| | | |
|---|---|---|
| **Last Modified:** 12-04-2024 | 6.11:8.1.0 | **Doc ID:** RM100000002BM0Z |
| **Model Year Start:** 2023 | **Model:** Prius Prime | **Prod Date Range:** [03/2023 - ] |
| **Title:** M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P136629; "E" Camshaft Position Actuator Bank 1 Signal Invalid; 2023 - 2024 MY Prius Prius Prime [03/2023 - ] | | |

| | | |
|---|---|---|
| **DTC** | **P136629** | **"E" Camshaft Position Actuator Bank 1 Signal Invalid** |

# DESCRIPTION

Refer to DTC P001001.

Click here INFO

| DTC NO. | DETECTION ITEM | DTC DETECTION CONDITION | TROUBLE AREA | MIL | DTC OUTPUT FROM | PRIORITY | NOTE |
|---|---|---|---|---|---|---|---|
| P136629 | "E" Camshaft Position Actuator Bank 1 Signal Invalid | Malfunction in diagnostic signal (VTM) of cam timing control motor with EDU assembly is detected for 3 seconds (1 trip detection logic). | • Cam timing control motor with EDU assembly<br>• Open or short in cam timing control motor with EDU assembly circuit<br>• ECM | Comes on | Engine | A | SAE Code: P1366 |

# MONITOR DESCRIPTION

This DTC is output when a diagnostic signal malfunction is detected in the cam timing control motor with EDU assembly. The cam timing control motor with EDU assembly is equipped with a self diagnostic function, which is used to output the condition of the cam timing control motor with EDU assembly as a diagnosis signal (VTM) to the ECM. If the ECM receives a diagnosis signal that is not one of the set signals, a DTC is output immediately (1 trip detection logic).

# MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P1366: Motor drive VVT system control module performance |
| Required sensors/Components (Main) | Cam timing control motor with EDU assembly |
| Required sensors/Components (Related) | - |
| Frequency of Operation | Continuous |
| Duration | 3 seconds |
| MIL Operation | Immediate |
| Sequence of Operation | None |

## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| Monitor runs whenever the following DTCs are not stored | None |
| Both of the following conditions are met | - |
| Auxiliary battery voltage | 11 V or higher |
| Ignition switch | ON |

## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| "VVT motor driver error" from motor drive system control module | Received |

## 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. Put the engine in Inspection Mode (Maintenance Mode).

   Click here INFO
4. Start the engine [A].
5. Idle the engine for 10 seconds or more [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: P136629.
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 P136001.

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 HARNESS AND CONNECTOR (CAM TIMING CONTROL MOTOR WITH EDU ASSEMBLY - ECM)** |

Pre-procedure1

(a) Disconnect the cam timing control motor with EDU assembly 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(C20,C52)**
**Click Connector(C20)**
**Click Connector(C52)**

| TESTER CONNECTION | CONDITION | SPECIFIED CONDITION | RESULT |
|---|---|---|---|
| C20-4 (VTM) - C52-72 (EMD1) | Always | Below 1 Ω | Ω |
| C20-4 (VTM) or C52-72 (EMD1) - Body ground and other terminals | Always | 10 kΩ or higher | kΩ |

Post-procedure1

(d) None.

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

**OK**

| | |
|---|---|
| **2.** | **REPLACE CAM TIMING CONTROL MOTOR WITH EDU ASSEMBLY** |

**HINT:**

Click here INFO

**NEXT**

| | |
|---|---|
| **3.** | **CLEAR DTC** |

Pre-procedure1

(a) None.

Procedure1

(b) Clear the DTCs.

**Powertrain > Engine > Clear DTCs**

Post-procedure1

(c) Turn the ignition switch off and wait for at least 30 seconds.

**NEXT**

| | |
|---|---|
| **4.** | **CONFIRM WHETHER MALFUNCTION HAS BEEN SUCCESSFULLY REPAIRED** |

Pre-procedure1

(a) Drive the vehicle in accordance with the driving pattern described in Confirmation Driving Pattern.

Procedure1

(b) Read the DTCs.

**Powertrain > Engine > Trouble Codes**

| RESULT | PROCEED TO |
|---|---|
| DTCs are not output | A |
| P136629 is output | B |

Post-procedure1

(c) None.

**A** ▶ **END**

**B** ▶ **REPLACE ECM**