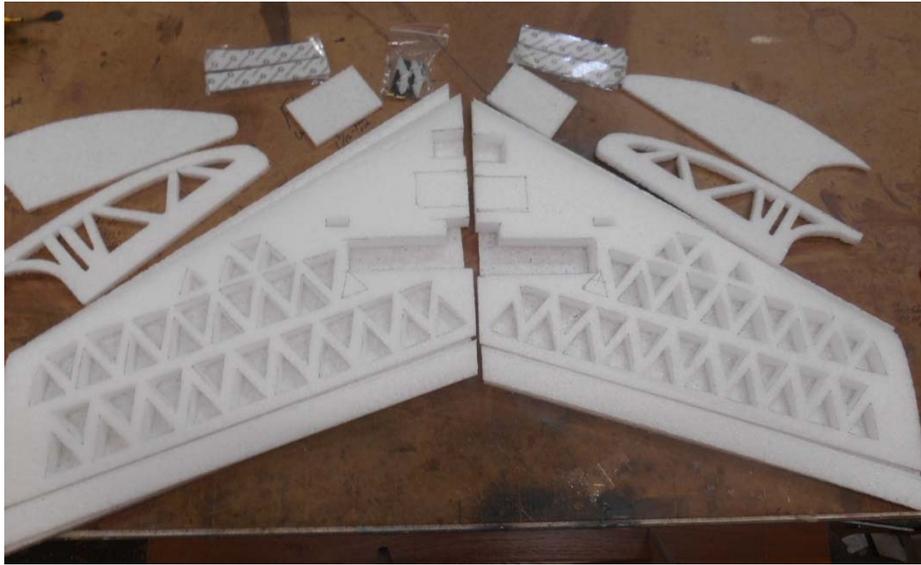


## Wingola II Kit

### The Kit



#### Tools and supplies needed

- 1) Hot glue gun and glue
- 2) C/A
- 3) Covering iron
- 4) X-acto knife
- 5) Masking tape
- 6) 2s 850 lipo battery

#### Included in the Kit

- 1) Wing cores and shucks
- 2) Indoor and outdoor winglets and drag brakes included but not pictured
- 3) Pre-bent pushrods and hardware.
- 4) Precut 1.3 mill new stuff covering included but not pictured
- 5) 3d printed motor mount
- 6) Brass bushing for prop saver
- 7) Hinges
- 8) Velcro to attach removable, interchangeable winglets

Recommended Power Pack option \$45.

2211 2300 kv motor with longer screws for the prop saver if needed. May not match the picture depending on the motor supplier.

2 Emax ES9051 servos

10 amp ESC

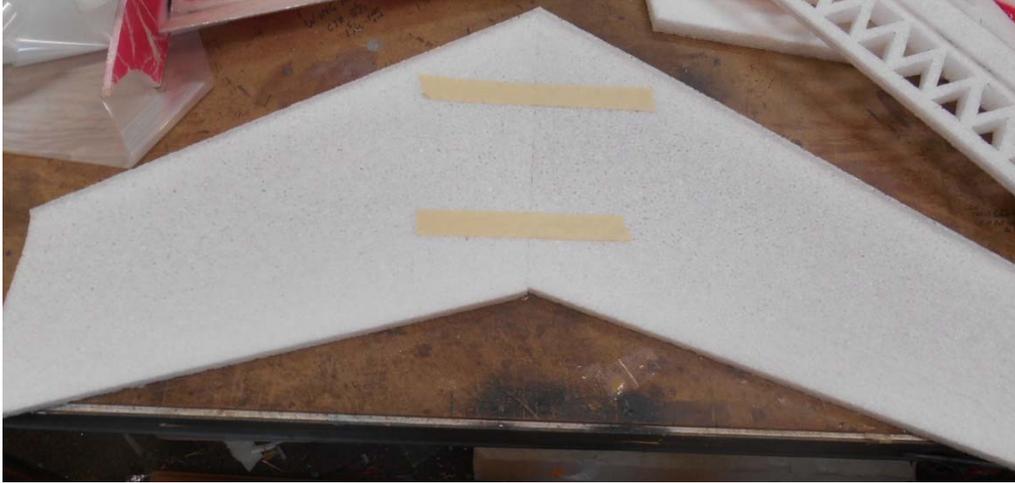
7x3.5 prop

1.27 MM metric Allen wrench for motor set screws

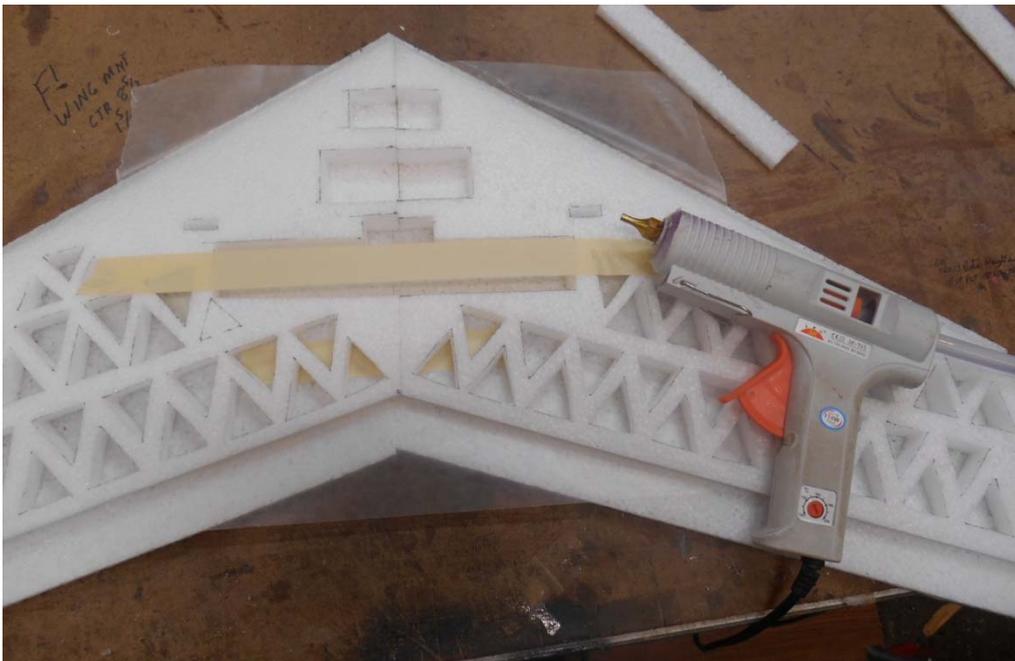


## Build Guide

- 1) Tape bottom shucks together cover with a piece of wax paper.



- 2) Position wing cores on shucks on top of wax paper tape core together and hot glue together.



3) Draw a centerline on the trailing edge of the wing.



