

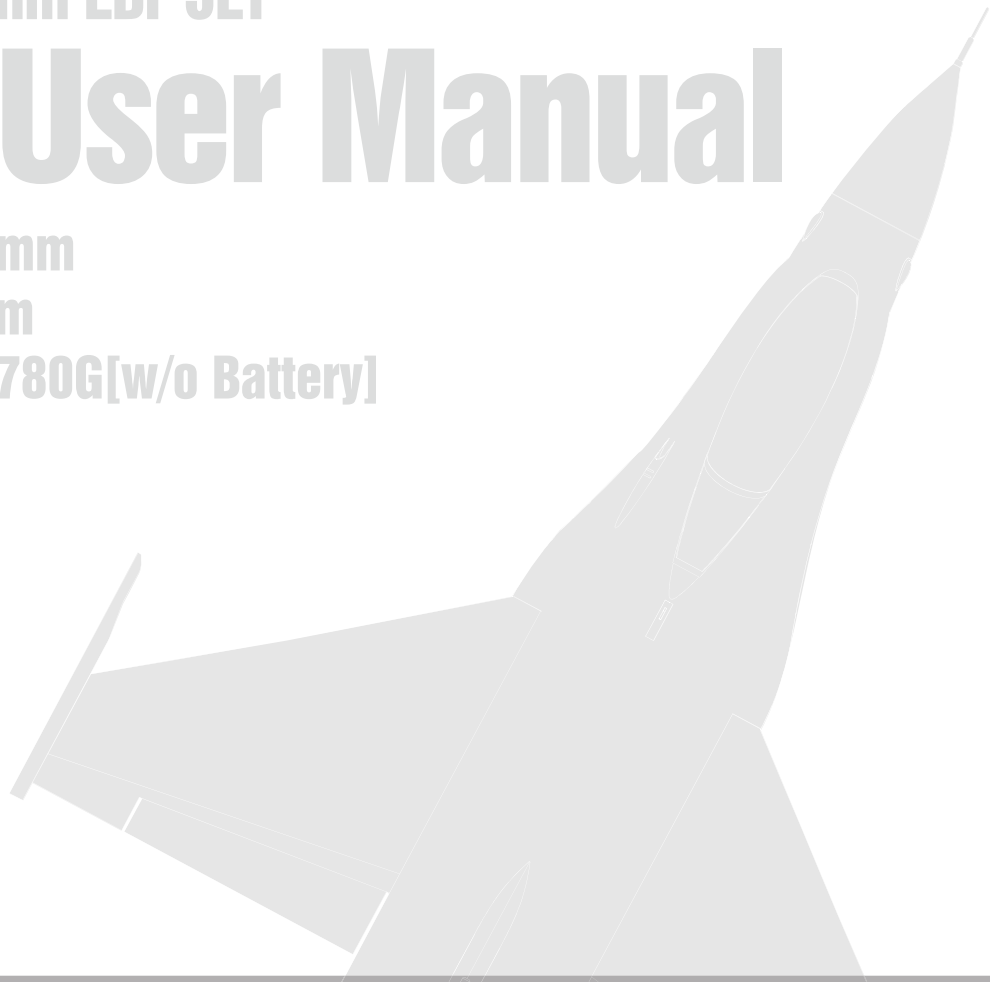
## Freewing 64mm EDF JET

# F-16 User Manual

Wingspan:680mm

Length:1050mm

Empty Weight:780G[w/o Battery]



### ⚠️ 电调使用说明：

1. 本款产品使用了新的40A V2版电调，新增“降落油门反推刹车”功能。
2. 此电调有二条连接线，分别为：油门（Throttle）信号控制线及油门反推刹车（Reverse Brake）控制线。
3. 连接说明：
  - 油门信号控制线（Throttle）  
插入接收机油门通道，控制油门大小。
  - 油门反推刹车（Reverse Brake）控制线  
插入接收机任意空闲二程开关通道。飞机降落着地后，在遥控器上，通过切换此对应通道开关，开启“油门反推刹车”功能。

