

UNIVERSEYE PENGUIN

VIDEO PILOTING (FPV)

天镜企鹅

USER MANUAL

精翼科技

FINWING

精翼科技

Finwing Technology info: www.finwinghobby.com/ finwing@yeah.net

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	BRUSHLESS SYSTEM M2220/M2815	PAYLOAD. 500-900G/17.7-31.8oz.

Motor: Brushles M2220 Kv1350 Or Brushless M2815 Kv1280
 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 or GWS9050)
 M2815 /3S Lipo Output Max. 1.9kg/ 4S Lipo output Max. 2.4kg (Propeller Finwing 9060E)
 Material: EPO Wing and fuselage/ Wooden rib reinforcement/ aluminum alloy pipe/Carbon Fiber Pipe

M2220 Recommended battery capacity at least >2400mAh 30C Discharge 60C Burst
 M2815 Recommended battery capacity at least >5000mAh/ ESC:60A
 M2815 makes the airplane fly faster and more power than motor M2220, and strong battery is required

Flight weight is less than 1.8kg, we recommended Motor M2220 for stable flight(max.1.8kg)
 good choice for beginner and Trainer practice
 flight weight up to 2.2kg, we recommended motor M2815 for strong flight (Max.2.2kg) for long range FPV pilot
 Cautions:

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

How to control CG. ?

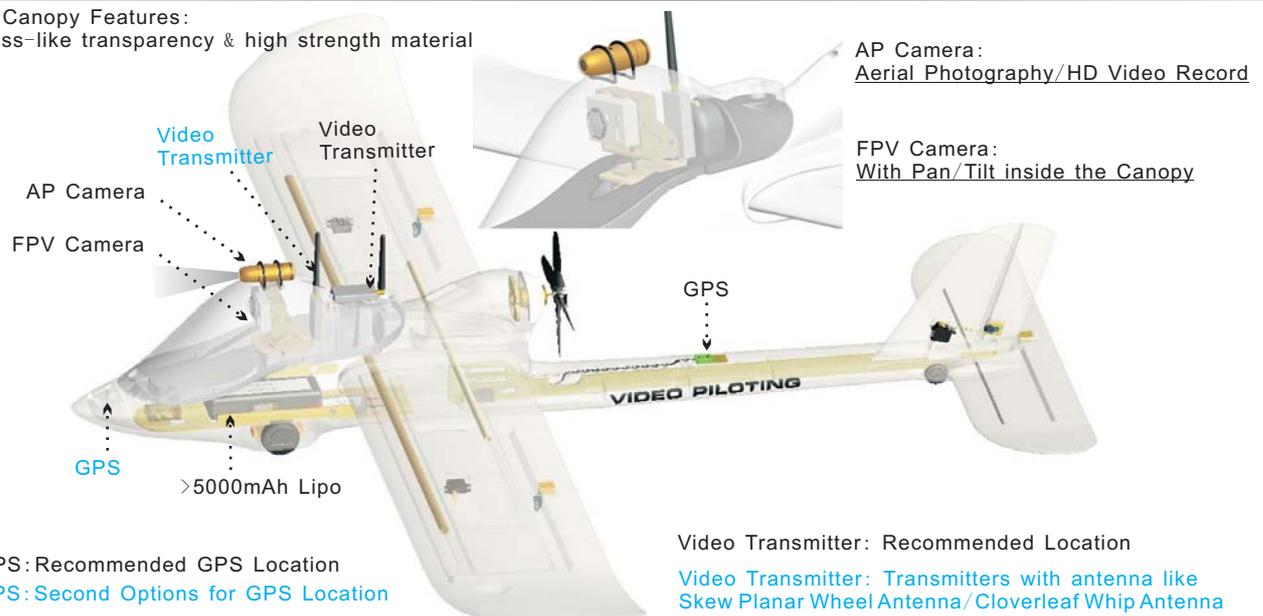
CG. 85MM(3.35inch) Please set CG. at 85MM initially (Measure from the Leading edge of Mainwing)
 Sometimes It may subject to change a little bit, the adjust range is 80-90MM for your reference
 if your airplane is a little bit nose up with CG. 85MM, please adjust it to 80MM
 but if your airplane is a little bit nose down with CG. 85mm, please adjust it to 90MM

