

# ***F-5N TIGER II*** ***USER MANUAL***



Wingspan: 845mm (33.26 in)  
Fuselage length: 1313mm (51.69 in)

**EN** 1 ~ 13

**中** 14 ~ 26



Thank you for purchasing our Freewing F-5N "Tiger II" 80mm EDF jet. In the 1970s, F-5E / F "Tiger" II fighter become American munitions dumping the main part to its third world allies, due to the aircraft experienced a real test and had inherited the previous generation F-5A / B "freedom fighters" fighter easy maintenance, etc., so that in 10 years after the advent of being sold to 21 countries and regions worldwide.

F-5N "Tiger II" EDF jet, use 80mm ducted fan, strong power, it will bring you a surprise speed and flight experience!

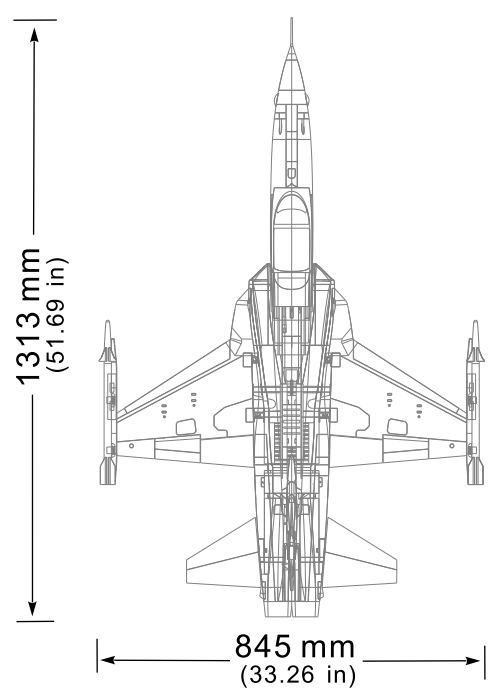
New feature:

- The Design and graphics are scale to the real aircraft.
- The Wings are removable. Very Easy and fast to install and dismantle.
- Reliable landing gear shock absorber design, suitable for the grass take-off/landing.
- Large battery compartment space, suitable for different battery items.
- Strong power & reliable 80mm EDF power system
- Simple and reliable front/rear cabin door control
- Ball head buckle, more precise control

**⚠ 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.

 <p><b>1313 mm</b> (51.69 in)</p> <p><b>845 mm</b> (33.26 in)</p> <p><b>Note:</b> 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.</p>	<p><b>6S Standard Version</b></p> <ul style="list-style-type: none"> <li>● Motor 3530-1750KV (out-runner Motor)</li> <li>● ESC 80A</li> <li>● Servo 9g (8pcs-Digital servo*2pcs)</li> <li>● Battery 6S 22.2V 4000mAh 35C</li> <li>● Ducted fans 12-Bladed 80mm EDF</li> <li>● Take-off weight 2280g (80.42 oz.)</li> <li>● Thrust 2600g (91.8 oz.)</li> </ul>
	<p><b>6S Upgrade Version</b></p> <ul style="list-style-type: none"> <li>● Motor 3665-1750KV (In-runner Motor)</li> <li>● ESC 100A</li> <li>● Servo 9g (8pcs-Digital servo*2pcs)</li> <li>● Battery 6S 22.2V 4000mAh 35C</li> <li>● Ducted fans 12-Bladed 80mm EDF</li> <li>● Take-off weight 2350g (82.9 oz.)</li> <li>● Thrust 3100g (109.4 oz.)</li> </ul>

## Package list



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

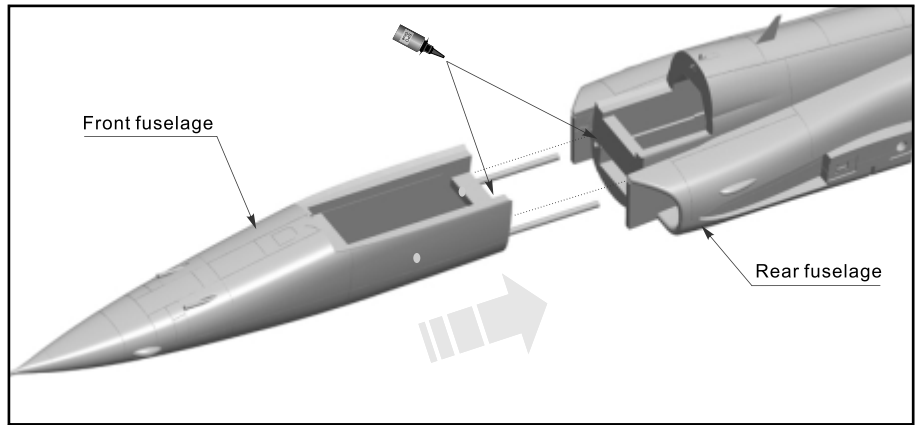
### PNP equipment list

1. Fuselage set (installed, include the electric parts and connection lines)
2. Main wing set (installed, include the electric parts and connection lines)
3. Tail wing set (installed, include the electric parts and connection lines)
4. Missiles and pylons
5. Main wing installing plastic part
6. Carbon tube
7. Screw
8. Glue

### KIT equipment list

1. Fuselage set (installed connection lines)
2. Main wing set
3. Tail wing set
4. Missiles and pylons
5. Main wing installing plastic part
6. Carbon tube
7. Screw
8. Glue

As the right photo shown, apply glue to attach the front, rear fuselage.

