Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028X18
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: SIGNAL CHECK; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

SIGNAL CHECK

SENSOR CHECK USING DEALER MODE (SIGNAL CHECK)

NOTICE:

- After performing "Calibration", perform a master cylinder pressure sensor check.
- After replacing or removing and installing a speed sensor, perform Dealer Mode (Signal Check) inspection to confirm that the speed sensors are operating correctly.
- After replacing or removing and installing a speed sensor rotor, perform Dealer Mode (Signal Check) inspection to confirm that the speed sensors are operating correctly.

HINT:

- Signals related to the electronically controlled brake system can be inspected by performing a Dealer Mode (Signal Check) inspection. During the inspection, the display of items determined normal by the skid control ECU changes from incomplete to complete.
- During Dealer Mode (Signal Check), the VSC and TRAC do not operate regardless of whether the system is normal or a malfunction is detected.
- If a sensor is malfunctioning, ABS does not operate and the ABS warning light, brake system warning light (yellow indicator) and slip indicator light illuminate.
- Even during Dealer Mode (Signal Check), if there is a system malfunction that causes brake hold control to be prohibited, when the vehicle is under the following conditions and the brake hold switch (electric parking brake switch assembly) is turned on, the brake hold operated indicator light blinks.

  Vehicle Conditions:

  i. The driver door is closed.
  ii. The driver seat belt is fastened.

(a) Procedure to Enter Dealer Mode (Signal Check)

(1) Turn the ignition switch off.

(2) Check that the steering wheel is centered.

(3) Check that park (P) is selected.

(4) Connect the GTS to the DLC3.

(5) Turn the ignition switch to ON.

(6) Turn the GTS on.

(7) Switch the skid control ECU to Dealer Mode (Signal Check) using the GTS. Enter the following menus: Chassis / Brake/EPB* / Utility / Signal Check.

*: Electric Parking Brake System

Chassis > Brake/EPB > Utility

TESTER DISPLAY
Signal Check

(b) Confirm the system has entered Dealer Mode (Signal Check)

(1) Confirm that the ABS warning light, brake system warning light (yellow indicator) and slip indicator light indicate the Dealer Mode pattern (blinking at 0.25 second intervals).

HINT:

- When in Dealer Mode (signal check), "Traction Control Turned OFF" is displayed on the multi-information display.
- When entering Dealer Mode (Signal Check), if the parking brake is engaged, the parking brake indicator light (red) will illuminate, and if the parking brake is not engaged, the parking brake indicator light (red) will blink in the Dealer Mode pattern (blinking at 0.25 second intervals).

(c) Master Cylinder Pressure Sensor Check

(1) With the vehicle stopped, release the brake pedal for 1 second or more and check that the value of Dealer Mode (Signal Check) Inspection Item "Output in Master Cylinder Pressure Sensor" changes from incomplete to complete.

HINT:

- The status of the ABS warning light, brake system warning light (yellow indicator) and slip indicator light will not change.
- If the master cylinder pressure sensor is normal and the above step is performed when in Dealer Mode (Signal Check), the master cylinder pressure sensor check will complete normally.

(d) Speed Sensor Check

NOTICE:

Before performing the speed sensor check, complete the master cylinder pressure sensor check.

(1) Turn the ignition switch to ON (READY).

(2) With the steering wheel held straight, accelerate the vehicle to a speed of 45 km/h (28 mph) or more without spinning the wheels.

(3) Accelerating to a vehicle speed of 3 km/h (2 mph) or more, drive the vehicle in reverse for 1 second or more.

(4) Check that the ABS warning light goes off.

NOTICE:

- If the sensor check does not complete successfully or a malfunctioning sensor is detected, the ABS warning light indicates the Dealer Mode pattern (blinking at 0.25 second intervals) and the ABS system will not operate.
- If the vehicle is driven at 80 km/h (50 mph) or more after the ABS warning light turns off, the speed sensor check will be performed again. In this situation, the ABS warning light will start blinking again.
- The speed sensor check may not complete if the speed sensor check is started while turning the steering wheel or spinning the wheels.

(5) Stop the vehicle.

(e) End of Sensor Check

(1) If the sensor check completes successfully, the ABS warning light turns off when the vehicle is being driven, and indicates the Dealer Mode pattern (blinking at 0.25 second intervals) when the vehicle is stopped.

NOTICE:

- When all Dealer Mode (Signal Check) Inspection Items are complete, the sensor check is complete.
- If the sensor checks have not completed, the ABS warning light will remain blinking while the vehicle is being driven, and the ABS will not operate.
- If any malfunctions are detected during Dealer Mode (Signal Check), the ABS warning light, brake system warning light (yellow indicator) or slip indicator light remains illuminated.
- If any DTCs are output or if Dealer Mode (Signal Check) Inspection Items do not complete even after repeated attempts, repair or replace the malfunctioning part.

(f) End of Dealer Mode (Signal Check)

(1) Turn the ignition switch off.

(2) Disconnect the GTS.

(g) Dealer Mode (Signal Check) Inspection Item Chart

ITEM NAME	RANGE	JUDGMENT DESCRIPTION	TROUBLE AREA
Output Signal of Front Speed Sensor RH	Incomplete/complete	• Check for foreign matter • Check the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in wire harness • Improperly connected connector, deformation or corrosion of terminals • Sensor installation • Front speed sensor rotor RH
Output Signal of Front Speed Sensor LH	Incomplete/complete	• Check for foreign matter • Check the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in wire harness • Improperly connected connector, deformation or corrosion of terminals • Sensor installation • Front speed sensor rotor LH
Output Signal of Rear Speed Sensor RH	Incomplete/complete	• Check for foreign matter • Check the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in wire harness • Improperly connected connector, deformation or corrosion of terminals • Sensor installation • Rear speed sensor rotor RH
Output Signal of Rear Speed Sensor LH	Incomplete/complete	• Check for foreign matter • Check the gap between the sensor and rotor	• Open or short in speed sensor • Open or short in wire harness • Improperly connected connector, deformation or corrosion of terminals • Sensor installation • Rear speed sensor rotor LH
Change in Output Signal of Front Speed Sensor RH	Incomplete/complete	Check the stability of the sensor input waveform	• Foreign object attached to speed sensor • Front speed sensor rotor RH
Change in Output Signal of Front Speed Sensor LH	Incomplete/complete	Check the stability of the sensor input waveform	• Foreign object attached to speed sensor • Front speed sensor rotor LH
Change in Output Signal of Rear Speed Sensor RH	Incomplete/complete	Check the stability of the sensor input waveform	• Foreign object attached to speed sensor • Rear speed sensor rotor RH
Change in Output Signal of Rear Speed Sensor LH	Incomplete/complete	Check the stability of the sensor input waveform	• Foreign object attached to speed sensor • Rear speed sensor rotor LH

ITEM NAME	RANGE	JUDGMENT DESCRIPTION	TROUBLE AREA
Output in Master Cylinder Pressure Sensor	Incomplete/complete	Evaluate the master cylinder pressure sensor zero point voltage	• Open or short in master cylinder pressure sensor • Open or short in stop light switch assembly circuit or defective connector connection • Stop light switch assembly stuck off malfunction • Stop light switch assembly stuck on malfunction
Learning of Stroke Sensor Zero Point	Incomplete/complete	Check the stroke sensor zero point output value	• Brake pedal stroke sensor zero point calibration incomplete • Open or short in wire harness • Improperly connected connector, deformation or corrosion of terminals • Brake pedal stroke sensor assembly