Smart Charger Etiquette

I would like to know if it is harmful to your motorcycle if you connect a smart battery charger every day when your riding is done. I've heard so many different stories about this. Please resolve this matter. Thank you.

Nick A.
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That's a good question that brings up a secondary point we will visit as well. "Smart chargers" such as the Battery Tender brand, Yuasa brand and TecMate-brand chargers all contain a microchip controller to allow them to be hooked up to the battery indefinitely. This control unit senses battery charge level and adjusts the charge rate as required to either charge the battery if it is low or to run a floating maintenance charge during storage, hence the term "smart charger." These chargers were developed for motorcycle use due to their seasonal nature and the fact that motorcycles typically are not used for daily transportation, but rather they sit idle for significant periods of time. So, yes, you may connect your smart charger for months at a time with confidence.

However nothing is perfect, so you should be aware that on occasion the control chip in these smart charges will fail and could cause undercharging or overcharging. Typically when this type of failure occurs it is a result of a power surge coming in through the electrical lines (using a surge protecting power strip is a good thing) or physical damage from falling off the shelf, workbench, motorcycle seat, etc. Like any electrical product, there are the occasional manufacturing defects (ever end up with a bad DVD player right out of the box?), however, these rare failures will typically be covered under warranty. Additionally, these chargers are typically polarity protected, so if, like me, you occasionally suffer from a "dumb attack" and hook the leads up backwards, the charger will not be damaged. It is never advisable to short the battery charger leads together looking for a spark to indicate power, so don't do it! Instead, rely on the indicator lights on the charger unit for status. I suggest you consult the manufacturer's website for your particular brand and model of charger to confirm what features it has since features will vary.

Also, nothing is ever totally maintenance free, so in the case of standard lead acid batteries, the water level must be monitored and filled as needed. Remember to use distilled water when topping off a battery. Failure to do so will cause the battery to fail prematurely. It's usually a problem when the battery is hidden behind bodywork (out of sight and out of mind). The condition of the battery when the smart charger is installed can be another factor. If the battery is already weak or has sulfated plates, the charger's results will not be optimum. Some of the high-end chargers can sense sulfation and have a pulse function to break it up that may or may not be effective.

Now for that secondary point I mentioned: Not all battery chargers will provide a proper initial charge on some of the high-end, maintenance-free batteries. Unless there has been a recent change I missed, the Battery Tender brand will not provide a proper initial charge on a new battery after it is activated. So if you are activating a new maintenance-free battery out of the box, read the instructions on what type of charger is required. The unfortunate fact is that many motorcycle shops are not using the right kind of charger for the initial activation charge, and this is a leading cause of premature battery failure. No matter what kind of battery, the initial charge after activation is critical. And, no, you cannot just add the fluid and let the motorcycle charging system charge the battery. This method will actually prevent the battery from reaching full charge capacity. It is always worth the time to read the instructions, be they for the battery itself or the charger, in order to protect your investment.

Mystery Solved

I have a 2008 Yamaha Majesty, and I was told to add a product called Marvel Mystery Oil to my gas tank—1.5 oz. for 3 gal. of fuel. I get decent gas mileage, and I did have a problem with the scooter, but it is being fixed now. Marvel Mystery Oil will supposedly help the injectors and the many parts of the fuel system. I read one guy has used it since he's owned his 2007 Majesty, and he just got done riding from Connecticut to California and back. He also stated that he has 60,000+ miles on the scoot, my question is, are there any opinions or information out there that oppose this practice? I don't want to screw something up by doing this.

Bob from Michigan

No worries here, Bob. This is an age-old practice with an old-school product. Marvel Mystery Oil will not harm anything—it may not help, but it won't hurt. Adding Marvel Oil to the gas has been a practice since forever. The ideas behind it are to limit rust in the fuel tank, provide some carburetor lubrication, top-end engine lubrication and possibly increase fuel longevity by helping to keep the gas from going stale. You are fine with this practice.

On a similar note, some other folks I know and I will often run a high-quality two-stroke oil at 100:1 or 200:1, for the same purpose in our four-stroke motorcycles. My personal favorite is the old-school Blendzall #485 "Gold Label" Racing Castor/Power Booster (www.blendzall.com), as it boosts octane, provides top-end lubrication and smells really good coming out the exhaust. I get comments on this from time to time: "What are you running in that bike? It smells like an XR750 dirt track racer!" Fun stuff! It is, of course, much more expensive than Marvel Mystery Oil, but it does more. The Blendzall would not be worth the expense for your Majesty scooter unless you are having detonation/engine knocking under load from poor-quality gasoline.

Stalling Intruder

I am having a problem with my 2001 Suzuki 1400 Intruder. Every time I shift the gears, the engine dies. I hit the start button, and it starts, and it only dies when I shift gears. Otherwise, it runs good. Do you think it is electrical? I really need your help on this one.

Lamar
lamarsch10@verizon.net

Lamar, I would look at the clutch interlock switch at the clutch lever as well as the kickstand safety switch. I suspect one of these units is defective or perhaps shorted out, so check for pinched, damaged wires on each and test the switches with an ohmmeter. I always suggest obtaining a service manual for specific testing procedures and readings. After you have reviewed the wiring diagram for these components, you can fabricate a bypass wire that eliminates the switch for additional testing to confirm the fault. If you choose this testing method, be careful, as these safety devices will be bypassed and not function. Once you determine the problem, I strongly recommend replacing the faulty switch rather than running the bypass long-term.