Remarks: pay attentions to the horizontal wing, if the horizontal wing has been installed pitch down.
 This may cause nose up and leads to the CG. To be moved a lit bit forward accordingly. (80MM/3.15inch)
 if the horizontal wing has been installed pitch up, this may cause nose heavy, and the CG. Would be
 moved a lit bit backward according. (90MM/3.54)

UNIVERSEYE PENGUINS SCHEMATIC

V2 Canopy Features:

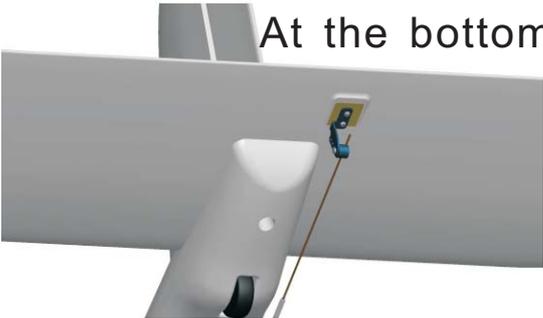
Glass-like transparency & high strength material



Elevator Servo installation



On Top

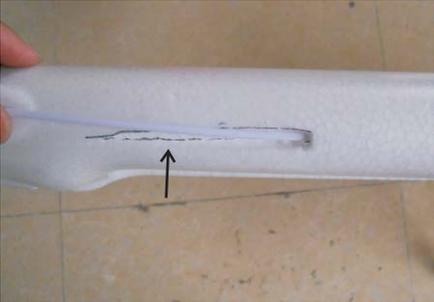
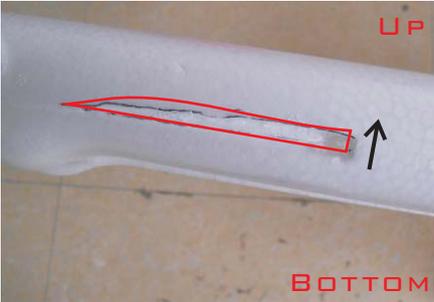


At the bottom

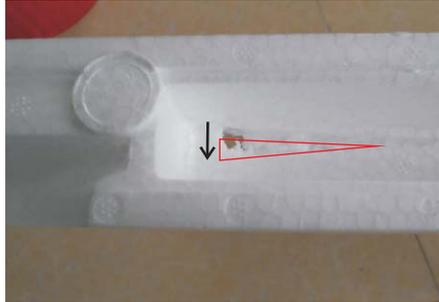
SERVO HORN ON TOP OR AT THE BOTTOM OF HORIZONTAL STABILIZER ?

Either top or bottom is no problem to the Penguin's flight performance. What's the difference? when you roll take off or landing at weeds ground, lower grass land, the bottom servo horn might be dragged by grass then possibly to hurt your Servo. So if you choose to put the servo horn on the top, the following steps is workable to you.