4) Draw a centerline on the leading edge of both alerions and line on the top and bottom approx. 3/16" from leading-edge as a guide for cutting bevel.



5) Cut bevel using a new razor knife as shown below.



Bevel



Tape to the flat edge of a table



6) Draw lines on the leading edge of prop slot top and bottom and cut bevels to ease the transition of air to prop. Use a triangle to make them square with the centerline of joined wing halves and to check the squareness of the motor mount notch



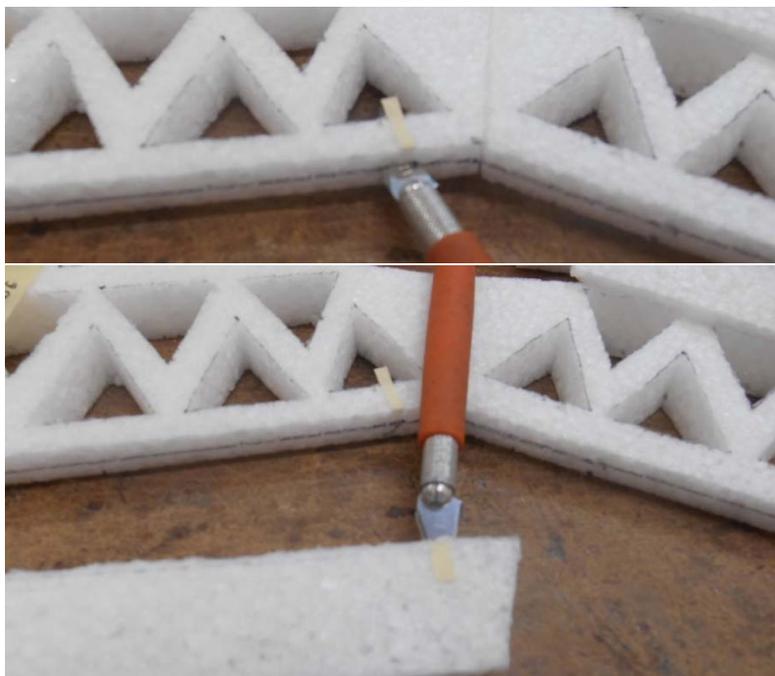
7) Lay a piece of masking tape on a ruler and mark out eight segments of tape and cut these will be used to mark the position of hinges.



8) Place aileron next to the trailing edge of the wing and place tape tabs to mark the location of hinges at  $\frac{1}{2}$ " ,6" ,11" , and 15  $\frac{1}{2}$ " .



9) Use an X-acto knife to cut slots in the trailing edge of the wing and matching slots in the leading edge of ailerons at the locations marked with the tabs of masking tape.



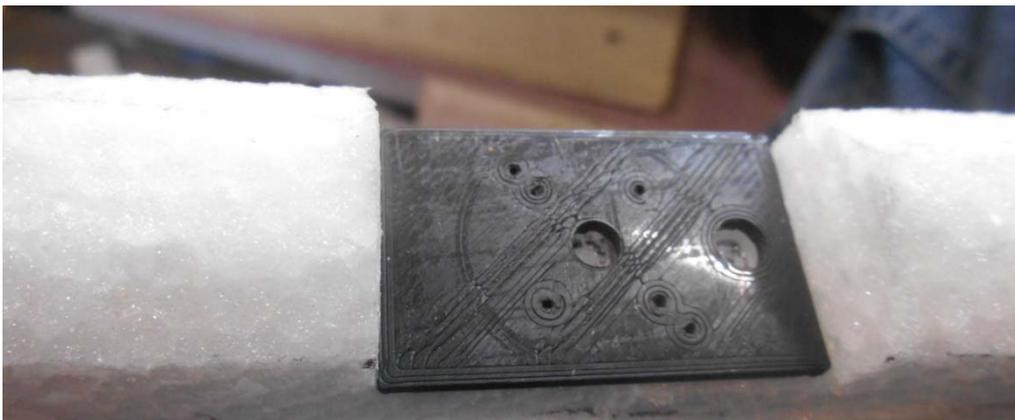
10) Insert c/a hinges into slots cut in the alerions and work them into slots in the trailing edge of the wing.



11) Maintain a 3/16" gap between the trailing edge of the wing and the leading edge of the alerion. This will allow you to iron the covering into the gap from both sides to form a continuous hinge. Use thin C/A glue to glue them in place.



12) Use the printed firewall to mark the holes for the motor shaft and ESC wires to pass through; some of the motors have a shaft that needs clearance. Cut holes with a piece of sharpened brass tubing. (Note firewall has holes to match most motor mounts.)



13) Glue motor mount in place.

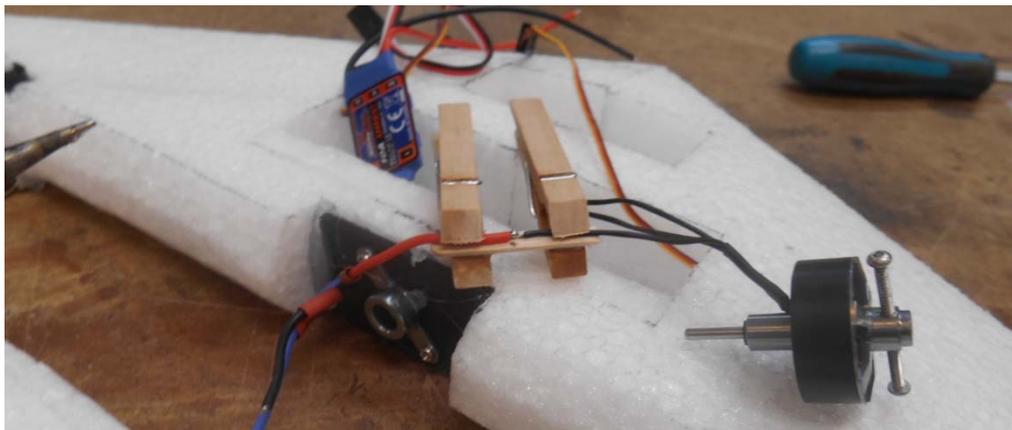


Filet of hot glue both sides

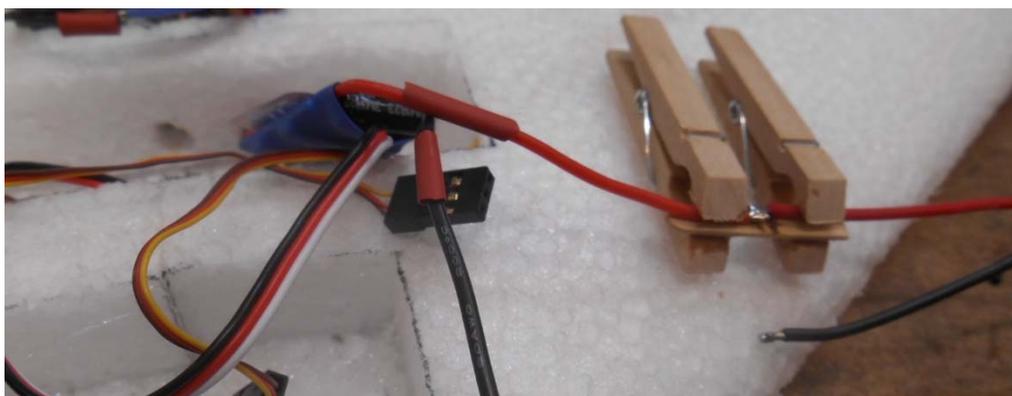
14) Clear holes of excess glue slide ESC wires through the hole.



