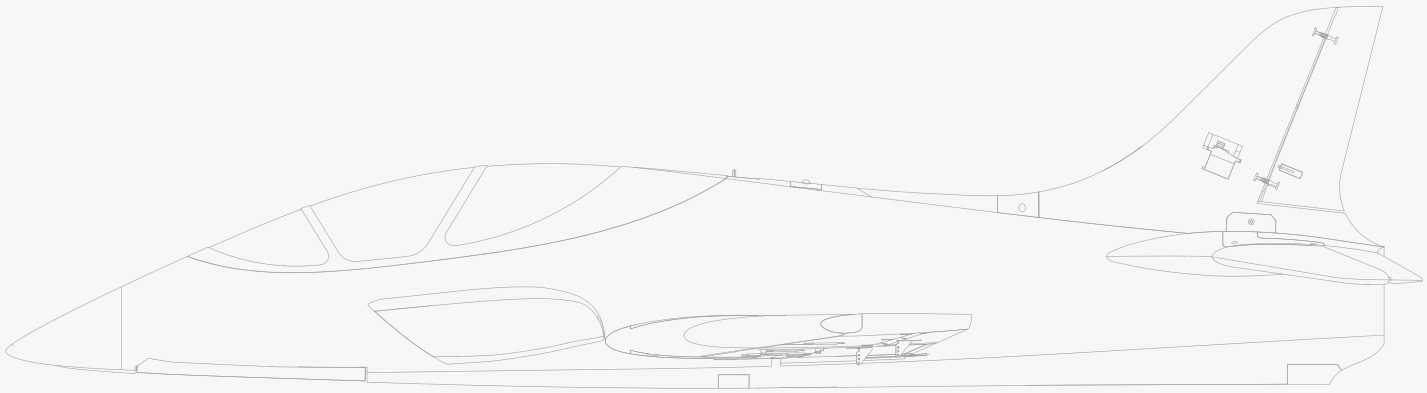
Avanti S

USER MANUAL

WINGSPAN:1236MM (48.7 in)
LENGTH:1300MM (51.2 in)

80mm EDF Sport Jet
DESIGN APPROVED BY SEBASTIANO SILVESTRI



www. sz-freewing. com

MADE IN CHINA

Introduction

Thank you for purchasing our Freewing 80mm EDF jet Avanti S, this original jet is designed from the famous Italian F3A world champion Sebart, a fiberglass turbo jet. We got Sebart's authorization, and design approved by Sebastiano silvestri, we re-design it as a small good electric sport jet, let more customers enjoy this excellent jet. New Avanti S use EPO material, length is 1300mm, wingspan is 1236mm. Use the control board, is easier for assemble/disassemble and easy to carry. And new Freewing 80mm 12-blade EDF power system with 100A ESC can bring you very strong power in flight.

Avanti S has excellent flight stability and easy to operate kinds of F3A aerobatics. When landing in low speed, it can keep very stable and the player can operate easy and gentle landing. This Avanti S electric sport jet model suit for the players who love aerobatics, also it is an excellent primary trainer of EDF jet.

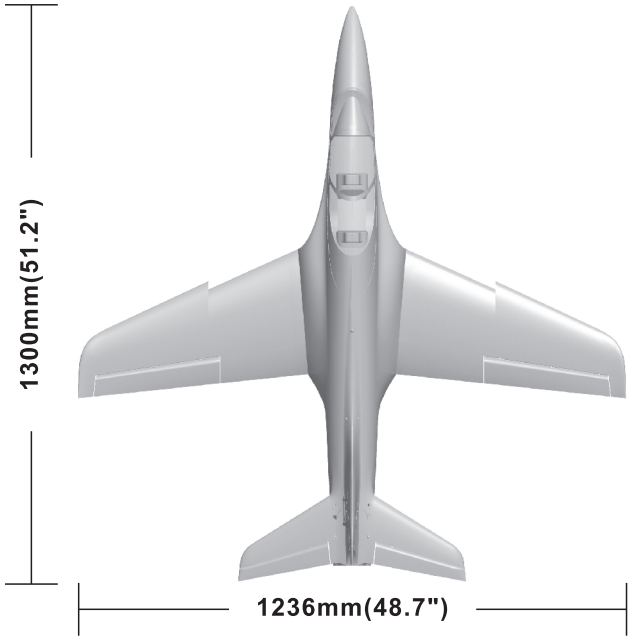
⚠ **NOTE:** This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

Note:

1. This is not a toy! 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 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.

Catalog

Product basic information



Standard version

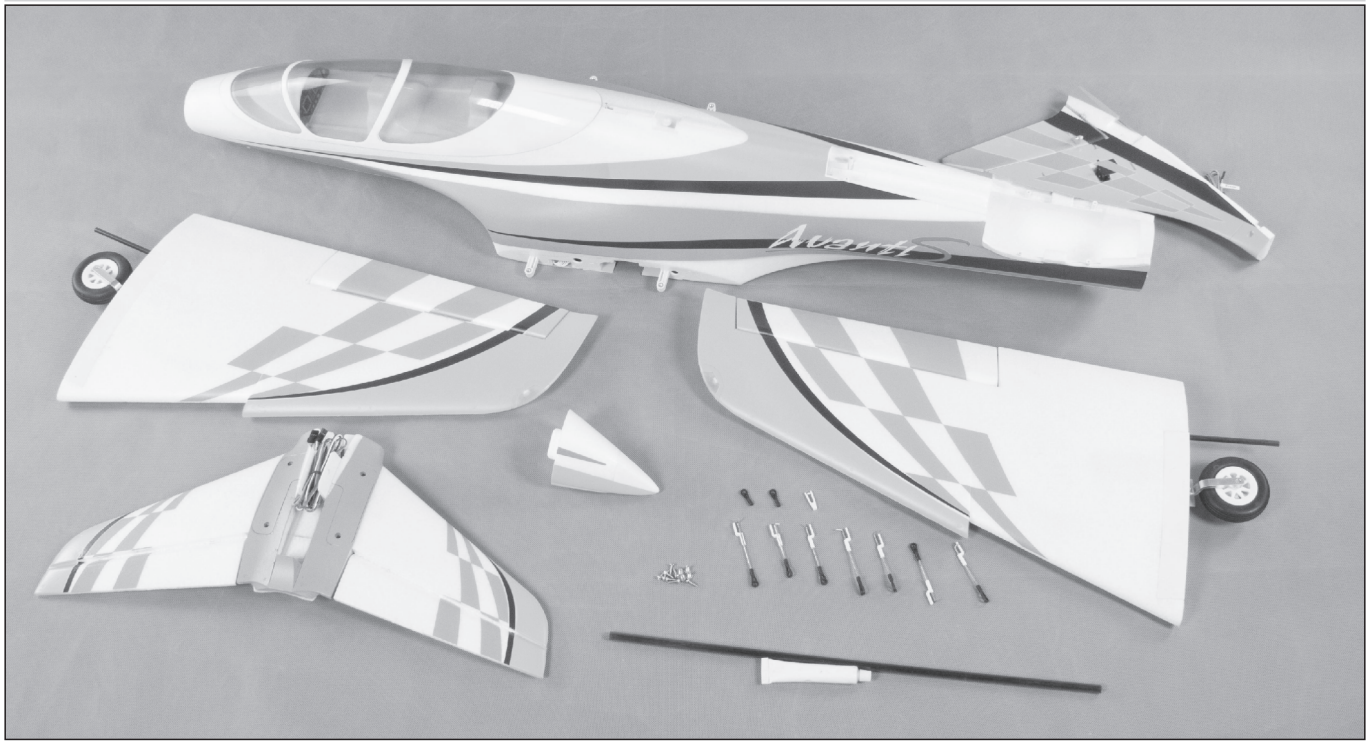
Wing loding : 93.5g/dm^2
Motor : 3530-1850KV
brushless outrunner motor
Ducted fan : 80mm 12-blade ducted fan
ESC : 100A brushless ESC UBEC 5A
Servo : 9g digitalmetal gear servo (8pcs)
Weight : 1920g(w/o Battery)
Thrust : 3300g

Other features

-Retract landing gear controlled by electric worm
-New aluminum shock absorber landing gear
-Front,rear landing gear cabin door
- LED light

