Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000029A5B
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for M20A-FXS): P0A8196,P0A8198; Hybrid/EV Battery Cooling Fan 1 Component Internal Failure; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**P0A8196**	**Hybrid/EV Battery Cooling Fan 1 Component Internal Failure**

DTC	**P0A8198**	**Hybrid/EV Battery Cooling Fan 1 Component or System Over Temperature**

DESCRIPTION

Refer to the description for DTC P0A8111.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0A8196	Hybrid/EV Battery Cooling Fan 1 Component Internal Failure	The battery cooling blower assembly is malfunctioning and the actual speed is not within the specified range of the target speed calculated by the ECU.* *: This DTC is not stored when "Hybrid/EV Battery Cooling Fan 1 Frequency" is excessively low or high. (2 trip detection logic)	• Wire harness or connector • Battery cooling blower assembly • Battery ECU assembly • No. 1 HV battery intake filter • No. 1 hybrid battery intake duct	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P0A82
P0A8198	Hybrid/EV Battery Cooling Fan 1 Component or System Over Temperature	The HV battery temperature is high and the battery cooling blower assembly is malfunctioning and the actual speed is not within the specified range of	• Wire harness or connector • Battery cooling blower assembly	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P0A82

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
		the target speed calculated by the ECU.* *: This DTC is not stored when "Hybrid/EV Battery Cooling Fan 1 Frequency" is excessively low or high. (1 trip detection logic)	• Battery ECU assembly • No. 1 HV battery intake filter • No. 1 hybrid battery intake duct					

HINT:

"Hybrid/EV Battery Cooling Fan 1 Frequency" is detected when the battery cooling blower assembly is operating and its value changes in proportion to the battery cooling blower assembly rotation speed.

MONITOR DESCRIPTION

If the battery ECU assembly detects that the speed of the battery cooling blower assembly is outside the normal operating range, it will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P0A82 (INF P0A8196): Hybrid/EV Battery Cooling Fan 1 Component Internal Failure P0A82 (INF P0A8198): Hybrid/EV Battery Cooling Fan 1 Component or System Over Temperature
Required sensors/components	Battery cooling blower assembly
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	1 driving cycle / 2 driving cycles
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

Battery ECU assembly	DTC P0A82 (INF P0A8196) is not detected DTC P0A82 (INF P0A8198) 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. Turn the ignition switch to ON (READY) and turn the GTS on.
4. Enter the following menus: Powertrain / HV Battery / Active Test / Control the Hybrid/EV Battery Cooling Fan.[*1]
5. Operate the battery cooling blower assembly in each fan mode, 1 through 6, for 60 seconds or more.[*2]

   HINT:

   - Operation of the battery cooling blower assembly can be confirmed by checking if air is sucked into the air intake port of the intake duct.
   - [*1] to [*2]: Normal judgment procedure.

     The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.
6. Enter the following menus: Powertrain / HV Battery / Utility / All Readiness.
7. 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.

WIRING DIAGRAM

Refer to the wiring diagram for DTC P0A8111.

Click here INFO

CAUTION / NOTICE / HINT

CAUTION:

Refer to the precautions before inspecting high voltage circuit.

Click here INFO

NOTICE:

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

  Click here INFO
- When disconnecting and reconnecting the auxiliary battery

HINT:

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

Click here INFO

PROCEDURE

1.	**CHECK DTC OUTPUT (HV BATTERY, HYBRID CONTROL)**

Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

Powertrain > HV Battery > Trouble Codes
Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
P0A8196 or P0A8198 only is output, or DTCs except the ones in the table below are also output.	A
DTCs of hybrid battery system in the table below are output.	B
DTCs of hybrid control system in the table below are output.	C

SYSTEM	RELEVANT DTC	
Hybrid battery system	P060A47	Hybrid/EV Battery Energy Control Module Monitoring Processor Watchdog / Safety MCU Failure
	P060B49	Hybrid/EV Battery Energy Control Module A/D Processing Internal Electronic Failure
	P060687	Hybrid/EV Battery Energy Control Module Processor to Monitoring Processor Missing Message
Hybrid control system	P0A1F94	Hybrid/EV Battery Energy Control Module Unexpected Operation

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO DTC CHART (HYBRID BATTERY SYSTEM)**

C ▶ **GO TO DTC CHART (HYBRID CONTROL SYSTEM)**

A ▼

2.	**CHECK DUCT AND BLOWER**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

Procedure1

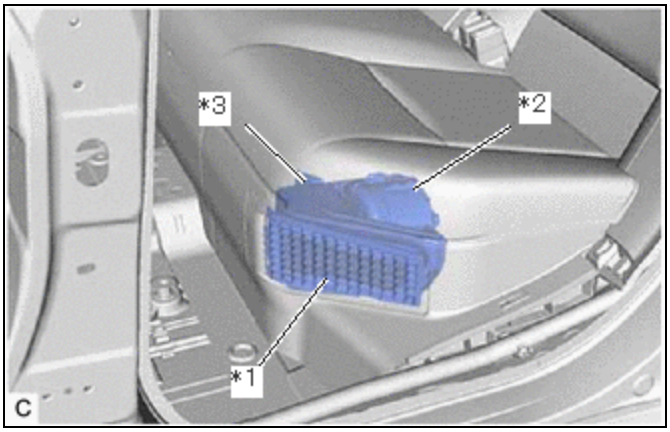
(b) Check that the No. 1 HV battery intake filter, No. 1 hybrid battery intake duct and battery cooling blower assembly blower are not disconnected, damaged, or clogged with foreign matter.

