Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028ZWI
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for M20A-FXS): P0A302A; Drive Motor "B" Temperature Sensor Signal Stuck In Range; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**P0A302A**	**Drive Motor "B" Temperature Sensor Signal Stuck In Range**

DTC SUMMARY

MALFUNCTION DESCRIPTION

This DTC is stored when the rear motor temperature sensor output is abnormal.

The cause of this DTC output may be the following:

Rear motor temperature sensor malfunction

- Rear motor temperature sensor internal malfunction

Wire harness malfunction between the rear motor temperature sensor and hybrid vehicle control ECU

- The connectors are not connected properly
- Foreign matter or water on the connector terminals

HINT:

When this DTC is stored, the rear motor temperature sensor is malfunctioning and the self-protection function may not operate. Therefore under certain high load driving condition, the temperature of the rear motor becomes high. If the self-protection function does not operate, the rear motor may malfunction and cause the vehicle to enter fail-safe mode.

DESCRIPTION

Refer to the description for DTC P0A3011.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0A302A	Drive Motor "B" Temperature Sensor Signal Stuck In Range	The difference between the maximum and minimum output temperatures of the rear traction motor is less than the stuck malfunction judgment deviation. (1 trip detection logic)	• Wire harness or connector • Rear traction motor with transaxle assembly(Rear motor temperature sensor)	Does not come on	Master Warning: Comes on	Hybrid Control	A	SAE Code: P0A31

CONFIRMATION DRIVING PATTERN

HINT:

After repairs have been completed, clear the DTCs 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. Drive the vehicle (stop and go driving) on urban roads for approximately 5 minutes. If the Data List item "Rear Motor Temperature" shows both increases and decreases in temperature, suspected areas indicated by this DTC are not malfunctioning.
4. Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
5. 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 DTC P0A3011.

Click here INFO

PROCEDURE

1.	**CHECK DTC OUTPUT (HYBRID CONTROL)**

Pre-procedure1

(a) None.

Procedure1

(b) Check for DTCs.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
No DTCs are output, or DTCs except the ones in the table below are also output.	A
Any of the following DTCs are also output.	B

RELEVANT DTC	
P0A3011	Drive Motor "B" Temperature Sensor Circuit Short to Ground
P0A3015	Drive Motor "B" Temperature Sensor Circuit Short to Battery or Open

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO DTC CHART (HYBRID CONTROL SYSTEM)**

A ▼

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

3.	**CHECK HARNESS AND CONNECTOR (REAR MOTOR TEMPERATURE SENSOR - HYBRID VEHICLE CONTROL ECU)**

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
K11-48 (RMT) - K11-47 (RMTG)	Ignition switch off	0.3 to 1500 kΩ	kΩ

Post-procedure1

(c) Reconnect the hybrid vehicle control ECU connector.

NG ▶ **GO TO STEP 10**

OK

4.	**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 ▼

5.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - FLOOR WIRE)**

Pre-procedure1

(a) Disconnect the floor wire connector.

(b) Disconnect the hybrid vehicle control ECU connector.

Procedure1

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

HINT:

When performing the measurement, lightly jiggle the wire harness up and down and left and right and confirm that the resistance does not fluctuate.

Standard Resistance (Check for Open):

EWD INFO

Click Location & Routing(KR1,K11)
Click Connector(KR1)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
KR1-5 - K11-48 (RMT)	Ignition switch off	Below 1 Ω	Ω
KR1-4 - K11-47 (RMTG)	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):

EWD INFO

Click Location & Routing(KR1,K11)
Click Connector(KR1)
Click Connector(K11)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
KR1-5 or K11-48 (RMT) - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ
KR1-4 or K11-47 (RMTG) - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ

Post-procedure1

(d) Reconnect the hybrid vehicle control ECU connector.

(e) Reconnect the floor wire connector.

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

OK ▼

6.	**CHECK CONNECTOR CONNECTION CONDITION (NO. 6 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 ▼

7.	**CHECK HARNESS AND CONNECTOR (NO. 6 FLOOR WIRE - FLOOR WIRE)**

Pre-procedure1

(a) Disconnect the No. 6 floor wire connector.

