

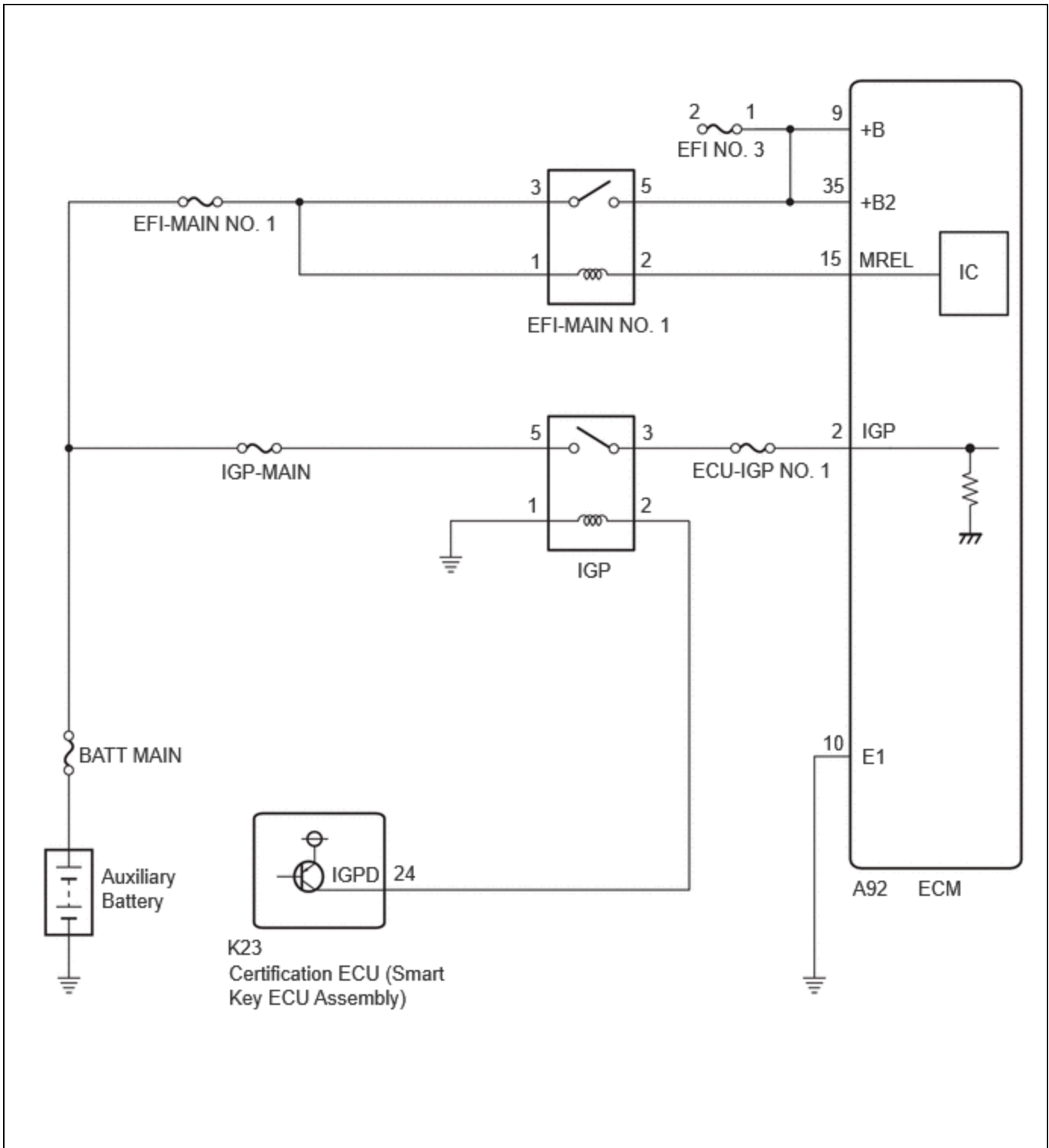
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Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [12/2022 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: ECM Power Source Circuit; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

[ECM Power Source Circuit](#)

DESCRIPTION

When the ignition switch is turned to ON, the auxiliary battery voltage is applied to IGP of the ECM. When the transistor in the MREL circuit operates, current flows from the auxiliary battery to ground through the drive circuit of the EFI-MAIN NO. 1 relay, thus operating the relay which supplies power to the +B and +B2 terminals of the ECM.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (ECM - BODY GROUND)
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- (a) Disconnect the ECM connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



[Click Location & Routing\(A92\)](#)

