# Technical Service Bulletin

| SUBJECT: | No: | TSB−15−54−002 |
|---|---|---|
| **MAIN DRIVE BATTERY CANNOT BE CHARGED TO FULL AVAILABLE CAPACITY − WARRANTY EXTENSION** | DATE: | **May, 2015** |
| | MODEL: | **2012−13 i−MiEV** |

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

## PURPOSE

The Main Drive Lithium−ion Battery on 2012 − 2013 i−MiEV vehicles are covered for defects in material and workmanship for 8 years or 100,000 miles (160,000km), whichever comes first. In the event the Main Drive Lithium−ion Battery cannot be charged to full available capacity when properly connected to a properly functioning compatible charger, however, Mitsubishi is extending the warranty on the Main Drive Lithium−ion Battery to 10 years or 100,000 miles (160,000 km), whichever comes first.

This warranty extension does not apply to gradual capacity loss based on time and usage. The capacity of the Main Drive Lithium−ion Battery, like other commonly used Li−ion batteries, will decrease according to time and usage. This type of decrease in battery capacity is normal.

Please refer to Warranty Bulletin WB 2016−004 for additional details.

## AFFECTED VEHICLES

2012 i−MiEV (US and Canada)
Certain 2013 i−MiEV built May 25, 2012 − November 15, 2012 (Canada Only)

## CUSTOMER NOTIFICATION

A letter will be sent to all owners of affected vehicles informing them of the warranty extension. A sample customer notification letter appears at the end of this bulletin.

## REQUIRED OPERATIONS

Repairs must be completed by a certified i−MiEV technician. Please ensure the Main Drive battery's charge is properly maintained while the vehicle is not being serviced.

**IMPORTANT**

**Please ensure the Main Drive battery is fully charged prior to vehicle delivery. This will limit customer inconvenience and maximize customer satisfaction.**

## SPECIAL EQUIPMENT

**If necessary, the following equipment is needed to diagnose DTCs and perform Cell Voltage Smoothing.**

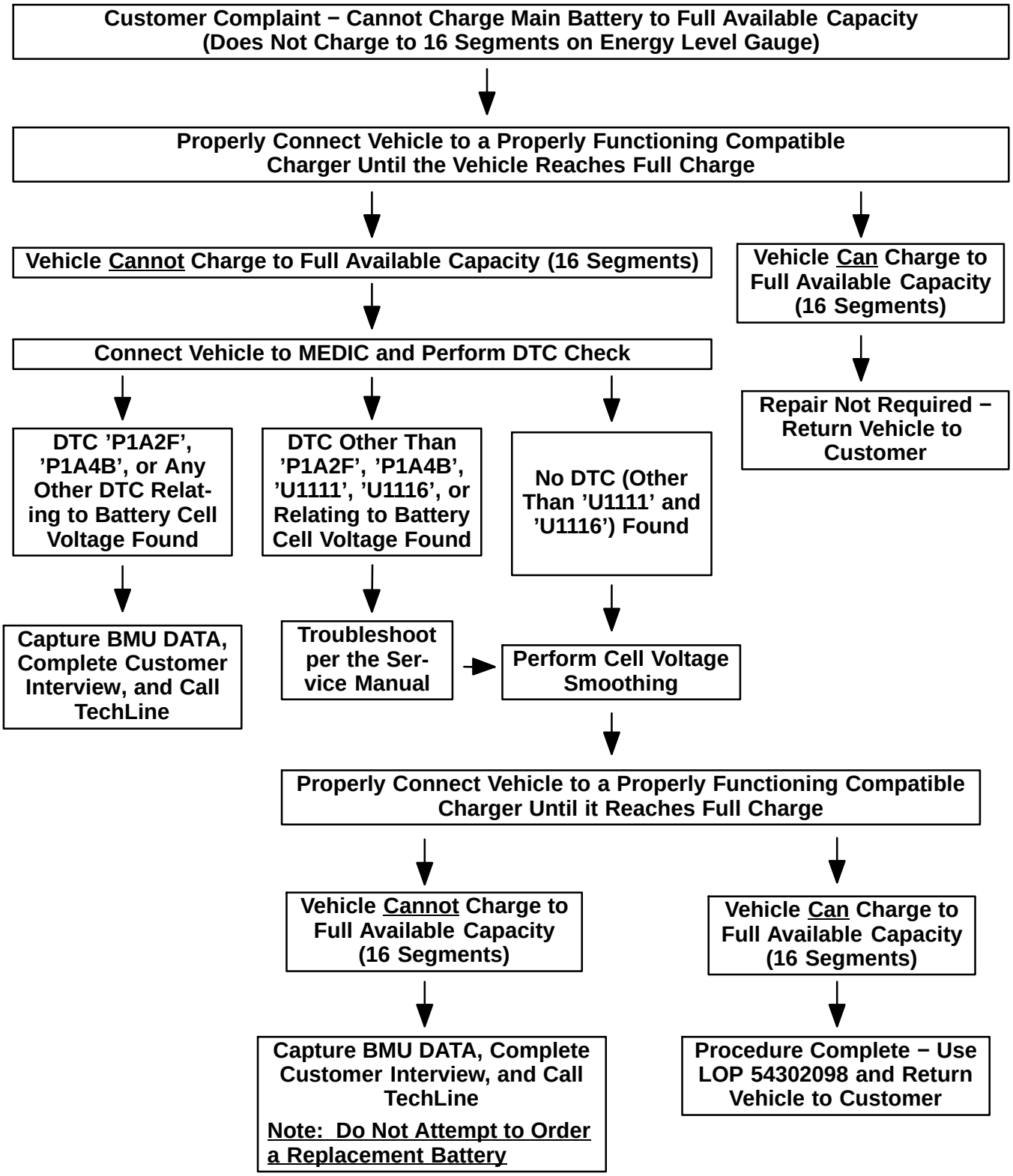
- VCI (Vehicle Communication Interface) or VCI Lite − MB991824 or MB992744V.
- MEDIC Laptop/Tablet with A/C power adapter − 520924, or FZG1MK2.
- MUT−III main harness 'A' (blue connector at the DLC end) − MB991910 or MB992745V.
- USB 2.0 cable − MB991827 or RRAR1MBR−108GL.



