Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BLUE
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P008A00; Low Pressure Fuel System Pressure - Too Low; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P008A00**	**Low Pressure Fuel System Pressure - Too Low**

DESCRIPTION

In order to supply the optimal fuel pressure according to the driving conditions and usage environment, the variable fuel system sends a drive signal from the ECM to the fuel pump control ECU, steplessly performing variable control of the fuel pump (for low pressure side) and receiving feedback about the fuel pressure (for low pressure side) from the No. 2 fuel pressure sensor (for low pressure side).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P008A00	Low Pressure Fuel System Pressure - Too Low	The actual fuel pressure (for low pressure side) value is less than the target fuel pressure (for low pressure side) by a certain amount or more (1 trip detection logic).	• Leak of fuel • Fuel pump control ECU • No. 2 fuel pressure sensor (for low pressure side) • Fuel pump (for low pressure side) • Fuel main valve assembly • ECM	Does not come on	Engine	B	SAE Code: P008A

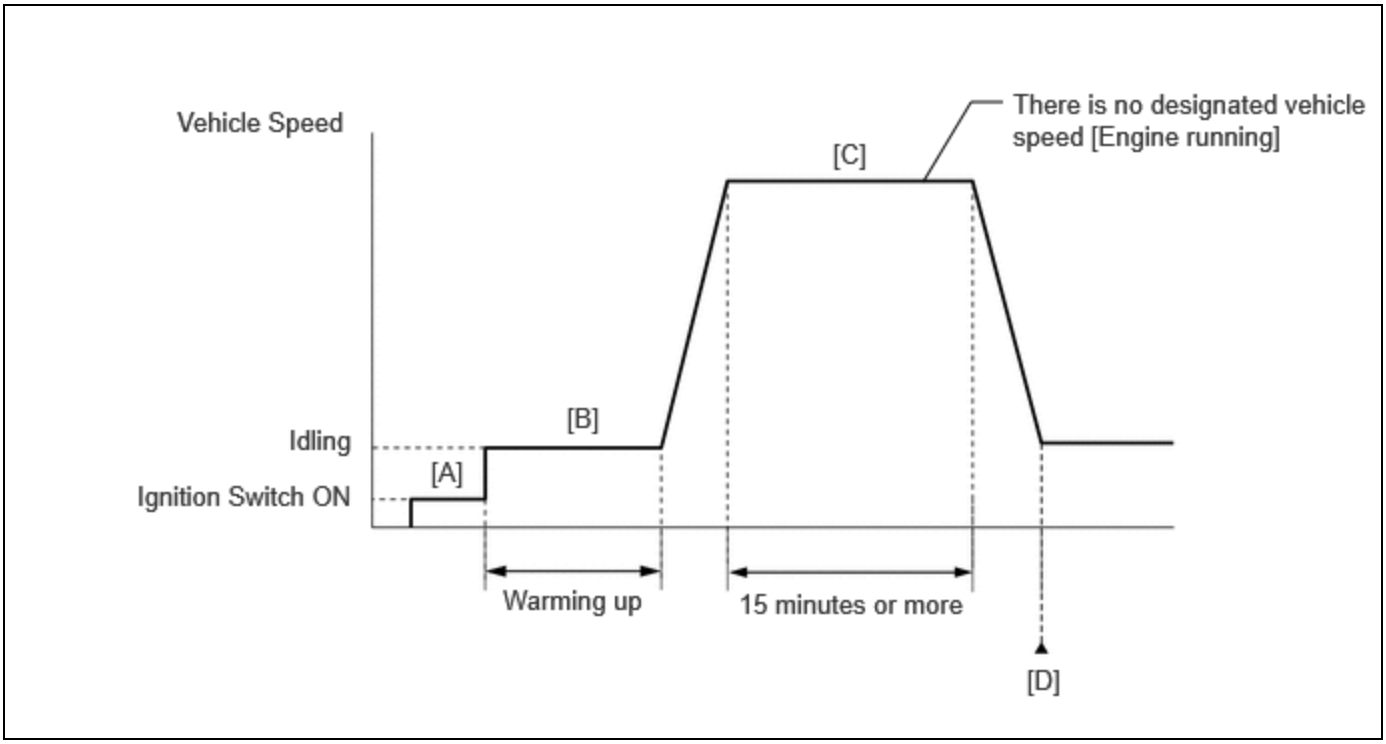
MONITOR DESCRIPTION

If the fuel pressure (for low pressure side) decreases despite an increase request signal being sent to the fuel pump control ECU by the ECM, the ECM will store this DTC.