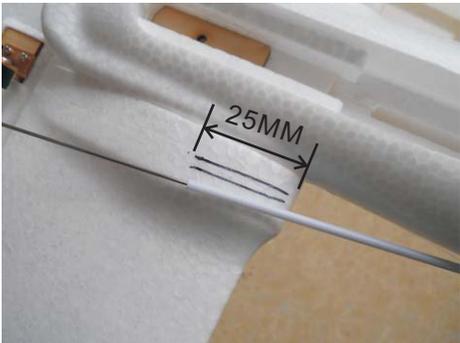
Enlarge the slot upward



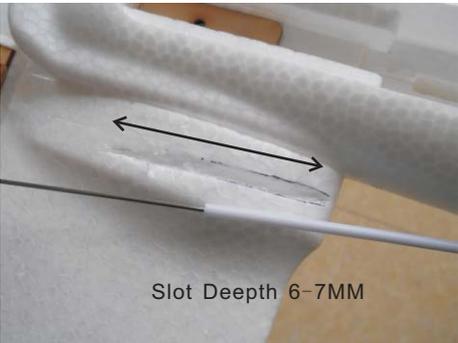
Enlarge the slot inside



Position of the Tube



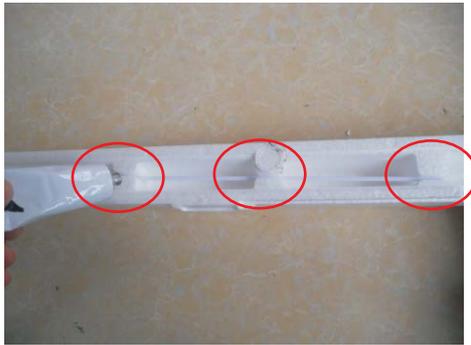
Make a slot for the tube



Glue here is necessary



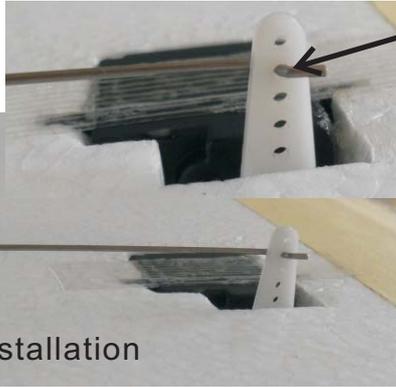
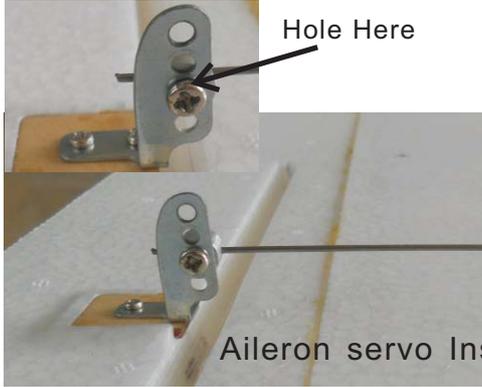
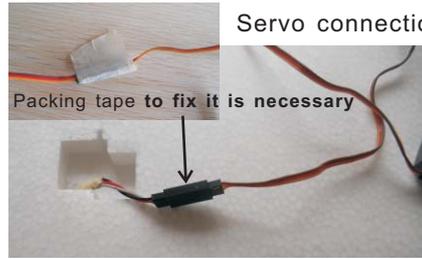
Don't forget to Glue the Tube



Elevator is very important to your Airplane, if possible you can consider to use Metal Gear Servo for Elevator

