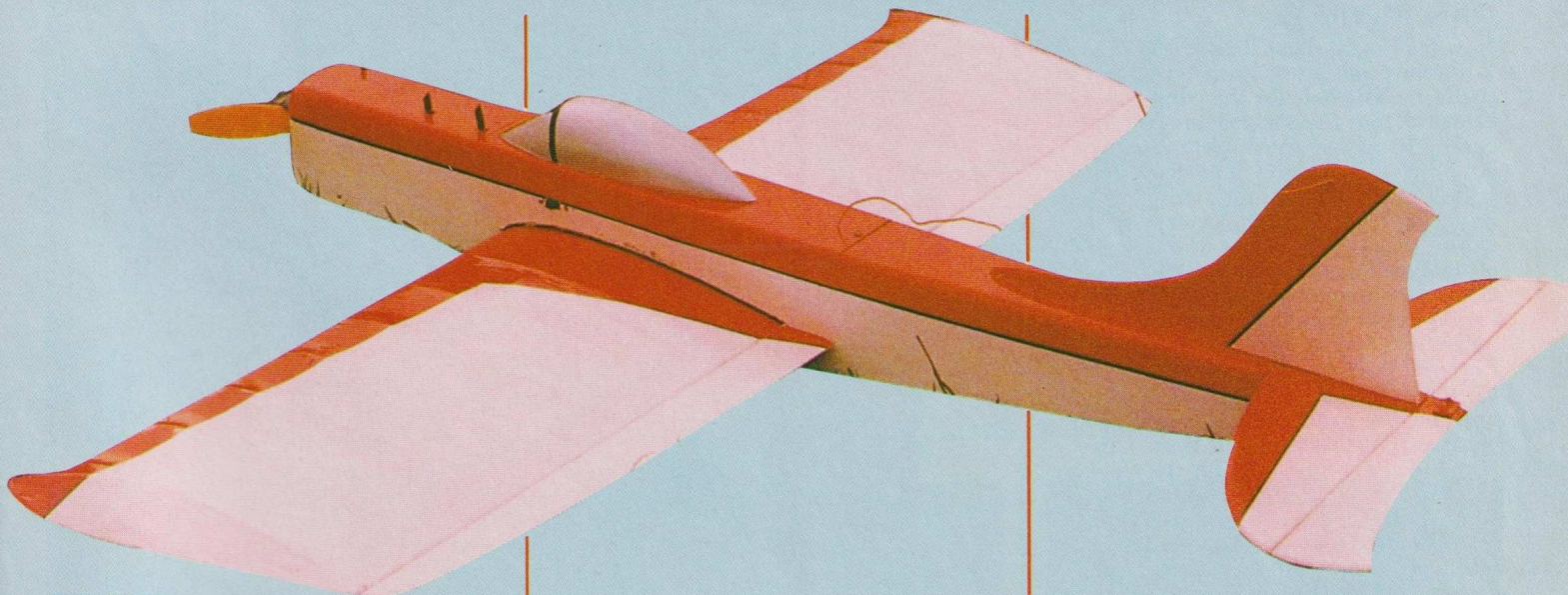


Your Full-Size
Sportster Plan!

FIREBIRD



My main reason for building any aeroplane is simply fun. I quite like building models that are different, especially if they are cheap and fun to fly. The 'Phantom Mite' I scaled up and converted to R/C ('Phantom Major', Nov, '87 issue) was more fun to fly than I had imagined and it really was nostalgic in that it was amazing how many people had flown the original C/L version. The largest portion of my C/L flying was with combat wings and I had always admired the lines of the 'Firebird' so it seemed a natural progression to convert one to R/C! I even debated whether or not to fit "flapperons" like a C/L stunter but as it will turn very tightly without, I think that I am glad I didn't bother.

In "designing" the 'Firebird' I left the wings and tail alone, enlarged the fuselage by about 50% and made the fuselage into a 2in wide box instead of a profile shape. The fin (which is only added to C/L models to make them LOOK like aeroplanes) was similarly enlarged. The end result is a model that weighs about 1/2lb more than the original but still about 4oz lighter than the R/C 'Phantom Major' despite being about twice as powerful! Performance is every bit as interesting as you might imagine!

