



# *FlightLine OV-10 Bronco User Manual*

**Wingspan: 1400mm**

**Length: 1390mm**

**Empty Weight: 3050G[w/o Battery]**



MADE IN CHINA



EN 1~10

中 11~20

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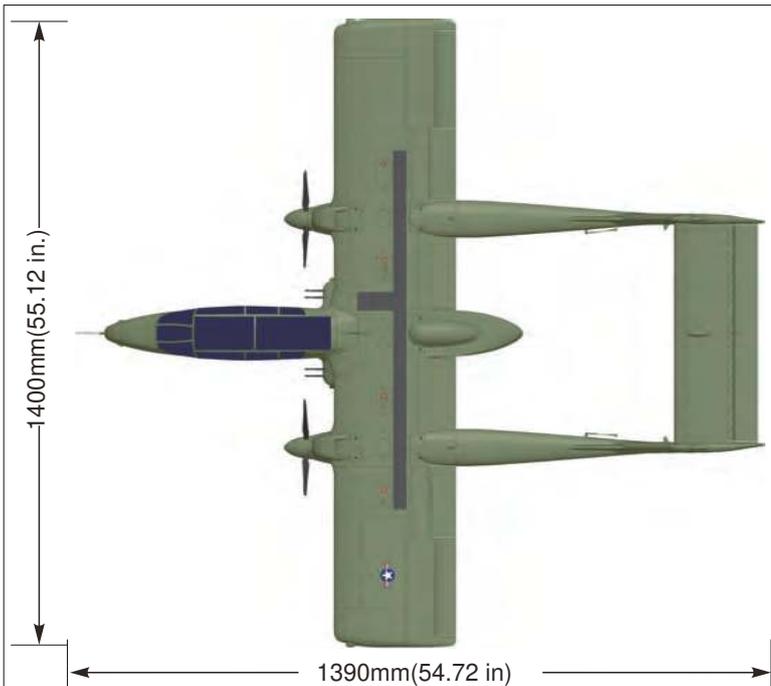
Thank you for purchasing our FlightLine OV-10A Bronco. It features an upper single-wing, double-engine, twin-tailed beam layout with a 1390mm length and a wingspan of 1400mm. It is made of EPO material and is reinforced with carbon and fiberglass. The modular design, in addition to a small number of parts of the imitation decorative accessories, the body parts are fastened with screws. At the same time, the control board and the cable are used to optimize the line connection. A dedicated wiring channel is designed inside the main wing for ease of use and maintenance, while retaining the overall integrity.

FlightLine RC OV-10A Bronco PNP version, with 3530-860KV brushless out-runner motor, 9507 three-blade propeller, 30A brushless ESC, 5A UBEC. The landing gear is controlled by an electric worm, the plastic has a simulated appearance and landing gear shock absorber. The larger diameter front and rear wheels (wheel diameter: 65mm/70mm) are suitable for the take-off and landing of most grassland environments. The landing gear of the first three points is used, and the direction is easy to control during the take-off and running. The air posture is beautiful and the stability of each speed range is good. After setting correctly according to the instructions, when landing, open the flaps, the deceleration is obvious, and the posture is stable. Taken together, this model is suitable for a group of model enthusiasts who complete the propeller-type model entry exercises.

**⚠ NOTE:** This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

### Note:

- 1.This is not a toy! Operator should have a certain experience, beginners should operate under the guidance of professional players.
- 2.Before install, please read through the instructions carefully and operate strictly under instructions.
- 3.Cause of wrong operation, Freewing and its vendors will not be held responsible for any losses.
- 4.Model planes' players must be on the age of 14 years old.
- 5.This plane used the EPO material with surface spray paint, don't use chemical to clean, otherwise it will damage.
- 6.You should be careful to avoid flying in areas such as public places, high-voltage-intensive areas, near the highway, near the airport or any other place where laws and regulation clearly prohibit.
- 7.You cannot fly in bad weather conditions such as thunderstorms, snows...
- 8.Model plane's battery, don't allowed to put in everywhere. Storage must ensure that there is no inflammable and explosive materials in the round of 2M range.
- 9.Damaged or scrap battery should be properly recycled, it can't discard to avoid spontaneous combustion and fire.
- 10.In flying field, the waste after flying should be properly handled, it can't be abandoned or burned.
- 11.In any case, you must ensure that the throttle is in the low position and transmitter switch on, then it can connect the lipo-battery in aircraft.
- 12.Do not try to take planes by hand when flying or slow landing process. You must wait for landing stop, then carry it.



