

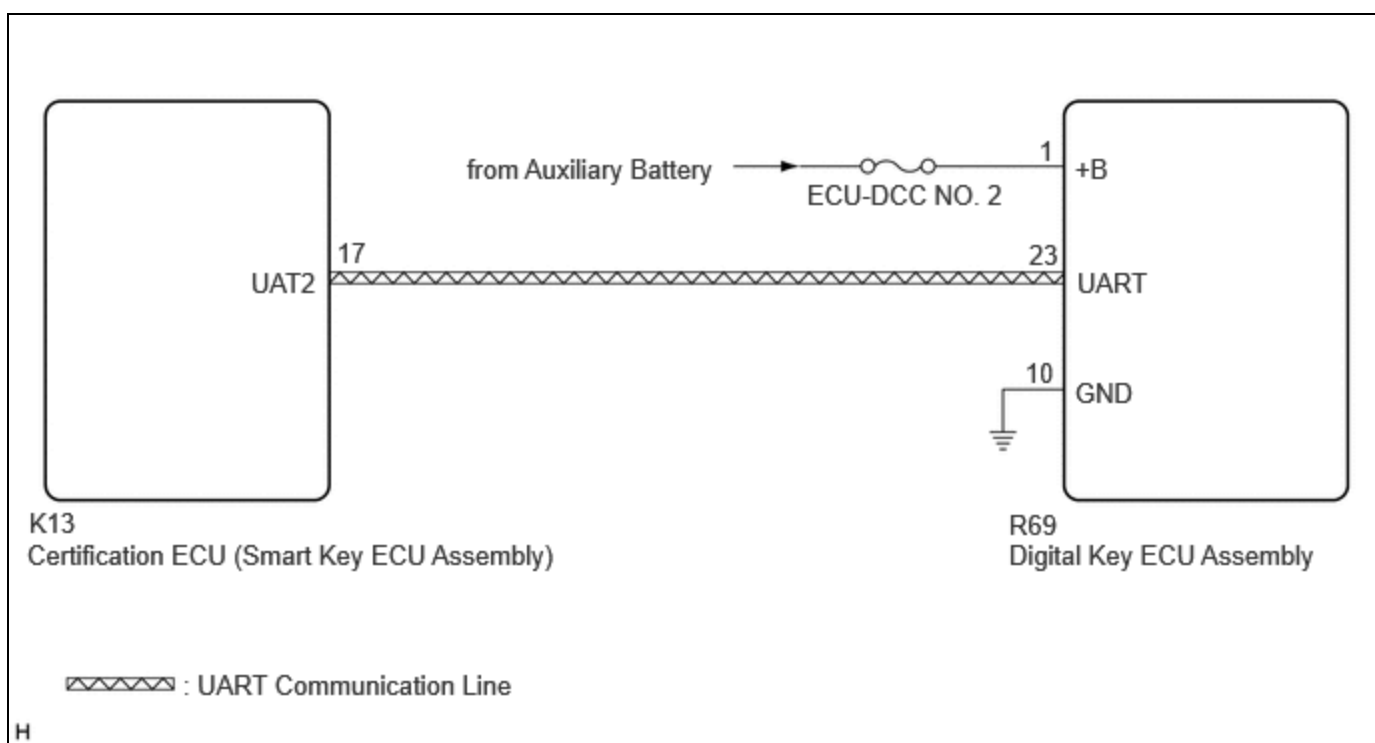
Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM1000000290CD
Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: THEFT DETERRENT / KEYLESS ENTRY: DIGITAL KEY SYSTEM: All Door Entry Lock/Unlock Functions do not Operate, but Wireless Functions Operate; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

All Door Entry Lock/Unlock Functions do not Operate, but Wireless Functions Operate

DESCRIPTION

When the digital key entry function does not operate, there may be a malfunction in the communication system between the certification ECU (smart key ECU assembly) and digital key ECU assembly, or in 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.
- When using the digital key to perform door lock/unlock with the entry function, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

Click here [INFO](#)

- 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](#)

- Inspect the fuses for circuits related to this system before performing the following procedure.
- Cancel power saving mode 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](#)

PROCEDURE

1. CHECK CUSTOMIZE SETTING USING GTS

(a) Select the setting by referring to the table below.

