



www.freewing-model.com

Freewing AL37 AIRLINER User Manual

Wingspan:1830mm

Length:2000mm

Empty Weight:3350G[w/o Battery]



Freewing
www.freewing-model.com
MADE IN CHINA



EN 1~10

中 11~20

1	Introduction	11	基本介绍
2	Product basic information	12	产品规格参数
2	Package list	12	包装列表
	PNP Assembly instructions		PNP组装步骤介绍
3	Install Fuselage	13	安装机体
3	Install horizontal stabilizer	13	安装水平尾翼
3	Install vertical stabilizer	13	安装垂直尾翼
4	Install engine cone	14	安装涵道吊舱
5	Install main wing	15	安装主翼
6	Install other accessories	16	其它配件安装
6	Pushrod instructions	16	舵机操控钢丝安装孔位介绍
6	Install battery	16	电池介绍
7	Center of Gravity	17	重心
	PNP Parameter setting		PNP 调试介绍
8	Control direction test	18	模型舵面测试
9	Dual rates	19	舵量范围
9	Flap-to-Elevator Mix	19	襟翼-升降混控设定
	Pre-installed component overview		预装电子配件介绍
10	Servo direction	20	舵机介绍
10	Motor specification	20	电机介绍

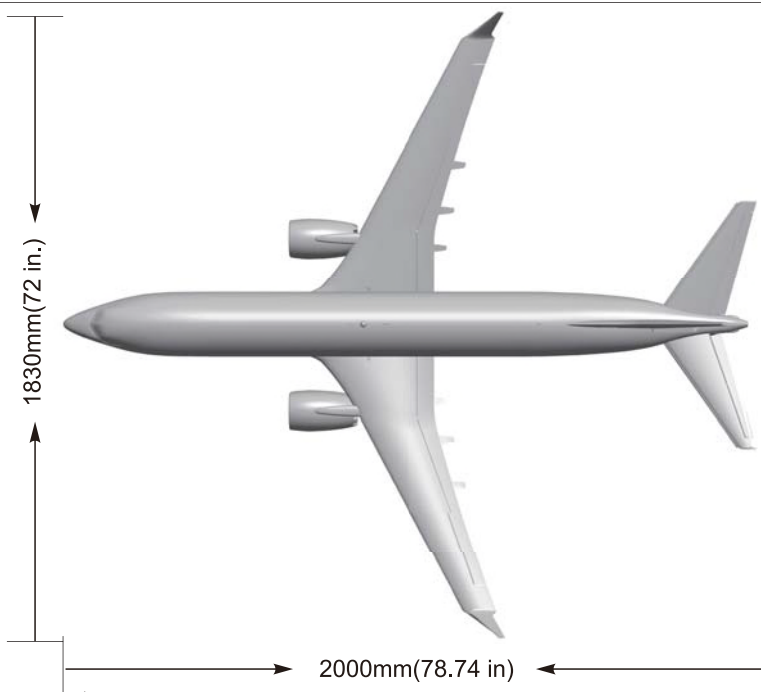
Thank you for purchasing our Freewing 70mm EDF twin-engine passenger aircraft model Freewing AL37 Airliner. Its length is 2000mm and wingspan is 1830mm, it's a large-sized EDF product for leisure. This model uses EPO foam with integrated aluminum carbon to strengthen, limit the weight of the product to the greatest extent. Except the foam fuselage, all the other components are screw-fastened. Control board and ribbon wire are used to simplify the wires between the main wing and the fuselage. The built-in wiring channel of the main wing is easy to use and retains the overall appearance. At the same time, it brings great convenience to the maintenance and upgrade in the future. The 11 LED lights that control the blinking sequence and frequency through the program are very enjoyable.

70mm EDF twin-engine passenger aircraft model Freewing AL37 Airliners use two sets of 70mm 12-blade power systems with 60A brushless ESC. Abundant power allows us to cruise with just a half-throttle. In the case of a 6S 5000mAh battery, the maximum flight time is up to 10 minutes. The front and rear landing gears are made of aluminum alloy and have shock absorption function. The larger size of the wheel (Nose wheel diameter: 45mm, Main wheel diameter: 70mm) can adapt to the take-off and landing of most grassland environments. This model has a beautiful air posture, and good stability in high and low speed. It is very suitable for immersive flight. It is an excellent leisure route aircraft model.

⚠ 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

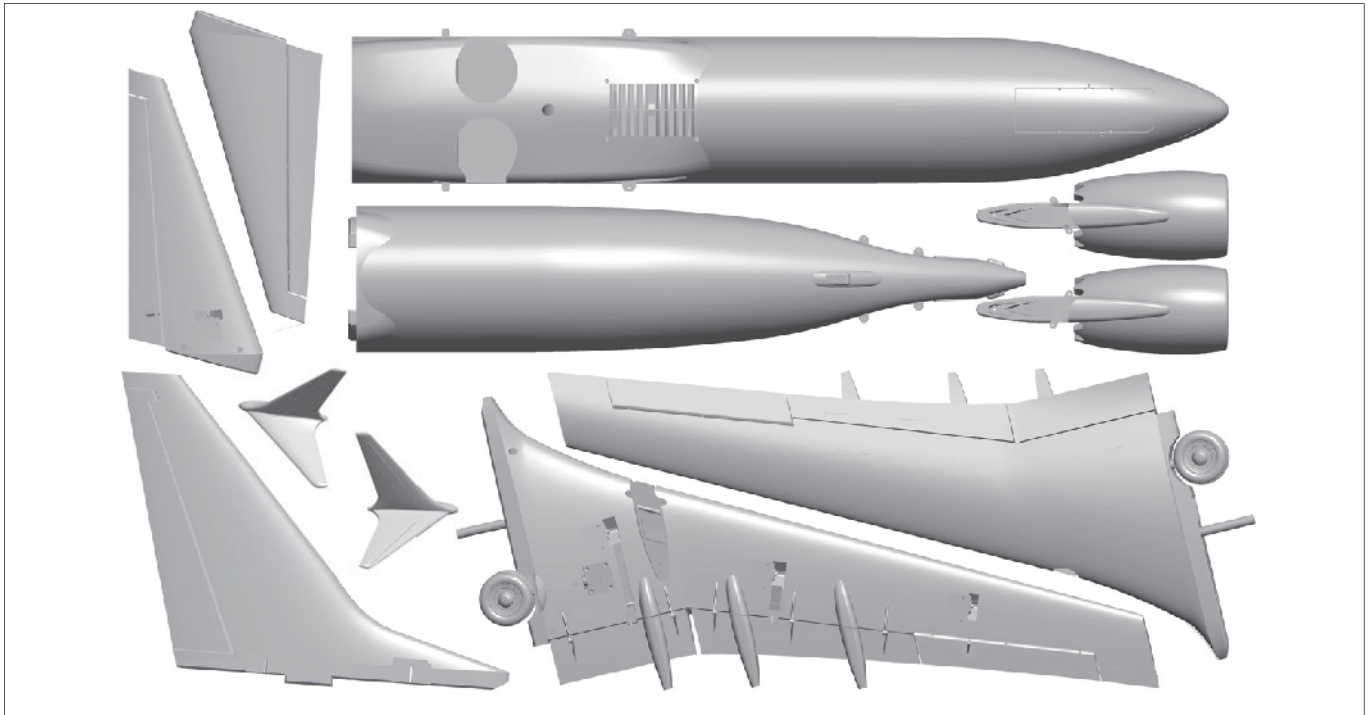
- Wingload: 110g/dm²
- Wing Area: 36 dm²
- Motor: 3048-2150KV O/R Motor (2pcs)
- Servo: 9g MG digital servo (6pcs)
9g Hybrid digital servo (4pcs)
- ESC: 60A with 5A BEC (2pcs)
- Ducted fan: 70mm 12-blade fan (2pcs)
- Weight: 3350g (w/o Battery)