OK:

The No. 1 HV battery intake filter, No. 1 hybrid battery intake duct and battery cooling blower assembly blower are not disconnected, damaged, or clogged with foreign matter.

Result:

PROCEED TO
OK
NG



*1	No. 1 HV Battery Intake Filter
*2	Battery Cooling Blower Assembly
*3	No. 1 Hybrid Battery Intake Duct

Post-procedure1

(c) None

NG ▶ **CORRECT THE PROBLEM**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (BATTERY ECU ASSEMBLY - BATTERY COOLING BLOWER ASSEMBLY)**

Click here INFO

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

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (BATTERY ECU ASSEMBLY - BATTERY COOLING BLOWER ASSEMBLY)**

Click here INFO

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

OK ▼

5.	**CHECK BATTERY ECU ASSEMBLY (GROUND SHORT CHECK)**

Pre-procedure1

(a) Remove the battery ECU assembly.

HINT:

Click here INFO

Procedure1

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

Standard Resistance:

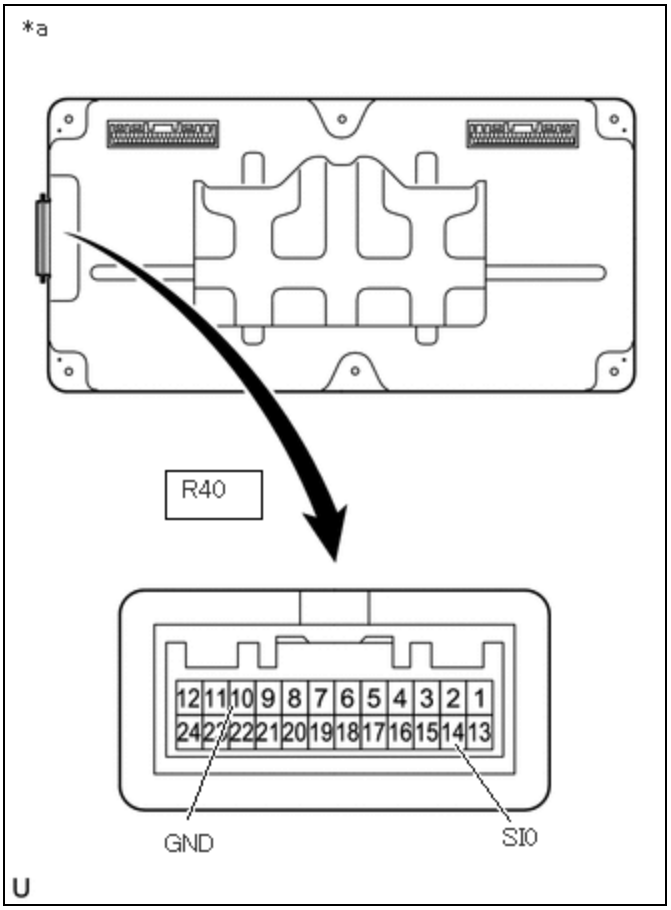
EWD INFO

Click Location & Routing(R40)
Click Connector(R40)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R40-14 (SI0) - R40-10 (GND)	Ignition switch off	10 kΩ or higher

Result:

PROCEED TO
OK
NG



*a	Component without harness connected (Battery ECU Assembly)

Post-procedure1

(c) Install the battery ECU assembly.

NG ▶ **REPLACE BATTERY ECU ASSEMBLY**

OK ▼

6.	READ VALUE USING GTS (HYBRID/EV BATTERY COOLING FAN 1 FREQUENCY)

Click here INFO

RESULT	PROCEED TO
Both of the value in the Data List (Hybrid/EV Battery Cooling Fan 1 Frequency) and the actual measured value at the battery ECU assembly connector are 0 Hz.	A

RESULT	PROCEED TO
Other than above	B

B ▶ **GO TO STEP 8**

A ▼

7.	**CHECK BATTERY ECU ASSEMBLY**

Click here INFO

OK ▶ **REPLACE BATTERY COOLING BLOWER ASSEMBLY**

NG ▶ **REPLACE BATTERY ECU ASSEMBLY**

8.	**CHECK BATTERY ECU ASSEMBLY (FREQUENCY)**

Click here INFO

OK ▶ **REPLACE BATTERY COOLING BLOWER ASSEMBLY**

NG ▶ **REPLACE BATTERY ECU ASSEMBLY**