

# Freewing Dual 70mm PJ50 User Manual

**Wingspan: 1730mm**

**Length: 1700mm**

**Empty Weight: 3100G[w/o Battery]**



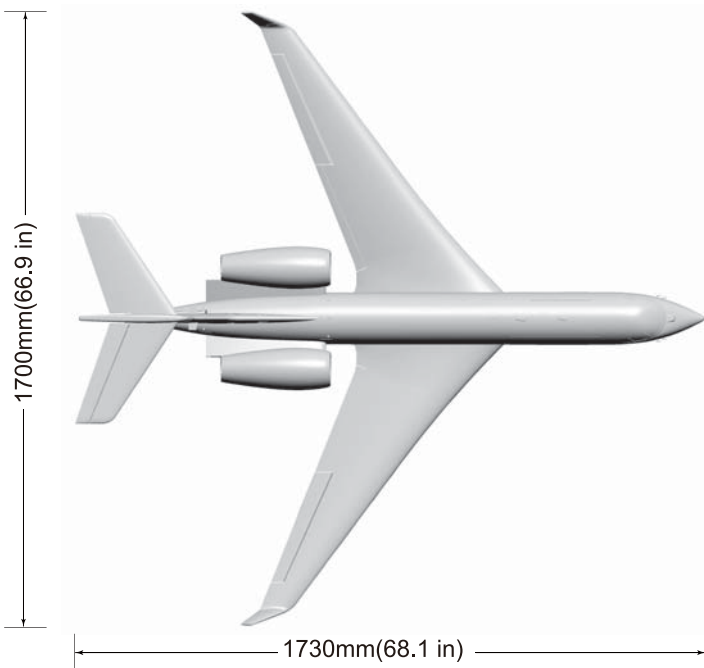
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- 1.This is not a toy! Operater should have a certain experience, beginners should operate under the guidance of professional players.
- 2.Before install, please read through the instructions carefully and operate strictly under instructions.
- 3.Cause 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.

**⚠ 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.



### Standard Version

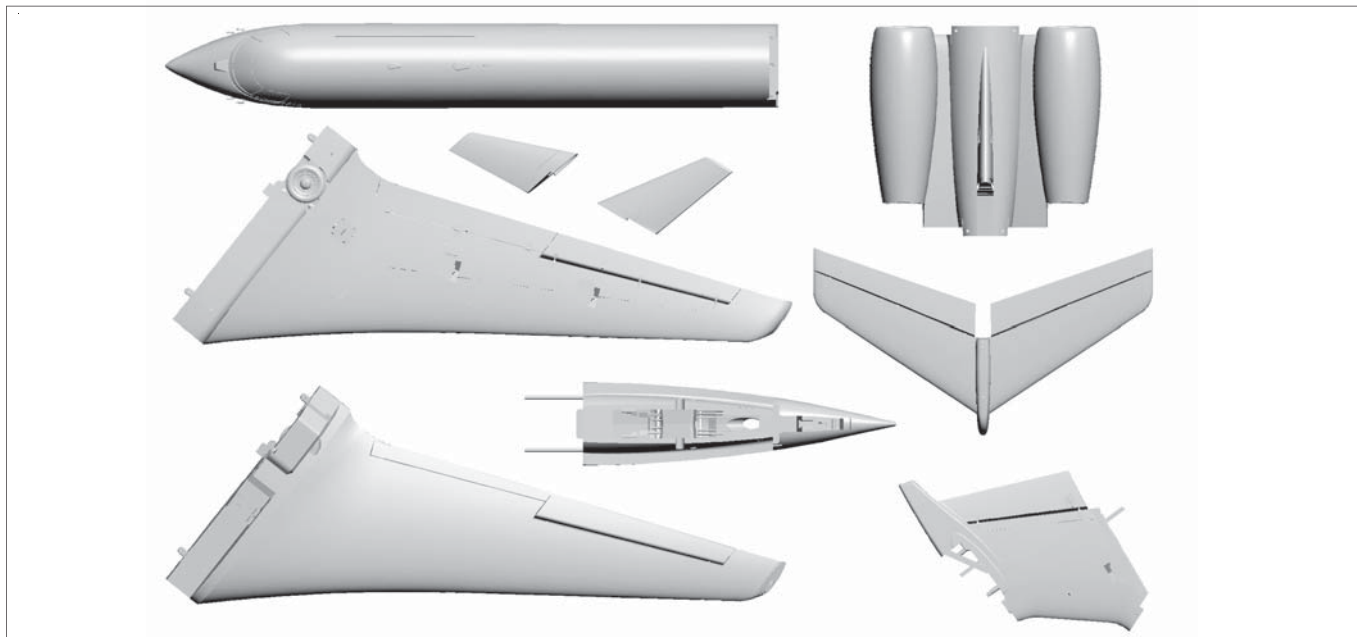
Wingload: 113 g/dm<sup>2</sup>  
 Wing Area: 33.5 dm<sup>2</sup>  
 Servo: 9g MG digital servo (2pcs)  
           9g Hybrid digital servo (6pcs)  
 Motor: 2952-2100KV I/R Motor  
 ESC: 60A with 8A UBEC  
 Ducted fan: 70mm 12-blade fan  
 Weight: 3100g (w/o Battery)

### Other features

Material: EPO  
 Aileron: Yes            Elevator: Yes  
 Rudder: Yes  
 Landing gear: Electric landing gear  
 Cabin door: Yes  
 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.

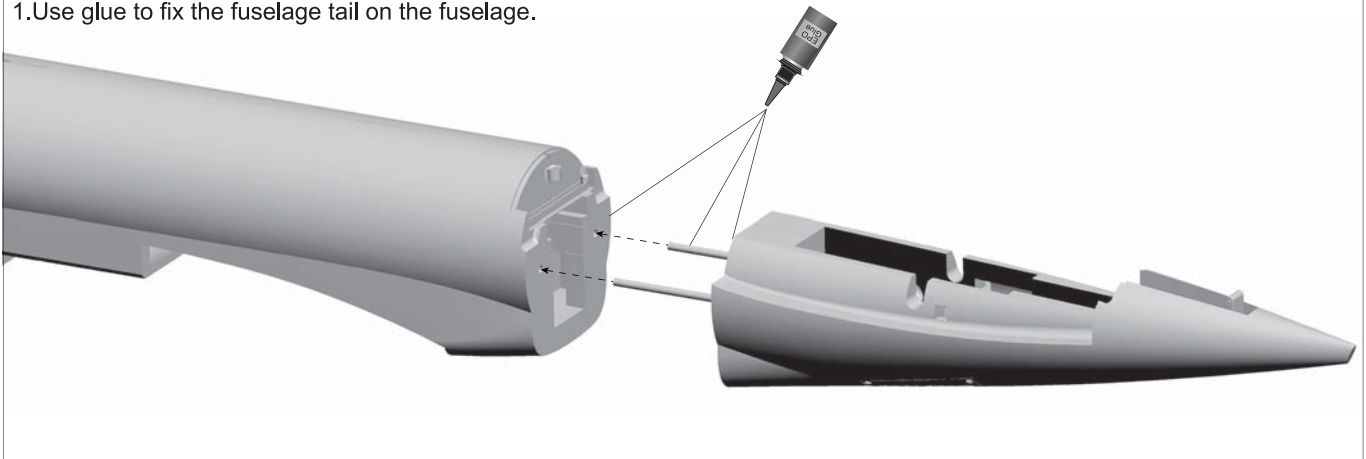
No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo
2	Main wing	Pre-installed all electronic parts	Pre-installed servo
3	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo
5	Engine compartment	✓	✓

