

Thank you for your purchase of the Lee Ulinger,  
FoamtanaS, Yak-55, or Extra 330  
3D Depron foam, Aerobatic airplane.

Tools you will need to build

#11 hobby knife

Ruler

3' Level

Foam Safe Ca

1" Blended tape (hinges)

.032 music wire

Recommended additional items:

Motor: Hacker A20-22L

Battery: 3 cell 1320 Lipo

Servos: 4 Sub Micro

Receiver: Micro 6 Channel Rx

Controller: Phoenix 25 amp

Look through the entire instructions before beginning the building to become familiar with the steps evolved.

Gear is separate item available at [darrofcady.com](http://darrofcady.com)





### Step 1

You need to remove the tape and the spars in the wing and elevator then apply 30 min or longer cure epoxy in the groves and push the carbon spars back in the grove. Wipe off any excess epoxy that will ooze off with a paper towel. Place the wing and elevator on a very flat surface and weight it down. I like to use laminated shelf material found at your local home center. Use painters plastic or saran wrap to cover the glue side of the wing and tail so that the weights do not get stuck.





#### Step 2 A

Fuselage construction:

On a flat table, slide the Cross brace rearward with front tab in slot until all the tabs are aligned with prospective slots. If the tab is too thick for the slot you can lightly pinch the tab and it will fit nice and tight.





#### Step 2 B

Use level to hold the cross brace 90 degrees to the fuse side and flat on the table, when you are sure all is aligned then use foam safe to glue tri stock and cross brace from rear of wing to the back of the fuse, make sure to not put glue where the elevator attaches yet. Make sure to use some down pressure so there is no gap between the fuselage and cross brace.





### Step 2 C

Pull the front of the fuse out of it's slots apply a bead of thick or medium foam safe CA. Put fuse back on the flat table with the tabs back in there slots and hold down pressure evenly. Put the level back on the fuse to help keep it flat. This is a place where CA accelerator helps a lot just make sure it is foam safe as well.



Repeat steps 2A, 2B and 2C for the opposite side, just hang the fuse cross brace over the edge of the worktable; this will ensure a straight fuselage.

