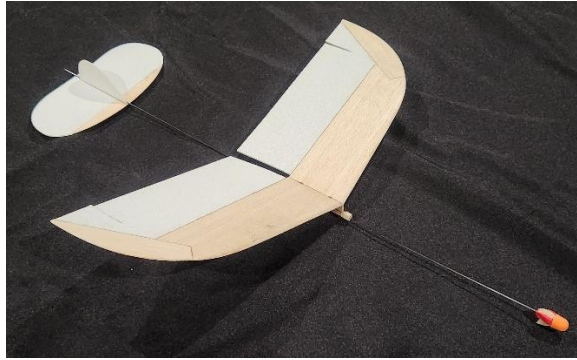
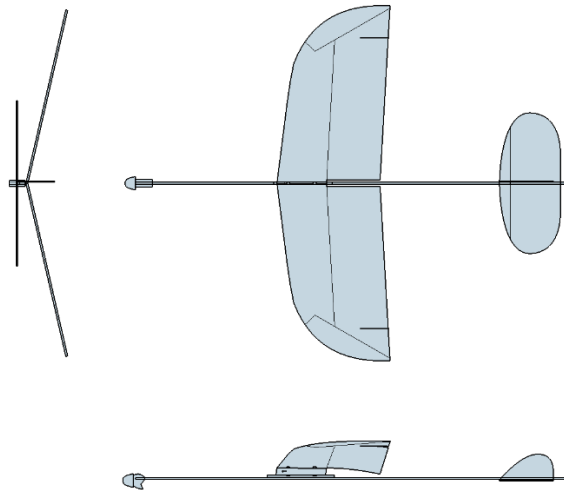




Super Protégé 2026/2027 Elastic Launched Glider

Build manual

By J&H Aerospace ↗
www.jhaerospace.com



*A High Performance Indoor Free Flight Glider conforming to the rules
for the 2026-2027 Science Olympiad Elastic Launched Glider Event*

Includes materials for two gliders

Build Video: https://youtu.be/lAchFKH5r_c

Super Protégé 2026/2027 Elastic Launched Glider

J&H Aerospace ↗

Building Instructions

Congratulations on your purchase of the Super Protégé catapult glider! You are about to build a high performance glider for indoor flying competition. Use the Protégé build and trimming videos on the product website to complete your glider: <https://jhaerospace.com/product/superprotegeb2027/>

This kit includes Vector Board Foam which is compatible with traditional CA glues!

1. Parts list

Before beginning construction, please verify that your kit contains all of the necessary parts listed below. 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. Parts Sheet #1 (wings, made from 1/16" balsa)
-Total of 2
2. Parts Sheet #2 (wing flaps/tail, made from 1mm Vector Board foam)
3. Carbon tail bumpers material (0.020"x9" carbon rods)
4. Fuselage (0.050"x19" carbon rod)
-Total of 2
5. Catapult rubber (3/32" Tan Supersport)
6. Catapult Handle (pine dowel, 6" long)
7. Clay nose weight
8. Nose bumpers (earplugs)
-Total of 2

Glider Flight Log

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Super Protégé 2026/7

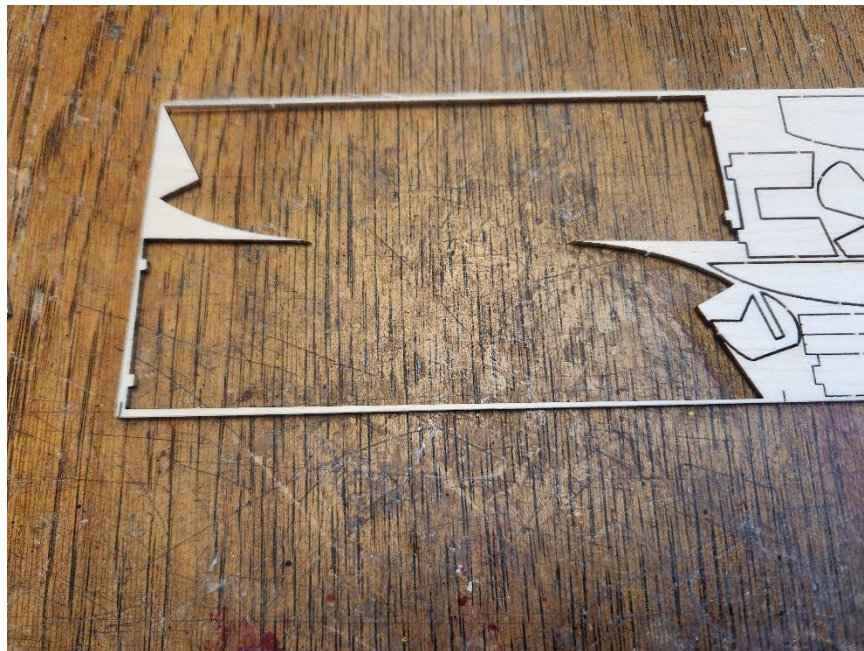
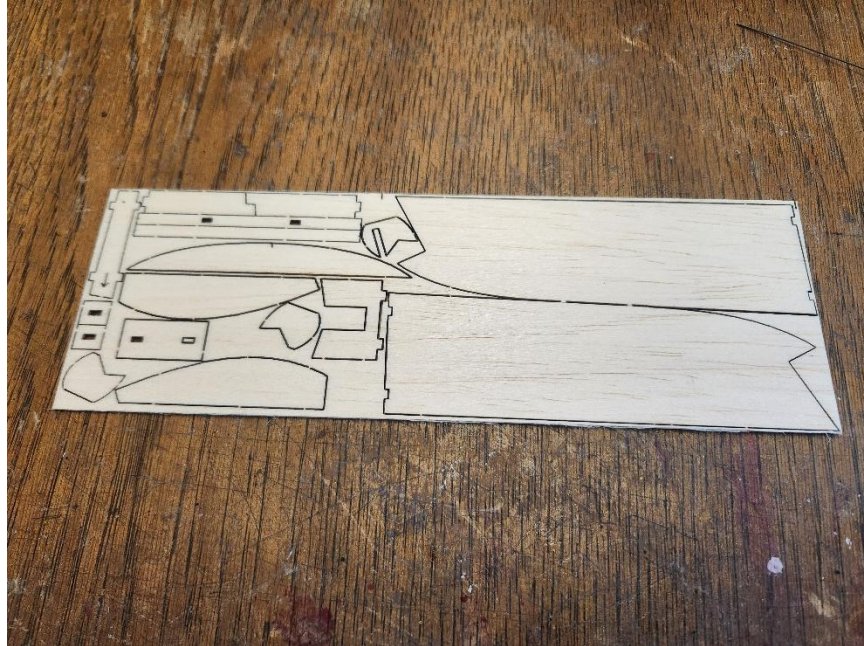
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Before beginning construction, make sure you have a clean work area and the necessary tools. You will need either packing tape or parchment paper for a non-stick work surface. You will also need scissors, fresh razor blades (use a new razor blade for each build—they dull quickly and are not readily sharpened to a state that is suitable for re-use), a razor plane, a flat sanding block, and some sort of balancer for setting the glider's CG. We recommend medium viscosity cyanoacrylate cement (aka CA, or super glue) in a quality bottle such as those supplied by Bob Smith, Mercury, or Zap. The vector board tends to retard the hardening process of the CA, so you will want "kicker" or CA accelerator as available from the previous mentioned suppliers. Do not use an aerosol spray kicker as it gets all over the foam and warps it. You will need masking tape to mount the wing for its removable attachment.