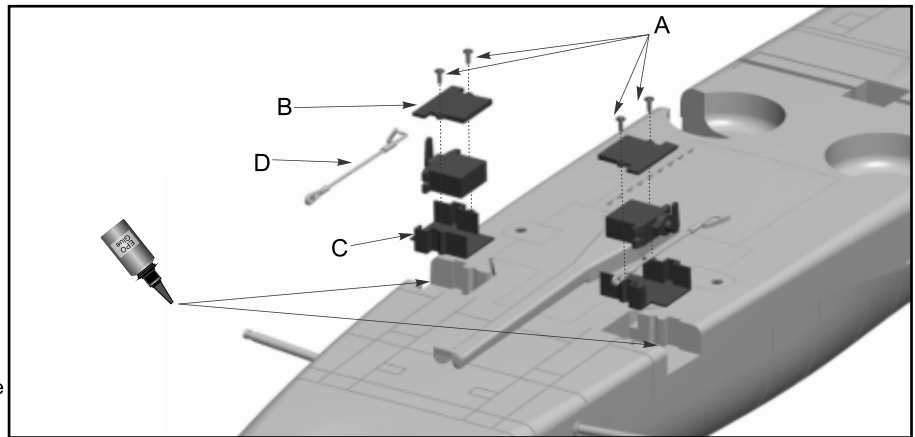


## Installing Elevator

### Installing elevator servo

- A - Screw
- B - 9g servo cover
- C - 9g servo box
- D - Elevator pushrod

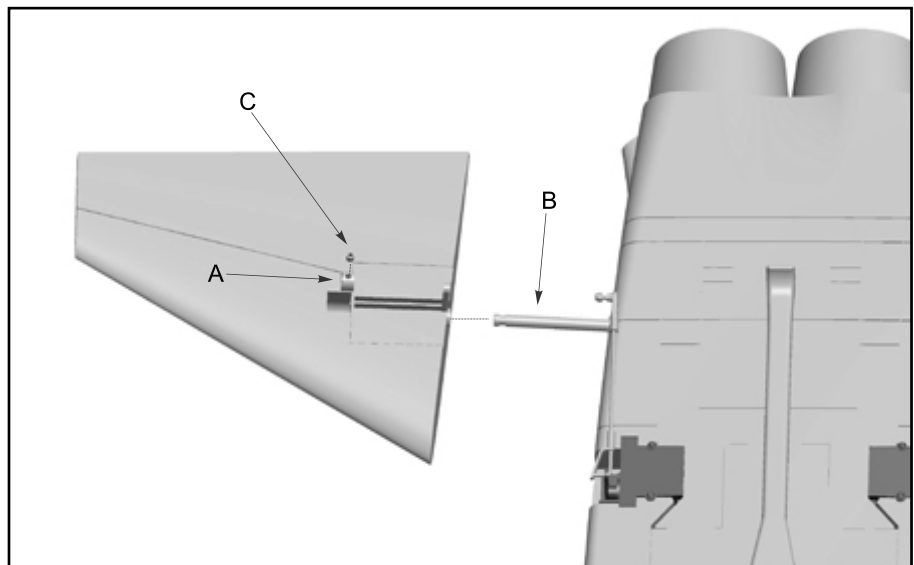
1. Through servo tester or radio to center the servo arm.
2. Apply the glue to attach the "9g servo box C" on the fuselage.
3. Install the servo on the "9g servo box C", and insert the servo cable to the extension wire in the fuselage, then cover the "9g servo cover B", and use 2pcs "screw A" to fix.
4. Use "elevator pushrod D" to connect the servo arm and elevator horn.



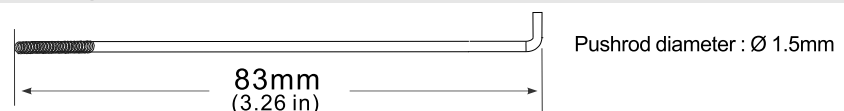
### Installing elevator

- A - Metal fixed ring
- B - Full elevator rotating shaft
- C - Screw

1. First, put the "metal fixed ring A" on the groove of elevator, install the elevator on the "full elevator rotating shaft B", use "screw C" to fix the elevator from "metal fixed ring A".



### Elevator pushrod size



### Elevator pushrod mounting hole

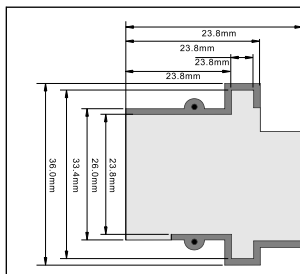
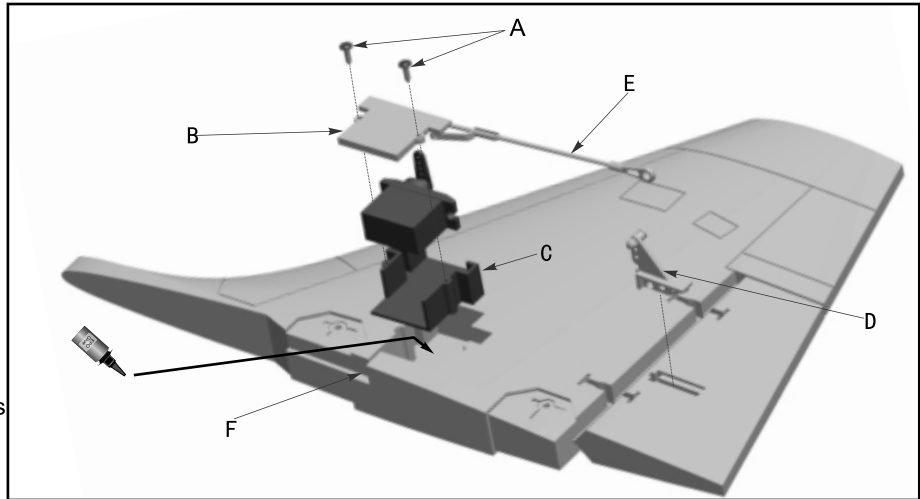




## Installing rudder servo

- A -Screw (PWA1.7\*5mm 8pcs)
- B -9g servo cover
- C -9g servo box
- D -Aileron horn
- E -Aileron pushrod
- F -Servo cable trough

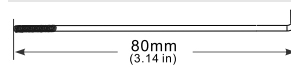
1. Through servo tester or radio to center the servo arm.
2. Apply the glue to attach the "9g servo box C" and "aileron horn D" on the fuselage.
3. Install the servo on the "9g servo box C", press the servo cable in the "servo cable trough F", then cover the "9g servo cover B", and use 2pcs "screw A" to fix.
4. Use "aileron pushrod E" to connect the servo arm and aileron horn.



**Note:** we have installed all the servo box in aircraft, when players disassemble the servo, it will not damage the foam surface. If need to replace servo, please purchase Freewing servo, or refer to the following drawing, choose the correct size servo.

