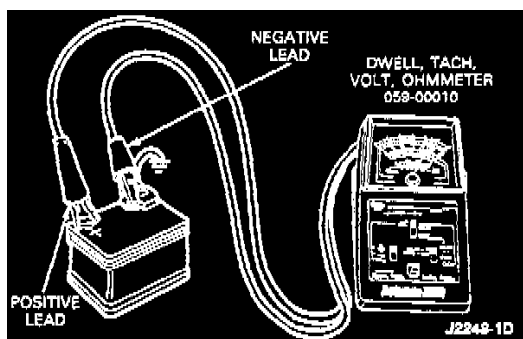


Charging System: Testing and Inspection

In-Vehicle Testing

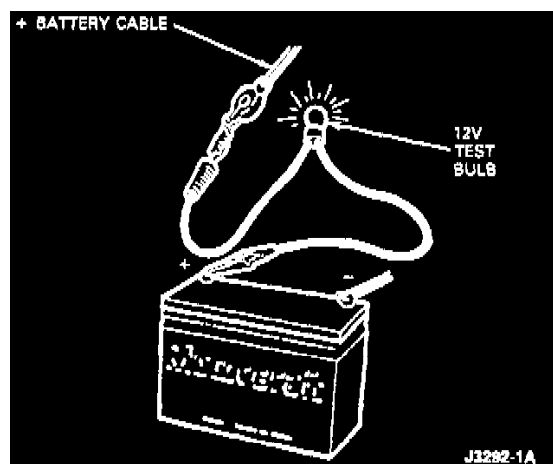
Alternator No-Load Test



Voltmeter

1. Turn off all lamps and electrical components.
2. Place the transmission in park or neutral and apply the parking brake.
3. Make sure the battery is fully charged.
4. Connect a tachometer to the engine.
5. Start the engine and increase speed to approximately 1500 rpm. With no other electrical load (foot off brake pedal and doors closed), the voltmeter pointer should move upward (increase), but not more than 2 volts above the base voltage
6. Perform the Load Test. See: Load Test

Drain Testing



Test Lamp

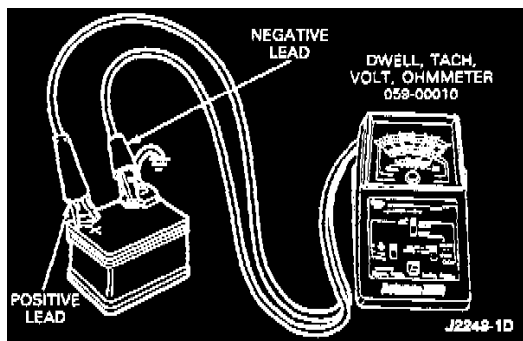
NOTE: Use a regular 12-volt test lamp for this test.

1. Make sure all vehicle electrical circuits are turned off.
2. To check for minimum battery charge and/or condition of bulb, connect test lamp across battery terminals. Lamp should light.
3. Disconnect test lamp.
4. Disconnect either positive or negative battery cable. Connect 12-volt test lamp between cable terminal and battery post.

NOTE: On vehicles equipped with EEC, when the battery has been disconnected and reconnected, some abnormal drive symptoms may occur while the EEC processor relearns its adaptive strategy. The vehicle may need to be driven 10 miles or more to relearn the strategy.

5. If lamp glows, connect battery terminal to post for five seconds then repeat the test to make sure results are dependable.
6. If the test lamp does not glow, there is no current drain.
7. If the test lamp does glow, check individual circuits to locate cause of current drain. Underhood lamp, glove compartment lamp, and cargo lamps are prime suspects.

Load Test



Voltmeter

1. Turn off all lamps and electrical components.
2. Place the transmission in park or neutral and apply the parking brake.
3. Make sure the battery is fully charged.
4. With the engine running, turn the heater or air conditioner blower motor on at high speed and headlamps on high beam.
5. Increase the engine speed to approximately 2000 rpm. The voltmeter should indicate a minimum of 0.5 volt above the base voltage. If not, perform the under voltage test. See: Under Voltage Test
6. If the above tests indicate proper voltage readings, the charging system is operating normally.

Over Voltage Test

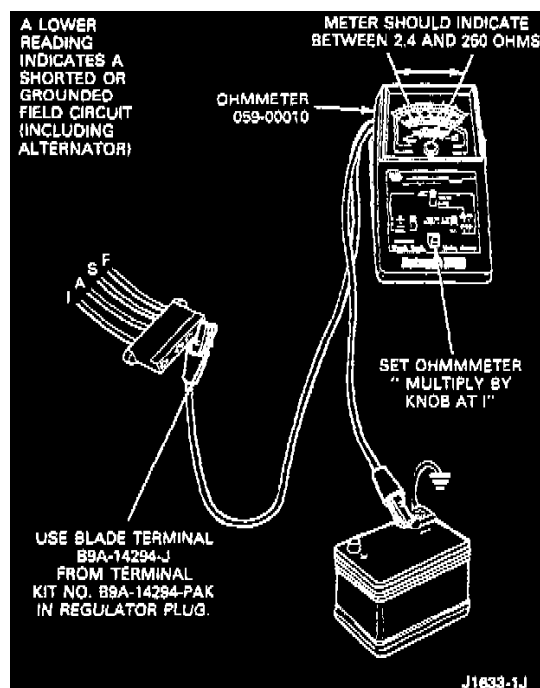
NOTE: This test is only for vehicles equipped with an External Electronic Voltage Regulator (EVR).

