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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: DOOR / HATCH: POWER BACK DOOR SYSTEM: Jam Protection Function Activates During Power Back Door Operation; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

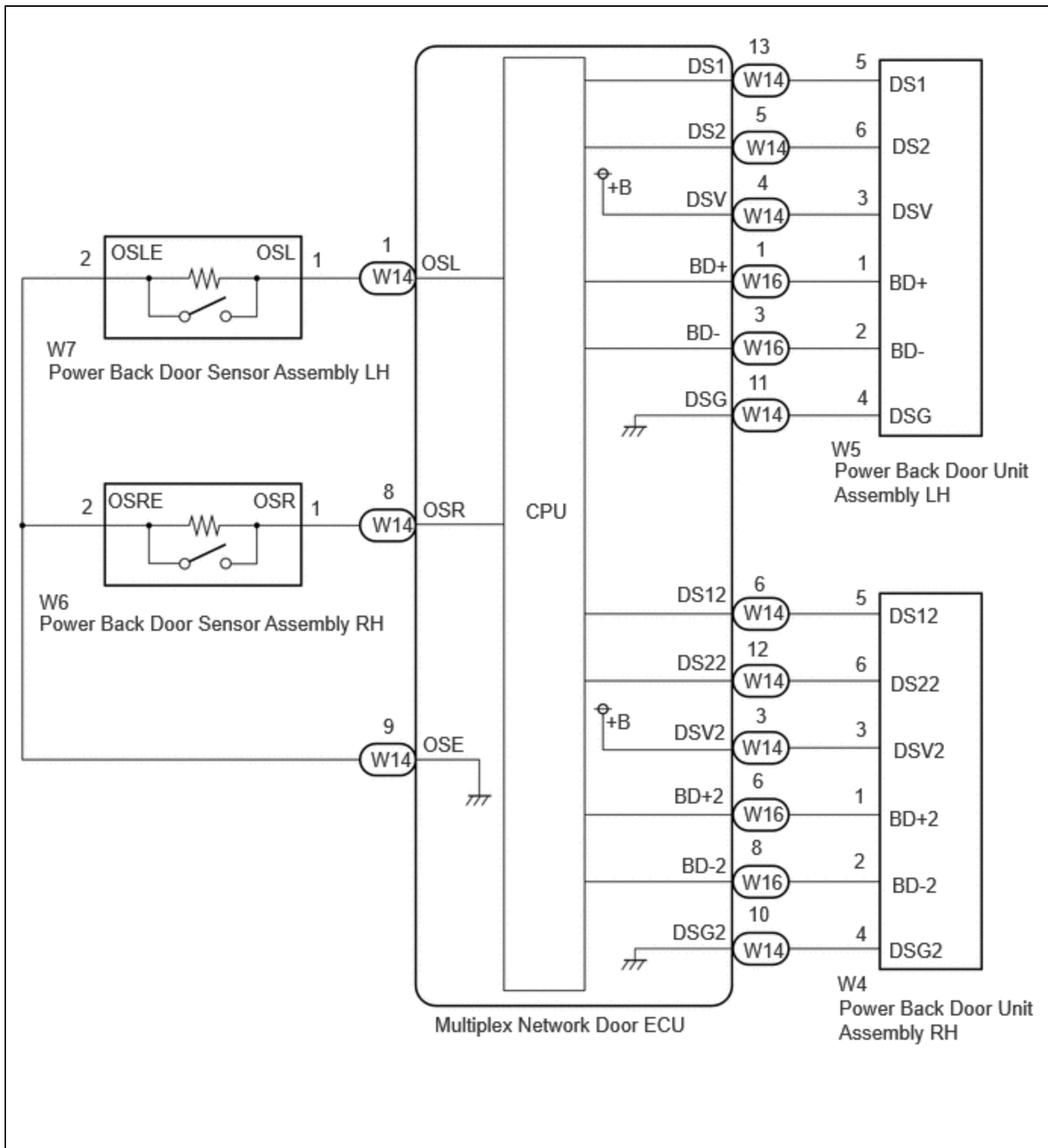
Jam Protection Function Activates During Power Back Door Operation

DESCRIPTION

The power back door is controlled by the multiplex network door ECU and the back door motor is driven. During motor operation, the power back door (touch sensor) used for jam protection checks for obstruction by foreign objects, etc. by detecting changes in resistance due to contact.

