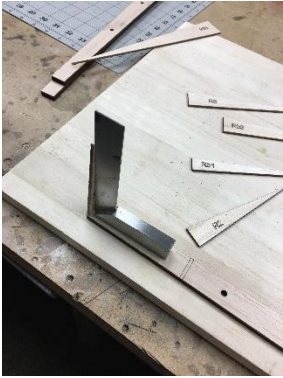


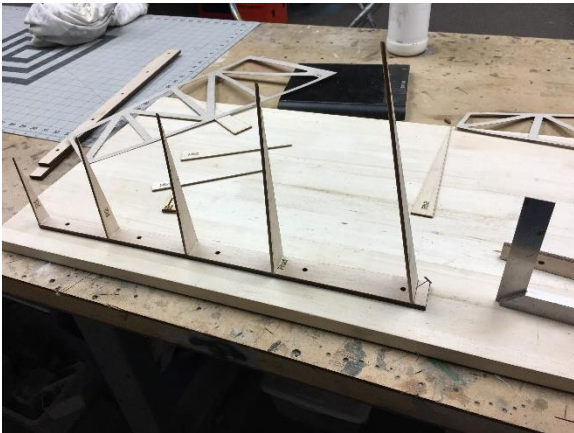
# Slingsby T-45 Assembly instructions.

## Fin and Rudder

1. Locate all components for building the fin and rudder



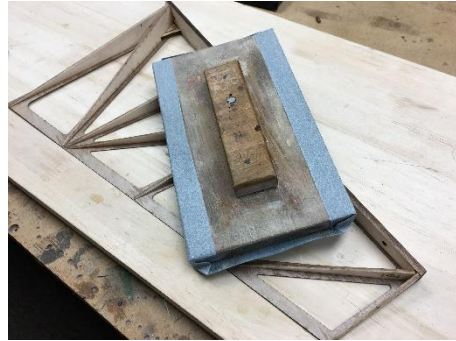
Attach rudder ribs directly to the position's marked on the Rudder post. The Rudder post is made from 2 laminations of 1/4" Balsa.



Ensure all ribs are @ 90 deg to the rudder post.



Next apply 1/32" ply outer sheeting



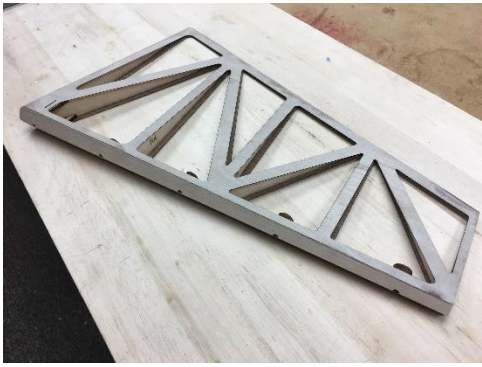
Carefully sand ribs to ensure the outer skins fit correctly.



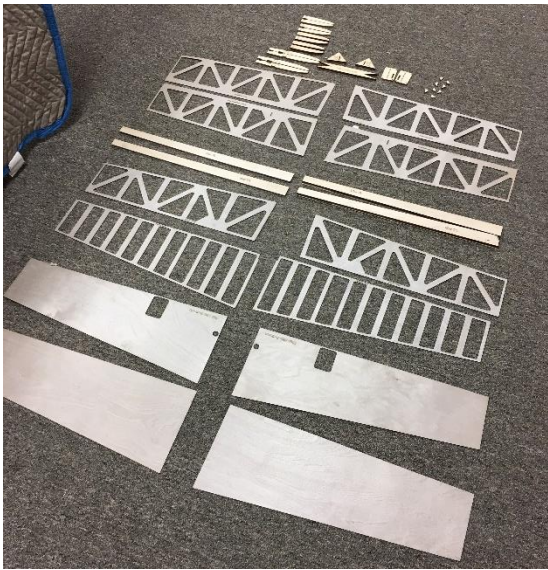
Next install hinge supports.



