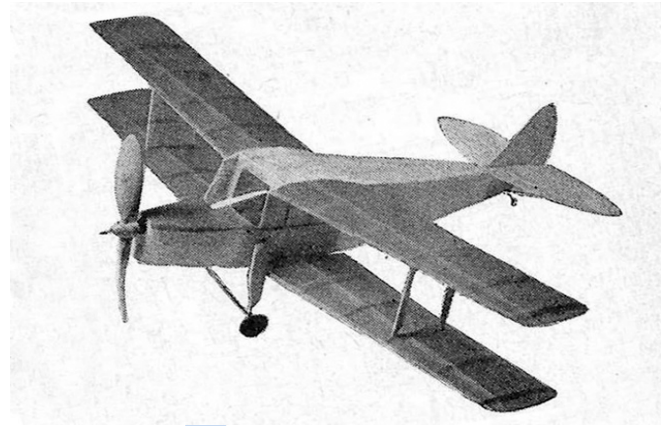


# D.H 87B Hornet Moth



**Just two evenings' work and you've got a fine little free-flight model of the D.H 87B Hornet Moth by Ron Warring.**

**CONTRARY** to popular belief, biplane models fly quite well and so for this month's flying scale model we have chosen the dc Havilland Hornet Moth. This was a popular pre-war two-seat cabin biplane, which first flew in 1934. The original Hornet Moth I (the D.H. 87A) had sharply tapered elliptic wing tips, with a span of 32 ft. 7 in. The wings were subsequently redesigned with square tips and the span reduced to 31 ft. 11 in., with improvements in handling qualities and stability.

This version was known as the Hornet Moth II (D.H. 87B). Other small detail differences were included in the Mark II—undercarriage fixing slightly revised, tailplane position lowered which was also produced as a twin float seaplane version. Our model, which spans 16 3/4 in., is of the Hornet Moth II, and a few are still flying.

The Hornet Moth had side-by-side seating in the cabin, with dual controls. Engine was the 130 h.p. Gipsy-Major, which gave it a top speed of about 125 m.p.h. and a cruising speed of just over 100 m.p.h. Range was 620 miles.

The fuselage was a wooden box structure with internal longerons and external formers carrying stringers, with fabric covering overall. Wings were of two-spar construction with a plywood covered leading edge and again fabric covering overall. The wings, incidentally, could be folded by lifting up trailing edge flaps, unpinning the front spars from their attachment points, and folding the wings back alongside the

fuselage. The tailplane consisted of a fabric covered wooden frame but the fin was ply covered.

The model follows similar construction to the previous models in this series. The tail surface areas have been increased slightly from scale, but otherwise the outline follows that of the full size aircraft. The tailplane, as drawn, is about the minimum size required for satisfactory flying and could be increased in area still more, if you prefer. With the given size, however, the scale appearance of the complete model is retained.

Start by cutting out the six fuselage formers from medium hard 1/16 in. sheet and the two sides from very light sheet. Note that the actual length of the sides is slightly longer than the plan view length of the fuselage drawing, this to allow for the curvature of the sides in plan view. Slots to be cut in the sides before assembling are: slot to take former 2; slot to take the 1/8 x 3/16 in. cross braces (top and bottom of the cabin); slot to take the wing mainspars (alongside the slots for the braces).

The two sides are assembled on formers 3 and 4, curving to the shape of the sides and holding in place with pins until set. The two fuselage ends can then be joined and formers 5 and 6 inserted. Check that the curve is the same on the two sides. The front of the fuselage can then be joined with former 1, cementing in former 2 to assist in maintaining the correct top curve. The bottom of the front sides, pulls in more sharply, but this will follow naturally if former 2 is properly located.

Bend the main undercarriage legs and thread through holes pierced in the sides. Then sew to former 3 with

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cotton and cement well (if you prefer, you can bind the legs to former 3 first and then assemble the sides). Now cement the bottom sheeting in place. When set, trim off flush and round slightly with sandpaper. The front undercarriage legs are then sewn to the bottom with a needle and cotton. Cement this binding for added strength.

