



# Service Bulletin

File in Section: -

Bulletin No.: PIT4821C

Date: March, 2013

## PRELIMINARY INFORMATION

**Subject:** (Hybrid) High Voltage 2-Mode Battery Parts Restriction-TAC

**Models:** 2009-2013 Cadillac Escalade  
2008 - 2013 Chevrolet Tahoe and GMC Yukon Hybrid  
2009-2013 Chevrolet Silverado and GMC Sierra Hybrid  
All with Two-Mode Hybrid System (RPO HP2)

**This PI was superseded to update core return process and recommended field. Please discard PIT4821B.**

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

### Condition/Concern

The purpose of this bulletin is to explain the 2-Mode Drive Motor Generator Battery parts restriction program for the models listed above. The drive motor generator battery assembly is referred to as the hybrid battery. Product teams continually seek valuable information for engineering improvements. To assist in this effort, a hybrid battery parts restriction program will be used for this product. The servicing technician must provide detailed customer comments, conditions, diagnostic trouble codes (DTCs) and other useful information (as described in the procedures below) prior to requesting a 2-Mode Drive Motor Generator Battery from TAC.

### SAFETY PRECAUTIONS

**Caution:** To reduce the risk of severe shock and burns, treat all high voltage cables and connectors as though they are energized until it can be verified. Any service to the hybrid system or any related component requires the removal of the key from the ignition. If the key is left in the Run position, failure to remove the key from the ignition could cause the engine to auto-start, and in the Off position, the 300V system could remain active. The first step of disabling the high-voltage system is to remove the key from the ignition, which is designed to open the contactors in the battery pack, beginning the process of powering down the high-voltage system.

**Caution:** Always perform the High Voltage Disabling procedure prior to servicing any High Voltage component or connection. Personal Protection Equipment (PPE) and proper procedures must be followed. Refer to High Voltage System Diagnosis/Disabling in SI.

***Danger: Failure to follow the procedures exactly as written may result in serious injury or death. Diagnosis and repair of Two-mode propulsion systems, 2-Mode high voltage systems, M99 Transmission, LFA and LZ1 engines, regenerative brake apply systems and HVAC systems MUST be performed by dealers who both sell and service 2-Mode Tahoe and Yukon vehicles. Dealers must have the essential tools and personal protective equipment and technicians performing hybrid repairs must have completed all available training prior to proceeding with repairs on the unique hybrid components. If your dealership is not a 2-Mode Hybrid sales and servicing dealership with a trained technician, then the vehicle must be transferred to a dealership that meets these requirements.***

### PRELIMINARY PROCEDURES

Disable the high voltage at the drive motor generator battery. Refer to High Voltage Disabling in SI.

The High Voltage Disabling procedure will perform the following tasks:

- Identify how to disable high voltage.
- Identify how to test for the presence of high voltage.
- Identify condition under which high voltage is always present and personal protection equipment (PPE) and proper procedures must be followed.

## PARTS RESTRICTION PROCEDURE

Follow the recommendations below prior to contacting TAC to verify that proper diagnosis has been performed. Upon review of the diagnosis, TAC will establish a case reference number, and if necessary, make arrangements for ordering a hybrid battery assembly.

**Important:** The Hybrid battery assembly can now be internally serviced, however the high-voltage disconnect lever (one of the more commonly damaged/replaced items) is available separately and can be ordered by the dealership parts department. The hybrid battery assembly does not come with a new disconnect lever.

**Notice:** If the battery is being ordered for a non-warrantable concern (i.e. collision, theft, fire, flood, etc.) a valid VIN and proof of ownership are required.