**Standard Version**

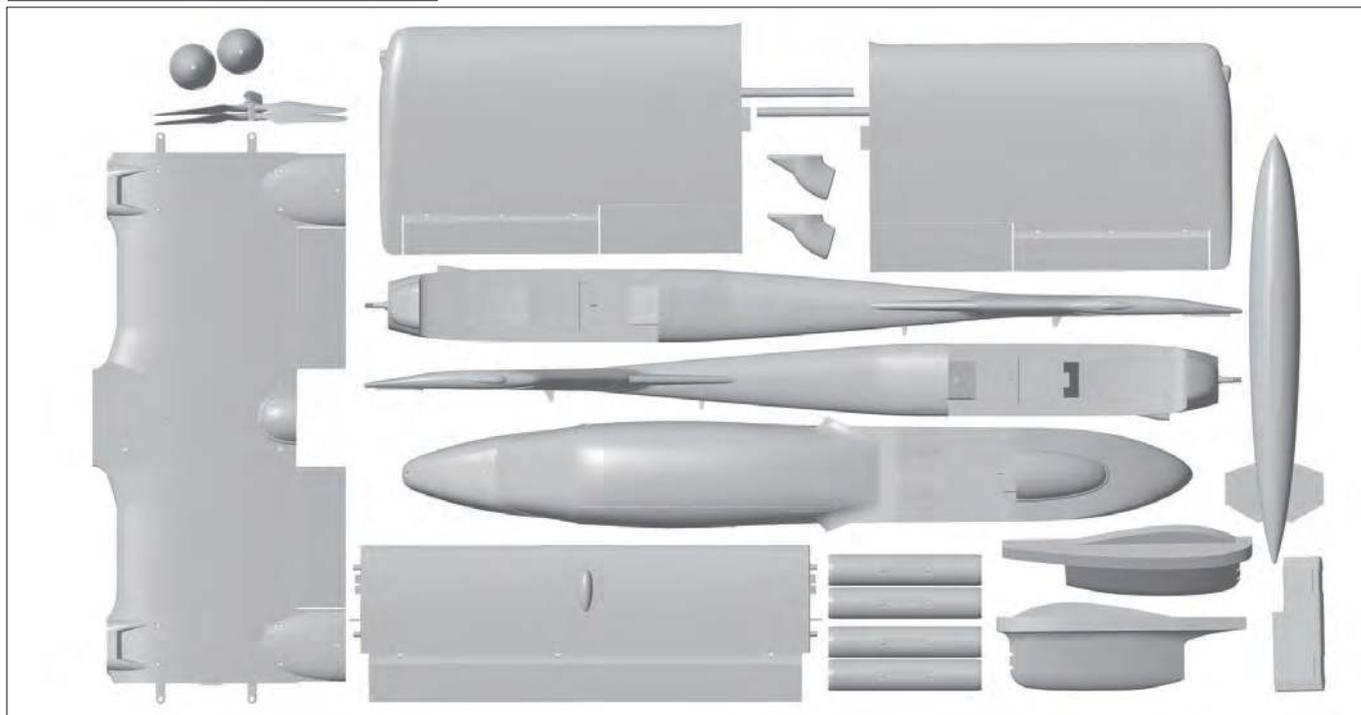
Wingload: 83.5g/dm<sup>2</sup>  
 Wing Area: 44.5 dm<sup>2</sup>  
 Motor: 3530-860KV O/R Motor x2  
 Servo: 17g MG digital servo x1  
 9g Hybrid digital servo x9  
 ESC: 30A x2 5A UBEC x1  
 Propeller: 3-Bladed 9507  
 (Standard x1, Reverse x1)  
 Weight: 3050g (w/o Battery)

**Other features**

Material: EPO & Plastic  
 Aileron: Yes Split Flaps: Yes  
 Elevator: Yes Rudder: Yes  
 Landing gear: Electric Landing Gear  
 Cabin door: No  
 Scale LED lights  
 Scale Pilot figure x2  
 Li-Po Battery: 4S 3300-4000mAh x2

**Note:** The parameters in here are derived from test result using our accessories. If use other accessories, the test result will be different. Any problem since of using other accessories, we are not able to provide technical support.

**Package List**



Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

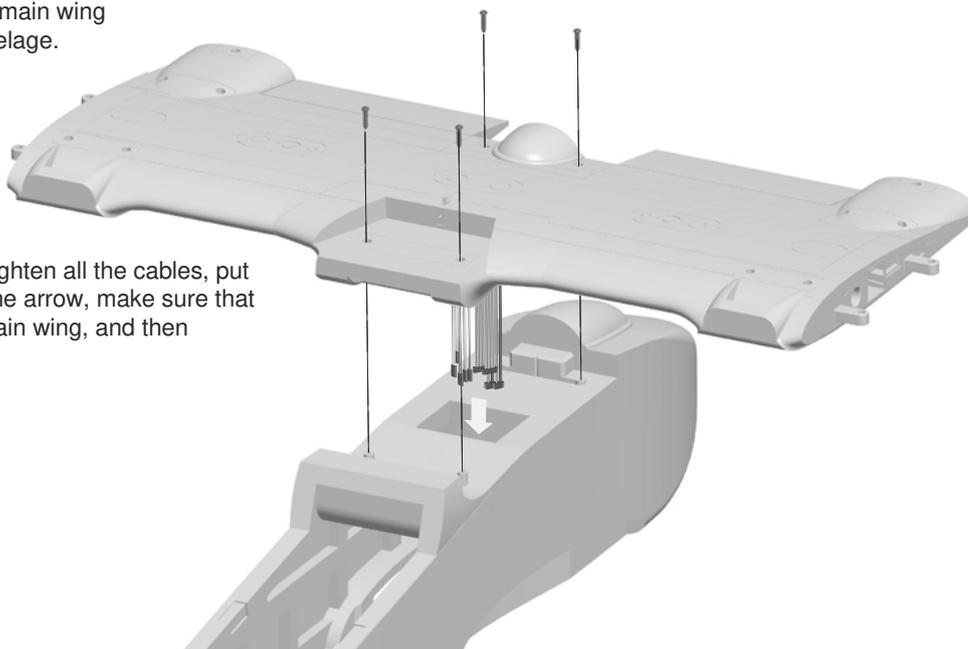
No.	Name	PNP	ARF Plus	No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	6	Manual	✓	✓
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	7	Pushrod	✓	✓
3	Horizontal tail	✓	✓	8	Non-slipmat	✓	✓
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	9	Screw bag	✓	✓
5	Foam parts	✓	✓	10	Glue	✓	✓

## Install the main wing middle part

1. As the photo show, install the main wing middle part on the middle of fuselage.

While placing, arrange and straighten all the cables, put them into the space shown by the arrow, make sure that no cables are pressed by the main wing, and then use screws to fix.