Furthermore, the speed of the back door is monitored using the pulse sensor (power back door unit assembly) and if a change in speed is detected, it is judged that there is an obstruction by a foreign object and the door direction is reversed.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

If the multiplex network door ECU has been replaced, or if any of the connectors has been disconnected, initialize the power back door system.

Click here [INFO](#)

PROCEDURE

1. CHECK POWER BACK DOOR SYSTEM

(a) Check if there are any foreign objects interfering with back door operation.

RESULT	PROCEED TO
There are no foreign objects	A
There are foreign objects	B

B  REMOVE FOREIGN OBJECT

A



2. CHECK BACK DOOR OPERATION

(a) Set the power back door system main switch to "OFF"

(1) Operate the multi-information display in the combination meter assembly and disable the function.

DISPLAY	DESCRIPTION	DEFAULT	SETTING	RELEVANT ECU
Power back door	Function that enables or disables the power back door operation.	On	On or Off	Multiplex network door ECU

(2) Check that the back door operates smoothly without catching (does not feel heavy) when manually opened and closed.

NG  ADJUST BACK DOOR

OK



3. READ VALUE USING GTS

(a) Check the Data List to determine if the power back door sensor assembly functions properly.

Body Electrical > Back Door > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
PBD Touch Sensor RH	Power back door sensor assembly RH signal	ON, OFF or Open	ON: Power back door sensor assembly RH pressed OFF: Power back door sensor assembly RH not pressed Open: Power back door sensor assembly RH circuit open	-
PBD Touch Sensor LH	Power back door sensor assembly LH signal	ON, OFF or Open	ON: Power back door sensor assembly LH pressed OFF: Power back door sensor assembly LH not pressed Open: Power back door sensor assembly LH circuit open	-

Body Electrical > Back Door > Data List

TESTER DISPLAY
PBD Touch Sensor RH
PBD Touch Sensor LH

RESULT	PROCEED TO
On the GTS screen, ON or OFF is displayed accordingly	A
On the GTS screen, ON or OFF is not displayed accordingly or Open is displayed for power back door sensor assembly RH	B
On the GTS screen, ON or OFF is not displayed accordingly or Open is displayed for power back door sensor assembly LH	C

