



Doing what she does best
- Popsy stooges around
gently on a clear, calm day.

The Light Fantastic

For smaller-model afficianados...

You'll very quickly learn - or else stop reading the column - that things don't always work out quite the way I had intended. Just such is the case this month. Originally I had intended to build and describe my Nieuport 11, but at the last minute had a change of mind.

I felt that, instead of plunging straight in with a scale model, albeit a profile scale model, something a little less complicated might be a good idea. Popsy, the model we will actually be looking at, uses many of the techniques used in the Nieuport, but would, I hoped, be somewhat easier to build and fly. So, let's dive in and see how it all works out.

Decisions, decisions

A quick glance at the drawings, and comparing them with the actual model, will reveal that I used much lighter radio gear for my model. Whilst it will work perfectly well with the Vapor equipment shown, I just wanted to use gear I needed

to test out fitted to a model. So, the first decision you need to make involves what gear you fit to your model. The history of this model proves that it doesn't have to be 3-channel. The original model, from which this one is derived, actually used salvaged 2-channel gear and flew perfectly well on just rudder and throttle control. Not only did it fly well, it was quite durable too. Having chopped a rubber power model in half, it proceeded to carry on flying as if nothing had happened - one of the hazards of a crowded flying venue and precious little organisation.

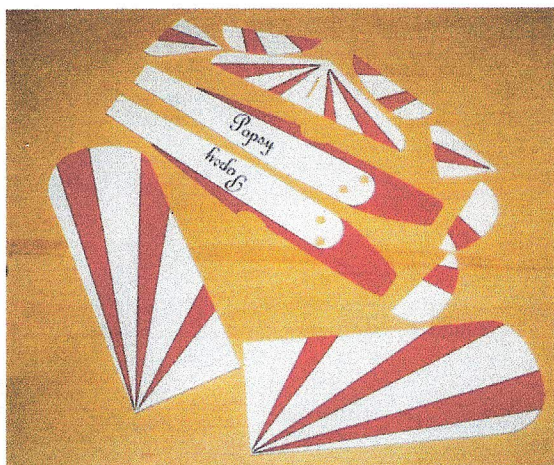
As you can see, that little piece of information, the one about 2-channel flight, not about savaging rubber power models, demonstrates the versatility of the model and opens up all manner of possibilities as regards what equipment you fit. I'm quite confident that you could even fly it single channel, controlling only throttle - that remotely controlled free-flight scenario I mentioned last time.

So, as long as you have some reasonably lightweight equipment; anything from a Vapor brick down, you can successfully equip this little model.

More decisions

Not only do you have lots of scope regarding how you equip your model, just exactly how you build it allows for plenty of personal choice. As you see, my latest model uses printed 1mm Depron, but there are other options. Most obvious is to use plain Depron and decorate it after the model is built - then again, you could cover your model with printed tissue.

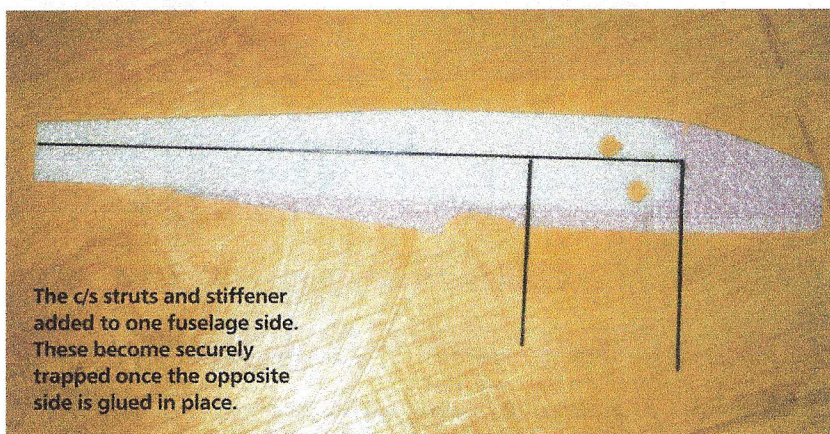
This latter option is actually quite close to how the very first Popsy was finished (yes, the one that was the scourge of rubber power models!). I used printed tissue to cover that one for a very good reason, it was a built up balsa model that used a flat plate wing. Therefore, if you prefer cutting balsa