15) Solder wires together using the high-tech tool. Slide shrink tubing place but do not shrink until you check the motor is running the correct direction after the next step.



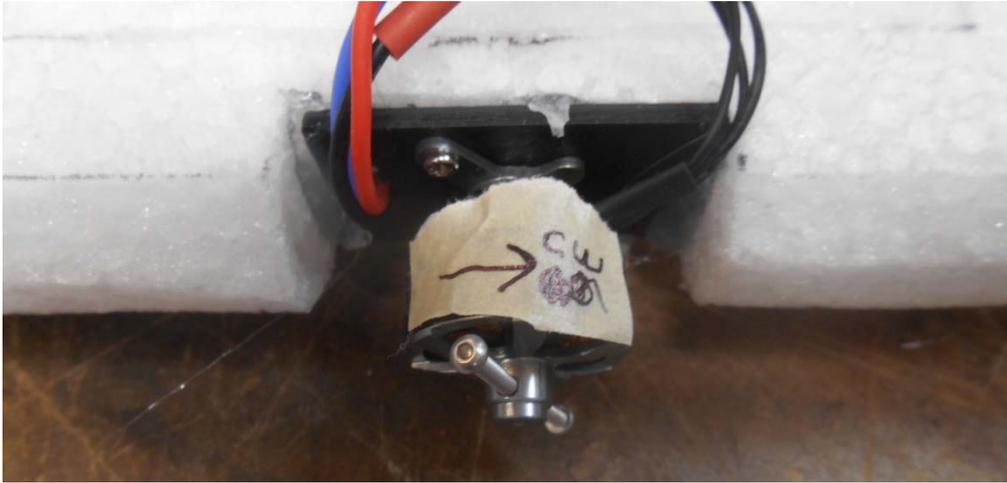
16) Solder battery connector in place for the battery you plan to use. Jst connector is supplied with the power pack.



I have had good success with the Nano-Tech batteries from Hobby King.



17) Temporary mount motor and check that it runs in the proper direction. Once the correct rotation is confirmed, shrink tubing in place and pull wires through the firewall into the radio compartment.



18) Use torque seal (or an old bottle of the wives or your nail polish will work too) on the motor mount do not get in bearings.

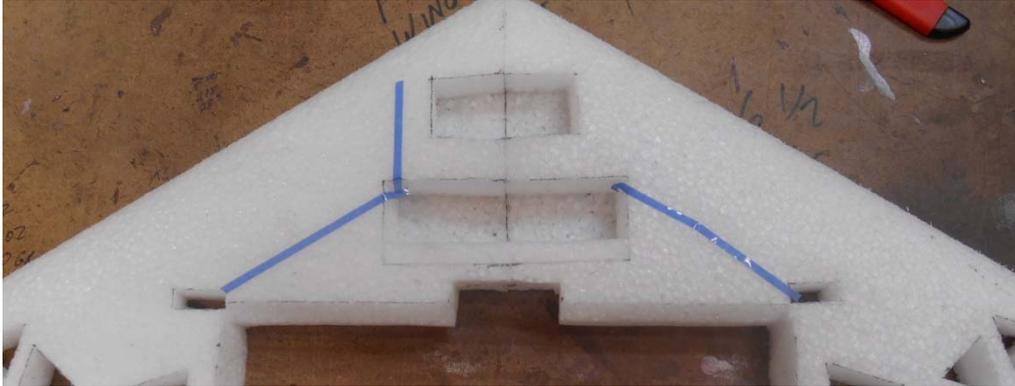


Also, use it on set screws that hold the motor in the motor mount.



Experience is they will loosen due to vibration if some sort Loctite is not used.

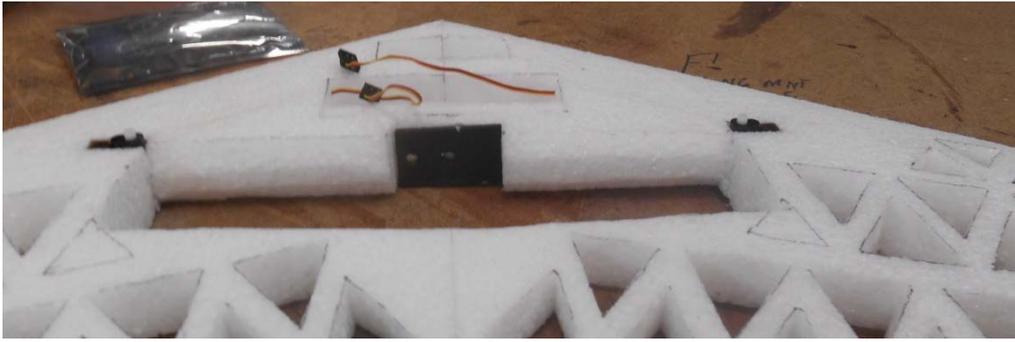
19) Routing for servo wires and battery connectors.



Cut slits in foam approx.  $\frac{1}{2}$ " deep with an XACT knife—push wires into slits with a fingernail as shown.

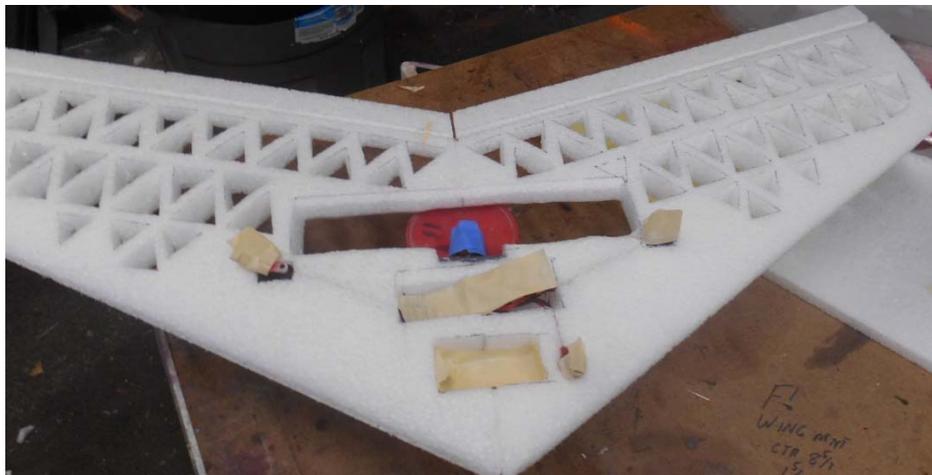


Orientate servo wire towards the center of the wing.