Screw : PA 3×12mm 4pcs

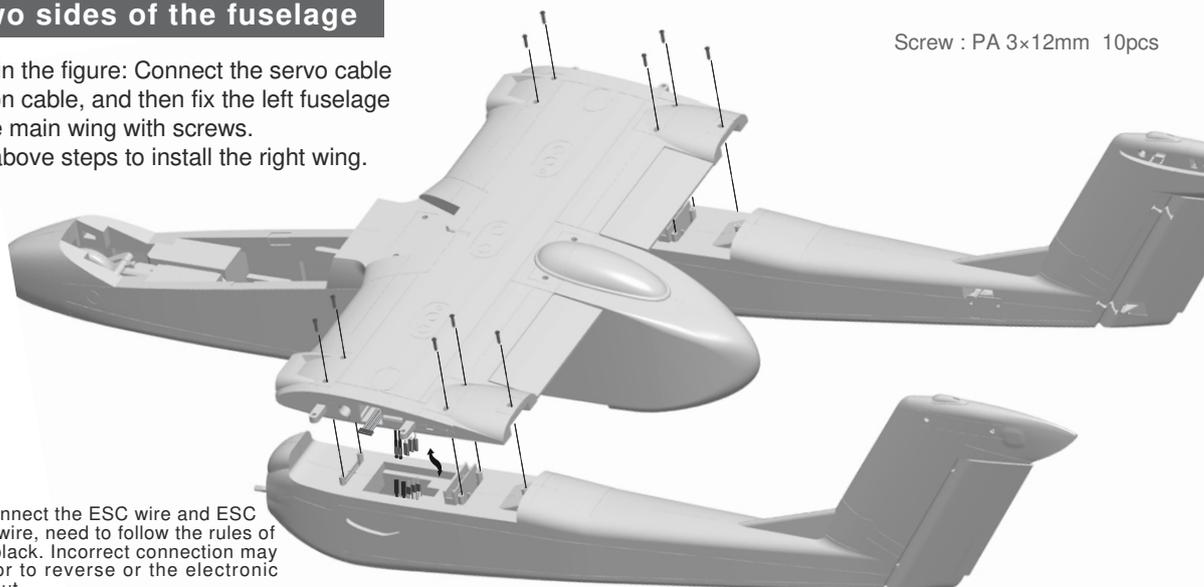


## Install two sides of the fuselage

2. As shown in the figure: Connect the servo cable and extension cable, and then fix the left fuselage to the middle main wing with screws. Repeat the above steps to install the right wing.

Screw : PA 3×12mm 10pcs

**Note:** Connect the ESC wire and ESC extension wire, need to follow the rules of red-red, black-black. Incorrect connection may cause the motor to reverse or the electronic device to burn out.

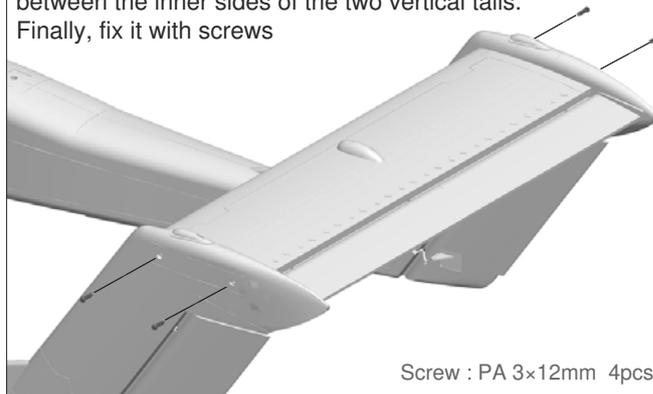
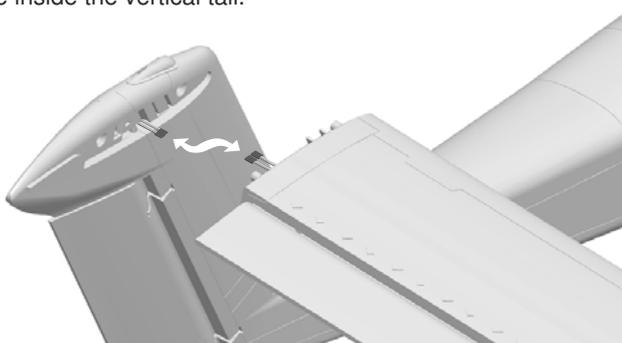


## Install the horizontal stabilizer

3. As shown in the figure, when installing the horizontal stabilizer, connect the elevator servo wire and the extension line inside the vertical tail.

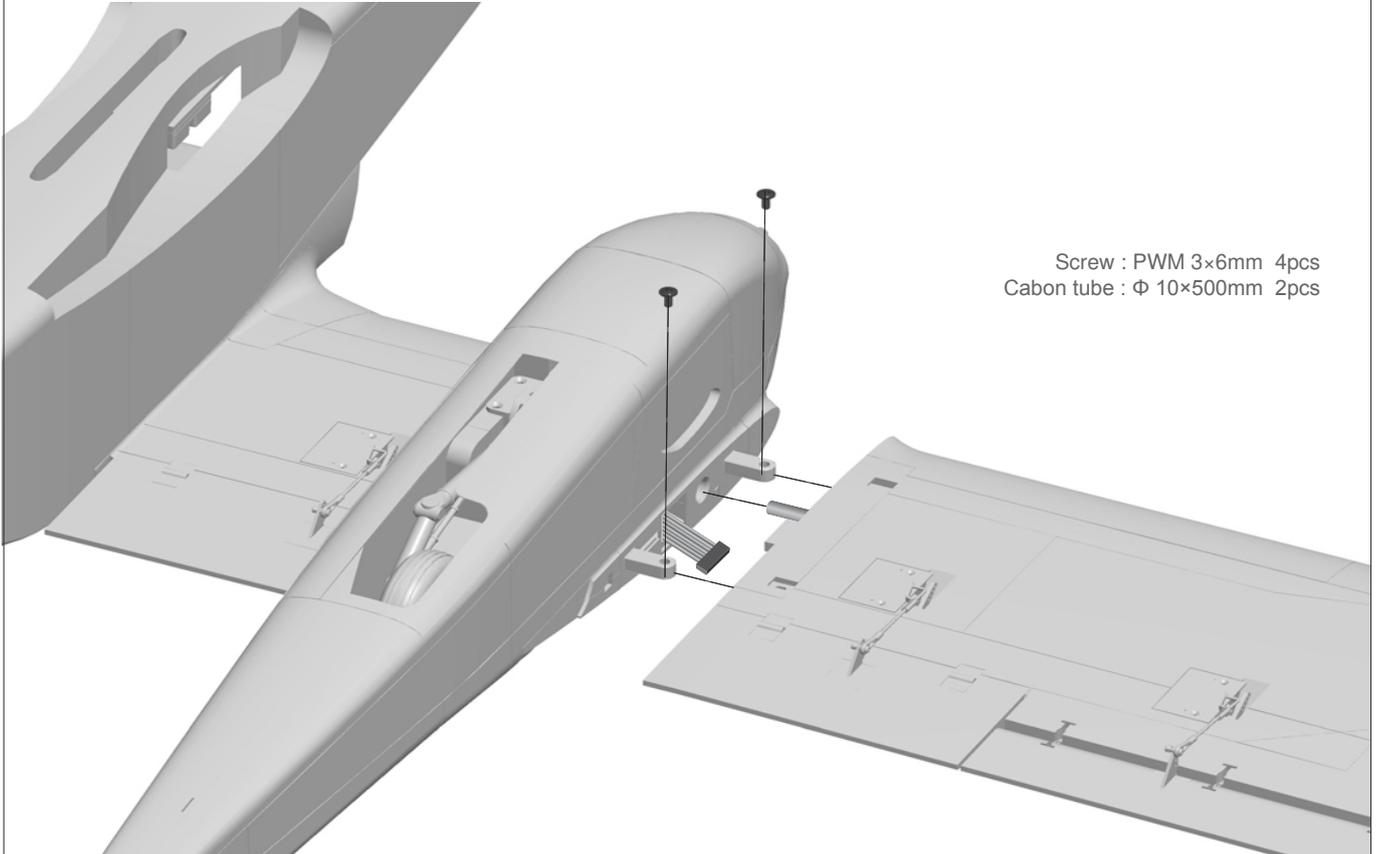
Make sure that the plastic parts at the two ends of the horizontal stabilizer are fully inserted into the limit holes between the inner sides of the two vertical tails. Finally, fix it with screws