Smart Key / Access

TESTER DISPLAY	DESCRIPTION	DEFAULT	SETTING	ECU
Auto Entry Cancel 2 Setting	Function that only prevents locking of the doors.	OFF	\$00:OFF,\$04:ON	Certification ECU (Smart key ECU assembly)

RESULT	PROCEED TO
Smart key system has not been canceled	A
Smart key system has been canceled	B

B ▶ PERFORM CUSTOMIZE FUNCTION

A



2. CHECK SMART KEY SYSTEM (for Entry Function)

(a) Check the smart key system (for entry function).

Click here [INFO](#)

OK:

Smart key system (for Entry Function) operates properly

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

OK



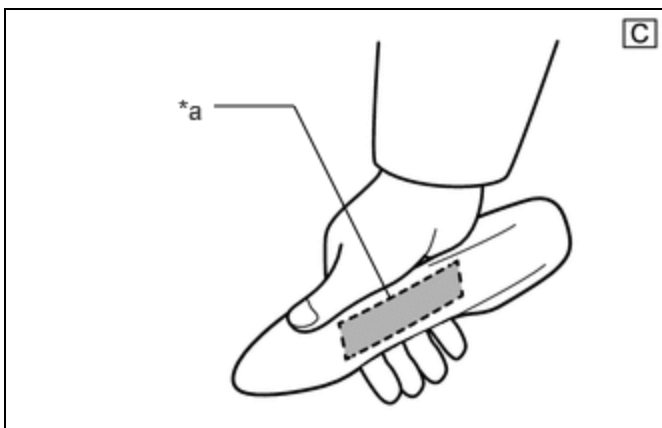
3.

CHECK ENTRY FUNCTION AND WIRELESS FUNCTION (DRIVER DOOR / FRONT PASSENGER DOOR / BACK DOOR)

(a) Check whether it is possible to use the digital key to perform door lock/unlock with the entry function.

(1) Check the entry unlock function (driver door, front passenger door).

1. Turn the ignition switch off.
2. Open and close the driver door.
3. From outside the vehicle, press the lock switch displayed on the digital key and lock all doors.
4. Hold the key in your hand and hold your hand inside the digital key detection range. Then grip the sensor on the reverse side of the door outside handle for 2 seconds or longer.*



*a	Unlock Sensor (Backside)
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The illustrations shown are examples only.

*: Perform this step 3 seconds or more after performing step (3).

NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

[Click here](#) INFO

- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

[Click here](#) INFO

HINT:

- When checking the operation of the unlock sensor again, make sure to perform the procedure from step (1).
- Inspect the front passenger door using the same procedure.

(2) Check the entry lock function (driver door, front passenger door).

1. Turn the ignition switch off.
2. Open and close the driver door.
3. Hold the key in your hand and hold your hand inside the digital key detection range. Then touch the lock sensor on the surface of the

door outside handle (indentation on the door outside handle) with multiple fingers for 2 seconds or longer.

NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

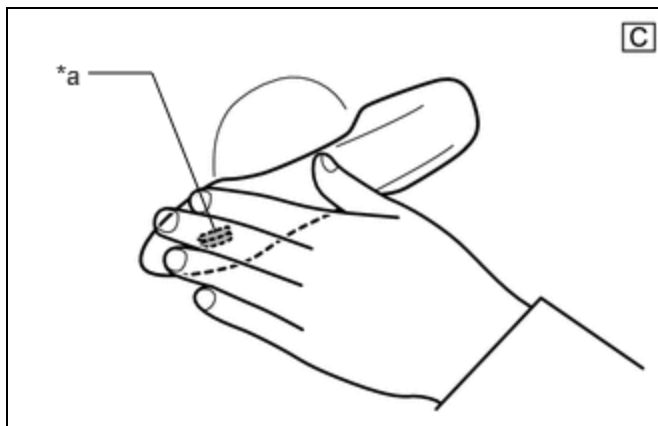
Click here [INFO](#)

- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

Click here [INFO](#)

HINT:

- If the door does not lock even when touching the lock sensor for 2 seconds or more, touch it with your palm.
- When checking the operation of the lock sensor again, make sure to perform the procedure from step (1).
- When checking the operation of the entry lock function several times, it can be operated up to 2 times consecutively. To operate the function 3 times or more consecutively, the doors need to be unlocked once. However, this is only for the entry lock function, other door lock operations, such as a wireless door lock operation can be performed consecutively.
- Inspect the front passenger door using the same procedure.