MONITOR STRATEGY

Frequency of Operation	Continuous

CONFIRMATION DRIVING PATTERN



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

   Click here INFO
5. Start the engine and warm it up until the engine coolant temperature reaches 75°C (167°F) or higher [B].
6. Press the EV/HV mode selection switch to select HV mode. (for PHEV Model)
7. With the engine running, drive the vehicle for 15 minutes or more [C].

   CAUTION:

   When performing the confirmation driving pattern, obey all speed limits and traffic laws.

   HINT:

   If the engine stops, further depress the accelerator pedal to restart the engine.
8. Enter the following menus: Powertrain / Engine / Trouble Codes [D].
9. 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.
10. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
11. Input the DTC: P008A00.
12. 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 [D] again.

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

1.	**CHECK FUEL LEAK**

(a) Check around and beneath the vehicle for fuel leaks, fumes, etc.

OK:

No fuel leaks present.

NG ▶ **REPAIR OR REPLACE FUEL LEAK POINT**

OK ▼

2.	**CHECK OTHER DTCS OUTPUT (IN ADDITION TO DTC P008A00)**

(a) Read the DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
P008A00 and other DTCs are output	A
P008A00 is output	B

HINT:

If any DTCs other than P008A00 are output, troubleshoot those DTCs first.

A ▶ **GO TO DTC CHART**

B

3.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE FUEL PUMP DUTY RATIO (BRUSHLESS))**

(a) Check whether the fuel pump (for low pressure side) operating sound occurs when performing the Active Test on the GTS.

Powertrain > Engine > Active Test

TESTER DISPLAY
Control the Fuel Pump Duty Ratio (Brushless)

Standard:

GTS OPERATION	STANDARD
High	Operating sounds can be heard from fuel pump (for low pressure side)

NG **GO TO FUEL PUMP CONTROL CIRCUIT**

OK

4.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE FUEL PUMP DUTY RATIO (BRUSHLESS))**

Pre-procedure1

(a) Discharge the fuel pressure.

HINT:

DTCs may be stored during this inspection. Check for DTCs and clear them using the GTS.

(1) Disconnect the fuel suction tube with pump and gauge assembly connector.

(2) Disconnect the fuel (engine room side) pump assembly (for high pressure side) connector.

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

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Inspection Mode

(4) Start the engine.

(5) After the engine has stopped on its own, turn the ignition switch off.

HINT:

If the engine does not stop naturally, perform direct injection by racing the engine to reduce the fuel pressure [Fuel Pressure (High)] and stop the engine.

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

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Inspection Mode

(7) Crank the engine again and make sure that the engine does not start.

(8) Connect the fuel (engine room side) pump assembly (for high pressure side) connector.

(9) Connect the fuel suction tube with pump and gauge assembly connector.

Procedure1

(b) Read the value displayed on the GTS when the Active Test was performed.

Powertrain > Engine > Active Test

ACTIVE TEST DISPLAY
Control the Fuel Pump Duty Ratio (Brushless)

DATA LIST DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

Standard:

GTS OPERATION	STANDARD
Low to High	When switching from Low to High, Fuel Pressure (Low) / Fuel Pressure 2 value changes

HINT:

Once the fuel pressure becomes high, the fuel pressure will not decrease, even when switched from High to Low. Therefore, make sure that the fuel pressure is low before checking that the fuel pressure changes when switching from Low to High.

Post-procedure1

(c) None

NG ▶ **GO TO STEP 11**

OK

5.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE FUEL PUMP DUTY RATIO (BRUSHLESS))**

Pre-procedure1

(a) Discharge the fuel pressure.

HINT:

DTCs may be stored during this inspection. Check for DTCs and clear them using the GTS.

(1) Disconnect the fuel suction tube with pump and gauge assembly connector.

(2) Disconnect the fuel (engine room side) pump assembly (for high pressure side) connector.

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

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Inspection Mode

(4) Start the engine.

(5) After the engine has stopped on its own, turn the ignition switch off.

HINT:

If the engine does not stop naturally, perform direct injection by racing the engine to reduce the fuel pressure [Fuel Pressure (High)] and stop the engine.

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

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Inspection Mode

(7) Crank the engine again and make sure that the engine does not start.

(8) Connect the fuel (engine room side) pump assembly (for high pressure side) connector.

(9) Connect the fuel suction tube with pump and gauge assembly connector.

Procedure1

(b) Read the value displayed on the GTS when the Active Test was performed.

