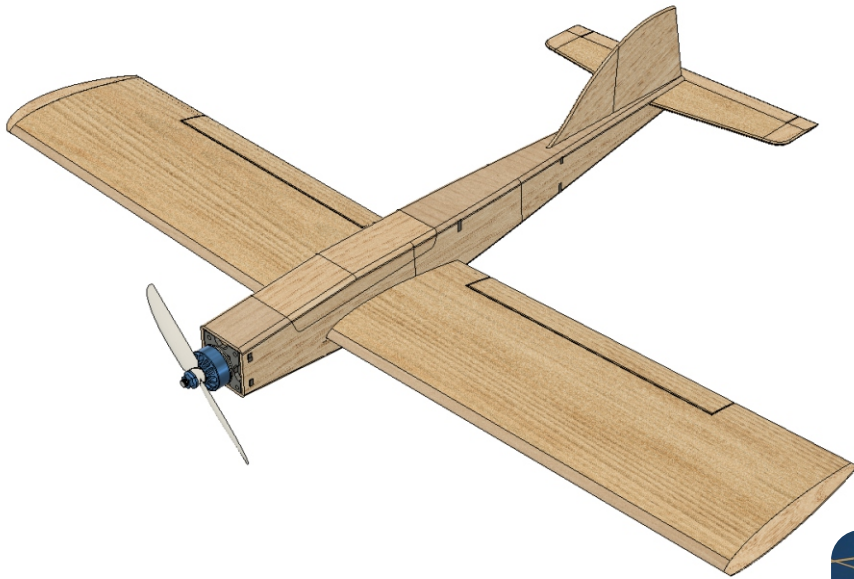


# ANGELWING DESIGNS JPS3 mini



700mm span Mini E2k Style Pylon racer  
 Approved by Paul Bardoe of PB Models  
 This is our first kit to be released with veneered foam wings. This gives a fast accurate build and a highly durable airframe with fast sport flying. It is just possible to build the JPS3 Mini to sub 250g if you use a light motor and 3s battery. However bolt in a 2207 2700kv motor, a 5x5 or even 5x7.5 prop and High C 4s 650mah batteries and experience the full "Mind Bender Mode"  
 This is not a toy! Suitable for experienced pilots only

Suggested Equipment (multiple motor options)

2203.5 1500kv - 4s Lipo - HQ Prop 5x5 (2blade) 18 amp esc  
 2203.5 2850kv - 3s Lipo - HQ Prop 5x5 (2blade) 18 amp esc  
 2203.5 2850kv - 4s Lipo - HQ Prop 5x5 (2blade) 40amp esc

Extreme Setup, use with caution!

2207 2700kv - 4s Lipo - APC 5x7.5 prop 60 amp esc

Suitable for 3s 650 or 850mah Lipo or 4s 650 Lipo

3 x 5g Metal geared servos

4 Channel Micro RX

We used:

2203.5 2850kv, 4s Lipo , HQ Prop 5x5 2 blade

4s Tattu 650mah 75c

Spektrum AR6100E RX

35amp BL Heli ESC

Wired Matek Micro BEC

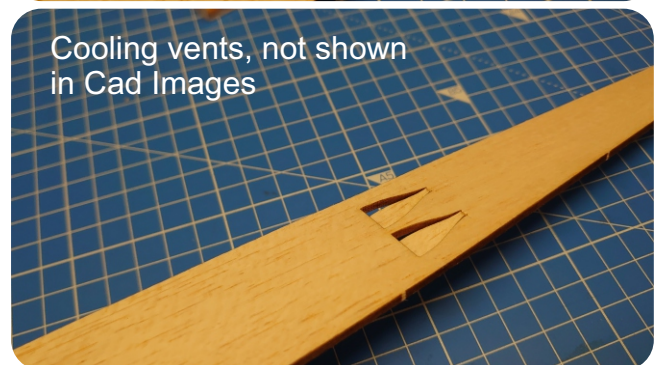
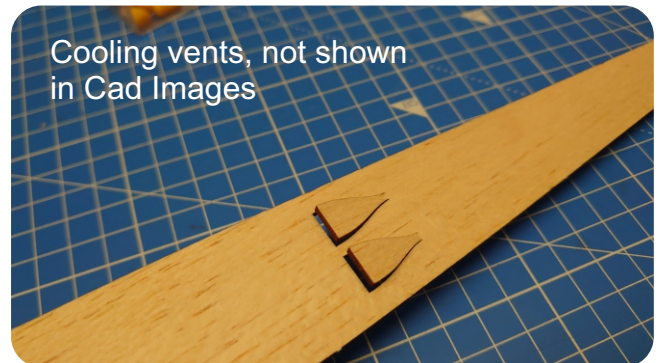
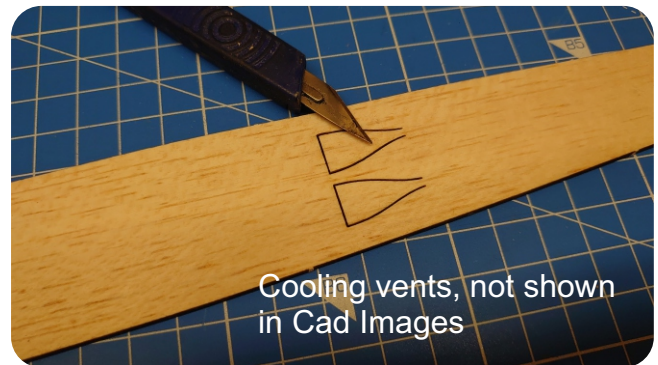
3 x King Max 5.7g Micro Digital Coreless High Voltage Servo (4.8V - 7.4V)

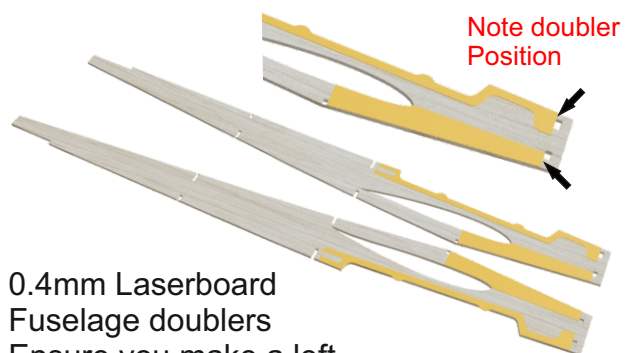
Oracover Easycote Covering film.

Recommended Adhesives:

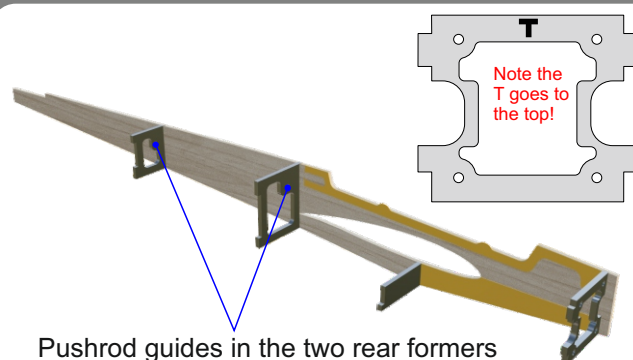
Foaming Gorilla Glue, or 2 part epoxy adhesive

Medium CA, PVA or Aliphatic resin





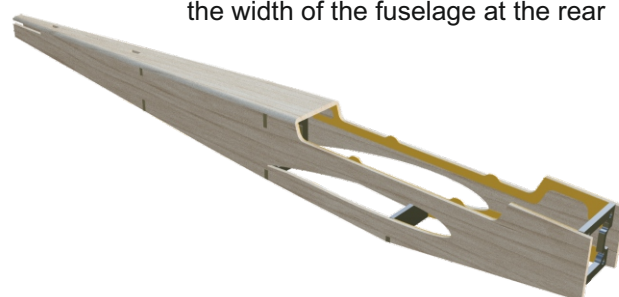
0.4mm Laserboard  
Fuselage doublers  
Ensure you make a left  
and right hand fuselage side.



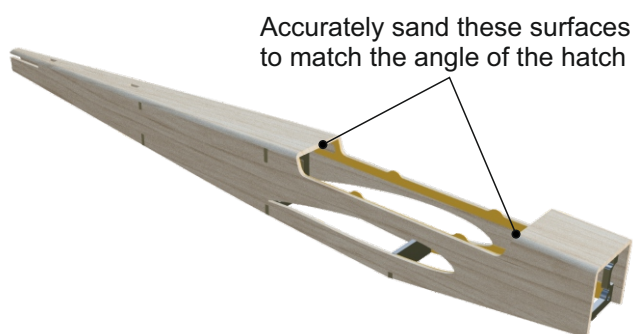
Pushrod guides in the two rear formers  
are orientated the same side.



