THE QUIET ZONE

R/C SCALE ELECTRICS BY PETER RAKE

This month our columnist wrings the changes, to present his 18" wingspan

EASTBORNE MONOPLANE

with full size centre-spread pull-out plan

Yes, as a none too subtle reminder from our esteemed editor pointed out, it's time for another thrilling instalment of the world's favourite electric flight column. Well, it's MY favourite at any rate. The rest of you will just have to put up with it.

So, what have we lined up for you this time around? I had originally intended to continue with my look at what plans you could expect to see over the coming months, but I can do that any time. That being the case, and feeling in an exceptionally generous mood (quite unusual in itself) I began to think along the lines of summer being here, calm evenings and small, inexpensive models to take full advantage of them. Therefore I decided not just to talk about plans, but to actually turn this month's column into a brief construction article, complete with full-size plan. Two birds with one stone, so to speak. Not only does it make a potentially more interesting column, it also provides the publishers with a free plan to give away as a centre spread type feature. Actually, it's even better than that because this plan just happens to tie in nicely with what we were discussing a couple of months ago - it's perfectly suited to using equipment salvaged from a small RTF model. Being not too hard to build and reasonably easy to fly also makes it admirably suitable for those taking their first venture into building their own model to replace a foam RTF. Can things get any better than this? Probably not, but if you don't pipe down they could rapidly get a lot worse. I still have those other plans to talk about.

Orft we jolly well

Now if that doesn't date me, nothing will. The model we'll be looking at is my 18" span Eastbourne Monoplane. Just lately I've been getting more interested in what are termed 'micro' models, despite the fact that 18" is hardly micro in its truest sense. What it is, however, is the ideal size for utilising that salvaged gear I mentioned and for flying outdoors on nice, calm days or evenings. Since these models use up very little space to fly, virtually any area of open ground can instantly become a flying site. Sports grounds, local parks, even a very large garden all become fair game where these tiddlers are concerned.

When you also take into account how little storage space they take up, how cheap they are to build and how they so epitomise those rubber power models of our (my) youth they become a very attractive proposition indeed. And before anyone asks, yes, I can remember that far back. If I recall

CLIMBING AWAY FROM A HAND LAUNCH THE LITTLE EASTBOURNE HAS AMPLE POWER FOR SCALE-LIKE FLIGHT.

correctly it was some time between the extinction of the dinosaurs and the first Ice Age. Then again, maybe it just feels that long ago.

The Eastbourne is simply a reduced size version of my already very successful Speed-400 size design, so drawing the plans was a fairly painless exercise. The intention was to produce a smaller version, but retain the original's very pleasant flying qualities. Having thoroughly enjoyed building the model, and seen how nicely it flies, I think I may well have succeeded.

Let's get building

As a quick look at the plan will reveal, this is going to be a fairly cheap model to build. Even if you don't have a scrap box to raid, a little carbon rod, some small pieces of ply, a sheet of 1/16" balsa, another of 1/32" balsa and a few pieces of strip are all that's required for the airframe. Add in a sheet or two of tissue and you are looking at all the ingredients of a nice little model.

Since they are probably the easiest part of the model to build, let's make a start with the wings. Try to make sure that the spars, trailing edges and wingtip pieces are fairly hard balsa while the rest is 'medium' grade. Don't be tempted to use very soft balsa for the ribs because it's surprising just how much force-shrinking tissue can apply to structures. One of my ribs was on the soft side and has buckled quite badly as the tissue shrank.

Pin down the leading edges, trailing edge, tips and spars over the plan. Notch the spars to fit over the tips and glue as required. If you can avoid actually pinning through the wood, so much the better. Glue the ribs in place, ensuring that you use DH to set the angle of the root rib. All other ribs are upright. If in any doubt about how hard your root ribs are, add a narrow strip of 1/32" balsa to prevent them bowing as the tissue shrinks. I did this on my model by simply trimming the root ribs by 1/32" and gluing the sheet to them after the wings were set and removed from the board.

