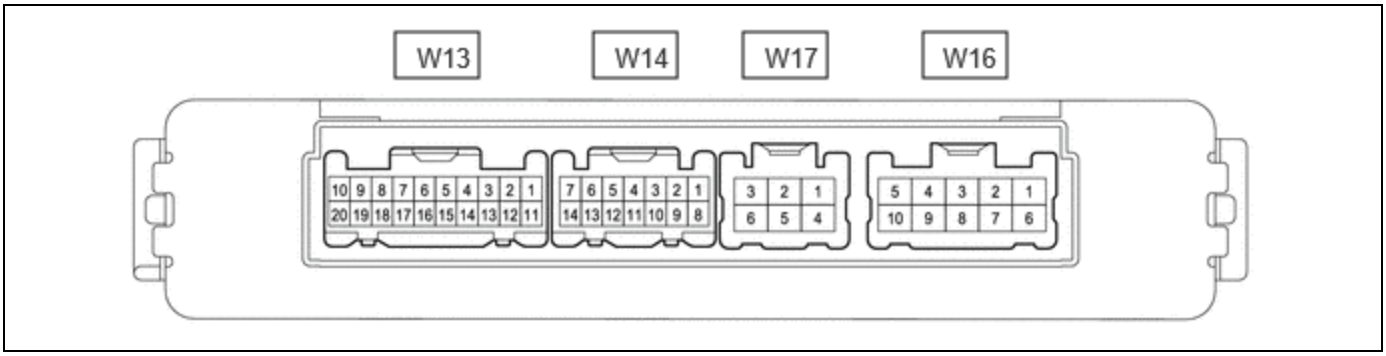
Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002923O
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: DOOR / HATCH: POWER BACK DOOR SYSTEM: TERMINALS OF ECU; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

TERMINALS OF ECU

CHECK MULTIPLEX NETWORK DOOR ECU



(a) Disconnect the W16, W17 and W13 multiplex network door ECU connectors.

(b) Measure the voltage and resistance according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
W13-9 (IG) - Body ground	IG power supply	Ignition switch ON	11 to 14 V
		Ignition switch off	Below 1 V
W13-7 (ECUB) - Body ground	Auxiliary battery power supply	Ignition switch off	11 to 14 V
W16-5 (B) - Body ground	Auxiliary battery power supply	Ignition switch off	11 to 14 V
W17-4 (GND) - Body ground	Body ground	Always	Below 1 Ω

(c) Reconnect the W13, W14 and W17 multiplex network door ECU connectors.

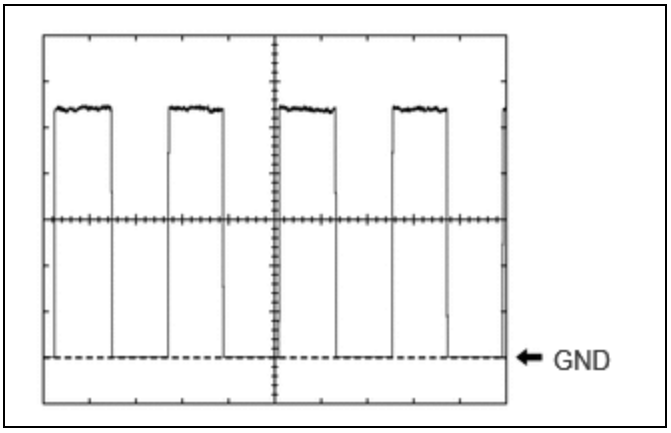
(d) Measure the voltage and waveform according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
W17-2 (DC+) - W17-6 (DC-)	Back door lock assembly (back door lock motor) circuit	Back door lock motor operating	11 to 14 V
		Back door lock motor not operating	Below 1 V
W14-1 (OSL) - W14-9 (OSE)	Power back door sensor assembly LH signal	Power back door sensor assembly LH not pressed	4.5 to 6.5 V
		Power back door sensor assembly LH pressed	Below 1 V
W14-3 (DSV2) - Body ground	Power back door unit assembly RH (door sensor) power supply	Always	7 V or higher
W14-4 (DSV) - Body ground	Power back door unit assembly LH (door sensor) power supply	Always	7 V or higher

