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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: THEFT DETERRENT / KEYLESS ENTRY: DIGITAL KEY SYSTEM: Digital Key Battery Charge Low is not Displayed on the Multi-information Display; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

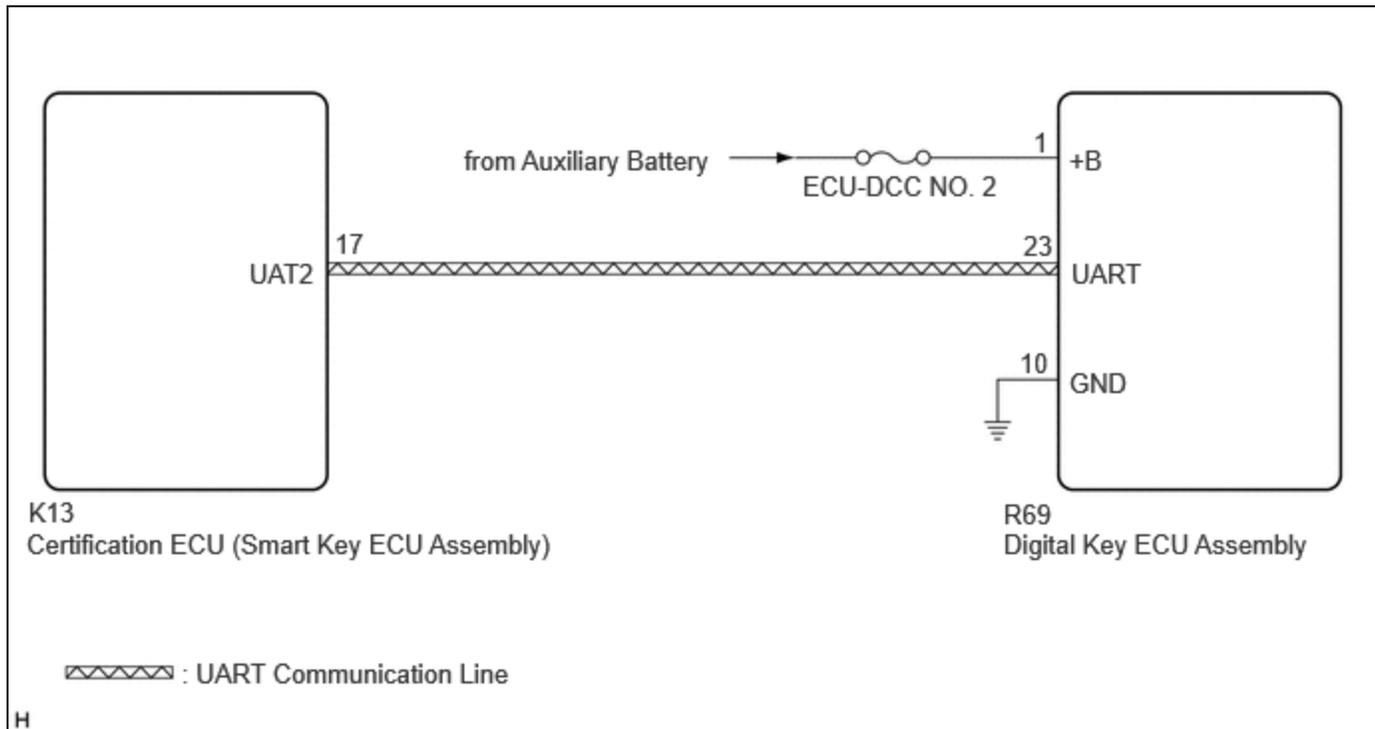
Digital Key Battery Charge Low is not Displayed on the Multi-information Display

DESCRIPTION

To display a low battery voltage notification on the multi-information display in the combination meter assembly, it is necessary to set the display setting to ON in the digital key application customize settings.