Trim and sand overall and you have a pair of wings awaiting the addition of rigging tubes (I used aluminium tubes), covering and locating dowels gluing in place. That was pretty painless, wasn't it?

Getting back to it

Okay, so it's a pathetic section heading. I couldn't think of anything better to say about the tail surfaces.

Absolutely the hardest part here is laminating the outlines. Cut yourself some 1/32"x1/16" strips of balsa and put them in water to soak. While they're soaking cut some templates to laminate around (I used Depron) and wax the edges to prevent the laminations sticking. Pin down the templates and mop off any excess moisture from your soaked strips. Glue the strips together using white glue (woodworking glue) and carefully pull the still wet strips around your formers. You could just use pins to hold them, but I prefer to pack them in place using scraps of balsa - it avoids risking grooves in the wood where the pins have cut in. Allow the glue to dry completely before removing the laminations from the formers.

Pin down the outlines over the plan (again avoiding pinning through them) and build the tail surfaces from strip balsa. Although the plan shows sewn hinges, I actually make 1/8" wide strip hinges from an old floppy disc with the magnetic coating roughened. Good if you have a floppy disc but sewn hinges work just as well if you don't have the disc. Either way, hinge the surfaces after they are covered and doped.

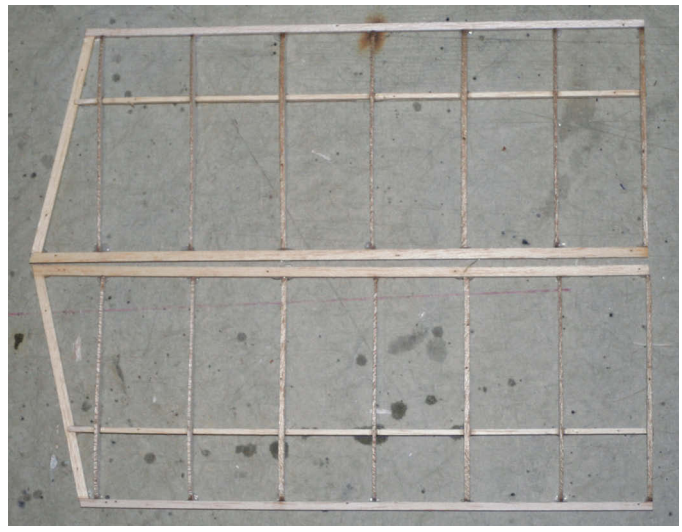
Sand overall and your tail surfaces are complete and ready to cover. Control horns will be fitted during the installation stage.

It's a body

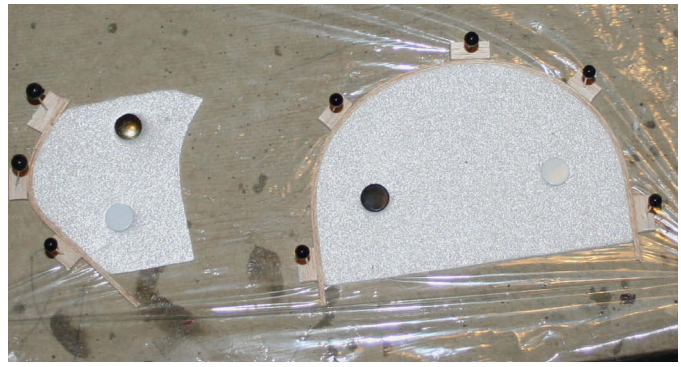
No, nothing dead and smelly, just time to build the fuselage. Begin in the time honoured tradition of building two side frames - one atop the other, suitably separated by some cling film. Be sure to use the hardest balsa you can find for the longerons.

While these dry, be making up the carbon rod assemblies, particularly the upper pylon attached to F2A. The others could be made later, but you'll need F2A, complete with pylon in order to add the top decking. Once the binding (ordinary cotton thread) and CA reinforced joints are dry, put them somewhere safe until you need them.