Getting started

The construction of the 'Firebird' is very straightforward but caused a lot of

comment from friends who didn't think that I knew what a wing rib was. I used to build a lot of my aeroplanes that way once but I get bored cutting all those identical bits out. Nostalgia strikes again (I still find it boring!) Construction starts by cutting all those wing ribs out, by the way, making sure

Remember this

famous old Keil Kraft

control-liner? John

Rutter gives it a new

lease of R/C life!

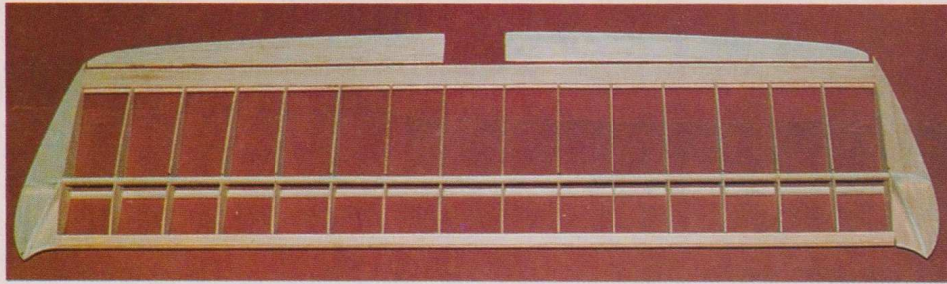
that the centre four ribs are smaller than the others by 1/16in to allow for the centre sheeting - at least there are no leadout holes to cut out! I seem to remember that the original 'Firebird' had split ribs so that the wing was built to top and bottom halves but I settled for pinning the bottom 3/16in spar to the plan and building the rest of the wing around it. The leading edge is unusual in that it is built up using 5/16in balsa strip (the widest my X-Acto stripper will cut) and 1/8in dowel.

The latter was an idea I pinched off a

glider guiding friend (thanks, Malcolm!) and it has proved ideal for giving a hard, constant radius curve that doesn't dent easily. It can be seen from the photos that the sheeting for the centre-section does not go right across; the radio gear goes in the "hole" in the middle and the sheet is cut flush with the inside sides of the fuselage when the latter is glued in place. The wing tips are an unusual shape but should give no difficulty in construction, the curve covers with nylon quite nicely.

I made what I feel was a mistake in covering the wing in nylon after I built the rest of the model. I think that it would be better covered once the wing is complete (servo bearers, etc., fitted) so that there would be no weak spot near the centre-section. I covered my wing with a single piece of nylon per panel wrapping it around the front and pinning it to the rear. The whole thing was then doped and painted with car touch-up aerosols when construction was finished. Ailerons were cut from 1/8in sheet, covered with lightweight tissue doped in place and centre-hinged with Mylar strip. Torque rods were 14g wire with my usual brass tube output arms (all done after the fuselage).

The tail and fin could hardly be easier; they were simply 1/8in sheet cut to shape and sanded to section. Again they were finished with tissue and dope and the elevator was hinged with Mylar. A commercial horn was used on the elevator.