Other features

- Material: EPO
- Aileron: Yes Split Flaps: Yes
- Elevator: Yes Rudder: Yes
- Landing gear: Retract landing gear controlled by electric worm
- Cabin door: Nose gear cabin door
- Scale LED lights
- Scale Pilot figure (2pcs)
- Li-Po Battery: 6S 4000-6000mAh (1pcs)

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



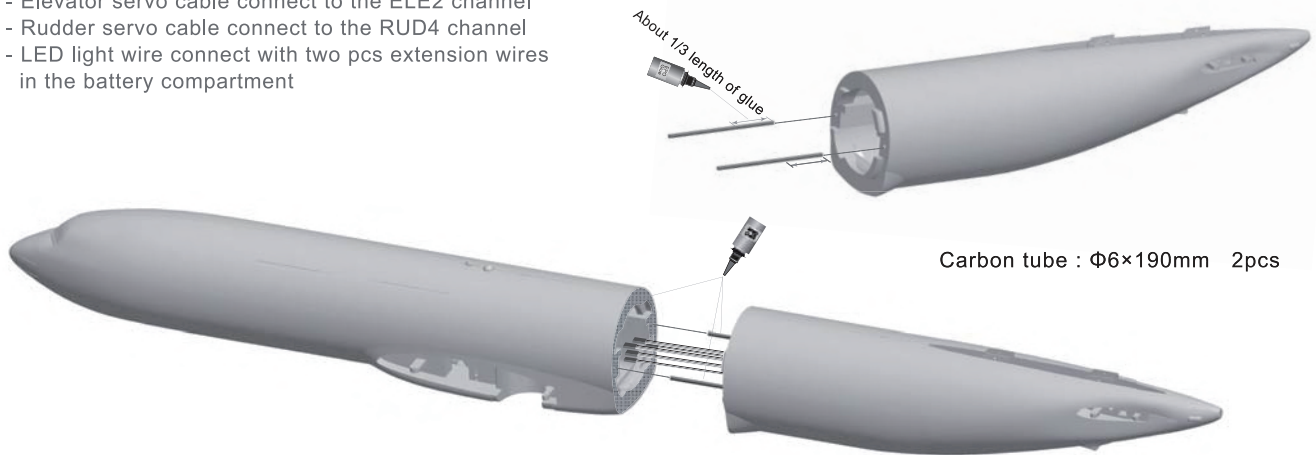
Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

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

Install Fuselage

1. Apply a little glue to the surface of the carbon fiber tube and insert it into the rear fuselage.
2. Loosen the extension wires bundled in the rear fuselage.
3. Apply glue to the front and rear fuselage cross sections and close them.
(At the same time as this step, you need to insert the extension cables into the rear fuselage)
4. After the glue is solidified, the whole fuselage (nose is down) is lifted and shaking a few times, and the extension wires is naturally lowered to the battery compartment position.

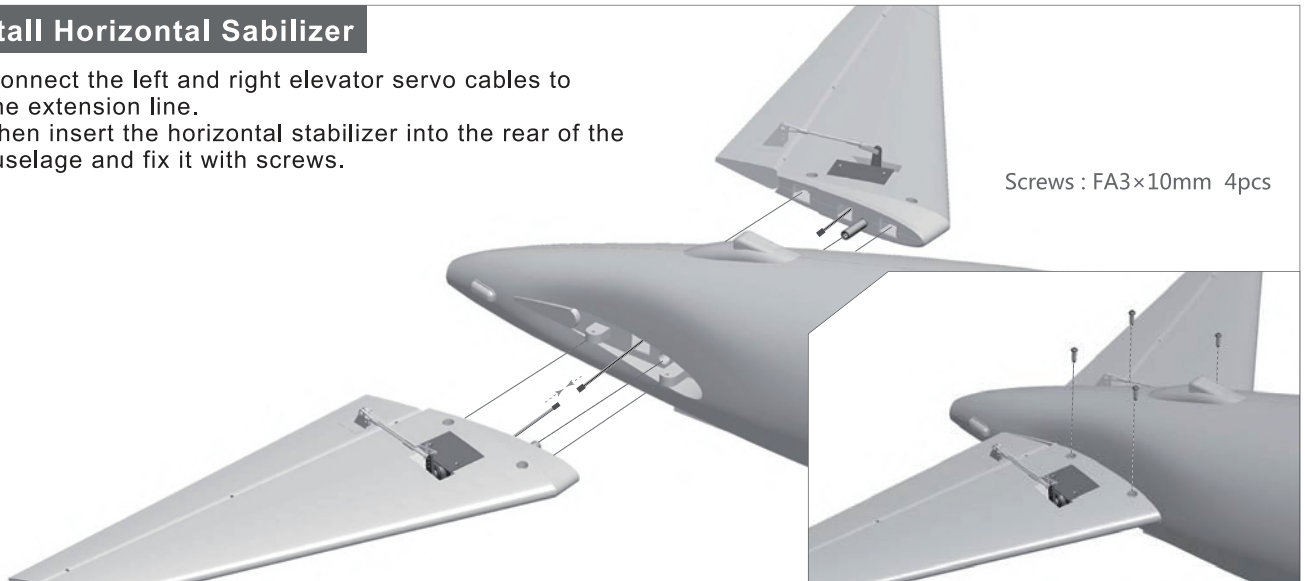
- Elevator servo cable connect to the ELE2 channel
- Rudder servo cable connect to the RUD4 channel
- LED light wire connect with two pcs extension wires in the battery compartment



Install Horizontal Stabilizer

5. Connect the left and right elevator servo cables to the extension line.
6. Then insert the horizontal stabilizer into the rear of the fuselage and fix it with screws.

