JL-8

卡拉昆仑·教练机
KARAKORUM

使用说明书 70 mm EDF jet

MADE IN CHINA

Freewing K-8 introduction

Thank you for purchasing our Freewing 70mm EDF super scale trainer Jet K-8. Before you assemble this jet,please carefully read instructions and follow the correct process for assembly and adjustment. If you encounter problems during assembly and debugging, please first resolve them by instruction. If the problem persists, please contact the distributor or directly contact us.

The K-8 "Karakoram" is a subsonic jet trainer jointly developed by China's Hongdu Aviation Industry Group and Pakistan's aerospace consortium, with attack capabilities. The Chinese version is designated as the JL-8. Since its design approval in 1992, over 300 units have been produced and exported to 14 countries and regions, making it a standout product in the international trainer market and laying a solid foundation for China's aviation products to gain global recognition.

The Freewing K-8 scale model jet uses EPO material, length is 1238mm, wing span is 1130mm with precise contour replication. The details of various sensors in the nose section are lifelike. The aircraft contains three LED navigation lights, distributed at the tips of the left and right main wings and the top of the vertical tail. In addition, the Red Eagle performance team painted in red, white, and blue colors greatly enhanced the aircraft's attitude recognition in the air.

The product structure design ensures strength while also considering convenience and durability. The main wing adopts the QUICK II second-generation screw-less portable install structure design, while the tail wing components are fixed with mechanical screws. The interior of the main wing, vertical tail, and horizontal tail is embedded with carbon fiber tubes, effectively enhancing the strength of the wing. The control surface with plastic hinges is stable and firm, and the rotation process is smoother. The sturdy plastic control surface arm and ball joint pull rod provide a solid guarantee for flight control. The new split cabin structure design is adopted to remove the foam cabin floor, seats and instrument panel without damage, which is convenient for DIY modification.

The Freewing K-8 adopts a dual specification power cabin design, and the factory PNP version is equipped with the Freewing high-power 70 series 12 blade power set (2957-2210KV brushless motor), 80A ESC. PNP weighs 1797 grams (including mounting weight of 42 grams), with a battery range of 6S 3300~5000mAh, and a maximum horizontal flight speed is 170KM/H.

Removing the power compartment mezzanine, replacing it with a higher ESC (100A), and installing any specification of the Freewing 80 series power system can expand it into an 80mm EDF model jet, bringing faster speed and a more intense flying experience. When using the 6S 5000mAh 50C battery, the wing load is 105g/dm2, and the maximum horizontal flight speed is increased to 205KM/H.

The Freewing K-8 basic version is suitable as an entry-level ducted aircraft. It has excellent roll static stability and low-speed flight capability, and can maintain a stable flight attitude at extremely low airspeed. Even if the lift is insufficient due to various reasons, the aircraft will not suddenly enter a stall spiral state, but rather show a mild stall precursor with a slight nose sinking, which is easy to change and restore stable flight. Or due to excessive elevation angle, stall and rollover may generate a recovery torque, gradually reducing the rollover angle.

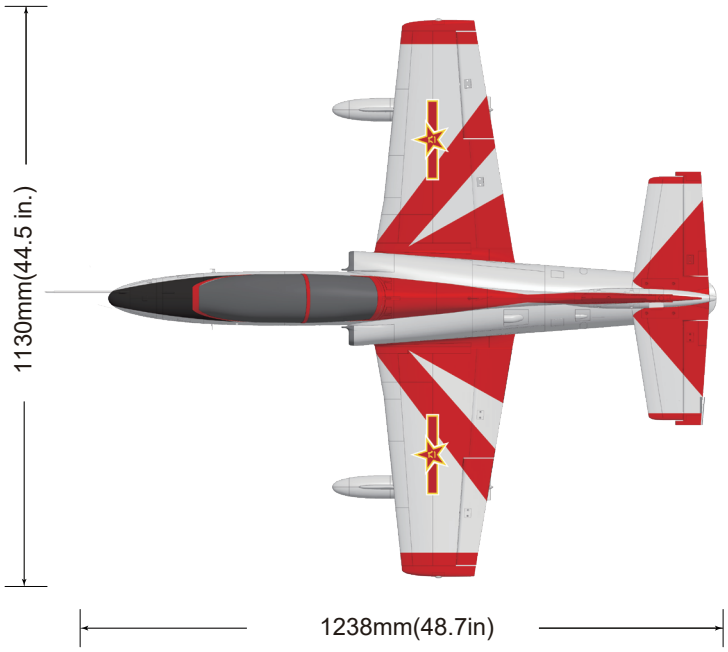
Overall, this K-8 EDF trainer jet has excellent flight maneuverability and a low entry barrier, making it the preferred choice for novice ducted aircraft beginners; At the same time, the upper limit of control is high, meeting the advanced practice needs of experienced players. Classic movements such as side flight and reverse flight are easy to control.

Note:

1.This is not a toy! Operater 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 combustionand 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.

⚠ **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.

Product Basic information



Standard Version

Wingload：92g/dm²
Wing Area：25.2dm²
Servo：9g Hybrid digital servo(8pcs)
9g Digital plastic servo(1pcs)

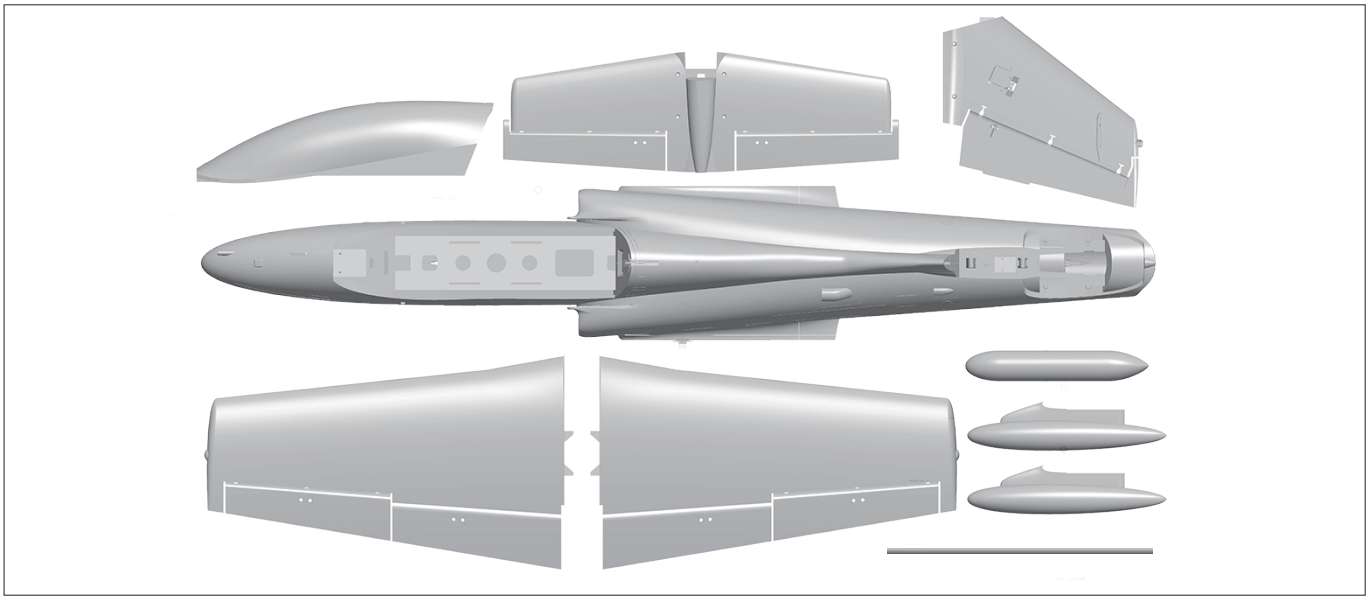
Motor：2957-2210KV I/R Motor
Ducted fan：70mm 12-blade fan
ESC：80A Brushless
Weight：1755g(w/o Battery w/o Missiles)