Screw : PA 3×12mm 4pcs

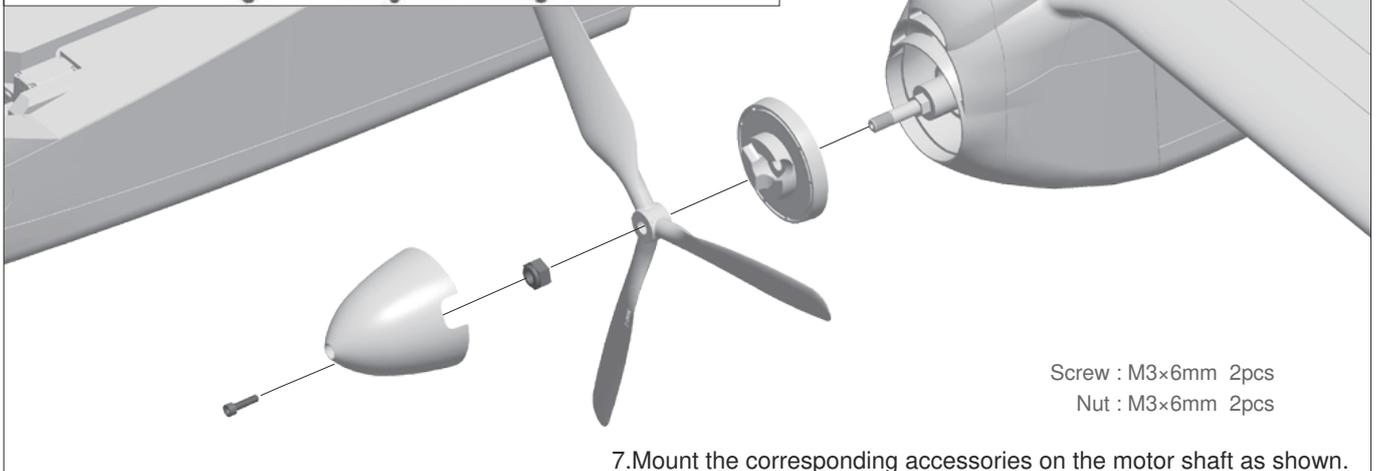


## Install Main wing (Left and Right Side)

4. Loosen the screws of wing control board which installed on the left/right main wing, and confirm that the servo wires are tightly connected. Then reinstall it.
5. Insert the ribbon wires into the left/right wing control board.
6. Fix the main wing with screws.