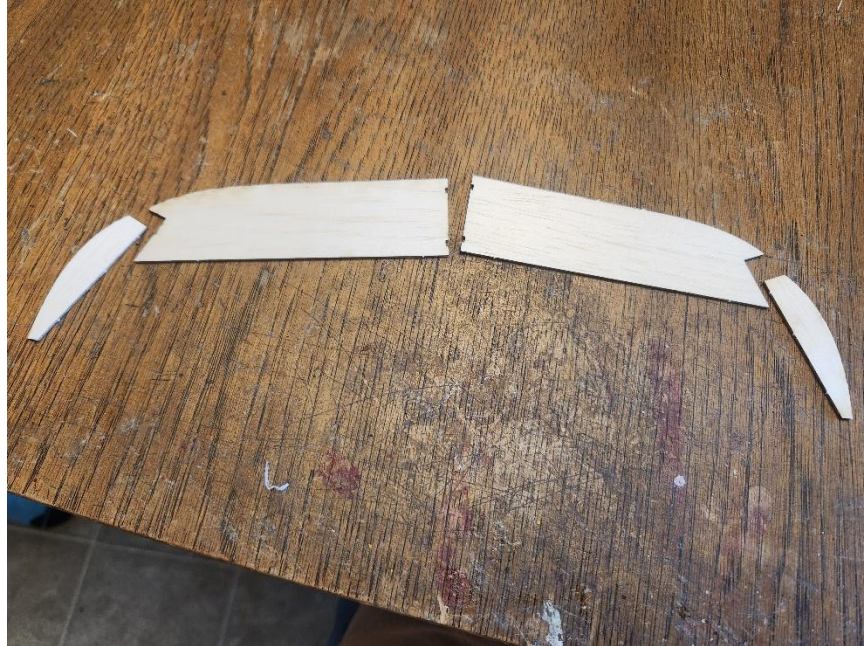
This kit is extremely simple to assemble, but it is also incredibly unforgiving of building mistakes. Build with precision and take your time. Make sure you understand each step before applying glue, as those actions are not reversible once glue is applied. The same is true for the planing and sanding process—you cannot undo the removal of material from the flying surfaces.

IMPORTANT: This glider is what is called a "flapper" which means that the rear half of the wing is a flexible flap portion to increase lift in the glide. These models fly very slowly and so behave differently from normal model airplanes. As a result, the optimum airfoil is much different from what you are used to. Do not attempt to change the airfoil from what is suggested, and do not attempt to sand the foam, as it cannot be sanded in a manner that does not result in a rough, draggy surface and may warp severely.

ALSO IMPORTANT: the balsa sheets have a pair of cut marks in them. If you break up the sheets to remove the parts, these cut marks become useless; preserve them so you can easily mark the location for the wing to mount onto the fuselage.



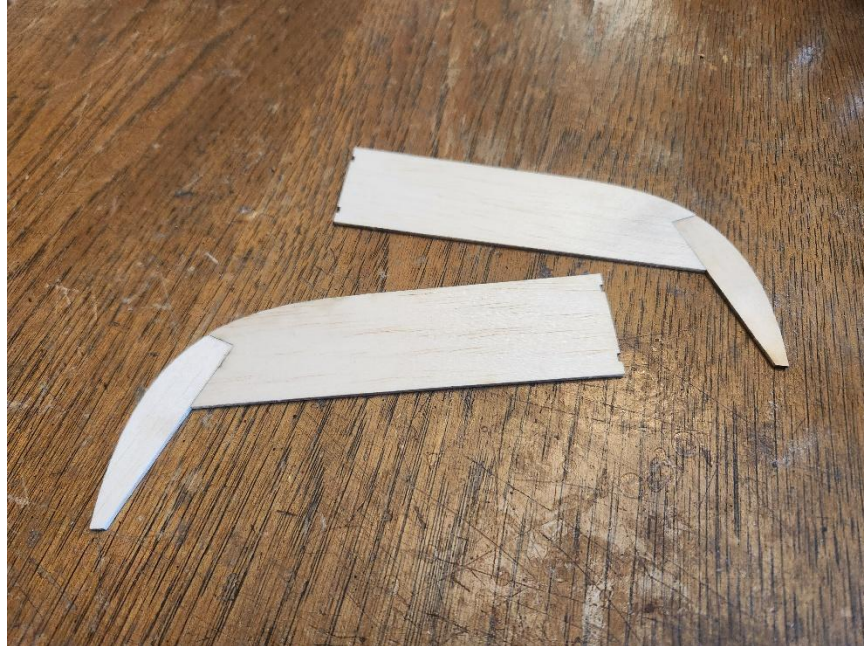
Remove the wing parts from a sheet of balsa.



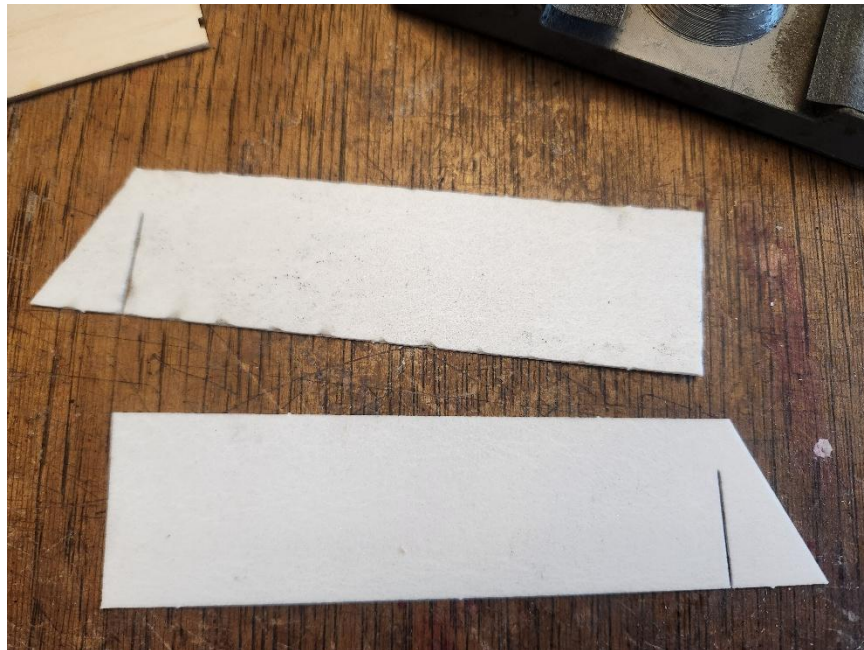
Arrange the wing parts as shown. Maintain this orientation so that you do not accidentally make two left wings or two right wings.



