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How does my alternator work on my Foretravel?

Foretravel coaches are equipped with what are termed “externally excited” alternators. These are not the same alternators used in the large trucks that run on our nation's highways. This fact is often misunderstood in a majority of large truck repair shops. Often Foretravel customers must utilize these shops when they experience charging problems on the road. Most of these truck repair facilities are only familiar with what are termed “internally excited” alternators which maintain a single bank of batteries (12 volt supplied to the large output post continually).

Foretravel, as well as other coach manufacturers, utilize a battery isolator in the alternator charging circuit. The alternator must be able to maintain two separate banks of batteries, one bank for the house batteries and one bank for the engine batteries, at a particular set voltage. When a battery isolated system is used, the alternator has to be turned on,'excited, from an ignition source. That process is termed “externally excited”. During testing, with the main engine not running, there will be no voltage present on the large positive output terminal of the alternator.

The alternator that Foretravel employs has two large terminals, one positive and one negative, on the back, as well as two small terminals. The two small terminals tell the voltage regulator what to do. One small terminal is labeled DUVAC and the other small terminal is labeled IGN. The DUVAC terminal monitors (senses) the output voltage. The sensing wire runs from the DUVAC terminal directly to the engine battery side of the isolator on 2000 year model Foretravel's to present. Earlier models sensed from the remote start panel. The IGN (ignition) terminal turns on (excites) the alternator to start charging. This circuit is powered up when the ignition key is turned on. The only way the ignition terminal voltage will affect charge output voltage is if no voltage is present. It takes minimal voltage to start the alternator charging (7-7.5 VDC).

When checking the output voltage directly at the alternator while the alternator is charging, the output voltage will read higher than at the batteries. This is because there will be approximately a 1 volt drop from the output terminal of the alternator to the actual charge voltage at the engine battery terminal. This drop occurs in the isolator and associated wiring to the batteries.

Example: When reading the output voltage at the alternator with fully charged batteries and a properly functioning alternator, your readings should be approximately 15 volts dc (+/-), this in turn will allow for a maximum voltage at the batteries to be 14.1 VDC (batteries allowing for a normal 1 volt dc drop in voltage through the isolator).

By James Triana - Reprinted from Winter 2009 Motorcader / Foretravel Website circa 2008