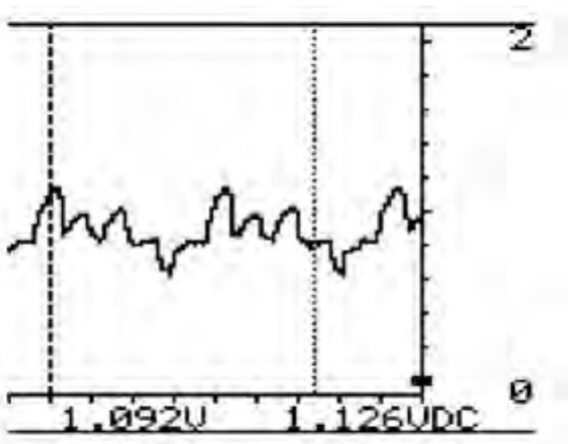
# Low Amps Probe is Installer's Hero

**By Hans Zundel**

Over the past two decades, I've installed and seen installed more than a few rebuilt electrical components—from alternators and starters to wiper, window and even a few fan motors. Most of the results were successful repairs, but every once in a while something would go wrong. The most common reaction of course was to blame "the darn product," even though I now know technician error or misdiagnosis was to blame at least some of the time.

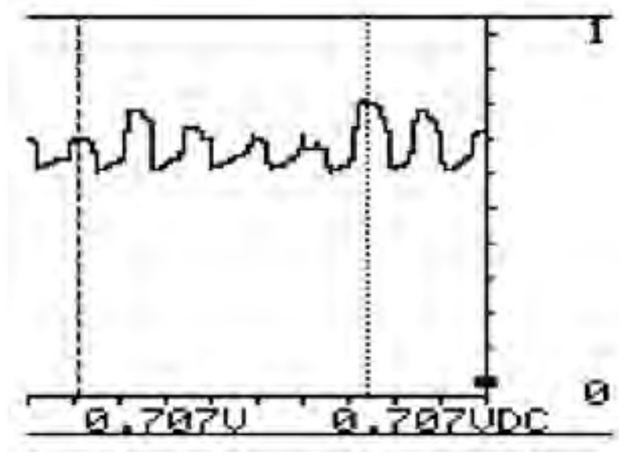
How often, as a rebuilder, have you received a returned "defective" component that tested just fine? A few simple steps performed by the installer could avoid the frustration and loss of profit this generates. The easiest is voltage drop tests of the power and ground circuits. While the days of the test light are pretty much gone, some technicians still rely on just a DVOM to diagnose electrical failure. Unfortunately, the load carrying ability of one tiny strand of wire is not reflected by the measurement of available voltage with a voltmeter or just the resistance of the ground circuit. Most technicians overlook the voltage drop test since unfamiliarity makes it seem time consuming.

The real hero coming to the forefront of the diagnostic toolbox, however, is the low amps probe. This inductive amp clamp has a nearly limitless list of uses in electrical diagnosis. It has the ability (when coupled with a scope or graphing multi-meter) to see inside the circuit—and gives you a picture of bad commutator segments, parasitic draw, and solenoid current. Here are some examples:




This capture shows a motor with an intermittent no run complaint. Each hump in the pattern represents the current for an individual "winding" of the motor. When the brushes land on the bad segment of the commutator it will not restart until "bumped."

This next one is a less dramatic but equally useful picture inside the workings of an electrical motor. It shows a large




variation in the current of each separate winding (taller humps = more current). This component is on the verge of failure. Imagine the ability to accurately predict the failure of a component before it happens or to uncover the cause of an intermittent failure without playing diagnostic dartboard. A more detailed explanation of this tool is available online in the Feb. 2007 edition of *Canadian Technician* magazine at http://canadiantechnician.com/images/CT-Feb2007.pdf or by a search of current ramping on your favorite search engine.

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