

MASSTHORN.  
"BEAUSLAIR",  
POND ROAD,  
H. DOWN.

# **CHARGER BATTERY**

12 VOLT, 300 WATTS



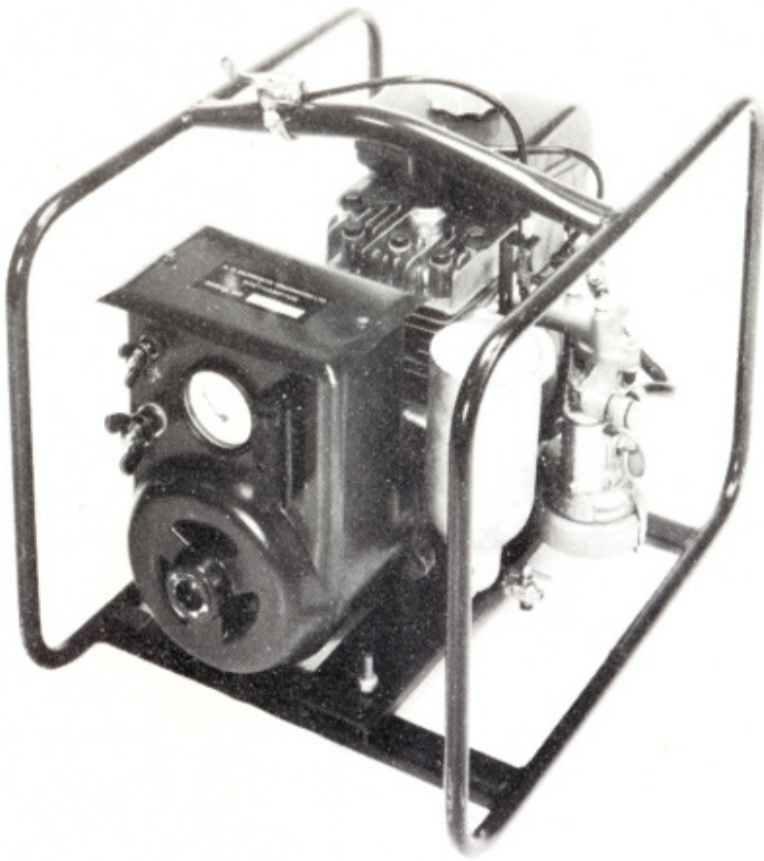
**ROYAL OBSERVER CORPS**



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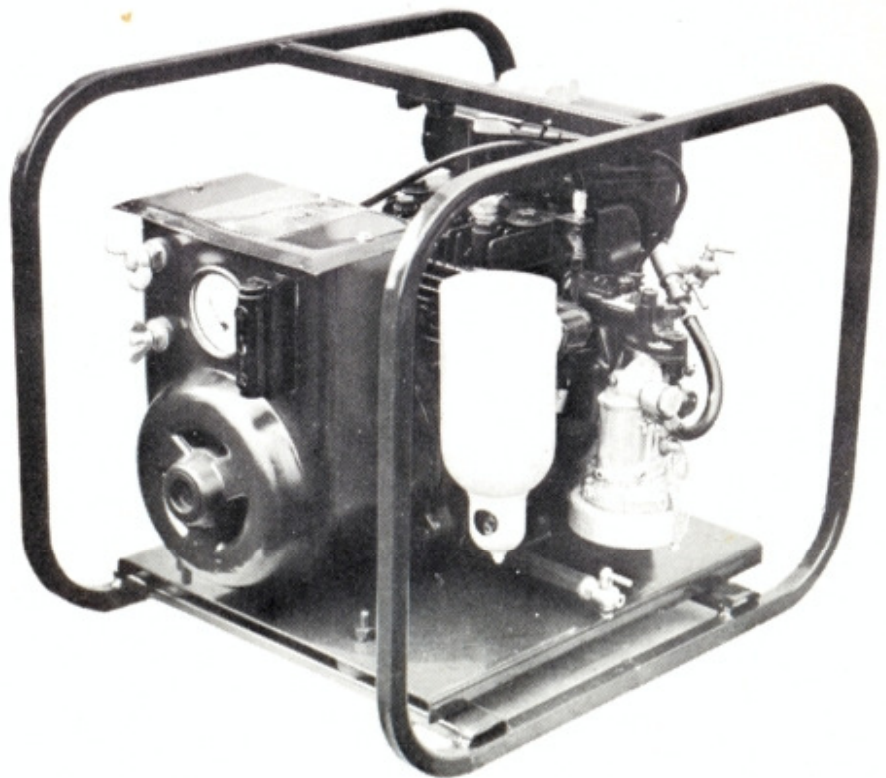
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*Model as manufactured by*

A. C. Morrison (Engineers) Ltd  
Electrofreeze Works  
Botley Road  
Southampton



*Model as manufactured by*

Engine Applications Ltd  
Swan Close Road  
Banbury  
Oxon.

