

ALTERNATOR & REGULATOR - BOSCH

1990 Volvo 240

ON-VEHICLE TESTING

WIRING CONTINUITY TEST

1) Connect a voltmeter between alternator B+ terminal and ground. Voltmeter should indicate battery voltage. If battery voltage is not indicated, check wiring between alternator and battery.

2) Turn ignition on and ensure alternator indicator light comes on. If light does not come on, check wiring between alternator and warning light, and indicator bulb.

VOLTAGE DROP TEST - POSITIVE SIDE

1) Connect a voltmeter between positive battery terminal and alternator B+ terminal. Start engine and run at 2000 RPM. Turn on headlights, rear window defogger and heater blower.

2) If voltage drop is more than .2 volt, check circuit between alternator B+ terminal and starter for corroded or loose connections. Check circuit between starter and battery positive terminal.

VOLTAGE DROP TEST - GROUND SIDE

1) Connect a voltmeter between negative battery terminal and alternator housing. Start engine and run at 2000 RPM. Turn on headlights, rear window defogger and heater blower.

2) If voltage drop is more than .2 volt, check battery terminals, chassis grounds and engine grounds for corroded or loose connections.

OUTPUT TEST

1) Ensure connections at battery, alternator, and starter are clean and tight. Ensure alternator, engine and body are properly grounded. Ensure alternator drive belt is tight and in good condition.

2) Connect ammeter following manufacturer's instructions. Connect voltmeter leads to battery terminals. Run engine to 2000 RPM. Adjust carbon pile on tester until voltmeter reads 12 volts. Alternator output should be 49-55 amps. (55-amp alternator), 63-70 amps (70-amp alternator), 81-90 amps (90-amp alternator). If alternator output is low, replace alternator.

REGULATOR CONTROL VOLT TEST (240 SERIES)

1) Connect voltmeter to battery. Start engine and run at 2000 RPM. Run engine until voltage stops rising. Voltage should be 13.0-15.0 volts.

2) If reading is less than 13 volts, proceed to step 3). If reading is greater than 15.0 volts with integral regulator, replace regulator and retest. If reading is greater than 15 volts with external regulator, turn ignition off and disconnect harness from regulator. Connect voltmeter to battery and run engine at 2000 RPM. If reading is battery voltage, replace regulator and retest. If reading is greater than battery voltage, replace harness and retest.

3) Check to see if alternator warning light is on. If light is not on, check wiring between regulator and warning light. If warning light is on, perform full field test for alternators with external regulators. Pull regulator wiring harness from regulator. Connect jumper wire from D+ terminal to DF terminal.

4) Connect voltmeter across alternator B+ terminal and ground. Run engine to 2000 RPM. Observe voltage. If greater than 15.5 volts, replace regulator and retest. If reading is battery voltage, replace alternator.

5) If warning light is on with integral regulator, use test brush holder. With jumper wire connected to terminals D+ and DF on test brush holder, run engine to 2000 RPM. Check voltage at battery. If it is battery voltage, replace alternator. If greater than 15.5 volts, replace regulator and retest.

CAUTION: DO NOT allow voltage to exceed 16 volts or vehicle's electrical system may be damaged.