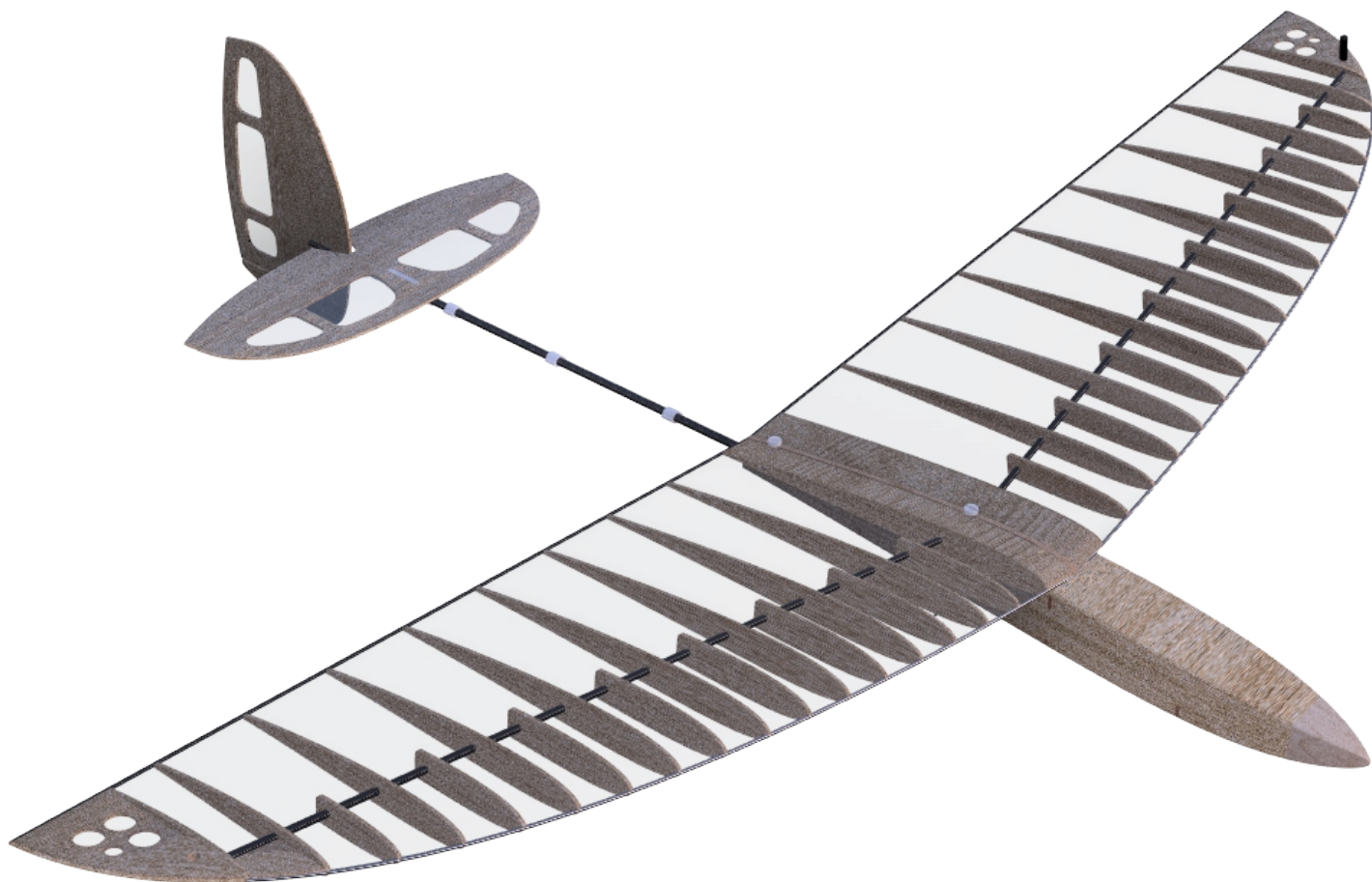


ANGELWING DESIGNS PUG2

Wing Span	800mm	31.5"
Length	635mm	25"
Wing Area	10dcm2	155 sq"
Tail Area	1.316dcm2	20.4 sq"
Fin Area	1.03dcm2	16 sq"
Flying weight	from 91g	3.25oz
Wing loading	9.1g dcm2	3.02oz sq ft
Aspect Ratio	Approx 6:1	
Wing Section	AG04 mod	
Dihedral	11 degrees	



Further items are required to complete this model as pictured:

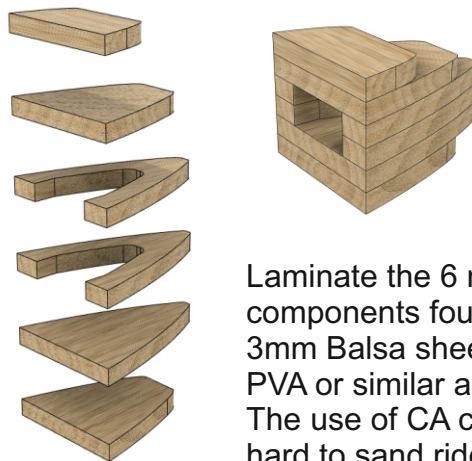
Recommended Equipment

2 off 2.5 - 3.3g Micro Servos
 1 off 1s 500mah Battery or 2s 300-350mah Battery
 1 off Micro Bec if using 2s and Servos do not cope with 2s direct voltage
 1 off 4-6 channel Micro Rx eg: Spektrum AR6100e
 Feather Cover or Similar Lightweight covering (20 - 25 gsm)
 Adhesives
 Basic Tools

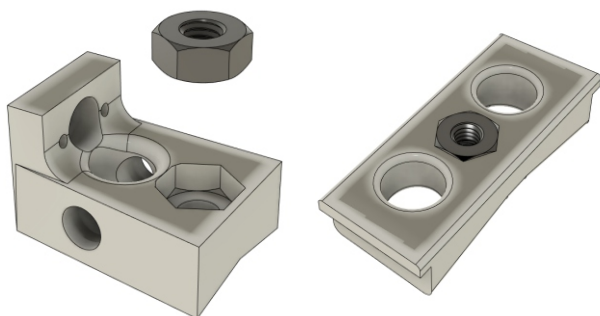
Please note that Model Aircraft are not toys and despite the size and lightweight of the Pug2 DLG it still needs to be operated safely. The builder and pilot of this model aircraft kit accept all liability for its use

Before Starting construction:
Please be aware that we strive to ensure we supply the best quality parts we can. Occasionally some parts may need to be released from the laser cut balsa or ply sheets with the aid of a sharp knife.

