

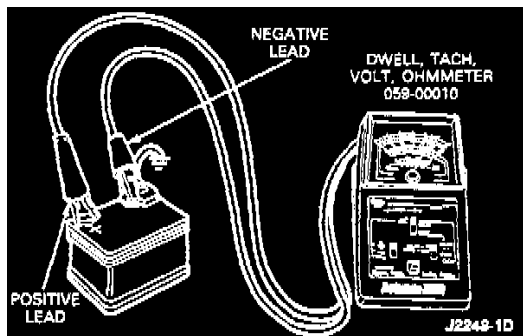
Charging System: Testing and Inspection Component Tests

Ammeter System Test

NOTE: This test is only for vehicles equipped with an ammeter.

1. With normal operation, when ignition switch is off and no electrical load, ammeter should show 0 on center scale.
2. With ignition switch on and the engine running (fully charged battery), needle deflects towards charge and returns toward center scale in time.
3. With ignition switch off and headlamps on, ammeter should show discharge. If the ammeter does not register a discharge, check for loose connections at the ammeter, or an open circuit wire, prior to replacing the gauge.

Base Voltage 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 ignition in off position and no electrical load, connect the negative lead of the voltmeter to the negative battery cable clamp.
5. Connect the positive lead of the voltmeter to the positive battery cable clamp.
6. Record the battery voltage reading shown on the voltmeter scale. This reading is called the base voltage.
7. Perform the no load test. See: In-Vehicle Testing/Alternator No-Load Test

Charge Indicator Lamp Test

NOTE: This test is only for vehicles equipped with charge indicator lamps.

OPERATION

With ignition switch in the off position, charge indicator lamp is off. With ignition switch in run (engine not running), charge indicator lamp is on. With ignition switch in run (engine running), charge indicator lamp is off except as noted above.

INSPECTION

1. If the charge indicator lamp does not light with the ignition key in the run position (engine not running), check the I wiring circuit (ignition switch to regulator I terminal) for an open circuit or burned out charge indicator lamp.
2. If the charge indicator lamp does not light, disconnect the wiring plug connector at the regulator and connect a jumper wire to the negative battery post cable clamp.
3. The charge indicator lamp should light with the ignition key turned to the run position (engine not running).
4. If the charge indicator bulb does not light, check the bulb for continuity and replace if necessary.
5. If the bulb is not burned out, an open circuit exists between the ignition switch and the regulator.
6. Check the 500 ohm resistor across the charge indicator light.

Charging System Performance Test

NOTE: In order to check the charging system, the use of a VAT-40 tester or equivalent is suggested.

1. Connect the VAT-40 or equivalent to the battery positive and negative posts.
2. Connect the current probe to the alternator + output lead to measure alternator output.
3. When measuring alternator output, the VAT-40 or equivalent can also be connected to the battery positive or negative cable. In this case, all

electrical accessories must be turned off and 10-15 amps added to the reading on the VAT-40 or equivalent due to the engine operation.

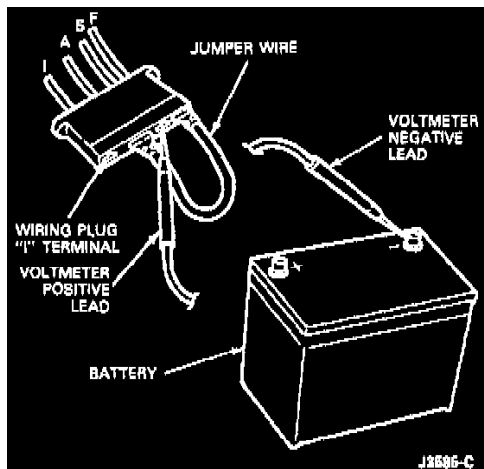
4. With the engine running at 2000 rpm, adjust the VAT-40 or equivalent load bank to determine the output of the alternator. The alternator output should be near to, or exceed the alternator rating at 80°F ambient temperature.

Fuse Link Continuity Check

1. Make certain that the battery is OK, then turn on the headlamps or any other accessory. If the headlamps or accessory do not operate, the fuse link is probably burned out.
2. On some vehicles there are several fuse links. Use the same procedure as in Step 1 to test the fuse link that protects vehicle equipment.
3. To test the fuse link that protects the alternator, make certain the battery is OK. Then check with a voltmeter for voltage at the BAT terminal of the alternator. No voltage indicates that the fuse link is probably burned out.

External Regulator Models With Warning Lamp

I and S Circuit



Jumper Wire

1. Disconnect the regulator wiring plug and install jumper wire between the A and F terminals.
2. With the engine idling and the voltmeter negative lead connected to the battery ground terminal, connect the voltmeter positive lead to the S terminal and then to the I terminal of the regulator wiring plug. The voltage of the S circuit should read approximately one-half that of the I circuit.
3. If voltage readings are normal, remove the jumper wire.
4. Replace the regulator and connect the wiring plug. Repeat the load test. See: In-Vehicle Testing/Load Test
5. If no voltage is present, service the faulty wiring circuit at the alternator. Connect the voltmeter positive lead to the positive battery terminal.
6. Remove the jumper wire from the regulator wiring plug and connect the wiring plug to the regulator.
7. Repeat the load test. See: In-Vehicle Testing/Load Test

External Regulator Models With Ammeter

S Circuit

1. Disconnect the regulator wiring plug from the alternator regulator connector. Connect the positive lead of the voltmeter to the S terminal and the negative lead to the battery ground terminal. Voltage should not be indicated with ignition switch off.
2. Turn the ignition switch to run position (engine not running). The voltmeter should indicate battery voltage. If the voltage reading is normal, replace the regulator and repeat the load test. See: In-Vehicle Testing/Load Test
3. If there is no voltage reading, service the S wire lead from the ignition switch to the regulator wiring plug.
4. Connect the positive voltmeter lead to the positive battery cable terminal. Connect regulator wiring plug to regulator and repeat the load test. See: In-Vehicle Testing/Load Test