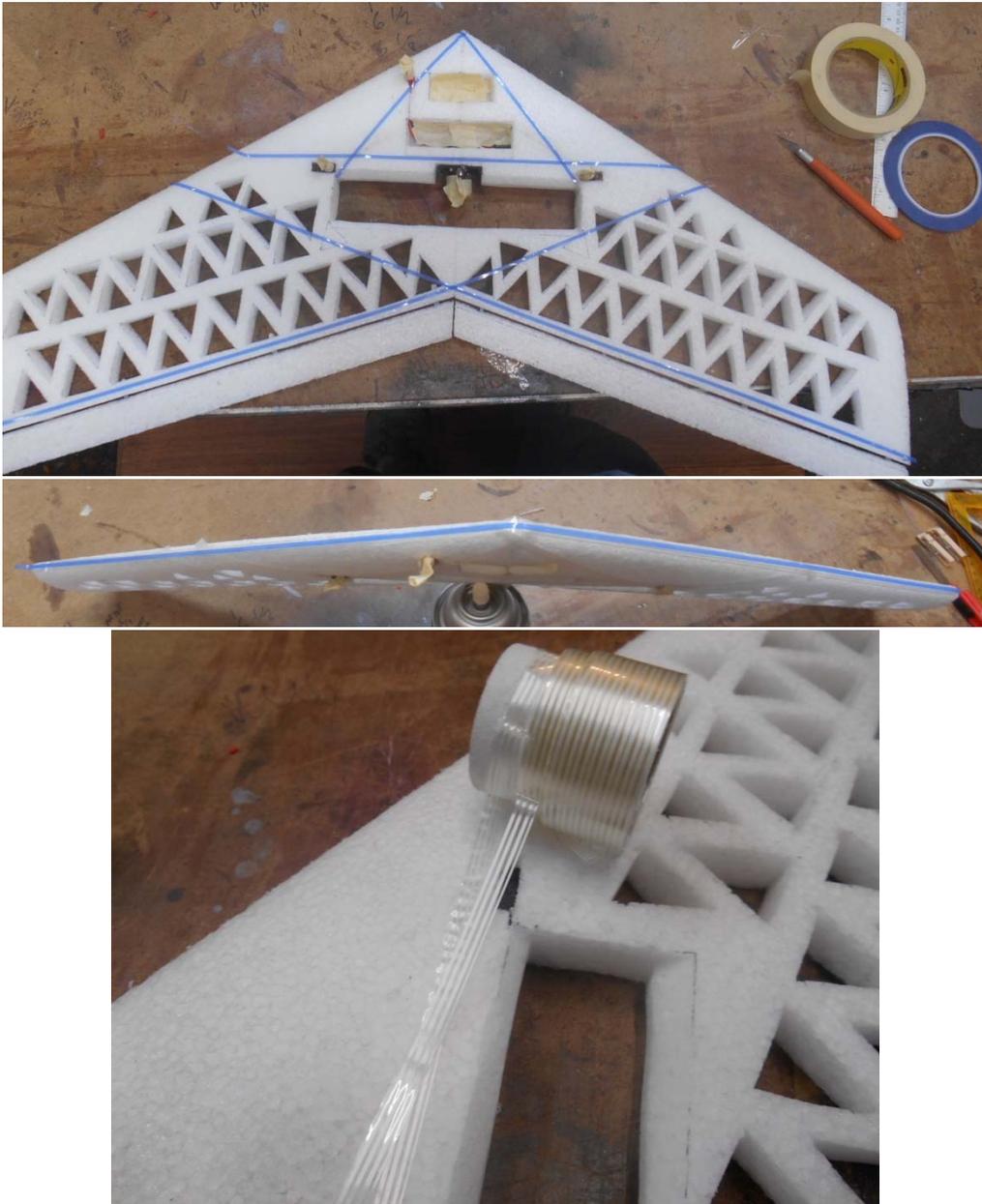
Push servos into the wing, so the tops of the case are level with foam.

20) Install RX and connect servos and ESC tucking them into the compartment and cover with masking tape also cover the servos and motor. Spray light coat of 3M77 contact glue on the airframe. Let flash off for 1 hr. or until it is no longer sticky, just slightly tacky.



Clean the table of all scraps and debris and dust. It will stick to the wing.

21) Apply ¼" strips of strapping tape as shown on the bottom and top of the wing.



22) Apply a coat of 3M 77 to tape. Let dry

23) Clean table. Any debris or dust will stick to the wing.

24) Apply covering to alerions using a covering iron set to approx. 180 deg F. Use the 3" inch strips of covering the dull side is the glue side. Working on the edge of a flat surface.

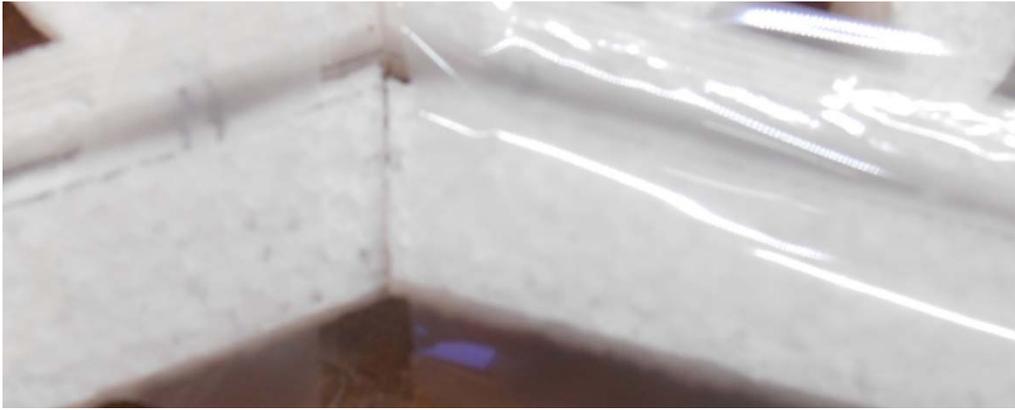


Lay the covering on wing  $\frac{3}{4}$ " overlap on the trailing of the wing. Smooth down with a finger to remove wrinkles; apply a hot iron to just the overlap on the wing, not the ailerons, only do one at a time.