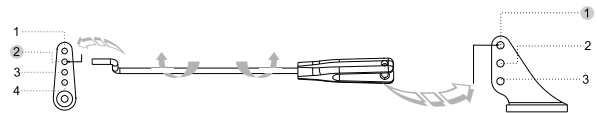


### Rudder pushrod size



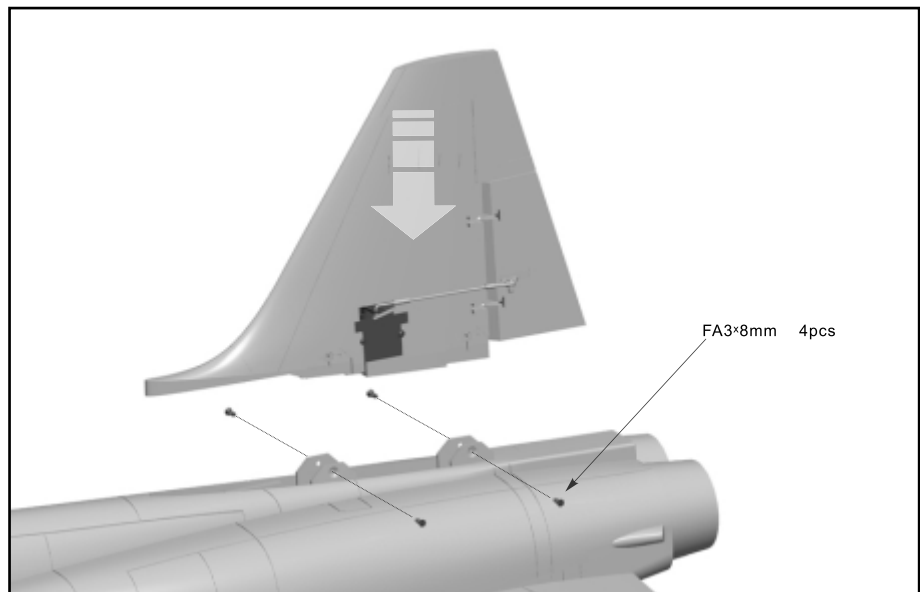
Pushrod diameter : Ø 1.5mm

### Rudder pushrod mounting hole



## Installing rudder servo

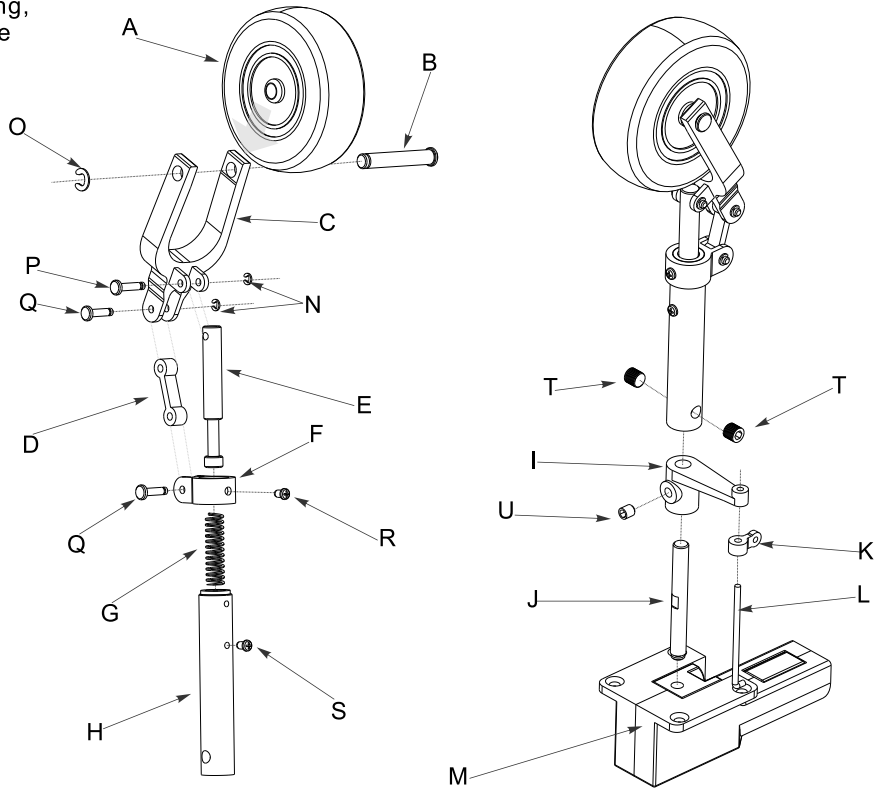
1. Connect the rudder servo cable to the extension wire in fuselage.
2. Install the rudder on the fuselage and use 4pcs screw to fix.



Please refer to the following drawing, assemble/disassemble and replace the nose landing gear.

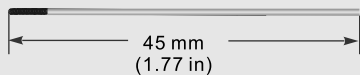
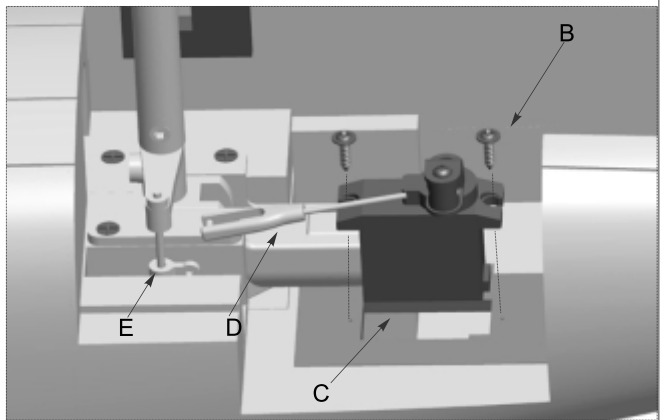
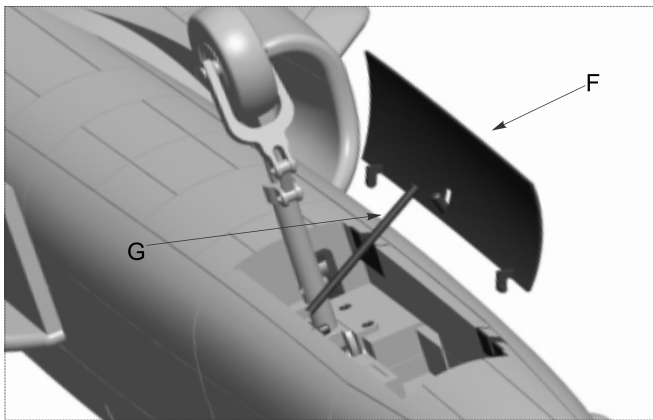
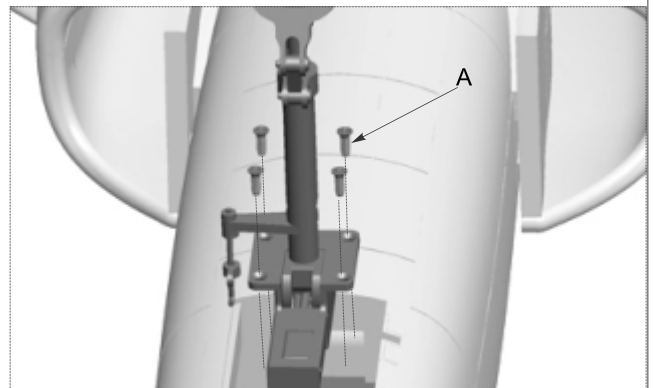
**Accessories name and specification**

