

Pinna Flyer Mass Launch Contest:

One day I got a call from Steve Dona and we got to talking about how much fun we had with the FP-11 catapult glider mass launch contest that we recently had at the Meadowbrook Farms field and how fun it would be to do the same thing with a simple rubber powered model, such as the Delta Dart or Mountain Lion. I mentioned to Steve that I had recently watched a build and fly YouTube video on the J&H Aerospace website about a cute little stick and tissue model called the Pinna Flyer and that it would climb like crazy.

Steve watched the flying part of the video and was very impressed, so he asked me to contact Joshua Finn of J&H Aerospace and see if our club could buy this model in bulk form at a considerable price reduction. I did just that and Joshua made us an excellent deal on 20 kits. I had Dave Cassell, the club treasurer, purchase 20 Pinna Flyer kits using the club's debit card. When they arrived, I individually packaged each one.



Pinna Flyer kits (19 total kits shown) neatly bagged by yours truly (that would be me).

Each kit contains the following:

1. One laser cut motor stick (the old two-piece motor stick is no longer used).
2. One 1/16" thick by 3" by 11.5" balsa sheet of laser cut parts.
3. One 1/16" thick laser cut plywood sheet containing tailhook and dihedral brace.
4. One 6" black propeller assembly (same unit used on the Peck Polymers R.O.G.).
5. One small piece of clay for balancing the model.
6. One 72" length of 1/8" wide Tan Super Sport rubber.

7. One 0.01" thick cardstock sheet containing trimtabs for rudder, stab and wings.
8. One sheet of 0.5 gm/sq ft produce bag material.
9. One sheet of pre-shrunk domestic tissue paper.
10. Instruction sheets with the web address for the build and fly YouTube videos.

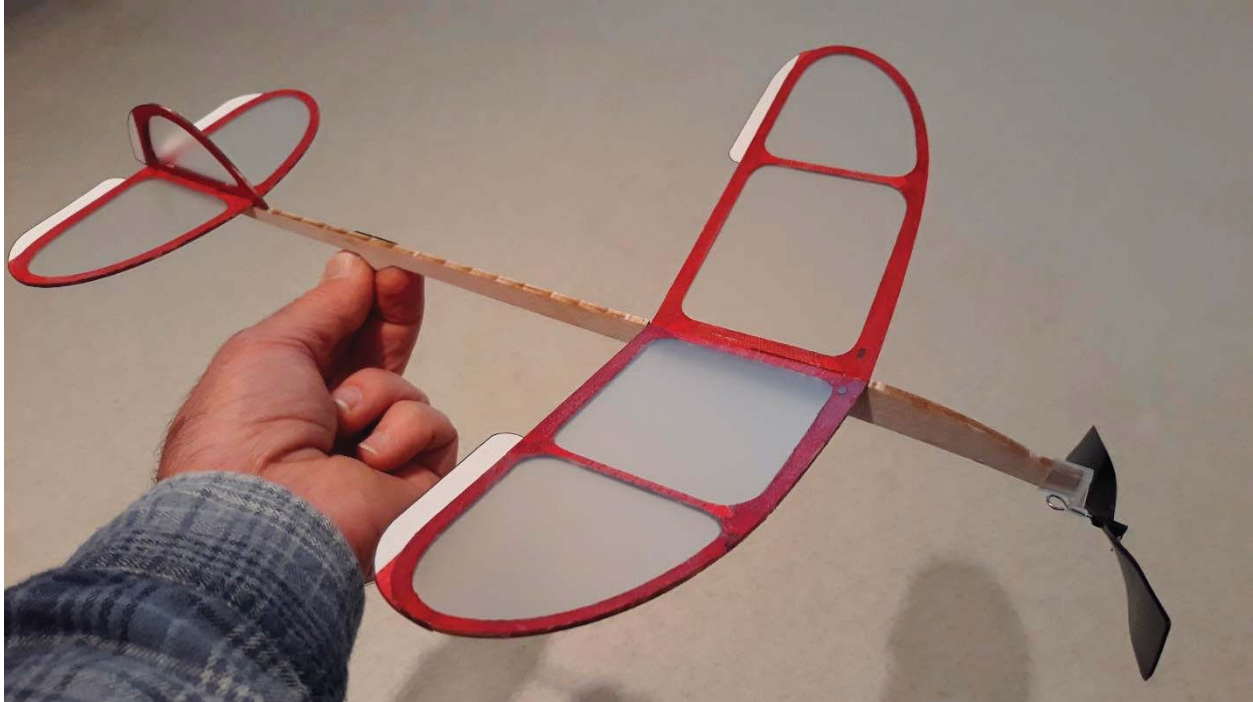
Steve and I have discussed what to charge for these Pinna Flyer kits, and although we got a terrific deal on these kits, we want to charge \$10.00 per kit to help cover the contest prize money. The price for this kit through the J&H Aerospace website is \$12.00 each, not including shipping, so we think \$10 per kit is a real bargain.

