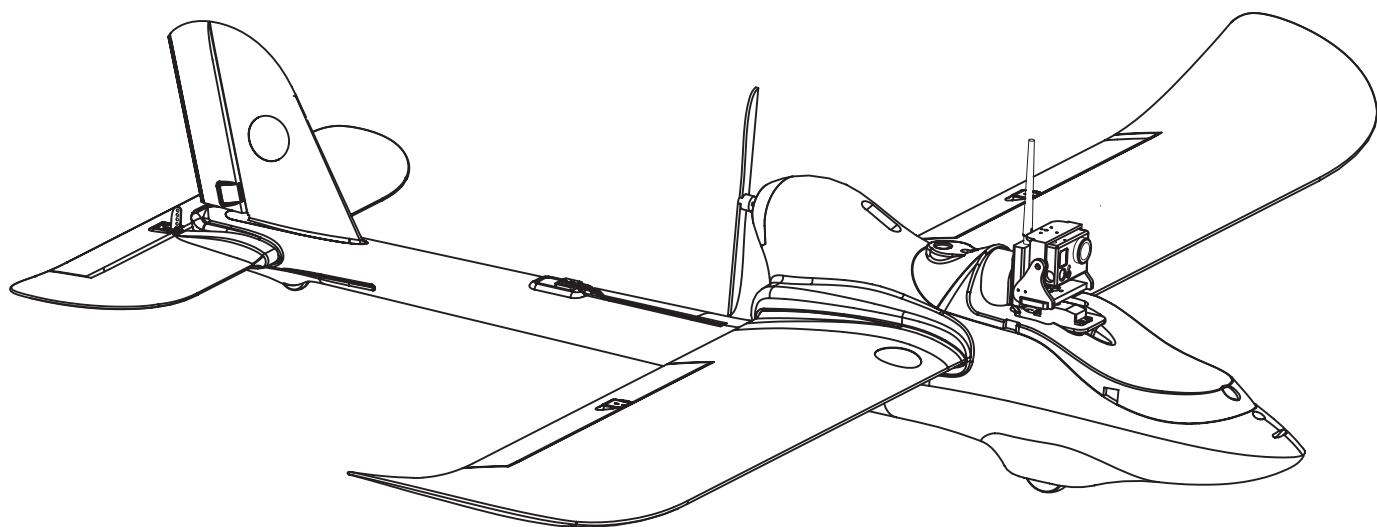


FINWING PENGUIN 1720

USER MANUAL



FINWING TECHNOLOGY
WWW.FINWINGHOBBY.COM
PATENT PENDING

Please read through the manual carefully before installation and flying

This manual aims to help direct the user on how to build the Penguin RC plane.

Penguin pilots' feedbacks: the Penguin is easy flying, recommend for FPV beginner

Please visit the Finwing official website for additional highlighted features, functions, and more.

Warning :

1. This model airplane is not a toy, not recommended for children under 14 years old,
2. Be cautious and prepared while flying this plane as a range of issues could lead to a crash including the environment/weather, speed, pilot error, improper building/testing, interference or other component failures.
3. Flying field: Choose an adequate flying space at least 100 meters long/wide and in an unpopulated and non-built up area for safe flying. This includes avoiding flying over cities or other populated areas.
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FINWING TECHNOLOGY

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PATENT PENDING

Specifications :

Universeye PENGUIN <天镜_企鹅> Specially Designed For FPV and UAV Hobby

| | | | | | |
|---|---|---|--|---|---|
|  |  |  |  |  |  |
| WINGSPAN 1720mm/67.7inch | LENGTH 1230mm/48.5inch | WING AREA 36dm ² /3.9ft ² | ARF WEIGHT 0.98KG/34.6oz | STATIC THRUST 1.5-2.4kg | PAYLOAD. 500-900G/17.7-31.8oz. |
| | | | | BRUSHLESS SYSTEM M2220/M2815 | |

Motor: Brushles M2220 Or Brushless M2815
 ESC: M2220 /40A . M2815 /50-60A
 Servo: 3pcs 17g servo+ 1pcs 9g servo
 Battery: Li-Po 11.1V 2400 mAh for M2220. 4000mAh-5000mAh for M2815
 Static Thrust: M2220/3S Lipo output Max. 1.5Kg. (Propeller Finwing9060E)
 M2815 /3S Lipo Output Max. 1.9kg/ 4S output more than 2.0kg (Propeller Finwing 9060E)
 Material: EPO Wing and fuselage/ Wood reinforcement/ aluminum alloy tube/Carbon Tube

*Note

Motor M2220 - battery 3S 2400mAh
 The standard version is good for beginner and Trainer practice with flight weight less than 1.8kg
 Motor M2815 - battery 3S 5000mAh/ ESC:60A
 Airplane fly faster and more power than motor M2220
 flight weight up to 2.0kg, recommend motor M2815 (Max.2.4kg) for long range FPV pilot

