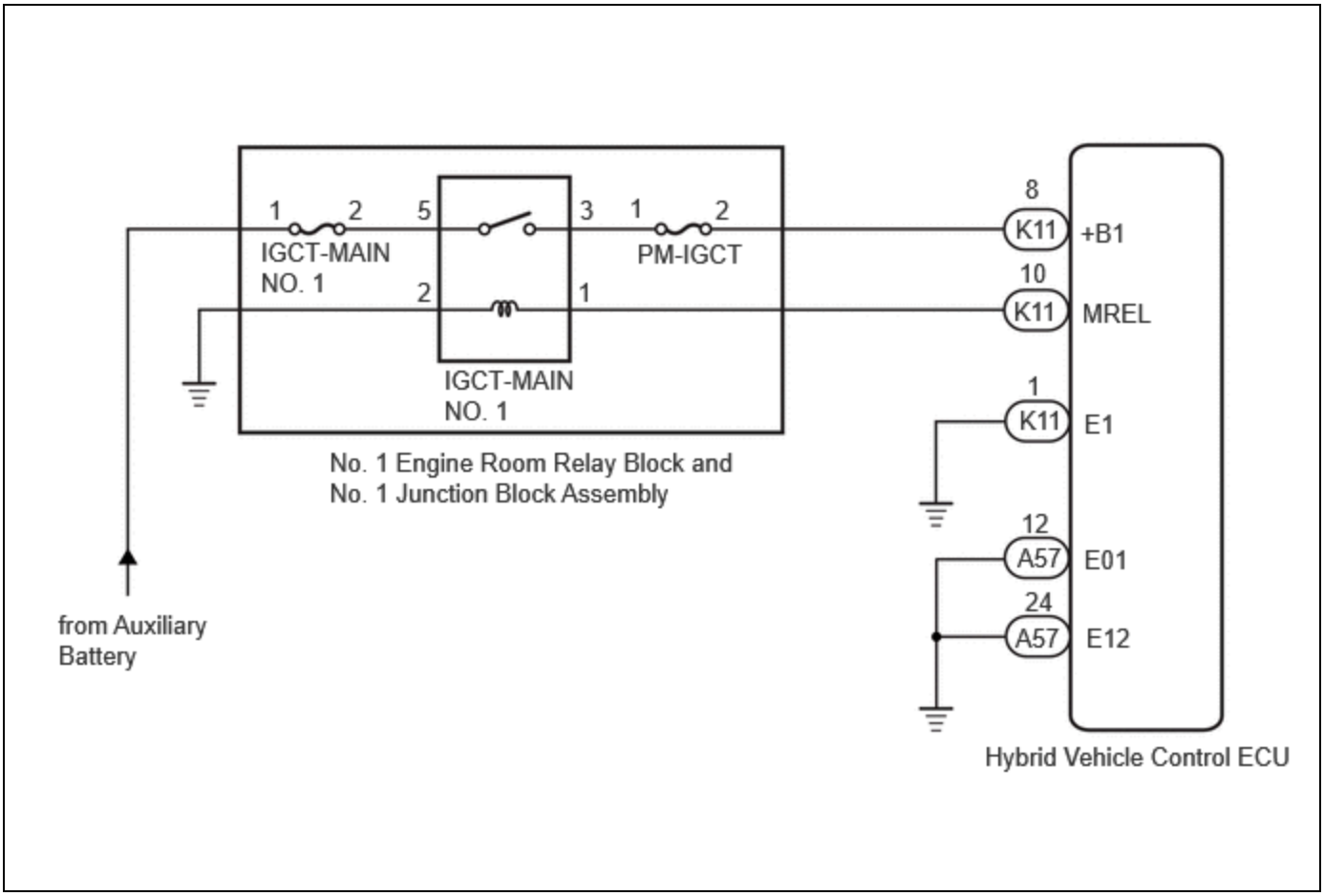
Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028ZUL
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): ECU Power Source Circuit; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

ECU Power Source Circuit

DESCRIPTION

If the ignition switch is ON, the hybrid vehicle control ECU applies current to the MREL terminal to turn the IGCT-MAIN NO. 1 relay on. This supplies power to the +B1 terminal.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- After the ignition switch is turned off, there may be a waiting time before disconnecting the negative (-) auxiliary battery terminal.

