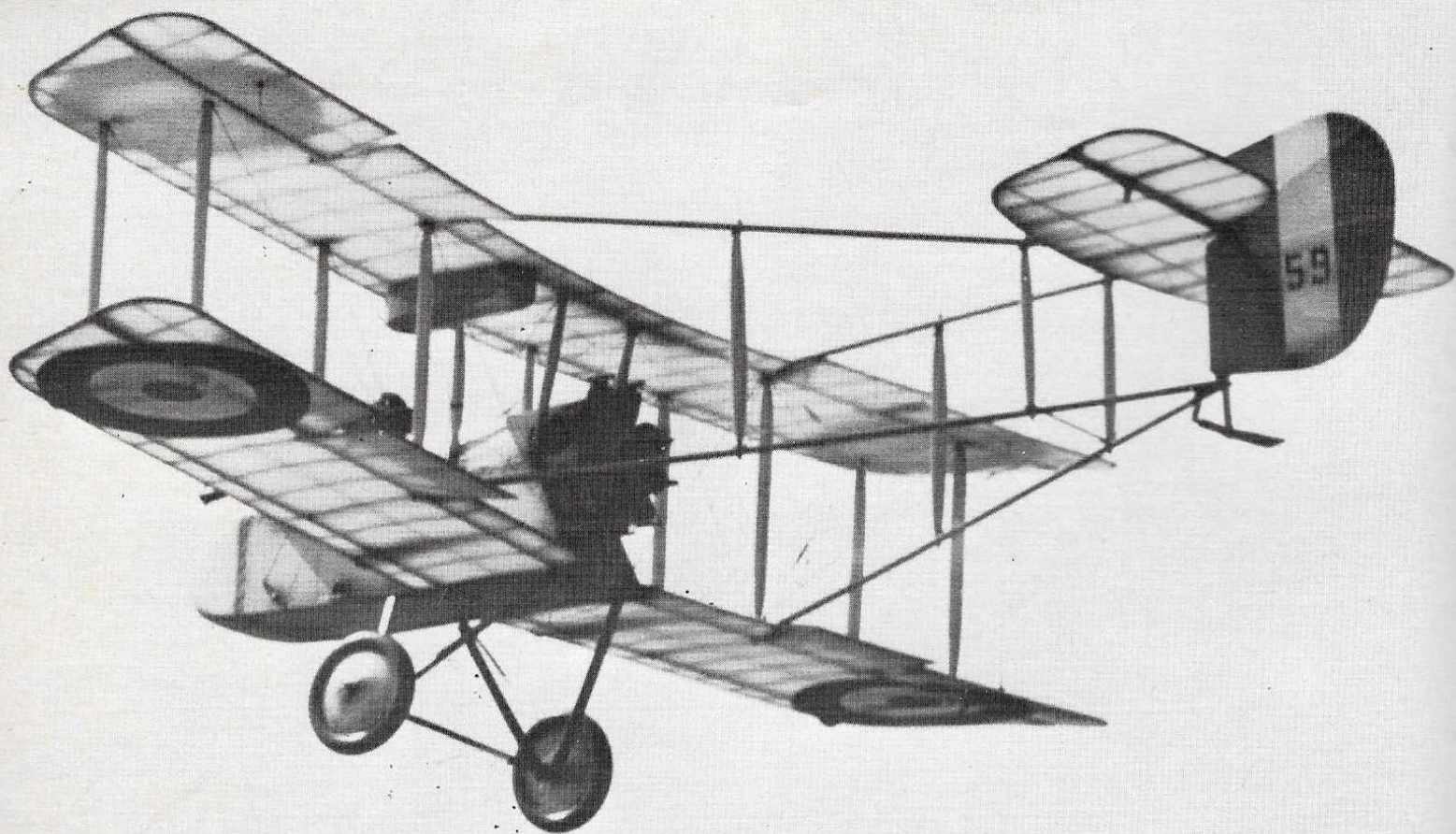




DeHavilland D.H.2

BY PETER NEATE

Have you seen anything prettier than this flight shot of the D.H. 2 on a landing approach with its rear-mounted pusher engine singing?

