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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): New Key cannot be Registered; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

New Key cannot be Registered

DESCRIPTION

If a new electrical key transmitter sub-assembly could not be registered, wave interference or a malfunction of the certification ECU (smart key ECU assembly), electrical key transmitter sub-assembly, ID code box (immobiliser code ECU), electrical key and tire pressure monitoring system receiver assembly is suspected.

The registration procedure to add another electrical key transmitter sub-assembly (without replacing any parts) is called "additional key ID registration".

If additional registration is not possible, refer to Additional Key cannot be Registered.

Click here [INFO](#)

HINT:

If any of the following have been performed, registration of all electrical key transmitter sub-assemblies is necessary:

- The certification ECU (smart key ECU assembly) has been replaced.
- The certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU) have been replaced.

CAUTION / NOTICE / HINT

NOTICE:

- New registration mode can be entered only when no electrical key transmitter sub-assemblies are stored in the certification ECU (smart key ECU assembly).
- 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.

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- Before replacing the electrical key transmitter sub-assembly, certification ECU (smart key ECU assembly) or ID code box (immobiliser code ECU), refer to Registration.

Click here [INFO](#)

- Inspect the fuses for circuits related to this system before performing the following procedure.
- After repair, confirm that no DTCs are output.
- If registration of an electrical key transmitter sub-assembly cannot be performed, refer to Registration.

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PROCEDURE

1.	CHECK FOR DTC
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(a) Check for DTCs.

Body Electrical > Smart Key > Trouble Codes

NOTICE:

If a malfunction occurs, do not remove/install the vehicle auxiliary battery before checking for DTCs.

OK:

DTCs are not output.

NG **GO TO DIAGNOSTIC TROUBLE CODE CHART**

Click here

OK



2.	READ VALUE USING GTS (NUMBER OF REGISTERED KEY CODES)
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(a) Read the Data List according to the display on the GTS.

Body Electrical > Smart Key > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Number of Registered Key Codes	Number of registered electrical key transmitter sub-assemblies	<p>Type A:</p> <p style="text-align: center;">0 to 7</p> <p>Type B:</p> <p style="text-align: center;">0 to 4</p>	Number of registered electrical key transmitter sub-assemblies	<p>Type A:</p> <p style="text-align: center;">Up to 7 electrical key transmitter sub-assemblies can be registered.</p> <p>Type B:</p> <p style="text-align: center;">Up to 4 electrical key transmitter sub-assemblies can be registered.</p>

Body Electrical > Smart Key > Data List

TESTER DISPLAY
Number of Registered Key Codes

HINT:

A new certification ECU (smart key ECU assembly) will be have no electrical key transmitter sub-assemblies registered.

OK:

"0" is displayed on the GTS display.

NG REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

Click here 

OK



3. READ VALUE USING GTS (VEHICLE CONTROL HISTORY (ROB))

(a) Read the Vehicle Control History (RoB) according to the display on the GTS.

Body Electrical > Smart Key > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(b) Check the freeze frame data.

Registration Function (Reason for Non-operation):

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	PROCEED TO
Cannot Enter Registration Mode	<ul style="list-style-type: none"> A registration request was sent while in another mode. During registration a different registration request was sent. 	Certification ECU (smart key ECU assembly)	A
Cannot Enter Registration Mode (Vehicle ID Not Set)	A vehicle ID has not been registered in the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)	B
Registration Limit	A registration request is sent when the maximum number of electrical key transmitter sub-assemblies has already been registered.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) ID code box (immobiliser code ECU) 	C
Cannot Enter Registration Mode (ID Code Box Availability Not Confirmed)	A registration request was sent even though the existence of an ID code box is unknown.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) 	D

