FULL SIZE PLANS

JOHN SIMMANCE'S

1/8 SCALE FREE FLIGHT

SOPWITH "SCHNEIDER"

1964 NATIONALS WINNER—FOR 1.3 to 1.5 c.c.

FROM time to time I have been aware of a sneaking desire to build a model boat. Lack of time and loyalty to aircraft have always led to the early demise of such notions in the past, though I suspect that they have finally won through in the compromise offered here! This is the 1914 Schneider Trophy winning seaplane; a variant of the well-known Sopwith *Tabloid*, usually simply known as the Sopwith *Schneider*.

Sopwiths are generally remarkable for being, by and large, ideal prototypes for the scale modeller: the *Schneider* is no exception. The simple, generously dimensioned fuselage is big enough for light radio gear, the "warping" wings are encouragingly simple and pleasantly devoid of ailerons and the empennage is also extremely straightforward and easy. The floats demand a bit more in the way of attention perhaps, as they need to be robust to say the least; but one nice surprise is that in the course of normal airfield flying, superb landings can be made on grass, long or short, wet or dry, without the usual somersault and consequent possibility of fin and rudder damage, that we have come to accept as a normal hazard with short-nosed scale models of this vintage.

Trimming flights were approached with some trepidation; the floats seemed so enormous that the possibility of the model actually flying seemed ridiculous! However, after a little initial trouble with thrust lines —I had to remove a good deal of down-thrust as I had not realised the compensating effect of the drag of the floats—trimming progressed rapidly, with all flights being made R.O.G. from a simple three-wheeled dolly. Only subsequent adjustments necessary were made to the tail surfaces, via the built-in adjusters in the pendulum control linkage.

Construction

Commence by cutting out the $\frac{1}{4}$ in. sheet forward fuselage side panels. Pin these to the plan and complete the fuselage sides by the addition of $\frac{1}{4}$ in. square spruce longerons and spacers, built on the plan direct, in the normal manner for fuselage box frames. Construct the pendulum control components, cut out all fuselage formers and mounting plates, fitting the pendulum and yoke assembly to mounting plate A.

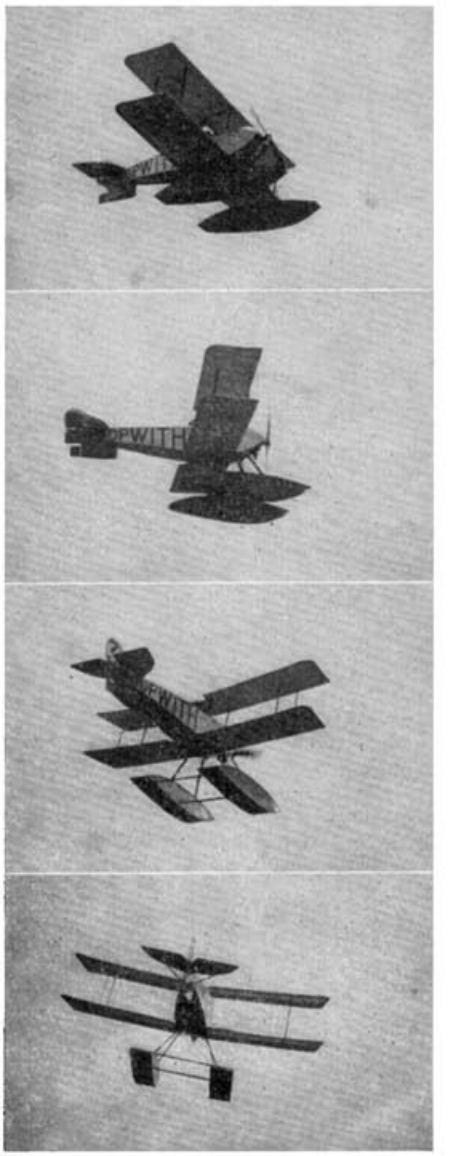
Make the cabane struts from 16 S.W.G. wire, noting that forward strut stagger is maintained by the slope of former 2. True lengths are shown on the plan, the wire being bent inwards 90 deg. at top, to be eventually bound to the centre-section. The rear cabane strut is continuous across the centre-section, the width being the same as that shown for the bottom of the forward cabane on former 2, and the ends being bent down at 90 deg.—length as shown on plan elevation—the ends finally being bent forward at angle shown for eventual attachment to fuselage sides. Sew and cement front cabane strut to former 2, also sew and cement brass wing dowel tubes to formers 2 and 3B.

Cut the $\frac{3}{8}$ in. square engine mount bearers to length and then assemble bearers, motor mounting plate and formers 1 to 3 and plates A and B. Design is such that all parts slot into and align one another, so as long as a slow-drying glue such as Cascamite is used, no difficulty will be experienced. As soon as this basic box is dry, fuselage spacers 3B, 4, 5, 6 and 7 are added and ends of side frames are joined at stern-post, chamfering inside of frames slightly for good cement contact.