Exciting scale project of World War I fighter-bomber that will gladden the heart of any true aficionado. Plane has all of the necessary ingredients.

• Like most models I have built, the D.H.2 had been in my mind for several years before I got around to building it. I chose it because it is different from the usual run of airplanes and fairly easy to build. Also, unlike the Gun Bus (F.E.8), it has only one cockpit and no skids on the main undercarriage.

Although there is not to my knowledge an actual D.H.2 in existence, there is an F.E.8 at the Hendon Museum, and this airplane would give you a lot of pointers on construction, rigging and other small

brackets and fixings. Also the Imperial War Museum, Kensington, has some very good photos of D.H.2's, and Profile Publication No. 91 is very helpful.

I like to build models as big as practically possible (they always fly better), so 2¼"=1 ft. was chosen to enable me to just get the model in my estate car without stripping it down. I slipped up somewhere though; I measured the inside of the car and not the doorway, so I still have to strip it down, but this only takes a few minutes. When I go to my local flying field I carry the model on the

roof of my car with my son holding the undercarriage through the sunroof, but we can only drive up to 20 mph, then the model wants to fly, and the singing of the wires at 15 mph is marvellous to hear.

Most of the construction is of hardwood with white glue joints. I have tried to keep as nearly as possible to scale with construction and the materials. The tail plane and rudder do tend to warp. I expect they also did on the full-size aircraft. But if you do not cover them too tightly, you can get away with it.

The booms are thick wall aluminum tubing $\frac{3}{8}$ " o.d., $\frac{1}{8}$ " i.d. This can easily be obtained from any good nonferrous metal dealers, and for joining I find solder Soudogaz 2004 with flux Soudogaz 2014, made by Camping Gaz International very good. [Ed: Any aluminum solder will do!]

I do not intend to write a full set of building instructions, but I will go through the main points to help anyone who might want to build the model, or for anyone who is just interested in how it is made. I think you need to have had some aeromodeling experience before attempting this project. Certainly if you haven't, have someone, who has, check the model out and test fly it.

First, the wings are built; both are almost the same. Laminate the spars, cut the slots for the aileron hinges and securely glue the strut mounting blocks in place. The leading edge and tip are laminated in one piece from $4\frac{1}{4}$ x $1\frac{1}{16}$ " spruce. Also the ailerons are made the same way.

I cut a template from 1"-thick plank, with leading edge and tip on one edge, aileron on the other. It was then possible to make up two leading edges and two ailerons side-by-side at one time. Each wing panel is built on a flat building board, with suitable packing under spars, etc., with the remaining section of the spar protruding over the edge of the workboard. When building the opposite half or other wing panel, the completed section will protrude from the edge of the workboard. Cap strips are added to the underside of the ribs when the wing is removed from the board.

The fuselage is just a simple box. Framework is fitted to the sides, but more for show than anything. A wooden pattern is made on which to mold a fiberglass nose; an aluminum one could be beaten around such a pattern. When the nose is made, put hooks inside the fiberglass to take rubber



Author and his son John prepare the D.H. 2 for a scale contest held in Metz, France.

bands which hold the D.E.A.C.'s (nickel cadmium batteries) right up in the nose—500's would be best, although I have 250's and 4 oz. of lead in mine.

The fuselage is fitted to the lower main plane now. It is best not to glue it in position at this stage, as covering it and the lower wing would be difficult. Make up all the struts and assemble lower wing, fuselage and upper wing. Do not worry about rigging or the rigging attachment plates at this time; also nothing has been covered.