Other Notes

Landing gear：Electric landing gear
Li-Po Battery：6S 3300-5000mAh
Cabin doors: Nose gear electric cabin door
Other: LED navigation lights

⚠ 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 a ccessories, 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
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo
2	Main wing	Pre-installed all electronic parts	Pre-installed servo
3	Vertical tail	Pre-installed all electronic parts	Pre-installed servo
4	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo
5	Engine compartment	√	√

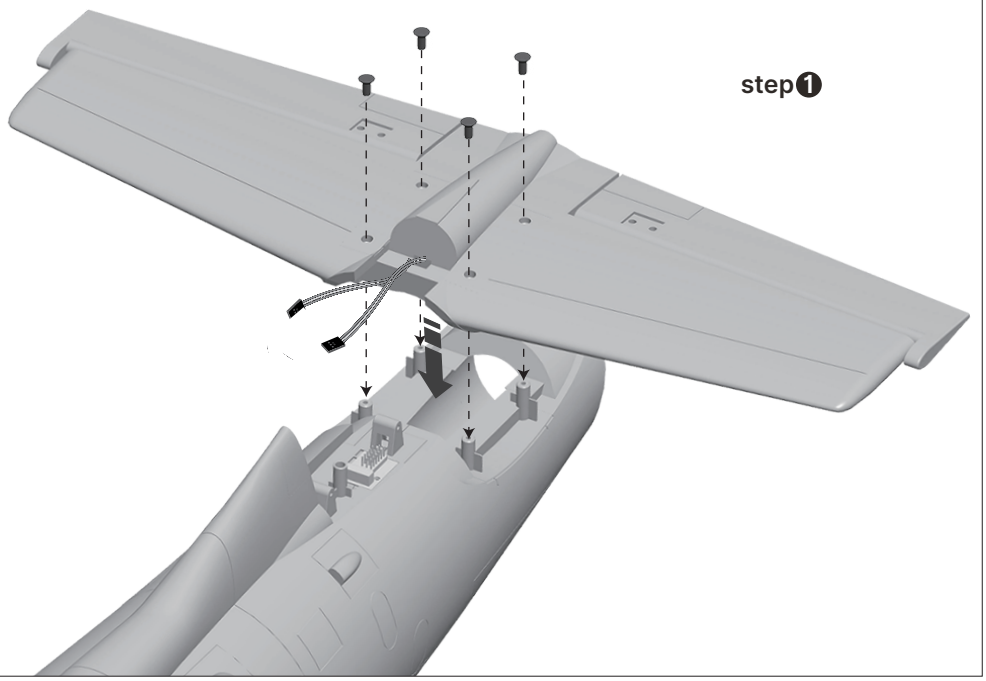
No.	Name	PNP	ARF Plus
6	Carbon tube	√	√
7	Drop tanks	√	√
8	Annex bag	√	√
9	Manual	√	√

Install Horizontal tail

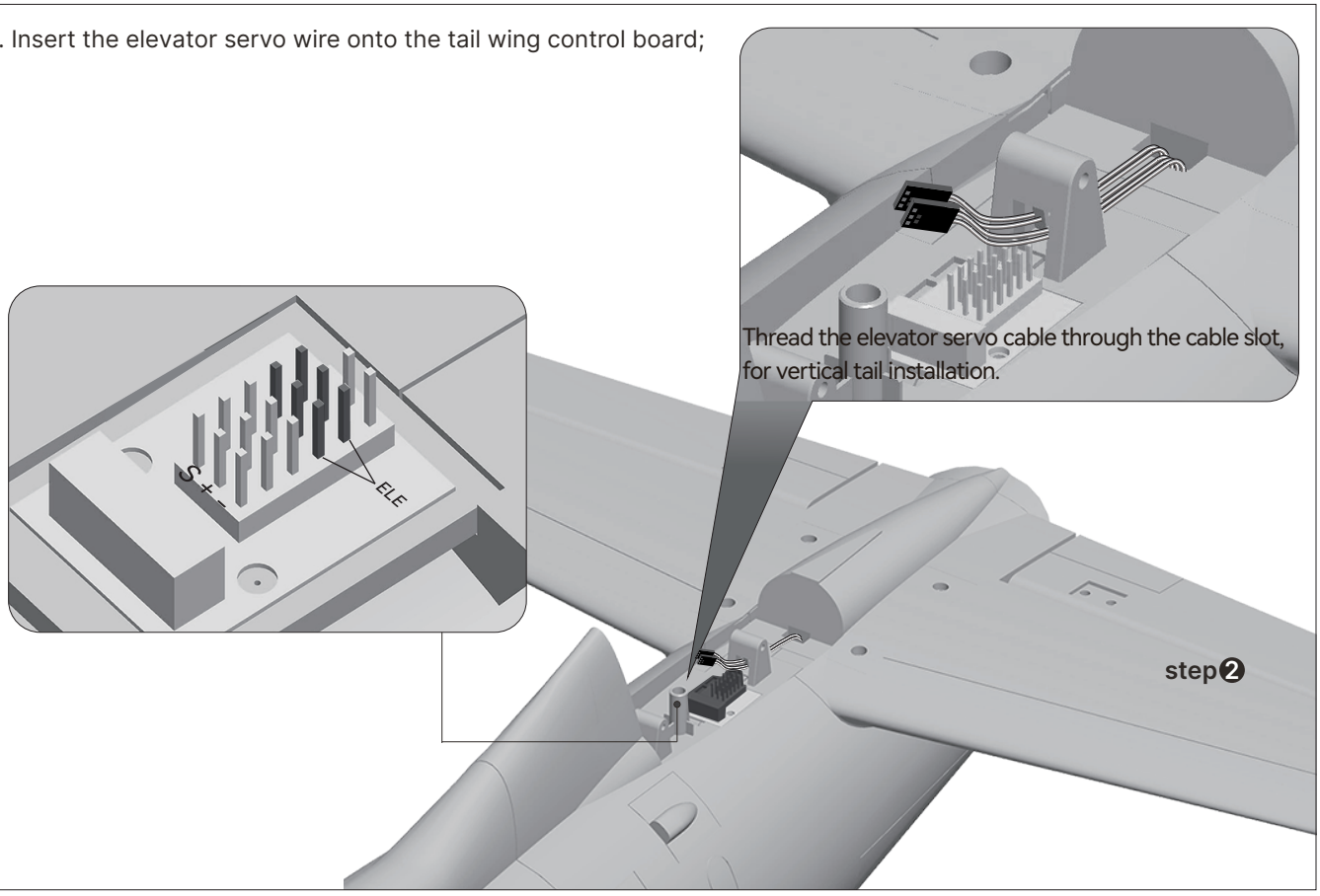
As the photo show:

1. Align the Horizontal tail with the fuselage and push it into the installation position on the fuselage
2. Then tighten with screws;

Screw (KM 3*7mm 4PCS)



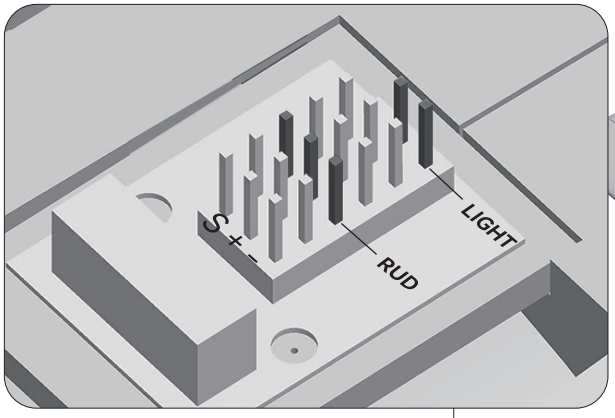
3. Insert the elevator servo wire onto the tail wing control board;

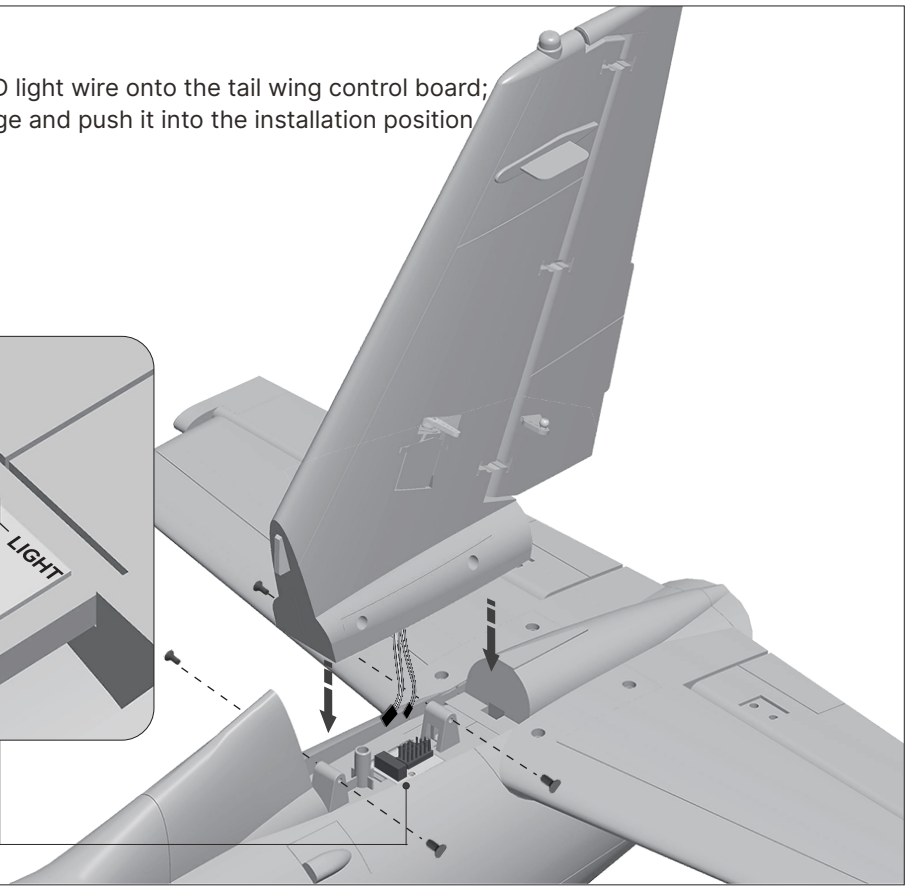


Install Vertical tail

1. Insert the rudder servo wire and LED light wire onto the tail wing control board;
2.Align the vertical tail with the fuselage and push it into the installation position on the fuselage
3.Then tighten with screws.

Screw (KM 3*7mm 4PCS)





Install Main Wing

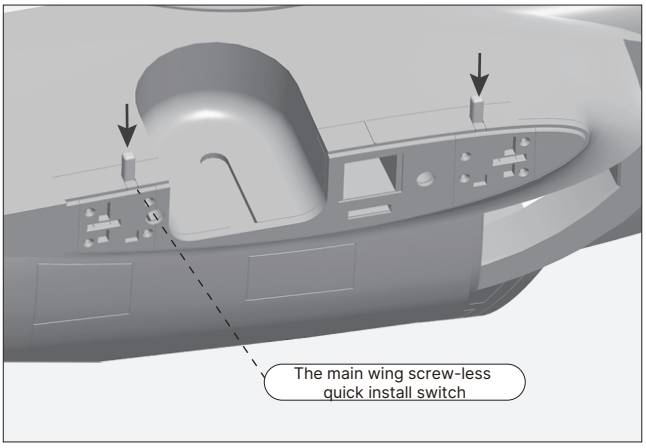
As the photo show:

1. Press the fuselage screw-less quick install switch to unlock it❶;

❶ Two different status diagrams of the main wing screw-less quick install switch:（The working mode is to press the button to the bottom and release it. The button pops up to the highest position, which is the unlocked status.Once the button is pressed to the bottom again and released, but the button does not pop up, which is the locked status）

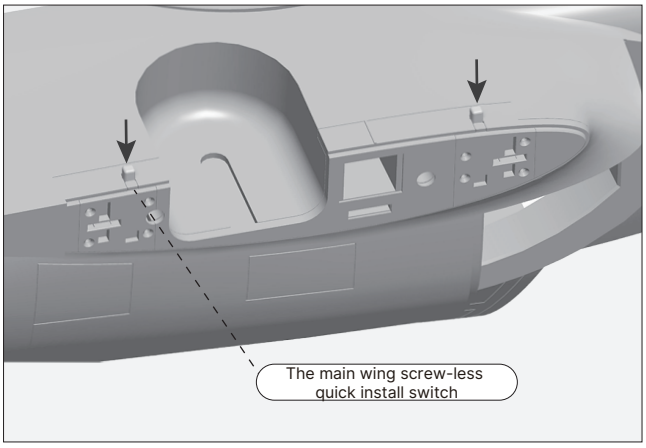
Unlock status

As shown in the following photo:
Press the main wing screw-less quick install switch to the bottom and release it. The button pops up to the highest position, indicating that the main wing has been unlocked and can be easily removed and installed.



Lock status

As shown in the following photo:
After installed the main wing, press again the main wing screw-less quick install switch to the bottom and release it. If the button does not pop up, it is the locked status. At this point, pull the main wing outward and can not remove it.



