

**everyone wants
a trainer that
actually LOOKS
like a real live
aeroplane . . .**

Well, here it is!

**A 59" SPAN SEMI-SCALE
BEAUTY FOR .61 MOTOR
AND 4-FUNCTION RADIO**

PAVEL BÔSÁK'S

CORSAIR





LIKE just about everyone else who is learning to fly radio controlled models, I did not like the look of all those boxy trainers, and felt I should be able to design a model that would "look like the real thing" yet still take me over my early stages of multi-function flying. (I had built and flown many single-channel machines before this, you understand).

I therefore chose to base my design on the *Corsair* partly because the shoulder-wing layout would give it trainer-suitability—and partly because I liked it anyway.

For intermediate training (rudder, elevator, throttle) I built some dihedral into the wings. Only when I got used to flying rudder/elevator did I start to use ailerons. I flew it a great deal in this latter mode (which is presented here) and it was only when I eventually went over to low-winged FAI aerobatic pattern models that I pensioned it off. But it did not stay pensioned off for long. It came out of retirement very shortly when I presented it to my local club, where it served to train many intermediate fliers in the niceties of aerobatic flying.

Now, I am quite aware that, theoretically, it is not the best policy to design/build a model that is not of simple, tough and rugged structure, if it's intended as a trainer. But, as I said—everyone *wants* an

attractive looking model, or they feel they are learning on a railway sleeper! And, in any case, though my prototype was used for rudder/elevator training initially, the real capability of the *Corsair* is in aerobatic training.

Let us be clear, however, that an "aerobatic trainer" means a model for training non-aerobatic pilots in the art of aerobatics—NOT a "trainer for beginners that also happens to be capable of aerobatic performance". The difference is most significant.

The model is of all balsa construction, and follows fairly conventional methods. As will be seen in the photographs, my original *Corsair* had its wing held in place on the fuselage by means of the time honoured rubber bands and dowels, but the plan shows the more sophisticated nylon bolt system. How *you* fit the wings largely depends upon how you feel about your landings—or those you may be going to teach!

CONSTRUCTION

Wing

It is best to commence with the wing, so that the wing-seat in the fuselage can be made to match it accurately later on. The root and tip rib templates are given on the plan, and the wing ribs should therefore be made by the "sandwich" method. (I understand that the Americans

make every other rib from Pork Luncheon Meat—but assure you that balsawood is *still* best!) The "sandwich" method of producing wing ribs has been described innumerable times in aeromodelling literature (also in the current *RM Planbook!*—Ed.) but, briefly, it goes something like this. . . .

Cut the templates from plywood ($\frac{1}{16}$ in. is usually the best thickness—though some people, with the facilities, cut their templates from aluminium, or even mild steel sheet). Anyway, having made your templates, cut as many rough-sized rectangles as you will need ribs, and then pin (or drill and bolt) them together, with a template at each end of the pile, making a "block". This is then carved and sanded to conform with the templates. Any spar notches, etc. are cut before unpinning the set of ribs. Finally, don't forget to make "handed" sets or ribs, or you could end up with two left-hand wings, which might give you rather an interesting time later on.

Ribs W2 are faced with $\frac{1}{32}$ in. ply as, being at the centre section, they will be carrying a greater load. The balsa spar web for "eggbox" construction is shown on the plan and is made from $\frac{3}{16}$ in. sheet balsa of a medium grade and a nice straight grain.

Each half of the wing is now



assembled separately, gluing the spruce spars top and bottom, as shown. (A typical section is given on the drawing). Be wary of building in any warps; obviously the use of a building jig — if you have one — is to be recommended. The finished wing panels are joined, using the $\frac{3}{16}$ in. plywood braces, B1, B2 and B3, as drawn on the plan (lower right). B1 and B2 also act as strong supports for the l.e. wing-holding dowels.

NOTE: if you wish to use the *Corsair* initially as a rudder/elevator trainer, then fit the alternative ply braces shown, which will give the appropriate dihedral to the wings. Without the dihedral, the model is, as stated, a “trainer—for aerobatics” —but definitely not a basic trainer.

Next glue the leading edge in position, to the false leading edge, and when dry cut ribs W6 to W11, as shown, for the ailerons. Now fit the $\frac{3}{8}$ in. \times $\frac{3}{4}$ in. strip to these shortened ribs. (The chopped-off trailing edge pieces of the ribs are used for building the ailerons themselves, as drawn—a process which comes later).

