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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: THEFT DETERRENT / KEYLESS ENTRY: SMART KEY SYSTEM (for Start Function): B27A713; Rear Floor 2 Electrical Key Oscillator Circuit Open; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	B27A713	Rear Floor 2 Electrical Key Oscillator Circuit Open
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DESCRIPTION

The certification ECU (smart key ECU assembly) generates a request signal and transmits the signal to the No. 2 indoor electrical key antenna assembly (rear floor). For the No. 2 indoor electrical key antenna assembly (rear floor) to detect when the electrical key transmitter sub-assembly is in the cabin, the signal from the certification ECU (smart key ECU assembly) requesting a response from the electrical key transmitter sub-assembly is transmitted inside the vehicle. DTC B27A713 is stored by the certification ECU (smart key ECU assembly) when an open is detected between the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY	NOTE
B27A713	Rear Floor 2 Electrical Key Oscillator Circuit Open	An open is detected in the circuit between the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor) (1 trip detection logic*).	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • No. 2 indoor electrical key antenna assembly (rear floor) • Harness or connector 	Smart Key	A	DTC Output Confirmation Operation: Any time

*: Only output while a malfunction is present.

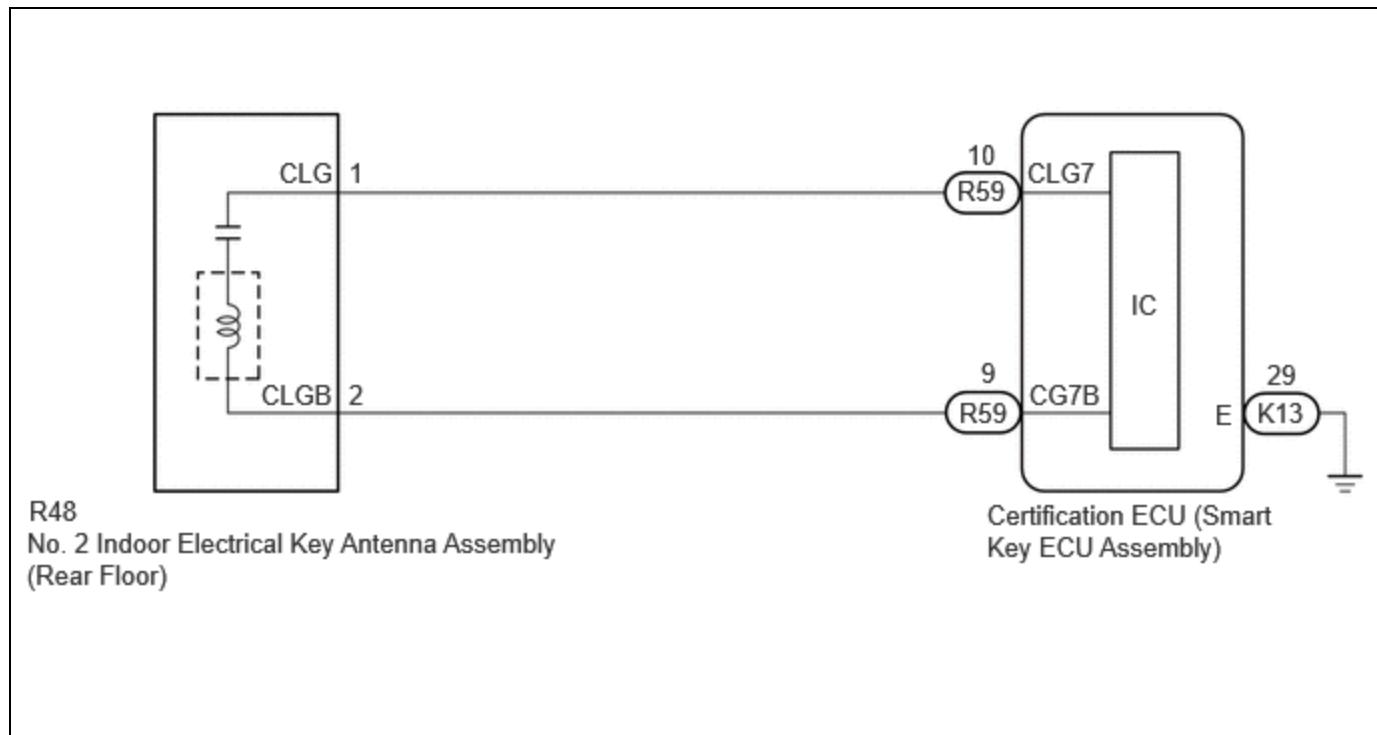
Vehicle Condition and Fail-safe Operation when Malfunction Detected

VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE OPERATION WHEN MALFUNCTION DETECTED
When electrical key transmitter sub-assembly is in rear floor: <ul style="list-style-type: none"> • Power source mode does not charge when power switch pressed • Electrical key transmitter sub-assembly locked inside vehicle 	-

Related Data List and Active Test

DTC NO.	DATA LIST AND ACTIVE TEST
B27A713	Key diagnostic mode can be used to perform troubleshooting

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- 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.

