

## Ample Power Company

# Modifying a Load Handler Alternator

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### Caveat Emptor

The Motorola/Prestolite Load Handler alternators, now manufactured by Leece-Neville are internally regulated and must be modified to work with the Next Step or Smart Alternator Regulator. While these alternators are used on highway trucks and busses, they are not hot rated. At least one user has reported that they are not sufficiently cooled for deep cycle battery charging at low engine RPM. Other users have not experienced this problem and found the alternators quite effective when used with an Ample Power regulator.

### The Internal Regulator

Locate the plate on the rear of the alternator that houses the internal regulator and covers the brushes. Note: there is a black wire and a red wire that exit the 12 Volt regulator cover and attach to the negative and positive terminals respectively. Wires for the 24 Volt units are internal.

Cut the red wire at the lug attached to the positive post of the alternator. Strip the red wire at the cut point and crimp on an insulated red male spade lug. This wire will connect to the field terminal of the regulator.

Leave the black wire connected to negative.

Remove the plate.

### Stock Wiring on 12 Volt Units

With the regulator cover removed, observe two yellow wires and two green wires which attach to spade lugs inside the alternator. Pull all four wires off the spade lugs. You will be attaching connectors to the two brush spade lugs which had the green wires attached.

Cut the yellow and green wires neatly and close to the resin which holds the internal regulator inside the cover. Discard the wires.

Cut the red and black wires as close to the resin as possible and strip them to receive push-tab connectors.

### Stock Wiring on 24 Volt Units

The 24 Volt units are wired slightly different, however, the brushes are readily apparent. Other wires in the alternator are not required.

In the 24 Volt units, you have to drill two holes in the small plate that detaches from the rear of the alternator. These two holes will be used as explained below for re-wiring the brushes.

It is good practice to drill the two holes large enough so that grommets can be inserted to protect the wires from rubbing on the cover plate.

### Re-wiring the brushes

As noted, the brushes were connected with green wires. You will connect one of the brush lugs to the black wire and the other to the red wire which go through the regulator cover.

For this, it is best to have insulated, right angle female push-tab lugs. Crimp on the right angle lugs to the red and black wires, and push the connectors onto the brush tabs. The black wire should connect to the right hand lugs, and the red wire to the left hand lug. It doesn't make an electrical difference how the wires are connected, but crossing the two wires inside the regulator case makes it easier to re-fit the regulator case.

### Finishing Up

Finish by replacing the regulator cover, making sure the gasket is seated properly. You can test your connections by applying 12/24 Volts across the two field wires and observing that the alternator no longer spins freely.