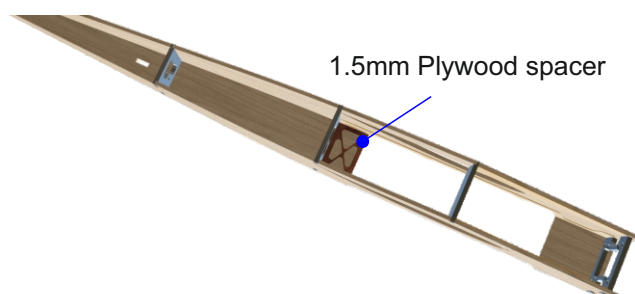
Do not pull and glue the rear  
of the fuselage sides together!



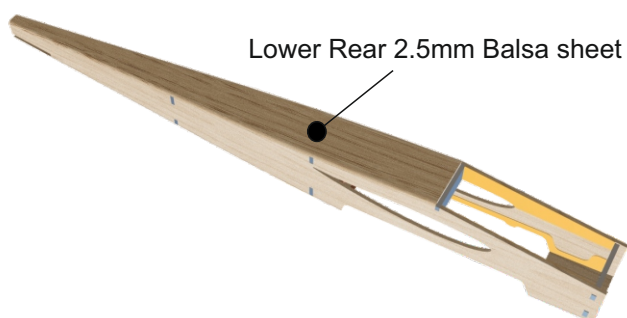
Top sheet is used to determine  
the width of the fuselage at the rear



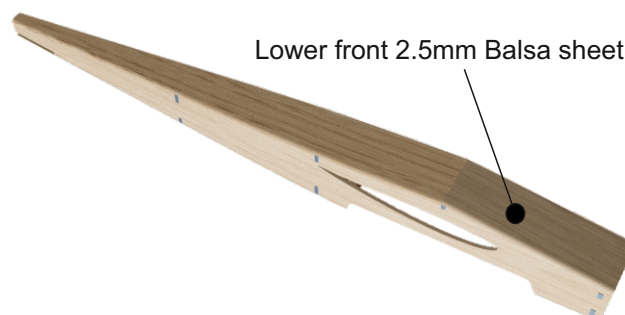
Accurately sand these surfaces  
to match the angle of the hatch



1.5mm Plywood spacer



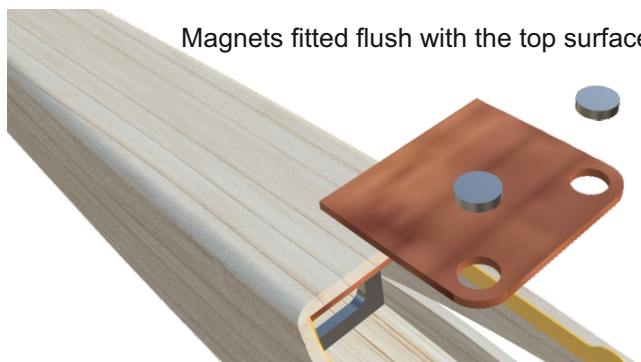
Lower Rear 2.5mm Balsa sheet



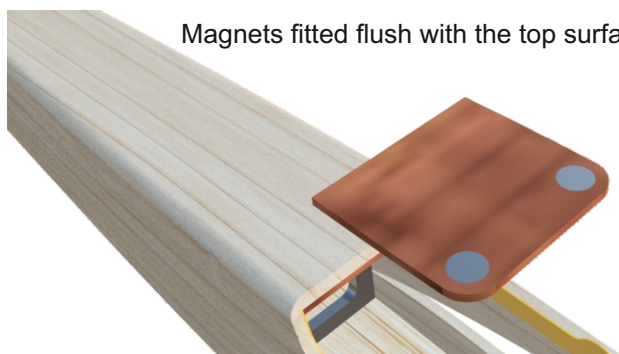
Lower front 2.5mm Balsa sheet



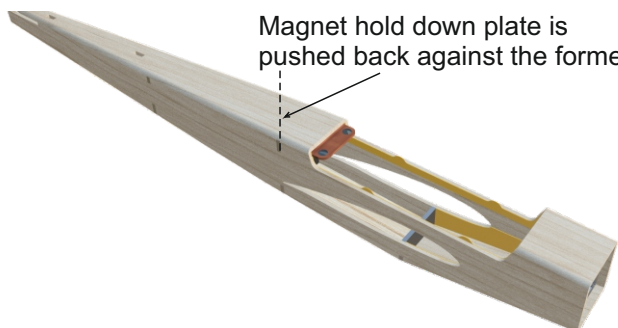
Magnets fitted flush with the top surface



