![MITSUBISHI MOTORS logo]

Technical Service Bulletin

SUBJECT:			No:	**TSB-19-54-001REV**
QUICK CHARGING WITH ABB QUICK CHARGER STOPS DUE TO ISOLATION ERROR – REVISED			DATE:	**March 2019**
			MODEL:	**2016-2017 i-MiEV, 2018-2019 Outlander PHEV**

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

> *This bulletin supercedes TSB-19-54-001, issued February, 2019, to add i-MiEV vehicles, and instructions for reprogramming the BMU with updated software. Revisions are italicized and indicated by* ◀.

PURPOSE

During quick charging of the traction battery using the **ABB quick charger**, an isolation error may be detected by the charger, causing charging to stop approximately 2 minutes after charging was started.

◀ This TSB instructs dealers to reprogram the *BMU (i-MiEV) or* sub-BMU *(Outlander PHEV)* with updated software to correct the issue.

BACKGROUND

◀ When the *BMU or* sub-BMU is in operation, the coupling condenser provided in the current leak detection circuit repeats charging and discharging and its duration is monitored by the sub-BMU to judge if current leak occurs in the high voltage circuit.

On the other hand, during the quick charging process the sub-BMU does not carry out current leak judgement as it is done by the charger side. But as charging and discharging of the coupling condenser continues even during quick charging, it is possible that the charger misjudges a current leak due to voltage fluctuation in the high voltage circuit.

AFFECTED VEHICLES

◀ - *2016 - 2017 i-MiEV vehicles, and for BMU service parts produced **before** mid-March, 2019.*
- 2018 - 2019 Outlander PHEV vehicles, produced **before** the following VINs:
    - U.S. And Puerto Rico: **JA4J24A50KZ036473** (January 10, 2019)
    - Canada: **JA4J24A55KZ607102** (January 10, 2019)

REQUIRED OPERATIONS

1. Confirm your MUT-III is updated with the latest reprogramming database.
◀ 2. Reprogram the *BMU or* sub-BMU with the new software. Refer to the "*BMU/*Sub-BMU Reprogramming Chart" for new software information.

◀
◀ **IMPORTANT:** If an affected vehicle has a Malfunction Indicator Lamp (MIL) illuminated before reprogramming, and DTCs are listed in the *BMU or* Sub-BMU memory, diagnose and repair those DTCs per the service manual before reprogramming. **DO NOT** reprogram the *BMU or* Sub-BMU until the reason(s) for other DTCs being set is corrected.

(4810)

EQUIPMENT

The following equipment is needed to reprogram the *BMU or* sub-BMU.   ◄

- VCI (Vehicle Communication Interface) or VCI Lite - MB991824 or MB992744V.
- MEDIC Laptop/Tablet with A/C power adapter - MIT540031 or FZG1MK2.
- MUT-III main harness 'A' (blue connector at the DLC end) - MB991910V or MB992745V.
- USB 2.0 cable - MB991827V or RRAR1MBR108GL.
- MEDIC 3.5/4 update at **586** or higher.
- For Standalone MUT-III units, MUT3-SE Reprogramming Database *N190301* or higher.   ◄

*BMU/*SUB-BMU REPROGRAMMING CHART   ◄

Vehicle	Part Name	Part Number	Details	Data Number	Software Version	
					Previous	New
2016-2017 i-MiEV	*BMU*	*9479A043*	-	*9479A210*	*BE1204*	*BE1206* ◄
2018-2019 Outlander PHEV	Sub-BMU	9479A058	With Battery Heater	9479A201	BE3014 BE3015 BE3016	BE3017
		9479A170		9479A178	BE3204	BE3205
		9479A057	Without Battery Heater	9479A200	BE3100 BE3101 BE3102	BE3103
		9479A172		9479A179	BE3403	BE3404

REPAIR PROCEDURE

SOFTWARE/MEDIC VERSION VERIFICATION

1. Verify that the *BMU/Sub-BMU* has not already been updated to the latest S/W number in the   ◄
   table above.
   If the *BMU/Sub-BMU* is at the latest level, reprogramming is not necessary.   ◄

> **NOTE: Reprogramming the *BMU/*Sub-BMU with the latest database (e.g., *N190301*) includes all past and   ◄ current reprogramming for TSBs of affected vehicles. It is not necessary to reprogram the *BMU/*Sub-BMU for each previous TSB.**