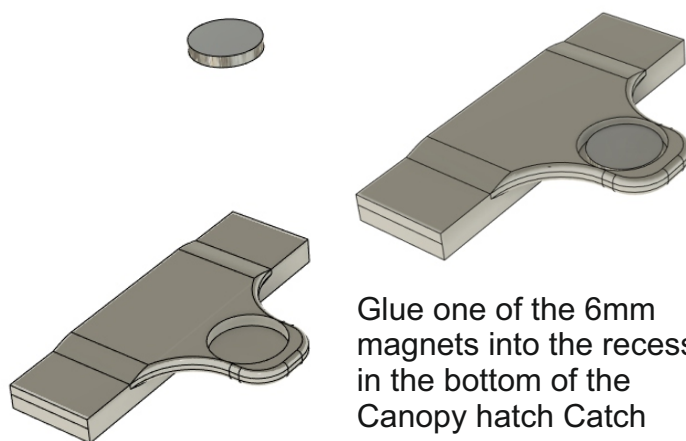
3D printed components should not be forced onto the boom if you feel they are too tight and can be opened up slightly with a round file if required.



Laminate the 6 nose block components found on the 3mm Balsa sheet using PVA or similar adhesive. The use of CA can leave hard to sand ridges.

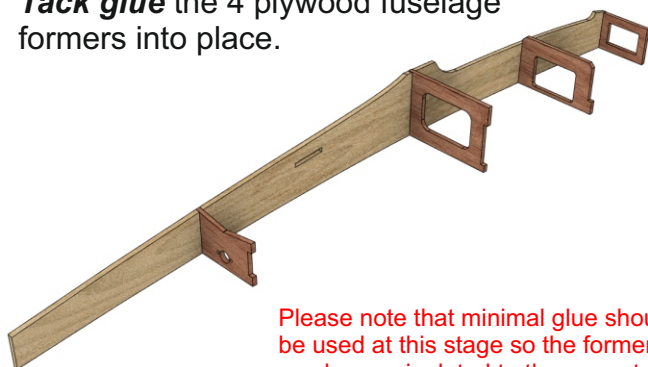


Glue the 3mm Steel nuts into the plastic wing hold down brackets. If you are nervous about getting glue into the threads you can pack the threads with grease or Vaseline before glueing.

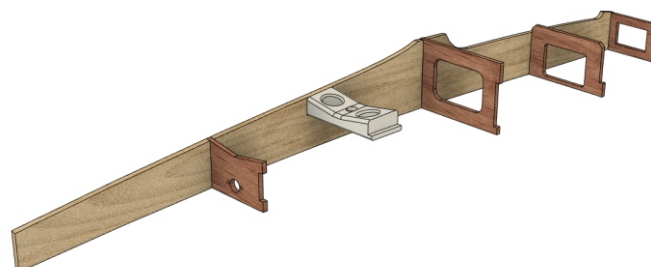


Glue one of the 6mm magnets into the recess in the bottom of the Canopy hatch Catch.

Tack glue the 4 plywood fuselage formers into place.

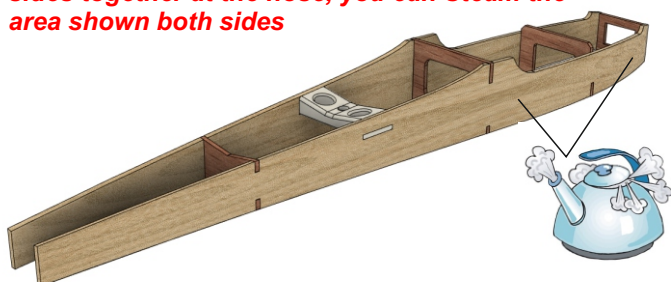


Please note that minimal glue should be used at this stage so the formers can be manipulated to the correct angles when the fuselage is brought together.

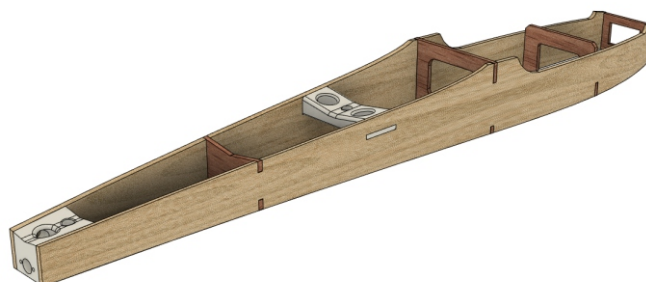


Tack glue the main wing hold down bracket into. Note that the bracket is narrower at the rear.

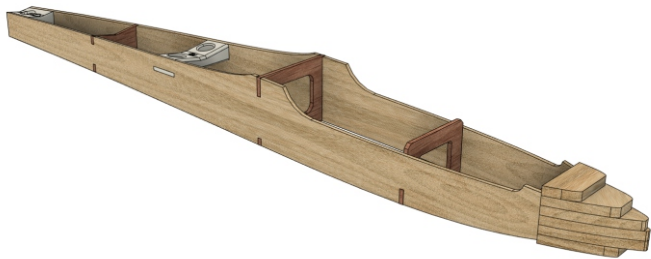
If you are unsure about pulling the fuselage sides together at the nose, you can Steam the area shown both sides.



