Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BM1N
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P26CA14; Engine Coolant Pump Circuit Short to Ground or Open; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P26CA14**	**Engine Coolant Pump Circuit Short to Ground or Open**

DESCRIPTION

Refer to DTC P26CA12.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P26CA14	Engine Coolant Pump Circuit Short to Ground or Open	The operation duty ratio (WPO) of the monitoring engine water pump assembly becomes a certain amount or less when the engine water pump assembly operation command is output (1 trip detection logic).	• Open or short in engine water pump assembly (water inlet housing) circuit • Engine water pump assembly (water inlet housing) • ECM	Comes on	Engine	A	SAE Code: P26CC

Related Data List

DTC NO.	DATA LIST
P26CA14	• Coolant Temperature • Electric Water Pump Target Speed • Electric Water Pump Speed

MONITOR DESCRIPTION

The ECM outputs an operation duty signal (WPO) to steplessly control the speed of the engine water pump assembly. The ECM outputs an operation duty signal (WPO) to the engine water pump assembly and monitors the actual duty signal (WPO) being output. When the operation duty signal (WPO) is being output to the engine water pump assembly and the actual operation duty signal (WPO) is a certain value or less, the ECM detects a malfunction and stores a DTC.

MONITOR STRATEGY

Related DTCs	P26CC: Engine water pump circuit range check (Low voltage)
Required Sensors/Components (Main)	Water inlet housing with water pump sub-assembly
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	3 seconds
MIL Operation	Immediate
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

All of the following conditions are met	-
Auxiliary battery voltage	8 V or higher
Ignition switch	ON
Time after ignition switch off to ON	0.5 seconds or more
Output duty cycle	30 to 85%
Engine water pump circuit pulse input fail (P26CA)	Not detected

TYPICAL MALFUNCTION THRESHOLDS

Both of the following conditions are met	-
Water inlet housing with water pump sub-assembly output terminal voltage level	Low
Water inlet housing with water pump sub-assembly output signal	No signal

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 at least 30 seconds.
3. Turn the ignition switch to ON [A].
4. Put the engine in Inspection Mode (Maintenance Mode).

   Click here INFO

5. Start the engine and maintain the engine speed at 2500 rpm or more for at least 40 seconds [B].
6. Enter the following menus: Powertrain / Engine / Trouble Codes [C].
7. Read the pending DTCs.

HINT:

- If a pending DTC is output, the system is malfunctioning.
- If a pending DTC is not output, perform the following procedure.

8. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
9. Input the DTC: P26CA14.
10. Check the DTC judgment result.

HINT:

- If the judgment result is NORMAL, the system is normal.
- If the judgment result is ABNORMAL, the system has a malfunction.
- If the judgment result is INCOMPLETE, perform steps [B] through [C] again.
- [A] to [C]: Normal judgment procedure.

  The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.
- When clearing the permanent DTCs, do not disconnect the cable from the auxiliary battery terminal or attempt to clear the DTCs during this procedure, as doing so will clear the universal trip and normal judgment histories.

WIRING DIAGRAM

Refer to DTC P26CA12.

Click here INFO

CAUTION / NOTICE / HINT

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following procedure.
- Vehicle Control History may be stored in the hybrid vehicle control ECU if the engine is malfunctioning. Certain vehicle condition information is recorded when Vehicle Control History is stored. Reading the vehicle conditions recorded in both the freeze frame data and Vehicle Control History can be useful for troubleshooting.

  for HEV Model: Click here INFO

  for PHEV Model: Click here INFO

  (Select Powertrain in Health Check and then check the time stamp data.)
- If any "Engine Malfunction" Vehicle Control History item has been stored in the hybrid vehicle control ECU, make sure to clear it. However, as all Vehicle Control History items are cleared simultaneously, if any Vehicle Control History items other than "Engine Malfunction" are stored, make sure to perform any troubleshooting for them before clearing Vehicle Control History.

  for HEV Model: Click here INFO

  for PHEV Model: Click here INFO

PROCEDURE

1.	**INSPECT ECM (INTERNAL CIRCUIT)**

Pre-procedure1

(a) Disconnect the engine water pump assembly connector.

Procedure1

(b) Perform the Active Test using the GTS.

Powertrain > Engine > Active Test

TESTER DISPLAY
Activate the Electric Water Pump

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

Standard:

EWD INFO

Click Location & Routing(C38)
Click Connector(C38)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C38-3 (SWP) - Body ground	During Active Test	Resistance fluctuates*

HINT:

- *: When the connector of the engine water pump assembly (water inlet housing) is disconnected, the ECM will enter fail-safe mode. When the ECM is in fail-safe mode, a continuous duty signal will be output and the resistance will fluctuate as the transistor inside the ECM is turned on an off.
- If the resistance fluctuates while the ECM is in fail-safe mode after the connector of the engine water pump assembly (water inlet housing) is disconnected, it can be determined that the transistor is operating.
- If the transistor does not operate, the ECM may be malfunctioning.
- If the resistance fluctuates after turning the ignition switch to ON, it can be determined that the ECM is in fail-safe mode.

Post-procedure1

(d) None.

OK ▶ **REPLACE ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING)**

NG ▼

2.	**CHECK HARNESS AND CONNECTOR (ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING) - ECM)**

Pre-procedure1

(a) Disconnect the engine water pump assembly (water inlet housing) connector.

(b) Disconnect the ECM connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(C38,C52)
Click Connector(C38)
Click Connector(C52)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C38-3 (SWP) - C52-50 (WPO)	Always	Below 1 Ω	Ω
C38-3 (SWP) or C52-50 (WPO) - Body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

OK ▶ **REPLACE ECM**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**