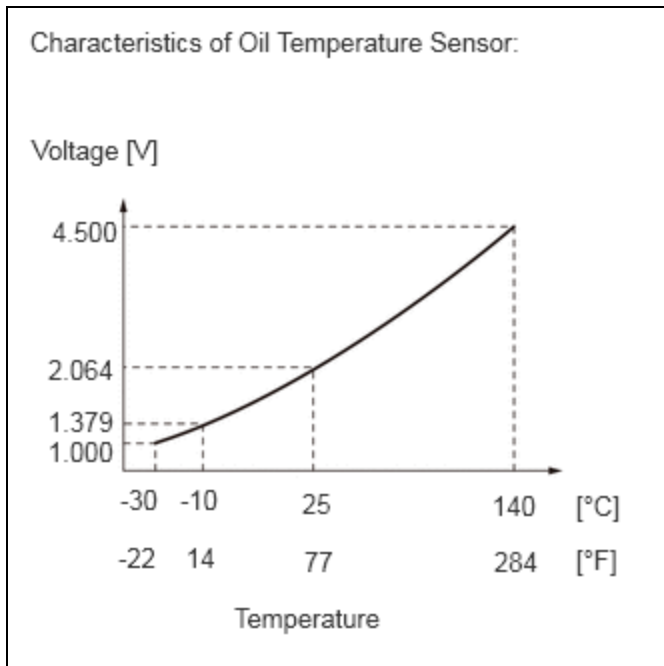


Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM10000002BLVK
Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P019511; Engine Oil Temperature Sensor Circuit Short to Ground; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	P019511	Engine Oil Temperature Sensor Circuit Short to Ground
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DESCRIPTION



The engine oil temperature sensor (oil pressure and temperature sensor) replaces the oil temperature with electrical signals and outputs them to the ECM.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P019511	Engine Oil Temperature Sensor Circuit Short to Ground	The oil pressure and temperature sensor output voltage is less than 0.535 V for 5 seconds or more (1 trip detection logic).	<ul style="list-style-type: none"> Short in engine oil temperature sensor circuit Oil pressure and temperature sensor ECM 	Comes on	Engine	A	SAE Code: P0197

HINT:

When a DTC is output, check the Data List item "Engine Oil Temperature Sensor" using the GTS.

Click here [INFO](#)

DTC NO.	ENGINE OIL TEMPERATURE SENSOR	MALFUNCTION
P019511	-40°C (-40°F)	<ul style="list-style-type: none"> • Short to ground in THEO circuit • Short in EPEO to THEO circuit • Open in VCPE circuit

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

MONITOR DESCRIPTION

The ECM monitors the oil pressure and temperature sensor and uses the sensor voltage to calculate the engine oil temperature. If the oil pressure and temperature sensor output voltage deviates from the normal operating range, the ECM determines that the oil pressure and temperature sensor circuit is malfunctioning and stores this DTC.

Example:

If the oil pressure and temperature sensor output voltage is less than 0.535 V for 5 seconds or more, the ECM will store this DTC.

MONITOR STRATEGY

Related DTCs	P0197: Engine oil temperature sensor range check (low voltage)
Required Sensors/Components (Main)	Engine oil temperature sensor
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	5 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

Engine oil temperature sensor voltage	Less than 0.535 V [Less than -55°C (-67°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**

1. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
2. Turn the ignition switch off and wait for at least 30 seconds.
3. Turn the ignition switch to ON [A].
4. Wait 10 seconds or more [B].
5. 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: P019511.
9. Check the DTC judgment result.