(b) Disconnect the floor wire connector.

Procedure1

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

HINT:

When performing the measurement, lightly jiggle the wire harness up and down and left and right and confirm that the resistance does not fluctuate.

Standard Resistance (Check for Open):

EWD INFO

Click Location & Routing(RY1,KR1)
Click Connector(RY1)
Click Connector(KR1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
RY1-1 - KR1-5	Ignition switch off	Below 1 Ω	Ω
RY1-2 - KR1-4	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):

EWD INFO

Click Location & Routing(RY1,KR1)
Click Connector(RY1)
Click Connector(KR1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
RY1-1 or KR1-5 - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ
RY1-2 or KRI1-4 - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ

Post-procedure1

(d) Reconnect the No. 6 floor wire connector.

(e) Reconnect the floor wire connector.

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

OK ▼

8.	**CHECK CONNECTOR CONNECTION CONDITION (REAR MOTOR TEMPERATURE SENSOR CONNECTOR)**

Click here INFO

RESULT	PROCEED TO
OK	A
NG (The connector is not connected securely.)	B

RESULT	PROCEED TO
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

9.	**CHECK HARNESS AND CONNECTOR (REAR MOTOR TEMPERATURE SENSOR - NO. 6 FLOOR WIRE)**

Pre-procedure1

(a) Disconnect the No. 6 floor wire connector.

(b) Disconnect the rear motor temperature sensor connector.

Procedure1

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

Standard Resistance (Check for Open):

EWD INFO

Click Location & Routing(Y2,RY1)
Click Connector(Y2)
Click Connector(RY1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
Y2-2 (RMT) - RY1-1	Ignition switch off	Below 1 Ω	Ω
Y2-1 (RMTG) - RY1-2	Ignition switch off	Below 1 Ω	Ω

Standard Resistance (Check for Short):

EWD INFO

Click Location & Routing(Y2,RY1)
Click Connector(Y2)
Click Connector(RY1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
Y2-2 (RMT) or RY1-1 - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ
Y2-1 (RMTG) or RY1-2 - Body ground and other terminals	Ignition switch off	10 kΩ or higher	kΩ

Post-procedure1

(d) Reconnect the rear motor temperature sensor connector.

(e) Reconnect the No. 6 floor wire connector.

OK ▶ **REPLACE REAR TRACTION MOTOR WITH TRANSAXLE ASSEMBLY**

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

10.	**INSPECT REAR TRACTION MOTOR WITH TRANSAXLE ASSEMBLY (REAR MOTOR TEMPERATURE SENSOR)**

Pre-procedure1

(a) Disconnect the floor wire connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(KR1)
Click Connector(KR1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
KR1-5 - KR1-4	Ignition switch off	0.3 to 1500 kΩ	kΩ

Post-procedure1

(c) Reconnect the floor wire connector.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (FLOOR WIRE - HYBRID VEHICLE CONTROL ECU)**

NG ▼

11.	**INSPECT REAR TRACTION MOTOR WITH TRANSAXLE ASSEMBLY (REAR MOTOR TEMPERATURE SENSOR)**

Pre-procedure1

(a) Disconnect the No. 6 floor wire connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(RY1)
Click Connector(RY1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
RY1-1 - RY1-2	Ignition switch off	0.3 to 1500 kΩ	kΩ

Post-procedure1

(c) Reconnect the frNo. 6 floor wire connector.

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (NO. 6 FLOOR WIRE - FLOOR WIRE)**

NG ▼

12.	**INSPECT REAR TRACTION MOTOR WITH TRANSAXLE ASSEMBLY (REAR MOTOR TEMPERATURE SENSOR)**

Click here INFO

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (REAR MOTOR TEMPERATURE SENSOR - NO. 6 FLOOR WIRE)**

NG ▶ **REPLACE REAR TRACTION MOTOR WITH TRANSAXLE ASSEMBLY**