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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: C063928; Brake Pressure Sensor "H" Signal Bias Level Out of Range / Zero Adjustment Failure; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C063928**	**Brake Pressure Sensor "H" Signal Bias Level Out of Range / Zero Adjustment Failure**

DESCRIPTION

The stroke simulator pressure sensor detects the oil pressure occurring in the stroke simulator in response to brake pedal operation, and inputs it to the No. 1 skid control ECU (brake booster with master cylinder assembly).

HINT:

Brake pressure sensor "H": Stroke simulator pressure sensor

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C063928	Brake Pressure Sensor "H" Signal Bias Level Out of Range / Zero Adjustment Failure	When not braking, the stroke simulator pressure sensor output value is less than -0.63 MPa (-6.4 kgf/cm ^{2} , -91.4 psi) or more than 1.53 MPa (15.6 kgf/cm ^{2} , 222 psi) for 3 seconds or more.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	A	• SAE Code: C063C • Output ECU: Both skid control ECUs

MONITOR DESCRIPTION

When the brake pedal is not operated and the value of the stroke simulator pressure sensor exceeds a specific value, or the value is less than a specific value for a certain amount of time, the No. 2 skid control ECU (brake actuator assembly) judges that the zero point of the stroke simulator pressure sensor is abnormal and illuminates the MIL and stores this DTC.

MONITOR STRATEGY

Related DTCs	C063C: Stroke simulator pressure sensor exceeded learning limit
Required Sensors/Components(Main)	No. 2 skid control ECU (brake actuator assembly) Brake actuator (brake booster with master cylinder assembly)
Required Sensors/Components(Related)	Stop light switch assembly Brake pedal stroke sensor assembly Brake actuator (brake booster with master cylinder assembly)
Frequency of Operation	Continuous

Duration	3 seconds
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	C05A1 (Case 1): Servo pressure sensor lost communication C05A1 (Case 2): Servo pressure sensor internal malfunction C05A1 (Case 3): Servo pressure sensor invalid data C05A2: Servo pressure sensor exceeded learning limit C05C0: Brake pedal position sensor learning not complete C05C1: Brake pedal position sensor learning not complete C0639 (Case 1): Stroke simulator pressure sensor Lost communication C0639 (Case 2): Stroke simulator pressure sensor internal check C0639 (Case 3): Stroke simulator pressure sensor invalid data C1100 (Case 1): Brake pedal position sensor voltage circuit/open C1100 (Case 2): Brake pedal position sensor invalid data C1103 (Case 1): Brake pedal position sensor voltage circuit/open C1103 (Case 2): Brake pedal position sensor invalid data C1168: Stroke simulator pressure sensor intermittent/erratic C116A: Stroke simulator pressure sensor voltage circuit low C116B: Stroke simulator pressure sensor voltage circuit high C116C: Brake position / stroke simulator pressure correlation C116D: Brake pressure control solenoid (SLM1) stuck on C121F: Brake system voltage performance C129B: Rotation angle sensor range/performance C12B4 (Case 1): Brake booster motor not rotate C12B4 (Case 2): Brake booster motor performance (motor current) C12BF (Case 1 to 4): Brake booster motor performance (motor upper circuit) C12BF (Case 5 to 9): Brake booster motor performance (motor drive circuit) C12FA: Brake system voltage power supply relay open circuit C12FB: Brake system voltage power supply relay circuit high C1345: Brake pressure control solenoid open current learning not complete C13BB: Brake booster motor range/performance C13D9: Brake pressure too low C1498: Servo pressure sensor voltage circuit low C1499: Servo pressure sensor voltage circuit high C14C4: Servo pressure sensor intermittent/erratic C14CE: High pressure hydraulic tube air bleeding not complete C14F3 (Case 1 to 3) Brake pressure control solenoid (SLM1) circuit open C14F3 (Case 4 to 5) Brake pressure control solenoid (SLM1) circuit low C14F4 (Case 1 to 2): Brake pressure control solenoid (SLM2) circuit high (solenoid OFF current) C14F4 (Case 3 to 6): Brake pressure control solenoid (SLM2) circuit high (IC data)

