Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028ZVG
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): P0AD915; Hybrid/EV Battery Positive Contactor Circuit Short to Auxiliary Battery or Open; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**P0AD915**	**Hybrid/EV Battery Positive Contactor Circuit Short to Auxiliary Battery or Open**

DESCRIPTION

Refer to the description for DTC P0AD911.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0AD915	Hybrid/EV Battery Positive Contactor Circuit Short to Auxiliary Battery or Open	Open or short to +B in the SMRB circuit: Primary circuit of SMR (+) is malfunctioning. (2 trip detection logic)	• Wire harness or connector • HV battery junction block assembly • Hybrid vehicle control ECU	Does not come on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P0ADC

CONFIRMATION DRIVING PATTERN

HINT:

After repair has been completed, clear the DTC and then check that the vehicle has returned to normal by performing the following All Readiness check procedure.

Click here INFO

1. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
2. Turn the ignition switch off and wait for 2 minutes or more.
3. Turn the ignition switch to ON (READY) and wait for 30 seconds or more.
4. Turn the ignition switch off and wait for 2 minutes or more.
5. Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
6. Check the DTC judgment result.

HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE, perform driving pattern again.

WIRING DIAGRAM

Refer to the wiring diagram for the HV Battery High-voltage Line Circuit.

Click here INFO

CAUTION / NOTICE / HINT

CAUTION:

Refer to the precautions before inspecting high voltage circuit.

Click here INFO

NOTICE:

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

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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

HINT:

If DTC P0AD915 is output, the ignition switch cannot be turned to ON (READY).

PROCEDURE

1.	**READ VALUE USING GTS (SMRB STATUS)**

Pre-procedure1

(a) None.

Procedure1

(b) Read the Data List.

Powertrain > Hybrid Control > Data List

TESTER DISPLAY
SMRB Status

Standard:

TESTER DISPLAY	CONDITION	SPECIFIED CONDITION
SMRB Status	Ignition switch ON	OFF

RESULT	PROCEED TO
The value of SMRB Status is OFF	A
The value of SMRB Status is ON	B

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO STEP 5**

A ▼

2.	**CHECK CONNECTOR CONNECTION CONDITION (HYBRID VEHICLE CONTROL ECU CONNECTOR)**

Click here INFO

NG ▶ **CONNECT SECURELY**

OK ▼

3.	**CHECK CONNECTOR CONNECTION CONDITION (FLOOR WIRE CONNECTOR)**

Click here INFO

RESULT	PROCEED TO
OK	A
NG (The connector is not connected securely.)	B
NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in the connector.)	C

B ▶ **CONNECT SECURELY**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

4.	**CHECK CONNECTOR CONNECTION CONDITION (HV BATTERY JUNCTION BLOCK ASSEMBLY CONNECTOR)**

Click here INFO

OK ▶ **CHECK FOR INTERMITTENT PROBLEMS**

NG ▶ **CONNECT SECURELY**

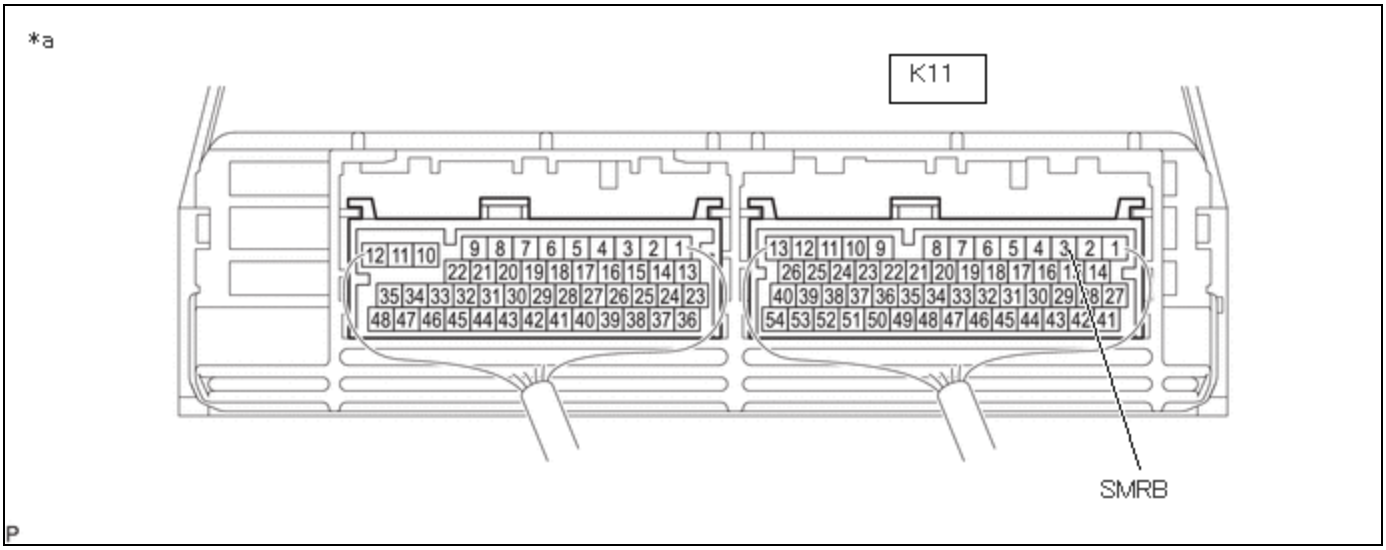
5.	**CHECK HARNESS AND CONNECTOR (SMRB VOLTAGE)**

Pre-procedure1

(a) Turn the ignition switch to ON.