No.	Name	PNP	ARF Plus
6	Pushrod	✓	✓
7	Screw bag	✓	✓
8	Manual	✓	✓

## Install Fuselage

As the photo show :

1. Use glue to fix the fuselage tail on the fuselage.

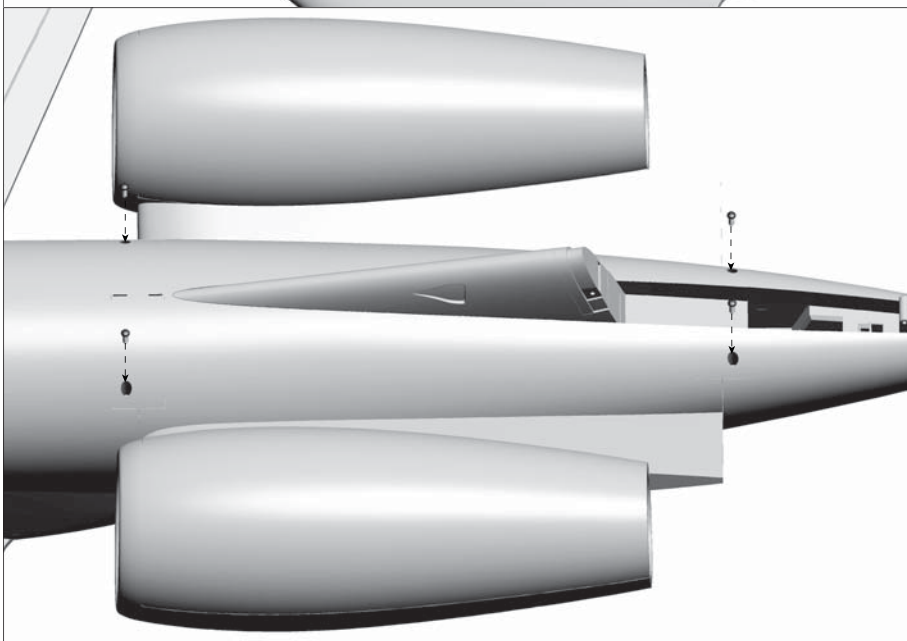
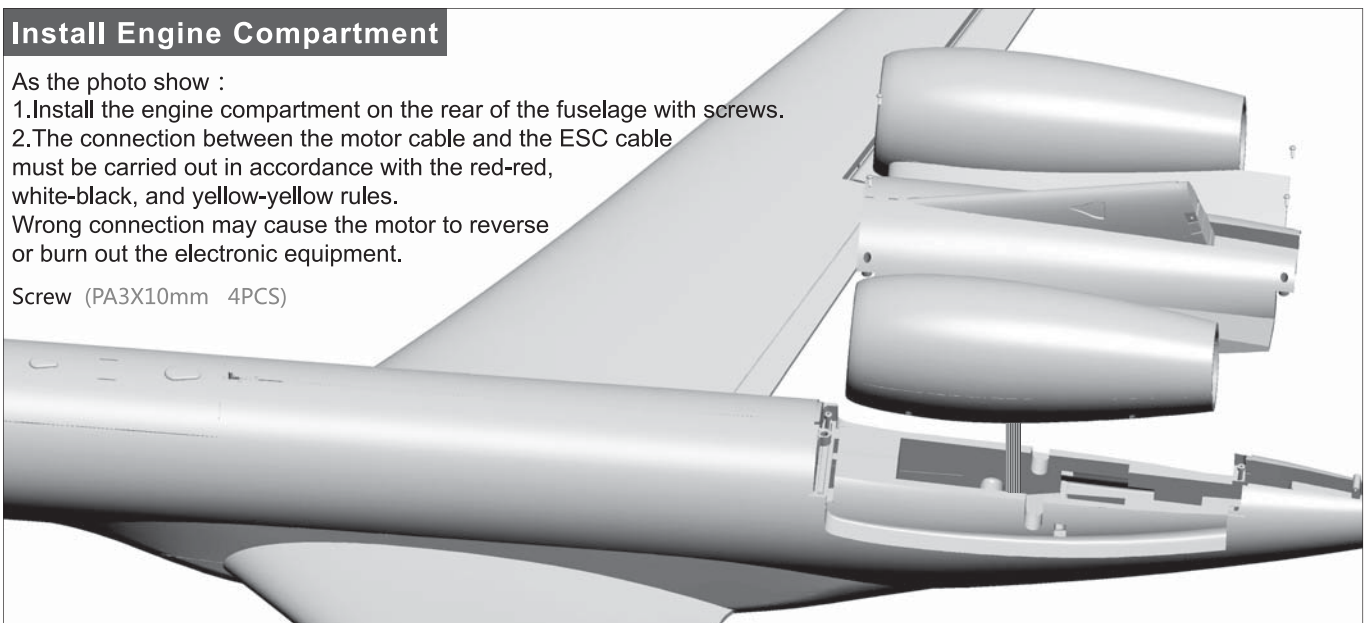


## Install Engine Compartment

As the photo show :

1. Install the engine compartment on the rear of the fuselage with screws.
2. The connection between the motor cable and the ESC cable must be carried out in accordance with the red-red, white-black, and yellow-yellow rules. Wrong connection may cause the motor to reverse or burn out the electronic equipment.

