

DC ELECTRICAL SYSTEM

DESCRIPTION

The charging system consists of an alternator with a mounted voltage regulator, an engine DC wiring harness, a mounted DC circuit breaker, and a battery and connection wires.

Because of the use of integrated circuits (IC's) the electronic voltage regulator is very compact and is mounted internally or on the back of the alternator.

Alternator Troubleshooting

If you suspect that the alternator is not producing enough voltage to charge the engine's battery, check the following:

⚠ WARNING: A failed alternator can become very hot. Do not touch until the alternator has cooled down.

- ☐ Make certain your alternator is securely mounted.
- ☐ Check the drive belts for proper tension.
- ☐ Inspect for loose or disconnected wires at the alternator.

NOTE: An isolator with a diode, a solenoid, or a battery selector switch is usually mounted in the circuit to isolate the batteries so the starting battery is not discharged along with the house batteries. If the isolator is charging the starting battery but not the house battery, the alternator is OK and the problem is in the battery charging circuit.

⚠ WARNING: Shut off the engine battery switch or disconnect from the battery when working on the engine electrical system.

Checking for Proper Voltage

If you suspect the alternator has failed perform the following tests with the engine off:

1. Using a voltmeter, connect the voltmeter red wire clip to the output terminal B+.
2. Connect the voltmeter negative wire to any ground on the engine.
3. Check the battery voltage. It should read 12 to 13 volts.
4. Check the voltage between the alternator (+) positive terminal B and any engine ground. If the circuit is good, the voltage at the alternator should be the same as the battery (unless there's an isolator in the circuit, then the reading would be zero).

⚠ CAUTION: To avoid damage to the battery charging circuit, never shut off the engine battery switch when the engine is running!

⚠ WARNING: Before starting the engine make certain that everyone is clear of moving parts! Keep away from sheaves and belts during test procedures.

5. Start the engine.
6. The voltage reading for a properly operating alternator should be between 13.5 and 14.5 volts. If your alternator is over- or undercharging, have it repaired at a reliable service shop.

NOTE: Before removing the alternator for repair, use your voltmeter to ensure that 12 volts DC excitation is present at the R terminal if the previous test showed only battery voltage at the B output terminal.