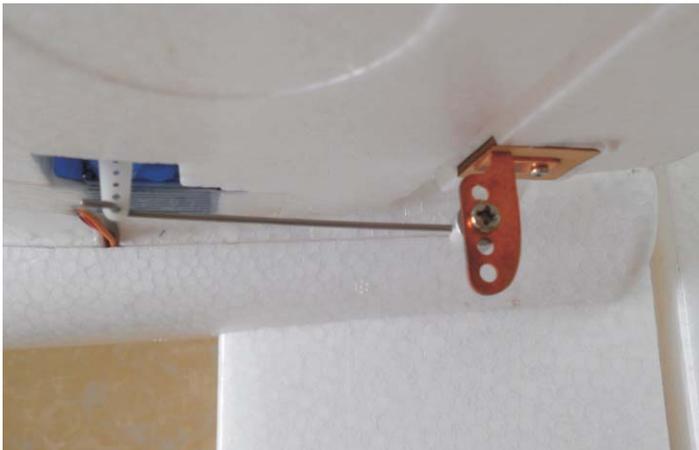
Assembly

Mainwing intallation

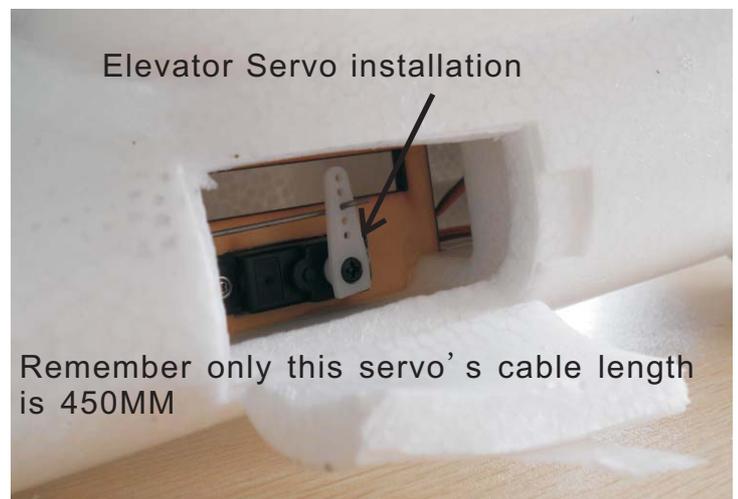


Aileron servo Installation

Rudder servo and Servo horn Installation



Rudder servo cable connection with Extention cable



Remember only this servo's cable length is 450MM

Assembly

Be sure that the Motor Mount is here
Glue on the back of Motor mount is required

Be sure that these at right Position
With little Glue on it is necessary



Be sure that the wodden Ring is here

Glue on both side of Fuselage, expecially the Left side should be have more Glue
and the right side fuselage with less Glue
check it out carefully before finally closing the fuselage, make sure that no parts missing



If your motor is M2815, make sure that the 3MM thickness wooden ring has been install correctly.
If your motor is M2220, make sure that the 2MM thickness wooden ring has been install correctly.

3MM thickness wooden ring

2MM thickness wooden ring



4PCS Screw for your Motor

2.6*16MM, white screw

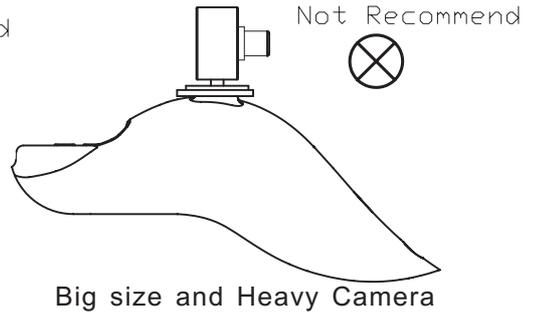
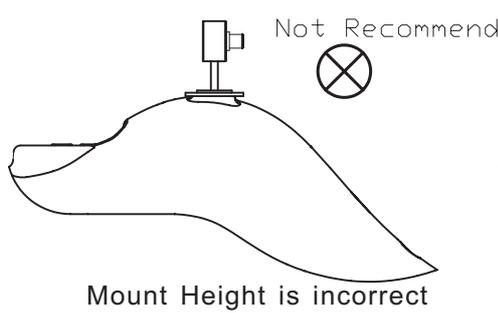
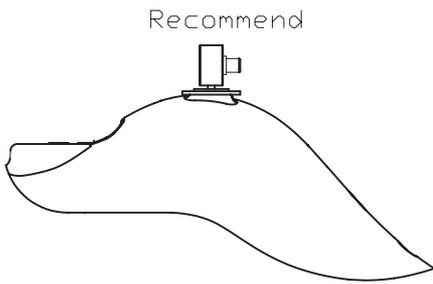