Continued

## PROCEDURE

Follow the flow chart below to troubleshoot the customer's concern.



## IMPORTANT

**Before performing any procedures described in this TSB, properly connect the vehicle to a properly functioning compatible charger until it reaches full charge. If the vehicle CAN charge to full available capacity (16 segments on the Energy Level Gauge), return the vehicle to the customer and advise a repair is not required at this time.**

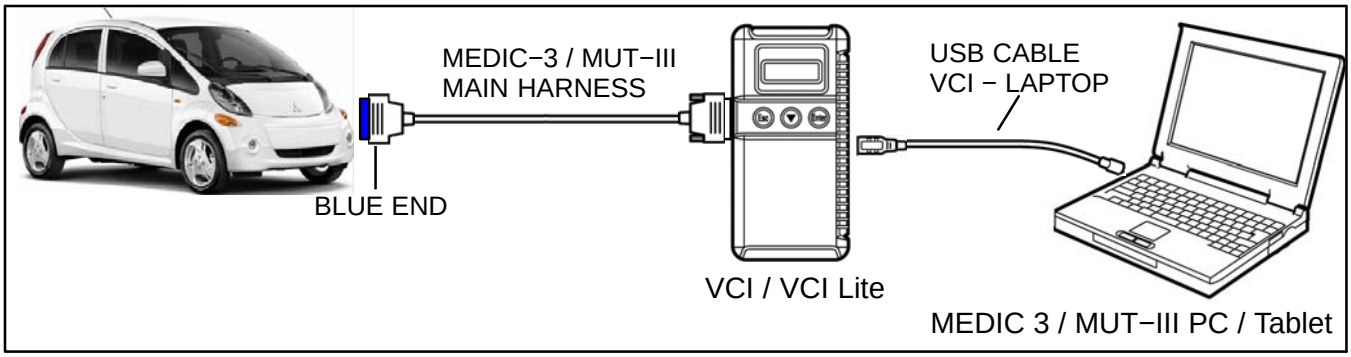
**If the vehicle CANNOT charge to full available capacity (16 segments on the Energy Level Gauge), perform the procedures described in this TSB.**

## DTC CHECK

**NOTE: Do not charge the Main Drive battery while performing this procedure. If the Main Drive battery is being charged, please disconnect the charging cable before proceeding.**

1. Connect the equipment as follows:
   - 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 that reprogramming be completed 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.
   - Turn the VCI power switch ON . Verify that the indicator lamp in the upper right corner of the screen is green.

     **NOTE:** VCI and MEDIC 3 Laptop shown for illustration purposes only

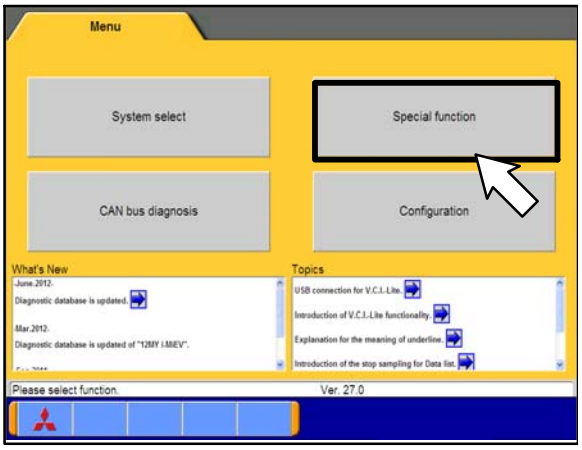



2. On the vehicle, turn the electric motor switch to the ON position (do not engage READY mode).

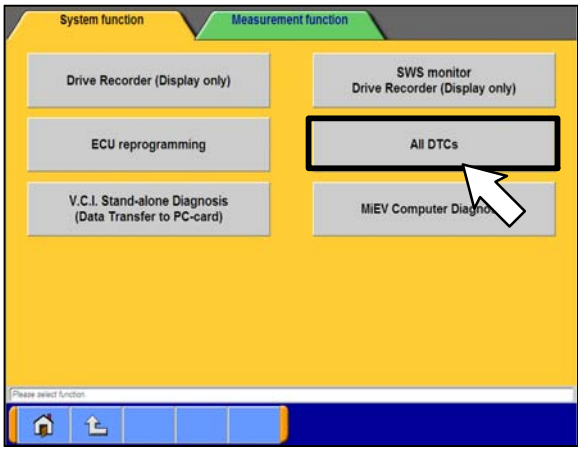
   **NOTE:**
   Ensure all accessories are off (e.g. lights, heating and AC system, audio/navi unit, etc…) and the Main Drive Li−on battery is not charging.

3. From the MEDIC main page,

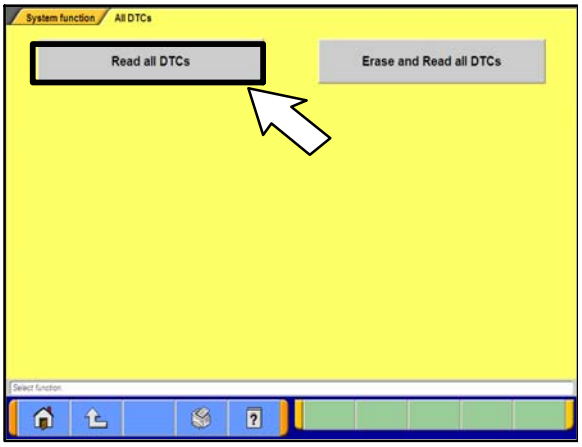
   a. Click on MUT−III



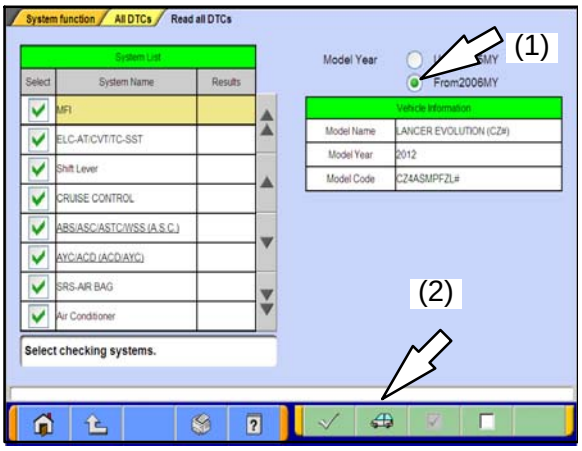

   b. Select “Special Function.”