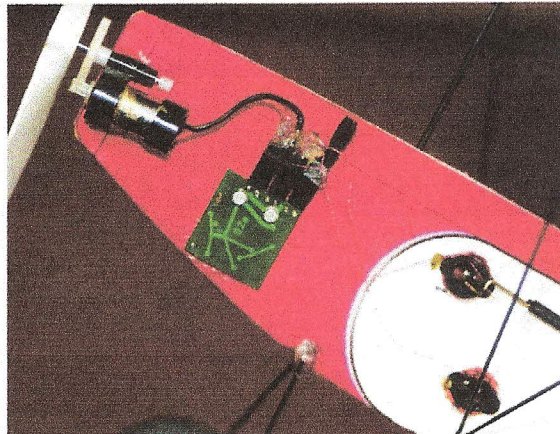
All the ready printed parts cut out and awaiting the addition of some glue to turn them into a model.



How the wing panels are curved, should you wish to go that route.



The c/s struts and stiffener added to one fuselage side. These become securely trapped once the opposite side is glued in place.



A shot showing how I mounted my motor and actuators, and a typical pushrod end.

to hacking foam, simply substitute the shapes for open framework structures made from 1/16" balsa strip and sheet – with a little 1/32" balsa used to laminate the curved outlines. The wing section can be curved or flat plate, the covering can be anything you like (although Solartex might be overkill) and how simple (or intricate) you make the finish is entirely a matter of personal taste.

Oh yes, with this type of model there simply is no 'you must do it this way'. As long as you stick within the basic design parameters, pretty much anything goes. In fact, Popsy is so cheap to build, no matter how you build it; it might even be worth building more than one to try out the differing techniques, control set-ups and wing styles. Not quite a model for all seasons, but definitely heading in that general direction.

Getting down to it

Although we will, as the column chugs along, look more closely at other styles of construction and control set-up, for the time being I'll stick with this model as it now stands. Yes, what equipment you decide to use is up to you, but for the sake of simplicity here, I'll assume it will be 3-channel and control rudder, elevator and throttle.

Okay then, no matter how you intend

to decorate your model (I'm perfectly happy to supply the .pdf files if you want to use printed foam) construction will remain the same. Personally I don't like CA adhesive for these models. It's relatively heavy and dries quite brittle. For all 'smeared' joints (like joining the fuselage and fin/rudder halves) I used RC Modeller's Glue, although Canopy Glue would work just as well. For joints I wanted to grab instantly – like joining the wings – I used Uhu Por. Spread a thin coat on each part, allow to almost dry and bring the parts together – CAREFULLY.

A warning...

Be very careful not to use RC Modeller's Glue around actuator wires. I used some to reinforce and insulate where they are soldered to a plug. Having left it to cure, I picked up the actuator and gently tested the wires – they separated level with the glue. Looking closer at the instructions (you know the old adage about if all else fails) I spotted mention of an etching agent. Now that may well be useful for gluing canopies in place, but is not such a good idea around single strand wires, whose only protection is a coat of lacquer. For these tasks, use Uhu Por, or extreme caution.

The build

Although the photos tell most of the story, I'll attempt to explain how the model goes together and how, or why, I did certain things.

The first step is to glue the carbon rod struts and stiffener onto the inside of one fuselage side. Use RC Modeller's Glue (a thin coat on each piece of carbon) and allow to dry. The precise location of the stiffener is unimportant, as long as it doesn't get in the way of anything you might need to fit later. It's also worth fitting the lower rudder hinge at this stage, so that too will be trapped between the sides. Hinge material on my model is the cellophane wrapping from a cigarette packet. It's light, free and provides very flexible hinges – actuators need an absolute minimum of resistance from hinges.

