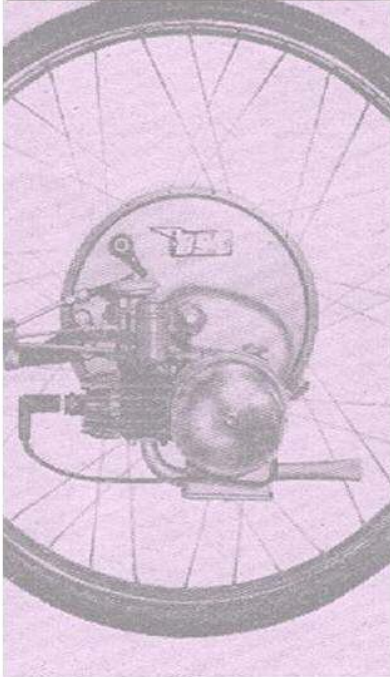
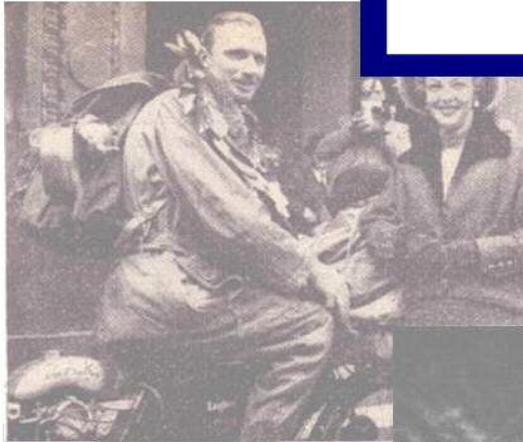


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Compression-ignition Clip-on

The 18 c.c. Lohmann Engine : A 125 c.c. Unit Under Development

MINIATURE compression-ignition two-stroke engines have been popular for many years, particularly in their application to model aircraft. These small power units operate on the diesel principle so far as self-ignition is concerned, but they are by no means true diesel engines because the fuel is mixed with the air during induction, whereas with the diesel engine the air is inhaled and compressed and then the fuel is injected into the combustion chamber.

One of the disadvantages of the miniature compression-ignition engine, which restricts its application, is that it is difficult to influence the progress of combustion and, hence, to have an easily controllable range of engine speed. Another objection is that for easy starting and for regular firing the small engines require a special fuel such as a mixture of petrol and ether.

Unit of 18 c.c.

It was therefore very surprising when Lohmann, a well-known German manufacturer of saddles and other accessories for bicycles, exhibited at the Frankfurt Show in 1949 a compression-ignition, two-stroke engine intended for attachment to bicycles. Though not a miniature in the model engineering sense, the engine was of only 18 c.c. and thus unusually small for bicycle-propulsion purposes. It was claimed that the engine would run on normal fuel and that control of engine speed would be satisfactory. Since then, extensive development work has been carried out and the power unit is now in mass production.

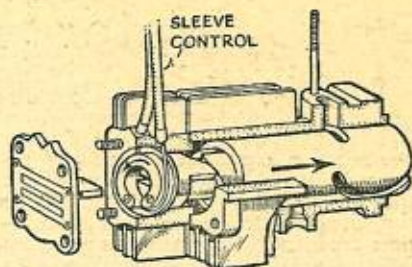
The main features of this engine are

as follows: (a) the compression ratio can be altered from 12.5 to 1 to 8.5 to 1 while the engine is running; (b) the timing of the scavenging and outlet ports can also be altered while the engine is running. By these means it is possible to obtain a reasonably wide range of engine speeds and torque.

The engine is attached to the bicycle below the bottom bracket and the transmission is by means of a roller bearing on the rear tyre. For normal running there are two controls, a twistgrip on the left of the handlebar for varying the compression ratio and the port timing by means of a movable cylinder sleeve and crown, and a twistgrip on the right for altering mixture strength. When starting, both grips are turned outward to lower the compression ratio as much as possible and to reduce the fuel flow to the minimum. When the cycle has been pedalled along a few yards and momentum obtained, both grips are turned inward to give the highest compression ratio and the maximum fuel flow.

When the engine starts, power delivery is inclined to be harsh and the engine rather noisy, but once the engine is warmed up the compression ratio should be reduced and the engine is then of average docility. No special skill is required in finding the most advantageous twistgrip position for the best compression ratio in relation to the fuel setting, and the engine performs very much as does a normal auxiliary two-stroke engine such as the Mosquito or the Mini-Motor.

