

# Dynamo Voltage Regulator

“V-Reg” revision 2B

An encapsulated electronic regulator for motorcycles using a Lucas E3 type dynamo.

The “V-Reg” dynamo regulator is manufactured by teb-tec in the UK and replaces the mechanical regulator with modern, reliable semiconductors. It can easily handle the full continuous output power of a standard 6V Lucas E3, even more power is available with rewind 12V dynamos. You can select either 6V or 12V operation with the same regulator.

The V-Reg incorporates thermal protection, field current limiting and spark quenching, which helps protect both the dynamo and regulator.

The regulator must be used with a good automotive battery (minimum 5Ahr) and it is strongly recommended that a fuse (20A) is fitted in the battery line. The V-Reg is guaranteed, subject to correct fitting and use.

## VOLTAGE AND POLARITY

**WARNING:** Ensure you fit a regulator of correct polarity and that the link wire is only cut for 12V operation.

As manufactured, regulators are set to operate at 6V. To select 12V operation cut and the small GREEN wire loop – seal the ends with epoxy or silicone.

**Negative (-) earth regulators have a BLACK earth wire.**

(Positive earth have a RED earth wire.)

## POLARISING

To ensure the correct polarity of your dynamo, and the correct function of the regulator, it is advisable to polarise or 'splash' the dynamo:

Ensuring the battery is correctly earthed; disconnect the field (F) connection from the dynamo; take a wire from the live terminal of the battery and briefly touch the F terminal of the dynamo. This establishes the field's remnant magnetism, which is required for correct start-up.

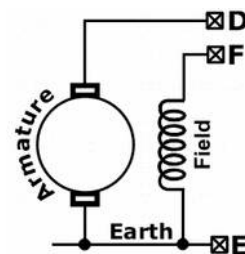
## DYNAMO TESTING

If the dynamo is unknown check internal wiring is as in the diagram below. To test generation:

Remove normal D and F bike connections, link dynamo D and F together, connect a 12V headlamp bulb from the linked point to earth. Run engine at fast idle, lamp should be bright. Confirm the polarity with a voltmeter.

## CONNECTIONS

Ensure the dynamo internal connections are as shown.



<b>F</b> (Field).....GREEN
<b>A</b> (Ammeter).....BROWN
<b>D</b> (Dynamo).....YELLOW
<b>E</b> (- Earth).....BLACK

Disconnect the battery before starting work.

The four wires can be soldered to the original four terminals inside the control box if used in accordance with the adjacent wiring table. Alternatively, suitable crimp connectors can be used to connect directly to the bike's wiring, taking into account proper practices to produce electrically sound connections.

## FITTING THE REGULATOR

To maintain original appearances the V-Reg may be fitted inside the original MCR2 control box by first removing all of the contents (solenoids, points and resistors) or it may be mounted in any convenient corner, maybe in the top of a tool box, such that it has some protection.

There are multiple fixing options: A pair of tee-slots (M4 stainless hex bolts and lock-nuts supplied) allow mounting along one edge, with tee-slot spacing to suit the MCR2 control box. Alternatively, use two or more of the through holes with your own hardware.

If the unit is fitted inside the original control box, air circulation around the electronic regulator is restricted so it is important to maintain cool air around the control box case to ensure full dynamo power is available.

## TESTING (REGULATOR FUNCTION)

Measure the voltage across the battery. At rest the voltage will be around 6V or 12V depending on version, rising to around 7.2V or 14.4V once the dynamo is operating (2500 engine revs, headlight OFF). Depending on the dynamo gearing you may observe a small battery discharge when the revs are very low, this is normal.

## GUARANTEE

This unit is guaranteed provided it is fitted and used as intended. It is a tough design and will tolerate some abuse, but this is beyond our guarantee, remember there are 24 ways to connect 4 wires, only one is correct!