If not displayed even when the display setting is set to ON, there may be a malfunction in the communication system between the combination meter assembly and certification ECU (smart key ECU assembly), the communication system between the certification ECU (smart key ECU assembly) and digital key ECU assembly, or the digital key.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- Before performing troubleshooting of the vehicle, refer to Precautions for Inspection or Registration to check for a cause of the malfunction which is not related to vehicle settings or vehicle components.

Click here [INFO](#)

- Perform troubleshooting with the electrical key transmitter sub-assembly not inside the detection area of the smart key system.
- Make sure that no DTCs are output. If any DTCs are output, proceed to Diagnostic Trouble Code Chart.
- If the digital key system has been disabled, enable the system before performing troubleshooting.

Click here [INFO](#)

- Before replacing the certification ECU (smart key ECU assembly) or digital key ECU assembly, refer to Registration.

[Click here](#) INFO

HINT:

It is possible to check the digital key low battery warning history by using the GTS and reading the Vehicle Control History (RoB): Warning Operation History / Digital Key Low Battery Warning

[Click here](#) INFO

PROCEDURE

1. CHECK COMBINATION METER ASSEMBLY (Start Indicator Function)

(a) Use the GTS and set the Start Indicator Function to ON.

Smart Key / Access

TESTER DISPLAY	DESCRIPTION	DEFAULT	SETTING	ECU
Start Indicator Function	Function that turns the entry warning light on the combination meter assembly on or off.	ON	\$00:OFF,\$01:ON	Certification ECU (Smart key ECU assembly)

(b) Turn the ignition switch off.

(c) Check that when all of the following conditions are met, the entry warning light is displayed on the multi-information display in the combination meter assembly.

- The electrical key transmitter sub-assembly is inside the vehicle
- The shift position is P
- The brake pedal is depressed

NG ▶ GO TO SMART KEY SYSTEM (for Start Function) (HOW TO PROCEED WITH TROUBLESHOOTING)

OK
▼

2. CHECK COMBINATION METER ASSEMBLY (LOW BATTERY VOLTAGE NOTIFICATION)

(a) When the digital key battery voltage is low, start the hybrid control system.

NOTICE:

- Make sure there is no electronic device that outputs high-voltage or noise inside or around the vehicle.
- Make sure that the digital key is not covered by or touching a metal object.
- Discharge the battery of the digital key until the low battery voltage advice is displayed.

(b) Check that the low battery voltage notification is displayed on the multi-information display in the combination meter assembly.

OK:

Low battery voltage notification is displayed

NG  **GO TO STEP 4**

OK



3.	CAUSE ANALYSIS
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(a) Using the GTS, check for Vehicle Control History (RoB).

Body Electrical > Smart Key > Utility



(b) Perform cause analysis.

Click here 

(c) Take appropriate action in accordance with the result of the cause analysis.

NEXT  **END**

4.	CHECK ANOTHER DIGITAL KEY
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(a) Check if there is digital key available that is already registered to the vehicle.

RESULT	PROCEED TO
Another registered digital key is not available	A
Another registered digital key is available	B

B  **GO TO STEP 7**

A



5. CHECK USING ANOTHER VEHICLE

(a) Check if another vehicle equipped with digital key system is available

RESULT	PROCEED TO
Vehicle equipped with digital key system not available	A
Vehicle equipped with digital key system available	B

B  **GO TO STEP 14**

A



6. REGISTER NEW SHARE KEY

(a) Register a share key.

HINT:

Refer to the digital key application.

NEXT



7. CHECK COMBINATION METER ASSEMBLY (LOW BATTERY VOLTAGE NOTIFICATION)

(a) Using another registered digital key with low battery voltage, start the hybrid control system.

NOTICE:

- Make sure there is no electronic device that outputs high-voltage or noise inside or around the vehicle.
- Make sure that the digital key is not covered by or touching a metal object.
- Discharge the battery of the digital key until the low battery voltage advice is displayed.

(b) Check that the low battery voltage notification is displayed on the multi-information display in the combination meter assembly.

