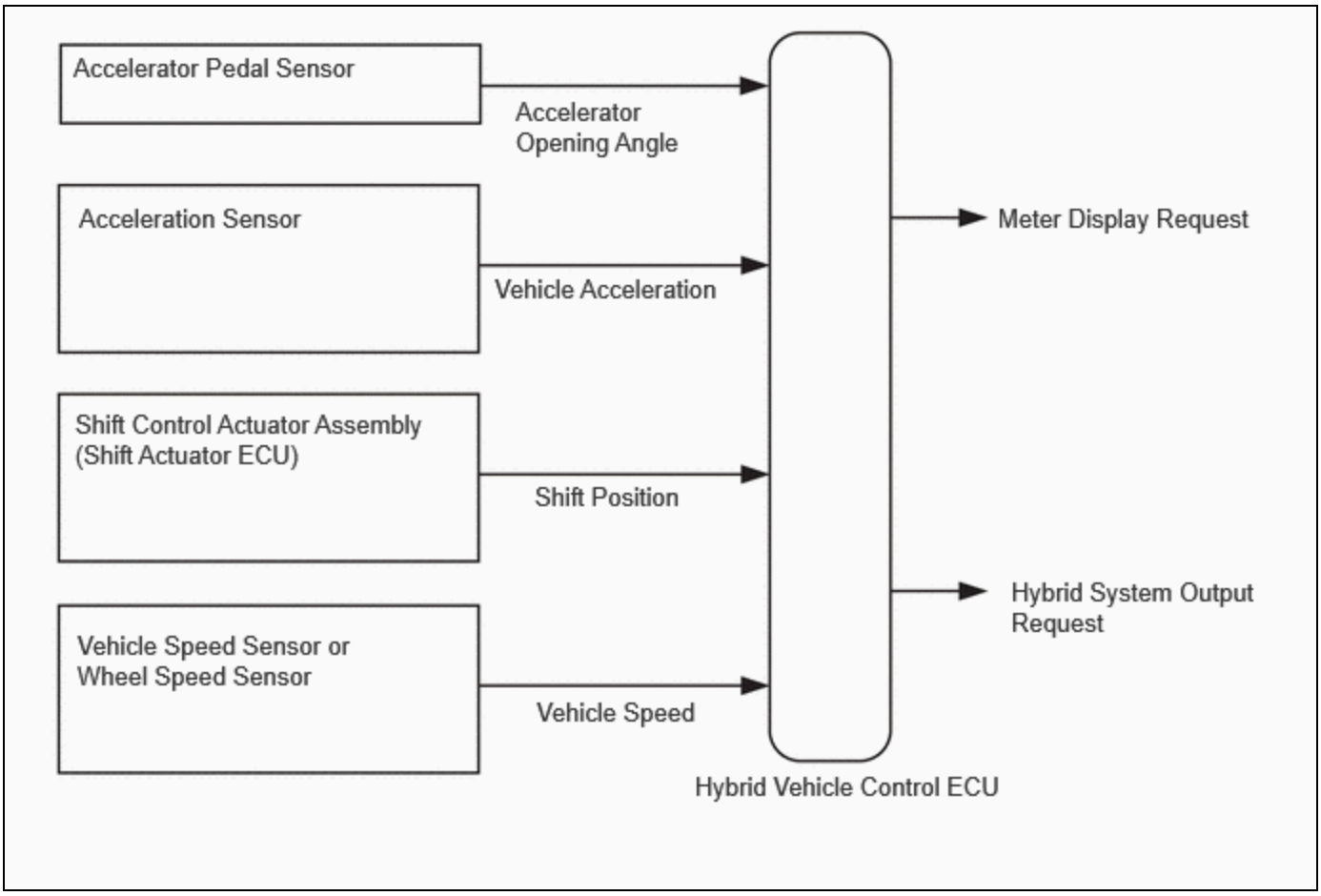
Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028ZVX
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): Drive Start Control; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DESCRIPTION

The drive start control is controlled by the hybrid vehicle control ECU.

If the hybrid vehicle control ECU determines that the shift lever and accelerator pedal are operated abnormally, hybrid system output is restricted and, when necessary, a warning is displayed on the combination meter assembly.



CAUTION / NOTICE / HINT

HINT:

Even if the accelerator pedal position is maintained, the hybrid system output may increase when driving uphill and decrease when driving downhill. This is due to drive start control controlling the hybrid system output, and is not a malfunction.