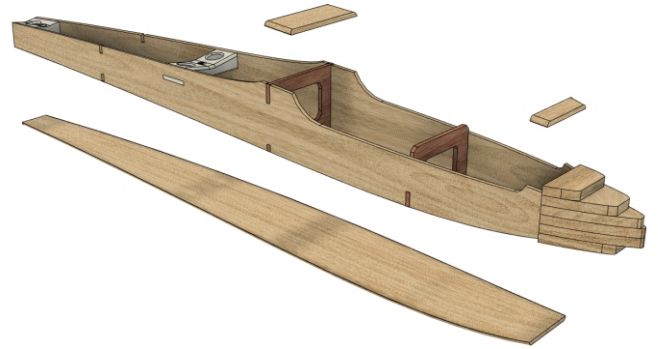
Add the right hand fuselage side, again only tack glueing the formers into place.



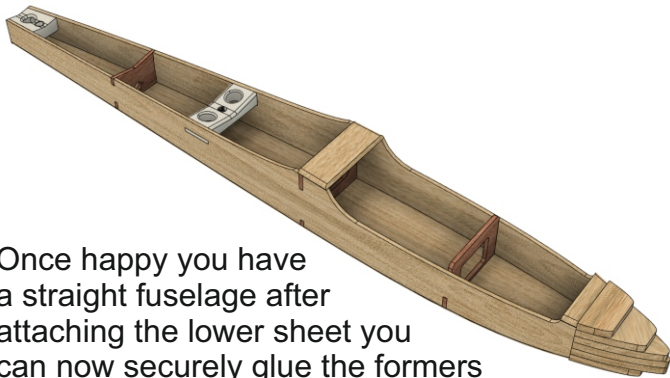
Tack glue the rear wing hold down bracket into place with absolute minimal glue as this will likely be repositioned when the wing is fitted later.



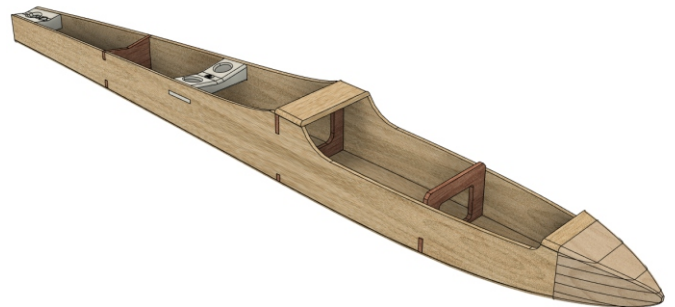
Glue the nose block you produced earlier onto the front of the fuselage. You can do this now or after the lower sheeting and the small pieces of top sheeting are fitted. **NB if you have a V2.1 Kit with the thicker fuselage sides you'll note the nose block appears undersized. Glue the block central and sand the fuselage to match the nose profile, yielding an aesthetically pleasing shape.**



Glue the lower fuselage sheet and 2 small pieces of top sheet into place. The lower sheet should be used to ensure your fuselage is straight.



Once happy you have a straight fuselage after attaching the lower sheet you can now securely glue the formers into place by wicking thin CA or Superphatic into the joints.
DO NOT GLUE THE REAR WING HOLD DOWN



Rough shape the nose block into shape using 180 grit sandpaper. Final sanding is to be done once canopy hatch is made.



The canopy hatch sides are glued at right angles to the main canopy sheet. You can damp the outside of the canopy sheet to ease the bend if preferred.

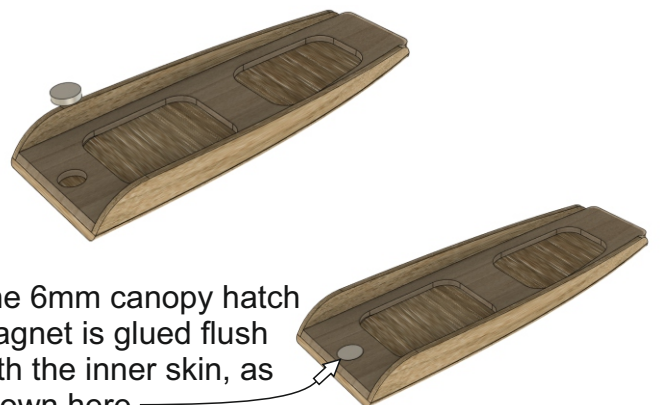


The inner canopy sheet fits on the inside of the canopy sides

The rear edge has the hole and fits flush against the back, the front is intended to protrude

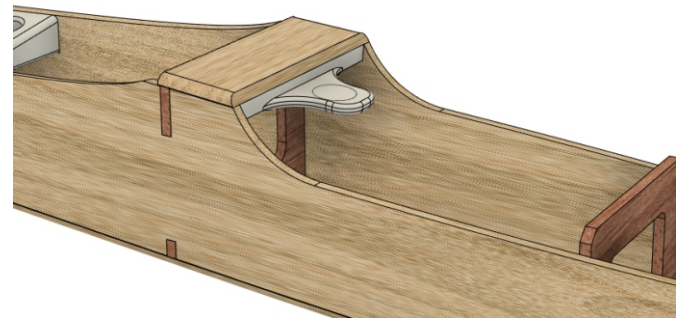
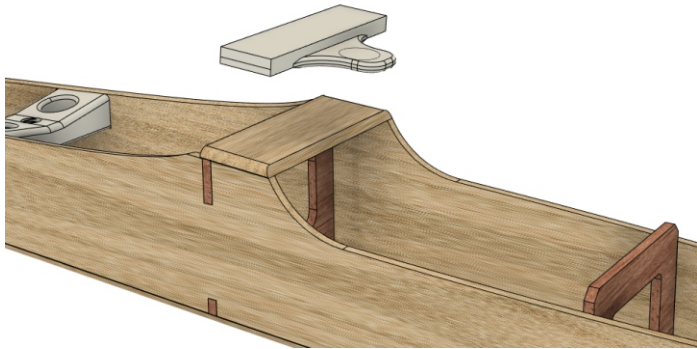


Chamfer the rear of the canopy inner and outer sheets to follow the lines of the side



The 6mm canopy hatch magnet is glued flush with the inner skin, as shown here

Note the orientation of the magnetic catch assembly the magnet facing downwards!