Magnets fitted flush with the top surface



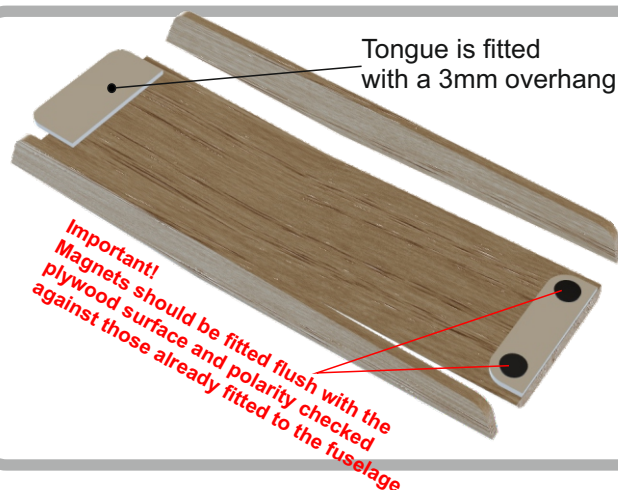
Magnet hold down plate is pushed back against the former



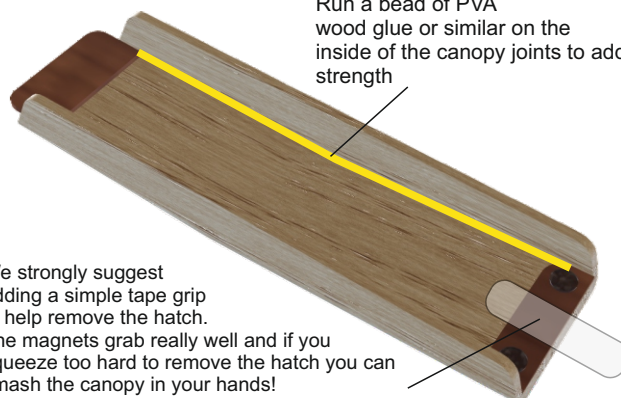
Hatch Components



Tongue is fitted with a 3mm overhang



Run a bead of PVA wood glue or similar on the inside of the canopy joints to add strength



We strongly suggest adding a simple tape grip to help remove the hatch. The magnets grab really well and if you squeeze too hard to remove the hatch you can smash the canopy in your hands! Don't tell Paul Bardoe though as his is mainly superglue now!

You can now sand the fuselage ready for covering. All you need to add is a radius of approximately 2 to 2.5mm to the edges

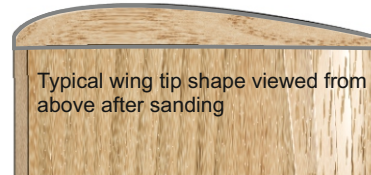


We have provided a full size plan to help, with the wing construction, clearly showing where to cut the wing for the ailerons, servos, servo leads and dihedral brace.

If you intend to use a high power setup such as a 2207-2700kv motor on 4s we would suggest you also wrap the centre wing joint with lightweight glass cloth applied with epoxy resin. You may need to adjust the fuselage opening if you do this.

The first task is to glue on the balsa leading edges. We like to use foaming gorilla glue for this secured with low tack masking tape while it dries. The Leading edges are then shaped using a razor plane and sandpaper to match the wing profile at the fuselage opening

The triangular balsa wing tips are fitted so one surface follows the upper surface of the wing, then sanded to match the wing profile.