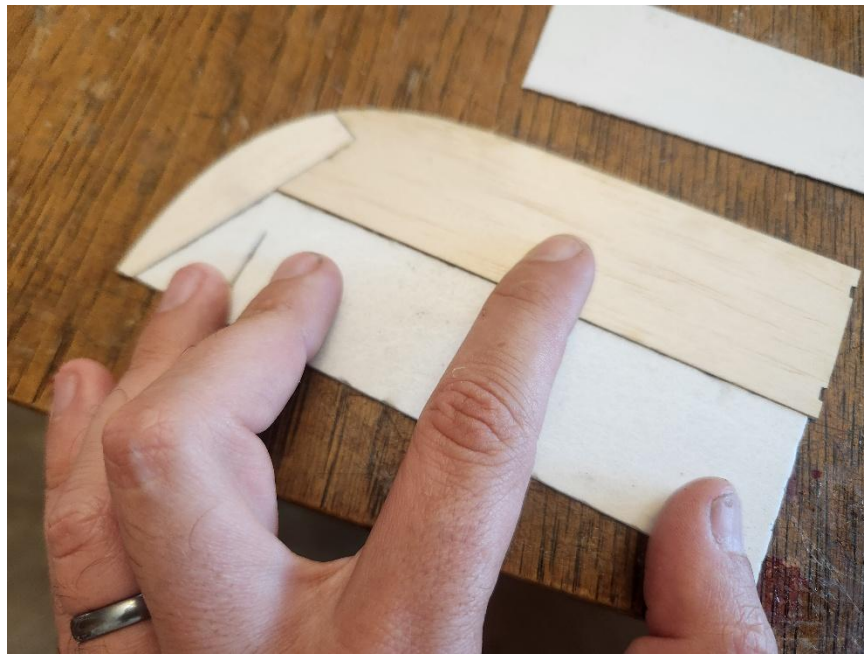
Carefully remove any burrs using a sanding block. Be careful to only remove the burrs and no other part of the wood.



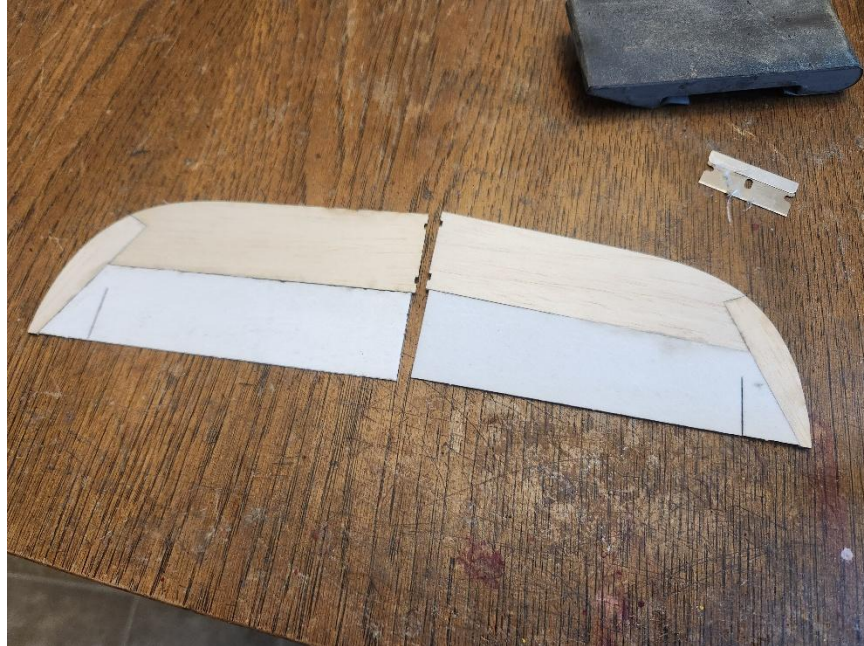
Glue the wingtips into the wing leading edges as shown, being careful to only get glue into the exact contact areas and not on the top or bottom of the wing or outside the gluing area.



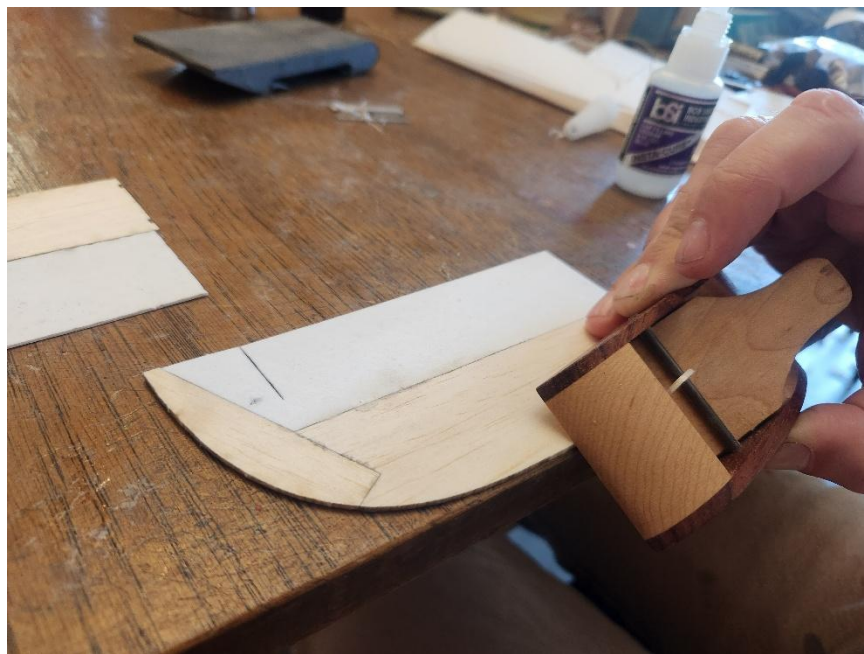
Carefully cut the flaps free of the foam, and carefully remove the small burrs that are left.



Apply glue to the flap contact faces and glue the flap in place, making sure that it is flat against the wing and that the wing is flat against the table.



Repeat this process for the opposing wing, in the opposing orientation (remember the foam is thinner than the wood, by design). You are actually building the wings upside down so that the foam on the top surface is level with the upper surface of the wing.



Flip the wings over and bevel the front of the top surface of the wing using a razor plane.

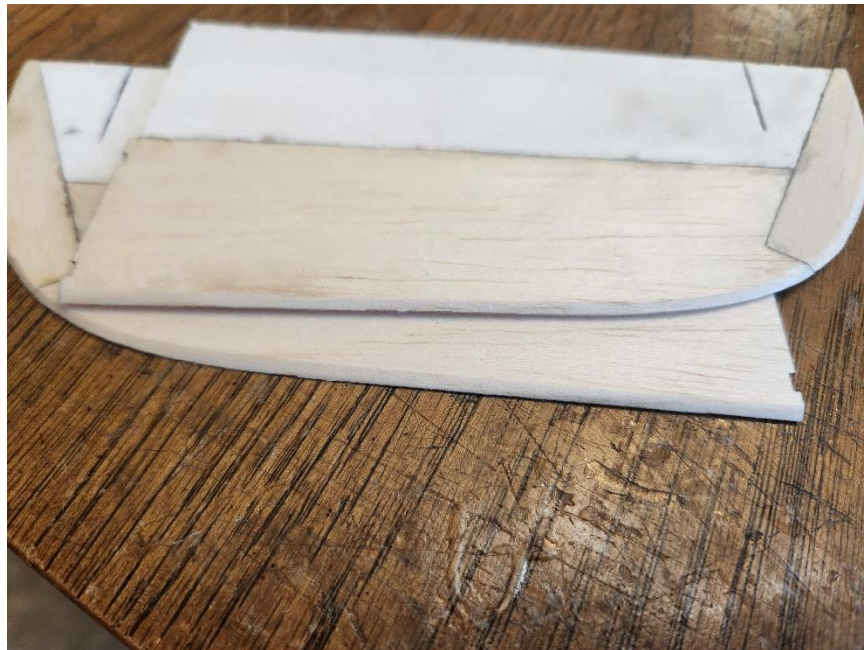


The bevel should go all the way around to the tip. If you are unsure of your planing skills, remove less material than necessary. It's better to remove too little than too much.

