Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BLVJ
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P01902A,P019064; Fuel Rail Pressure Sensor "A" Signal Stuck in Range; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P01902A**	**Fuel Rail Pressure Sensor "A" Signal Stuck in Range**

DTC	**P019064**	**Fuel Rail Pressure Sensor "A" Signal Plausibility Failure**

DESCRIPTION

Refer to DTC P019011.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P01902A	Fuel Rail Pressure Sensor "A" Signal Stuck in Range	When target high pressure side fuel pressure changes, the change in fuel pressure sensor value is abnormal (2 trip detection logic).	• Fuel pressure • Fuel pressure sensor (for high pressure side) • Open or short in fuel pressure sensor (for high pressure side) circuit • ECM	Comes on	Engine	B	SAE Code: P0191
P019064	Fuel Rail Pressure Sensor "A" Signal Plausibility Failure	Although engine has been stopped and left as is for a long time, high pressure side fuel pressure is higher or lower than threshold (2 trip detection logic).	• Fuel pressure • Fuel pressure sensor (for high pressure side) • Open or short in fuel pressure sensor (for high pressure side) circuit • ECM	Comes on	Engine	B	SAE Code: P0191

MONITOR DESCRIPTION

Fuel Pressure Sensor Stuck Monitor

If the fuel pressure sensor (for high pressure side) value does not follow the change in the target high pressure side fuel pressure, it is judged as a malfunction. If this malfunction is detected in 2 consecutive driving cycles, the ECM will illuminate the MIL and store DTC P01902A.

Fuel Pressure Sensor Correlation Monitor with Barometric Pressure

If the fuel pressure sensor (for high pressure side) value is less than or higher than the threshold value when a cold start is performed after the engine has been warmed up and then stopped, it is judged as a malfunction has occurred. If this malfunction is detected for 2 consecutive driving cycles, the ECM will illuminate the MIL and store DTC P019064.

MONITOR STRATEGY

Related DTCs	P0191: Fuel pressure sensor rationality (stuck monitor) P0191: Fuel pressure sensor rationality (correlation monitor with barometric pressure)
Required Sensors/Components (Main)	Fuel pressure sensor (for high pressure side)
Required Sensors/Components (Related)	Atmospheric pressure sensor (ECM)
Frequency of Operation	Continuous
Duration	Within 30 seconds: Stuck monitor Within 10 seconds: Correlation monitor with barometric pressure
MIL Operation	2 driving cycles
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Stuck Monitor

All of the following conditions are met	-
Fuel pressure sensor (for high pressure side) circuit malfunction (P0192, P0193)	Not detected
High pressure fuel pump malfunction (P1235)	Not detected
Engine coolant temperature sensor malfunction (P0117, P0118)	Not detected
Barometric pressure sensor malfunction (P106C, P2228, P2229)	Not detected
Auxiliary battery voltage	11 V or higher
Fuel cut	Off
Injection mode	NOT PFI (Port fuel injection)

Correlation Monitor with Barometric Pressure

All of the following conditions are met	-
Fuel pressure sensor (for high pressure side) circuit malfunction (P0192, P0193)	Not detected
High pressure fuel pump malfunction (P1235)	Not detected
Engine coolant temperature sensor malfunction (P0117, P0118)	Not detected

Barometric pressure sensor malfunction (P106C, P2228, P2229)	Not detected
Soak timer malfunction (P2610)	Not detected
Auxiliary battery voltage	8 V or higher
Ignition switch	Off
Soak time	5, 7 or 9.5 hours
Atmospheric pressure	76 kPa(abs) [11 psi(abs)] or higher

TYPICAL MALFUNCTION THRESHOLDS

Stuck Monitor

Malfunction counter	5 times or more
Fuel pressure sensor (for high pressure side) output deviation	Less than 0.3 MPa (3.1 kgf/cm ^{2} , 43.5 psi)

