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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: C14E014,C14E314; Left Front Wheel Speed Sensor Supply Voltage Circuit Short to Ground or Open; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C14E014**	**Left Front Wheel Speed Sensor Supply Voltage Circuit Short to Ground or Open**

DTC	**C14E314**	**Right Front Wheel Speed Sensor Supply Voltage Circuit Short to Ground or Open**

DESCRIPTION

Refer to DTC C050012.

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DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C14E014	Left Front Wheel Speed Sensor Supply Voltage Circuit Short to Ground or Open	With the +BS terminal voltage 9.5 to 17.4 V, the sensor power supply voltage decreases for 0.5 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C14E1 • Output ECU: No. 2 skid control ECU (brake actuator assembly)
C14E314	Right Front Wheel Speed Sensor Supply Voltage Circuit Short to Ground or Open	With the +BS terminal voltage 9.5 to 17.4 V, the sensor power supply voltage decreases for 0.5 seconds or more.	No. 2 skid control ECU (brake actuator assembly)	Comes on	Brake/EPB	A	• SAE Code: C14E4 • Output ECU: No. 2 skid control ECU (brake actuator assembly)

MONITOR DESCRIPTION

The No. 2 skid control ECU (brake actuator assembly) monitors the power supply voltage of the speed sensors. If the power supply voltage is outside the normal range, the MIL is illuminated and a DTC is stored.

MONITOR STRATEGY

Related DTCs	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)
Required Sensors/Components(Main)	Speed sensor Speed sensor rotor
Required Sensors/Components(Related)	-
Frequency of Operation	Continuous
Duration	15 seconds: C0510 (Case 3) 0.255 seconds: C0510 (Case 1) 0.075 seconds: C0510 (Case 2)
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Case 1

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 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 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

	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 C0555: Wheel speed sensor (FL) range/performance C0556: Wheel speed sensor (FR) range/performance C0557: Wheel speed sensor (RL) range/performance C0558: Wheel speed sensor (RR) range/performance 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

Case 2

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 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 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 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 C0555: Wheel speed sensor (FL) range/performance C0556: Wheel speed sensor (FR) range/performance C0557: Wheel speed sensor (RL) range/performance C0558: Wheel speed sensor (RR) range/performance 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, C and D
A. Chassis dynamometer mode	Off
B. Command to all ABS hold solenoids	Off
C. Command to all ABS release solenoids	Off

D. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less

Case 3

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 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 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 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 C0555: Wheel speed sensor (FL) range/performance C0556: Wheel speed sensor (FR) range/performance C0557: Wheel speed sensor (RL) range/performance C0558: Wheel speed sensor (RR) range/performance 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, C and D
A. Chassis dynamometer mode	Off
B. ABS control	Not operating
C. 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
D. Vehicle speed	10 km/h (6.21 mph) or more

TYPICAL MALFUNCTION THRESHOLDS

Case 1

Wheel speed sensor status changes from not moment open status to moment open status	Moment open status
Wheel speed fluctuation	502.10048 m/s2 or more
Vehicle speed	15 km/h (9.32 mph) or more

Case 2

Both of the following conditions A and B are met	5 seconds or more
A. Vehicle speed	20 km/h (12.43 mph) or more
B. Normal piece of metal noise status	-
Wheel speed fluctuation	502.10048 m/s2 or more experience

Case 3

Adhesion of a piece of metal rotor (noise input at a rotor rotation)	1time
Noise	98.0665 m/s2 or more

COMPONENT OPERATING RANGE

All

All of the following conditions are met	-
Chassis dynamometer mode	Off
Noise recovery experience	On
A piece of metal rotor noise recovery experience	On
Low speed recovery experience	On

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 15 km/h (9 mph) or more for 60 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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