1. If the voltmeter indicated more than 2.5 volts above base voltage in the no load Test, connect a jumper wire between the regulator base and the alternator frame or housing. Repeat the no load test. See: Alternator No-Load Test
2. If the over voltage condition disappears, check the ground connections on the alternator, regulator, from the engine to the dash panel, the battery to engine, and all body grounds. Clean and tighten the connections securely.
3. If the over voltage condition still exists, disconnect the wiring plug from the regulator and repeat the no load test. See: Alternator No-Load Test
4. If the over voltage condition disappears (voltmeter reads base voltage), replace the voltage regulator.
5. If over voltage still exists with the regulator wiring plug disconnected, check for a short between circuits A and F in the wiring harness and service as necessary. Then connect the regulator wiring plug to the regulator.

Under Voltage Test

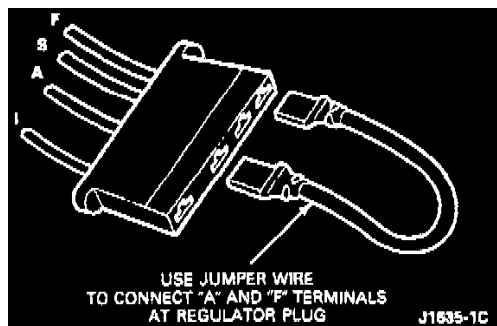
NOTE: This test is only for vehicles equipped with an external electronic voltage regulator (EVR).

If the voltmeter does not indicate more than 0.5 volts above the base voltage, follow these procedures:



Volt-ohmmeter

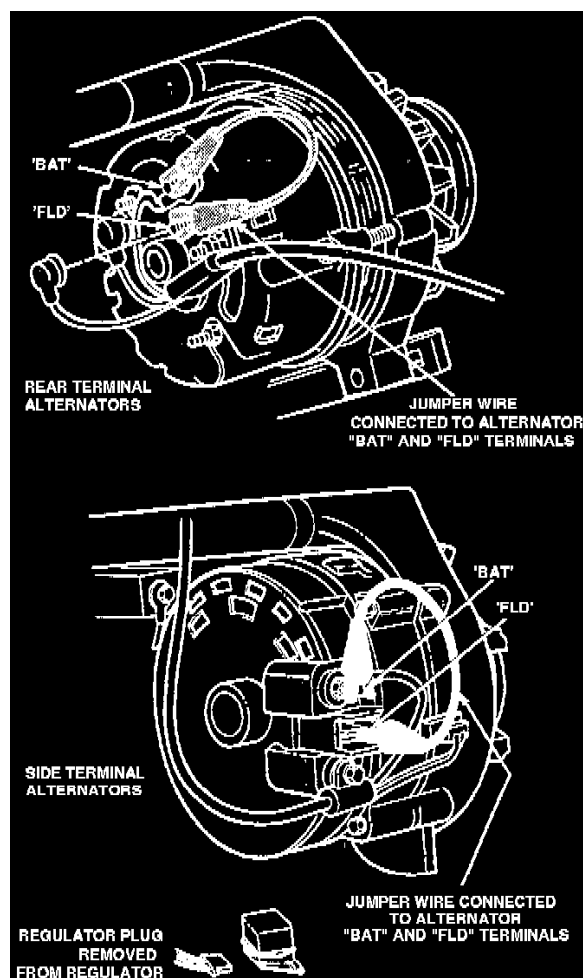
1. Disconnect wiring plug from regulator and connect an ohmmeter from the F terminal of the plug to a ground. The meter should read more than 2.4 ohms. If less than 2.4 ohms is indicated, service the grounded field circuit in the wiring harness or the alternator and then repeat the load test. See: Load Test



Jumper Wire

2. If the ohmmeter indicates more than 2.4 ohms, connect a jumper wire from the A to F terminals of the plug and repeat the load test. See: Load Test

If the voltmeter now indicates more than 0.5 volts above base voltage, the regulator or wiring is damaged or worn. Perform S and I circuit tests and service wiring or regulator as required. See: Component Tests/Regulator I and/or S Circuit Test



Jumper Wires

3. If the voltmeter still indicates a problem of under voltage, remove the jumper wire from the regulator plug and leave the plug disconnected from the regulator. Disconnect the FLD terminal on the alternator and pull back the protective cover from the BAT terminal. Then connect a jumper wire to the FLD and BAT terminals on the alternator and repeat the load test. See: Load Test
4. If the voltmeter now indicates a 0.5 volt or more increase above the base voltage, perform S and I circuit tests and service the wiring or regulator as indicated. See: Component Tests/Regulator I and/or S Circuit Test
5. If the voltmeter still indicates under voltage, stop the engine and move the positive voltmeter lead to the BAT terminal of the alternator. If the voltmeter now indicates base voltage, service the alternator. If the voltmeter indicates zero volts, service the alternator to starter relay wire.