

SLIPSTREAM BUILDERS KIT VIPER & EBX VERSIONS



Thanks for buying the Slipstream 1 metre builders kit.

The Slipstream incorporates the finest building materials from the EPP (Expanded Polypropylene) cores, CNC cut from solid block for unrivalled strength and impact resistance. The carbon fibre spar, manufactured in the EU to aerospace standards. The laser cut balsa elevons picked from hard stock are the best quality you can get.

The Slipstream wing section is extremely efficient, this means it requires less energy to get a good performance than any other wing. There is a wide variety of power systems you can use. At Flyingwings we recommend the following power packages:

Viper power system (FW0682)

EBX Extreme power system (FW0683)

As well as these power systems you will require:

1 x Covering set (FW0684)

2 x mini servos or Standard size servos (FW0196) or (FW0160)

1 x Receiver (full range) (FW0408)

1 x Lipo battery (1800-2500mah 3S 11.1v) (FW0561 Himodel (2200mah 3s EBX 25C, or Budget for Viper 20C (FW0687)

1 x connectors set (FW0598)

1 x Transmitter capable of elevon mixing or mixing module (FW0044)

1 x Lipo compatible charger (FW0305)

Spares Available:

APC propeller 5.5 x 4.5 (FW0414)

Wingtips set (FW0343)

Elevon Set (FW0348)

Pushrod set (FW0406)

Horn Set (FW0345)

LETS GET BUILDING

Flyingwings recommends
that you get insured by the
BMFA.

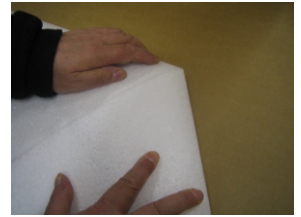
www.bmfa.org

Step: 1

Clearly mark the centre of the carbon tube with pencil. Lay the left wing panel on a flat surface and insert the tube into the hole, do this very gently, ensuring the tube is going into the hole straight, you should not have to apply too much force, twisting the tube as you insert it can help.

Hold the end of the tube and spray the root surface as shown with spray glue, quite thickly so as it bubbles up. Get the right panel and spray the root in a similar manner. Wait 5 minutes.

Lay the left panel with tube on a flat surface and gently push the right panel onto the tube, joining the wings. Due to the nature of the material, perfect alignment of the holes is very hard to achieve, hence, once you have joined the the two panels, you may have to manouvre them into alignment. Secure with temporary pieces of strapping tape at the nose and rear. Allow to dry for a further 10 minutes.



Step: 2

Now install the lateral carbon spars (2 x Flat 8mm x 0.8mm x 500mm).

Run a bead of UHU Por into the two slots, push the carbon spars in so they sit flush with the bottom of the wing. Run another bead of glue over the top of each one and remove surplus glue.

Use some strapping tape to keep them in place, allow 1 hour to dry.

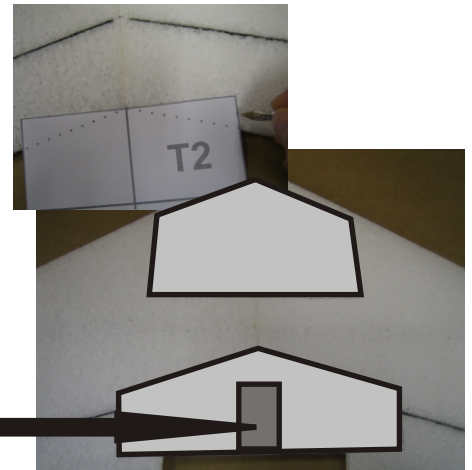


Step: 3

Template T2 show's the propeller clearance hole to be cut at the rear of the wing (Not used in SL version). Cut this out attach to the rear of the wing and cut the slot out.

Turn the wing over showing the underneath with the nose pointing away.

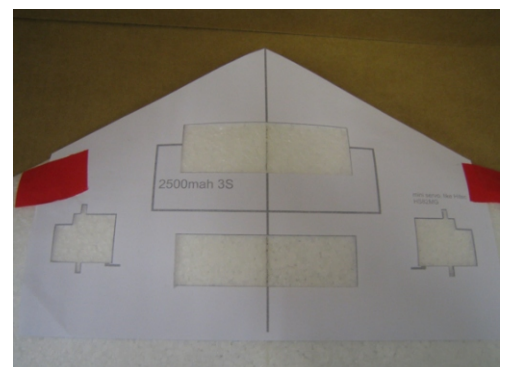
Lay the play plates on the wing without glue, mark around them with a pencil. Lay them aside and thinly spread some UHU Por glue over the two areas (If the glue is cold, warm it to make it spread). Do the same to one side of each of the ply plates, allow to dry for 20 minutes, the align carefully and press them down firmly. Apply some strapping tape around the edges. Coat the rear ply plate with a thin layer of UHU por where the motor mount will sit and do the same to the mount, allow to dry, then line up centrally and press on with flange facing down, secure with tape. see Fig 5



Step: 4

Template T1 show's where to insert your radio equipment and battery, if your servos are a different shape to the one drawn, over lay the servo and draw around it approximately central with the one shown. Template T2 show's the propeller clearance hole to be cut at the rear of the wing (Not used in SL version).

