

# FLYINGWINGS LTD

## PRO-CUT ULTRA YAK 860



Thank you for purchasing the Pro-Cut Ultra YAK860

The YAK 860 is ideal for outdoors and indoor flying in a large hall. The YAK 860 is light, rigid and its EPP so it's going to be very tough and easy to repair.

Flying the YAK 860 is a pleasure, it feels light and can fly slowly, with standard servo movements, it's stable and predictable, with increased movements it turns into the ultimate 3D aerobatic plane, capable of all the manoeuvres that the big models will perform. We love it and im sure you will.

There is a power system for this model, see the website for details.

### As well as this power system you will require:

- 3 x micro servos 6-8g
- 1 x micro Receiver
- 1 x Lipo battery (500-800mah 3S 11.1v)
- 1 x connectors set
- 1 x 4 channel Transmitter
- 1 x Lipo compatible charger

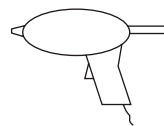
Power System: (inc with deal).

- 1 x 1400-1500kv 60-80w brushless motor
- 1 x 12amp speed controller
- 1 x prop adaptor
- 1 x gws 0843 propeller

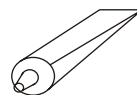
### CRITICAL DATA

CENTRE OF GRAVITY 80mm BACK FROM LEADING EDGE OF WING AT CENTRE

TARGET FLYING WEIGHT  
**250 GRAMS**



HOT GLUE GUN



UHU POR



CA GLUE

Flyingwings recommends that you get insured by the BMFA.

[www.bmfa.org](http://www.bmfa.org)

Help ! 01908 615163 or [sales@flyingwings.co.uk](mailto:sales@flyingwings.co.uk)

# PARTS LIST:

## FOAM PARTS \*

- 2 x wing panels
- 2 x aileron's
- 2 x fuselage (vertical)
- 1 x rear deck
- 1 x front deck
- 1 x tailplane
- 1 x elevator
- 1 x rudder

## HARDWARE

- 4 x metal servo adaptors
- 2 x ply undercarriage discs
- 4 x ply horns
- 1 x 8mm motor tube (plastic)
- 4 x piano wire straight
- 4 x piano wire z-bends
- 2 x deluxe angled wheel adaptors
- 2 x 25mm wheels
- 1 x Ply disc & stand off set
- 1 x aerial tube 200mm
- 250mm 2.5mm Heat Shrink (black)
- 250mm 1.6mm Heat Shrink (clear)
- 1 x Triangular Balsa strip

## CARBON FIBRE PARTS

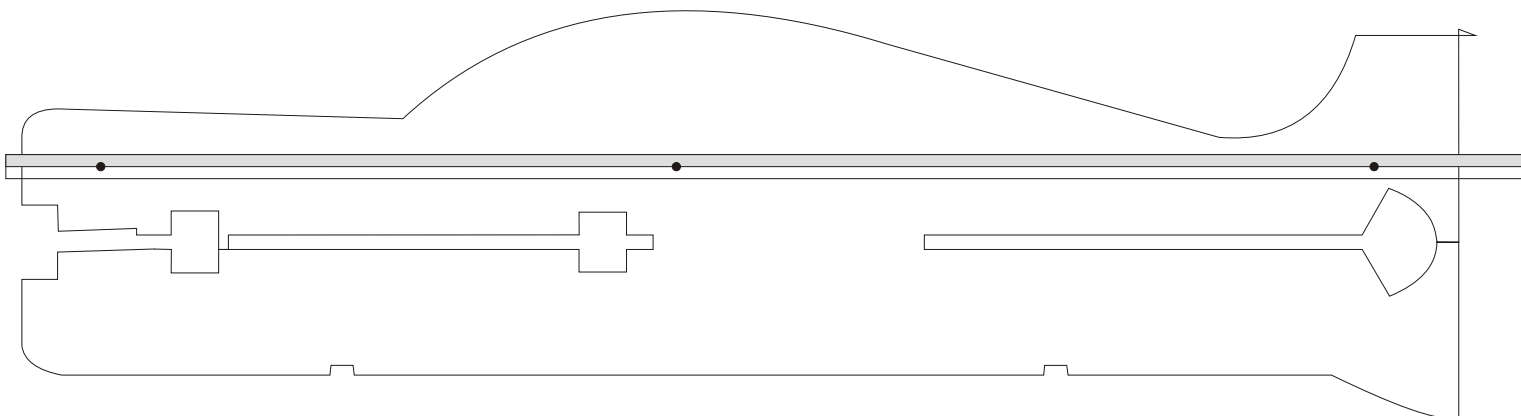
- 5mm x 0.8mm strip
- 1 x 800mm (internal wing spar)
- 1 x 830mm (front wing spar)
- 1 x 200mm ( elevator spar)
- 1mm rod
- 4 x 160mm (fuselage bracing)
- 2 x 210mm (fuselage bracing)
- 4 x 250mm (wing bracing)
- 2mm rod
- 2 x 150mm (undercarriage)
- 1.5mm rod
- 1 x 300mm (elevator pushrod)
- 1 x 350mm (rudder pushrod)
- 2 x 110mm (Aileron pushrod)

## OPTIONAL POWER SYSTEM

- 1 x Hextronik 24g 1500kv Motor
- 1 x 12amp ESC
- 1 x 8x43 propeller
- 1 x Heatshrink
- 1 x o-ring
- 1 x wiring instructions

## PREP

Place the fuselage on a flat surface, pin the triangular strip of balsa to the fuselage as show. This will help to keep the fuselage straight during the build, remove at the end of the build.