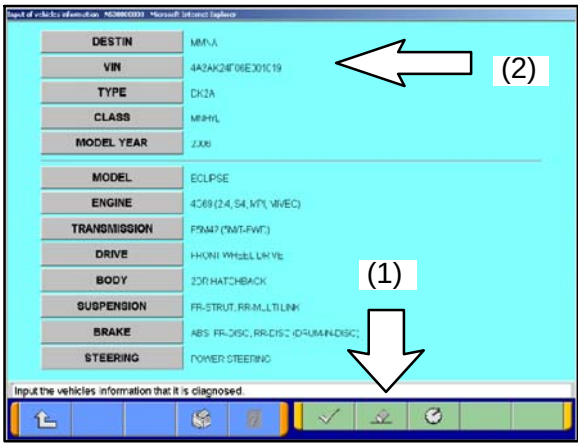

   c. Select “All DTCs.”




d. Select “Read all DTCs.”

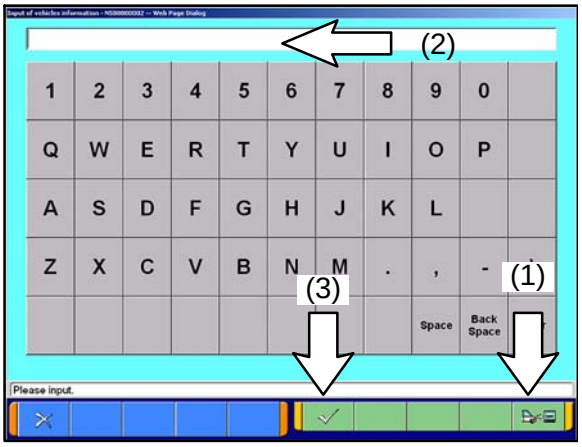



e. Make sure the “From 2006MY” field is selected (1). Click on the car icon at the bottom of the page to select your vehicle (2).



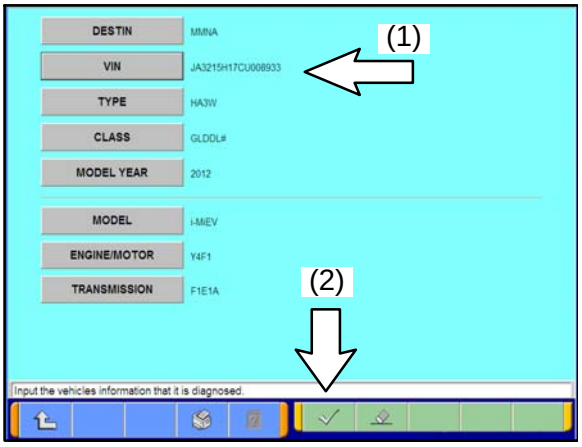

f. If the VIN listed does not match the vehicle you are working on, click on the eraser icon at the bottom of the page (1).

Click on the VIN button (2).



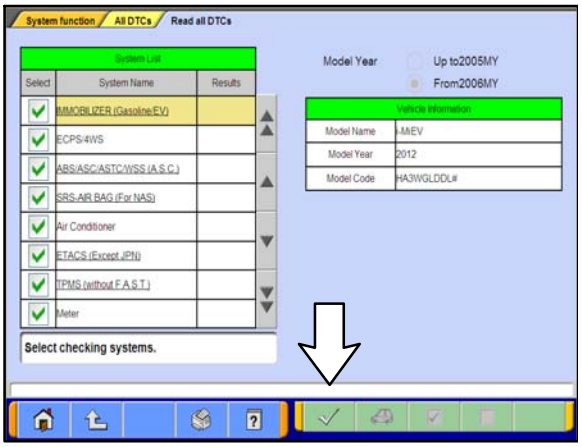

g. Click on the icon in the lower RH corner of the screen to have the MUT−III automatically read the VIN (1). If a message appears saying that the VIN cannot be read automatically, manually type the 17 digit VIN into the VIN field (2).

When the VIN is entered correctly, click on the check mark icon to continue (3).



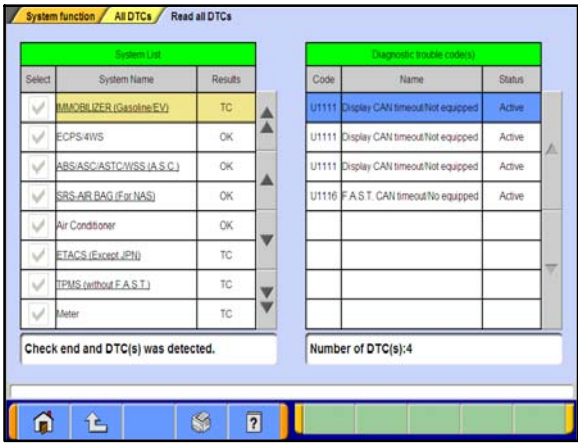

h. Ensure the VIN entered is correct (1).

Click on the check mark icon to continue (2).




i. Click on the check mark icon at the bottom of the page to initiate DTC scan.

Confirm scanning for all DTCs by clicking on the check mark icon when prompted.




j. When the DTC scan completes, there may be **4** DTCs displayed with codes “U1111” and “U1116”. This is normal.