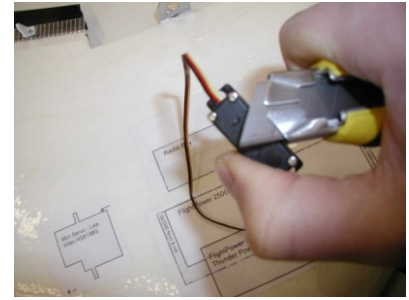
Cut out the two template T1 where shown, align these on the joined wing as in diagram and tape in place.



Step: 5

Set or mark your knife to the depth of the servo to give a guide to how deep you should cut. Cut around the servo shape and make criss cross patterns inside. Dig out the foam carefully, checking with the servo for a good fit all the time, if you dig too deep then pack out with some foam you have removed.

Cut a slot 3mm deep to run the servo cables into the radio bay.



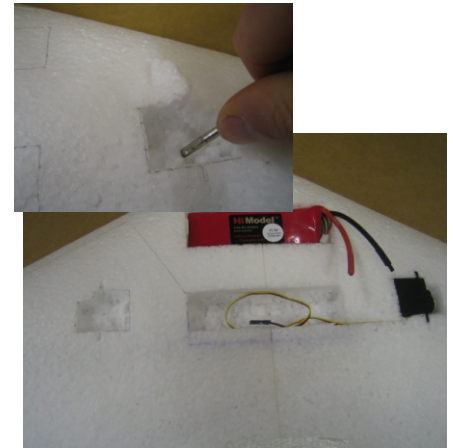
Step: 6

According to your battery selection, mark out the area on the template you want to cut out. (do not cut further forward than the front line), allow for the balance lead to sit in the hole.

Again, cut around the outside of the area you have selected, you can cut right down the ply plate installed earlier.

The radio bay, can be modified to suit the receiver and speed controller you are using, cut down to allow approx 3mm space above the equipment to allow for a hatch.

See Fig 5D for the aerial path, cut a 3mm deep slot and push the aerial into it, the aerial will exit at the tip, leave this loose. (2.4ghz system, need not do this) Leave the receiver in during the covering process, remove everything else



Step: 7

Now your ready to start the covering process.

Refer to **FIG1**, Turn the wing upside down, ply plate upwards, Give the wing a good spray of spray glue, allow to dry for 2 minutes. Apply tape as shown, be careful not to create creases especially on the leading edge. Turn the wing over and repeat the process shown in **FIG2**. Do not be tempted to cover the whole wing with strapping tape, this will add too much weight, cause problems with the CofG and will not make it any stronger.

SEE FIG 1&2

Step: 8

Refer to FIG3

Now the final covering of coloured tape.

We have found that its best to cover the top and bottom in contrasting colours, ie black or blue on bottom and a light colour on top, or vice versa, this will help with orientation in the sky.

Turn the wing so that top is up (ply plates down) and give the wing an additional light spray of glue
Start with the back of each wing on the top side, Note, you will covering over the holes cut earlier, this is ok. trim any surplus that folds over to the bottom, leaving 20mm of over lap. Turn the wing over Spray again and cover.