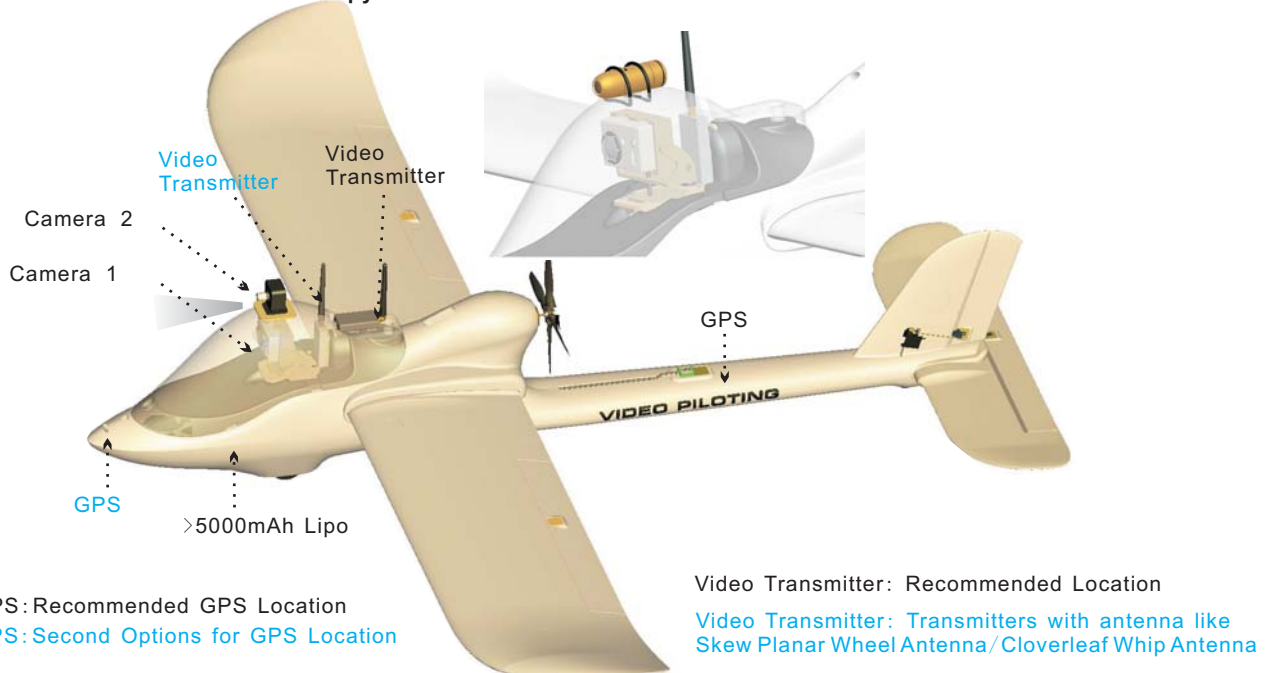
*Note

M2220: should be match with 3s Lipo battery, don't use 4S lipo Battery
 M2815: Recommend 3S battery, 4S battery testing for your reference ,
 3S battery with M2815 would be mild and safety but 4S battery would produce more thrust
 Propeller- Finwing New 9060E . Don't use 5S lipo battery for M2815

CG (Center of Gravity):

CG. 85MM (3.35inch) from the leading edge of Main wing. You can adjust that CG as needed but that is a good starting point. Flying speed and runway needs can change optimal CG positioning in ranges of 80-90mm CG settings.
 please adjust it to 80MM if your airplane is a little bit nose up with CG. 85MM.
 Adjust it to 90MMbut if your airplane is a little bit nose down

The third Generation Canopy



Fuselage installation

Please read through this page first before joining halves of the fuselage

Elevator control surface

The traditional control horn layout



Control horn has been installed under the stabilizer

New layout "up installed"



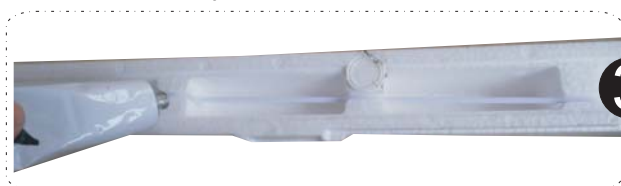
Control horn has been installed on the stabilizer

The purpose of the up installed control horn is to avoid "grass Drag" during landing at the grass field, it may need some minor modifications if you like "up installed" but ignore this page if you do not need up stalled control horn

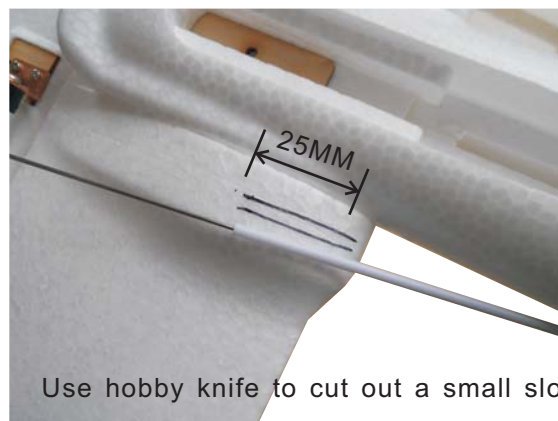
Use hobby knife to enlarge the tube slot