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	PROCEED TO
		<ul style="list-style-type: none"> ID code box (immobiliser code ECU) 	
Cannot Enter Registration Mode (Vehicle Speed > 5 km/h) (This applies only when registration fails even though the vehicle is stationary. Make sure that the vehicle is stationary first.)	A registration request is sent with a vehicle speed of 5 km/h (3 mph) or more.	Certification ECU (smart key ECU assembly)	E
ECU Code Confirmation Failed (No Response from Connected ECUs)	The ID code box (immobiliser code ECU) was not connected.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) ID code box (immobiliser code ECU) 	F
ECU Code Confirmation Failed (L Code Certification Failed)	The L code registered in the ID code box (immobiliser code ECU) is abnormal.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) ID code box (immobiliser code ECU) 	G
ECU Code Confirmation Failed (L Code Succeeded, S Code Failed)	L code verification was successful but the S code stored in the ID code box (immobiliser code ECU) and certification ECU (smart key ECU assembly) did not match.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) ID code box (immobiliser code ECU) 	C
ECU Code Confirmation Failed (Too Many Keys Registered in ID Code Box)	<p>Type A:</p> <p>The number of electrical key transmitter sub-assemblies registered in the ID code box (immobiliser code ECU) was more than 7.</p> <p>Type B:</p> <p>The number of electrical key transmitter sub-assemblies registered in the ID code box (immobiliser code ECU) was more than 4.</p>	ID code box (immobiliser code ECU)	H
Confirmation Failed for All Registered Keys	All of the registered electrical key transmitter sub-assemblies were incorrectly held near the power switch and the certification ECU (smart	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) 	J

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	PROCEED TO
(Immobilizer Certification Failed)	key ECU assembly) could not complete verification.	<ul style="list-style-type: none"> Power switch 	
Confirmation Failed for All Registered Keys (Some Keys Unconfirmed)	Although all of the registered electrical key transmitter sub-assemblies had been held near the power switch, electrical key transmitter sub-assembly registration was not possible due to immobiliser function certification not being successful.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly 	K
Confirmation Failed for All Registered Keys (Key Information Malfunction)	All of the registered electrical key transmitter sub-assemblies were held near the power switch, but key ID information was not stored by the certification ECU (smart key ECU assembly).	Key registration failure	I
New Key ID Registration Failed (Immobilizer Certification Failed)	Although an unregistered electrical key transmitter sub-assembly was held near the power switch, electrical key transmitter sub-assembly registration is not possible due to immobiliser function certification not being successful.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly 	I
New Key ID Registration Failed (Vehicle ID did not Match)	Although an unregistered electrical key transmitter sub-assembly was held near the power switch, electrical key transmitter sub-assembly registration is not possible due to the vehicle ID not being stored successfully.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly 	L
New Key ID Registration Failed (Conditions Other than Vehicle ID not Met)	After successful immobiliser function certification, time expired before smart recognition completion confirmation or a registration cancellation request was sent.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly 	L
New Key ID Registration Failed (Key Already Registered)	Although a registered electrical key transmitter sub-assembly was held near the power switch, time expired or a registration cancellation request was sent.	Certification ECU (smart key ECU assembly)	M
New Key ID Registration Failed (ID Code Writing Failed)	Electrical key transmitter sub-assembly registration was not possible due to the certification ECU (smart key ECU assembly) not being able to store the information of the electrical key transmitter sub-assembly to EEPROM correctly.	Certification ECU (smart key ECU assembly)	B
New Key ID Registration Failed (Key Information Malfunction)	An unregistered electrical key transmitter sub-assembly was held near the power switch, but	Key registration failure	L