  Click here INFO
- When disconnecting and reconnecting the auxiliary battery

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

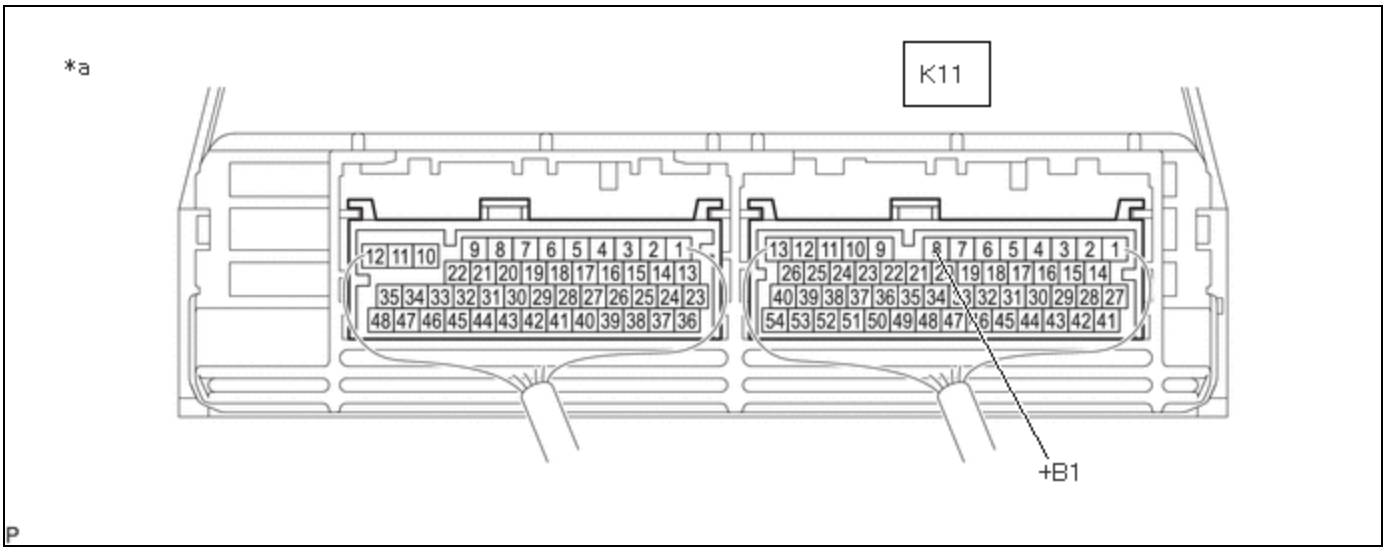
Click here INFO

PROCEDURE

1.	**CHECK HYBRID VEHICLE CONTROL ECU (+B1 VOLTAGE)**

(a) Turn the ignition switch to ON.

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



*a	Component with harness connected (Hybrid Vehicle Control ECU)	-	-

Standard Voltage:

EWD INFO

Click Location & Routing(K11)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K11-8 (+B1) - Body ground	Ignition switch ON	11 to 14 V

(c) Turn the ignition switch off.

NG ▶ **GO TO STEP 3**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - BODY GROUND)**

(a) Disconnect the hybrid vehicle control ECU connectors.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A57,K11)
Click Connector(A57)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A57-12 (E01) - Body ground	Always	Below 1 Ω
A57-24 (E12) - Body ground	Always	Below 1 Ω
K11-1 (E1) - Body ground	Always	Below 1 Ω

(c) Reconnect the hybrid vehicle control ECU connectors.

