AC Voltage from the Alternator

Meets NATEF Task: (A6-D-2) Diagnose charging system for the cause of undercharge, no-charge, and overcharge conditions. (P-1)

Name _____ **Date** _____ **Time on Task** _____

Make/Model/Year _____ **VIN** _____ **Evaluation: 4 3 2 1**

A good alternator should *not* produce any AC voltage. It is the purpose of the rectifier diodes in the alternator to rectify all AC voltage into DC voltage.

_____ **1.** Set the digital multimeter to read AC volts.

_____ **2.** Start the engine and operate at 2,000 RPM (fast idle).

_____ **3.** Connect the voltmeter leads to the positive (+) and negative (-) battery terminals of the battery.

_____ **4.** Turn on the headlights to provide an electrical load on the alternator.

_____ **5.** AC volts at the battery = _____. **OK**_____ **NOT OK**_____

_____ **6.** Repeat the same test, but this time touch the red voltmeter lead to the output terminal of the alternator.

AC volts at the alternator = _____. **OK**_____ **NOT OK**_____

Was the reading higher at the alternator?

YES_____ **NO**_____ **WHY?**_____

Results: If the diodes are good, the voltmeter should read *less* than 0.4 volt AC. If the reading is over 0.5 volt AC, the rectifier diodes are defective.

NOTE: This test will *not* test for a defective diode trio.