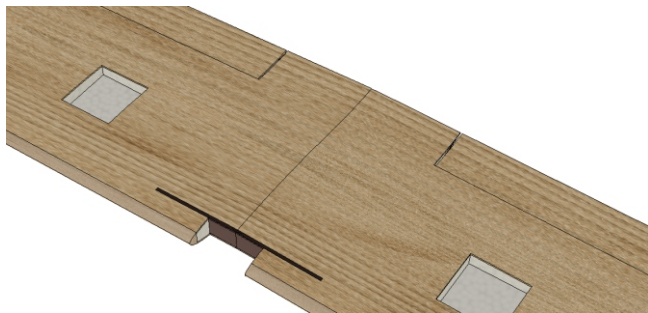


Typical wing tip shape viewed from above after sanding

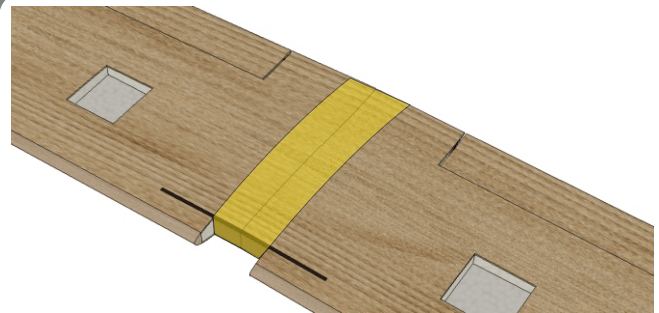


The wing roots need sanding to the correct dihedral angle. We prefer to sand the roots while they are sat in the outer polystyrene cores they were supplied in. The wings should be set to achieve an overall dihedral of 15 to 16mm. We pack up the tip of each wing by 7.5mm whilst in the foam block as and the root of the wing using the building bench as a square to sand against. *Those of you who have a permagrit sanding block know just how good a tool it is for jobs like this.*

Before joining the wing make sure you pass a pull wire through the wire guide holes you made as per illustrated on the wing plan.



We suggest joining the wings and glueing the dihedral brace with foaming Gorilla glue or 2 part epoxy.

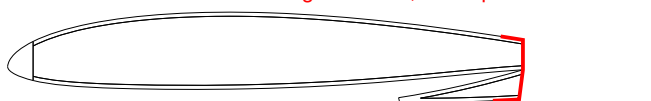


Once again, don't forget if your planning to use a high power setup to strengthen the centre joint with lightweight glass cloth and epoxy

Please note the ailerons are bottom hinged using film covering or tape.



Fold the aileron under the wing as shown, and tape as indicated



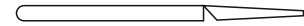
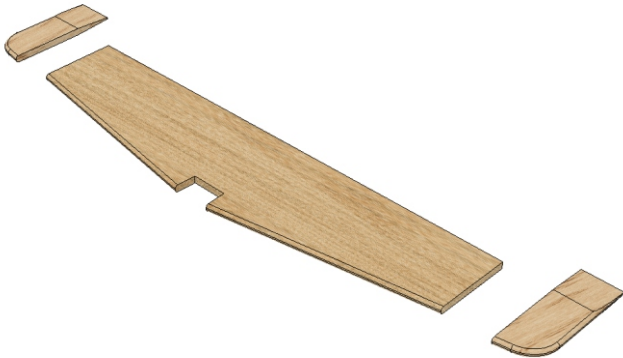
Deflect the aileron to the full up position and tape the underside



Trial fit the wing into the fuselage making any adjustments to the wing seat area required by sanding the opening in the fuselage. Please do not try to force the wing into place when a few minutes of careful sanding will lead to a much nicer effortless fit.

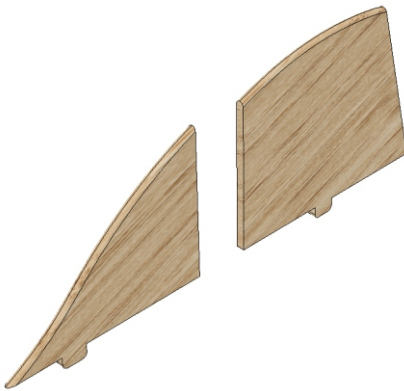
We prefer to cover the fuselage before covering the wing. Its just easier and leads to a better finish around the fuselage - wing join.

We only do this of course once we have prepared the tail surfaces, and made sure everything is nicely aligned, square and true.

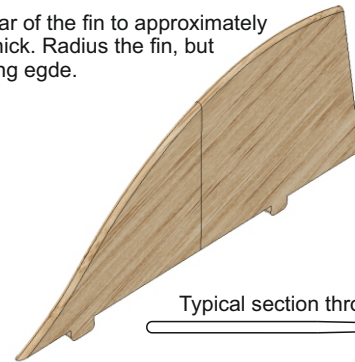


Typical tail and elevator section.  
Sand an even radius around the leading  
edges and tips, do not round the trailing  
edge as this can cause flutter

The elevator can be top,  
bottom, or centre hinged to your  
personal choice.