Version and Update numbers
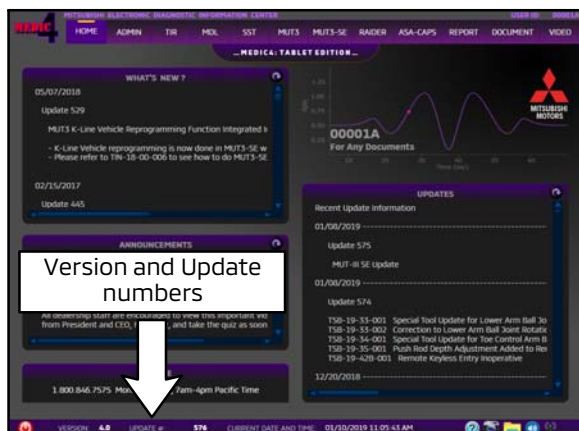
For MEDIC 3.5/4 users only: (MUT-III STV users go to step 5)
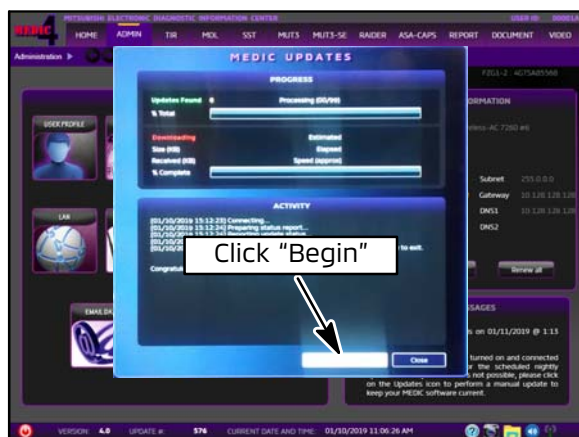
2. Verify the MEDIC 3.5/4 is at version 3.5 and at update **586** or higher.

   If your **MEDIC 3.5/4 update is at least 586**, continue with the Reprogramming Procedure.

   If your **MEDIC 3.5/4 update is below 586**, update your MEDIC as follows.

Admin

Click on Updates

3. Select the MEDIC 3.5/4 Admin tab and click on "Updates."

Click "Begin"

4. IF the MEDIC update screen advises updates are available, click the "Begin" button. After all updates are complete, **GO TO THE REPROGRAMMING PROCEDURE.**

5. **STANDALONE MUT-III SCAN TOOL VIEWER (STV) ONLY: (MEDIC 3.5 USERS – GO TO THE REPROGRAMMING PROCEDURE)**. Verify that your MUT3-SE has the most current version of the reprogramming database:
From the MUT3-SE Main Page:

a. Click "STV."
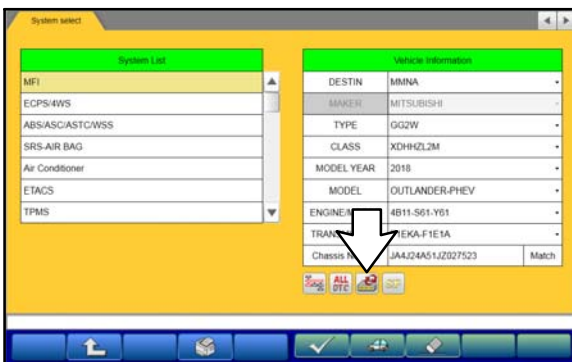
b. Click the "ECU Reprogramming" button.
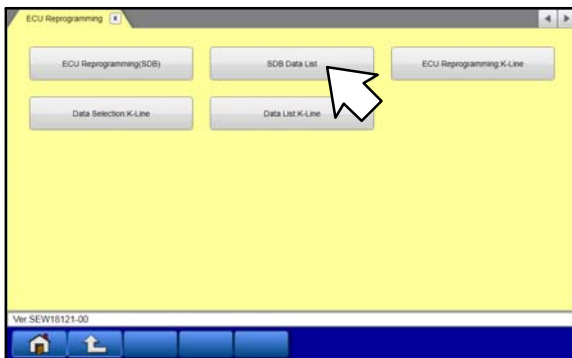
c. Click "SDB Data List."
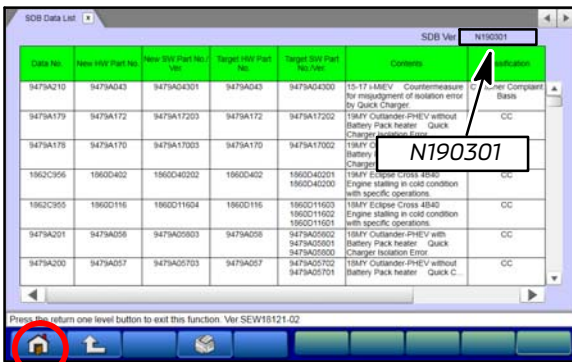
d. Confirm that the database number displayed in the upper right above the chart is ***N190301* or higher.** ◄

   • If the database number displayed on your MUT3-SE is *N190301* or higher, continue to the next section. ◄

   • If the reprogramming database number displayed on your MUT3-SE is **lower** than ***N190301***, then the MUT3-SE database needs to be updated. ◄

e. Once database number is confirmed, hit the Home button to go back to the System Select screen.

