

# A "FLYING SQUIRREL"

*First Details of New Scott Two-stroke Engine : An Inverted and Geared Air-cooled :  
Maximum Power, 34 b.h.p. at 5,200 r.p.m. : Weight 85 lb.*

**D**ESIGNED specifically for use in very light aircraft, such as the "Pou-du-Ciel" and other types, the new "Flying Squirrel" produced by the Scott Motor Cycle Company, of Shipley, Yorks, is an inverted air-cooled two-stroke two-cylinder engine. It was natural that this firm should decide on the two-stroke type of engine, of which they have had almost unrivalled experience.

## Specification

**Cylinders.**—The cylinders are of light alloy with encast chromium liners. Special attention has been given to the finning and graduation of wall thickness in order that distortion may be avoided and an even cooling effect obtained. The ends of the cylinder skirts project into specially shaped recesses in the crank case, and provision has been made for oil drainage, obviating any danger of flooding the pistons.

**Cylinder Heads** are detachable, each being secured to the barrel by six high-tensile steel studs, three of which extend from the crank case. The heads are cast in light alloy and are provided with ample finning in the direction of air flow.

**Cooling.**—The finning of the heads and cylinders has been so arranged that, with the ample area provided, effective cooling is a straightforward matter on any aircraft.

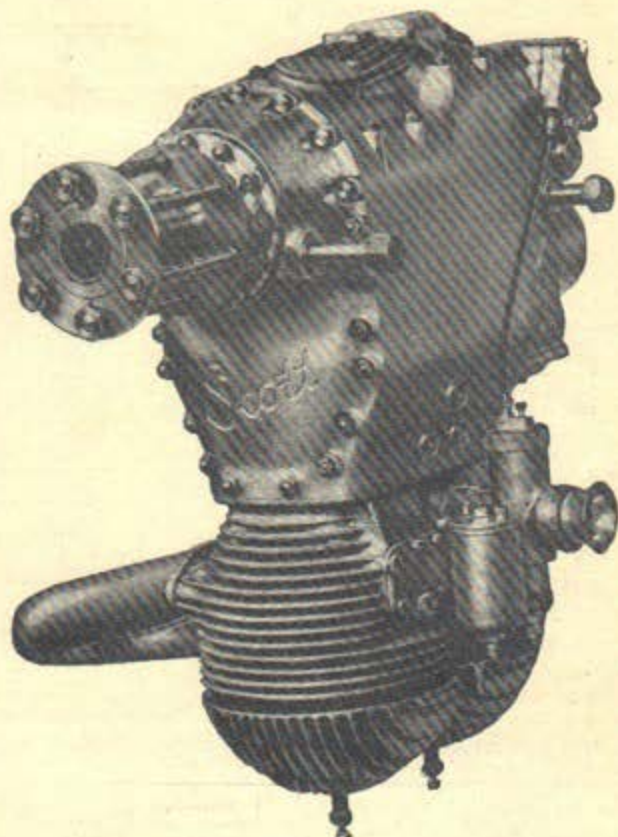
**Pistons.**—These are in die-cast alloy with Scott patented arrangement of skirt, and gudgeon-pin fastening. This arrangement ensures that the area around the gudgeon-pin boss has a greater clearance than the rest of the piston. Three gas rings are fitted, but no scrapers. Scraper grooves are provided which effectively control the oil distribution.

**Connecting Rods.**—These are of nickel chrome steel forgings, the big-end carrying a large triple-row roller bearing, which provides for the use of high-tensile light alloy cage. The big-end eye of the connecting rod is finned to provide greater heat transfer.

**Crankshaft** is of "Scott" patented built-up type, two sections being employed, each machined from a solid forging of heat-treated alloy steel. The main bearings, of which there are two, are of the single-row roller type.

**Crank Case.**—The crank case is of three sections, cast in light alloy, secured together sandwichwise, the lower joint of the sandwich accommodating the crankshaft assembly, the top section providing the bearing and housing for the propeller shaft and reduction gear.

**Reduction Gear** is of the straight spur type, having a ratio of two to one. The feature of the reduction gear is that the driving pinion is mounted between the two crankshaft sections, and not at the end. This reduces the loading on the cranks and bearings. The reduction wheel, which is splined to the propeller shaft, is machined from solid forging, and the shaft and its gear are dynamically balanced. Lubrication of the reduction gear is by high-pressure oil spray.



**Propeller Shaft** is of nickel-chrome molybdenum steel, tubular in section, and is carried in a roller bearing at the gear end, and a deep groove ball race at the hub end. This race is also arranged to take the propeller thrust.

**Airscrew Hub.**—This is to B.S. "O" Specification, with slight modification in the splining of the front plate to the hub extension.

**Magneto.**—A standard type of two-spark magneto is fitted, running at engine speed. The drive is taken from an extension of the propeller shaft.

**Carburettor.**—A standard Amal carburettor in light alloy is fitted.

**Lubrication** is the patented "Scott" stepped-pressure system. The step-up pump takes oil from the main supply. The oil is then metered by the pump and passed under high pressure to the following points: main bearings, big-ends cylinder walls. A separate lead is taken off this pump for the pressure oil spray to the reduction gear. The major control, i.e., maximum delivery of this pump is controlled externally, a graduated dial being provided for this purpose. A further control to the pump is inter-connected with the throttle. The object of this control is to vary the mounting of oil to the points mentioned above from zero to the predetermined maximum given by the dial settings; thus the oil is proportional to load and revs. Two scavenge pumps are used in connection with this system, one to scavenge the crank chambers, the second pump drawing oil from the reduction gear casing and returning it to the engine sump. The sump is formed around the outside of the lower half of the crank chambers, the filler orifice being located in a forward top position of the reduction gear cover.

**Rev Counter Drive** is picked up from the propeller-shaft and runs at half engine speed in the case of a two to one prop. reduction.

**Mounting.**—Four trunnion stubs are provided for mounting the engine.

### SCOTT "FLYING SQUIRREL" DATA

Direction of Rotation of Airscrew.	Anti-clock.
Bore.	73 mm.
Stroke.	78 mm.
Swept volume.	652 c.c.s.
Compression ratio.	6.8:1.
Normal b.h.p.	16.
Normal r.p.m.	2,800.
Maximum b.h.p.	34 at 5,200 r.p.m.
Weight complete.	85 lb. ± 5 lb.
Fuel consumption at normal r.p.m.	0.56 lb./b.h.p./hr.
Oil consumption.	0.03 lb./b.h.p./hr.
Oil pressure.	30 to 40 lb. per sq. in.
Oil in circulation.	0.5 gallons.
Length over spinner.	600 mm. (23½ in.) approx.
Height overall.	575 mm. (22½ in.) approx.
Greatest width.	270 mm. (10½ in.) approx.