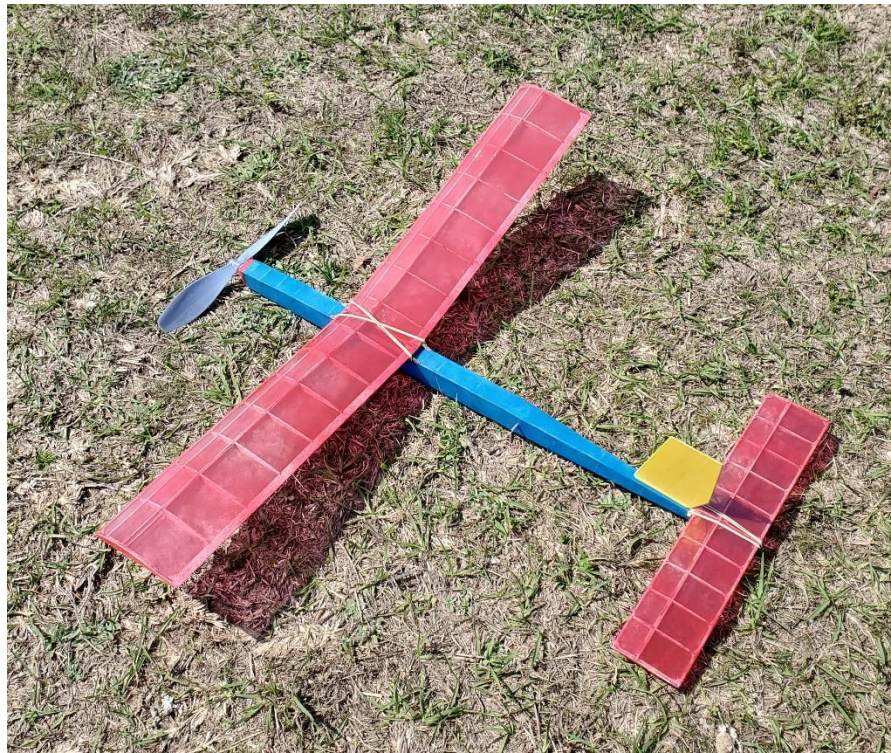


**NJAPF**  
**Not Just Another Pretty Face**  
**P-30 Endurance model**

By J&H Aerospace ↗  
[www.jhaerospace.com](http://www.jhaerospace.com)



*Al Lidberg's legendary P-30, optimized for laser cut precision assembly*

# NJAPF P-30

*J&H Aerospace* ↗

## Building Instructions

Congratulations on your purchase of the Not Just Another Pretty Face! You are about to build a high performance rubber model capable of competitive, long flights. This is a full kit containing all parts necessary for rigging a fuse dethermalizer equipped competition model. Refer to the notes on the plans for basic construction notes. We recommend sealing the entire structure with a coat of 50/50 thinned nitrate dope before attaching the tissue by soaking it with acetone to soften the dope on the airframe. The completed flying surfaces should be given one or two coats of nitrate dope thinned to 30%. Use an electric ignitor to light the dethermalizer fuse to avoid accidentally igniting the tissue on the model with an open flame.

### 1. *Parts list*

Before beginning construction, please verify that your kit contains all of the necessary parts listed below and shown in Figure 1 and 2. Please be aware that some of the laser cut parts may have separated from their carrier sheet, so you should ensure that all of those parts are present and undamaged.

1. Full size plans
2. Parts Sheet #1: Wing LE and fuse jig, 1/8" balsa
3. Parts Sheet #2: Longerons, 3/32" balsa
4. Parts Sheet #3: Uprights, 3/32" balsa
5. Parts Sheet #4: Wing ribs, 1/16" balsa
6. Parts Sheet #5: Stab ribs and shear webs, 1/16" balsa
7. Parts Sheet #6: Nose block, 1/4" balsa
8. Parts Sheet #7: Wing mount hard points, 1/64" ply
9. Parts Sheet #8: Stab platform and dihedral braces, 1/32 ply
10. 1/16" sq x 18" balsa strips (8x)
11. 1/4" Al tubing, 1" long
12. 1/8" al tubing, 2" long
13. 1/32" Piano wire, 15" long
14. 0.040"x 8" carbon fiber rod
15. Rubber bands for wing and tail hold downs (8x)
16. Spiderwire for DT line (36" long)
17. Tissue paper (2 sheets)
18. 1/4" nose bearing
19. 3/64" propeller shaft
20. 9.5" gray propeller
21. 1/8"x16' rubber
22. DT fuse (10" long, 1"/minute burn rate)
23. Balancing clay

## Building the NJAPF

You will need a large, flat surface to build your model successfully. We recommend a large piece of foam or a suspended ceiling tile, as these surfaces readily receive pins required to hold the components down during assembly.

Before beginning construction, be sure to acquire the materials and tools necessary to complete your model. You will need glue suitable for bonding wood, such as cyanoacrylate (super glue, or CA), white glue, wood glue, or Duco cement. Protect your work surface using a sheet of parchment paper or wax paper. For cutting the wood parts apart, a SHARP single edge or double edge razorblade is needed. You will also need glue stick or nitrate dope and scissors. A sanding block and CA accelerator (if using CA glue) will be helpful. The glue stick or nitrate dope is used to attach the tissue to your flying surfaces. Builders who suffer from allergies to nitrate dope may choose to use Eze Dope instead, however we have found that nitrate remains the best option for long term durability.

Straight pins, or better yet, entomology pins, are very useful in holding parts down during the building process.

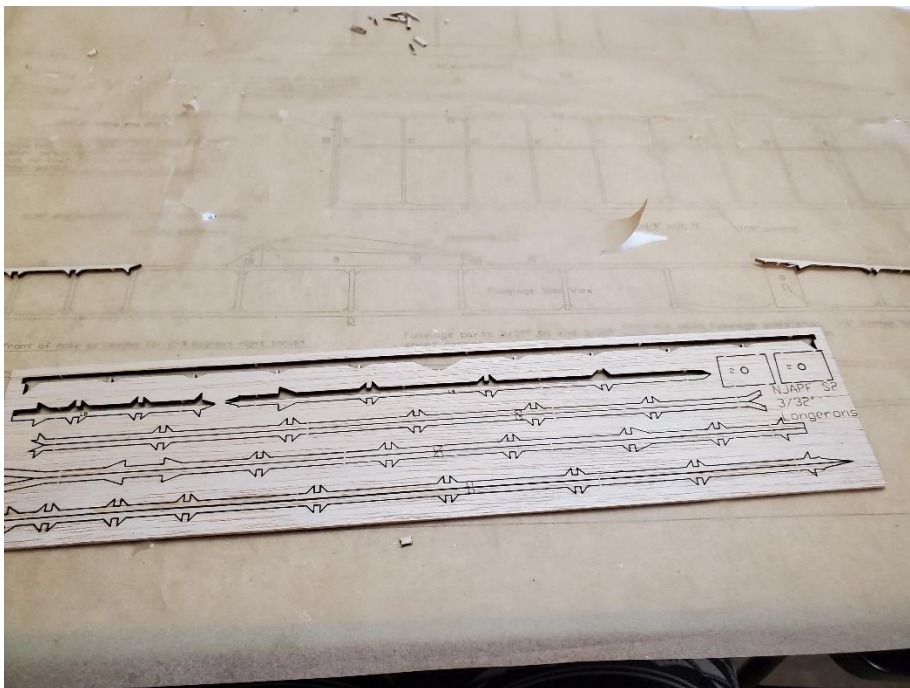
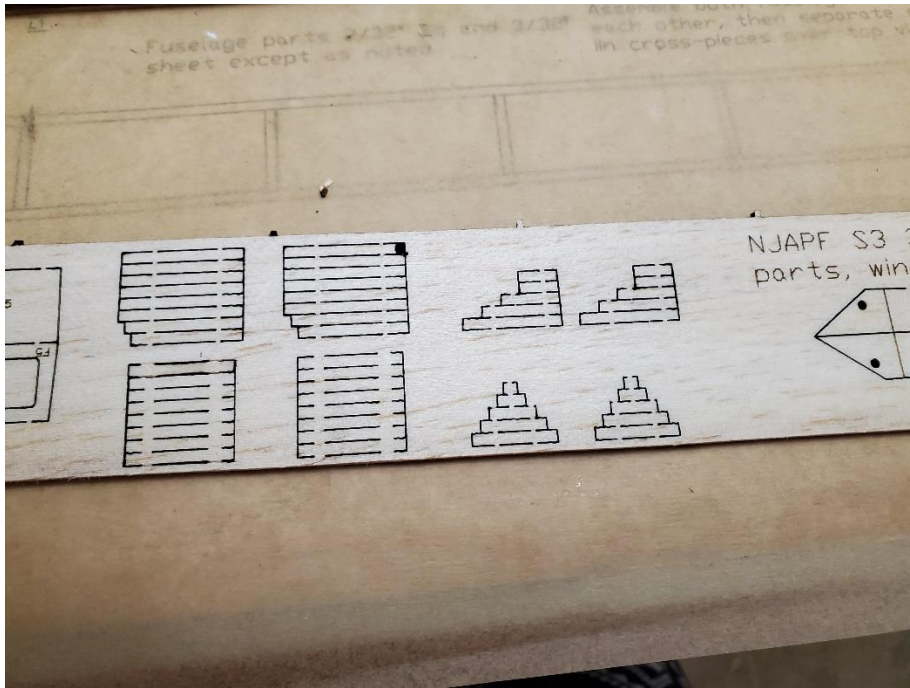
***Only remove parts from the parts sheets as you are about to use them!*** This reduces the loss of critical components and confusion related to having a pile of individual parts that must be continually sorted to find the next needed component.

