

Rolls-Royce "Condor" C.I. Engine

Type Test Successfully Passed

THE Rolls-Royce "Condor" compression ignition engine has successfully passed the Air Ministry's civil engine type test of 50 hours. Flight tests are now being undertaken at Farnborough in a Hawker "Horsley" aircraft. The engine gives a maximum of 500 h.p. and weighs, with starter and accessories, 1,504 lb. The conversion of the Rolls-Royce Condor petrol engine to the compression ignition system was initiated by the Air Ministry and has been developed at the Royal Aircraft Establishment, Farnborough, with the co-operation of Rolls-Royce, Ltd., which produced such components of the engine as required modification.

Compression ignition engines have usually been designed with a substantial increase in strength and weight in anticipation of increased stresses, but in the case of the "Condor" the problem was approached from the other direction, viz., to ascertain how much increased strength was required to be added to an existing petrol engine to secure completion of the normal type test requirements for civil use when employing heavy oil as fuel. The engine has now completed the standard civil type test modified to suit C.I. engines, the duration of which is 50 hours. It is the only C.I. engine which has completed this test in this country with the exception of the Beardmore "Tornado" which was installed in the airship *R.101*, and was of a considerably higher weight to power ratio, being designed to suit airship conditions.

The "Condor" engine is now being subjected to experi-

mental flight tests in a "Horsley" aircraft at the Royal Aircraft Establishment with a view to exploring the problems of the operation of C.I. engines in flight, including the effects of altitude and low temperatures and ease of handling and control. It is hoped also to establish by practical test the theoretical advantages of low fuel consumption and cost under cruising conditions and to find out the extent to which the size of the radiator and weight of cooling water carried can be reduced as compared with standard petrol engines.

This is only one of a number of experiments which are being made with C.I. engines either by or for the Air Ministry.

The chief technical details of this engine are:—

Power.—480 b.h.p. at normal charge and r.p.m.; 500 b.h.p. at maximum charge and normal r.p.m.

Rotation of Airscrew.—Left-hand tractor.

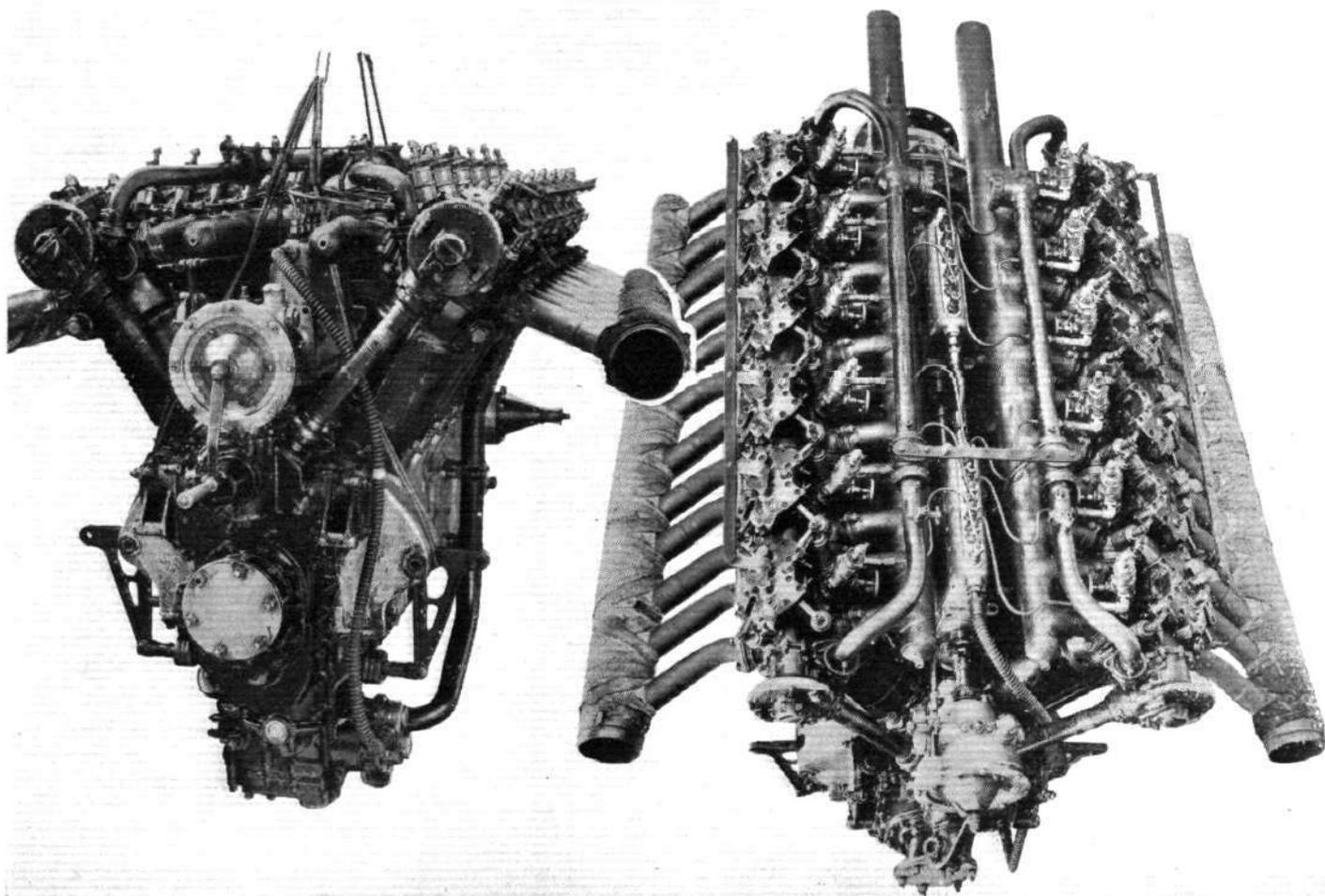
R.P.M.—1,900 normal, 2,000 maximum.

Weight.—1,504 lb. with starter and accessories, but less airscrew boss.

Cylinders.—Twelve in two banks of six at 60 deg. V., water-cooled; two inlet and two exhaust valves. Bore and stroke $5\frac{1}{2}$ in. \times $7\frac{1}{2}$ in.; stroke/bore 1:1.363. Compression ratio $12\frac{1}{2}$:1. Maximum pressure 800 lb. per sq. in.

Cycle Operations.—Four-stroke solid injection.

Overall Dimensions.—Length, $74\frac{1}{4}$ in.; width, $30\frac{1}{2}$ in.; height, $45\frac{1}{2}$ in.



Two views of the Rolls-Royce "Condor" compression ignition engine, which has successfully passed its Type Test. (Crown Copyright Photos.)



Aerial Photography

OWING to the success of the exhibition of aerial photography held at the Camera Club last May by Aerofilms, Ltd., the exhibition was booked for a number of art

galleries and has been making a tour during the last few months and attracted considerable attention. At Sunderland Art Gallery over a thousand people saw the show in two hours and there was a queue waiting admission.