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

Additional Key cannot be Registered

DESCRIPTION

If additional registration is not possible, a malfunction of the electrical key transmitter sub-assembly, certification ECU (smart key ECU assembly), power switch, No. 1 indoor electrical key antenna assembly (front floor) or electrical key and tire pressure monitoring system receiver assembly is suspected.

CAUTION / NOTICE / HINT

NOTICE:

- If registration of an electrical key transmitter sub-assembly cannot be performed, refer to Registration.

Click here [INFO](#)

- 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.

Click here [INFO](#)

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

Click here [INFO](#)

- After repair, confirm that no DTCs are output.

HINT:

When additional registration is not possible, freeze frame data may be stored in the certification ECU (smart key ECU assembly).

Click here [INFO](#)

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 (VEHICLE ID DIFFERENCE (KEY REGISTRATION))
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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
Vehicle ID Difference (Key Registration)	Status of vehicle ID (key registration)	No or Yes	No: Vehicle ID normal (key registration) Yes: Vehicle ID malfunction (key registration)	-

Body Electrical > Smart Key > Data List

TESTER DISPLAY
Vehicle ID Difference (Key Registration)

RESULT	PROCEED TO
"No" is displayed	A
"Yes" is displayed	B

B  **GO TO STEP 5**

A



3.	READ VALUE USING GTS (VEHICLE CONTROL HISTORY (ROB))
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(a) Read the Vehicle Control History (RoB) according to the display on the GTS.

Body Electrical > Smart Key > Utility



(b) Check the freeze frame data.

Registration Function (Reason for Non-operation):

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA
New Key ID Registration Stopped (Conditions Other than Vehicle ID not Met)	The key ID information of the certification ECU (smart key ECU assembly) and unregistered key transmitter sub-assembly did not match due to wave interference around the vehicle or depletion of the battery of the key transmitter sub-assembly.	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • Electrical key transmitter sub-assembly
New Key ID Registration Stopped (Key Already Registered)	A registered electrical key transmitter sub-assembly was used.	Incorrect registration procedure is used
New Key ID Registration Stopped (ID Code Writing Failure)	An unregistered electrical key transmitter sub-assembly was held near the power switch, but key ID information was not stored by the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)
New Key ID Registration Stopped (Key Information Malfunction)	An unregistered electrical key transmitter sub-assembly was held near the power switch, but key ID information was not stored by the certification ECU (smart key ECU assembly).	Incorrect registration procedure is used
Registration Limit	An electrical key transmitter sub-assembly was attempted to be registered when the maximum number of electrical key transmitter sub-assemblies that can be registered has been reached.	Incorrect registration procedure is used
Cannot Enter Registration Mode (Vehicle Speed > 5 km/h)	The vehicle speed was 5 km/h (3.1 mph) or more.	Certification ECU (smart key ECU assembly)
Registered Key Confirmation Failed (Immobilizer Certification Failed)	A registered electrical key transmitter sub-assembly was incorrectly held near the power switch and the certification ECU (smart key ECU assembly) could not complete verification.	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly) • Electrical key transmitter sub-assembly
ECU Code Confirmation Failed (No Response from Connected ECUs)	The certification ECU (smart key ECU assembly) did not receive a response from the ID code box (immobiliser code ECU).	<ul style="list-style-type: none"> • Certification ECU (smart key ECU assembly)

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA
		<ul style="list-style-type: none"> ID code box (immobiliser code ECU)
ECU Code Confirmation Failed (S Code Certification Failed)	The authentication code (S code) of the certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU) did not match.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) ID code box (immobiliser code ECU)
ECU Code Confirmation Failed (L Code Certification Failed)	The authentication code (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)
ECU Code Confirmation Failed (Too Many Keys Registered in ID Code Box)	The maximum number of electrical key transmitter sub-assemblies that can be registered to the ID code box (immobiliser code ECU) has been exceeded.	ID code box (immobiliser code ECU)
New Key ID Registration Failed (Immobilizer Certification Failed)	An unregistered electrical key transmitter sub-assembly was incorrectly held near the power switch and the certification ECU (smart key ECU assembly) could not complete verification.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly
New Key ID Registration Failed (Conditions Other than Vehicle ID not Met)	The key ID information of the certification ECU (smart key ECU assembly) and unregistered key transmitter sub-assembly did not match due to wave interference around the vehicle or depletion of the battery of the key transmitter sub-assembly.	<ul style="list-style-type: none"> Certification ECU (smart key ECU assembly) Electrical key transmitter sub-assembly
New Key ID Registration Failed (Key Already Registered)	A registered electrical key transmitter sub-assembly was used.	Certification ECU (smart key ECU assembly)
New Key ID Registration Failed (ID Code Writing Failed)	An unregistered electrical key transmitter sub-assembly was held near the power switch, but key ID information was not stored by the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)
New Key ID Registration Failed (Key Information Malfunction)	An unregistered electrical key transmitter sub-assembly was held near the power switch, but key ID information was not stored by the certification ECU (smart key ECU assembly).	Incorrect registration procedure is used
No Response from Connected ECUs when	There are no response from the ID code box (immobiliser code ECU) at registration of L code or S code.	<ul style="list-style-type: none"> Certification ECU (smart key ECU)