Install Main Wing

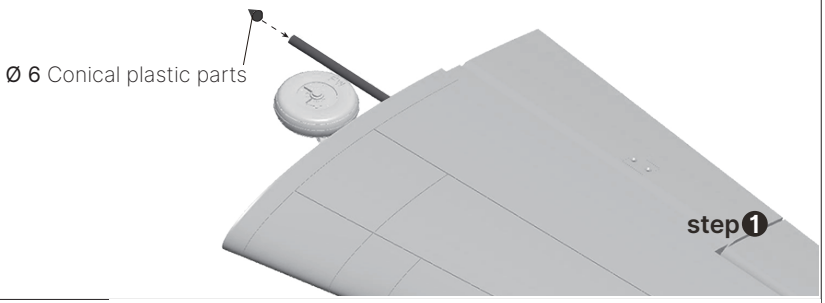
1. Use glue to fix the【 Conical plastic part 】on carbon tubes respectively;

Carbon tube (Ø6*500mm 1PCS)

Conical plastic parts (Ø6mm 2PCS)

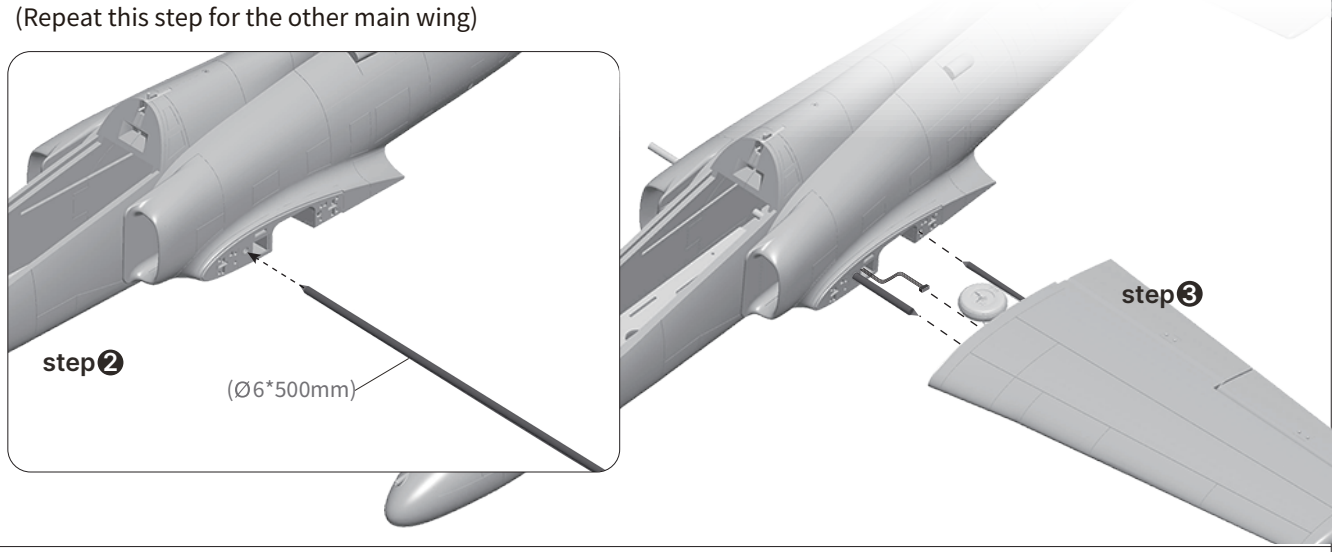
2. Use glue to fix the【 Conical plastic part 】on two carbon tubes of the main wing respectively.;

Conical plastic parts (Ø6mm 2PCS)

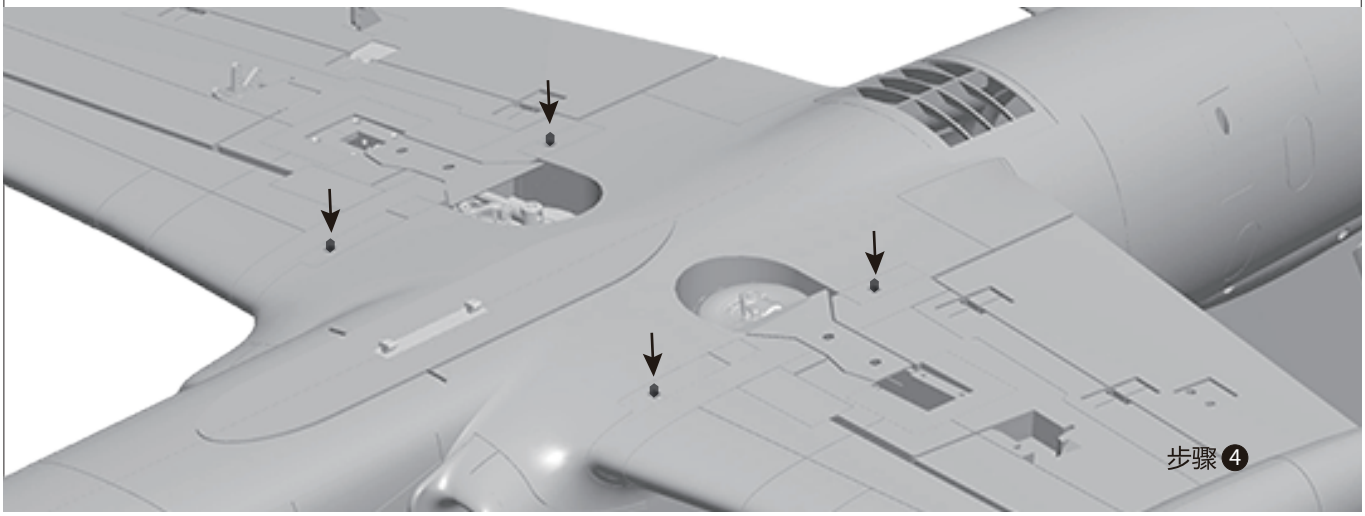


3. Install the carbon tube on the fuselage;

4. Align the main wing carbon tube with the fuselage, remove the ribbon cable from one end of the fuselage, connect it to the main wing slot, and push the main wing into the installation position of the fuselage; (Repeat this step for the other main wing)