OK:

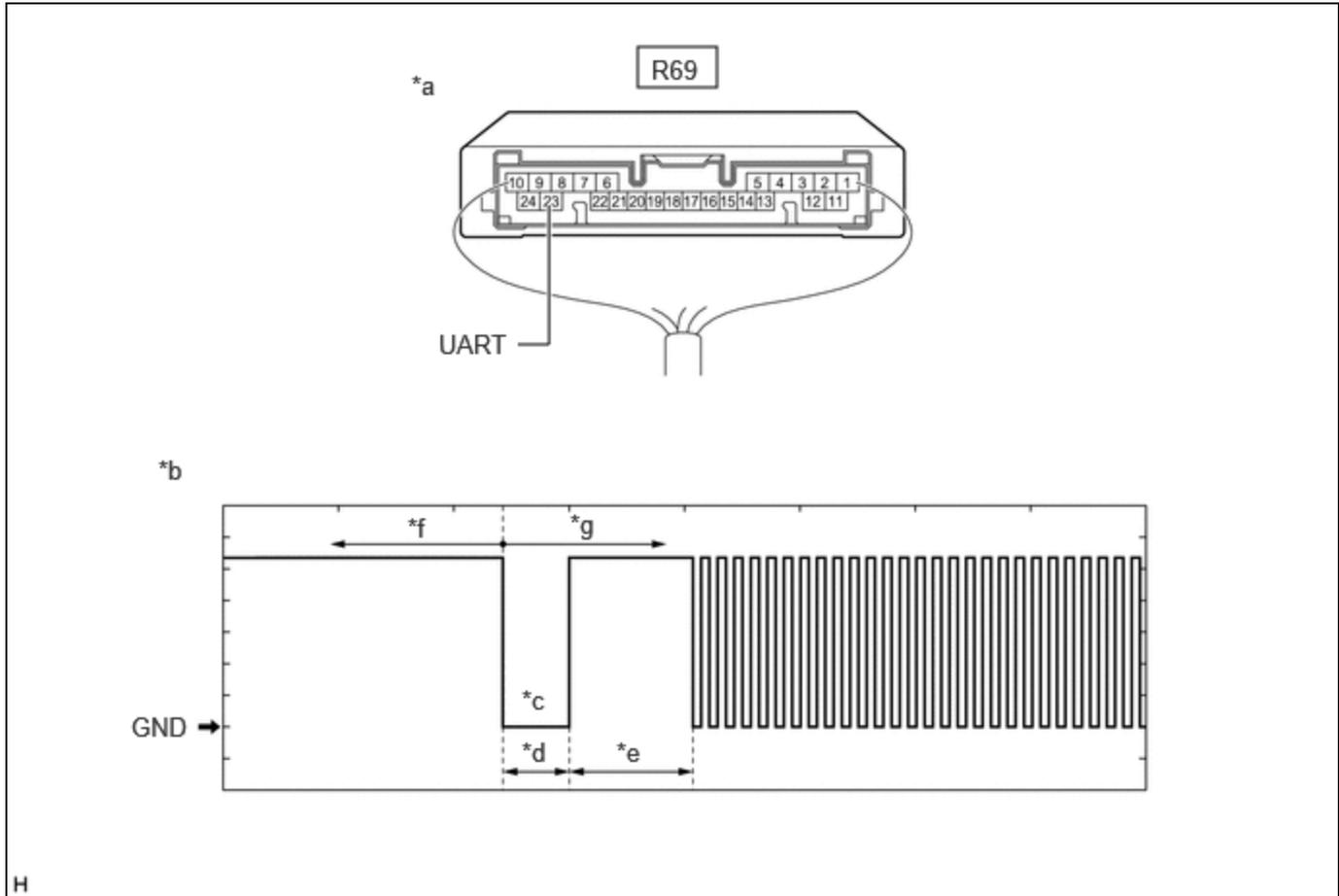
Low battery voltage notification is displayed

OK  **END (PERFORM TROUBLESHOOTING ON ORIGINAL DIGITAL KEY)**



8. CHECK DIGITAL KEY ECU ASSEMBLY (TERMINAL UART)

(a) Using an oscilloscope, check the waveform.