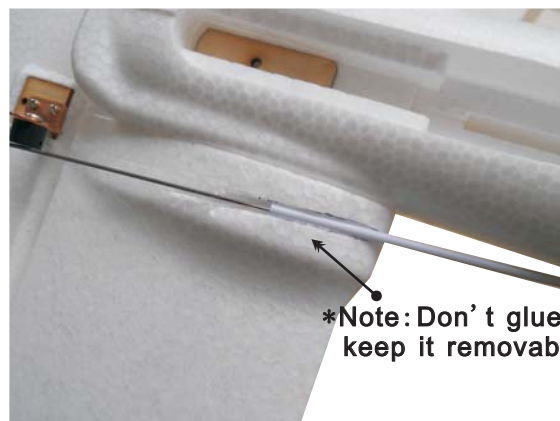
Add glue to install the extension tube insert it into position



4



Use hobby knife to cut out a small slot



*Note: Don't glue keep it removable

Fuselage installation

Join the two halves of fuselage

If you have other wiring or modifications to add for the build run those through the fuselage and tail-boom before closing the fuselage

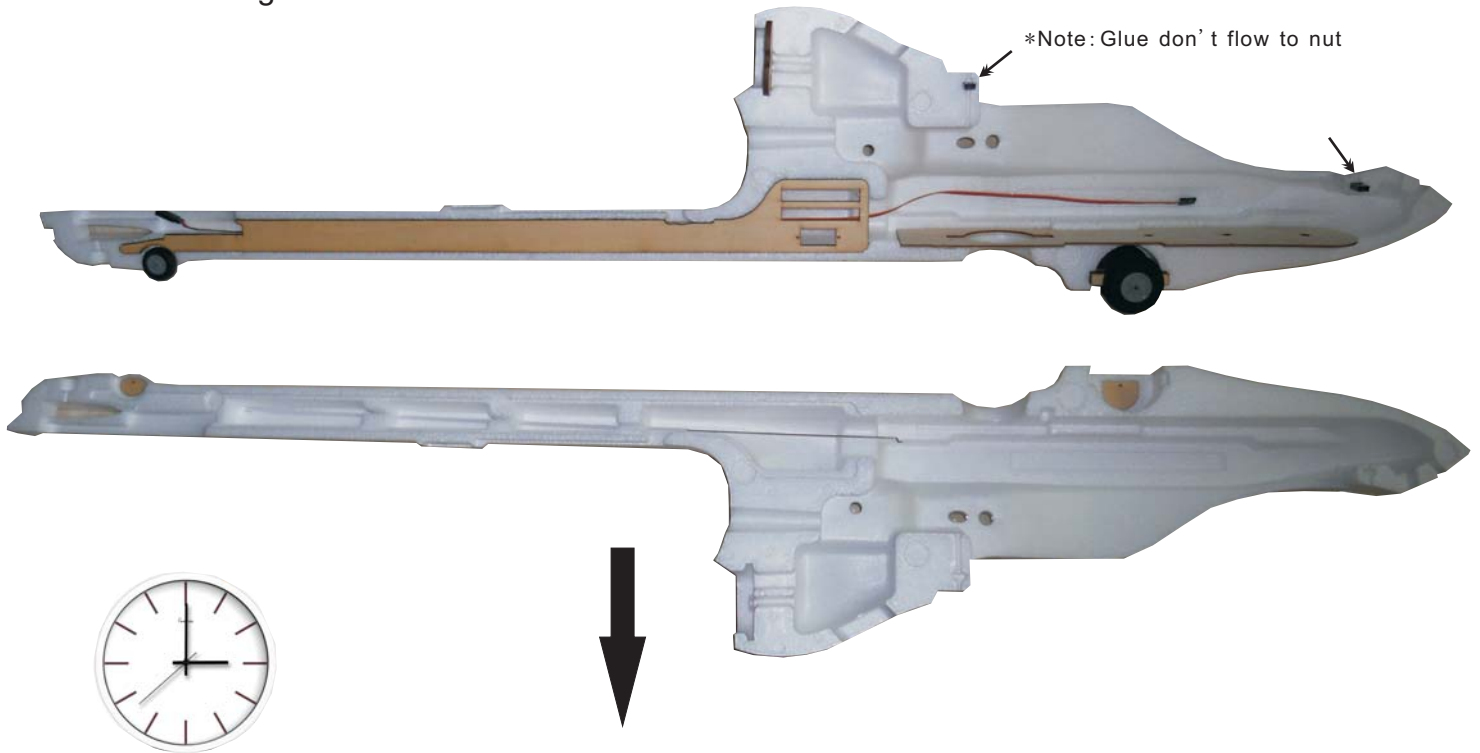
*Note: Double check to ensure all parts are prepared and no parts are missing. **MAKE SURE** to plan where you need glue before you begin!

Glue the left-half of fuselage, and other reinforcements parts that also need gluing where the fuse halves meet. Make sure ample glue is across all points to be connected.

*Note: All gluing needs to be done at one time so make sure to move quickly once starting as glue will dry fast. Gluing should be completed in about 9 minutes.

*Add a moderate amount of glue to the contact surface.

Too much glue can cause erosion in the foam.



Join both halves of fuselage immediately after gluing, press firmly and use clamps or other tools like painters tape to secure it until glue has dried.