SEE FIG 3

Strapping Tape Guide

FIG 1
Bottom

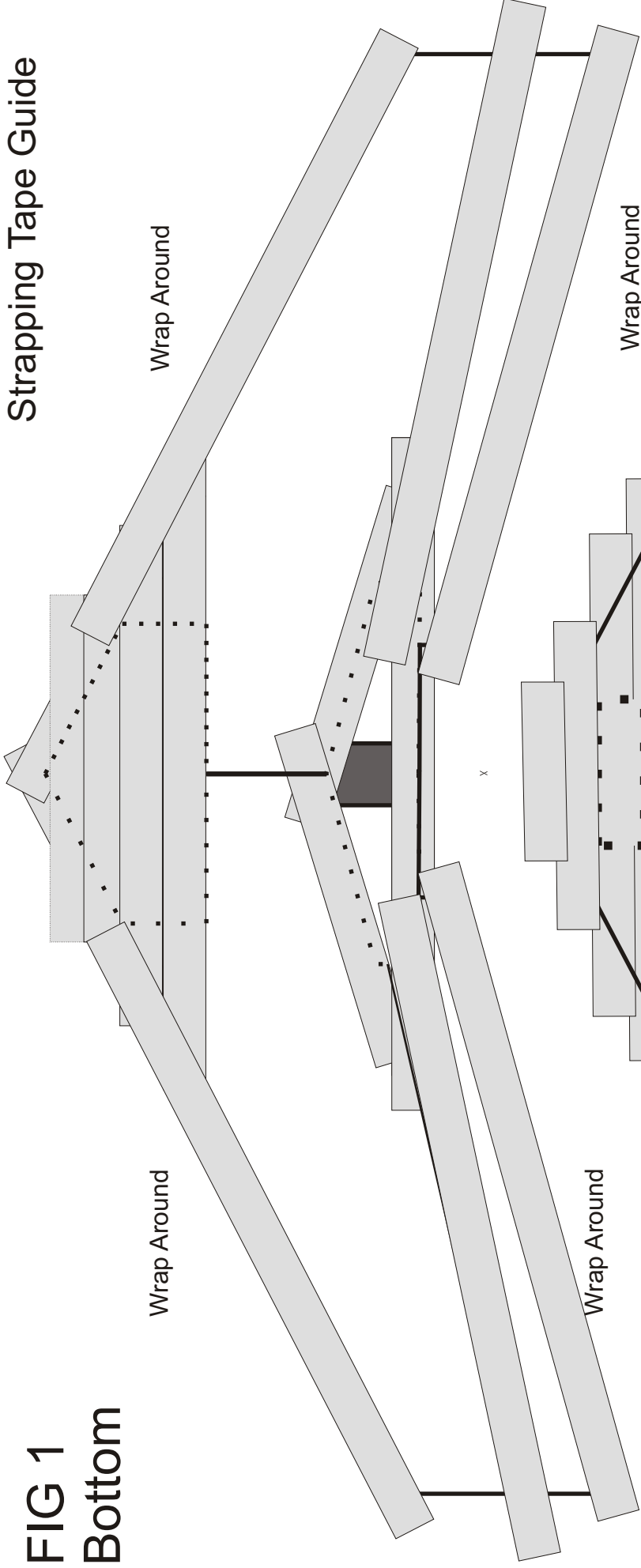
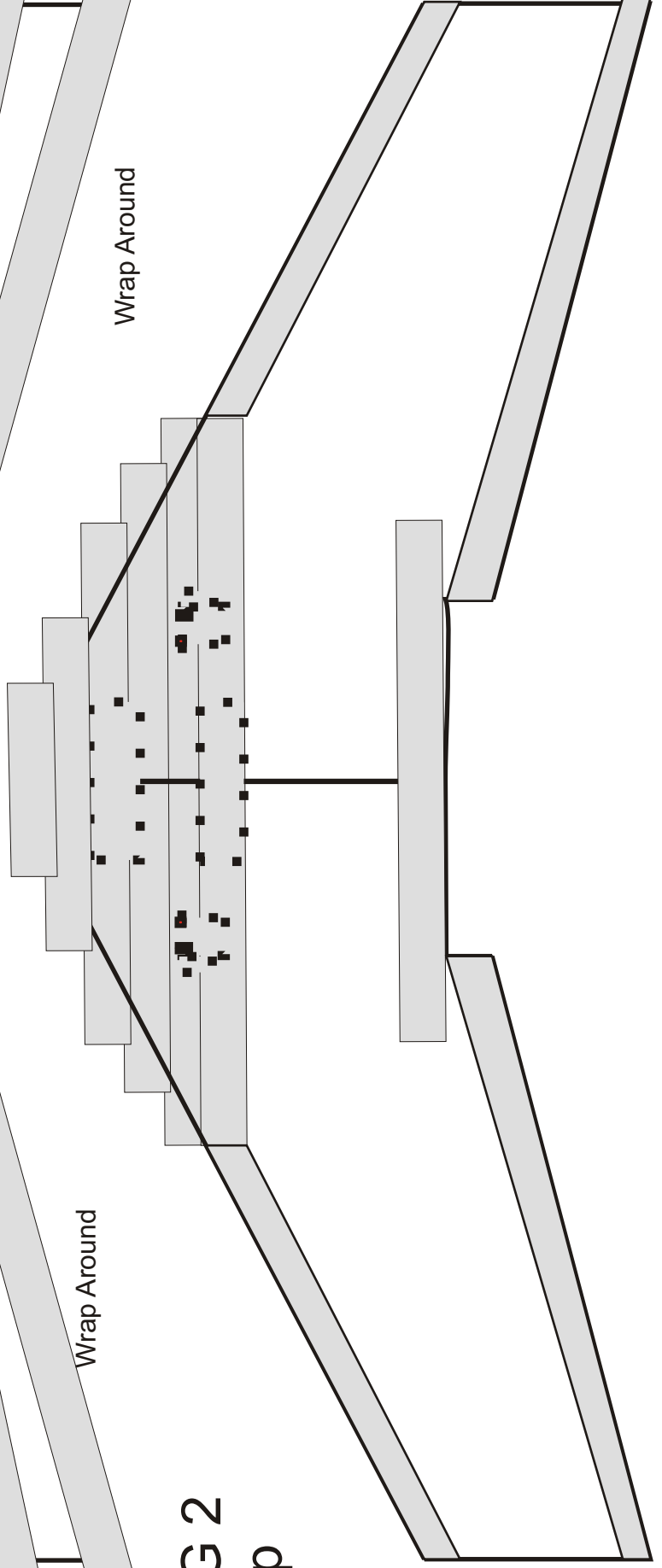
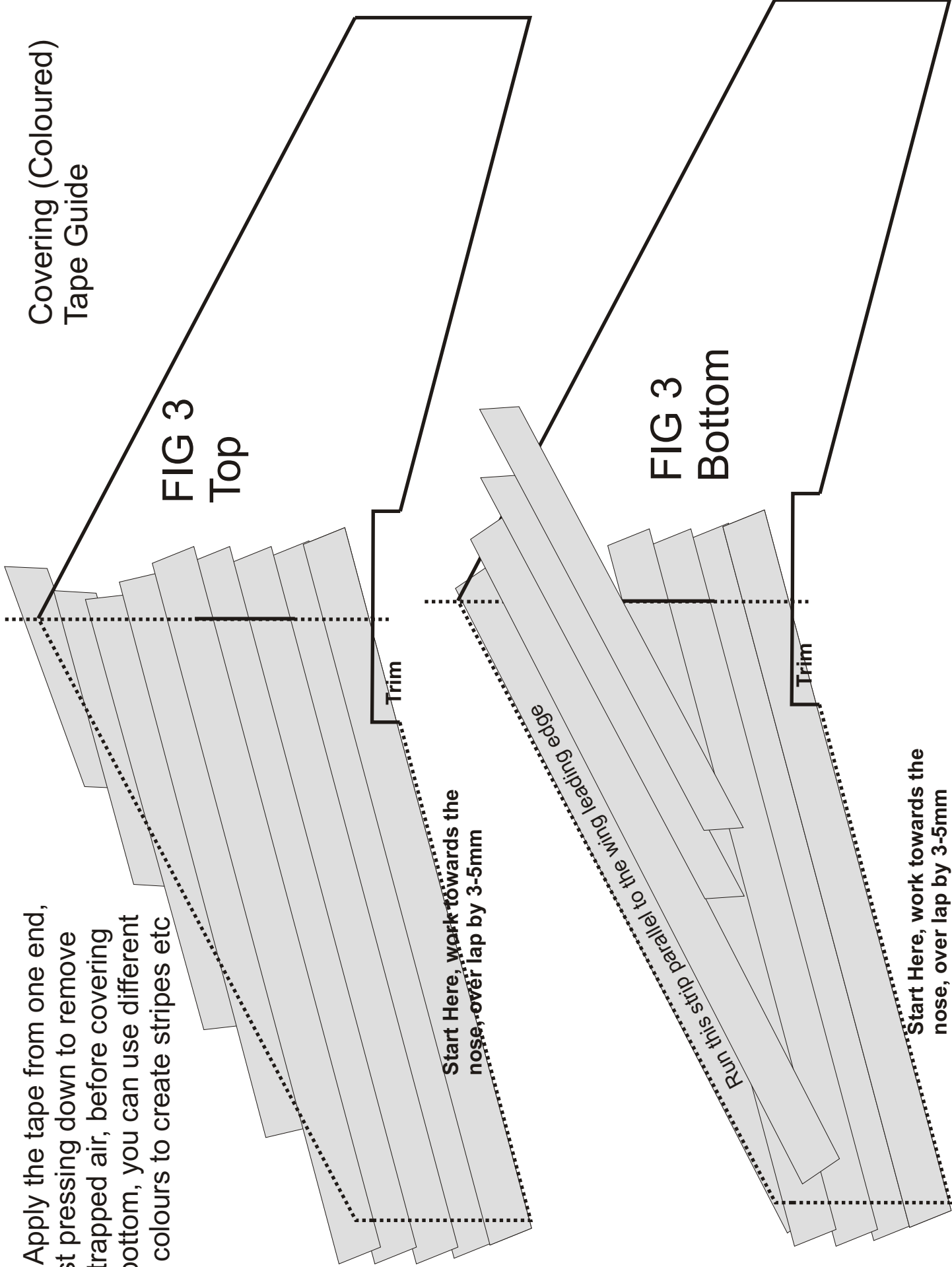


