

What is Battery Conductance Testing?

Most everyone is familiar with the “traditional” (carbon pile) battery load tester: A high current discharge tester, measuring battery voltage drop when loaded to half the battery’s CCA rating for 15 seconds at room temperature. By contrast, conductance testers send a small AC current pulse through the battery which generates a small AC voltage response. The ratio of current variation to voltage variation determines conductance.

Conductance is the inverse, or “flip side” of resistance. Resistance measures the difficulty of moving current through a circuit. Conductance measures the ease with which current flows. Greater resistance equals less conductance (and vice-versa). Therefore, a battery’s conductance basically indicates how much useful grid plate area remains to hold and produce power.

Load testing presents several disadvantages: 1) A power source is required. 2) The battery must be charged to at least 75%. 3) Full discharge testing deep cycles or “ages” the battery. 4) High current discharge may produce sparks capable of igniting battery (hydrogen) gasses. 5) High current testing may damage sensitive vehicle electronics, including the voltage regulator.

Conductance testing offers several advantages: 1) No external power source needed. 2) Battery does not require lengthy recharging prior to testing. 3) No dangerous sparks produced. 4) Very low risk of damaging vehicle electronics.

Lastly, other types of cell defects (shorts, opens, etc.) and irregularities affect conductance. Thus, conductance testing helps identify the quality of inter-cell connections, and paints a better overall picture of battery state of health.

As always, make sure a good battery is properly recharged before engine startup. Making an alternator recharge a very low battery may overheat the alternator enough to damage its internal components.