Screw (PA3X10mm 4PCS)

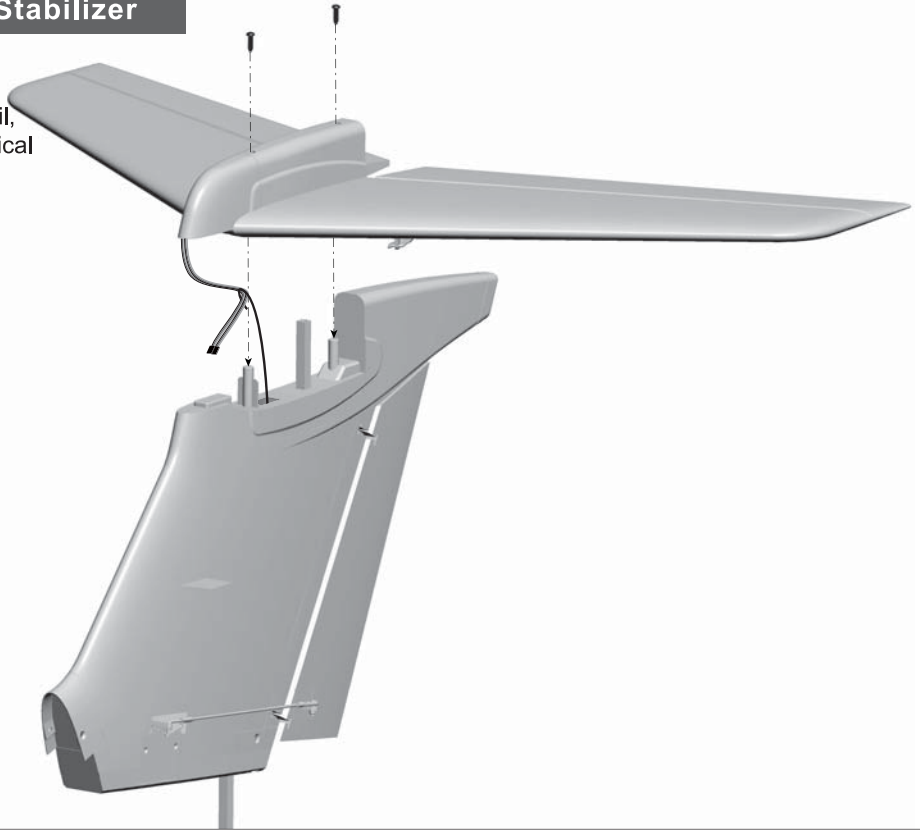


## Install Horizontal、 Vertical Stabilizer

As the photo show :

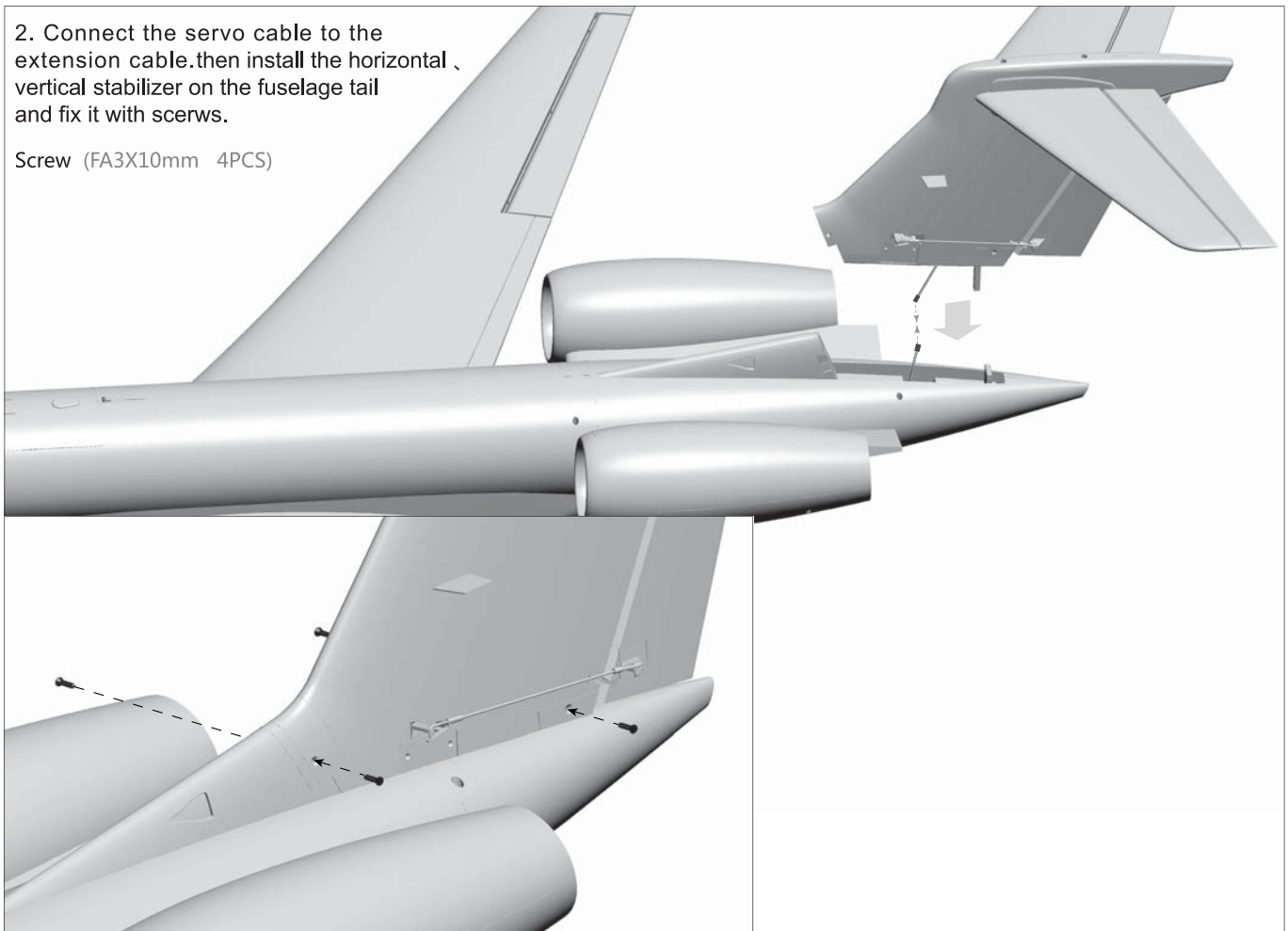
1. Hook the traction wire to the servo cable, and pass it through the vertical tail, then install the horizontal tail on the vertical tail and fix it with screws.

Screw (PA3X10mm 2PCS)



2. Connect the servo cable to the extension cable. then install the horizontal , vertical stabilizer on the fuselage tail and fix it with scerws.

