Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BLYV
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P062714; Fuel Pump "A" Control Circuit Short to Ground or Open; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P062714**	**Fuel Pump "A" Control Circuit Short to Ground or Open**

DESCRIPTION

Refer to DTC P062712.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P062714	Fuel Pump "A" Control Circuit Short to Ground or Open	When the fuel pump control ECU operation duty ratio is 3 to 65%, the FPC terminal voltage is a certain value or less for 3 seconds or more (1 trip detection logic).	• Open or short in fuel pump control ECU circuit • Fuel pump control ECU • EFI-MAIN NO. 2 relay • ECM	Comes on	Engine	A	SAE Code: P0628

Related Data List

DTC NO.	DATA LIST
P062714	Fuel Pump Control Duty Ratio

MONITOR DESCRIPTION

The ECM monitors the fuel pump control ECU operation signals.

When the output duty ratio of the operation signal from the ECM is 3 to 65% and the FPC terminal voltage is a certain value or less for 3 seconds or more, the ECM stores a DTC.

MONITOR STRATEGY

Related DTCs	P0628: Fuel pump control circuit range check (low voltage)
Required Sensors/Components (Main)	Fuel pump control ECU
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
All of the following conditions are met	-
Output duty cycle	3 to 65%
Auxiliary battery voltage	10.5 V or higher
Ignition switch	ON

TYPICAL MALFUNCTION THRESHOLDS

Fuel pump control module terminal voltage level	Low for 1.163264 seconds or more

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. Put the engine in Inspection Mode (Maintenance Mode).

   Click here INFO
4. Start the engine and wait 10 seconds or more [A].
5. Enter the following menus: Powertrain / Engine / Trouble Codes [B].
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: P062714.
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.
   - If the judgment result is INCOMPLETE, run the engine at an engine speed of 2000 rpm or more for 10 seconds or more and check the DTC judgment result again.
   - [A] to [B]: 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

Refer to DTC P062712.

Click here INFO

CAUTION / NOTICE / HINT

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following procedure.
- 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

1.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE OF FUEL PUMP CONTROL ECU)**

Pre-procedure1

(a) Disconnect the fuel pump control ECU connector.

(b) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

Click Location & Routing(R27)
Click Connector(R27)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R27-1 (+B) - R27-3 (GND)	Ignition switch ON	11 to 14 V	V

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 4**

OK ▼

2.	**INSPECT ECM (FPC TERMINAL)**

Pre-procedure1

(a) Disconnect the fuel pump control ECU connector.

Procedure1

(b) Operate the fuel pump control ECU using the Active Test function and measure the resistance according to the value(s) in the table below.

Powertrain > Engine > Active Test

TESTER DISPLAY
Fuel Pump Single Phase Energization

Standard Resistance:

EWD INFO

Click Location & Routing(R27)
Click Connector(R27)

TESTER CONNECTION	GTS OPERATION	SPECIFIED CONDITION
R27-2 (FPC) - Body ground	Before Active Test → During Active Test	Before Active Test: Resistance is stable → During Active Test: Resistance fluctuates*

HINT:

*: Using the Active Test, duty control of the transistors in the ECM will be performed. Due to the duty control, resistance of the FPC terminal will be unstable during the Active Test. If the resistance is stable before the Active Test and fluctuates while performing the Active Test, it can be determined that the transistor is operating. If the transistor does not operate during the Active Test, the ECM may be malfunctioning.

Post-procedure1

(c) None.

OK ▶ **REPLACE FUEL PUMP CONTROL ECU**

NG

3.	**CHECK HARNESS AND CONNECTOR (FUEL PUMP CONTROL ECU - ECM)**

Pre-procedure1

(a) Disconnect the fuel pump control ECU connector.

(b) Disconnect the ECM connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(R27,A92)
Click Connector(R27)
Click Connector(A92)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R27-2 (FPC) - A92-16 (FPC)	Always	Below 1 Ω	Ω
R27-2 (FPC) or A92-16 (FPC) - Body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

OK ▶ **REPLACE ECM**

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

4.	**CHECK HARNESS AND CONNECTOR (FUEL PUMP CONTROL ECU - BODY GROUND)**

Pre-procedure1

(a) Disconnect the fuel pump control ECU connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(R27)

Click Connector(R27)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R27-3 (GND) - Body ground	Always	Below 1 Ω	Ω

Post-procedure1

(c) None.

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

OK ▼

5.	**INSPECT EFI-MAIN NO. 2 RELAY**

Click here INFO

NG ▶ **REPLACE EFI-MAIN NO. 2 RELAY**

OK ▼

6.	**CHECK TERMINAL VOLTAGE (POWER SOURCE OF EFI-MAIN NO. 2 RELAY)**

Pre-procedure1

(a) Remove the EFI-MAIN NO. 2 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
3 (EFI-MAIN NO. 2 relay) - Body ground	Always	11 to 14 V	V

Post-procedure1

(c) None.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (AUXILIARY BATTERY - EFI-MAIN NO. 2 RELAY)**

OK

7.	CHECK HARNESS AND CONNECTOR (EFI-MAIN NO. 2 RELAY - BODY GROUND)

Pre-procedure1

(a) Remove the EFI-MAIN NO. 2 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
1 (EFI-MAIN NO. 2 relay) - Body ground	Always	Below 1 Ω	Ω

Post-procedure1

(c) None.

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

OK

8.	CHECK HARNESS AND CONNECTOR (FUEL PUMP CONTROL ECU - EFI-MAIN NO. 2 RELAY)

Pre-procedure1

(a) Disconnect the fuel pump control ECU connector.

(b) Remove the EFI-MAIN NO. 2 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(R27)
Click Connector(R27)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R27-1 (+B) - 5 (EFI-MAIN NO. 2 relay)	Always	Below 1 Ω	Ω
R27-1 (+B) or 5 (EFI-MAIN NO. 2 relay) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (EFI-MAIN NO. 1 RELAY - EFI-MAIN NO. 2 RELAY)**

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