## Recommendation/Instructions

1. A thorough diagnosis by a trained 2-Mode Hybrid Technician must be performed in order to prevent unnecessary component replacements.  
Refer to "Diagnostic System Check-Vehicle with HP2" in SI to identify the correct procedure for diagnosing the system.
2. If DTCs are present and the procedure gives direction to remove internal components; STOP, capture snapshot stored data, test drive the vehicle with the Tech-2® installed in order to capture a snapshot of the BECM data during the drive cycle or when a symptom occurs. See the latest version of 07-07-30-010 for snapshot data collection and PIP4686 for drive cycle and charge procedure instruction.
3. If DTCs are not present, refer to Symptoms Hybrid Energy Storage in SI.
4. If any diagnostic procedure gives direction to remove internal components follow current published SI procedures.
5. Contact TAC (U.S.) 1-877-446-8227 or 1-800-263-7740 in Canada for English and 1-800-263-7960 for French) to review case details.
6. After reviewing the diagnosis, if battery replacement is needed, TAC will arrange for ordering of a new battery.
7. Follow procedures for disabling high voltage systems in SI.
8. After verifying that the high voltage systems are disabled, remove the hybrid battery assembly per SI procedures.
9. For proper battery return shipping and storage guidelines please follow the core return process described below. **DO NOT RETURN THE BATTERY TO THE WARRANTY PARTS CENTER.**
10. Once the battery has been replaced, perform SPS Sequential Programming (SEQ) in TIS. This will program the Drive Motor Generator Battery Control Module (BECM) as well as check and reprogram all hybrid control modules in the sequence with the latest calibrations. If the calibration is already current the module will be "skipped" in the programming sequence.
11. Drive the vehicle for at least 1 hour to verify concern has been resolved.

## CORE RETURN PROCESS

Please be advised, effective October 1, 2009 GM Parts will impose a \$1000 (\$1500 in Canada) core charge on two-mode hybrid battery assembly part numbers 19180442 and 19117171. USA dealers please reference CC&A Process GMP09-215 – Introduction of GM Parts 2-Mode Hybrid Battery Assembly Core Return Process available in Global Connect. Dealers in Canada should reference Core Returns in Section 7 - Returns and Claims, of the GMCL Parts Policies and Procedures Manual. For any core issue, please contact Focus Hope Enterprises at 1-877-888-1220.

In the event the HV Battery needs to be recycled, refer to the webpage "General Motors Recycle My Battery" <http://recyclemybattery.com/> for the latest information.

## SHIPPING PREPARATION

1. Disable the high voltage at the drive motor generator battery. Refer to High Voltage Disabling in SI.
2. Remove the high voltage battery from the vehicle as outlined in Drive Motor Generator Battery Replacement in SI.
3. Cover all exposed high voltage openings with UL® listed, or equivalent, insulation tape rated at a minimum of 600 volts.
4. Tighten any fasteners that were loosened or removed during high voltage battery removal to the original torque specification.
5. Remove any plastic shipping plugs or covers from the new unit and install them on the high voltage battery to be returned.
6. Attach non-spillable label, provided with the new battery, to the top of the failed battery assembly (These non-spillable batteries are exempt from DOT hazardous materials regulations when shipping by ground transportation).
7. Write the TAC case reference number on the hybrid battery assembly in a visible location.

8. Place the hybrid battery core into double polyethylene bags.
9. Write the TAC case reference number on the repair order.
10. Place the high voltage battery core into the shipping container and attach the completed return shipping tag to the high voltage battery.

**Important:** The failed hybrid battery assembly must be placed in two (double) polyethylene bags that were provided with the new battery. This double bagging procedure must be performed as soon as the battery is removed from the vehicle. After bagging the hybrid battery, place the part in the original shipping container. Hybrid batteries are not to be shipped or returned until all protective covers, which are shipped with the new battery, are installed and double bagged. If the bags were misplaced or discarded, they can be obtained from [www.uline.com](http://www.uline.com) in bulk. The part number for the bags is S-11050.

## SHIPPING INSTRUCTIONS

For GM Dealers in the USA to receive core credit, the battery assembly must be returned using the Heavy Core Return Process (CC&A Process GMP09-003.) See your Parts Manager for more information as needed. For further direction please reference CC&A Process GMP09-215 – Introduction of GM Parts 2-Mode Hybrid Battery Assembly Core Return Process in Global Connect. For GM dealers in Canada, please reference Core Returns in Section 7 - Returns and Claims, of the GMCL Parts Policies and Procedures Manual.