- A -Nose wheel (ø40mm W=16mm)
- B -Nose wheel axle
- C -U-damping arm
- D -8- damping arm
- E -Nose gear damping rod
- F -O-connecting arm
- G -Spring
- H -Nose gear supporting rod
- I -L shape arm
- J -Nose gear metal wire
- K -O-shape ring
- L -Metal wire
- M -Retractable controller
- N -E-buckle (ø1.5mm 3pcs)
- O -E-buckle (ø2.0mm 1pcs)
- P -Pin 1
- Q -Pin 2
- R -Screw (PM2×3mm 1pcs)
- S -Screw (PM2×4mm 1pcs)
- T -Jimi screw (M4×3mm 2pcs)
- U -Jimi screw (M3×3mm 1pcs)



**Accessories name and specification**

- A -Screw (KA3×12mm 4pcs)
- B -Screw (PWA2×8mm 2pcs)
- C -Servo (9g)
- D -Nose gear steering pushrod
- E -O-shape ring
- F -Nose cabin door
- G -Spring



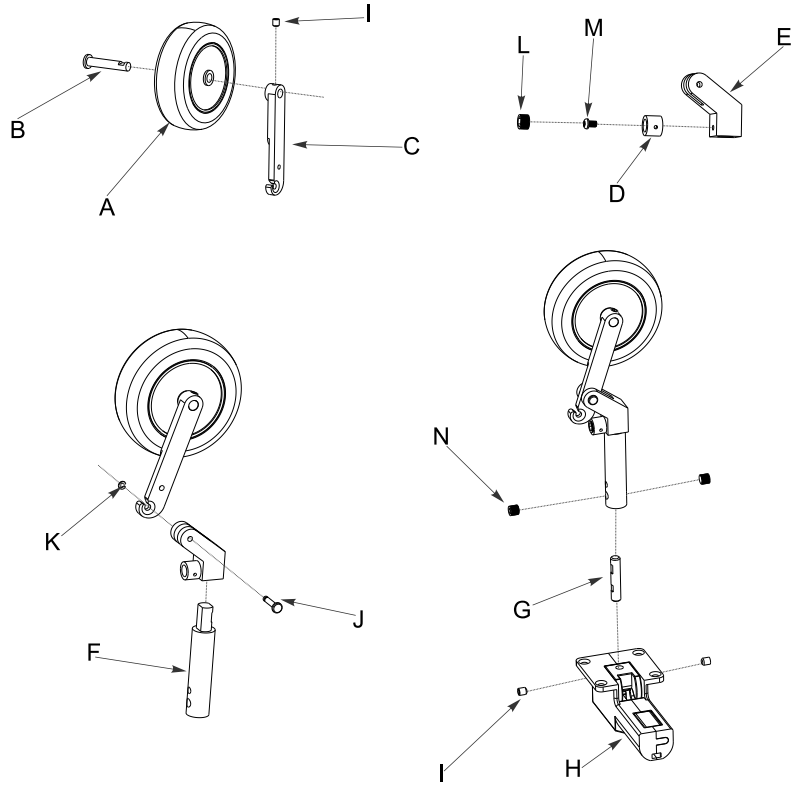
Pushrod diameter : Ø 1.2mm



Please refer to the following drawing, assemble/disassemble and replace the nose landing gear.

**Accessories name and specification**

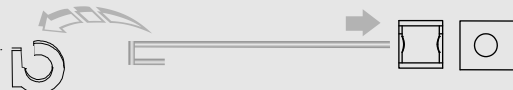
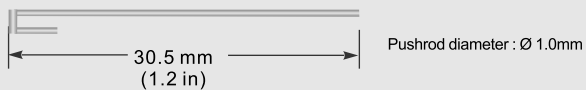
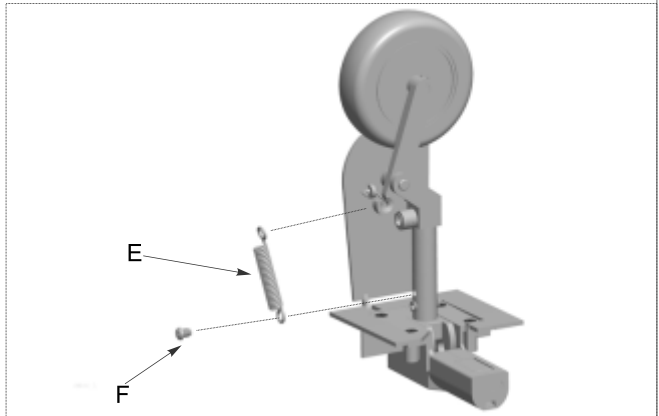
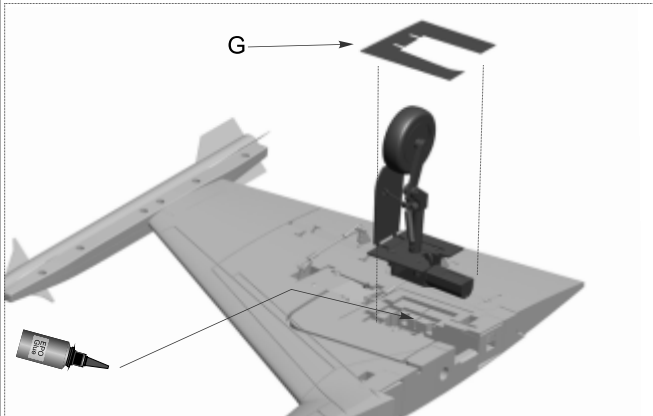
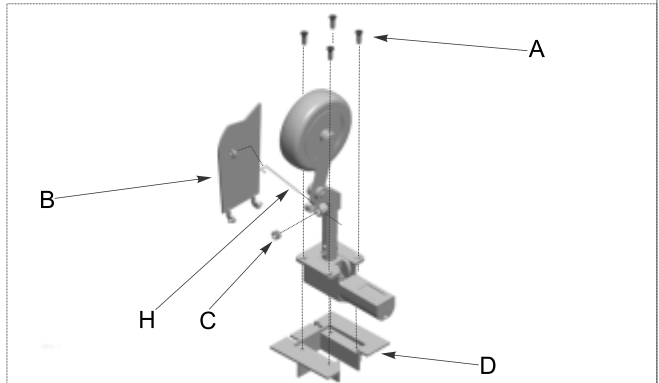
- A -Rear wheel (ø45mm W=16mm)
- B -Rear wheel axle
- C -Rear gear damping arm
- D -Pushrod fixed bolt
- E -Rear gear connecting arm
- F -Rear gear supporting rod
- G -Rear gear metal wire
- H -Retractable controller
- I -Jimi screw (M3×3mm 3pcs)
- J -Pin
- K -E-buckle (ø1.5mm 1pcs)
- L -Jimi screw (M5×3mm 1pcs)
- M -Screw (PM2×4mm 1pcs)
- N -Jimi screw (M4×3mm 2pcs)