REPROGRAMMING PROCEDURE: PREPARATION

⚠ CAUTION   **To ensure that the vehicle battery maintains 12V during the procedure, hook-up a battery charger to the 12V starter battery during the procedure.**

▶

12V Starter Battery Location: i-MiEV

Under Hood

▶
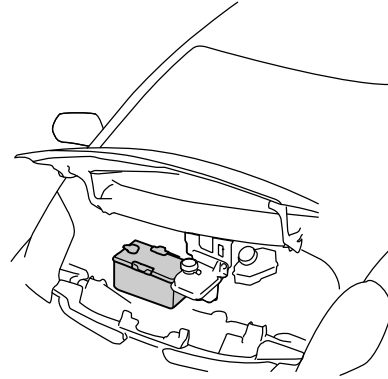
12V Starter Battery Location: *Outlander PHEV*

Rear of vehicle, under luggage floorboard
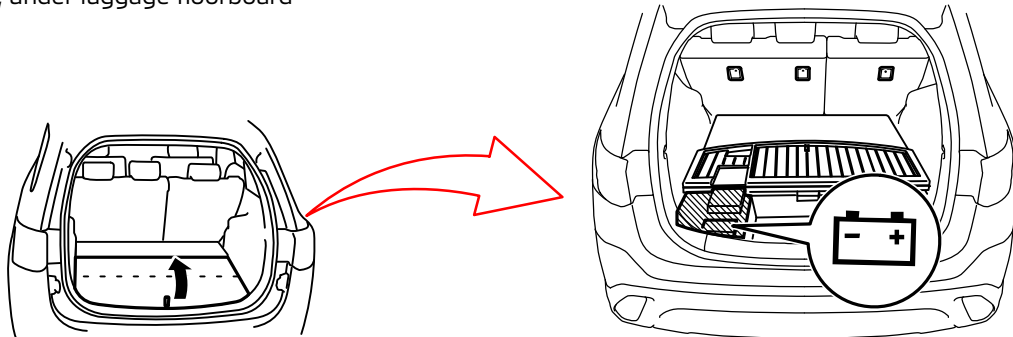
NOTE: **VCI Stand-alone reprogramming is not available for this procedure. The laptop/tablet and the VCI must remain connected for the entire procedure.**

1. Connect the equipment as follows:

    NOTE: VCI Lite and MEDIC 4.0 Toughpad shown for illustration purposes only.
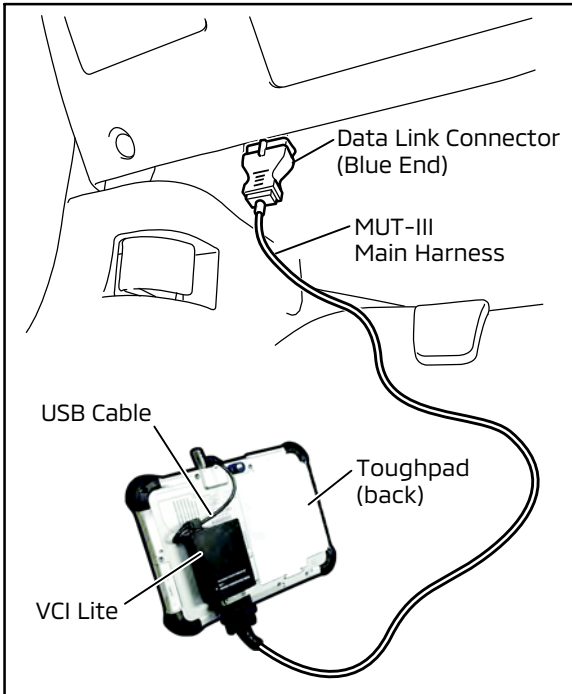
- Turn the MEDIC PC/tablet on. If the battery indicator in the lower right hand corner of the screen does not show a full charge, it is recommended that either the battery be charged prior to beginning, or be used with the A/C power adaptor connected.

- Connect the USB cable to the VCI/VCI Lite.

- When the laptop/tablet displays the MUT-III main screen, connect the USB cable to the device.

- Connect the MUT-III main harness with the blue DLC connection to the VCI/VCI Lite.

- Connect the blue connection of the MUT-III main harness to the vehicle's data link connector.

- For VCI only (p/n MB991824): Turn the VCI power switch ON. Verify that the indicator lamp in the upper right corner of the screen is green.

⚠ **CAUTION**

DO NOT DISTURB THE HARNESS CABLES OR CONNECTIONS DURING THE REPROGRAMMING PROCESS AS IT COULD CAUSE THE CONTROL UNIT TO LOSE DATA. IF THE USB CABLE IS DISCONNECTED DURING THIS PROCEDURE, A WARNING MESSAGE WILL DISPLAY.

2. Turn the ignition switch to the "ON" position.

3. Using MEDIC, from the main page, click the "MUT3-SE" icon at the top center of the screen to open MUT-III SE.

    Click the STV button.

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4. The System Select screen opens and populates with some basic information from the vehicle.

   Look at the label on the passenger side B pillar to identify the appropriate class.

   If necessary, select the correct class from the drop-down list.

► 5. Verify that the *BMU or* Sub-BMU has not already been updated to the latest S/W number shown in the **"*BMU/*Sub-BMU Reprogramming Chart"** in this TSB.
   If the *BMU/*Sub-BMU is at the latest level, reprogramming is not necessary.