*a	Lock Sensor
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(3) Check the entry back door open function.

- With the back door closed and locked, hold the digital key in your hand and hold your hand inside the digital key detection range. Then operate the open switch.

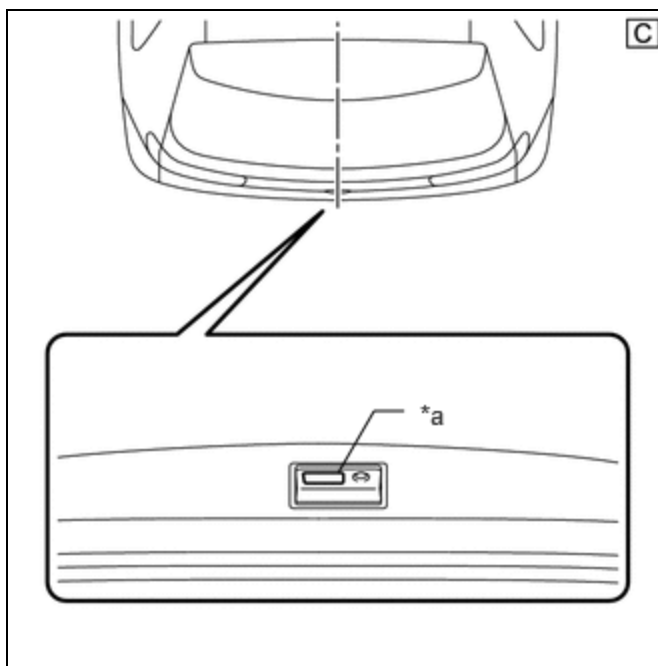
NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

Click here [INFO](#)

- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

Click here [INFO](#)



*a	Back Door Opener Switch Assembly (Open Switch)
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(4) Check the entry back door lock function.

1. With the back door closed and unlocked, hold the digital key in your hand and hold your hand inside the digital key detection range. Then operate the lock switch.

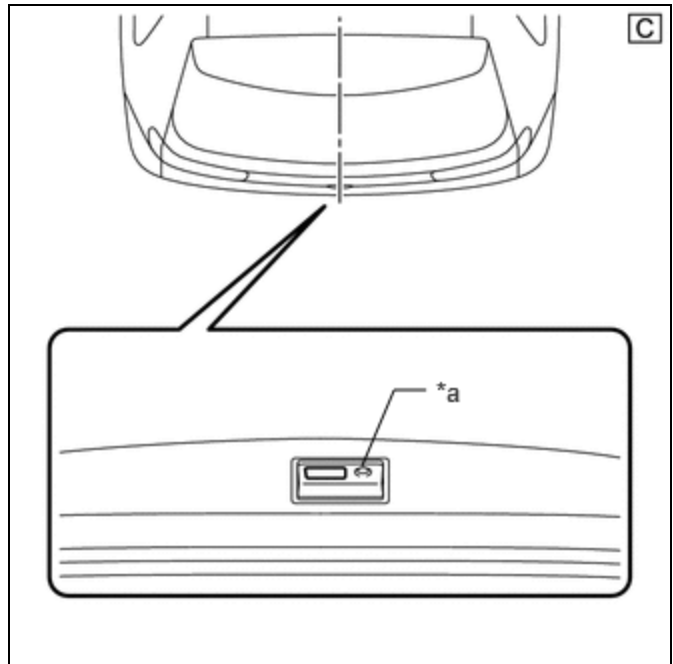
NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

[Click here](#) INFO

- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

[Click here](#) INFO



*a	Back Door Opener Switch Assembly (Lock Switch)
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(5) Check the wireless function.

[Click here](#) INFO

RESULT	PROCEED TO
All door entry function and wireless function operate	A
All door entry function does not operate, but wireless function operates	B
All door entry function and wireless function do not operate	C
Entry function does not operate for one or more doors, but wireless function operates	

B ▶ **GO TO STEP 5**

C ▶ **GO TO OTHER PROBLEM**

A
▼

4. CAUSE ANALYSIS

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

Body Electrical > Smart Key > Utility



(b) Perform cause analysis.