FIG 2
Top



Tip: Apply the tape from one end, whilst pressing down to remove any trapped air, before covering the bottom, you can use different tape colours to create stripes etc



Start Here, work towards the nose, over lap by 3-5mm

Run this strip parallel to the wing leading edge

Start Here, work towards the nose, over lap by 3-5mm

Covering (Coloured)
Tape Guide

FIG 3
Top

FIG 3
Bottom

Trim

Trim

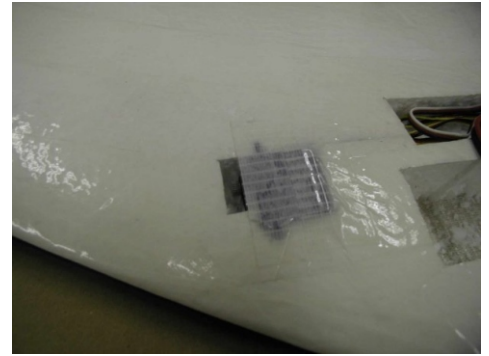
Step: 9

Set up your radio equipment outside of the model see "Radio Setup" section.

Trim around the holes cut for radio and battery locations. Insert your equipment for fit making adjustments accordingly, cut a slot around 5mm deep for the servo leads to run directly into the radio bay.

Using strapping tape, secure down the servos, then cover with coloured tape allowing for the horn and slot.

To seal edges of covering tape, use a domestic clothes iron and medium setting, and run it along the leading edge and around the ply plates. Always test heat on a scrap piece of tape before.



Step: 10

Refer to FIG 4,
Chamfer the balsa elevons as shown, and then cover with tape.

Using 25mm strapping tape or cut some 50mm down the middle, apply to the trailing edge on the top, offer each elevon to the trailing edge holding it down at 45 degrees, do both elevons, turn the model over and repeat, remembering to hold the elevon down at 45 degrees to allow for movement.

SEE FIG 4

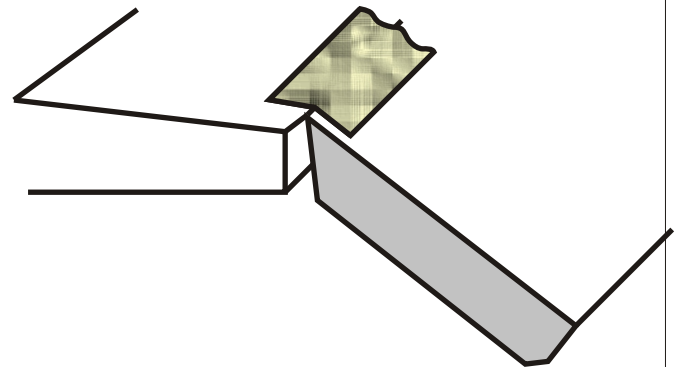
The elevons are handed ie left and right, make a handed pair

Cover the elevons with coloured tape in a similar manner to the wing

Step: 11

Align the elevons to the back of the wing so that it is 3mm short of the end of the wing to prevent it rubbing on the wing tip. With the wing top upwards, attach a 25mm strip of tape along one side of the rear of the wing half on half off.

