Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028X4H
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: P057A12,P057A14,P057A1F; Brake Pedal Position Sensor "A" Circuit Short to Battery; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**P057A12**	**Brake Pedal Position Sensor "A" Circuit Short to Battery**

DTC	**P057A14**	**Brake Pedal Position Sensor "A" Circuit Short to Ground or Open**

DTC	**P057A1F**	**Brake Pedal Position Sensor "A" Circuit Intermittent**

DESCRIPTION

Refer to DTC C110000.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P057A12	Brake Pedal Position Sensor "A" Circuit Short to Battery	The sensor output voltage 1 (SKS1) is 4.7 V or more for 0.2 seconds or more.	• Wire harness and connector • Brake pedal stroke sensor assembly	Comes on	Brake/EPB	A	• SAE Code: P057D • Output ECU: Both skid control ECUs
P057A14	Brake Pedal Position Sensor "A" Circuit Short to Ground or Open	The sensor output voltage 1 (SKS1) is less than 0.3 V for 0.2 seconds or more.	• Wire harness and connector • Brake pedal stroke sensor assembly	Comes on	Brake/EPB	A	• SAE Code: P057C • Output ECU: Both skid control ECUs

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P057A1F	Brake Pedal Position Sensor "A" Circuit Intermittent	The difference between the current value and previous value of the sensor output voltage 1 (SKS1) is 8.5% or more for 0.2 seconds or more.	• Wire harness and connector • Brake pedal stroke sensor assembly	Comes on	Brake/EPB	A	• SAE Code: P057E • Output ECU: Both skid control ECUs

MONITOR DESCRIPTION

The No. 2 skid control ECU (brake actuator assembly) monitors the output value of the brake pedal stroke sensor assembly, and if the following conditions are detected, the No. 2 skid control ECU (brake actuator assembly) judges that the brake pedal stroke sensor assembly has a malfunction and illuminates the MIL and stores a DTC.

- The power supply voltage ratio of the brake pedal stroke sensor 1 is outside the normal range.

  HINT:

  The power supply voltage ratio is the ratio of the voltage of SKS1 and VSK1.

- The difference between the current power supply voltage ratio and the previous power supply voltage ratio of the brake pedal stroke sensor 1 exceeds a specific value (improbable sudden change repeats).

  HINT:

  The power supply voltage ratio is the ratio of the voltage of SKS1 and VSK1.

MONITOR STRATEGY

Related DTCs	P057C: Brake pedal position sensor open circuit P057D: Brake pedal position sensor circuit high P057E: Brake pedal position sensor intermittent/erratic
Required Sensors/Components(Main)	No. 2 skid control ECU (brake actuator assembly)
Required Sensors/Components(Related)	No. 2 skid control ECU (brake actuator assembly)
Frequency of Operation	Continuous
Duration	0.198 seconds
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

All

Monitor runs whenever the following DTCs are not stored	C1100 (Case 1): Brake pedal position sensor voltage circuit/open C1100 (Case 2): Brake pedal position sensor invalid data
All of the following conditions are met	-
Brake pedal position sensor1 power supply	4.8 V or higher, and 5.2 V or less
VCSK	Valid

TYPICAL MALFUNCTION THRESHOLDS

P057C

Following condition is met	More than 0.018 seconds
Brake pedal position sensor1 power supply voltage ratio (SKS1/VSK1)	Below 0.06

P057D

Following condition is met	More than 0.018 seconds
Brake pedal position sensor1 power supply voltage ratio (SKS1/VSK1)	Higher than 0.94

P057E

Absolute value of the change in (SKS1/VSK1) during 6millisec	More than 0.0848

COMPONENT OPERATING RANGE

P057C and P057D

All of the following conditions are met	A, B, C and D
A. Brake pedal position sensor1 power supply	4.8 V or higher, and 5.2 V or less
B. VCSK	Valid
C. Following condition is met	More than 0.018 seconds
Brake pedal position sensor1 power supply voltage ratio (SKS1/VSK1)	0.06 or higher
D. Following condition is met	More than 0.018 seconds
Brake pedal position sensor1 power supply voltage ratio (SKS1/VSK1)	0.94 or less

P057E

All of the following conditions are met	-
Brake pedal position sensor1 power supply	4.8 V or higher, and 5.2 V or less
VCSK	Valid
Absolute value of the change in (SKS1/VSK1) during 6millisec	0.0848 or less

CONFIRMATION DRIVING PATTERN

NOTICE:

When performing the normal judgment procedure, make sure that the driver door is closed and is not opened at any time during the procedure.

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.
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

1. Connect the GTS to the DLC3.
2. Turn the ignition switch to ON and turn the GTS on.
3. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
4. Turn the ignition switch off.
5. Turn the ignition switch to ON (READY) and turn the GTS on.
6. Wait for 1 second or more. [*]

HINT:

[*]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

7. Enter the following menus: Chassis / Brake/EPB* / Utility / All Readiness.

*: Electric Parking Brake System

8. Check the DTC judgment result.

HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE, perform driving pattern again.

WIRING DIAGRAM

Refer to DTC C110000.

Click here INFO

CAUTION / NOTICE / HINT

NOTICE:

Make sure to wait 5 minutes or more with the ignition switch turned off before removing the integration control supply or disconnecting any supply power circuit from the integration control supply, in order for the voltage to be discharged and self-diagnosis to run.

PROCEDURE

1.	**CHECK BRAKE PEDAL**

(a) Check that the brake pedal and the brake pedal stroke sensor assembly are properly installed and that the pedal can be depressed normally.

(b) Check and adjust the brake pedal height.

HINT:

Click here INFO

(c) Adjust the brake pedal stroke sensor assembly.

HINT:

Click here INFO

NEXT

2.	**CHECK HARNESS AND CONNECTOR (BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY - BRAKE PEDAL STROKE SENSOR ASSEMBLY)**

Pre-procedure1

(a) Turn the ignition switch off.

Procedure1

(b) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:

The connector is securely connected.

Pre-procedure2

(c) Disconnect the A3 No. 1 skid control ECU (brake booster with master cylinder assembly) connector.

(d) Disconnect the A5 brake pedal stroke sensor assembly connector.

Procedure2

(e) Check both the connector case and the terminals for deformation and corrosion.

OK:

No deformation or corrosion.

Procedure3

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

Standard Resistance:

EWD INFO

Click Location & Routing(A3,A5)
Click Connector(A3)
Click Connector(A5)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A3-29 (SKS1) - A5-6 (SKS1)	Always	Below 1 Ω	Ω
A3-29 (SKS1) or A5-6 (SKS1) - Body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(g) None

OK ▶ REPLACE BRAKE PEDAL STROKE SENSOR ASSEMBLY

Click here INFO

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