⚠ 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



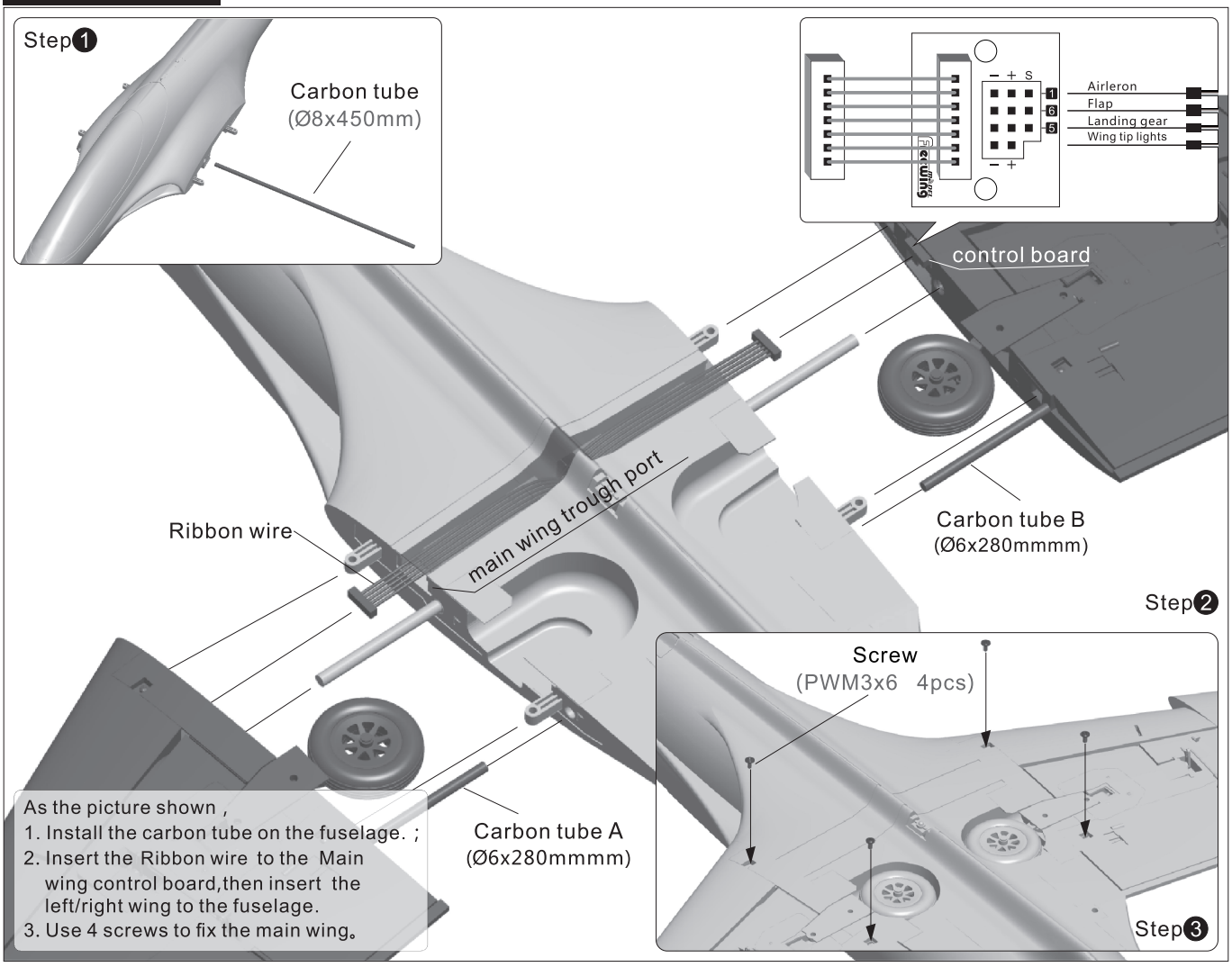
Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

No.	Name	PNP	ARF Plus	Airframe
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
3	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
5	Nose cone	√	√	√

No.	Name	PNP	ARF Plus	Airframe
6	Linkage Set	√	√	√
7	Carbon tueb	√	√	√
8	Carbon tube	√	√	√
9	Glue	√	√	√
10	Screw	√	√	√

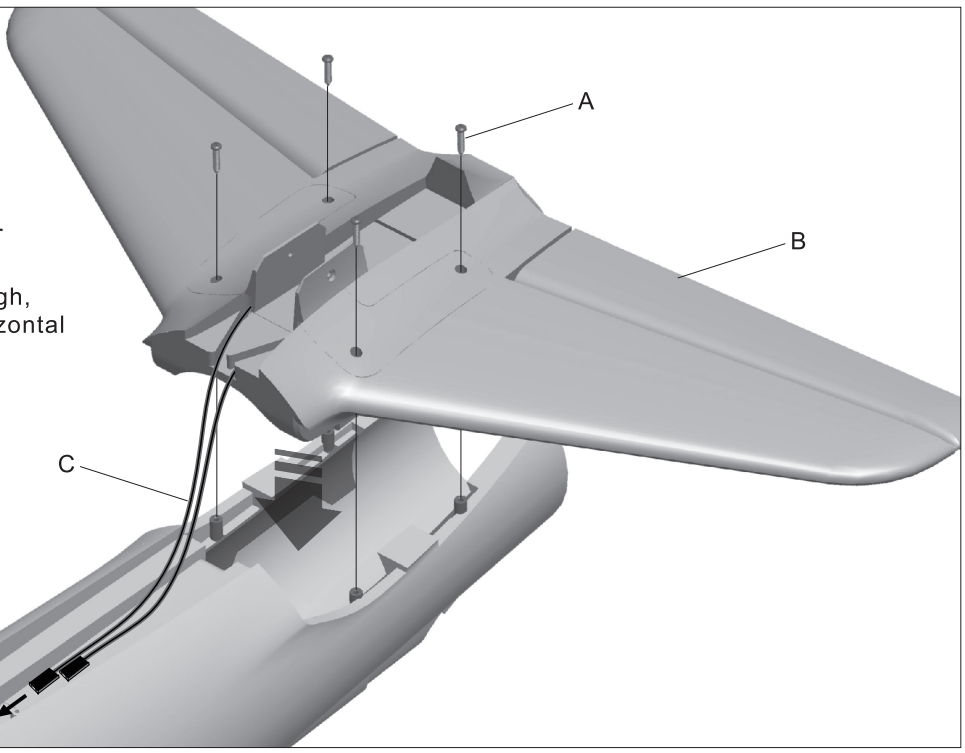
PNP Install instructions

Install Main wing



As the picture shown ,
1. Install the carbon tube on the fuselage. ;
2. Insert the Ribbon wire to the Main wing control board,then insert the left/right wing to the fuselage.
3. Use 4 screws to fix the main wing。

Install Horizontal tail



As the picture shown,
1. Through the fuselage, put the two pcs servo cables in the battery compartment, insert it on the elevator pin of control board.
2. Install the horizontal Stabilizer on the rear of fuselage ;
3. Put the servo cable to the trough, use 4pcs screws to fix the horizontal Stabilizer。

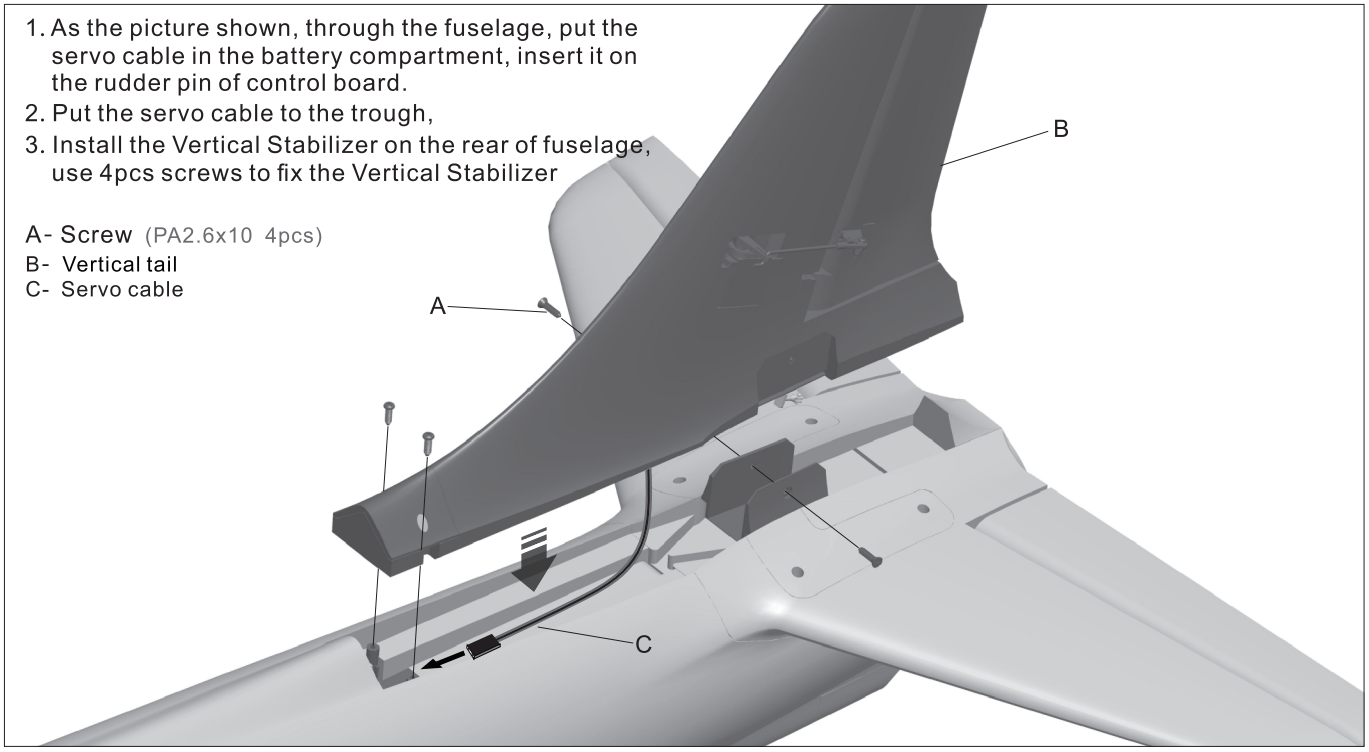
A- Screw (PA2.6x10 4pcs)
B- Horizontal tail
C- Servo cable