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
W14-5 (DS2) - Body ground	Power back door unit assembly LH (door sensor) signal	Power back door not operating	0 V or 7 V or higher
		Power back door operating	Pulse generation (See waveform 2)
W14-6 (DS12) - Body ground	Power back door unit assembly RH (door sensor) signal	Power back door not operating	0 V or 7 V or higher
		Power back door operating	Pulse generation (See waveform 1)
W14-8 (OSR) - W14-9 (OSE)	Power back door sensor assembly RH signal	Power back door sensor assembly RH not pressed	4.5 to 6.5 V
		Power back door sensor assembly RH pressed	Below 1 V
W14-10 (DSG2) - Body ground	Power back door unit assembly RH (door sensor) ground	Always	Below 1 V
W14-11 (DSG) - Body ground	Power back door unit assembly LH (door sensor) ground	Always	Below 1 V
W14-12 (DS22) - Body ground	Power back door unit assembly RH (door sensor) signal	Power back door not operating	0 V or 7 V or higher
		Power back door operating	Pulse generation (See waveform 2)
W14-13 (DS1) - Body ground	Power back door unit assembly LH (door sensor) signal	Power back door not operating	0 V or 7 V or higher
		Power back door operating	Pulse generation (See waveform 1)
W13-1 (BZR+) - Body ground	Power back door warning buzzer signal	Power back door warning buzzer sounding	Pulse generation
		Power back door warning buzzer not sounding	Below 1 V
W13-3(FUL) - Body ground	Back door lock with courtesy light switch assembly input	Back door open	Below 1 V
		Back door closed	Pulse generation
W13-4 (CLSW) - Body ground	Back door control switch signal	Back door control switch on	Below 1 V
		Back door control switch off	11 to 14 V
W13-5(HAF) - Body ground	Back door lock with courtesy light switch assembly lock signal	Back door closed	11 to 14 V
		Back door fully open	Below 1 V
W13-11(LIB) - Body ground	Back door lock with courtesy light switch assembly lock signal	Back door is locked	11 to 14 V
		Back door is unlocked	Below 1 V
W13-13(PAWL) - Body ground	Back door lock with courtesy light switch assembly lock signal	Back door fully open	11 to 14 V
		Back door ajar	Below 1 V
		Back door closed	11 to 14 V

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
		A certain amount of time after back door closed	Below 1 V
W13-14 (BDDN) - Body ground	Power back door control switch no.1 signal	Power back door control switch no.1 on	Below 1 V
		Power back door control switch no.1 off	Pulse generation
W13-15(POS) - Body ground	Back door lock with courtesy light switch assembly signal	Back door open	Below 1 V
		Back door closer operating	11 to 14 V
		Operation complete	Below 1 V

(1) Using an oscilloscope, check waveform 1.



Waveform 1 (Reference)

ITEM	CONDITION
Tester Connection	• W14-13 (DS1) - Body ground • W14-6 (DS12) - Body ground
Tool Setting	2 V/DIV., 2 ms./DIV.
Vehicle Condition	Power back door operating

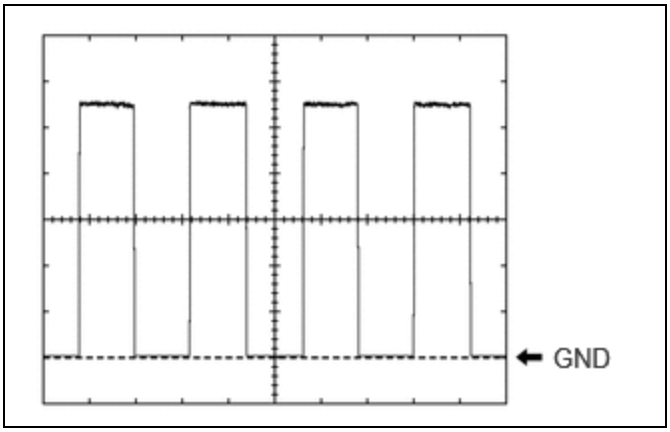
HINT:

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

(2) Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)

ITEM	CONDITION
Tester Connection	• W14-5 (DS2) - Body ground • W14-12 (DS22) - Body ground
Tool Setting	2 V/DIV., 2 ms./DIV.
Vehicle Condition	Power back door operating



HINT:

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

CHECK CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)