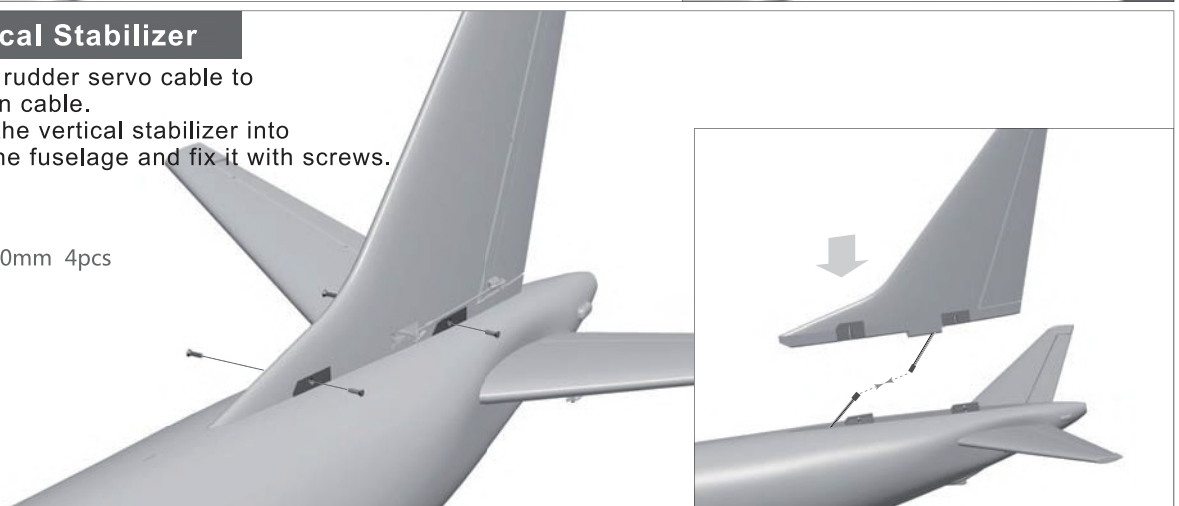
Screws : FA3×10mm 4pcs



Install Vertical Stabilizer

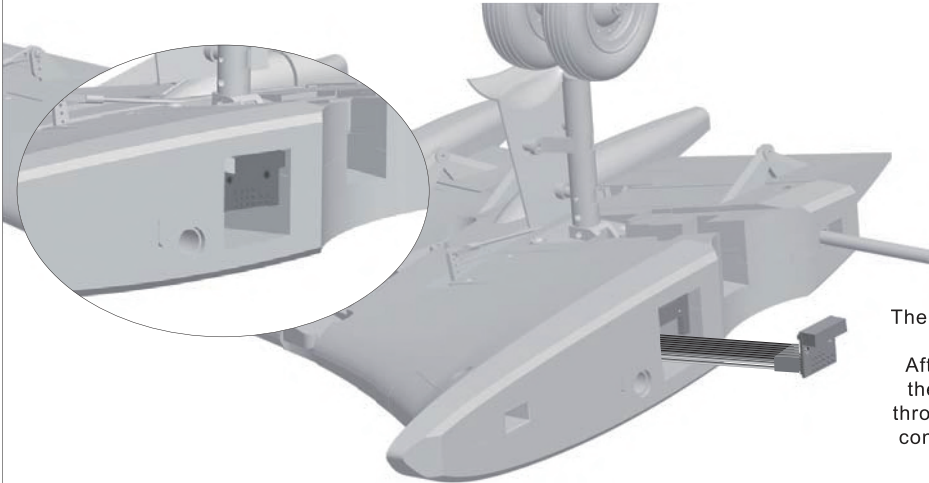
7. Connect the rudder servo cable to the extension cable.
8. Then insert the vertical stabilizer into the rear of the fuselage and fix it with screws.

