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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: C050C3A,C05123A; Left Rear Wheel Speed Sensor Signal Has Too Many Pulses; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C050C3A**	**Left Rear Wheel Speed Sensor Signal Has Too Many Pulses**

DTC	**C05123A**	**Right Rear Wheel Speed Sensor Signal Has Too Many Pulses**

DESCRIPTION

Refer to DTC C050C12.

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C050C3A	Left Rear Wheel Speed Sensor Signal Has Too Many Pulses	When not in Dealer Mode (Signal Check) or Inspection Mode, the output of the speed sensor detected by the No. 2 skid control ECU (brake actuator assembly) is too high for 5 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C050D (Case 4) • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C05123A	Right Rear Wheel Speed Sensor Signal Has Too Many Pulses	When not in Dealer Mode (Signal Check) or Inspection Mode, the output of the speed sensor detected by the No. 2 skid control ECU (brake actuator assembly) is too high for 5 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C0513 (Case 4) • Output ECU: No. 2 skid control ECU (brake actuator assembly)

MONITOR DESCRIPTION

C050D (Case 4) and C0513 (Case 4)

The No. 2 skid control ECU (brake actuator assembly) monitors the output of the speed sensor. When the output value of the speed sensor is excessively high, the MIL is illuminated and a DTC is stored.

MONITOR STRATEGY

Related DTCs	C050D (Case 4): Wheel speed sensor (RL) range/performance (pulse output high) C0513 (Case 4): Wheel speed sensor (RR) range/performance (pulse output high)
Required Sensors/Components(Main)	Speed sensor Speed sensor rotor
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

C050D (Case 4)

Monitor runs whenever the following DTCs are not stored	C0501 (Case 1): Wheel speed sensor (FL) range/performance (correlation A) C0501 (Case 2): Wheel speed sensor (FL) range/performance (2 wheels) C0501 (Case 3): Wheel speed sensor (FL) range/performance (correlation B) C0501 (Case 4): Wheel speed sensor (FL) range/performance (pulse output high) C0502: Wheel speed sensor (FL) voltage circuit open C0503: Wheel speed sensor (FL) voltage circuit high C0504 (Case 1): Wheel speed sensor (FL) intermittent/erratic (moment open) C0504 (Case 2): Wheel speed sensor (FL) intermittent/erratic (a piece of metal noise) C0504 (Case 3): Wheel speed sensor (FL) intermittent/erratic (a piece of metal rotor noise) C0507 (Case 1): Wheel speed sensor (FR) range/performance (correlation A) C0507 (Case 2): Wheel speed sensor (FR) range/performance (2 wheels) C0507 (Case 3): Wheel speed sensor (FR) range/performance (correlation B) C0507 (Case 4): Wheel speed sensor (FR) range/performance (pulse output high) C0508: Wheel speed sensor (FR) voltage circuit open C0509: Wheel speed sensor (FR) voltage circuit high

	C050A (Case 1): Wheel speed sensor (FR) intermittent/erratic (moment open) C050A (Case 2): Wheel speed sensor (FR) intermittent/erratic (a piece of metal noise) C050A (Case 3): Wheel speed sensor (FR) intermittent/erratic (a piece of metal rotor noise) C050D (Case 1): Wheel speed sensor (RL) range/performance (correlation A) C050D (Case 2): Wheel speed sensor (RL) range/performance (2 wheels) C050D (Case 3): Wheel speed sensor (RL) range/performance (correlation B) C050E: Wheel speed sensor (RL) voltage circuit open C050F: Wheel speed sensor (RL) voltage circuit high C0510 (Case 1): Wheel speed sensor (RL) intermittent/erratic (moment open) C0510 (Case 2): Wheel speed sensor (RL) intermittent/erratic (a piece of metal noise) C0510 (Case 3): Wheel speed sensor (RL) intermittent/erratic (a piece of metal rotor noise) C0513 (Case 1): Wheel speed sensor (RR) range/performance (correlation A) C0513 (Case 2): Wheel speed sensor (RR) range/performance (2 wheels) C0513 (Case 3): Wheel speed sensor (RR) range/performance (correlation B) C0513 (Case 4): Wheel speed sensor (RR) range/performance (pulse output high) C0514: Wheel speed sensor (RR) voltage circuit open C0515: Wheel speed sensor (RR) voltage circuit high C0516 (Case 1): Wheel speed sensor (RR) intermittent/erratic (moment open) C0516 (Case 2): Wheel speed sensor (RR) intermittent/erratic (a piece of metal noise) C0516 (Case 3): Wheel speed sensor (RR) intermittent/erratic (a piece of metal rotor noise) C137D: Brake system voltage circuit high C14E1 (Case 1): Wheel speed sensor (FL) voltage circuit low C14E1 (Case 2): Wheel speed sensor (FL) voltage circuit low (continuation) C14E4 (Case 1): Wheel speed sensor (FR) voltage circuit low C14E4 (Case 2): Wheel speed sensor (FR) voltage circuit low (continuation) C14E7 (Case 1): Wheel speed sensor (RL) voltage circuit low C14E7 (Case 2): Wheel speed sensor (RL) voltage circuit low (continuation) C14EA (Case 1): Wheel speed sensor (RR) voltage circuit low C14EA (Case 2): Wheel speed sensor (RR) voltage circuit low (continuation)
All of the following conditions are met	A, B and C
A. Chassis dynamometer mode	Off