If neither of these switches proves to be the culprit, all I can recommend is stripping all the body parts off the bike and carefully inspecting for loose connections, damaged wires, etc. The Intruder is a good-looking bike due, in part, to the fact that almost all the wires, hoses, etc., are hidden. As such, it is easy for them to get pinched under a seat, side cover or gas tank, causing irritating problems like the one you are experiencing.

Batteries & Charging Systems

I have at 1976 Kawasaki KZ900 with a turbo and a 1988 Harley FXRS 85th Anniversary model. What gel, high-performance maintenance-free, factory-activated, ballistic performance LiFePo4-style batteries can I use? Right now I am running Yuasa YuMicron CX lead-calcium battery—in other words the type I add acid to activate and check fluid level.

The Kawasaki has an old-style, low-output charging system. The regulator and rectifier are separate systems, which is outdated by today's standards. The Harley charging system has been the same from 1981 to 1988 on Big Twins—both Shovel and Evo models. Is there any way to update the Kawasaki charging system? If so, where can I get it?

Tim Steven
Belpre, OH

Let's hit on your questions one by one.

Batteries: the new crop of sealed, maintenance-free, GEL/AGM-type batteries are really good, last a long time and will help assist the weak, old-school charging systems you are working with. There are several brands of maintenance-free batteries on the market. I've had personal experience and great success with the Westco MK batteries on my vintage Yamahas as well as with service customers (www.westcobattery.com). These units arrive filled and almost fully charged, and I get five years or more out of them in extreme heat conditions, even with periodic neglect. Yes, I am guilty as anyone about forgetting my battery from time to time! The Westcos are more powerful than standard lead acid batteries, will crank longer, stronger and help to improve your electrical system performance, but they aren't cheap. Their 12V14LB unit for your Kawasaki 900 sells for $104.95, a significant increase over the $70 I paid about five years ago for same unit. They also offer an SVR 20 battery for your Harley for $124.95.

In addition to Westco, there are several other brands of sealed, maintenance-free batteries GEL/AGM-type batteries on the market. Most are from China/Taiwan, but without personal experience, I cannot comment on their quality. However, several of these new brands offer more applications than Westco does. An internet search will turn up a number of choices for your review. I have not tried them personally yet, but the new Bikemaster (www.bikemaster.com) and Shorai brand LiFePo4 *(www. shoraipower.com) appear to be very promising.*

I also recommend the Optimate brand battery chargers they sell (see a review of the Optimate 4 charger in the December 2011 issue of MCN). The Optimates are among the best in the business, and unlike many other chargers on the market, they will fully charge AGM-type batteries, so don't skimp on the charger. Shop around on the internet and you should be able to do a bit better on pricing for both the batteries and the charger.

Charging Systems: As you noted, the stock system has limitations, but you can do your best to optimize what you have with a little work. First, cut off and replace all the charging system connectors using OEM-style connectors (not the cheesy auto parts/hardware store stuff!). Corrosion will build up on the connector ends, and it's hard to clean off. Also, the copper wire core will deteriorate from the connector a little ways back up the wire. Cutting all this out and replacing it at the stator and regulator/rectifier connectors will help a bit. In conjunction with a new AGM battery, this may satisfy your needs. Another option is to replace the old charging system with a modern aftermarket stator, regulator/rectifier. These will be somewhat more powerful than the original parts and are not too expensive, relatively speaking. Make sure to replace the bike-side connectors as noted for best results. Rick's Motorsport Electrics (www.ricksmotorsportelectrics.com) offers replacement electrical parts and connectors at a reasonable price for Japanese bikes. J&P Cycles will have a variety of options for your Harley-Davidson (visit www.jpcycles.com).

I tend to stick with products I have had good success and good service from until I get feedback on new/other products. Let me know how your projects work out and if any of my suggestions proved useful. I love old bikes!

Gauging Tire PSI

Is there any way to judge what the best tire pressure is, given the temperature and or pressure variations with a tire pressure monitor, given variations in load and tire brand/type? Or, looking at it differently, is there an optimum amount of variation between cold and warmed up to, for instance, highway speed on a warm day?

David Mason
Salinas, CA

Good question, David! The best answer I can offer would be that the least variation from the initial recommended "cold" PSI setting will usually be your optimum pressure setting. Load, speed, temperature, altitude and riding style will be factors affecting the pressure changes from "cold" to operating PSI. The type of bike will come into play as well. Something to take into account is that different tire brands, styles, etc. will have slightly different pressure recommendations due to variations in tire construction, rubber compound, etc., and most aftermarket tires will call out a different PSI than the OEM tires noted in the owner's manual and sticker on the bike. As tires are now very often application-specific (Sport, Touring, Cruiser, etc.), consult the tire maker's website and FAQ for initial recommendations.

That said, I don't have a magic formula to directly answer your question. I would suggest starting with the tire manufacturer's recommended PSI for the tires you are running, then checking the PSI during rides, the smaller the change (PSI will go up somewhat) the better and thus closer to optimum you are for your situation. Note that higher loads and higher speeds will work the tire harder, flexing its carcass more and increasing both heat and PSI. So, if you commute during the week with a light load, moderate speeds, etc., but ride banzai backroads or loaded up with gear and a passenger for weekend rides, you'll want to adjust your pressures to compensate.

The trick lies in finding the "sweet spot" between comfort, traction and longevity with the pressure you choose. As you are probably aware, like most things in life, tire pressures are a compromise—the pressure that provides the best ride quality or traction will likely deliver less tire mileage between replacements.

It all comes down to testing, trying some different settings to see what provides the factors you desire with a minimum of pressure change in the tire during use. If you make pressure changes during riding while the tire is "hot," make sure to recheck after the tire has cooled to see what the "cold" pressure is. Always take notes so you can record and review results.

—Matthew Wiley

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