



# HESTON A.O.P.

By M. M. Gates

WHEN looking for a full-size aircraft which would make a suitable flying scale model with a small diesel engine, the main factors which influenced my choice were:—

- (1) Ample wing area to give a slow flying speed.
- (2) Adequate lateral stability.
- (3) It should have an unusual appearance if possible.

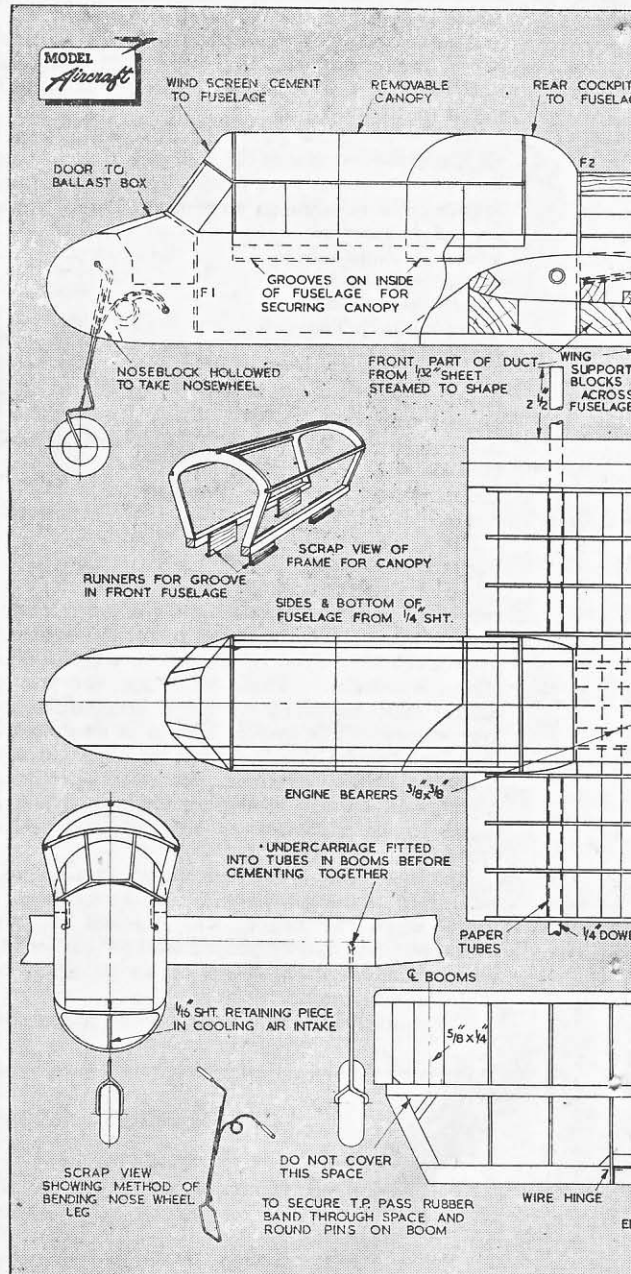
The Heston A.O.P. satisfies the first two considerations because it was designed for slow flying, and the twin-boom pusher layout satisfies the third. The only disadvantage of the design is that the sweepback of the leading edge induces tip-stalling. Since a reasonable degree of washout did not provide a remedy, wing tip slats have been fitted, as on the actual aircraft, with complete success.

It is perhaps right to point out that the model is purely a scale design, so duration fiends can turn to the next pages straight away! In places the construction has been made unnecessarily strong, so that the scale contour is preserved. In order to be on the safe side as regards strength my model was made mainly of hard balsa. In actual fact good quality medium balsa is amply strong enough, and in particular the resultant lightening of the tail will enable some of the nose ballast to be dispensed with.

The model was designed primarily for the Amco .87 or Mills .75, but has been flown with the E.D. Bee. All up weight with E.D. Bee was 19 oz., but 17 oz. should be easily attainable with the Bee, or 15½ with the Mills. A special pusher propeller is necessary on the Bee, but with the Mills and Amco the direction of rotation can be reversed.

