

# TRI-SPARK VR-0030 MOSFET regulator/rectifier Installation Instructions

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The Tri-Spark MOSFET regulator is a cool running alternative to replace your Lucas rectifier and zener diode. Rated for up to 20 amps - for use with Lucas 10A and 16 A single phase (2 wire) alternators and Lucas 14.5 A three phase alternators and similar permanent magnet alternators. Regulates the charging voltage to 14.5 volts - suitable for 12 volt batteries.

Suits a variety of British motorcycles such as Triumph, BSA, Norton, Enfield and Matchless. Please refer the installation to a qualified motorcycle electrician. These instructions are intended to help them with the installation. **Warning - incorrect installation will damage the regulator.**

1. Check the wiring of your bike. Is it positive or negative earth (ground)? Follow the appropriate wiring diagram for the installation.
2. Disconnect the battery and do not reconnect it until the wiring is complete and checked.
3. Disconnect the Lucas rectifier and zener diode and remove them from the bike.
4. Mount the regulator under the seat or behind the side cover in a location near the battery. The regulator's metal housing is not connected to positive or negative internally so there's no need to connect any wires to it. Use rubber mounts for a professional touch.
5. Connect the Alternator wires (usually green/white and green/yellow for 2 wire alternators) to the yellow wires on the regulator. If your alternator has 3 wires connect all three. If it has 2 leave one yellow wire unconnected.
6. Follow the wiring diagram that suits the installation on the following page.
7. Check all connections paying attention to the polarity of the red and black wires before reconnecting the battery. Note that the regulator Red wire is ALWAYS positive and Black wire ALWAYS negative regardless of the positive or negative earth installation.

## Testing the regulator - refer testing to an auto electrician

Problems with the charging system are often simply caused by a dead battery. Have the battery load tested if in doubt.

With the engine running measure the voltage at the battery with a voltmeter. The battery voltage should increase as the revs are increased. The voltage should not increase above 14.5 volts as this is the regulation limit. A higher voltage indicates overcharging.

If the battery voltage does not increase when the revs increase it is not being charged. Check the stator connections and test its output. Disconnect the stator from the regulator and check the output voltage with an AC voltmeter. It should develop around 30 volts AC or more across the output wires at 3000 RPM. Check the magnetism of the rotor.

