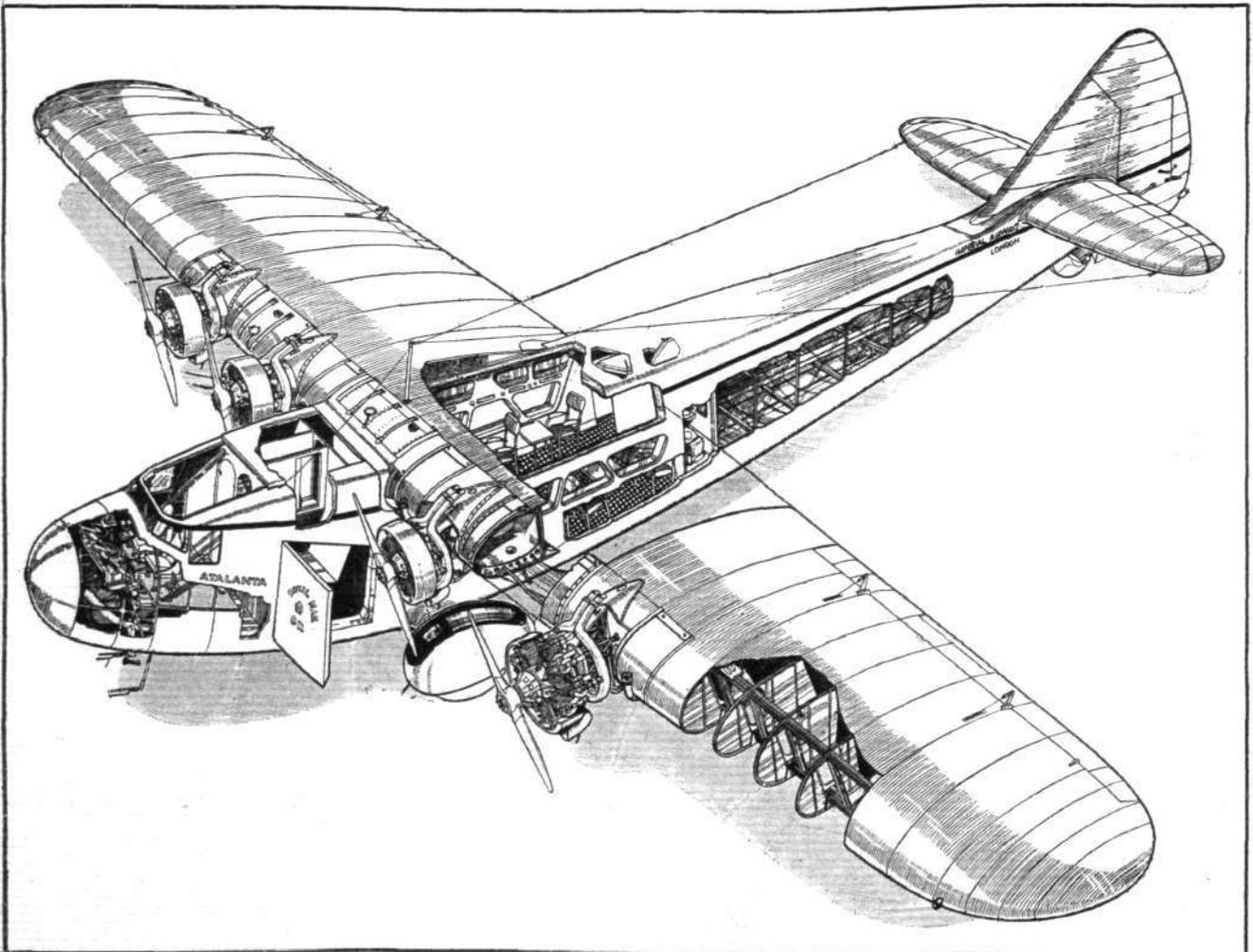


RUNNING UP : Mr. Campbell-Orde testing his "Double Mongoose" engines before making a flight at Whitley. (FLIGHT Photo.)

The designers started by selecting the cantilever mono-plane type of wing arrangement. They then decided to place the four engines in the leading edge of the wing, and to fair them into the wing surface with as gradual a change of section as possible. The fairings extend, in fact, very much farther aft on the wing surfaces than we recollect ever having seen before, and the result is a very gradual merging of the engine nacelles into the wing covering. The engines themselves have been fitted with drag-reducing rings, so that everything possible has been done to get rid of all avoidable drag. As an instance of the degree to which drag has been reduced, it may be mentioned that "interference drag," which is the term used to express the extra drag which often arises where two components of an aircraft join each other, is nil. In other words, the drag of the whole machine is the sum of the drags of its components, and not, as is very often the case, that sum plus something extra which represents interference. Much work has been done in the Armstrong-Whitworth wind tunnel (which is under the control of Mr. Reynolds) on models of the "Atalanta," and the low drag achieved is largely to be attributed to the wind tunnel work. In fact,

as Air Marshal Sir John Higgins expressed it during our visit to Whitley, the wind tunnel can very quickly pay for itself on a job of this sort.

Having disposed of their four engines in the leading edge of the wing, and having faired them as carefully as might be, the designers set to work on the undercarriage. In the average aeroplane the undercarriage accounts for anything from one-sixth to one-quarter of the total drag of the machine, and yet it is in use for a few minutes only at the beginning and end of each flight. If it could be suppressed altogether it would vastly increase the flying economy of the aircraft. Unfortunately that cannot be done at present. The alternative is to make it disappear into some other part of the aircraft when this is once well in the air. That, however, is accompanied not only by a good deal of weight, but also by considerable extra complication. In the A.W.XV the designers have adopted one of the most ingenious schemes we have seen. More will be said of the undercarriage next week. For the present it will suffice if we state that the whole of the telescopic leg, and two-thirds of the wheel axle, is housed inside the fuselage fairing. To make this possible and still



LAYING BARE THE TRUTH: A part-sectioned view of the A.W. XV, showing many of the structural and other features.