PNP Install instructions

Install Vertical tail

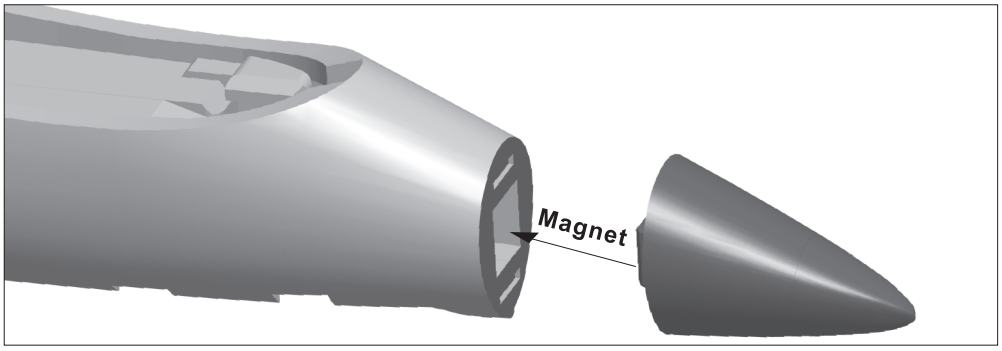
1. As the picture shown, through the fuselage, put the servo cable in the battery compartment, insert it on the rudder pin of control board.
2. Put the servo cable to the trough,
3. Install the Vertical Stabilizer on the rear of fuselage, use 4pcs screws to fix the Vertical Stabilizer

A- Screw (PA2.6x10 4pcs)
B- Vertical tail
C- Servo cable



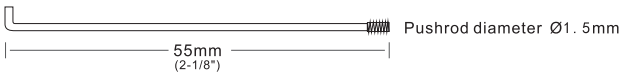
Install nose cone

Since we use the magnet structure,we only need to attach the nose on the nose fuselage.