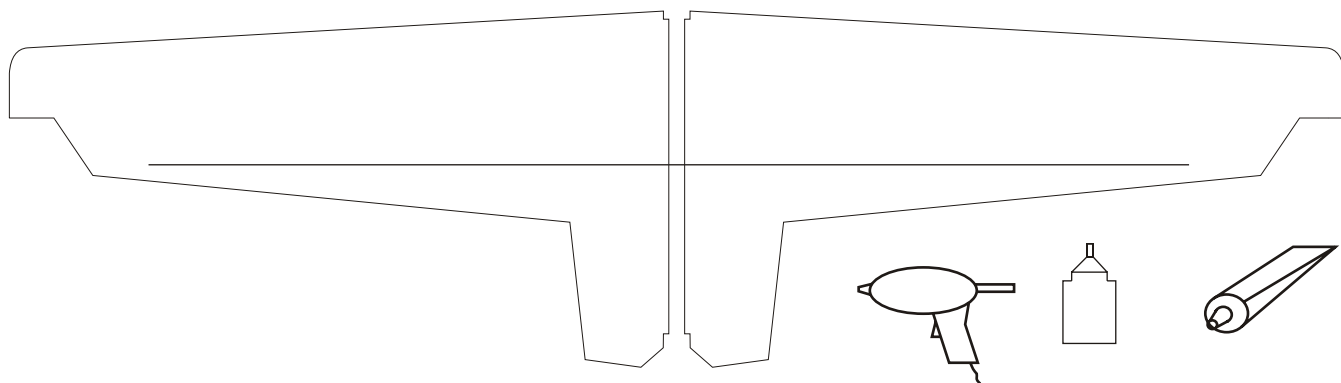


**LETS GET BUILDING**

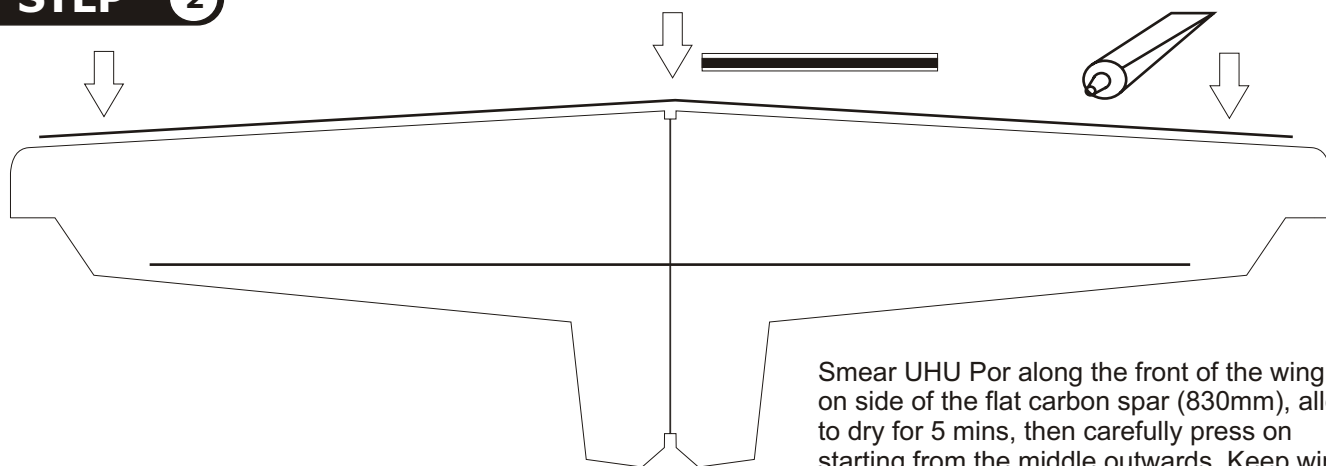
\* available as a core kit

## STEP 1

Lay the wing panels on a flat surface, insert flat carbon spar (800mm), use some tape to hold the wing position and glue together.

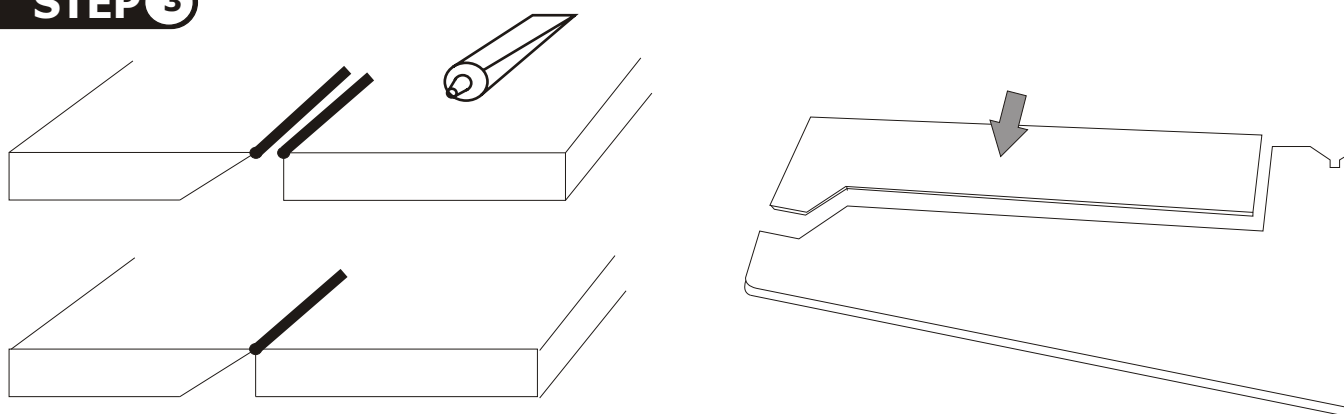


## STEP 2



Smear UHU Por along the front of the wing and on side of the flat carbon spar (830mm), allow to dry for 5 mins, then carefully press on starting from the middle outwards. Keep wing flat at all times.

## STEP 3

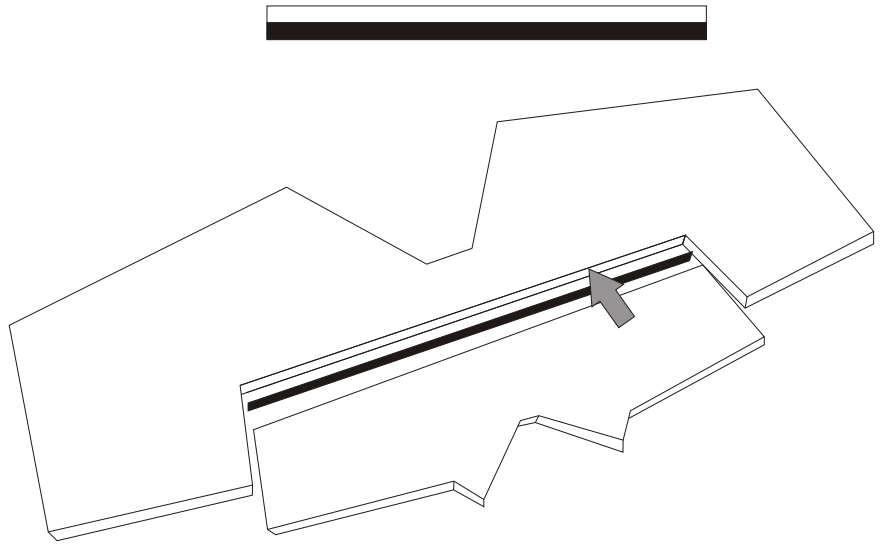


Lay the wing face up on a flat smooth surface. Match up the ailerons to the back of the wing, the groove should run on the bottom side. Hinge the tailplane to the elevator in the same manner. There is two ways of hinging the ailerons. Both work extremely well.

**UHU Por hinge.** Run a small bead of glue along the rear top edge of the wing and the same on the leading edge (LE) of the aileron. Allow glue to set for 5 minutes. On a flat surface bring the two edges together, the glue fuses together giving a strong flexible hinge, magic.