So, when and where are we going to have this Pinna Flyer mass launch contest? We won't have the contest until early next year at the soonest, depending on the weather and flying site availability. We will most likely hold the contest at 60 Acres South, which is not being used currently by the Lake Washington Youth Soccer Association due to the ongoing COVID-19 pandemic. However, if soccer games start up again at 60 Acres early next year, we can always use the Meadowbrook Farms field.

Where can you buy a Pinna Flyer kit? I have some kits at my house (2014 98th St. SE, Everett, WA 98208) and Steve Dona has some at his office (12040 98th Ave. NE, Suite 102, Kirkland, WA 98034) and we will have someone (Gerry - Gerald Morrissey) in the South end selling kits as well. Text or call me at 425-345-9396 to make arrangements for a kit purchase.

Building the Pinna Flyer:

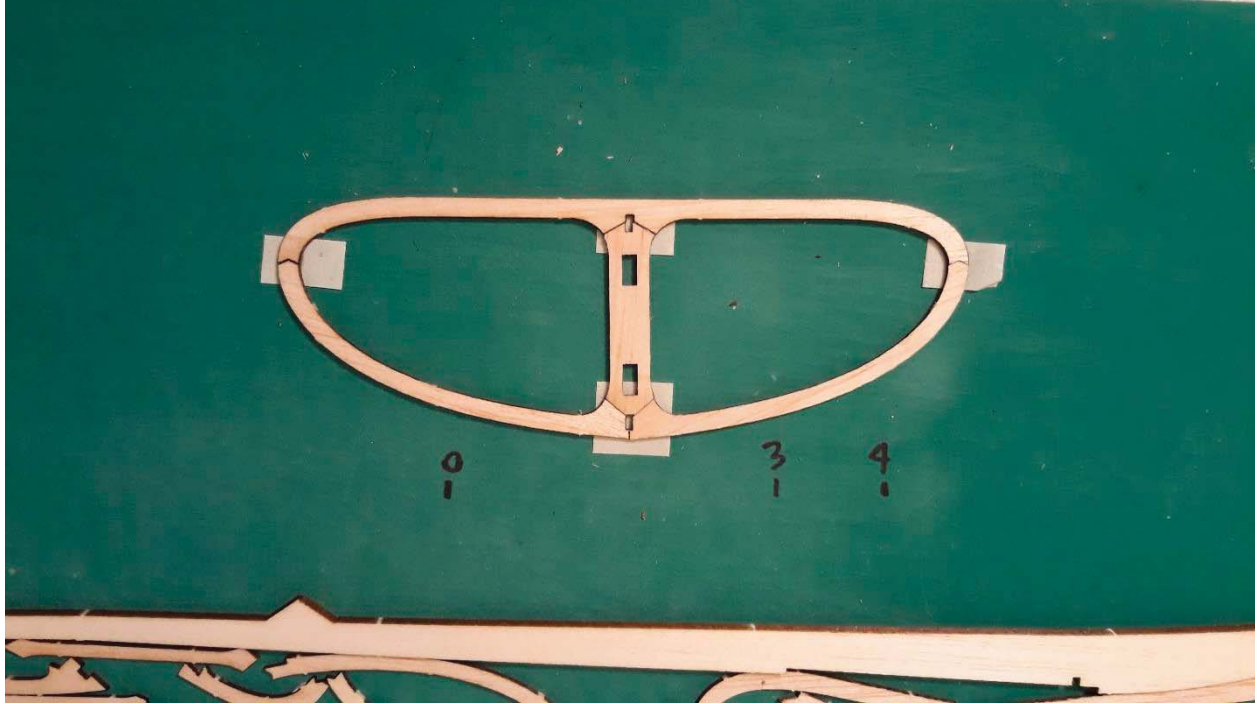
I absolutely hate to admit how much time I've spent on this model, given how easy it is to build, but my excuse is that I spent time designing some trim tabs, and I tested some adhesives for attaching the thin produce bag material to the flying surfaces. Another timewasting factor is that I spent way too much valuable time looking for that perfect tool to get the job at hand done. I spent two full days dinking around with this model, but the results, in my humble opinion, were well worth the time spent.