Pushrod instructions

Flap pushrod size

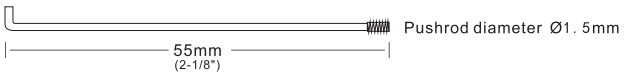


Flap pushrod mounting hole

Aileron pushrod size

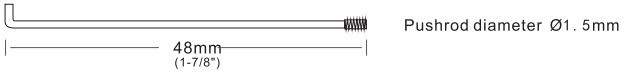
Aileron pushrod mounting hole

Elevator pushrod size



Elevator pushrod mounting hole

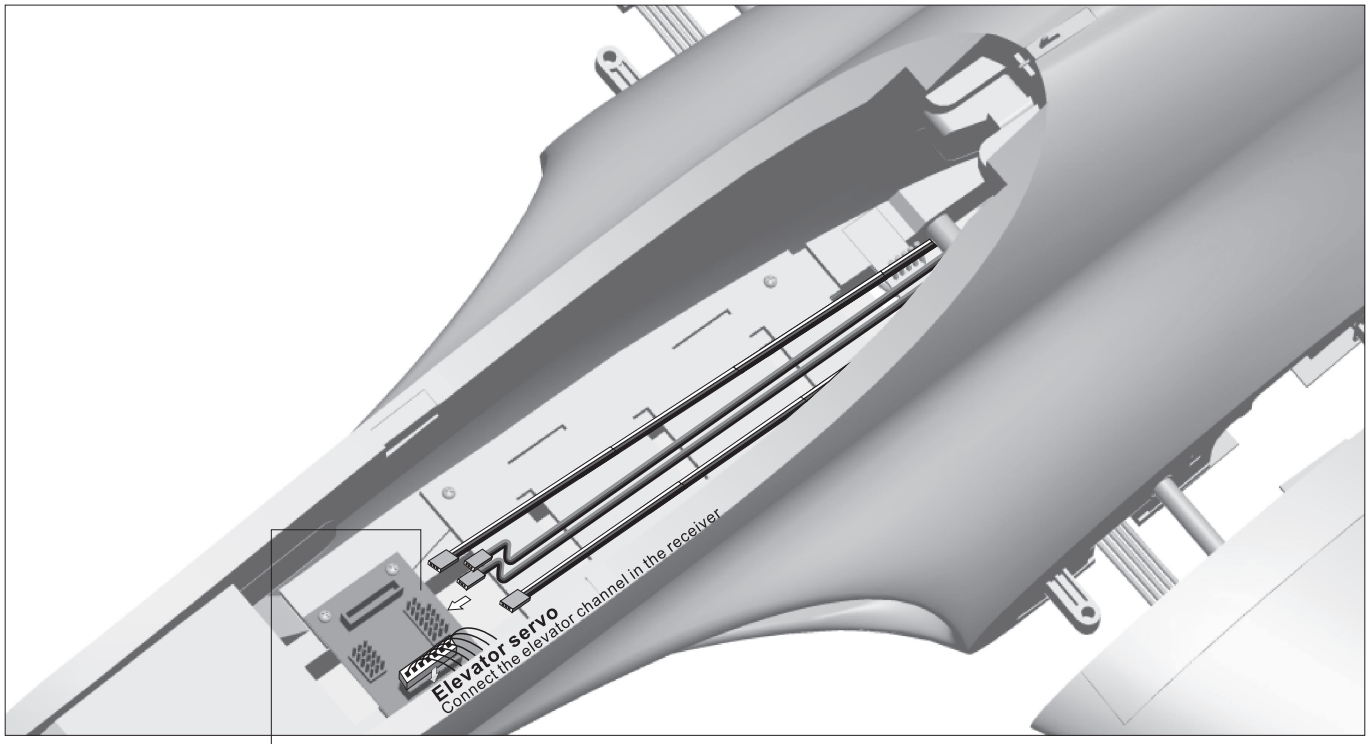
Rudder pushrod size

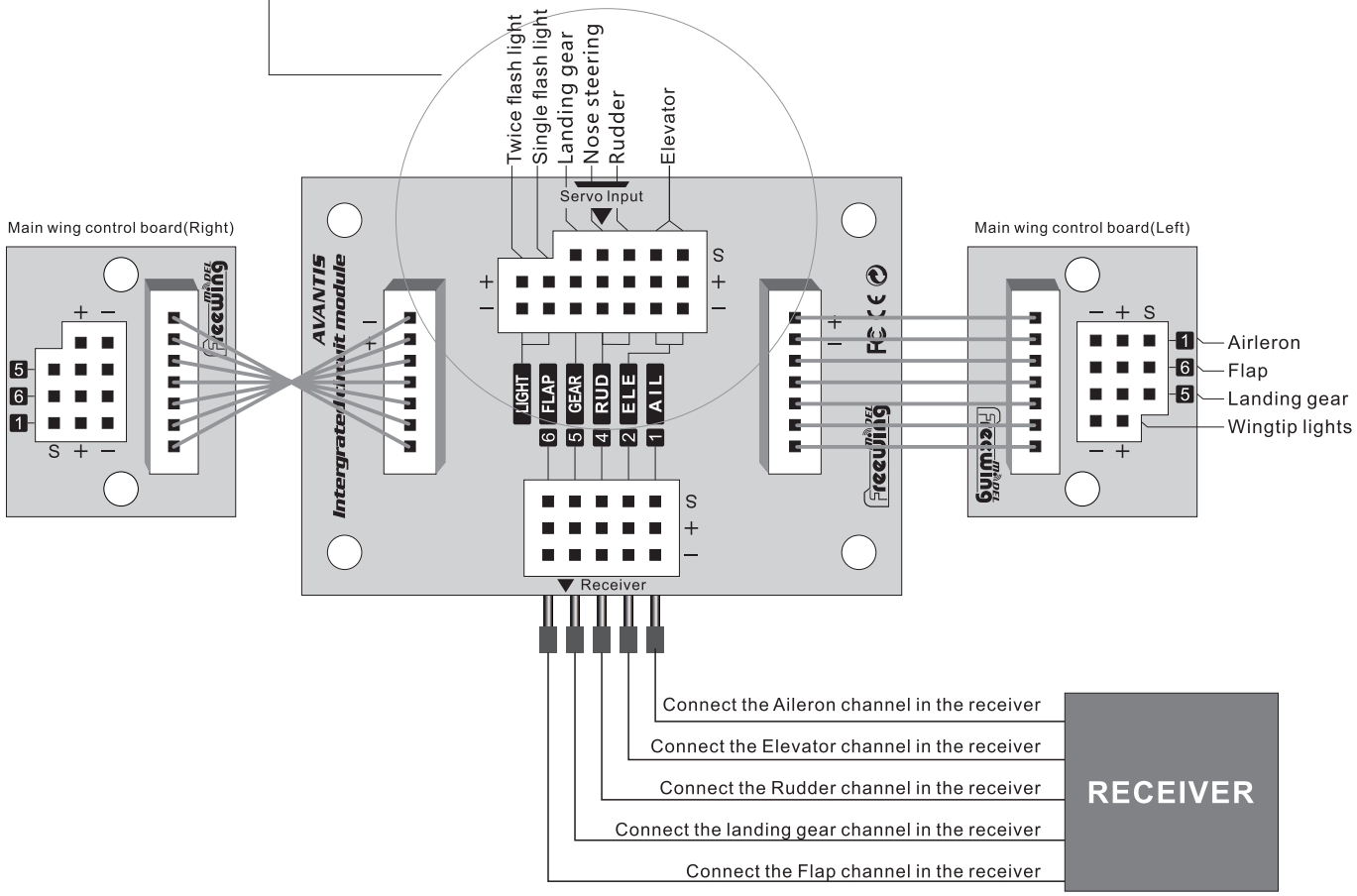


Rudder pushrod mounting hole

Control board connection diagram

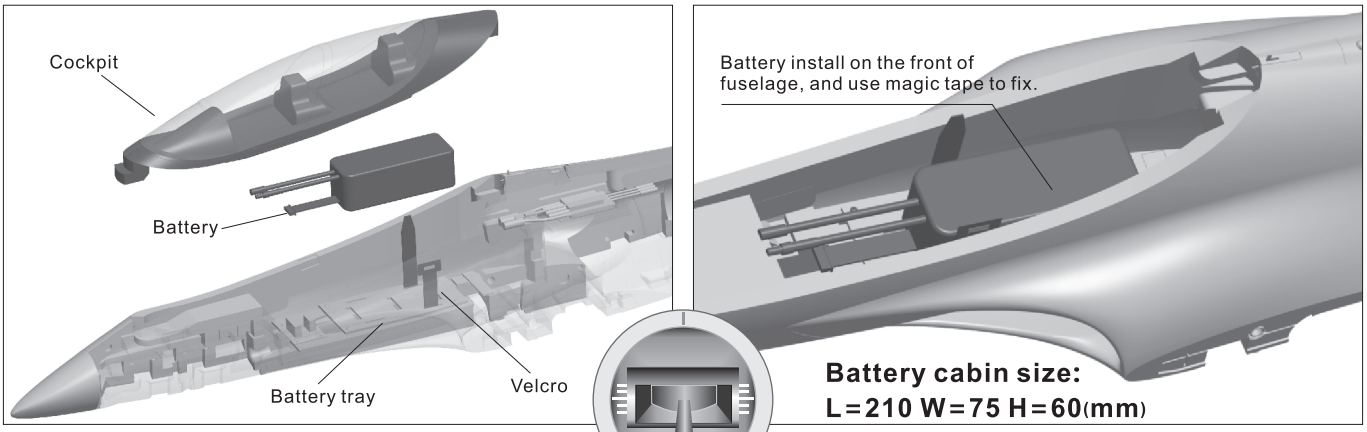
Avantis model plane used the ribbon wire, in order to use more convenient. Please refer to the following photo, connect the electronic equipment.





PNP Install instructions

Battery size



Before connect the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position.

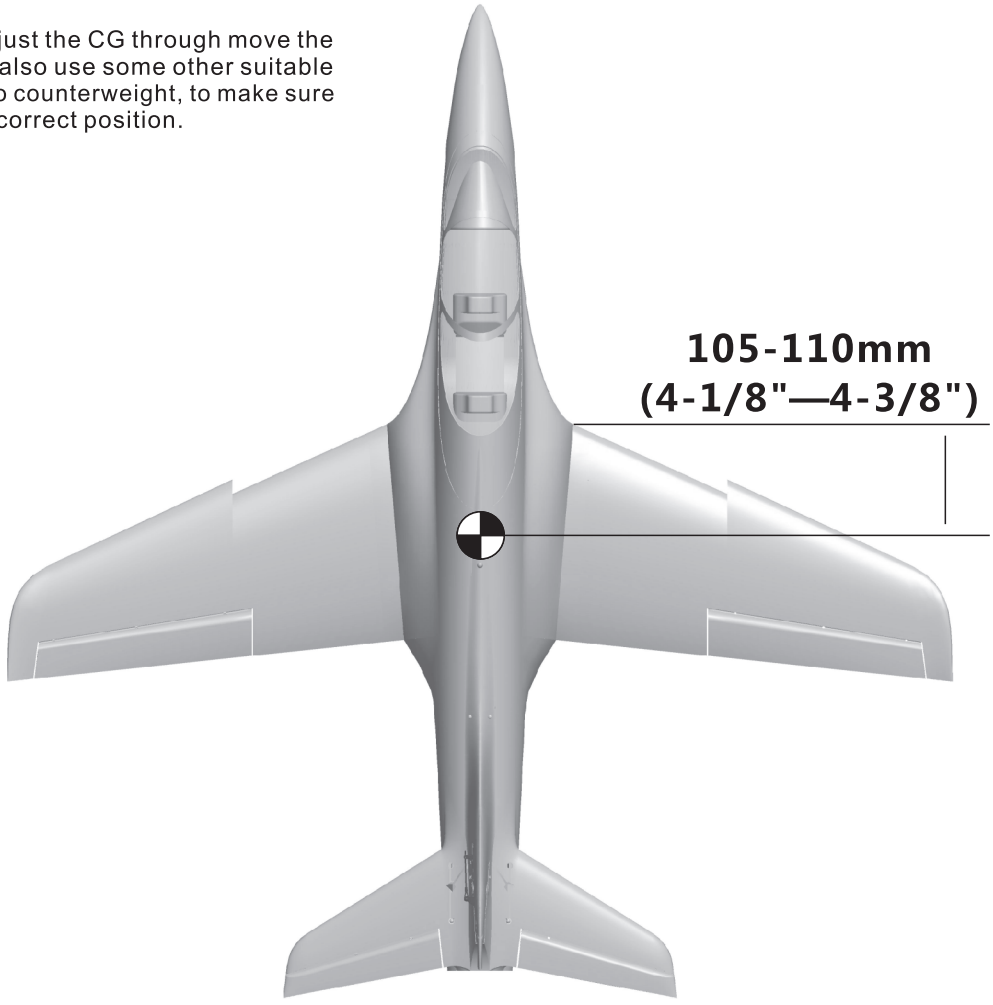
The battery capacity and discharge rate we advise to use are as follows:
6S 22.2V 4000mAh ~ 6S 22.2V 5200mAh
Discharge rate of C ≥ 35C

Center of gravity

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.



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.