Screws : FA3×10mm 4pcs



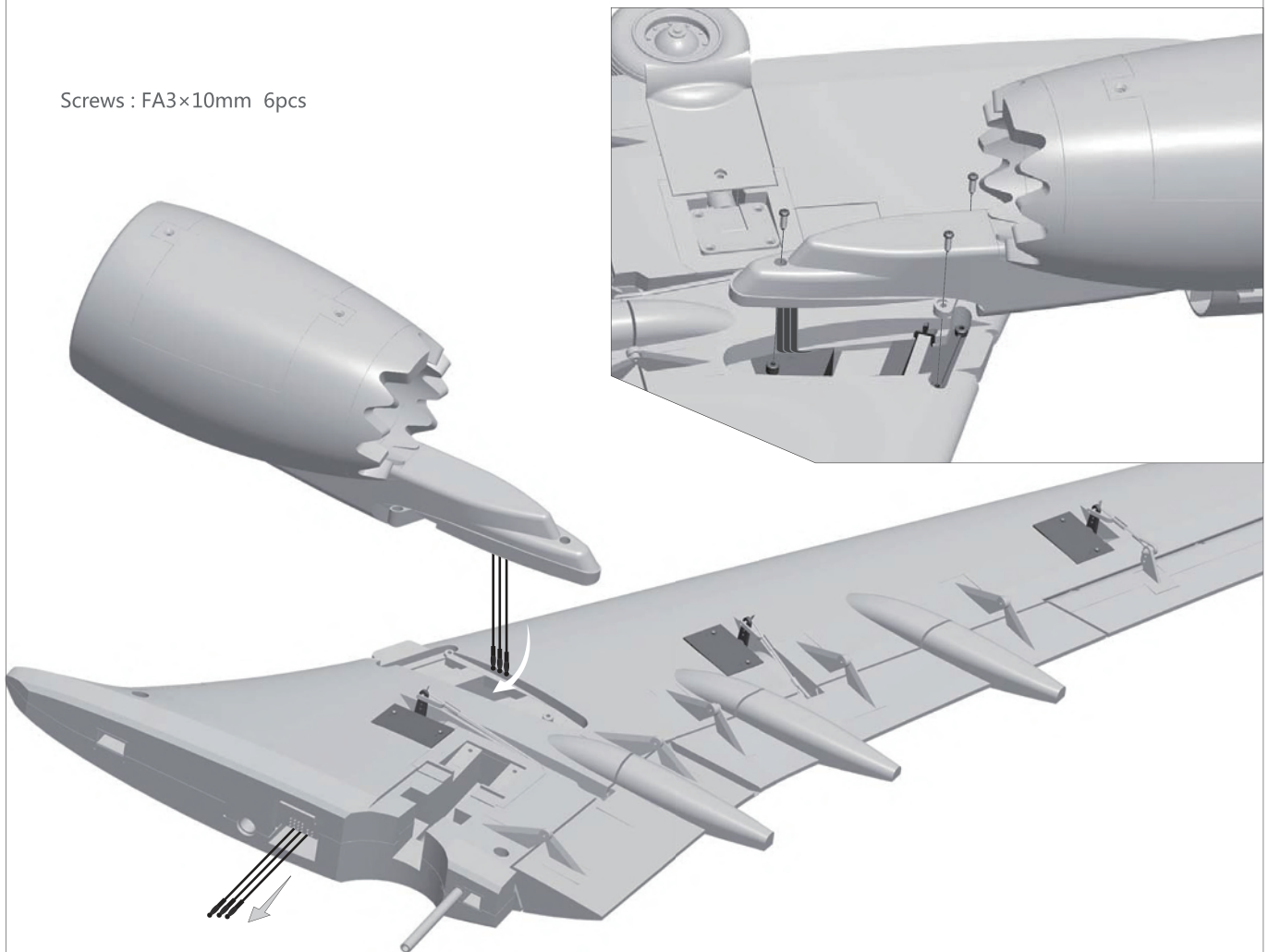
Install Engine cone

1. Loosen the main wing control board screws and pull out the main wing control board to keep the various lines in the control board as straight as possible.
2. As the photo shown, during the process of placing the engine cone in the installation position, slowly insert the motor cables into the lower hole and pass it through the line channel.
3. Fix the engine cone by screws.
4. After confirming that the cables on the main wing control board is loose or not, use the screw to fix the main wing control board to the original position.



The control board wires will curl in the channel and block the through-line channel. After removing the control board, straighten these wires, the ESC cable can easily pass through the line channel. After the completion, confirm that the thread is not loose, and then install again the control board.