### 警告：

模型飞机离地后，在飞行过程中，不能开启“油门反推刹车”功能，否则会丧失动力，导致严重飞行事故。

### ⚠️ ESC Instruction：

1. This product uses the new 40A V2 ESC, and adds the "Reverse throttle deceleration after landing" function.
2. This ESC has two connecting cables: "Throttle" signal control cable and "Reverse Brake" control cable.
3. Connection Instruction
  - "Throttle" signal control cable insert into the throttle channel of receiver to control the throttle size.
  - "Reverse Brake" control cable insert into any free two-way switch channel of receiver. After the plane lands on the ground, switch the corresponding channel switch on the radio to turn on the "Reverse throttle deceleration" function.

### Note:

After the model aircraft is off the ground, during the flight, the "throttle reverse thrust" function cannot turn on, otherwise the forward power will be lost, and resulting in a serious flight accident.



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中 12~22

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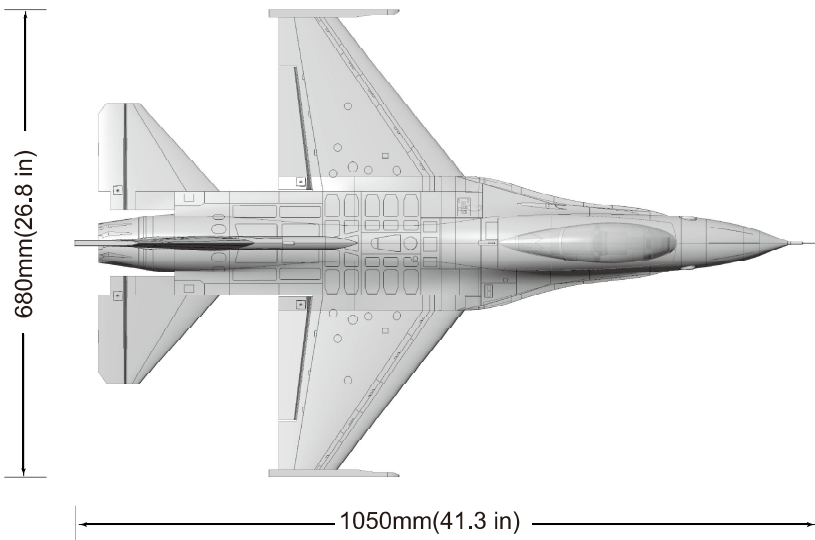
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Thank you for purchasing our Freewing F-16 Falcon 64mm EDF jet model plane. This model is made of high-density EPO foam material. PNP has completed the painting and decal work before leaving the factory, and has been pre-installed the power system, ESC, servos and other operational structural components. For a long time, the F-16 model, with its excellent flight performance and beautiful appearance, has been deeply loved by many EDF jet enthusiasts. This latest 64-ducted model aircraft simplifies the control structure and landing gear, reduces its weight and reduces the wing load while ensuring the exquisite appearance. While improving and enhancing the flight performance, it effectively controls the product cost. It is an entry-level product that is very suitable for model aircraft enthusiasts in the new electric ducted jet field to try and experience.