Correlation Monitor with Barometric Pressure

Malfunction counter	5 seconds or more
Fuel pressure sensor (for high pressure side) output	Less than -1.881 MPa (-19.2 kgf/cm ^{2} , -273 psi), or higher than 2.543 MPa (25.9 kgf/cm ^{2} , 369 psi)

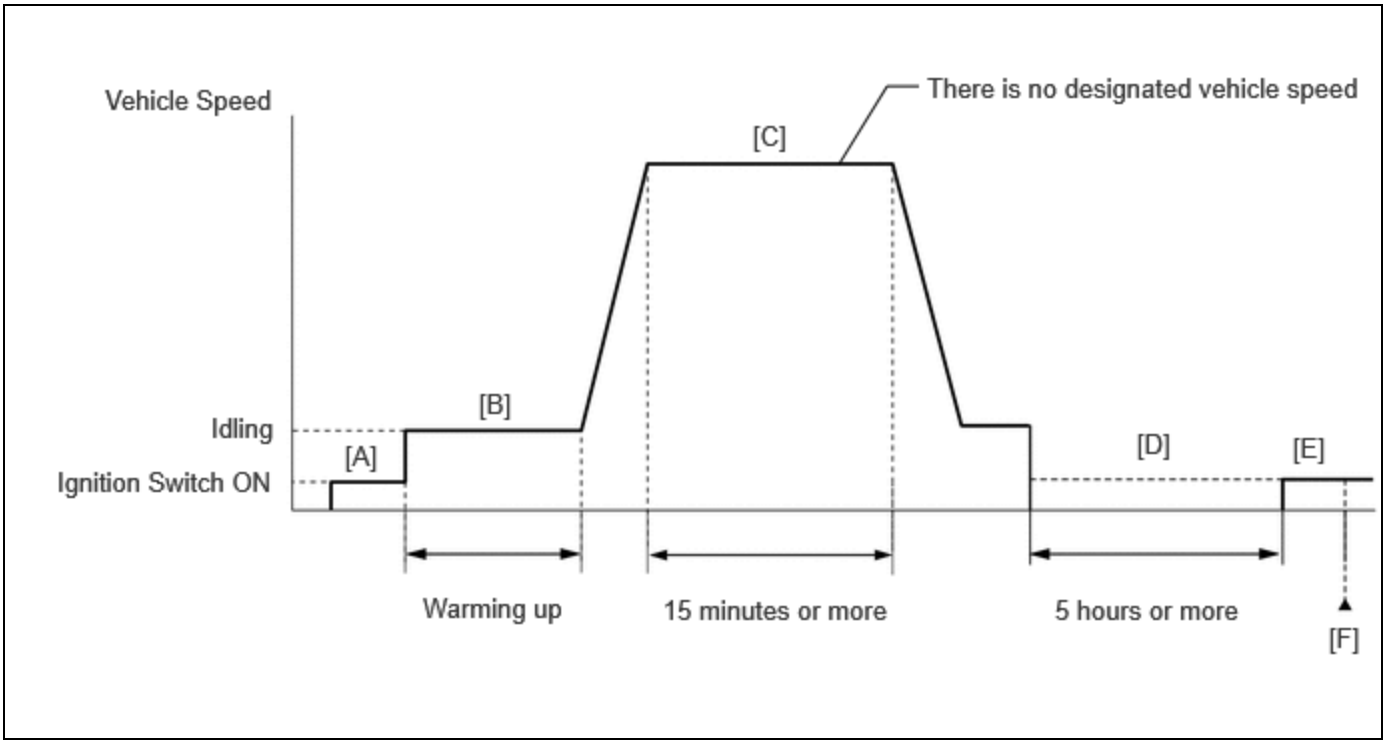
CONFIRMATION DRIVING PATTERN

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. 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. Drive the vehicle for 15 minutes or more [C].

CAUTION:

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

8. Turn the ignition switch off.
9. With the engine stopped, leave the vehicle as is for 5 hours or more [D].
10. Turn the ignition switch to ON [E].
11. Enter the following menus: Powertrain / Engine / Trouble Codes [F].
12. 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.

13. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
14. Input the DTC: P01902A or P019064.
15. 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 [F] again.
- [A] to [F]: 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 P019011.

Click here INFO

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 ANY OTHER DTCS OUTPUT (IN ADDITION TO DTC P01902A OR P019064)**

(a) Read the DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
P01902A or P019064 and other DTCs are output	A
P01902A, P019064 and P008700, P008800, P017100, P017200 are output	B
P01902A or P019064 is output	C

HINT:

- If DTC P01902A or P019064 and P008700, P008800, P017100 or P017200 are output simultaneously, troubleshoot for DTC P01902A or P019064 first.
- If any DTCs other than P01902A or P019064 are output, troubleshoot those DTCs first.

A ▶ GO TO DTC CHART

B ▶ **GO TO STEP 2**

C

▼

2.	**CHECK FUEL LEAK**

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

OK:

No fuel leaks present.

NG ▶ **GO TO STEP 11**

OK

▼

3.	**PERFORM ACTIVE TEST USING GTS (CONTROL THE TARGET FUEL PRESSURE OFFSET)**

Pre-procedure1

(a) Start the engine and warm it up until the engine coolant temperature reaches 75°C (167°F) or higher.

Powertrain > Engine > Data List

TESTER DISPLAY
Coolant Temperature

Procedure1

(b) Check the value of the Data List item "High Fuel Pressure Sensor" when the target fuel pressure is increased and decreased using the Active Test.

Powertrain > Engine > Active Test

ACTIVE TEST DISPLAY
Control the Target Fuel Pressure Offset

DATA LIST DISPLAY
High Fuel Pressure Sensor

RESULT	PROCEED TO
"High Fuel Pressure Sensor" value follows the change in target fuel pressure	A
"High Fuel Pressure Sensor" value does not follow the change in target fuel pressure	B

Post-procedure1

(c) None.

B ▶ **GO TO STEP 10**

A ▼

4.	**CHECK HARNESS AND CONNECTOR (FUEL PRESSURE SENSOR (FOR HIGH PRESSURE SIDE) - ECM)**

Pre-procedure1

(a) Disconnect the ECM connector.

(b) Disconnect the fuel pressure sensor (for high pressure side) connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,C52)
Click Connector(T1)
Click Connector(C52)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
T1-3 (PR) - C52-97 (PR)	Always	Below 1 Ω	Ω
T1-2 (E2) - C52-96 (EPR)	Always	Below 1 Ω	Ω
T1-3 (PR) or C52-97 (PR) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 8**

OK

5.	**REPLACE FUEL PRESSURE SENSOR (FOR HIGH PRESSURE SIDE)**

HINT:

Click here INFO

NEXT

6.	**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

7.	**CHECK WHETHER DTC OUTPUT RECURS (DTC P01902A OR P019064)**

Pre-procedure1

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

Procedure1

(b) Read the pending DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
P01902A or P019064 is output	B

Post-procedure1

(c) None.

A ▶ **END**

B ▶ **GO TO STEP 9**

8.	**REPAIR OR REPLACE HARNESS OR CONNECTOR**

(a) Repair or replace the wire harness or connector.

NEXT ▶ **GO TO STEP 12**

9.	**REPLACE ECM**

HINT:

Click here INFO

NEXT ▶ **GO TO STEP 12**

10.	**REPLACE FUEL PRESSURE SENSOR (FOR HIGH PRESSURE SIDE)**

HINT:

Click here INFO

NEXT ▶ **GO TO STEP 12**

11.	**REPAIR OR REPLACE FUEL LEAK POINT**

(a) Repair or replace the fuel leak point.

NEXT ▼

12.	**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

13.	**CHECK WHETHER DTC OUTPUT RECURS (DTC P01902A OR P019064)**

Pre-procedure1

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

Procedure1

(b) Read the pending DTCs.

Powertrain > Engine > Trouble Codes

OK:

DTCs are not output

Post-procedure1

(c) None.

NEXT **END**