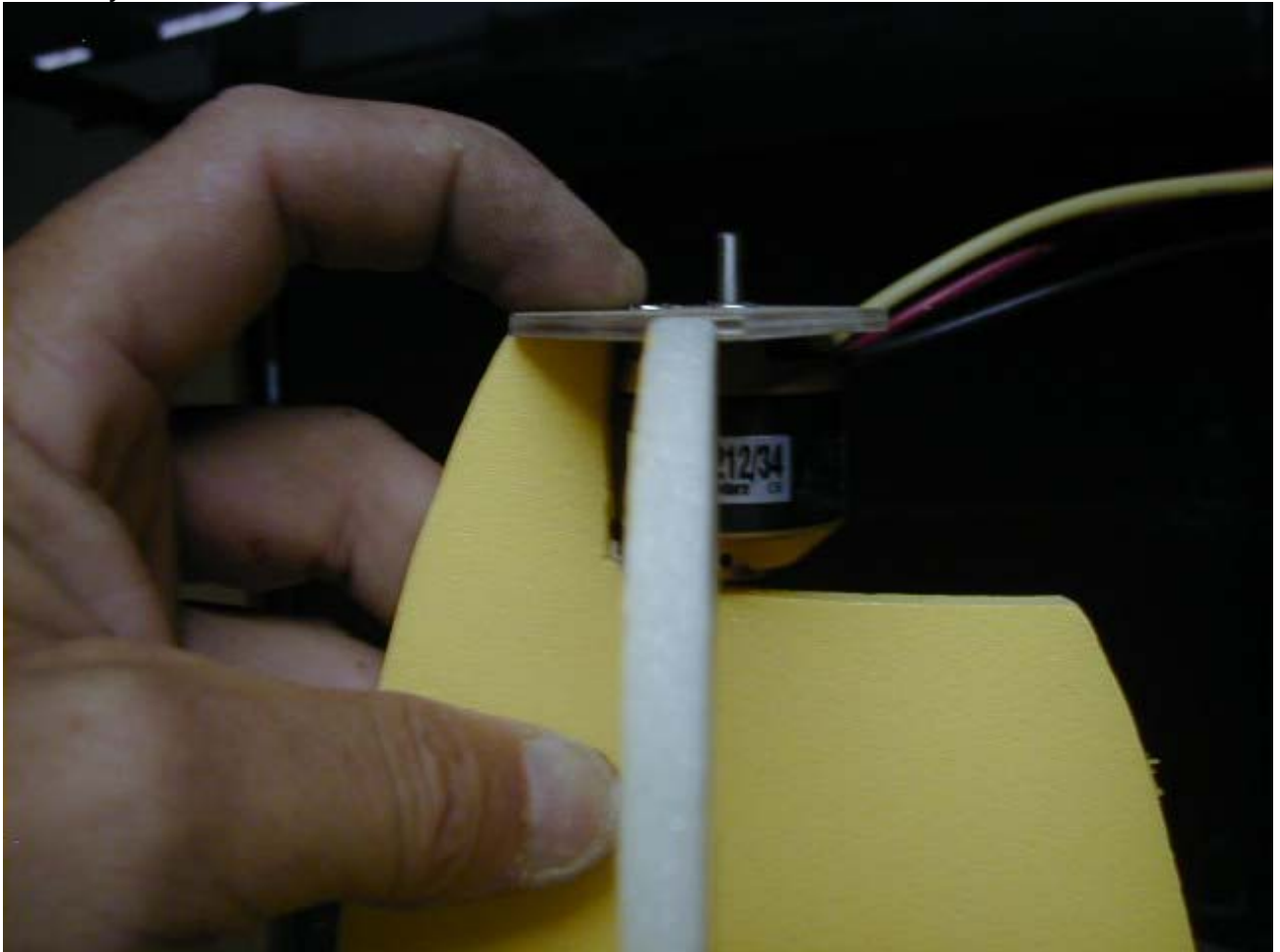
### Step3 A

Mount the motor to the diamond shaped 1/8" ply firewall with 3 MM x 1/4" length flat head bolt. You will need to countersink the firewall boltholes in most cases; this insures that enough threads are in the motor.



