Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BLXY
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P060647; Control Module Processor Watchdog/Safety MCU Failure; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P060647**	**Control Module Processor Watchdog/Safety MCU Failure**

MONITOR DESCRIPTION

The ECM continuously monitors its main CPU and monitor IC. This self-check ensures that the ECM is functioning properly. If outputs from main CPU and monitor IC are different and deviate from the standard, the ECM will illuminate the MIL and store this DTC.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P060647	Control Module Processor Watchdog/Safety MCU Failure	ECM main CPU malfunction (1 trip detection logic).	ECM	Comes on	Engine	A	SAE Code: P0606

MONITOR STRATEGY

Related DTC	P0606: ECM/PCM processor performance
Required Sensors/Components (Main)	ECM
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	2 times
MIL Operation	Immediate
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	None

TYPICAL MALFUNCTION THRESHOLDS

One of the following conditions is met	-
ROM check sum	Error
RAM read and write check	Fail
Specific software routine A operation period check	Fail
Software functional check	Fail
DMA communication error	Detected

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 GTS off.
3. Turn the ignition switch off.
4. Disconnect the GTS.
5. Disconnect the cable from the negative (-) auxiliary battery terminal and wait for 1 minute.
6. Connect the cable to the negative (-) auxiliary battery terminal.
7. Turn the ignition switch to ON.
8. Wait 1 second or more [A].
9. Enter the following menus: Powertrain / Engine / Trouble Codes [B].
10. 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.
11. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
12. Input the DTC: P060647.
13. Check the DTC judgment result.

    HINT:

    - If the judgment result is NORMAL, the system is normal.
    - If the judgment result is ABNORMAL, the system is malfunctioning.
    - [A] to [B]: 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.

CAUTION / NOTICE / HINT

NOTICE:

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

  Click here INFO
- When disconnecting and reconnecting the battery.

  HINT:

  When disconnecting and reconnecting the battery, there is an automatic learning function that completes learning when the respective system is used.

  Click here INFO
- 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.	**CLEAR DTC**

Pre-procedure1

(a) None.

Procedure1

(b) Clear the DTCs.

Powertrain > Engine > Clear DTCs

Post-procedure1

(c) Turn the ignition switch off.

NEXT

2.	**READ OUTPUT DTC (DTC P060647)**

Pre-procedure1

(a) Disconnect the cable from the negative (-) auxiliary battery terminal and wait for 1 minute.

(b) Connect the cable to the negative (-) auxiliary battery terminal.

(c) Turn the ignition switch to ON.

(d) Wait 1 second or more.

Procedure1

(e) Read the DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A

RESULT	PROCEED TO
P060647 is output	B

Post-procedure1

(f) None.

A ▶ **CHECK FOR INTERMITTENT PROBLEMS**

B ▶ **REPLACE ECM**