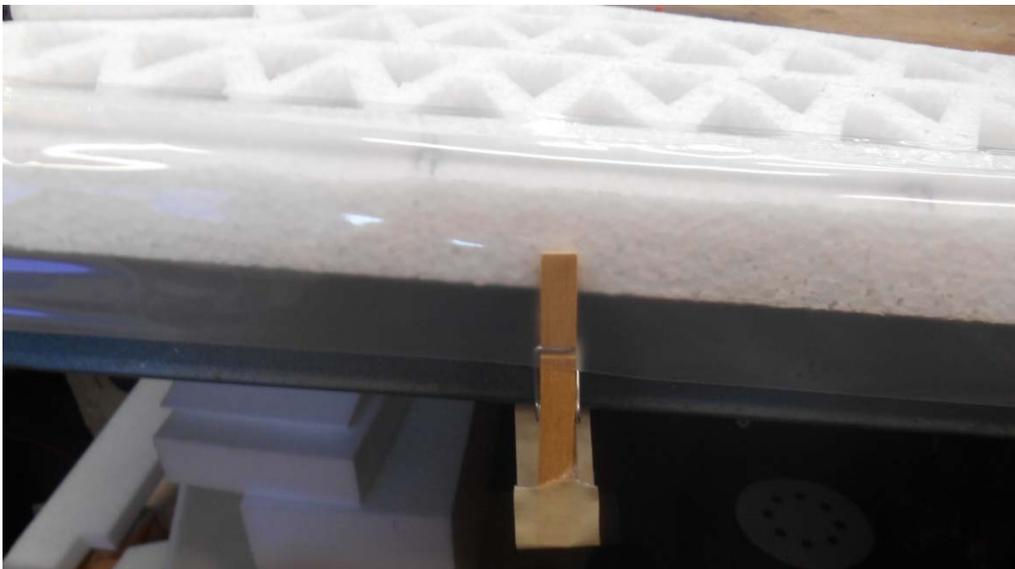


25) Trim excess at both ends.



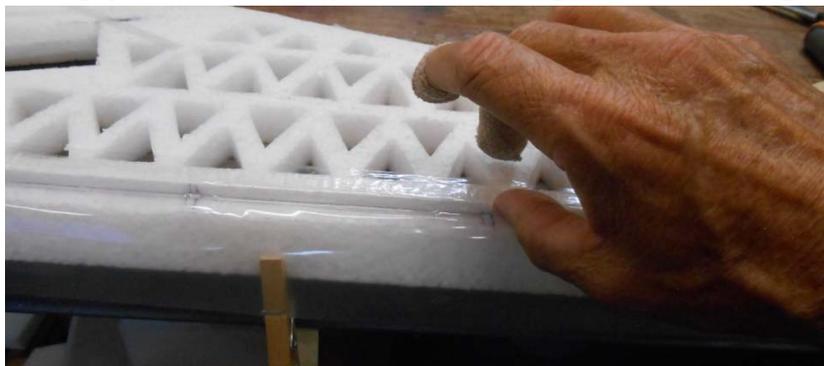


26) Move the wing to the edge of the table. Fold the covering down to hold the hinge line open.

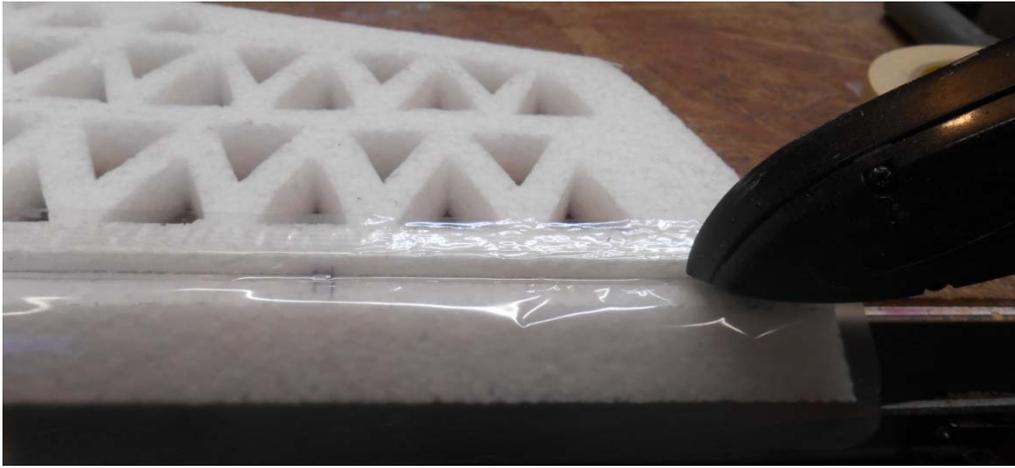


I use a clothespin and tape to the edge of the table

27) Using your thumb, push covering into the hinge line.



28) Using the tip of covering iron, iron the covering to the trailing edge of the wing.

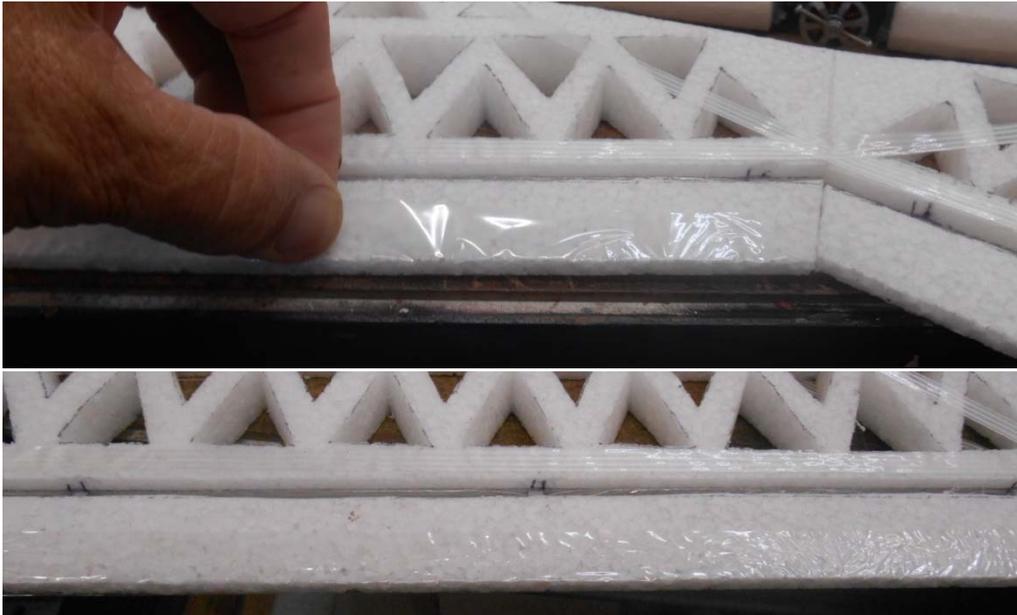


29) Then iron the covering to the leading edge of the alerion. The covering will fill the gap between the wing and the alerion. When you cover the other side, the covering will form a continuous hinge.



