

Baltimore County Fire Service

Special Interest Bulletin



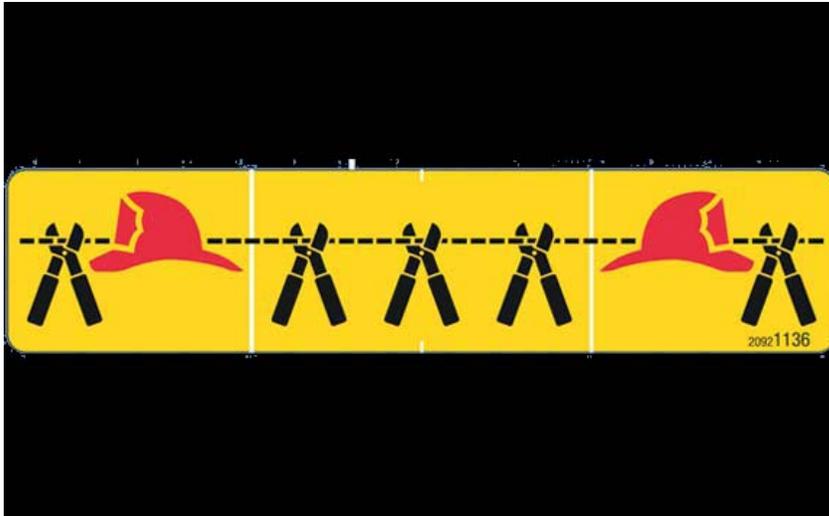
Emergency Response Considerations for the Chevrolet Volt

The Volt, Chevrolet's latest entry into the electric vehicle (EV) market and Motor Trend's 2011 Car of the Year, is coming to local dealers' showrooms soon. Although conservative estimates indicate it may average a combined 43 miles per gallon, it is entirely possible that the Volt, when used primarily in pure EV mode, could use no more than a tank of gas--9.3 gallons a year-- and may average better than 72 MPG. The Volt can operate in one of several different hybrid modes, representing a new generation of EVs that should become more popular and commonplace on our roads. These EVs are expected to be much cheaper to operate than regular hybrid vehicles.

The Volt is powered by a high voltage, lithium-ion battery located in the center tunnel and under the rear seat that has electrical potential up to 360 volts and functions as the vehicle's primary source of power. It's propelled exclusively by electric motors. Its gas engine drives a generator that produces electricity to propel the vehicle once the high voltage battery's capacity is reduced.

The vehicle has two separate electrical systems, one high voltage (>60v DC, >30v AC) and the other low voltage (<30v DC, <15v AC). The low voltage system works in the same way a conventional vehicle's electrical system works. The high voltage system distributes up to 360 volts (DC). The high voltage cables are orange and all high voltage components are identified clearly by warning labels.

We need to pay attention to these high voltage warning labels before making cuts to the vehicle to extricate victims. There is a yellow First Responder cable "cut" tag wrapped around the low volt positive battery cable behind the fuse panel door, located on the left side of the rear compartment (see diagram on next page). This cable should be cut first to disable the vehicle safely before beginning any extrication. The cable should be cut on both sides of the label to ensure the cut cable ends do not inadvertently touch and re-energize the vehicle. Cutting this cable will disable both the low and high voltage systems. According to Chevrolet, the orange cables are well protected and *should not* interfere with extrication procedures.



Yellow First Responder cable cut tag.



The yellow cable cut tag is wrapped around the battery cable located behind the fuse panel door on the left side of the rear compartment.

The Volt is equipped with “a complement of eight airbags, including dual-stage front bags, knee, and side-impact airbags for the driver and front passenger and roof-rail mounted head curtain bags that protect all four passengers” and seat belt pretensioners in the B-pillar near the rocker that may pose a serious risk to rescuers extricating entrapped victims from the vehicle. The vehicle is designed to protect occupants in front, rear, side and roll-over crashes. The high voltage contacts are automatically opened whenever any airbag deploys thus interrupting the flow of electricity throughout the vehicle’s entire high voltage system. Particular areas of concern for making cuts are the B-pillars, the top rails, the outboard backs of the front seats, and near the rear gate hold-open struts. The manufacturer recommends a one-minute wait after disabling the 12v power to permit any unspent energy to the airbags to dissipate.

If the vehicle's high volt battery is exposed to fire, it will not explode. The battery cells will vent and release electrolyte (flammable) if they get hot enough. Apply high volumes of water to cool the battery and extinguish the fire. An ABC dry chemical extinguisher will not extinguish a fire in the Volt's high voltage battery.

References:

Chevrolet Volt 2011 Emergency Response Guide.

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