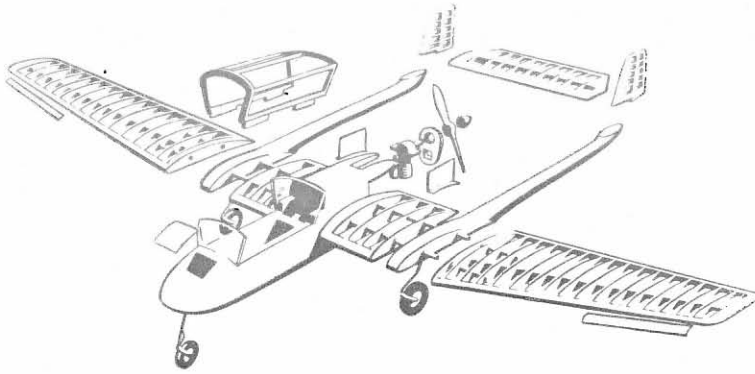
## Construction

**Wings**—The outer sections are of straightforward construction, with flat under sides, and can be built on the plan. The spar is tapered in depth from root to tip. The best way to make the ribs is to cut out "master" 1/32 in. root and tip ribs (Nos. 2 and 18). Sandwich 15 pieces of 1/32-in. sheet between these,



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front part of the cooling air intake is made from two pieces of 1/32-in. sheet steamed to shape and cemented together. A piece of 1/16-in. sheet runs down the centre to retain the shape. The rear part of the duct is integral with the cowling, which is made from pieces of balsa sheet, the sides of 1/16-in sheet. The cowling is located by small 1/32-in. sheet "wing roots" attached to it and fitting over locating pieces on the inboard wing rib. Bands around the wing roots hold the cowling in position. The nose ballast box door is hidden by making it conform in shape to the black anti-dazzle panel.

The windscreen and rear end of the cockpit are cemented to the fuselage, but the main part of the canopy is cemented to a balsa frame, which is removable. Small projections from the frame fit into grooves inside the fuselage sides and the canopy can be removed by pressing the sides inwards. As the Heston A.O.P. is still semi-secret, I have not been able to obtain details of the cockpit layout, but the crew of two sit in tandem.

**Booms**—Each boom should be divided into halves down the middle and hollowed out. The undercarriage legs should then be firmly fitted in place and the parts cemented together again. The booms have to be shaped to elliptical section, except where they form part of the wing, and holes drilled for the dowels. Alignment of the dowel holes is not difficult especially if the booms are drilled together. Adjust-

ments can be made by enlarging a hole on one side and filling it with plastic wood on the other.

**Tail Unit**—The tailplane and fins should be built flat on the plan. A rudder is fitted to the starboard fin only, and carries a balance at the top. The fins are cemented to the tailplane tips, and do not come above the booms.

The model takes apart to six major pieces for ease of transport, being joined together by 1/4 in. diameter hard balsa dowels. The tail is held to the booms by rubber bands which pass through holes in the tailplane. The dowels are made of balsa so that they break in a heavy landing rather than the wings.

**Finish**—The model was covered with rag tissue. It was given three coats of clear and two of silver dope. The "solid" parts of course have to be grain filled first. R.A.F. markings, the serial number VL529 and the prototype "P" marking complete the finish.

**Flying**

Add ballast to the nose until the centre of gravity comes at the position shown on the plan. Glide test and make slight adjustments to the ballast if necessary. For first power flights slacken compression, and open the fuel needle until the engine will only just run, even if it is rather erratic. Hand launch gently. The A.O.P. should fly about 15 ft., losing height, and make a power-on landing. If your motor will not run slowly, put the propeller on the wrong way round, so that the thrust is low. On successive flights, with five to ten seconds engine run, increase the power very slightly, adjusting the rudder to give a slight turn with torque, until the model shows signs of stalling when the engine stops. You have then reached the best power setting and the model is trimmed.

**CLUELESS BUILDS A NORDIC**

By Harry Stil