The Pinna Flyer covered with thin produce bag material. Note the red stained flying surfaces.

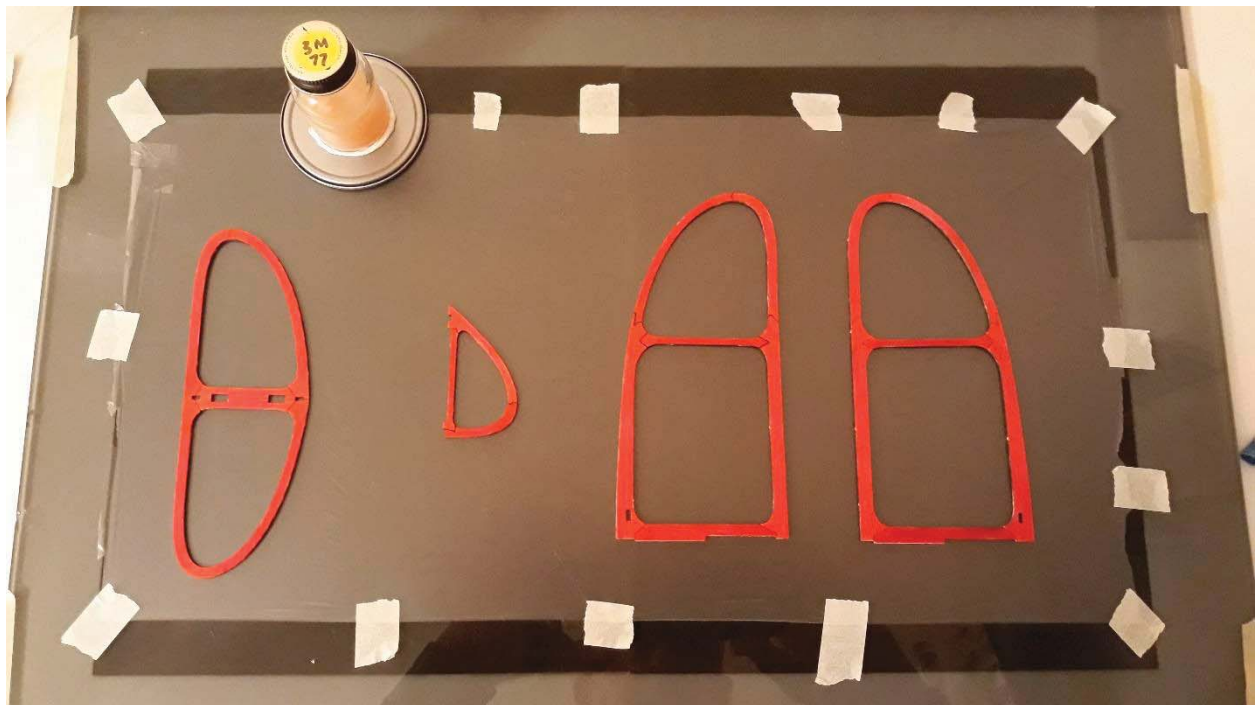
The all-up weight of the model without a rubber motor is a hefty 9.8 grams, but this model climbs like crazy, so if there are any thermal out there, it will quickly become O.O.S. I purposely chose the heaviest wood from the 20 bulk kits to see how well a heavy model will perform. Uncovered and without the trim tabs, the model, including the propeller, weighed 8.9 grams. The covering added 0.5 grams and the thin card stock trim tabs added another 0.4 grams.