We recommend glueing the hatch catch assy into place with a slower setting adhesive such as epoxy, do not allow glue to squeeze out of the front

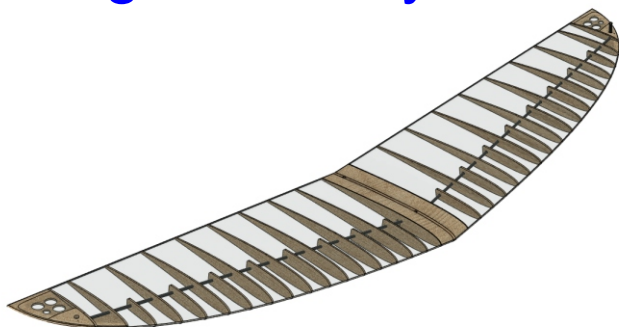


With the glue on the plastic hatch catch assy almost set drop the canopy into place. Push down gently to ensure the hatch fits flush and snug

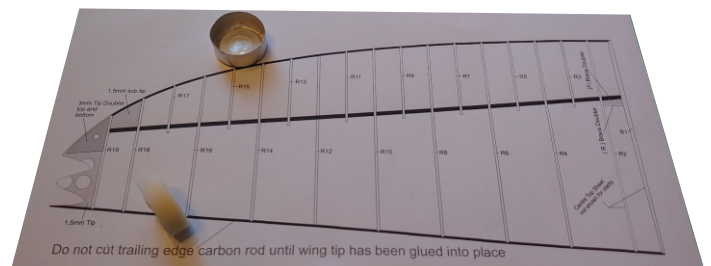


Once happy with the fit of the hatch and you can sand the entire fuselage assy, ready to move onto the wing construction. you only need round of the edges of the fuselage and sand the nose to a pleasing shape,

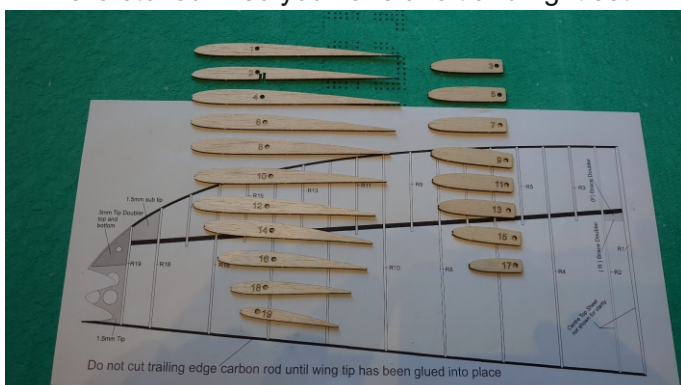
Wing Assembly



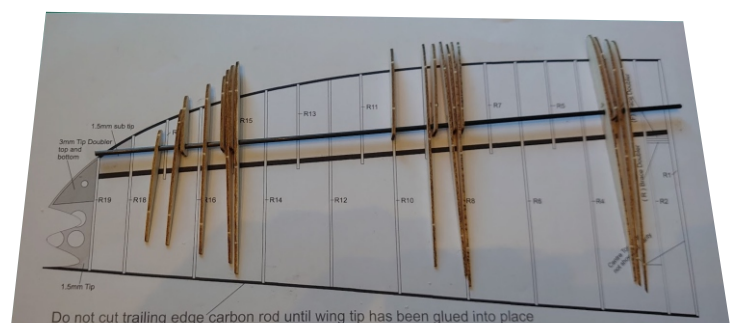
Ensure you building surface is flat and not twisted. Cover the wing plan with polythene sheet or rub over the plan generously with a candle



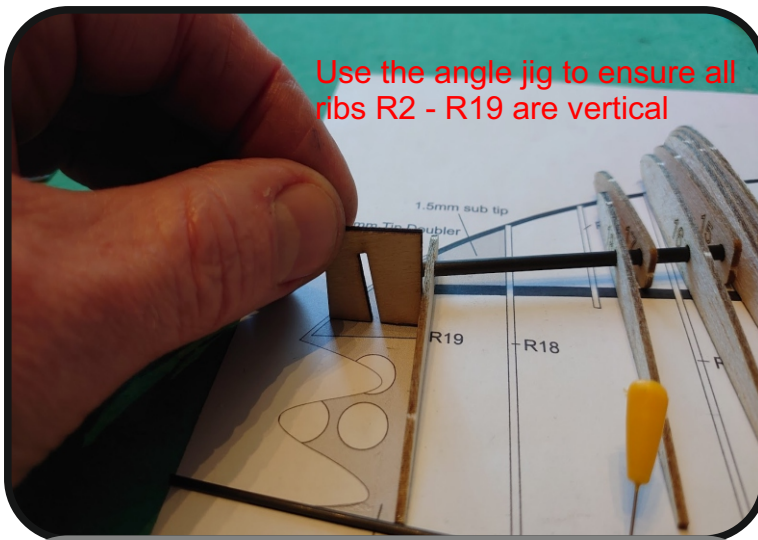
Remove one set of wing ribs from the balsa sheets. You may notice that the Rib numbers are etched in so you have a left and right set