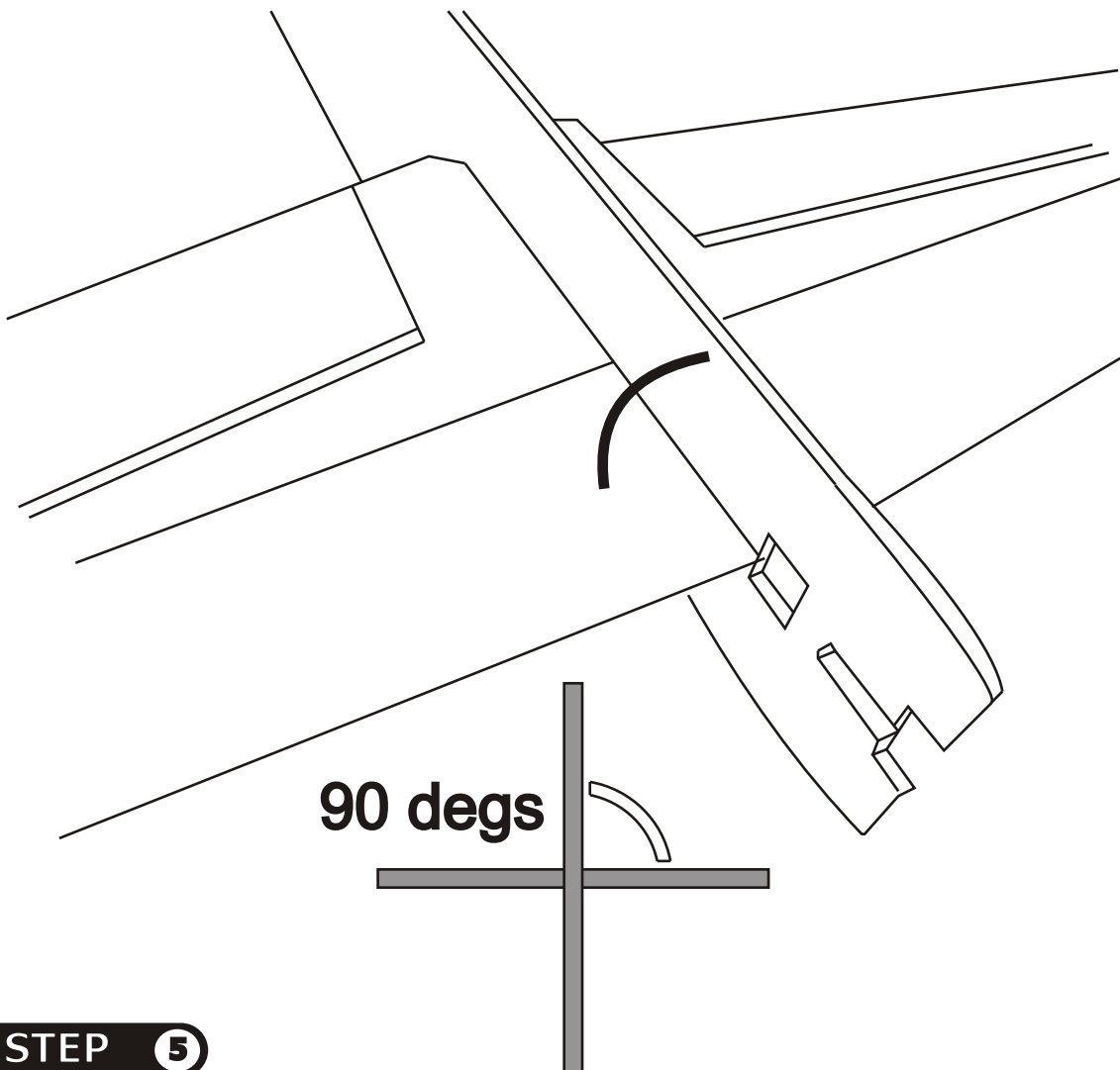
## STEP 3a

using the methods described in steps 2&3, glue the flat carbon spar (200mm) onto the elevator as shown. Note glue it at the bottom, then attach the tailplane using uhu por.



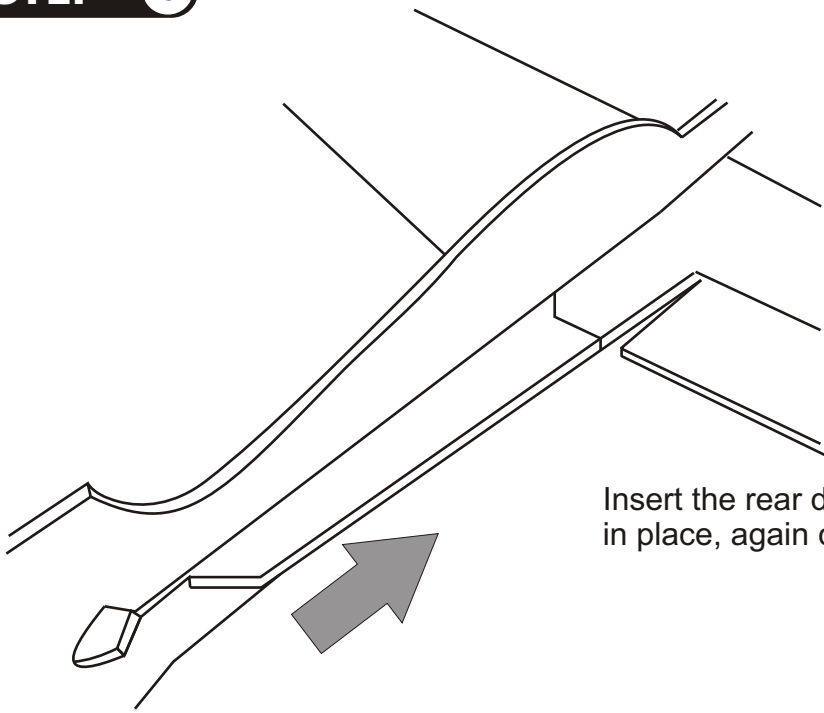
Slot the completed wing into the fuselage, position and glue in place, be sure to position at right angles