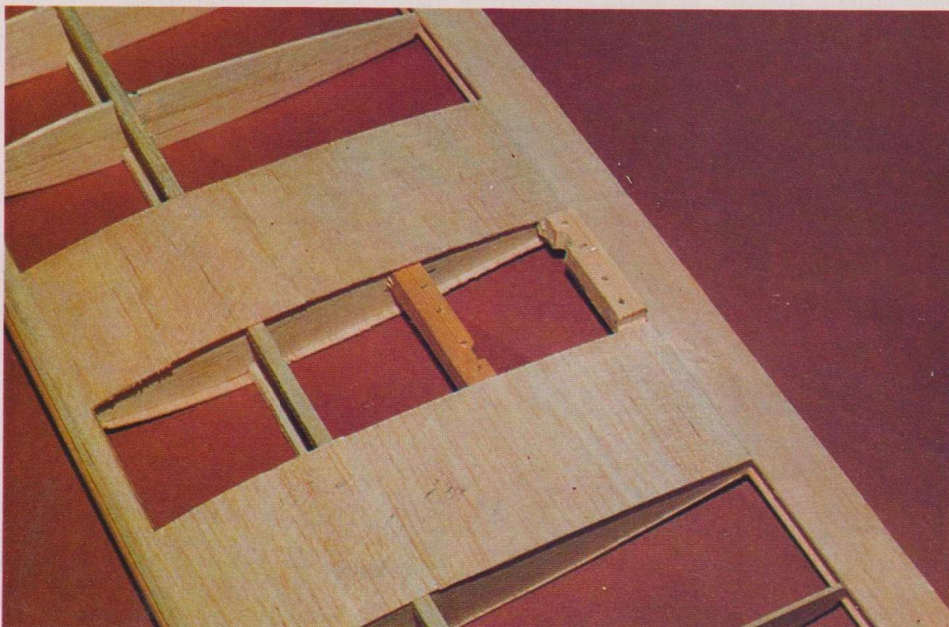
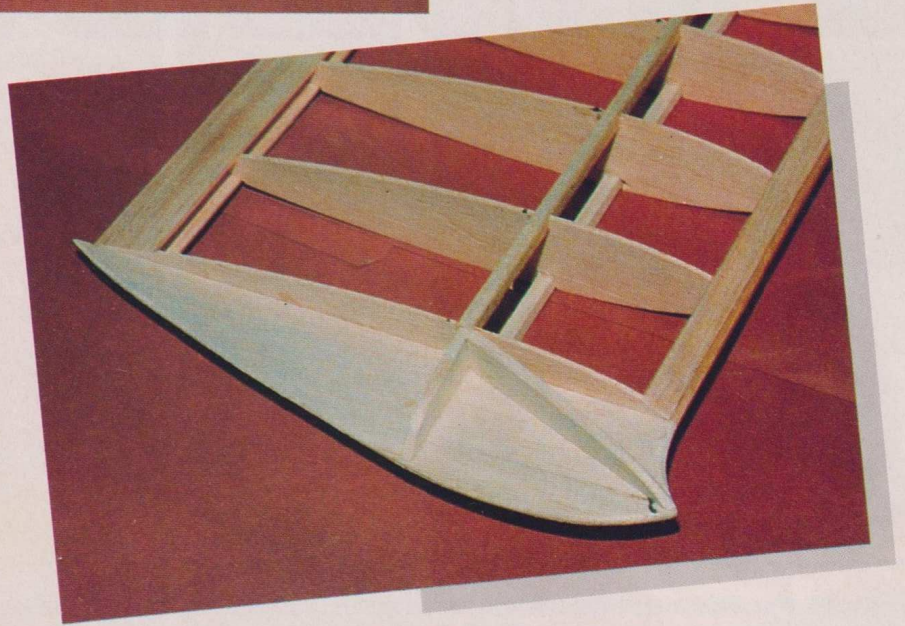
What could be simpler... or more satisfying to build? The **Firebird** wing utilises good old fashioned ribs and spar structure. Below, the wing tip is 'different': note the dowel. At bottom, hardwood servo mounts to carry a brace of standard-size servos.

On with the fus.

Now for the fuselage. The sides are 1/8in hard reinforced with 1/64in ply at the front. The hole for the wing has to be cut so that the wing is an accurate sliding fit to give the model maximum strength (it's a one-piece model if you hadn't realised it by now). Once I was happy with the fit of the sides over the wing I glued all the front formers to one of the fuselage sides, slid all the pieces in place, checked them for alignment and cyanoed the lot! The tail is then pulled in, checked carefully and also cyanoed. As the tail is simply stuck to the top of the fuselage, this can be done now too, but again only after careful checking. At this point the servos are reinstalled and the holes for the elevator pushrod cut out. I find 1/4in dowel ideal for the latter. Now is also the time for installing the ailerons. The rear of the fuselage top and bottom can now be sheeted with 1/8in, grain lengthways. Sand to shape and glue fin in place.