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	PROCEED TO
	key ID information was not stored by the certification ECU (smart key ECU assembly).		
No Response from Connected ECUs when Registering L/S/F Codes	The certification ECU (smart key ECU assembly) or ID code box (immobiliser code ECU) was not connected.	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • ID code box (immobiliser code ECU) 	F
S Code Registration Failed (Certification ECU, ID Code Box)	The S code could not be stored by the certification ECU (smart key ECU assembly) or ID code box (immobiliser code ECU).	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • ID code box (immobiliser code ECU) 	C
L Code Registration Failed (ID Code Box, Steering Lock ECU)	The L code could not be stored by the ID code box (immobiliser code ECU).	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • ID code box (immobiliser code ECU) 	G
ECU ID Verification Error	The code received from the ID code box (immobiliser code ECU) when the S code is registered does not match the code of the certification ECU (smart key ECU assembly).	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • ID code box (immobiliser code ECU) 	C
Key Number Write Error	The certification ECU (smart key ECU assembly) could not store the number of electrical key transmitter sub-assemblies to EEPROM.	Certification ECU (smart key ECU assembly)	B
ID Code BOX Write Error	The certification ECU (smart key ECU assembly) could not store the information of whether the ID code box was provided in the vehicle to EEPROM.	Certification ECU (smart key ECU assembly)	B
B Code Registration Failed (Certification ECU, Main Body ECU)	ECU code was not stored by the certification ECU (smart key ECU assembly).	<ul style="list-style-type: none"> • Main body ECU (multiplex network body ECU) • Certification ECU (smart key ECU assembly) 	N

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA	PROCEED TO
New Key ID Registration Stopped (Security Access Malfunction)	Communication error	Communication error between the GTS and key registration server	O
New Key ID Registration Stopped (Certification ECU Type Malfunction)	The electrical key transmitter sub-assembly is not compatible with the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)	B
New Key ID Registration Stopped (Key Type Malfunction)	<ul style="list-style-type: none"> The electrical key transmitter sub-assembly is not compatible with the registration mode. The electrical key transmitter sub-assembly is not compatible with the certification ECU (smart key ECU assembly). 	Electrical key transmitter sub-assembly	P

B ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

Click here [INFO](#)

C ▶ GO TO STEP 5

D ▶ CHECK FOR DTC B278D96

E ▶ GO TO STEP 6

F ▶ CHECK FOR DTC B278588

G ▶ GO TO STEP 5

H ▶ REPLACE ID CODE BOX (IMMOBILISER CODE ECU)

Click here [INFO](#)

I ▶ CHECK FOR DTC B27841C, B278E87

Click here [INFO](#)

J ▶ GO TO STEP 7

K ▶ GO TO STEP 11

L ▶ GO TO STEP 13

M ▶ NEW KEY REGISTRATION FAILED, CHECK THE KEY

- (a) Check if a registered electrical key transmitter sub-assembly was held near the power switch instead of an unregistered electrical key transmitter sub-assembly by mistake.
- (b) Perform registration again using an unregistered electrical key transmitter sub-assembly. If the same problem occurs again, replace the certification ECU (smart key ECU assembly).

N ► [GO TO STEP 14](#)

O ► [PERFORM REREGISTRATION](#)

P ► (a) Replace the electrical key transmitter sub-assembly, register the ID.

Click here [REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY](#)



4. CHECK REGISTRATION MODE

(a) Make sure that another mode or different registration mode is not selected.

OK:

Another mode or a different registration mode is not selected.

HINT:

If any mode has been selected, it is necessary to cancel the mode.

OK ► [REPLACE CERTIFICATION ECU \(SMART KEY ECU ASSEMBLY\)](#)

Click here [INFO](#)

NG ► [PERFORM REREGISTRATION](#)

5. REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Temporarily replace the certification ECU (smart key ECU assembly) with a new one and register the electrical key transmitter sub-assemblies.

HINT:

- For replacement.

[Click here](#) INFO

- For registration.

[Click here](#) INFO

OK:

All of the electrical key transmitter sub-assemblies could be registered to the new certification ECU (smart key ECU assembly) successfully.

OK ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

NG ▶ **REPLACE ID CODE BOX (IMMOBILISER CODE ECU)**

[Click here](#) INFO

6. READ VALUE USING GTS (VEHICLE SPEED METER)

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

Body Electrical > Combination Meter > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Vehicle Speed Meter	Vehicle speed	Min.: 0, Max.: 255	Almost same as actual vehicle speed (Speedometer tester)	-

Body Electrical > Combination Meter > Data List

TESTER DISPLAY
Vehicle Speed Meter

OK:

"0 km/h (0 mph)" is displayed when the vehicle is stationary.

