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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 Entry Function): B27A813; Outside Luggage Compartment (Back Door) Electrical key Antenna Circuit Open; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	B27A813	Outside Luggage Compartment (Back Door) Electrical key Antenna Circuit Open
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DESCRIPTION

The certification ECU (smart key ECU assembly) generates a request signal and transmits the signal to the electrical key antenna (outside luggage compartment). For the electrical key antenna (outside luggage compartment) to detect when the electrical key transmitter sub-assembly is brought close to the vehicle, the received request signal is transmitted within approximately 1 m (3.28 ft.) of the back door. DTC B27A813 is stored by the certification ECU (smart key ECU assembly) when an open is detected between the certification ECU (smart key ECU assembly) and electrical key antenna (outside luggage compartment).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY	NOTE
B27A813	Outside Luggage Compartment (Back Door) Electrical key Antenna Circuit Open	An open is detected in the circuit between the certification ECU (smart key ECU assembly) and electrical key antenna (outside luggage compartment) (1 trip detection logic*).	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key antenna (outside luggage compartment) Harness or connector 	Smart Key	A	DTC Output Confirmation Operation: Any time

*: Only output while a malfunction is present and the ignition switch is ON.

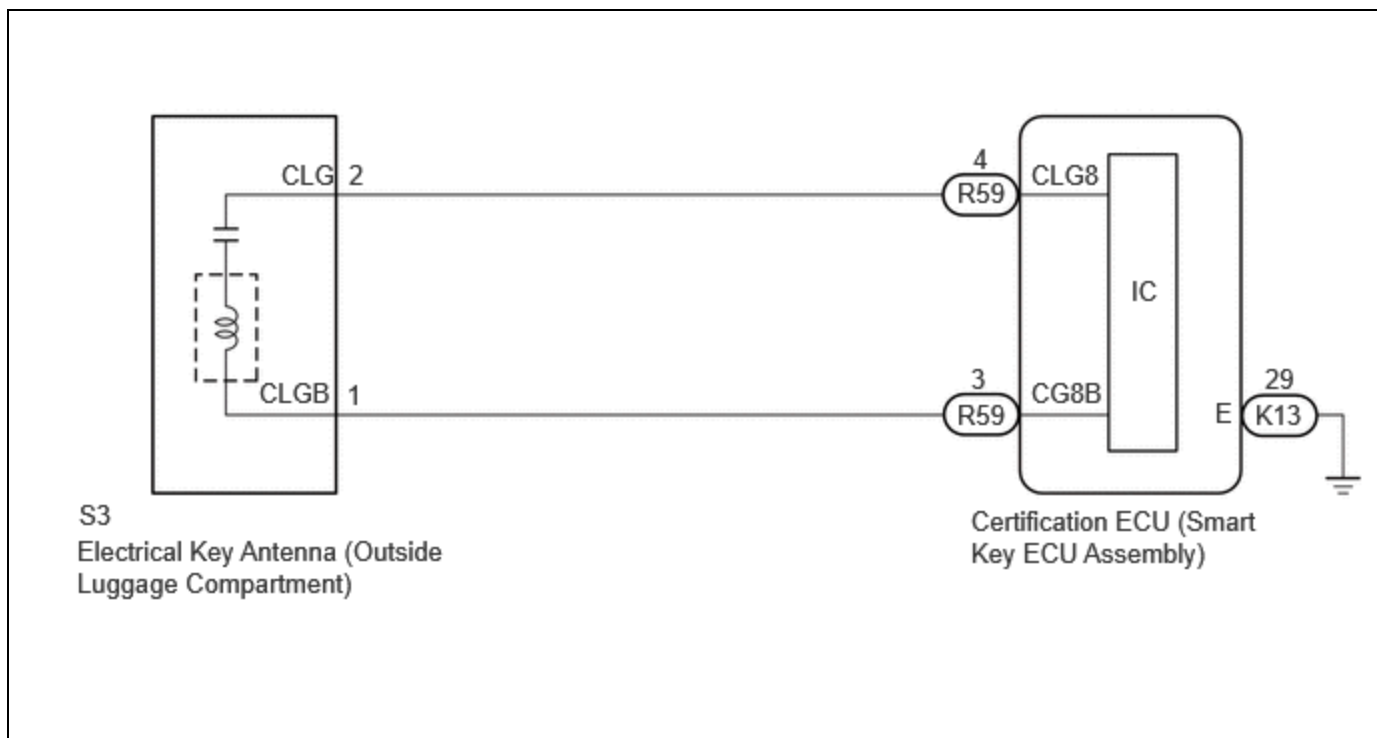
Vehicle Condition and Fail-safe Operation when Malfunction Detected