## STEP 4



## STEP 5

## STEP 6



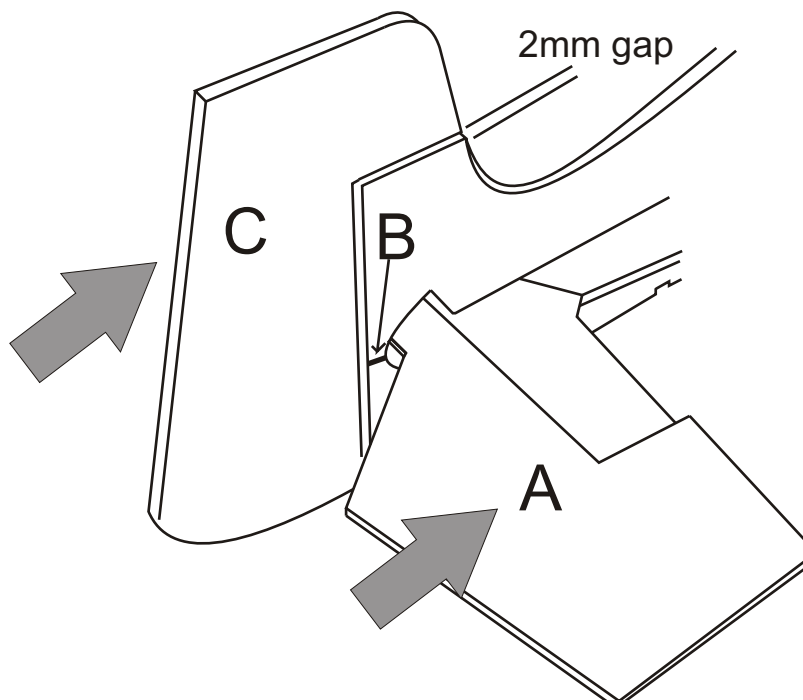
Insert the rear deck from the back of the plane, glue in place, again check for alignment and no twisting

## STEP 7

A. Insert the completed elevator/tailplane assembly from the back of the plane and glue in place.

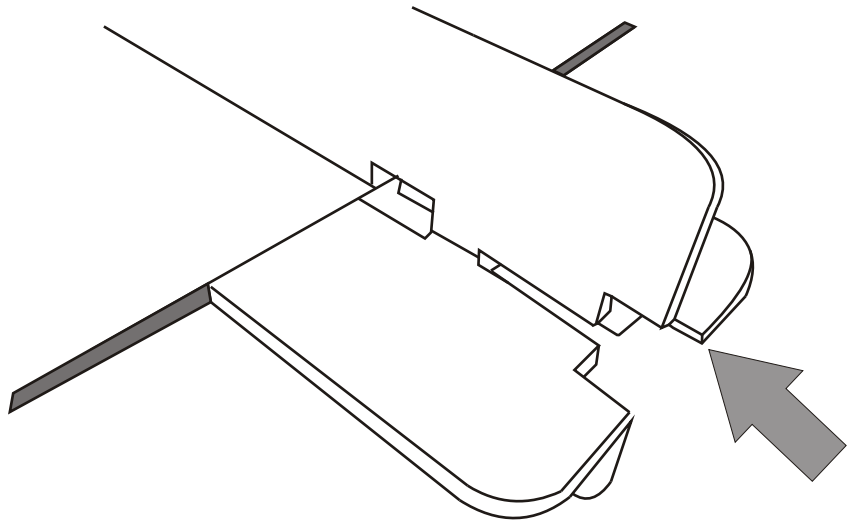
B. Glue the gap here

C. Using the aileron method of hinging, attach the rudder, allow a 2mm gap as shown.



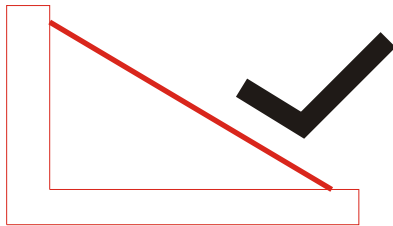
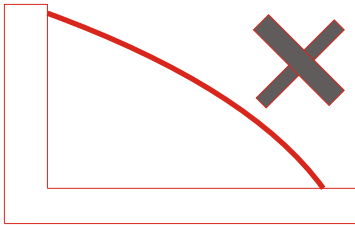
## STEP 8

Insert the front deck from the front, glue in position, check that its central.



## STEP 9

FIG A



### carbon bracing: Please read this.

The carbon rod bracing is the most complex part of this build, but if you follow this guide you will be fine. The carbon rod bracing, requires no tension (fig A) in the rods, they just glue in at each end, so don't force them or distort the epp parts when installing them.

The rod ends simply push into the foam about half way, and then glued in with a generous blob of uhu por or hot glue (fig B)

FIG C. Put a small spot of CA glue on the end of the rods, insert them into the clear heat shrink about half way, and using a lighter or other heat source shrink the tube and allow to cool. Assemble the 6 piece bracing assembly as shown in Fig C.

Carbon bracing - Fuselage

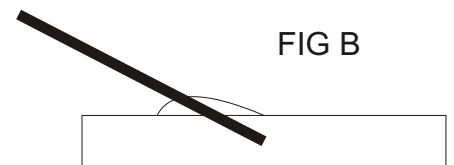
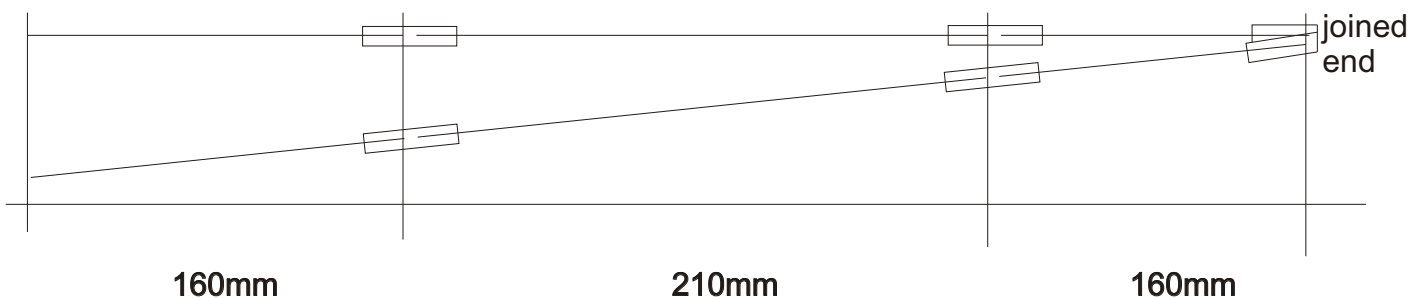