The set comprises a Markon type PM13 generator, flange coupled to a Villiers type 507H-1, single cylinder, 4 stroke, air cooled petrol driven engine.

### Generator and Control Box

The generator is a Markon type PM13, permanent magnet, D.C. generator complying with BS.170. The generator is rated at 300 watts, 14 volts, when operating at approximately 3,500 r.p.m.

The design of the armature incorporates a hollow shaft which fits directly into a tapered extension of the engine crank shaft. The armature is then held in position by a bolt passing through the centre of the armature shaft. The generator and bracket is spigotted to the engine crank case.

The generator voltage regulation is inherent and the regulating equipment forms an integral part of the generator, thereby obviating the necessity of an external voltage regulator. The alternating output of the generator is fed through a three phase bridge rectifier to produce the D.C. output. All rectifiers are liberally rated.

### TOOL KIT

- 1 - sparking plug
- 1 - sparking plug spanner
- 1 - screwdriver
- 1 - fuse link

### INFORMATION FOR POST PERSONNEL

#### Lubrication

Recommended grades of oil:

- Summer - S.A.E. 30
- Winter - S.A.E. 20 (in extreme cold)

#### Fuel

Commercial proprietary grade petrol 83-84 octane rating.

#### Starting

Before starting, ensure that:-

- a) With the generator set level the lubricating oil in the sump should be at the correct level, as indicated on the dip-stick. Never run the set with the oil level below that recommended and never remove the oil filler cap whilst the engine is running.
- b) The petrol is turned on and there is sufficient in the tank.
- c) Put ignition switch to "on" position.
- d) Put the carburettor choke in the "choke" position (i.e. horizontal).
- e) Give the starter rope a brisk pull and if the engine fails to fire repeat as necessary.
- f) When the engine starts, after a few seconds move the choke control level to the vertical position, (in cold weather a longer period in the choke position may be necessary).

#### Stopping

To stop the engine put the ignition switch to the "off" position and turn off the petrol.



Oil Level

The oil level should be checked daily and topped up as necessary.

Changing the Oil

After the first 20 hours operation the oil should be changed. This should be repeated after a further 20 hours operation. Thereafter, oil changes at intervals of 100 hours operation are recommended.

Air Filter

The air filter (clipped to the base of the carburettor) should be removed after every 30 hours operation and washed in paraffin. After cleaning, it should then be soaked in a mixture of one part of engine oil to ten parts of petrol. If the engine is being used in extremely dusty conditions more frequent cleaning of the filter is recommended.

FAULT FINDING GUIDE

Engine Fails to Start:

If, after a reasonable number of attempts, the engine fails to start, the following procedure should be adopted:-

- a) Check that the petrol is on.
- b) Check that the ignition is on.
- c) If a) and b) are satisfactory, remove the sparking plug and operate the starting rope. With the sparking plug body laid on the cylinder head, a spark should be seen at the points.  
If this is not so and no other obvious reason is apparent the set should be returned to Group Headquarters for investigation.

Engine runs, but no generator output:

If there is no electric output from the set the following procedure should be adopted:-

- 1) Disconnect all equipment from the set.
- 2) Check the fuse in the generator control box.  
If the fuse has not blown return the set to Group Headquarters for investigation.
- 3) If the fuse has blown, check that the battery connection has been made correctly. If no fault is found at the battery connection, examine the cable for damage. Do not attempt to replace the fuse, but report the damage to Group Headquarters.
- 4) Assuming no fault has been found, insert a serviceable fuse and switch on. If there is still no output, return the set to Group Headquarters.

Sparking Plug

The sparking plug should be examined after every 100 hours operation and should be cleaned and set at .028".

Storing Unit

If the set is not to be used for considerable time, it is recommended that it is left with both inlet and exhaust valves closed. To get this position, turn the starter pulley in the direction of operation and when compression is felt the pulley should be turned a further  $\frac{1}{4}$  of a turn.

Cooling System

The cooling fins of the engine should, at all times, be kept clean and free from foreign matter.