(1) If no DTCs are found (other than DTC U1111 or U1116), proceed to Cell voltage smoothing below.

(2) If there are DTCs displayed (other than P1A2F, P1A4B, U1111, U1116, or any other DTC relating to battery cell voltage), troubleshoot the DTCs according to the service manual before proceeding to the **Cell Voltage Smoothing** section below.

(3) If DTC P1A2F, P1A4B, or any other DTCs relating to battery cell voltage is found, skip the **Cell Voltage Smoothing** section and proceed directly to the **Capture BMU Data** section below.

## CELL VOLTAGE SMOOTHING

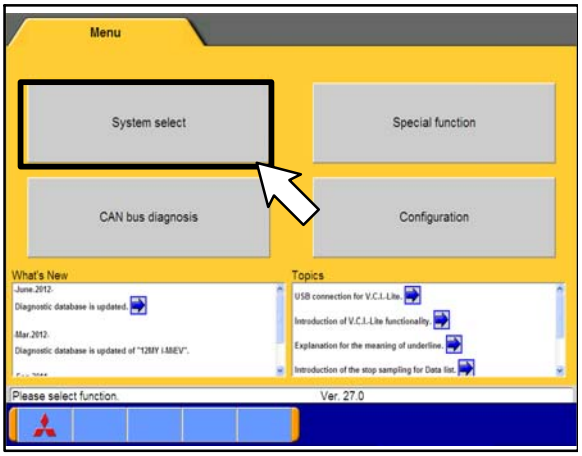
**NOTE: Do not charge the Main Drive battery while performing this procedure. If the Main Drive battery is being charged, please disconnect the charging cable before proceeding.**

**NOTE: Cell voltage smoothing will not start when certain DTCs are active. Ensure active DTCs are troubleshooted (other than DTC U1111 and U1116) prior to performing this procedure.**

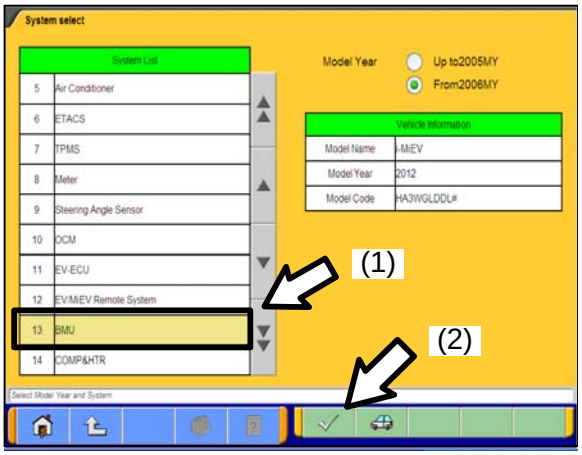
**NOTE: MEDIC must remain connected during the cell smoothing procedure (approximately 2 hours). Ensure MEDIC is fully charged or connected to a charging cable.**

1. Turn the electric motor switch to engage READY mode.

2. Return to the main menu by selecting the Home icon in the lower left corner.

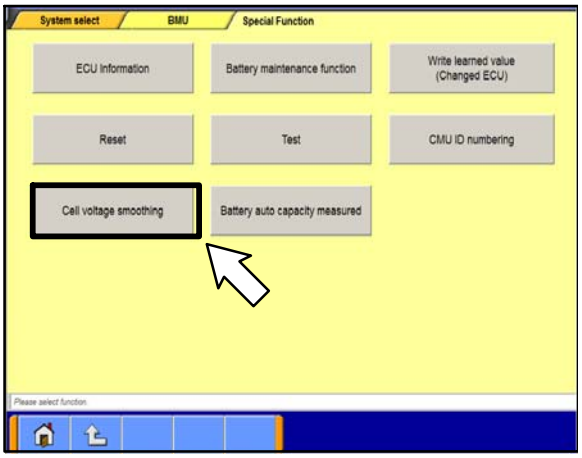



3. Select “System Select.“

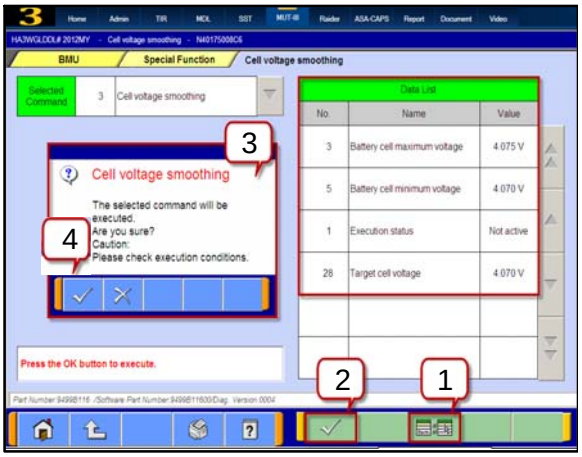



4. In the left column labeled “Systems List”, scroll down and select “No. 13, BMU” (1).

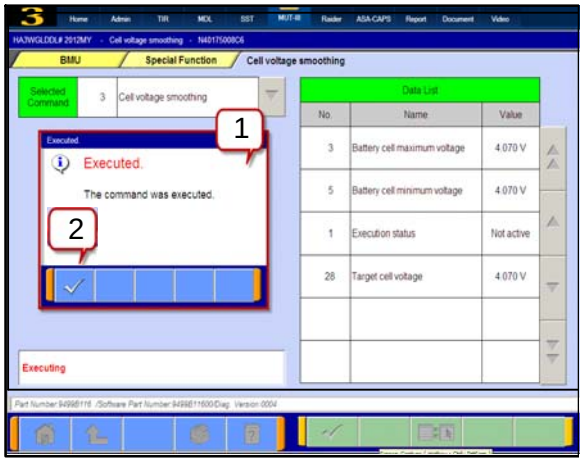
   Click on the check mark icon (2) to continue.




