



File In Section: Service Bulletin

Bulletin No.: PIP4869

Date: January, 2011

## PRELIMINARY INFORMATION

**Subject:** (EREV) Reduced Propulsion Power While Driving in Mountains

**Models:** 2011 Chevrolet Volt

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

### Condition/Concern:

A common DIC message seen by customers driving in the mountains is Propulsion Power is Reduced. It is recommended that customers enter Mountain Mode on the Volt when the vehicle has a full charge if their travel plans involve mountainous driving before the next charge event. This message may appear during severe highway driving conditions with steep grades, even in Mountain Mode, such as driving on Interstate 70 in Colorado. This is considered normal operation.

It is possible that this message could appear in Normal or Sport mode in non-mountainous terrain, typically with aggressive driving. When this message appears with aggressive driving, the battery reserve has been depleted.

This message may also appear on start up if the battery is at or below -15 degrees C (5 degrees F), possibly from the vehicle sitting outside unplugged in the winter. This will be accompanied by higher engine speeds to compensate for the low battery power.

**Important:** This message comes on any time the battery is reporting less than 35kW of power available for any reason. This message will NOT require service by a dealer unless the Propulsion Power Reduced message is accompanied by a Malfunction Indicator Light (Check Engine Light).

### Recommendation/Instructions:

Below is an explanation of Mountain mode that goes beyond the owner's manual.

### MOUNTAIN MODE

If your destination takes you over mountain passes in extended range driving, Volt engineers created Mountain Mode. To enter Mountain Mode, press the Drive Mode button three times after you unplug your Volt or 20 - 25 minutes before you start climbing the grade.

Mountain Mode reserves some battery charge to use later during the climb. If you enter Mountain Mode below 4 bars of battery charge, the engine will run at a higher speed to build the battery buffer.

If you enter Mountain Mode above 4 bars of battery charge, the estimated electric range will adjust accordingly.

If Mountain Mode is not selected in these severe conditions, you may experience reduced propulsion power and higher engine speed.

The Volt will continue to drive, but the vehicle speed may be reduced until the engine can recover the battery state of charge to a normal level.

Each time you power on your Volt, it will return to Normal Mode, which maintains a smaller battery buffer suitable for normal driving.

### WHEN TO USE MOUNTAIN MODE

Mountain Mode should be selected at the beginning of the drive; ideally as the vehicle is unplugged from charging. If a trip through the mountains or very hilly terrain is planned, Mountain Mode should be selected as early as possible (at least 20-25 minutes before reaching the bottom of the mountain). This will ensure that vehicle performance will not be affected by mountainous terrain.

## WHAT TO EXPECT ONCE MOUNTAIN MODE IS SELECTED

After Mountain Mode is engaged the following vehicle operation should be expected:

When Mountain Mode is Engaged	Battery Charge Level	Expected Engine Operation	Vehicle Performance Characteristics
After a full charge before shifting out of park	Full or close to full	No engine operation until EV range is depleted	Vehicle performance unchanged. Estimated EV range decrease
While driving	Half battery	No engine operation until EV range is depleted	Vehicle performance unchanged. Estimated EV range decrease
While driving	Low battery (less than 4 bars)	Engine will start soon after Mountain Mode is engaged	Engine may run aggressively to build battery buffer
While driving	Zero battery charge/range extended mode	Engine will run aggressively to build battery buffer	In cases when the vehicle is already climbing grades the vehicle may slow down and a message stating Propulsion Power Reduced will be displayed to the driver*
Not selected	Zero battery charge/range extended mode	Engine will run aggressively to climb grades	In cases when the vehicle is already climbing grades the vehicle may slow down and a message stating Propulsion Power Reduced will be displayed to the driver

**Note:** Driver may receive the Propulsion Power Reduced message in any mountainous terrain when an appropriate battery buffer cannot be built BEFORE reaching the grade. The ideal time to select Mountain Mode is when the vehicle is unplugged or 20-25 minutes BEFORE reaching the bottom of the mountain.

### PROPULSION POWER REDUCED MESSAGE

The message comes on any time the battery is reporting less than 35kW of power available for any reason.

The Propulsion Power Reduced message can occur when driving in mountainous terrain WITHOUT using Mountain Mode. This is normal operation to protect the vehicle's propulsion battery. The vehicle does NOT need to be taken to a dealer unless the Propulsion Power Reduced message is accompanied by a Malfunction Indicator Light (Check Engine Light).

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.