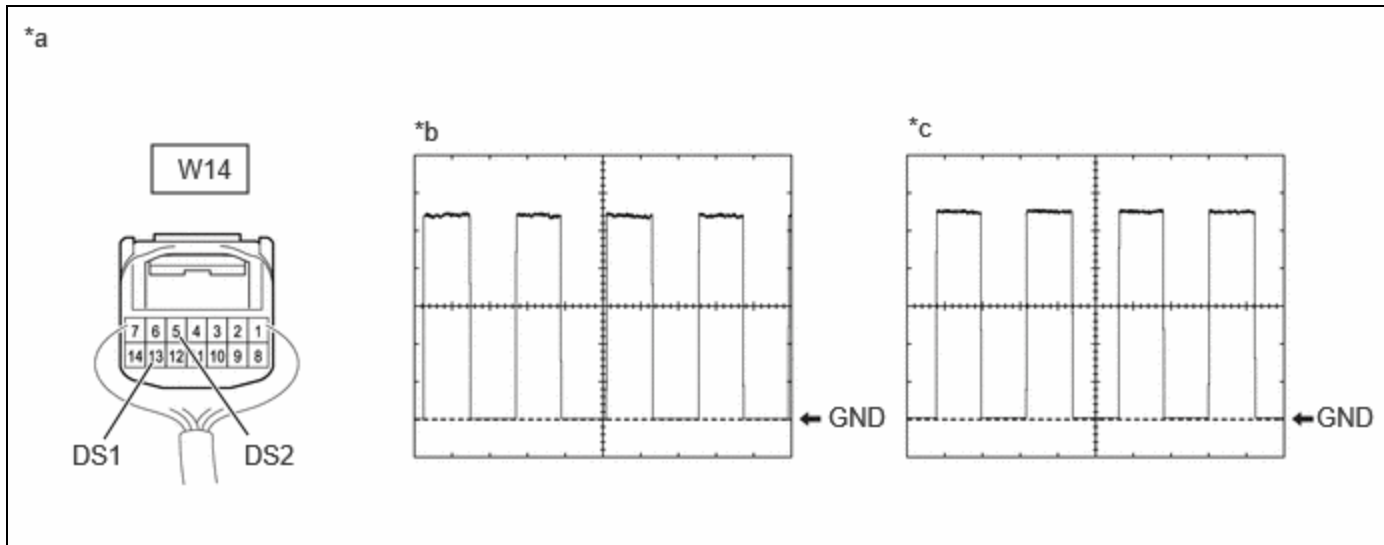
B  **GO TO STEP 6**

C  **GO TO STEP 8**

A


4.	CHECK POWER BACK DOOR UNIT ASSEMBLY LH
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(a) Using an oscilloscope, check the waveform of each terminal from the rear of the multiplex network door ECU connector.



*a	Component with harness connected (Multiplex Network Door ECU)	*b	Waveform (CH1)
*c	Waveform (CH2)	-	-

Measurement Condition:

ITEM	CONDITION
Tester Connection	<ul style="list-style-type: none"> • CH1: W14-13 (DS1) - Body ground • CH2: W14-5 (DS2) - Body ground
Tool Setting	2 V/DIV., 2 ms./DIV.
Vehicle Condition	Open and close the back door by hand.

HINT:

- The period changes in accordance to the speed at which the back door is opened and closed by hand.
- The wave height changes in accordance with the auxiliary battery voltage.