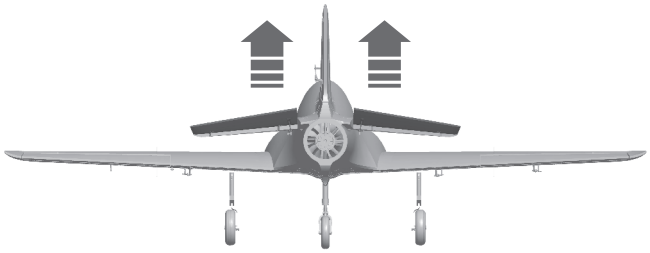
Aileron

Stick Left

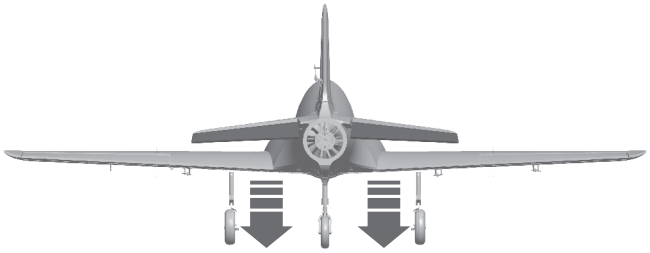
Stick Right

Elevator

Up Elevator

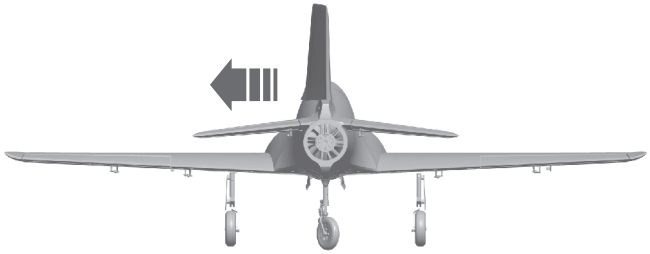


Down Elevator

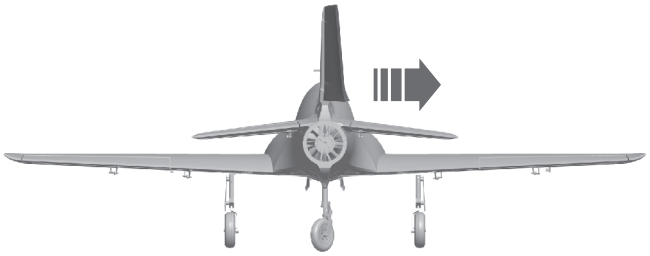


Rudder

Stick Left

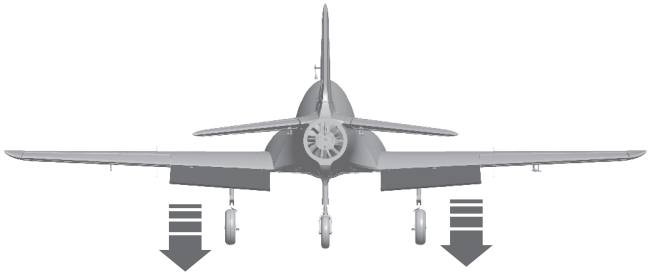


Stick Right



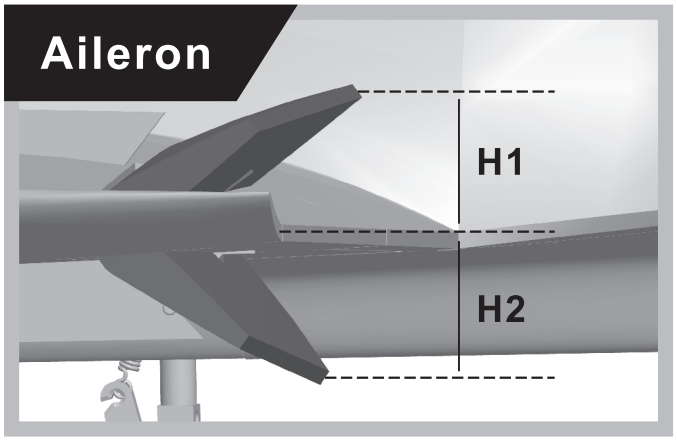
Optional Flaps

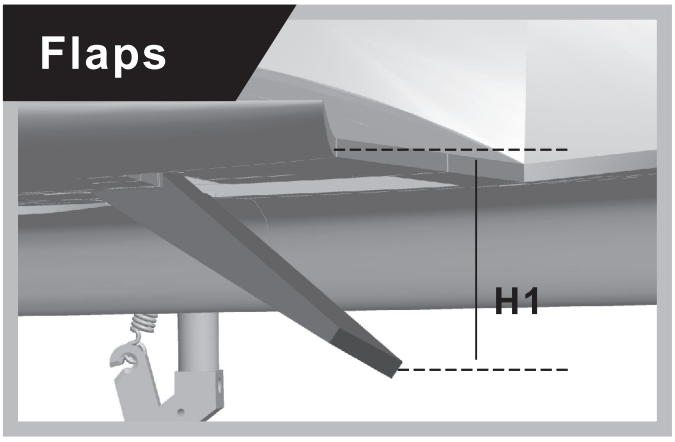
Flaps down

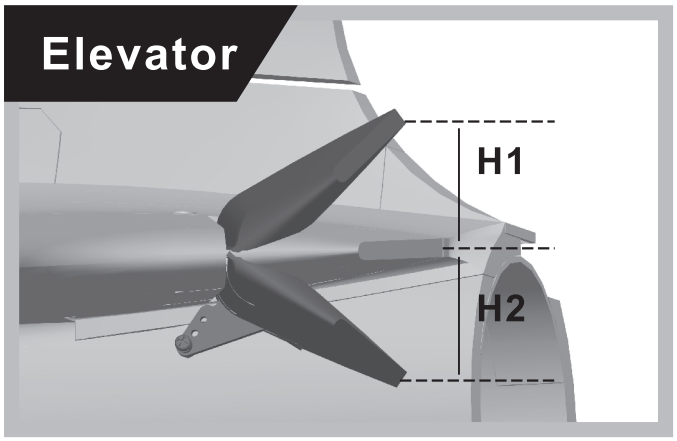


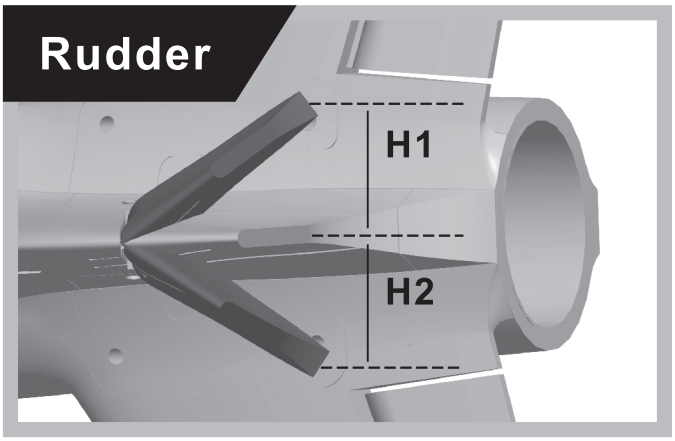
Dual Rates and Flight setting

According to our testing experience, use the following parameters to set aileron/elevator rate, it will be useful for flight. In low rate, it will operate more stable. In high rate, it will operate more sensitive. We advise to use high rate in your first flight, then according to your habit to choose low/high rate.







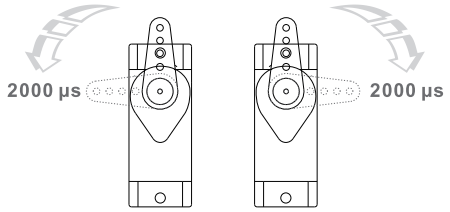


	Aileron	Elevator	Rudder	Flaps
Low Rate	H1/H2 19mm/19mm D/R Rate: 70%	H1/H2 22mm/22mm D/R Rate: 85%	H1/H2 39mm/39mm D/R Rate: 85%	H1 23mm
High Rate	H1/H2 26mm/26mm D/R Rate: 100%	H1/H2 25mm/25mm D/R Rate: 100%	H1/H2 46mm/46mm D/R Rate: 100%	H1 55mm

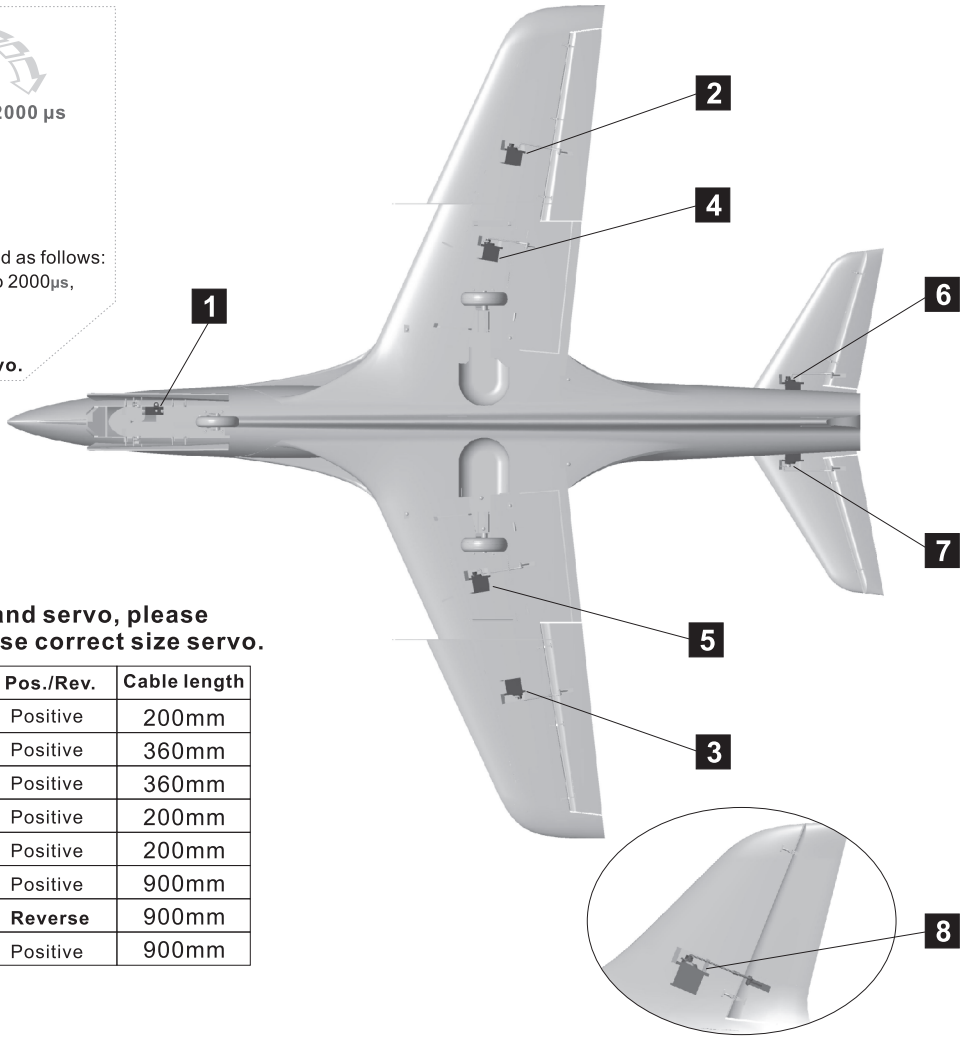
⚠ **Flight attention:** When flap down, the nose will rise up, it need to mix the elevator to operate a good landing. In low rate, need to flap down 1mm, In high rate, need to flap down 2mm.