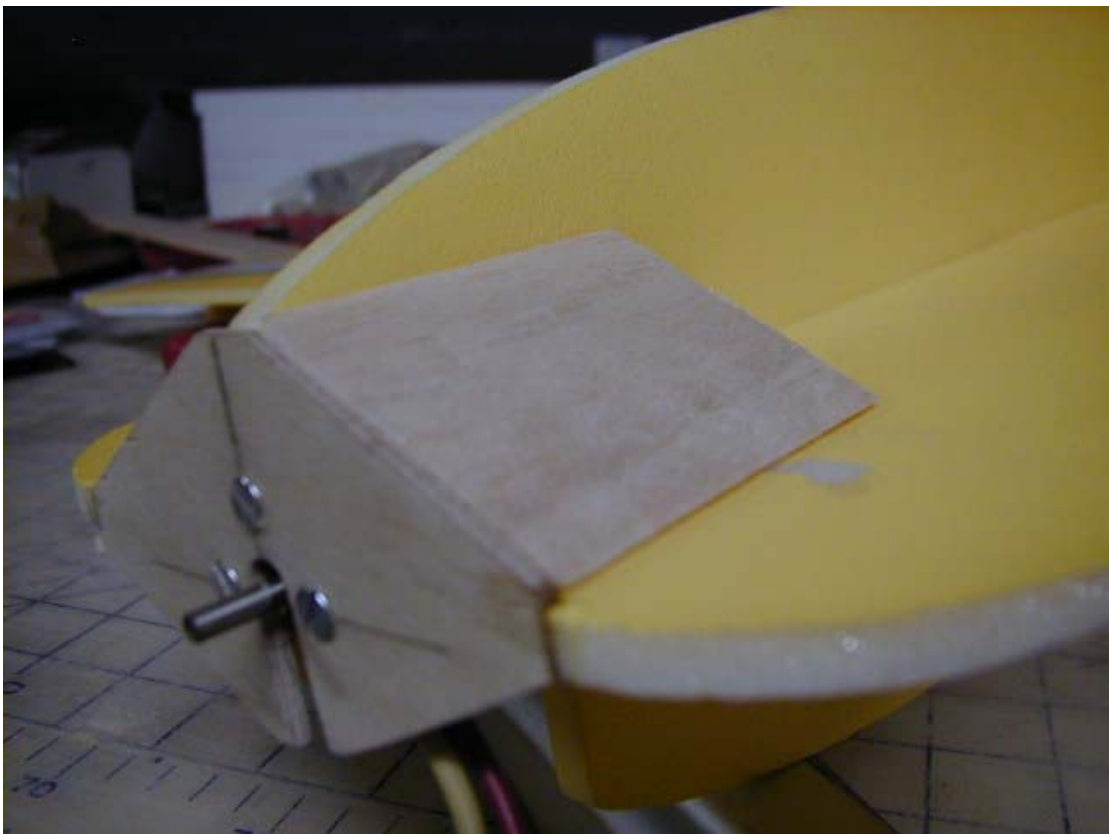
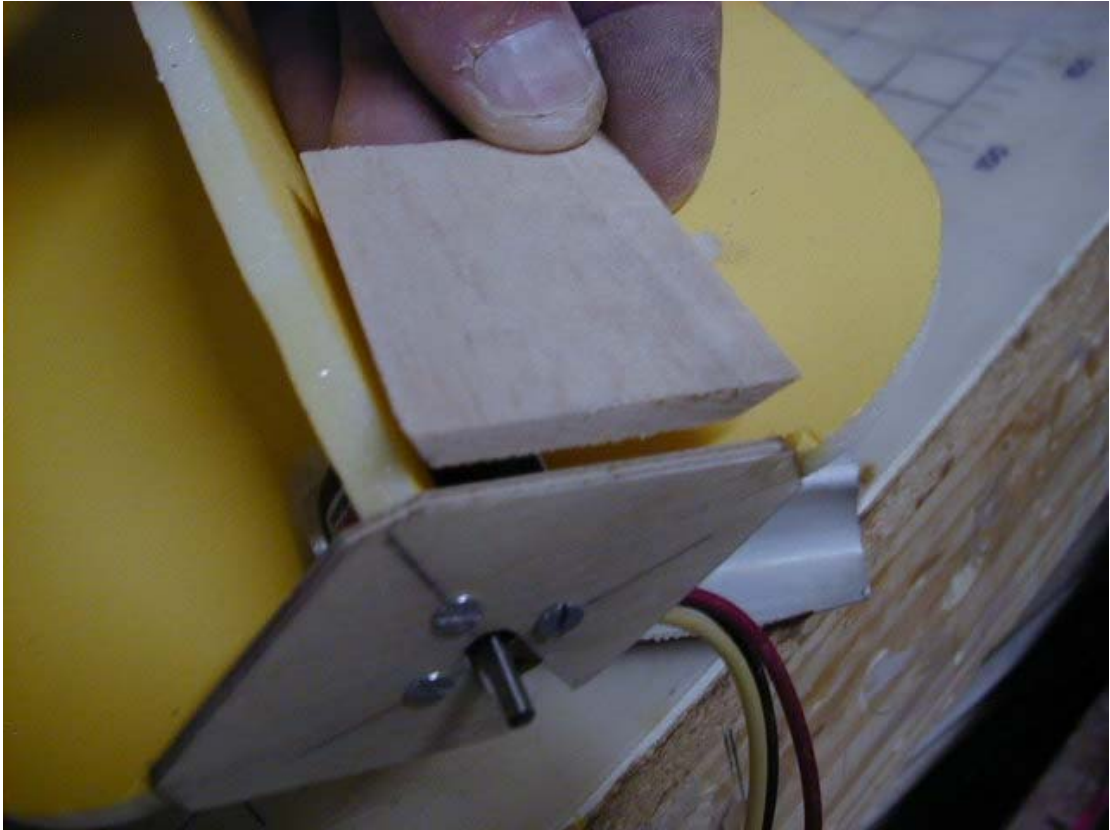
### Step 3 B

Motor shaft should be centered to the wing, so just below the fuse cross brace works great. You will need to make sure at this point to get the thrust aligned, 1 degree of up and 1 degree of right is what you want. You may need to sand the foam a small amount to get it just right. Tack glue into place with correct thrust. Flash card or thin ply shims between motor and plywood mount can be used to make small adjustments later if you miss it by a little.



