Xtreme Charge 5-Stage Battery Maintenance Charger

By Stu Oltman

Several months ago, a new battery maintainer for the powersports market was brought to my attention. Ho Hum. Same stuff, different day. But wait, this one's maker—PulseTech Products Corporation—claims it will increase battery service life between three and five times.

Fully expecting to be handing out another of my "Malarkey Awards", I contacted the manufacturer for details and samples. And I'm glad I did, because the product that arrived has proven quite impressive.

The New Product and a Background on Batteries

PulseTech Products has developed proprietary battery charging methods that the U.S. military has adopted. Now the company has applied those same concepts in a smaller package for powersports batteries.

For those who remember our test of five battery maintainers back in 2002, remember that we stated that sulfation is the major cause of battery failure. (Check out the article online to refresh your memory at www.wingworld-mag.com/archives/august2002/magazine/article/battery.html.)

Sulfation occurs when a partially discharged (or not fully charged) battery is left unused and uncharged for extended periods. The sulfate crystals that form on the surface of the battery plates during discharge can be easily removed if the battery is brought back to full charge in a short while. But if left unattended, they'll begin to harden. At that point, it becomes almost impossible to remove the sulfate—the longer the battery sits unused, the more difficult it is to recharge it thoroughly.

Because the chemical reaction in the battery is dependent on uncontaminated plate surface area, our battery will then have less ability to deliver the needed amperage for engine starting. "But," you might say, "I use my bike every day. How can the battery become discharged?" Simple. It takes a higher voltage than most vehicles' systems produce to remove all sulfate. And if we have accessories installed that cause our system to run at reduced voltage, the problem worsens.

What Makes a Bike's Battery Different?

So why is it that a car battery doesn't suffer these problems? It does. But given the size of most car batteries and the amount of overcapacity they have relative to the vehicle's demand, they can tolerate a higher level of sulfation before being unable to perform their jobs.

In our 2002 article, we showed the pulsing that occurred when each of the 5 chargers were operating. But we also stated that those pulses were merely the result of the filtering methods used, rather than being designed in for desulfation purposes. We also discussed

the fact that each of those chargers terminated its charge and went to float mode when the battery's natural charge acceptance rate dropped below around 0.3 amps.

What Makes This Product Different?

PulseTech's Xtreme Charge is an entirely different animal. Its patented charge algorithms combined with separate high frequency pulsation circuit was developed specifically to break up and dissolve partially hardened sulfation deposits and more deeply charge the battery. And the unit doesn't quit when the battery's acceptance rate drops to 0.3 amps. In fact, it was observed to continue providing charge at an acceptance rate of only 0.075 amps.

What's that mean to you? It means that, if left on the Xtreme Charge, a battery will likely be at a higher state of charge than if it had been charged with any other product that we've examined which was designed for powersports batteries. A higher state of charge means less sulfate on the plates. And that fact alone should increase battery service life.

Will it increase it 3 to 5 times? I'd have to ask—3 to 5 times over what? Certainly, it would increase it significantly over having not used *any* battery maintainer. But I'm convinced, based on some observations, that it will increase service life over what might be expected when using other models of battery maintainer. Here's what leads me to that conclusion.

Fountain of Youth? Not Exactly

The first testing we did was to evaluate the Xtreme Charge's ability to desulfate and recover batteries that had been neglected for extended periods. To that end, we procured several neglected batteries for GL1800 and all earlier model Gold Wings and tested them for capacity using two different powersports battery testers. Any batteries that tested as "Bad – Replace" were not included in the test. Any battery with voltage less than 12 volts was also excluded.

We then noted the reported Cold Cranking Amps (CCA) of each battery before attaching it to the Xtreme Charge. Though the Xtreme Charge indicated it had charged each battery in this test to 100%, none of the batteries showed any significant increase in CCA. We therefore conclude that the charge level reached, though it may have been 100% of what those batteries were capable of accepting, did not result in desulfation to any significant degree.

Keeping Good Batteries in Good Condition

We then proceeded to test the unit on used batteries that were in reasonably good condition, as shown by our test devices. Several of these batteries did indeed show notable increases in CCA readings, even after having been previously charged with other brands and models of battery maintainers.

As most of you already know, a freshly charged battery will show a higher voltage across its terminals than after it's been allowed to "rest" for several hours. And the voltage will decay further over time, as the battery sits unused and begins to discharge. For sealed, maintenance-free batteries, the voltage at rest should be at least 12.8 volts (slightly above 13 would be better), and all of the batteries we considered to be in serviceable condition fell within that range when removed from other brands of charger. After one week, not one of them still showed more than 12.8 volts.

Then we charged these same batteries with the Xtreme Charge. Each of the batteries had a terminal voltage immediately after charge in excess of 13 volts—no surprise there. What was surprising was that two weeks after charging, all except one still showed at least 13 volts across the terminals. It was this fact that indicated the batteries had indeed been taken to a higher state of charge and had more sulfate removed than when charged with any of the other well-known powersports battery maintainers—the 5 used in our 2002 testing. And the specifically designed pulsing delivered in the maintenance mode is likely to keep them that way.

Other Charging Features

Aside from the thorough charge, the Xtreme has lights that help the user understand what's going on. If everything is in order, the green "on" light will indicate AC power, and the red "test" light indicates that the unit is testing the battery's condition.

Should the red "no connection" lamp light, either the connection at the battery is loose, or the fuse in the charging pigtail is blown. (This last problem often occurs when a rider uses the pigtail to power heated clothing or other accessories, as most units include only a 3-amp fuse. The Xtreme Charge uses 7.5-amp fuses in both the permanent mount and alligator clip lines included with the product).

Should the user connect the charger in reversed polarity, all lights will flash, and a buzzer will sound. The "bad battery" light indicates either a 6-volt battery or a non-recoverable 12-volt has been attached.

Intermittently, the unit will pause and retest the battery. Then it will display the battery's state of charge. When the battery is fully charged, the 100% LED will illuminate, the charge light will go out, and the battery can be left on maintenance mode indefinitely.

Finally, should a battery not reach 100% charge within 24 hours, the Xtreme Charge will cease charging, and illuminate the "bad battery" LED.

Usability and Survivability

There are some small chargers available in sealed, plastic configuration, but none with the power and efficiency of the 2.5-amp Xtreme Charge. This makes the unit water resistant, though we don't advocate intentionally leaving it in the rain. It also prevents dust, dirt, and insects from shorting the electronics—a problem we've experienced with some metal-cased units that have cooling vents in the enclosure.

The yellow rubber boot on the bottom is a nice touch, too. It protects this surprisingly light and powerful charger from the normal knocks and drops that can be expected in a shop environment. And it's solid-state, meaning no large heat buildup.

The power cord and charging line are each 6 feet long. Add to that the 2-foot length of either the permanent or alligator clip pigtail, and you have the option to charge your bike from a wall outlet up to 14 feet away from the bike.

We have only one item to pick at—the ring terminals on the permanent mount pigtail. Rather than being sized for the common 6mm bolts found on power sports batteries, they're size is appropriate for 3/8" bolts. Because battery terminal bolts on most cars and light trucks are only 5/16", these terminals are too large to properly fit most vehicles. The user can easily replace them, but we'd hope to see the manufacturer make them more powersports friendly in the near future.

Conclusion

All things considered, we like the Xtreme Charge very much. It's user friendly, highly effective, very light, and should prove very durable. With a MSRP of $99.95, it's sold with a 5-year warranty. A dealer listing and complete product details are available on PulseTech's website. Visit them at www.xtremecharge.com.