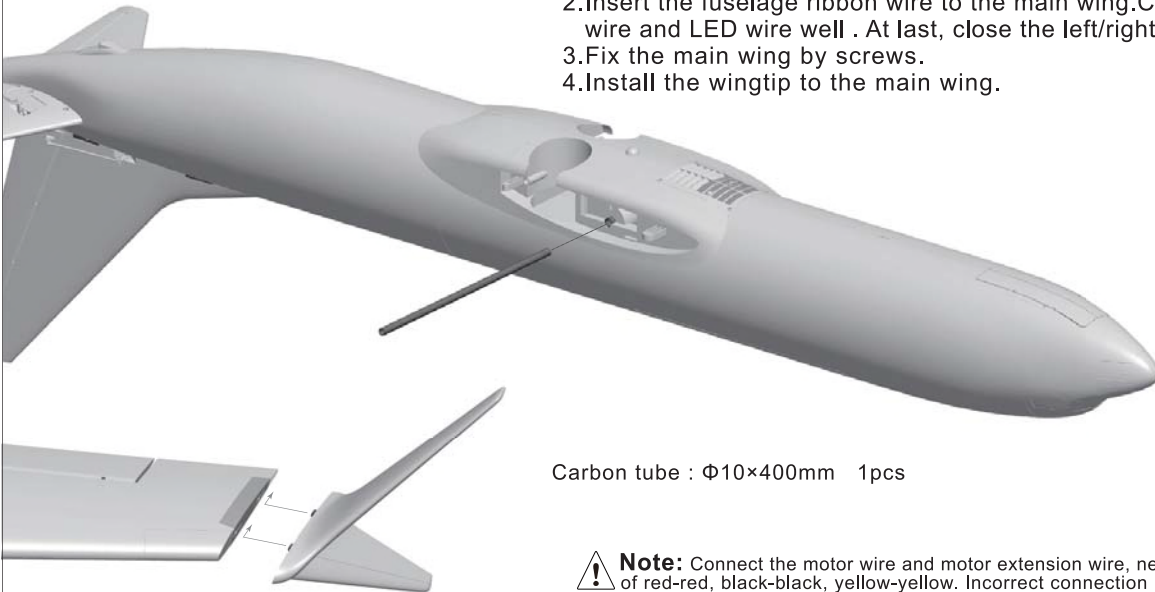
Screws : FA3×10mm 6pcs



Install Main wing

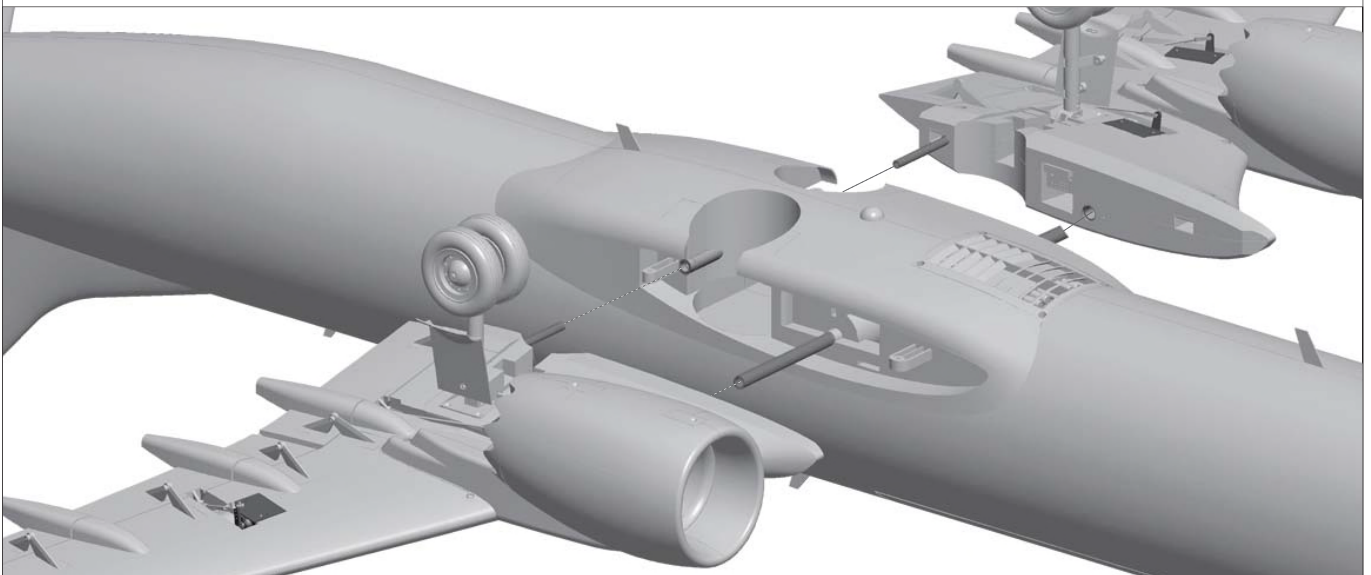
Note: In any case, before install or remove the main wing, you need to open the landing gear firstly!

1. Insert the main wing carbon tube into the fuselage.
2. Insert the fuselage ribbon wire to the main wing. Connect the motor wire and LED wire well. At last, close the left/right main wing.
3. Fix the main wing by screws.
4. Install the wingtip to the main wing.

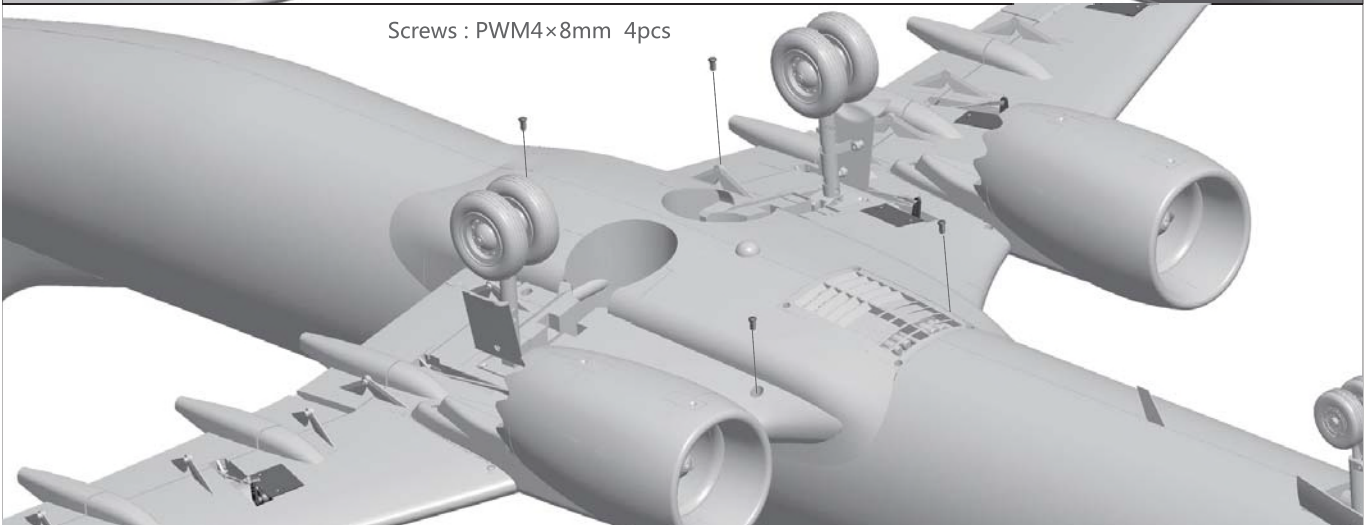


Carbon tube : $\Phi 10 \times 400\text{mm}$ 1pcs

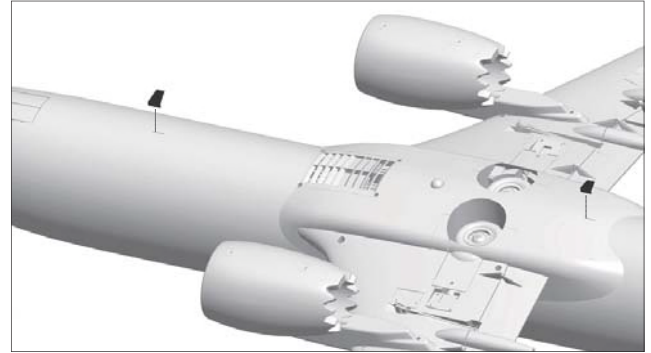
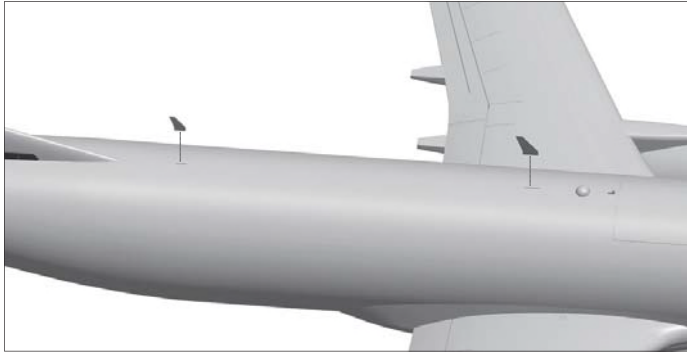
Note: Connect the motor wire and motor extension wire, need to follow the rules of red-red, black-black, yellow-yellow. Incorrect connection may cause the motor to reverse or the electronic device to burn out.