Click here [INFO](#)

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

NEXT  **END**

5. CHECK DIGITAL KEY DIAGNOSTIC MODE (DRIVER DOOR / FRONT PASSENGER DOOR / BACK DOOR)

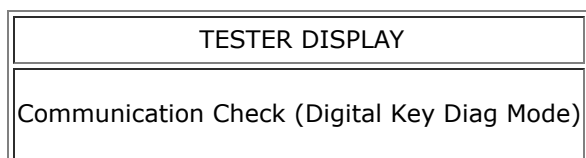
NOTICE:

With only one digital key connected to BLE, perform inspection in digital key diagnostic mode.

(a) Check the BLE door digital key receiver assembly (for driver door) in digital key diagnostic mode.

(1) Using the GTS, select Body Electrical / Smart Key / Utility / Communication Check (Digital Key Diag Mode) / Digital key driver door outside area

Body Electrical > Smart Key > Utility



(2) Hold the digital key in your hand, and hold your hand inside the digital key detection range. Check that the wireless buzzer sounds.

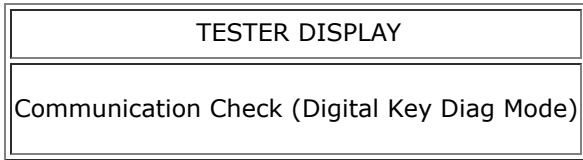
NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.
- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

(b) Check the BLE door digital key receiver assembly (for front passenger door) in digital key diagnostic mode.

(1) Using the GTS, select Body Electrical / Smart Key / Utility / Communication Check (Digital Key Diag Mode) / Digital key passenger door outside area

Body Electrical > Smart Key > Utility



(2) Hold the digital key in your hand, and hold your hand inside the digital key detection range. Check that the wireless buzzer sounds.

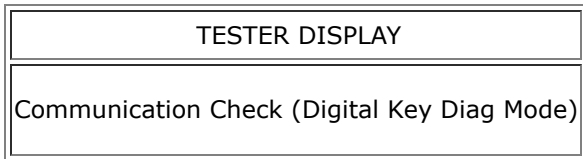
NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.
- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

(c) Check the BLE luggage digital key receiver assembly in digital key diagnostic mode.

(1) Using the GTS, select Body Electrical / Smart Key / Utility / Communication Check (Digital Key Diag Mode) / Digital key back door/trunk lid outside area

Body Electrical > Smart Key > Utility



(2) Hold the digital key in your hand, and hold your hand inside the digital key detection range. Check that the wireless buzzer sounds.

NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.
- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

[Click here](#) INFO

RESULT	PROCEED TO
Wireless buzzer sounds in all operation ranges	A
Wireless buzzer fails to sound in all operation ranges	B
Wireless buzzer does not sound in a particular operation range	C

A **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

[Click here](#) INFO

C **GO TO OTHER PROBLEM**

B

6.	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 9**

A

7.	CHECK USING ANOTHER VEHICLE
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(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 16**

A

8.	REGISTER NEW SHARE KEY
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(a) Register a share key.

HINT:

Refer to the digital key application.

NEXT**9. CHECK ENTRY FUNCTION (DRIVER DOOR / FRONT PASSENGER DOOR / BACK DOOR)**

(a) Using another registered digital key, check whether the entry function operates.

NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.
- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