Canopy & Cockpit

There are two Cockpit Bench Plywoods for your options A or B is for your choice



Don't use big sized and heavy camera on the top of Crystal Canopy,

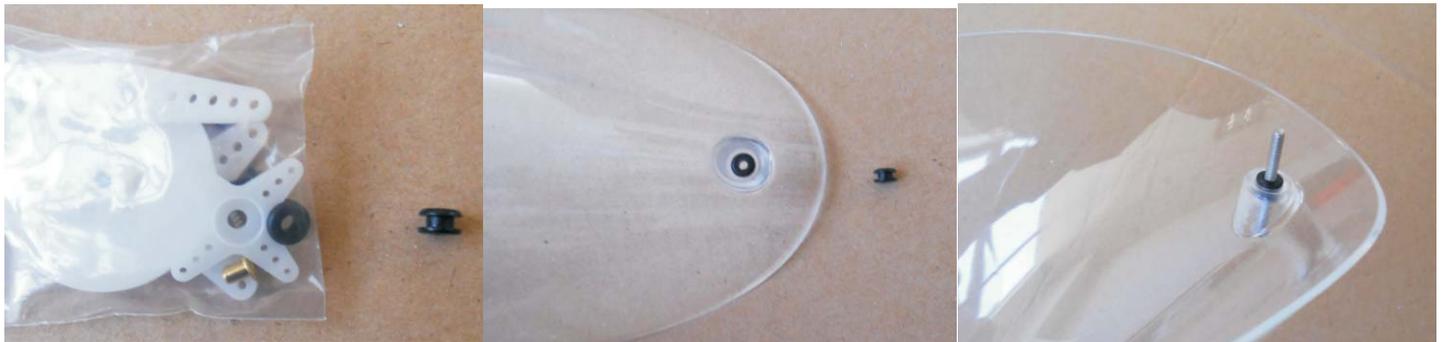


Tips on how to prevent your screws from lost

Tip#1 Magnets



Tip#2 if your model is FUP1205/FUP1201, you can find this rubber parts from the servo's bag.



Tip#3 DIY Find a suitable Fuel Tube



Don't Forget The Anti-Glare Film

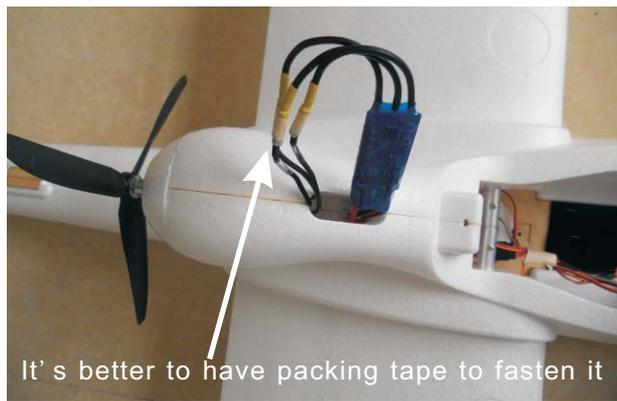


How to fix you devices

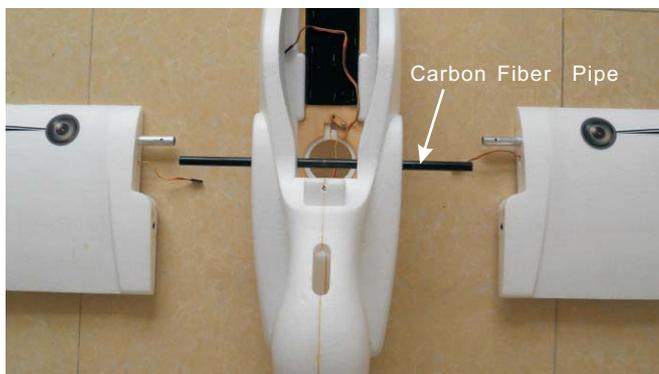
Use Magic Buckle to fix you Battery, Receiver. .