Accessories Description

Servos Introductions



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.**

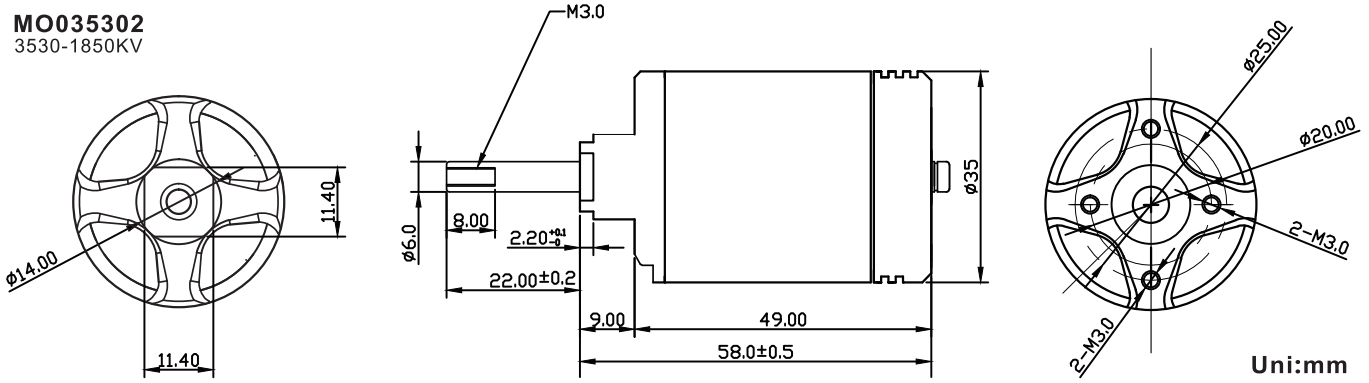


If you need to purchase other brand servo, please refer to the following list to choose correct size servo.

Servo position	Model	No.	Pos./Rev.	Cable length
Nose gear steering servo	9g Digital MG	1	Positive	200mm
Aileron(Left)	9g Digital MG	2	Positive	360mm
Aileron(Right)	9g Digital MG	3	Positive	360mm
Flap(Left)	9g Digital MG	4	Positive	200mm
Flap(Right)	9g Digital MG	5	Positive	200mm
Elevator(Left)	9g Digital MG	6	Positive	900mm
Elevator(Right)	9g Digital MG	7	**Reverse**	900mm
Rudder	9g Digital MG	8	Positive	900mm

Parameter of motor

MO035302
3530-1850KV



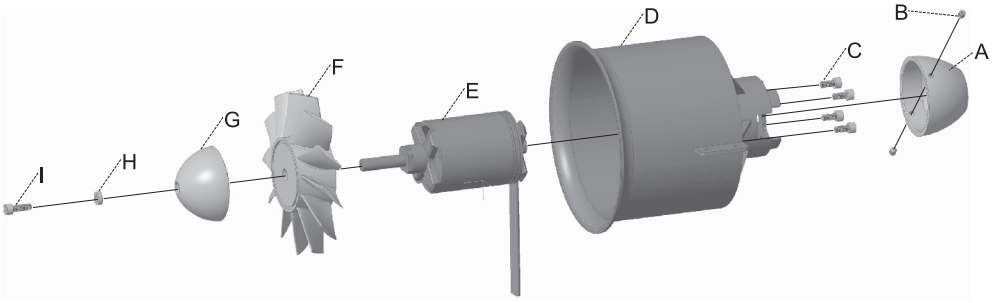
Item No.	Use motor	motor(KV)	Thrust(kg)	Current(A)	Use voltage (V)	Use ESC (A)	EDF Weight (g)	Max power (W)	Efficiency (g/w)
E7239	O/R BL 3530	1850	3350	90	22.2(6S)	100	318	2000	1.67

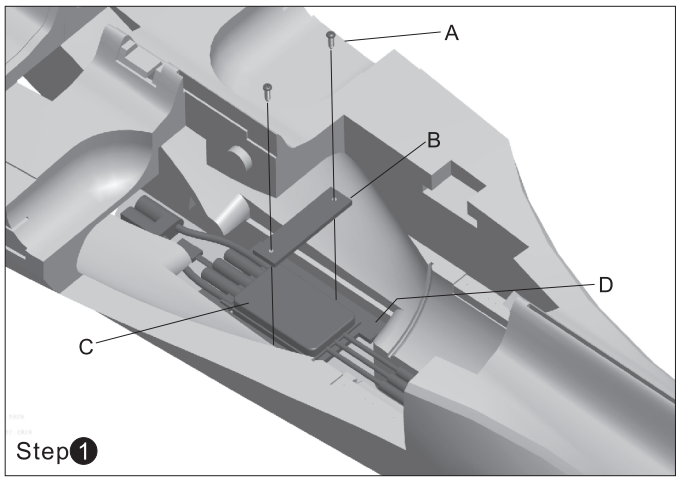
Accessories Description

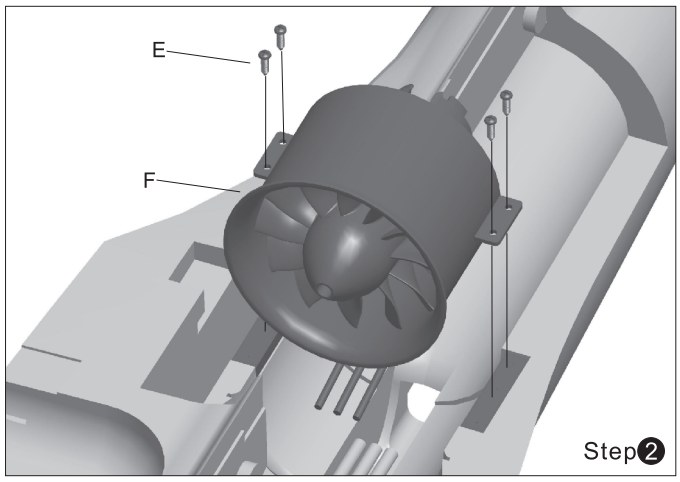
Install the Motor

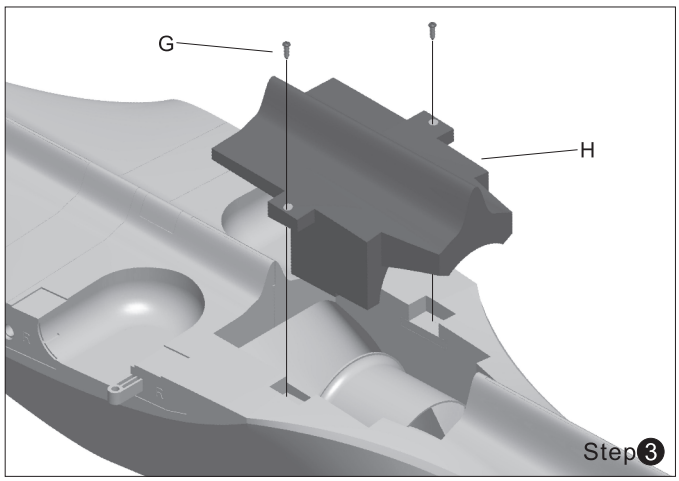
Standard version

A - Motor spinner
B - JIMI Screw (2pcs)
C - Screw (PM3X6mm 4pcs)
D - 80mm ducted fan metal frame for outrunner motor
E - 3530-1850KV motor
F - 80mm 12-blade ducted fan
G - Spinner
H - Spacer
I - Screw (PM3X10mm)









According to the above photo to install power system and ESC.