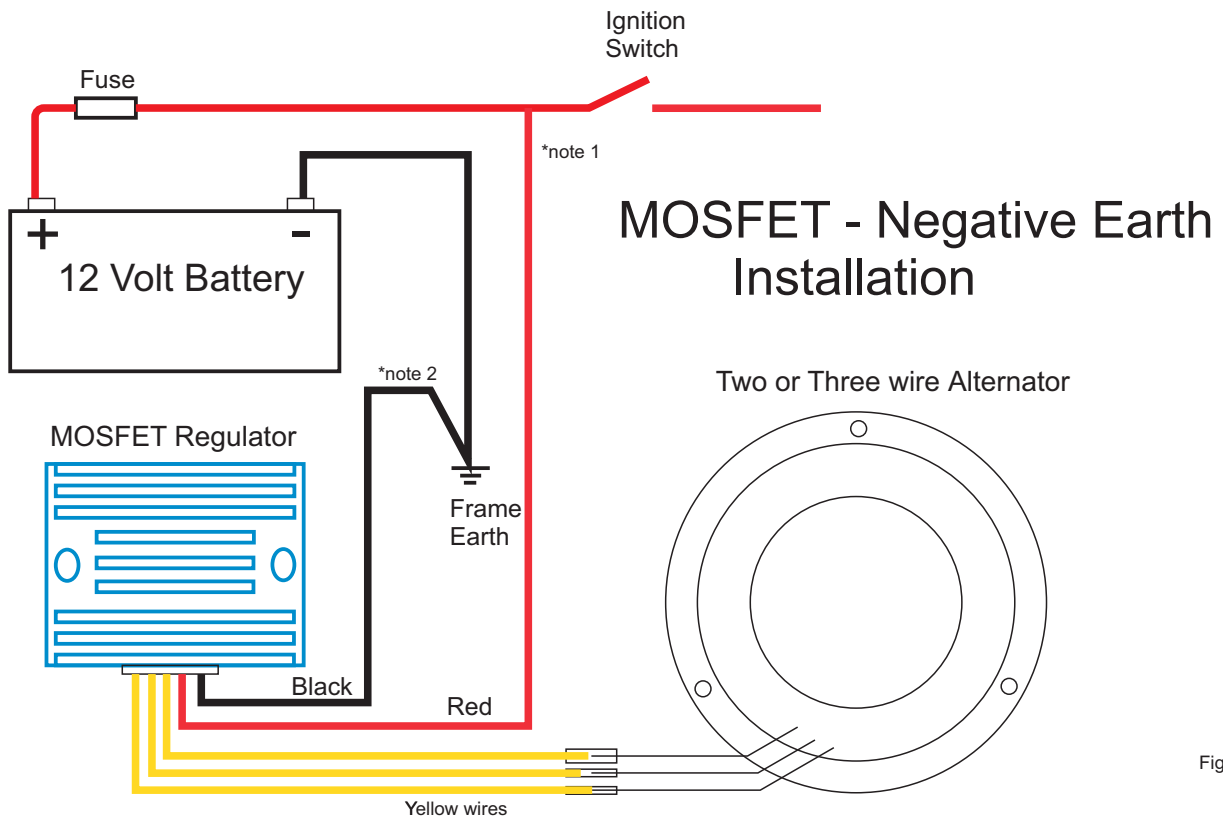


Fig. 1

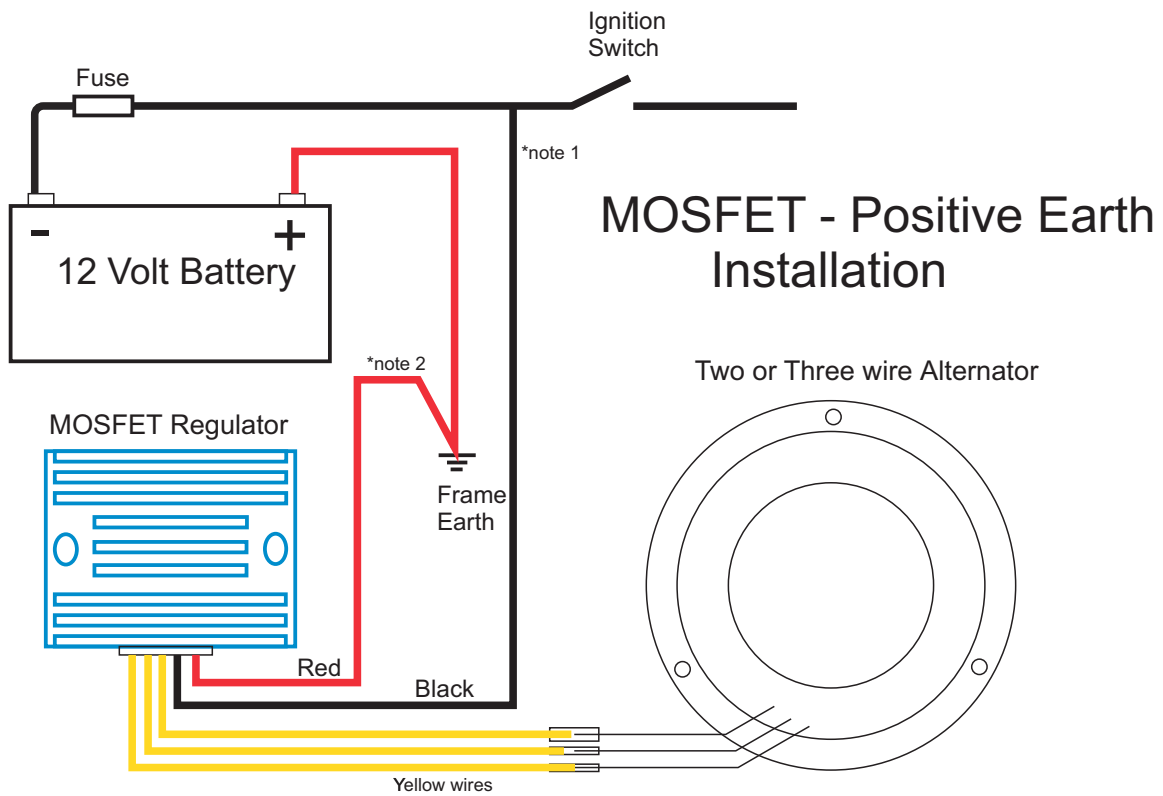
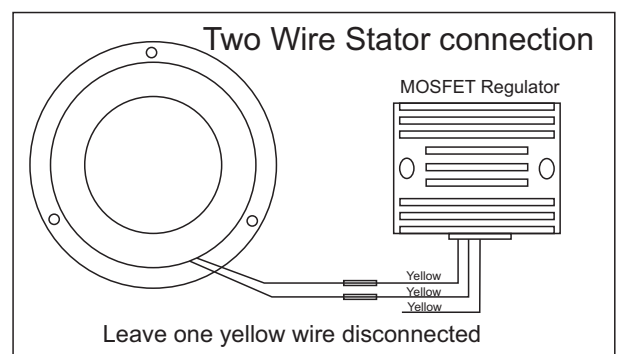


Fig. 2

Fig.3



\* Note 1 - the best place to make this connection may not be at the battery or the ignition switch. On Triumph and Norton machines this connection can be made to the Brown/Blue wire that was originally connected to the Lucas rectifier

\*Note 2 - the best place to make this connection may not be at the battery terminal or where the battery terminal connects to the frame. Check for a suitable earth point that was originally used for the Lucas rectifier or similar good earth.