Bulletin No.: PIP4841U
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Preliminary Information

PIP4841U High Voltage Drive Motor Battery Repair And Exchange Process

Models

Brand:	Model:	Model Years:	VIN:		Engine:	Transmissions:
			from	to		
Chevrolet	Volt	2011 - 2015	All	All	LUU	MKA
Cadillac	ELR	2014 - 2016	All	All	LUU	MKA

Supersession Statement

This PI was superseded to update the delivery time of the battery. Please discard PIP4841T.

The following diagnosis might be helpful if the vehicle exhibits the symptom(s) described in this PI.

Condition / Concern

As part of GM's ongoing quality improvement process, the High Voltage Drive Motor Battery Pack is currently on restriction through the GM Technical Assistance Center (TAC). Other internal battery pack components not containing Lithium-Ion material can be ordered through CCA without restriction. If a battery section is required, please refer to the current version of bulletin: 18-NA-236

Use SI procedures to determine whether a pack is needed. GM TAC can provide guidance to repair or replace. Warranty claims will be audited to ensure the minimum number of parts were replaced to repair the vehicle.

Note: Please review all the information provided below prior to contacting the Technical Assistance Center (TAC) @ 877-446-8227 (U.S.) or in Canada 1-800-263-7740 (English) or 1-800-263-7960 (French) to review case details.

Once GM TAC has authorized a battery pack or section replacement, dealers are now asked to order packs and sections directly from the GM Battery Service Center by calling 1-833-33 GM BSC (1-833-334-6272). Please note the information required at the time of ordering is contained under Parts Information later in this document. Batteries are on exchange, and new or refurbished material will be provided at or above the capacity of the battery being removed.

Material will arrive within 72 hours of ordering. For any delays or backorders, please contact the GM Battery Service Center by calling 1-833-33 GM BSC (1-833-334-6272) for the current status of your order.

Recommendations / Instructions

Please have a certified Volt/ELR technician follow the diagnostic procedures below prior to contacting TAC.

1. If DTCs are present and SI procedures or bulletins give direction to replace the pack; stop, do not clear codes, view freeze frame data in the HPCM2 and other modules, capture GDS2 data from the Hybrid Powertrain Control Module 2 (HPCM2) and Battery Energy Control Module (BECM), preferably when condition occurs. TAC may request that you e-mail the Session Logs to them. See latest version of PIP4902 for assistance in sending a session log. Do not clear codes prior to viewing freeze frame data and calling TAC.

2. If DTCs are not present, refer to "Symptoms - Hybrid Controls" in SI and search for any applicable bulletins for the condition observed by the customer.

3. Upon review of the diagnosis, TAC will establish a case reference number with approval for the dealer to order Lithium Ion material directly from the GM Battery Service Center (BSC). At this point in the process,

the parts department will need two critical pieces of information not normally found on the RO: the Battery Capacity Code and the Battery Identification Number (BIN).

1. Using GDS2, access the Hybrid Powertrain Control Module 2. Under Data Display – Voltage Data, record the Hybrid/EV Battery Pack Capacity code. The GM BSC will decode this value and provide Li-Ion material at or above the capacity of the pack being removed.

2. Using GDS2, access the Battery Energy Control Module (BECM) and look under the identification information section. The BIN will be listed under the parameter: Hybrid/EV Battery Pack Identification Number. As an alternate, locate the BIN on one of two tags on the battery pack itself. The BIN is the bottom most 16-digit code and begins with the letter "T". (See photo below)

1. It is imperative that the technician has completed all available training, including hands-on training, and have all the required dealer equipment. Ensure all personal protection equipment (PPE) is up to date.

2. Disable the high voltage system using SI.

   Danger: Failure to properly disable high voltage could result in serious injury or death.

3. After verifying the high voltage system has been disabled, remove the battery assembly per SI procedures.

   Note: The Battery pack has 2 ground straps that are attached to the battery. ONLY remove the ground straps on the vehicle side. The new battery pack will come with the 2 ground straps already attached.

   Note: The used battery must be removed and returned with a battery assembly lifting fixture (GM Special Tool EL-49976.) This lifting fixture will be attached to the used battery and placed in the shipping cocoon. Each new service battery will come with a battery assembly lifting fixture for use during installation. You will keep this fixture for servicing future battery removals.

   Caution: When removing the battery, it is important that the cradle is raised up to the vehicle and battery and cradle alignment pin engaged. Under no circumstances should a vehicle be lowered on to the cradle that is placed on a fixed table. This could create a situation where the battery is not aligned to the cradle resulting in cradle or battery damage.

   Note: Whenever performing section replacements, it is imperative that fasteners are torqued properly and SI procedures followed.

4. Install the new pack and then perform K16 Battery Energy Control Module reprogramming. Also, update the K114B Hybrid Powertrain Control Module 2. These modules work in conjunction for control of the high voltage battery pack

5. Next, reset the Hybrid / EV battery pack data. This can be found in GDS 2 under: Hybrid Powertrain Control Module 2 and selecting Configuration/Reset Functions.

