

ENGLANDS GARAGE,  
WRAXALL,  
Nr. SHEPTON-MALLET,  
SOMERSET.  
30cc. MODEL

### ELECTRICAL EQUIPMENT

Whilst we are aware that a number of dealers have available electrical test gear, such as the Wilkson set or Avonmeter, we are also aware that a large number of dealers do not have this equipment. In consequence we have compiled a simple test procedure using improvised test gear to assist in locating faults to avoid the unnecessary replacement of components and in particular, the return of machines to the Factory, with the inevitable delay to the owner, apart from the rail cost involved. These instructions are approved by the maker of the electrical equipment:

#### TEST APPARATUS

- 1) A 6v 36w bulb, with holder, and two test wires about 24" long.
- 2) A 6v .04 amp bulb with holder and two test wires about 24" long.
- 3) A well charged 6v battery.

NOTE - 6v .04 amp bulbs are sold by all cycle shops for bicycle dynamo rear lamps.

#### TO CHECK ALTERNATOR OUTPUT

Start by disconnecting cables from alternator at the connector.

Join the two test leads with the 36w bulb in the holder to the white and green cables, run the engine at a fast tickover speed.

Transfer the test leads to white and orange cables.

If the alternator is normal the bulb will light fairly brightly on both tests.

Should the bulb light differ considerably on one of these tests the alternator is at fault. If the bulb fails to light the alternator is defective.

NOTE - A dull light on both tests can be caused by a sub-normal rotor, particularly if the battery connections have been reversed.

#### CHECKING ALTERNATOR COILS FOR EARTH

The six coils are wired in two banks of three coils, the white cable is common to both banks. Connect one of the test leads using a 6 volt battery and 6v .04 amp bulb to a good earth point, the second test lead in turn to the white, green and orange cables. If the bulb lights, one or more of the coils are shorted to earth. Having verified alternator is in order, turn to the rectifier.

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### RECTIFIER - FORWARD FLOW TEST

Remove brown connector from rectifier terminal and keep clear from earth as it is "alive". Connect one test lead (36watt bulb) to the brown rectifier terminal and the other test lead to earth. Then run engine at fast tickover with switch in EMG position, and a good light will be given if rectifier is O.K. Now switch to IGN position, when the light will of course be much less, because only three alternator coils are in circuit instead of six in EMG. Do not run engine with rectifier NOT connected to either brown lead or the test bulb as high voltage on open circuit may cause damage.

### RECTIFIER - REVERSE FLOW TEST

Check rectifier for reverse flow which would discharge the battery when standing. Remove either battery wire from its terminal on the battery and remake the circuit by connecting across the break, the 6 volt .04 amp bulb. If bulb lights more than half bright - rectifier is defective. This type of bulb lights fully at 40 milliamps.

### LAMP SWITCHES

On Touring Models the two switches are mechanically identical. Remove lamp front and substitute the cable plugs from the ignition switch to the light switch, if switch is faulty the fault will be transferred from one circuit to the other.

Where a single switch is used, try the effect of a new one.

### WIRING HARNESS

The wiring diagram is shown in the Instruction Book.

Cable terminations are clearly shown, thus each cable can be tested for open circuit, by using the test set across both ends of each cable. Use the low capacity 6v .04 amp bulb for circuit tests.

### BULBS BLOWING

This can only be due to an open circuit in the battery "line, the fault should be located before fitting new bulbs, check in the following order:-

Bad earth connection on battery lead.

Loose or corroded battery terminals.

Loose or dirty contact in four hole two-way connector, in battery negative lead, brown wires.

Loose ammeter connections.

Battery dried up - all electrolyte evaporated.

### IGNITION SYSTEM

Test in the following sequence:-

Clean and reset contact gap if necessary.

Check coil terminals for security also H.T. cable connection.

Remove lamp front and reverse cable plugs on lamp switches, to determine if switch is faulty, remembering the switches will be reversed, i.e. light switch becomes ignition switch.

NOTE:- The ignition coil and condenser can only be checked by substitution with new parts.

### RUBBER CONNECTORS

These are not intended as plugs and sockets for frequent manipulation but to ease assembly and provide access to test apparatus. The bullet terminals should remain a tight fit, and must be carefully checked when fault finding.

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