



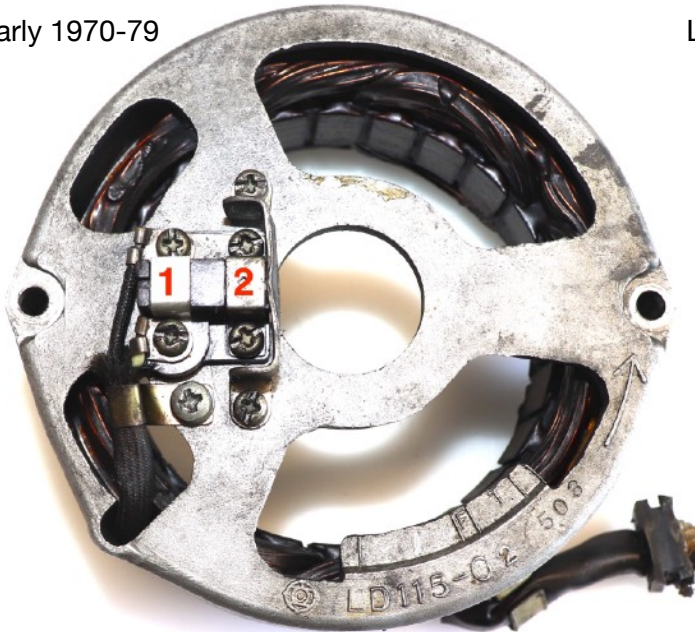
# Rex's Speed Shop

Robertsbridge - England

## XS650 Generator Knowledge

The XS650 generator is very reliable and changed only in detail through-out the bike's production. Early models had a mechanical voltage regulator and later ones a solid state unit. The brushes are connected differently to accommodate the regulator type used. Later models also had 'TCI' transistor ignition with a sensor on the alternator and corresponding magnets in the rotor.

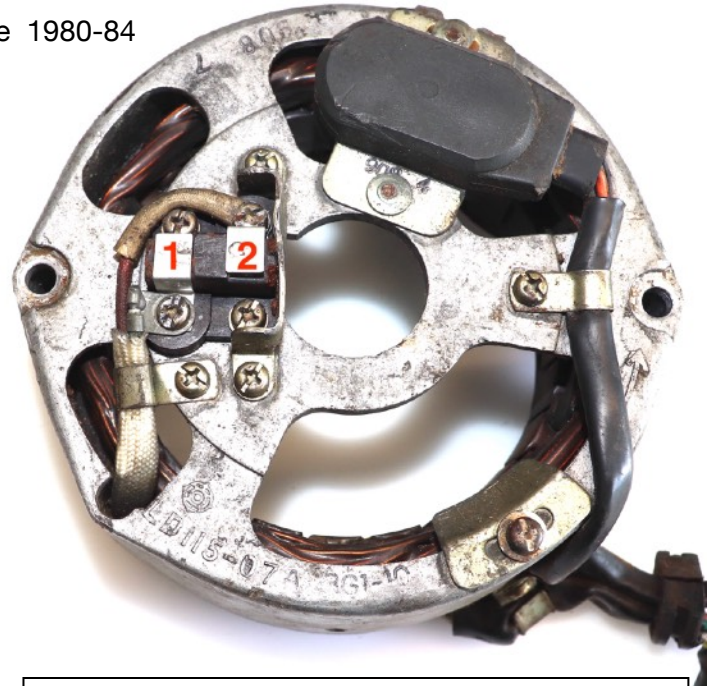
Early 1970-79



Brush 1 = Grounded to generator and black wire.

Brush 2 = Supply from regulator green wire

Late 1980-84



Brush 1 = Grounded by regulator.

Brush 2 = Brown - switched live when IGN on.

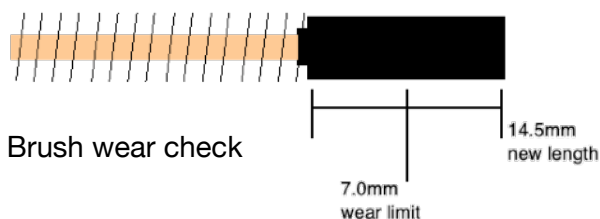
Most of these alternators are well over 30 years old by now and electrical items break down with age. If the battery does not seem to charge up much after a run or charging stops completely there are some things to check first before assuming the the regulator or rectifier have failed or the windings require overhaul.

A look at the brushes and slip rings on the rotor can save you time and money. New brushes should be 14.5mm in length, minimum is 7.0mm.

If the slip rings look dirty use Scotchbrite and an electrical safe solvent to restore the slip rings to bright copper. Clean any carbon dust build up from the brush block with solvent. While checking the brushes it is a good idea to check the resistance measured between the two slip rings. It should be 5 to 5.5 ohms at 20 degrees C. Readings outside of these figures show a rotor in trouble and the possible cause of low charging rates.

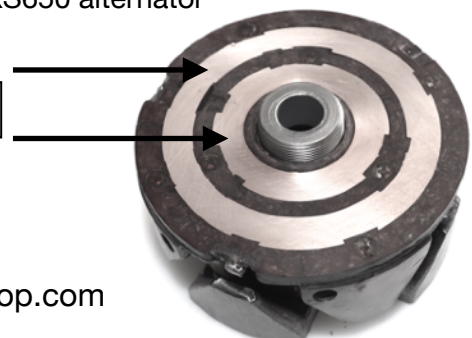
The stator is very reliable compared to permanent magnet generators but at over 30 years old some may need overhaul. A simple test of the stator's insulation requires an electrician's insulation tester between any one of the three phase wires and alternator frame. This is best done with the alternator on the bench so that there is no chance of the high voltage damaging electrical parts on the bike. A good reading is in excess of 500M  $\Omega$ .

Rex's are able to offer over-hauled and replacement parts for the XS650 alternator



Brush wear check

5 - 5.5  $\Omega$



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