Screw (FA3X10mm 4PCS)

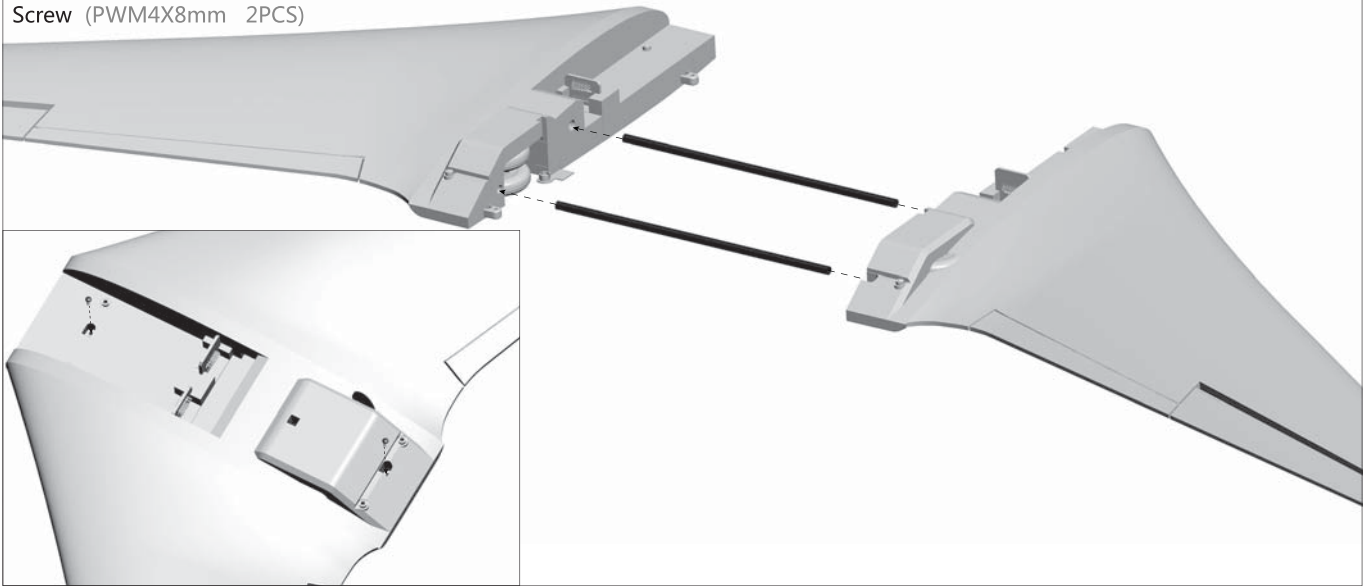


## Install Main Wing

As the photo show :

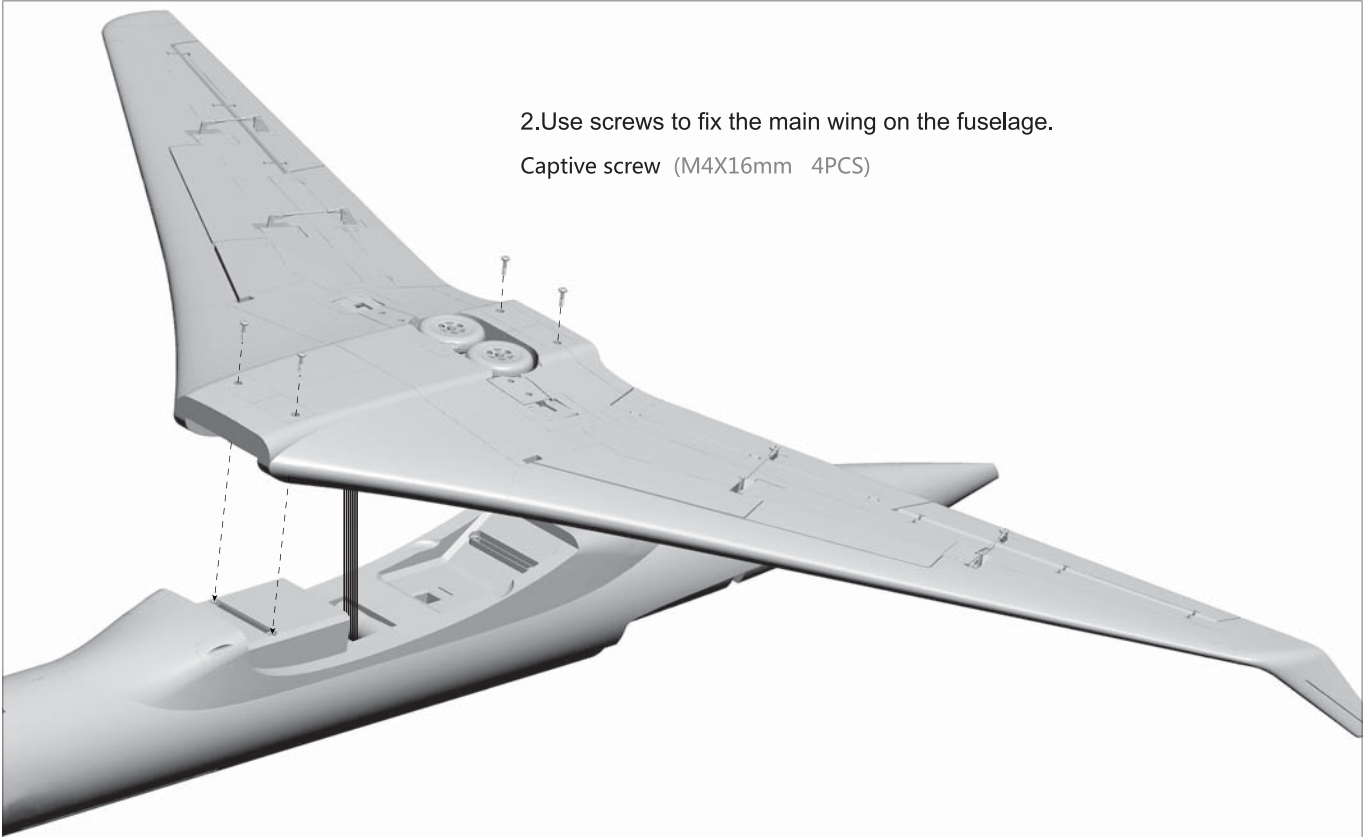
1. Insert the carbon tube into the main wing, assemble the left and right main wing into one body, and then fix it with screws.