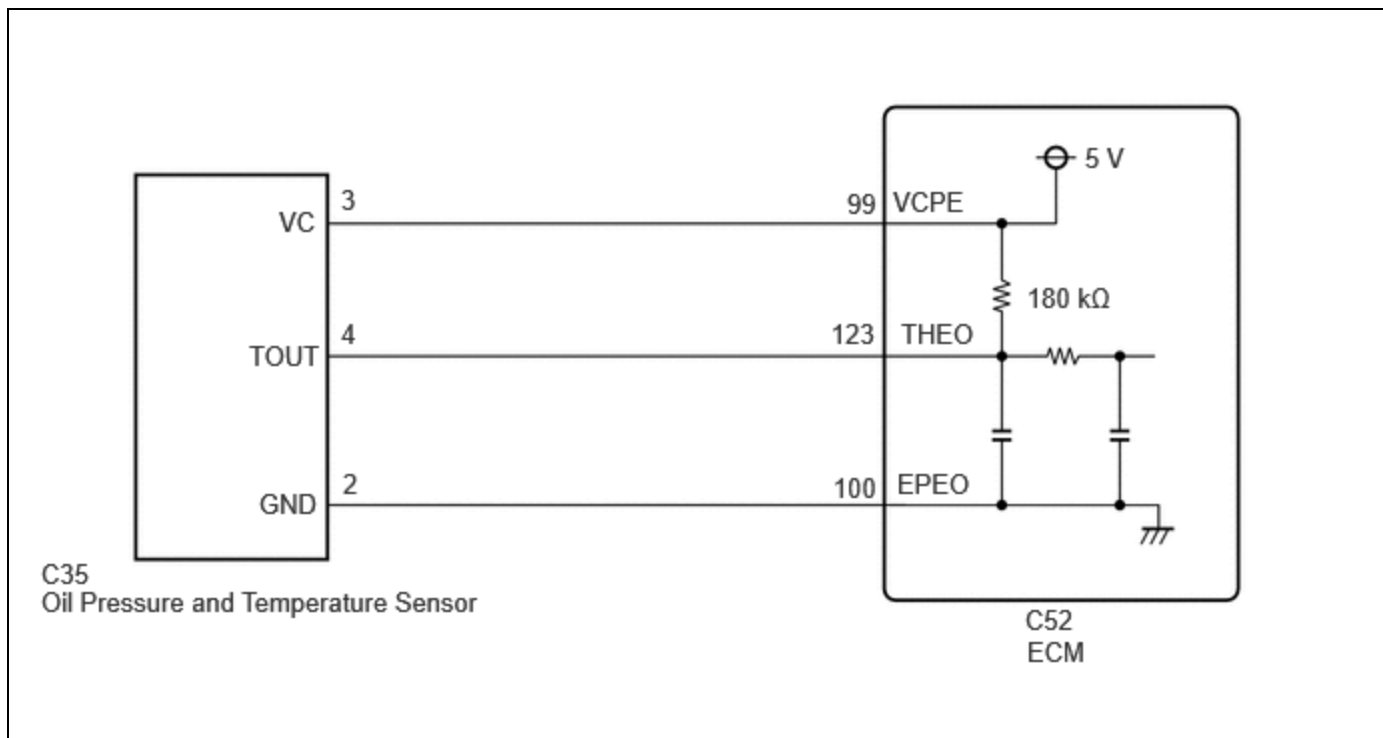
HINT:

- If the judgment result is NORMAL, the system is normal.
- If the judgment result is ABNORMAL, the system has a malfunction.
- If the judgment result is INCOMPLETE, perform steps [B] through [C] again.
- [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](#) 

for PHEV Model: [Click here](#) 

(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](#) 

for PHEV Model: [Click here](#) 

PROCEDURE

1. CHECK HARNESS AND CONNECTOR

HINT:

Make sure that the connector is properly connected. If it is not, securely connect it and check for DTCs again.

Pre-procedure1

- Disconnect the oil pressure and temperature sensor connector.
- Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:



[Click Location & Routing\(C35\).](#)

[Click Connector\(C35\).](#)

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION	RESULT
C35-3 (VC) - C35-2 (GND)	Ignition switch ON	4.5 to 5.5 V	V
C35-4 (TOUT) - C35-2 (GND)	Ignition switch ON	3.0 to 5.5 V	V

Post-procedure1

- Turn the ignition switch off and wait for at least 30 seconds.

Pre-procedure2

- None.

Procedure2

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

Standard Resistance:



[Click Location & Routing\(C35\)](#)

[Click Connector\(C35\)](#)

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION	RESULT
C35-3 (VC) - C35-4 (TOUT)	Ignition switch off	171 to 189 k Ω	k Ω

Post-procedure2

(g) None.

OK **REPLACE OIL PRESSURE AND TEMPERATURE SENSOR**

NG



2.	CHECK HARNESS AND CONNECTOR (OIL PRESSURE AND TEMPERATURE - ECM)
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Pre-procedure1

- (a) Disconnect the oil pressure and 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\(C35,C52\)](#)

[Click Connector\(C35\)](#)

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
C35-3 (VC) - C52-99 (VCPE)	Always	Below 1 Ω	Ω
C35-4 (TOUT) or C52-123 (THEO) - Body ground and other terminals	Always	10 k Ω or higher	k Ω

Post-procedure1

(d) None.

OK **REPLACE ECM**

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