**⚠ 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.

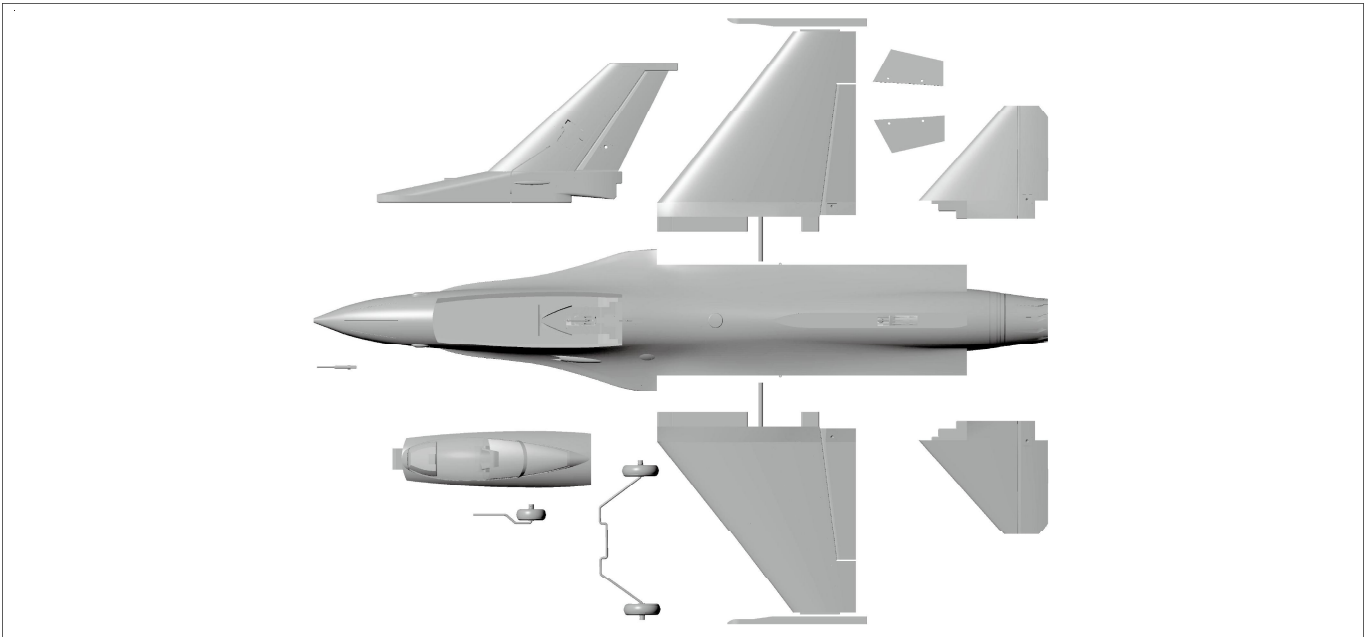


**Standard Version**

- Wingload: 110 g/dm<sup>2</sup>
- Wing Area: 9 dm<sup>2</sup>
- Motor: 2840-2850KV O/R Motor
- Servo: 9g Digital plastic servo ×6
- ESC: 40A (V2 with Thrust Reverse Fuction)
- Ducted fan: 64mm 12-blade fan
- Weight: 780g(w/o Battery)
- Li-Po Battery: 4S 1600-2600mAh
- Landing gear: Fixed landing gear