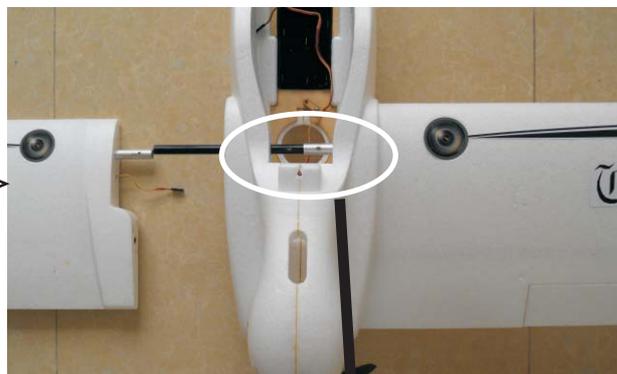
ESC Connection with Motor



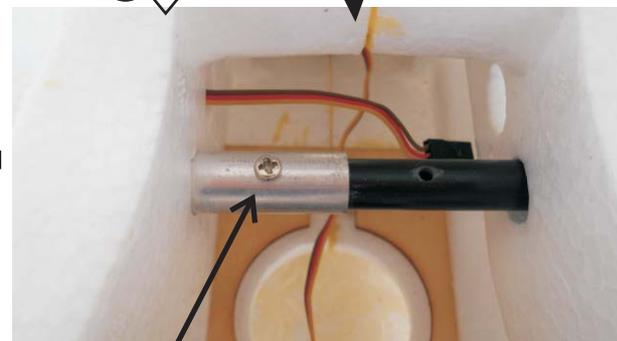
Installation of Main-wing



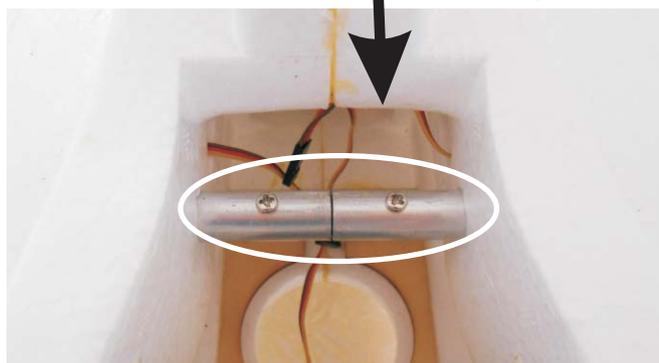
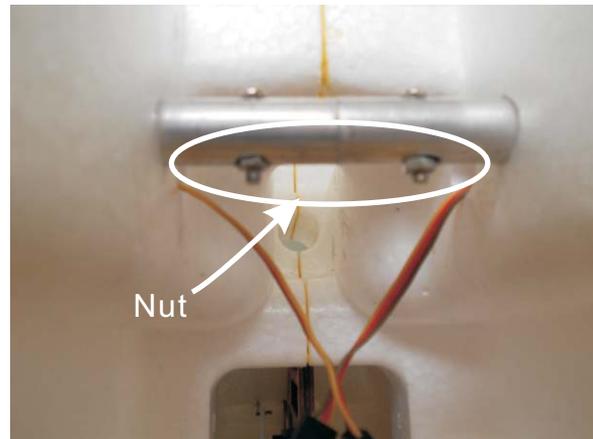
Insert one of the Main-Wings first



Insert another Main-Wings inside



Tighten the screw with Nut



Flight Advice

1. The airplane has good Sport performance, Roll, Loop and inverted fly is no problem
The airplane has been proved by many RC beginner that it can be a good trainer for RC beginner
2. Do Not Recommend beginner to do Aerobatic Flight/ Do not Recommend fly in strong wind day
3. Airplane is relatively less sensitive to wind During high Altitude flight, but should be careful of the Crosswind during low Altitude flight. High Altitude with 20-30% cruising is quite power saving.
4. (ROG) Roll take off, smooth and flat ground is required.
5. Recommended 3S battery (LIPO 11.1V)
6. if you fly with M2220, its power is less than M2815, so please don't try big attack angle climbing climbing step by step

keep it straight line level flight

This airplane has been designed and adjusted very good at straight line level flight.

If you found that the airplane have a tendency of a little bit rightward or leftward fly please check as below:

1. check the mainwing, make sure that the mainwing has been install properly, if the mainwing is loose or crooked, please correct it before fly.
2. check the rudder and horizontal wing, make sure that all at right position.
3. please check the motor mount base as shown in the following pictures:

If your motor is M2815, make sure that the 3MM thickness wooden ring has been installed correctly.
If your motor is M2220, make sure that the 2MM thickness wooden ring has been installed correctly.

3MM thickness wooden ring



2MM thickness wooden ring



If the airplane has been distorted and bended after serious crash, it's hard to find out what's the problem on earth. You can adjust the rudder and aileron by the transmitter's trim function to correct it (adjust the rudder a little bit left or right)

Assembly Construction-complete

Tips: How to assemble the fuselage 2

Step-1: Insert following parts into fuselage first
 Insert the elevator servo with tapping screw onto tail reinforcement beam

Insert fuselage plate with glue
 Insert motor mount with glue

Insert tail gear wheel and front gear wheel

Step-2: close fuselage with glue on either fuselage-left and fuselage-right.