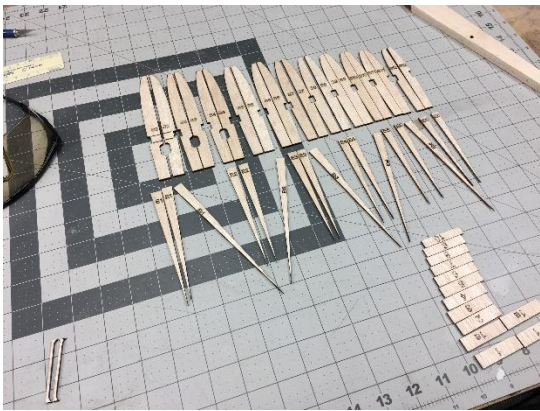
Finally install outer Rudder post making sure it is correctly aligned to the inner post. Sand bevel in fin post.



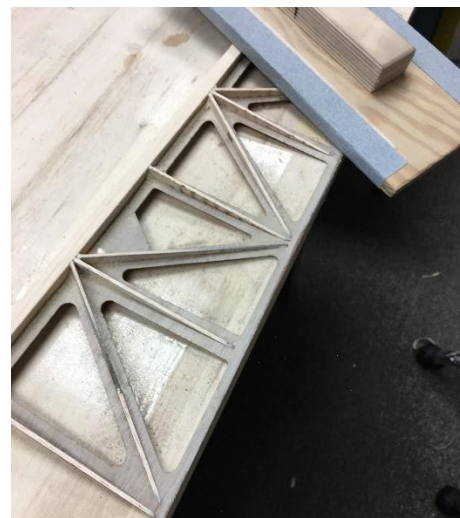
## Elevator and Stab assembly



First locate all components for assembly of elevator and stabilizer.

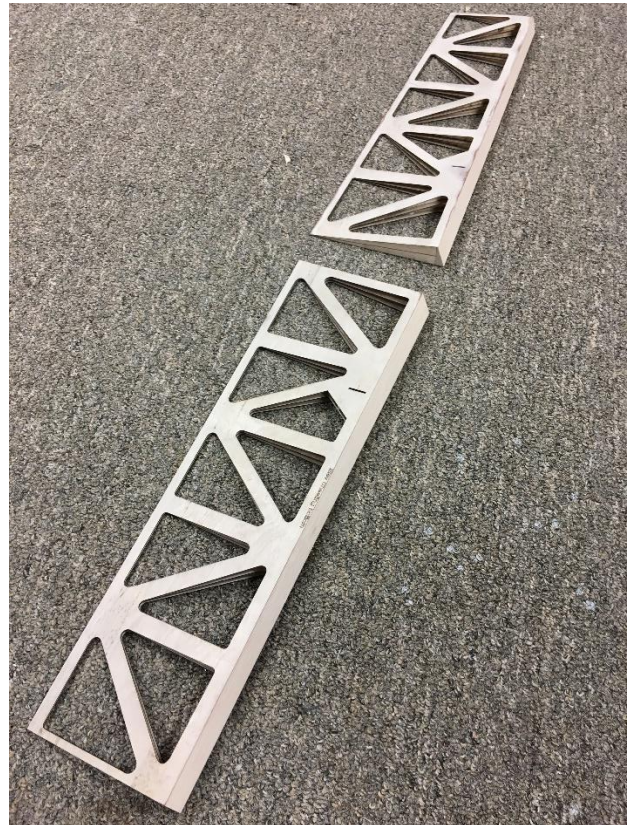


Both Elevator and Stab components are assembled directly onto the 1/64" center spine. Attach ribs to both sides of spline and then carefully sand. Apply Leading edge stock, then the 1/64" outer skins.





Next level Elevator Trailing edge stock. Note: Bevel starts from the top skin and angles at approximately 15 degrees. Top and bottom elevator skins are different widths. This will provide an accurate sanding reference point. Elevators and Ailerons on prototype used a covering hinge. This is where the actual covering material of the wing and tail section is also the same material used for hinging.