**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**



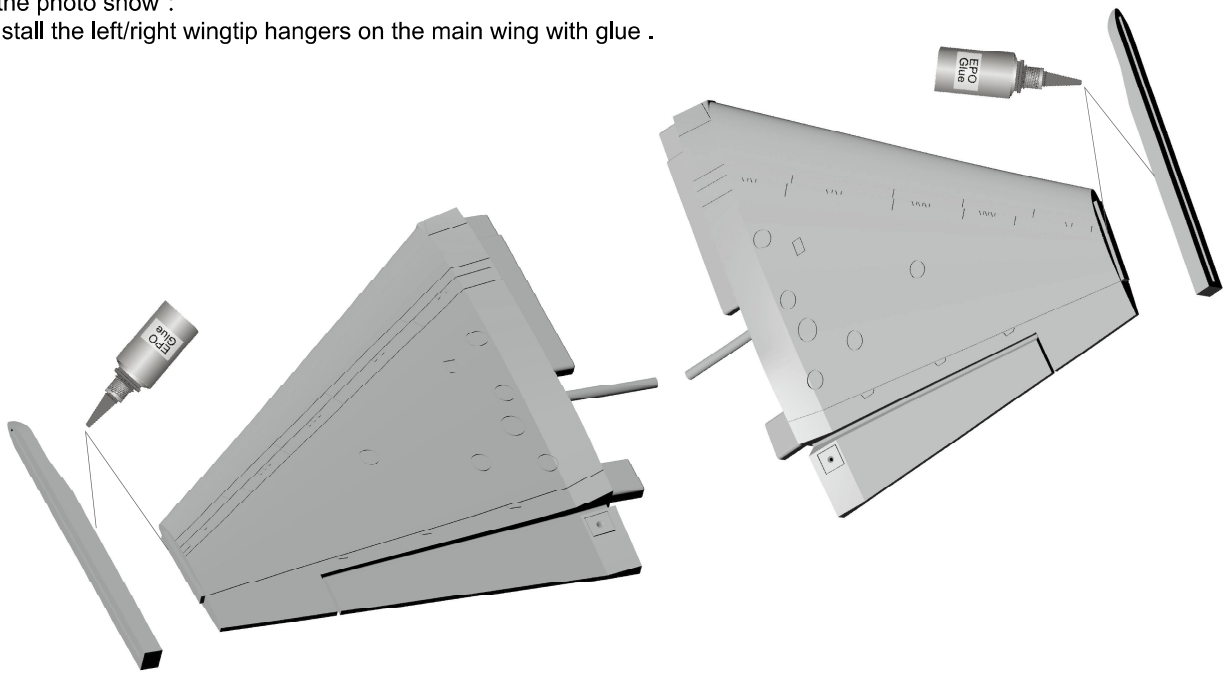
Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

No.	Name	PNP	ARF Plus	No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	5	Wheel	✓	✓
2	Main wing	Pre-installed all electronic parts		6	Pushrod	✓	✓
3	Horizontal tail	Pre-installed all electronic parts		7	Glue	✓	✓
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	8	Manual	✓	✓

