FIGURE 31.1 A typical alternator on a Chevrolet V-8 engine.

FIGURE 31.2 The end frame toward the drive belt is called the drive-end housing and the rear section is called the slip-ring-end housing.

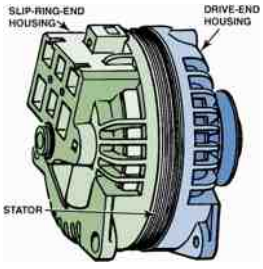

FIGURE 31.3 The digital multimeter should be set to read DC volts, with the red lead connected to the positive (+) battery terminal and the black meter lead connected to the negative (-) battery terminal.

FIGURE 31.4 A scan tool can be used to diagnose charging system problems.

FIGURE 31.5 Before replacing an alternator, the wise technician checks that battery voltage is present at the output and battery voltage sense terminals. If no voltage is detected, then there is a fault in the wiring.

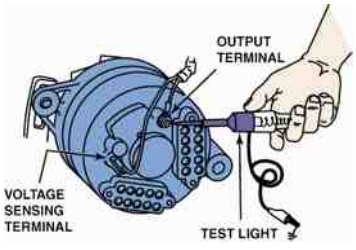

FIGURE 31.6 This accessory drive belt is worn and requires replacement. Newer belts are made from ethylene propylene diene monomer (EPDM). This rubber does not crack like older belts and may not show wear even though the ribs do wear and can cause slippage.

CHART 31.1

SERPENTINE BELTS	
NUMBER OF RIBS USED	TENSION RANGE (LB)
3	45–60
4	60–80
5	75–100
6	90–125
7	105–145
V-BELTS	
V-BELT TOP WIDTH (in.)	TENSION RANGE (LB)
1/4	45–65
5/16	60–85
25/64	85–115
31/64	105–145

CHART 31-1

Typical belt tension for various widths of belts. Tension is the force needed to depress the belt as displayed on a belt tension gauge.

FIGURE 31.7 Check service information for the exact marks where the tensioner should be located for proper belt tension.

FIGURE 31.8 This overrunning alternator dampener (OAD) is longer than an overrunning alternator pulley (OAP) because it contains a dampener spring as well as a one-way clutch. Be sure to check that it locks in one direction.

FIGURE 31.9 Testing AC ripple at the output terminal of the alternator is more accurate than testing at the battery due to the resistance of the wiring between the alternator and the battery. The reading shown on the meter, set to AC volts, is only 78 millivolts (0.078 volt), far below what the reading would be if a diode were defective.

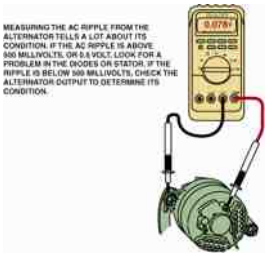

FIGURE 31.10 Charging system voltage can be easily checked at the lighter plug by connecting a lighter plug to the voltmeter through a double banana plug.

FIGURE 31.11 A mini clamp-on meter can be used to measure alternator output as shown here (105.2 amperes). Then the meter can be used to check AC current ripple by selecting AC amps on the rotary dial. AC ripple current should be less than 10% of the DC current output

FIGURE 31.12 Voltmeter hookup to test the voltage drop of the charging circuit.

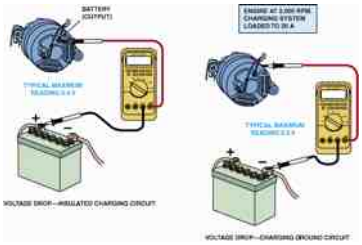

FIGURE 31.13 A typical tester used to test batteries as well as the cranking and charging system. Always follow the operating instructions.

FIGURE 31.14 Replacing an alternator is not always as easy as it is from a Buick with a 3800 V-6, where the alternator is easy to access. Many alternators are difficult to access, and require the removal of other components.