Procedure1

(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	RESULT
K11-3 (SMRB) - Body ground	Ignition switch ON	Below 1 V	V

Post-procedure1

(c) Turn the ignition switch off.

NG ▶ **GO TO STEP 7**

OK ▼

6.	**CHECK CONNECTOR CONNECTION CONDITION (HYBRID VEHICLE CONTROL ECU CONNECTOR)**

Click here INFO

OK ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

Click here INFO

NG ▶ **CONNECT SECURELY**

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

Pre-procedure1

(a) Disconnect the hybrid vehicle control ECU connector.

Procedure1

(b) 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	RESULT
K11-3 (SMRB) - Body ground	Ignition switch off	20.6 to 40.8 Ω	Ω

Post-procedure1

(c) Reconnect the hybrid vehicle control ECU connector.

NG ▶ **GO TO STEP 9**

OK ▼

8.	CHECK HARNESS AND CONNECTOR (SHORT TO POWER SUPPLY WIRES)

CAUTION:

Be sure to wear insulated gloves.

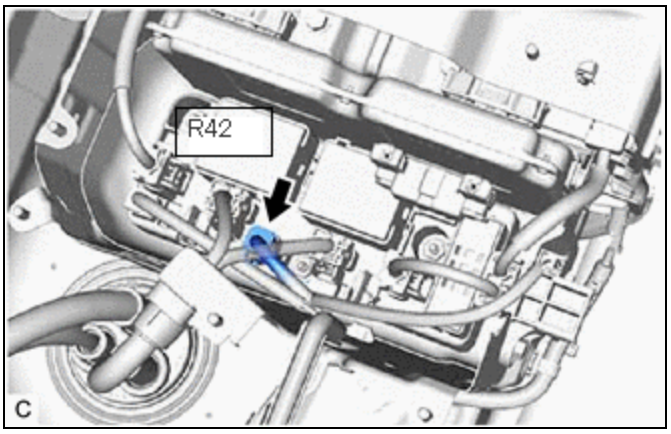
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV battery junction block assembly connector.



(c) Disconnect the hybrid vehicle control ECU connector.

(d) Turn the ignition switch to ON.

Procedure1

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

Standard Voltage:

EWD INFO

Click Location & Routing(K11,R42)
Click Connector(K11)
Click Connector(R42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K11-3 (SMRB) or R42-4 (SMRB) - Body ground	Ignition switch ON	Below 1 V	V

NOTICE:

Turning the ignition switch to ON with the hybrid vehicle control ECU connector and the HV battery junction block assembly connector disconnected causes other DTCs to be stored. Clear the DTCs after performing this inspection.

Post-procedure1

(f) Turn the ignition switch off.

(g) Reconnect the hybrid vehicle control ECU connector.

(h) Reconnect the HV battery junction block assembly connector.

OK ▶ **REPLACE HYBRID VEHICLE CONTROL ECU**

Click here INFO

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

9.	**CHECK CONNECTOR CONNECTION CONDITION (FLOOR WIRE CONNECTOR)**

Click here INFO

RESULT	PROCEED TO
OK	A
NG (The connector is not connected securely.)	B
NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in the connector.)	C

B ▶ **CONNECT SECURELY**

C ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

A ▼

10.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - HV BATTERY JUNCTION BLOCK ASSEMBLY)**

CAUTION:

Be sure to wear insulated gloves.

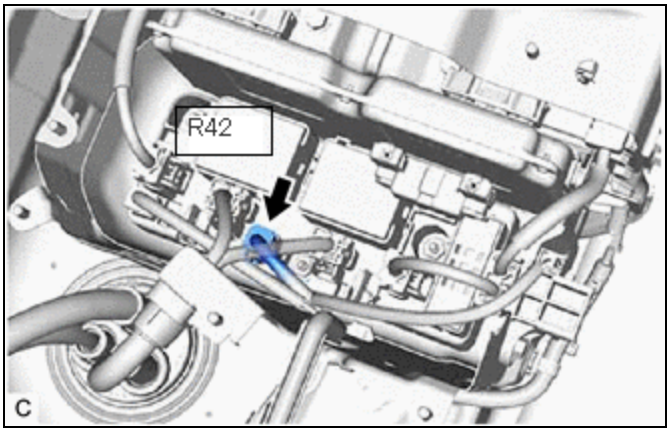
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV battery junction block assembly connector.



(c) Disconnect the hybrid vehicle control ECU connector.