Add half-formers 2A, 3A, 4A, 4, 5, 6 and 6A, followed by $\frac{1}{16} \times \frac{1}{8}$ in. stringers, relieving front of stringers at 4A by $\frac{1}{16}$ in. to allow turtleback sheeting to come flush with stringer edges and cutting off stringers flush behind former 6A. Bind and cement rear cabane strut to fuselage sides. Pierce stern-post for rudder control arm and relieve top "vee" formed by longerons at stern-post, to allow free entry of elevator horn.

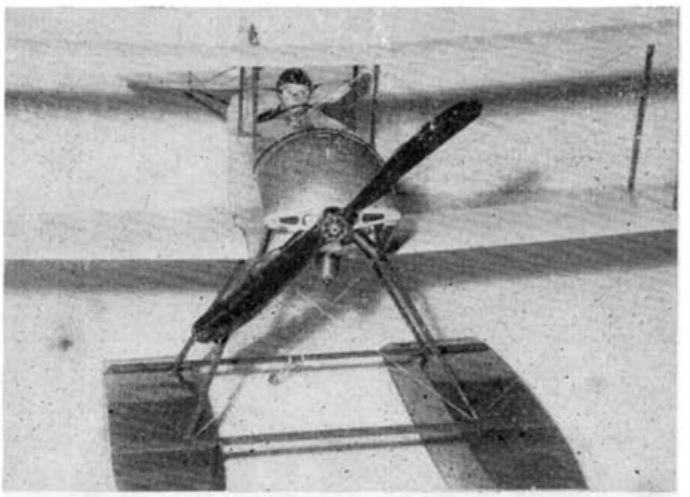
Make tail surfaces, tail float and all hinges, rudder post, etc., and pin assembly (but do not yet cement to fuselage) enabling pendulum linkage to be completed. Elevator control is by push-rod, rudder by torque-rod. Both rods carry adjusters made from brass Woolworth's electrical flex connectors, bound to the forward ends of the rods, and adjusting on to the wire rods from the pendulum assembly proper, where they are accessible through the cockpit opening.

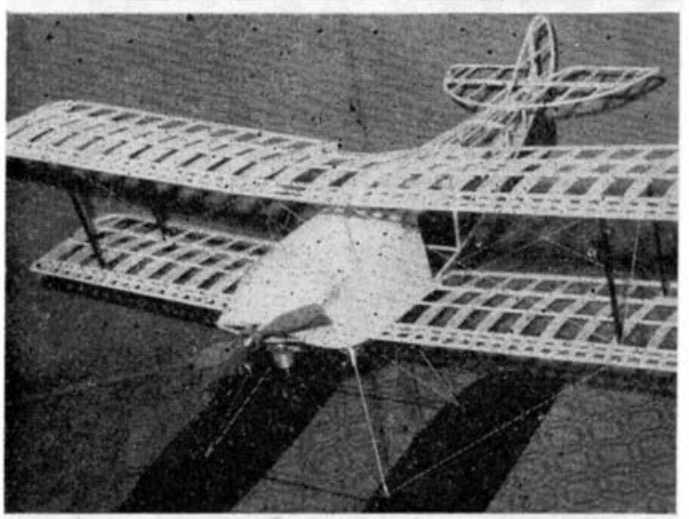
Cut out float sides and formers and assemble, but do not cover top or bottom. Bend float strut components, sew and Araldite to formers 3 and 5. Using pinned-down float frames and the fuselage as a jig, align everything accurately and build strut structure complete, binding and soldering all joints well. Cover top and bottom of floats

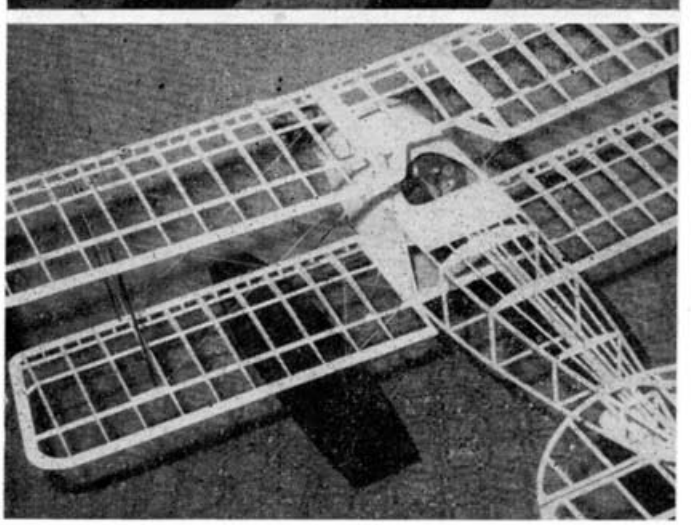


The above "fly-past" ground-to-air shots underline the realistic flight attitude of this fine model.