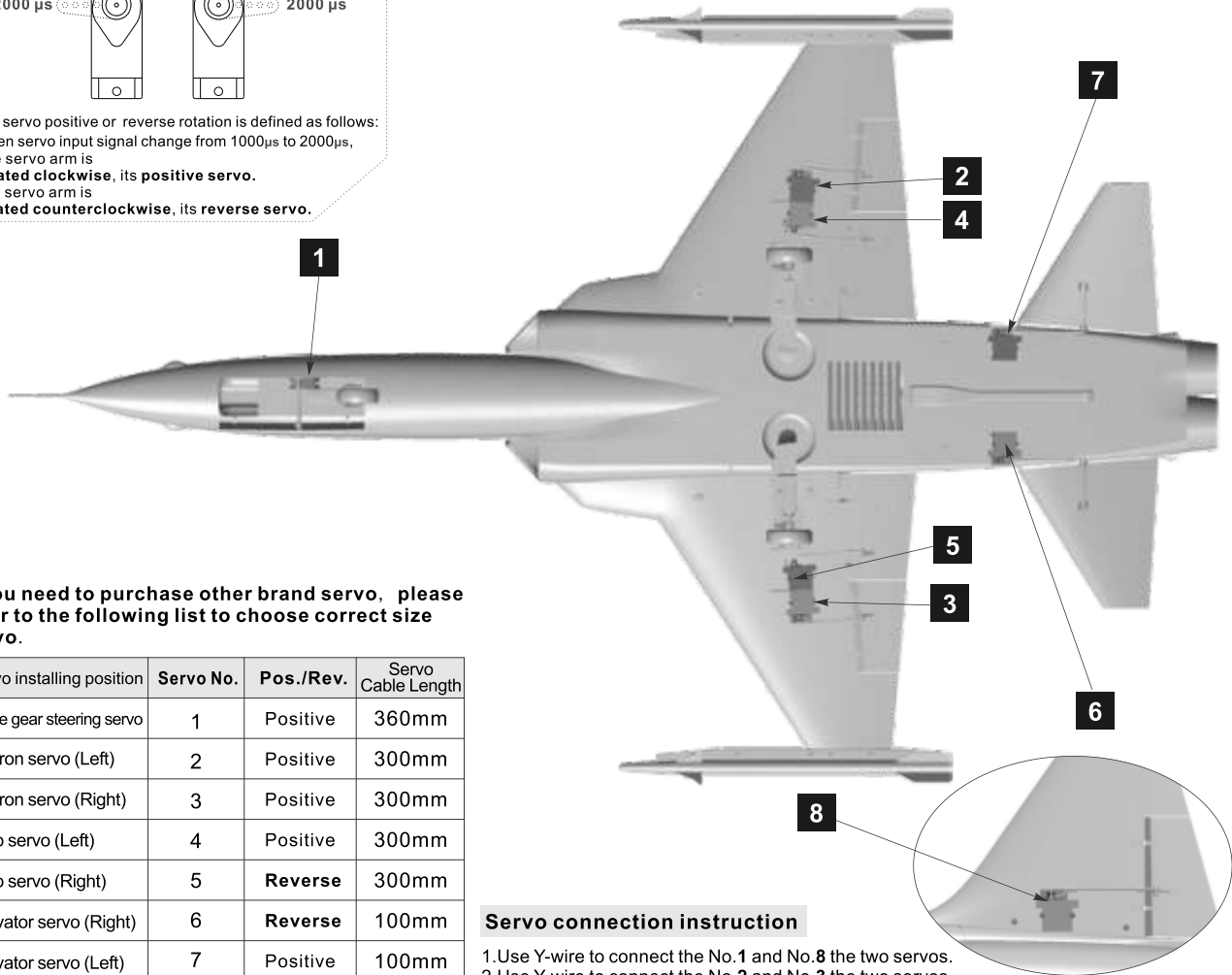
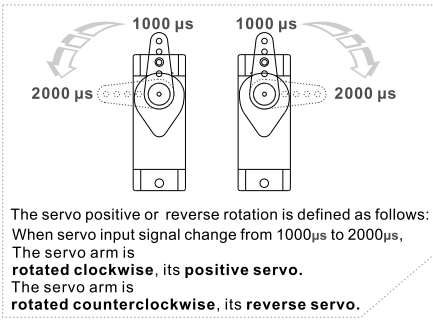
**Accessories name and specification**

- A -Screw (KA3×12mm 4pcs)
- B -Rear cabin door
- C -Jimi screw (M5×3mm 1pcs)
- D -Rear gear mount
- E -Spring
- F -Screw (PM3×4mm 1pcs)
- G -Rear gear blister cover
- H -Rear cabin door pushrod

**Note:** When attach the “ rear gear mount” in the adhesive area, glue need even painted installed area. Cause this place bear large force.







