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|---|---|---|
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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: C054017; Brake Pressure Sensor "A" Circuit Voltage Above Threshold; 2023 - 2024 MY Prius Prius Prime [12/2022 - ] | | |

| | | |
|---|---|---|
| **DTC** | **C054017** | **Brake Pressure Sensor "A" Circuit Voltage Above Threshold** |

# DESCRIPTION

**HINT:**

Brake pressure sensor "A": Master cylinder pressure sensor

| DTC NO. | DETECTION ITEM | DTC DETECTION CONDITION | TROUBLE AREA | MIL | DTC OUTPUT FROM | PRIORITY | NOTE |
|---|---|---|---|---|---|---|---|
| C054017 | Brake Pressure Sensor "A" Circuit Voltage Above Threshold | When the brake pedal is not depressed, master cylinder pressure continuously exceeds 1.764 MPa (18.0 kgf/cm$^2$, 256 psi) for 5 seconds or more. | No. 2 skid control ECU (brake actuator assembly) | Comes on | Brake/EPB | A | • SAE Code: C053D (Case 1)<br>• Output ECU: No. 2 skid control ECU (brake actuator assembly) |

# MONITOR DESCRIPTION

When the value of the master cylinder pressure sensor is more than a certain value for a certain amount of time, the No. 2 skid control ECU (brake actuator assembly) judges that the master cylinder pressure sensor zero point is abnormal, and illuminates the MIL and stores this DTC.

# MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | C053D (Case 1): Master cylinder pressure sensor exceeded learning limit |
| 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 | 5 seconds |
| MIL Operation | Immediately |
| Sequence of Operation | None |

# TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| Monitor runs whenever the following DTCs are not stored | C0540 (Case 1): Pressure sensor lost communication<br>C0540 (Case 2): Pressure sensor internal check<br>C0540 (Case 3): Pressure sensor invalid data<br>C056B: Pressure sensor intermittent/erratic<br>C1103 (Case 1): Brake pedal position sensor voltage circuit open<br>C1103 (Case 2): Brake pedal position sensor invalid data<br>C122E: Pressure sensor voltage circuit low<br>C122F: Pressure sensor voltage circuit high<br>P057A: Brake pedal position sensor invalid data<br>P05DB: Brake pedal position sensor invalid data<br>P05DD: Brake pedal position sensor circuit open<br>P05DE: Brake pedal position sensor circuit high<br>P05DF: Brake pedal position sensor intermittent/erratic<br>P05E0: Brake pedal position sensor "A"/"B" correlation |
| Either of the following conditions is met | A and B |
| A. Both of the following conditions are met | - |
| Up / downstream communication | Valid |
| Zero point error permission | On |
| B. All of the following conditions are met | - |
| Up / downstream communication | Invalid |
| Brake position sensor circuit effective invalidity | Valid |
| Brake actuator operation | Off |

## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| Master cylinder pressure sensor | Higher than 1.764 MPa (18.0 kgf/cm$^2$, 256 psi) |

## COMPONENT OPERATING RANGE

| | |
|---|---|
| All of the following conditions are met | A, B, C and D |
| A. Pressure sensor fail (C0540, C122E, C122F, C056B) | Not detected |
| B. Brake pedal position sensor fail (C1103, P057A, P05DB, P05DD, P05DE, P05DF, P05E0) | Not detected |
| C. Either of the following conditions is met | a or b |
| a. Both of the following conditions are met | - |
| Up / downstream communication | Valid |
| Zero point error permission | On |
| b. All of the following conditions are met | - |
| Up / downstream communication | Invalid |
| Brake position sensor circuit effective invalidity | Valid |
| Brake actuator operation | Off |

| | |
|---|---|
| D. Master cylinder pressure sensor | 1.764 MPa (18.0 kgf/cm$^2$, 256 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. Drive the vehicle at a speed of 20 km/h (12 mph) for 1 minute. [*1]
7. Operate the ABS using a drum tester or equivalent. [*2]

**HINT:**

[*1] to [*2]: Normal judgment procedure.

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

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

*: Electric Parking Brake System

9. 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:**

Click here INFO

**NEXT**

| | |
|---|---|
| **2.** | **READ VALUE USING GTS (MASTER CYLINDER SENSOR 1)** |

(a) Check that the master cylinder pressure sensor output value is within -1.00 to 0.00 MPa when the brake pedal is not depressed.

**Chassis > Brake/EPB > Data List**

| TESTER DISPLAY | MEASUREMENT ITEM | RANGE | NORMAL CONDITION | DIAGNOSTIC NOTE |
|---|---|---|---|---|
| Master Cylinder Sensor 1 | Master cylinder pressure sensor pressure (value detected by ECU) | Min.: -1.00 MPa<br>Max.: 23.99 MPa | Brake pedal released: -1.00 to 0.00 MPa | Reading increases when brake pedal is depressed |

**Chassis > Brake/EPB > Data List**

| TESTER DISPLAY |
|---|
| Master Cylinder Sensor 1 |

| RESULT | PROCEED TO |
|---|---|
| The value of Master Cylinder Sensor 1 is between -1.00 and 0.00 MPa | A |
| None of the above conditions are met | B |

**B** **REPLACE BRAKE ACTUATOR ASSEMBLY** INFO

**A**

| | |
|---|---|
| **3.** | **CLEAR DTC** |

Pre-procedure1

(a) None

Procedure1

(b) Clear the DTCs.

**Chassis > Brake/EPB > 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/EPB > Trouble Codes**

| RESULT | PROCEED TO |
|---|---|
| C054017 is not output | A |
| C054017 is output | B |

Post-procedure1

(c) None

**A** **USE SIMULATION METHOD TO CHECK**

**B** **REPLACE BRAKE ACTUATOR ASSEMBLY** INFO