Sand the bevel smooth using the sanding block.



Flip the wing back over and sand or plane the lower surface of the wing as needed to bring the tips down to the same thickness as the foam or slightly less.



Repeat these steps, mirrored, for the opposing wing. Look carefully at the above photo which shows the wings, upright, with their leading edges sanded.

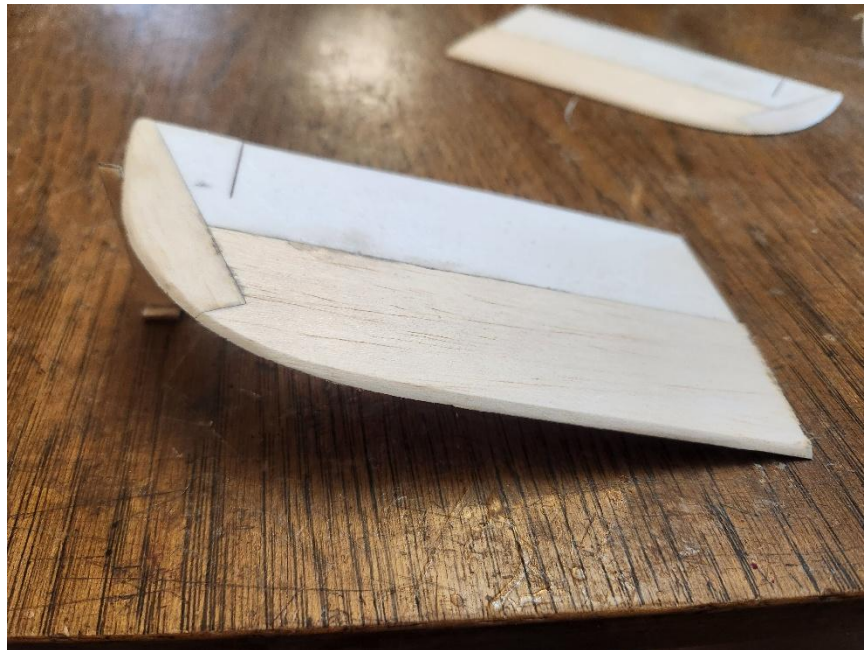


Assemble the dihedral jigs.

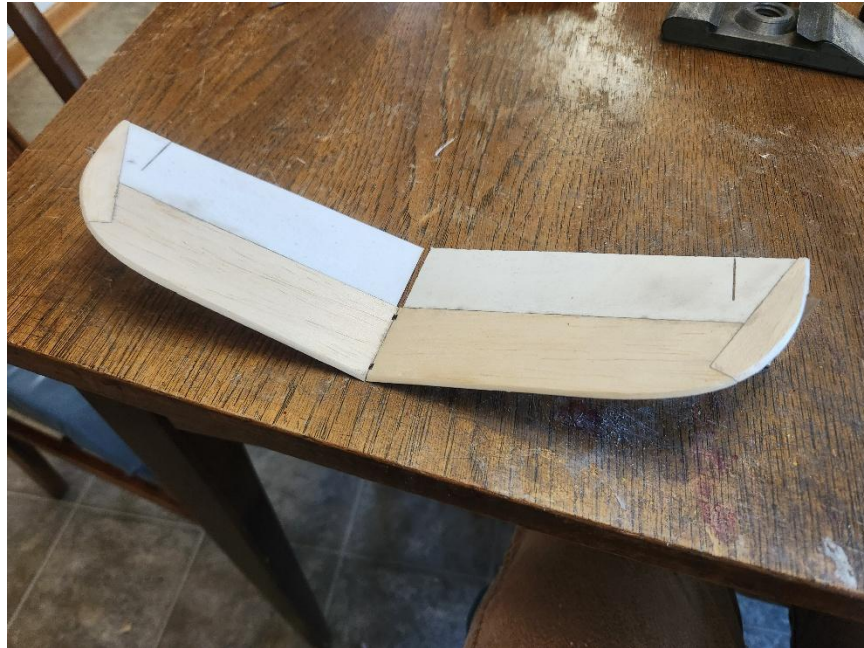




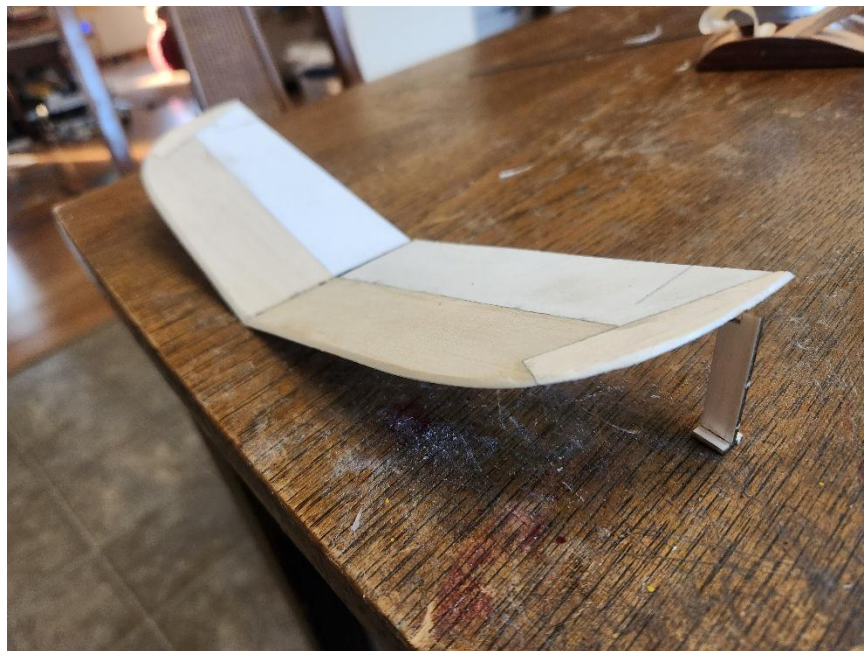
Use a sanding block to bevel the wing roots about 10 degrees. Take your time and bevel this surface as straight as possible.



Prop up one wing on a dihedral brace. You can use this arrangement to test fit your beveling of the wings as you sand them.



Apply glue and bond the wings together, supported by their dihedral jigs.

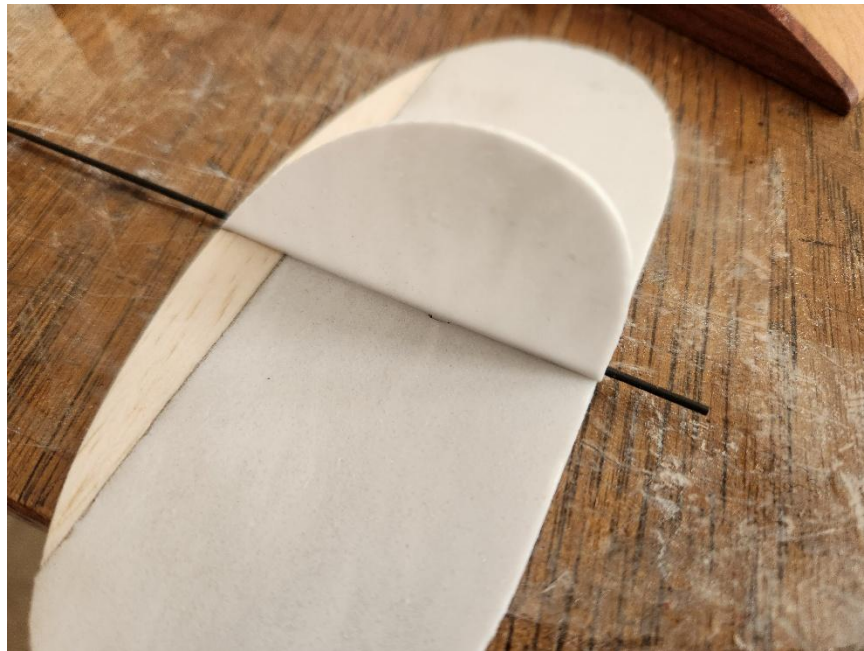




Join the leading edge of the horizontal tail to the matching foam. Note that there is a centerline notch in each at the mating surfaces, and the larger notches for the fin are offset slightly.