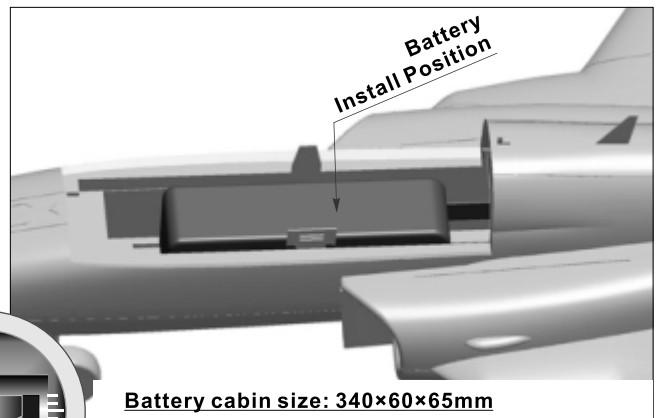
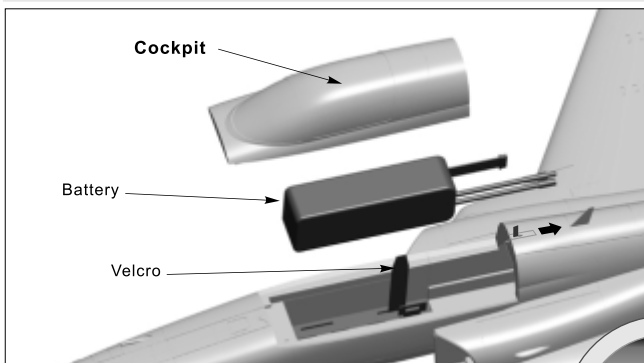
If you need to purchase other brand servo, please refer to the following list to choose correct size servo.

Servo installing position	Servo No.	Pos./Rev.	Servo Cable Length
Nose gear steering servo	1	Positive	360mm
Aileron servo (Left)	2	Positive	300mm
Aileron servo (Right)	3	Positive	300mm
Flap servo (Left)	4	Positive	300mm
Flap servo (Right)	5	<b>Reverse</b>	300mm
Elevator servo (Right)	6	<b>Reverse</b>	100mm
Elevator servo (Left)	7	Positive	100mm
Rudder servo	8	Positive	150mm

### Servo connection instruction

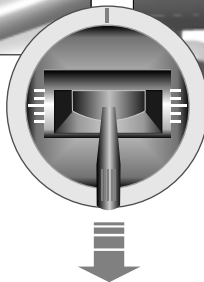
1. Use Y-wire to connect the No.1 and No.8 the two servos.
2. Use Y-wire to connect the No.2 and No.3 the two servos.
3. Use Y-wire to connect the No.4 and No.5 the two servos.
4. Use Y-wire to connect the No.6 and No.7 the two servos.

## Install on battery



Lift up tape, it removable canopy, then bundled battery with Velcro.

Before connect battery and ESC, please switch on the transmitter and check that the throttle is in the low position.



**Battery cabin size: 340×60×65mm**

Our standard battery is:

**6S 22.2V 4000mAh 35C**

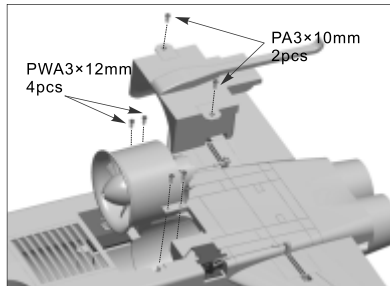
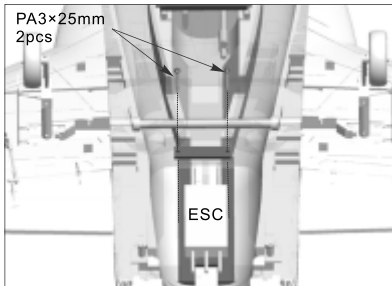
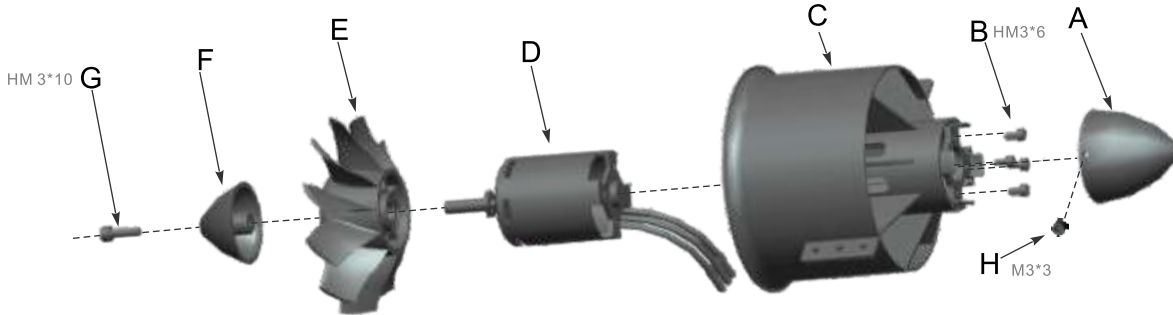
The battery capacity and discharge rate we advise is in the following:

**6S 22.2V 3700mAh ~ 6S 22.2V 5000mAh**

**Discharge rate of C ≥ 30C**

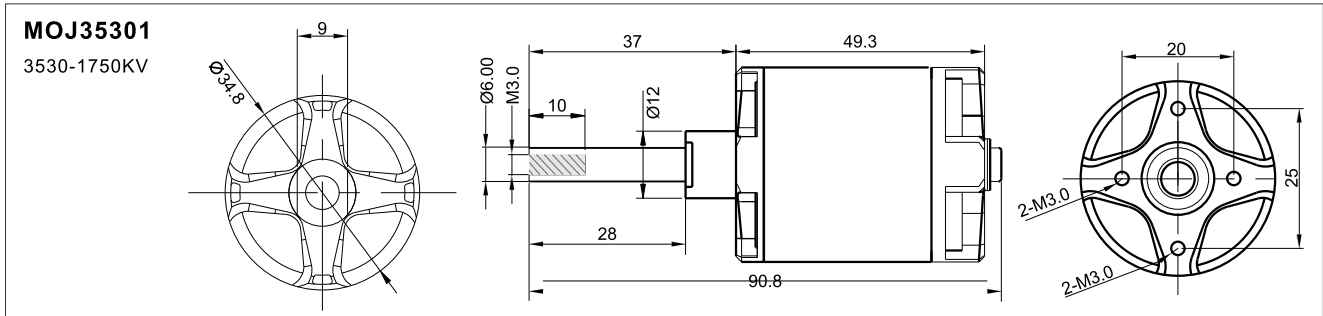
Different weight battery may affect its CG, please the correct range of CG indication.

1. Install the "motor (D)" in the "ducted fan housing (C)".
2. Fix the motor by 4pcs "cup head screws (B)".
3. Put the "rotor (E)" in the motor shaft.  
(During this process, please note the hardware platform of rotor should be alignment with the motor shaft platform)
4. Use "spinner (F)" to cover the rotor, and fix the "spinner (F)" by "cup-head-screw (G)".
5. Install the "tail air-deflector (A)" on the "bottom of ducted fan housing (C)", and use 2pcs "jimi screws (H)" to fix.