# Stabilizer Assembly

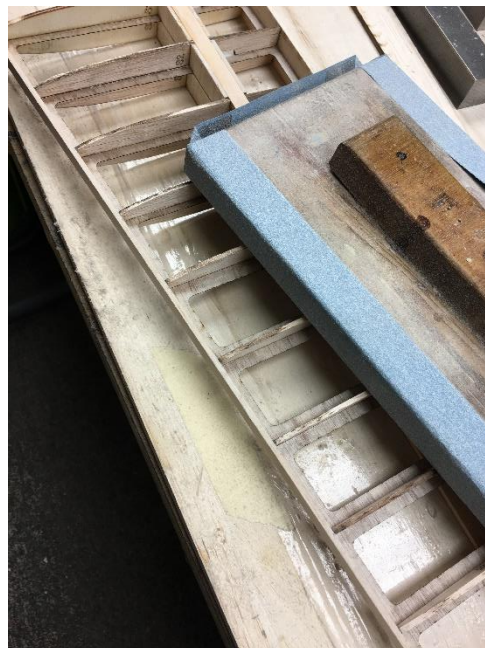
As with the elevators there is no need to build over the plan if you so choose. The laser cut components are very accurate. Using the 1/64" center spine, attach ribs and appropriate sheer webs. Then add 3/8" x 1/8" spruce spar. Repeat for both sides.



Note: you will need to remove part of S1 and S2 ribs to allow for the Stab joining spar. This has to be done before applying the outer skins and top spar.



Carefully sand ribs and attach outer skins.



Pay attention to upper and lower skins, they are different. The lower skins has servo hatch cutout and servo wire exit holes.



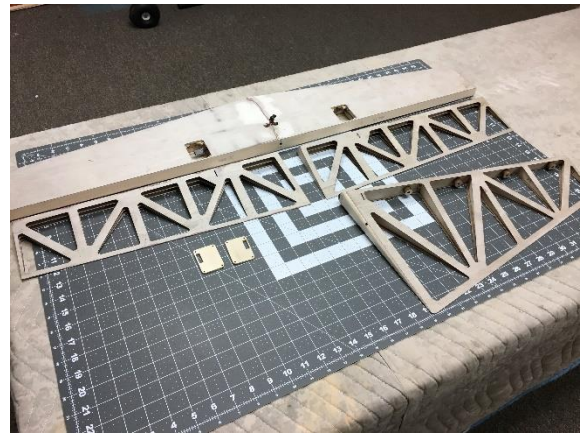
Glue lower skin first then upper skin. I found it easier to install elevator servo extensions at this point. Next joint both halves using the  $\frac{1}{4}$ " ply joining spar. Then test fit but do not glue the 5mm carbon rear alignment pin. This is cut at approximately 20mm long. The reason not to glue it at this point as it will make it easier to cover. Final gluing is don't after stabilizer is covered.



Note small 1/8 ply hard points for servo hatch attachment.



carefully sand servo hatch so it is flush to outer skin. Left and right elevator servos mount directly to the servo hatch. Prototype used SPMSA7050 servo.

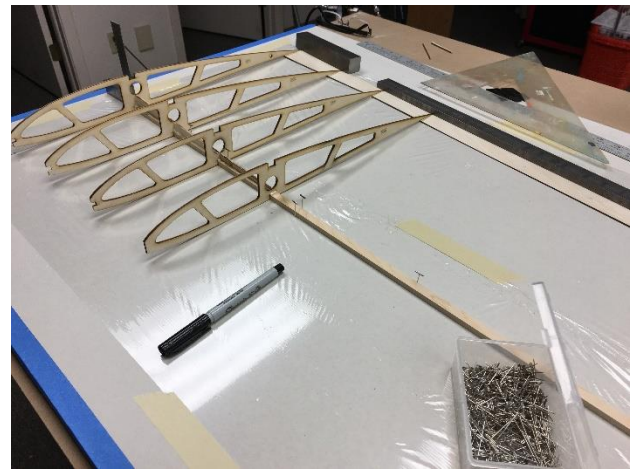


# Wing Assembly

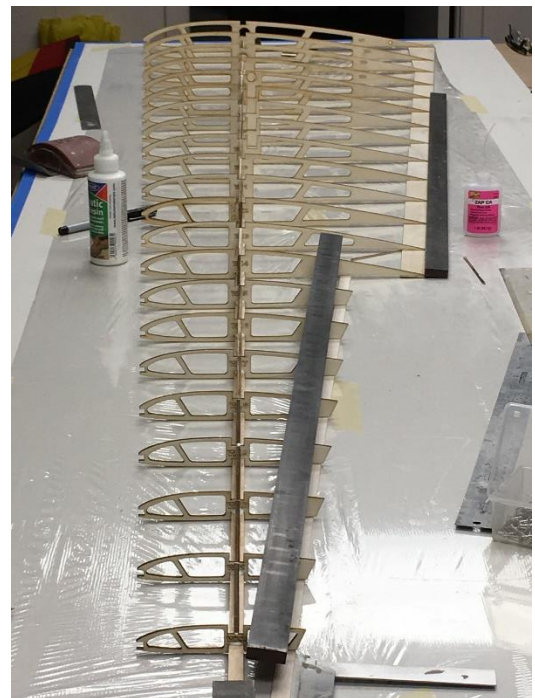


First locate all components for the wing assembly.

