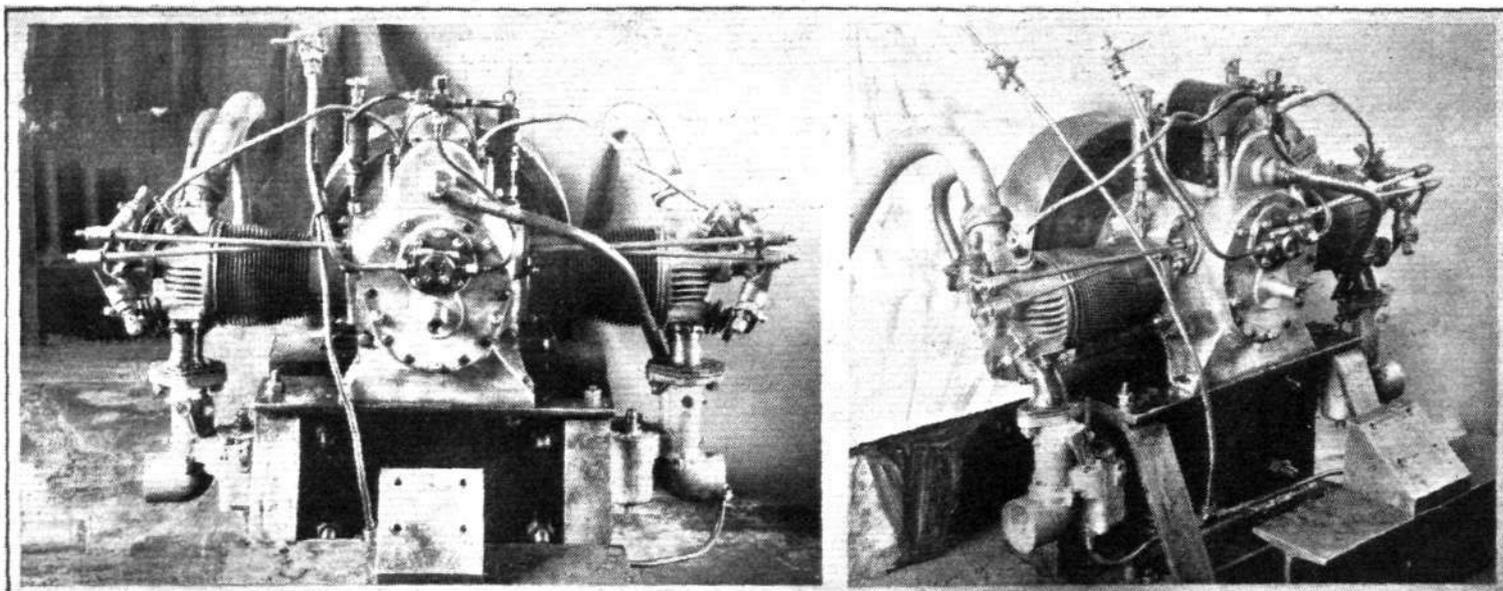


# THE A.B.C. "SCORPION"

## A "Flat-Twin" Suitable for Light 'Planes

IN spite of the excellent results obtained with the English Electric Company's "Wren" in last year's Light 'Plane Competitions, few other aircraft designers have made any attempt to provide a really low-power machine. The "Wren," it will be remembered, was fitted with a 400 c.c. A.B.C. engine, which gave very good service during the week at Lympne, but the type is perhaps too small to be