From 'Model Aircraft' December 1964







These three interesting views of the *Schneider* model show constructional details of the original.

using a waterproof adhesive—here again Cascamite is very good—and finally add half-round "cap-strips" to top and bottom side edges, on both sides of each float.

Securely bind and cement brass tube bearing on rear float strut to bottom of fuselage former 3, reinforcing as shown in elevation with a transverse strip of hard $\frac{1}{16}$ in. square balsa. Sheet in fuselage floor between formers 1 and 3B, after having checked for free movement of the pendulum. Note that fuselage floor sheeting grain runs transversely across fuselage.

Cut out all wing and centre-section ribs and profiles. Assemble centre-section. Recess bottom of centre-section spars to accept cabane struts and, using centre-section as a jig, align and solder 22 S.W.G. bracing in place. Remove centre-section and complete fuselage structure by sheeting top between formers 1 and 4A, finishing off flush with stringers. Make balsa cowling and cement permanently in place. Cut out cockpit opening and fit centre-section, binding and cementing securely to cabane struts.

Assemble wings and fit 14 S.W.G. dowels, to project 2 in. from root facing rib as shown. Wing dihedral may be varied by bending dowels but, in practice, the scale dihedral of $\frac{1}{2}$ in. under each tip at the leading edge has proved quite adequate. Make and fit strut mounts and rigging hooks.

Remove tail assembly and cover entire model and surfaces with lightweight modelspan. Refit tail surfaces and cement permanently in place, cementing also tail float in position. This tissue covering, water-shrunk and doped once, provides a base for the silk covering, doped straight on dry. As well as (a) strengthening model considerably, (b) economising on dope (the silk fills completely with two coats of thinned clear) it vastly improves the appearance as the fabric "grain" of the silk stands proud through the dope, giving a very good texture effect.

After covering with silk—cover floats twice, they are going to take a bit of hammering—apply grain filler to all fuselage panelled areas, sanding until the surfaces are quite smooth. On the original model the inspection panels were simulated with card, while pinheads served as rivets. All fabric areas were sprayed pale buff with a mixture of clear, white, a touch of yellow and brown, the mixture being "dirtied" by thinning with black contaminated thinners. All panelled areas were doped aluminium, and the very simple markings—SOPWITH on the fuselage sides and the figure 3 on the rudder—were doped black on the pale buff fabric by masking off with "Contact" adhesive backed plastic film.

A little tedious—and at times rather painful, as the motor gets quite hot—but very worth while, is the production of a simulated "machine-turned" finish to the aluminium doped panel surfaces. Any small 3-6 v. d.c. motor will do (I used one filched from a broken plastic toy car and I hope my children don't read this); just fit the shaft with a polishing head made from a small, $\frac{1}{4}$ in. dia. cylinder of ink eraser. Hot it up and start jabbing, but don't jab too hard!! You'll have to put it down every few minutes to let it cool, but the evening spent doing this will repay you handsomely in the excellent effect obtained. The finish seems to fool most people and this, of course, is most satisfying for, after all, when we build scale models this is what we are trying to do: build a model that people will look at and be fooled into imagining the real thing!

Floats and struts are doped brown, details such as pitot, etc., added in proportion to your enthusiasm and, finally, the engine area and all aluminium panels are fuel-proofed, the final shine adding to the metallic effect. The last touch is given to the appearance by rigging the model with shirring elastic.

I have not shown an instrument panel on the plan as, although the model has one, I had no details available, and the panel fitted was strictly to my own imagination: I feel your imagination is as good as mine here. It is worth a few points perhaps in a competition—at least for workmanship even if you can't claim any for fidelity to scale.

The motor fitted to the original was the old faithful Mills 1.3—alas no more in production—but any good 1.5 c.c. diesel should do, although if you want to try R.O.W. I would think that 2.5 c.c. would be required, though here, of course, the plan thrustlines may have to be modified.

Using a Mills 1.3 or similar, with the thrustlines shown, trim just a shade of right rudder and a little down elevator: use a take-off dolly and add touches of up elevator until model lifts off dolly, skitters along the runway on the floats for 30 ft. or so, lifting off into a shallow gentle climb, to the right or the left—the pendulum will keep it out of trouble.

Although it may seem absurd to silence a Mills, there is plenty of room for fitting a simple silencer.

Lastly: this model is a joy to fly for two good reasons: (1) it is very easy to fly—a good enough reason by itself, and (2) when you see it wheel overhead with those two great floats hanging down, apart from the beauty of the sight, it seems as though it ought not to be flying and it is always pleasant doing the apparently impossible, especially when it is as easy as that!!

So—get cracking: the long winter nights are upon us now, and you never can tell, 1965 may even bring us as good flying weather as we have had during 1964.