

PHOTOS BY AUTHOR

THE PARAGON

BY ED FRANZ . . . Hand launch glider is a tough event; the quality and quantity of competition is high. This glider can literally put you on top.

• Hand launch glider competition here on the West Coast is probably the toughest you will find anywhere. As an example, at a recent contest in Sacramento, Steve Geraghty had six maxes and came in second! If that isn't tough competition, I don't know what is.

The newest entry into these contests is my Paragon. The Paragon, while being fairly easy to build, has all the performance you will need to hold your own at any contest. It was designed to be thrown super high, and still be able to ride any lift available. Like all high performance gliders, it is equipped with a D.T. On all of my gliders, I now use a pop-up stab D.T. I have found it is the safest way to get your glider back.

Now that you have read this, and are thinking of all the other gliders you have built, why don't you try a Paragon and see what you have been missing? You will not regret it.

CONSTRUCTION

WING: Find some nice, light wood for the wing. If you are lazy like I am,

try to find some light, Sig, four-inch tapered stock. If you can find some, you have a lot less carving and sanding to do. If you can't find any, or you like to carve and sand, glue some one and three-inch stock together with Titebond. Pin this down to your workbench and let dry. I usually do this in the evening, and let the wing dry over night.

When dry, mark the wing outline and dihedral joints on the bottom of your wood. Cut out wing and block-sand the leading edge flat. Now you can glue on the spruce leading edge with Titebond. Pin down to your workbench and let dry. It is worth the extra work to put it on, as it keeps the leading edge from getting all nicked up.

Before you start to carve the airfoil, let me say a few words. The airfoil on the plan is the one most people use. You can use that one, or you can use the one I use. On my gliders, the high point of the airfoil is at 25% of the cord, and the leading edge, instead of being sharp, has a 1/16 radius. I prefer this airfoil,

The author/designer with one of his Paragon hand launch gliders. It's easy to build.

I think it has a little better glide than the other. However, use what you wish.

Now carve down your wing, thinning out the tips to about 1/32. Carve and sand the wing until it is fairly smooth, then put it aside until time to finish.

STAB: Find yourself some light B grain wood, making sure that it is warp free. Cut it out and sand to shape. Airfoil it slightly; also thin out to the tips. Now you can mark the separation line on the bottom of the stab. Put the stab with the wing, and start on the rudder.

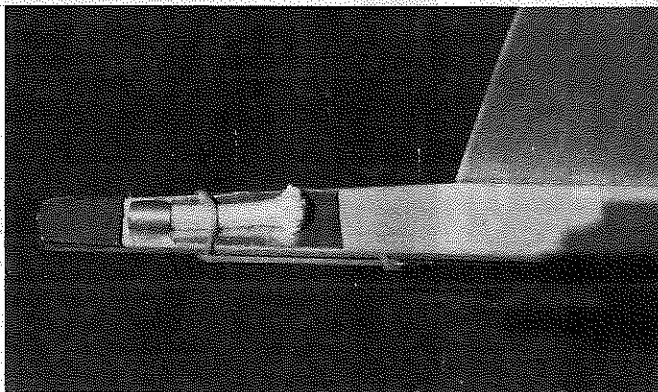
RUDDER: Use the same wood as you used for the stab. Cut out and sand to a symmetrical airfoil and put aside.

FUSELAGE: Find the hardest balsa wood you can; needless to say, it should be warp-free. Cut it out, and taper the back of the fuselage to about 1/4 x 1/8. Don't bother to round off the corners too much, as it weakens it and does not save much weight.

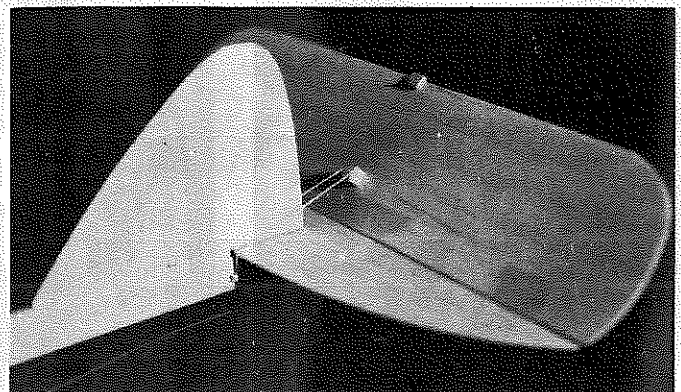
Now let's finish all of this raw balsa.

