Technical Service Bulletin

SUBJECT:	No:	TSB-24-54-003
BATTERY MANAGEMENT UNIT (BMU) AND TRACTION BATTERY - SERVICE MANUAL REVISION	DATE:	**September 2024**
	MODEL:	**Outlander Plug-in Hybrid**

CIRCULATE TO:	[ ] GENERAL MANAGER	[**X**] PARTS MANAGER	[**X**] TECHNICIAN
[**X**] SERVICE ADVISOR	[**X**] SERVICE MANAGER	[**X**] WARRANTY PROCESSOR	[**X**] SALES MANAGER

PURPOSE
This TSB provides corrections to the Battery Management Unit (BMU) and Traction Battery in the Electric Power Train section of the applicable Service Manuals.

AFFECTED VEHICLES
2023-2025 Outlander Plug-in Hybrid

AFFECTED SERVICE MANUAL
2023-2025 Outlander Plug-in Hybrid Service Manual

PROCEDURE
Please use the chart below to replace the page in the affected Service Manuals: Electric Power Train, Battery Management Unit (BMU) and Traction Battery, Troubleshooting and Drive Battery Disassembly and Assembly sections.

Applicable Manual	Pub.No.	Applicable Title	Content
2023 OUTLANDER PLUG-IN HYBRID Service Manual	MSCD-027B-2023	ELECTRIC POWER TRAIN └ BATTERY MANAGEMENT UNIT (BMU) AND TRACTION BATTERY └ TROUBLESHOOTING └ DIAGNOSTIC TROUBLE CODE PROCEDURES<BMU> └ DTC No. P0A1F-00 ECU Internal Failure	Attached sheet 2
2024 OUTLANDER PLUG-IN HYBRID Service Manual	MSCD-027B-2024	ELECTRIC POWER TRAIN └ BATTERY MANAGEMENT UNIT (BMU) AND TRACTION BATTERY └ TROUBLESHOOTING └ DIAGNOSTIC TROUBLE CODE PROCEDURES<BMU> └ DTC No. P0AF9-00 CC Diagnosis - Uneven Cell Voltage	Attached sheet 3
2025 OUTLANDER PLUG-IN HYBRID Service Manual	MSCD-027B-2025	ELECTRIC POWER TRAIN └ BATTERY MANAGEMENT UNIT (BMU) AND TRACTION BATTERY └ DRIVE BATTERY DISASSEMBLY AND ASSEMBLY └ DRIVE BATTERY INSPECTION └ BATTERY MODULE CHECK	Attached sheet 4

DTC No. P0A1F-00 ECU Internal Failure

DIAGNOSIS

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long

1. Test the OBD-II drive cycle.

(1) Carry out a test drive with the drive cycle pattern. Refer to OBD-II Drive Cycle .

(2) Check the DTC.

Is the DTC set?

YES >>

Go to Step 2

NO >>

The procedure is complete.

2. Cell voltage harness check

(1) Disassemble the drive battery.

(2) Check the cell voltage wiring harnesses of the battery module No. 1 to No. 8.

Is the check result normal?

YES >>

Go to Step 3.

NO >>

Replace the cell voltage harness. Then,

go to Step 4.

3. Module check

Check the battery module No. 1 to No. 8.

Is the check result normal?

YES >>

Replace the BMU. Then,

go to Step 4.

NO >> <Corrected>

Replace the drive battery. Then,

go to Step 4.

4. Test the OBD-II drive cycle.

(1) Carry out a test drive with the drive cycle pattern. Refer to OBD-II Drive Cycle .

(2) Check the DTC.

Is the DTC set?

YES >>

Retry the troubleshooting.

NO >>

The procedure is complete.

DTC No. P0AF9-00 CC Diagnosis - Uneven Cell Voltage

DIAGNOSIS

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long

1. Check of other DTC

Check whether the BMU and BMU2 set the following DTC.

- DTC No. P0A1F-00 ECU Internal Failure

Is the DTC set?

YES >>

Troubleshoot the set DTC. Then,

go to Step 8.

NO >>

Go to Step 2.

2. Test the OBD-II drive cycle.

(1) Carry out a test drive with the drive cycle pattern. Refer to OBD-II Drive Cycle .
(2) Check the DTC.

Is the DTC set?

YES >>

Go to Step 3.

NO >>

The trouble can be an intermittent malfunction (Refer to General Information - How to Use Troubleshooting/Inspection Service Points, How to Cope with Intermittent Malfunctions).

3. M.U.T.-III SE freeze frame data check

(1) Using the M.U.T.-IIISE, check the following BMU freeze frame data.
- Item Nos. 220 to 1170: Cell Voltage1 to 96

(2) Record the following items. Then, go to Step 4.
- Minimum cell voltage and cell number
- Maximum cell voltage and cell number
- Battery module to which the above cell number belongs

<Corrected>

4. M.U.T.-III SE data list check

(1) Using the M.U.T.-III SE, check the following BMU data list items.
- Item Nos. 70 to 1020: Cell Voltage 1 to 96

(2) Record each item. Then, go to Step 5.