### Step 3 C

3/16" balsa supports need to have the edges sanded or cut to a bevel to fit flush to the fuse. The wood grain is to go from front to back. Tack glue all into place with motor in to help get the thrust correct. Take the motor out and use foam safe CA or epoxy liberally to all the joints here. Epoxy works the best.



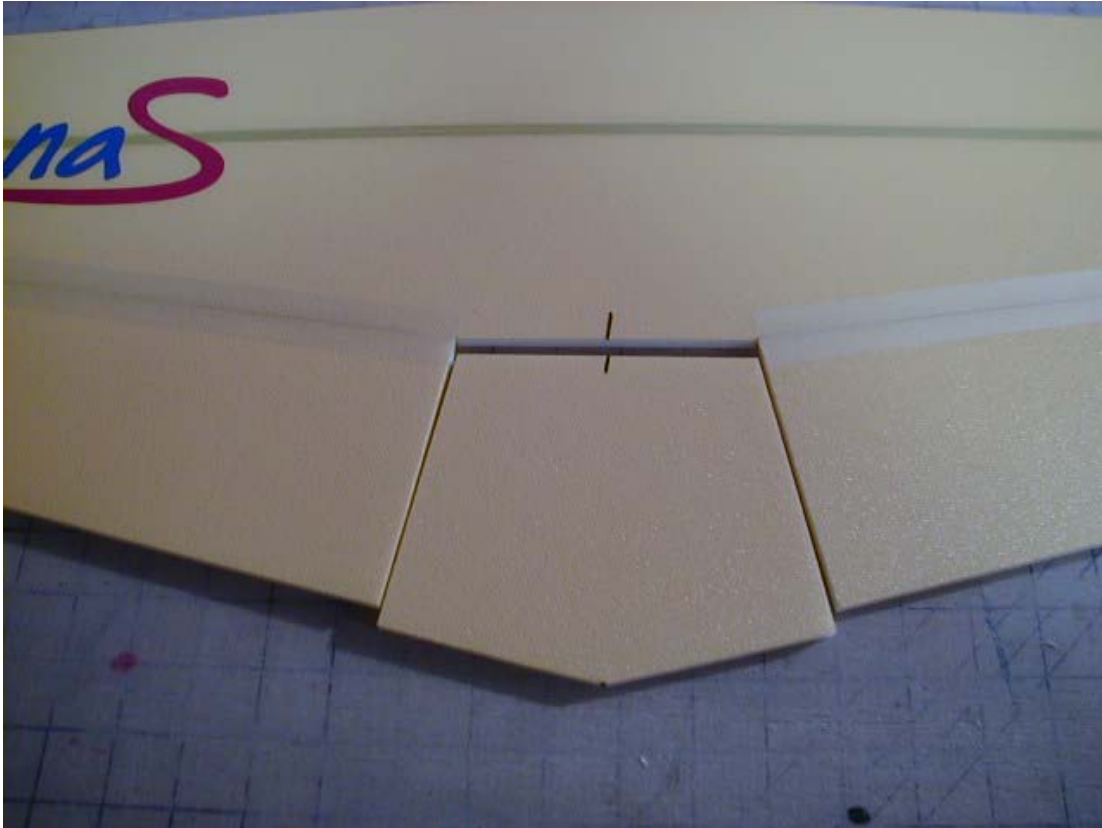
Wing construction:

Step 4 A

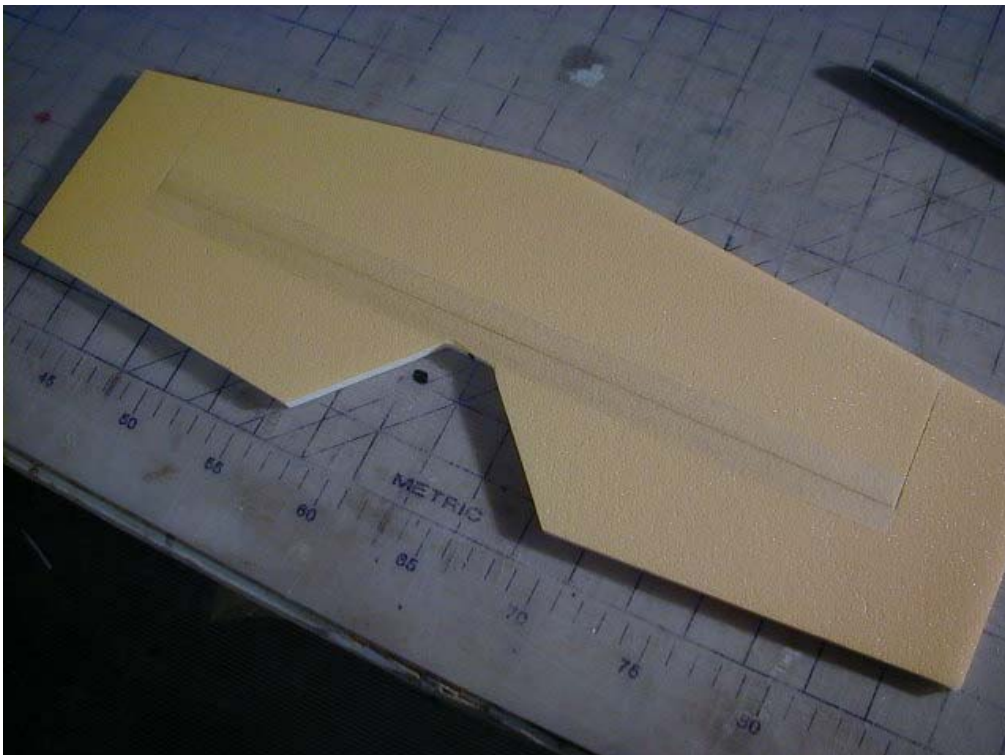
Glue the 3/16" x 36" carbon spar in the wing grove, 30 min epoxy works best. This is a good time to glue the elevator spar in also. You may need to sand inside the wing grove with 100 grit sand paper wrapped around the 1/8" elevator spar to make sure the spar is flush with the bottom of the wing. A test fit of the spar will show you where to sand. The wing and tail **must** cure weighted down on a very flat table. I use white skinned particleboard that is used as shelf material, it is very flat and heavy.

Hinge the ailerons to the wing make sure the wing tip and aileron tip are aligned to ensure the wing will be glued in square to the fuse later on. Glue wing centerpiece in like pictured. If there is any interference by the aileron and centerpiece a bit of sanding or use a razor knife and a good straightedge you can shave off the clearance you need this will free the ailerons to move.





Step 4 B  
Hinge the elevator the same way you did the ailerons and don't forget to tape the backside.