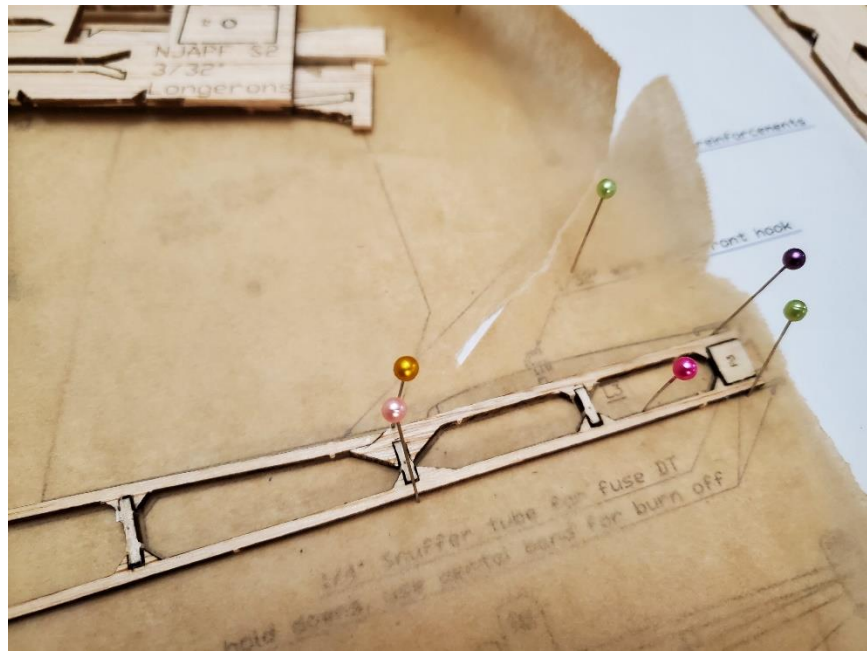
Obtain a silicone-based lubricant for your rubber motor (DO NOT USE petroleum products such as WD-40 or Vaseline/petroleum jelly as these will destroy the rubber in a matter of hours!).

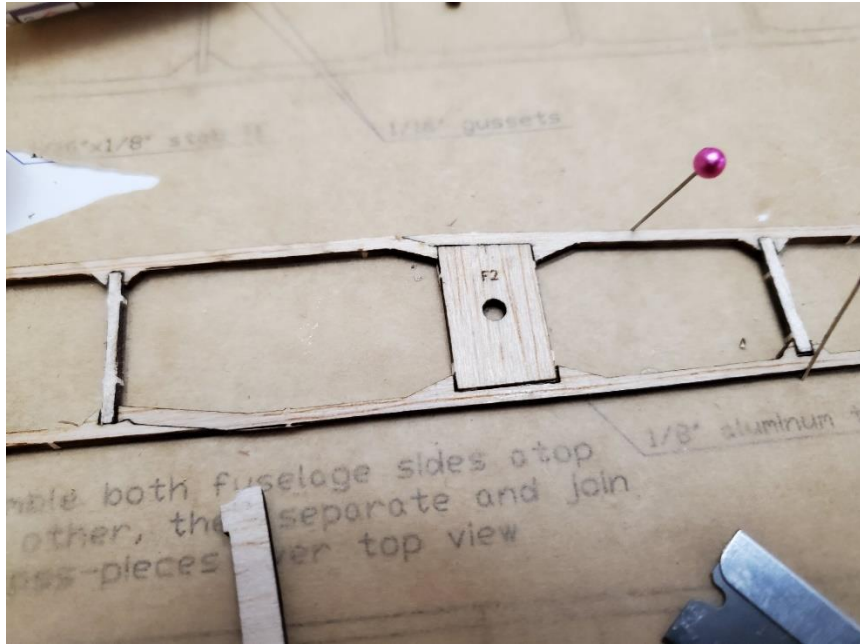
For best flight performance, a heavy duty hand crank winder will allow you to wind more quickly and stretch the motor for best winding results. We do not recommend electric winders as they provide poor feedback, are fragile, and are generally much more difficult to manipulate than hand crank winders.

Lay parchment paper over you plans to avoid getting components stuck to the plans. Begin building by laying out the fuselage sides as shown over the plans. For best results, build the second fuselage right over the first. This method will require you to separate the sides later using a razor blade, but it provides virtually identical fuselage sides.

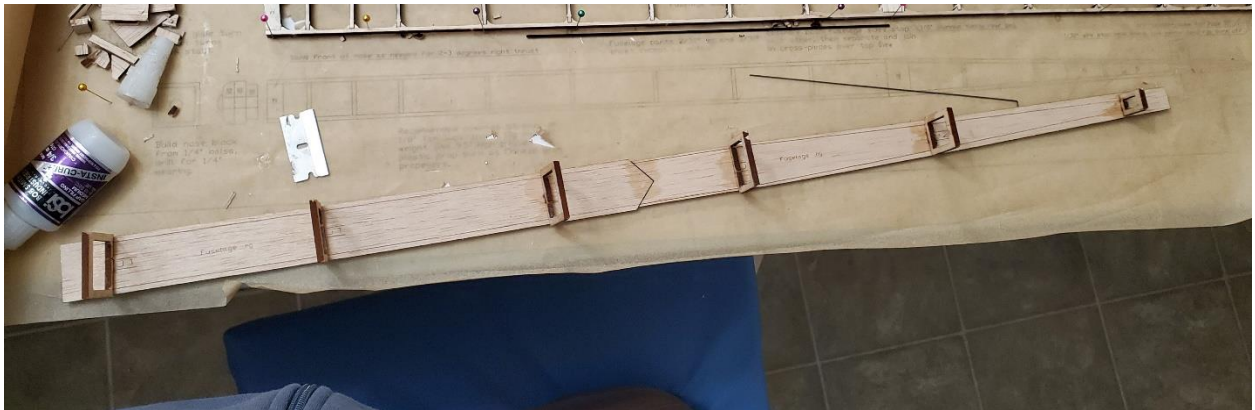
Note that the fuselage uprights are the parts in the upper rows shown below, with the uprights aft of the rear peg grouped separately from those forward of it. All longerons are labeled on the sheets and on the plans, so look closely to determine which parts are which



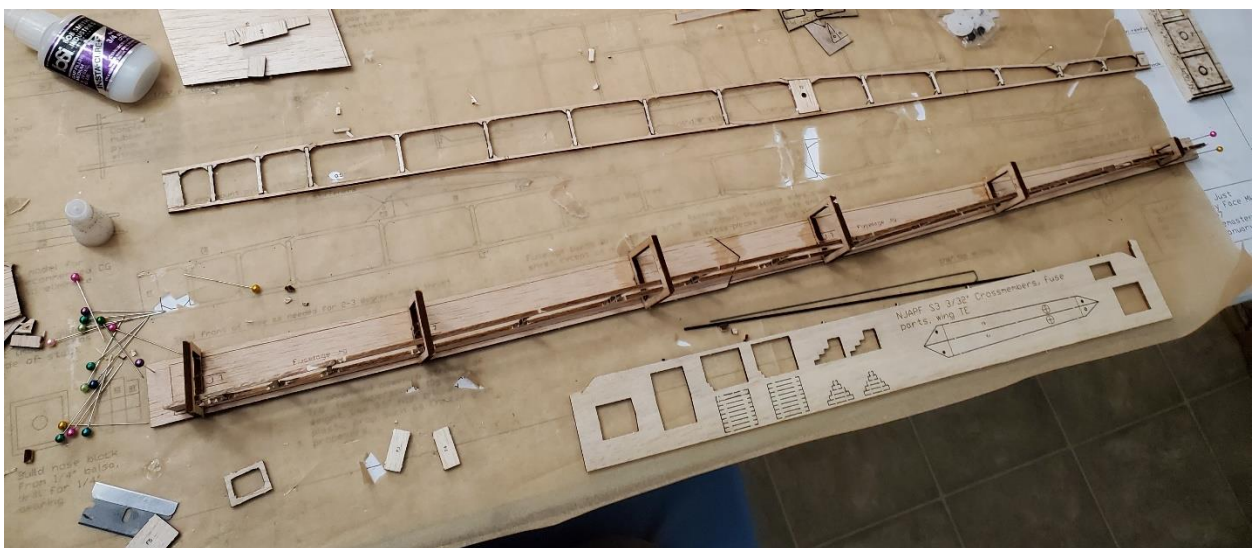


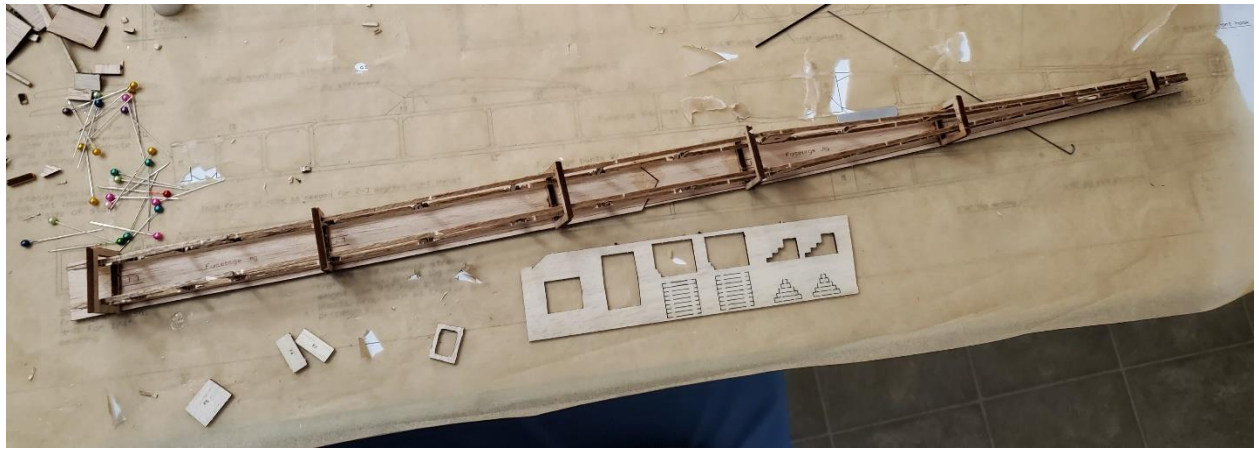
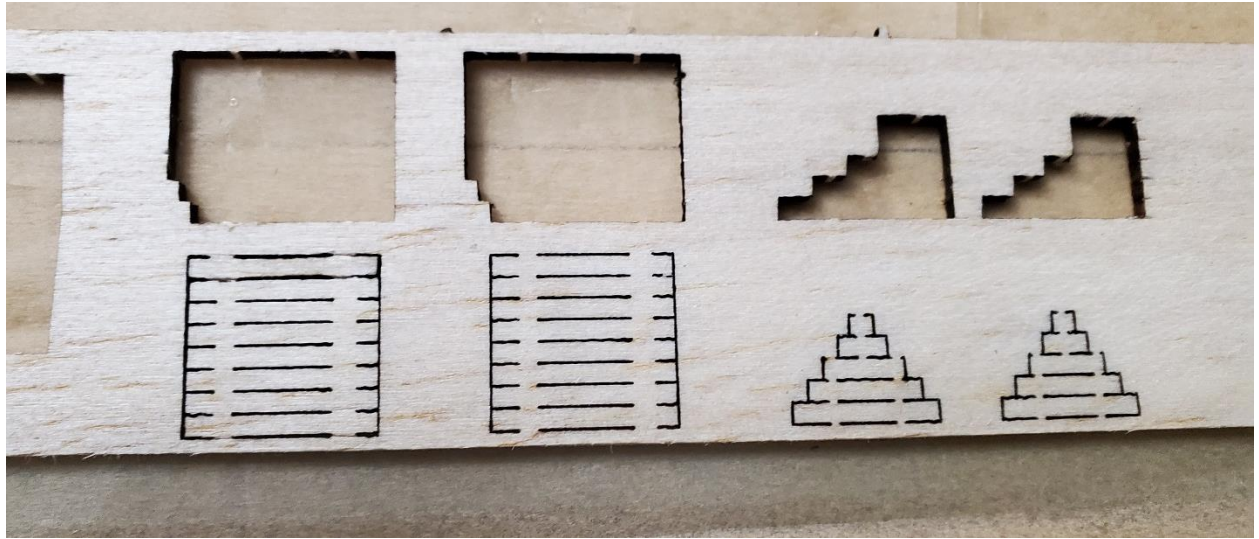