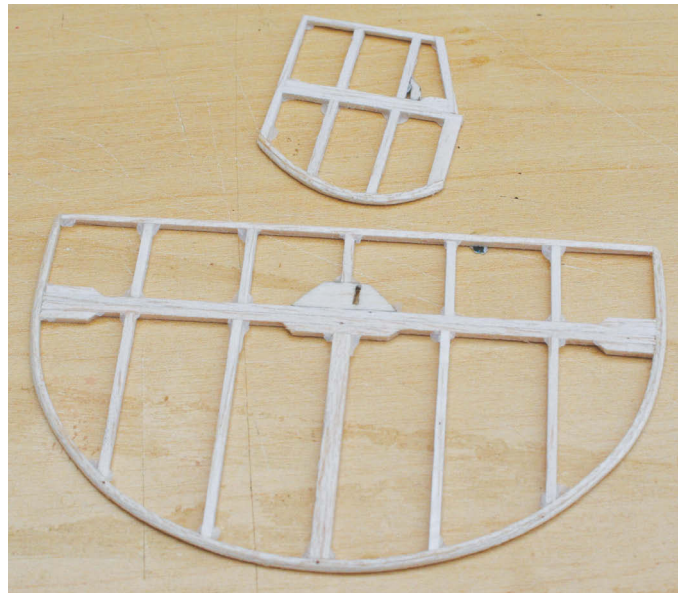
Mark the inside of each side frame with the positions of M and F2 and score a shallow groove where the nose and tail break inwards. Crack



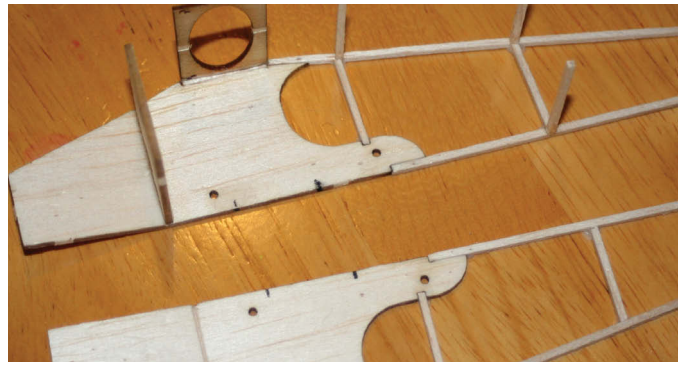
Honestly, wings don't get any easier than this. Just some sanding and fitting rigging tubes to go.



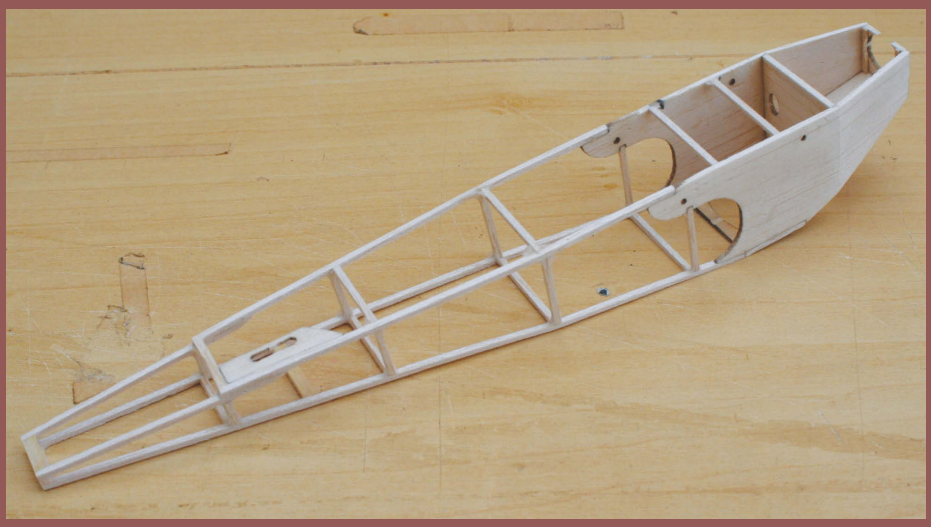
Laminated outlines pinned to the boars and drying. Once set they are surprisingly strong.



The completed tai surfaces sanded and ready to cover.



