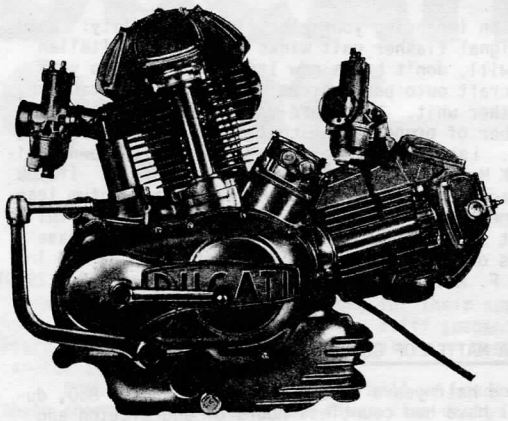
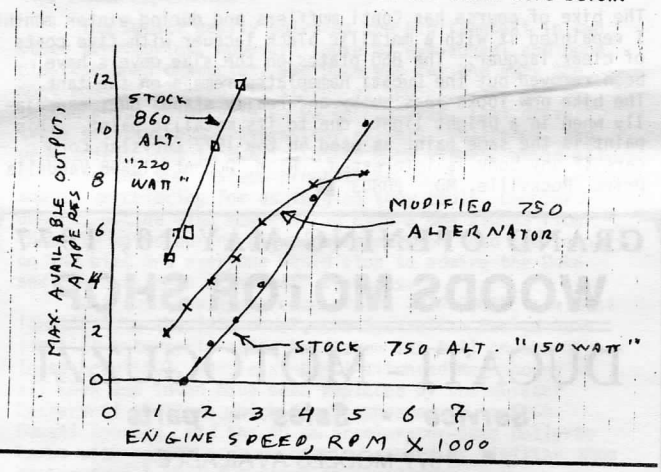
TECHNICAL



HOW TO INCREASE THE ELECTRICAL OUTPUT FROM YOUR DUCATI 750 & 860

by Scott P. Robinson

If you own a Ducati twin or an 860 twin with serial number of 851683 or less, you may have experienced a certain lack of electrical power, especially in low speed riding situations. This is due to the fact that the alternator on these machines has very little output at low speeds. The alternator on the late 860 bikes has, by contrast, tons of output at any speed. The curves of maximum alternator output versus speed for these two alternators and for one ohter case are shown here below.



As you can see, the stock 750 alternator, also used on the early 860s, has very little output at low speeds. To understand how these curves relate to your bike and riding conditions, you have to think about your average current drain and average rpm while riding, including time spent waiting at stop lights. For a 750 with battery/coil ignition, the ignition system alone takes about 2.5 amperes. Switch on the headlight and you've added 4 amperes for sealed beam systems or 5.3 amps for 55 watt Quartz systems, including the tail and instrument lights. For a stock 750, the total night time drain is now up to 6.5 amps. The stock alternator doesn't produce that much current until you exceed 4000 rpm. If you have an early 860 you're a bit better off because the electronic ignition on these bikes is self-powered and doesn't take juice from the alternator/battery system; you break even at 3000 rpms.

I find it possible to move along quite quickly in town without ever exceeding 5000 rpm and mostly chugging along between 2500 and 4000. By now it should be clear that with the stock 750 system you spend most of your time making less current than you're using. and I haven't even considered turn signals. Clearly if you use electricity but don't generate enough the difference is going to be taken from the battery.

So that's the cause; how about the cure? There are two convenient schemes to increase the alternator output: use a late 860 type alternator or change the regulator but retain the original alternator. The curve shown for a modified 750 alternator is the available output from the original alternator with a regulator/rectifier wired for a bridge instead of a center-tap rectifier configuration. It's an improvement at the engine speeds where most of your riding hours are probably spent. A 750 will now break even with Quartz lights at 4000 rpm, with stock lights at 3000 rpms, and with lights off at 1500 rpm, which at least gives the bike a chance to restore during daylight hours what is lost at night. An 860 will break even with Quartz lights at 2500, with stock lights at 2000, and will charge some even at idle with the lights off. The maximum charge rate, however is less, but it's a good trade. The curve for the late 860 alternator shows an abundance of output even at idle, and it balances my 100 watt high beam at 2000 rpm.

If you own an 860, the conversion to the later alternator is an easy pay-out and bolt-in. The pay out part will set you back about $100 - $150; I am not sure of the exact price. You will be left with a set of perfect 750 components (rotor, stator, and regulator) which you may be able to sell to a dealer or fellow rider. What you need is an alternator rotor and stator, whose combined part number is 0759-46-400 and a regulator, whose part number is 0759-46-750. I found these parts in stock at Berliner. The bolt-in part goes like this: take off the right crankcase cover. take out the four screws holding the stator in, loosen the packing gland for the wires, and remove the old stator and spacer. Install the new stator, which is much wider, without the spacer, and pass its wires through the packing land. Next, remove the nut that holds the rotor on the end of the crankshaft. Slide the spacer and rotor off the crankshaft. NOTICE WHICH WAY AROUND THE ROTOR IS ON. The new rotor, without spacer, should be assembled facing the same way as the old one. Tighten hell out of the retaining nut, maybe even use some loctite, and replace the outer case cover. Next, remove enough of the ty-raps securing the wiring to the frame to get the old alternator wires loose from the bike Route the new wire in the same manner as the old one and secure it with new ty-raps or electrical tape. Unbolt the old regulator and bolt the new one in. Disconnect all wires from the old regulator and set it aside. Bolt the new regulator in the same spot as the old one and wire it as follows: connect the two yellow wires from the new stator to the two terminals marked 'G" on the regulator. Connect the red wire from the wiring harness to the 'B+' terminal and the brown wire from the wiring harness to the 'C' terminal on the regulator. Fire up, check for output and ride away.