FIG B

1mm carbon fibre rod

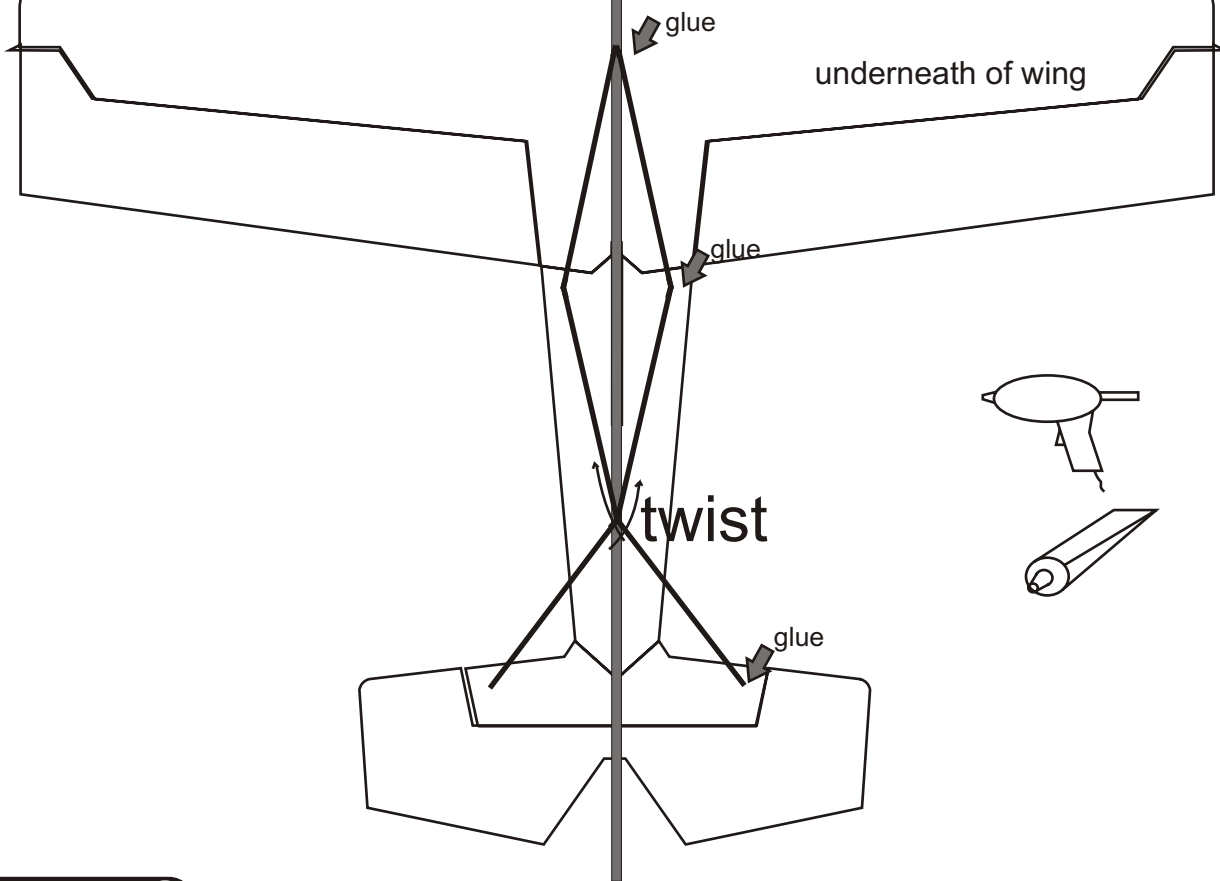
FIG C



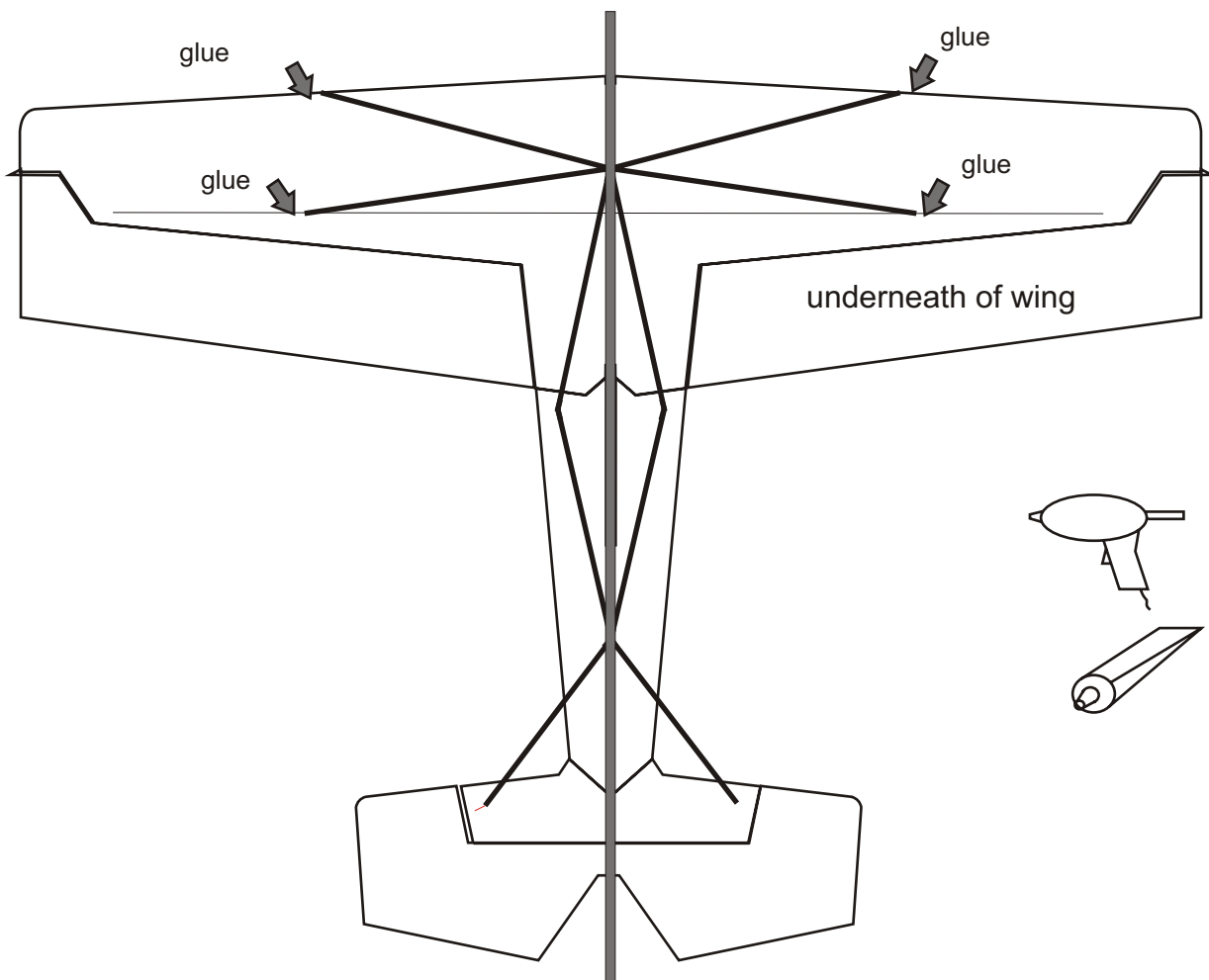
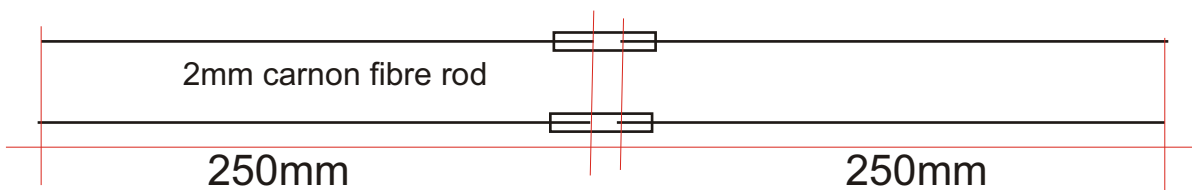
160mm

