

High Voltage Safety with Hybrids and Electric Vehicles

The number of hybrid – electric and gas – and electric vehicles have been increasing on the road and in repair shops. Because of the high battery voltage, workers must be trained on how to safely service these types of vehicles. This fact sheet is intended to make it easier for mechanics to protect themselves and others while working on hybrids as well as find more information.

Things to Consider

Safety hazards

The main dangers in hybrid and electric vehicle repair are electrocution and the possibility of the car turning on accidentally while work is being performed. These serious risks make safety training a priority.

The ability of workers to recognize hybrid and electric vehicles

While some hybrids are easily recognizable, some are not necessarily distinguishable from their gas-only counterparts. A mix-up could create serious problems for workers who are not able to tell the difference.

To address safety concerns, car companies have developed certain indicators that can help workers identify the vehicles:

Color-coded high voltage cables in hybrid and electric vehicles warn of their potential danger. Usually these are orange but some models have blue cables instead. Check with the car manufacturer to identify the correct color coding.

Safety mechanisms

Many hybrid and electric vehicle manufacturers have begun installing a safety switch or mechanism to disconnect the battery from the vehicle's electrical system. The location of this will depend on the model. Check with the car manufacturer to find out about safety mechanism for each individual care model serviced in your shop.

Safety best practices

Workers should avoid contact with high-voltage cables unless the high-voltage battery has been disconnected. Proper personal protective equipment (PPE) includes heavy, rubber, Class 0 rated gloves. Ordinary latex or neoprene shop gloves are NOT thick enough to protect against a high-voltage shock. Workers should inspect their gloves to make sure they do not have any pin holes, cracks, tears or splits that would allow direct contact between skin and voltage. Other precautions include:



A lithium car battery with orange indicator cables

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- Turning the ignition OFF and making sure that the key or key fob is away from the vehicle before it is serviced or repaired.
- Ensuring the READY light is not on.
- Waiting 15 minutes before working on the vehicle after the battery has been disconnected.

Find Additional Information

Shop owners must provide workers who repair alternative fuel vehicles with proper safety training. See below for additional information and training resources:

- Visit the [I-CAR](#) website to register for classes on safety while working on alternative fuel vehicles safety.
- ASE offers [Light Duty Hybrid / Electric Vehicle Certification](#). The test information and overview can be found [here](#).
- SAE offers a few 2016 online [webinars](#) on hybrid vehicle repair safety.
- The [Auto Career Development Center](#) in Worcester, MA, offers classes on hybrid repair safety.

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