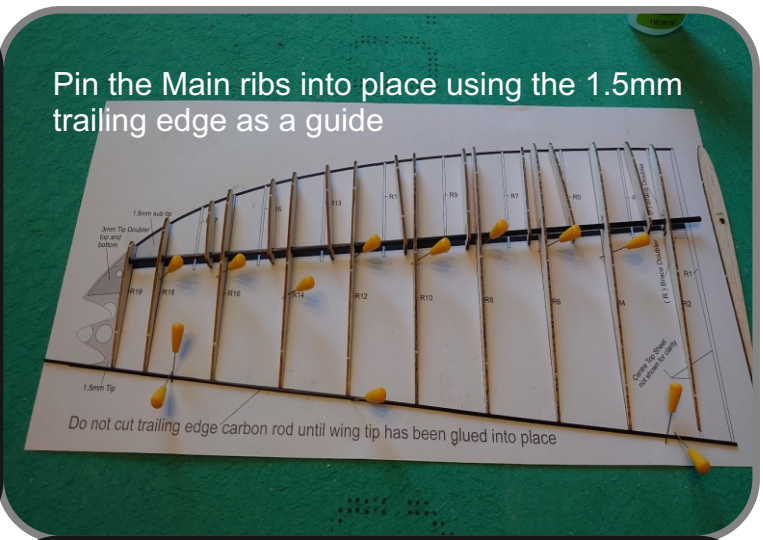
Lightly sand the carbon spar and trailing edge components. Slide all the ribs onto the spar in order



Use the angle jig to ensure all ribs R2 - R19 are vertical



Pin the Main ribs into place using the 1.5mm trailing edge as a guide

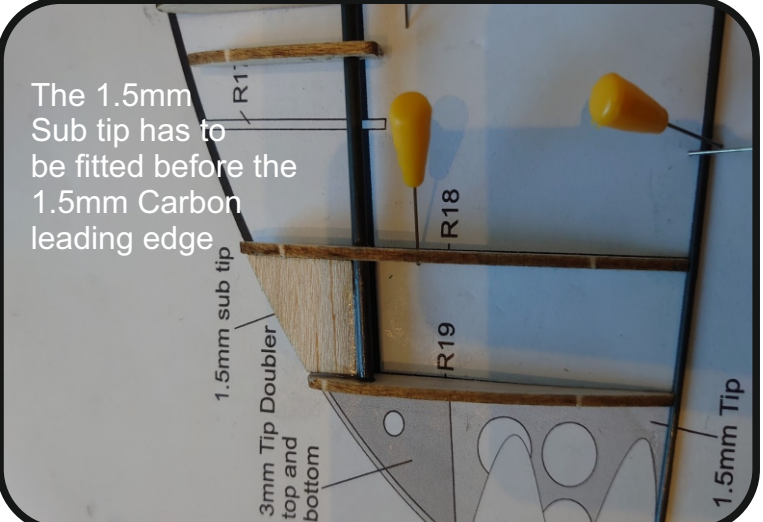


Add dihedral brace supports F and R before fitting R1

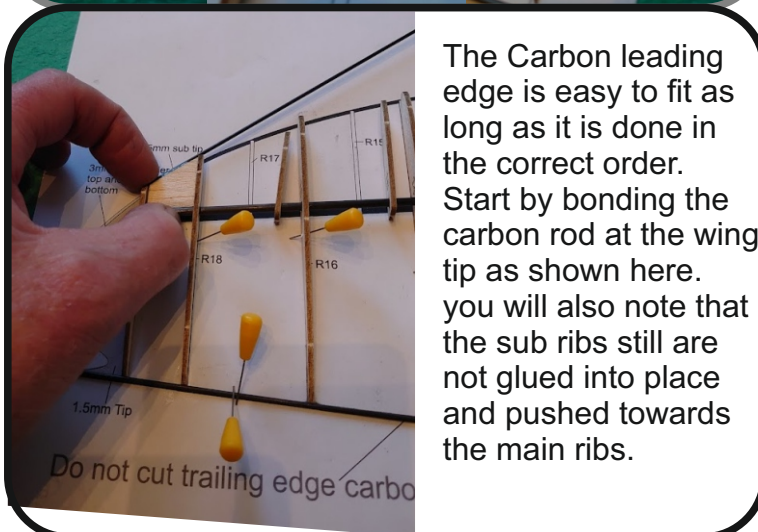


Please note that R1 has to be set at the correct angle

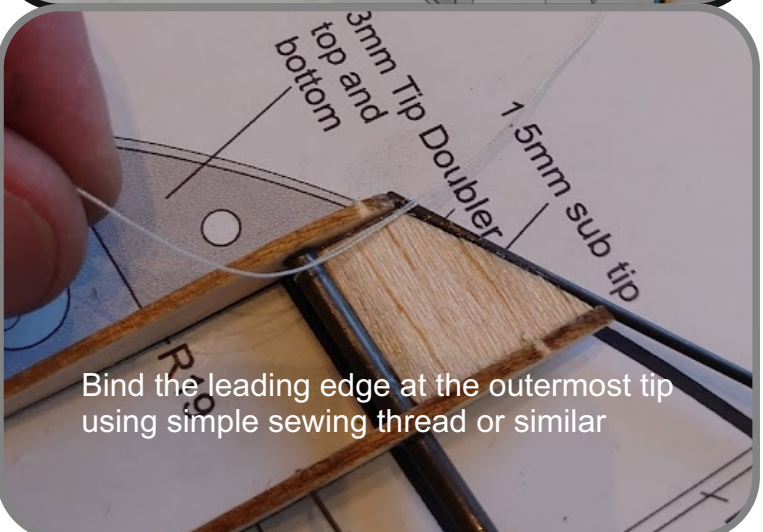
The 1.5mm Sub tip has to be fitted before the 1.5mm Carbon leading edge



The Carbon leading edge is easy to fit as long as it is done in the correct order. Start by bonding the carbon rod at the wing tip as shown here. you will also note that the sub ribs still are not glued into place and pushed towards the main ribs.