210mm

160mm



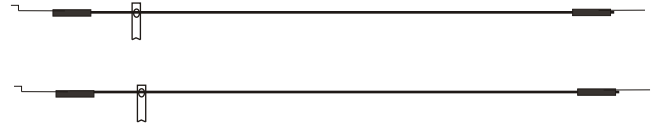
**STEP 9** Carbon bracing - Wing



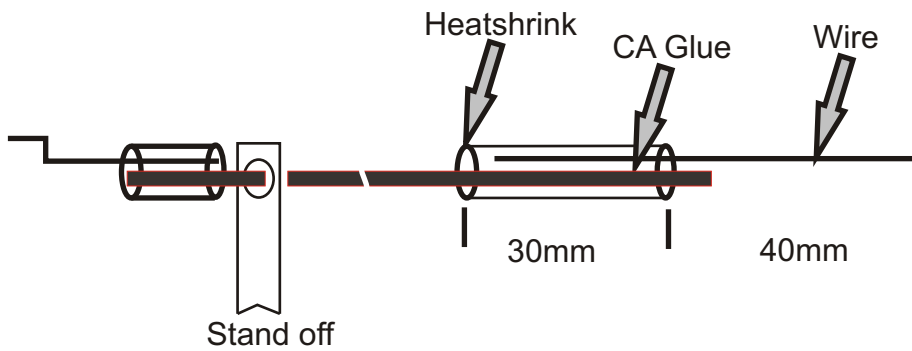
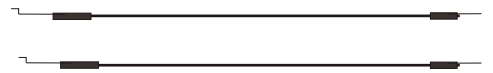
# STEP 10