Screws : PWM4×8mm 4pcs

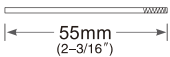


Install Other Accessories



Pushrod instructions

Nose gear steering pushrod length

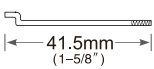


Pushrod diameter $\varnothing 1.2\text{mm}$

Nose gear steering pushrod mounting hole



Nose cabin door pushrod length

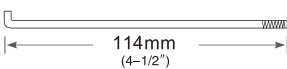


Pushrod diameter $\varnothing 1.2\text{mm}$

Aileron pushrod mounting hole



Rudder pushrod length

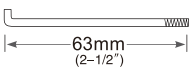


Pushrod diameter $\varnothing 1.5\text{mm}$

Rudder pushrod mounting hole



Elevator pushrod length

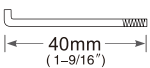


Pushrod diameter $\varnothing 1.5\text{mm}$

Elevator pushrod mounting hole



Aileron pushrod length

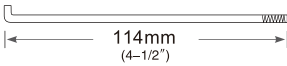


Pushrod diameter $\varnothing 1.5\text{mm}$

Aileron pushrod mounting hole



Flap pushrod length (Inside)

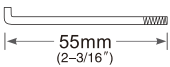


Pushrod diameter $\varnothing 1.5\text{mm}$

Flap pushrod mounting hole(Inside)

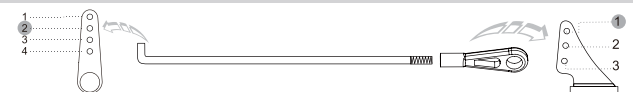


Flap pushrod length(Outside)

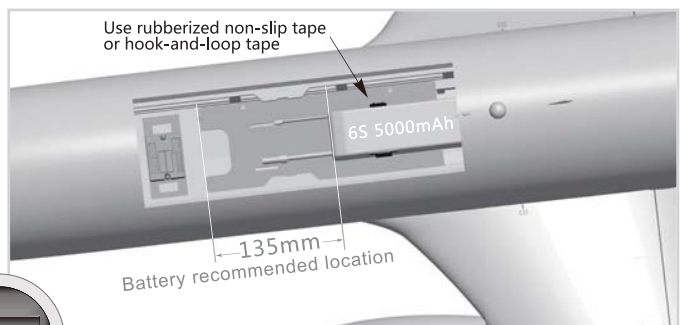
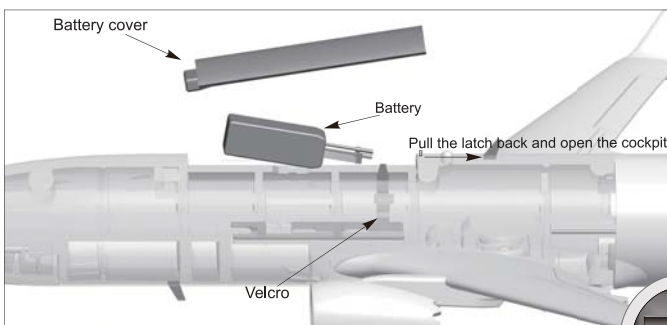


Pushrod diameter $\varnothing 1.5\text{mm}$

Flap pushrod mounting hole(Outside)



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.

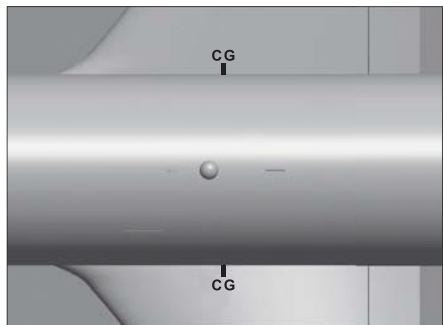


We recommend the following LiPo battery:
6S 22.2V 4000mAh~6S 22.2V 6000mAh
 Discharge rate of C $\geq 35C$

Center of Gravity

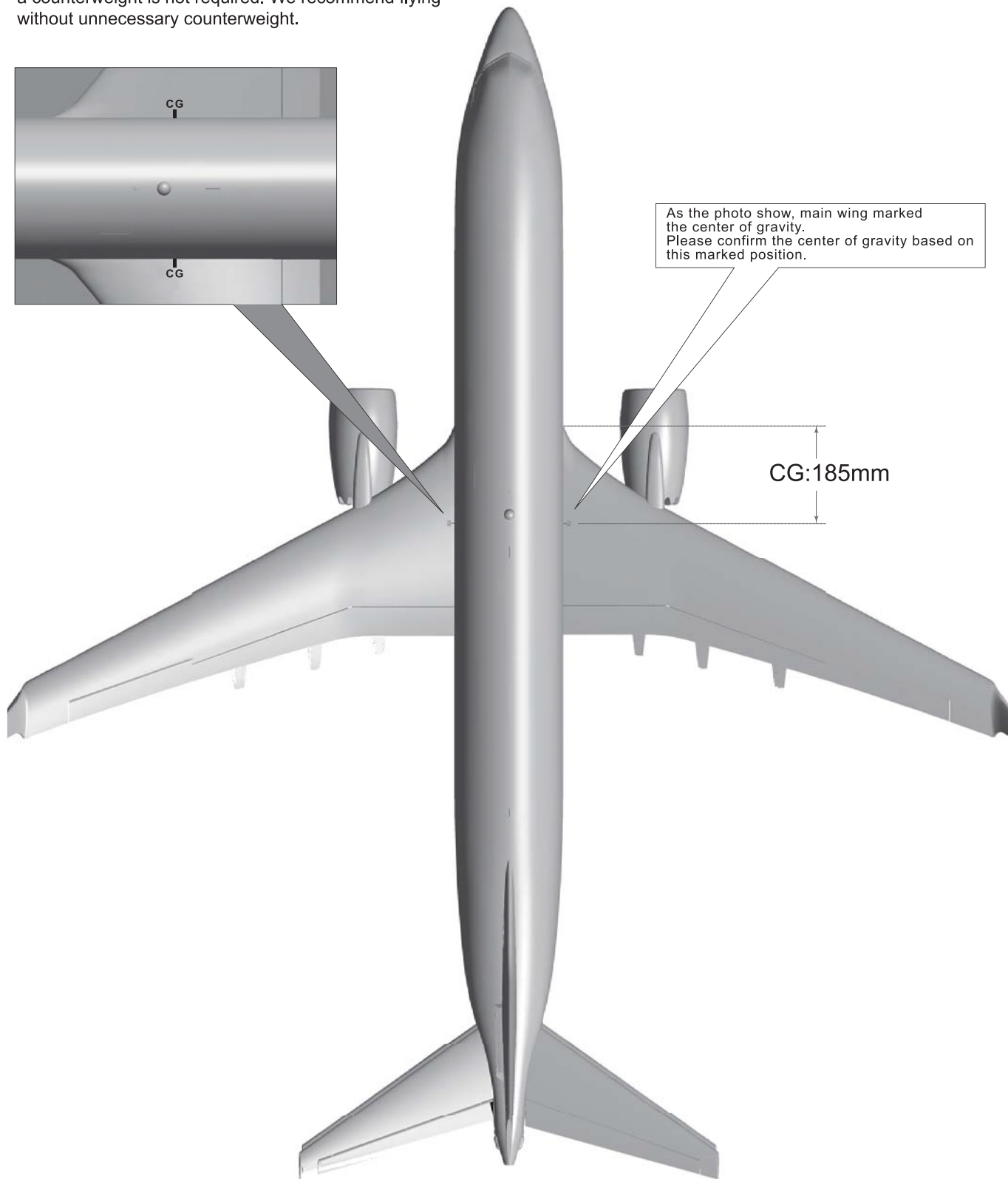
Correct Center of Gravity ("CG") is critical for enabling safe aircraft stability and responsive control. Please refer to the following CG diagram to adjust your aircraft's Center of Gravity.

