Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002909P
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: THEFT DETERRENT / KEYLESS ENTRY: SMART KEY SYSTEM (for Start Function): B227862; Engine/Power Switch Signal Compare Failure; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**B227862**	**Engine/Power Switch Signal Compare Failure**

DESCRIPTION

This DTC is stored when the SSW1 contact signal, SSW2 contact signal and SSW3 contact signal, which are detected when the power switch is operated, do not match.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY	NOTE
B227862	Engine/Power Switch Signal Compare Failure	When the power switch is operated, the SSW1 contact signal, SSW2 contact signal and SSW3 contact signal do not match.	• Power switch • Certification ECU (smart key ECU assembly) • Wire harness or connector	Power Source Control	A	**DTC Output Confirmation Operation:** Turn the ignition switch to ON.

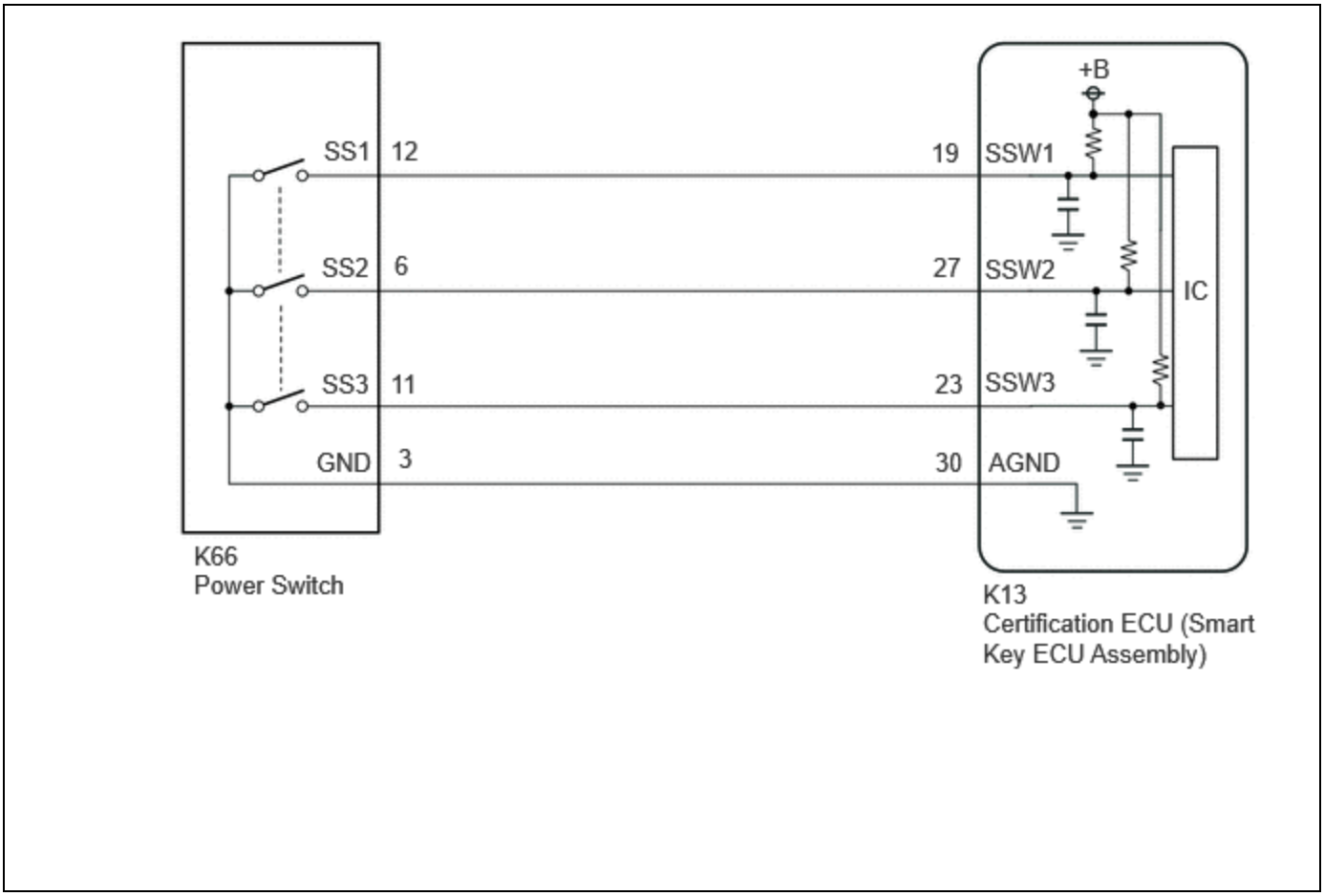
Vehicle Condition and Fail-safe Function when Malfunction Detected

VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE FUNCTION WHEN MALFUNCTION DETECTED
If there is a malfunction in only one of the terminals SS1, SS2 or SS3, the system can still operate normally.	When only one terminal malfunctions, that terminal is disabled and the system operates normally.

Related Data List and Active Test Items

DTC NO.	DATA LIST AND ACTIVE TEST
B227862	**Power Source Control** • Push Start Switch 1 • Push Start Switch 2 • Push Start Switch 3

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- When using the GTS with the ignition switch off, perform lock and unlock operations using the door control switch of the multiplex network master switch assembly at intervals of 1.5 seconds or less until communication between the GTS and the vehicle begins, and then select the vehicle model manually.