Brief technical details are as follows: Bore, 28mm; stroke, 30mm; capacity, 18 c.c.; power output, 0.8 h.p. at 6,000 r.p.m.;



Details of the mechanism for actuating the cylinder sleeve and "crown"

lubrication by petrol; transmission reduction between crankshaft and roller, 3 to 1; weight of the complete engine, approximately 11lb. Maximum speed with the roller-to-tyre reduction of about 10 to 1, given by a 26in wheel, is 23 m.p.h.—at this road speed the engine r.p.m. are 9,000. Fuel consumption is in the region of 220 m.p.g.

The price of the Lohmann attachment in Germany is 129 deutschmarks (approximately £11). This miniature engine for cycles has proved so satisfactory that experiments are now being made with an engine of 125 c.c., operating on a similar compression-ignition system.

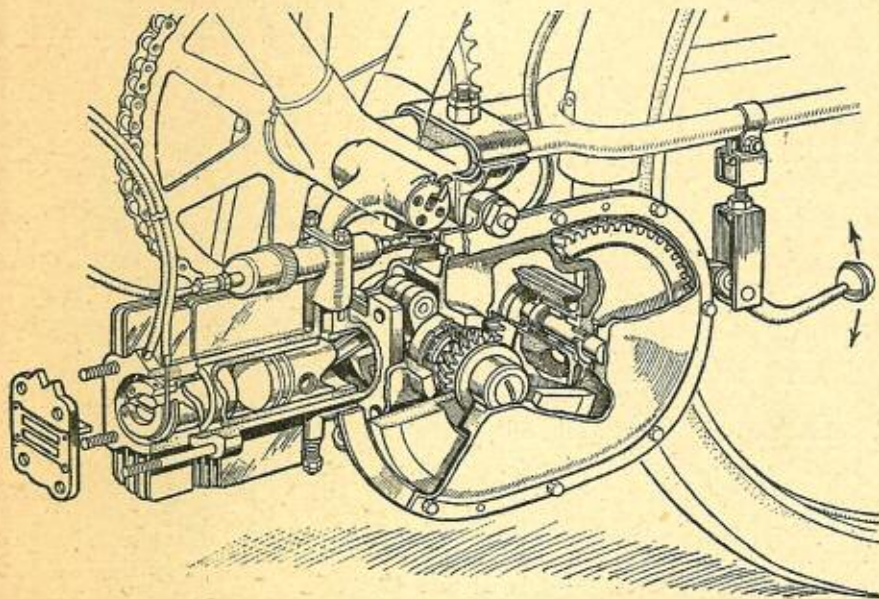
D.K.W.s in T.T.?

HARD on the announcement that there will be a 125 c.c. class T.T. Race in the Isle of Man next June comes news that D.K.W. will be racing one-two-fives in 1951. Riders will be E. Kluge, H. P. Müller and S. Wünsche, and there is every likelihood that they will be entered for the T.T.

The intention is that the new 125 c.c. racer will form the basis for development purposes of a new racing two-fifty to appear in 1952.

As first reported in these columns on November 16, plans are going ahead for attacks on world's records with supercharged 500 c.c. and 350 c.c. N.S.U. machines. In particular, it is hoped to break the "world's maximum" record held by Henne, and for this purpose the 500 c.c. N.S.U. has a new frame and layout which gives the rider a "lying-sitting" position. A streamline shell will be employed. It is thought probable that it will be necessary to go to the Salt Lake, Utah, U.S.A., and, all being well, the attempts will be made early in the New Year.

For road racing next year, N.S.U.s are working on 500 c.c. and 350 c.c. four-cylinder unblown models, as mentioned in *The Motor Cycle* dated December 7. Riders of the solos will be Heiner Fleischmann and W. Hertz, who has now fully recovered from his crash. In the sidecar class, the driver will be H. Bohm, and his passenger will be F. Holler, in place of Fuchs, who is considered to be rather over-weight! Long-term plans include 250 c.c. racing machines, and another interesting N.S.U. announcement is that a couple of 125 c.c. Lambretta scooters are being prepared for racing; one of the riders will be Otto Daiker.



Lohmann engine is attached below the bottom bracket of an orthodox cycle and drives the wheel by roller