

THE HANDLEY PAGE W.8 B.

Two Rolls-Royce "Eagle" Engines.

AFTER winning the Air Ministry Competition at Martlesham in 1920, the Handley Page W.8 remained, for various reasons, idle until fairly late in 1920, at any rate as far as actual commercial flying was concerned. When it was, finally, put on the London-Paris route it soon demonstrated that it was capable of making excellent time and of maintaining a good schedule, due to the ample margin of power which the two Napier "Lions" provided. Anyone who has seen the W.8 take off at Croydon must have realised that the reserve power was more than ample, the machine literally bouncing into the air after an exceedingly short run, and climbing at an angle which was more reminiscent of a scout than of the usual commercial passenger carrier. While, however, a good margin of power is the best possible manner of securing regularity and safety, a point is ultimately reached where economical reasons dictate a stop. For instance, although normally running the engines throttled down to about three-fourths or two-thirds of their maximum power results in increased life and reliability, the efficiency of the engines is not so good, owing to the smaller compression, if throttling is carried much farther. The petrol consumption is greater per horse-power developed, although smaller per engine, and consequently too great an excess of power results in a certain amount of waste.

In the case of the Handley Page W.8, practical experience has shown that not only is the excess of power provided by the Napier "Lions" too great, but that the speed of the machine so fitted is greater than is necessary for the work on the London-Paris line. It has, therefore, been decided to replace the present engines by Rolls-Royce "Eagles" of about 360 h.p. each, which will still give a sufficient margin of power and the requisite speed, while giving greater economy in running. Several of the new machines, which will be known as the Handley Page W.8 B, are to be put on the service in the spring, and will serve as a happy mean between the admittedly too-slow 0-400's and the too-fast W.8.

In order to obtain actual flying data of performance before installing the Rolls-Royce engines, an interesting experiment was tried. The Napier engines were fitted with Rolls-Royce propellers and the "Lions" throttled down to the power of the "Eagles." In this way actual conditions were fairly represented, and the tests thus carried out gave a very good indication of the performance which may be expected from the machine in its new form. The machine was loaded up with its proper quantity of petrol, and carried, in addition to pilot and mechanic, 16 passengers. The machine weighed, with fuel and water, 9,672 lbs., and the 20 passengers brought

the weight up to 12,000 lbs. On a basis of 360 h.p. per engine this gave a power loading of 16.7 lbs./h.p. With this loading, the following performance was obtained:—