## Install propeller and spinner

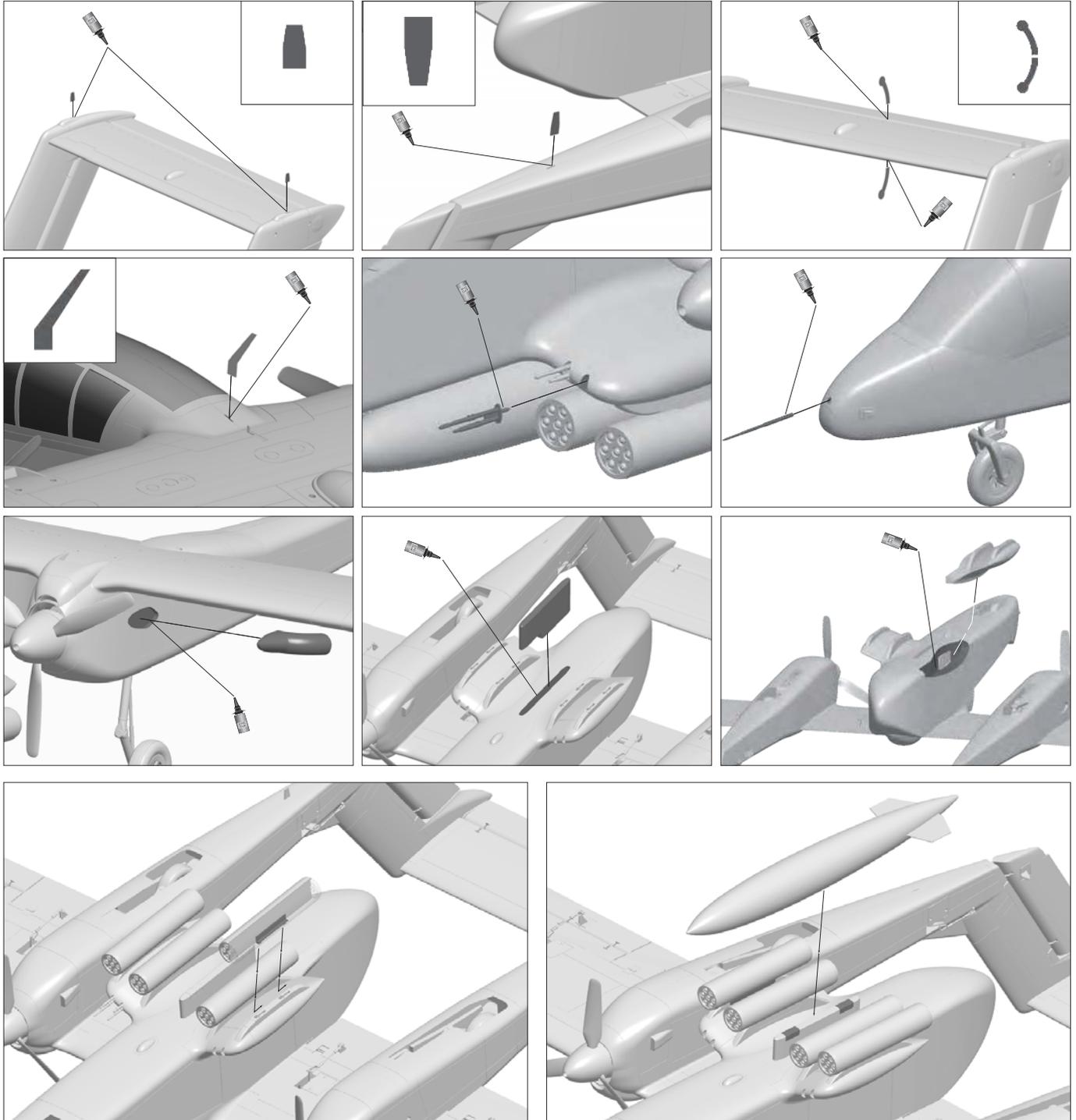


7. Mount the corresponding accessories on the motor shaft as shown.

## Install other accessories

8. As shown in the photo below, install various scale accessories such as antennas, machine guns, and hangers on the fuselage.

**Note:** When installing, first try to install the correct accessories into the mounting holes to know the depth of the accessories installation. Then apply a small amount of glue to the part that needs to be inserted into the foam for installation. This method of operation is much better than dripping the glue directly into the fine foam cells, which can reduce the overflow of the glue as much as possible and prevent the glue from staining the foam surface.



## Pushrod instructions

### Nose gear steering pushrod length



Pushrod diameter : Ø1.2mm

### Nose gear steering pushrod mounting hole



### Rudder pushrod length



Pushrod diameter : Ø1.5mm

### Rudder pushrod mounting hole



### Elevator pushrod length



Pushrod diameter : Ø1.5mm

### Elevator pushrod mounting hole



### Aileron pushrod length



Pushrod diameter : Ø1.5mm

### Aileron pushrod mounting hole



### Flap pushrod length

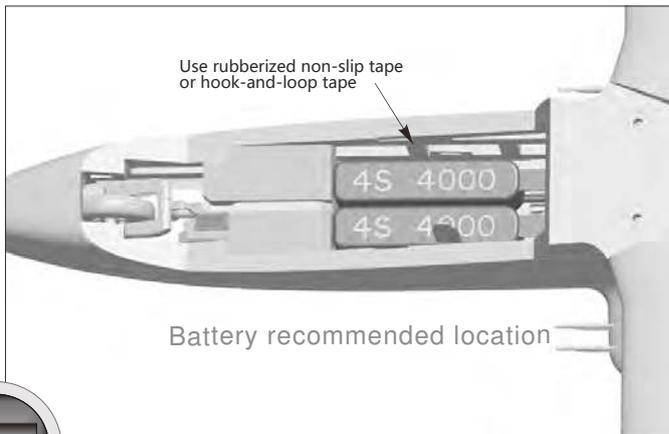
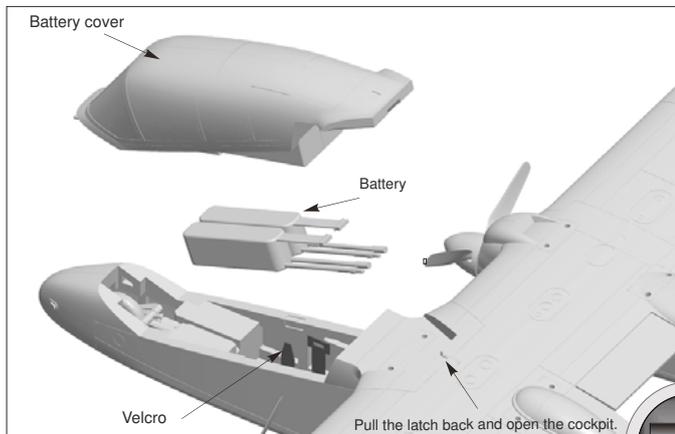


Pushrod diameter : Ø1.5mm

### Flap pushrod mounting hole(Inside)



## Install Battery



Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.

