

### Notes on Lucas alternators

The old 6 volt alternator based charging systems are in effect un-regulated, they rely on exactly matching the system load to the alternator's output to keep the voltage within acceptable levels. A large battery is needed to soak up excess power, often boiling in the process. Because the voltage is not controlled if you fit an electronic ignition or an AGM battery the warranty on that part is invalidated - not many sellers will tell you that until its too late. Fitting a 6 volt regulator will allow the safe use of much smaller AGM & Cyclon batteries plus electronic ignitions will operate safely while preserving the warranty.

If you have a three wire 6 volt alternator the first step in fitting a 6 volt regulator is to connect the alternator output leads as if you were going to convert it to 12 volts. It may seem a little illogical but the regulator needs to deal with the alternator's full output and connecting the leads in this fashion facilitates this. The most suitable alternators to run at 6 volts are RM18 & 19. The new Lucas 10 amp stator is a two wire stator and also runs well at 6 volts, in this case the full output is already supplied on the two wires coming from it. RM12-15 stators give significantly less power but the system will be much more reliable with a regulator in the circuit.

See the diagram below which shows which wires need to be joined. The GREEN/YELLOW on the bike's loom is not used after these connections are made - insulate this.

We can supply a complete alternator set with the correct stator, rotor and solid state regulator (our part number: ALT-SET-3).

You should use a battery of 5 amp/hours capacity or greater, also a fuse should be fitted near to the battery, we can advise on batteries and fuses but in most cases a 20 amp fuse is suitable.

### Fitting instructions

1. Remove the battery from your bike. Check if your system is positive or negative earth.

**IMPORTANT: An accidental spark or incorrect polarity while installing your new regulator/rectifier can destroy it. Units returned with burnt out rectifiers caused by wrong polarity or short circuiting will not be replaced under warranty. Ensure you remove the battery while working on the system!**

2. Locate and remove the old rectifier, it is usually black and has fins it can be round or square or it may have been replaced by a small modern alloy block type.

3. Three wires connect to the rectifier (4 including the earth stud). Use these wires to connect to the new unit. The live feed wire which is usually brown/white or it can be brown/blue on earlier machines is connected depending on the bike's polarity (see fig.1).

4. Mount the new unit in a suitable position, on the tool or battery box is a good choice. The case is electrically isolated and does not have to be grounded.

5. Connect the two yellow and pink wires on the new regulator/rectifier to the white/green and green/black at the old rectifier position. **It does not matter which way round these wires connect.**

6. If the motorcycle is positive earth, connect the new RED wire to the frame at the old rectifier mounting stud or suitable place. Connect the new GREEN wire to the Brown/white wire.

7. If the motorcycle is negative earth connect the new GREEN wire to the frame at the old rectifier mounting stud or suitable place. Connect the new RED wire to the Brown/white wire.

Refer to figure 1, the battery polarity to the regulator wires must be correct. The regulator will be damaged if incorrectly connected.

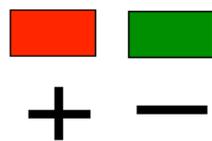
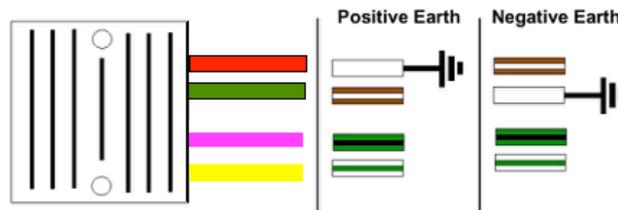
8. Next locate the connectors at the alternator and wiring harness.

**3 Wire units:** See Figure 2. Disconnect the green/yellow and the green/black. Now using the black 4 way snap connector supplied with the new unit connect together the two wires from the alternator. In to the opposite end connect the green/black wire. The green and white is left as it is.

**2 wire units:** See figure 3. Disconnect the green/yellow and ensure the wire coming from the bike's harness is insulated. Connect one green/yellow to the green/white and the other to the green black.

Reconnect the battery and check the charging voltage with the engine at about 2,500 RPM. It should be between 6.8-7.4 volts.