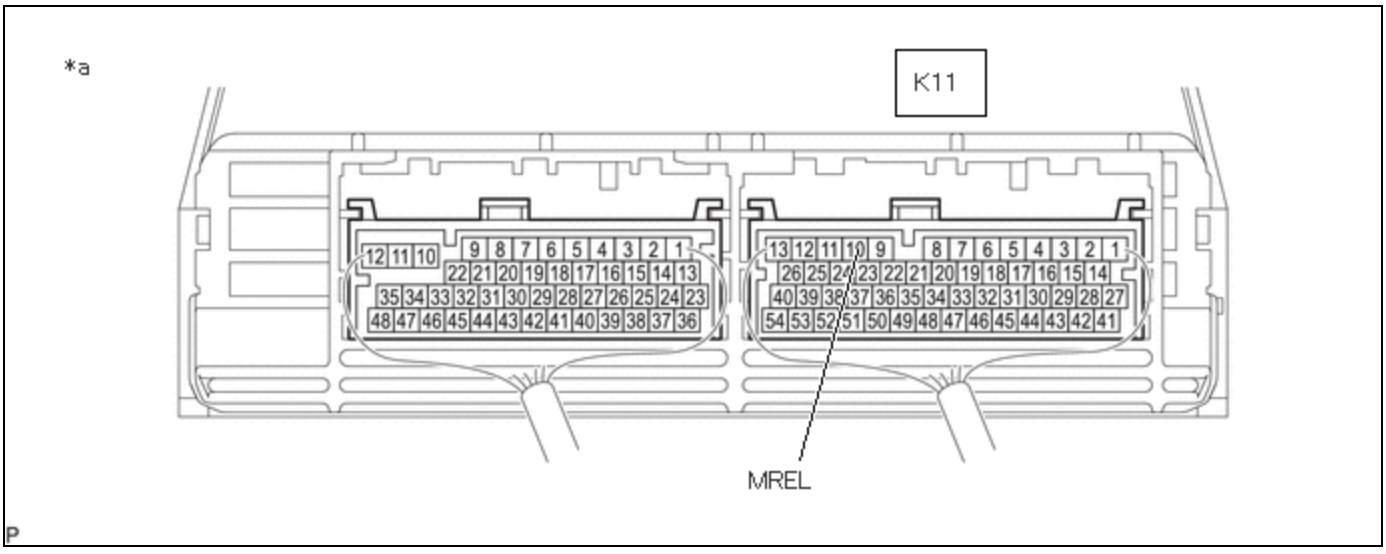
OK ▶ **GO TO PROBLEM SYMPTOMS TABLE**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

3.	**CHECK HYBRID VEHICLE CONTROL ECU (MREL TERMINAL VOLTAGE)**

(a) Turn the ignition switch to ON.

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



*a	Component with harness connected (Hybrid Vehicle Control ECU)	-	-

Standard Voltage:

EWD INFO

Click Location & Routing(K11)

Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K11-10 (MREL) - Body ground	Ignition switch ON	11 to 14 V

(c) Turn the Ignition switch off.

NG ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

Click here INFO

OK ▼

4.	**CHECK FUSE (PM-IGCT)**

(a) Remove the PM-IGCT fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PM-IGCT fuse	Always	Below 1 Ω

(c) Install the PM-IGCT fuse.

NG ▶ **GO TO STEP 11**

OK ▼

5.	**CHECK FUSE (IGCT-MAIN NO. 1)**

(a) Remove the IGCT-MAIN NO. 1 fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
IGCT-MAIN NO. 1 fuse	Always	Below 1 Ω

(c) Install the IGCT-MAIN NO. 1 fuse.

NG ▶ **GO TO STEP 12**

OK ▼

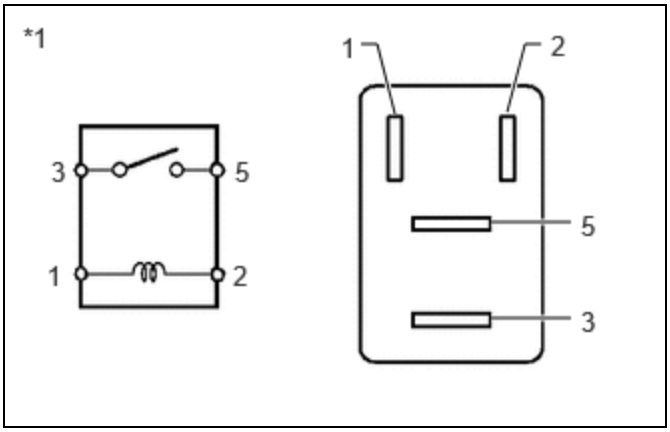
6.	**INSPECT RELAY (IGCT-MAIN NO. 1)**

(a) Remove the IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 5	Auxiliary battery voltage not applied between terminals 1 and 2	10 kΩ or higher
	Auxiliary battery voltage applied between terminals 1 and 2	Below 1 Ω



*1	IGCT-MAIN NO. 1 Relay

(c) Install the IGCT-MAIN NO. 1 relay.