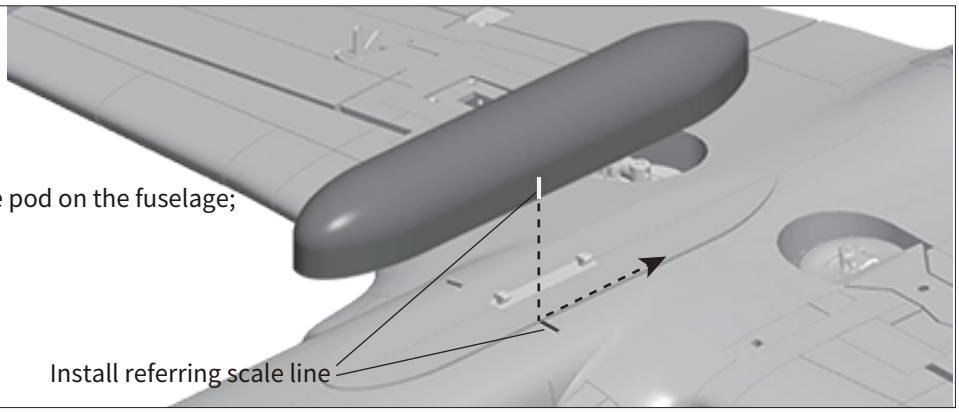


5. Press 4pcs main wing screw-less quick install switch, put it in the locked status.

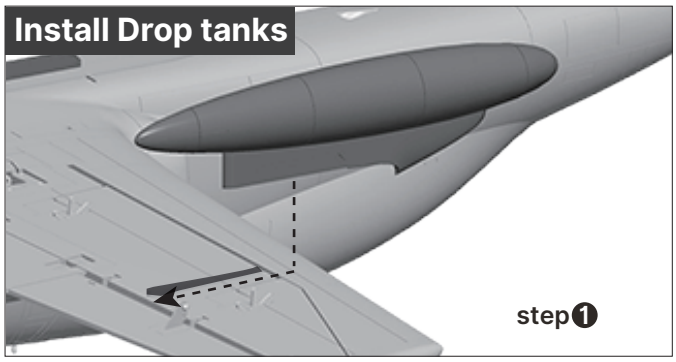


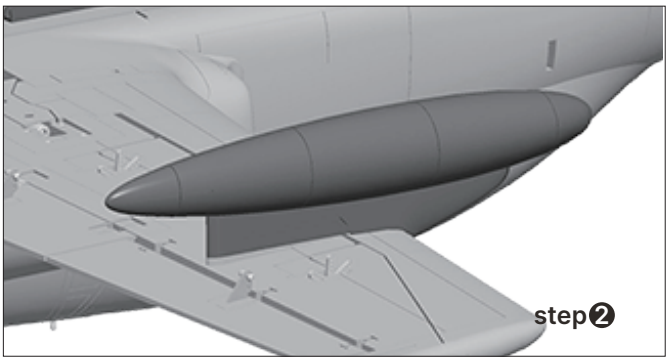
Install Electric Pod

1.As shown in the figure, install the pod on the fuselage;

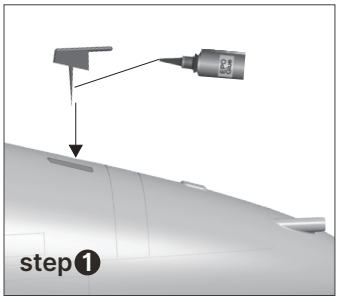


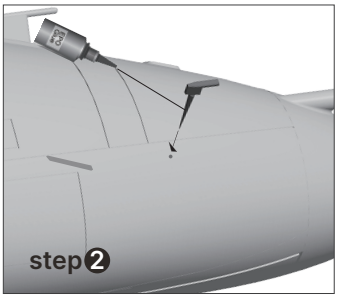
Install Drop tanks

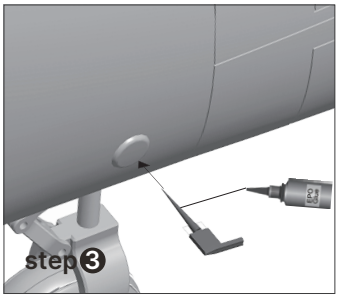


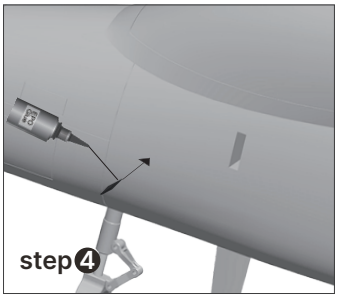


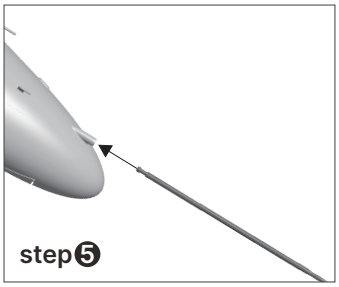
Install Accessories

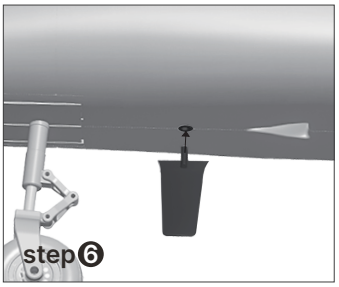


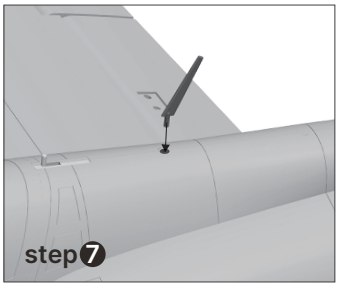


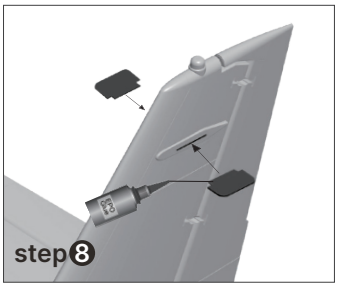






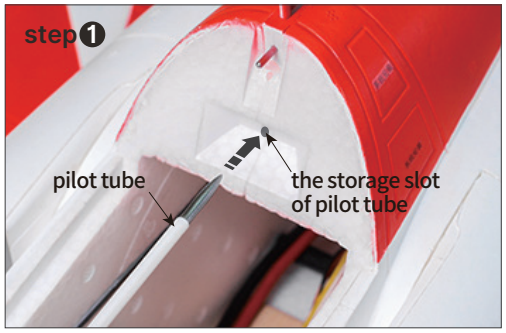


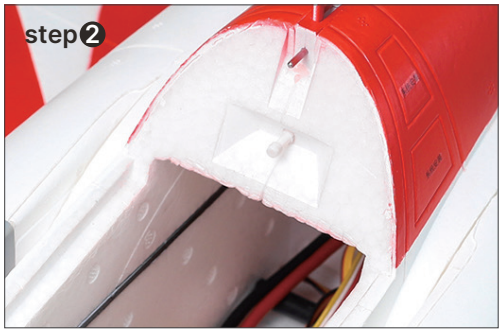




Pitot tube

Open the battery compartment cover and insert the pitot tube into the storage slot to prevent damage during transportation.