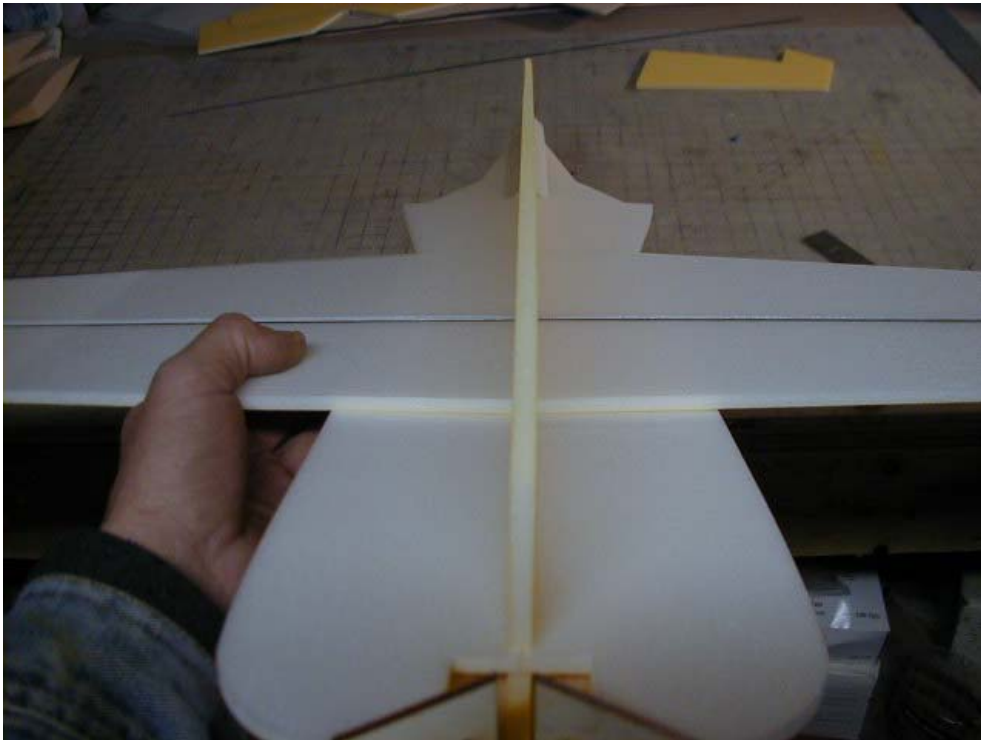




#### Step 5A

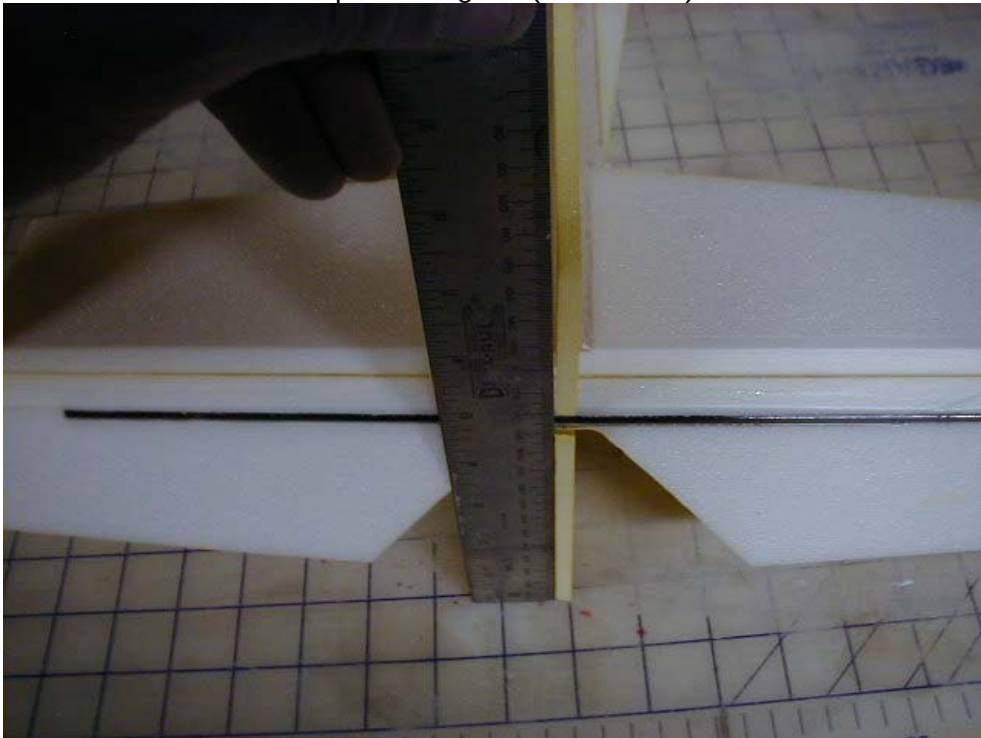
Slide the wing into the fuse slot and align the wing to the fuse make sure the ailerons clear the fuse equally on both sides and that the fuselage is straight under the wing. Check with a straightedge or a good eyeball before gluing. Use Foam safe CA on the entire perimeter, where the wing and fuse meet.





