

Your Full Size plan feature



S.E.5a

THIS MODEL WAS designed for and built by a friend of someone who was a relative beginner to scale modelling. The main criteria were that it should be quick and easy to build with a good flying performance. The basic outline is accurate, which means that with a little extra detailing, it would be suitable for contests. The prototype did in fact win free flight scale at the Southern Gala. The size of the model was chosen to suit the engine available — a 1cc ME Heron. As such it is sufficiently large to cope with breezy conditions, but not so large that it will not bounce in a crash. A radio control version should be perfectly feasible with the lightweight systems now available.

Fuselage

Cut the $\frac{3}{32}$ in. sheet sides and add the $\frac{1}{16}$ in. ply doublers with epoxy. Glue the pre-drilled bearers to the sides at the correct angle. The centre section wires are now bent to shape. Note that they are attached to the fuselage and wings indirectly via brass tubes, which give a valuable degree of flexibility. Glue these to the relevant formers and then join the sides using F1-F4. The sides are cracked at F4 to enable the rear fuselage to be joined at F9 without curvature. Reinforce the weak spot with a triangular fillet. Add the rear formers and cross pieces, followed by $\frac{1}{8} \times \frac{1}{16}$ in. stringers. Realism can be improved here by shaving each stringer to a knife edge, so that a scale thickness shows through the covering. Plank the front fuselage with $\frac{3}{32}$ in. sheet. The top cowl is simply shaped from aluminium and held in place with a press stud soldered to a square of tin plate and in turn epoxy glued to a thick F2. The lower cowling is also from aluminium with cooling slots and held in place by four small screws.

Wings

All four wing panels and two centre sections are similar. They are designed so that the mainspars and trailing edge can be pinned direct to the board without packing. The wings and ailerons are built together, then separated for covering. The rear spar has to be built up at the aileron with a strip of $\frac{1}{8} \times \frac{3}{16}$ in. Ensure that the lower centre section ribs fit either side of the fuselage.

Tail surfaces

These are from stiff $\frac{1}{8}$ in. sheet, which

Bill Dennis presents this 832mm span scale free fighter for 1cc motors

must be sufficiently strong to retain the aluminium hinges. Represent rib position by heavyweight tissue rib tapes.

Rigging the centre section

This part is usually glossed over, even in beginners designs, but unless the wings are rigged accurately, the model will, in Eric Coates' immortal words, be 'doomed'.

The wings are mounted on 14swg wire dowels which run through brass tubes on wing and centre section. Note, they are free to rotate in these tubes, giving flexibility in a crash. Bend the wires to 3° dihedral (with the tube in place) and glue to the centre section spars. It is best to use spots of 5-minute epoxy at this stage, so that a mistake can be corrected. When all is satisfactory, finish with epoxy glue.

Make oversize holes in the wing root ribs and glue the wing tubes in place while assembled onto the centre section and propped up to the correct dihedral. When set, check that port and starboard incidences are the same.

Cut slots in the lower fuselage for the leading edge and spars and glue the centre section in place at the incidence show. Use strips of $\frac{3}{32}$ in. square balsa marked in pencil to check the distances of leading and trailing edges from the top of the fuselage side against the plan and balsa props to position the top centre section and wings correctly, and then glue the centre section tubes to the spars.

Covering

I recommend you cover the open structure with silk and tissue. Cover first with lightweight tissue and give two coats of 60/40 clear dope/thinners. As supplied, silk has a hard starchy finish which must be removed by squeezing the silk in warm water and ironing dry. Each panel is then laid dry over the tissue and dope brushed

through — give three coats, adding rib tapes from $\frac{3}{16}$ in. wide tissue before the last. Fabric lacing on the fuselage can be easily represented by cutting strips of heavy-weight tissue on which you have sown a zig-zag pattern with a sewing machine.

Decorating

Cellulose dope is best and is not attacked by fuel if you mix your own using mineral oil (e.g. Castrol GTX). The great advantage is that it is compatible with clear dope when repairs are being made. Matt dope is available from HMG Limited, Riverside Works, Collyhurst Road, Manchester, in tins of up to 1 litre. A mix of red and green will give an acceptable shade of PC10, or khaki green, but check the shade you have mixed in daylight rather than under artificial light.

Where applying white markings in dope, do these first, otherwise the green will show through. Use a pair of spring bow compasses filled with thinned dope to apply the roundels, filling in between the rings with a brush. Leave the underside clear doped, but streak on some dirty thinners.

The model is rigged with control line wire. Make a loop at one end around the interplane strut hooks, and solder a bent pin hook to the other end. Attach this to a hook on the wing root with a small band.

Trimming

Spend some time getting a flat straight glide. With a model of this size it is easy to mistake a bad launch for a stall or dive. Try to use a gentle slope to get more time in the air.

Commence power flights with the prop on backwards, adjusting down and sidethrust, but using as little rudder as possible. Don't be satisfied with a fast but flat flying pattern.

Conclusion

If you feel you may want to enter a scale contest with this model, then I suggest you get hold of the AEROMODELLER 3-view, (Plan Pack No. 2694 price £1.50 + 45p p&p), plus some photos of the machines at Old Warden or the RAF Museum and add as much detail as you can — as long as it doesn't weigh anything. Best of all, pay a visit to the aircraft as this is the best way of absorbing its atmosphere and hence create realism in the model.