- 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.



As the photo show, main wing marked the center of gravity. Please confirm the center of gravity based on this marked position.

CG:185mm



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

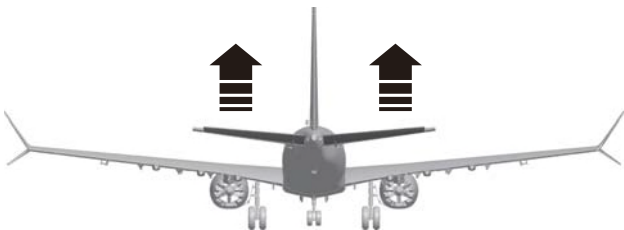


Stick Right

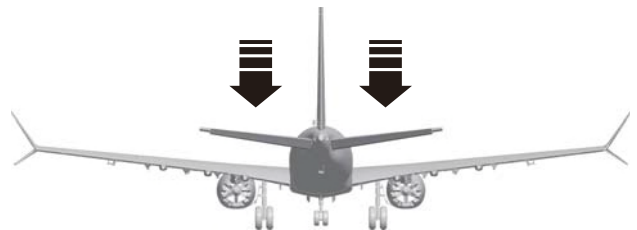


Elevator

Stick down



Stick up



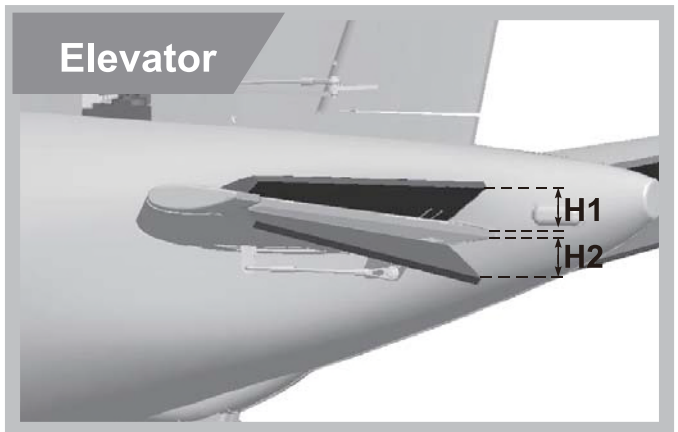
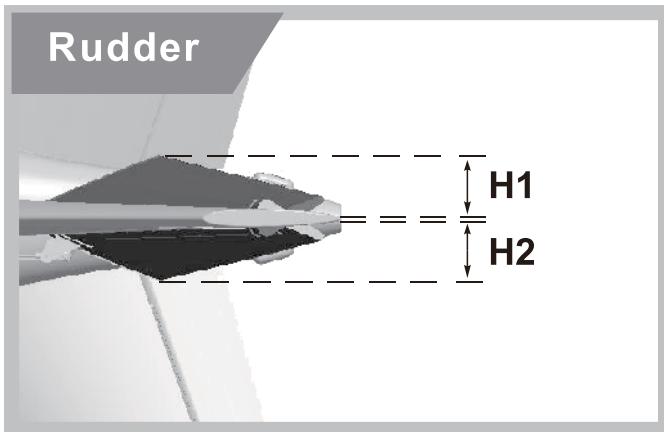
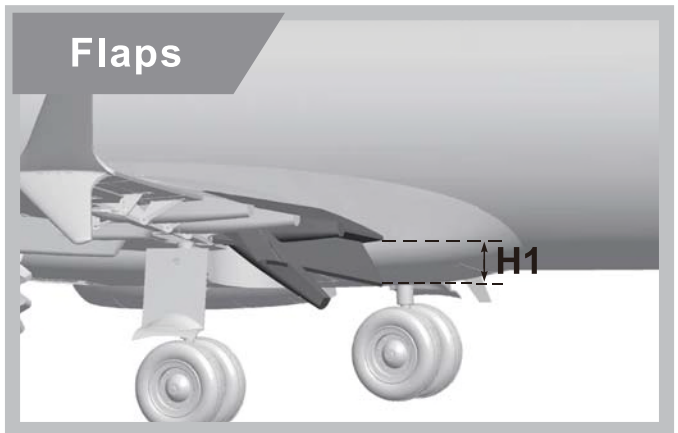
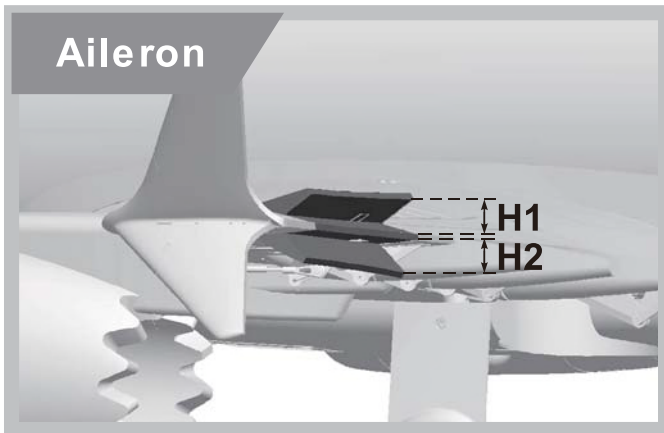
Flaps

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.



