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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> M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P00B111; Radiator Coolant Temperature Sensor Circuit Short to Ground; 2023 - 2024 MY Prius Prius Prime [03/2023 - ]		

<b>DTC</b>	<b>P00B111</b>	<b>Radiator Coolant Temperature Sensor Circuit Short to Ground</b>
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## DESCRIPTION

The No. 2 engine coolant temperature sensor is installed to the radiator pipe between the engine and radiator and monitors the thermostat operation.

The structure of the thermistor used in the No. 2 engine coolant temperature sensor and its connection to the ECM are the same as those of the intake air temperature sensor.

Refer to DTC P011011.

Click here [INFO](#)

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P00B111	Radiator Coolant Temperature Sensor Circuit Short to Ground	The No. 2 engine coolant temperature sensor output voltage is less than 0.081 V for 3 seconds or more (1 trip detection logic).	<ul style="list-style-type: none"> <li>Short in No. 2 engine coolant temperature sensor circuit</li> <li>No. 2 engine coolant temperature sensor</li> <li>ECM</li> </ul>	Comes on	Engine	A	SAE Code: P00B3

### **HINT:**

When this DTC is output, check the No. 2 engine coolant temperature in the Data List. Enter the following menus: Powertrain / Engine / Data List / Radiator Coolant Temperature.

DTC NO.	RADIATOR COOLANT TEMPERATURE	MALFUNCTION
P00B111	Higher than 135°C (275°F)	Short to ground in THTW circuit

If the Data List values are normal, it may be due to a temporary recovery from the malfunction condition. Check for intermittent problems.

Click here [INFO](#)

## MONITOR DESCRIPTION

The No. 2 engine coolant temperature sensor is used to monitor the engine coolant temperature. The No. 2 engine coolant temperature sensor has a thermistor with a resistance that varies according to the temperature of the engine coolant. When the engine coolant temperature is low, the resistance in the thermistor increases. When the temperature is high, the resistance decreases. These variations in resistance are reflected in the output voltage from

the sensor. The ECM monitors the sensor voltage and uses this value to calculate the engine coolant temperature. If the No. 2 engine coolant temperature sensor output voltage deviates from the normal operating range, the ECM interprets this as a malfunction of the No. 2 engine coolant temperature sensor circuit, illuminates the MIL and stores a DTC.

Example:

If the No. 2 engine coolant temperature sensor output voltage is less than 0.081 V for 3 seconds or more, the ECM store this DTC.

## MONITOR STRATEGY

Related DTCs	P00B3: No. 2 engine coolant temperature sensor range check (low voltage)
Required Sensors/Components (Main)	No. 2 engine coolant temperature sensor
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	8 V or higher
Ignition switch	On

## TYPICAL MALFUNCTION THRESHOLDS

No. 2 engine coolant temperature sensor voltage [Engine coolant temperature]	Less than 0.081 V [Higher than 163°C (325°F)]
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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 at least 30 seconds.
- Turn the ignition switch to ON [A].
- Wait 3 seconds or more [B].
- Enter the following menus: Powertrain / Engine / Trouble Codes [C].

6. 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.