VEHICLE CONDITION WHEN MALFUNCTION DETECTED	FAIL-SAFE OPERATION WHEN MALFUNCTION DETECTED
Entry lock/unlock operation cannot be performed for back door	-

Related Data List and Active Test

DTC NO.	DATA LIST AND ACTIVE TEST
B27A813	Key diagnostic mode can be used to perform troubleshooting

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 Entry Function) uses the CAN communication system. Inspect the communication function by following How to Proceed with Troubleshooting. Troubleshoot the smart key system (for Entry Function) after confirming that the communication systems are functioning properly.

[Click here](#) INFO

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

[Click here](#) INFO

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

PROCEDURE

1. CHECK CONNECTOR CONNECTION

- (a) Check that the connectors are properly connected to the certification ECU (smart key ECU assembly) and electrical key antenna (outside luggage compartment).

OK:

Connectors are properly connected.

NG **CONNECT CONNECTORS PROPERLY**

OK
▼

2. CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - ELECTRICAL KEY ANTENNA (OUTSIDE LUGGAGE COMPARTMENT))

Pre-procedure1

- (a) Disconnect the R59 certification ECU (smart key ECU assembly) connector.
- (b) Disconnect the S3 electrical key antenna (outside luggage compartment) connector.

Procedure1

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

Standard Resistance:



[Click Location & Routing\(R59,S3\).](#)

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

[Click Connector\(S3\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R59-4 (CLG8) - S3-2 (CLG)	Always	Below 1 Ω	Ω
R59-3 (CG8B) - S3-1 (CLGB)	Always	Below 1 Ω	Ω