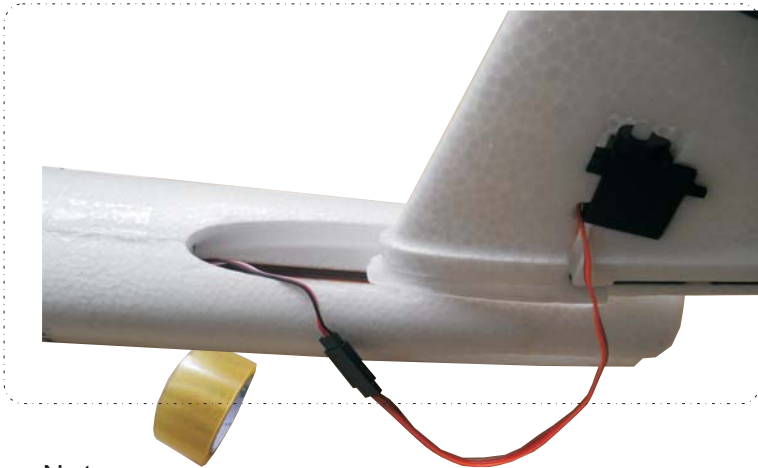
Generally with air-drying indoors the glue will set after a 24 hour period.



*Note
please find out one wood washer
size: $\Phi 15\text{MM}$. Thickness: 3.0MM
add a little glue install it to the bottom of the tail-boom

Vertical stabilizer

Rudder servo and Servo horn Installation

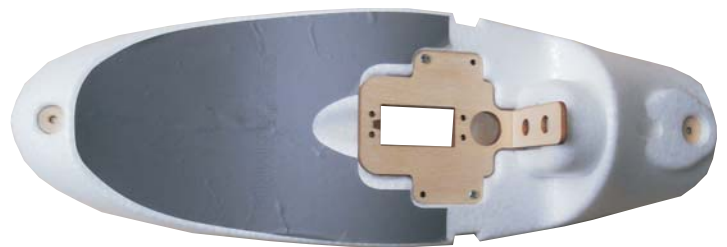


*Note
Wrap tape to secure the connectors as it can prevent the connectors from disconnecting when pulling the extension cables.

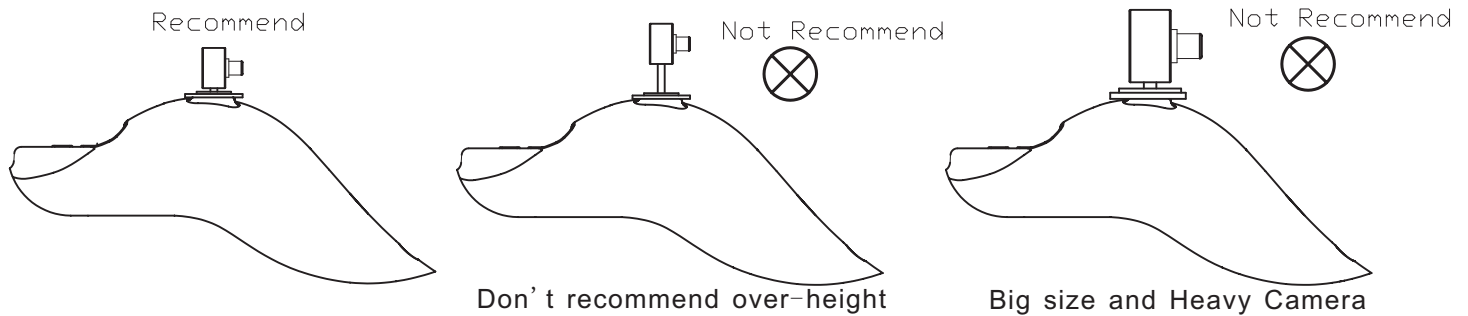
- *Install the control horn with screws to secure the servo horn
- *Reinforce rudder joint with pack tape
- *Install servo, (FUS009)
Push rod and clevis

Cockpit and Canopy

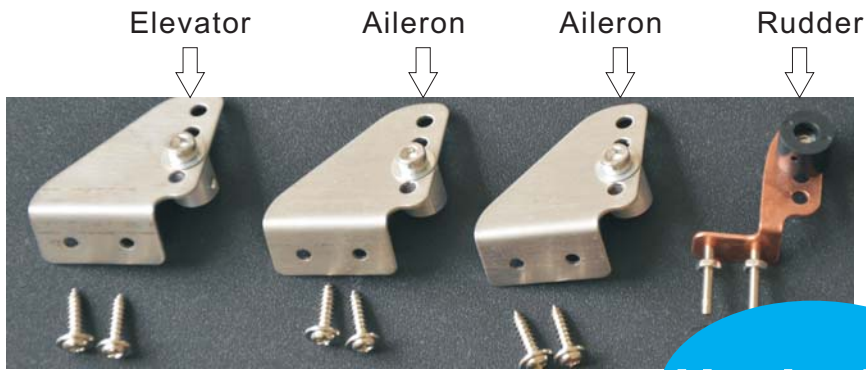
Please find out the Camera mount wood base from Airplane package installed it as needed