► ***i-MiEV***
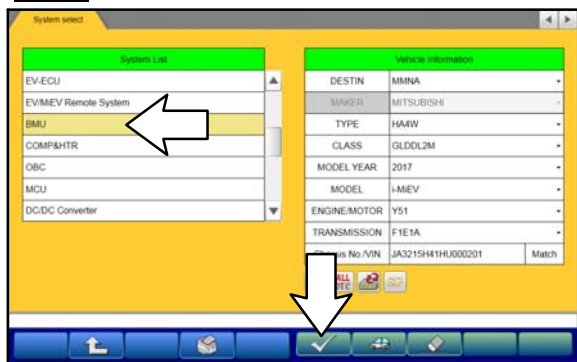
a. Select ***BMU*** *" (for i-MiEV) or "***BMU(SUB)*** *(for Outlander PHEV)"* from the System List, then click on the check mark at the bottom of the screen.

Outlander PHEV
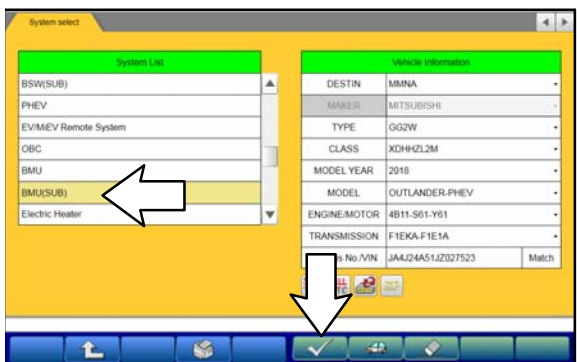
**i-MiEV**
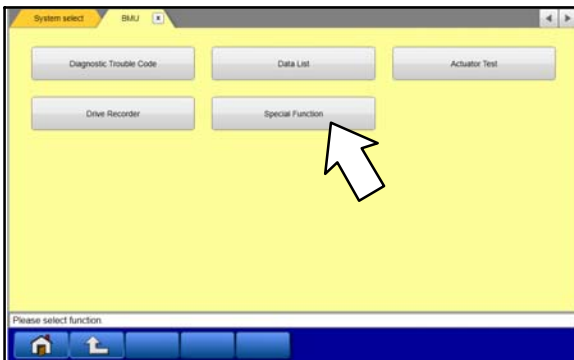
**Outlander PHEV**

b. Select "Special Function." ◄

**i-MiEV**
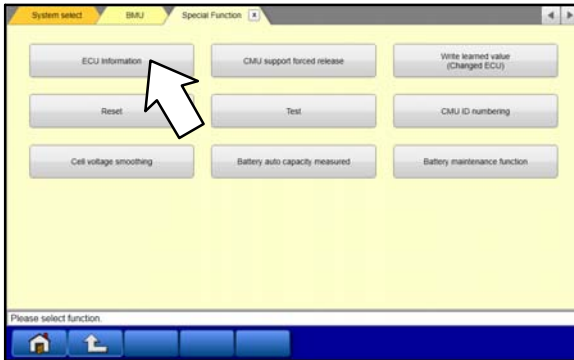
**Outlander PHEV**

c. Select "ECU Information." ◄
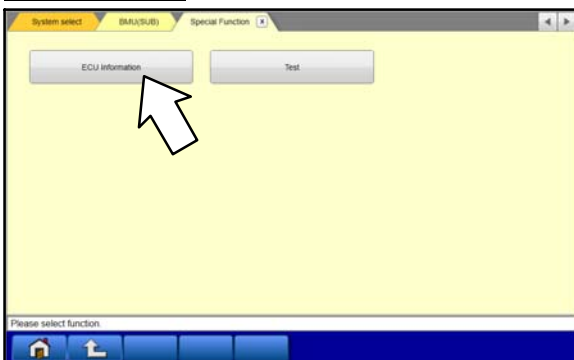
i-MiEV

Outlander PHEV
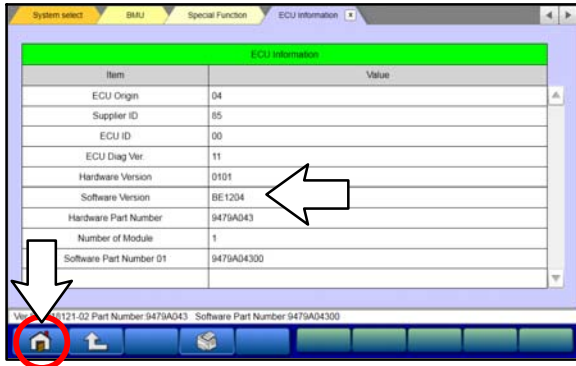
d. If the Software Version listed is **not** at the latest level (shown in the ***"BMU/*Sub-BMU Reprogramming Chart"*** in this TSB), proceed with the next step. Click the Home button to return to the System Select screen.
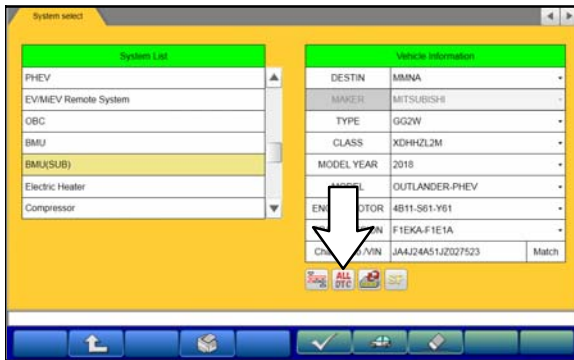
If the Software Version **is** at the latest level, then reprogramming is not necessary.
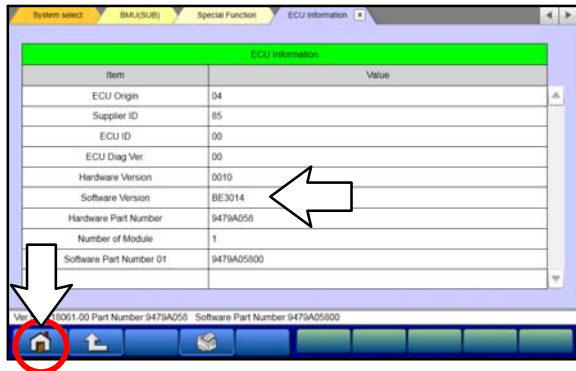
6. Before reprogramming, perform an "**Erase and Read All DTCs**" to clear any DTCs that may have set.