Powertrain > Engine > Active Test

ACTIVE TEST DISPLAY
Control the Fuel Pump Duty Ratio (Brushless)

DATA LIST DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

Standard:

GTS OPERATION	FUEL PRESSURE (LOW) / FUEL PRESSURE 2
Low	50 kPag or higher
High	420 kPag or higher

HINT:

Once the fuel pressure becomes high, the fuel pressure will not decrease, even when switched from High to Low. Therefore, make sure that the fuel pressure is low before checking that the fuel pressure changes when switching from Low to High.

OK:

Actual Low and High values are as shown above.

Post-procedure1

(c) None

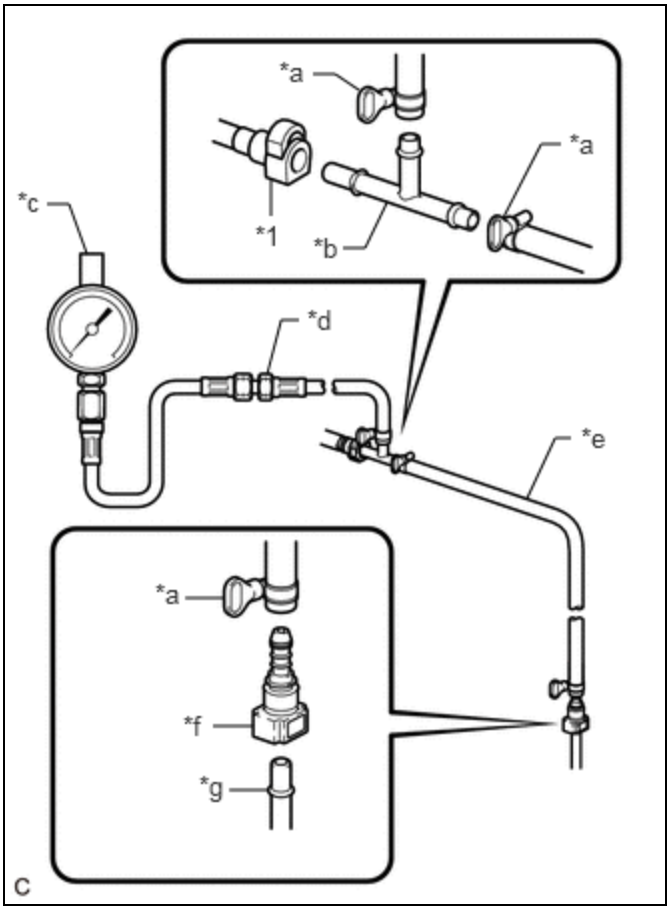
NG ▶ **GO TO STEP 9**

OK ▼

6.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE FUEL PUMP DUTY RATIO (BRUSHLESS))**

Pre-procedure1

(a) Install the fuel pressure gauge (for low pressure side).



*1	Fuel Tube Sub-assembly (Vehicle Side)
*a	SST (Hose Band)
*b	SST (T Joint)
*c	SST (Gauge)
*d	SST (Hose Joint)
*e	SST (Hose)
*f	SST (Fuel Tube Connector)
*g	Fuel Pipe (Vehicle Side)

Procedure1

(b) Compare the values in the Data List using the GTS and the fuel pressure gauge when the Active Test was performed.

Powertrain > Engine > Active Test

ACTIVE TEST DISPLAY
Control the Fuel Pump Duty Ratio (Brushless)

DATA LIST DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

Standard:

GTS OPERATION	STANDARD
Low	Data List value and fuel pressure gauge are within +/-50 kPa of each other
High	

Post-procedure1

(c) None

NG ▶ **REPLACE NO. 2 FUEL PRESSURE SENSOR (FOR LOW PRESSURE SIDE)**

OK ▼

7.	CLEAR DTC

Pre-procedure1

(a) None

Procedure1

(b) Clear the DTCs.

Powertrain > Engine > Clear DTCs

Post-procedure1

(c) Turn the ignition switch off and wait for at least 30 seconds.

NEXT ▼

8.	CHECK WHETHER DTC OUTPUT RECURS (DTC P008A00)

Pre-procedure1

(a) Drive the vehicle in accordance with the driving pattern described in Confirmation Driving Pattern.

Procedure1

(b) Check the DTC judgment result.

Powertrain > Engine > Utility

TESTER DISPLAY
All Readiness

(c) Input the DTC: P008A00.

RESULT	PROCEED TO
NORMAL (DTCs are not output)	A
ABNORMAL (DTC P008A00 is output)	B

Post-procedure1

(d) None

A ▶ **CHECK FOR INTERMITTENT PROBLEMS**

B ▶ **REPLACE ECM**

9.	READ VALUE USING GTS (FUEL PRESSURE (LOW) / FUEL PRESSURE 2)

Pre-procedure1

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

Powertrain > Hybrid Control > Utility

TESTER DISPLAY
Inspection Mode

(b) Start the engine.

