Activity Guide

Testing A 12 Volt Automotive Battery

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INTRODUCTION

Complete the ** Lead / Acid Batteries ** INFORMATION BOOK.

- Completing two tests will tell you whether or not your battery is performing the way it should.

  The first test is an open circuit voltage test, this test determines if the battery is sufficiently charged.

  The second test is a battery load test, which measures the amount of current the battery can produce under load.

SAFETY CONSIDERATIONS

CAUTION !!
Always wear safety glasses. Never attempt to test a frozen battery. Avoid producing sparks near batteries, they may blow up.

PREPARATION

- Inspect the overall condition of the battery.

  Is the case cracked?

  Are the terminals in good condition?

  Is electrolyte in the battery up to the proper level?

  (Some batteries are not designed to have the caps removed, ask the instructor if you are unsure.)

OPEN CIRCUIT VOLTAGE TEST

- During the open circuit voltage test you will use the battery load tester to measure the voltage of the battery without a load.

  The results of this test will tell you whether or not the battery requires charging before it can be tested further.

❑ Be sure the switch on the tester is set to 12 volts.

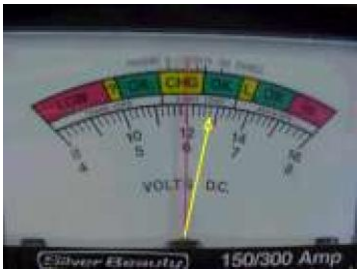
CONNECTING THE TESTER

❑ Connect the tester clamps to the battery terminals.

RED to Positive (+) BLACK to Negative (-)

MEASURE THE VOLTAGE

- Read and record the battery voltage shown on the front of the tester.



If the voltage level is below 12.8 volts you must stop testing the battery and charge it.

The voltage must be above 12.8 volts in order to do the Battery Load Test described in the next section.

BATTERY LOAD TEST

- This test determines whether the battery can maintain a high enough voltage level to operate the ignition system while providing current to start the engine.

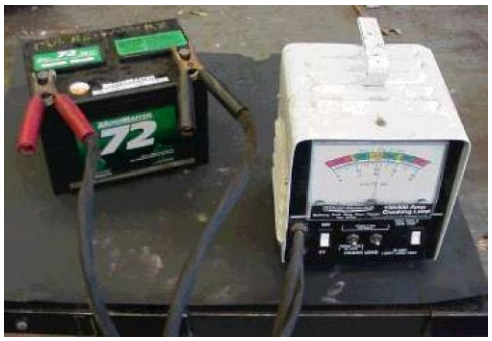
This test simulates the situation created when attempting to start the engine, a heavy load is placed on the battery by the starter motor but the battery must still have enough voltage to operate the ignition system.

The minimum voltage required by the ignition system is 9.6 volts.

CONNECTING THE LOAD TESTER

- Be sure the switch on the tester is set to 12 volts.

- Connect the load tester to the battery.



TAKE THE VOLTAGE READING

- Hold down the two toggle switches and take a voltage reading after 15 seconds with the switches still depressed.

Record your voltage reading.

A reading below 9.6 volts indicates a defective battery.

Readings close to 10 volts indicate a weak battery.

BATTERY CONDITION SUMMARY

❑ Create a written report describing the condition of the battery.

The report must include:

- voltage specification for the open circurit voltage test
- current and voltage specifications for the load test

- actual reading for the open circuit voltage test
- actual readings for the load test

- summary of the condition of the battery

Stop here until the instructor has checked your work. ***Instructor's Initial***