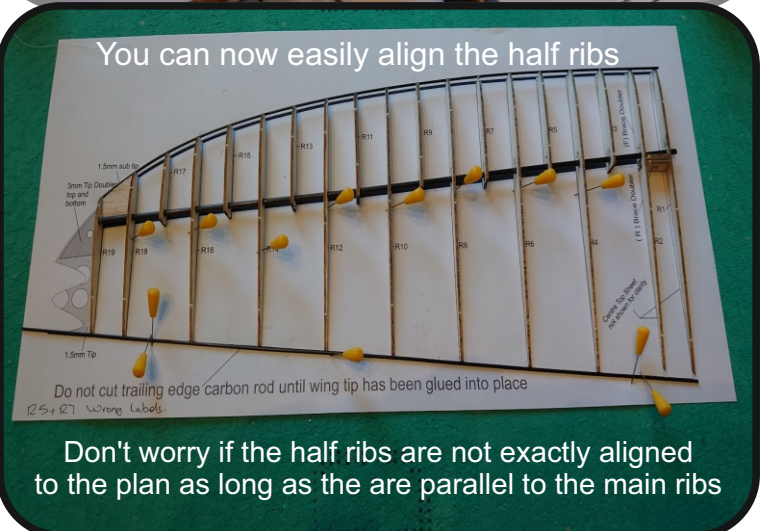
Bind the leading edge at the outermost tip using simple sewing thread or similar



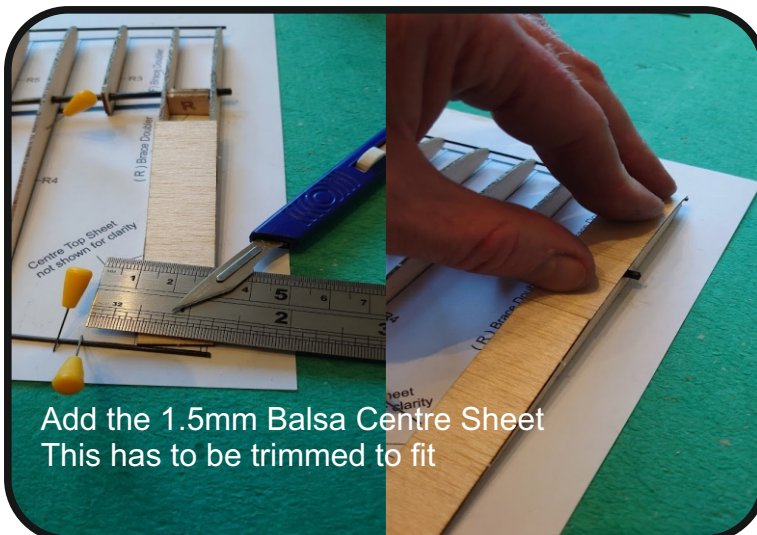
The leading edge will now easily conform to the ribs glueing each one as you work along from the wing tip



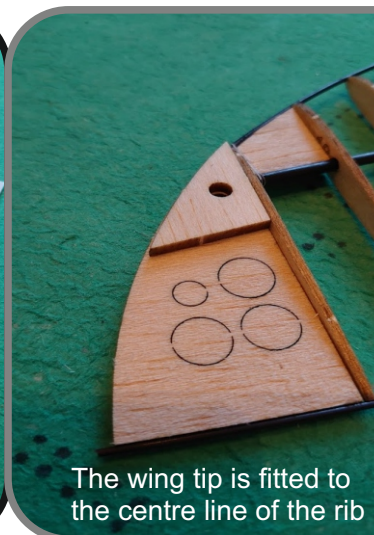
You can now easily align the half ribs



Don't worry if the half ribs are not exactly aligned to the plan as long as the are parallel to the main ribs



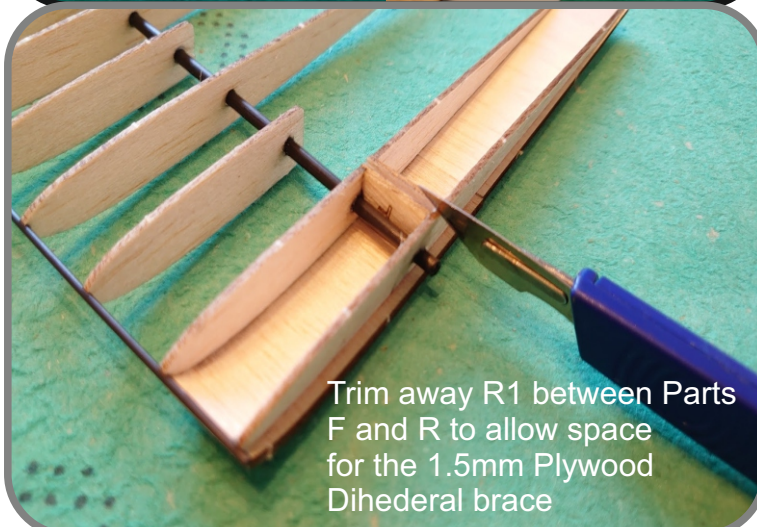
Add the 1.5mm Balsa Centre Sheet
This has to be trimmed to fit



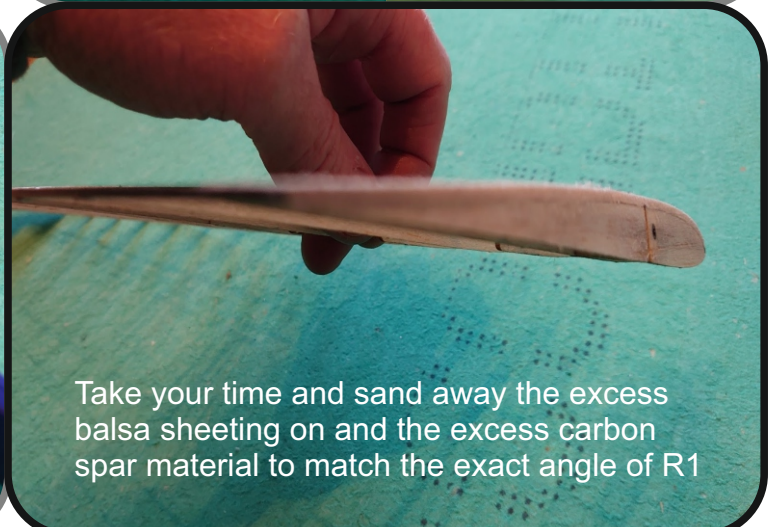
The wing tip is fitted to
the centre line of the rib