Offer up the elevon at a sharp angle as shown and attach, a small gap between the elevon and wing of 1mm is ok. Turn the wing over and repeat, again holding down the elevon downwards. Run you finger nail down the gap between the elevon, the elevon should move quite freely.



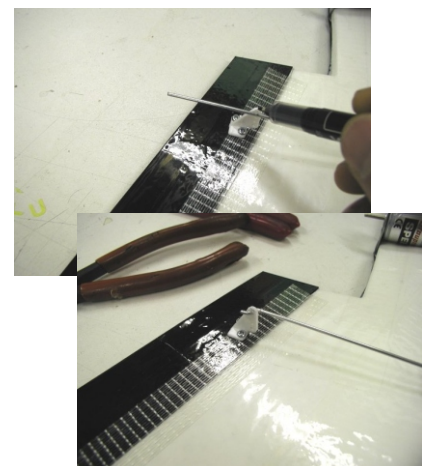
Step: 12

Refer to FIG 5A

Use a ruler to mark the positions of the horn, put the screws into the horns so that the point of the screws stick through by approx 1mm. Push the horn onto the elevon in the correct place and screw down. Align the horn bottom plate up with the screws and re-tighten, do not over tighten, just enough to grip the elevon firmly.

Switch on the radio system, neutralise all trims, check the horn is as vertical as it will allow. Lay the model flat, the edge of the elevon should be raised up 8mm from the surface. This is the neutral position.

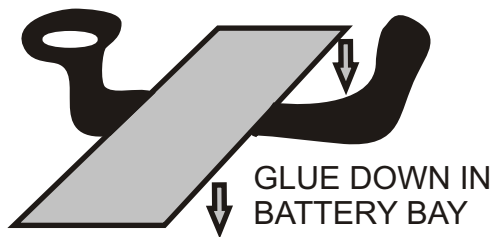
Create a z-bend with pliers. Take off clevis attach z-bend and re-attach clevis, adjust accordingly.



Step: 13

Installing the velcro strap.

Get the small ply plate, glue the velcro strap to the plate as shown, then glue the plate down to the bottom of the battery bay, trim the velcro strap to suit battery.

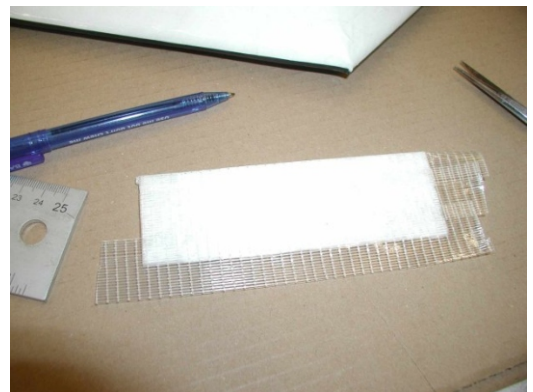


Step: 14

Assemble the power system, see Power system page. Cut the recess for the motor. see Fig 5B. and install the power system, leave off the propeller at this stage.

Making the hatches: Cut 2 hatches from the thin sheet of epp supplied, on the size of the battery bay and the other, the size of the radio bay, cover with strapping tape.

Hinge the battery hatch with narrow strapping tape at the front and cover with coloured tape, use a piece of strapping tape to act as a latch. With the radio bay, fit in place and secure with coloured tape.



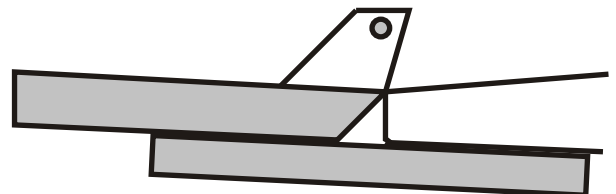
Step: 15

Installing the horns & pushrods.

SWITCH ON YOUR RADIO AND CANCEL ALL SUB TRIM
SET TRIMS TO NEUTRAL

Screw the screws into the horns so that the points of the screws are just proud, Line up the horns as shown in FIG 5C, press down the horns, then screw them right down, get the bottom part of the horn, align screws and screw down until the horns grip the elevon, but not too tight.

Screw the clevises onto the pushrods halfway, attach the clevis to the servo horn, Set the elevon position slightly upwards as shown, mark the pushrod with a felt tip and make your z-bend at this point. Note the horn holes may need to be enlarged slightly,



Use a ruler to set neutral position

Step: 16

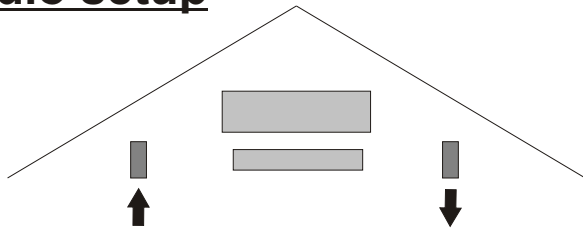
Final checks and balancing.

The centre of gravity (where the model balances) should work out at 180mm back from the tip of the nose.

