

at bottom, 159.715 mm.; width of rings, 5 mm.; width of gap in rings in cylinder, 16/1000 mm.; diameter of water pump inlet, 44 mm.; diameter of water pump outlet, 44 mm.

*General Description.*

In many respects these engines resemble the 160 h.p. Mercedes, and are of the usual German aero-engine design, being of the six-cylinder, vertical type, water-cooled, with a massive six-throw crankshaft running in plain bearings, the design throughout aiming at strength and reliability combined with ease of manufacture in preference to the consideration of weight per b.h.p. as the primary factor in design. The salient features of the 260 h.p. Mercedes are briefly as follows: Notwithstanding its abnormal size, the whole engine is of very proportionate and

rear end of the base chamber, taking its air supply from the interior of the base chamber through a 4-in. diameter passage cast in the bottom of the crank chamber, which is constructed with a false bottom. The bottom halves of the crankshaft main bearing housings, or bearing caps, are cast integral with the bottom half of the crankcase; the long bolts which secure the bearing caps pass through the top half of the crankcase, and are used to secure the cylinders in position by triangular clamps, a design of questionable merit, but a method which undoubtedly adds increased stiffness to the crankcase construction.

The lubrication system is forced to all bearings

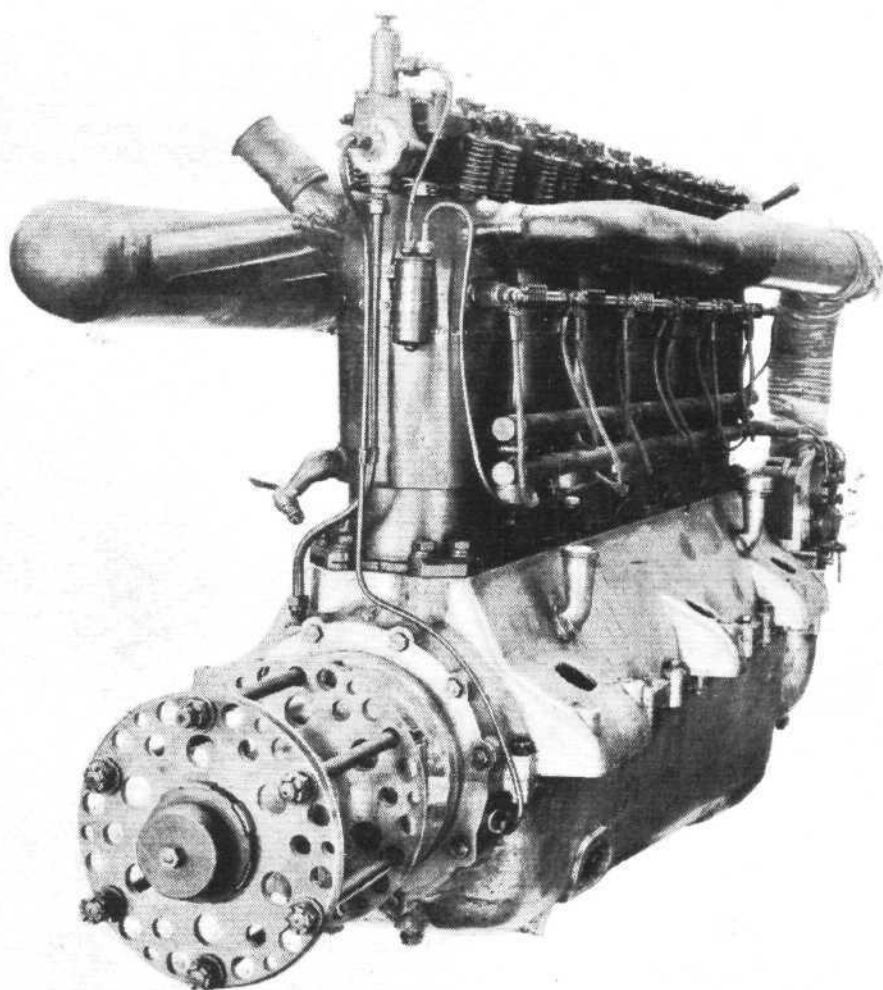


Fig. 4.—Rear end of engine.



Fig. 6.—The Mercedes cylinder.

clean design throughout, as shown in the accompanying photographs and detail drawings of the engine. The complete engine, including the propeller boss, measures 6 ft. 5½ in. overall, and from the bottom of the sump to the top of the overhead camshaft casing measures approximately 3 ft. 10 in. The bore of each cylinder is 160 mm. and the stroke 180 mm. Four valves, *i.e.*, two inlet and two exhaust, are fitted in the head of each cylinder and are operated by an overhead camshaft, running in a detachable casing of malleable cast iron supported on brackets screwed into the head of each cylinder. All the valves are interchangeable. A half compression gear, employing a sliding camshaft device similar to that in the 160 h.p. Mercedes, is fitted to the rear end of the shaft casing. A single carburettor employing a main jet and a slow running jet is attached to the

through the drilled crankshaft from a four-throw eccentric-driven plunger pump, which is an improved design on the 160 h.p. form of Mercedes type. The scheme embodies an "auxiliary" sump in the front end of the crankcase, and small supplementary pump plungers, which work in conjunction with the main oil pump for the purpose of feeding fresh oil into the system from the service oil tank. Full details of this lubrication system, and also of the somewhat complicated Mercedes oil pump, are given in the following description.

Two Bosch Z.H.6 magnetos are used, driven off the camshaft vertical driving shaft, one being a starter magneto. All plugs are fitted on the induction side of the cylinders.

The water-pump driving spindle is lubricated whilst in a flight by a ratchet-driven grease lubricator