Step-3: hold it tightly for a moment, this is good to glue performance

Step-4: Initial motor with 4PCS PA2.6MM tapping screw,

Step-5: cover the motor cover (but do not fix it until the propeller has been fixed)

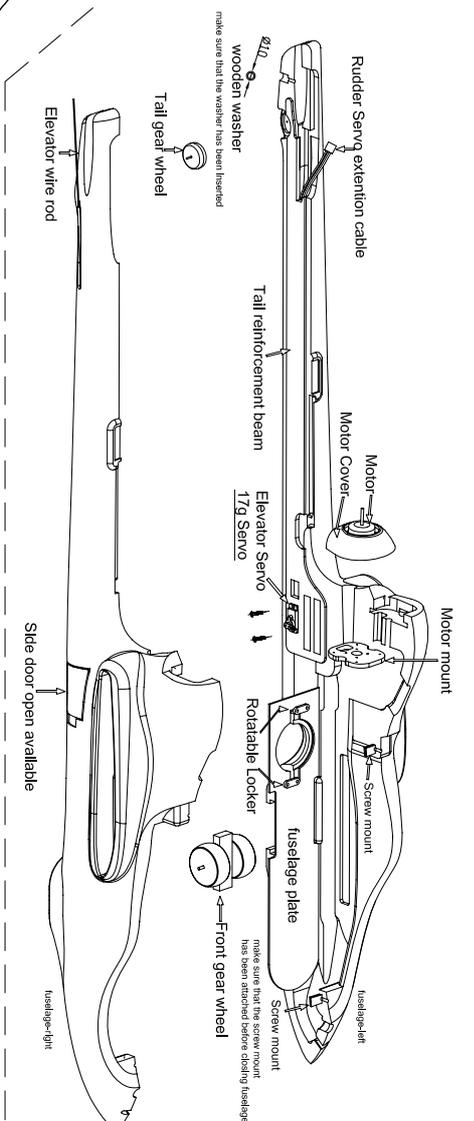
Step-6: install 9090 3Blade propeller and fix it

Step-7: fix the motor cover with a kite glue or gummed paper

Step-8: put the transparent protector and video camera plate inside

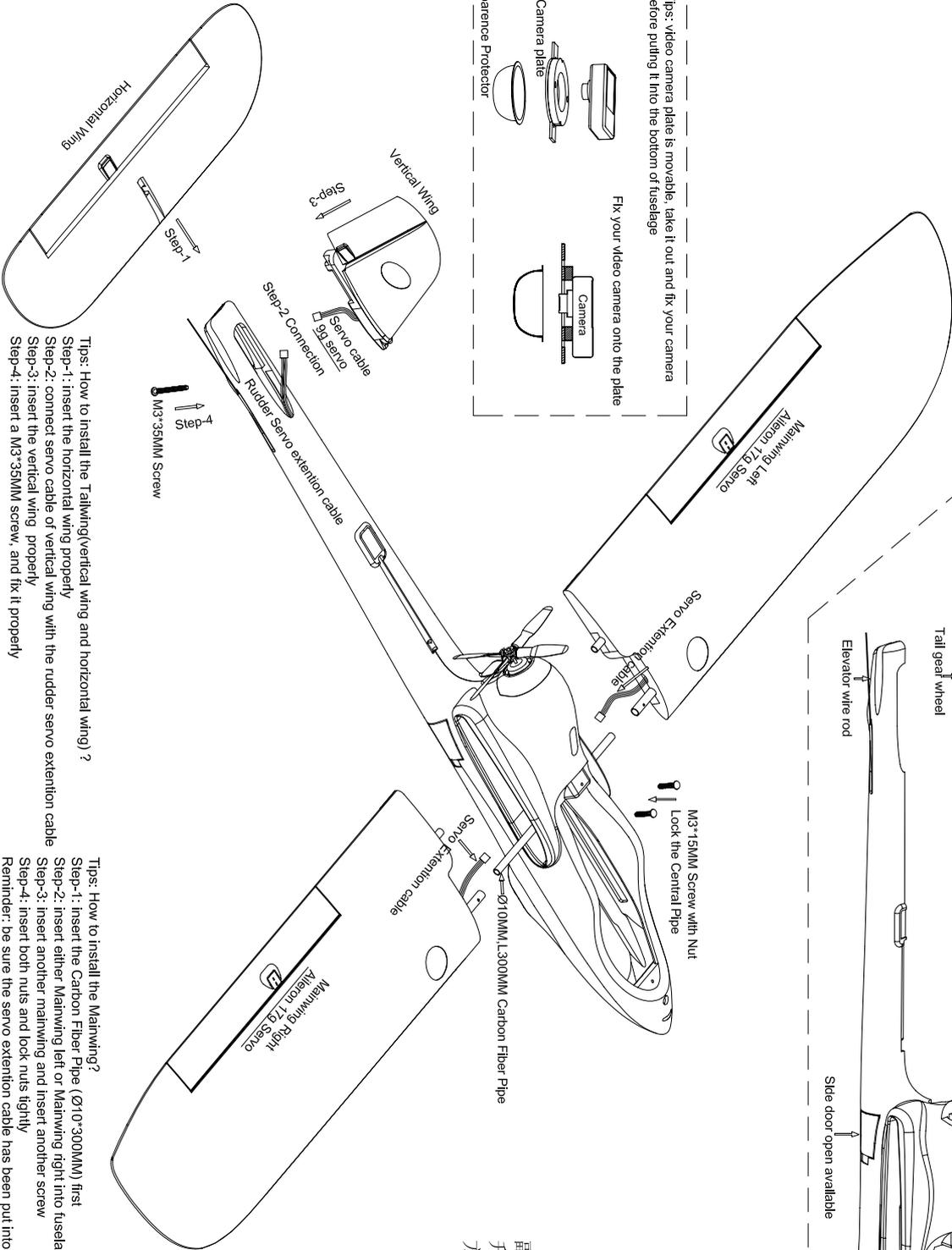
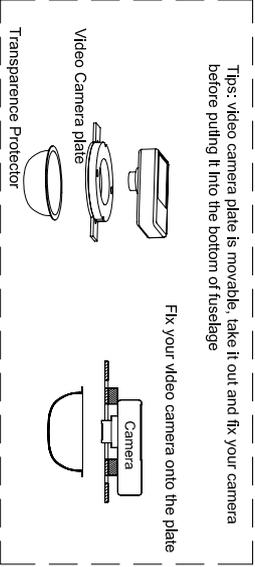
Step-9: open the side door (which on the fuselage-right) and connect with elevator wire rod

