

Regulator/rectifiers/capacitors.

The 'new boy' on the block is the Reg/Rect. So we must sort out some rumours that have occurred.

Zeners are old hat, they waste energy through heat! They aren't as good as the new Reg/Rect. Not quite so. The actual Zener voltage we get can be variable, as low as 13.8V (which hardly does the job) well over 15.3V (which starts to boil the battery) The higher voltages are fine provided you do not lose electrolyte or suffer blown/blackened bulbs.

Waste of energy/heat. Having done the sums recently we find that in worst case (lights off, at speed) might be wasting some 70Watts ie 0.1HP (I don't think we are going to save much planet worrying about this)

Reg/Rects. These still waste some energy in heat (perhaps 20W). They do have good Voltage regulation though, the modern ones often holding a steady 14.2 Volts. They will give a usable voltage without a battery as well. But you must use a capacitor to have decent lights.

Testing. Trying to test the regulator/rectifier on its own is virtually impossible, testing for resistance with a meter is a waste of time. But what you can do if there is any doubt about your charge rate is to replace the reg/rect with a straight bridge rectifier. (perhaps the rectifier you took off) fit a bridge rectifier, ignore the lack of Zener or regulation, start the bike and using the lights as a load see what your charge/battery voltage or current is? If this is now satisfactory then of course the alternator and wiring are ok. The slight momentary over charging will not hurt the battery as obviously you will just be testing 'in the drive'. As long as you do not try any distance riding without lights-no issue.

The Capacitor i.e. The Lucas 2MC. (as was) It has been done to death in the Roadholder magazine to some extent in the past. It was introduced with coil ignition and 12V to give some form of emergency starting,

My advice is, they are not essential but are 'nice to have' they will help any 12V coil ignition system by reducing the chance of a kick back when starting with a flat or non-existent battery. If you have electronic ignition the chance of a kickback is greater so the reason to fit is increased. If you want to run with a Reg/Rect. without a battery then a capacitor does become essential, for above reason (with coil ignition), also for decent lights with a magneto. If you are in the other situation that you have a magneto and a battery then you won't need a capacitor. For those feeling technical than you need to know that the 2MC was originally 47000 micro-farads and was rated at 25V. But of course the Lucas item is no longer made, although it is available from aoseservices. But if you want to find your own capacitor do look closely at ripple current and working temperature as well.