Procedure1

(c) Record the Fuel Pressure (Low) / Fuel Pressure 2 value.

Powertrain > Engine > Data List

TESTER DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

Post-procedure1

(d) None

NEXT

10.	**READ VALUE USING GTS (FUEL PRESSURE (LOW) / FUEL PRESSURE 2)**

Pre-procedure1

(a) Turn the ignition switch off.

(b) Wait for 10 seconds.

Procedure1

(c) Compare the Fuel Pressure (Low) / Fuel Pressure 2 value recorded with the engine running to the Fuel Pressure (Low) / Fuel Pressure 2 value currently shown on the GTS.

Powertrain > Engine > Data List

TESTER DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

RESULT	PROCEED TO
Fuel Pressure (Low) / Fuel Pressure 2 value is maintained	A
Fuel Pressure (Low) / Fuel Pressure 2 value drops	B

Post-procedure1

(d) None

A **REPLACE FUEL PUMP (FOR LOW PRESSURE SIDE)**

for HEV Model: Click here INFO

for PHEV Model: Click here INFO

B **REPLACE FUEL MAIN VALVE ASSEMBLY**

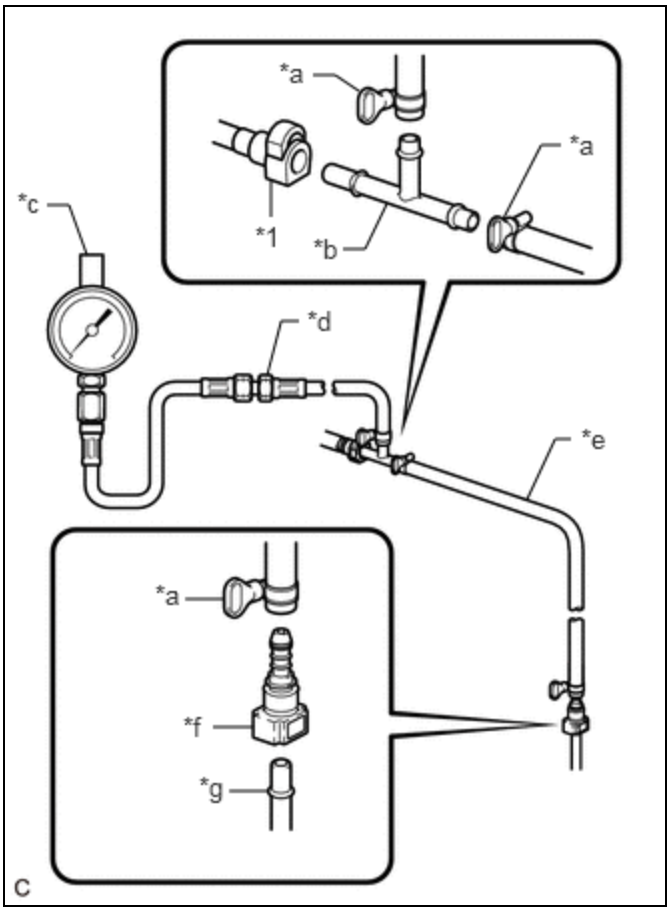
for HEV Model: Click here INFO

for PHEV Model: Click here INFO

11.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE FUEL PUMP DUTY RATIO (BRUSHLESS))**

Pre-procedure1

(a) Install the fuel pressure gauge (for low pressure side).



*1	Fuel Tube Sub-assembly (Vehicle Side)
*a	SST (Hose Band)
*b	SST (T Joint)
*c	SST (Gauge)
*d	SST (Hose Joint)
*e	SST (Hose)
*f	SST (Fuel Tube Connector)
*g	Fuel Pipe (Vehicle Side)

Procedure1

(b) Read the values in the Data List using the GTS and the fuel pressure gauge when the Active Test was performed.

Powertrain > Engine > Active Test

ACTIVE TEST DISPLAY
Control the Fuel Pump Duty Ratio (Brushless)

DATA LIST DISPLAY
Fuel Pressure (Low) / Fuel Pressure 2

GTS OPERATION	RESULT	PROCEED TO
Low to High	Data List value does not change, but fuel pressure gauge changes	A
	Data List value and fuel pressure gauge do not change	B

Post-procedure1

(c) None

A **REPLACE NO. 2 FUEL PRESSURE SENSOR (FOR LOW PRESSURE SIDE)**

B **REPLACE FUEL PUMP CONTROL ECU**