## PUSH ROD ASSEMBLY

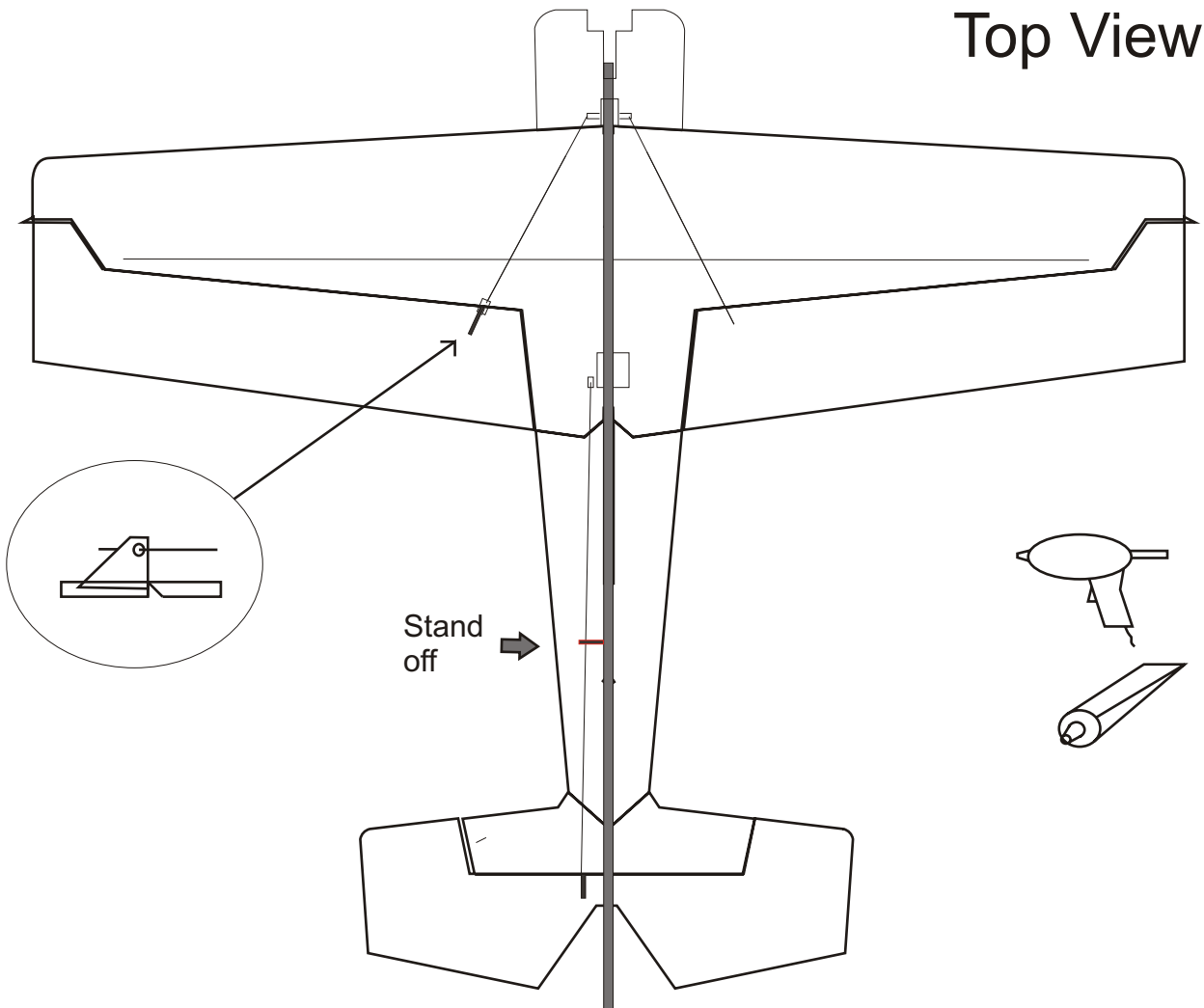
1 x rudder, 1 x elevator pushrod



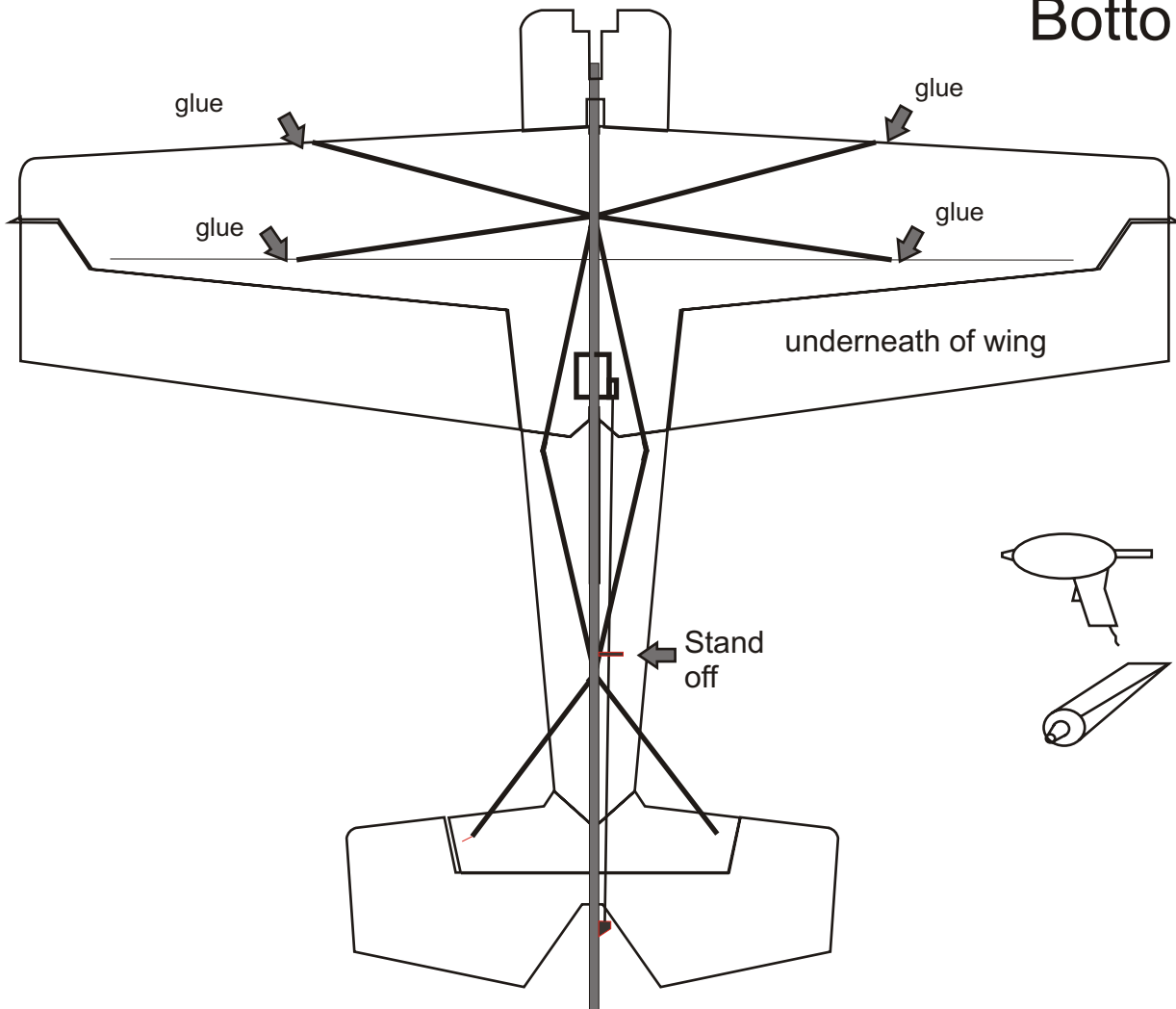
2 x aileron push rods



### Top View

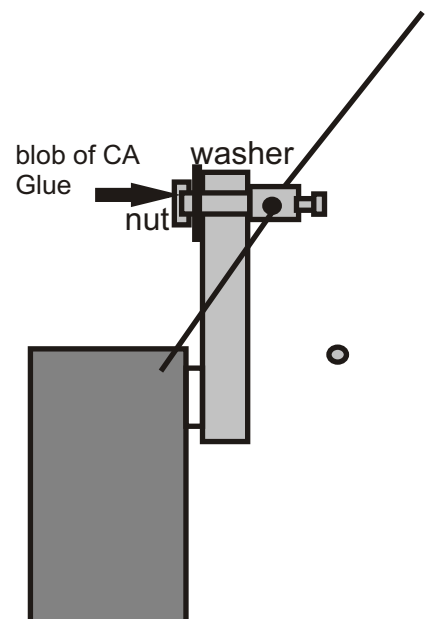


# Bottom View



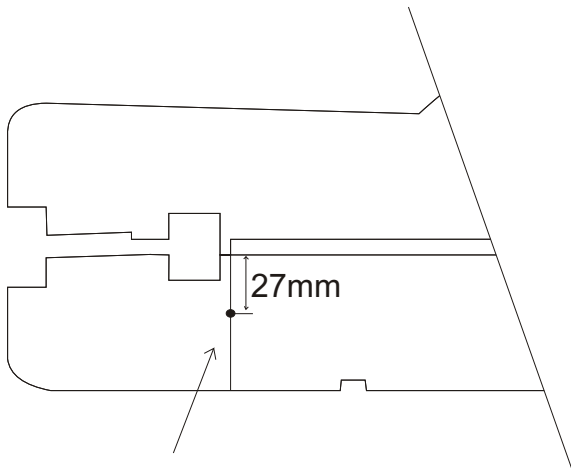
## Installation of servo adaptors:

Open up the top hole on each ply horn so that the threaded part of the metal servo adaptors are snug but can turn in the horn. Put the washer and nut on (not easy when you have fingers like sausages!). Tighten the nut so the adaptor is firm but can still turn. A blob of CA glue on the end of the nut will stop it from coming loose.

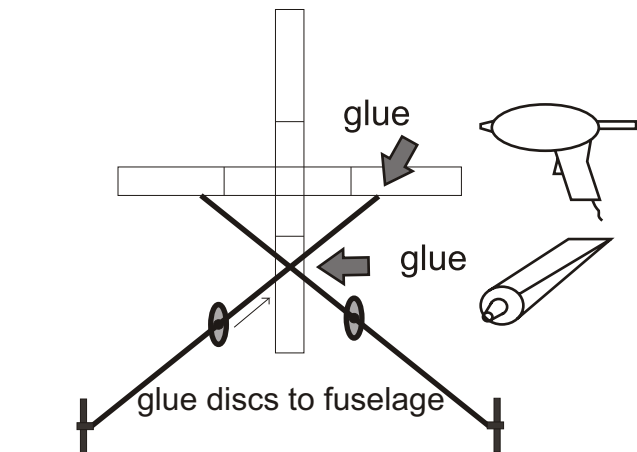
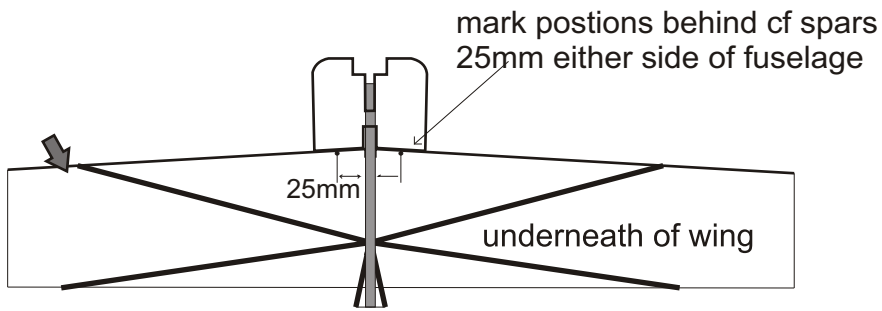
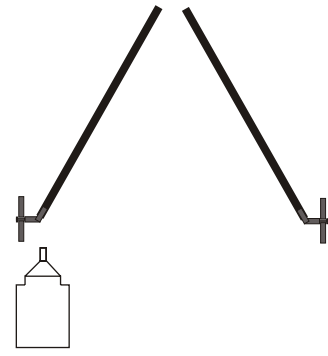