First step is to join the wing spars. The wing spars in the kit are 48" long so you will need to joint both spars so they total 7'6" approximately. The splice joint needs to be a minimum of 2" long to achieve maximum strength.



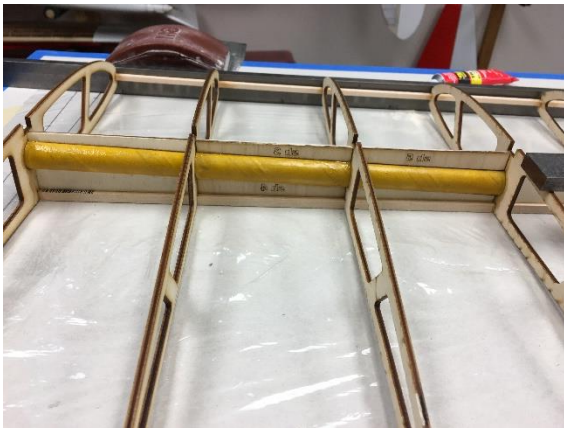
Next position the main spars over the plan and working from W1 out. Each sheer web is accurately cut so you will not need to sand them. In fact the prototype was not built using a plan, due to the accuracy of the parts.



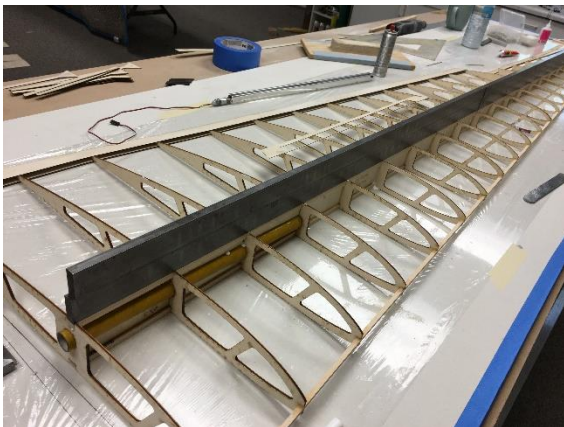
Continue adding ribs until all ribs are in position. Note; ribs from the Aileron out have a  $\frac{3}{32}$ " shim beneath then to ensure they are in the correct alignment to the wing. The wing has no washout so pay attention to keeping the ribs parallel to the building board.



Next add 1/32" laser cut trailing edge pieces and 3/16" spruce leading edge alignment spar. At this stage it is best to pre fit spoiler assembly to ensure the spoiler mounting plate is in the correct position.



Next install wing tube socket and appropriate sheer webs. Wing tube sockets are cut from the lengths supplied at approximately 12 1/4" long



Next epoxy top spar into place (1/4 x 3/8" spruce)



Before adding wing sheeting install 8/32" T nut for wing retention.



Next add Leading edge sheeting support spar and profile to airfoil shape. Then add Leading edge "D" box sheeting. It is easier to do the upper skin first. The wing skins are 1/32" birch ply. These are cut to shape from the 4 x 48" x 12" sheets supplied.





Once top sheeting and cap strips are glued, flip over and sheet the bottom. Before sheeting the bottom however glue aileron servo mount support.

Servo hatch is also the servo mount.



After leading sheeting is complete install the precut Cap strips. Note: in the spoiler region the upper and lower cap strips are different.



Note: the wing skins supplied are 1/32" birch ply. The skin will need to be joined at rib station W12, and 12a which is 1/4" wide to give sufficient support where the joint is.



# Fuselage Assembly

Again start each step by laying out the appropriate components.