Screw (PWM4X8mm 2PCS)



2. Use screws to fix the main wing on the fuselage.

Captive screw (M4X16mm 4PCS)



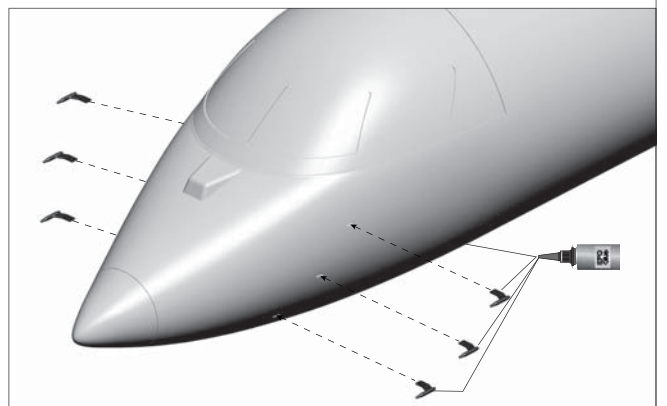
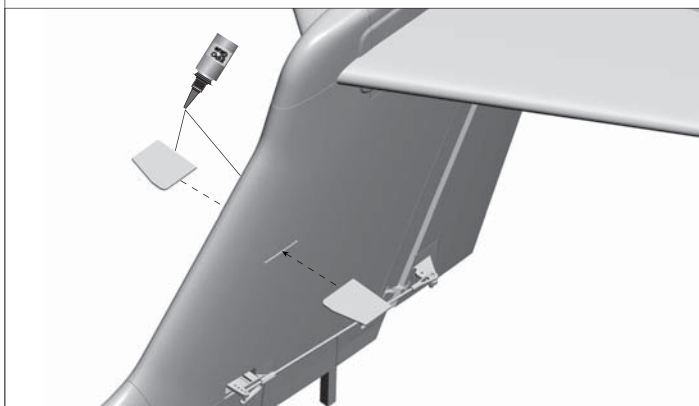
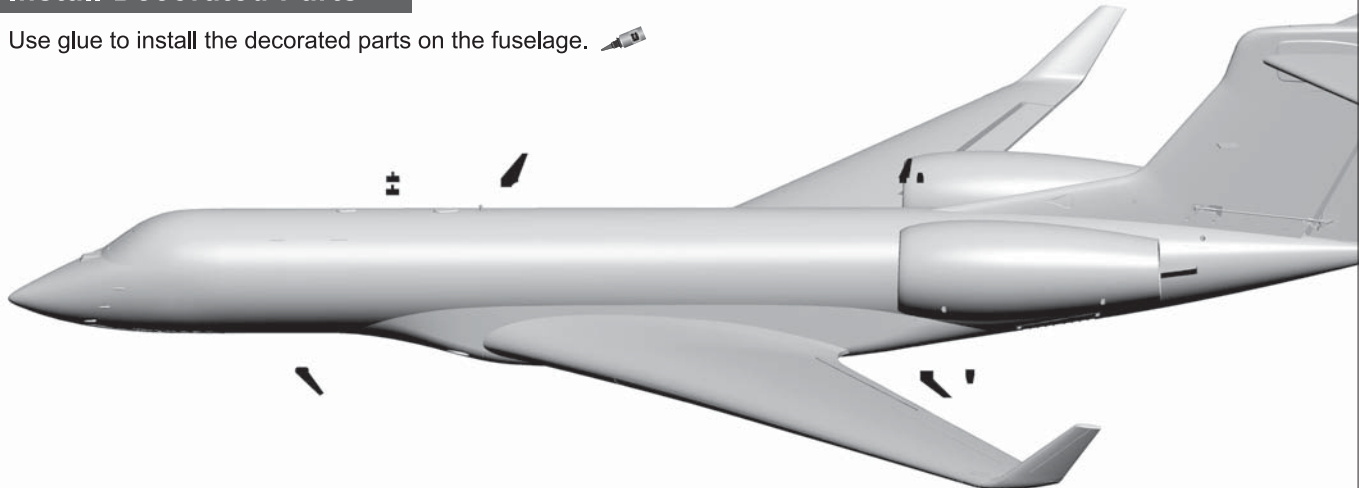


## Install Wingtip



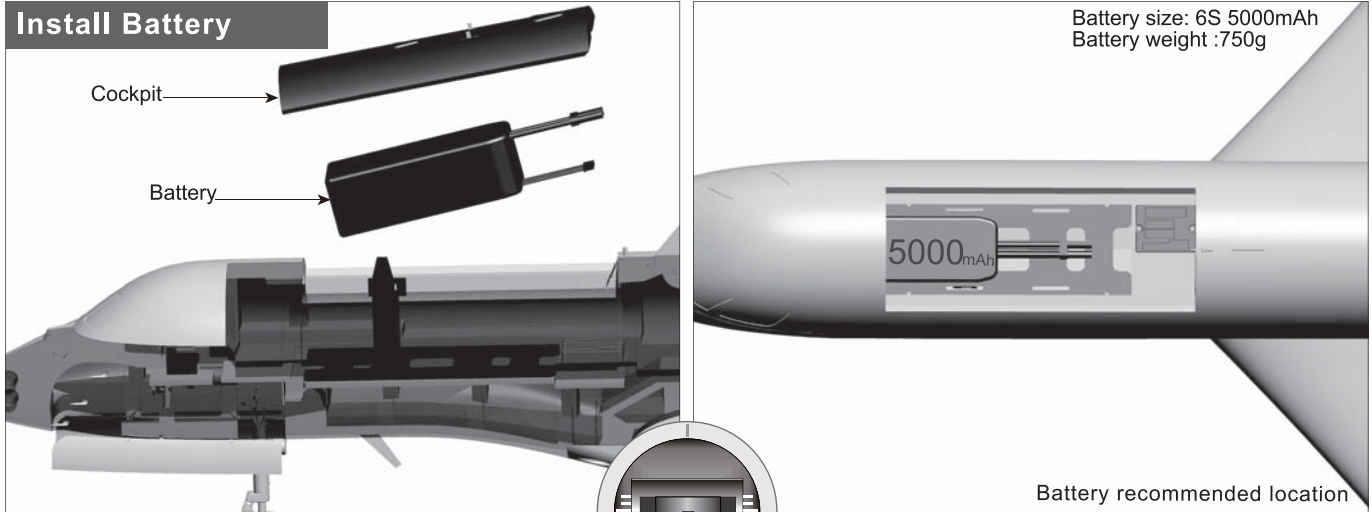
## Install Decorated Parts

Use glue to install the decorated parts on the fuselage. 