Building the flying surfaces was fairly straight forward. Working on a flat glass surface (a melamine covered shelf will also work fine), I used small pieces of masking tape to hold the parts together, then flipped the assembly over and applied thinned Duco to the joints. After drying for 15 to 20 minutes, during which time I would build another assembly, I removed the pieces of tape and reapplied them to the opposite side of the assembly and applied more thinned Duco to the joints. After all the parts dried, I stained the wood with a red Sharpie permanent felt pen, which should make the model a little more visible after it lands in a field of dried grass.



Stabilizer is held together with small pieces of tape before applying thinned Duco to the joints.

There are some tricks to covering with thin produce bag material. I taped it down to a piece of glass and kept adjusting the tape to get all the wrinkles out of the covering material:



Thin produce bag material taped to glass surface. 3M Type 77 was brushed onto each part.

I no longer have any cans of 3M Type 77 spray adhesive, but I have a jar full of this stuff thinned down with some lighter fluid, which I brushed onto each flying surface just before placing each one on top of the covering material. You really need to press down everywhere on the part being covered to make sure it is glued well to the covering material. You may have to take a small brush and apply some lighter fluid to the periphery of each part to reactivate the adhesive to ensure that it has a good bond with the covering.

You should keep the covering taped onto the glass and allow the covering adhesive to cure for at least 12 hours before using a small-tipped soldering iron or a surgeon's cautery to trim off the excess covering, otherwise the covering material may begin to sag and form large wrinkles. If you do decide to cover your model with the heavy tissue paper included in the kit, you will need to waterproof it with a coat of clear Krylon or some other clear finish, which will add even more weight to the model.



Excess produce bag material covering on the stabilizer has been trimmed with a surgeon's cautery.

The trim tabs, which are included in each kit, were a result of watching Joshua's build and fly video for the Pinna Flyer (see jhaerospace.com). In the video, Joshua shows how to fine tune the flight pattern of the model by literally cracking the balsa wood flying surfaces. I cringed when I saw him casually snapping the balsa wood parts to effect a change in the model's flight characteristics. The trim tabs were glued to the uncovered side of each flying surface using white glue. As mentioned before, the trim tabs add

about 0.4 grams to the model, so if you don't need them, don't install them. If you do install the trim tabs, be sure to waterproof them with some thinned Duco or nitrate dope.