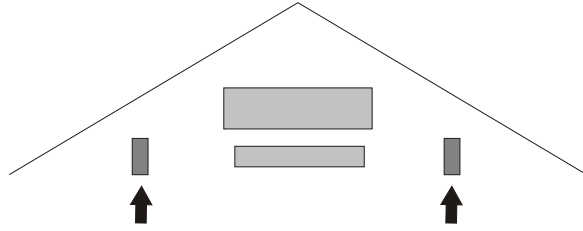
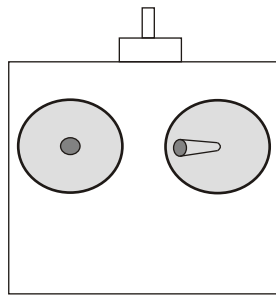
Check controls are working in the correct direction, see .Radio setup section.

Check motor is turning the correct way then attach prop, always be careful the prop can injure fingers on contact.

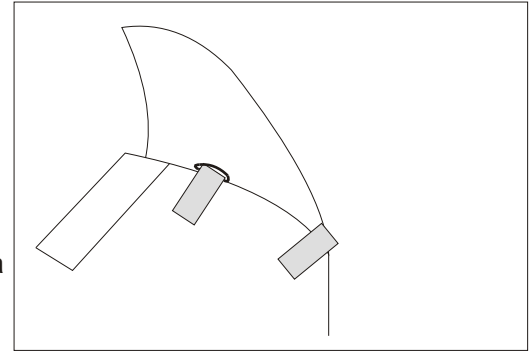
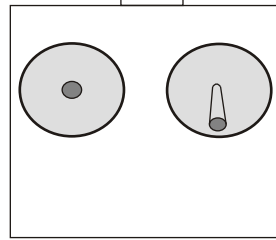
Radio setup



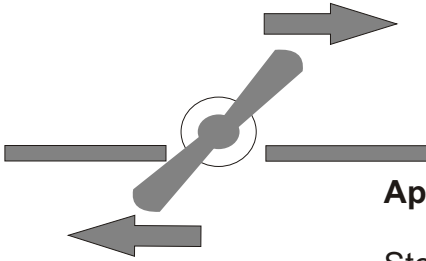
Left Aileron: right servo travels back, left travels forward & vice versa



Up Elevator: right servo travels back, left travels back & vice versa



Attach Wingtips with filament tape, thread 5" of filament tape through the pre-cut slots and tape to top and bottom of wing tip. Secure the front with another piece.



Viewing the model from the rear, the motor should run clockwise with propeller put on backwards.

Applying the vinyl graphics: Last job to be done

Step1: Carefully peel the white paper away from the backing paper (the sticky paper that resembles masking tape) leaving the vinyl graphic on the backing paper. If any part refuses to stick to the backing paper, press it down between your fingers until it does.

Step2: Align the backing paper with vinyl onto the model where you wish to apply it, rub it down firmly and peel back the backing paper to reveal the graphic

Recommended control throws measured at trailing edge of elevon.
Up/Down +/- 10mm, Left/Right +/- 10mm

Important : When setting control throws, note that all 4 settings (up,down,left,right) are the same whatever value. Ie all 75% or all 65%

The Slipstream is capable of flying in most winds from zero to galeforce. Pick a day with light winds to start. You may want to start by some test throws without power, to test trim. We recommend launching the model into wind without power and then applying power. Contact with the propeller can cause serious injury.

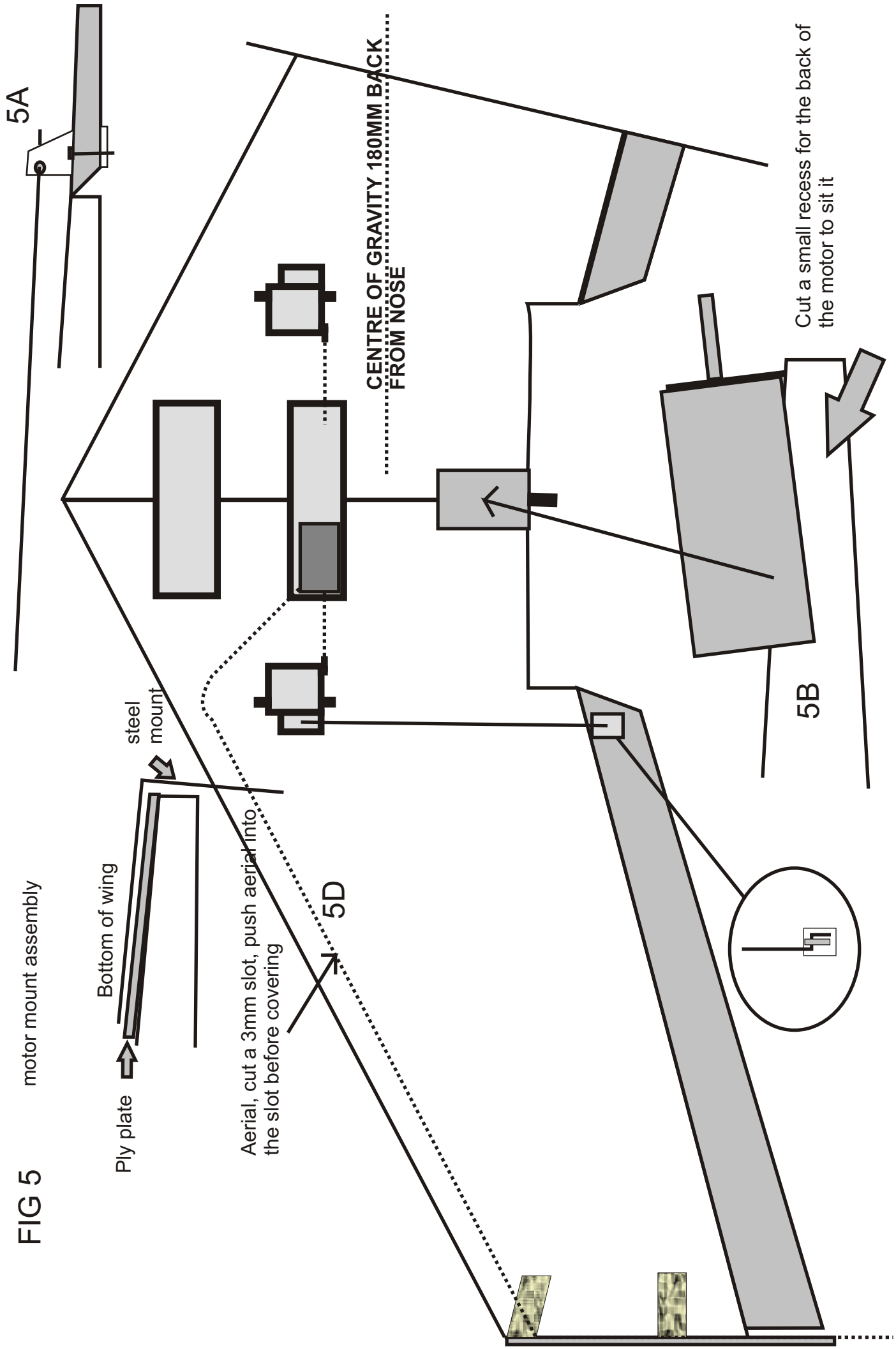
Shut the throttle on, or before landing, the speed controller may be damaged if the motor is on when the model is on the ground.