## Install Battery

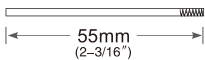


Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.

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

## Pushrod instructions

### Nose gear steering pushrod length

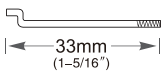


Pushrod diameter  $\varnothing$ 1.2mm

### Nose gear steering pushrod mounting hole



### Nose cabin door pushrod length

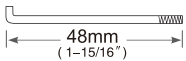


Pushrod diameter  $\varnothing$ 1.2mm

### Nose cabin door pushrod mounting hole



### Aileron pushrod length

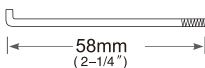


Pushrod diameter  $\varnothing$ 1.5mm

### Aileron pushrod mounting hole



### Flap pushrod length

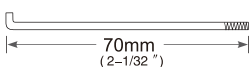


Pushrod diameter  $\varnothing$ 1.5mm

### Flap pushrod mounting hole



### Elevator pushrod length

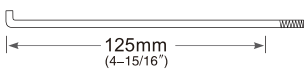


Pushrod diameter  $\varnothing$ 1.5mm

### Elevator pushrod mounting hole



### Rudder pushrod length



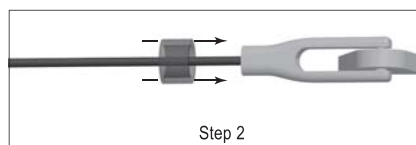
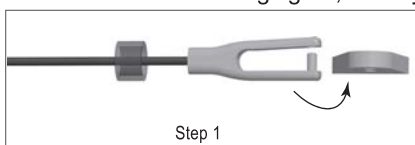
Pushrod diameter  $\varnothing$ 1.5mm

### Rudder pushrod mounting hole



## Important additional notes

The Y-type clevis used in this product is equipped with a transparent silicone ring for secondary reinforcement, which can effectively prevent the clevis from accidentally loosening. As shown in the following figure, when you buckle the clevis into the control surface horn, use the silicone ring to cover the clevis.

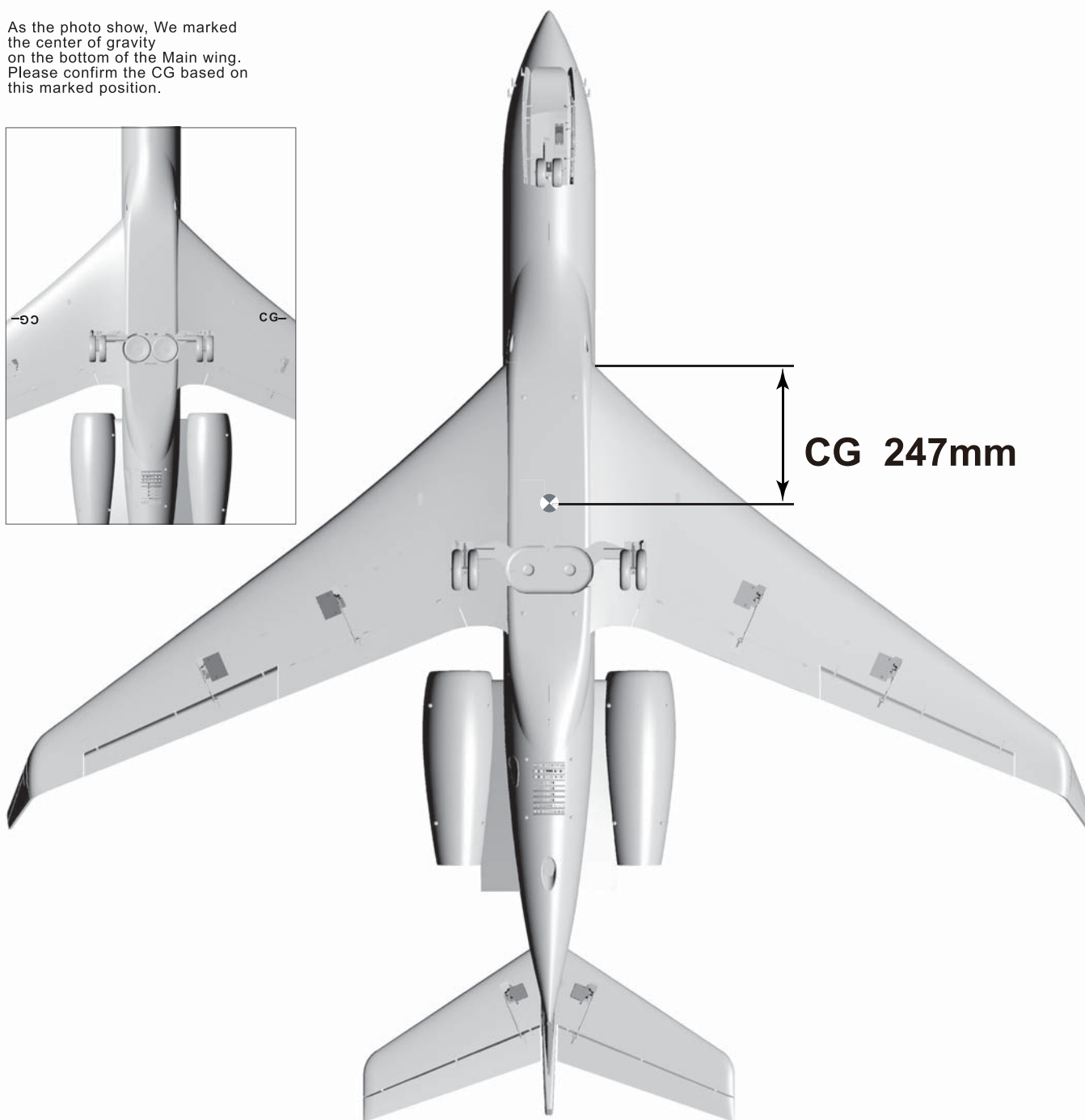
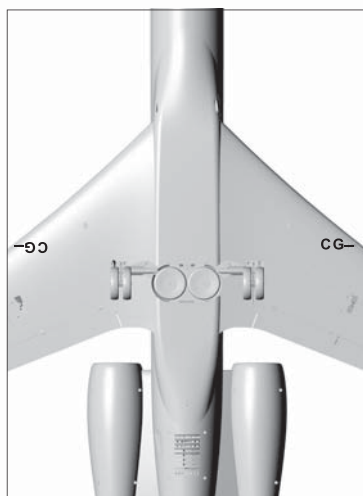


## Center of Gravity

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, We marked the center of gravity on the bottom of the Main wing. Please confirm the CG based on this marked 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

