PITMAN'S MOTOR CYCLISTS' LIBRARY

The BOOK *of the* VILLIERS ENGINE

CYRIL GRANGE

This highly efficient engine is most economical on petrol and oil and has the added advantage of being easily overhauled and decarbonized.

The 125 c.c. Engine and Gear Unit. This unit combines a 125 c.c. engine with a three-speed gear, clutch and kickstarter, and has a bore of 50 mm. and a stroke of 62 mm. The latest flat top piston of similar design to the now famous 249 c.c. Mark XVIII A engine is employed. The cylinder is of cast iron and may be turned through 180 degrees so that the inlet port may be placed on either side and is thus convenient for fitting compactly in any frame. The same advantages apply to the head and the release valve.

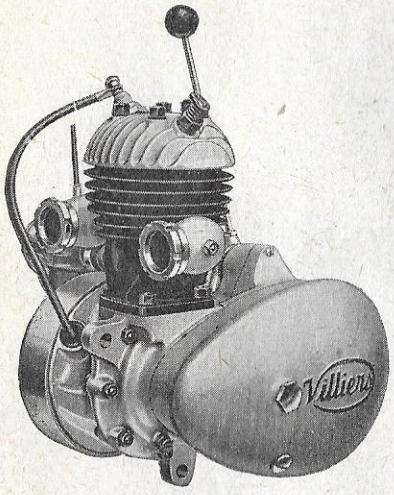

FIG. 6. THE 98 C.C. AND 125 C.C. ENGINE UNIT

The engine has two exhaust ports, four transfer ports, a fully floating gudgeon pin, and a bronze bush fitted to the small end.

To reduce wear, the crankshaft is carried on three separate ball bearings, bronze bushes being used to retain compression. The big end consists of a full-row roller race on a hardened crankpin.

The special Villiers fly-wheel magneto is entirely enclosed and has coils for direct lighting.

The gear-box is cast in one piece with the crankcase, and the gear lever is mounted direct on this casting. A single-plate cork clutch is employed and the primary drive is through $\frac{3}{8}$ in. pitch chain requiring no adjustment and running in an aluminium oil bath case.

The lubrication employed is petroil and the unit complete weighs under 40 lb. and develops 4 h.p.

The machine fitted with this unit reaches well over 40 m.p.h. and has a fuel consumption of over 110 m.p.g. The mixture is supplied by a Villiers carburettor having either a single or double lever control.

147 c.c. Engine. The first engine of this size, which commenced

a new series of Villiers models, was known as the Mark VI C. From time to time, improvements and alterations have been made, and each successive change has been denoted by alteration to the mark on the engine. Consequently, the Mark VII C model is a later one than the Mark VI C, whilst the present type is known as the Mark VIII C, 147 c.c. engine (Fig. 4).

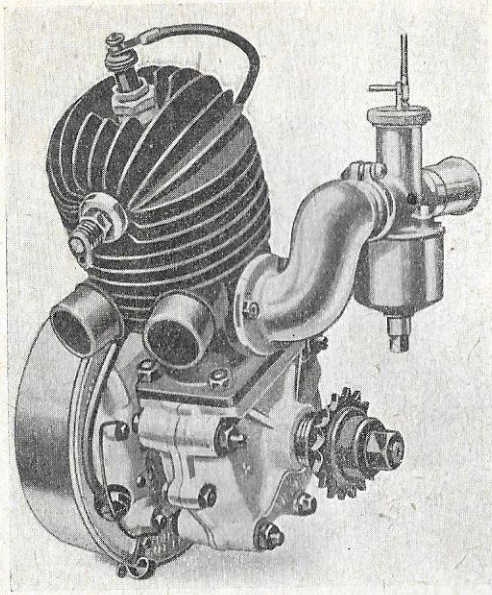

FIG. 7. THE 148 C.C. LONG STROKE ENGINE (MARK XII C)

These engines each have a bore of 55 mm. and a stroke of 62 mm.

The lubrication employed is petroil, which is a mixture of half a pint of oil with each gallon of petrol (see Chapter III on Lubrication).

This engine has a single exhaust pipe, a roller bearing big-end, and long phosphor-bronze bushes for the mainshafts.

The Villiers fly-wheel magneto is fitted as standard.

This engine is designed entirely from a utility point of view, and is fitted to many motor-cycles intended for this purpose.