

# Electrical System

## 74. Introduction

The electrical system is supplied from an alternating current generator contained in the primary chaincase and driven from the crankshaft. The generator output is then converted into direct current by a silicon diode rectifier. The direct current is supplied to a 12 volt 8 ampere/hour battery with a Zener diode in circuit to regulate the battery current.

The current is then supplied to the ignition system which is controlled by a double contact breaker driven direct from the exhaust camshaft.

The contact breaker feeds two ignition coils, one for each cylinder.

Current from the alternator is also stored in a high capacity electrolytic capacitor which ensures that the engine can be started and run with a discharged battery or without a battery in the circuit.

The routine maintenance needed by the various components is set out in the following sections. All electrical components and connections including the earthing points to the frame of the machine must be clean and tight.

## BATTERY INSPECTION AND MAINTENANCE

### 75. General

The battery containers are moulded in translucent polystyrene through which the acid level can be seen. The battery top is so designed that when the cover is in position, the special anti-spill filler plugs are sealed in a common venting chamber. Gas from the filler plugs leaves this chamber through a vent pipe union at the side of the top. The vent at the other side of the top is sealed off. Polythene tubing is attached to the vent pipe union to lead corrosive fumes away from parts of the machine which may otherwise suffer damage.

To prepare a dry-charged battery for service, first discard the vent hole sealing tape and then pour into each cell pure dilute sulphuric acid of appropriate specific gravity to THE COLOURED LINE. (See table). Give the battery an initial charge of 1 ampere for 2—3 hours and allow the battery to stand for at least one hour for the electrolyte to settle down, thereafter maintain the acid level at the coloured line by adding distilled water.

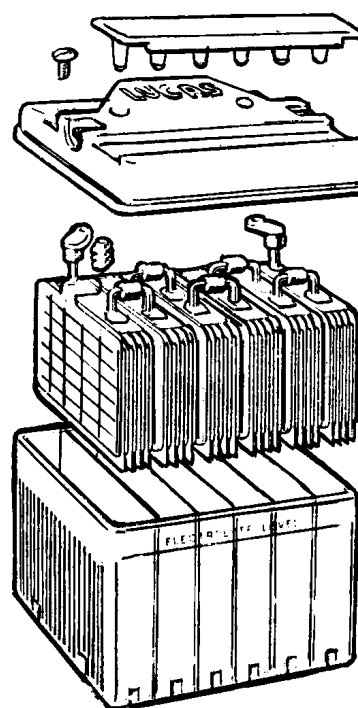
### 76. Routine Maintenance

Every week examine the level of the electrolyte in each cell. Lift off the battery cover so that the coloured filling line can be seen. Add distilled water until the electrolyte level reaches this line.

**Note—On no account should batteries be topped up to the separator guard but only to the coloured line.**

With this type of battery, the acid can only be reached by a miniature hydrometer, which would indicate the state of charge.

Great care should be taken when carrying out these operations not to spill any acid or allow a naked flame near the electrolyte. The mixture of



EXPLODED VIEW OF BATTERY PUZ5A

Fig. 23

oxygen and hydrogen given off by a battery on charge, and to a lesser extent when standing idle, can be dangerously explosive.

The readings obtained from the battery electrolyte should be compared with those given in table. If a battery is suspected to be faulty it is advisable to have it checked by a Lucas Service Centre or Agent.