7. Enter the following menus: Powertrain / Engine / Utility / All Readiness.

8. Input the DTC: P00B111.

9. Check the DTC judgment result.

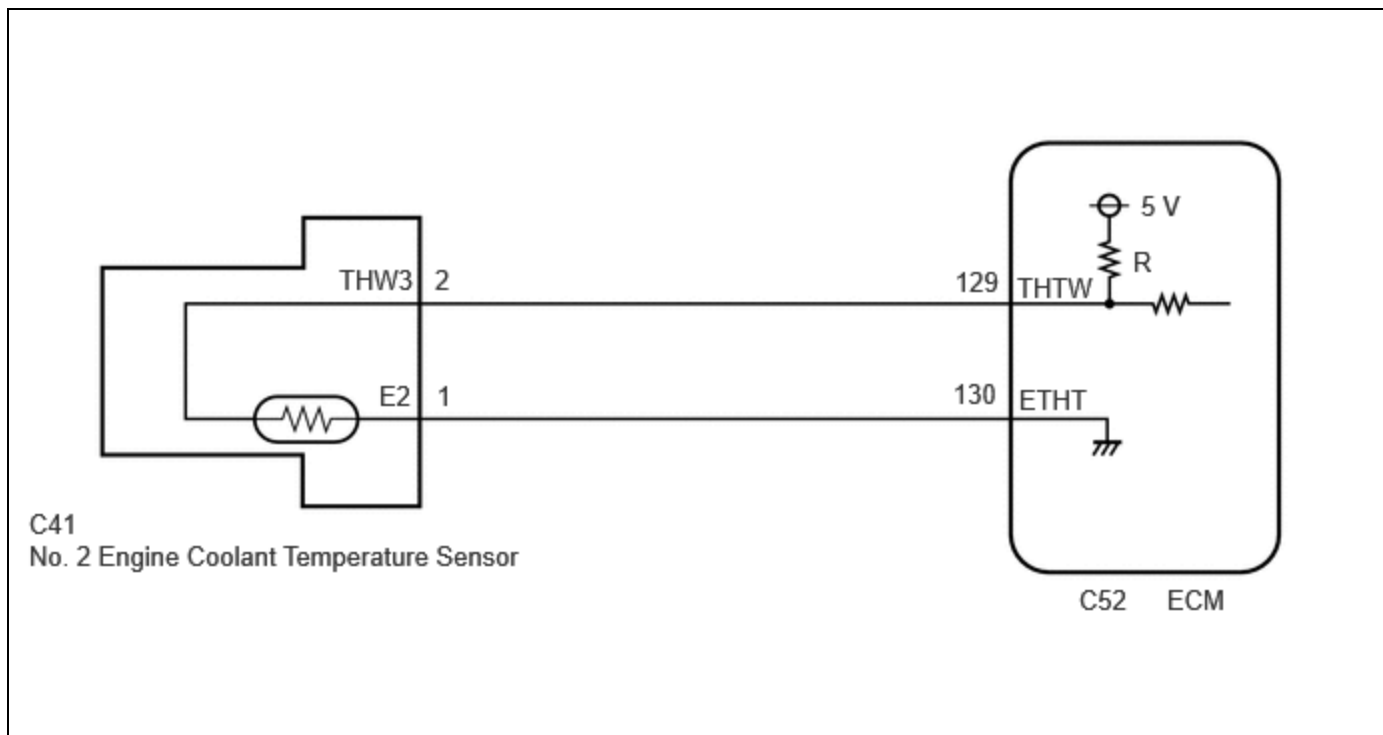
**HINT:**

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



## CAUTION / NOTICE / HINT

**NOTICE:**

- 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

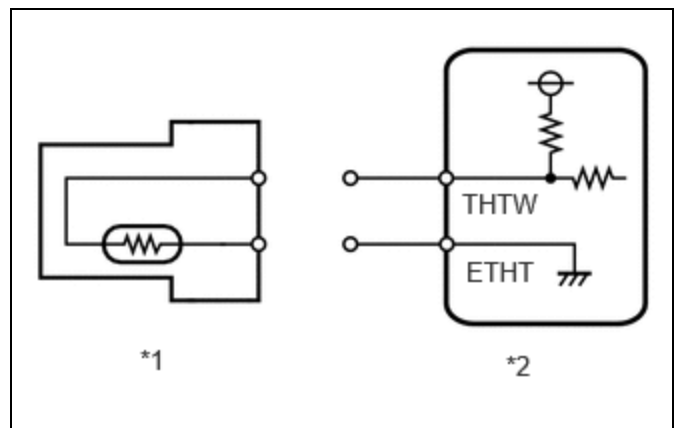
for PHEV Model: [Click here](#) INFO

## PROCEDURE

<b>1.</b>	<b>READ VALUE USING GTS (CHECK FOR SHORT IN WIRE HARNESS)</b>
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Pre-procedure1

- (a) Disconnect the No. 2 engine coolant temperature sensor connector.



*1	No. 2 Engine Coolant Temperature Sensor
*2	ECM

- (b) Turn the ignition switch to ON.

Procedure1

- (c) According to the display on the GTS, read the Data List.

**Powertrain > Engine > Data List**

TESTER DISPLAY
Radiator Coolant Temperature

RESULT	PROCEED TO
The value of Radiator Coolant Temperature is -40 °C	A
None of the above conditions are met	B

**HINT:**

-40°C (-40°F)

Post-procedure1

(d) None.

**A**  **REPLACE NO. 2 ENGINE COOLANT TEMPERATURE SENSOR**

**B**



<b>2.</b>	<b>CHECK HARNESS AND CONNECTOR (NO. 2 ENGINE COOLANT TEMPERATURE SENSOR - ECM)</b>
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Pre-procedure1

- (a) Disconnect the No. 2 engine coolant temperature sensor connector.
- (b) Disconnect the ECM connector.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(C41,C52\)](#)

[Click Connector\(C41\)](#)

[Click Connector\(C52\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C41-2 (THW3) or C52-129 (THTW) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

**OK**  **REPLACE ECM**

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