This is the third generation canopy. Adopted new material and it's much better than the Second generation canopy



Thanks for buying the great Penguin Aircraft. Here is some of the latest update on how to building the penguin including some tips from previous penguin owners. Thanks for sharing and their efforts, please read it before your building works

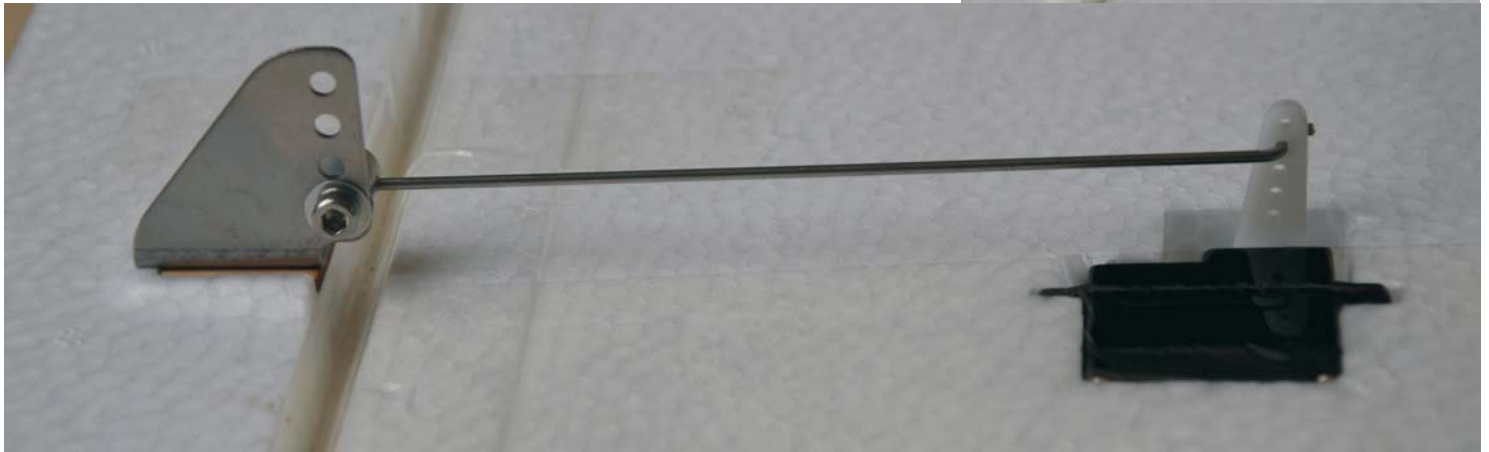


Update#1
New servo horn (left-3PCS)
Stainless steel Servo horn

Updating



Main wing Aileron Servo&Servo horn installation



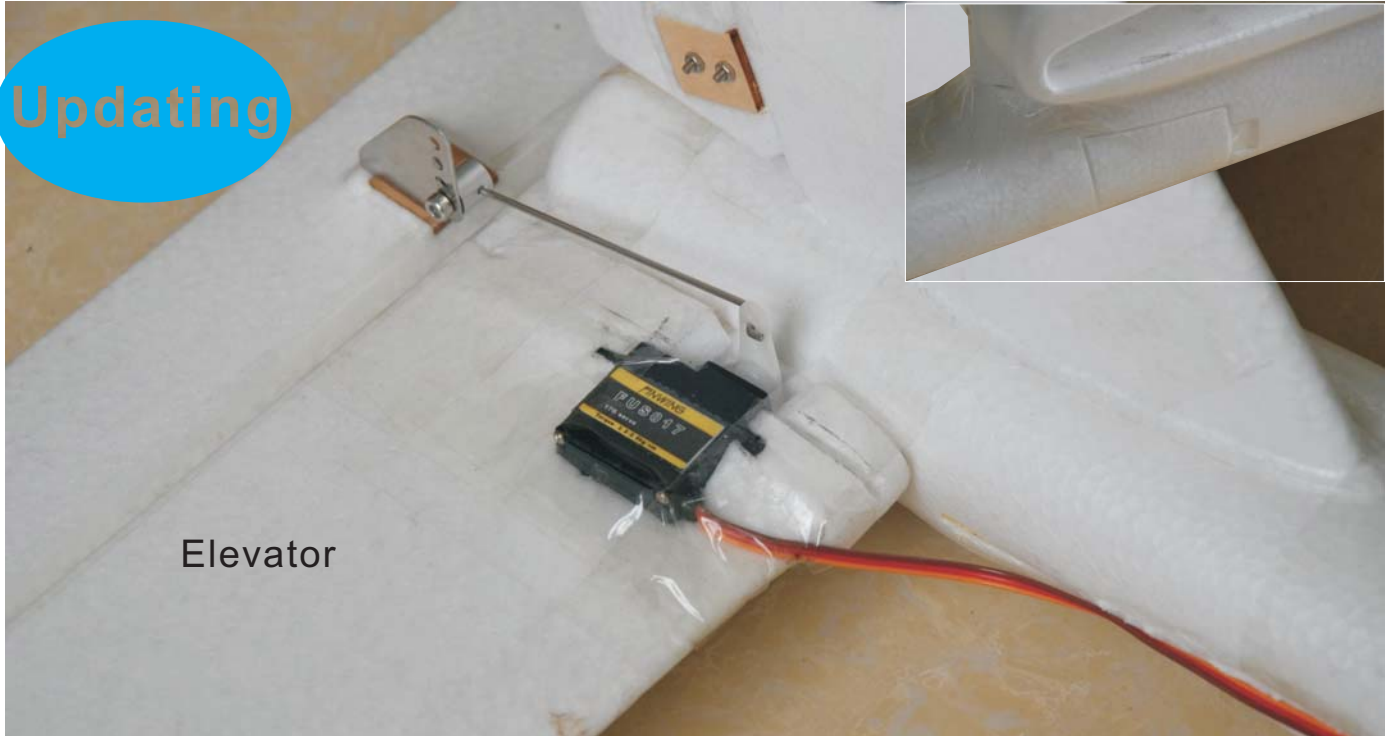
Vertical stabilizer (Rudder) _ Servo&Servo horn installation



