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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: C129A2B; Electronic Brake Booster Motor "A" Position Sensor Signal Cross Coupled; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C129A2B**	**Electronic Brake Booster Motor "A" Position Sensor Signal Cross Coupled**

DESCRIPTION

The pump motor is built into the No. 1 skid control ECU (brake booster with master cylinder assembly). The pump motor is controlled using the rotation angle sensor, and so the sensor value is monitored to detect malfunctions.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C129A2B	Electronic Brake Booster Motor "A" Position Sensor Signal Cross Coupled	When rotation angle sensor malfunction status continues.	No. 1 skid control ECU (brake booster with master cylinder assembly)	Comes on	Brake/EPB	A	• SAE Code: C129B • Output ECU: Both skid control ECUs

MONITOR DESCRIPTION

The pump motor is built into the No. 1 skid control ECU (brake booster with master cylinder assembly).

With the vehicle power source voltage normal, voltage applied normally to the motor power source terminal and the No. 1 skid control ECU (brake booster with master cylinder assembly) started, if the hall sensor U, V and W phase output pattern during motor rotation is an unanticipated output, the No. 2 skid control ECU (brake actuator assembly) determines that there is a pump motor drive circuit malfunction, the MIL is illuminated and a DTC is stored.

MONITOR STRATEGY

Related DTCs	C129B: Rotation angle sensor range/performance
Required Sensors/Components(Main)	No. 2 skid control ECU (brake actuator assembly) Brake booster with master cylinder assembly
Required Sensors/Components(Related)	Brake pedal stroke sensor assembly No. 2 skid control ECU (brake actuator assembly) Brake booster with master cylinder assembly
Frequency of Operation	Continuous
Duration	-
MIL Operation	Immediately

Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	C1100 (Case 1): Brake pedal position sensor voltage circuit/open 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) C14C8: Brake system voltage circuit high
All of the following conditions are met	A, B, C, D, E, F and G
A. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
B. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Higher than 7.4 V
C. Following condition is met	More than 0.198 seconds
BM voltage	7.1 V or higher
D. Command to motor failsafe relay	On
E. Brake pedal position sensor1 power supply	4.8 V or higher, and 5.2 V or less
F. VCSK	Valid
G. +BS cut MOS voltage	Higher than 7.8 V

TYPICAL MALFUNCTION THRESHOLDS

Either of the following conditions is met	A or B
A. Following condition is met	More than 10 times
Hall sensor pattern sequence	Abnormal
B. Following condition is met	More than 0.072 seconds
Hall sensor undefined pattern	-

COMPONENT OPERATING RANGE

All of the following conditions are met	A, B, C, D, E, F and G
A. Both of the following conditions are met	More than 0.198 seconds
+BS cut MOS	Valid
+BS cut MOS voltage	Below 23.2 V
B. Both of the following conditions are met	More than 0.198 seconds

+BS cut MOS	Valid
+BS cut MOS voltage	Higher than 7.4 V
C. Following condition is met	More than 0.198 seconds
BM voltage	7.1 V or higher
D. Command to motor failsafe relay	On
E. Brake pedal position sensor1 power supply	4.8 V or higher, and 5.2 V or less
F. VCSK	Valid
G. Following condition is met	0 times
Hall sensor pattern sequence	Abnormal

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 2 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 BOOSTER WITH MASTER CYLINDER ASSEMBLY**

HINT:

Click here INFO

NEXT END