  Then select Model Code "KEY REGIST" under manual mode and enter the following menus: Body Electrical / Smart Key(CAN). While using the GTS, periodically perform lock and unlock operations using the door control switch of the multiplex network master switch assembly at intervals of 1.5 seconds or less to maintain communication between the GTS and the vehicle.
- The smart key system (for Start Function) uses the LIN communication system and CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Start Function) after confirming that the communication systems are functioning properly.

  Click here INFO
- Before replacing the certification ECU (smart key ECU assembly), refer to Registration.

  Click here INFO
- After repair, confirm that no DTCs are output by performing "DTC Output Confirmation Operation".

PROCEDURE

1.	**READ VALUE USING GTS (PUSH START SWITCH 1)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 1	Power switch 1 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 1

OK:

The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 1 is OFF	A
The value of Push Start Switch 1 is not OFF	B

B ▶ **GO TO STEP 13**

A ▼

2.	**READ VALUE USING GTS (PUSH START SWITCH 1)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 1	Power switch 1 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 1

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 1 is ON	A
The value of Push Start Switch 1 is not ON	B

B ▶ **GO TO STEP 13**

A ▼

3.	**READ VALUE USING GTS (PUSH START SWITCH 2)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 2	Power switch 2 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 2

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 2 is OFF	A

RESULT	PROCEED TO
The value of Push Start Switch 2 is not OFF	B

B ▶ **GO TO STEP 13**

A ▼

4.	**READ VALUE USING GTS (PUSH START SWITCH 2)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 2	Power switch 2 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 2

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 2 is ON	A
The value of Push Start Switch 2 is not ON	B

B ▶ **GO TO STEP 13**

A ▼

5.	**READ VALUE USING GTS (PUSH START SWITCH 3)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 3	Power switch 3 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 3

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 3 is OFF	A
The value of Push Start Switch 3 is not OFF	B

B ▶ **GO TO STEP 13**

A

6.	**READ VALUE USING GTS (PUSH START SWITCH 3)**

(a) Read the Data List according to the display on the GTS.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 3	Power switch 3 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 3

OK:

The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 3 is ON	A
The value of Push Start Switch 3 is not ON	B

B ▶ **GO TO STEP 13**

A ▼

7.	**READ VALUE USING GTS (PUSH START SWITCH 1)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 1	Power switch 1 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 1

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 1 is OFF	A
The value of Push Start Switch 1 is not OFF	B

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

8.	**READ VALUE USING GTS (PUSH START SWITCH 1)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 1	Power switch 1 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 1

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 1 is ON	A

RESULT	PROCEED TO
The value of Push Start Switch 1 is not ON	B

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A

9.	**READ VALUE USING GTS (PUSH START SWITCH 2)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 2	Power switch 2 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 2

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 2 is OFF	A
The value of Push Start Switch 2 is not OFF	B

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A

10.	**READ VALUE USING GTS (PUSH START SWITCH 2)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 2	Power switch 2 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 2

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 2 is ON	A
The value of Push Start Switch 2 is not ON	B

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

11.	**READ VALUE USING GTS (PUSH START SWITCH 3)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 3	Power switch 3 status	OFF or ON	OFF: Power switch not pressed	• If the power switch is pressed for a short time, the display may not change.

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
				• Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 3

OK:
The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 3 is OFF	A
The value of Push Start Switch 3 is not OFF	B

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

12.	**READ VALUE USING GTS (PUSH START SWITCH 3)**

(a) According to the display on the GTS, read the Data List while wiggling the wire harness.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Push Start Switch 3	Power switch 3 status	OFF or ON	ON: Power switch pressed	• If the power switch is pressed for a short time, the display may not change. • Use this item to determine if the power switch input signal is malfunctioning.

Body Electrical > Power Source Control > Data List

TESTER DISPLAY
Push Start Switch 3

OK:

The GTS display changes correctly in response to the power switch operation.

RESULT	PROCEED TO
The value of Push Start Switch 3 is ON	A
The value of Push Start Switch 3 is not ON	B

A ▶ **USE SIMULATION METHOD TO CHECK**

B ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

13.	**CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - POWER SWITCH)**

Pre-procedure1

(a) Disconnect the K13 certification ECU (smart key ECU assembly) connector.

(b) Disconnect the K66 power switch connector.

Procedure1

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(K13,K66)
Click Connector(K13)
Click Connector(K66)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K13-19 (SSW1) - K66-12 (SS1)	Always	Below 1 Ω	Ω
K13-27 (SSW2) - K66-6 (SS2)	Always	Below 1 Ω	Ω
K13-23 (SSW3) - K66-11 (SS3)	Always	Below 1 Ω	Ω
K13-30 (AGND) - K66-3 (GND)	Always	Below 1 Ω	Ω
K13-19 (SSW1) or K66-12 (SS1) - Other terminals and body ground	Always	10 kΩ or higher	kΩ
K13-27 (SSW2) or K66-6 (SS2) - Other terminals and body ground	Always	10 kΩ or higher	kΩ
K13-23 (SSW3) or K66-11 (SS3) - Other terminals and body ground	Always	10 kΩ or higher	kΩ
K13-30 (AGND) or K66-3 (GND) - Other terminals and body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

14.	**INSPECT POWER SWITCH**

Click here INFO

OK ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)** INFO

NG ▶ **REPLACE POWER SWITCH**