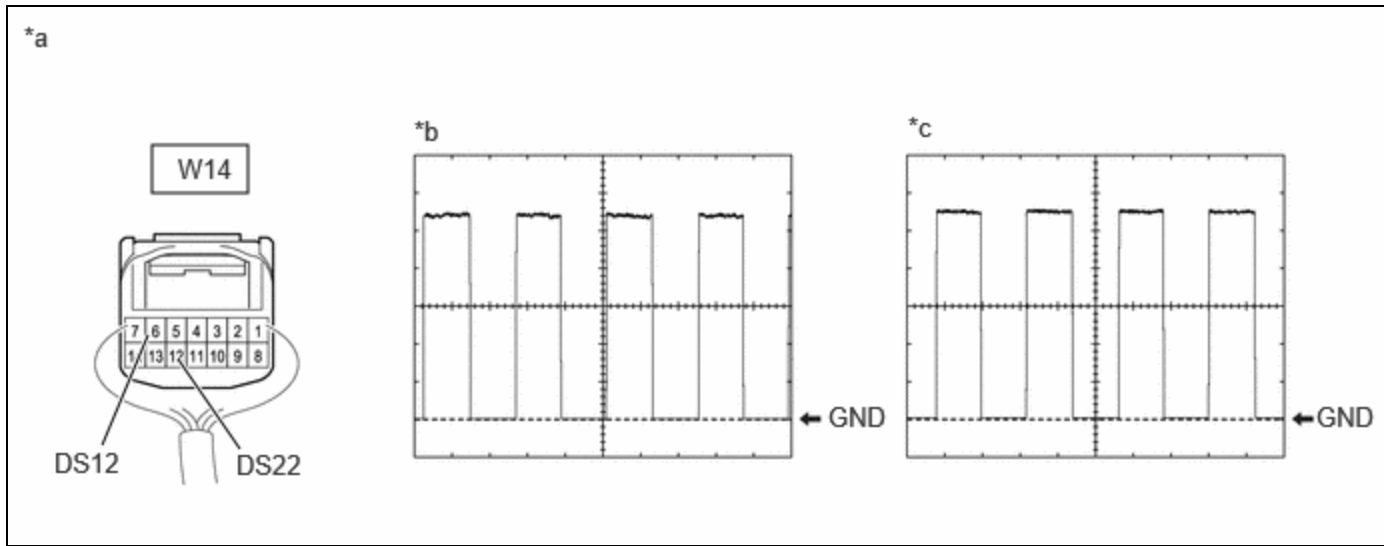
NG ▶ REPLACE POWER BACK DOOR UNIT ASSEMBLY LH

OK



5.	CHECK POWER BACK DOOR UNIT ASSEMBLY RH
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(a) Using an oscilloscope, check the waveform of each terminal from the rear of the multiplex network door ECU connector.



*a	Component with harness connected (Multiplex Network Door ECU)	*b	Waveform (CH1)
*c	Waveform (CH2)	-	-

Measurement Condition:

ITEM	CONDITION
Tester Connection	<ul style="list-style-type: none"> • CH1: W14-6 (DS12) - Body ground • CH2: W14-12 (DS22) - Body ground
Tool Setting	2 V/DIV., 2 ms./DIV.
Vehicle Condition	Open and close the back door by hand.

HINT:

- The period changes in accordance to the speed at which the back door is opened and closed by hand.
- The wave height changes in accordance with the auxiliary battery voltage.

OK ► REPLACE MULTIPLEX NETWORK DOOR ECU

NG ► REPLACE POWER BACK DOOR UNIT ASSEMBLY RH

6.	INSPECT POWER BACK DOOR SENSOR ASSEMBLY RH
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Click here [INFO](#)

NG ► REPLACE POWER BACK DOOR SENSOR ASSEMBLY RH

OK
▼

7. CHECK HARNESS AND CONNECTOR (POWER BACK DOOR SENSOR ASSEMBLY RH - MULTIPLEX NETWORK DOOR ECU)

- (a) Disconnect the W6 power back door sensor assembly RH connector.
- (b) Disconnect the W14 multiplex network door ECU connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(W6,W14\)](#)

[Click Connector\(W6\)](#)

[Click Connector\(W14\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W6-1 (OSR) - W14-8 (OSR)	Always	Below 1 Ω
W6-2 (OSRE) - W14-9 (OSE)	Always	Below 1 Ω
W6-1 (OSR) or W14-8 (OSR) - Body ground	Always	10 k Ω or higher
W6-2 (OSRE) or W14-9 (OSE) - Body ground	Always	10 k Ω or higher

OK ► REPLACE MULTIPLEX NETWORK DOOR ECU

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

8. INSPECT POWER BACK DOOR SENSOR ASSEMBLY LH

Click here

NG ► REPLACE POWER BACK DOOR SENSOR ASSEMBLY LH

OK



9. CHECK HARNESS AND CONNECTOR (POWER BACK DOOR SENSOR ASSEMBLY LH - MULTIPLEX NETWORK DOOR ECU)

- (a) Disconnect the W7 power back door sensor assembly LH connector.
- (b) Disconnect the W14 multiplex network door ECU connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(W7,W14\).](#)

[Click Connector\(W7\).](#)

[Click Connector\(W14\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
W7-1 (OSL) - W14-1 (OSL)	Always	Below 1 Ω
W7-2 (OSLE) - W14-9 (OSE)	Always	Below 1 Ω
W7-1 (OSL) or W14-1 (OSL) - Body ground	Always	10 k Ω or higher
W7-2 (OSLE) or W14-9 (OSE) - Body ground	Always	10 k Ω or higher

OK ► **REPLACE MULTIPLEX NETWORK DOOR ECU**

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