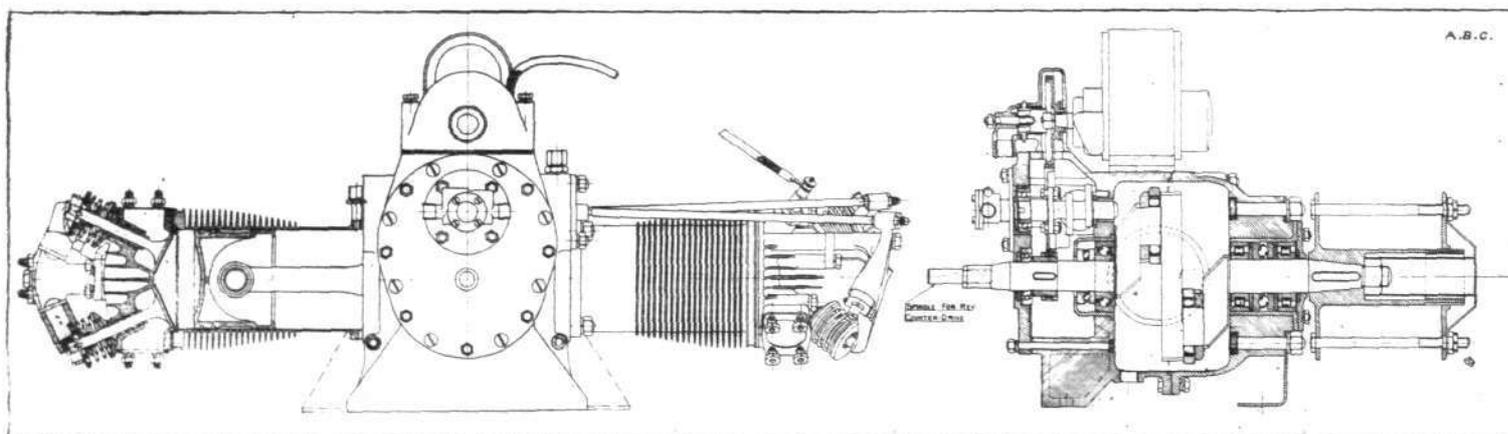
advised to give the A.B.C. "Scorpion" careful consideration. As the A.B.C. car engine will already be fairly well known, we will confine ourselves to quite a brief description of its main features, and will follow up by pointing out the very small changes, apart from the reduction in bore, which have been necessary in order to convert the "Scorpion" from a car engine into a light 'plane power-plant.



Three-quarter rear view and rear view of the A.B.C. "Scorpion" light 'plane engine on the test bench. Note that two carburetors are fitted. When actually mounted in an aeroplane the flywheel will be replaced by the airscrew, and the exhaust pipes will, of course, be taken upwards and backwards, clear of propeller and cowling. Also the two carburetors will be brought closer together near the centre, but the test bed did not allow of doing this for the initial experiments.

likely ever to become popular for aircraft use. Similar in all essential respects to the 400 c.c. type is the A.B.C. car engine, except that it is, of course, of very much greater capacity. The actual car engine is, we believe, of something like 1,200 c.c. capacity, and is therefore outside the limits fixed for this year's Light 'Plane Competitions at Lympne. By a very small modification, however, A.B.C. Motors of Walton-on-Thames have reduced the cubic capacity of the car engine until it falls within the 1,100 c.c. limit. This has been done by slightly decreasing the bore, and in all other respects the A.B.C. "Scorpion" is similar to the standard car engine. As

The A.B.C. "Scorpion" is a two-cylinder opposed air-cooled engine with a bore of 3.435 ins. and a stroke of 3.6 ins. (87.5 mm. by 91.5 mm.). The aluminium crank-case is divided laterally, a spigoted joint being used as shown in the accompanying photograph and sectional drawings. The two-throw crank-shaft runs in ball bearings at the back and in roller bearings at the front. In the case of the light 'plane engine a thrust bearing has been interposed between the two roller bearings in front, so as to take the thrust of the propeller. A short camshaft runs in one pair bearing and one ball bearing housed in the back of the crank-case, and the rear



Sectional views of the A.B.C. "Scorpion" light 'plane engine.

the latter has given excellent service when fitted in the A.B.C. car, there does not appear to be any reason why its modified version should not be quite well suited for installation in light 'planes, and a visit to the A.B.C. works at Walton a short time ago enabled us to observe one of these engines on the test bench, undergoing its preliminary tests. From the behaviour of the engine we certainly came to the conclusion that there was no apparent reason why the "Scorpion" should not behave as well in the air as it has done on the road, and designers looking round for a power-plant for this year's competitions, or for machines for private use, are

plate cover respectively, and operates the overhead valves through push-rods and rockers. When used as a light 'plane engine the engine is reversed in the sense that what is the back of the engine when used in a car becomes the front, and the large flywheel with which the car engine is fitted (and which is shown in place in the photograph of the engine on the test bench published herewith) is removed and replaced by a special propeller boss made to fit the flywheel taper on the end of the crankshaft, the propeller of course taking over to a large extent the duties of the flywheel. The rear end of the crankshaft projects through the back cover, and affords a