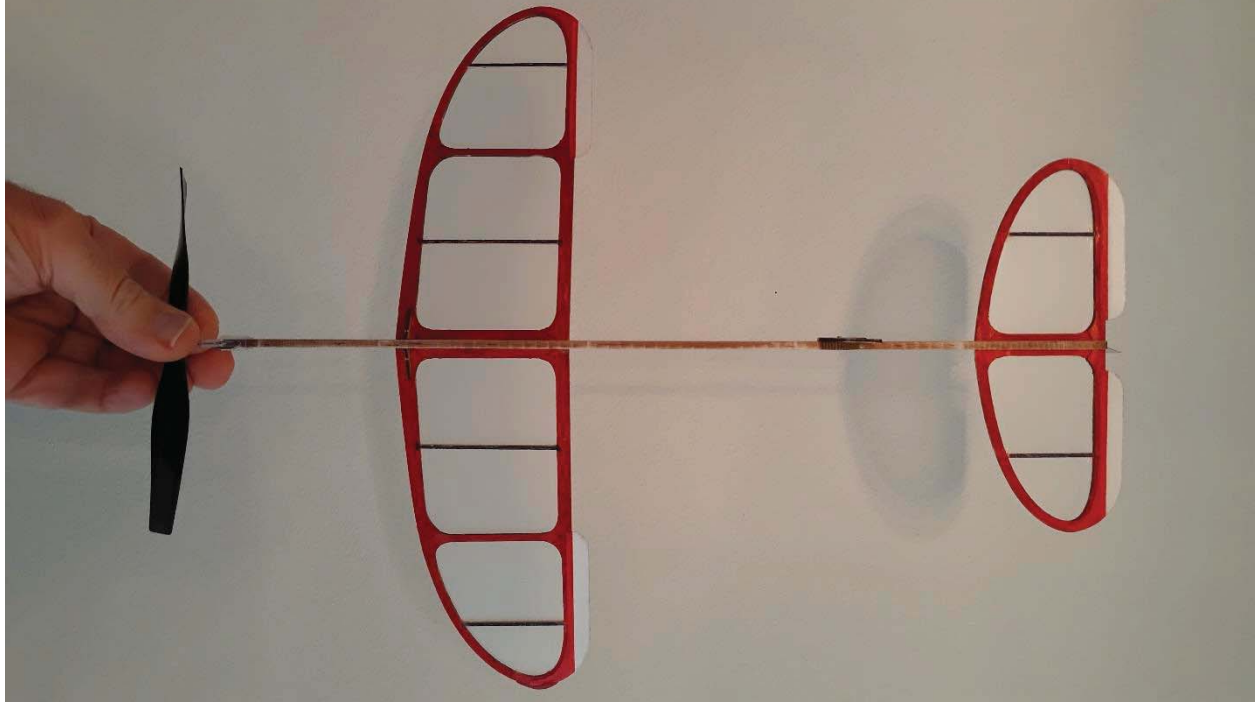
Flying the Pinna Flyer:

The first flights for my Pinna Flyer didn't go too well. I used a 15" long loop of 1/8" Tan Super Sport with 1200 winds and I had the model adjusted for a left turn. I adjusted the nylon prop bearing to the left, bent the left wing's trim tab down, bent the right wing's trim tab up and bent the rudder trim tab to the left. At first the model climbed vertically then abruptly stalled, and if it didn't hit the ground, it would eventually climb to the left. I put a piece of clay on top of the prop bearing and adjusted the elevator trim tabs down and was able to get a few decent flights, but it glided steeply and straight ahead. On one of its test flights, my Pinna Flyer caught a thermal, but it fell out of it because it would not circle during the glide.

When I got home, I determined that the decalage on this model is 4 degrees, which is more than the 3.5 degrees used on the Delta Dart. I decided to add a 0.050" thick tapered balsa shim between the wing and the motor stick to reduce the decalage to 3 degrees, which seems to work well with flat plate airfoiled models. I also noticed that the produce bag covering was now very wrinkled, so I added some 1/16" square balsa ribs to the wing and stabilizer and reshrank the produce bag covering with my Monokote iron set at a low heat setting.



Note the 0.050" thick tapered shim glued between the wing and motor stick.



Bottom view of Pinna Flyer showing 1/16" square ribs added to wing and stabilizer.

Adding the ribs increased the weight of the model by 0.5 grams, but it eliminated the wrinkled covering problem. You don't need to install these extra ribs if you don't mind lots of wrinkles in the covering material.

Saturday (December 5) was a beautiful day, so I test flew the newly modified Pina Flyer. This time I tried several times to get it to fly to the right, but the left wing was warped with a lot of wash-in, so I ended up getting the model to fly and glide nicely to the left. The climb with 1500 turns on a 1/8" by 20" loop of Tan Super Sport was nothing short of spectacular; It appeared to climb way above the tallest trees or around 150 feet above the ground. Fortunately, there was absolutely no thermal activity, so glide times were fairly short in duration. My model's weight without motor is a hefty 10.3 grams, so a 3/32" wide by 20" long rubber motor does not provide enough thrust to get a decent climb. Lighter Pinna Flyers will probably need to go down to 0.110" or 3/32" wide rubber, which will result in more winds and thus longer flight times.

Regards,
David Higgins