Once that's all dry, smear a very thin coat of glue onto the entire inside of the other fuselage half and carefully align the two sides. Weight down onto a flat surface and allow to dry. Repeat this process for the fin halves, once again trapping the cellophane hinges. You can perform a similar task with the rudder halves if you like (it's easier to align accurately at this stage) but don't join the bottom parts. You need to get the fuselage mounted hinge in there and you

equipment shown is ex Vapor
any similar items may be used

trim nose to suit
motor used
and mounting method

lightweight wheels

BALANCE

1/64 ply horn

0.6 mm carbon rod pushrods

0.8 mm carbon rod
trap between sides

all foam parts are from 1 mm Depron
fuselage and fin/rudder are double thickness

1" dihedral

0.8 mm carbon rod
trap between sides

0.6 mm carbon rod
brace struts

bind apex of u/c with fine wire
glue with CA

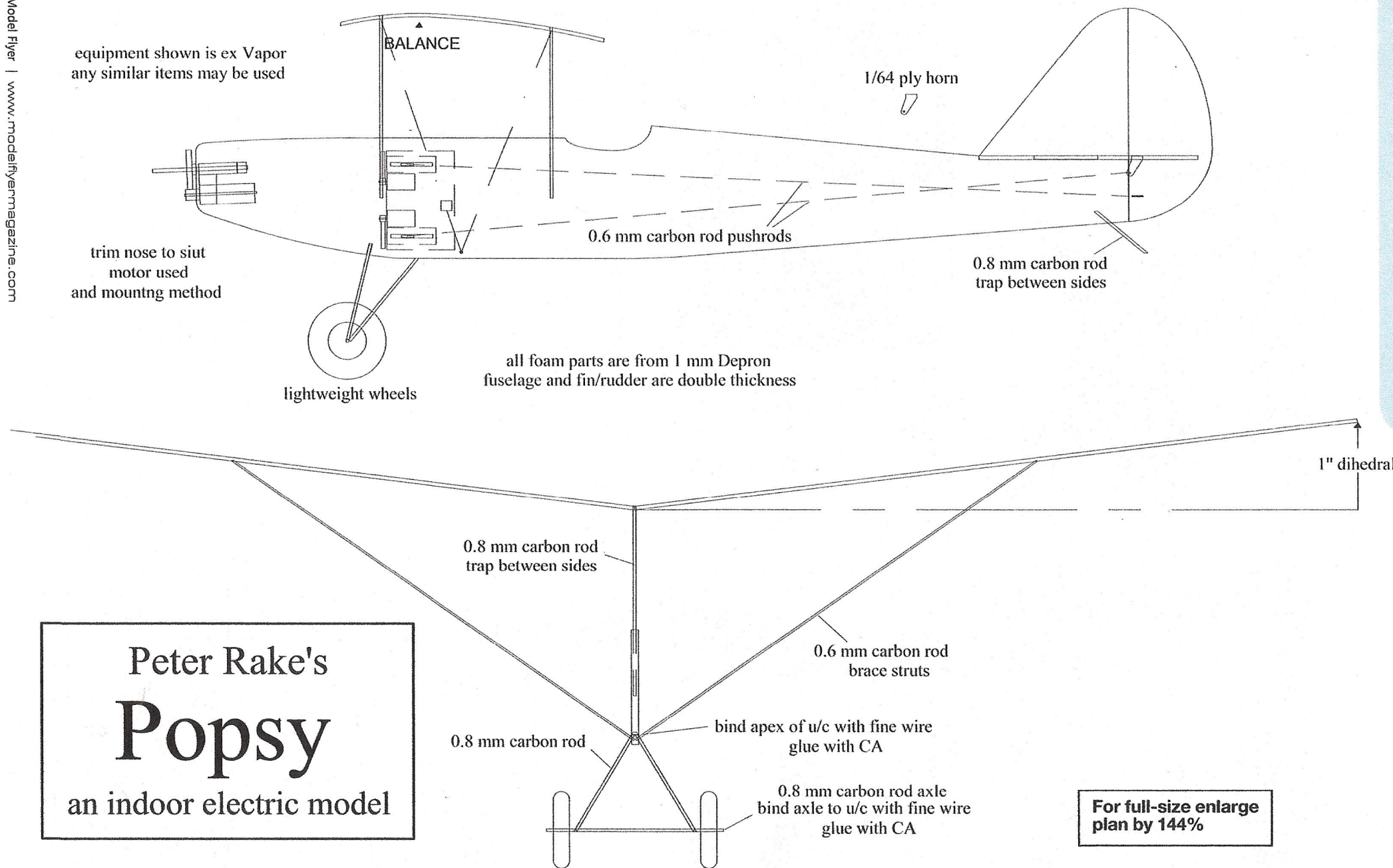
0.8 mm carbon rod axle
bind axle to u/c with fine wire
glue with CA