**Rudder**

Stick Left



Stick Right

**Elevator**

Stick down



Stick up

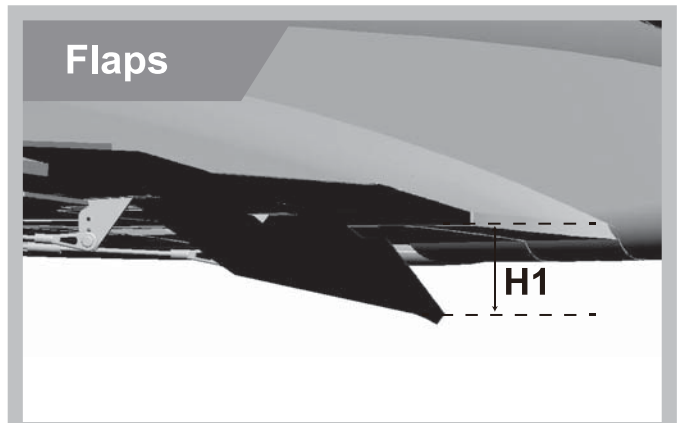
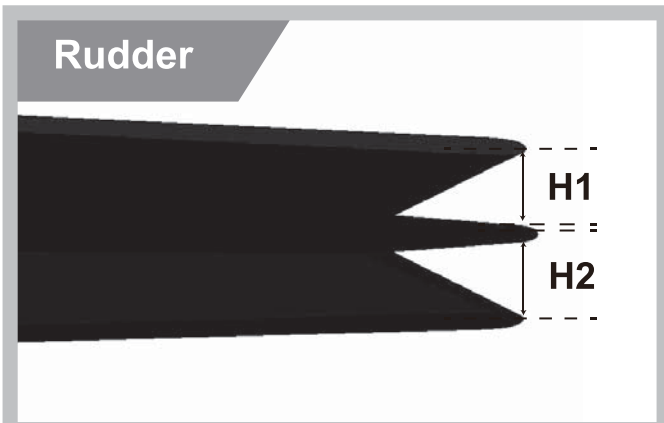
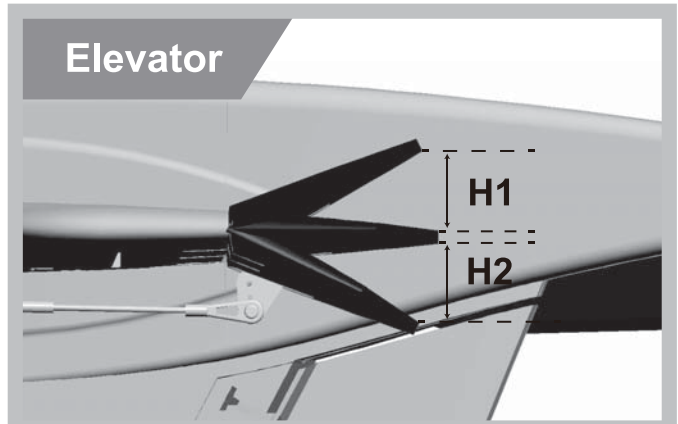
**Flaps**

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.

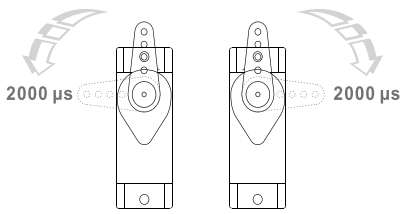


	<b>Aileron</b> (Measured closest to the fuselage)	<b>Elevator</b> (Measured closest to the fuselage)	<b>Rudder</b> (Measured from the bottom)	<b>Flaps</b>
<b>Low Rate</b>	H1/H2 18mm/18mm D/R Rate : 80%	H1/H2 20mm/20mm D/R Rate : 80%	H1/H2 30mm/30mm D/R Rate : 80%	H1 15mm
<b>High Rate</b>	H1/H2 23mm/23mm D/R Rate : 100%	H1/H2 24mm/24mm D/R Rate : 100%	H1/H2 37mm/37mm D/R Rate : 100%	H1 29mm

**⚠ Important Flight Notes:**

There is an elevator adjustment scale on the vertical tail, just align and adjust. The elevators need to be adjusted 5mm up.