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- 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.

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

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

PROCEDURE

1.	CHECK CONNECTOR CONNECTION
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- (a) Check that the connectors are properly connected to the certification ECU (smart key ECU assembly) and No. 2 indoor electrical key antenna assembly (rear floor).

OK:

Connectors are properly connected.

NG  **CONNECT CONNECTORS PROPERLY**

OK



2.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR))
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Pre-procedure1

- (a) Disconnect the R59 certification ECU (smart key ECU assembly) connector.
 (b) Disconnect the R48 No. 2 indoor electrical key antenna assembly (rear floor) connector.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(R59,R48\).](#)

[Click Connector\(R59\).](#)

[Click Connector\(R48\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R59-10 (CLG7) - R48-1 (CLG)	Always	Below 1 Ω	Ω
R59-9 (CG7B) - R48-2 (CLGB)	Always	Below 1 Ω	Ω

Post-procedure1

- (d) Connect the R59 certification ECU (smart key ECU assembly) connector.

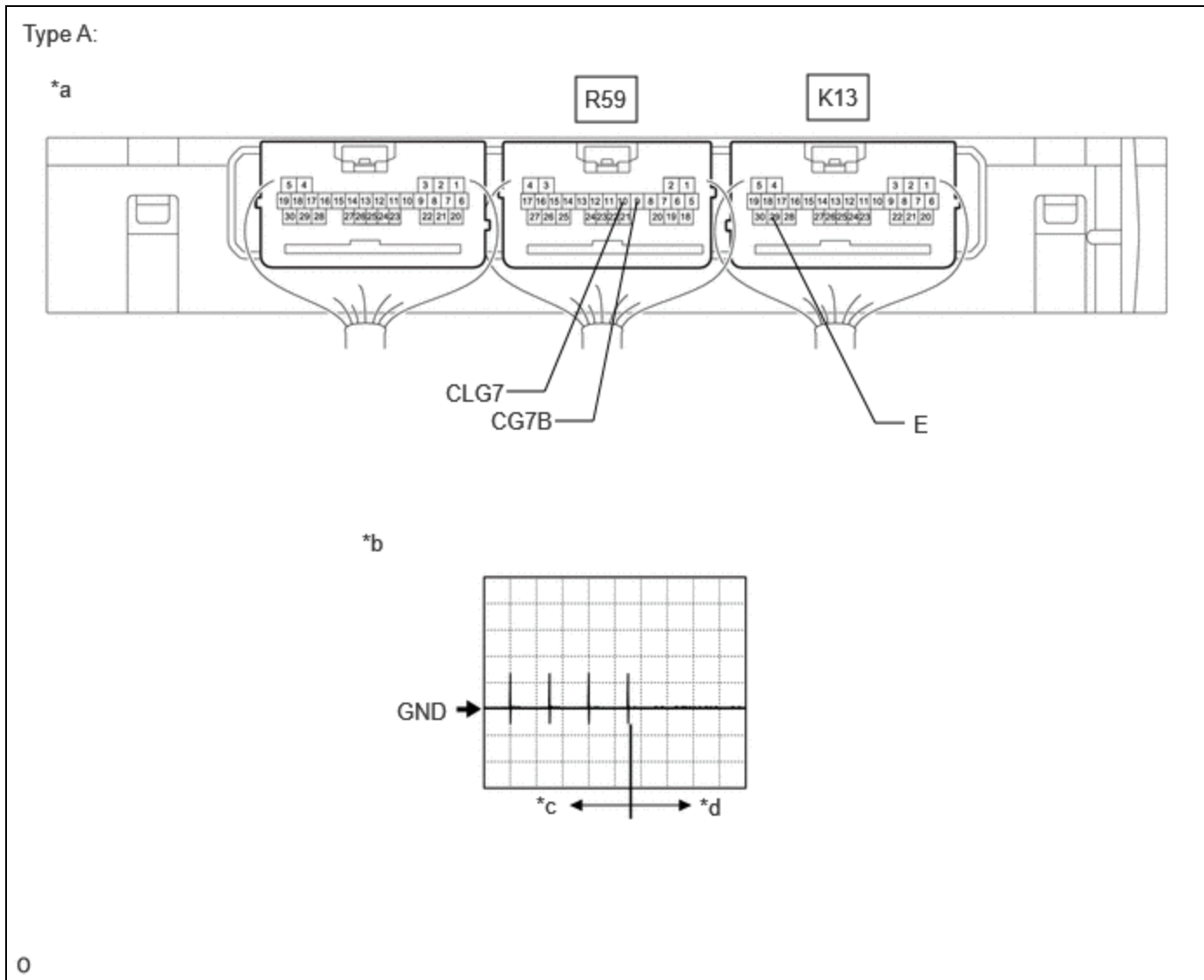
NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