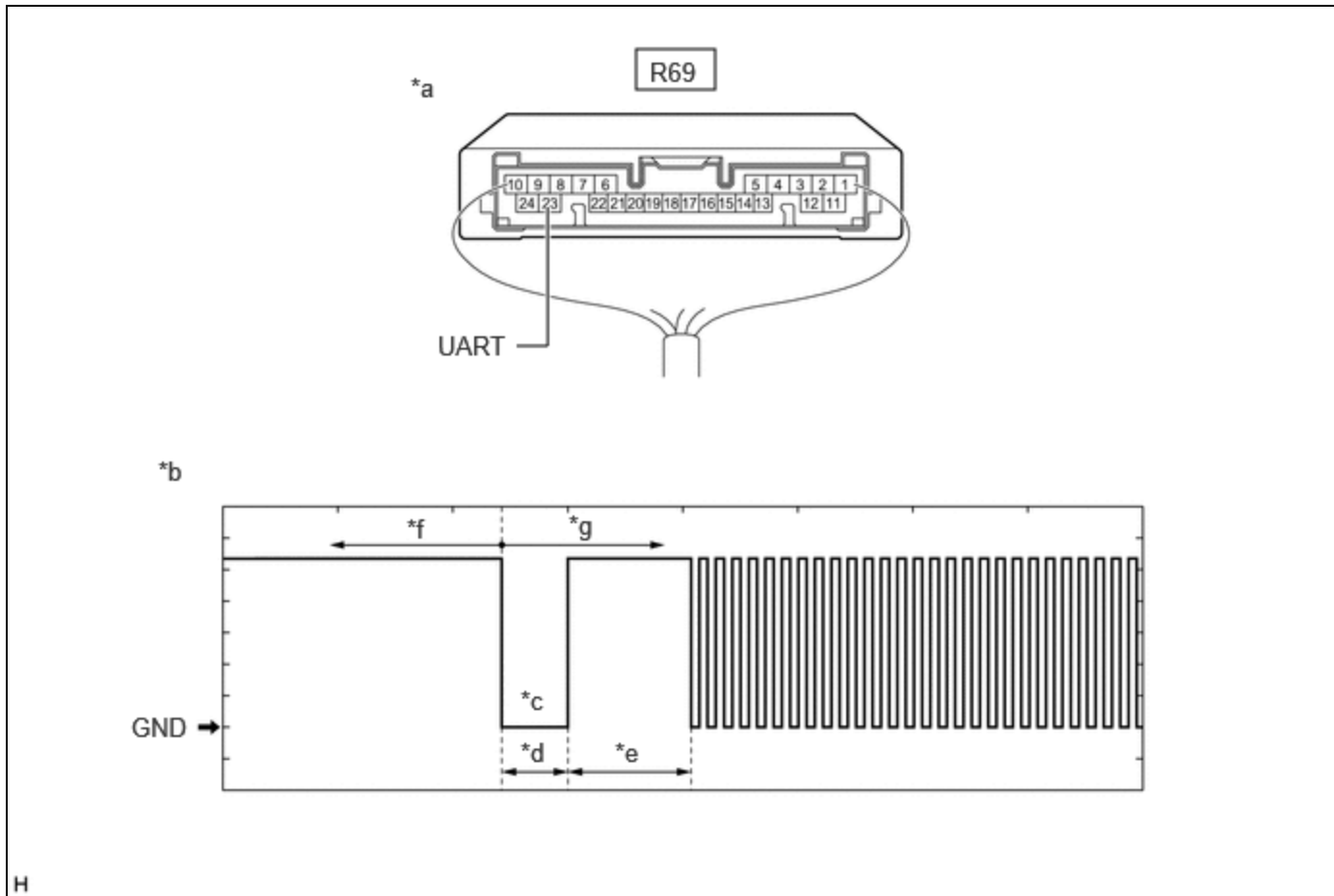
OK:

Entry function operates

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

NG**10. 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 ASSEMBLY

Click here [INFO](#)

C ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

Click here [INFO](#)

D ▶ GO TO STEP 15

A



11.	REPLACE DIGITAL KEY ECU ASSEMBLY
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(a) Replace the digital key ECU assembly with a new one.

Click here [INFO](#)

NEXT



12.	REGISTER DIGITAL KEY CODE
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(a) Register the digital key code to the digital key ECU assembly.

Click here [INFO](#)

NEXT



13. REGISTER NEW OWNER KEY

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

HINT:

Refer to the digital key application.

NEXT**14. CHECK ENTRY FUNCTION (DRIVER DOOR / FRONT PASSENGER DOOR / BACK DOOR)**

(a) Using another registered digital key, check whether the entry function operates.

NOTICE:

- For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.
- Refer to Precautions for Inspection or Registration regarding the digital key and surrounding environment.

OK:

Entry function operates

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

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

Click here [INFO](#)

15. 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](#)**16. REGISTER NEW SHARE KEY**

- (a) Take a digital key where the entry function does not operate, and register it as a share key of another vehicle equipped with the digital key system.

HINT:

Refer to the digital key application.

NEXT**17. CHECK ENTRY FUNCTION (DRIVER DOOR / FRONT PASSENGER DOOR / BACK DOOR)**

- (a) Using the other vehicle equipped with the digital key system, check whether the entry function operates.

NOTICE:

For details on the digital key detection range, refer to Precautions for Outside Vehicle Digital Key Detection Range/Diagnostic Range.

OK:

The entry function operates

OK ▶ **GO TO STEP 10****NG** ▶ **END (PERFORM TROUBLESHOOTING ON ORIGINAL DIGITAL KEY)**