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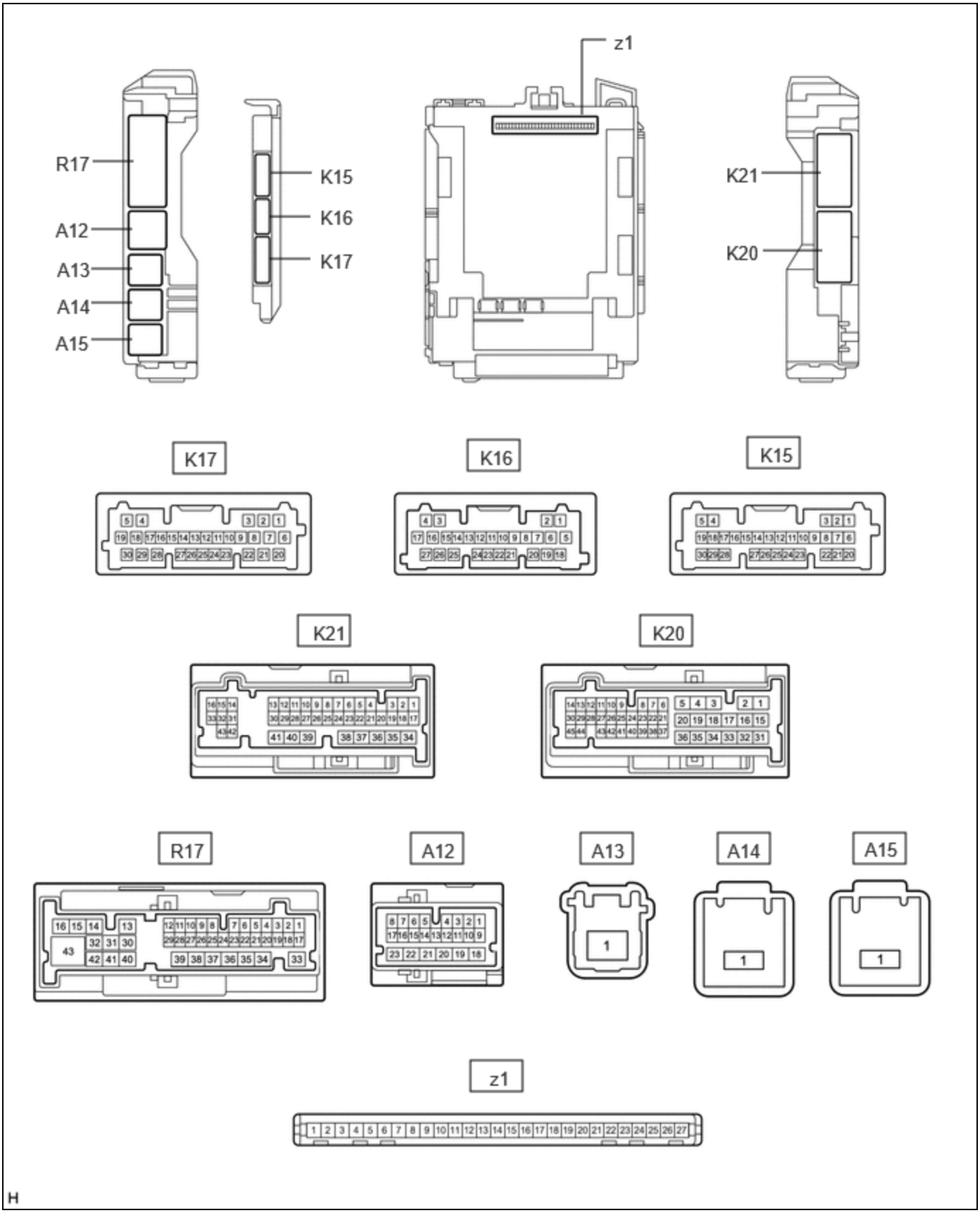
CHECK MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) AND POWER DISTRIBUTION BOX ASSEMBLY



NOTICE:

When disconnecting a wire harness of any component connected to the supply power of the integrated capacitor (integration control supply) or when removing the integrated capacitor (integration control supply), make sure to wait 5 minutes or more after turning the ignition switch off for self-diagnosis to complete and the voltage of the integrated capacitor (integration control supply) to discharge.

(a) Remove the main body ECU (multiplex network body ECU) from the power distribution box assembly.

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(b) Connect the power distribution box assembly connectors.

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

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
z1-13 (GND1) - Body ground	Body ground	Always	Below 1 Ω
z1-14 (GND2) - Body ground	Body ground	Always	Below 1 Ω
z1-26 (BECU) - Body ground	Auxiliary battery power supply	Ignition switch off	11 to 14 V
z1-27 (IGR) - Body ground	IG power supply	Ignition switch ON	11 to 14 V
		Ignition switch off	Below 1 V

(d) Install the main body ECU (multiplex network body ECU).

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(e) Measure the voltage and waveform according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
K15-7 (LSBO) - Body ground	Back door lock signal	Back door is locked	11 to 14 V
		Back door is unlocked	Below 1 V
K16-21 (PBDS) - Body ground	Power back door control switch signal	Power back door control switch off	Pulse generation
		Power back door control switch on	Below 1 V
R17-2 (BCTY) - Body ground	Back door courtesy light switch input	Back door closed	11 to 14 V or pulse output (maximum 14 V)*
		Back door open	Below 1 V

*: Differs depending on the vehicle model