30) Now side wing forward, so alerion is flat. Smooth the covering on to alerion with your finger, then iron covering smoothly on alerion around the trailing edge and on to the other side.





33) Repeat process on top aileron.

34) Repeat process on other aileron.

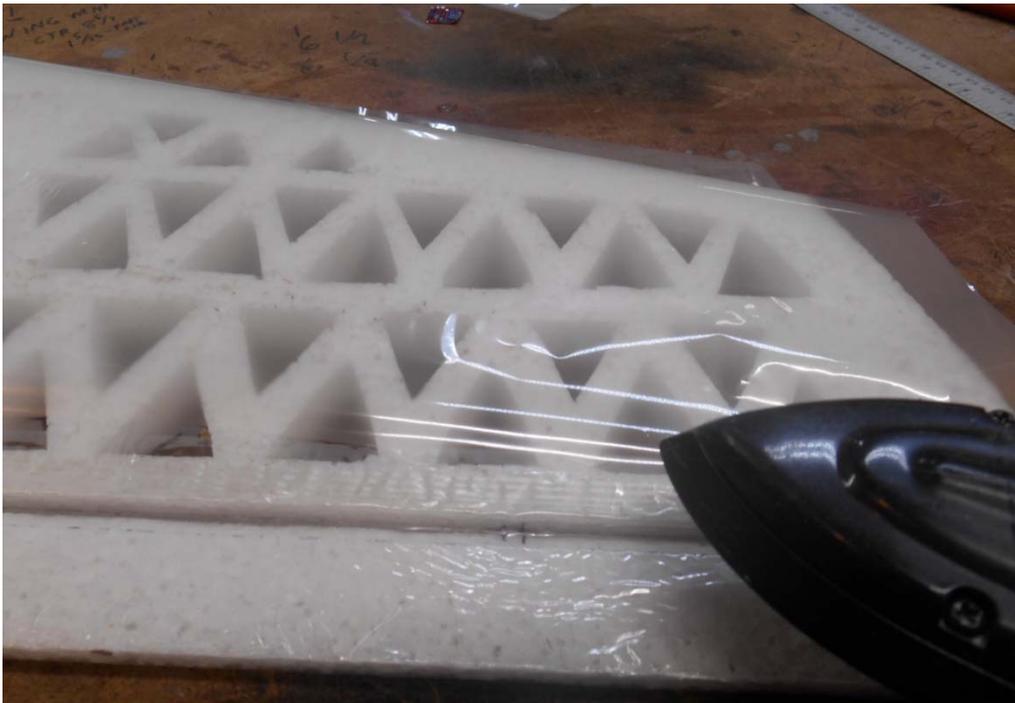
35) After both ailerons are covered, move on to covering the wing bottom first with the precut pieces. The frosted side of the covering is the glue side.



36) Lay covering on wing leaving approx.  $\frac{1}{2}$ " margin at tip and 3" at center. Align with trailing edge of wing.



Tack covering along trailing edge the smooth wrinkles and iron down.



Flip wing over and trim covering at leading edge of wing leaving approximately 1" to wrap around leading edge



37) Repeat process on bottom of other wing then top of both wings. Cut holes in top covering for servos and battery connector.



38) Trim excess covering at tips of wing.

39) Cut covering over prop slot as shown and iron to foam in prop slot.



Now is good time to decorate before installing pushrods and control horns.

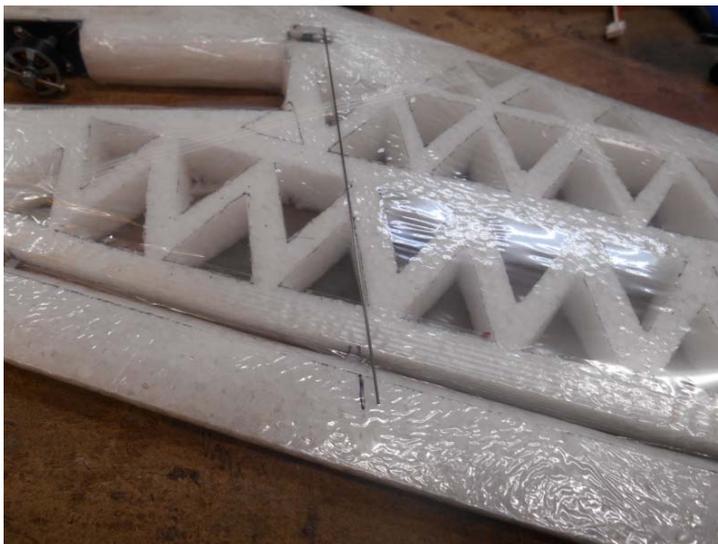
40) Prepare control horns ream or drill out hole in control horns so pushrod connector rotates freely. Use Loctite on nut to keep it from coming loose.



41) Install RX hook up servos and power up position servo arm as shown.



42) Install pushrods and use to mark location of control horns on alerions cut slot in alerion. Position control horns so pushrod connectors are towards wing tips. Push horn through alerion and push hold on clip onto stem and use ca to fasten in place





Trim off excess length of stem when glue is set.

43) With Rx and Tx on and servos energized loosen screws in push rod connectors and insert pushrods. Set ailerons with trailing edge up from level approximately  $1/16''$ .



44) Cover winglets. Cover both sides of outdoor winglets. Use 5" strips of covering



Iron to one side then flip over and trim as shown. Finger cuts are necessary as the covering does not shrink or stretch like most iron on coverings.



Iron covering around and on to other side.



Do the same to other side encasing foam.



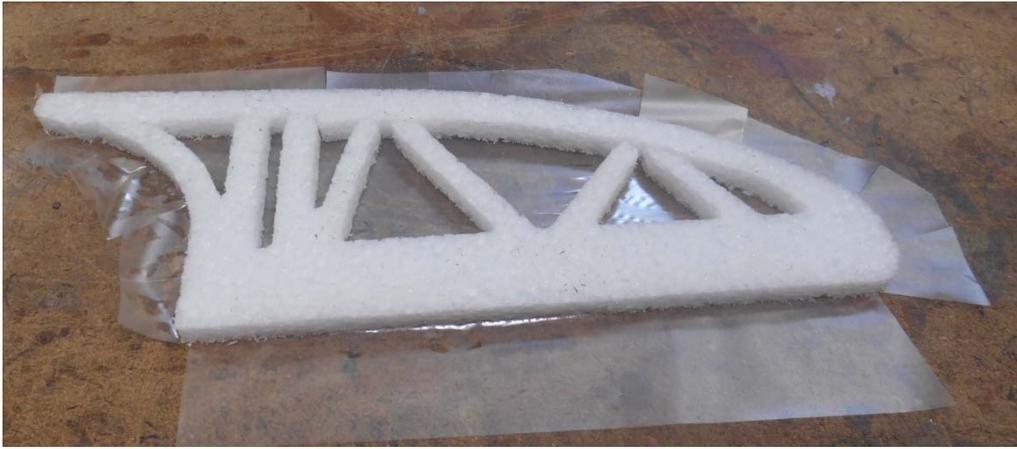
45) Position Indoor tips as shown to ensure you make a right and left.