The lower booms and stern post are aluminum soldered together, making sure the angles are exactly correct. The long 10 B.A. bolt through the rear of the lower booms and stern post which is for bracing the wire attachment will hold the booms in

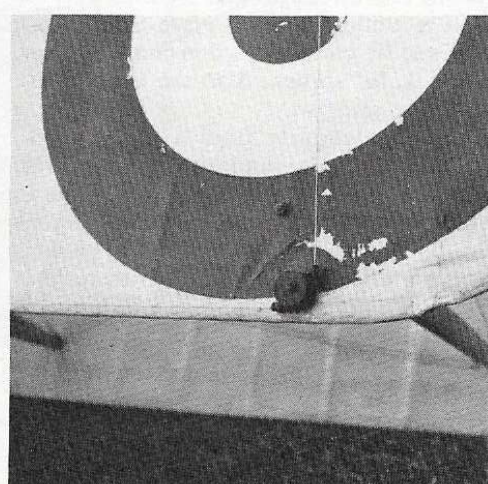
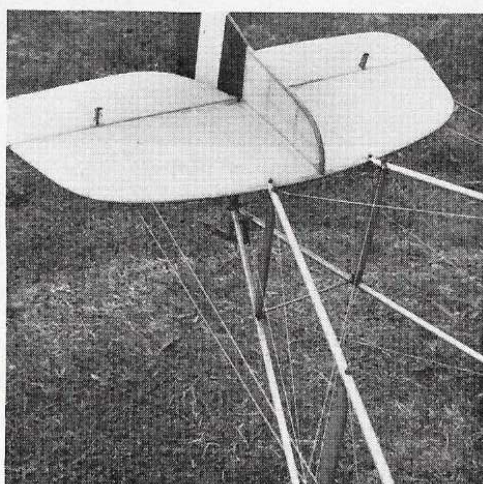
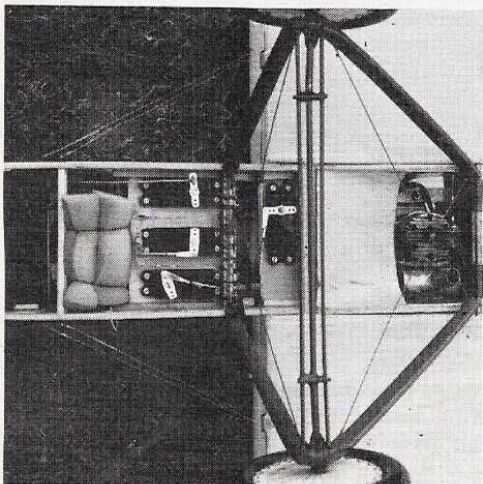
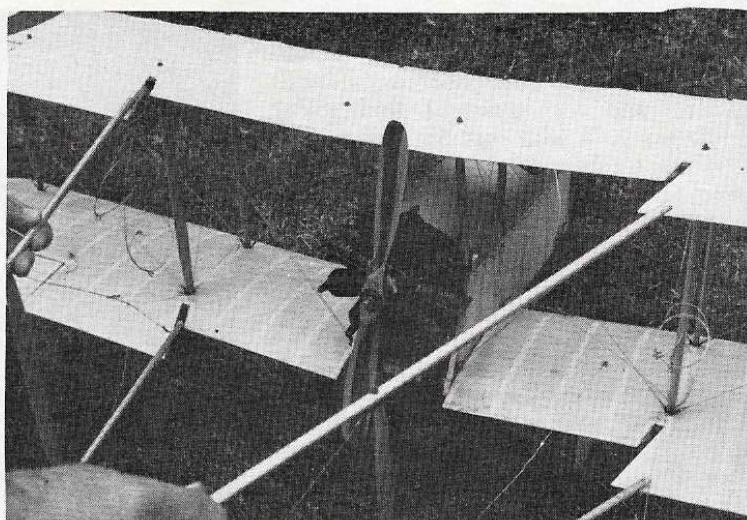
position while they are soldered. Now the lower booms, upper booms, boom struts and tail plane are assembled as a unit. At this point, the tail plane is best covered and doped to give it more strength.