Sand the balsa leading edge down to the same thickness as the foam and then round it off.

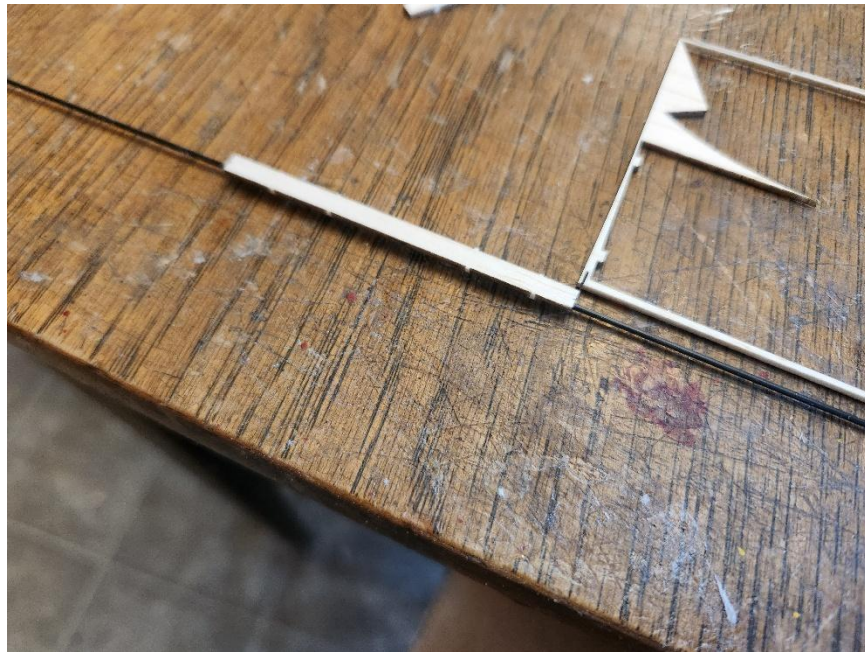


Install the fin into its notches and then glue the tailboom into the corner against the fin/stabilizer interface, leaving $\frac{1}{2}$ " of the tailboom protruding behind the stabilizer.

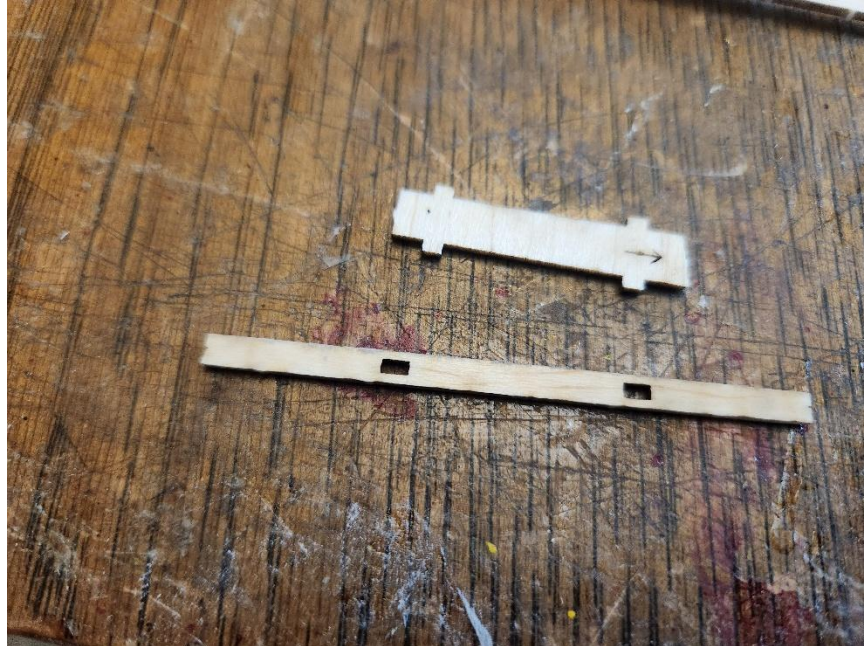




With the stabilizer against the table, measure off the nose length as shown using the cut marks in the balsa scrap material.



Glue the wing mounting plate onto the fuselage.



Assemble the wing pylon onto the pylon mount plate. The pylon is very fragile until glued into place. Be careful to not damage it.





The pylon mounting plate experiences a lot of stress. You can reinforce it with pieces of 0.020 carbon rod so that it will be dramatically stronger.



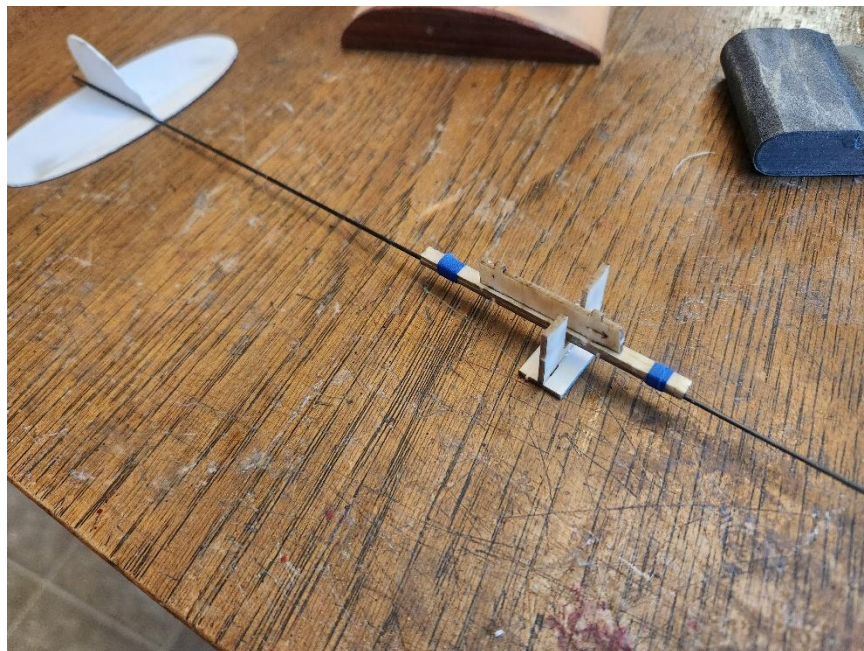


Cut off small strips of masking tape and use them to tape the pylon onto the wing mounting plate. This allows you to have a removable wing mount for storage and for adjustments.