<Added>

5. Check the looseness or foreign material attached on the bus bar

(1) Disassemble the drive battery.
(2) Check that there is no looseness or foreign material attached on the bus bar of the battery modules which the recorded cell numbers belong to.

Is the check result normal?

YES >>

Go to Step 6.

NO >>

Repair it. Then,

go to Step 8.

6. Cell voltage harness check

Check the cell voltage harness of the battery modules which the recorded cell numbers belong to.

Is the check result normal?

YES >>

Go to Step 7.

NO >>

Replace the cell voltage harness. Then,

go to Step 8.

<Added>

7. Module cell voltage check

Check the cell voltage of the battery modules which the recorded cell numbers belong to.

Is there a cell voltage drop?

YES [There is a voltage drop in any one cell] >>

Replace the drive battery. Then,

go to Step 8.

YES [There is a voltage drop in consecutive cells (2 to 12 cells)] >>

Replace the drive battery. Then,

go to Step 8.

YES [There is a voltage drop in consecutive cells (all 12 cells)] >>

Replace the drive battery. Then,

go to Step 8.

YES [Adjacent cells have a higher or lower cell voltage difference than the other cells] >>

Replace the BMU. Then,

go to Step 8.

NO >>

Replace the BMU. Then,

go to Step 8.

8. Test the OBD-II drive cycle.

(3) Carry out a test drive with the drive cycle pattern. Refer to OBD-II Drive Cycle .
(4) Check the DTC.

Is the DTC set?

YES >>

Retry the troubleshooting.

NO >>

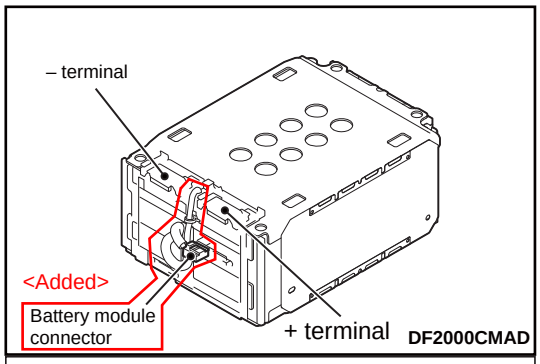
The procedure is complete.

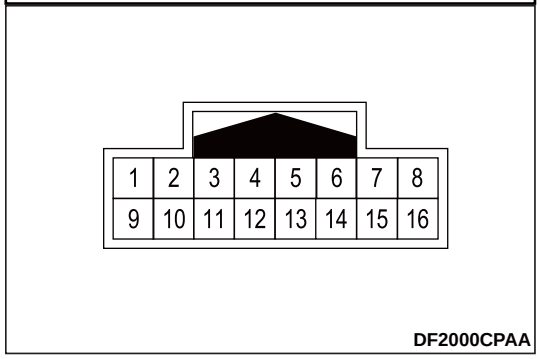
BATTERY MODULE CHECK

Required Special Tools: <Corrected>

- MB991219: Check harness

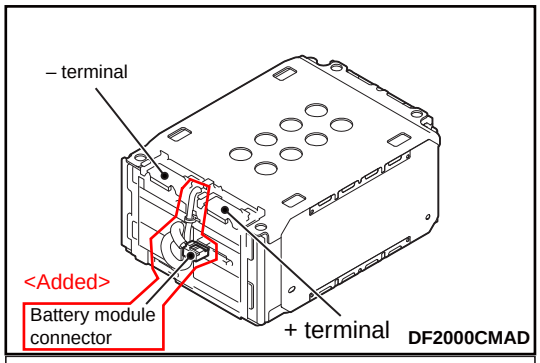
1. Using the special tool check harness (MB991219), <Added> measure the voltage between the + and - terminals of the battery module , and between the following terminals of the battery module connector.
   (1) Battery module No. 1, 2, 7 and 8 (14 cells)

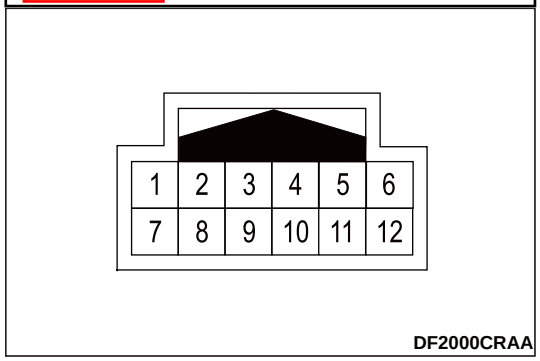




Terminal (+)	Terminal (-)	Standard value
+ terminal	- terminal	44.03 ± 14.8 V
+ terminal	9	3.145 ± 1.06 V
9	1	
1	10	
10	2	
2	11	
11	3	
3	12	
12	4	
4	13	
13	5	
5	14	
14	6	
6	15	
15	7	

(2) Battery module No. 3, 4, 5 and 6 (10 cells)





Terminal (+)	Terminal (-)	Standard value
+ terminal	- terminal	31.45 ± 10.6 V
+ terminal	7	3.145 ± 1.06 V
7	1	
1	8	
8	2	
2	9	
9	3	
3	10	
10	4	
4	11	
11	5	

2.If the check result deviates from the standard value, replace the drive battery.