5. Select “Cell voltage smoothing.”




6. Click (1) and select “1, 3, 5, and 28” from the data list (if not already pre−selected).
7. Click on the check mark icon (2) and the Cell voltage smoothing window will display (3).
8. Click on the check mark icon (4) in the Cell voltage smoothing window to continue.

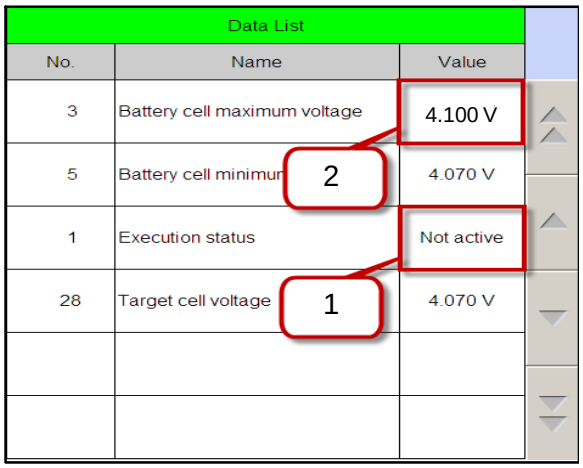



9. Confirmation of Cell voltage smoothing will appear (1).
10. Click on the check mark icon (2) to execute Cell voltage smoothing.

| | | |
|---|---|---|
| 1 | Execution status | Active |

11. Wait approximately 2 hours for Cell voltage smoothing to complete.

    **NOTE:** During Cell voltage smoothing, the “Execution status” will display “Active”.

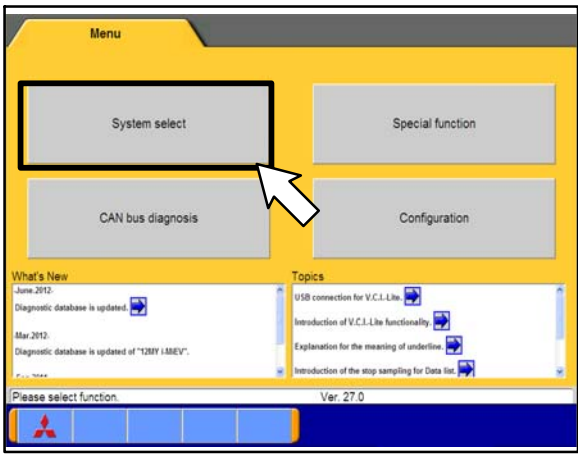



12. The Cell voltage smoothing is complete when the “Execution status” displays “Not active” (1).
13. Once the Cell voltage smoothing is complete, properly connect vehicle to a properly functioning compatible charger until it reaches full charge.
14. Confirm the Battery cell maximum voltage value (2) and the energy level gauge.
    a. If the Battery cell maximum voltage value (2) is more than 4.080V and the energy level gauge can charge to 16 segments, repair is complete. Complete the warranty claim with LOP 54302098.
    b. If the Battery cell maximum voltage value (2) is less than 4.080V, or the energy level gauge cannot charge to 16 segments, proceed to the **Capture BMU Data** section.

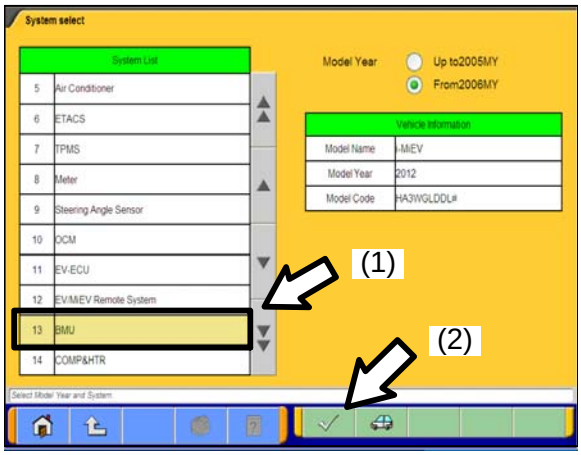
## CAPTURE BMU DATA

**NOTE: Do not charge the Main Drive battery while performing this procedure. If the Main Drive battery is being charged, please disconnect the charging cable before proceeding.**

1. Return to the main menu by selecting the Home icon in the lower left corner.

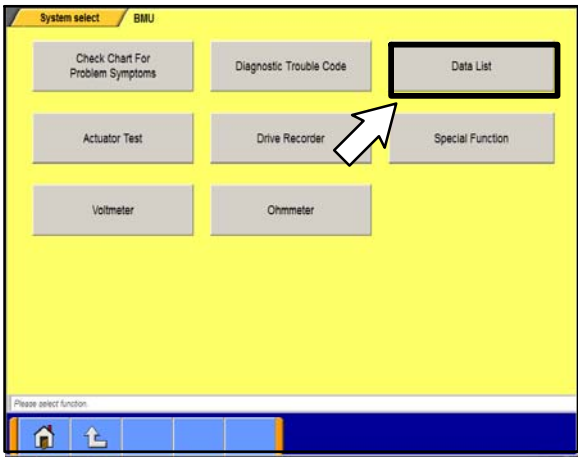



2. Select “System Select.“

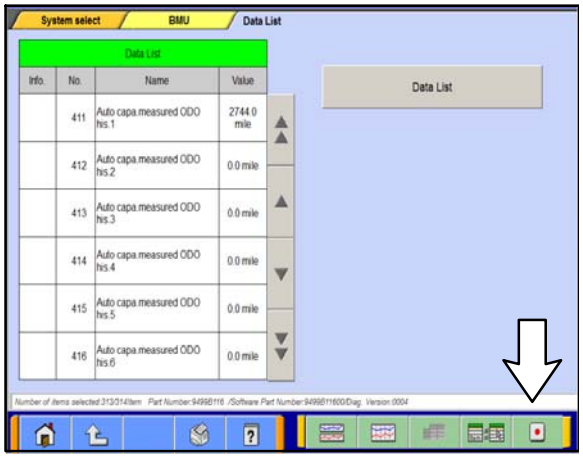



3. In the left column labeled “Systems List”, scroll down and select “No. 13, BMU” (1).

   Click on the check mark icon (2) to continue.

