

Ample Power Company



Ample Power Support

Introduction

Is there anything more frustrating than a breakdown? Without warning, a trusted piece of equipment just quits working! There is something more frustrating . . . that tool you need to fix the problem is sitting at home in the tool box!

Breakdowns always seem to happen at the worst possible moment, and having the right tool to fix the problem doesn't help the initial feeling of letdown. But, when the dust settles, and it's either fix the problem or call the repair technician, having the right tool onboard makes the decision a little easier. If there isn't a technician to be called, frustration at leaving the right tool behind will be strong.

Considering the number of connections, wires and other components in an electrical system, reliability is quite good for most installations. We've seen many systems that makes us wonder if neat wiring with appropriate connections aren't just a waste of money . . . *if this system runs, anything will!*

Failures can be expected in systems where the installation practices were poor, and little or no maintenance has taken place, but even the best installed equipment will fail. What does it take to fix an electrical failure?

A Sharp Set of Eyes

Electrical failures are often the result of a mechanical failure. A broken splice, a loose crimp lug, or a missing screw in a terminal block can interrupt electricity and your vacation.

Knowing what to look for is the first hurdle. Don't you wish you'd made a list of all the terminals that had wires on them before the trouble began? Wouldn't it be nice if all the wires were labelled and you knew where each of them went?

In a large system, knowing all the wires and their function can only be done a piece at a time, and only by someone highly skilled in the trade. However, it's a good idea to inspect the system when it works so you won't be so daunted by it all when it fails.

A Digital Voltmeter

Many years ago we were driving an old pickup in the desert east of San Diego, CA. We'd been camping miles from the nearest paved road and hadn't seen any other people for 3 days. Without warning, the truck quit running. Inspection of the distributor gave us the answer . . . the rubbing block on the

points had broken.

A spare set was in the toolbox, and minutes later we were ready to set the timing and be on our way. There was only one problem . . . the voltmeter I used to indicate when the points actually opened was at home! After swearing, kicking the tires a bit, and fruitlessly trying to eyeball the difference between open and closed points at the timing point, some semblance of rational thought returned. My companion smoked, and cigarette paper was a thin insulator that worked between the point to indicate when the points gripped the paper, (closed), and when the points released the grip, (open). A voltmeter has been standard in my toolbox ever since!

Learning how to use a voltmeter is almost as simple as learning how to read a thermometer, or tell time using a digital watch! Don't know what a Volt is? So what, other than keeping everything from happening at once, even science can't explain time.

Not knowing what to do with the information derived from the voltmeter is a more serious problem. However, perhaps you can contact a technician by phone or radio and have them tell you what to measure and what it means! Telling a tech that a light doesn't work isn't very illuminating . . . telling him that there is voltage on one side of the light and not on the other may get the light to go on over the tech's head.

Here's a simple test that anyone can make. An external alternator regulator is enabled from the ignition switch, or an oil pressure switch. Find that wire by measuring voltage on all the pins of the regulator with the ignition switch off and then with it on. You should find a wire that has voltage on it when the ignition switch is on and no voltage with the switch off. You will probably find two such wires if the regulator works . . . one of them is the field wire going to the alternator.

Digital voltmeters are fairly inexpensive, and should be in every toolbox! Learn how to take readings . . . you may even surprise yourself and learn a little about electricity while you're at it. You can't usually hear or see electricity, so when it comes to explaining symptoms to a long distance tech, nothing is better than a simple voltmeter.

A Clamp-On Ammeter

Voltage readings can be used to tell if a battery is being charged or discharged, but if you want to know how fast, you need an ammeter. Ammeters are made that have opening

jaws so that they can be 'clamped' over a wire. They don't really clamp onto the wire, rather the wire goes through the center of the jaws. Once clamped over a wire, the jaws measure the strength of the magnetic field produced by flowing

current, and translate the measurement into Amps.

If you want to know how well the alternator or battery charger is operating, the ammeter is the tool. Want to know how much the inverter draws with the microwave cooking? The ammeter can tell you.