   NOTE: Screens shots from Outlander PHEV shown below for example. ◀

a. On the System Select screen" click the "ALL DTC" button.
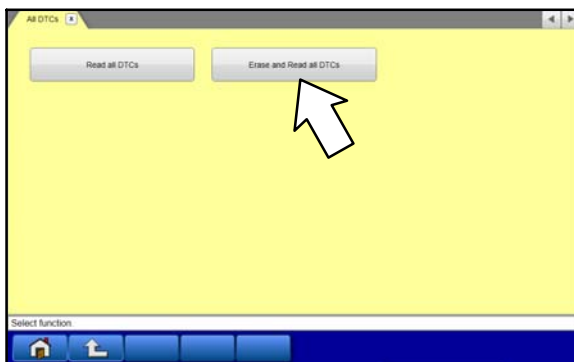
b. Select "Erase and Read All DTCs."
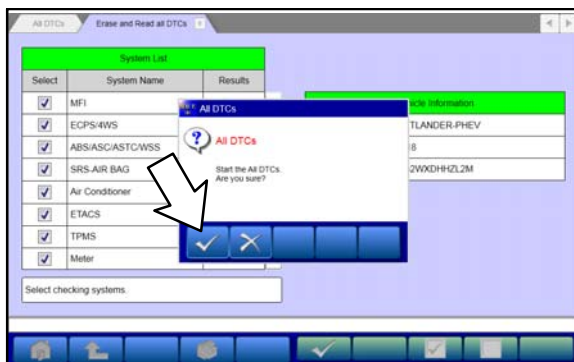
c. A window will pop up asking you to confirm DTC erasing. Click the check mark in the dialog box for DTC erasing and reading to begin.
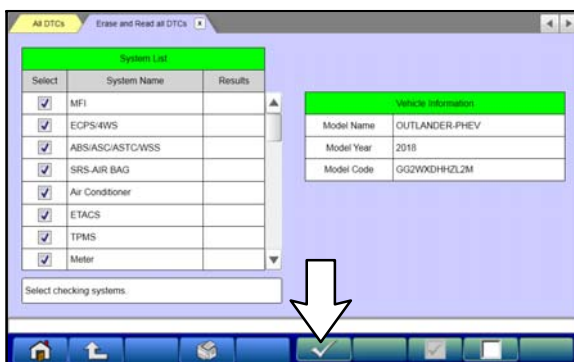

d. The "System List" on the left side of the screen will have all selections checked. Do not change these selections.

e. Click the check mark to continue.
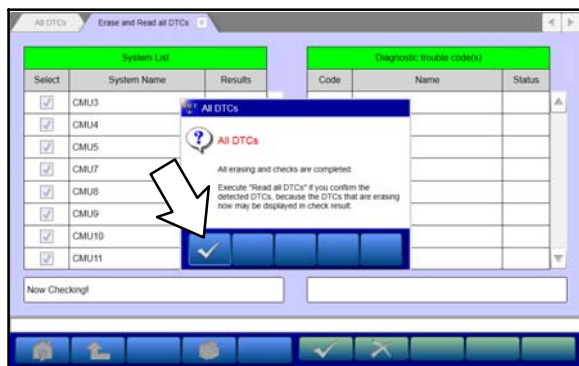
7. When DTC erasing is completed, click the check mark in the pop-up message that reads "All erasing and checks are completed."

