Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BM1P
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P26CA31; Engine Coolant Pump No Signal; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P26CA31**	**Engine Coolant Pump No Signal**

DESCRIPTION

Refer to DTC P26CA12.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P26CA31	Engine Coolant Pump No Signal	The speed of the engine water pump calculated from the WPI signal is less than 10 rpm (open or short in the WPI circuit) (1 trip detection logic).	• Open or short in engine water pump assembly (water inlet housing) circuit • Engine water pump assembly (water inlet housing) • EFI-MAIN NO. 3 relay • ECM	Comes on	Engine	A	SAE Code: P26CA

Related Data List

DTC NO.	DATA LIST
P26CA31	• Coolant Temperature • Electric Water Pump Target Speed • Electric Water Pump Speed

MONITOR DESCRIPTION

The ECM receives a frequency signal (WPI) from the engine water pump assembly and calculates the speed of the engine water pump assembly. As the frequency signal (WPI) is 4 Hz when the engine water pump assembly is stopped to enable the ECM to detect an open or short in the signal line, the engine water pump assembly speed will be displayed as approximately 160 rpm even when the pump is stopped. If the engine water pump assembly speed is calculated to be less than 10 rpm, the ECM judges that there is an open or short in the WPI circuit and stores this DTC.

MONITOR STRATEGY

Related DTCs	P26CA: Engine water pump circuit verify pulse input
Required Sensors/Components (Main)	Water inlet housing with water pump sub-assembly
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	15 seconds
MIL Operation	Immediate
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	None
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

TYPICAL MALFUNCTION THRESHOLDS

Engine water pump speed	Less than 10 rpm

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: P26CA31.
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.	**CHECK TERMINAL VOLTAGE (POWER SOURCE OF ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING))**

Pre-procedure1

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

(b) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

Click Location & Routing(C38)

Click Connector(C38)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C38-2 (NWP) - Body ground	Ignition switch ON	11 to 14 V	V

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 8**

OK ▼

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

Pre-procedure1

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

Procedure1

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

Standard Resistance:

EWD INFO

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C38-1 (PGND) - Body ground	Always	Below 1 Ω	Ω

Post-procedure1

(c) None.

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

OK ▼

3.	**CHECK TERMINAL VOLTAGE (POWER SOURCE OF ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING))**

Pre-procedure1

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

(b) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C38-4 (+B) - Body ground	Ignition switch ON	11 to 14 V	V

Post-procedure1

(d) None.

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

NG

▼

4.	**INSPECT EFI-MAIN NO. 3 RELAY**

Click here INFO

NG ▶ **REPLACE EFI-MAIN NO. 3 RELAY**

OK

▼

5.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE OF EFI-MAIN NO. 3 RELAY)**

Pre-procedure1

(a) Remove the EFI-MAIN NO. 3 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
3 (EFI-MAIN NO. 3 relay) - Body ground	Always	11 to 14 V	V

Post-procedure1

(c) None.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (AUXILIARY BATTERY - EFI-MAIN NO. 3 RELAY)**

OK ▼

6.	**CHECK HARNESS AND CONNECTOR (EFI-MAIN NO. 3 RELAY - BODY GROUND)**

Pre-procedure1

(a) Remove the EFI-MAIN NO. 3 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
1 (EFI-MAIN NO. 3 relay) - Body ground	Always	Below 1 Ω	Ω

Post-procedure1

(c) None.

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

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (EFI-MAIN NO. 3 RELAY - ENGINE WATER PUMP ASSEMBLY (WATER INLET HOUSING))**

Pre-procedure1

(a) Remove the EFI-MAIN NO. 3 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Procedure1

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

Standard Resistance:

EWD INFO

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
5 (EFI-MAIN NO. 3 relay) - C38-4 (+B)	Always	Below 1 Ω	Ω
5 (EFI-MAIN NO. 3 relay) or C38-4 (+B) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (EFI-MAIN NO. 1 RELAY - EFI-MAIN NO. 3 RELAY)**

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

8.	**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
C38-2 (NWP) - C52-51 (WPI)	Always	Below 1 Ω	Ω
C38-2 (NWP) or C52-51 (WPI) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

OK ▶ **REPLACE ECM**

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