46) Apply covering leaving enough to wrap around bottom of winglet.



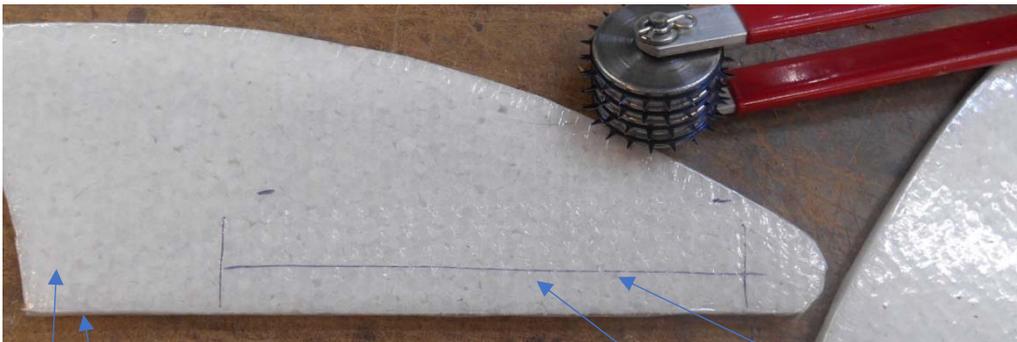
Flip over and trim as shown.



Note finger cut to facilitate wrapping around curved surface with as few wrinkles as possible.



47) Mark Winglets for location of hot glue to hold Velcro in place.

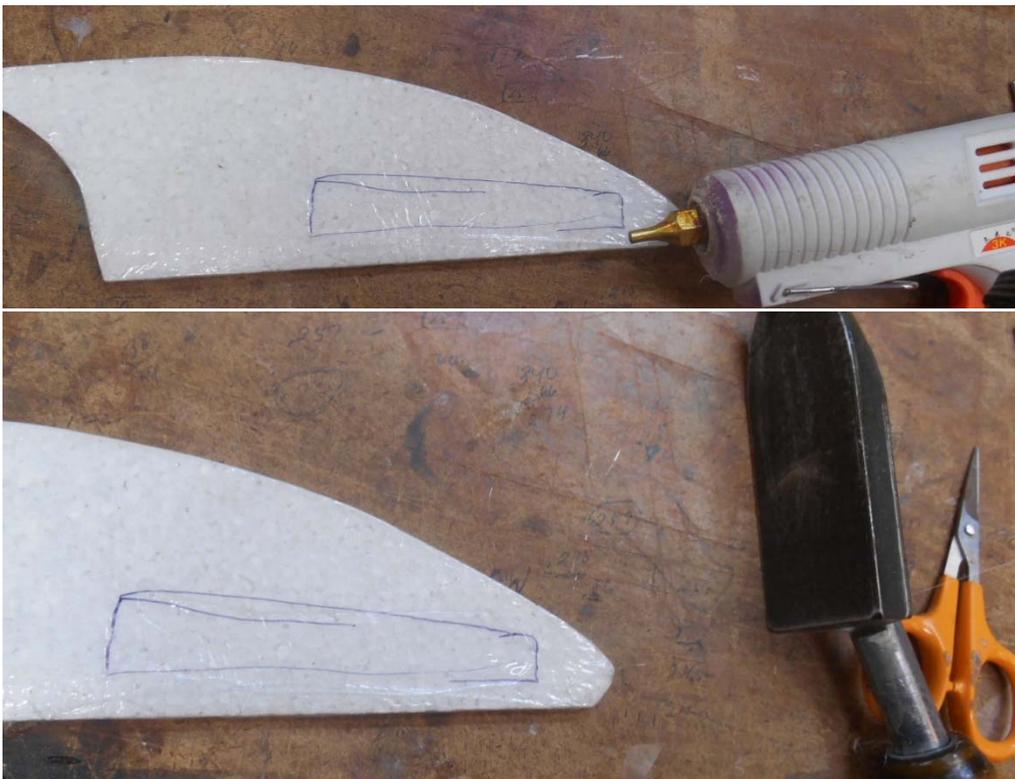


$\frac{3}{4}$ " from tip

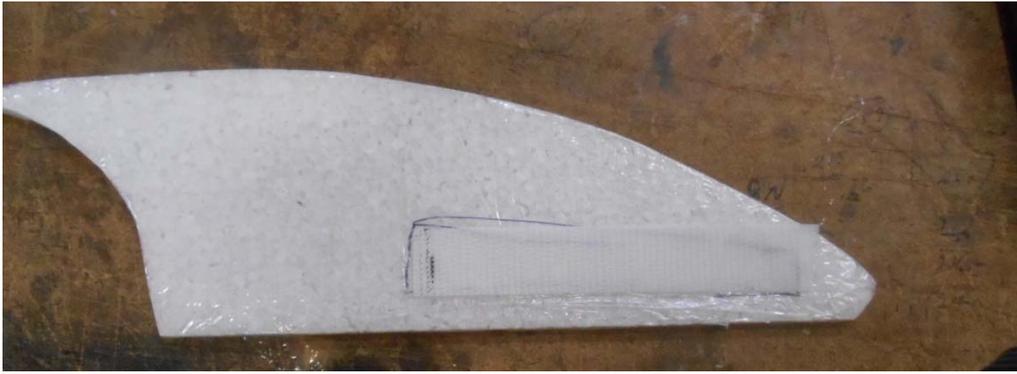
3/8" from bottom



48) Apply hot glue and smooth with covering iron. OK, don't panic. When you are done smoothing the glue on winglets and wing tips, wipe the excess glue off on a paper towel. Let iron cool and clean with rubbing alcohol.



Apply stiff (pin) side of Velcro.



Repeat on all winglets



49) Apply hot glue to tips of wing and smooth with iron.