UC F2 and some cross braces added to one side. Note the score mark where the sides crack in to the nose.



The basic fuselage just needs the motor and decking fitted before finish sanding takes place.

these positions as indicated and join the sides using F1, F2 and the cross braces. Don't fit M at this stage. Reinforce the cracked areas with a small fillet of glue. Add formers F2A and F2B and carefully sheet the deckings, working around the pylon.

Glue your motor unit into M and work it into the fuselage so you end up with 2 degrees of down and right thrust on the motor. Once satisfied with the angles, glue M securely into the fuselage. Trim part N to fit around the gearbox and glue that in place.. Sand the fuselage overall and that too is ready to cover.

Covering and installation

My model is covered using lightweight Esaki (Jap tissue), printed on my computer and applied to the model using a common glue stick (Pritt). The tissue is applied as wrinkle free as possible and the glue left overnight to completely dry. Then the tissue is water shrunk until there are no wrinkles remaining. The wings need to be pinned down flat during the shrinking stage. Once happy with the covering I applied 3 coats of heavily thinned dope - about 30/70 dope to thinners.

At this stage, only the top and sides of the fuselage are covered so that I still have access for installing the radio gear.

Over-length pieces of carbon rod have a wire Z-bend fitted to one end and these are fitted to the 'brick' servos. One piece of carbon was made much longer than the other, so that it could easily be fed through the exit plate before the other piece came anywhere near to poking holes in the covering. Only having one pushrod at a time to worry about simplifies this task no end. Feed them into place until the receiver brick can be slipped into the fuselage, then glue the brick to UC using Uhu Por. Be VERY careful not to get glue anywhere near the servos. Those exposed gears don't take much to prevent a servo serving. Don't forget to plug the motor into the receiver the right way round.

Now you can trim the pushrods to close their intended length and slip on the remaining Z-bends - but don't glue them yet. Cover and dope the fuselage underside.

Assembly

Fit the wings using a small amount of five-minute epoxy, and pack them to ensure equal dihedral. Use this assembly to ensure accurate alignment of the tail surfaces. Slip the control horn onto the pushrod ends and glue them into the control surfaces. Now centre your servos and adjust the pushrods until the control surfaces are also centred. Add a spot of CA to lock the wire ends in position on the carbon rods and trim off any excess rod.

Fit then undercarriage and lower pylon and add the rigging to your model. Although not absolutely essential, it does add a great deal of rigidity to the wing/fuselage join.

The wheels on my model are just some I had lying around, but any approximately correct size, lightweight wheels will do - mine weigh 2.5 grams for the pair. The dummy engine is nothing more than the end of a lip-gloss tube (the wife's, not mine) and some Peck cylinders. Not quite correct, but it looks the part at a distance.

Balance the model as indicated (just a hint nose low) and you are ready to commit aviation. I used an ex helicopter battery in my model so that I could use the correct weight battery to achieve balance, rather than adding dead weight. Finished weight is just a touch over 30 grams.

Flying

Just like the bigger model, the micro Eastbourne has proved to be a smooth, stable flier. Small and light enough to be flown at large indoor venues, mine has only been used outdoors. Our hall is quite small and I like the model too much to risk it in such restricted surroundings.

Posing in the great outdoors (actually it's on top of our bins) the little Eastbourne shows of its' simple but attractive lines.

Drifting gently by overhead the little model really is quite easy to fly. I use elevator only to adjust trim, and motor controls ascent/descent.

Because of the angles involved elevator throw is quite limited. However, it was only ever really intended to be a 'trim' function. A longer horn and making the pushrod exit from the fuselage bottom should remedy that for those who want a looping Eastbourne.

Power is adequate for normal flight and there is a small reserve for those less than totally calm days. Indoors there will be ample power from the AEO 7 mm unit and GWS 4.5x3 prop.

Next time I promise we'll be back to a more 'normal' column. In the meantime, if you want to contact me, you'll find me at PETERRAKE@aol.com ■

The concrete lends scale to the model. This shot clearly shows the reinforcing at the wing root and the buckled rib on the far wing.