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

[Click here](#) INFO

NG ▶ **GO TO METER / GAUGE SYSTEM**

[Click here](#) INFO

7. CHECK ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Make sure that a registered electrical key transmitter sub-assembly is being used.

OK:

A registered electrical key transmitter sub-assembly is being used.

NG  **USE A REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY AND PERFORM REREGISTRATION**

OK



8.	CHECK NUMBER OF REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLIES
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(a) Check the number of registered electrical key transmitter sub-assemblies.

RESULT	PROCEED TO
Only one electrical key transmitter sub-assembly is registered	A
2 or more electrical key transmitter sub-assemblies are registered	B

A  **GO TO STEP 10**

B



9.	REREGISTRATION
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(a) Reregister the electrical key transmitter sub-assemblies using different order combinations.

Click here **HINT:**

If there are 2 or more electrical key transmitter sub-assemblies, make sure that the number of order combinations is the same as the number of electrical key transmitter sub-assemblies so that each transmitter can be checked first.

Example: When there are 3 registered electrical key transmitter sub-assemblies (A, B and C).

COMBINATION	ORDER*
1	A → B → C
2	B → C → A
3	C → A → B

*: Except the first electrical key transmitter sub-assembly, the remaining electrical key transmitter sub-assemblies can be checked in any order.

OK:

"Key Verification: Read Error" is not displayed.

OK ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY HELD WHEN "Key Verification: Read Error" WAS DETECTED WAS DEFECTIVE)**

NG



10. REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

(a) Temporarily replace the certification ECU (smart key ECU assembly) with a new one and register the electrical key transmitter sub-assemblies.

HINT:

- For replacement.

[Click here](#) 

- For registration.

[Click here](#) 

OK:

All of the electrical key transmitter sub-assemblies could be registered to the new certification ECU (smart key ECU assembly) successfully.

OK ▶ **END (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) WAS DEFECTIVE)**

NG ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

11. CHECK FOR REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY

(a) Check that all registered electrical key transmitter sub-assemblies are available.

OK:

No registered electrical key transmitter sub-assemblies are missing.

NG ▶ **ERASE ALL REGISTERED ELECTRICAL KEY TRANSMITTERS EXCEPT ONE, THEN REGISTER THE REMAINING ELECTRICAL KEY TRANSMITTERS**

OK**12. REREGISTRATION**

(a) Register the electrical key transmitter sub-assemblies using different order combinations.

Click here 

HINT:

If there are 2 or more electrical key transmitter sub-assemblies, make sure that the number of order combinations is the same as the number of electrical key transmitter sub-assemblies so that each transmitter can be checked first.

Example: When there are 3 registered electrical key transmitter sub-assemblies (A, B and C).

COMBINATION	ORDER*
1	A → B → C
2	B → C → A
3	C → A → B


*: Except the first electrical key transmitter sub-assembly, the remaining electrical key transmitter sub-assemblies can be checked in any order.

OK:

"Key Verification: Read Error" is not displayed.

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

Click here 

NG  **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY HELD WHEN "Key Verification: Read Error" WAS DETECTED WAS DEFECTIVE)**

13. REREGISTRATION

(a) Using an unregistered electrical key transmitter sub-assembly, register the ID.

Click here 

OK:

The key ID can be registered.

OK  **END (ELECTRICAL KEY TRANSMITTER WAS DEFECTIVE)**

NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)[Click here](#) **INFO****14. REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)**

(a) Temporarily replace the main body ECU (multiplex network body ECU) with a new one and register the electrical key transmitter sub-assemblies.

HINT:

- For replacement.

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

- For registration.

HINT:[Click here](#) **INFO**

OK:

All of the electrical key transmitter sub-assemblies could be registered to the new main body ECU (multiplex network body ECU) successfully.

OK ▶ END (MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) WAS DEFECTIVE)**NG ▶ REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**[Click here](#) **INFO**