6. As a final step, perform the Hybrid / EV Pack Capacity Learn. This can be found in GDS 2 under: Hybrid Powertrain Control Module 2 and selecting Configuration/Reset Functions.

7. Fully charge the high voltage battery before delivering the vehicle to the customer. The service advisor may want to inform the customer that the displayed EV range prediction on the IPC will become more accurate over the course of several full charge and discharge cycles.

Before placement into the shipping cocoon, prepare the battery for return by performing the following:

1. Install Coolant plugs (2) in coolant lines. Coolant plugs can be removed from the new service battery assembly and installed in the returned battery. Additional coolant plugs (GM P/N 22770854) can be ordered if they are needed.

   Note: As part of the battery removal process, all coolant should be drained from the drive motor battery.

2. Install the Manual Service Disconnect (MSD) Cover. The MSD cover can be removed from the new service battery assembly and installed in the returned battery. Additional MSD covers (GM P/N 22770856) can be ordered if they are needed.

   Note: The orange MSD itself should remain with the vehicle and not be returned with the battery assembly.

3. Install the High Voltage Connector Cover. The high voltage connector cover can be removed from the service battery and installed on the returned battery. If the service battery assembly did not come with a high voltage connector cover, additional covers can be ordered by calling 1-800 GM TOOLS. Reference tool # EL-50209 when placing your order.

In order to properly prepare the used battery for shipping and to insure safe shipment, all of the above steps must be followed.

Danger: The high voltage (HV) battery must be protected when outside of the vehicle. Therefore, the battery must be immediately placed in the original shipping container (cocoon).

1. Store the Drive Motor Battery flat.
2. Store the Drive Motor Battery in an environmentally protected area.
3. Maintain the Drive Motor Battery at room temperature.
4. Protect the Drive Motor Battery from exposure to liquids.
5. Protect the Drive Motor Battery from physical damage.
6. Store the Drive Motor Battery in a limited-access area.

Danger: Failure to follow these guidelines may result in serious injury or death.

Parts Information

2011 – 2012 Volt Specific Requirements:

2011 – 2012 Volt orders are required to complete a chemistry determination procedure because some cells from these model years are incompatible with each other. Follow SI Document ID 4877428 for chemistry determination. Contact the GM BSC prior to quoting customer-pay sections for availability on 2011-2012 Volts needing P1.4 chemistry. If P1.4 refurbished sections are not available, a complete newer P1.7 pack will be required. P1.4 complete packs are not available to order.
Note: Failure to determine cell chemistry may result in a vehicle safety hazard.

Be prepared to provide the Battery Service Center with the following information:

Warranty (W) or Customer Pay (CP):
Note: Carefully review Voltec and PZEV Emission warranty coverage in GWM.
Dealer Name:
Dealer BAC Code:
Shipping Address:
Contact at Dealership (include phone#):
Preferred Delivery Time/Date for Dealer Forklift Operator (Must be within 48 hours of the order time not including weekend)
Hours of operation:
Do you need the delivery truck to have lift gate: Y / N
Vehicle Make:

Vehicle Model:
Model Year:
RO #:
VIN #:
Approved TAC Case # (required for TAC restricted parts):
DTCs and Customer Complaint:
Note: If no DTCS are present or repair is for accident repair or EV range, TAC approval is also required.
Odometer Reading:
Causal Part # Ordered (provided by dealer):
Causal Return BIN # (from GDS2 BECM):
Capacity Code (from GDS2 HPCM2 Voltage data):

Current HPCM2 Software 2 Part Number or Cell Chemistry (For 2011-2012 Volt Only):

Shipping Guidelines

Lithium Ion batteries are considered hazardous material. GM requires that at least one person be Hazmat certified per Service Agent. Additional resources for hazardous material shipping can be found as part of appendix G of bulletin 99-00-89-019.

UNITED STATES - PARTS RETENTION AND RETURNS

All Lithium Ion drive motor batteries need to be returned as part of the exchange process. Do NOT return battery in any other container than the container (cocoon) that the new or refurbished battery was delivered in. If the batteries are not returned within 30 days, the dealer will be charged back the value of a replacement battery. These charges are substantial. There are two different ways the Li-Ion high voltage battery or battery section could be returned:

1. Oklahoma City Battery Determination Center: If you do not receive a Special Parts Return Request from the GM WPC within 3 days of completing the repair, please contact:
    - CCA Logistics (810-866-9300) or SCGMCustomerSupport@xpo.com to request material pick-up. It is expected that the majority of batteries will go through this process. If lift gate service is necessary, please request it at the time of arranging pick-up service. The material should be shipped to:

      Spiers New Technologies

      50 NE 42nd St

      Oklahoma City, OK 73105-2201

      Contact: Brian Enis (p) 405-274-5911

    - Place a new envelope inside the battery cocoon with a copy of the Job Card (RO) including the technician's comments, DTCs, and completed "Battery Product Feedback Form." Failure to do so will result in warranty claim rejection.
    - Have the driver sign the bill of lading. Retain a copy of the signed bill of lading and attach your copy to the original repair order. This will be your proof of returning the Drive Motor Battery. Ship the battery Third Party Prepaid Freight Collect to Spiers New Technologies.