**⚠ Note:** When ESC and battery connected, prohibit to touch them by hand to avoid accidental injury. When test EDF, please use safety test stand for testing, prohibit to touch by hand for testing.

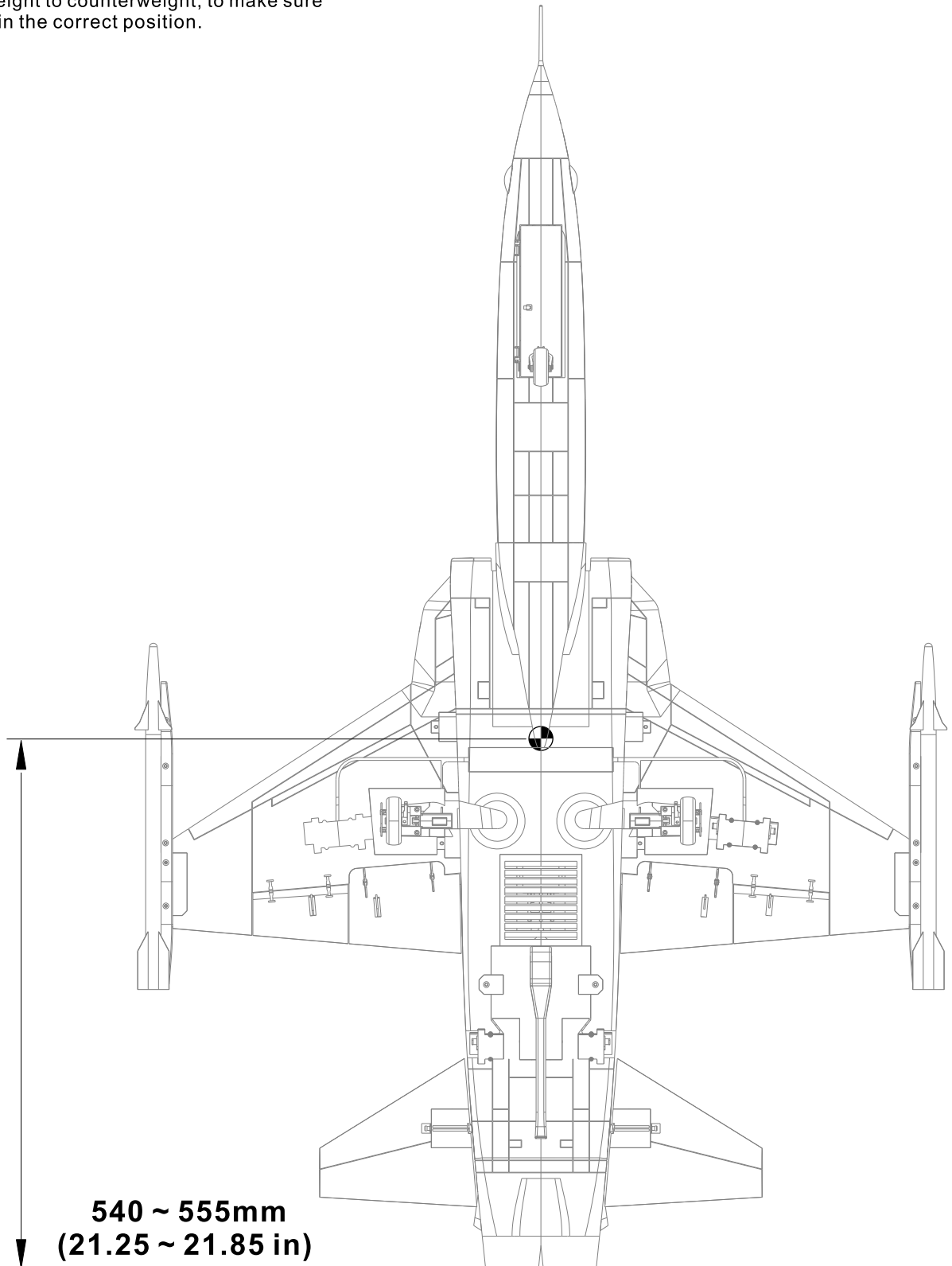
## Motor parameters



Item No.	KV Value	Volute (V)	Current (A)	Thrust (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MOJ35301	1750RPM/V	22.2	72	2600	0.0146Ω	150	4.6A/23V	12-Bladed 80mm Ducted Fan	≥ 80A

Correct center of gravity is directly related to the success of the flight, please refer to the following CG diagram to adjust your plane's center of gravity.

- You can move the battery forward or backward to adjust the center of gravity.
- If you can not adjust the CG through move the battery, you can also use some other suitable material weight to counterweight, to make sure that CG is in the correct position.