Post-procedure1

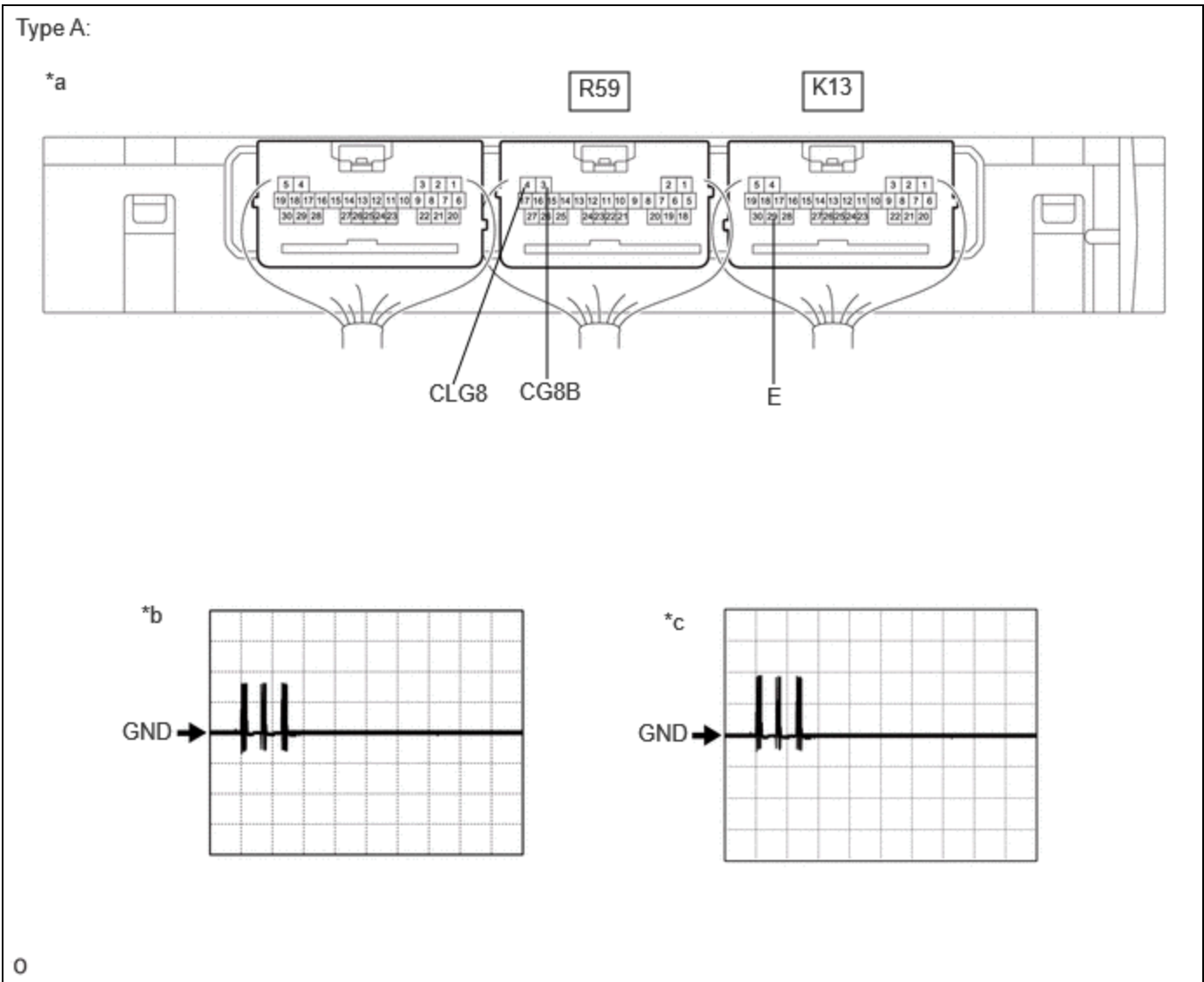
- (d) Connect the R59 certification ECU (smart key ECU assembly) connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