Once you have completed the fuselage sides, assemble the fuselage jig as shown. This device will allow you to easily jig the sides together into a straight fuselage.

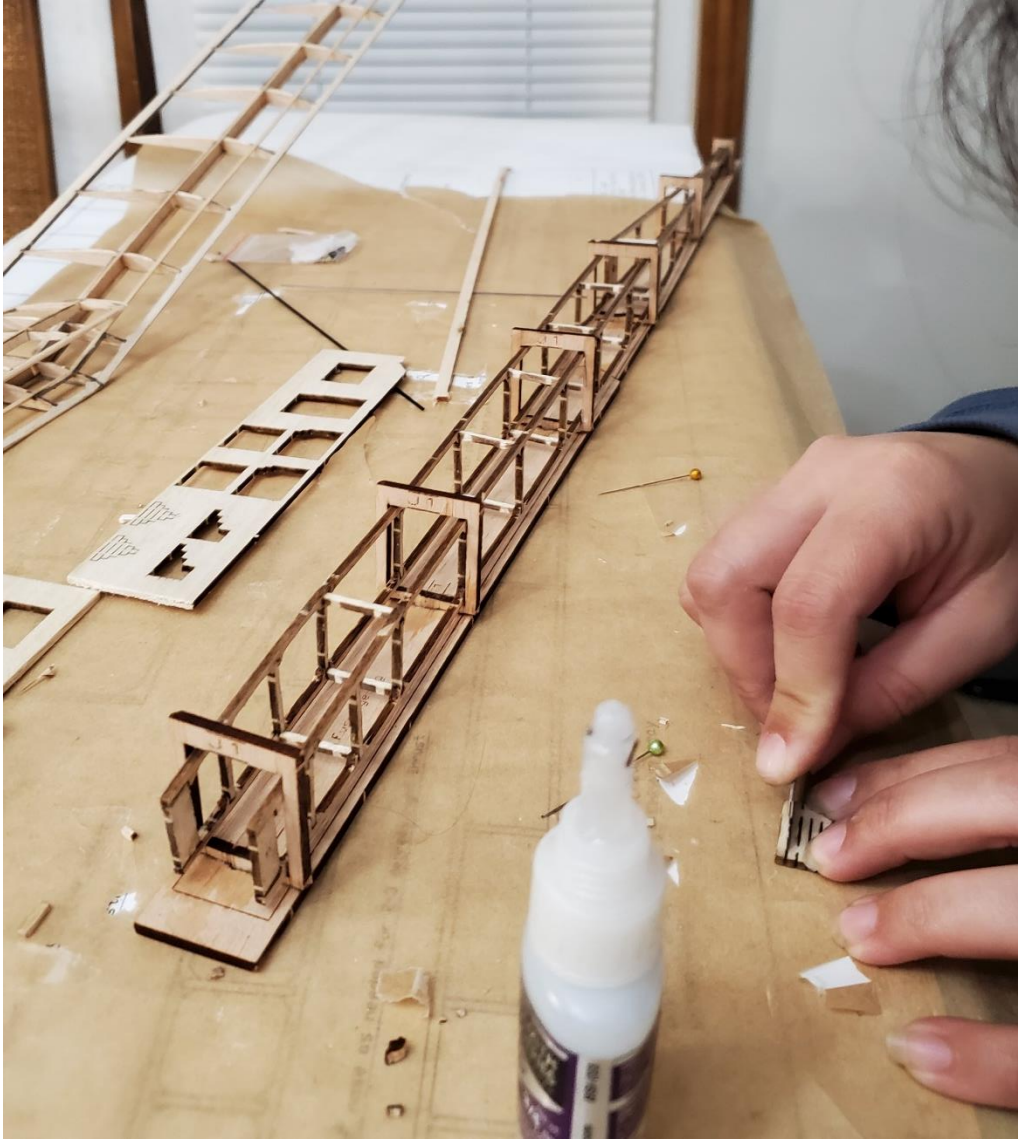


Carefully separate the fuselage sides. Slide the fuselage sides into the jig and begin adding cross pieces to join them together as shown. If you stagger the cross piece stations relative to the jig frames, you can avoid gluing the fuselage to the jig. You will need to crack the fuselage sides at the front of the rear peg station as shown on the plans. Once the parts have been added there, seal the cracks with CA as needed to restore structural strength. Don't forget to add the sheeting at the nose. Once it is added, the fuselage will stiffen considerably.





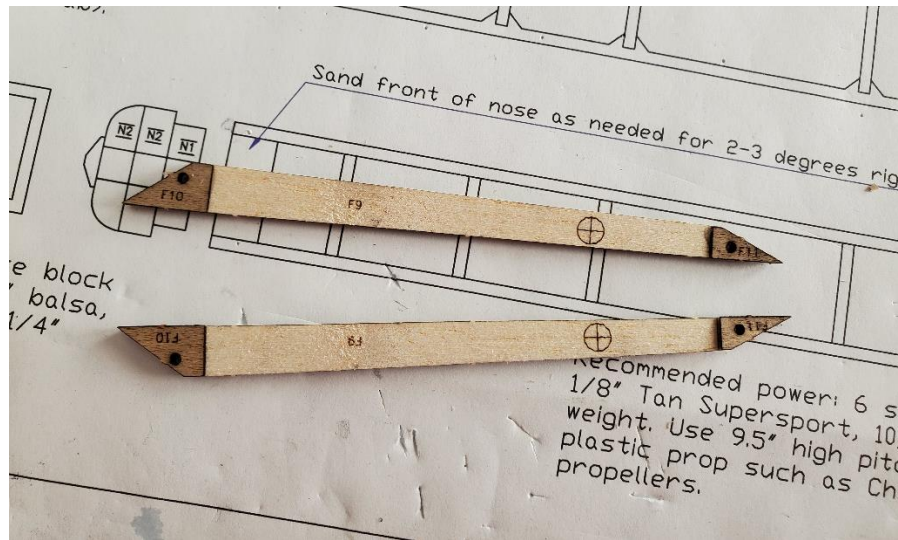




Carefully remove the fuselage from the jig. You may have to slit some of the jig formers to slide the fuselage completely out. Add the rear fuselage decking on the top of the fuselage to provide a mounting surface for the fin.



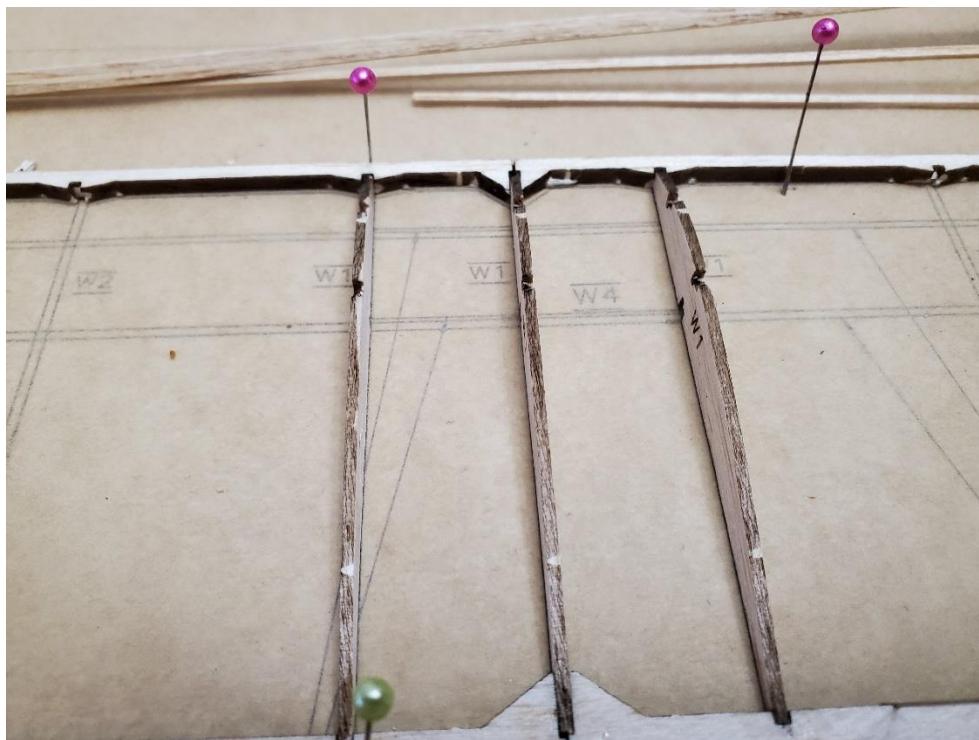
Assemble the wing pylon sides as shown. Do not attach them to the fuselage at this time.