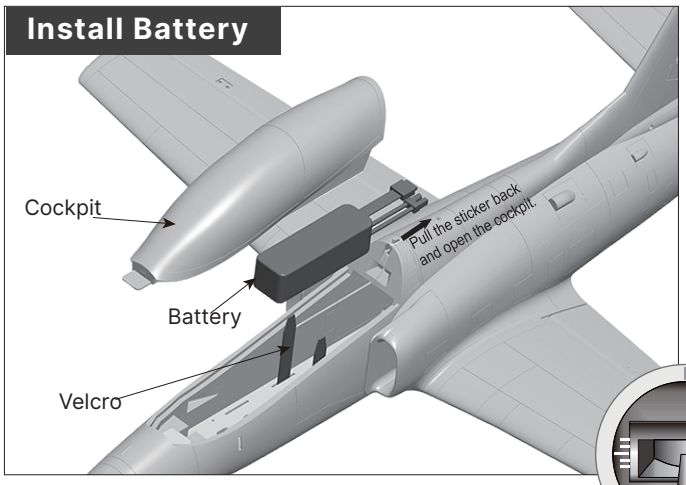


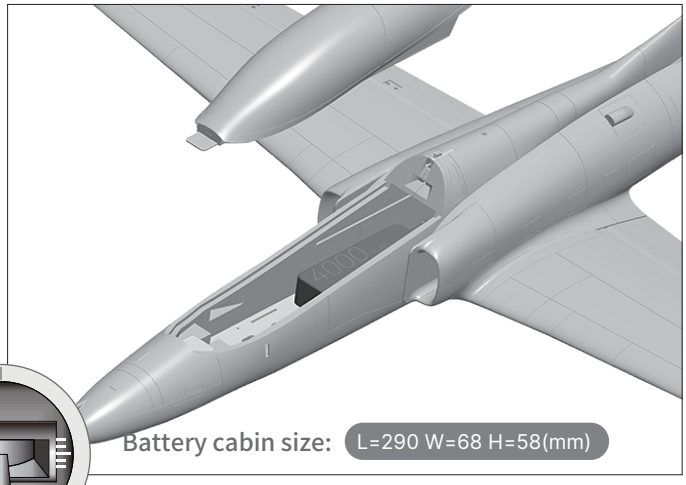


Decal Reference

The sticker on the other
side corresponds to this position

Install Battery



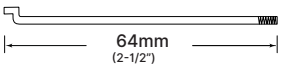


Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.

We recommend the following LiPo battery:
6S 22.2V 3300mAh~6S 22.2V 5000mAh (1pcs)
Discharge rate of C ≥40C

Pushrod Instructions

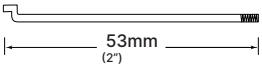
Flap pushrod length



Pushrod diameter Ø 1.2mm

Flap pushrod mounting hole(Inside)

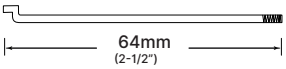
Aileron pushrod length



Pushrod diameter Ø 1.2mm

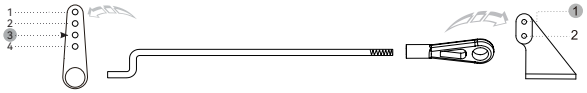
Aileron pushrod mounting hole

Elevator pushrod length

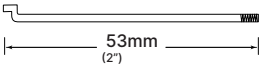


Pushrod diameter Ø 1.2mm

Elevator pushrod mounting hole



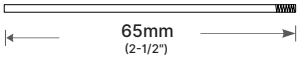
Rudder pushrod length



Pushrod diameter Ø 1.2mm

Rudder pushrod mounting hole

Nose gear steering pushrod length



Pushrod diameter Ø 1.5mm

Nose gear steering pushrod mounting hole

Nose Cabin door pushrod length

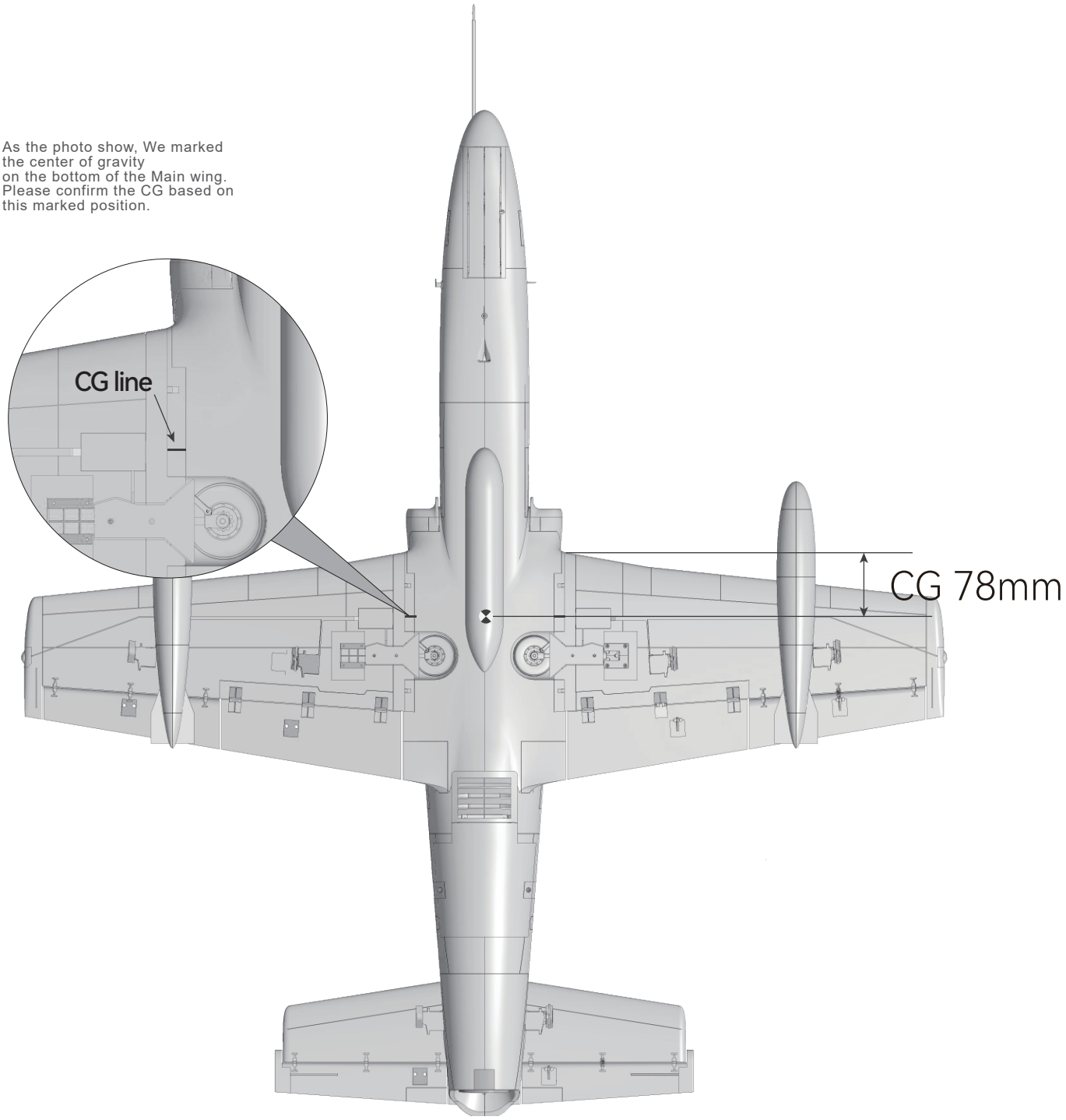
Pushrod diameter Ø 1.2mm

Nose cabin door pushrod mounting hole

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 choosen 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.



After installed this K-8 model plane, please connect to the receiver and power on, then adjust it.

1.When all channels of radio are fine tuned to zero and the control stick is centered: check whether each control surface on the aircraft is in the center position. If it is found that the control surface is not in the center position, please adjust the control rod to center it;

2.Please refer to the diagram below and use the radio to test each control surface to ensure that its movement direction matches the diagram. If the opposite movement occurs, first check whether the relevant channel in the radio has enabled the reverse function; If the problem persists, please contact us for assistance in resolving it.

