Toolbox Talks

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Selling Recycled High-Voltage Battery Packs

Introduction:

Determining a High-Voltage (HV) battery's condition presents a challenge to any recycling operation wishing to move beyond just sending HV battery packs off to rebuilders as cores or to a recycling operation. HEV/EV battery packs pose an eco-hazard unless disposed of properly but also pose a great profit potential if qualified for resale as a used replacement battery.

HV battery packs can tell a story! Retrieving and recording Diagnostic Trouble Codes (DTCs) from all the modules on the vehicle prior to disconnecting the HEV's auxiliary 12-volt battery is very advantageous if the vehicle's condition has allowed the 12-volt battery to stay connected and charged.

Note - this process is for fully trained technicians who have the appropriate tools, PPE, manufacturer advice, and information. Untrained and uncertified staff should not be involved with this type of operation.

Discussion Points:

- HEV/EV battery packs pose an eco-hazard unless disposed of properly
- Retrieving and recording Diagnostic Trouble Codes (DTCs) from all the modules on the vehicle prior to disconnecting the HEV's auxiliary 12-volt battery
- Assessing the battery pack's condition
- Loss of electronic data
- Using appropriate tools and PPE

Discussion:

More HV Battery Info = More Profits

Always keep in mind which pieces of information can be obtained from the last known owner of the vehicle, along with the access of electronic data stored in various electronic modules. This will allow for a more accurate assessment with regard to whether the HV battery pack is in good enough condition to be resold, sent to a HV battery refurbishing company, or to a HV battery recycling operation.

Obviously, in the case of a salvaged vehicle involved in severe collisions where first responders or vehicle recovery crews have cut or removed the 12-volt battery cable, all electronic data will typically be lost forever.

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Summing It Up:

1. Obtain as much information visually as possible about damage, and also from the vehicle's electronics PRIOR to dismantling in order to eliminate HV battery packs that should be disqualified due to DTCs and other data which indicates the pack has problems.

2. Using service information (schematics) to connect a Class III / 1,000-volt meter (wearing Class 0 / 1,000 -volt safety gloves AND safety glasses) measure the battery pack's OCV (Open Circuit Voltage) at the Positive and Negative terminals opposite the sides of the relays (contactors) where the vehicle's main HV cable is attached. Do this WITH the HV service plug installed (or switch in the ON position).

3. At the time of dismantling, record the total voltage of the battery pack and keep that information in your records with a copy attached to the battery pack with the date included. If the HV battery pack's OCV is NOT within 10 percent of the OEM's rating for a charged HV battery, you must either send the battery to a battery recycling facility or a battery rebuilder, or recharge the HV battery pack using specialized tools.

4. Prior to resale, battery packs that were not disqualified due to water, fire, or crash damage, or failed due to recorded electronic information (DTCs, etc.), should be retested per step 2 in order to determine if the pack has experienced excessive self-discharge. If it has, it should either be disqualified or recharged per step 3. The 10 percent OCV value is NOT a factory spec. It is simply a practical estimate that has been derived from experience working with HEVs / EVs. As you progress as a HEV / EV recycler, you may customize that spec to fit your experiences with the vehicles you work on.

As always, stay safe out there!

May 18, 2020