	C14F4 (Case 7 to 8): Brake pressure control solenoid (SLM2) circuit high (solenoid ON current) C14FC (Case 1 to 3) Brake pressure control solenoid (SLM2) circuit open C14FC (Case 4 to 5) Brake pressure control solenoid (SLM2) circuit low C14FD (Case 1 to 2): Brake pressure control solenoid (SLM1) circuit high (solenoid OFF current) C14FD (Case 3 to 6): Brake pressure control solenoid (SLM1) circuit high (IC data) C14FD (Case 7 to 8): Brake pressure control solenoid (SLM1) circuit high (solenoid ON current) C1509: Brake pressure control solenoid (SSA) circuit low C150A: Brake pressure control solenoid (SSA) circuit high C150F: Brake pressure control solenoid (SGH) circuit low C1510: Brake pressure control solenoid (SGH) circuit high P057A: Brake pedal position sensor invalid data P057C: Brake pedal position sensor open circuit P057D: Brake pedal position sensor circuit high P057E: Brake pedal position sensor intermittent/erratic P05DB: Brake pedal position sensor invalid data P05DD: Brake pedal position sensor open circuit P05DE: Brake pedal position sensor circuit high P05DF: Brake pedal position sensor intermittent/erratic P05E0: Brake pedal position sensor "A"/"B" correlation U0129: Lost communication with BSCM (CH1) U025E: Lost communication with BSCM2 (CH1)
All of the following conditions are met	-
Brake position sensor circuit fail	Not detected
Stroke simulator pressure sensor circuit fail	Not detected
Brake	Off

TYPICAL MALFUNCTION THRESHOLDS

Stroke simulator pressure sensor	Below -0.63 MPa (-6.4 kgf/cm ^{2} , -91.4 psi), or higher than 1.53 MPa (15.6 kgf/cm ^{2} , 222 psi)

COMPONENT OPERATING RANGE

All of the following conditions are met	-
Brake position sensor circuit fail	Not detected
Stroke simulator pressure sensor circuit fail	Not detected
Brake	Off
Brake pedal position sensor fail (C05C0, C05C1, C1100, C1103, P057A, P057C, P057D, P057E, P05DB, P05DD, P05DE, P05DF, P05E0)	Not detected

Brake system voltage fail (C12FA, C12FB)	Not detected
Pressure sensor fail sensor fail (C116A, C116B, C0639, C1168)	Not detected
CAN communication (U0129, U025E)	Not detected
Stroke simulator pressure sensor	0.63 MPa (-6.4 kgf/cm ^{2} , -91.4 psi) or higher, and 1.53 MPa (15.6 kgf/cm ^{2} , 222 psi) 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 3 seconds 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.

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:

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NEXT

2.	**READ VALUE USING GTS (GAP HOLD CHAMBER OIL PRESSURE)**

(a) Check that the gap hold chamber oil pressure output value is within 0.00 to 1.53 MPa when the brake pedal not depressed.

Chassis > Brake Booster > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Gap Hold Chamber Oil Pressure	Pressure value of stroke simulator	Min.: 0.00 MPa Max.: 24.48 MPa	Brake pedal released: 0.00 to 1.53 MPa	Brake pedal is being depressed: Changes in proportion to the depression force of the brake pedal

Chassis > Brake Booster > Data List

TESTER DISPLAY
Gap Hold Chamber Oil Pressure

HINT:

If the gap hold chamber oil pressure output value is within 0.00 to 1.53 MPa, the No. 1 skid control ECU (brake booster with master cylinder assembly) automatically performs zero point calibration every time the ignition switch is turned to ON.

Therefore, if the gap hold chamber oil pressure output value is not within 0.00 to 1.53 MPa, replace the No. 1 skid control ECU (brake booster with master cylinder assembly) with a new one.

RESULT	PROCEED TO
The value of Gap Hold Chamber Oil Pressure is between 0.00 and 1.53 MPa	A
None of the above conditions are met	B

B **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY**

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A

3.	**CLEAR DTC**

Pre-procedure1

(a) None

Procedure1

(b) Clear the DTCs.

Chassis > Brake Booster > Clear DTCs

Post-procedure1

(c) Turn the ignition switch off.

NEXT

4.	**RECONFIRM DTC**

Pre-procedure1

(a) Based on the Freeze Frame Data and interview with the customer, attempt to reproduce the conditions when the malfunction occurred.

Procedure1

(b) Check if the same DTC is output.

Chassis > Brake Booster > Trouble Codes

RESULT	PROCEED TO
C063928 is not output	A
C063928 is output	B

Post-procedure1

(c) None

A **USE SIMULATION METHOD TO CHECK**

B **REPLACE BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY**

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