#### Step 5 B

Glue the hinged horizontal stab into position making sure marks are all aligned up, also be sure that the Rudder spine is aligned (look bellow)



### Step 5 C

Hinge the rudder. This time put the tape on the rudder first, like in the picture, and then place the taped rudder on vertical stab spine.



Then tape the beveled side while the surface is at full opposite desired deflection.



#### Step 6 A

With a #11 E-Xacto blade put a slot for the plywood control horns in the ailerons, elevator and rudder. Push the horn all the way to the opposite side of the surface. Foamsafe the horns in place. Thin Ca works best. The hole should be on the centerline of the hinge and  $\frac{1}{2}$  inch from the surface



#### Step 6 B

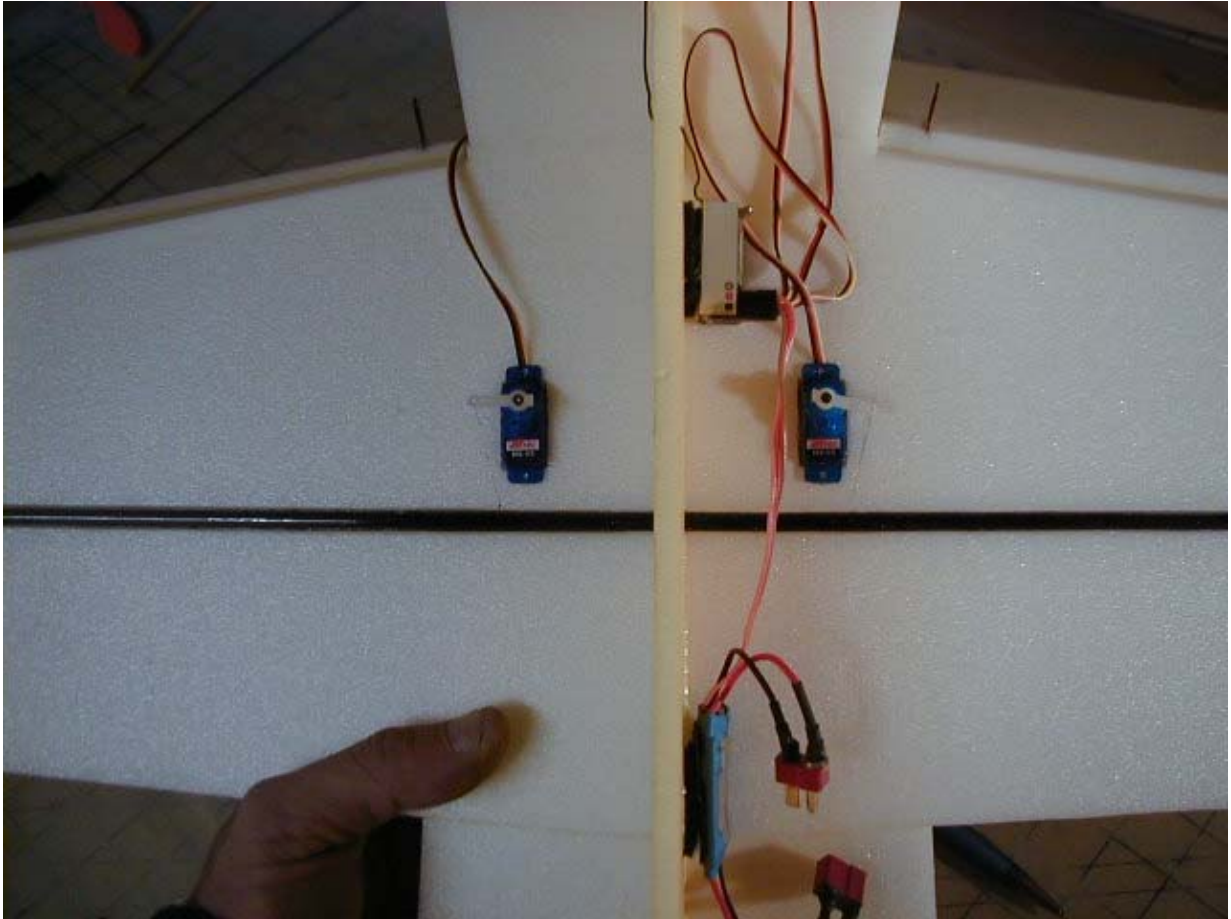
You will need to put a notch in the elevator horn to clear the carbon spar