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



**Elevator**

Up Elevator



Down Elevator



**Rudder**

Stick Left



Stick Right

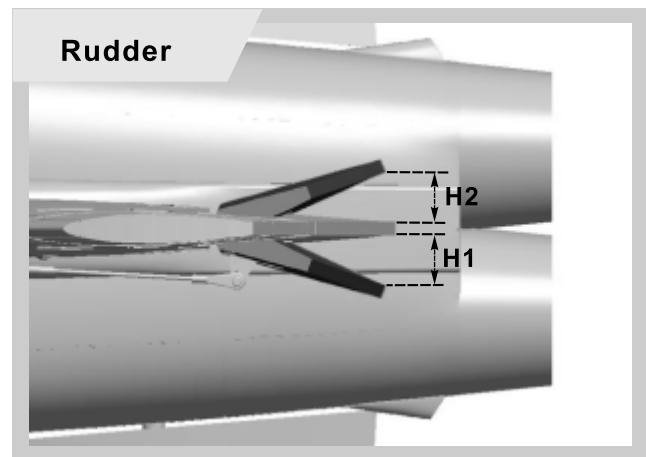
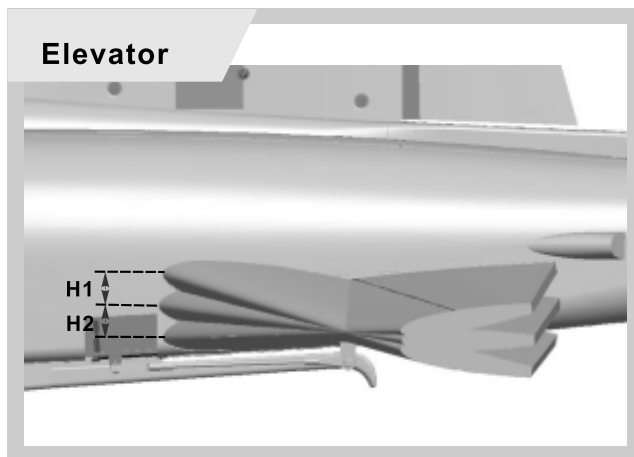
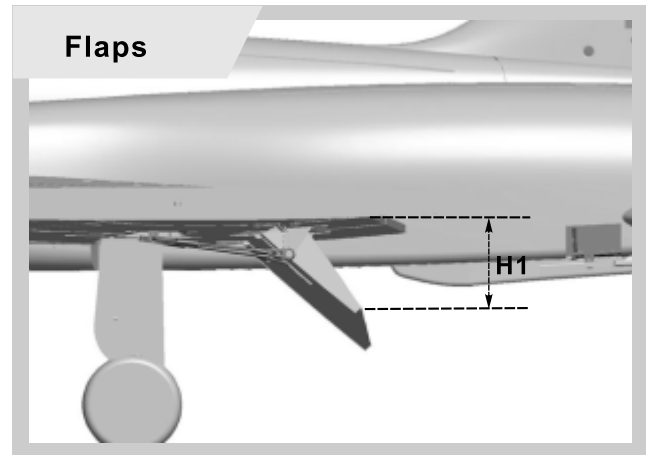
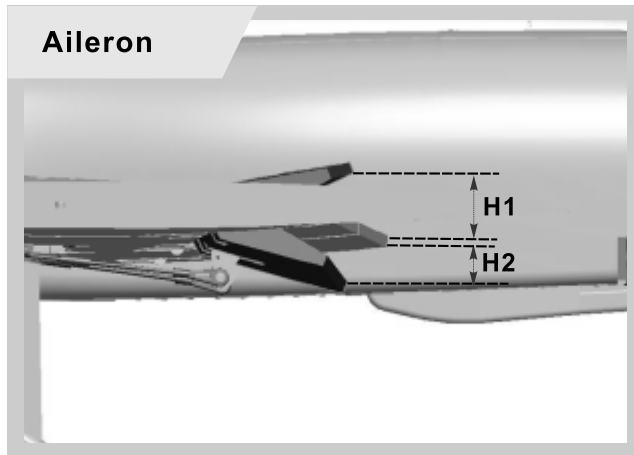


**Optional Flaps**

Flaps Down



According to our testing experience, according to the following parameters to set the aileron/elevator rate, it will be useful for flight. In low rate, its good for flight control and its suitable for the initial flight or less skilled players. According to your own circumstance, choose one rate in flight.



	Aileron	Flaps	Elevator	Rudder
<b>Low Rate</b>	H1/H2 13mm/13mm	H1 45mm	H1/H2 12mm/12mm	H1/H2 17mm/17mm
<b>High Rate</b>	H1/H2 20mm/20mm	H1 65mm	H1/H2 18mm/18mm	H1/H2 25mm/25mm

#### Landing operate experience :

When landing, we set up two flap travel. First travel is for reducing speed in air. Second travel is for landing. When switch on the flap, nose up a little to rise. So, before flight, we advise to do the mix set up, in order to avoid the interference for landing.

**Switch on the first travel, set up 12%~16% elevator down to mix and balance.**

Switch on the second travel, set up 18%~24% **elevator down to mix and balance.**

After we set like this, when landing, switch on flap, the jet can keep the stable decline state, better landing.

#### Take-off operating experience :

We recommend to set up a rate for nose steering servo. When the jet run up and take-off, we recommend to set 55% low rate. Thus, when corrected the roll direction, the movement is not large, and jet is not easy to rollover. After take-off, switch to 100% high rate.



**Note:**

Correct elevator installing angle is very important for success flight. Please refer to the left photo to install the elevator installing angle.

**Troubleshooting Guide**

Motor does not turn on	A) Li-Po battery depleted	A) Recharge Li-Po battery
	B) Transmitter batteries depleted	B) Replace or recharge batteries
	C) Transmitter not turned on	C) Turn on transmitter
	D) Li-Po battery not plugged in	D) Plug in Li-Po battery
	E) Motor not armed	E) Arm motor
	F) A crash has damaged an internal component	F) Replace
	G) ESC or other damaged	G) Check ESC or contact local distributor
Cub is difficult to control	A) You are flying in too much wind	A) Fly when there is no wind
	B) Li-Po battery depleted	B) Recharge Li-Po battery
	C) Transmitter batteries depleted	C) Replace or recharge batteries
	D) Transmitter antenna not extended completely	D) Extend transmitter antenna completely
	E) Surface control rate is too high	E) Use low rate to fly
The nose always move down when fly, always need to up elevator	A) CG is forward	A) Adjust CG backward refer to instruction
Cub constantly climbs or descends, or turns right or left without control input	A) The aircraft is out of trim adjustment	A) Adjust the transmitter trim tabs
	B) You are flying in too much wind	B) Fly when there is no wind
Elevator is too flexible, up and down is not stable	A) CG is backward	A) Adjust CG forward refer to instruction
Plane will be slant when taxi on the runway	A) Nose gear is not center.	A) Center nose gear
	B) Rudder is not center.	B) Center rudder
Take off is difficult	A) Thrust is not on the high position	A) Thrust is on the high position
	B) Taxi distance is not enough	B) Long taxi distance
	C) Elevator rate is not enough high	C) Use high rate of elevator
Cub will not climb	A) Li-Po battery is depleted	A) Recharge Li-Po battery
	B) Ducted fan is damaged	B) Check and replace ducted fan
	C) Motor is damaged	C) Check and replace motor
	D) ESC overheat protection, power reduction.	D) Landing firstly, check and select a more powerful ESC
Li-Po battery is slightly warm after charging	A) This is normal	A) The Li-Po battery may be slightly warm when fully charged. It should not be hot to the touch.
Motor vibrates excessively	A) Ducted fan is damaged	A) Check and replace ducted fan
	B) Motor is damaged	B) Check and replace motor
	C) Ducted fan is not balance	C) Adjust the ducted fan balance
	D) High speed will happen slightly vibrate	D) Its normal to use
Control surface move the wrong direction	A) Servo direction is reversed	A) Adjust servo reversing function



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**HK Freewing Model International Limited**

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Tel: 86-769-82669669 Fax: 86-769-82033233