*a	Component with harness connected (Digital Key ECU Assembly)	*b	Waveform
*c	Wakeup signal from digital key ECU assembly	*d	Approximately 15 ms.
*e	15 to 50 ms.	*f	Before door lock/unlock operation using digital key
*g	After door lock/unlock operation using digital key	-	-

NOTICE:

The waveform shown in the illustration is an example for reference only. Noise, chattering, etc. are not shown.

OK:



[Click Location & Routing\(R69\)](#)

[Click Connector\(R69\)](#)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
R69-23 (UART) - Body ground	All of the following conditions are met: <ul style="list-style-type: none"> Ignition switch off Door lock/unlock operation has been not performed via digital key → performed 	2 V/DIV., 20 ms./DIV.	Pulse generation (See waveform)

RESULT	PROCEED TO
OK (Normal Waveform)	A
NG (No Wakeup Signal)	B
NG (Normal Waveform Not Output)	C
NG (Stuck Low)	D

B ▶ REPLACE DIGITAL KEY ECU ASSEMBLYClick here [INFO](#)**C ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**Click here [INFO](#)**D ▶ GO TO STEP 13****A****9. REPLACE DIGITAL KEY ECU ASSEMBLY**

(a) Replace the digital key ECU assembly with a new one.

Click here [INFO](#)**NEXT**

10. REGISTER DIGITAL KEY CODE

(a) Register the digital key code to the digital key ECU assembly.

Click here [INFO](#)

NEXT**11. REGISTER NEW OWNER KEY**

(a) Register the owner key using the original digital key.

HINT:

Refer to the digital key application.

NEXT**12. CHECK COMBINATION METER ASSEMBLY (LOW BATTERY VOLTAGE NOTIFICATION)**

(a) Using a newly registered digital key with low battery voltage, start the hybrid control system.

NOTICE:

- Make sure there is no electronic device that outputs high-voltage or noise inside or around the vehicle.
- Make sure that the digital key is not covered by or touching a metal object.
- Discharge the battery of the digital key until the low battery voltage advice is displayed.

(b) Check that the low battery voltage notification is displayed on the multi-information display in the combination meter assembly.

OK:

Low battery voltage notification is displayed

OK ► **END (DIGITAL KEY ECU ASSEMBLY WAS DEFECTIVE)**

NG ► **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

Click here [INFO](#)

13. INSPECT CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Disconnect the R69 digital key ECU assembly connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:



[Click Location & Routing\(R69\)](#)

[Click Connector\(R69\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R69-23 (UART) - Body ground	Ignition switch off	11 to 14 V

OK ▶ **REPLACE DIGITAL KEY ECU ASSEMBLY**

Click here [INFO](#)

NG ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

Click here [INFO](#)

14.	REGISTER NEW SHARE KEY
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(a) Register the digital key with which the power source mode could not be changed to another vehicle equipped with a digital key system as the share key.

HINT:

Refer to the digital key application.

NEXT



15.	CHECK COMBINATION METER ASSEMBLY (LOW BATTERY VOLTAGE NOTIFICATION)
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(a) Use another vehicle equipped with the digital key system, and start the hybrid control system when the digital key battery voltage is low.

NOTICE:

- Make sure there is no electronic device that outputs high-voltage or noise inside or around the vehicle.
- Make sure that the digital key is not covered by or touching a metal object.
- Discharge the battery of the digital key until the low battery voltage advice is displayed.

(b) Check that the low battery voltage notification is displayed on the multi-information display in the combination meter assembly.

OK:

Low battery voltage notification is displayed

OK ▶ **GO TO STEP 9**

NG  **END (PERFORM TROUBLESHOOTING ON ORIGINAL DIGITAL KEY)**