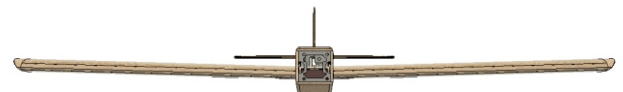
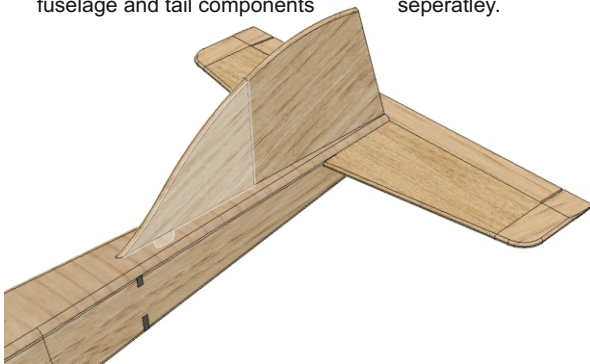


Taper the rear of the fin to approximately  
1 - 1.5mm thick. Radius the fin, but  
not the trailing edge.

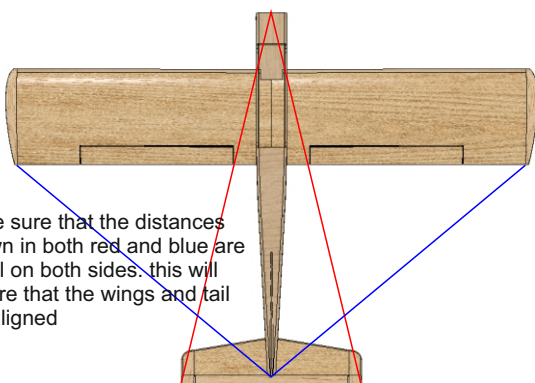


Typical section through fin

Trial fit the tail group. Do not glue! we suggest covering the  
fuselage and tail components  
separately.



Ensure the wing, tail and fin all align correctly when viewed  
from the front or rear. Adjust the wing or tail seat using sandpaper  
or a needle file if required.



Make sure that the distances  
shown in both red and blue are  
equal on both sides. this will  
ensure that the wings and tail  
are aligned

A little time spent now sanding the airframe smooth and filling  
any imperfections with a light weight filler can make a big  
difference to the overall finish of the model when covered.