Tips Sharing #1

Some of Penguin owners preferred to install the servo on the H-wing directly or at the back of the fuselages. The Main purpose is to **avoid cutting out a hole by the side of the fuselage**. Another reason is to use as shorter pull rod as possible, this is good to protect the Servo Gear Here Shown is the pilot modified his Airplane for your reference

Updating



Elevator

Another Penguin owners modified it like this for your reference

*note:

All the tips displayed here is Not the must works to do with your building Just sharing information for your reference Please do it according to your own preference



Tips Sharing #2

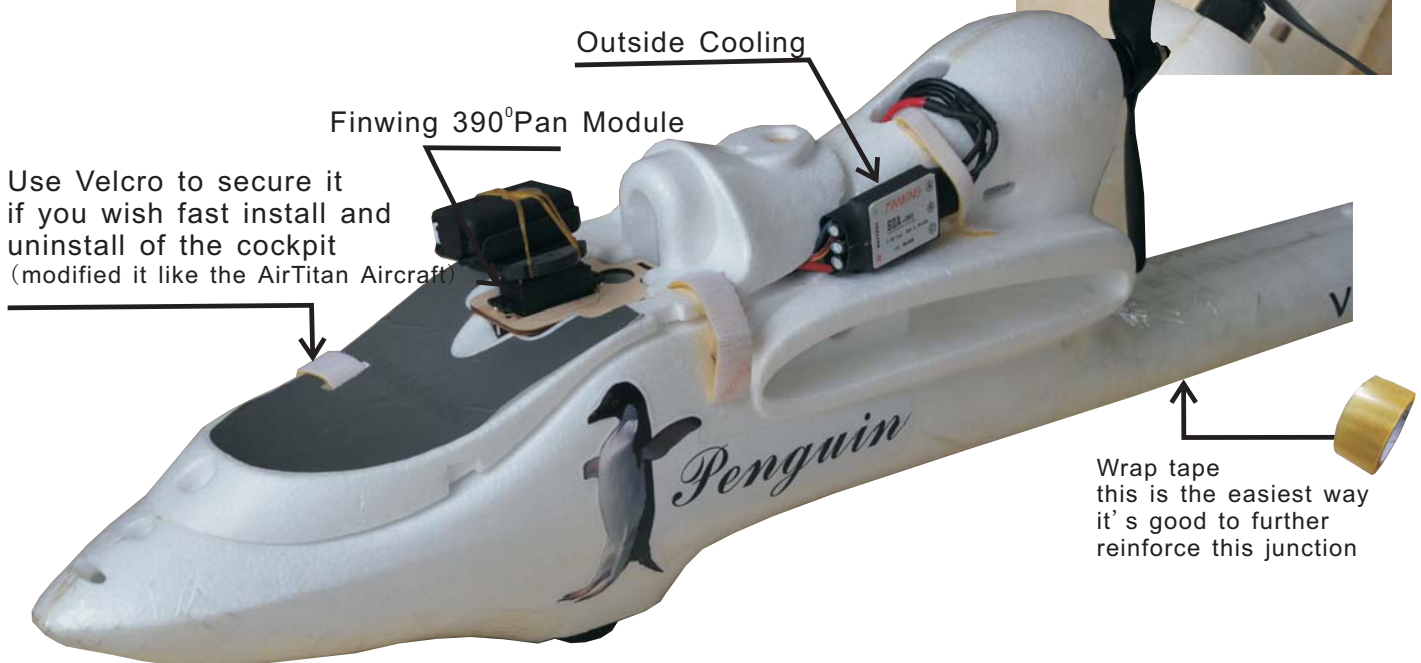
I noticed some flyers installed the propeller at wrong direction!
Bear in mind for most of the Propeller the embed words forward (toward the nose)



Outside Cooling

Finwing 390°Pan Module

Use Velcro to secure it if you wish fast install and uninstall of the cockpit (modified it like the AirTitan Aircraft)