PROCEDURE

1.	PAST ACTIVATION CONFIRMATION

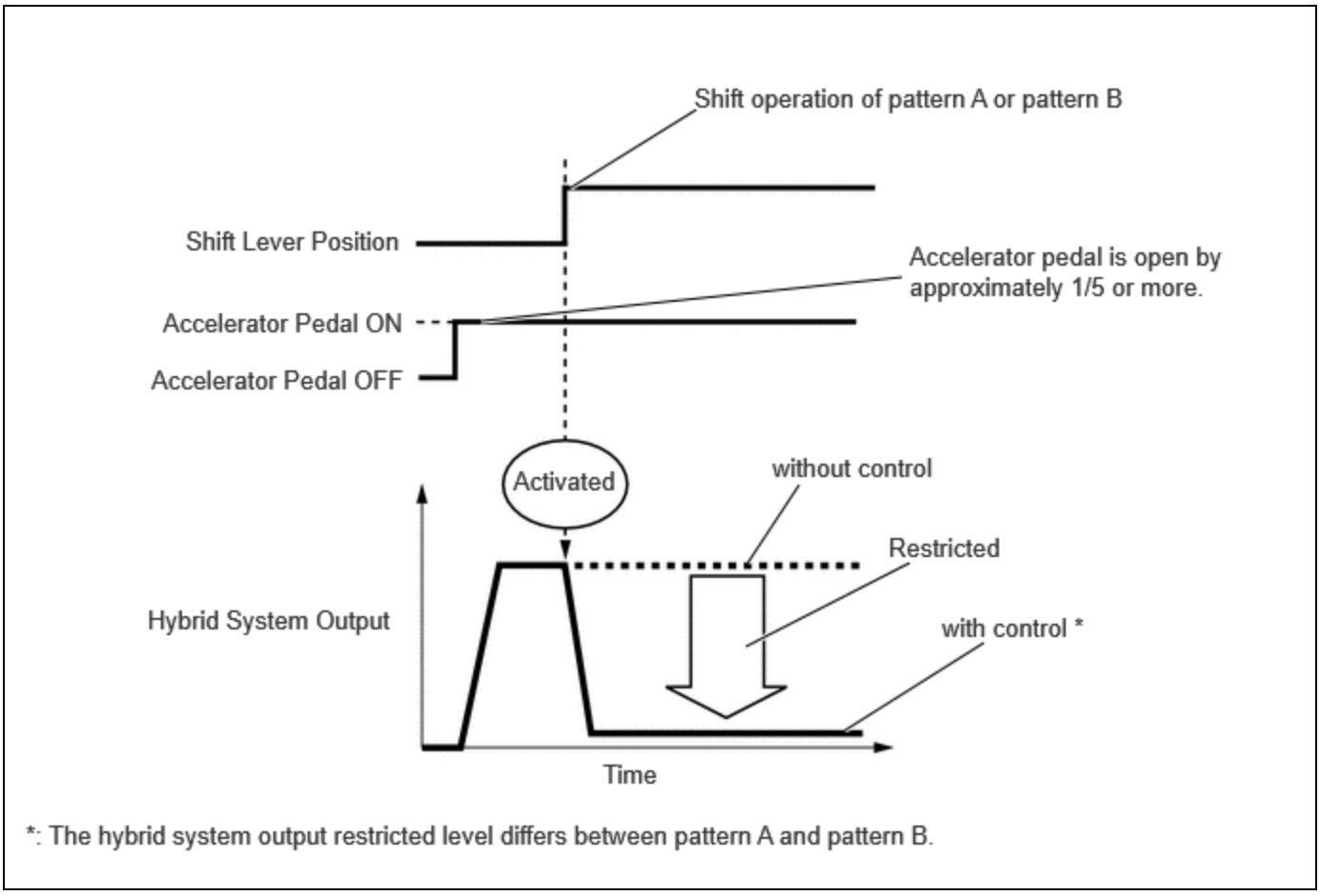
(a) Check if the customer operated the vehicle in a way that would cause the drive start control to operate.

Activation conditions

- Pattern A (When all of the following conditions are met, control starts.)
  - The accelerator pedal is open by approximately 1/5 or more.
  - The shift lever is moved from P to any forward position D (Including other forward shift positions) or R.
- Pattern B (When all of the following conditions are met, control starts.)
  - The accelerator pedal is open by approximately 1/5 or more.
  - The shift lever is moved from R to any forward position D (Including other forward shift positions), any forward position D (Including other forward shift positions) to R, or N to R.

HINT:

Depending on the situation, the shift position may not be changed.



Items Controlled

- Hybrid system output is restricted.

Deactivation Conditions

- The accelerator pedal is released.
- The shift lever is in P or N.

