We want to share with you a few critical considerations when selecting and installing a DC-AC Power Inverter. These include: Inverter type, power rating and the correct wiring harness. Cutting corners on quality and installation can result in catastrophic failures that no fleet or driver would want to experience.

There are two basic types of inverters: Pure Sine Wave and Modified Sine Wave. Pure Sine Wave is the same electricity that you receive from your utility company. Unlike Pure Sine Wave Inverters, Modified Sine Wave inverters have fewer harmonics than a square wave but more than a pure sine wave.

A burnt truck from a poor inverter installation.

Some devices such as medical equipment, electric tools with motors and charging devices require utility quality power that comes from a pure sine wave inverter. Most other items such as TV's and microwaves can be operated from a modified sine wave inverter.

While most inverters are very efficient, they lose power capacity while converting from 12 volts DC to 110 volts AC. Fleets should have a list of approved devices with power requirements before selecting the inverter to ensure that the inverter meets all the drivers' needs. Trouble can start when an operator tries to run all devices at once and does not succeed.

Inverters have their limits and consume a lot more power than you think. For example, a 1500 watt inverter with full output will draw roughly 150 DC amps per hour from the batteries. With that amount of current, it would not take long to run down the vehicle batteries. Inverters should be used for short time periods to power devices that cannot be powered efficiently with DC power. The high current that an inverter draws means that it must be connected directly to the vehicle batteries. It cannot be controlled by the vehicle's low voltage disconnect (LVD) system.

To protect your driver and your vehicle, the wiring harness needs to be made specifically for each model of vehicle and inverter power rating. **There is no "one size fits all" with inverter wiring!**

More remains of the burnt truck.

Calculating the right cable size is a function of power consumption and cable length from the batteries to the inverter. Purkeys Fleet Electric can ensure that you get the right harness for your requirements.

Here are some helpful tips for selecting and installing the right wiring harness:

1. When routing the cables, they must be kept away from heat sources and moving parts. Un-noticed damage to the cables can result in loss of function and highly undesirable outcome to the vehicle.
2. Wiring harness kits should include a properly rated fuse cube so that the entire circuit is protected.
3. Kits should also have ground wire for the inverter case, wire ties for secure fastening and wires should encased in color matching and convoluted tubing to provide added protection.
4. Terminal ends should be made of tin plated copper with the correct hole size for the cable and it should fused to the cable with a dual wall heat shrink tube and glue, which provides excellent protection from corrosion.
5. In the cab, use plastic dome nuts to protect the cable installation as it goes through the metal of the cab.

Purkeys Fleet Electric produces Custom Wiring Harnesses and Inverters with all of the above.

Purkeys Inverter with timer and wiring harness.

Our Power Inverters also include electronic controllers that operate as timer or a LVD. The timer gives the driver comforts of home for a reasonable period while protecting the vehicle batteries from deep discharging. We only use welding cable to provide the greatest flexibility for routing the cable.

To learn more about our custom wiring harnesses and power inverters, please contact one of our technical experts today.

Purkeys Fleet Electric
Toll Free: 1-800-219-1269
Website: www.purkeysfleetelectric.com

Find us on Facebook