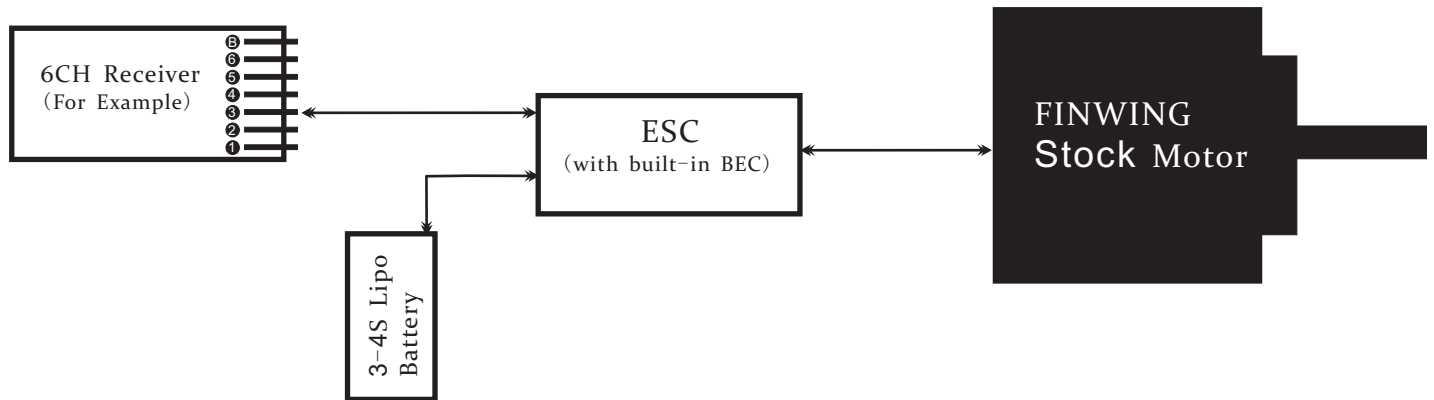


Wrap tape this is the easiest way it's good to further reinforce this junction

Penguin1720 Power system

Penguin Power Combo

*Note: The following instructions are only for Finwing Stock Electronic combo (FUP1201 and FUP1205)



Penguin Stock ESC 60A (SBEC output: 5V. 3A)

Input: 3-4S lipo/Burst Current: 70A (Less than 10 seconds)

Penguin Stock ESC 40A (BEC output: 5V. 3A)

Input: 2-3S lipo/Burst Current: 50A (Less than 10 seconds)

Factory default setting:

Brake type: Brake off

Battery: Lipo

Cut off voltage threshold: 3.0V/60%

Timing: Auto

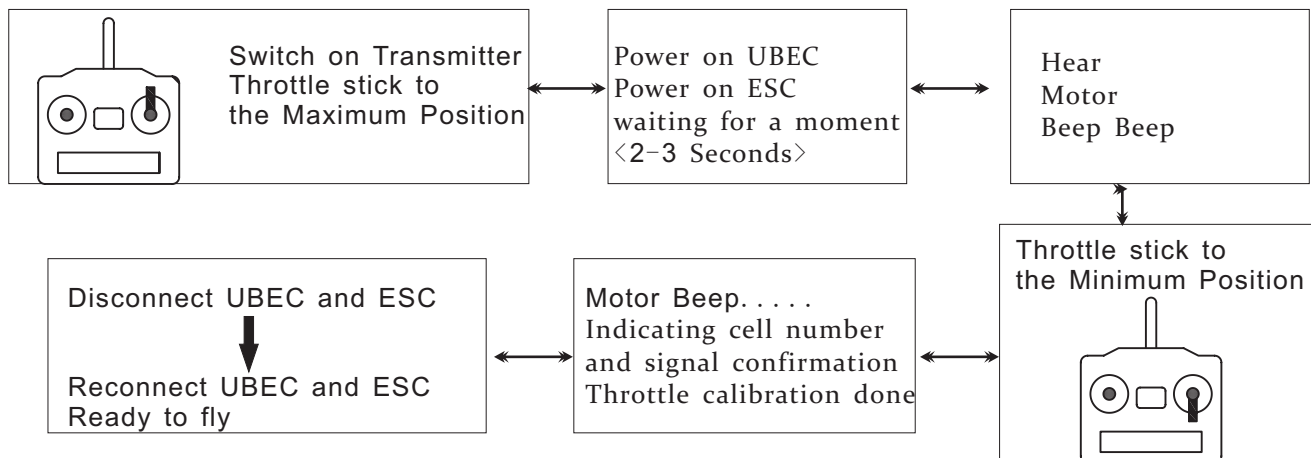
Governor Mode: RPM off

Acceleration Start up: Soft acceleration

Lower voltage cut off type: Reduce power

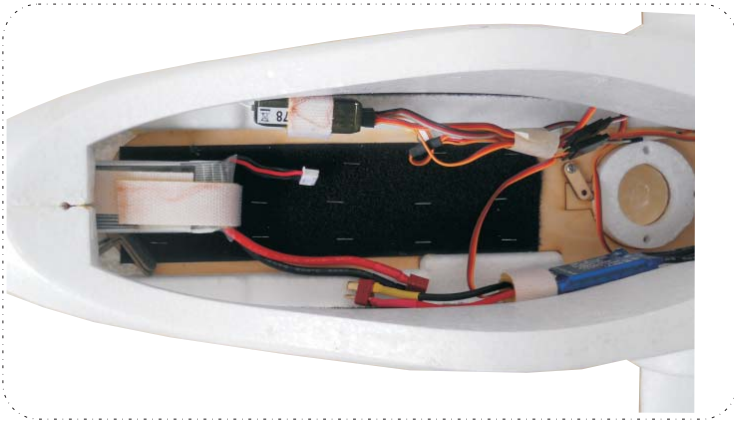
Throttle calibration setting required for The first time use or changed new transmitter