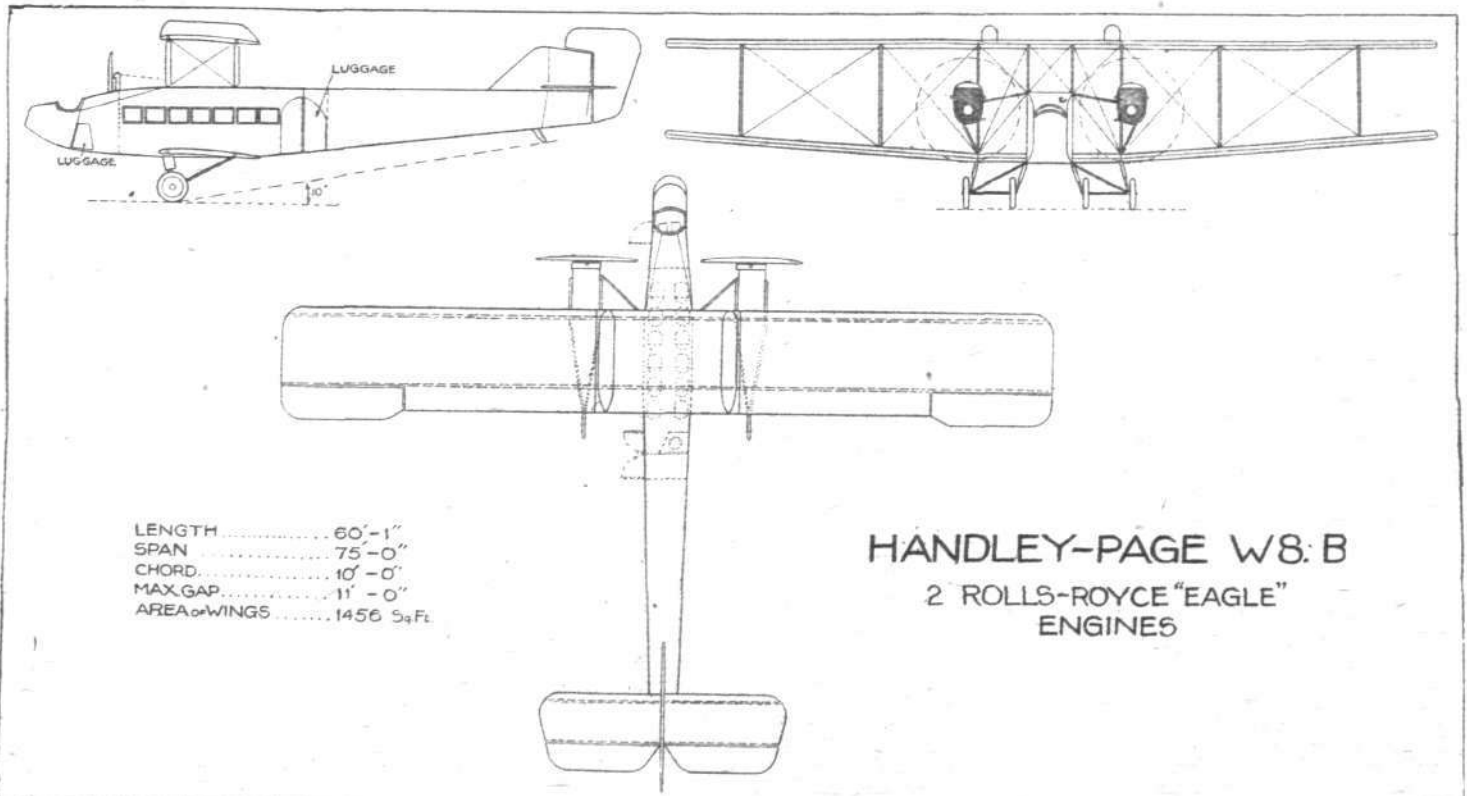
Time (mins.)	Height (ft.)	R.P.M. (average)	I.A.S. (m.p.h.)
1	425	1,510	73
2	1,000	1,525	75
3	1,550	1,530	75
4	1,900	1,550	75
5	2,300	1,560	79
6	2,850	1,550	75

The full speed was 103 m.p.h. at 1,675 r.p.m. and the cruising speed 90 m.p.h. at 1,500 r.p.m.

The accompanying general arrangement drawings, which have never hitherto been published, show the machine as it will appear when fitted with Rolls-Royce engines. Several modifications will at once be noticed. Thus an interesting innovation, as far as H.P. machines are concerned, is found in the placing of the petrol tanks. Instead of having the tanks in the engine nacelles, behind the engines, they are placed, in the W.8B, on top of the upper plane. One result of this arrangement is a greatly simplified petrol system. Instead of gravity tanks, petrol pumps, etc., with their extensive piping and joint there is a single pipe leading direct to the engine, with gravity feed from each main tank. Each tank has a capacity of 100 gallons, and great attention is being paid to such few joints as still remain in the petrol pipes. These joints, we understand, are to be metal couplings of the Air Ministry type, and no rubber joints will be employed. Each tank is provided with a petrol level indicator of the "Clift" pattern. Each of the engines is provided with an oil tank of 6½ gallons capacity, to which a thermometer is fitted.

Generally speaking, the mounting of the engines will not be greatly altered, except for such variations in dimensions as are necessitated by the difference in size of the two types of engine. Also, of course, with the transfer of the petrol tanks to the top plane, the long streamline fairing containing the present tanks will disappear, and we understand that it is not intended to streamline the Rolls engines, experience with the type 0-400 machines having shown that the gain in speed resulting from such streamlining is so small as to be scarcely worth while, especially when taking into consideration that the engines are very much more accessible when left uncovered. The engines will be fitted with long exhaust pipes of the R.A.E. pattern.

Apart from the alterations indicated above, the machines



THE HANDLEY PAGE W.8 B : General Arrangement Drawings.