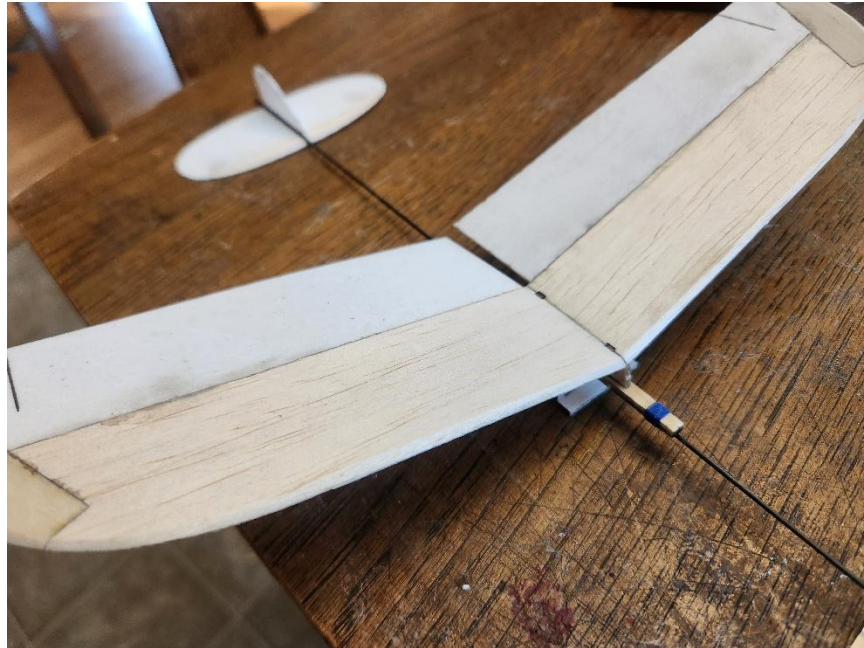




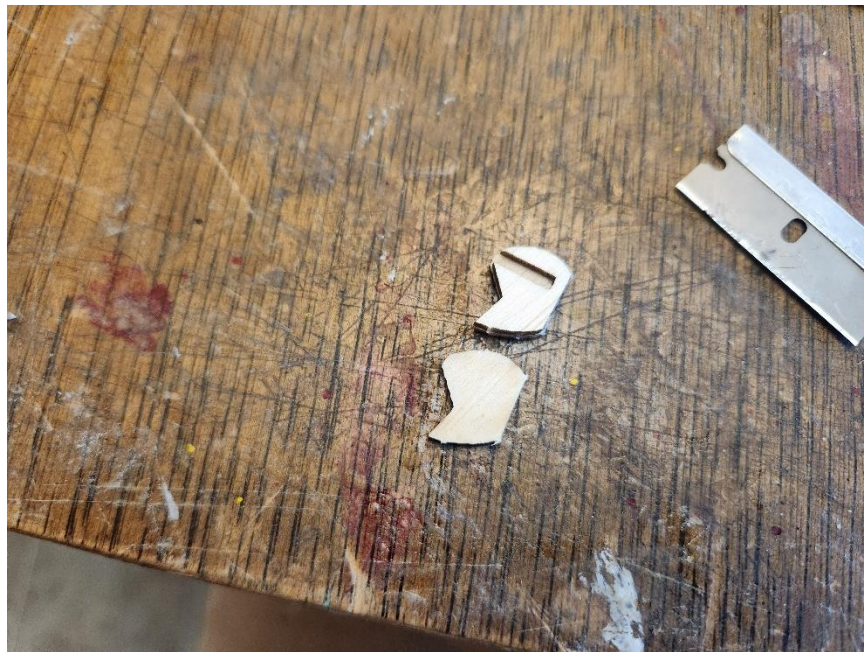
Assemble the wing mounting jig.



Place the fuselage in the wing mounting jig as shown. This allows you to align the tail with the wing.



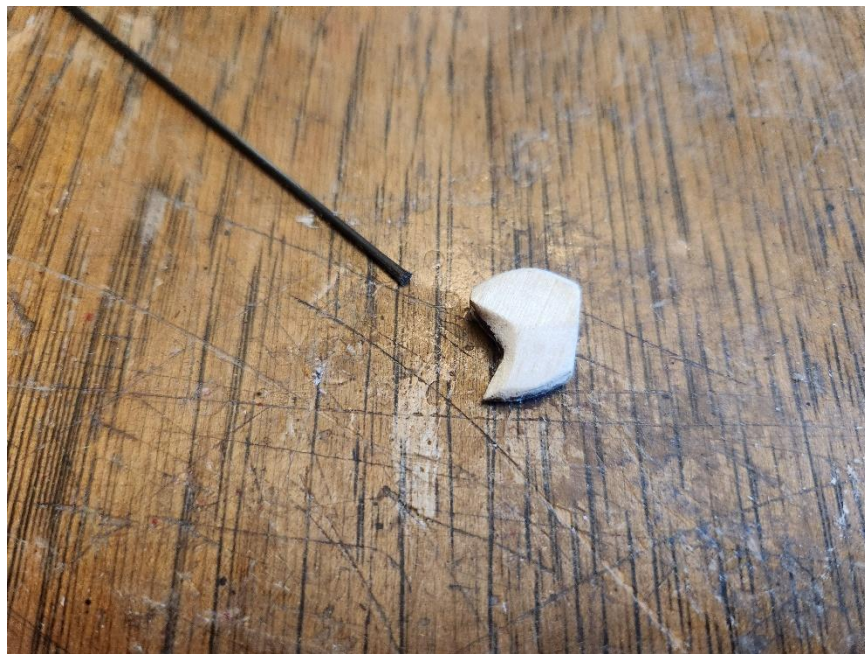
Test fit the wing onto the mount and sand the pylon tabs as needed to get the wing to mount correctly. If you are not confident in your ability to get the wing into place before the glue sets, use wood glue or Duco cement to attach the wing, as it dries very slowly, giving you time to finish.



Assemble the nose, placing the slotted part as the center layer.



Sand the nose to a round profile, but DO NOT round the front of it. This surface must be sanded flat.



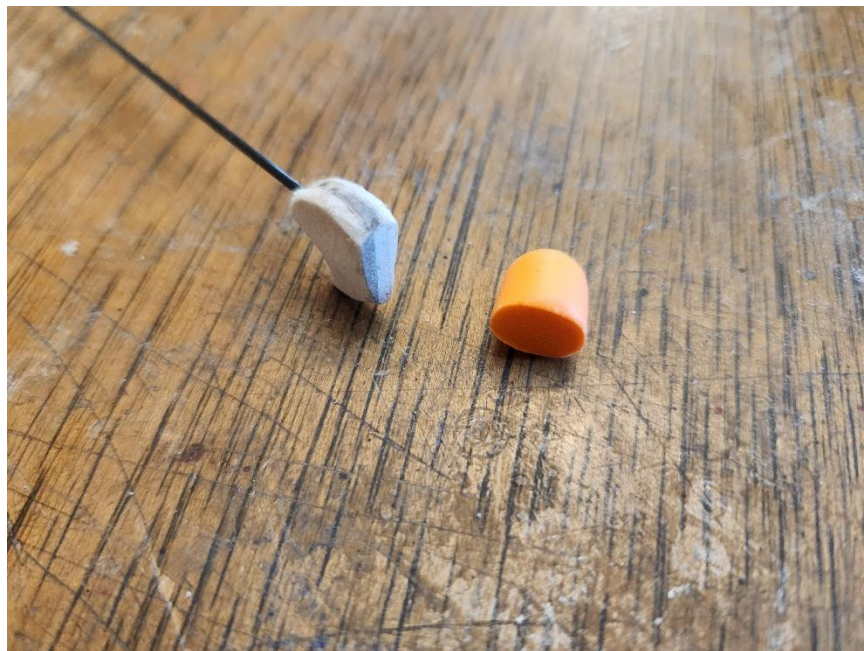


Glue the nose in place. The hook portion goes down.