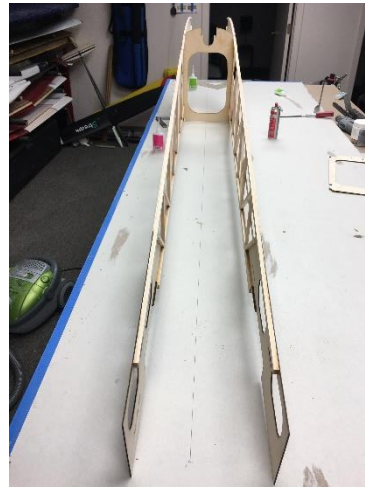
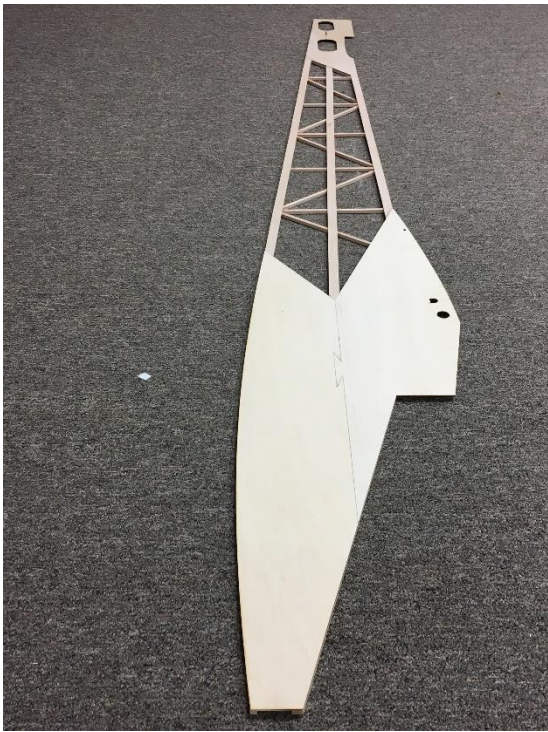


First step is to make a left and right fuselage side.

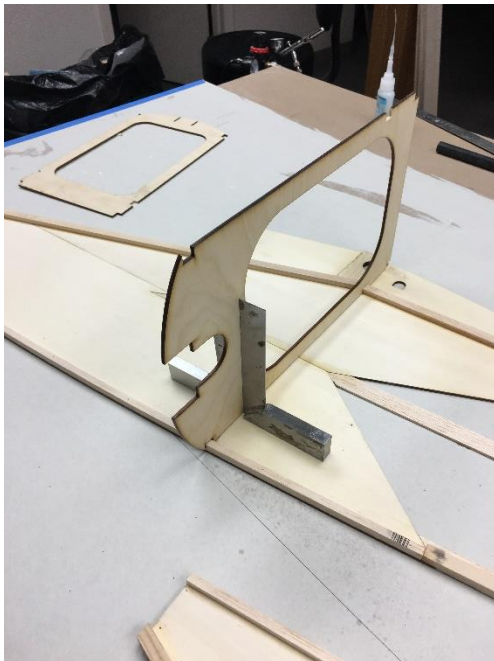


Use the plan to identify where spars and cross members are positioned on each fuselage side.





Position fuselage over plan centerline and then pinch together using the fin post as the rear bulkhead, ensuring it is kept straight.



F5 bulkhead is glued to both sides. Ensure it is 90 deg to the fuse side.



Next add the additional formers both front at rear. Note; fuselage is built upside down over the plan.

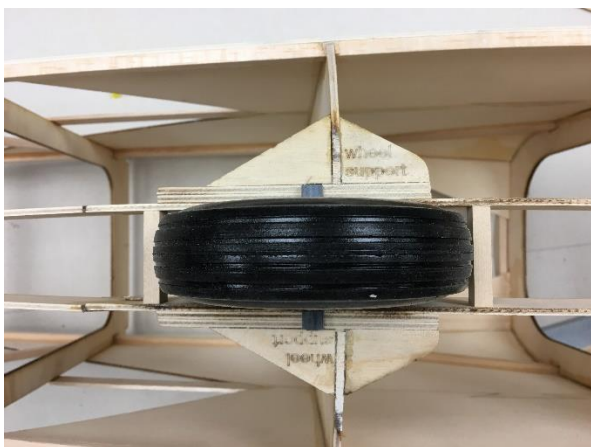


Next add front support braces, cross stringers, and cap strips at the rear of the fuse.

