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<b>Model Year Start:</b> 2023	<b>Model:</b> Prius Prime	<b>Prod Date Range:</b> [03/2023 - ]
<b>Title:</b> HYBRID / BATTERY CONTROL: HYBRID BATTERY SYSTEM (for PHEV Model): P0C3200; Hybrid/EV Battery Cooling System "A" Performance; 2023 - 2024 MY Prius Prime [03/2023 - ]		

<b>DTC</b>	<b>P0C3200</b>	<b>Hybrid/EV Battery Cooling System "A" Performance</b>
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## DTC SUMMARY

### **MALFUNCTION DESCRIPTION**

Cooling performance drop malfunctions in the HV battery refrigerant cooling system are detected to prevent the HV battery temperature from rising excessively.

## DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0C3200	Hybrid/EV Battery Cooling System "A" Performance	While HV battery refrigerant is cooling, the HV battery temperature is high and the HV battery temperature has risen to the specified value or higher.  (2 trip detection logic)	<ul style="list-style-type: none"> <li>No. 1 traction battery cooler tube (duct inlet 1)</li> <li>No. 1 traction battery cooler conductor (duct outlet 1)</li> <li>Battery ECU assembly</li> <li>Wire harness or connector</li> <li>A/C cooler pipe</li> <li>HV battery cooler pipe</li> </ul>	Comes on	Master Warning: Comes on	HV Battery	A	SAE Code: P0C32

## MONITOR DESCRIPTION

While HV battery refrigerant is cooling, if the HV battery temperature is high and the HV battery temperature increases by the specified value or higher, the battery ECU assembly illuminates the MIL and stores a DTC.

## MONITOR STRATEGY

Related DTCs	P0C32 (INF P0C3200): Hybrid/EV Battery Cooling System "A" Performance
Required sensors/components	Air Conditioning Thermistor
Frequency of operation	Continuous
Duration	TMC's intellectual property
MIL operation	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	-
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## COMPONENT OPERATING RANGE

Battery ECU assembly	DTC P0C32 (INF P0C3200) is not detected
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## 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

- Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
- Turn the ignition switch off and wait for 2 minutes or more.
- Enter the following menus: Powertrain / HV Battery / Active Test / Hybrid/EV Battery Refrigerant Cooling Control.
- Perform the "Hybrid/EV Battery Refrigerant Cooling Control" Active Test for 14 minutes.[\*1]

### HINT:

- In order to perform "Hybrid/EV Battery Refrigerant Cooling Control", the HV battery minimum temperature must be 11°C (52°F) and the refrigerant temperature inside the HV battery must be 0°C (32°F) or higher.

If the above conditions are not established, perform the "Hybrid/EV Battery Heater Relay" Active Test in an environment with an ambient temperature of 5°C (41°F) or higher and increase the HV battery temperature.

In consideration of the temperature drop after the heater stops, increase the value of Data List item "Hybrid/EV Battery Temperature 1 to 15" to a minimum of 12°C (54°F) or more, and the value of Data List item "Hybrid/EV Battery Refrigerant Temperature (Duct Inlet 1)" and "Hybrid/EV Battery Refrigerant Temperature (Duct Outlet 1)" to 1°C (34°F) or more.

(At an ambient temperature of 5°C (41°F), "Hybrid/EV Battery Heater Relay" will need to be performed for approximately 5 hours.)

- Perform this step with the A/C blower switch off.
- [\*1]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

5. Enter the following menus: Powertrain / HV Battery / Utility / All Readiness.
6. 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 or N/A, perform the normal judgment procedure again.

**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 auxiliary negative (-) 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**

<b>1.</b>	<b>CHECK DTC OUTPUT (HV BATTERY, HYBRID CONTROL, AIR CONDITIONER)</b>
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Pre-procedure1

(a) None

Procedure1

(b) Check for DTCs.

- Powertrain > HV Battery > Trouble Codes**
- Powertrain > Hybrid Control > Trouble Codes**
- Body Electrical > Air Conditioner > Trouble Codes**

RESULT	PROCEED TO
"P0C3200" 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

RESULT	PROCEED TO
DTCs of hybrid control system in the table below are output.	C
DTCs of air conditioning system in the table below are output.	D

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Air conditioner malfunction	Air conditioning system	B138571	A/C Cooling Electric Expansion Valve Actuator Stuck
		P0EC971	A/C Low Pressure Magnetic Valve Actuator Stuck
Microcomputer malfunction	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)**

**D** ► **GO TO DTC CHART (AIR CONDITIONING SYSTEM)**

**A**



<b>2.</b>	<b>REFRIGERANT SHORTAGE CHECK USING GTS</b>
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**HINT:**

Click here [INFO](#)

**OK** ► **REPLACE NO. 1 TRACTION BATTERY HEATER, NO. 1 TRACTION BATTERY COOLER CONDUCTOR AND NO. 1 TRACTION BATTERY COOLER SHEET**

**NG**

**3. INSPECT FOR REFRIGERANT LEAK (AIR CONDITIONING SYSTEM)**

(a) After recharging the air conditioning system with refrigerant, inspect for refrigerant leaks using a halogen leak detector.

Click here [INFO](#)

OK:

No refrigerant leak

**NG** ► **GO TO PROBLEM SYMPTOMS TABLE (AIR CONDITIONING SYSTEM)**

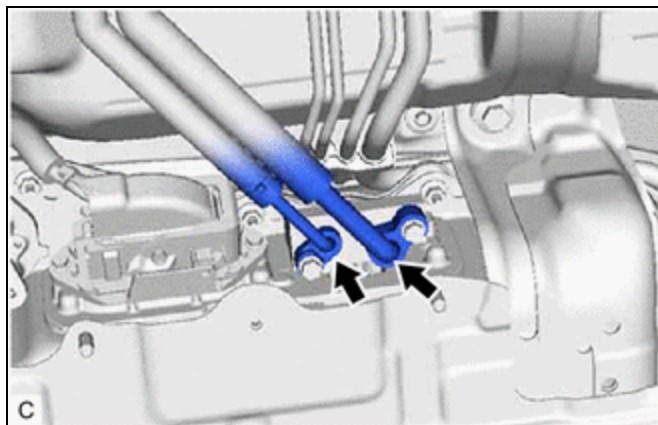
**OK**

**4. INSPECT FOR REFRIGERANT LEAK (INLET SIDE OF HV SUPPLY BATTERY ASSEMBLY)**

(a) After recharging the air conditioning system with refrigerant, inspect for refrigerant leaks using a halogen leak detector.

OK:

No refrigerant leak



**OK** ► **CHECK AND REPLACE REFRIGERANT LEAK (HV SUPPLY BATTERY ASSEMBLY)**

**NG** ► **GO TO PROBLEM SYMPTOMS TABLE (AIR CONDITIONING SYSTEM)**