Procedure1

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

Standard Resistance (Check for Open):

EWD INFO

Click Location & Routing(K11,R42)
Click Connector(K11)
Click Connector(R42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K11-3 (SMRB) - R42-4 (SMRB)	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):

EWD INFO

Click Location & Routing(K11,R42)
Click Connector(K11)
Click Connector(R42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K11-3 (SMRB) or R42-4 (SMRB) - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ

Post-procedure1

(e) Reconnect the hybrid vehicle control ECU connector.

(f) Reconnect the HV battery junction block assembly connector.

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.	**CHECK HARNESS AND CONNECTOR (HV BATTERY JUNCTION BLOCK ASSEMBLY - BODY GROUND)**

CAUTION:

Be sure to wear insulated gloves.

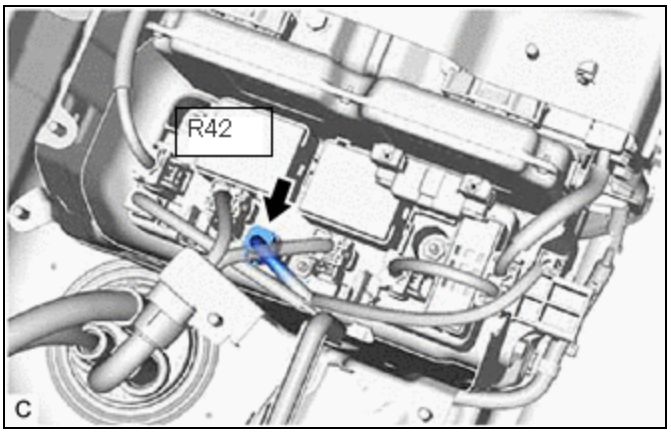
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV battery junction block assembly connector.



Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(R42)
Click Connector(R42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R42-2 (GND) - Body ground	Ignition switch off	Below 1 Ω	Ω

Post-procedure1

(d) Reconnect the HV battery junction block assembly connector.

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

OK

12.	INSPECT HV BATTERY JUNCTION BLOCK ASSEMBLY (SMRB)

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

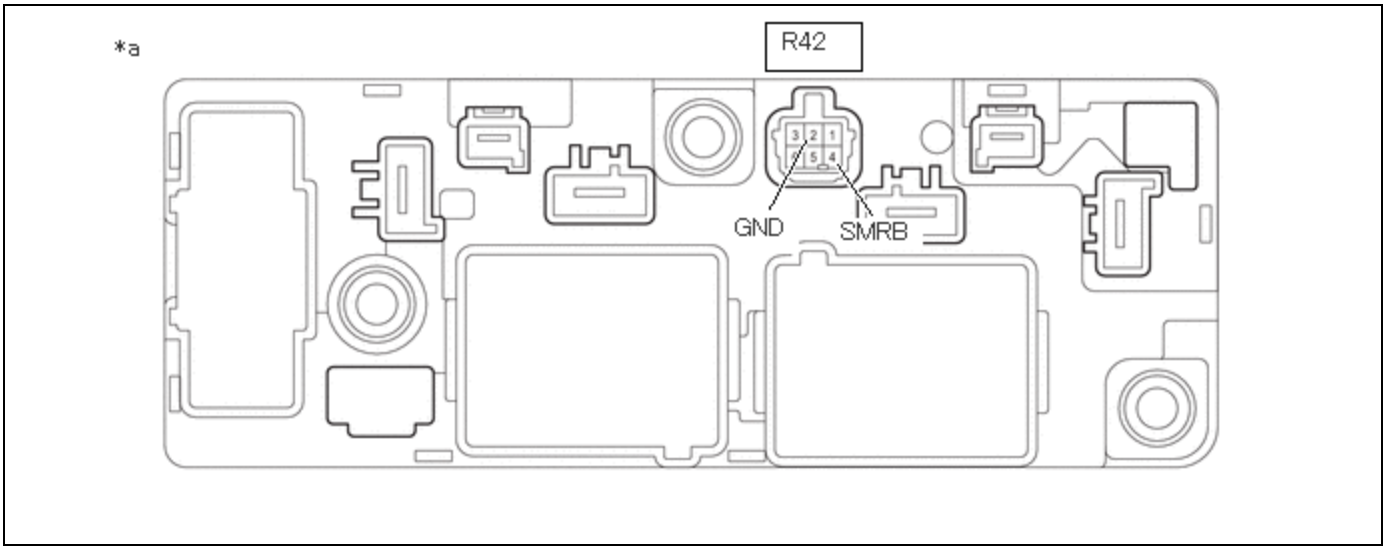
NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV battery junction block assembly connector.

Procedure1

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



*a	Component without harness connected (HV Battery Junction Block Assembly)	-	-

Standard Resistance:

EWD INFO

Click Location & Routing(R42)
Click Connector(R42)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R42-4 (SMRB) - R42-2 (GND)	-40 to 80°C (-40 to 176°F)	20.6 to 40.8 Ω	Ω

Post-procedure1

(d) Reconnect the HV battery junction block assembly connector.

OK ▶ **CHECK FOR INTERMITTENT PROBLEMS**

NG ▶ **REPLACE HV BATTERY JUNCTION BLOCK ASSEMBLY**