FINISHING

WING: I have tried just about all the finishes around. I have settled on four coats of thinned nitrate dope. Now I know some of you will say that I don't use enough dope, but I think that the



Nose of glider, with DT ready for lighting. Metal shield prevents damage to fuselage from burning fuse. Note snuffer tube.



Other end of the DT set-up. Kick-up portion is hinged with invisible mending tape. Travel limited by knot in line.

unfilled grain acts as a turbulator. All I know is that the gliders glide good enough for me, and they get as high as any other glider. Case closed.

It is best to finish the wing totally before you cut it apart. This way, you can use the sanding block all the way to the end, and there is less chance of gouging the wing.

When your wing is dry, and sanded smooth, you can cut it apart and put in the dihedral. Don't forget to cut in the wash-in on the left panel. It is important, if you don't want your plane to spiral dive in a hot thermal. Use five-minute epoxy for the joints. When all the joints are dry, put the wing aside once more.

STAB & RUDDER: Give both parts one coat of thin dope, and sand smooth. Now you can cut apart the stab and hinge it. I use Scotch tape. It holds just fine and is cheap.

FUSELAGE: Give it two coats of dope, and sand smooth.

FINAL ASSEMBLY

First glue on the stab. I use Titebond for this. You could use Hot Stuff if you are in a hurry. Be careful not to glue down the rear of the stab. Once it has dried, glue on the rudder, making sure it is straight; a crooked rudder is a death wish! When that is dry, glue on the wing. Use five-minute epoxy for the job. I hold the wing and the fuselage in my hand while they are drying. Make sure everything is straight, or you will have problems later when you go to trim out the plane. Now glue on the

finger rest. Find a dowel that fits your finger, wrap it with sandpaper, and sand out a finger rest that fits you well. I use one of 1/4 inch trailing edge stock; it is already tapered, so you only have to do a little sanding. Now you can hook up the D.T. As you can see from the plans, there is not much to it.

One thing not shown on the plans is an 1/8 square of plywood where the ten-pound monofilament comes through the top of the stab. Epoxy the monofilament to the plywood and not the balsa, if you don't, the monofilament might pull through the balsa.

Pop-up the stab to 45°. That has proved to be the best angle for a safe and quick D.T. Make sure the stab pops up every time. There should be no problems hooking up the D.T. If there are, just keep looking at the plans and the pictures, it should be clear. If you still can't figure it out, you're beyond help! Add on the snuffer tube and aluminum plate and add lead to balance... epoxy all of these on. Now that you have finished your Paragon, let's go out and fly it.

FLYING

Try to do all test flying on a calm day, you can't tell much on a windy day. Try a few test glides. It will most likely glide straight. You will have to give it a lot of left rudder (*what about the "death wish"?* wcn) to get the turn... you will think you have too much rudder, but trust me. Now try a low power throw, the straighter up you can throw, the better. What ever you do, don't

throw side-arm. Let me explain. Under a high-power launch, the stab lifts a little and gives a good power pattern if thrown straight up. If thrown side-arm, it does a nice roll into the ground. All of mine have flown right off the bat. The only adjustment ever needed was about 1/32 of up elevator. If the glider looks like it's spinning in a thermal, take out a little bit of rudder or add a little wash-in.

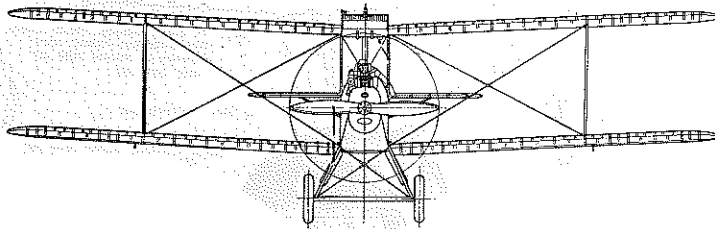
A FEW WORDS OF WISDOM

No matter how good your glider, it won't max without a thermal... not even a Paragon can do that. If you have any hope of winning a contest, you will have to learn how to pick thermals.

And the only way to do this, is to practice. Get out and practice all you can in all types of weather. Contests are rarely held on warm, windless days. If you only practice on warm windless days, you are going to be in a lot of trouble on a cold, blustery day. Like they say, practice makes perfect, so practice, practice, practice!!!

Drop me a note, care of **Model Builder**, and let me know how you are doing with your Paragon. Special thanks to all my friends who helped me get this article together.

Good luck with your Paragon, and remember my slogan, "Paragon, the shape of things that max." Thermals! ●



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