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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: HYBRID / BATTERY CONTROL: MOTOR GENERATOR CONTROL SYSTEM (for M20A-FXS): P0A1B1F; Generator Control Module Circuit Intermittent; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	P0A1B1F	Generator Control Module Circuit Intermittent
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DESCRIPTION

If the motor generator control ECU, which is built into the inverter with converter assembly, is reset due to a problem with the power source in the inverter, the motor generator control ECU will store this DTC.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0A1B1F	Generator Control Module Circuit Intermittent	Error in reset signal from the inverter assembly power source IC: If internal power source voltage drops below the normal CPU operating voltage or the ROM/RAM is malfunctioning, the power source IC resets the MG ECU and stores this DTC. (1 trip detection logic)	<ul style="list-style-type: none"> Wire harness or connector Inverter with converter assembly Auxiliary battery terminal 	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P0A1B

MONITOR DESCRIPTION

The motor generator control ECU monitors its internal operation and will illuminate the MIL and store a DTC if it detects a malfunction.

MONITOR STRATEGY

Related DTCs	P0A1B (INF P0A1B1F): Drive Motor "A" Control Module
Required sensors/components	Motor generator control ECU
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	-
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COMPONENT OPERATING RANGE

Motor generator control ECU	DTC P0A1B (INF P0A1B1F) is not detected
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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

- Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
- Turn the ignition switch off and wait for 2 minutes or more.
- Turn the ignition switch to ON and wait for 15 seconds or more. [*1]

HINT:

[*1]: Normal judgment procedure.

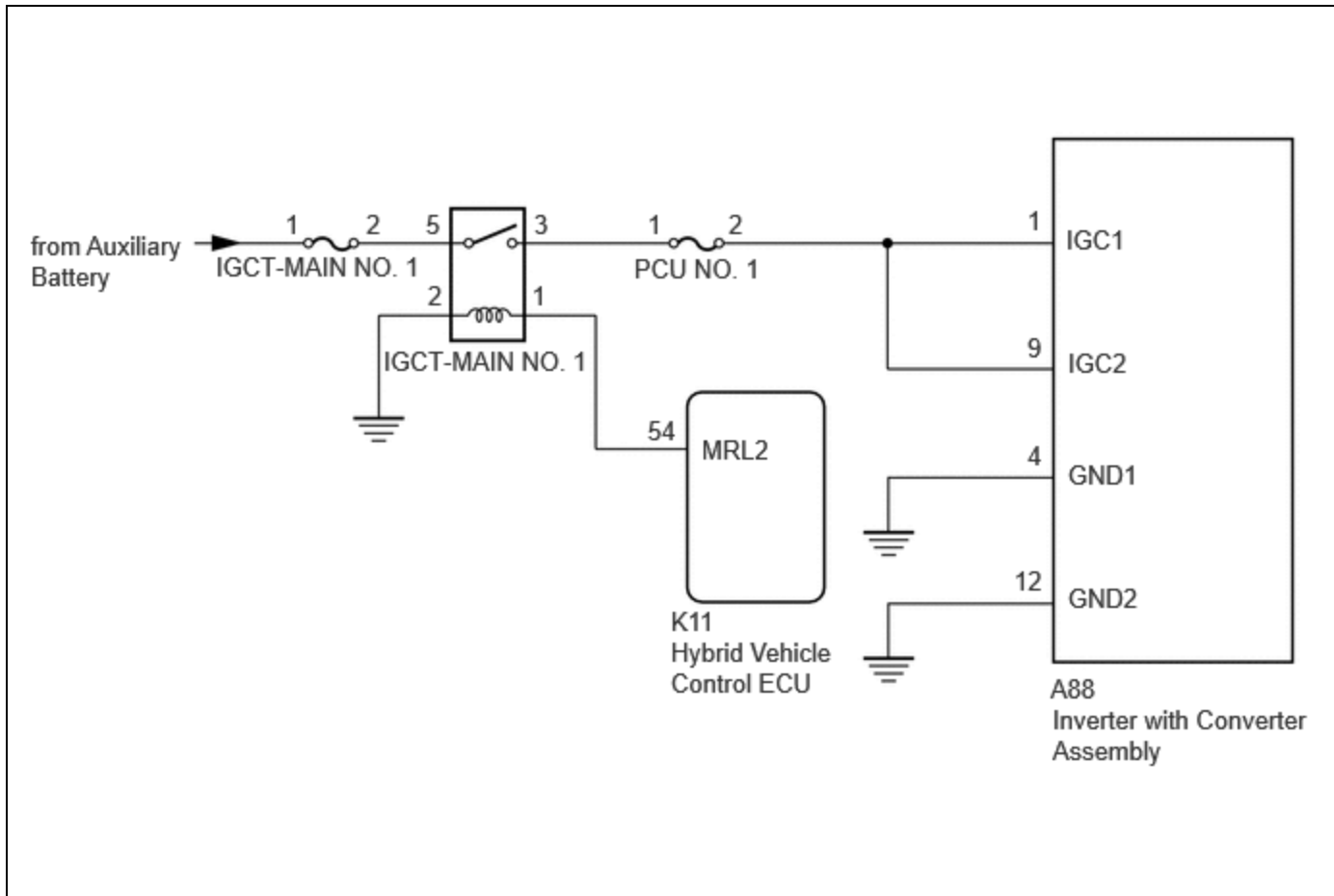
The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

- Enter the following menus: Powertrain / Motor Generator / Utility / All Readiness.
- 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



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](#)

P0A1B1F may be output as a result of the malfunction indicated by the DTCs in table below.

- The chart above is listed in inspection order of priority.
- 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.)

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Communication malfunction	Hybrid control system	U011087	Lost Communication with Drive Motor Control Module "A" Missing Message

PROCEDURE

1.	CHECK CONNECTOR CONNECTION CONDITION (INVERTER WITH CONVERTER ASSEMBLY CONNECTOR)
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Click here [INFO](#)

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 AUXILIARY BATTERY TERMINAL (CONTACT PROBLEM)
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(a) Check the connection of the auxiliary battery terminal.

OK:

The terminal is connected securely and there is no contact problem.

NG ► **CONNECT SECURELY**

OK
▼

3.	CHECK HARNESS AND CONNECTOR (INVERTER WITH CONVERTER ASSEMBLY - IGCT-MAIN NO. 1 RELAY)
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CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the inverter with converter assembly connector.

(c) Remove the IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

(d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(A88\)](#)

[Click Connector\(A88\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A88-1 (IGC1) - 3 (IGCT-MAIN NO. 1 relay holder)	Ignition switch off	Below 1 Ω	Ω
A88-9 (IGC2) - 3 (IGCT-MAIN NO. 1 relay holder)	Ignition switch off	Below 1 Ω	Ω
A88-4 (GND1) - Body ground	Ignition switch off	Below 1 Ω	Ω
A88-12 (GND2) - Body ground	Ignition switch off	Below 1 Ω	Ω

Post-procedure1

(e) Install the IGCT-MAIN NO. 1 relay.

(f) Reconnect the inverter with converter assembly connector.

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4.	CHECK FOR INTERMITTENT PROBLEMS
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(a) Check for intermittent problems.

HINT:

Click here

(1) Check the connection and terminal contact pressure of the connectors and wire harnesses between the auxiliary battery and the inverter with converter assembly.

There are no abnormalities in the wire harnesses and connectors.

OK **REPLACE INVERTER WITH CONVERTER ASSEMBLY**

NG  **REPAIR OR REPLACE MALFUNCTIONING PARTS,
COMPONENT AND AREA**