Figure 1.



AC wires  
It does not matter which way these are connected to the alternator wires

Figure 2.

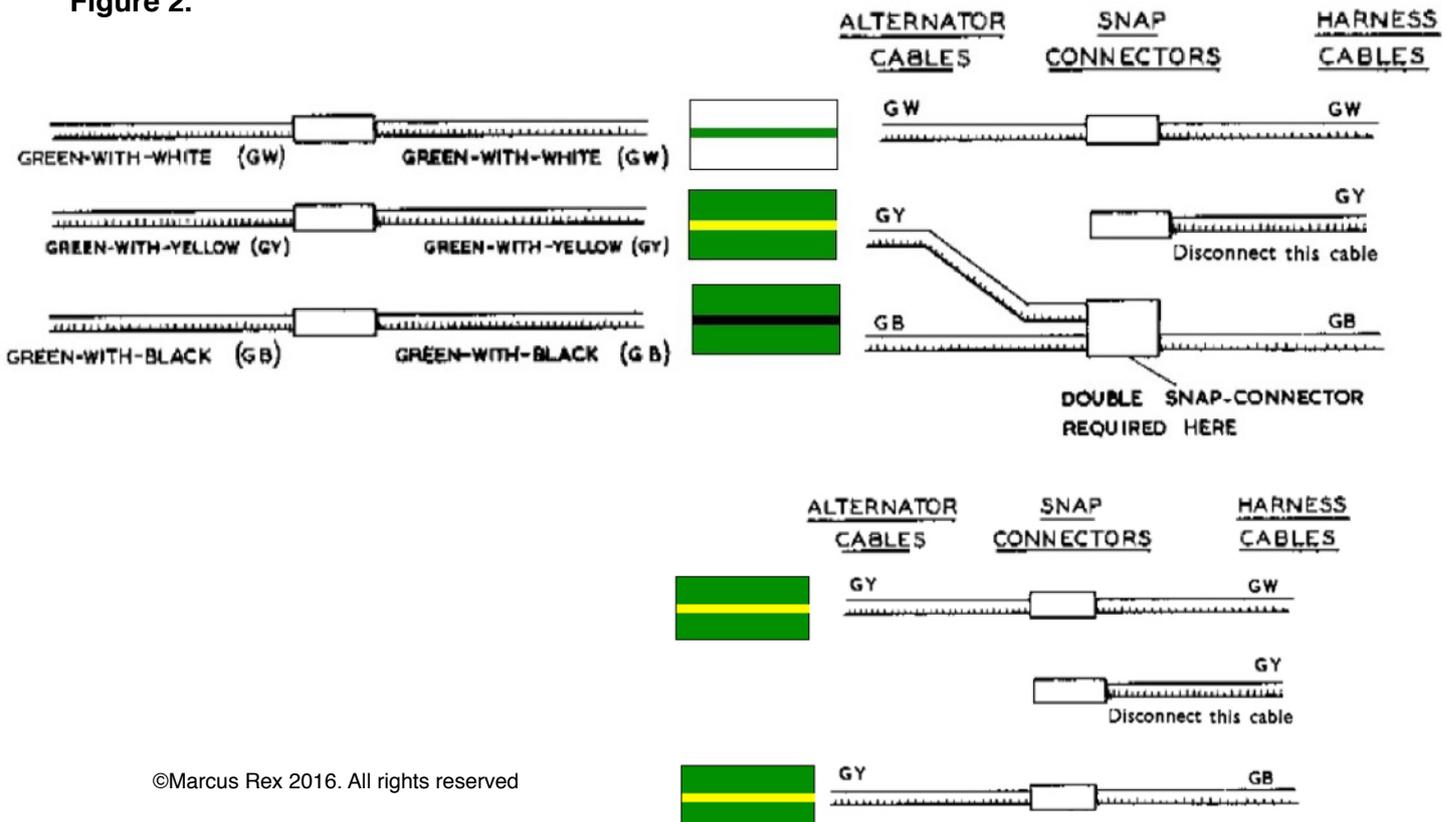


Figure 3.