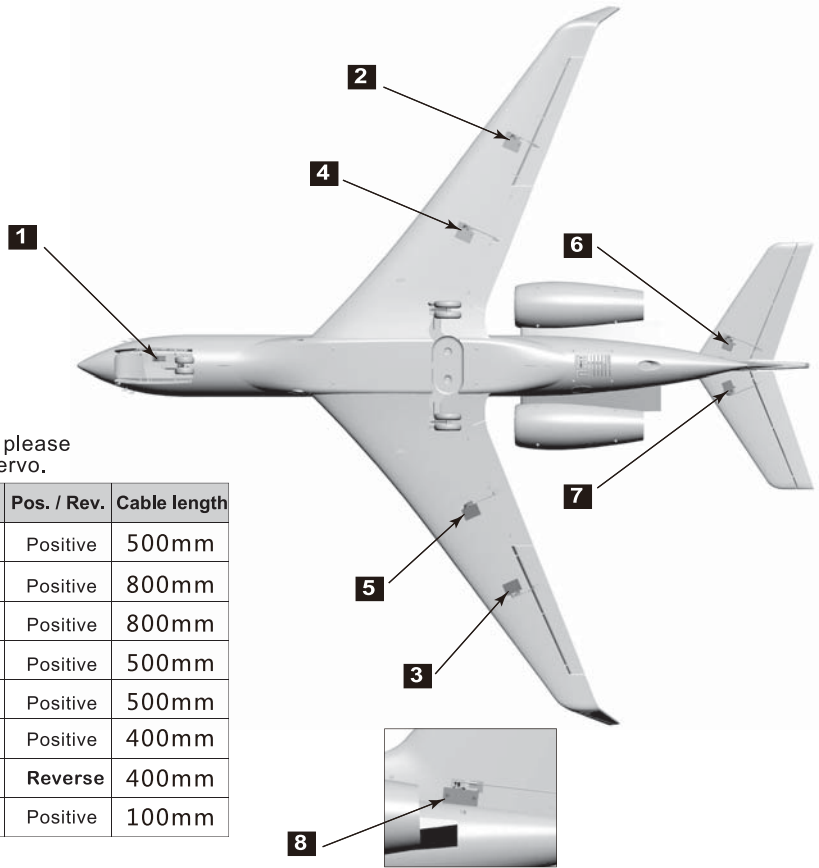
## Servo Direction



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

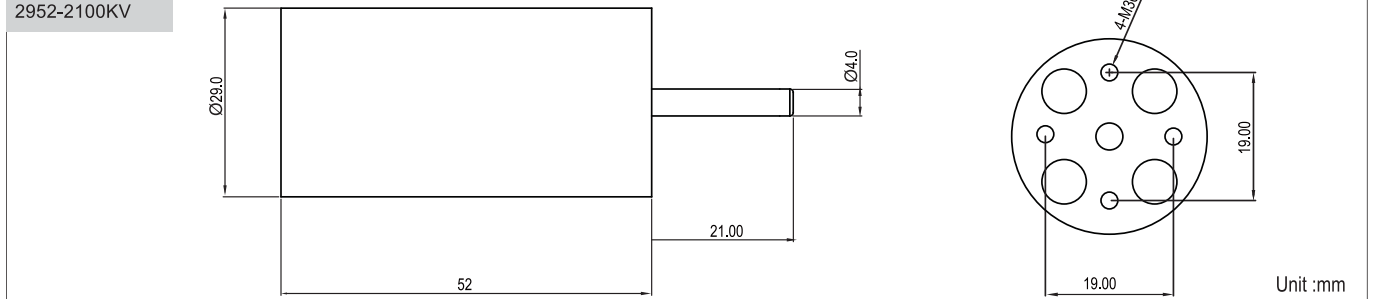
If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos. / Rev.	Cable length
Nose gear steering servo	9g Digital-Hybrid	1	Positive	500mm
Aileron(L)	9g Digital-Hybrid	2	Positive	800mm
Aileron(R)	9g Digital-Hybrid	3	Positive	800mm
Flap(L)	9g Digital-Hybrid	4	Positive	500mm
Flap(R)	9g Digital-Hybrid	5	Positive	500mm
Elevator(L)	9g Digital-MG	6	Positive	400mm
Elevator(R)	9g Digital-MG	7	Reverse	400mm
Rudder	9g Digital-Hybrid	8	Positive	100mm



## Motor Specification

Item No. MI029521  
 2952-2100KV



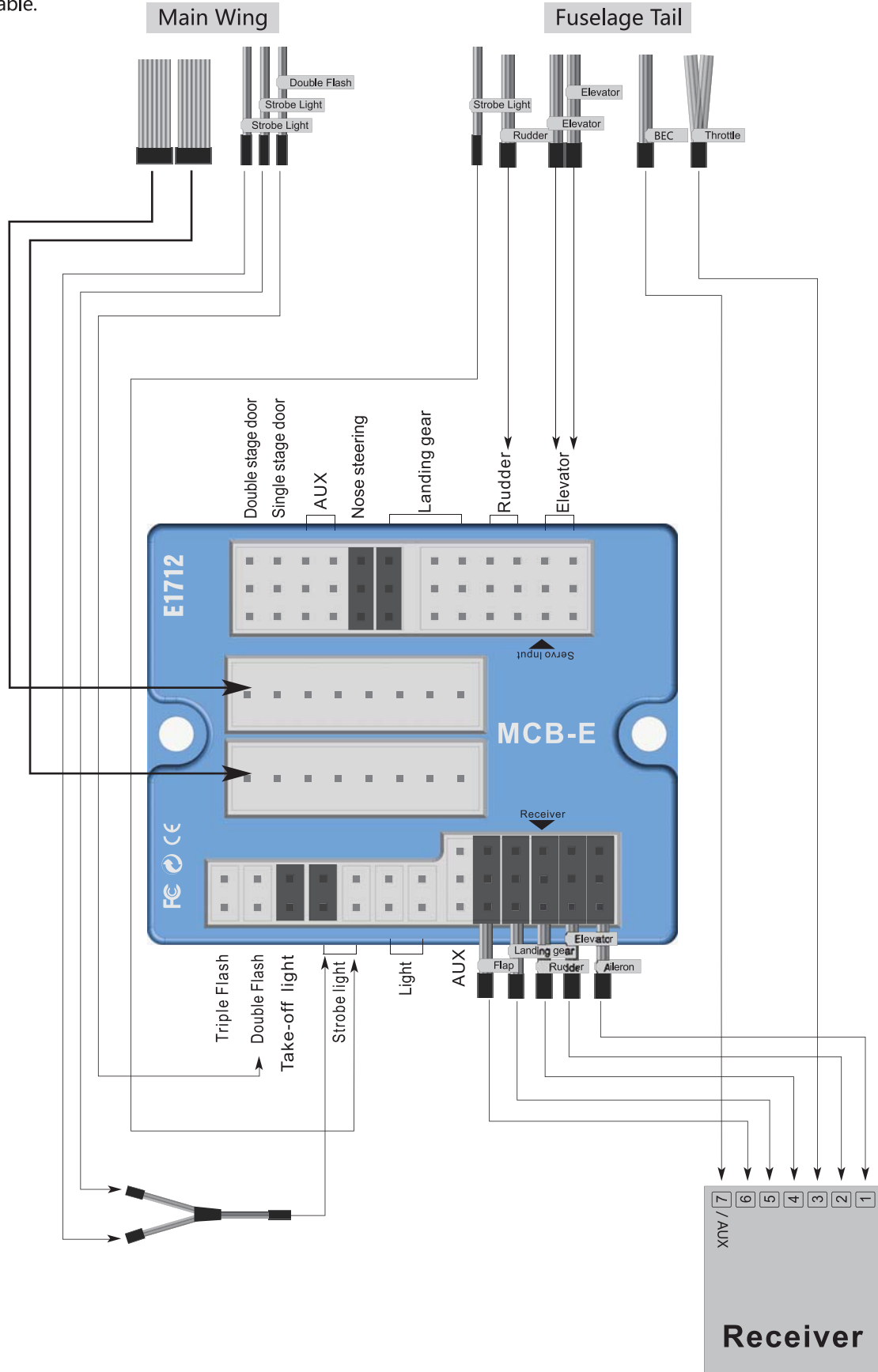
Item No.	Motor size	Motor(KV)	Thrust(g)	Current(A)	Use voltage (V)	Use ESC (A)	EDF Weight (g)	Max power (W)	Efficiency (g/w)
E7219	2952-2100KV	2100KV	2100-2200	50-55	22.2 (6S)	60	230	1170	1.83

# Control box wiring diagram

EN

In the PNP version, open the cockpit, you can see 11 unconnected wire ends. Please follow the label on the connection wire to connect as shown below.

The "■" shaded symbol on the main wing control board indicates that in the PNP version, this channel has been plugged into the cable.





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