## STORAGE GUIDELINES

**Caution:** The high voltage (HV) battery must be protected when outside of the vehicle. Failure to follow these guidelines may result in serious injury or death.

- Store the HV battery flat, do not exceed 45 degrees when handling.
- Store the HV battery in an environmentally protected area.
- Store the HV battery in a limited access area.
- Maintain the HV battery at room temperature.
- Protect the HV battery from exposure to liquids.
- Protect the HV battery from physical damage.

## Parts Information

Year	Make	Model	Part Description	Part Number
2008 - 2013	Chevrolet GMC	Tahoe Yukon	Battery Kit, Drive Motor	19180442
2009 -2013	Cadillac	Escalade	Battery Kit, Drive Motor	19180442
2009 -2013	Chevrolet GMC	Silverado Sierra	Battery Kit, Drive Motor	19117171

## Warranty Information

For vehicles repaired under warranty use:

Labor Code	Description	Labor Time
N5823	Drive Motor Generator Battery Replacement	Use Published Labor Operation Time
Add	Administrative Allowance	.2 Hours
Add	Road Test - Tech2 Snapshot	.3 Hours

Complete the feedback form before performing the high voltage disabling procedure and removing the drive motor generator battery. Using a scan tool where appropriate, record the following information/data from the BECM data lists prior to contacting TAC.

Hybrid Battery Part Restriction Worksheet A
TAC Case #
VIN #

**Hybrid Battery Part Restriction Worksheet A**

Drive Motor Generator Battery Serial #

List All DTC Numbers:

List all Symptoms:

**Notice:** Multiple Tech 2® Screen prints containing the following information will be accepted in lieu of completing the table below. The information below can be found in the BECM and Voltage Data Menus on the Tech 2®.

Hybrid Battery Part Restriction Worksheet B		
Scan Tool Parameter	Value Displayed	Units Displayed
Control Module Voltage	_____	volts
Hybrid Battery SOC	_____	%

**Hybrid Battery Part Restriction Worksheet B**

Hybrid Battery Pack Calculated	_____	volts
HVIC Return Current	_____	mA
HVIC Source Current	_____	mA
Hybrid Battery 1	_____	volts
Hybrid Battery 2	_____	volts
Hybrid Battery 3	_____	volts
Hybrid Battery 4	_____	volts
Hybrid Battery 5	_____	volts
Hybrid Battery 6	_____	volts
Hybrid Battery 7	_____	volts
Hybrid Battery 8	_____	volts
Hybrid Battery 9	_____	volts
Hybrid Battery 10	_____	volts
Hybrid Battery 11	_____	volts
Hybrid Battery 12	_____	volts
Hybrid Battery 13	_____	volts

### Hybrid Battery Part Restriction Worksheet B

	_____	
Hybrid Battery 14	_____	volts
Hybrid Battery 15	_____	volts
Hybrid Battery 16	_____	volts
Hybrid Battery 17	_____	volts
Hybrid Battery 18	_____	volts
Hybrid Battery 19	_____	volts
Hybrid Battery 20	_____	volts
Hybrid Battery Inlet Air Temperature	_____	*C
Hybrid Battery Outlet Air Temperature	_____	*C
Hybrid Battery Mod 1 Temperature	_____	*C
Hybrid Battery Mod 2 Temperature	_____	*C
Hybrid Battery Mod 3 Temperature	_____	*C
Hybrid Battery Mod 4 Temperature	_____	*C
Hybrid Battery Charge Power	_____	Watts
Hybrid Battery Discharge	_____	Watts
Calculate Hybrid Battery Resistance	_____	Ohms

Hybrid Battery Part Restriction Worksheet B		
Contactor System Status		

**ADDITIONAL SI KEYWORDS:**

07-06-03-008 AIT3232 delete PIP4686 PIT4821 PIT4821A PIT4821B PIT4821C P061B P0BBD

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.