*Note: it's possible to cause "lost throttle signal" if no throttle calibration



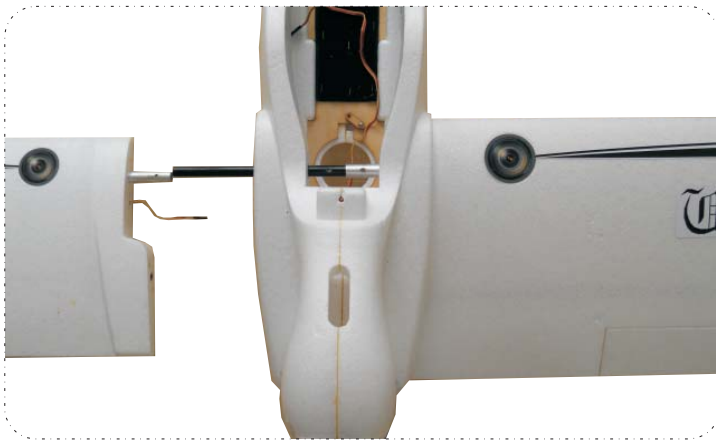
Please visit FINWINGHOBBY.COM FAQ for detailed introductions and instructions of program

Airplane ready to fly

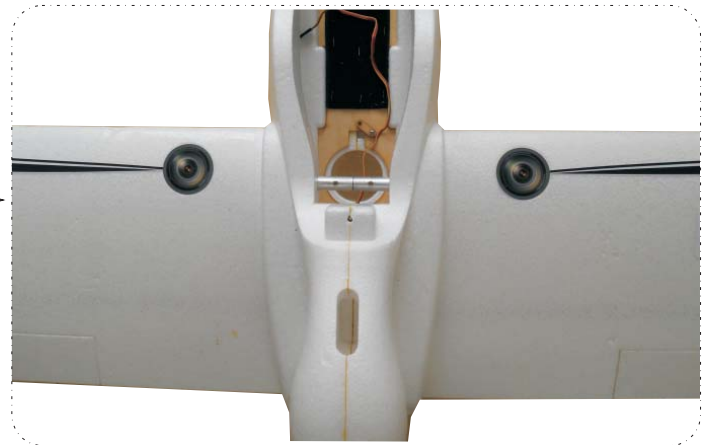


Use the Velcro hook and loop to stick to the fuselage wooden base to hold your battery, FPV gear, etc. into place. Generally Hook stick to fuselage body

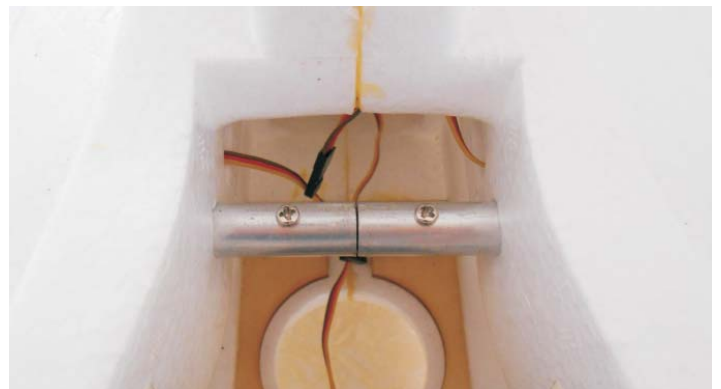
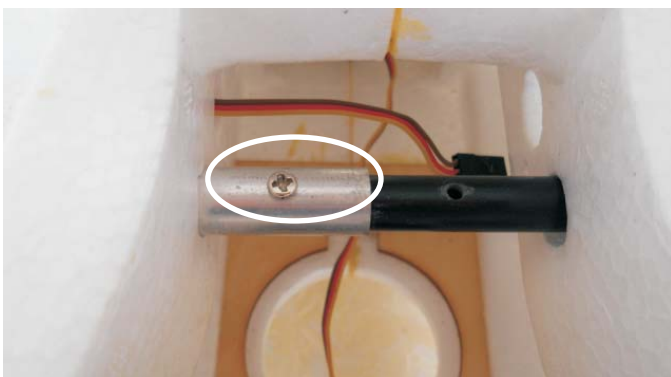
Insert one of the Wings first



Insert another Wing



Insert screw and secure it with nuts



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**GoPro Hero2 or Hero3
Pan & tilt Module**



**GoPro with water house
Pan Module**



**Mobius Camera
Pan Module**



**Small FPV Camera
Pan Module**



Penguin 1720

AirTitan 2520