The Slipstream will glide for some time, so plan you landing, by reducing height some distance from the landing site and glide it in with a little throttle if required.

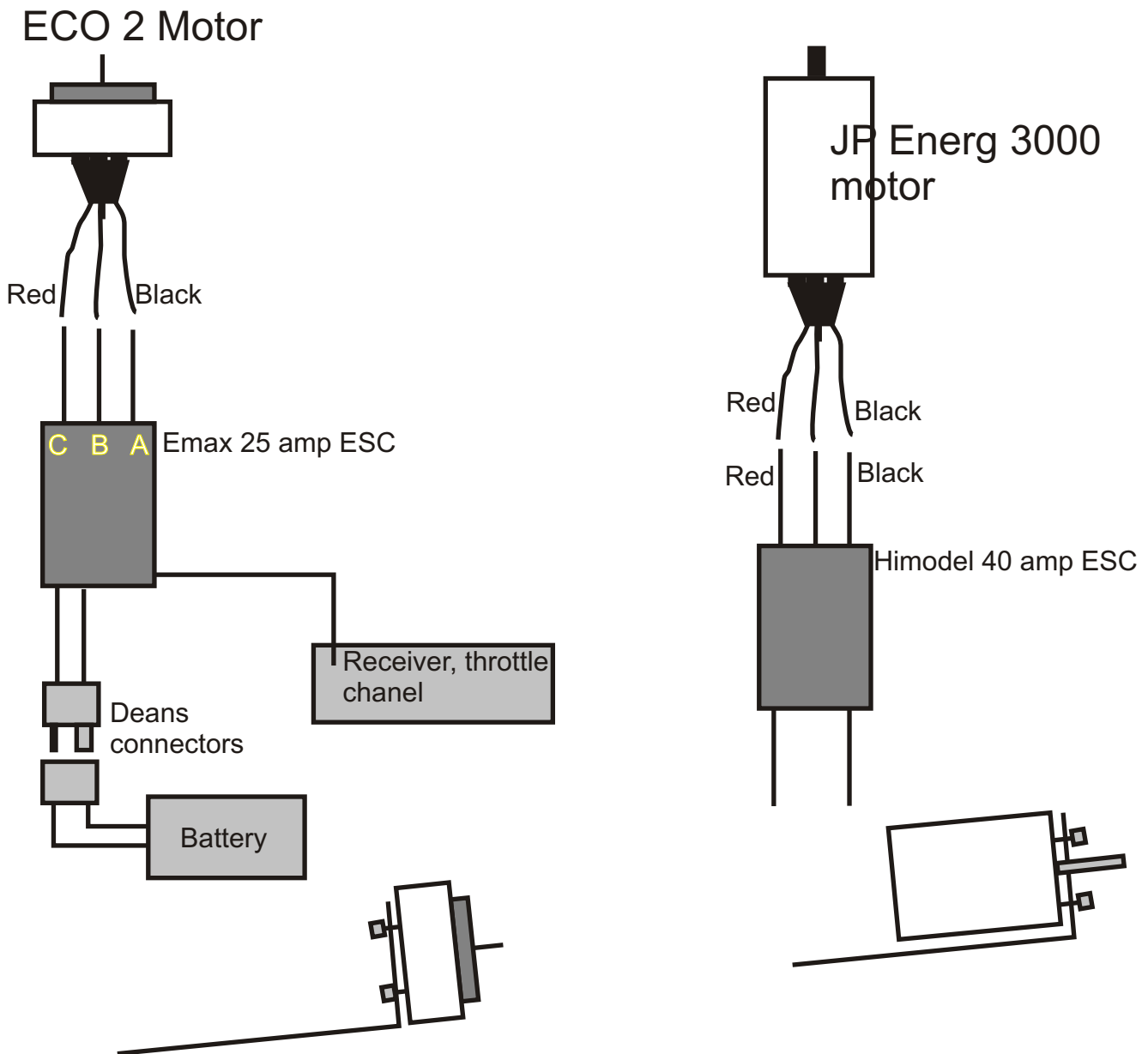
For launching, hold the nose with your fingers below and your thumb around the top of the nose, A good firm (not hard) launch over head into wind.