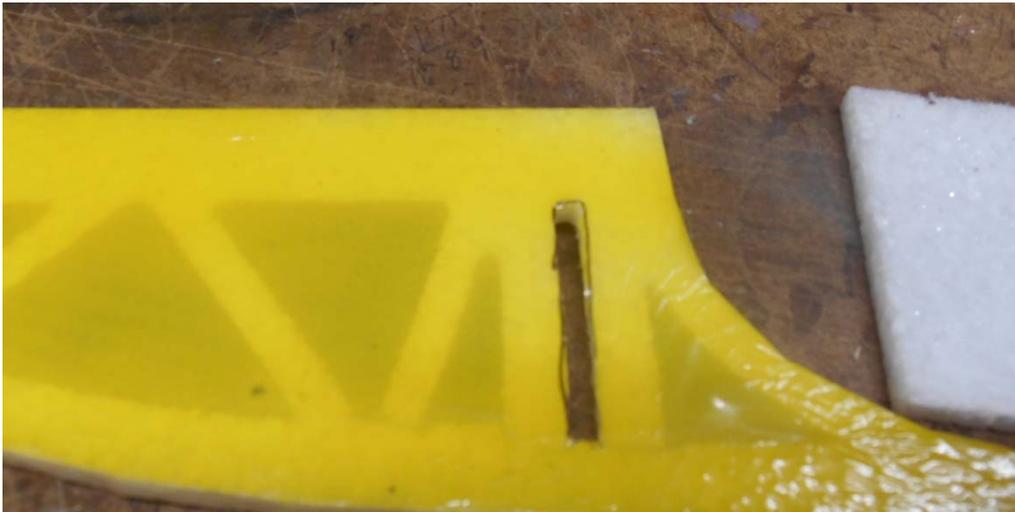
Apply soft side of Velcro



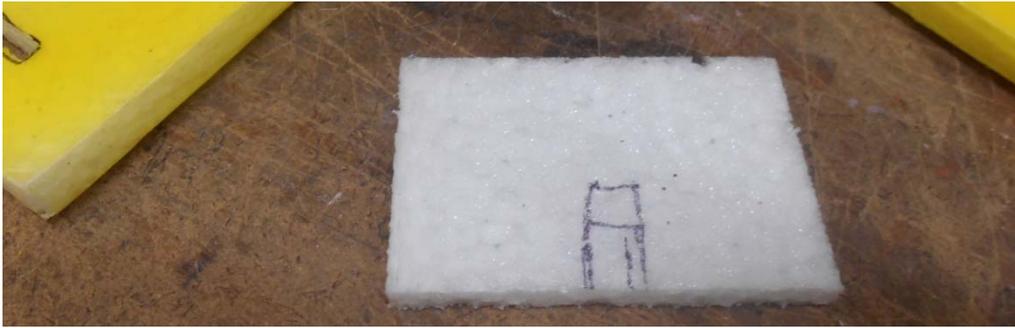
50) Clean iron



51) Cut slots in indoor winglets.



Notch drag brake to fit as shown.

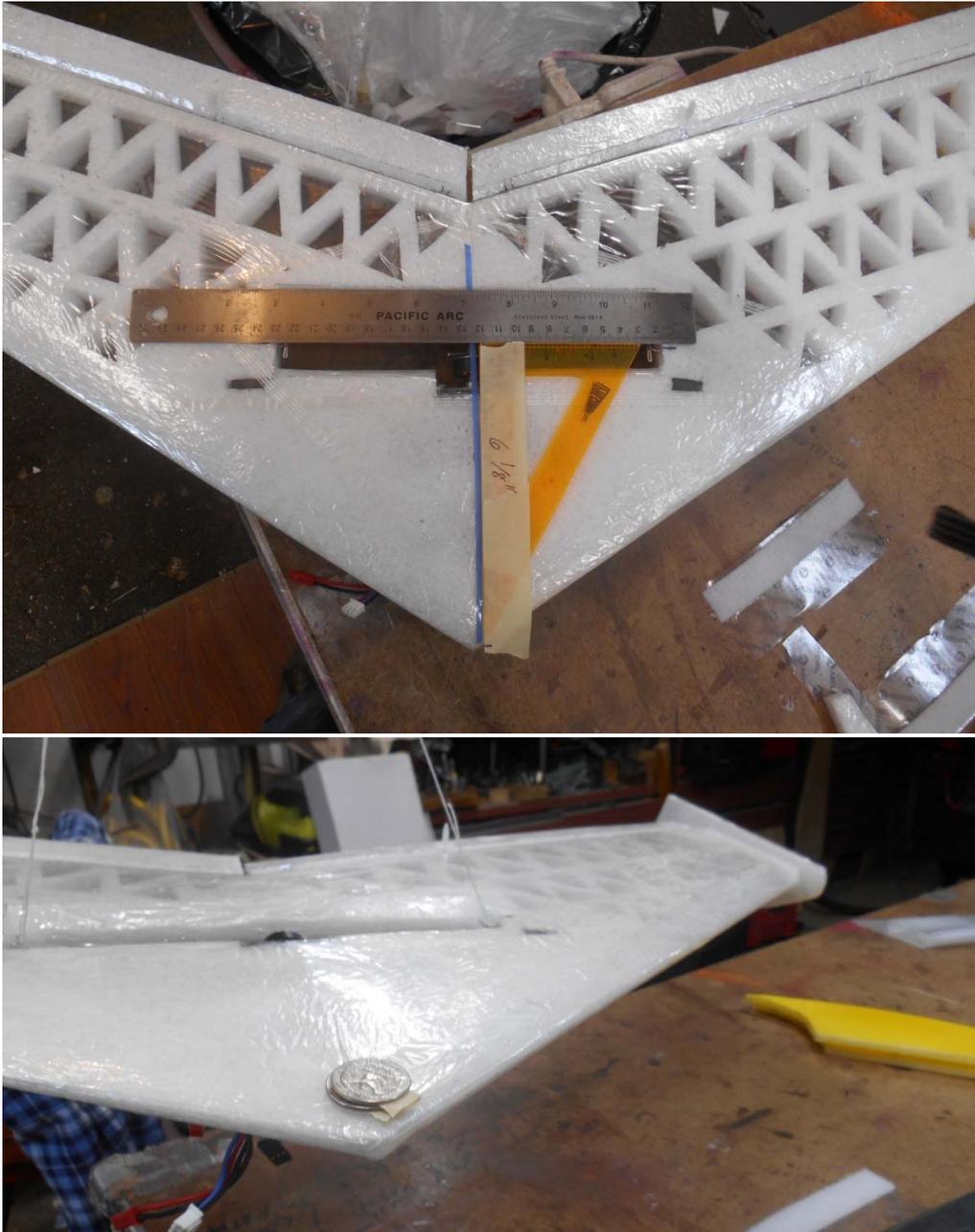


52) Use thick CA to glue prop spacer to motor prop saver.



Install prop.

53) Attach winglets and install battery. Turn wing upside down and mark CG and push T pins in at marks and suspend by string to balance. Should take approximately  $\frac{3}{4}$  oz. or two quarters plus if you added to much paint



54) Cut slot for weight (spare change) in battery compartment.



You are now finished. Enjoy!

I set the timer on my tx for five minutes. This works for full throttle runs leaving enough charge in the batteries to prevent running lipos too low...