This test checks for voltage being lost along a wire, or through a connection or switch. Similar results cannot reliably be obtained through the use of continuity testing with an Ohmmeter. Multi-strand wires may test properly for continuity, but due to opens or corrosion in the line, display a substantial voltage drop when tested.

Voltage Drop testing is a method of electrical diagnosis that can quickly locate high-resistance problems in a circuit. Digital Volt/Ohmmeters (DVOM's) can be used to measure the voltage drop across a load device or conductor. Voltage Drop is the loss of voltage caused by the flow of current through a resistance. Increases in resistance increase the voltage drop. Whenever checking Voltage Drop, current must be flowing in the circuit.

Each load device must receive its rated voltage to operate properly. If not enough voltage is available, the component will not operate as it should. When compared to specifications, the available voltage at the component should be above the minimum specified. If it is not, a loose connection, corrosion, or faulty power source is indicated.

Voltage drop testing is commonly done to check wires, connectors, and connections for excessive resistance. Normally, the voltage drop on the power feed side and ground side wires, connectors, and connections should not exceed 0.1V or 100mV.

Voltage drop testing is important because high resistance can prevent proper circuit operation. Circuits with high current draw cannot tolerate high resistance. For instance, a loose or corroded connection can easily add several ohms of resistance to a circuit. This amount of resistance in the starting circuit would severely reduce current flow to the starter, not allow sufficient cranking speed, and possibly result in a no-start condition. This amount of resistance in the ignition primary circuit would prevent proper coil buildup and reduce secondary voltage below that needed to fire the spark plugs. In today's computer operated systems, resistance in a sensor circuit may cause the computer to interpret a sensor signal as too low of a voltage and attempt to correct for a non-existent condition.

Note: The battery should be fully charged to operating voltage prior to performing tests to obtain accurate results.

To test for a Voltage Drop on the Power side of a circuit, (figure 1) follow the steps below.

1. Connect the positive test lead of a Digital Volt/Ohm meter (DVOM) to the power source. Use of an analog meter is not recommended because damage to the meter could result from improper polarity.
2. Connect the negative test lead to the other end of the wire for the circuit being tested (pointA).
3. Operate the circuit and observe the meter voltage.
4. The DVM will display the difference in voltage between the two points.
To pin point the component/connection responsible for the voltage drop, move the negative test lead to the next component/connection (point B) in the circuit and retest at additional points as necessary. Changes in the Voltage Drop Reading indicate where excessive Voltage Drop is located.

**To test for a Voltage Drop on the Ground side of a circuit, (figure 2) follow the steps below.**

1) Connect the negative test lead of a Digital Volt/Ohm meter (DVOM) to the negative battery terminal. Use of an analog meter is not recommended because damage to the meter could result from improper polarity.

2) Connect the positive test lead to the ground terminal/wire at the unit being tested (point A).

3) Operate the circuit and observe the meter voltage.

4) The DVM will display the difference in voltage between the two points.