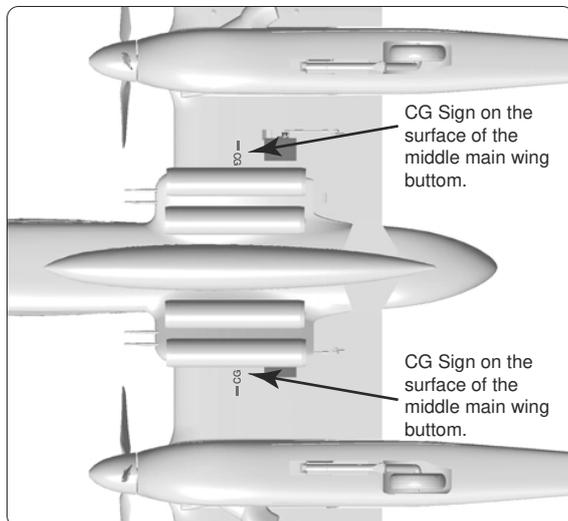
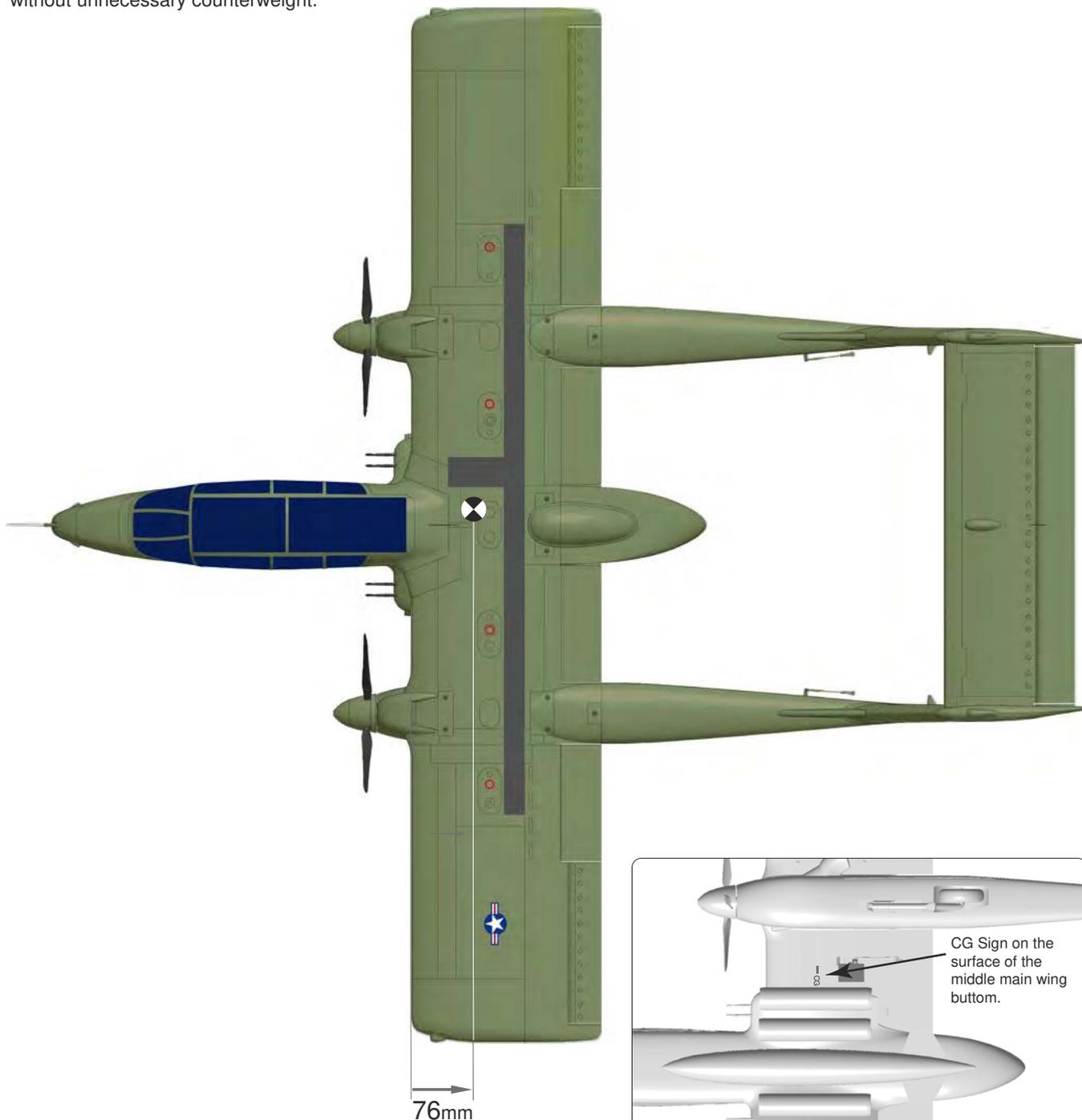


We recommend the following LiPo battery:  
**4S 14.8V 3300mAh~4S 14.8V 4000mAh**  
 Discharge rate of C ≥ 35C

**Center of Gravity**

Correct Center of Gravity ("CG") is critical for enabling safe aircraft stability and responsive control. Please refer to the following CG diagram to adjust your aircraft's Center of Gravity.

- Depending on the capacity and weight of your chosen flight batteries, move the battery forward or backward to adjust the Center of Gravity.
- If you cannot obtain the recommended CG by moving the battery to a suitable location, you can also install a counterweight to achieve correct CG. However, with the recommended battery size, a counterweight is not required. We recommend flying without unnecessary counterweight.



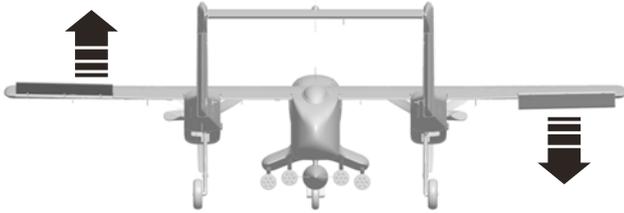
At the bottom of middle wing, close to the fuselage. It has a CG sign. You can according this sign to confirm the right CG.

## Control Direction Test

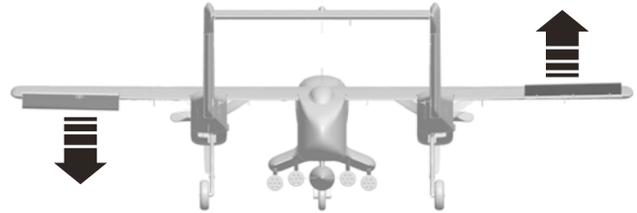
After installed the plane, before flying, we need a fully charged battery and connect to the ESC, then use radio to test and check that every control surface work properly.