# STEP 11

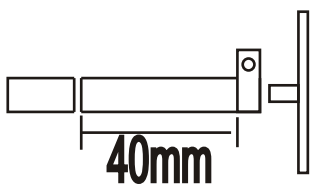
## Undercarriage assembly



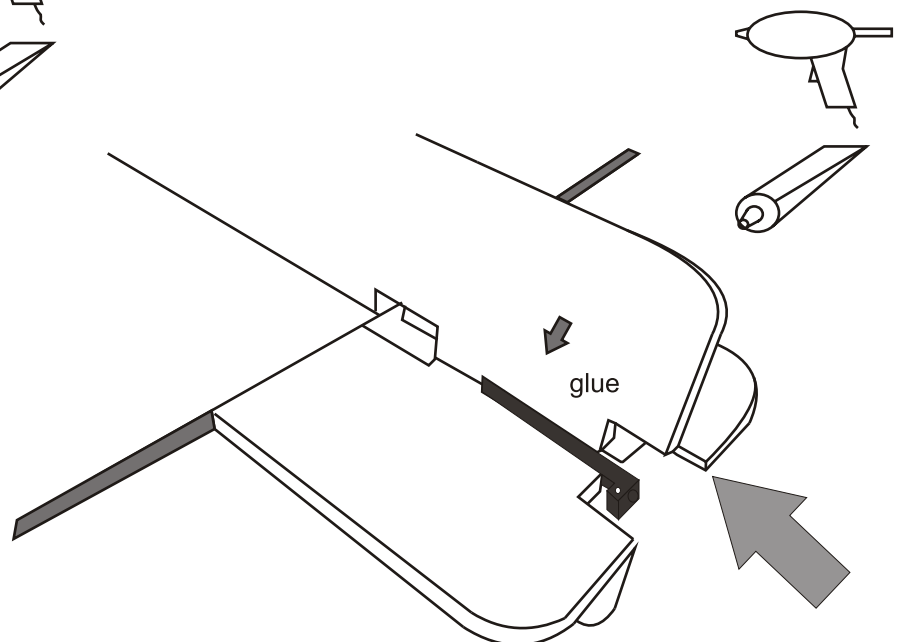
Make 3mm hole



# STEP 12



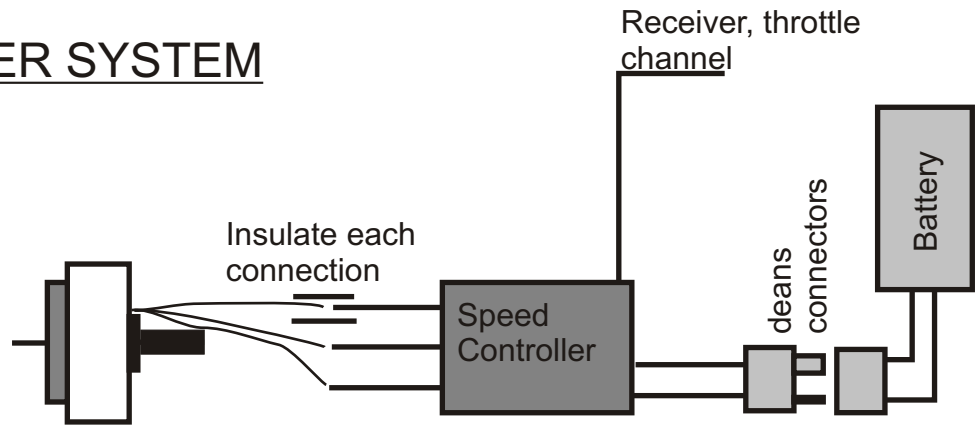
motor mount: Cut the tube down to 40mm, if your using our motor set, remove the motor bracket, the back of the motor will go into the back of the tube, grip with nut and bolt.



# HEXTRONIK POWER SYSTEM

## SETUP

Motor assembly and wiring



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.

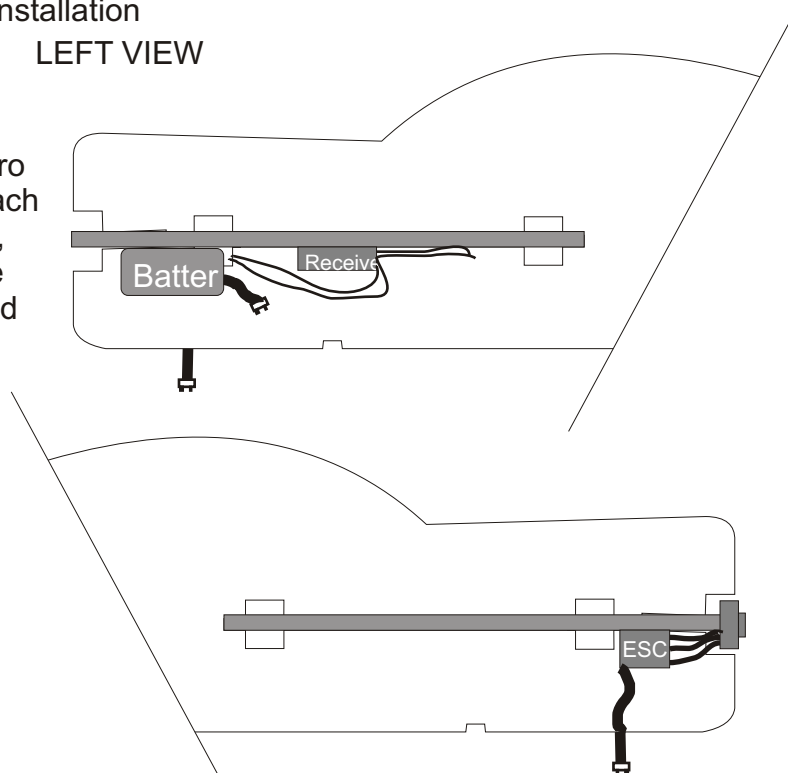
#### Motor runs the wrong way

- > 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.

### Radio installation

#### LEFT VIEW

Use a velcro strip to attach the battery, wrap some tape around



#### Suggested control throws

- Aileron +/- 25mm
- Rudder +/- 30mm
- Elevator +/- 30mm

These settings are measured at the trailing edge of each moving surface. There is no maximum throw, it's a matter of what suits you.

# Additional Photo's