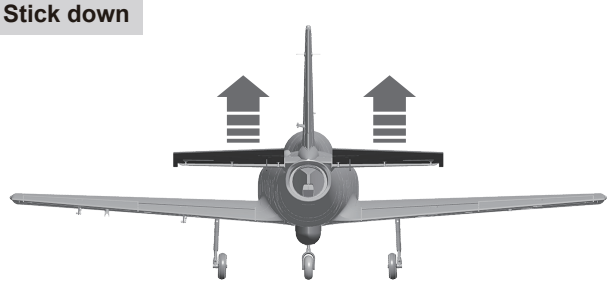
Aileron

Stick Left

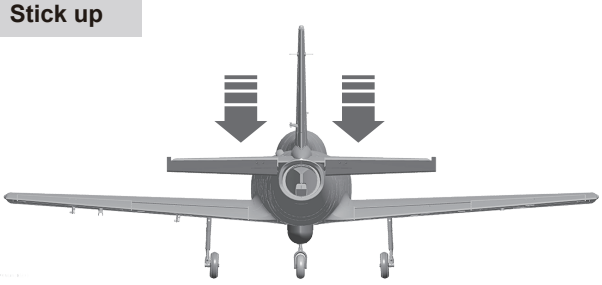
Stick Right

Elevator

Stick down

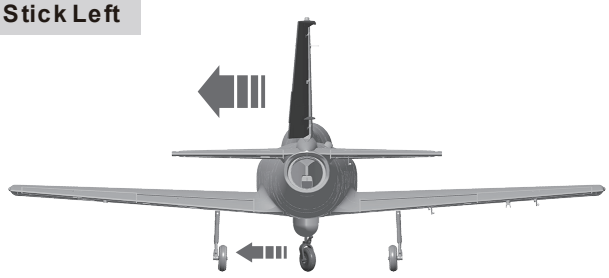


Stick up

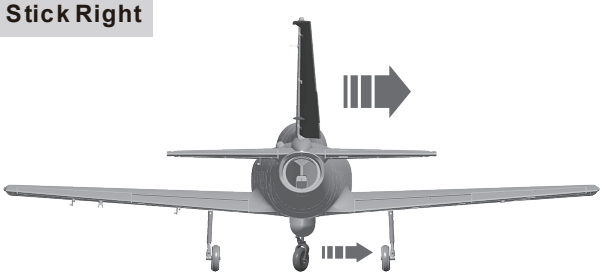


Rudder

Stick Left

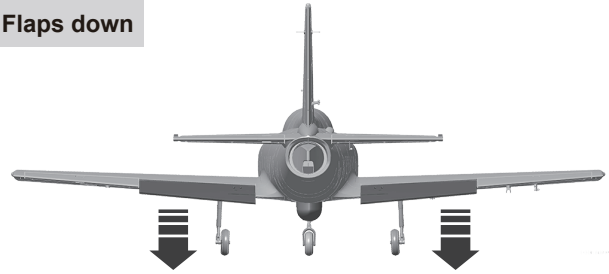


Stick Right



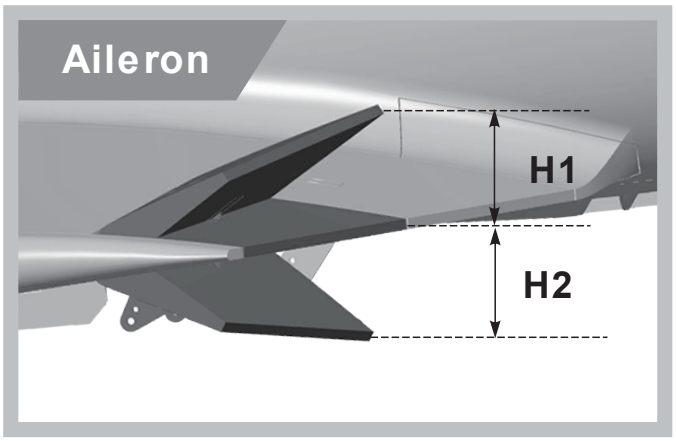
Flaps

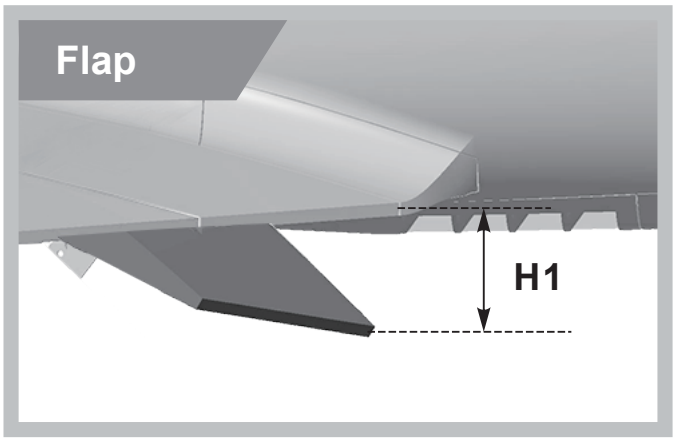
Flaps down

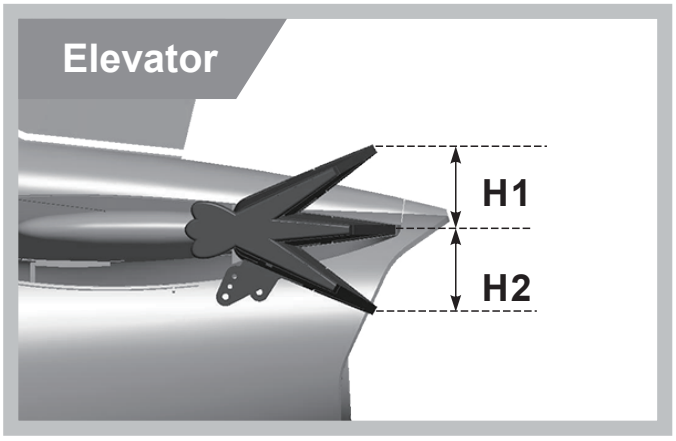


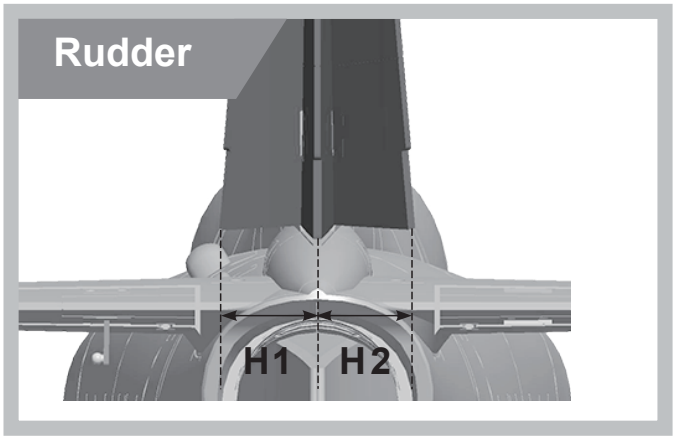
Dual Rates

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 Measured closest to the fuselage
Low Rate	H1/H2 22mm/22mm D/R Rate: 80%	H1/H2 16.5mm/16.5mm D/R Rate: 80%	H1/H2 28mm/28mm D/R Rate: 80%	H1 19mm
High Rate	H1/H2 26mm/26mm D/R Rate: 100%	H1/H2 20mm/20mm D/R Rate: 100%	H1/H2 34mm/34mm D/R Rate: 100%	H1 34mm

⚠ Flight Attention:

1.Elevator position

When fly with full throttle, the aircraft will change its flight direction and fly upwards. In order to better control the aircraft, we suggest setting a 1mm elevator down on the remote control, as shown in the figure on the right!