2. Warranty Parts Center (WPC) Special Request: If you receive a Special Parts Return Request within 3 days of the repair, then follow this process. Instructions for return will be included with the request. You must use the Bill of Lading that is sent to you. Do NOT wait for the warranty claim to be processed before returning the failed used drive motor battery. Do NOT ship drive motor batteries directly to the WPC. Look for the address provided in the Special Parts Return Request.

WPC Shipping Instructions (Special Parts Return Requests Only):

- The Special Parts Request will provide a request number. This request number must be placed in the outside shipping envelope along with the TAC Case number. Dealers need to place a new envelope inside the battery cocoon with the TAC Case # and a copy of the Job Card (RO) including the technician's comments, DTCs, diagnostics, and completed "Battery Product Feedback Form." Failure to do so will result in warranty claim rejection.
- Remove the original shipping label and attach the plastic envelope with the return shipping label onto the container. Failure to place this information both outside and inside the battery shipping container may delay the processing of your return.
- Label the outside of the shipping container with the Part Return request number and the TAC case reference number. Refer to Corporate Bulletin Number 99-00-89-019 for detailed shipping

information

- Contact Central Transport at 586-467-1900 for pick-up of removed battery. If lift gate service is necessary, please request it at the time of arranging pick-up service. The number is also on the BOL that is sent to you from WPC.
- Have the driver sign the bill of lading. Retain a copy of the signed bill of lading and attach your copy to the original repair order. This will be your proof of returning the Drive Motor Battery.
- Ship the battery Third Party Prepaid Freight Collect with appropriate paperwork to address provided.
    - Once the battery has shipped, please e-mail julie.cumo@gm.com with tracking number and Special Parts Return Request Number. This will aid in claim acceptance and informs the Oklahoma BDC not to expect the material.

CANADA ONLY - PARTS RETENTION AND RETURNS

All Volt batteries must be returned to the appropriate core return center with completed documentation including battery return worksheets with TAC Case Number and VIN.

Note: Failure to return the battery will result in the dealership being debited the entire warranty transaction as well as assessment of an environmental fee for the value of the failed pack. This environmental fee is substantial ($10,000) and will only be assessed if the battery is not returned.

For dealers in Canada, the return of failed batteries will be handled through the existing core return process. (Type 4 return)

Shipping Preparation:

1. Disable the high voltage at the drive motor generator battery. Refer to High Voltage Disabling.
2. Remove the Drive Motor Battery from the vehicle as outlined in Drive Motor Generator Battery Replacement in SI.
3. Tighten any fasteners that were loosened or removed during Drive Motor Battery removal to the original torque specification.
4. Remove any plastic shipping plugs or covers from the new unit and install them on the Drive Motor Battery to be returned.
5. Write the TAC case reference number on the drive motor battery assembly in a visible location.
6. Write the TAC case reference number on the repair order.
7. Place the Drive Motor Battery on the cradle into the shipping container.
8. Place the completed "BATTERY PRODUCT FEEDBACK FORM" (which was included in the container containing the new battery) inside the cocoon with the failed battery. Dealers need to place a new envelope inside the battery cocoon with completed Volt Battery Exchange information including the TAC Case #, along with a copy of the Job Card (RO) including the technician's comments, DTCs, and diagnostics. It is recommended that this be taped to the battery inside the cocoon.

Canadian Shipping Instructions:

Canadian Dealers should follow the steps below to return a failed battery:

1. Submit a type 4 core return for the battery. A core return tag along with a core return application will be generated at your servicing PDC and sent to you.
2. Place the core return tag on the outside of the battery container (cocoon).
3. Complete the required return hazardous goods shipping paperwork (302C form)
4. Leave the labeled container (cocoon) along with the necessary shipping documents in the area within your dealership which you would normally use for your material/core returns. The DDS carrier will pick up this battery core along with your normal returns. If your dealership is not serviced by a DDS carrier you will need to return this battery via LTL (similar to how you would return other parts).
5. Canadian Dealers do NOT return batteries directly to the BSC or to the WPC.

Warranty Information

Battery components exchanged with the BSC should NOT be entered on the warranty claim transaction. Dealers are not billed for the component unless the core is not returned within 30 days. The following parts allowance can be added to the warranty claim.

For vehicles repaired under the EV coverage, use the following labor operation. Reference the Applicable Warranties section of Investigate Vehicle History (IVH) for coverage information.

Labor Operation	Description	Labor Time	Part Allowance
5031030	Drive Motor Generator Battery Replacement	Use Published Labor Operation Time	$400.00*

*Additional Administrative Allowances may be submitted as follows:

- In the U.S. and Canada – Add $20 to the Net/Admin Allowance (for a total allowance of $420 or $270 as applicable)

Please follow this diagnostic or repair process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed.

GENERAL MOTORS