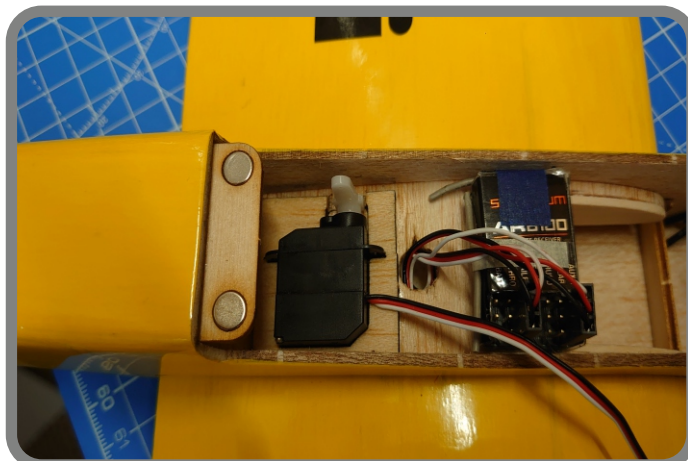
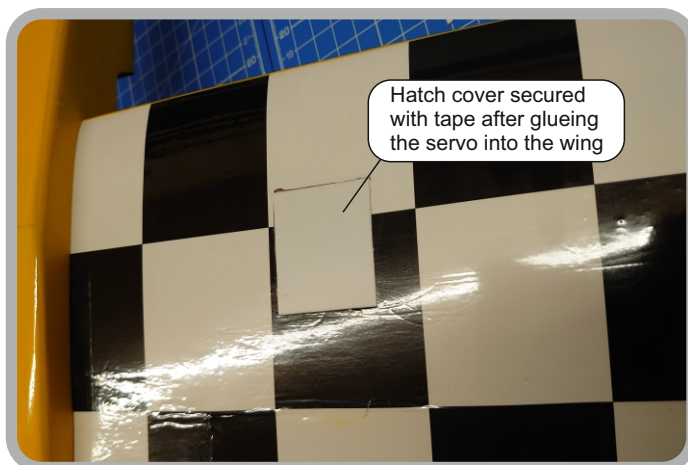
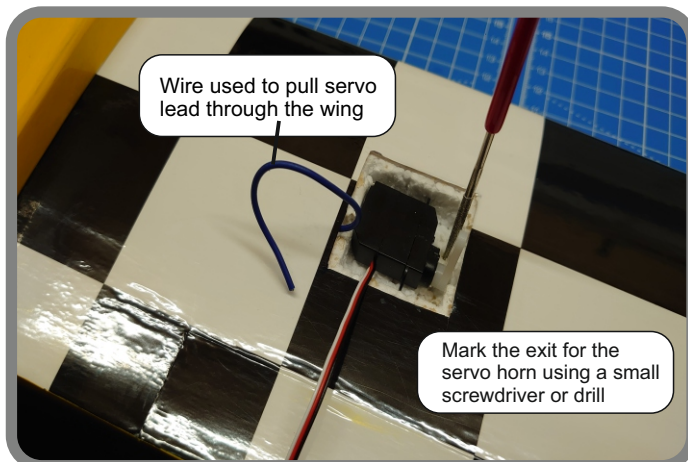
With film covering finishing the model with 320 grit paper is  
sufficient to get a really nice finish. Its important to use a tack cloth  
or slightly damp lint free cloth to remove all dust before covering.

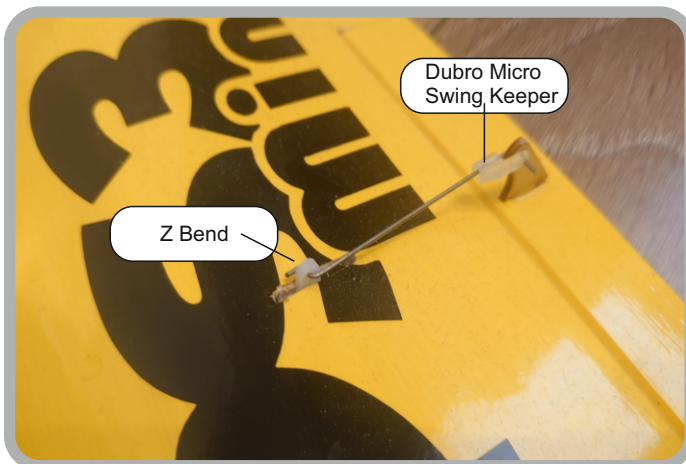
Contrasting colours top and bottom are suggested with small  
fast flying models such as the JPS3. For us a dark underside or  
chequerboard pattern works best.



We would assume that anyone attempting to build and fly this kit is experienced enough to understand how to instal the radio equipment. This is a very high performance model and as such secure installation of the servos, control horns and linkages is critical to be able to operate this model safely. We have provided the following images so show how we installed our radio equipment.

The kit is supplied with 3 plywood servo frames to suit Kingmax 5.7g metal geared servos. One per aileron servo and one for the elevator servo





## Balacing and Control Throws



We must remind you once again that this is a very high performance model despite its small stature.

All linkages must be secure, precise and slop free if they are not, then stop! Go back and remake the linkages before even contemplating setting the model up ready for flight.!

Balance the model inverted.

Do not rely on your finger tips use a C of G tool or pencils clamped in a vice.

The CG should be set to **33mm - 36mm from the leading edge of the wing.**

We strongly advise starting at 33mm if your using a 4s battery high power setup.

## Control Throws

**Low Rates**      Aileron 6mm up 4.5 mm down  
Elevators 3mm up 3 mm down

**High Rates**      Aileron 8mm up 6mm down  
Elevators 5mm up 3.5mm down

To launch the model we use an assertive underarm launch with the nose pointing 20 degrees up and the right wing slightly low. Only half throttle should be used on the launch until you are familiar with the model. It is normal to expect a torque roll to the left on launch . First flights we would highly recommend a helper is available to perform the launch for you.

We really hope you enjoy this fantastic little rocket ship