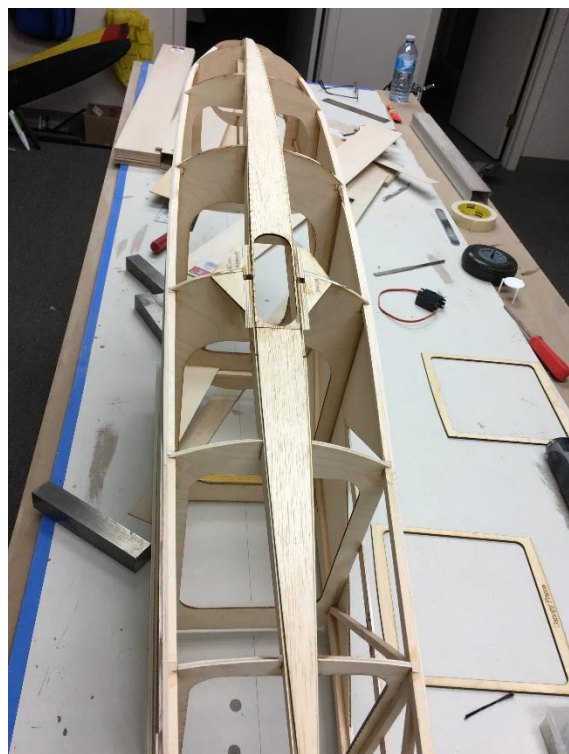


Next add lower wheel support components.

Note wheel axil is 5mm carbon tube. It is designed to break under heavy load. The axil has  $\frac{1}{4}$ " silicon retaining ends. This removes landing shock loads on the axil.

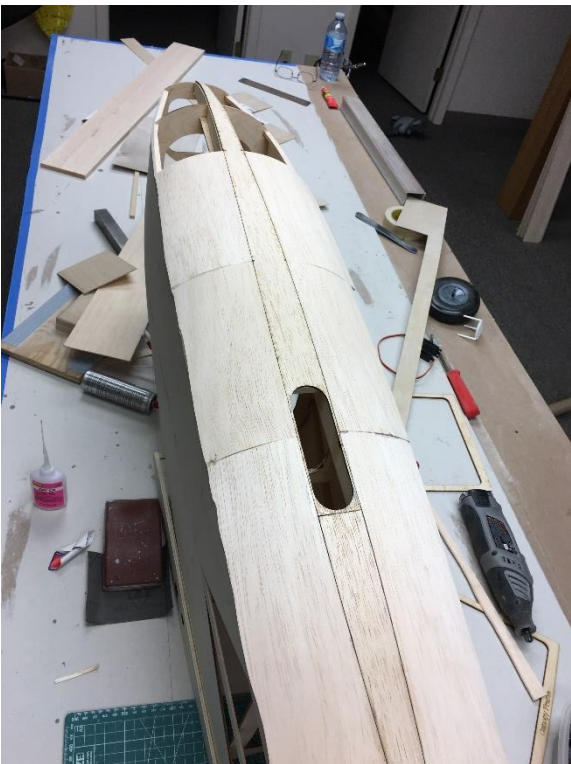


Next step is to add lower fuselage sheeting. This is  $\frac{3}{32}$ " Balsa. In the prototype the lower front section was fiber glassed for additional strength.





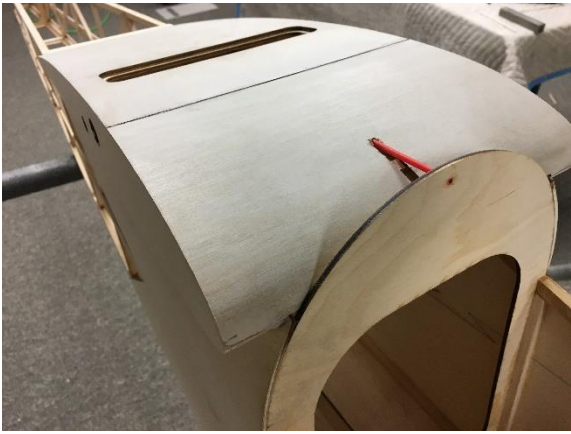
Next add the two fuse ribs. These will automatically align to the fuse side by using the wing tube and rear 5mm carbon anti rotation dowels. To ensure a perfect alignment to the wing. Temporarily attach the fuse ribs to the wing root using small servo screws and sand to the wing profile.