### Aileron

Stick Left

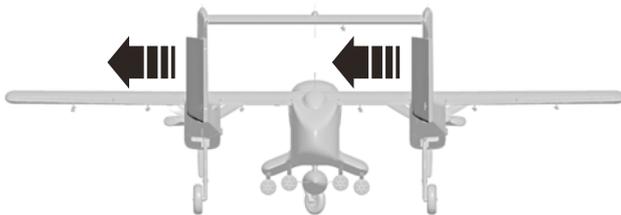


Stick Right

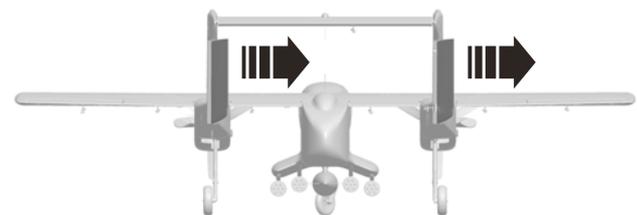


### Rudder

Stick Left

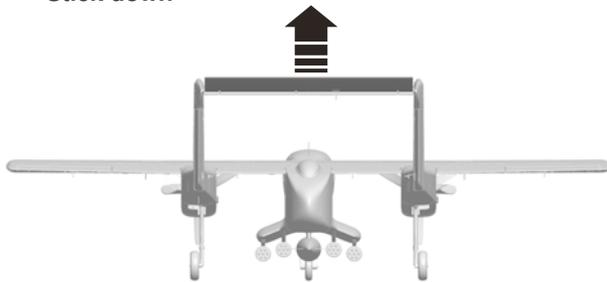


Stick Right

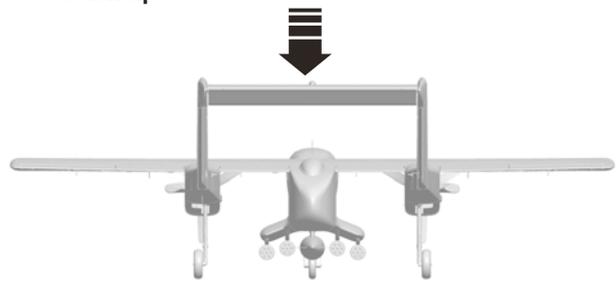


### Elevator

Stick down

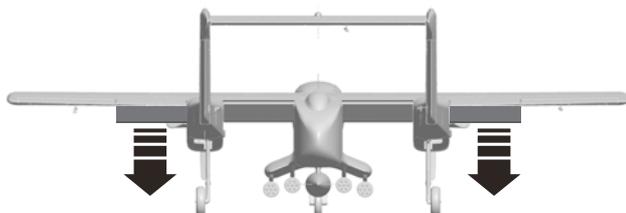


Stick up



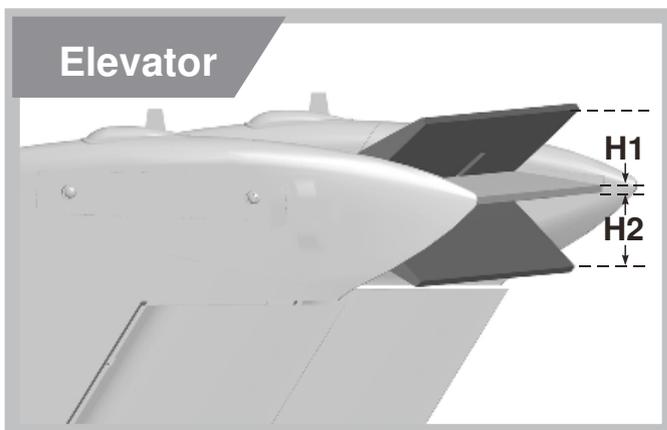
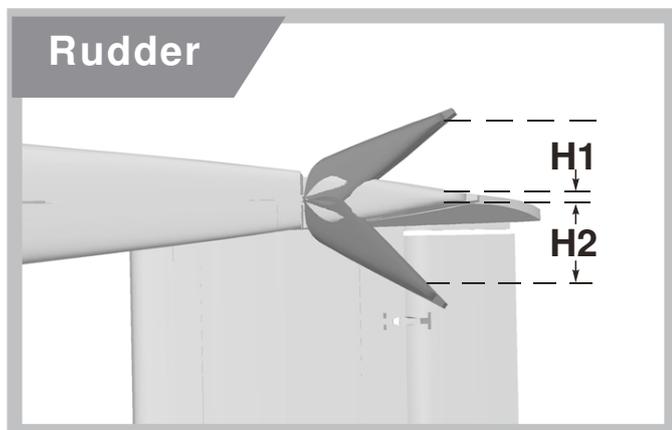
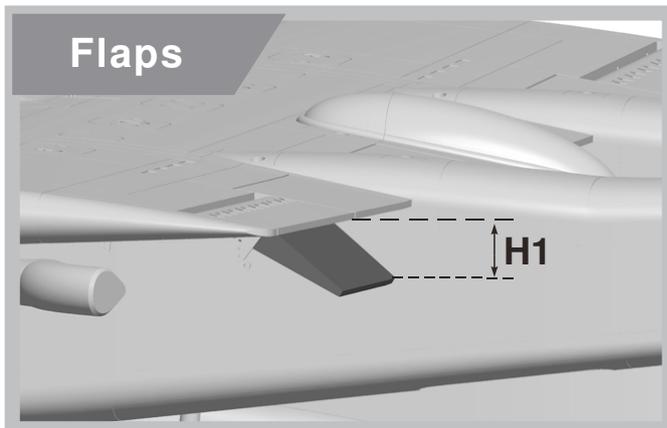
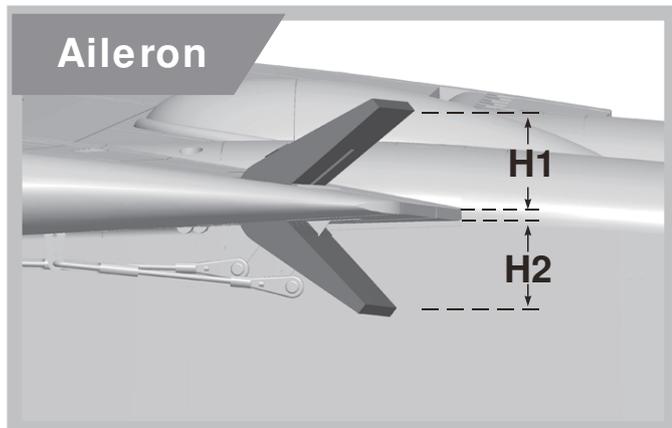
### Flaps

Flaps down



## Dual Rates

According to our testing experience, use the following parameters to set Aileron/Elevator Rate. Program your preferred Exponential % in your radio transmitter. We recommend using High Rate for the first flight, and switching to Low Rate if you desire a lower sensitivity. On successive flights, adjust the Rates and Expo to suit your preference.



	Aileron(measured closest to the fuselage)	Elevator(measured closest to the fuselage)	Rudder(Measured from the bottom)	Flaps
<b>Low Rate</b>	H1/H2 13mm/ 13mm D/R Rate : 80%	H1/H2 20mm/ 20mm D/R Rate : 80%	H1/H2 23mm/ 23mm D/R Rate : 80%	H1 15mm
<b>High Rate</b>	H1/H2 16mm/ 16mm D/R Rate : 100 %	H1/H2 26mm/ 26mm D/R Rate : 100%	H1/H2 27mm/ 27mm D/R Rate : 100%	H1 30mm

## Flap-to-Elevator Mix

A Flap-to-Elevator Mix is required to maintain level flight when the flaps are deployed. The detail is as below:

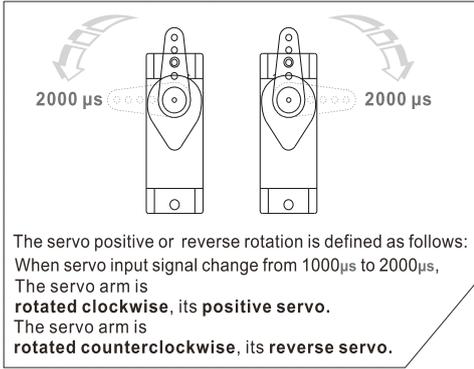
- With high rate flaps deployed, mix 4mm (18%) of UP elevator to maintain level flight.
- With low rate flaps deployed, mix 2mm (10%) of UP elevator to maintain level flight.