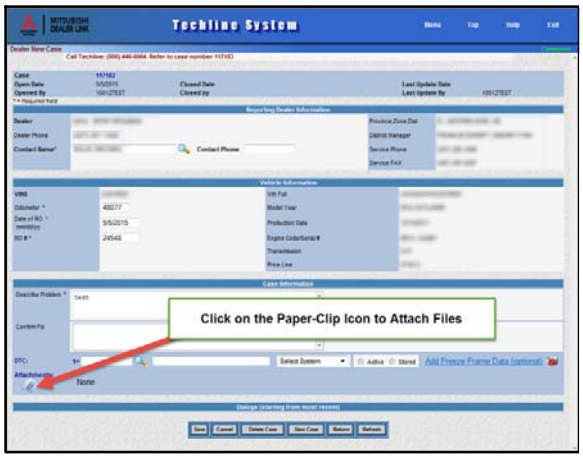



4. Select “Data List.”




5. Install a USB flash drive to MEDIC.
6. Save the service data with the “snapshot” function (lower right hand icon). The file will automatically be saved as “AD+yyyy/mm/dd−time.csv“ on the USB flash drive. Ensure the data is saved to the USB flash drive and do not edit the name or contents of the file**.**

**NOTE:** The saving process may take a few minutes.




7. Complete the Customer Interview sheet shown later in this TSB.
8. Create a Techline case, attach the BMU data from the USB flash drive and the completed customer interview sheet to the Techline case, and then call TechLine. For instructions on how to attach files to a Techline case, please refer to the dealer letter sent to Service Managers on May 13, 2015.

## PARTS INFORMATION

Use the genuine Mitsubishi part listed below.

| Description | Part Number | Application | Qty |
|---|---|---|---|
| Battery Pack Assy, EV | 9499D398 | With Battery Warming and Quick Charge | 1 |
| | 9499D399 | With Battery Warming, Without Quick Charge | |
| | 9499D400 | Without Battery Warming and Without Quick Charge | |
| O−Ring, EV Control Electrical | 9499A169 | With Quick Charge | 4 |
| | | Without Quick Charge | 2 |

**NOTE:**

- All i−MiEV main battery packs are sent to the dealer on an exchange basis only
- Dealers are not to order a replacement battery themselves
- Battery situations that are reviewed and approved by MMNA Techline for replacement will be ordered by MMNA Techline for the dealer.
- Dealers will be paid a battery handling fee of $500 − MMNA Warranty will add the fee on the claim for the dealer

## WARRANTY INFORMATION

Warranty extension to 10/100 for the i−MiEV main traction battery pack.

**Check Battery: DTC Check & Cell Voltage Smoothing = OK**

*Nature Code: 80D* *Cause Code: 100*
*Labor Operation No.: 54302098* *Time Allowance: 2.0 hrs.*

**Check Battery: DTC Check & Cell Voltage Smoothing = Not OK, Replace i−MiEV Main Traction Battery**

*Nature Code: 80D* *Cause Code: 100*
*Labor Operation No.: 54302099* *Time Allowance: 3.9 hrs.*
*Review Warranty Bulletin WB 2016−004 for details*

# i Customer Interview Sheet for EV related concerns

| | | |
|---|---|---|
| Dealer Information | Company name | |
| | Dealer / Shop contact | |
| VIN J | | |
| Customer Information | Name | |
| | TEL No. | |
| | E-mail | |

| | | |
|---|---|---|
| Repair Order number | | |
| R.O. Date day / mo / yr | | |
| MMNA Contact Information | Contact | |
| | Techline Case # | N/A |
| | Techline FAX# | (714) 934-4279 |
| | E-mail | MMNA−Techline@mmsa.com |

## ■ Vehicle information

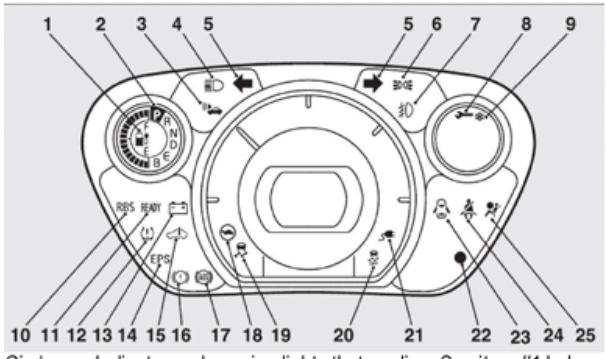
| | | | |
|---|---|---|---|
| Vehicle type | ZAA-HA3W | Chassis number | HA3W- |
| Power unit (motor) type | Y4F1 | Transmission type | F1E1A |
| Registration date | Date/month/year / / | Inspection date | Date/month/year / / |
| Concern Date | Date/month/year / / | ODO meter | mi |

## ■ Vehicle FFD (Freeze Frame Data)

| | |
|---|---|
| Acquired date | |
| File name | |
| Freeze Frame Data | **Screen captures or print out of freeze frames sent to Techline** |

**Note: In a effort to fully understand the concern that you are having with your Mitsubishi "I", please answer the following questions as best as possible.**

1- Low energy warning indicator
2- Selector lever position indicator
3- Acoustic Vehicle Alerting System (AVAS) indicator
4- High-beam indicator
5- Turn-signal indicators /Hazard warning lights
6- Position indicator
7- Front fog light indicator (if so equipped)
8- Service reminder
9- Outside air temperature warning indicator
10- Regenerative brake system indicator
11- Ready indicator
12- Tire pressure monitoring system warning light
13- 12V starter battery charging system warning light