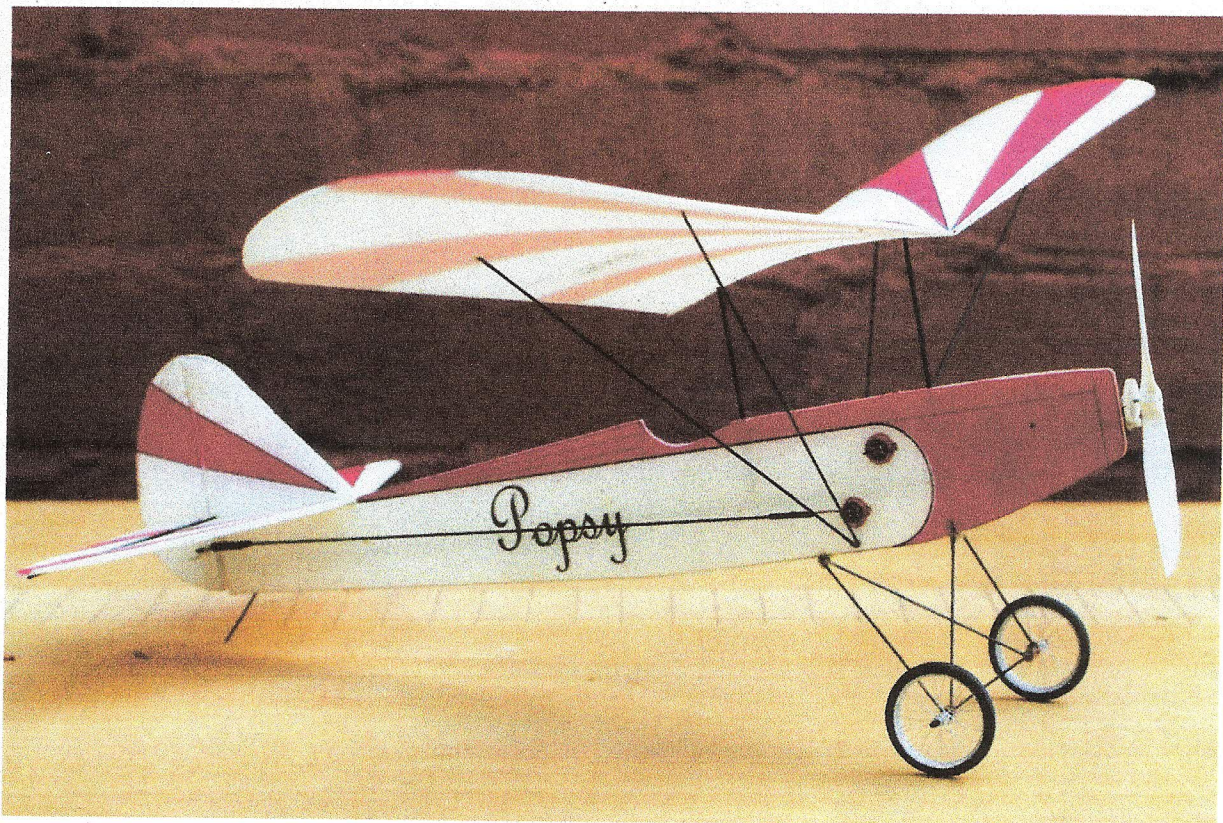
0.8 mm carbon rod

Peter Rake's Popsy

an indoor electric model

For full-size enlarge
plan by 144%





Pretty as a picture, Popsy is all ready for the next calm day or indoor session.

can't do that until the tailplane/elevators are fitted to the model.