I used a "clank" of home construction and about 2oz capacity on my model and opted to build it in even though doing this is asking for trouble! Home-made tanks aren't too difficult to make from sheet tin, solder and a hot iron. Stock tin sheared from old oil cans is ideal. I used 3/8in triangular to reinforce the motor mount but forgot to fibreglass the innards which I had later cause to regret. I side-mounted my rear exhaust

diesel but 45 deg. may be a better angle for a side-exhaust glow. No throttle was used. I debated a lot about the nose shape. The chunky square shape is true to the original but hardly streamlined and is prone to damage. It would not be hard to fair the nose in to a 2in spinner and mine very nearly looked like that. It's up to you. The R/C gear is accessible via a top hatch which runs from just behind the tank bay to the back of the wing. This is held by a dowel at the



front, 3/8in triangular at the sides and a wood screw into a block at the rear. It seems firm enough. The canopy was home-made but a commercial type shouldn't be hard to find.

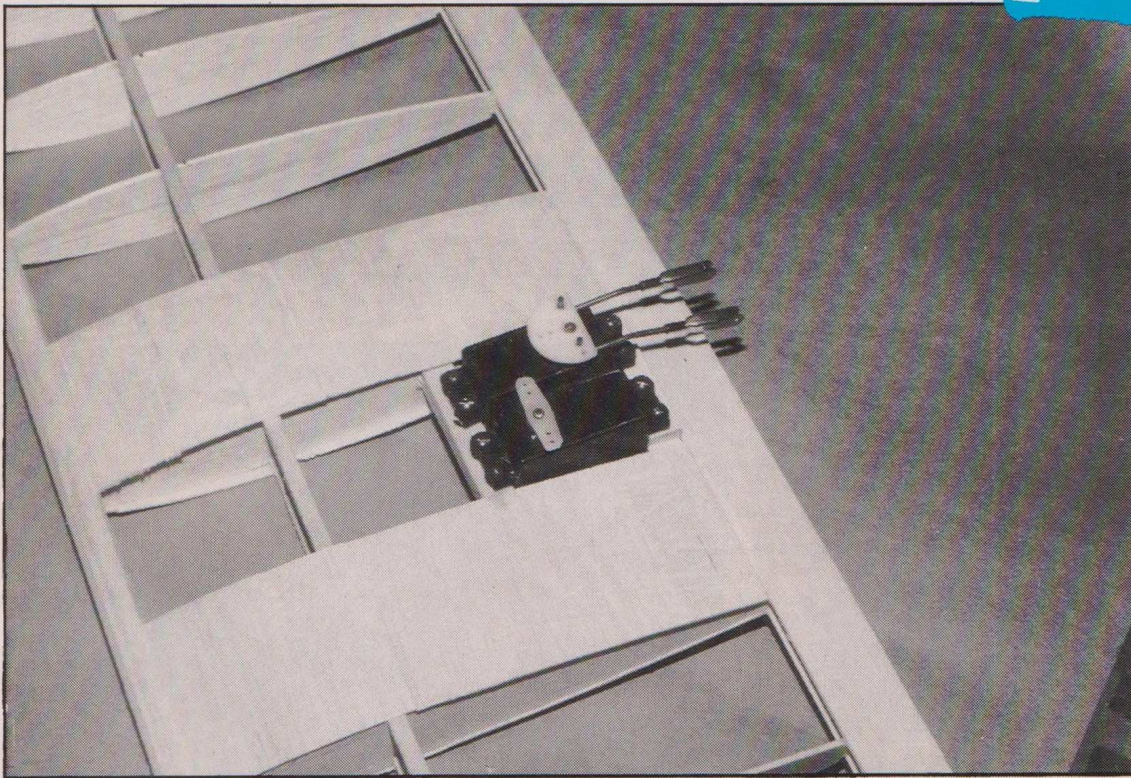
As mentioned previously, the finish was good old dope and cellulose which very nearly had me banned from the house (more nostalgia)! If you are using a diesel then you don't need any further proofer - if using a glow, you do. My car sprays caused the nylon to sag a bit but the model doesn't seem to suffer for it. The switch goes on the opposite side to the exhaust, of course, the Rx. and battery fit snugly between the spars and leading edge. I used a 220 mAh battery for only two servos but a standard 500 would fit. Check the control throws and directions as well as the c.g. (mine needed no lead at all, which is different) and off to the flying field.