Circle any Indicator and warning lights that applies..See item #1 below

14- Electric power steering system warning light
15- Electric motor unit warning light
16- Brake warning light
17- Anti-lock braking system warning light
18- Power down warning light
19- Active stability control (ASC) indicator
20- Active stability control (ASC) OFF indicator
21- Charging indicator
22- Theft-alarm indicator
23- Door-ajar warning light
24- Driver's seat belt reminder/warning light
25- Supplemental Restraint System (SRS) warning light

## ■ Customer Concerns and Vehicle Symptoms

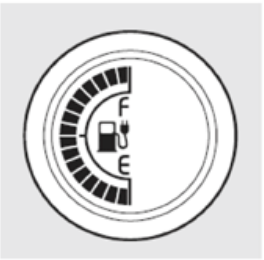
| | | |
|---|---|---|
| Area of Concern | (1) Warning light (s) illuminates | ☐ Power unit warning light illuminates (#15) ☐ Low power warning light illuminates (#18)<br>☐ 12V battery charge warning light illuminates (#13) ☐ Other warning light(s) #_____, #_____ #_____ |
| | (2) EV operation | ☐ "READY" doesn't illuminate ☐ No movement when accelerator pedal is depresse<br>☐ "READY" turns off without operator input ☐ Other_____ |
| | (3) Driving performance | ☐ Rough acceleration ☐ Bad acceleration performance ☐ Driving speed fluctuates<br>☐ Does not reach Max. speed ☐ Rough deceleration ☐ Loud motor noise<br>☐ Abnormal power consumption ☐ Cruising range became short ☐ Sudden acceleration<br>☐ Short driving range per one charge ☐ Other_____ |
| | (4) Charging concern | ☐ Doesn't charge when 1st connect ☐ Charging time long ☐ Charging time short<br>☐ Circuit breaker trips ☐ Charging stops ☐ Strange noise ☐ Other_____ |
| | (5) Air conditioning | ☐ Air doesn't become cold ☐ Air doesn't become hot ☐ Blower speed can not change<br>☐ Outside/Inside air cannot change ☐ MAX−SW does not operate ☐ Other_____ |
| | (6) Brake | ☐ Brake warning lamp ON ☐ No regeneration while braking ☐ Brake pedal feels hard<br>☐ Warning buzzer sounds ☐ No regeneration during deceleration ☐ Brake pedal feels spongy<br>☐ Bad deceleration ☐ Warning buzzer sounds after continuous use |
| | (7) i-MiEV remote | ☐ Unable to see charge leve ☐ Unable to set charge time ☐ Unable to set charge ☐ Other_____<br>☐ Unable to start HEAT/DEF ☐ Unable to start DEF |
| Additional concerns/ observations/ comments | | |

## Customer Interview Sheet page 2

VIN: _____

### ■ Customer Usage Information

| | | |
|---|---|---|
| (1) frequency of Use | | ☐ Every day ☐ 2～4days/week ☐ Only on weekends ☐ Several times/month |
| (2) Mileage per day | | ☐ 15 mi or below ☐ 25 mi. or below ☐ 35 mi. or below ☐ 45 mi. or below ☐ 60 mi |
| (3) Max. driving speed | | ☐ Lower than 35 mph ☐ About 35 mph ☐ About 50 mph ☐ Higher than 50 mph |
| (4) Main use time of the day | | ☐ Morning ☐ Daytime ☐ Evening ☐ Nighttime |
| (5) Hour of use per day | | ☐ 1 hour or less ☐ 1 to 2 hours ☐ 3 to 4 hours ☐ More than 4 hours |
| (6) Charging method and frequency of use | Charge Cable (120v) (Level1 charging) | ☐ Battery level ___bar ☐ Morning ☐ Noon ☐ Nightly ☐ Each time after use ☐ Every day regar<br>Used daily? Y or N Used weekly? Y or N Only when low? Y or N # of usage |
| | EVSE (240v) (Level 2 charging) | ☐ Battery level ☐ Morning ☐ Noon ☐ Nightly ☐ Each time after use ☐ Every day regar<br>Used Daily Y or N Used weekly? Y or N Only when low? Y or N # of usage |
| | DC Quick Charge (Level 3 charging) | ☐ Battery level ☐ Morning ☐ Noon ☐ Nightly ☐ Each time after use ☐ Every day regar<br>Used daily? Y or N Used weekly? Y or N Only when low? Y or N # of usage |
| Brand or Make of charger being used | | |
| (7) Typical usage of vehicle | | ☐ City area ☐ Freeway ☐ Near the coast ☐ Mountain side ☐ Other_____ |
| Concerns/ observations/ comments | | |




Please indicate number of bars on the Energy level / SOC (state of charge) gauge when concern occurred (item #7)

### ■ Condition when problem occurred

| | | |
|---|---|---|
| (1) Time of occurrence | | ☐ From new car delivery ☐ From some specific time on (year/month, mileage: / , mi. ) |
| (2) Prior concerns/issues | | ☐ No ☐ Yes (phenomenon: /Timing (year/month: / ) |
| (3) Frequency of occurrence | | ☐ Always ☐ Sometimes ☐ under certain specific conditions ( ) ☐ Randomly/ infrequent |
| (4) Weather condition | | ☐ Clear ☐ Cloudy ☐ Rainy ☐ Snowy ☐ with Lightning ☐ Others ( ) |
| (5) Outside temperature | | ☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Other ( F) |
| (6) Occurring place | | ☐ City area ☐ Suburb ☐ High way ☐ mountain roads ☐ Uphill ☐ Downhill ☐ Others ( ) |
| (7) Energy level gauge | | ☐ Near "F" ☐ F to 1/2 ☐ Near 1/2 ☐ 1/2 to near "E" ☐ Near "E" ☐ Warning light illuminates |
| (8) Operational status | | ☐ At start up ☐ At re−start up ☐ At normal driving ☐ At uphill ☐ At downhill ☐ At highway ☐ In traffic jam<br>☐ At stopping ☐ At starting ☐ At acceleration ☐ At fixed acceleration ( km/h) ☐ At braking ☐ At reversing<br>☐ left long in the state of "READY" ☐ Others ( ) |
| | *Accelerator state | ☐ On light app ☐ Wide open throttle ☐ At release ☐ At resume ☐ At some open throttle ( %) |
| | *Brake state | ☐ On light app ☐ Continuous operation ☐ At release ☐ At re−step in |
| | *Shifter position | ☐ P ☐ R ☐ D ☐ E ☐ B |
| (9) Auxiliary operation | | ☐ A/C ☐ Heater ☐ Defogger ☐ Seat heater |
| (10) Occupants | | ☐ 1 person ☐ 2 persons ☐ 3 persons ☐ 4 persons |
| (11) Load in vehicle | | ☐ No load ☐ Yes ( lbs. ) |
| (12) While Charging | * Charge method | ☐ Quick charging (Place: ,Supplier name of charger: )<br>☐ Home charging ( V ) * Condition (Energy level gauge: Number of segment indicated ( ) |
| Concerns/ observations/ comments | | |