 a. If any DTCs return after erasing is completed, click the check mark to clear the window. Diagnose and repair per the Service Manual.
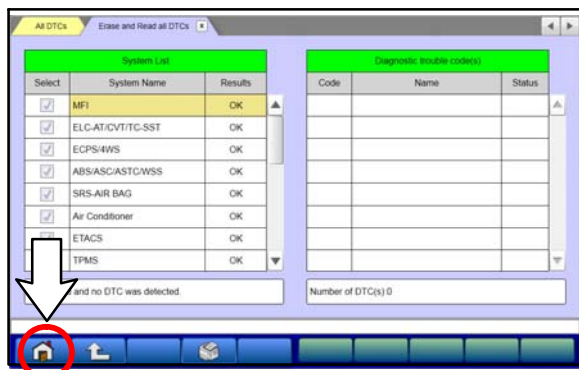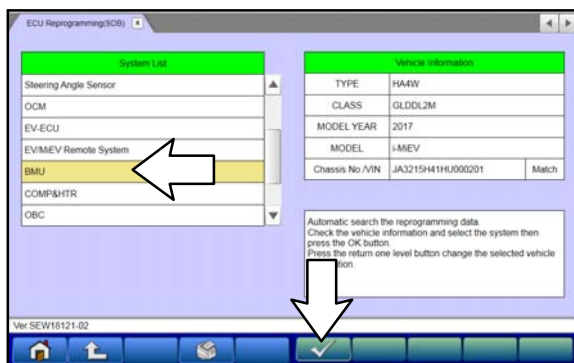

 b. If DTCs do not return, click the check mark to clear the window, then click the Home icon in the lower left to return to the System Select menu.

REPROGRAMMING PROCEDURE: 2016 - 2017 i-MiEV ◄

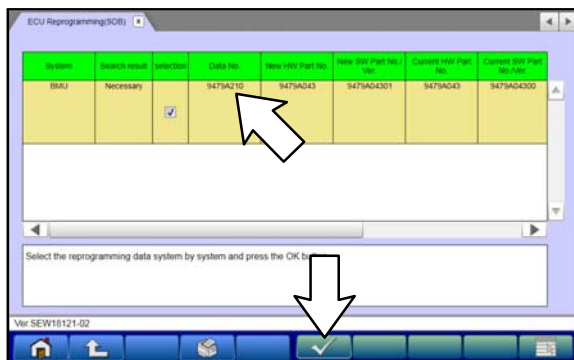1. **Reprogram the BMU** *following the steps below.* ◄
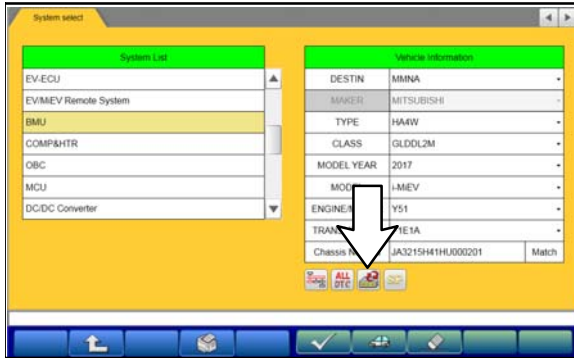
a. *On the System Select screen click on the Reprogram button.* ◄
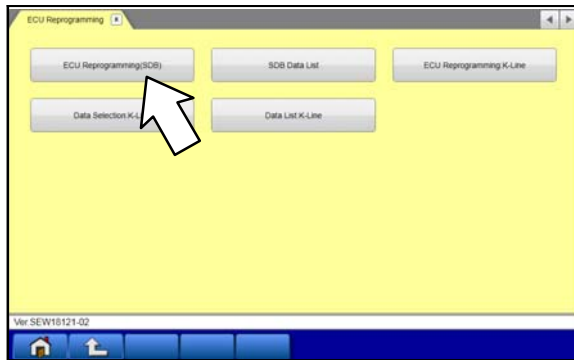
b. *Select "ECU Reprogramming (SDB)."* ◄
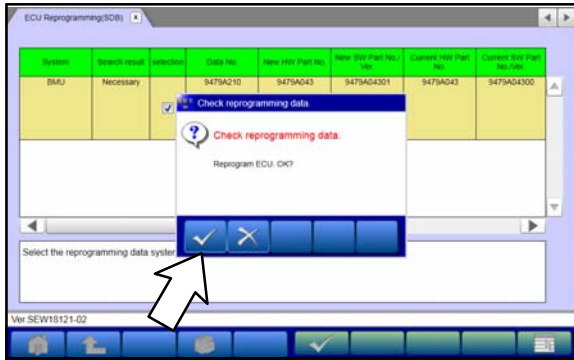

c. *Select "**BMU**" in the System List, then click the check mark.* ◄

d. *Verify that the correct data file listed in the table matches the one in the **"BMU/Sub-BMU Reprogramming Chart**."* ◄

e. *Click the check mark at the bottom of the page to initiate reprogramming.*
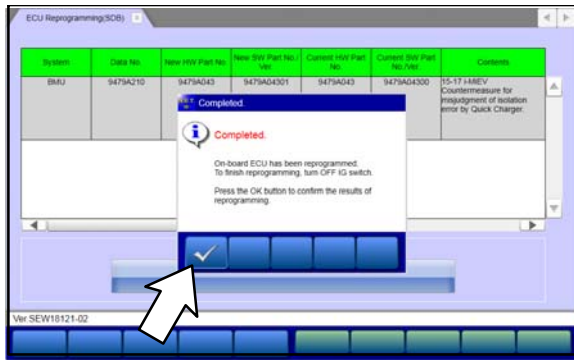
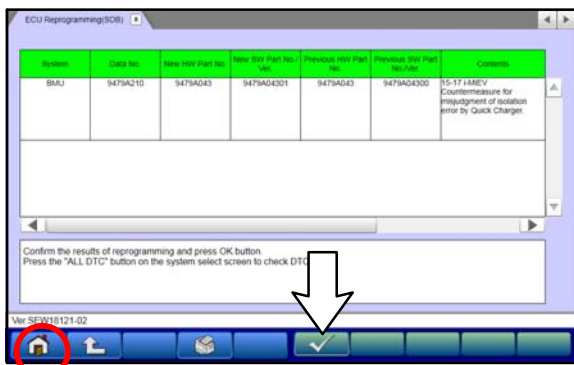f. Click the check mark in the "Check reprogramming data" dialog box.