Up, up and away!

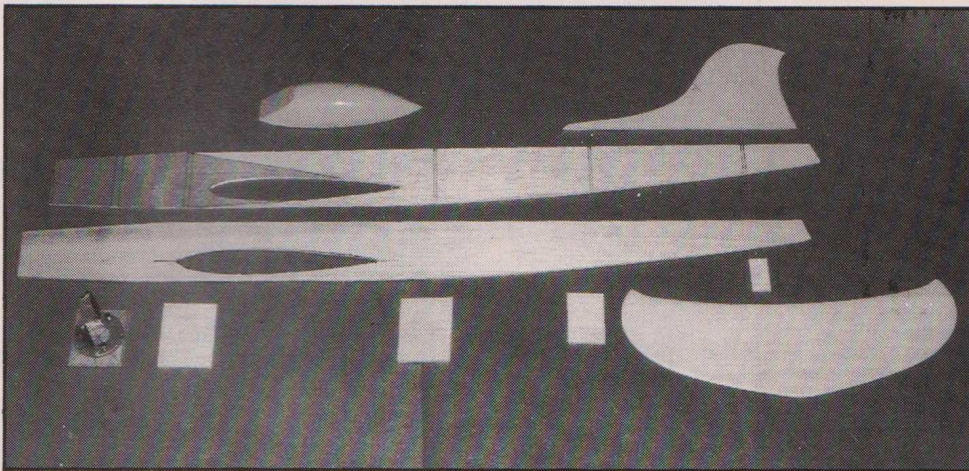
Now when my motor is feeling well, it's quite powerful (MVVS D7). It also swings quite a big prop, 8x6 is a quarter of the wingspan after all, and it "pulls" very well indeed. This being the case I launch the model by holding it around the back of the fuselage, hand on top, point it about 20 degrees up and gently push it underhand in the direction I wish it to go. As the motor winds up I then invariably pull it into my favourite sort of climb, straight up!

With a smaller/less powerful motor a shallower angle may be called for.

Your Full-Size Sportster Plan!



At left, servos in place in the wing; note centre-section sheeting. Below left, like most plan builders, John Rutter usually starts by cutting out a 'kit by bits' for the major sections of the model. Here are the main fuselage and tail parts ready for gluing. Below, the wing and fuselage assembly; note the space for the R/C gear in front of the metal tank, and mount. The tank was home-made and you may have to alter the former positions slightly if you use a commercial item. **Firebird** is moderately fast and highly manoeuvrable and John says it's never happier than when doing consecutive, tight inside loops... we wonder why!



Aileron response is quite lively without being as frightening as the 'Gripen' (April '87 issue) and elevator is smooth as well as being very effective. The model is not really very fast although it is no slouch, but it is extremely manoeuvrable, continuous tight manoeuvres with impressive acceleration out of them being the model's forté. My favourite manoeuvre is horizontal figure-eights like a control liner which the thing seems to do using circles of about 10ft diameter. The model will do these continuously or until you get out of step - at least with an R/C model this happens at a safe altitude! Inverted flight needs the merest touch of down elevator and the glide is superb. Controls remain effective in the glide and, given enough height to start with, I quite happily roll it whilst gliding down to land. The model does tend to float on, so landing can involve a walk until you get used to it.

Just one word of warning. The price of diesel fuel being what it is, I made up some "home brew" without nitrating it. Most diesels will run happily enough on such a brew but high performance diesels seem to run very roughly on it - so roughly, in fact, that my motor shed a prop in flight and so did my friend's Oliver Tiger Mk.IV on the same fuel. Breaking a model in mid-air can be funny but dangerous and a shaft run on an unthrottled motor can be expensive. Mind you, it speeded up the running-in process more than a little bit! (Yes, you can STILL buy Oliver Tigers if you can find the man.)

So there you have it, a model that is very compact, great fun to fly and if you use a diesel you only need a can of fuel, the model and a transmitter to have an afternoon's fun. Oh yes, don't forget the cloth to wipe the model down with - diesels are still as messy and smelly as you remembered them!