PARAMETER NAME	DETECTION CONDITION	TROUBLE AREA
Registering L/S/F Codes		<ul style="list-style-type: none"> assembly) ID code box (immobiliser code ECU)
L Code Registration Failed (ID Code Box, Steering Lock ECU)	The authentication code (L code) is not registered 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)
S Code Registration Failed (Certification ECU, ID Code Box)	The authentication code (S code) is not registered by the certification ECU (smart key ECU assembly) and ID code box (immobiliser code ECU).	ID code box (immobiliser code ECU)
ECU ID Verification Error	The certification ECU (smart key ECU assembly) did not receive S code registration response from 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)
Key Number Write Error	The number of the electrical key transmitter sub-assemblies are not stored by the certification ECU (smart key ECU assembly).	Certification ECU (smart key ECU assembly)
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)
New Key ID Registration Stopped (Security Access Malfunction)	.Communication error	Communication error between the GTS and key registration server
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)
New Key ID Registration Stopped (Key Type Malfunction)	The electrical key transmitter sub-assembly is not compatible with the registration mode.	Electrical key transmitter sub-assembly

RESULT	PROCEED TO
Vehicle control history related to operation malfunction does not exist	A
[New Key ID Registration Stopped (Conditions Other than Vehicle ID not Met)] is displayed on the GTS	B

RESULT	PROCEED TO
[New Key ID Registration Failed (Immobilizer Certification Failed)] is displayed on the GTS	
[New Key ID Registration Failed (Conditions Other than Vehicle ID not Met)] is displayed on the GTS	
[New Key ID Registration Stopped (Key Already Registered)] is displayed on the GTS	C
[New Key ID Registration Stopped (Key Information Malfunction)] is displayed on the GTS	
[New Key ID Registration Failed (Key Information Malfunction)] is displayed on the GTS	
[New Key ID Registration Stopped (ID Code Writing Failure)] is displayed on the GTS	D
[New Key ID Registration Failed (ID Code Writing Failed)] is displayed on the GTS	
[Registration Limit] is displayed on the GTS	E
[Cannot Enter Registration Mode (Vehicle Speed > 5 km/h)] is displayed on the GTS	F
[Registered Key Confirmation Failed (Immobilizer Certification Failed)] is displayed on the GTS	G
[ECU Code Confirmation Failed (No Response from Connected ECUs)] is displayed on the GTS	H
[No Response from Connected ECUs when Registering L/S/F Codes] is displayed on the GTS	
[ECU Code Confirmation Failed (S Code Certification Failed)] is displayed on the GTS	I
[ECU ID Verification Error] is displayed on the GTS	
[ECU Code Confirmation Failed (L Code Certification Failed)] is displayed on the GTS	J
[L Code Registration Failed (ID Code Box, Steering Lock ECU)] is displayed on the GTS	
[ECU Code Confirmation Failed (Too Many Keys Registered in ID Code Box)] is displayed on the GTS	K
[S Code Registration Failed (Certification ECU, ID Code Box)] is displayed on the GTS	
[New Key ID Registration Failed (Key Already Registered)] is displayed on the GTS	L
[Key Number Write Error] is displayed on the GTS	M
[New Key ID Registration Stopped (Certification ECU Type Malfunction)] is displayed on the GTS	
[B Code Registration Failed (Certification ECU, Main Body ECU)] is displayed on the GTS	N
[New Key ID Registration Stopped (Security Access Malfunction)] is displayed on the GTS	O
[New Key ID Registration Stopped (Key Type Malfunction)] is displayed on the GTS	P

B ► GO TO STEP 7

C ► PERFORM REREGISTRATION

D ► GO TO STEP 8

- E** ▶ (a) If another electrical key transmitter sub-assembly needs to be registered, perform "UNDESIGNATED KEY PERMANENT ERASURE" before performing the registration procedure.