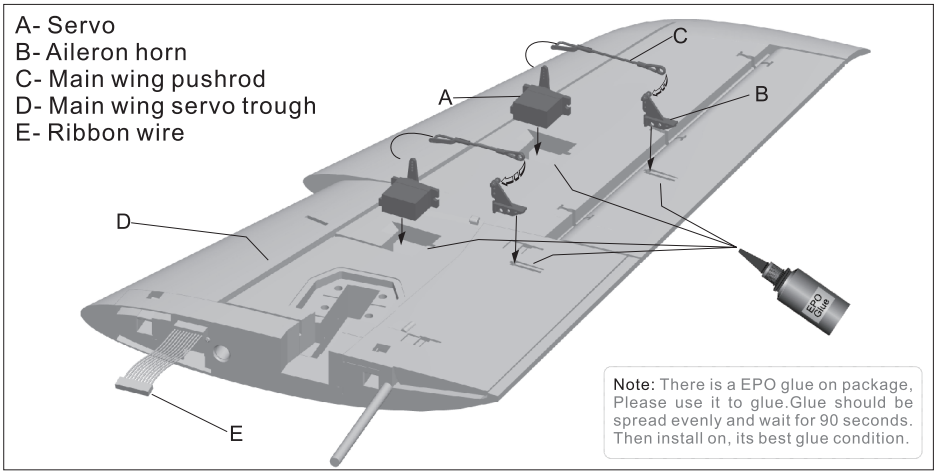
A - Screw (PA3x25)
B - ESC fixed wood piece 1
C - ESC
D - ESC fixed wood piece 2
E - Screw (PWA3x8)
F - 80mm EDF power system
G - Screw (PA3x8)
H - EDF cover

⚠ **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.

Accessories Description

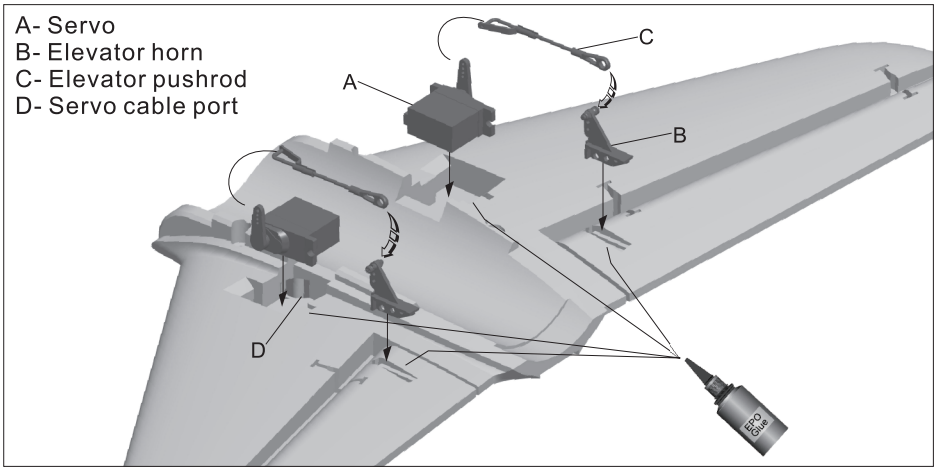
Install Aileron pushrod

1.Use servo tester or radio to center the servo.
2.Use glue to install the servo and aileron horn on the main wing.
3.Buckle the servo cable to the through, after installed all the servos, stick on the decal.
4.One side pushrod insert to the servo arm,adjust its length. And insert the clevis to the aileron horn.
5.Repeat the above four steps, install the other side main wing servo and flap servo.



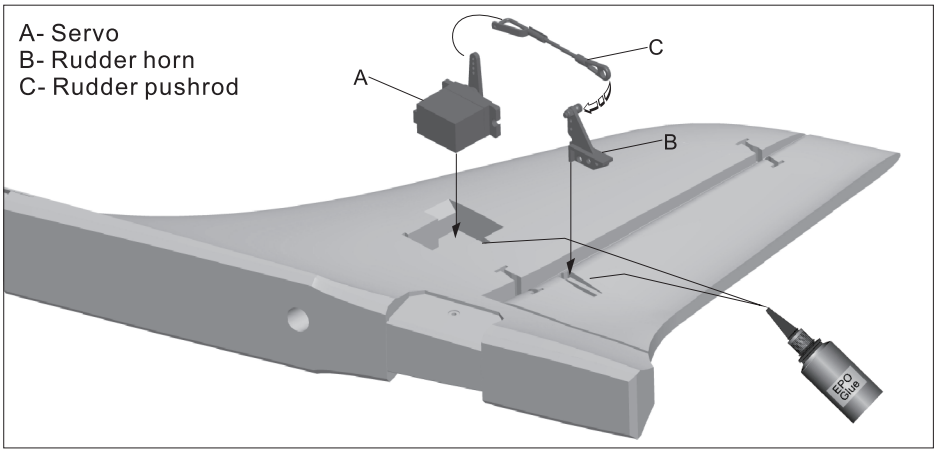
Install Elevator pushrod

1.Use servo tester or radio to center the servo.
2.Use glue to install the servo and aileron horn on the Horizontal tail.
3.Buckle the servo cable to the through, after installed all the servos, stick on the decal.
4.One side pushrod insert to the servo arm,adjust its length. And insert the clevis to the aileron horn.
5.Repeat the above four steps, install the other side Horizontal tail servo.



Install Rudder pushrod

1.Use servo tester or radio to center the servo.
2.Use glue to install the servo and aileron horn on the Vertial tail.
3.Buckle the servo cable to the through, after installed all the servos, stick on the decal.
4.One side pushrod insert to the servo arm,adjust its length. And insert the clevis to the aileron horn.



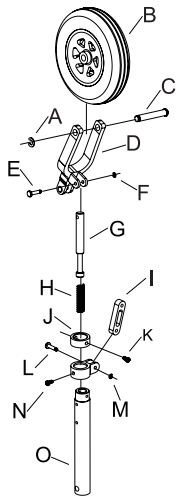
Accessories Description

Install nose landing gear

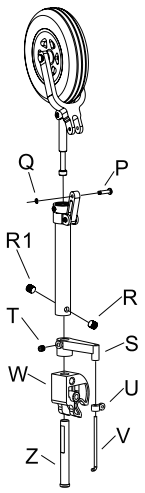
Please assemble、disassemble the nose landing gear according to the following photo.

Accessories name and specification

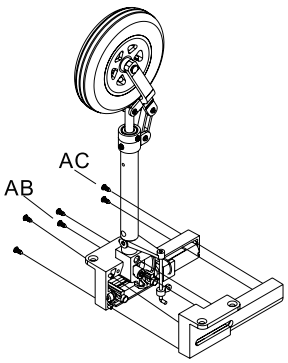
A - E-buckle (M3)
B - Nose wheel (Ø65x16mm)
C - Nose gear axle
D - U-shape slant supporting rod
E - Pin (Ø3.5x10.2mm)
F - E-buckle (M1.5)
G - Nose gear steering ring
H - Spring
I - 8-shape connecting arm
J - Nose strut fixed ring
K - Screw (PM2x3 1pcs)
L - Pin (Ø3.5x9.2mm)
M - E-buckle (M1.5)
N - Screw (PM2x3 1pcs)
O - Nose gear strut
P - Pin (Ø3.5x10.2mm)
Q - E-buckle (M1.5)
R - JIMI Screw (M4x3mm)
S - L-shape rotating arm
T - JIMI Screw (M3x3mm)
U - O-shape ring
V - Pushrod
W - Rotating arm
Z - Nose metal wire
AB - Screw (PA1.4x12 2pcs)
AC - Screw (PA1.7x10 4pcs)
AD - Screw (FA3x12 4pcs)
AE - Retract Reinforcement Plate
AF - Nose landing gear
AG - Nose steering pushrod
AH - Screw (PWA2.3x8 2pcs)
AI - Servo
AJ - Nose landing gear door type A
AK - Cabin door spring
AL - Screw (PA2x8 4pcs)
AM - Spring



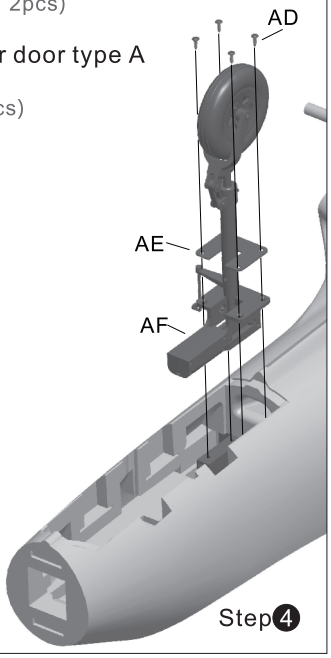
Step 1



Step 2



Step 3



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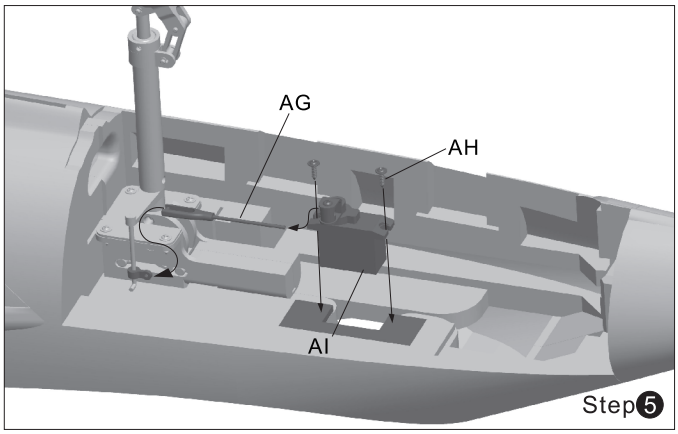