g. Once the reprogramming is initiated, the screen shown will indicate the reprogramming progress.

   NOTE: Do NOT disturb the cables or turn off the ignition during reprogramming.
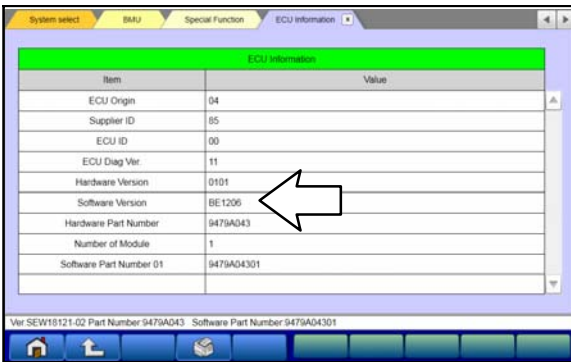

h. Once reprogramming is completed, click the check mark in the "Completed" dialog box.

i. Verify the correct information is listed in the table. Click the check mark at the bottom of the page, then click the Home button to return to the System Select screen.

2. *Perform an "Erase and Read All DTCs" again to clear any DTCs that may have set.* ◀
    For instructions, refer to steps 6 and 7 in the "Reprogramming Procedure: Preparation" in this TSB.

3. *Confirm the software version has been updated.* ◀
    For instructions, refer to step 5 in the "Reprogramming Procedure: Preparation" in this TSB.
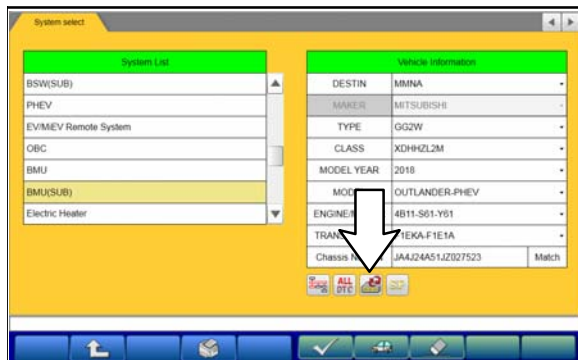

Confirm "Software Version" now matches the NEW ◀
*one shown in the **"BMU/Sub-BMU Reprogramming Chart"** in this TSB.*

4. *Turn off the ignition switch and disconnect the MUT-III. Turn off and disconnect the battery charger.* ◀

5. *Test drive the vehicle to confirm proper operation.* ◀

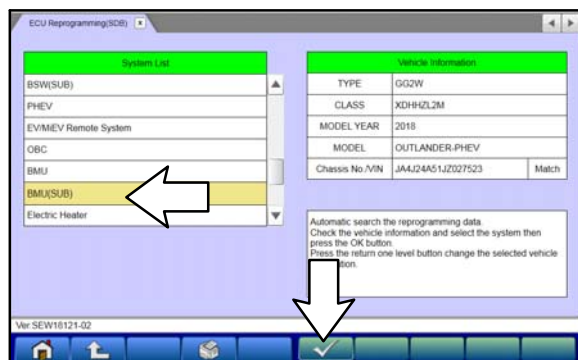**REPROGRAMMING PROCEDURE: 2018 – 2019 Outlander PHEV**

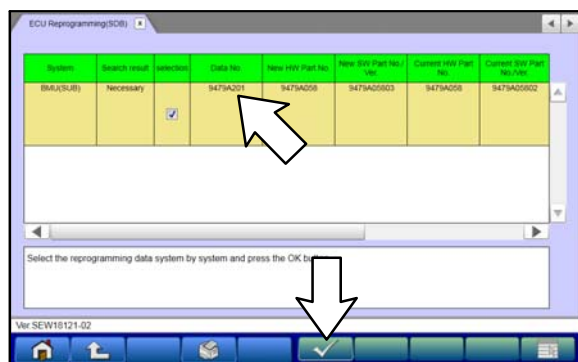1. **Reprogram the Sub-BMU** following the steps below.

a. On the System Select page, click on the Reprogram button.
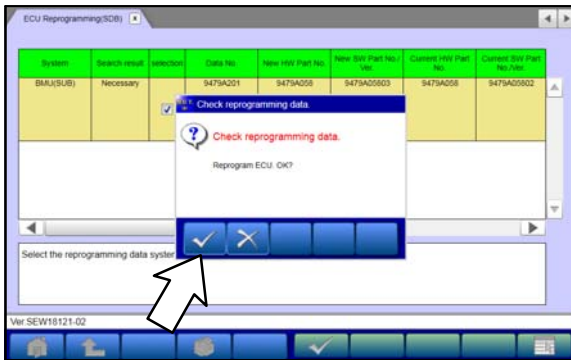

b. Select "ECU Reprogramming (SDB)."

