

Testing the Battery

One of the common issues related to starting failure of a generator set is the battery and its associated components, like cable, battery clamps, battery switch, charging alternator and static battery charger. The purpose of battery is to provide power to the engine's starter motor and controller. Therefore, routine battery maintenance is important to ensure generator starts anytime.

The usual maintenance checks include inspection of cable, cleaning and retightening of clamps, checks for physical condition, electrolyte condition (in wet lead-acid batteries) and open circuit voltage test or OCV. OCV tests battery terminal output voltage with the use of analog or digital voltmeter. However, measuring the battery's output voltage alone does not tell us all its condition. A discharged 12 volt battery may still read 12 volts across its terminal. A discharged battery means its output current, while starting the engine, is not sufficient to propel the starter motor in cranking the engine. This output current is called the **Cold Cranking Amps** or **CCA** of the battery. CCA is the amount of amperes to crank the starter motor at cold temperature. The performance of batteries greatly decreases at cold ambient temperatures. This results in significantly less cranking power for the starter motor.



Figure 1. A typical multi-tester for Open Circuit Voltage test (OCV) for batteries.

CCA Measurement

A **battery load tester** or equivalent is used for OCV testing and checking CCA. CCA measurement assure that the battery has sufficient current or power to crank the engine, especially when cold. During CCA test, a load is applied within 30 seconds across the battery terminals while the current is measured. CCA measurement of 200 up to 1000 is typically an ideal range. While below 200 would indicate a poor or discharged battery condition.



Figure 2. An inexpensive type of battery load tester.

The NFPA 110 recommends battery load testing performed quarterly.

The charging system should also be checked if functioning properly. Most battery load tester is also capable of checking the engine's charging alternator performance.

NFPA 110 – Standards for Emergency and Standby Power Systems, National Fire Protection Association.