Add the 3mm
Doublers to the top and
bottom of the wing tip



Trim away R1 between Parts
F and R to allow space
for the 1.5mm Plywood
Dihedral brace

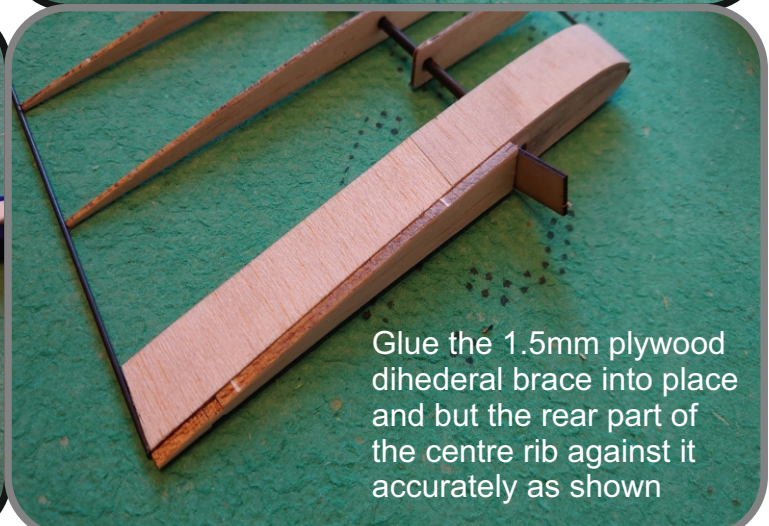


Take your time and sand away the excess
balsa sheeting on and the excess carbon
spar material to match the exact angle of R1



Split the 3mm Balsa centre
Rib exactly as shown here

N.B. There is only one centre
rib required and this process
only needs to be completed for
one wing half



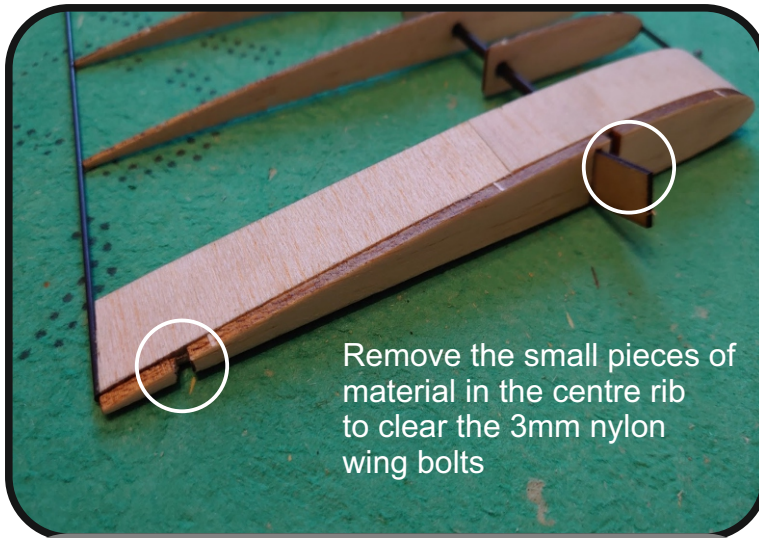
Glue the 1.5mm plywood
dihedral brace into place
and butt the rear part of
the centre rib against it
accurately as shown



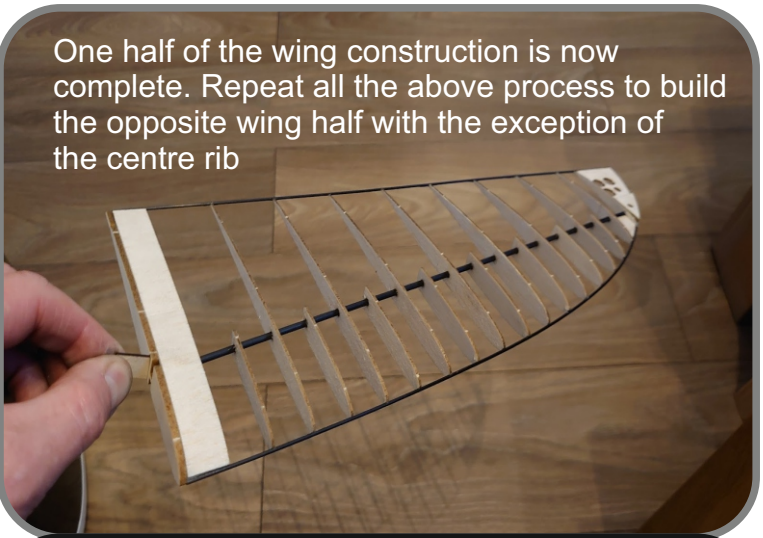
Remove just the tiny
piece of material indicated



Glue the remaining piece of the
3mm centre rib into place



Remove the small pieces of material in the centre rib to clear the 3mm nylon wing bolts