c. Select "**BMU(SUB)**" in the System List, then click the check mark.
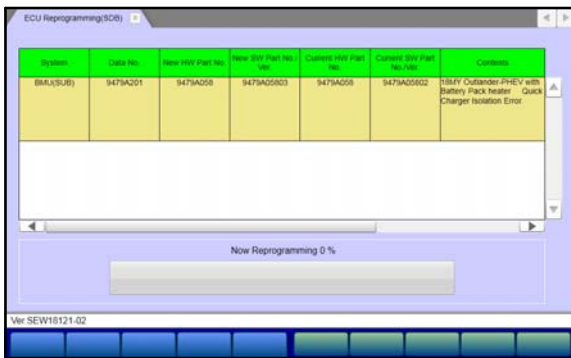
►

d. Verify that the correct data file listed in the table matches the one in the ***"BMU/*Sub-BMU Reprogramming Chart**."

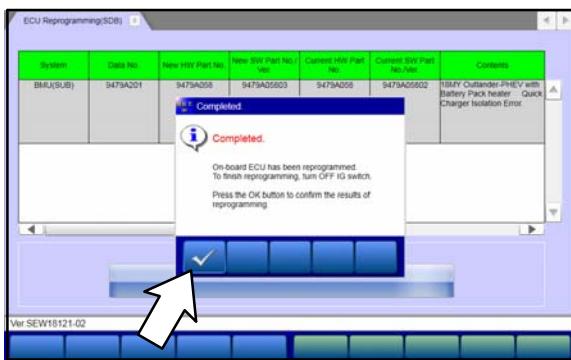e. Click the check mark at the bottom of the page to initiate reprogramming.

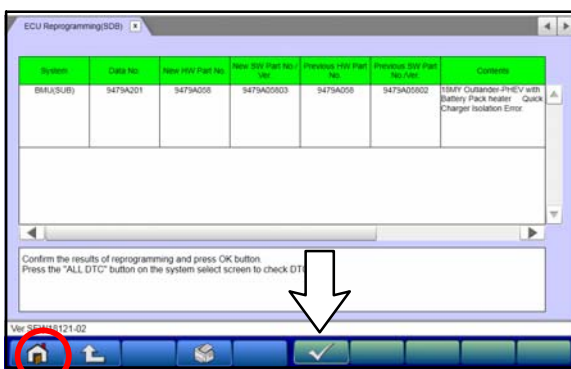f. Click the check mark in the "Check reprogramming data" dialog box.

g. Once the reprogramming is initiated, the screen shown will indicate the reprogramming progress.

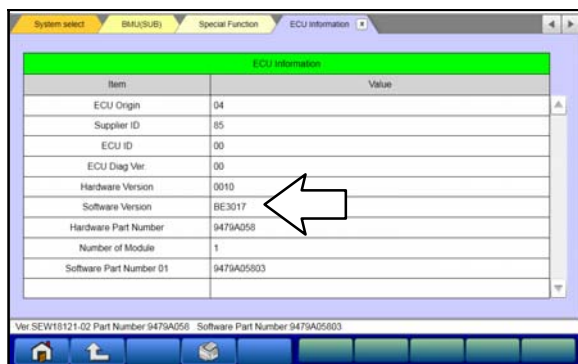> **NOTE: Do NOT disturb the cables or turn off the ignition during reprogramming.**

h. Once reprogramming is completed, click the check mark in the "Completed" dialog box.

i. Verify the correct information is listed in the table. Click the check mark at the bottom of the page, then click the Home button to return to the System Select screen.

2. Perform an "Erase and Read All DTCs" again to clear any DTCs that may have set.
For instructions, refer to steps 6 and 7 in the "Reprogramming Procedure: Preparation" in this TSB.

3. Confirm the software version has been updated.
For instructions, refer to step 5 in the "Reprogramming Procedure: Preparation" in this TSB.

▶

Confirm "Software Version" now matches the NEW one shown in the **_BMU/_Sub-BMU Reprogramming Chart"** in this TSB.

4. Turn off the ignition switch and disconnect the MUT-III. Turn off and disconnect the battery charger.

5. Test drive the vehicle to confirm proper operation.

WARRANTY INFORMATION

This bulletin is supplied as technical information only and is not an authorization to repair. If an affected vehicle is reported with the described condition, diagnose the condition, repair as described in this bulletin and submit a normal warranty claim using the following information.

Model	Operation	Labor Operation Code	Nature Code	Cause Code	Time Allowance
2016–2017 i-MiEV	Reprogram _BMU_	548565VT	59D	605	0.3 hrs.
2018–2019 Outlander PHEV	Reprogram Sub-BMU				

Warranty Coverage: 8 years / 80,000 miles (Canada: 8 years / 130,000 kms)