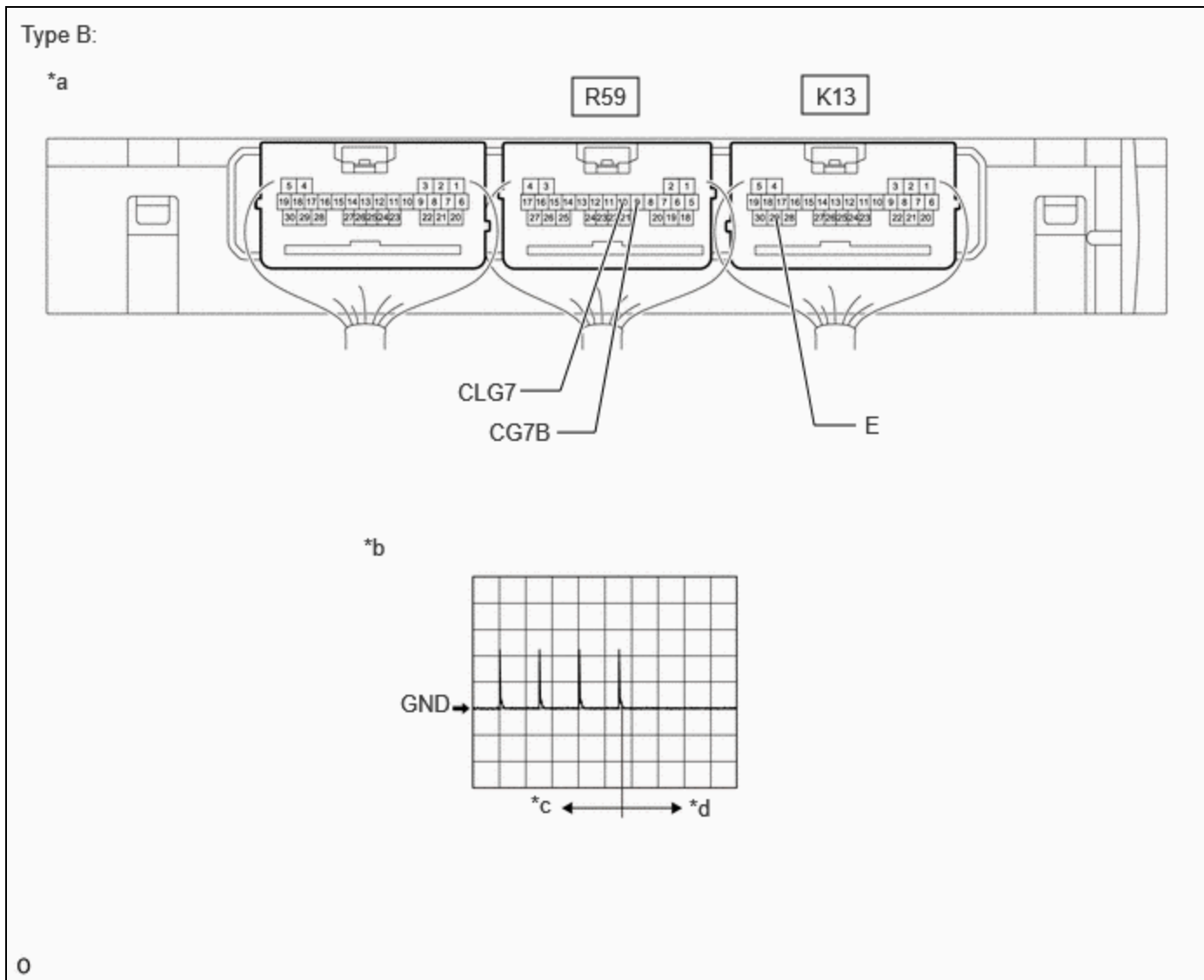


3.	CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR))
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(a) Using an oscilloscope, check the waveform.



*a	Component with harness connected (Certification ECU (Smart Key ECU Assembly))	*b	Waveform
*c	For 30 seconds after any door closed	*d	After 30 seconds or more have elapsed since any door closed



*a	Component with harness connected (Certification ECU (Smart Key ECU Assembly))	*b	Waveform
*c	For 30 seconds after any door closed	*d	After 30 seconds or more have elapsed since any door closed

OK:



[Click Location & Routing\(R59,K13\)](#)

[Click Connector\(R59\)](#)

[Click Connector\(K13\)](#)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
R59-10 (CLG7) - K13-29 (E)	Procedure: 1. Ignition switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door	5 V/DIV., 500 ms./DIV.	Pulse generation (See waveform)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
R59-9 (CG7B) - K13-29 (E)	Procedure: <ol style="list-style-type: none"> 1. Ignition switch off 2. Electrical key transmitter sub-assembly not inside vehicle 3. Within 30 seconds of closing any door 	5 V/DIV., 500 ms./DIV.	Pulse generation (See waveform)

OK ▶ **REPLACE NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY (REAR FLOOR)**

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

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