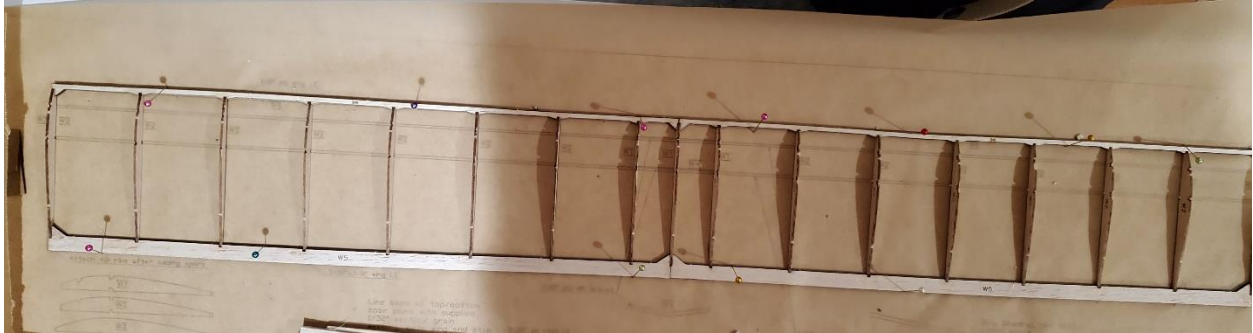


It is now time to begin building the wing. The wing is built in one piece and then cracked at the centerline to add dihedral. Once the dihedral is set, the 1/16" sq top spars and plywood joiners can be added. After they are firmly attached, remove the wing from the building board and add the 1/16" sq bottom spar. Web the two main spars together with the supplied 1/16" webbing.

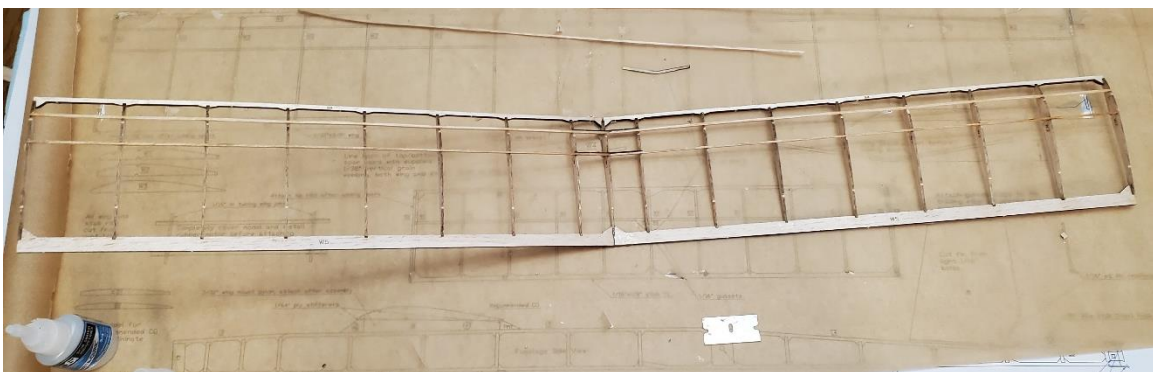
You may find it helpful to sand the leading and trailing edges to an airfoil before assembly. We used a razor plane to aid in this process. The outermost rib plates on the wingtips should not be installed until after the wing is assembled, set for dihedral, and has its spars in place.

Note that the 3 innermost ribs are different from the others to accommodate the plywood joiners.



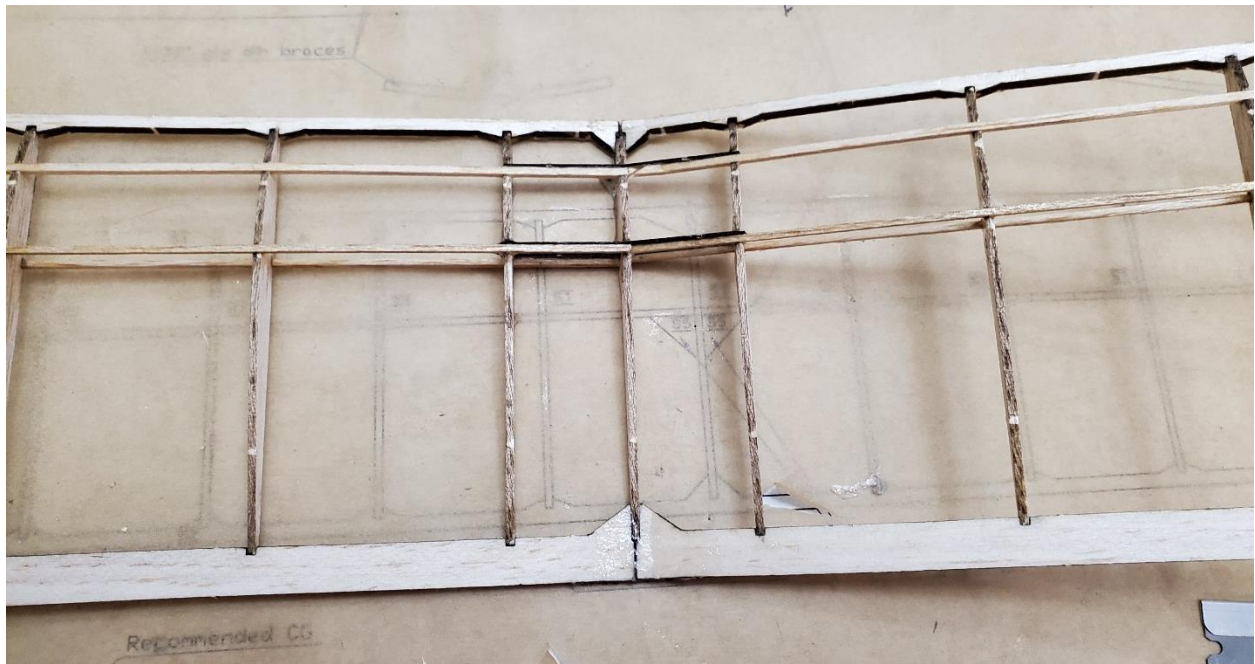
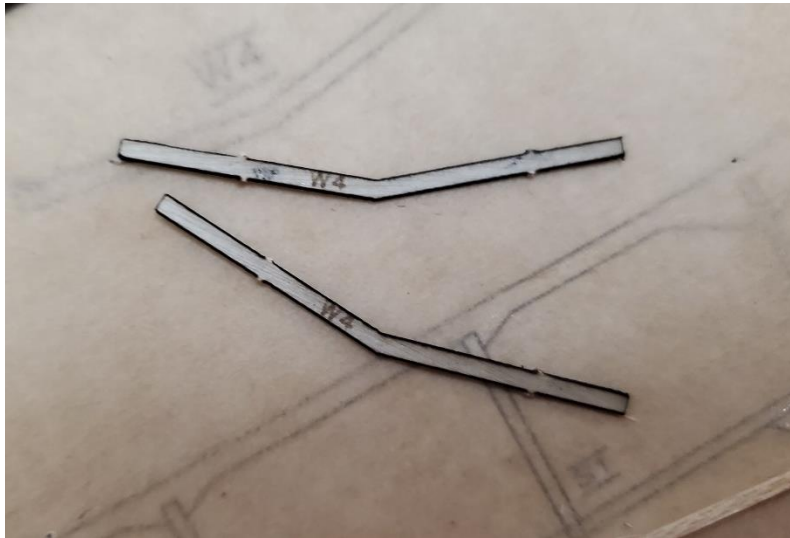


Crack the wing to the specified dihedral angle (we left one side pinned down for dihedral setting and so doubled the dihedral amount for a single side support to retain the correct dihedral angle). Install the top 1/16" sq wing spars, being careful to avoid filling the extra space in the center section slots that is reserved for the plywood wing joiners.



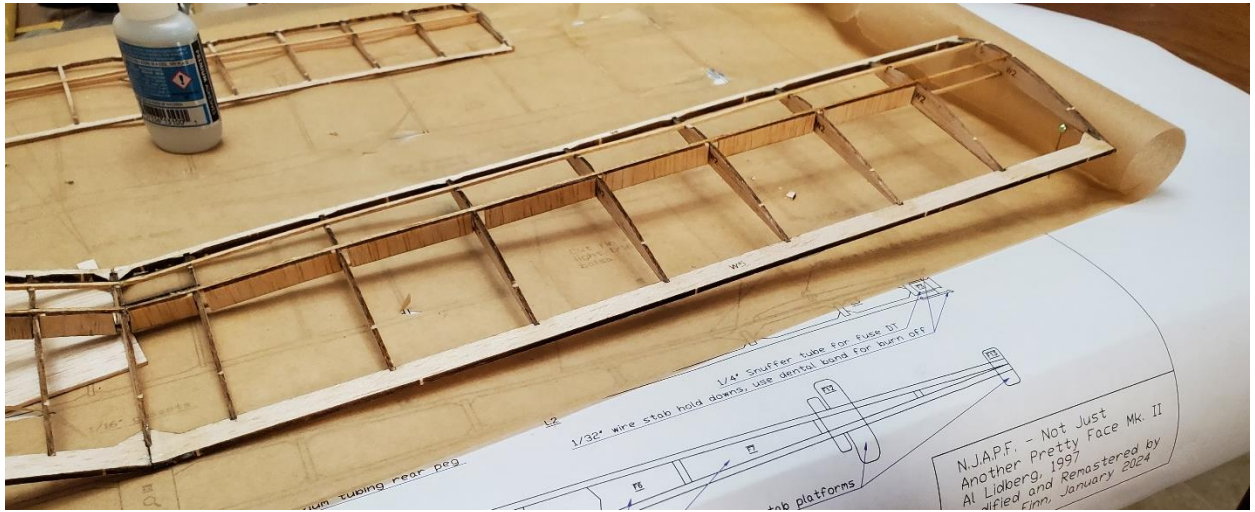
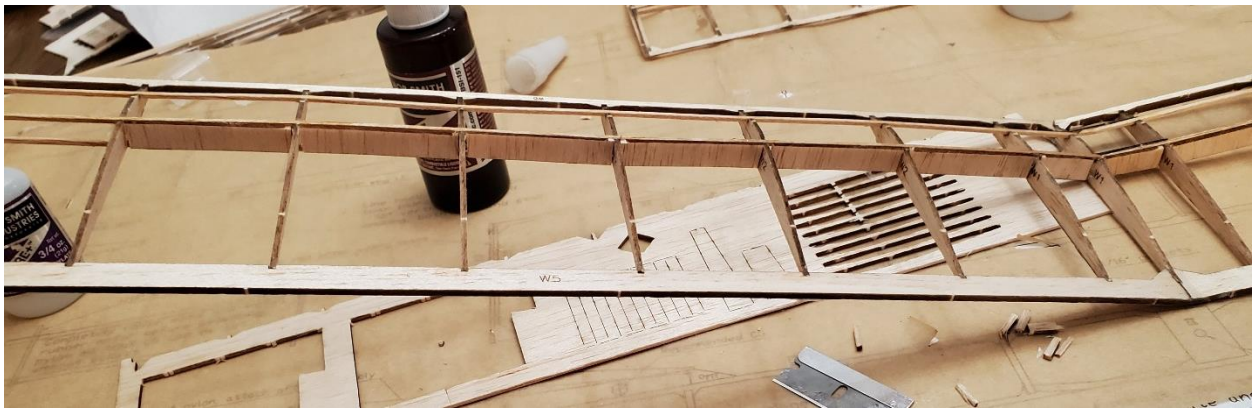
Remove the wing from the building board and install the bottom 1/16" sq spar, again being careful to leave room for the plywood joiner.