HINT:

- The hybrid system output restricted level differs between Pattern A and Pattern B.
- During sudden start restraint control, hybrid system output is adjusted based on the road gradient.
- Drive start control is not activated when TRC is turned off.
  Control will also not operate under the following conditions. (if equipped)
  - When TRAIL mode is on
  - When multi-terrain select is selected

Result	PROCEED TO
Not performed	A
Performed	B

B ▶ **SYSTEM NORMAL (GO TO PROBLEM SYMPTOM TABLE)**

A

2.	**CHECK DTC OUTPUT (HEALTH CHECK)**

(a) Perform the Health Check using the GTS.

(b) Check the DTCs.

RESULT	PROCEED TO
DTCs are not output (Hunting)	A
DTCs are not output (Hesitation/poor acceleration)	B
DTCs are output	C

(c) Turn the ignition switch off.

B ▶ **GO TO STEP 6**

C ▶ **GO TO DTC CHART**

A

3.	**READ VALUE USING GTS (FR, FL, RR, RL WHEEL SPEED)**

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

(b) Read the values displayed on the GTS.

Chassis > Brake/EPB > Data List

TESTER DISPLAY
FR Wheel Speed
FL Wheel Speed
RR Wheel Speed
RL Wheel Speed

Standard:

CONDITION	SPECIFIED CONDITION
Vehicle stopped	0 km/h (0 mph)
Vehicle being driven at constant speed between 16 to 64 km/h (10 to 40 mph)	No large fluctuations when driving at a constant speed

CAUTION:

When performing a drive test, obey all speed limits and traffic laws.

HINT:

Data can be captured relatively easily by using the snapshot function in the Data List. Confirm the data after performing the drive test.

(c) Turn the ignition switch off.

NG ▶ **INSPECT FRONT OR REAR SPEED SENSOR**

Click here INFO

OK

4.	READ VALUE USING GTS (VEHICLE SPEED)

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

(b) Read the value displayed on the GTS.

Powertrain > Hybrid Control > Data List

TESTER DISPLAY
Vehicle Speed

Standard:

INSPECTION CONDITION	SPECIFIED CONDITION
Vehicle stopped	0 km/h (0 mph)
Vehicle being driven at a constant speed (16 to 64 km/h (10 to 40 mph))	No large fluctuations in displayed speed

CAUTION:

When performing a drive test, obey all speed limits and traffic laws.

HINT:

Data can be captured relatively easily by using the snapshot function in the Data List. Confirm the data after performing the drive test.

(c) Turn the ignition switch off.

NG ▶ **INSPECT ELECTRONICALLY CONTROLLED BRAKE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING)**

Click here INFO

OK ▼

5.	READ VALUE USING GTS (FORWARD AND REARWARD G)

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

(b) Read the value displayed on the GTS.

Chassis > Brake/EPB > Data List

TESTER DISPLAY
Forward and Rearward G

Standard:

CONDITION	SPECIFIED CONDITION
During deceleration	Changes continuously
During acceleration	Changes continuously

CAUTION:

When performing a drive test, obey all speed limits and traffic laws.

HINT:

Data can be captured relatively easily by using the snapshot function in the Data List. Confirm the data after performing the drive test.

(c) Turn the ignition switch off.

OK ▶ **SYSTEM NORMAL (GO TO PROBLEM SYMPTOM TABLE)**

NG ▶ **INSPECT AIR BAG ECU ASSEMBLY (HOW TO PROCEED WITH TROUBLESHOOTING)**

Click here INFO

6.	READ VALUE USING GTS (SHIFT POSITION)

(a) Turn the ignition switch on (iG).

(b) Read the value displayed on the GTS.

Powertrain > Hybrid Control > Data List

TESTER DISPLAY
Shift Position

OK:

CONDITION	SPECIFIED CONDITION
Select shift state	Matches currently selected shift state

(c) Turn the ignition switch off.

NG ▶ **GO TO ELECTRONIC SHIFT LEVER SYSTEM**

Click here INFO

OK ▼

7.	**READ VALUE USING GTS (ACCELERATOR POSITION SENSOR NO. 1 VOLTAGE %, ACCELERATOR POSITION SENSOR NO. 2 VOLTAGE %)**

(a) Turn the ignition switch on (IG).

(b) Read the value displayed on the GTS.

Powertrain > Hybrid Control > Data List

TESTER DISPLAY
Accelerator Position Sensor No.1 Voltage %
Accelerator Position Sensor No.2 Voltage %

OK:

CONDITION	SPECIFIED CONDITION
Accelerator Pedal Released → Depressed	Changes continuously

(c) Turn the ignition switch off.

OK ▶ **SYSTEM NORMAL (GO TO PROBLEM SYMPTOM TABLE)**

NG ▶ **REPLACE ACCELERATOR PEDAL (WITH SENSOR) ROD ASSEMBLY**