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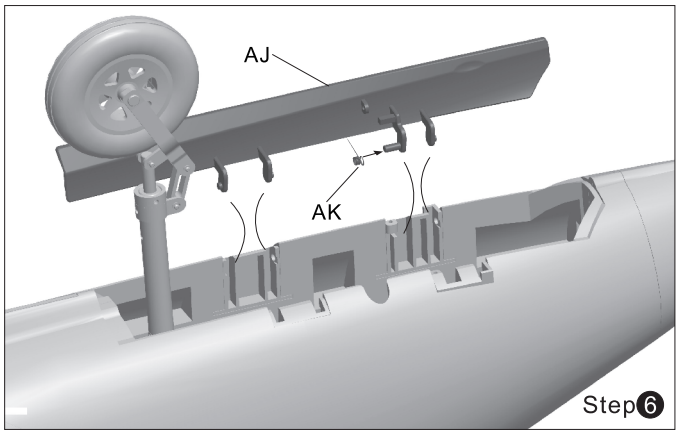

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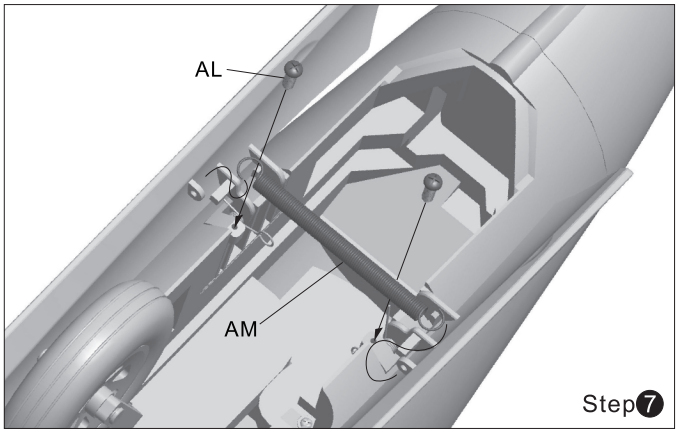
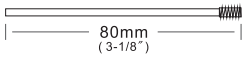


Step 7

Nose steering pushrod size



Pushrod diameter Ø1. 5mm

Servo pushrod installing hole

⚠ Note : When installing,please check the flat position of spareparts,when screw to fix,the flat position must face to the screw hole, just like this, it can fix successfully, the spareparts don't rotate and fall off.

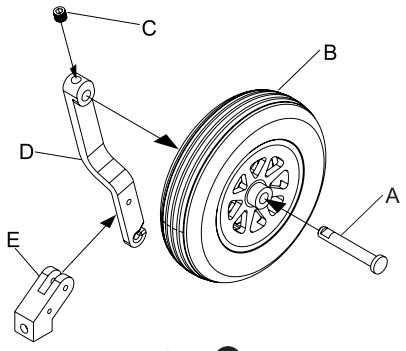
Accessories Description

Install rear landing gear

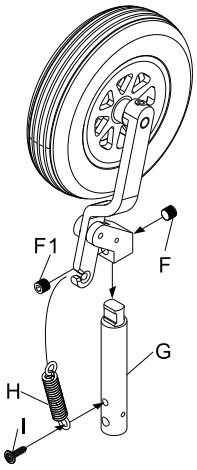
Please assemble、disassemble the rear landing gear according to the following photo.

Accessories name and specification

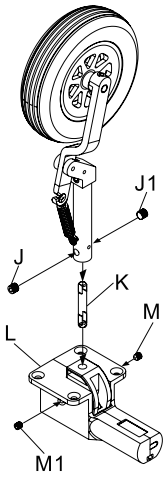
A - Main gear axle
B - Main wheel (Ø70x20mm)
C - JIMI Screw (M4x4mm 1pcs)
D - Rear gear slant supporting rod
E - Main gear strut A
F - JIMI Screw (M4x3mm 2pcs)
G - Main gear strut B
H - Spring
I - Screw (PM3x4mm 1pcs)
J - JIMI Screw (M4x3mm 2pcs)
K - Main gear main rod
L - Retract controller
M - JIMI Screw (M3x5mm 2pcs)
N - Screw (PM2x5mm 2pcs)
O - Nose gear cabin door
P - Screw (FA3x12mm 4pcs)
Q - Main landing gear set
R - Main landing gear mount



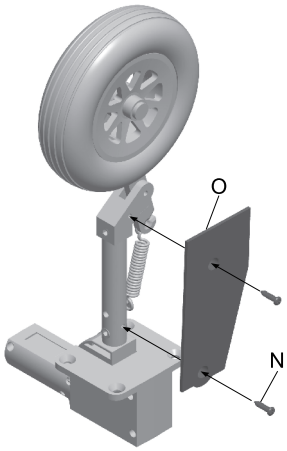
Step❶



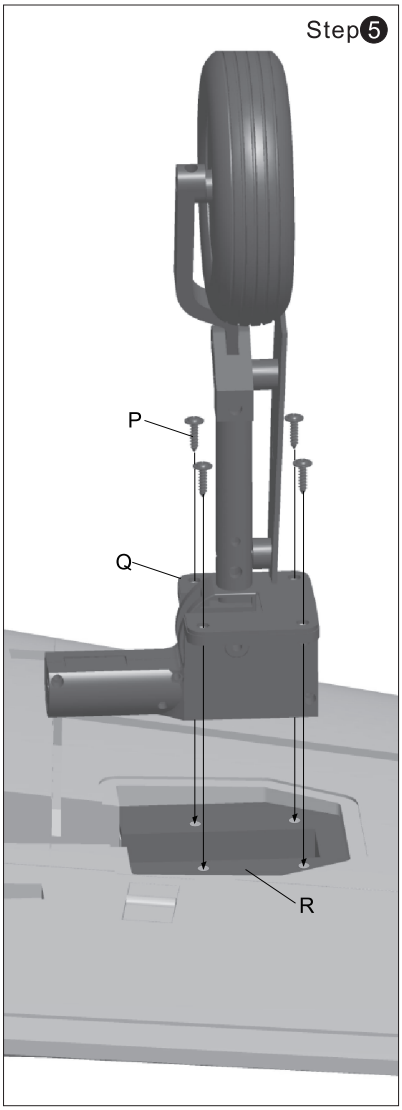
Step❷



Step❸



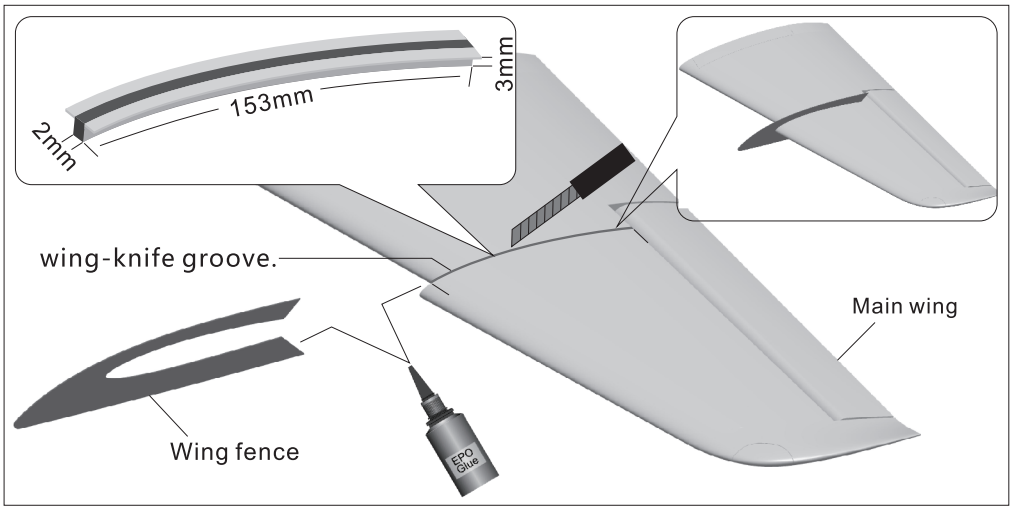
Step❹



Install Wing-knife

As the photo shown :
Use a knife to cut the wing-knife groove along the top of main wing, depth 3mm, thickness 2mm,length 153mm, and then touch the glue, insert the wing-knife into the wing-knife groove.

Note: This product we provided the wing-knife spare part, you can install by yourself. Installed the wing-knife, its lateral stability is better to do some aerobatic manoeuvre, flight is more stable.



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