Locate the plywood wing joiners and glue them in place.



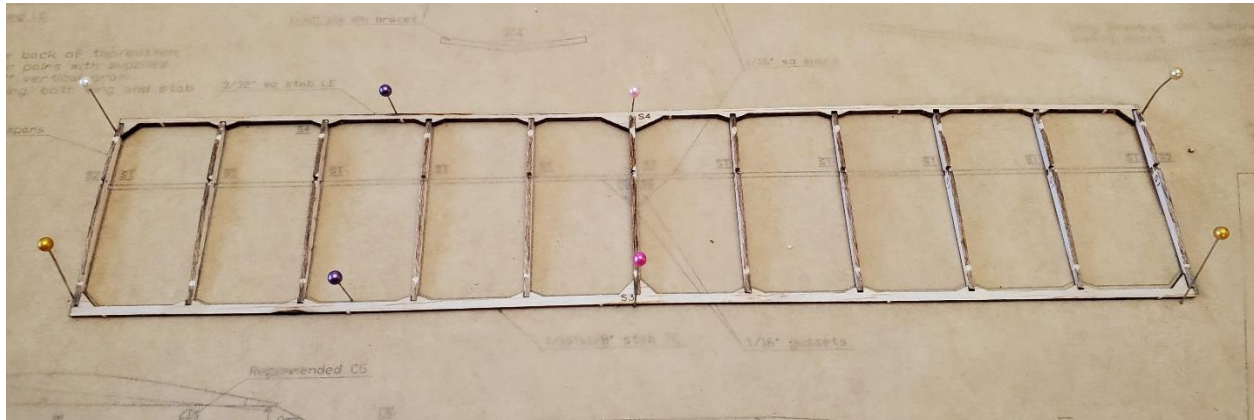
Install the tip finishing ribs.

Add the shear webs to your wing as shown.

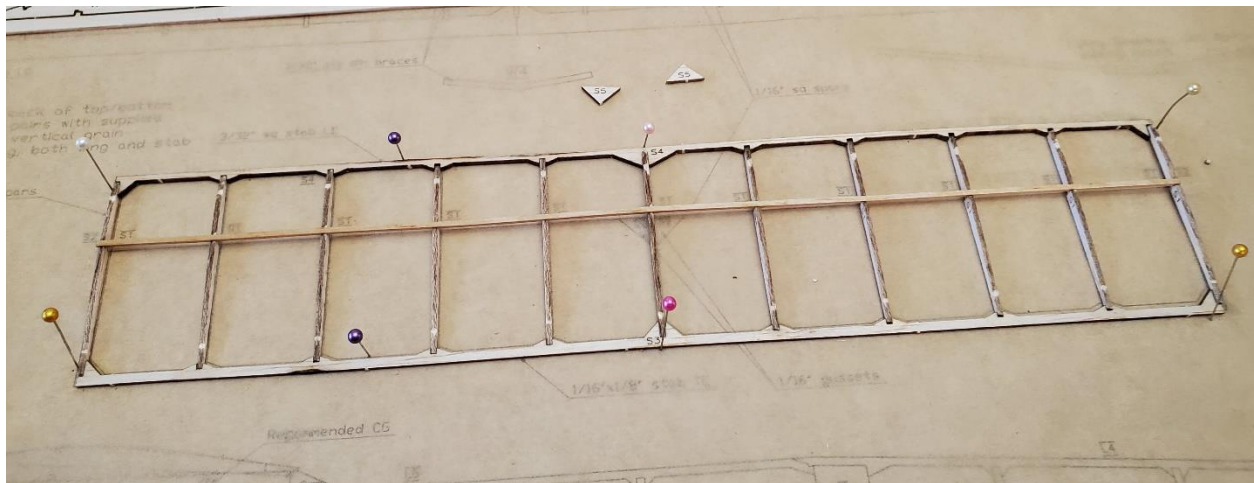


Once you have finished joining the wing structure, sand off any burrs and be sure to profile the leading and trailing edges to match the airfoil.

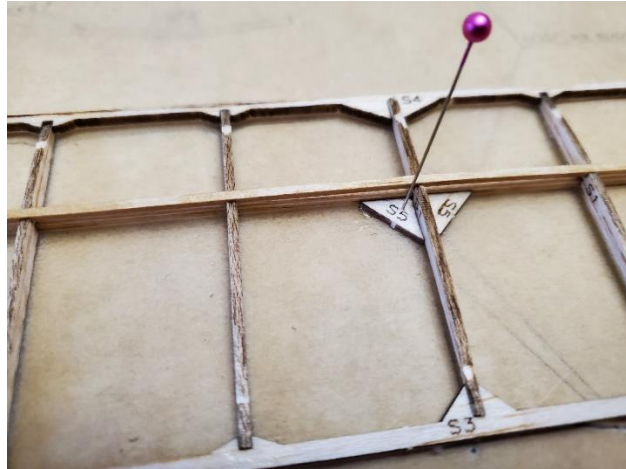
Assemble the stab over the plans as shown. You may wish to sand the leading and trailing edges prior to assembly. Leave off the tip ribs until the spars are in place.



Install the top spar.



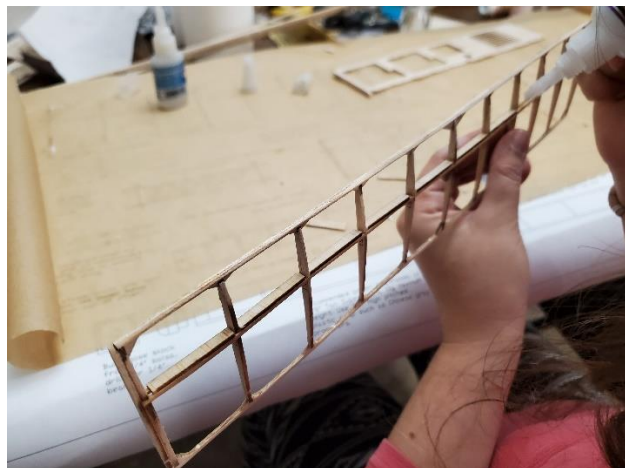
Install the bottom spar and the center rib gussets.



Install the tip rib plates.



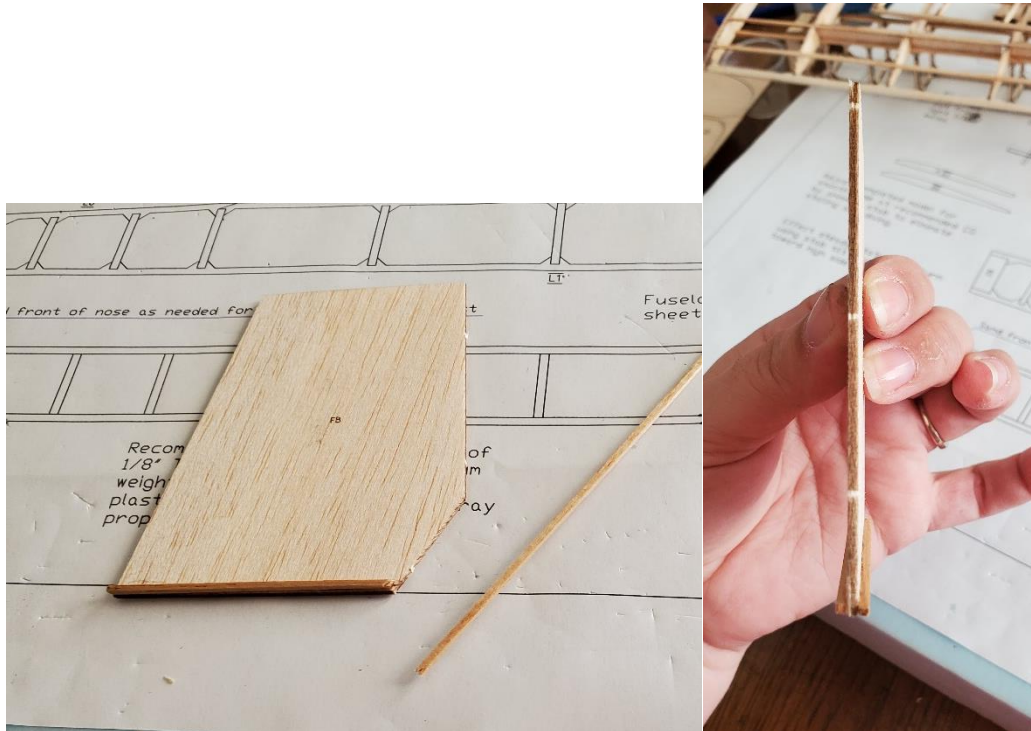
Add the shear webs to the horizontal stab.



Sand the leading and trailing edges of the stab to an appropriate profile and sand off any rough edges.