Help Line 01908 615163
Email help_sales@flyingwings.co.uk

FIG 5 motor mount assembly



Power system installation



Always do the motor setup with no propeller attached for safety.

In some cases the motor will not react to sudden throttle opening or stutters, this is resolved when the propeller is attached.

Trouble shooting:

The motor will not start

- > Always switch on the transmitter, set throttle to zero, then switch on model and wait for start up sequence (beeps)
- > Incorrect wiring, check battery to speed controller and controller to motor polarities
- > Check servos are working, if not, there is a problem with the battery to speed controller connection or a crystal problem. check with a separate battery.

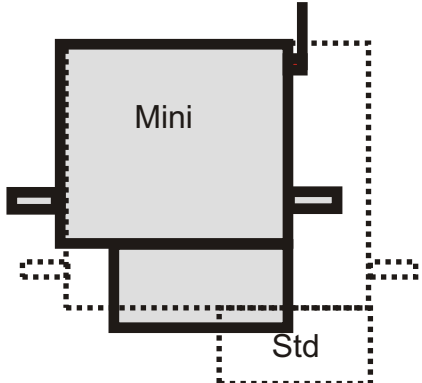
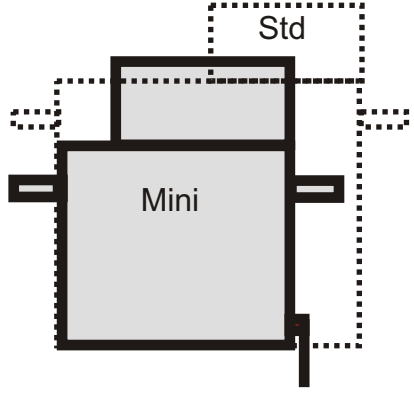
Motor runs the wrong way

- > As with all brushless motors there is 3 wires, left, middle & right. The middle connects to the middle of the speed controller, the two out wires, left & right can connect either way and will dictate the direction the motor spins.

T1



mini servo, like Hitec HS82MG or standard size servos.



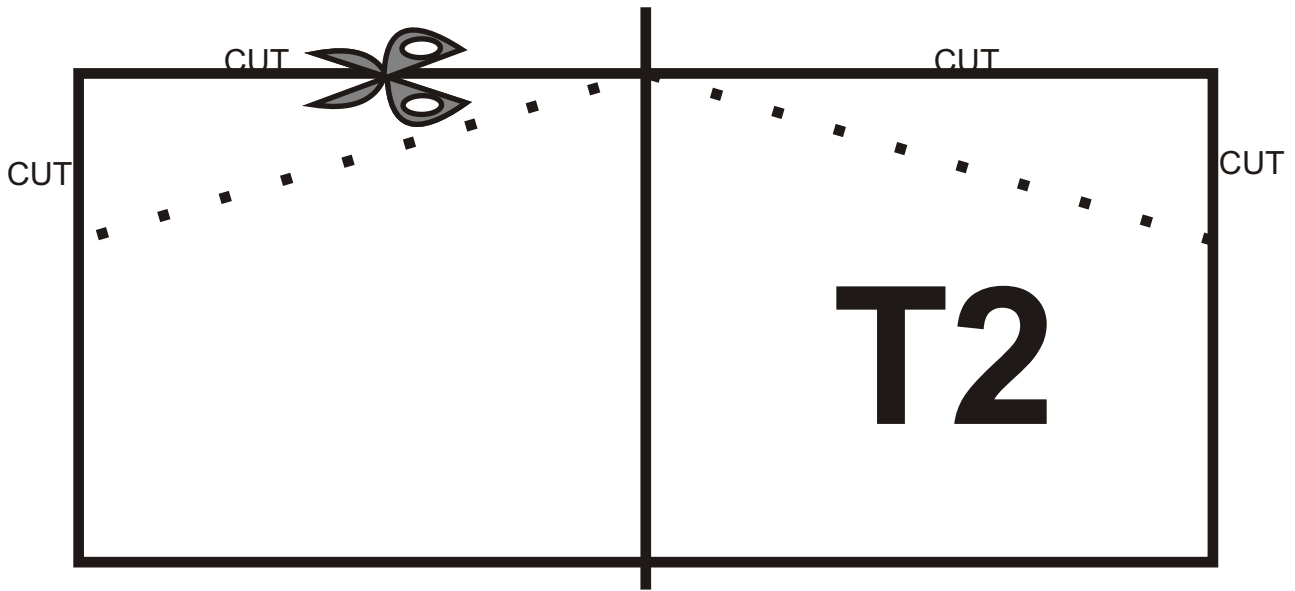


FIG 4
Chamfering
Balsa elevons

The elevons are handed ie left and right, make a handed pair