With the main spar boom sockets fitted to the ends of the booms, the fuselage and wing assembly is fastened down to a large flat base surface, and the boom assembly can be inserted. Make sure the distance from the bottom of the stern post is as shown on the drawing. Then the booms should be at the correct angles, and the sockets can be araldited and bound to the spars. Any error in the angles of the sockets are taken up with packing.

At this stage the sockets are taking all the
(Continued on next page)

At rest, with bundled-up pilot awaiting flight orders. We expect to see plenty of this bird at WWI contests such as Rhinebeck.





Some construction close-up shots showing empennage assembly, mounting of tail booms, R/C installation, engine installation, rigging.

DeHAVILLAND D.H. 2

weight, so do not let the boom assembly hang on them. When the model is completed, the weight is taken on the rigging wires. When the sockets have set, remove the boom assembly.

The fuselage and wings can now be covered and completed. Do not forget the link wire between the top ailerons; it cannot be installed after covering. A good idea also would be a nylon tube in one of the lower wings to take the R/X aerial. You have got to be careful with pushers as the aerial gets eaten.

When covered, the lower wing and fuselage can be glued together. Then all the struts, upper wing and rigging wires are fitted. In fact, the whole front can be completed less the undercarriage. This is left until the very last to make it easy to stand the model on a flat surface to check the rigging.

All rigging and control wires are made from Control Line Laystrate (braided) wire, held at the ends by small lengths of brass tubing, and soft soldered. Care must be taken to get all the wires tight and in equal tension. It is very easy to warp the model with the rigging. Also the control wires should not have too much tension on them, as this will make the controls stiff.

The only place I used turn buckles is on the crossed wires that go to the struts at the front end of the boom and actually hold the booms in position, but need to be detached

to break the model down. Undo these four turn buckles, disconnect the rudder and elevator control shackles at the control surface, disconnect at the wing end the four long wires which run from the rear of the booms diagonally to the wings and take the screws from the boom sockets. Then the rear of the model can be pulled away for easy transportation.

I have installed a standard O.S. 60 engine. A light engine is preferable, and a .60 cu. in. gives ample power. A 1½" prop shaft extension is needed. If you haven't the facility to make one, they are obtainable commercially. There are no commercial silencers that I know of that will fit inside the engine compartment of this model, and I do hate to see a model spoiled by an unsightly lump of metal hanging from its side. A custom built can easily be made from sheet aluminum and Soudogaz (aluminum) solder.

You will also have to carve your own pusher prop, but at least there is very little chance of breaking it. You can in fact completely turn the airplane over on the ground, and it still keeps running. A 14 x 4 prop is used. Laminate a block (I used beech and mahogany) and copy the sizes from a commercial 14 x 4. Think twice before you take those first cuts. It's very easy to make a prop the wrong way round. Actually if you have

an engine which can be reversed, a conventional prop can be used.

The fuel tank is held in position with servo tape; the square type of tank is best suited. Remember the filler and feed pipes must come from the forward end of the tank, so that the klunk pipe swings to the rear, as in a conventional model. It means a long feed pipe, but this works all right. To make certain there are no fuel feed problems I pressurized the tank from the exhaust silencer.

This about covers the main points in the construction of the model. The finish and amount of scale detail is up to the individual modeler, but this has all the makings of a Class 1 Scale model.

Make sure the CG is as shown on the plan. You will find the ground handling is the best ever. I find mine steers better than a steerable tail wheel aircraft.

Do not try crosswind takeoffs or you will be repairing wing tips. I find the model fairly sensitive on aileron and elevator, but I like it this way. The airplane has done all the maneuvers I know, except a spin. I am a little chicken as yet. The only slight fault is a tendency to lift its nose when the power is shut off. I have put in "up" thrust on the engine to cure this, but there is still a trace of it. It is no problem though; use a little "down" trim during the landing circuit and you won't overshoot. ■