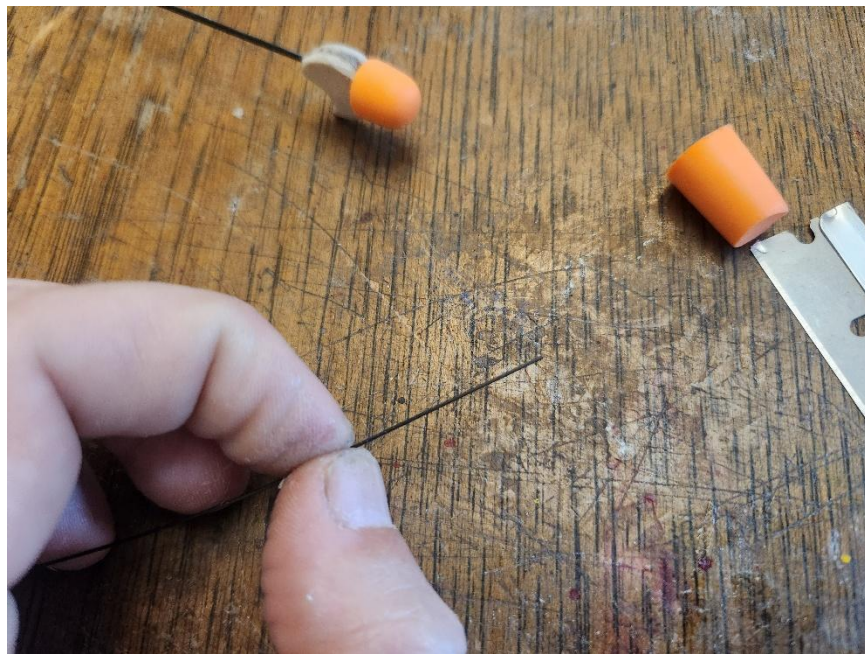
Cut off the front 1/3 of an earplug.

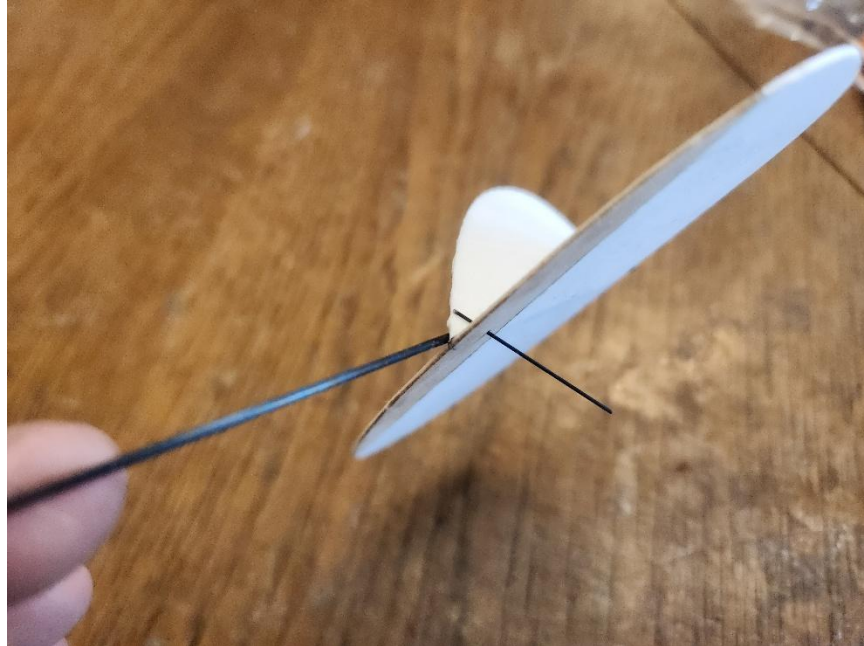


Glue the front scrap of the earplug to the nose.

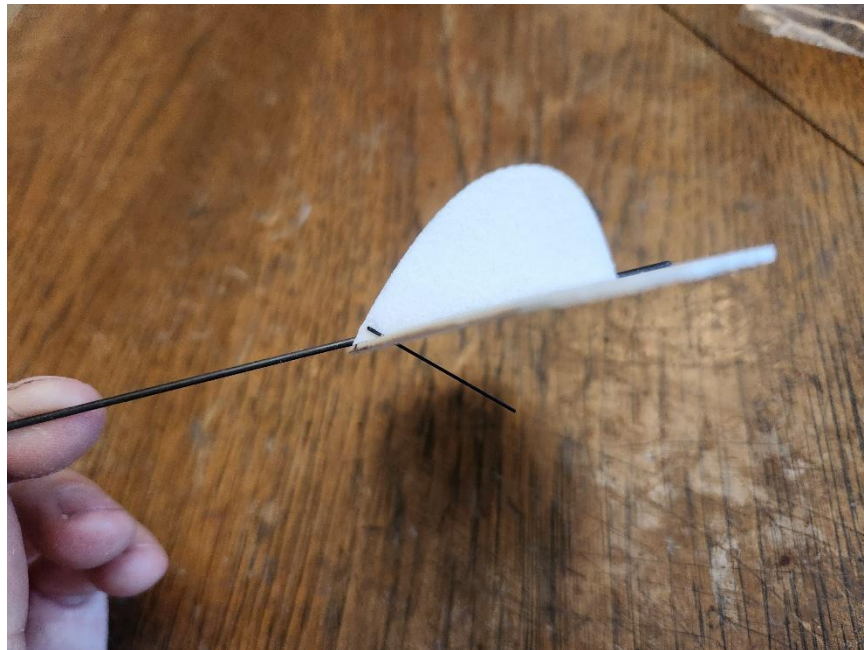


Cut off a 1" piece of 0.020" carbon.