NG ▶ **REPLACE RELAY (IGCT-MAIN NO. 1)**

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Disconnect the hybrid vehicle control ECU connector.

(b) Remove the PM-IGCT fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K11)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K11-8 (+B1) - 2 (PM-IGCT fuse holder)	Always	Below 1 Ω

(d) Install the PM-IGCT fuse.

(e) Reconnect the hybrid vehicle control ECU connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

8.	**CHECK HARNESS AND CONNECTOR (NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the IGCT-MAIN NO. 1 fuse, PM-IGCT fuse and IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
5 (IGCT-MAIN NO. 1 relay holder) - 2 (IGCT-MAIN NO. 1 fuse holder)	Always	Below 1 Ω
3 (IGCT-MAIN NO. 1 relay holder) - 1 (PM-IGCT fuse holder)	Always	Below 1 Ω

(c) Install the IGCT-MAIN NO. 1 fuse, PM-IGCT fuse and IGCT-MAIN NO. 1 relay.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

9.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Disconnect the hybrid vehicle control ECU connector.

(b) Remove the IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K11)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K11-10 (MREL) - 1 (IGCT-MAIN NO. 1 relay holder)	Always	Below 1 Ω
K11-10 (MREL) or 1 (IGCT-MAIN NO. 1 relay holder) - Body ground and other terminals	Always	10 kΩ or higher

(d) Install the IGCT-MAIN NO. 1 relay.

(e) Reconnect the hybrid vehicle control ECU connector.

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

10.	**CHECK HARNESS AND CONNECTOR (NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY - BODY GROUND)**

(a) Remove the IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (IGCT-MAIN NO. 1 relay holder) - Body ground	Always	Below 1 Ω

(c) Install the IGCT-MAIN NO. 1 relay.

OK ▶ **CHECK FOR INTERMITTENT PROBLEMS**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

11.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the PM-IGCT fuse from the No. 1 engine room relay block and No. 1 junction block assembly.

(b) Disconnect the hybrid vehicle control ECU connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K11)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K11-8 (+B1) or 2 (PM-IGCT fuse holder) - Body ground and other terminals	Always	10 kΩ or higher

(d) Reconnect the hybrid vehicle control ECU connector.

(e) Install the PM-IGCT fuse.

OK ▶ **REPLACE FUSE (PM-IGCT)**

NG ▶ **GO TO STEP 13**

12.	**CHECK HARNESS AND CONNECTOR (NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK ASSEMBLY)**

(a) Remove the IGCT-MAIN NO. 1 fuse, PM-IGCT fuse and IGCT-MAIN NO. 1 relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
5 (IGCT-MAIN NO. 1 relay holder) or 2 (IGCT-MAIN NO. 1 fuse holder) - Body ground and other terminals	Always	10 kΩ or higher
3 (IGCT-MAIN NO. 1 relay holder) or 1 (PM-IGCT fuse holder) - Body ground and other terminals	Always	10 kΩ or higher

(c) Install the IGCT-MAIN NO. 1 fuse, PM-IGCT fuse and IGCT-MAIN NO. 1 relay.

OK ▶ **REPLACE FUSE (IGCT-MAIN NO. 1)**

NG ▶ **GO TO STEP 14**

13.	**REPAIR OR REPLACE HARNESS OR CONNECTOR**

NEXT **REPLACE FUSE (PM-IGCT)**

14.	**REPAIR OR REPLACE HARNESS OR CONNECTOR**

NEXT **REPLACE FUSE (IGCT-MAIN NO. 1)**