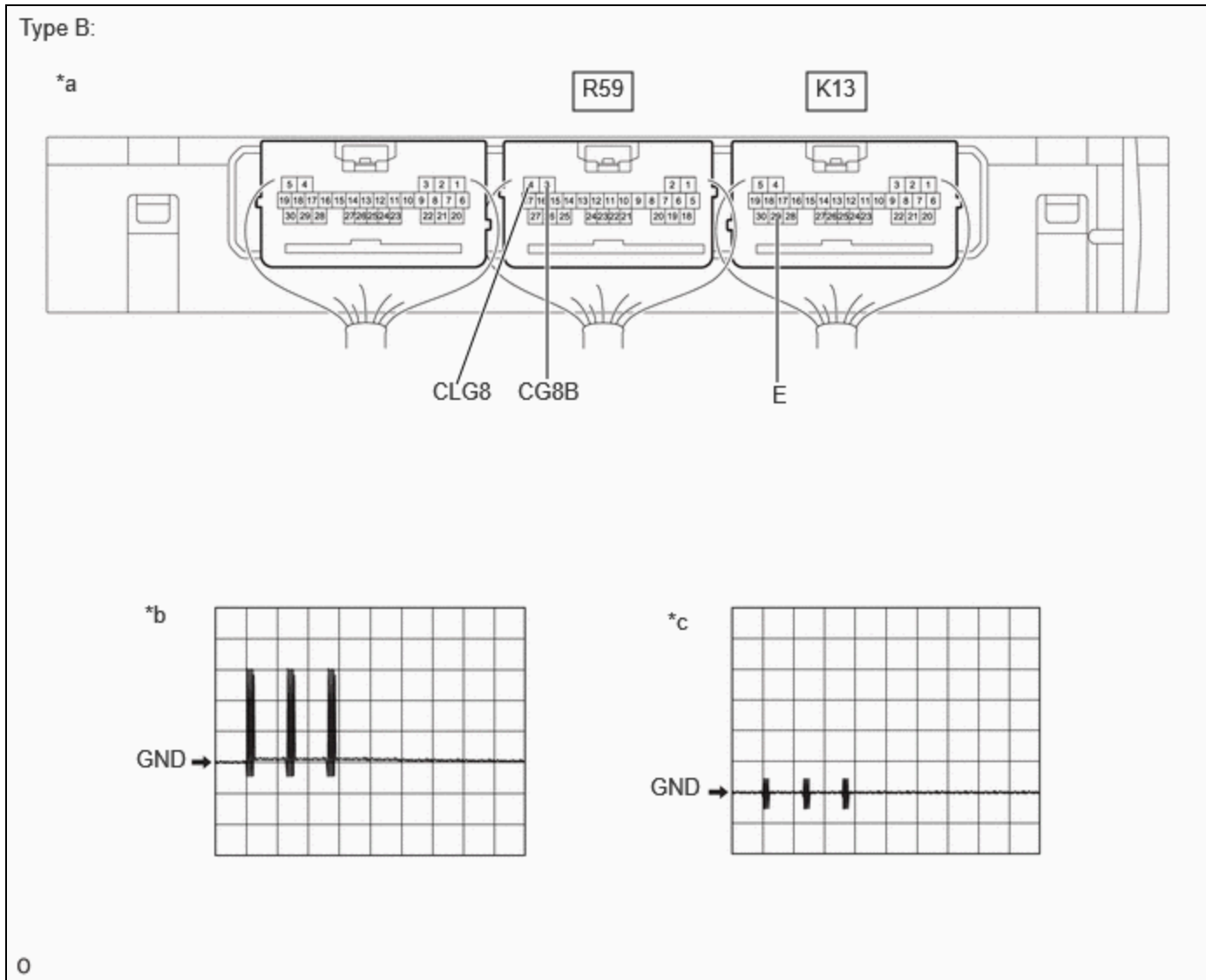
OK
▼

3. CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) (OUTPUT TO ELECTRICAL KEY ANTENNA (OUTSIDE LUGGAGE COMPARTMENT))

- (a) Using an oscilloscope, check the waveform.



*a	Component with harness connected (Certification ECU (Smart Key ECU Assembly))	*b	Waveform 1
*c	Waveform 2	-	-



*a	Component with harness connected (Certification ECU (Smart Key ECU Assembly))	*b	Waveform 1
*c	Waveform 2	-	-

OK:



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

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

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

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
R59-4 (CLG8) - K13-29 (E)	Procedure: <ol style="list-style-type: none"> 1. Ignition switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors closed 	5 V/DIV., 50 ms./DIV.	Pulse generation (See waveform 1)

TESTER CONNECTION	CONDITION	TOOL SETTING	SPECIFIED CONDITION
	4. Back door opener switch assembly off → on		
R59-3 (CG8B) - K13-29 (E)	Procedure: 1. Ignition switch off 2. Electrical key transmitter sub-assembly brought outside vehicle 3. All doors closed 4. Back door opener switch assembly off → on	5 V/DIV., 50 ms./DIV.	Pulse generation (See waveform 2)

OK ► **REPLACE ELECTRICAL KEY ANTENNA (OUTSIDE LUGGAGE COMPARTMENT)**

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

Click here [INFO](#)