[Click Connector\(A92\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A92-10 (E1) - Body ground	Always	Below 1 Ω

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



2. CHECK TERMINAL VOLTAGE (IGP TERMINAL VOLTAGE)

- (a) Disconnect the ECM connector.
- (b) Turn the ignition switch to ON.
- (c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:



[Click Location & Routing\(A92\)](#)

[Click Connector\(A92\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A92-2 (IGP) - Body ground	Ignition switch ON	11 to 14 V

NG **GO TO STEP 6**

OK



3. INSPECT EFI-MAIN NO. 1 RELAY

Click here

NG  **REPLACE EFI-MAIN NO. 1 RELAY****OK****4. CHECK HARNESS AND CONNECTOR (EFI-MAIN NO. 1 RELAY - ECM)**

(a) Remove the EFI-MAIN NO. 1, VVT, EFI-MAIN NO. 2 and EFI-MAIN NO. 3 relays from the No. 1 engine room relay block and No. 1 junction block assembly.

HINT:

Remove the VVT, EFI-MAIN NO. 2 and EFI-MAIN NO. 3 relays connected between the checked terminals as the coil inside the relay influences the measurement value.

(b) Disconnect the ECM connector.

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

Standard Resistance:



[Click Location & Routing\(A92\).](#)

[Click Connector\(A92\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
5 (EFI-MAIN NO. 1 relay) - A92-9 (+B)	Always	Below 1 Ω
5 (EFI-MAIN NO. 1 relay) - A92-35 (+B2)	Always	Below 1 Ω
2 (EFI-MAIN NO. 1 relay) - A92-15 (MREL)	Always	Below 1 Ω
5 (EFI-MAIN NO. 1 relay) or A92-9 (+B) - Body ground and other terminals	Always	10 k Ω or higher
5 (EFI-MAIN NO. 1 relay) or A92-35 (+B2) - Body ground and other terminals	Always	10 k Ω or higher
2 (EFI-MAIN NO. 1 relay) or A92-15 (MREL) - Body ground and other terminals	Always	10 k Ω or higher

HINT:

If a short is detected in any of the above circuits, there may be a malfunction in the circuit of a connected ECU.

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR****OK**

5. CHECK TERMINAL VOLTAGE (POWER SOURCE OF EFI-MAIN NO. 1 RELAY)

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

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 (EFI-MAIN NO. 1 relay) - Body ground	Always	11 to 14 V
1 (EFI-MAIN NO. 1 relay) - Body ground	Always	11 to 14 V

OK ▶ REPLACE ECM

Click here [INFO](#)

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR
(AUXILIARY BATTERY - EFI-MAIN NO. 1 RELAY)

6. INSPECT IGP RELAY

Click here [INFO](#)

NG ▶ REPLACE IGP RELAY

OK



7. CHECK HARNESS AND CONNECTOR (IGP RELAY - ECM)

(a) Remove the IGP relay from the No. 1 engine room relay block and No. 1 junction block assembly.

(b) Disconnect the ECM connector.

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

Standard Resistance:



[Click Location & Routing\(A92\)](#)

[Click Connector\(A92\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 (IGP Relay) - A92-2 (IGP)	Always	Below 1 Ω

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 (IGP Relay) or A92-2 (IGP) - Body ground and other terminals	Always	10 k Ω or higher

HINT:

If a short is detected in any of the above circuits, there may be a malfunction in the circuit of a connected ECU.

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



8.	CHECK TERMINAL VOLTAGE (POWER SOURCE OF IGP RELAY)
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(a) Remove the IGP relay from the No. 1 engine room relay block and No. 1 junction block assembly.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
5 (IGP relay) - Body ground	Always	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR (AUXILIARY BATTERY - IGP RELAY)**

OK



9.	CHECK HARNESS AND CONNECTOR (IGP RELAY - BODY GROUND)
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(a) Remove the IGP 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
1 (IGP relay) - Body ground	Always	Below 1 Ω

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



10.	CHECK HARNESS AND CONNECTOR (CERTIFICATION ECU (SMART KEY ECU ASSEMBLY) - IGP RELAY)
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- (a) Disconnect the certification ECU (smart key ECU assembly) connector.
- (b) Remove the IGP 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:



[Click Location & Routing\(K23\)](#)

[Click Connector\(K23\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K23-24 (IGPD) - 2 (IGP relay)	Always	Below 1 Ω
K23-24 (IGPD) or 2 (IGP relay) - Body ground and other terminals	Always	10 k Ω or higher

OK ► **GO TO ENTRY AND START SYSTEM (FOR START FUNCTION)**

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