## Throttle correction

In order to ensure the consistency of the left and right motor speeds, in the following cases, you need to refer to the ESC manual to recalibrate the throttle.

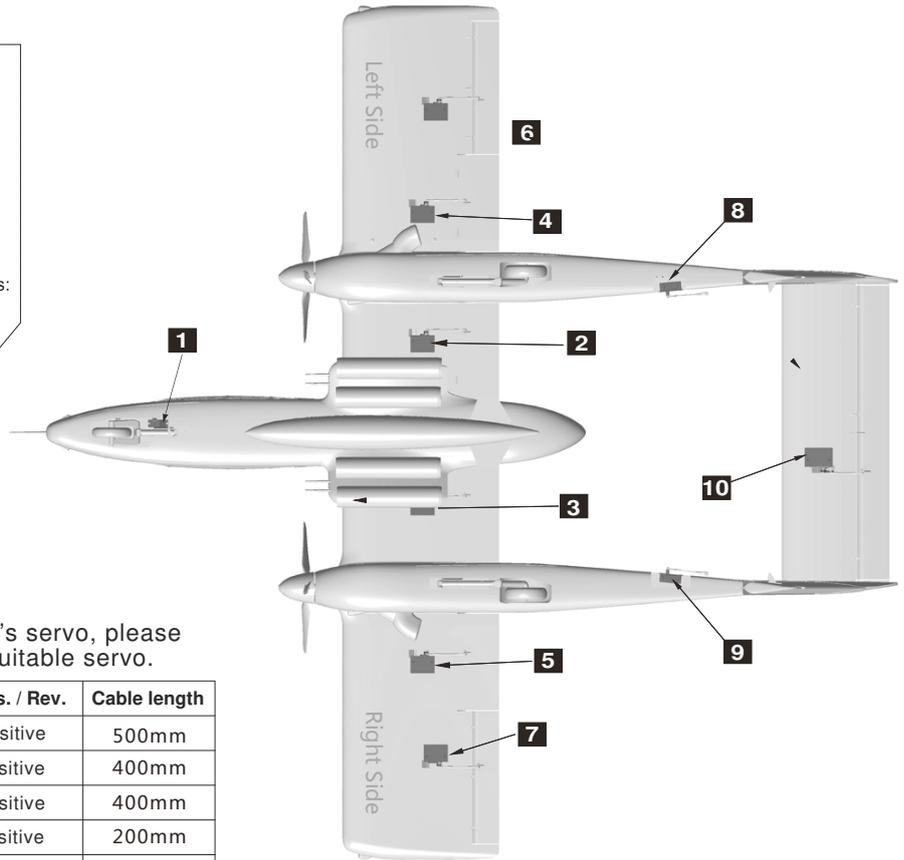
- First time to use.
- First use after change the radio or receiver.

## Servo Direction

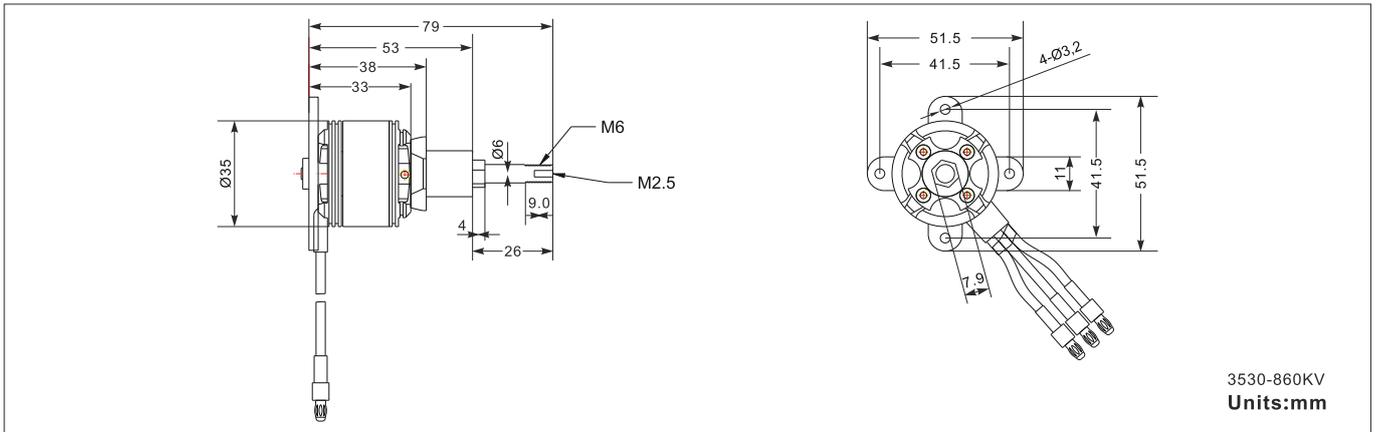


If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos. / Rev.	Cable length
Nose gear steering servo	9g Digital-Hybrid	1	Positive	500mm
Flap(Inside-L)	9g Digital-Hybrid	2	Positive	400mm
Flap(Inside-R)	9g Digital-Hybrid	3	Positive	400mm
Flap(L)	9g Digital-Hybrid	4	Positive	200mm
Flap(R)	9g Digital-Hybrid	5	Positive	200mm
Aileron(L)	9g Digital-Hybrid	6	Positive	300mm
Aileron(R)	9g Digital-Hybrid	7	Positive	300mm
Rudder(L)	9g Digital-Hybrid	8	Positive	600mm
Rudder(R)	9g Digital-Hybrid	9	Positive	600mm
Elevator	17g Digital-MG	10	Positive	300mm



## Motor Specification



Item No.	KV Value	Volate (V)	Current (A)	Pull (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MO135301	860RPM/V	14.8	25	1350	0.02 Ω	106	2.3A/10V	3-Blade 9.5x7	≥30A



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