Now cover the undersurfaces of the wing with $\frac{1}{8}$ in. sheet balsa, and then fit the bellcrank assemblies, on their $\frac{3}{32}$ in. ply plates, adding the pushrods in the usual manner. After fixing the $\frac{1}{4}$ in. dowels in place in the centre section, with epoxy adhesive, the top surfaces of the wing may be covered. The ailerons may now be made, and fixed temporarily with either mylar hinge strip or moulded hinges. (If you are covering the model with film, then you will find it more satisfactory to use film hinges, especially as top-hinging is specified. In this case it will probably be better to tack-glue the ailerons temporarily in place for the sanding operation). Now sand the whole wing very thoroughly—and as evenly as possible—using a sanding block.

Fuselage

The *Corsair* fuselage follows the standard arrangement of two sides

joined with formers or bulkheads, and with ply doublers extending from the nose back to just beyond the rear of the wing-seat, plus $\frac{1}{32}$ in. tail doublers. Before joining the sides, once the doublers are set, bolt the engine mount and steerable noseleg to former F2, after epoxying in place the packing piece of $\frac{3}{16}$ in. ply. Also drill this former for the throttle cable and fuel lines, as required. Now assemble and glue the fuselage sides to F2, securing with a strong rubber band so that they adhere precisely to the curvature of the bulkhead. (Use PVA glue for this and damp the sides if necessary).

While the glue dries, the tail unit may be made. The fin and tailplane are of similar construction—a strip balsa frame with diagonals, covered each side with $\frac{1}{8}$ in. light grade sheet. The rudder and elevators are from $\frac{3}{8}$ in. and $\frac{3}{16}$ in. sheet respectively, sanded to section.

When the fuselage structure is set, it is helpful to fit the undercarriage so that the assembly will stand upright. The main legs are made from 8g piano wire silver soldered to a sheet metal plate, as shown in the detail sketch on the plan. Now glue the fin and tailplane in place, making sure that they are true and squarely set.

Next, fit the fuel tank in the bay behind F2, and then cover the top and bottom with $\frac{3}{16}$ in. sheet. After fitting the cockpit floor (and painting and detailing to your taste) glue the canopy in place. My original was

moulded from thick acetate, having first carved a male pattern—but I expect you will find something to suit in your local model shop. Alternatively, it could be simply made in two parts, joined at the “frame” point, but without the curved outline.

To make the engine cowling, it is best to build it as two sides. Glue up a laminate of $\frac{1}{32}$ in. ply and $\frac{3}{16}$ in. balsa and strongly band it to a tin can or other suitable object, with a diameter of 3 in. Leave this to set thoroughly so that it dries with the correct curvature. Now cut the cowl side. Repeat this for the other side, cut a suitable aperture for the exhaust stack extension or silencer (depending on your motor/silencer arrangement), and glue the two cowl halves together.

The final operation is to make the wing seat, and to do this the wings are first bolted in place, but with strips of $\frac{1}{32}$ in. ply glued under them to the fuselage, as shown (F7) on the plan. A fillet is made under these, when dry, either of plastic wood or a mixture of balsa sawdust and epoxy.

Finishing

You will naturally cover this model in your own favourite material, so I will not presume to make any suggestions in this matter. Thanks to its semi-scale colour scheme, my own *Corsair* looked more like a scale model than a trainer—which is what

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I had been aiming at. The "camouflage" is not authentic, but comprises numerous attractive features "lifted" from a number of different prototypes. Again, it is up to the builder either to do some research on *Corsair* schemes—or simply use his imagination!

Installation and flying

First fit the radio equipment and push-rods, so as to bring the c.g. to the position indicated on the plan. The rudder horn is reached through the "tail-pipe" at the rear of the fuselage, the hole in F6 being sufficiently large for this.

If the c.g. is right and the rigging incidences correct (*i.e.* 0-0°) there should be no problems. If you have built the model with dihedral, then

fix the ailerons in place until you feel confident enough to try them. Then change over and use ailerons on the stick you previously used for rudder, leaving the rudder for take-off and certain aerobatics.

I won't venture to give advice to those who have built the model without dihedral, for aerobatic training, as it flies like most other aerobatic models.
