

## LETTERS

itself in a different light. And who was getting something out of the truck? It was Chris Maida. I first met Chris and



Buzz in Sturgis, Michigan, in August of 2003. It was a pleasure to ride alongside Buzz's '55 Panner and with Chris on the Ride Home for the 100th. When Chris started to go over the '48 Crustoration bike with me, it seemed like I'd known Chris for 20 years. Thanks, Chris. One just doesn't know who you'll meet on the road. Here's a picture.

JIM BEST  
HOLLAND, MICHIGAN

*Jim, it was great to hang with you again. One of the best parts of my job is getting to meet AIM readers at events and on the open road. — Chris*

### KEY WEST BOUND

That's highway 93 running through an awesome glacial gorge in the Maligne Mountains of Canada's Jasper National



Park. I've been to three corners of the country thus far, but still gotta make it to Key West. I'm doing the rest of the lower 48 on the way to and from Florida.

"IRONBUTT" BILL POLICK  
SAN DIEGO, CALIFORNIA

### CARB APPROVED

Good article on the EPA and CARB requirements for motorcycles in the October 2008 issue. However, you forgot about Assembly Bill No. 829, Chapter 325, of the California legislation. This bill would allow aftermarket and performance parts to be sold and installed on motorcycles, concurrent with a motorcycle's transfer to an ultimate purchaser, where the parts have valid State Air Resources Board Executive Orders.

WILLIAM RUPERT  
LEOVINCE EXHAUST SYSTEMS  
RICHMOND, CALIFORNIA

*Right you are, Bill! Thanks for the heads up.*

### A CHANGE EVERY TIME

In Dave Telling's article Charging Systems (November '08), he lead me to believe Harley uses a series style of regulation in which there is low resistance in the system under conditions of high-current demand (lights, music, or electric clothing), and which introduces resistance into the circuit when demand drops. If this is the case, high resistance in the load should lead to increased voltage across the stator windings. Is this stressful to the insulation? Or is the regulator an upgraded version of the Zener diode regulator on my old BSA, in which the shunt current of low load heated the regulator, and the stator always ran at max output?

My main question, which no one seems able to answer, is which operating condition is more stressful to the charging systems as a whole: operating with a high-current demand, or turning off all but essential electrical loads?

LLOYD  
WEBSTER  
SWAN RIVER,  
MANITOBA,  
CANADA

*Lloyd, the greatest overall stress to charging components is normally when the load is heavy. That's because current is what generates heat in the parts, not voltage. You are correct in saying that the stator winding voltage will go up some, but the voltages developed are well under the*

*insulating capabilities of the windings. What often causes windings to fail is a combination of excessive heat (from a variety of sources, including long periods of low-speed operation) and vibration. These two can combine to cause interwinding short circuits (because the heat softens the insulation), which causes even more localized heat, and, in time, burns up the winding. The shunt-type regulation of the old British bikes actually stressed the Zener regulator more at light loads, because there was no regulation of the generator itself. The full output would have to be handled by the Zener diode if no other loads were present. If you have one of those bikes, a few accessory lights might help your Zener diode last longer! Most modern bikes use some kind of series regulation, or a separately excited field, like a car alternator, and are most stressed at higher loads.*

However, there are exceptions to this rule. A regulator that introduces an electronic resistor to control alternator output will tend to run hottest at mid-level current demands. However, the alternator and rectifiers will run hottest at high-current demands. On the other hand, a regulator that shorts out the alternator windings when it goes above the voltage setpoint, which is a common design, can actually cause more heat at low loads. This is because the peak currents in the windings are greater when the alternator output is shorted. When the bike has more electrical loads, the windings may actually run a bit cooler, but the rectifiers will run hotter, because they now are supplying more current to the load.

In the end, the answer really depends upon which part of the charging system you're targeting. The most efficient (lowest heat) design is the alternator that uses a separately excited field (like a regular car alternator), but that type is not common on bikes because of the extra windings, slip rings, etc. that would be needed. I believe that in the future, we will see high-efficiency, switching-type regulators that will be very efficient and compact, and work with existing alternator designs. — Dave Telling

### GLORIOUS RIDE

Here's my pride and joy, a 1994 883 XLH. I found this Sporty in a barn, worn out and ugly. It had been sitting