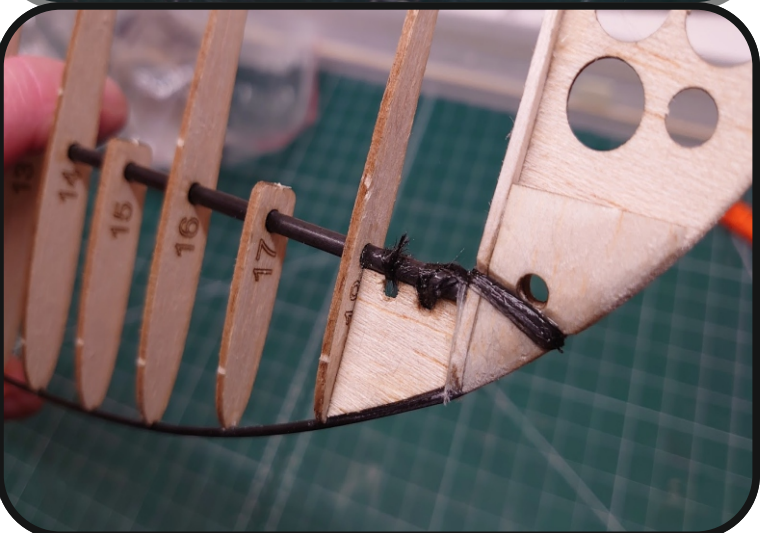
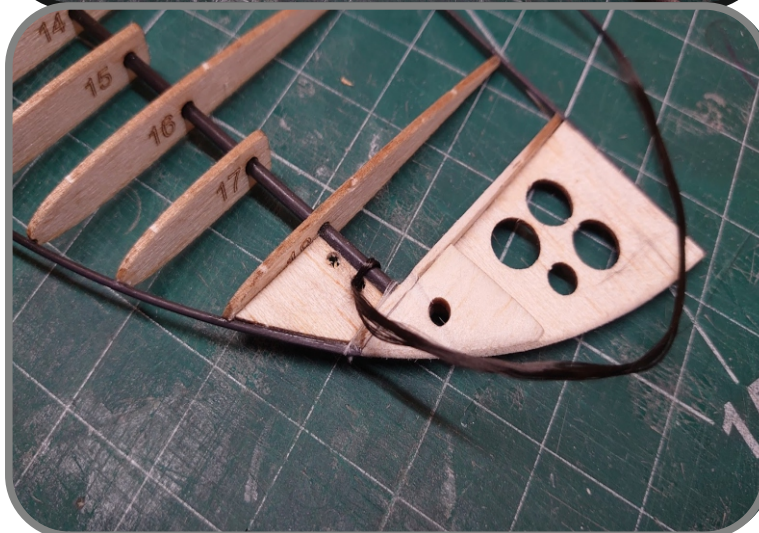
One half of the wing construction is now complete. Repeat all the above process to build the opposite wing half with the exception of the centre rib



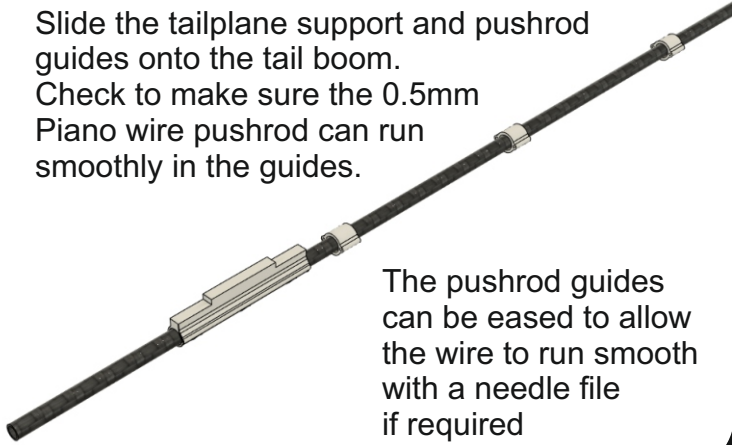
The wing halves should be joined using a slow setting adhesive



Optional launch peg reinforcement for high power DLG launches, please refer to the images below.

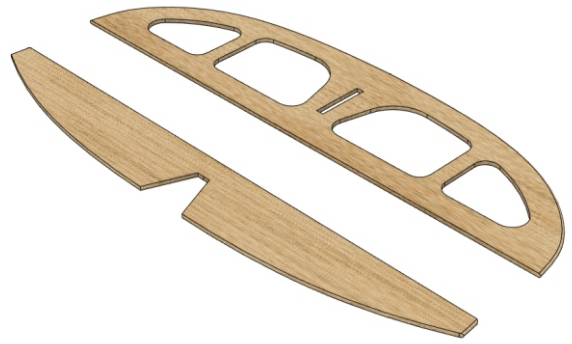


Slide the tailplane support and pushrod guides onto the tail boom.
Check to make sure the 0.5mm Piano wire pushrod can run smoothly in the guides.



The pushrod guides can be eased to allow the wire to run smooth with a needle file if required

Prepare the fin and tail components



Cut or sand both the elevator and tailplane to form a shallow V as above. The hinges are formed using your covering material of suitable UV proof clear tape after covering



We recommend using PVA adhesive to join the DLG fin components for max strength



The fin and tail components only require minimal sanding to finish. We keep the trailing edges square and sand the leading end and tips to a rounded section

Trial fit the plastic tailplane mount into the tailplane. if it feels too tight open up the slot in the tail using a file.



You can now final sand all fo the airframe components. To make covering easier we glue the tailplane and vertical fin components onto the boom after covering.

Your choice of covering is important. Only lightweight coverings should be used on the wing and tail components. The fuselage you are free to you covering of your choice.

Suitable lightweight coverings are Feather Cover, Solite, Oracover lite, HH Parklite.

The final order of assembly after covering is not really important, so the following images are for guidance only. What is important is that you didn't forget to slide the 3 pushrod guides onto the boom before sliding the boom into place. The plan indicates the approximate positions of the guides and also the correct dimensions for the boom and tailplane positioning. All RC equipment should be positioned as far forwards as possible to minimise noseweight. Do not be concerned if you require noseweight to obtain the correct CG.



Slide the boom into place.
DO NOT GLUE YET!

As previously mentioned the rear wing hold down / boom mount should have only been tacked into place. Bolt the wing into place using the front bolt and then adjust this rear mount if required before final glueing.



We have used a 2s 160mah Lipo for the receiver battery, ES9251 servos and a matek 5v BEC that has been mounted on top of one of the servos

All pushrod connections are simple Z bends formed with long nosed pliers

Setup and flying:

Balance point 50 - 60mm from the leading edge. You should start at 50mm.

Control Throws: To suit your flying style

Rudder Low Rate 12mm either way, 15% expo High Rate 20mm either way 30% expo

Elevator Low Rate 4mm either way 20% expo High Rate 6mm up 4mm Down 30% expo