B. Following condition is met	More than 0.012 seconds
IGR voltage	3.5 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less

C0513 (Case 4)

Monitor runs whenever the following DTCs are not stored	C0501 (Case 1): Wheel speed sensor (FL) range/performance (correlation A) C0501 (Case 2): Wheel speed sensor (FL) range/performance (2 wheels) C0501 (Case 3): Wheel speed sensor (FL) range/performance (correlation B) C0501 (Case 4): Wheel speed sensor (FL) range/performance (pulse output high) C0502: Wheel speed sensor (FL) voltage circuit open C0503: Wheel speed sensor (FL) voltage circuit high C0504 (Case 1): Wheel speed sensor (FL) intermittent/erratic (moment open) C0504 (Case 2): Wheel speed sensor (FL) intermittent/erratic (a piece of metal noise) C0504 (Case 3): Wheel speed sensor (FL) intermittent/erratic (a piece of metal rotor noise) C0507 (Case 1): Wheel speed sensor (FR) range/performance (correlation A) C0507 (Case 2): Wheel speed sensor (FR) range/performance (2 wheels) C0507 (Case 3): Wheel speed sensor (FR) range/performance (correlation B) C0507 (Case 4): Wheel speed sensor (FR) range/performance (pulse output high) C0508: Wheel speed sensor (FR) voltage circuit open C0509: Wheel speed sensor (FR) voltage circuit high C050A (Case 1): Wheel speed sensor (FR) intermittent/erratic (moment open) C050A (Case 2): Wheel speed sensor (FR) intermittent/erratic (a piece of metal noise) C050A (Case 3): Wheel speed sensor (FR) intermittent/erratic (a piece of metal rotor noise) C050D (Case 1): Wheel speed sensor (RL) range/performance (correlation A) C050D (Case 2): Wheel speed sensor (RL) range/performance (2 wheels) C050D (Case 3): Wheel speed sensor (RL) range/performance (correlation B) C050D (Case 4): Wheel speed sensor (RL) range/performance (pulse output high) C050E: Wheel speed sensor (RL) voltage circuit open C050F: Wheel speed sensor (RL) voltage circuit high

	C0510 (Case 1): Wheel speed sensor (RL) intermittent/erratic (moment open) C0510 (Case 2): Wheel speed sensor (RL) intermittent/erratic (a piece of metal noise) C0510 (Case 3): Wheel speed sensor (RL) intermittent/erratic (a piece of metal rotor noise) C0513 (Case 1): Wheel speed sensor (RR) range/performance (correlation A) C0513 (Case 2): Wheel speed sensor (RR) range/performance (2 wheels) C0513 (Case 3): Wheel speed sensor (RR) range/performance (correlation B) C0514: Wheel speed sensor (RR) voltage circuit open C0515: Wheel speed sensor (RR) voltage circuit high C0516 (Case 1): Wheel speed sensor (RR) intermittent/erratic (moment open) C0516 (Case 2): Wheel speed sensor (RR) intermittent/erratic (a piece of metal noise) C0516 (Case 3): Wheel speed sensor (RR) intermittent/erratic (a piece of metal rotor noise) C137D: Brake system voltage circuit high C14E1 (Case 1): Wheel speed sensor (FL) voltage circuit low C14E1 (Case 2): Wheel speed sensor (FL) voltage circuit low (continuation) C14E4 (Case 1): Wheel speed sensor (FR) voltage circuit low C14E4 (Case 2): Wheel speed sensor (FR) voltage circuit low (continuation) C14E7 (Case 1): Wheel speed sensor (RL) voltage circuit low C14E7 (Case 2): Wheel speed sensor (RL) voltage circuit low (continuation) C14EA (Case 1): Wheel speed sensor (RR) voltage circuit low C14EA (Case 2): Wheel speed sensor (RR) voltage circuit low (continuation)
All of the following conditions are met	A, B and C
A. Chassis dynamometer mode	Off
B. Following condition is met	More than 0.012 seconds
IGR voltage	3.5 V or higher
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less

TYPICAL MALFUNCTION THRESHOLDS

All

Highest speed sensor output value	300 km/h (186.41 mph) or more

COMPONENT OPERATING RANGE

All

All of the following conditions are met	-
Chassis dynamometer mode	Off
Lowest speed sensor output value	Higher than 30 km/h (18.64 mph)
Difference highest speed sensor value and lowest speed sensor value	Less than 2 km/h (1.24 mph)

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 straight at a speed of 20 km/h (12 mph) or more for 10 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.	**REPLACE BRAKE ACTUATOR ASSEMBLY**

HINT:

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NEXT END