Next glue the right fuse ribs to the fuse using the wing to ensure the correct alignment. Once in position use small scrap balsa to fill in the gaps on lower front of the rib, then sand to the profile of the rib. Next apply upper mid 1/64" ply fuselage sheeting. The prototype used a guide tube that allowed a 1/16" wire or carbon rod to align the canopy release accurately. The release wire exhausted at the rear of fuse rib.





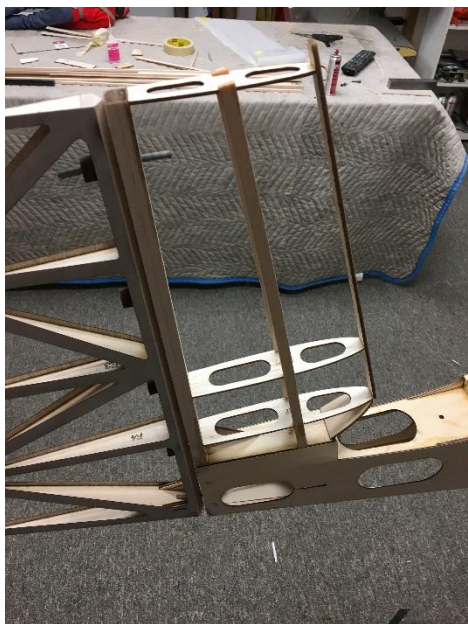
Next install canopy frame and front deck sheeting.



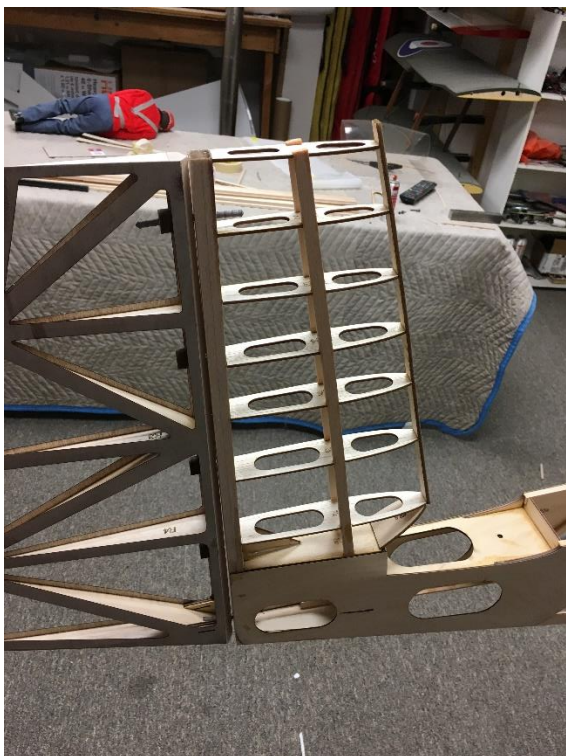
Next glue in nose formers and blocks. Not to allow a cavity for nose release wire loop. Then sand nose blocks to shape using the guide formers as reference.



## Fin assembly



The fin is built directly onto the fuse. Attach ribs to Fin post, then add 3/8" spruce Main spar and 1/8" inner fin leading edge.



Next apply 1/16" Balsa fin sheeting.



Finally add balsa block fairing to stabilizer and sand to shape. Allow small amount off clearance so the stab can be removed without interfering with the fin.



## **Final comments and setup.**

### ***Additional items required:***

1 x PKT EFL491009 Electric Spoiler

1 x Dubro 4.5" wheel

### ***Radio Equipment.***

Minimum 9Ch receiver Prototype used:  
SPMAR9130T

### ***Extensions.***

Aileron 48" x 2

Elev 48" x 2

Rud 12' x 1

Receiver to wings 4 x 18"

### ***Servos.***

Aileron: 2 x 70oz plus wing mount servos.  
Prototype used 2 x SPMSA7050's

Elevator: 2 x 70oz plus wing mount servos.  
Prototype used 2 x SPMSA7050's

Rudder. Standard 100oz plus.

### ***Control throw:***

Aileron 13deg up 11 deg down.

Elev: 12 deg up and down.

Rudder: 20-25 deg.

Balance:

C of G. 6 – 6.5" back from the leading edge at root.