If you're looking for something to do while that little lot dries completely, there are two jobs left before we need to start assembling the model.

If you want the curved wing, shape the panels by drawing them over the rounded edge of a worktop. Trim the centres to provide a close fitting joint at the correct dihedral angle and apply a thin coat of Uhu Por to each wing root. While that goes tacky, join the elevators to a carbon rod. I show a short joiner, but actually used a full span joiner on my model. RC Modeller's Glue works well for this job.

Now that the wing roots are almost dry, carefully bring them together and apply light pressure to ensure a good joint at the correct dihedral. Drill the strut holes and leave everything to dry thoroughly before continuing.

Right then, if all went according to plan, you should be looking at a straight, joined fuselage with a rudder hinge sticking out at the back, a pair of joined wings and a ringed fin/rudder, with the bottom of the rudder still in need of joining. If you aren't, then one of us has got something badly wrong – and it isn't me.

Now, before there are any struts in the way, is a good time to install your chosen radio gear and pushrods. The only thing you need to be aware of is that magnetic actuators need BRASS pushrod ends, so they don't interfere with the actuator's operation. Steel wire in the vicinity of magnets is not a match made in heaven. Pushrods are nothing more complicated

that carbon rod with a wire Z-bend at each end. Heat-shrink tube holds the wires in place until you have precise lengths worked out and then a spot of CA secures it. Just keep the CA away from the foam AND the actuator. It'll melt the foam, and a locked solid actuator is of no use to anyone.

I used tiny spots of glue to secure my actuators, and Uhu Por to mount the receiver to the fuselage. The motor is simply glued to the fuselage side without any cut-out, because that keeps the nose that much more rigid. It could be glued into a slot, but I chose not to.

Assembling the beast

So, you now have all the parts as complete sub-assemblies. You have joined wings with strut holes drilled a hinged tailplane/elevator assembly, a fuselage with radio gear fitted and a partially hinged fin/rudder.

Begin bringing them all together by gluing on the tailplane assembly. Ensure it's aligned accurately and allow to dry before adjusting the linkage and installing the control horn.

Apply some glue to the gaping end of the rudder and the slot into which the fin will fit. Trap the remaining rudder hinge in the rudder and glue the fin into its slot. Once again, allow to dry completely before fitting and adjusting the linkage.

With the easy stuff out of the way, let's take a look at the u/c. The precise length of the u/c legs isn't too important, just so long as your prop clears the ground. Make up a couple of V assemblies from carbon

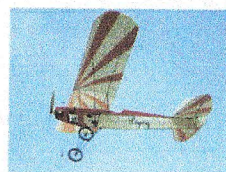
rod as directed on the plan and glue them to the fuselage with small spots of epoxy (it reinforces the surrounding foam). The front legs glue into the fuselage slot and the rear ones just glue to a convenient area of lower fuselage. Bring the ends of the two assemblies together, bind, glue and fit the axle. Fit your wheels (the spoked wheels on my model cost almost as much as the rest of it put together) and use a couple of short lengths of heat shrink tube to retain them. That wasn't too arduous, was it?

Glue the wing onto the c/s struts and carefully cut yourself two sets of matching brace struts. Glue the braces in place, check that the wing is correctly aligned and sit back and admire Popsy. You now have a finished micro model.

Balance the little girl at the point indicated so she hangs just slightly nose down, charge your battery and await a calm day to have some flying fun. If you are flying outdoors, I can't over stress the need for a calm day. Indoors, of course, they're all calm days.

Flying

As you'd expect from such a light model (mine weighs slightly over 0.5 of an ounce), slow, gentle circuits are what she does best. With a bit of work, Popsy can be persuaded to loop and do stall turns, but just remember how lightly mounted that wing is. The wing would almost certainly survive separation, but it's unlikely the fuselage would fare quite so well! ☺



I couldn't resist another shot of the model cruising gently past.