Click here [END \(REGISTRATION NOT FINISHED DUE TO MAXIMUM NUMBER OF REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLIES BEING EXCEEDED\)](#)

- F** ▶ **GO TO STEP 9**

- G** ▶ **GO TO STEP 10**

- H** ▶ **GO TO STEP 14**

- I** ▶ **GO TO STEP 15**

- J** ▶ **GO TO STEP 16**

- K** ▶ **REPLACE ID CODE BOX (IMMOBILISER CODE ECU)**

Click here [INFO](#)

- L** ▶ **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).

- M** ▶ **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

Click here [INFO](#)

- N** ▶ **GO TO STEP 17**

- O** ▶ **CHECK GTS**

(a) Check communication between the GTS and the key registration server.

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

Click here [REREGISTRATION](#)

A
▼

4. CHECK SMART KEY SYSTEM (for Start Function)

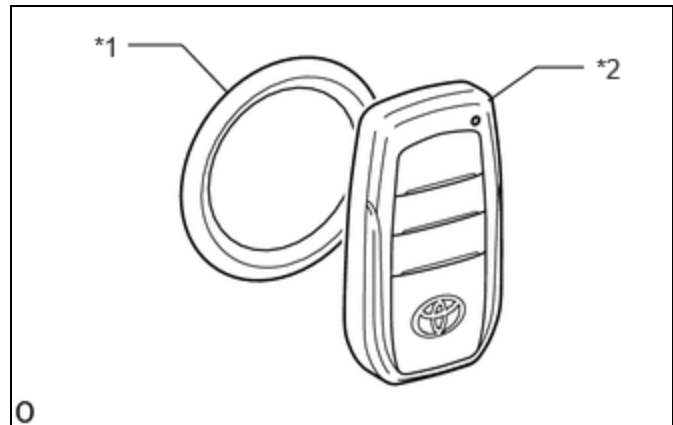
(a) Remove the transmitter battery from the electrical key transmitter sub-assembly.

(b) With the brake pedal depressed, hold the electrical key transmitter sub-assembly near the power switch and check if the power source mode changes.

OK:
The power source mode changes.

HINT:

If the power source mode changes, the cabin verification is malfunctioning.



*1	Power Switch
*2	Electrical Key Transmitter Sub-assembly

RESULT	PROCEED TO
The power source mode changes	A
The power source mode does not change	B

B ► **GO TO SMART KEY SYSTEM (for Start Function) (Power Source Mode does not Change to ON (IG and ACC))**

A
▼

5. REGISTRATION

(a) Using an unregistered electrical key transmitter sub-assembly, perform the additional registration procedure.

Click here [INFO](#)

OK:

Additional registration can be completed.

OK ▶ **REPLACE ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY (FIRST REGISTERED KEY WAS DEFECTIVE)**

NG



6. 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 ▶ **GO TO OTHER PROBLEM (New Key cannot be Registered)**

7. REREGISTRATION

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

Click here [INFO](#)

OK:

The key ID can be registered.

OK ▶ **END (ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY WAS DEFECTIVE)**

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

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

(a) Register the key ID.

Click here [INFO](#)

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

Body Electrical > Smart Key > Utility

TESTER DISPLAY
Vehicle Control History (RoB)

(c) Check the freeze frame data.

RESULT	PROCEED TO
[New Key ID Registration Stopped (ID Code Writing Failure)] or [New Key ID Registration Failed (ID Code Writing Failed)] is not displayed on the GTS	A
[New Key ID Registration Stopped (ID Code Writing Failure)] or [New Key ID Registration Failed (ID Code Writing Failed)] is displayed on the GTS	B

A ▶ **END (COMMUNICATION ERROR BETWEEN GTS AND VEHICLE)**

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

Click here [INFO](#)

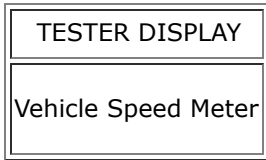
9. READ VALUE USING GTS (VEHICLE SPEED METER)

(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



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](#)

10. 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
▼

11. CHECK NUMBER OF REGISTERED ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLIES

(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 13**

B
▼

12. REREGISTRATION

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

Click here [INFO](#)

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 for 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



13. 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 ELECTRICAL KEY TRANSMITTER SUB-ASSEMBLY**

14. CHECK FOR DTC

(a) Check for DTCs.

Body Electrical > Smart Key > Trouble Codes

NOTICE:

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

OK:

DTC B278588 is not output.

NG ▶ **GO TO DTC B278588**

OK



15. 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**

16. CHECK 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 ID CODE BOX (IMMOBILISER CODE ECU)**

[Click here](#) 

17. 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](#) 

- For registration.

[Click here](#) 

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](#) 

