Signal Compare Failure
Required sensors/components	Generator Phase U Current Sensor Generator Phase V Current Sensor Generator Phase W 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

Motor generator control ECU	DTC P0DAF (INF P0DFA62) 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 and wait for 5 seconds or more. [*1]
4. Turn the ignition switch to ON (READY) with the shift lever in P and wait for 5 seconds or more. [*2]
5. Press the HV EV CHG HOLD mode switch to enter HV drive mode. [*3]
6. Depress the accelerator pedal of the vehicle with the engine stopped and the shift lever in P to start the engine. [*4]
7. Drive the vehicle for approximately 10 minutes referring to the following freeze frame data item: "Vehicle Speed". [*5]

HINT:

[*1] to [*5]: Normal judgment procedure.

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

8. Enter the following menus: Powertrain / Motor Generator / Utility / All Readiness.
9. 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 the Generator High-voltage Circuit.

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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

HINT:

P0DFA62 or P1C691F may be output as a result of the malfunction indicated by the DTCs in table below.

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.)

Table 1

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Insulation malfunction	Hybrid control system	P1C7C49	Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure
		P1C7D49	Hybrid/EV Battery Voltage System Isolation (Hybrid/EV Battery Area) Internal Electronic Failure
		P1C7E49	Hybrid/EV Battery Voltage System Isolation (Transaxle Area) Internal Electronic Failure
		P1C7F49	Hybrid/EV Battery Voltage System Isolation (Direct Current Area) Internal Electronic Failure
		P1C8049	Hybrid/EV Battery Voltage System Isolation (Rear Motor Area) Internal Electronic Failure
High voltage circuit malfunction	Hybrid control system	P0AA649	Hybrid/EV Battery Voltage System Isolation Internal Electronic Failure

Table 2

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Microcomputer malfunction	Motor generator control system	P0A1A47	Generator Control Module Watchdog / Safety MC Failure
		P0A1A49	Generator Control Module Internal Electronic Failure
		P1C2A1C	Generator A/D Converter Circuit Circuit Voltage Out of Range
		P1C2A49	Generator A/D Converter Circuit Internal Electronic Failure
		P1C2A71	Generator A/D Converter Circuit Actuator Stuck
		P313483	Communication Error from Drive Motor "A" to Generator Value of Signal Protection Calculation Incorrect
		P313486	Communication Error from Drive Motor "A" to Generator Signal Invalid
		P313487	Communication Error from Drive Motor "A" to Generator Missing Message
Power source circuit malfunction	Motor generator control system	P19F81C	Generator Control Module Offset Power Circuit Voltage Out of Range
		P26DF1C	Generator Control Module Position Sensor REF Power Source Circuit Voltage Out of Range
Communication malfunction	Motor generator control system	U11B387	Lost Communication with Hybrid/EV Powertrain Control Module (ch5) Missing Message
System malfunction	Motor generator control system	P0A7A73	Generator Inverter Actuator Stuck Closed

PROCEDURE

1.	**CHECK CONNECTOR CONNECTION CONDITION (INVERTER WITH CONVERTER ASSEMBLY CONNECTOR)**

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RESULT	PROCEED TO
OK	A
NG (The connector is not connected securely.)	B
NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in the connector.)	C

B ▶ **CONNECT SECURELY**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

2.	**CHECK GENERATOR HIGH-VOLTAGE CIRCUIT**

Click here INFO

HINT:

If the "Generator High-voltage Circuit" inspection results are normal, perform the next step.

NEXT ▶ **REPLACE INVERTER WITH CONVERTER ASSEMBLY**