### Step 7 A

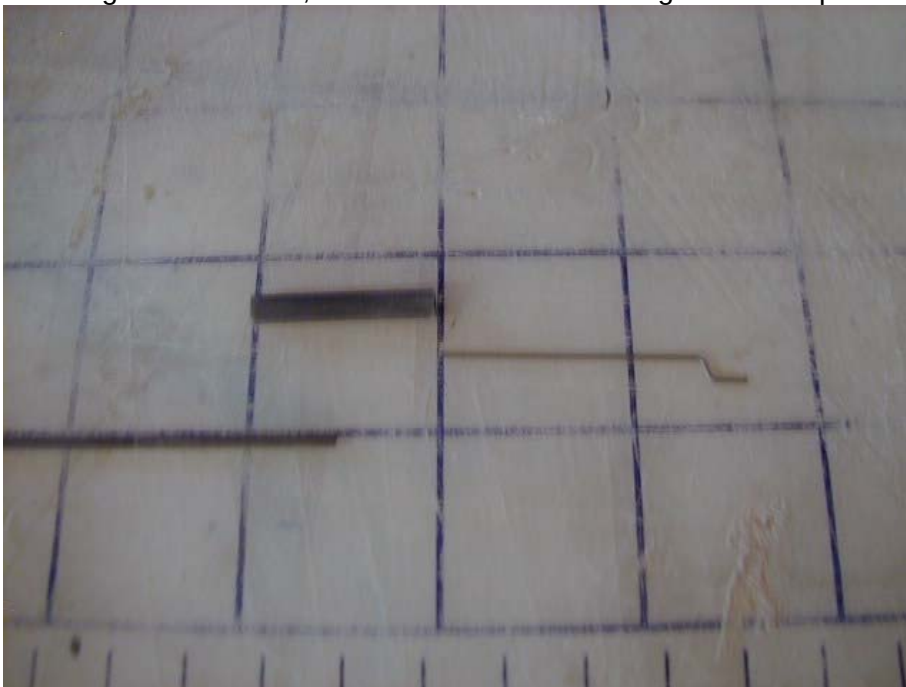
With the motor, battery and controller installed, find where the elevator and rudder servos go by placing them on the top of fuse cross braces and shift them fore and aft until the plane balances on the spar. You will need to consider the length of the servo leads to avoid the use of extensions if at all possible. The location for the servos I show in the picture works with the motor and battery setup I recommend on the front page.





#### Step 7 B

Use a paper clip or 40 thousandth music wire to make pushrod ends, you will need 8 at 1.5" long with a Z bend, and 8" of heat shrink tubing cut into 1" pieces



#### Step 7 C

Put the heat shrink over the carbon then apply CA to the end. Hold the wire end with 1' over lap to the carbon, slide heat shrink over the wire and heat.



#### Tip:

When you make the push rods to length, it makes it easy if you tape the surface so it will stay neutral. Install the carbon push rod with the Z bend glued in on one side of the rod, place it into the surface. Have your radio on, and the trims and sub trims at zero. Now you can cut the pushrod  $\frac{1}{4}$ " short of the servo arm. It is best to cut the carbon with cut off wheel, as wire cutters will split the carbon.

Low rate throws are 1.5" of travel on all surfaces. High rate is as much throw as you can get. For best results, use servo arms 1" or longer. Balance on the spar. Do not be afraid to run 75% expo on all high rates. A good computer radio is recommended for all 3D aircraft.

Reorders and instructions are available at the DCRC website. <http://www.darrolcady.com/>

The latest updates and new arrivals to the Lee Ulinger Aeromodels line will be seen on this site first.

***Thank you  
Lee Ulinger***