Add the 1/16" sq bottom rails to the fin as shown on the plans. You can bevel them to a triangular cross section or just leave them square. Round off the edges of the fin, except on the bottom. Wait until after covering to attach the fin to the fuselage. We chose to finish our fin with Minwax oil based varnish, however you could also dope tissue onto the fin to seal it.



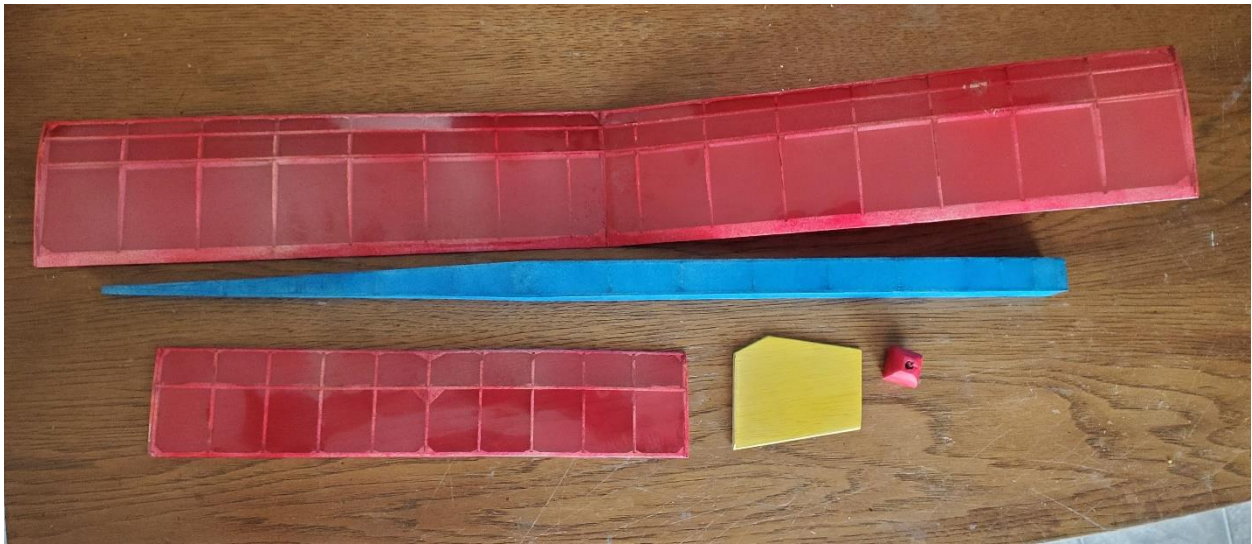
Assemble the nose block and sand it to match the fuselage. This is also a good time to sand the fuselage so that it has no rough edges to disturb the covering.



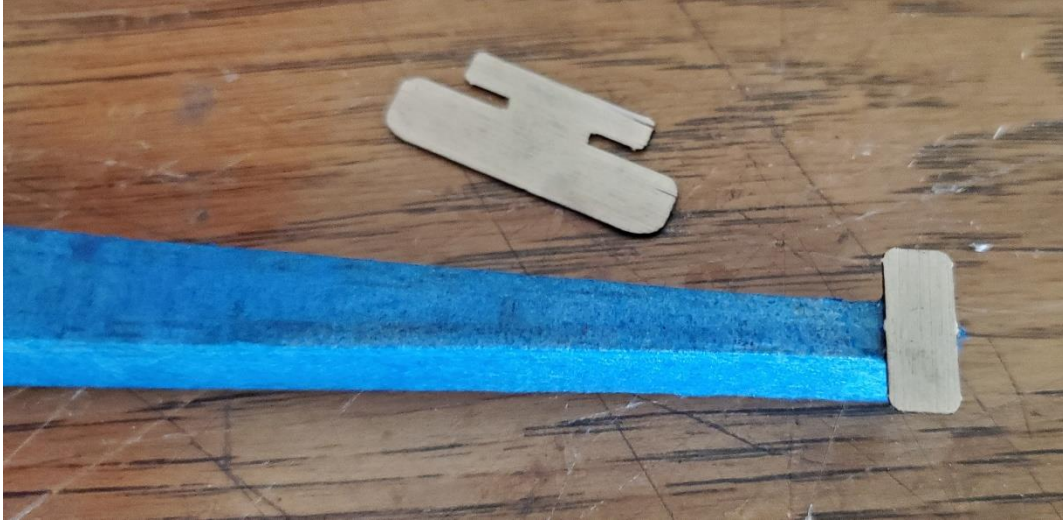
The structure for your NJAPF is now complete. Give the entire structure two coats of nitrate dope in preparation for covering. We chose to use polyspan to cover the fuselage, which required the use of Sig Stix It to provide a good heat activated bond. The flying surfaces were covered with 0.6 mil doculam lightly misted with Design Master paint on the adhesive side. This is a very easy to use covering, however it adds considerable weight, and a better solution is to use either tissue or ¼ mil mylar. The mylar is the best option since it is extremely light, adds a little more torsional stiffness than doculam, and it won't rot like tissue. To attach the mylar, you would need to coat the flying surfaces with either Sig Stix It or thinned Weldwood.

It is not necessary to cover tissue over the mylar on the flying surfaces as the NJAPF is not a particularly fast model, and adding tissue over the mylar would just add unnecessary weight.

If you choose to cover your model with tissue, you can simply activate the nitrate dope by soaking acetone through the tissue to bond it to the wood. Once the tissue is applied, water shrink carefully with the flying surfaces pinned down to avoid warping the structure. Give the finished tissue covering two coats of thinned nitrate dope to fully seal it.

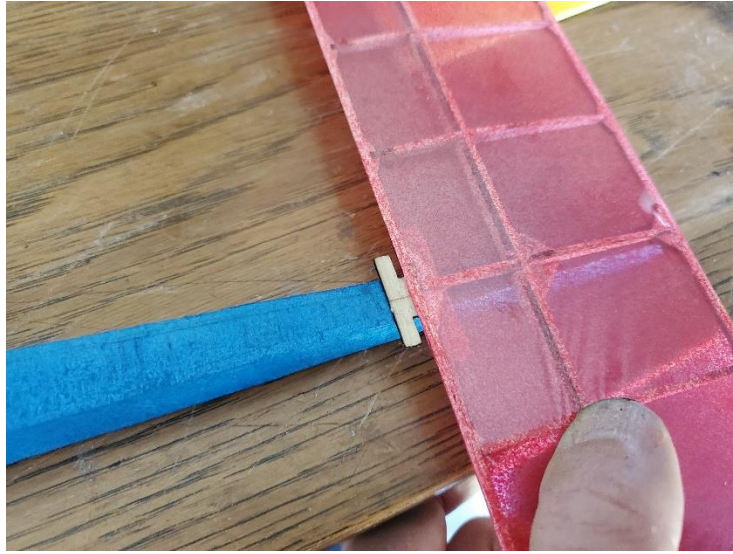


Install the horizontal tail trailing edge support.

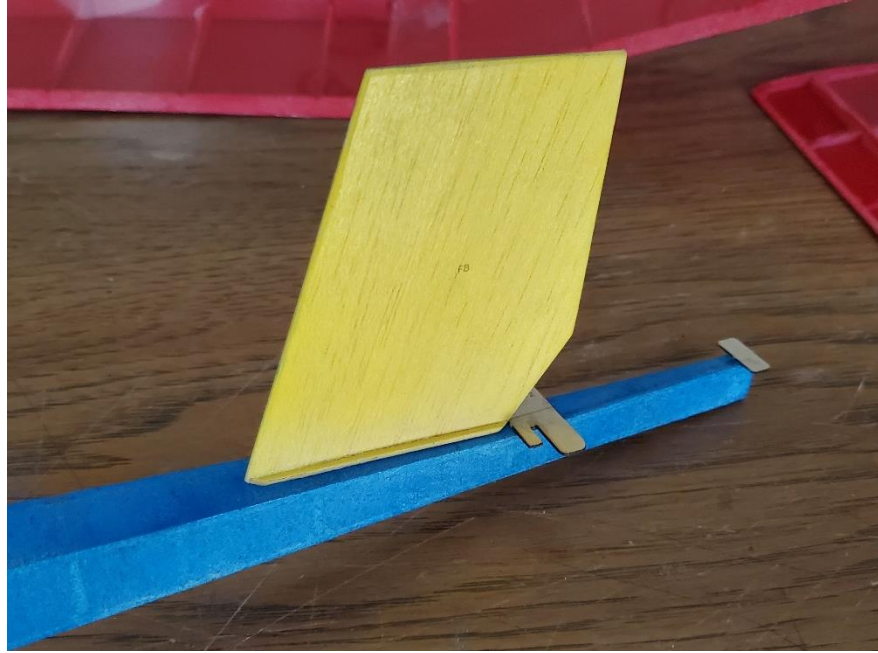


Set the stab in place with the leading edge support under it and mark the proper location for the leading edge support before gluing it in place. Make sure that the support allows you to, at minimum, have the stab level with the top of the fuselage and preferably has the right side slightly higher than the left.