Install a servo arm for the elevator servo and connect with elevator wire rod



Tips: video camera plate is movable, take it out and fix your camera before pulling it into the bottom of fuselage

Fix your video camera onto the plate



副翼Alleron: 17g Servo
 升降舵Elevator: 17g Servo
 方向舵Rudder: 9g servo

Tips: How to install the Tailwing(vertical wing and horizontal wing) ?

Step-1: insert the horizontal wing properly

Step-2: connect servo cable of vertical wing with the rudder servo extension cable

Step-3: insert the vertical wing properly

Step-4: insert a M3*35MM screw, and fix it properly

Tips: How to install the Mainwing?

Step-1: insert the Carbon Fiber Pipe (Ø10*300MM) first

Step-2: insert either Mainwing left or Mainwing right into fuselage, then insert one screw first (but no nut)

Step-3: insert another mainwing and insert another screw

Step-4: insert both nuts and lock nuts tightly
 Reminder: be sure the servo extension cable has been put into the fuselage

Please read the user manual carefully before assembly and fly

Thanks for use finwing Model airplane. This airplane is recommended as advance FPV flight.
Feedbacks from users that this airplane is easy to fly can also be a good trainer for RC beginner

Warning:

1. This model airplane is not a toy, not recommended for children under 14 years old.
2. Model crash may happen during flight, it is because different outside environment, speed, unsuitable adjustment of the airplane or other interference
3. Flight conditions: at least 200 square meters flat ground is required.
4. Please don't fly this model airplane in bad weather, raining and windy day is no suitable
5. please take off the battery if you don't fly it, otherwise it may cause accident by other person or interference
6. please remember turn on the transmitter first before connecting the battery, also you must disconnect the battery first before turn off your transmitter.
7. keep away from the blade, it's dangerous, keep it away from children

LOOKING FOR SPARE PARTS OR ASK YOUR LOCAL DEALERS FOR MORE DETAILS