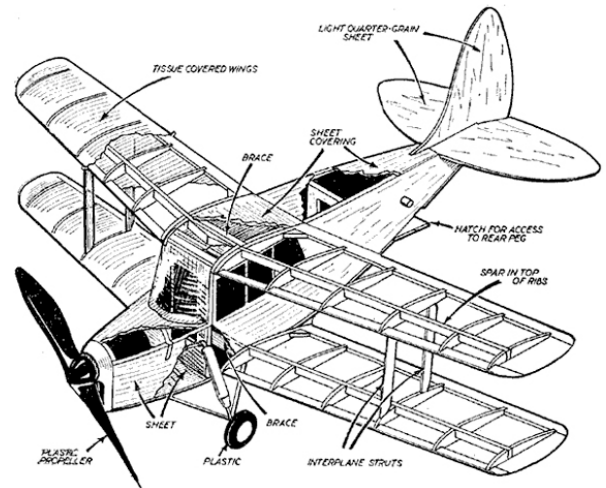
The fuselage is then completed by adding the cowling, rear top decking and the center section covering. It is best to cut and fit the tailplane before adding the top decking sheet as this can then be fitted flush up to the tailplane. The nose block can also be rough shaped and cemented in place, finishing to blend with the fuselage lines when set.

The wing panels are built up over the plan. Two off the plan drawing are required for the top and bottom left wings. Then make a tracing of the plan, reverse, and build two right wing panels. Construction is quite straightforward, but the ribs should be notched into the trailing edge for added strength. Tips are 1/16 in. sheet, sanded to shape after assembly.

The wings should be tissue covered, top and bottom, water sprayed and doped before fitting to the fuselage. The fuselage can also be tissue covered, if you want it coloured. Otherwise leave it white. Coloured dopes should not be used to finish as these will make the model too heavy for flying.

The wings cement directly on to the fuselage sides, with the protruding spar ends fitting through the slots and cementing to the cross braces in the fuselage. It is best to fit one pair of wings first-top or bottom-at the correct dihedral angle and then line the second pair of wings up with these, when set. Then cement in the interplane struts which, if cut accurately to length, will assist in aligning the wing pairs.

The remaining details required to finish the model can then be followed from the plan. The fin cements on top of the tailplane and must be aligned square. The oleo struts on the main undercarriage legs are shaped from strip balsa, grooved to fit and fastened in place by binding with tissue wetted with cement. The radius legs are simply rounded from 1/16 in. square strip and cemented in place to the bottom of the fuselage and



bound to the undercarriage axle joint as well, if you wish).

The exhaust is fitted centrally and can be made from reed cane or 1/8 in. square balsa strip, rounded. The fishtail end can be shaped from scrap sheet and cemented in place. Exhaust stays are simply pins pushed right through the pipe and up into a fuselage former.

A hatch, hinged with tissue or cellulose tape, should be cut in the rear fuselage, as shown, for access to the rear peg for fitting and changing motors. The tailplane bracing struts are sanded to section from 1/8 x 1/16 in. balsa and cemented in place. A colour line on the fuselage can be doped on, using masking tape to get a straight edge, or cut from coloured tissue or transfer strip. The registration letters can also be cut from tissue or transfer strip. These letters also appear across the top of the upper wing and the bottom of the lower wing.

A 5 in. diameter plastic propeller will give a reasonable flying performance without having to depart too much from a scale size undercarriage. Performance is improved with a 6 or 7 in. propeller, but the undercarriage leg length must be increased accordingly.

Balance point for flying is roughly on the wing mainspar of the tipper wing. If very much out from this position on the finished model, add ballast weight to the nose or tail to trim. Once the balance is approximately correct, however, all the necessary trimming can be done by warping the tailplane trailing edge upwards or downwards. For power trim, some

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down thrust is necessary to prevent stalling. This can be incorporated in the hole drilled through the nose block to take the bushing, or a packing strip used behind the top of the bushing.

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