2. Flap-elevator mix parameter

When deploy the flap, the jet will change the flight direction, it will fly up the sky.In order to operate better,we advise you set the"Flap-elevator mix"in radio.In this case, when you deploy the flap, the jet don't change its flight.

The detail is as below:

With low rate flaps deployed, mix 0.8mm of DOWN elevator.

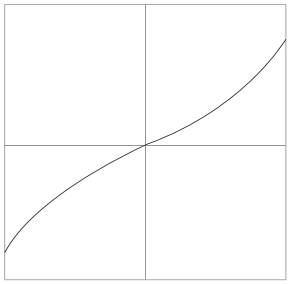
With high rate flaps deployed, mix 1.5mm of DOWN elevator.

At last, according to your operating, you can increase or reduce its rate

Pre-Installed Component Overview

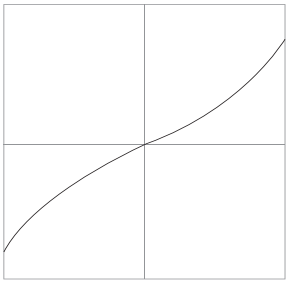
Remote Control EXP Setting Suggestion

1.Aileron EXP curve is shown as below :



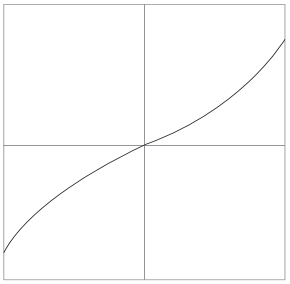
Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

2.Elevator EXP curve is shown as below :



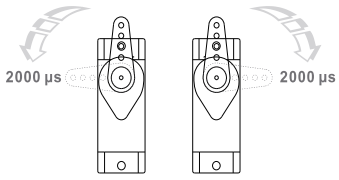
Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

3.Rudder EXP curve is shown as below :

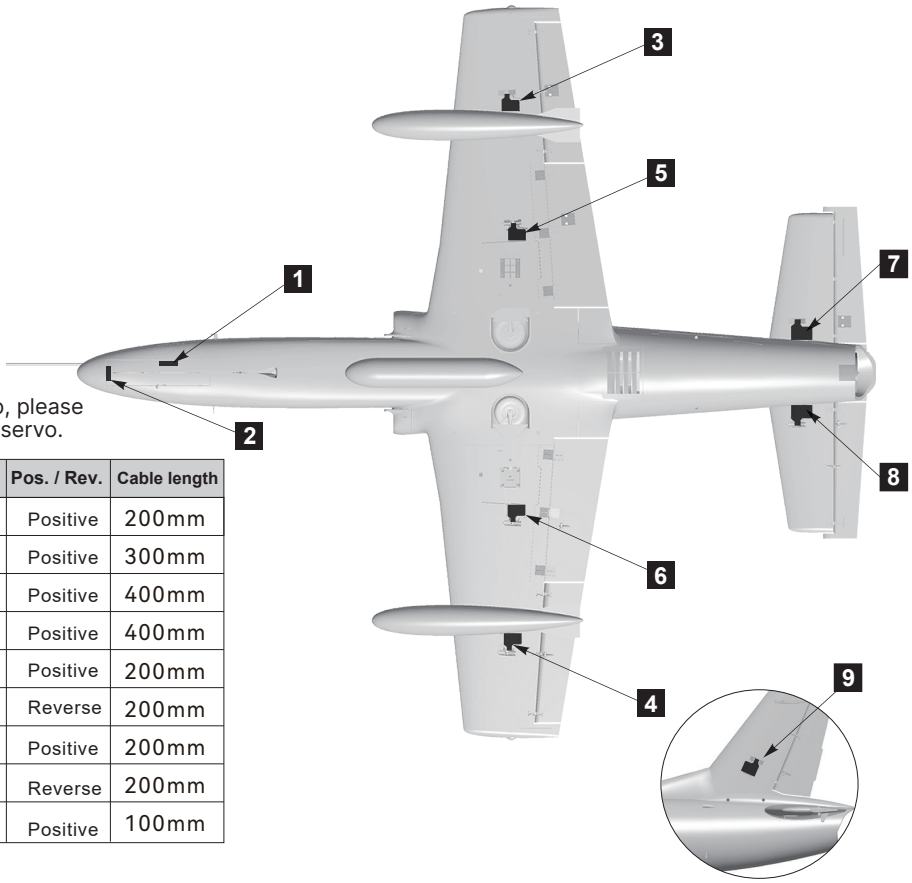


Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

Servo Direction



The servo positive or reverse rotation is defined as follows:
When servo input signal change from 1000µs to 2000µs,
The servo arm is
rotated clockwise, its **positive servo.**
The servo arm is
rotated counterclockwise, its **reverse servo.**

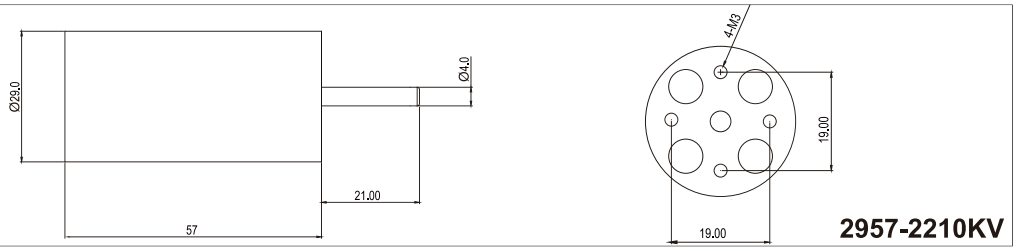


If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos. / Rev.	Cable length
Nose gear steering servo	9g Digital-Hybrid	1	Positive	200mm
Nose cabin door	9g plastic servo	2	Positive	300mm
Aileron(L)	9g Digital-Hybrid	3	Positive	400mm
Aileron(R)	9g Digital-Hybrid	4	Positive	400mm
Flap(L)	9g Digital-Hybrid	5	Positive	200mm
Flap(R)	9g Digital-Hybrid	6	Reverse	200mm
Elevator(L)	9g Digital-Hybrid	7	Positive	200mm
Elevator(R)	9g Digital-Hybrid	8	Reverse	200mm
Rudder	9g Digital-Hybrid	9	Positive	100mm

Motor Specification

Item No.MI029571
2957-2210KV



Item No.	Motor size	Motor(KV)	Thrust(g)	Current(A)	Use Voltage (V)	Use ESC (A)	EDF Weight (g)	Max power (W)	Efficiency (g/w)
E7218	2957 2210KV	2210KV	2600	70	22 2 (6S)	80	240	1550	1 68

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