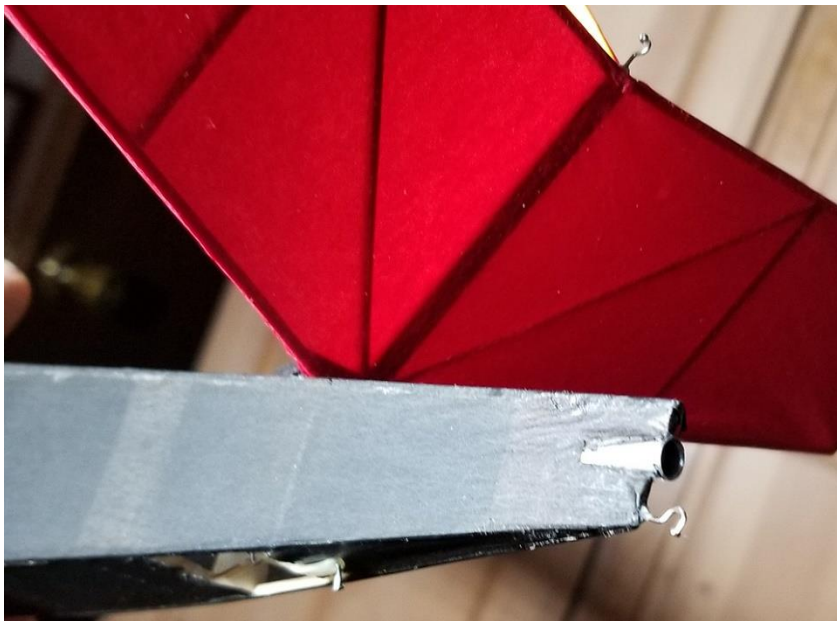
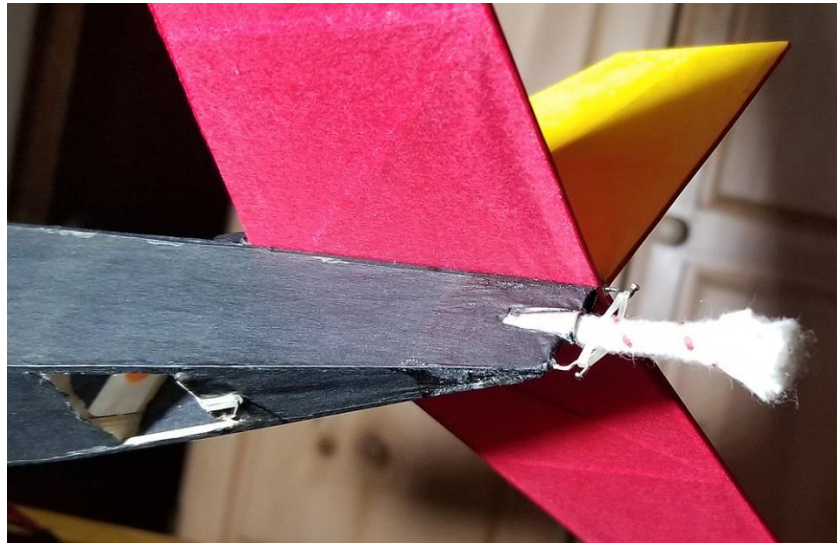




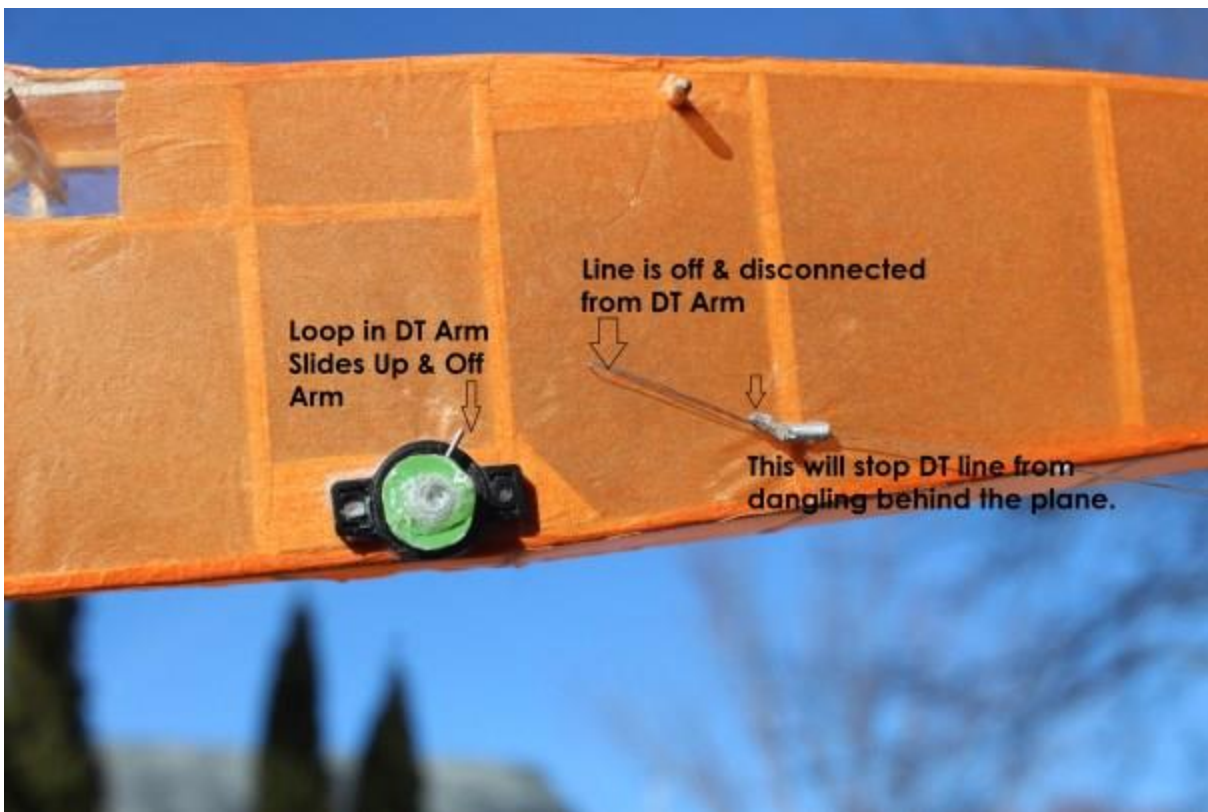
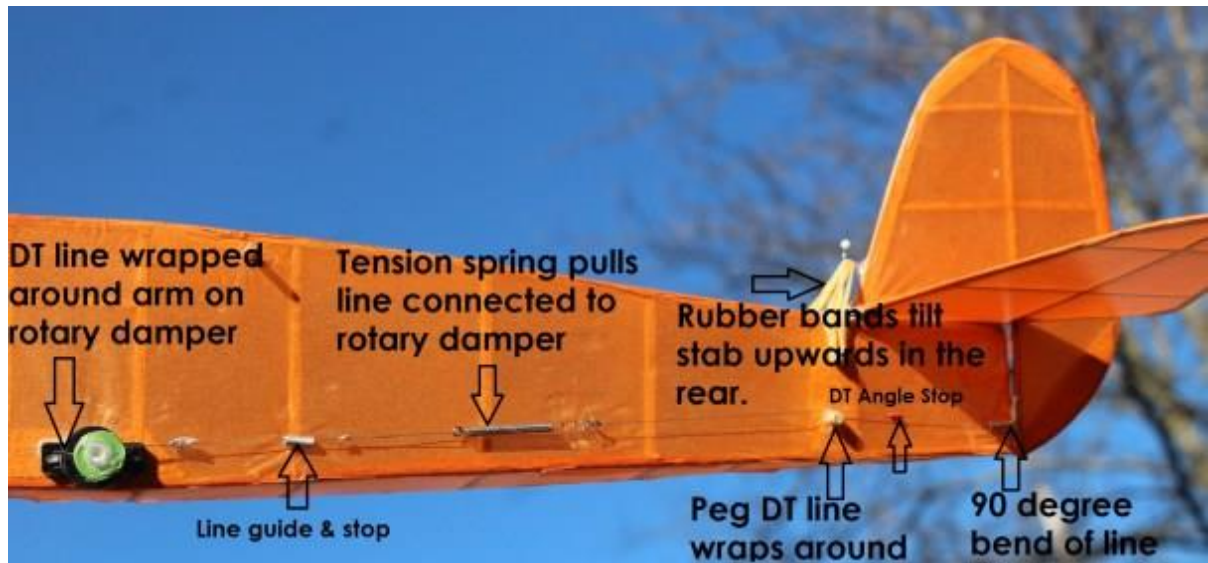
Install the vertical tail in front of the fin, making sure it is parallel to the fuselage center section.

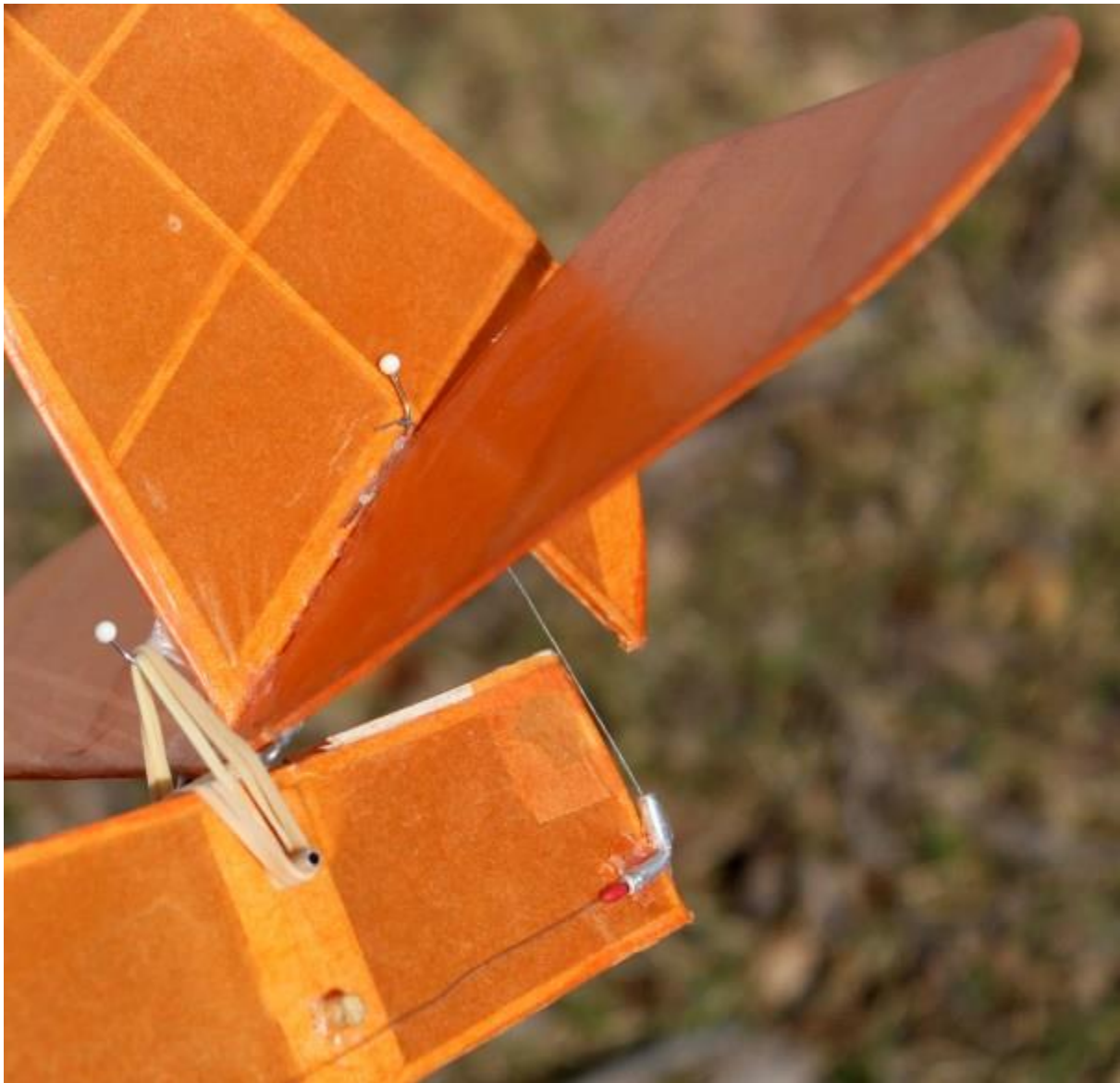


The plans for this model show how to install a snuffer tube in the tail and the necessary hooks (stab trailing edge, stab center, and bottom of fuselage) for a fuse operated pop-up stab DT similar to the system below:



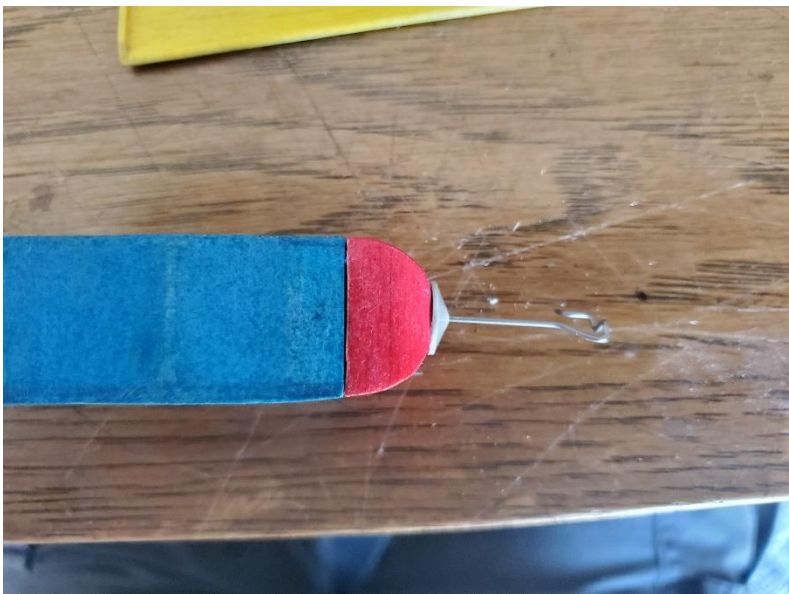
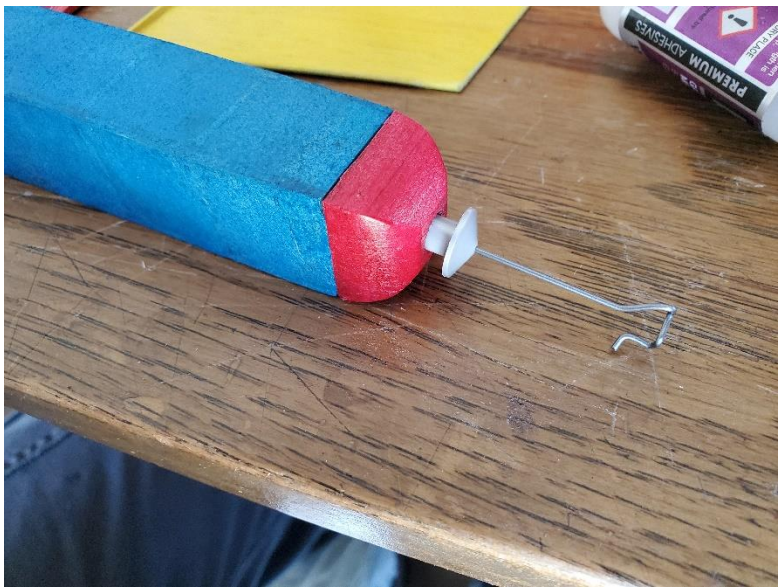
In areas where fire is a severe risk, it may be desirable to use a viscous damper system such as the one shown below using the dampers available at [jhaerospace.com](http://jhaerospace.com)





Drill the nose block as needed for a few degrees of down and right thrust and install the prop shaft and propeller. You can create a freewheeling bail using the techniques in the [Technical Library](https://www.freeflight.org/technical-library/) at [freeflight.org](https://www.freeflight.org/) or you can just bend the end of the shaft over at 90 degrees like we did.







Cut a piece of 1/8" aluminum tubing to size as shown. It should be generous enough in length that if it slides to one side or the other a quarter inch or so, it doesn't fall free.





You can flare the ends of a length of  $\frac{1}{4}$ " aluminum tubing slightly shorter than the inner width of the fuselage to make a sleeve for the rear peg.

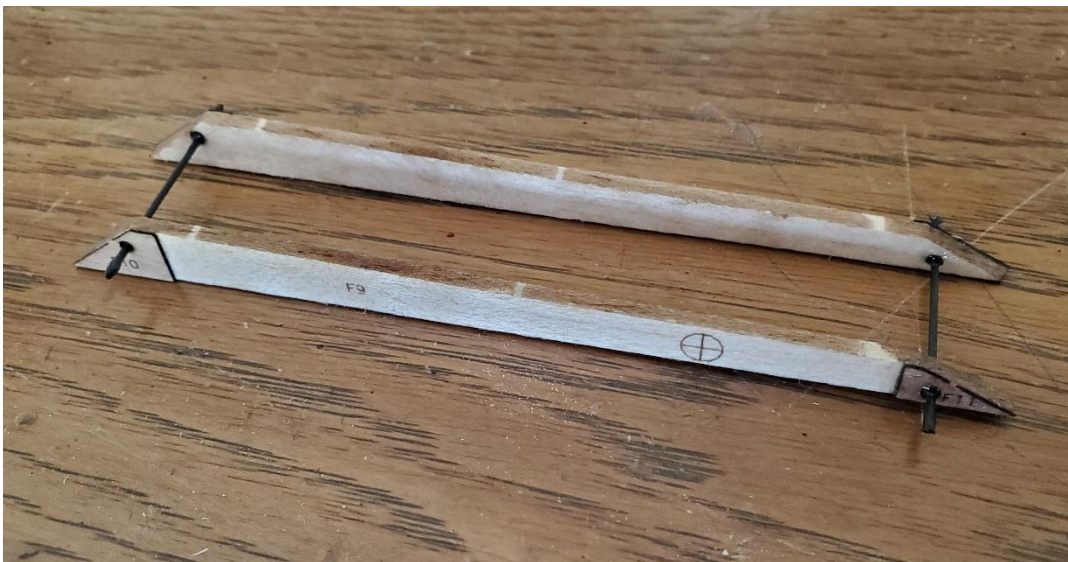


A braided motor of 4 strands of  $\frac{1}{8}$ " rubber will give you a solid climb and a very long motor run with the supplied propeller. We have recorded a [video](#) detailing how to braid motors.

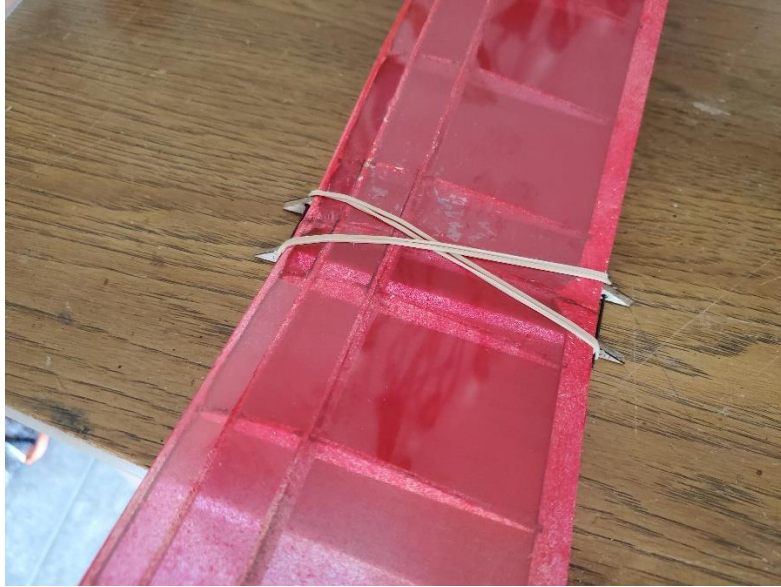


Install the rubber motor in the fuselage, and wind the motor up about 50 turns before allowing it to unwind and tension itself from the braiding.

Assemble the wing mount over its diagram using 0.040" carbon rods or 1/16" aluminum tubing as the crossbars.



Rubber band the wing onto the wing mount.



With the model fully assembled, rubber motor installed and tensioned, propeller in place, etc., locate the wing on its pylon so that the model balances at the location described on the plans or at a location you determine to be optimal for your flying style (consider the location shown on the plans to be the forward CG limit, as we have found that a surprising amount of incidence is required at this CG location). Mark this pylon location on the fuselage and remove the wing so that you can carefully align the pylon and glue it permanently in place.





Congratulations, your NJAPF is now finished. Weigh it to verify that the completed airframe is at least 40g after balancing with clay or lead to achieve the correct CG shown on the plans. For contest flying, 4 strands (two loops) of 1/8" rubber 30" long will provide a 10g motor which will give a slow, steady climb when fully wound to 1500+ turns. Be sure to lubricate the motor with silicone oil and stretch the motor to 4-5 times its relaxed length while winding in the first half of the turns.

Do not expect your model to fly perfectly at first. It will need subtle changes to make it fly well. It may even have warps which need to be removed to get it to fly well. In addition to the [trimming video](#) for the Saturno, we have produced several videos on trimming similar models to the Echo, such as the Supermax: [https://www.youtube.com/watch?v=\\_wcWVll\\_W5U](https://www.youtube.com/watch?v=_wcWVll_W5U) and the Lancer: <https://www.youtube.com/watch?v=l0dwNdE53s8&t=365s>