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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): P274A1C,P274A1F; Transmission Fluid Temperature Sensor "C" Voltage Out of Range; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	P274A1C	Transmission Fluid Temperature Sensor "C" Voltage Out of Range
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DTC	P274A1F	Transmission Fluid Temperature Sensor "C" Circuit Intermittent
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DTC SUMMARY

MALFUNCTION DESCRIPTION

These DTCs are stored when the transmission fluid temperature sensor output is abnormal. The cause of this malfunction may be one of the following:

Transmission fluid temperature sensor malfunction

- Internal transmission fluid temperature sensor malfunction
- Open or short in transmission fluid temperature sensor

Wire harness between the transmission fluid temperature sensor and Motor generator control ECU (MG ECU)

- The connectors are not connected properly
- Foreign matter or water on the connector terminals
- Open or short in wire harness

DESCRIPTION

Refer to the description for DTC P274A11.

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P274A1C	Transmission Fluid Temperature Sensor "C" Voltage Out of Range	After a long soak, the value of the transmission fluid temperature sensor is different from the value of the other temperature sensors, or	<ul style="list-style-type: none"> • Wire harness or connector • Hybrid vehicle transaxle assembly (Transmission fluid temperature sensor) 	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P274B

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
		Unusual sudden change in transmission fluid temperature sensor output occurs and offset condition continues for a certain period of time, (2 trip detection logic)						
P274A1F	Transmission Fluid Temperature Sensor "C" Circuit Intermittent	Transmission fluid temperature sensor hunting: Unusual change in transmission fluid temperature sensor output occurs repeatedly. (1 trip detection logic)	<ul style="list-style-type: none"> • Wire harness or connector • Hybrid vehicle transaxle assembly (Transmission fluid temperature sensor) 	Comes on	Master Warning: Comes on	Motor Generator	A	SAE Code: P274E

MONITOR DESCRIPTION

If the motor generator control ECU detects a malfunction of the transmission fluid temperature sensor, it will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P274B (INF P274A1C): Transmission Fluid Temperature Sensor "C" Circuit Range/Performance P274E (INF P274A1F): Transmission Fluid Temperature Sensor "C" Circuit Intermittent
Required sensors/components	Transmission fluid temperature sensor
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	2 driving cycles / 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	-
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COMPONENT OPERATING RANGE

Motor generator control ECU	DTC P274B (INF P274A1C) is not detected DTC P274E (INF P274A1F) 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.

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- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

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DTC P274A1C

- Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
- Turn the ignition switch off.
- Leave the vehicle as is for 5 hours or more and then check the values of the Data List items "Generator Temperature", "Motor Temperature" and "Transaxle Oil Temperature". [*1]
- Turn the ignition switch to ON and turn the GTS on. [*2]

HINT:

[*1] to [*2]: 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.

DTC P274A1F

- 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.
- With ignition switch ON 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.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P274A11.

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CAUTION / NOTICE / HINT

CAUTION:

Refer to the precautions before inspecting high voltage circuit.

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NOTICE:

- After the ignition switch is turned off, there may be a waiting time before disconnecting the negative (-) auxiliary battery terminal.

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- 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.

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PROCEDURE

1.	CHECK DTC OUTPUT (ENGINE)
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Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

Powertrain > Engine > Trouble Codes


RESULT	PROCEED TO
No DTCs are output, or DTCs except the ones in the table below are also output.	A
Any of the following DTCs are also output.	B

RELEVANT DTC	
P261029	ECM/PCM Engine Off Timer Performance Signal Invalid

Post-procedure1

(c) Turn the ignition switch off.

B  **GO TO DTC CHART (SFI SYSTEM)**

Click here 

A


2.	CHECK DTC OUTPUT (MOTOR GENERATOR)
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Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

Powertrain > Motor Generator > Trouble Codes

RESULT	PROCEED TO
No DTCs are output, or DTCs except the ones in the table below are also output.	A
Any of the following DTCs are also output.	B

RELEVANT DTC	
P274A11	Transmission Fluid Temperature Sensor "C" Circuit Short to Ground
P274A15	Transmission Fluid Temperature Sensor "C" Circuit Short to Auxiliary Battery or Open

Post-procedure1

(c) Turn the ignition switch off.

B  **GO TO DTC CHART (MOTOR GENERATOR CONTROL SYSTEM)**

A


3.	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
▼

4.	CHECK CONNECTOR CONNECTION CONDITION (TRANSMISSION FLUID TEMPERATURE SENSOR 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



5.	INSPECT HYBRID VEHICLE TRANSAXLE ASSEMBLY (TRANSMISSION FLUID TEMPERATURE SENSOR)
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OK ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

NG ▶ REPLACE HYBRID VEHICLE TRANSAXLE ASSEMBLY

Click here [INFO](#)

