The president's platform

Voltage changes

COLUMN BY LARRY HAGEMEISTER



As rebuilders, we get our share of customers wanting to change a car, truck, tractor or piece of equipment to 12V or 8V from 6V. I wanted to share some of the questions we ask our customers when they want to convert from 6V to 12V, making sure they have all the facts.

Usually it's because they crank slow. Many customers are surprised to know there is a difference between 12V and 6V cable. Lower voltage systems require larger cable. Battery connections should never be soldered, always crimped. The current travels on the outside of the strands so welding cable makes a better cable (it has more strands than battery cable for the same given size). Always crimp. The solder introduces a third metal to the terminal and cable being connected. It also forces the current down to one solid joint. That's why you have seen a cable blown out of the end of battery terminals. This can be a very high resistance connection. That's also why original equipment manufacturers use only crimped connections.

We also ask if they have changed the 6V coil. The cranking voltage can rob the coil of much needed spark during crank time. We want to make sure the coil is new. We never encourage 8V batteries. There is no manufacturer of a piece of equipment or car that used an 8V system. They were only built for 32V systems (lots of hidden problems here).

Next, is the ground cable bolted to the block of the engine as close to the starter as possible? How about the condition of the starter, bushings, armature, brushes, field coils, and brush spring tension. We advise them that the starter would also have to be converted to 12V by changing the field coils or adding shunt coils to slow the starter down.

On tractors with magnetos, if the starter is not converted to 12V it can crank the engine too fast. This will not allow the impulse coupler in the magneto to work properly because the engine is spinning too fast, throwing the timing off for starting. Many of the old 6V starters have inertia drives. When you convert to 12V these changes need to be done to the starter, otherwise it will spin faster causing the drive to impact the flywheel very hard and possibly breaking the drive spring.

Also, many 6V starters do not have a break assembly in the starter. That should also be installed to help bring the starter to a stop, reducing brush wear from the long wind down time. Of course the generator needs to be converted to 12V or an alternator installed for the 12V conversion.

Making sure the customer is properly informed about 6V systems can help them decide if they really need to convert to 12V. I promote leaving it 6V. Many are positive ground, and positive ground systems do not corrode the battery connections as badly as negative ground. The 6V systems can be very reliable when set up properly like they were designed to do by the engineers that built them.

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