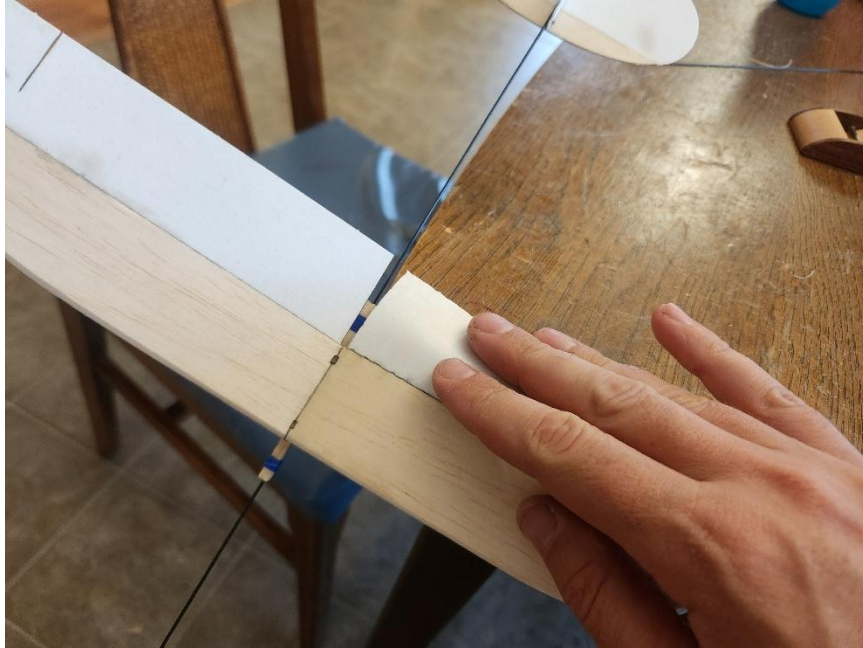




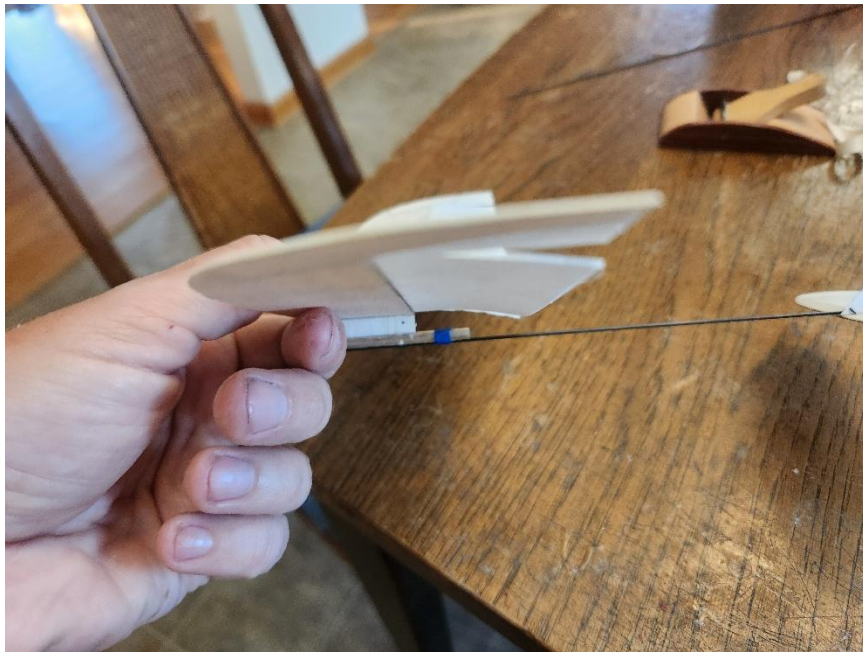
Pierce the carbon through the bottom of the horizontal tail leading edge against the side of the fin and glue it in place.

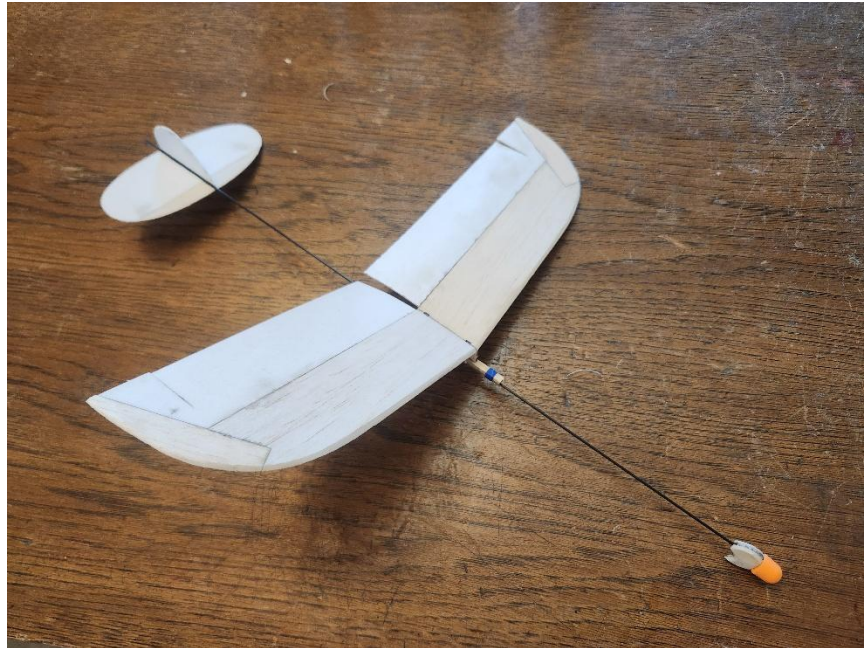


This rod serves as a bumper to keep the tail clear of the release mechanism of our Deluxe ELG Launcher.

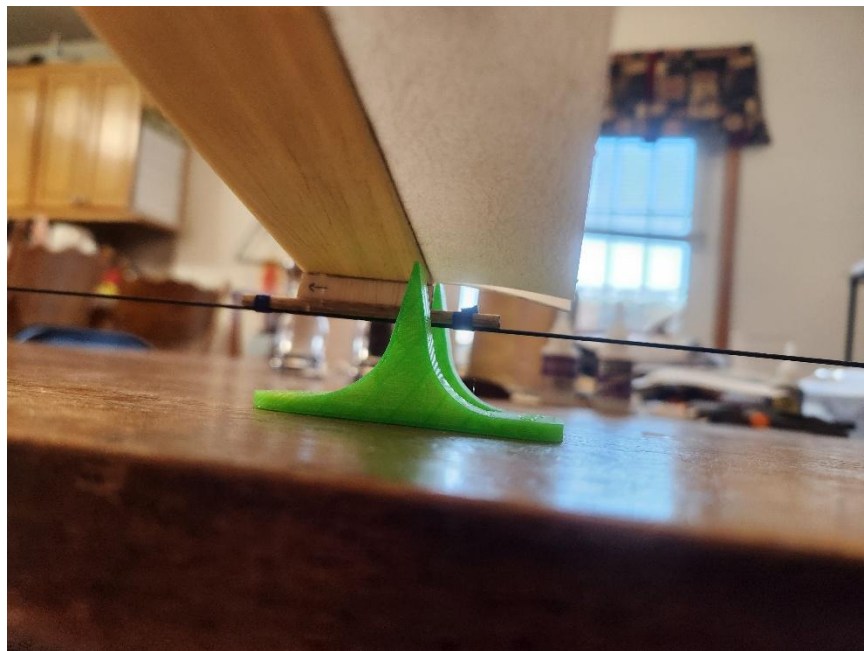


Rub the flaps of your glider against a table to induce a downward curve in them. Leave the wingtips flat.





Your Super Protégé is now fully assembled. Let's balance it.



Balance the glider at the CG mark shown on the pylon by gluing bits of clay to the nose behind the earplug.



Elastic Launched Gliders are very challenging to fly. Please be extremely careful to adjust the model so that it will fly well. This process starts by adjusting the elevator to get a smooth glide from a steady shoulder height toss at glide speed (don't throw it). Once you have the glide set, it is time to throw the glider harder dead level. Add rudder as needed to make it gently turn to the right as it slows down, and adjust the elevator to make it hold level as the speed bleeds off. You can then proceed to launching up at a 60-80 degree angle and some amount of right bank that allows it to turn right off the top of the launch.

This video closely describes the trimming process: <https://youtu.be/VLZJBBiSBPs>

Please contact us using the contact form at jhaerospace.com or at joshuawfinn@gmail.com if you have any questions regarding your Stinger.

Want to become a pro at indoor flying? Try our Indoor Flight University curriculum. It contains extensive information on building, designing, and flying your airplanes to get the most out of them. Along the way you will learn a strong foundation of aerodynamic principles which will reveal the secrets of flight.

<https://jhaerospace.com/product-category/curriculum/>