



## The $1\frac{1}{4}$ -litre M.G.

THE  $1\frac{1}{4}$ -litre engine used in the closed M.G. is identical with the well-known TC unit, but a single carburettor is fitted in place of the familiar twin S.U.s. It has a bore and stroke of 66.5 mm. and 90 mm. (1.250 c.c.), with a power-output of 46 b.h.p. at 4,800 r.p.m. Compression ratio is 7.2-7.4 to 1.

The engine assembly consists of a cast-iron cylinder block integral with the upper half of the crankcase, aluminium-alloy sump-cum-bottom half of crankcase, cast-iron cylinder head, pressed steel o.h.v. cover and bolted on chaincase cover. The upper half of the clutch housing is part of the block casting, whilst the lower is integral with the sump.

Both inlet and exhaust manifolds are independent castings; and there is no hot-spot provided. The entire engine-gearbox unit is flexibly mounted at three points, on rubber buffers.

Main engine components are disposed as follow: Nearside: dynamo, distributor, oil pump, dipstick and external oil filter; Offside: starter motor, manifolds and carburettor.

Inlet and exhaust valves are arranged in a single row down the centre of the head, they are inclined at an angle of 30 degrees from the vertical. The valves are actuated via rockers, push-rods and hollow guide blocks interposed between the camshaft and the base of the push-rods. The tops of the push-rods are cupped for the ball-ended, adjustable tappet screws.

Four bearings carry the hollow rocker shaft, the rockers being located by distance pieces and silencer springs. Valve head diameters are 31 mm. (exhaust) and 33 mm. (inlet). Double-helical valve springs are used; they are retained by split-cone cotters.

The Aerolite, controlled-expansion-alloy pistons have two compression rings and one slotted oil-control ring. The small ends of the con-rods are

split and provided with a clamping bolt to secure the gudgeon pin which is rigidly held in the connecting rod and floats in the piston boss. The rods are of H-section steel with 45 mm. diameter big-end bearings of the "thinwall" type.

A twin sprocket is mounted on the front end of the statically and dynamically balanced, three-bearing (52.02 mm. diameter bearings) crankshaft, which drives the camshaft by Duplex roller chain. The oil pump is driven from a skew gear in the centre of the camshaft. A second skew gear is used for the distributor drive.

The nose of the crankshaft carries a pulley for the triangulated belt drive to the dynamo and the combined impeller and four-bladed fan assembly. A thermostat is interposed in the water outlet pipe, with a by-pass connecting direct to the water inlet.

Oil is drawn from the  $1\frac{1}{4}$ -gallon sump via a gauze filter to the large gear-type pump, mounted externally on the cylinder block. The lubricant is filtered before circulation, first by the internal strainer, and then by an external filter of the "throwaway" type, immediately after passing the pump. Both pump and external filter are provided with relief valves; the first to deal with excessive pressures when lubricant is cold, and the second to by-pass oil if the filter itself becomes clogged. Normal pressure of the system is 50-70 lb. per sq. in.

From the filter oil passes via an external pipe to an oil gallery running alongside the crankcase on the nearside. The gallery is connected by three passages communicating with the camshaft and crankshaft bearings. The first passage (nearest the front of the engine) leads to the front main bearing, and then to No. 1 big-end. It is worth noting that all big-ends have special oil holes drilled which coincide once in each revolution with a passage in the journal. The purpose of this is to inject a spurt of oil on to the cylinder walls, to supplement oil mist lubrication. Surplus

oil from this lead is used to lubricate the timing chain.

The centre passage supplies the centre main bearing, the camshaft centre bearing, skew gearing and Nos. 2 and 3 big-ends. Finally, the rear passage leads to rear main bearing, rear camshaft bearing and then to No. 4 big-end.

Lubricant is taken to the overhead valve rocker shaft by an external pipe running from the gallery to a passage drilled in the cylinder head which registers with a hole in the rear rocker-shaft support. Oil drains back to the sump through the push-rod passages.

Crankcase pressure is relieved by a long breather pipe extending from the tappet inspection cover to the base of the engine.

Ignition is by Lucas 12-volt distributor (with automatic advance) and coil. Champion L.10 S sparking plugs are standardized.

A semi-downdraught single S.U. carburetter is used; attached to it is a horizontal, cylindrical combined air-cleaner and silencer of the oil-wetted type. Fuel is fed to the carburetter by an S.U. electric petrol pump. A Borg and Beck dry clutch is used.

Partly sectioned view of the 1½-litre M.G. engine, by a staff artist of "The Light Car."

