Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028ZV3
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]

Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): P060647,...,P1CE371; Hybrid/EV Powertrain Control Module Processor Watchdog / Safety MCU Failure; 2023 - 2024 MY Prius Prius Prime [12/2022 -   ]

DTC	P060647	**Hybrid/EV Powertrain Control Module Processor Watchdog / Safety MCU Failure**

DTC	P060687	**Hybrid/EV Powertrain Control Module Processor to Monitoring Processor Missing Message**

DTC	P060A29	**Hybrid/EV Powertrain Control Module Monitoring Processor Signal Invalid**

DTC	P060A44	**Hybrid/EV Powertrain Control Module Monitoring Processor Data Memory Failure**

DTC	P060A45	**Hybrid/EV Powertrain Control Module Monitoring Processor Program Memory Failure**

DTC	P060A47	**Hybrid/EV Powertrain Control Module Monitoring Processor Watchdog / Safety MCU Failure**

DTC	P060A49	**Hybrid/EV Powertrain Control Module Monitoring Processor Internal Electronic Failure**

DTC	P060A87	**Hybrid/EV Powertrain Control Module Processor from Monitoring Processor Missing Message**

DTC	P060B1C	**Hybrid/EV Powertrain Control Module A/D Processing Voltage Out of Range**

DTC	P060B49	**Hybrid/EV Powertrain Control Module A/D Processing Internal Electronic Failure**

DTC	P060B71	**Hybrid/EV Powertrain Control Module A/D Processing Actuator Stuck**

DTC	P1C9E9F	**Hybrid/EV System Reset Stuck Off**

DTC	P1CE31C	**Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Voltage Out of Range**

DTC	P1CE349	**Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Internal Electronic Failure**

DTC	P1CE371	**Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Actuator Stuck**

DESCRIPTION

The hybrid vehicle control ECU monitors its internal operation and will store these DTCs when it detects an internal malfunction. If these DTCs are output, replace the hybrid vehicle control ECU.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P060647	Hybrid/EV Powertrain Control Module Processor Watchdog / Safety MCU Failure	ECU internal malfunction (HV-CPU error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P0606
P060687	Hybrid/EV Powertrain Control Module Processor to Monitoring Processor Missing Message	ECU internal malfunction (Communication error (main to sub CPU)) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P0606
P060A29	Hybrid/EV Powertrain Control Module Monitoring Processor Signal Invalid	ECU internal malfunction (Sub CPU circuit error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P060A44	Hybrid/EV Powertrain Control Module Monitoring Processor Data Memory Failure	ECU internal malfunction (Sub CPU RAM error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A
P060A45	Hybrid/EV Powertrain Control Module Monitoring Processor Program Memory Failure	ECU internal malfunction (Sub CPU ROM error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A
P060A47	Hybrid/EV Powertrain Control Module Monitoring Processor Watchdog / Safety MCU Failure	ECU internal malfunction (Sub CPU WDC error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A
P060A49	Hybrid/EV Powertrain Control Module Monitoring Processor Internal Electronic Failure	ECU internal malfunction (Sub CPU calculation check error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A
P060A87	Hybrid/EV Powertrain Control Module Processor from Monitoring Processor Missing Message	ECU internal malfunction (Communication error (sub to main CPU)) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060A
P060B1C	Hybrid/EV Powertrain Control Module A/D Processing Voltage Out of Range	ECU internal malfunction (AD conversion error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060B

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P060B49	Hybrid/EV Powertrain Control Module A/D Processing Internal Electronic Failure	ECU internal malfunction (AD timeout error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060B
P060B71	Hybrid/EV Powertrain Control Module A/D Processing Actuator Stuck	ECU internal malfunction (AD multiplexer error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P060B
P1C9E9F	Hybrid/EV System Reset Stuck Off	ECU internal malfunction (Primary check error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P1C9E
P1CE31C	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Voltage Out of Range	ECU internal malfunction (Sub CPU AD conversion error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P1CE3
P1CE349	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Internal Electronic Failure	ECU internal malfunction (Sub CPU AD timeout error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P1CE3
P1CE371	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Actuator Stuck	ECU internal malfunction (Sub CPU AD multiplexer error) (1 trip detection logic)	Hybrid vehicle control ECU	Comes on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P1CE3

MONITOR DESCRIPTION

The hybrid vehicle control ECU performs diagnostic tests to verify proper operation of internal ECU systems. If there is an internal ECU malfunction, the hybrid vehicle control ECU will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P0606 (INF P060647): Control module processor performance P0606 (INF P060687): Control module processor verify communication P060A (INF P060A29/P060A44/P060A45/P060A47/P060A49): Internal control module monitoring processor performance P060A (INF P060A87): Internal control module monitoring processor verify communication P060B (INF P060B1C/P060B49/P060B71): Internal control module A/D processing performance P1C9E (INF P1C9E9F): Control module processor restart P1CE3 (INF P1CE31C/P1CE349/P1CE371): Internal control module monitoring processor A/D processing performance
Required sensors/components	Hybrid vehicle control ECU
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	Immediately / 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	-

COMPONENT OPERATING RANGE

Hybrid vehicle control ECU	DTC P0606 (INF P060647/P060687) is not detected DTC P060A (INF P060A29/P060A44/P060A45/P060A47/P060A49/P060A87) is not detected DTC P060B (INF P060B1C/P060B49/P060B71) is not detected DTC P1C9E (INF P1C9E9F) is not detected DTC P1CE3 (INF P1CE31C/P1CE349/P1CE371) is not 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 ignition switch off and wait for 2 minutes or more.
3. With ignition switch ON and wait for 15 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 / Hybrid Control / 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.

CAUTION / NOTICE / HINT

NOTICE:

Be sure to check that the applicable DTC is output from the hybrid control system.

PROCEDURE

1.	REPLACE HYBRID VEHICLE CONTROL ECU

HINT:

Click here INFO

NEXT ▶ END