# WARRANTY BULLETIN

## *Warranty Extension for 2012-2013MY I-MiEV Main Traction Battery*

(Check Superscreen for eligibility)

| Warranty Bulletin Application | | |
|---|---|---|
| USA | Canada | P. Rico |
| X | X | x |
| Issue Date | May 26, 2015 | |
| Bulletin Number | WB 2016-004 | |

**Coverage Extension: 8-Years/100,000 miles extended to 10-Years/100,000 miles**

The warranty coverage for the 2012-2013MY I-MiEV main traction battery pack, has been extended from the original 8-years/100,000 miles to 10-yrs/100,000 miles (Canada 10-yrs/160,000 kilometers), whichever comes first. The main traction battery's 10yrs/100,000 mile extension is transferable.

**Warranty Coverage Application:** **NOTE: This is NOT a Recall Campaign.**

If diagnosis of a covered I-MiEV vehicle requires that main traction battery needs to be replaced, it is submitted on a warranty type 'W' claim. A PWA 10 will be required as well as both a MMNA Techline case and Techline approved and authorized main traction replacement battery order release.

**Warranty Claim Procedures:**

1. Only Mitsubishi dealers authorized to sell and service I-MiEV vehicles are allowed to perform any warranty covered repairs on I-MiEV models.
2. Replace the I-MiEV main traction battery pack only on a customer complaint basis and only after extensive and guided diagnosis from MMNA Techline. Only MMNA Techline may approve the replacement of an I-MiEV main battery pack with a MMNA provided exchange unit.
3. I-MiEV vehicles eligible for this warranty extension will be identified on the MMNA Superscreen.

| Warranty Extensions | (Note: These are Not Recalls or Service Campaigns) |
|---|---|
| 2012-2013MY IMIEV MAIN BATTERY WARRANTY EXTENSION: 8/100 TO 10/100 (160K CAN) | |

4. Use the current LOTS system labor operation and labor time for replacement of an IMIEV main traction battery. Only one of these operations may be claimed.

| | |
|---|---|
| 54302098 | Check Battery: DTC Check & Cell Voltage Smoothing = OK ..... 2.0 hrs. |
| 54302099 | Check Battery: DTC Check & Cell Voltage Smoothing = Not OK<br>Replace IMIEV main traction battery..... 3.9 hrs. |

5. Nature Code: 80D Cause Code: 100
6. Replaced main traction batteries are not available through a normal parts order and are only shipped as an exchange item after being authorized and ordered by Techline. USA and Puerto Rico dealers are reimbursed a $500 handling fee and the required and authorized labor costs.

If you have any questions, please call the Warranty Information Line @ 1.800.380.2324 or email us at WarrantyWebHotline@mmsa.com.

***MMNA WARRANTY ADMINISTRATION***

- Check Box As Reviewed ☐ SERVICE MANAGER ☐ OFFICE MANAGER ☐ GENERAL MANAGER
☐ PARTS MANAGER ☐ OTHER ☐ WARRANTY ADMINISTRATOR

**Mitsubishi Motors North America, Inc.**
6400 Katella Avenue
Cypress, CA 90630
Telephone: 714-372-6000
www.mitsubishicars.com

AFFECTED VEHICLES
MODEL: 2012 i-MiEV

This notice applies to your vehicle, _____.

Date: Month, 2015

Dear Mitsubishi Owner,

The Main Drive Lithium-ion Battery on your 2012 i-MiEV is covered for defects in material and workmanship for 8 years or 100,000 miles, whichever comes first. In the event the Main Drive Lithium-ion Battery cannot be charged to full available capacity when properly connected to a properly functioning compatible charger, however, Mitsubishi is extending the warranty on the Main Drive Lithium-ion Battery to 10 years or 100,000 miles, whichever comes first.

In the event your vehicle experiences the subject condition within the terms of the warranty extension, please contact your certified i-MiEV Mitsubishi dealer to have the repair performed. This warranty extension does not apply to gradual capacity loss based on time and usage. The capacity of the Main Drive Lithium-ion Battery, like other commonly used Li-ion batteries, will decrease according to time and usage. This type of decrease in battery capacity is normal.

If you have already encountered a problem with the Main Drive lithium-ion battery and had it repaired/replaced on your vehicle as a result of this specific condition and have paid for the repair, you may send your original repair order or invoice **and** original receipt/proof of payment to the following address for reimbursement consideration:

Mitsubishi Customer Relations Department, P.O. Box 6400, Cypress, CA 90630-0064

Please keep a copy of this notification with your vehicle's warranty book for future reference. If you have any questions, please contact us:

Mitsubishi Customer Relations Department ▪ P.O. Box 6400 Cypress, CA 90630-0064
Phone 1-888-648-7820 Hours: Monday – Friday 7 a.m. – 4 p.m. Pacific Time

Sincerely,

Mitsubishi Motors North America, Inc.

TSB-15-54-002