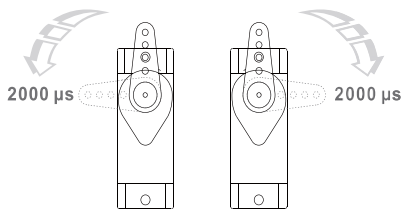
	Aileron(measured closest to the fuselage)	Elevator(measured closest to the fuselage)	Rudder(Measured from the bottom)	Flaps
Low Rate	H1/H2 15mm/ 15mm D/R Rate: 100 %	H1/H2 28mm/ 28mm D/R Rate: 100%	H1/H2 26mm/ 26mm D/R Rate: 80%	H1 10mm
High Rate	H1/H2 15mm/ 15mm D/R Rate: 100 %	H1/H2 28mm/ 28mm D/R Rate: 100%	H1/H2 32mm/ 32mm D/R Rate: 100%	H1 19mm

Flap-to-Elevator Mix

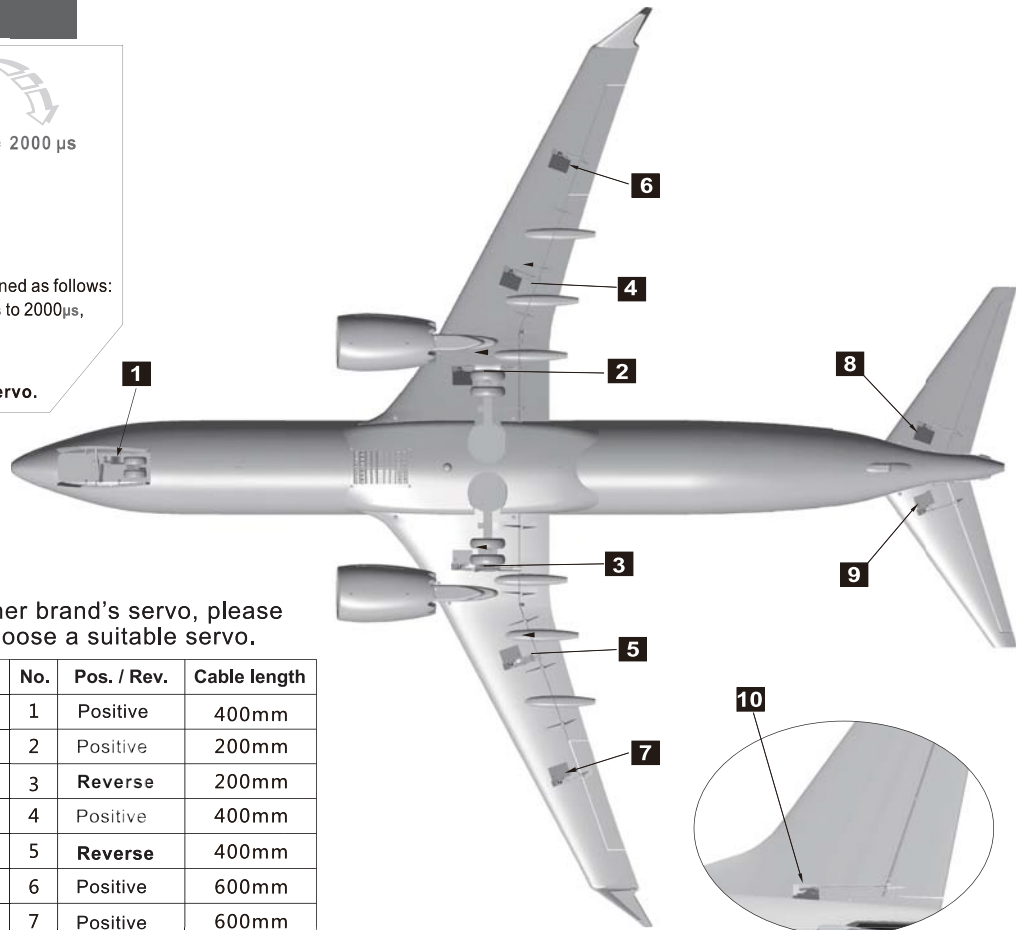
A Flap-to-Elevator Mix is required to maintain level flight when the flaps are deployed. The detail is as below:

- With high rate flaps deployed, mix 2mm (8%) of UP elevator to maintain level flight.
- With low rate flaps deployed, mix 1mm (4%) of UP elevator to maintain level flight.

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.

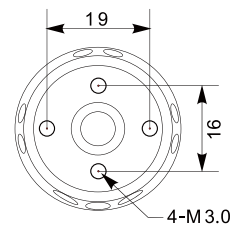
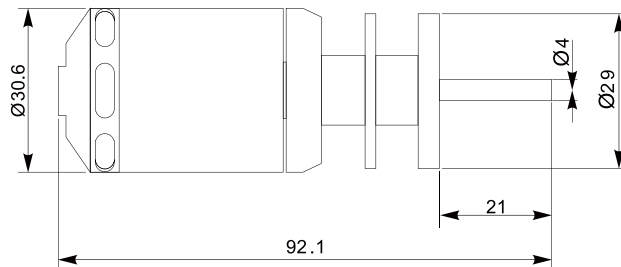
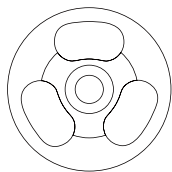


If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos. / Rev.	Cable length
Nose gear steering servo	9g Digital-Hybrid	1	Positive	400mm
Flap(Inside-L)	9g Digital-MG	2	Positive	200mm
Flap(Inside-R)	9g Digital-MG	3	Reverse	200mm
Flap(L)	9g Digital-MG	4	Positive	400mm
Flap(R)	9g Digital-MG	5	Reverse	400mm
Aileron(L)	9g Digital-Hybrid	6	Positive	600mm
Aileron(R)	9g Digital-Hybrid	7	Positive	600mm
Elevator(L)	9g Digital-MG	8	Positive	100mm
Elevator(R)	9g Digital-MG	9	Reverse	100mm
Rudder	9g Digital-Hybrid	10	Positive	100mm

Motor Specification

#MO030481
3048-2150KV



Unit:mm

Item No.	Fan size	Motor specifications	Voltage (V)	Current (A)	Max power (W)	Thrust (g)	Efficiency (g/w)	Speed (rpm)	Weight (g)
E7216	70mm 12-Blade	3048-2150KV	22.2	50-60	1350	2050-2250	1.65	47700	220