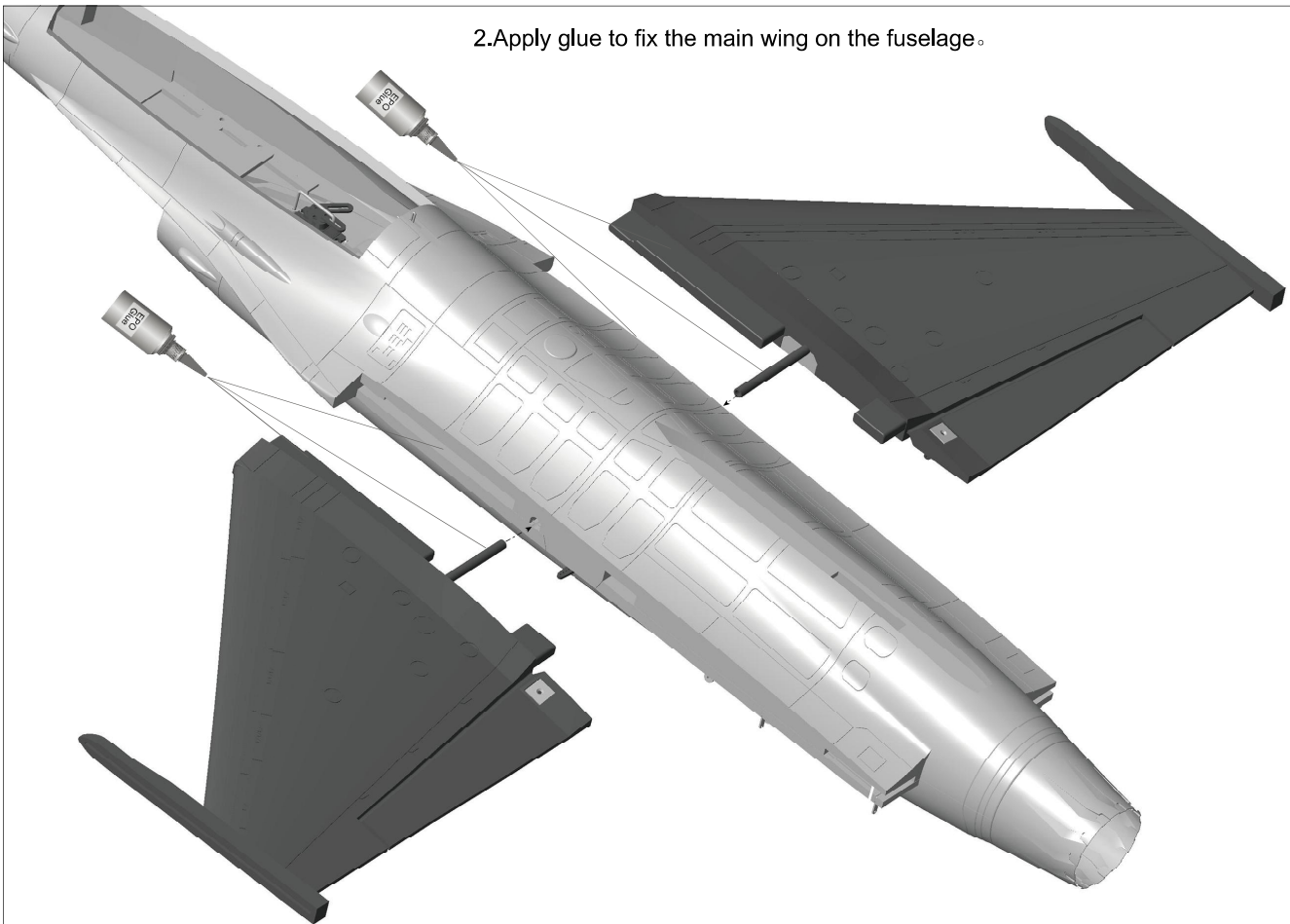
## Install Main Wing

As the photo show :

1.Install the left/right wingtip hangers on the main wing with glue .



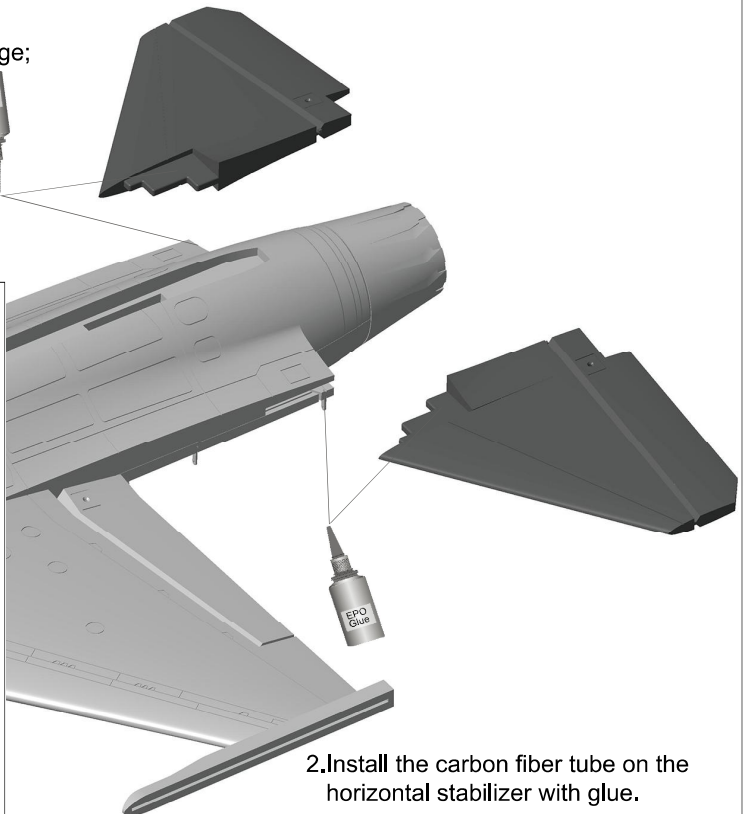
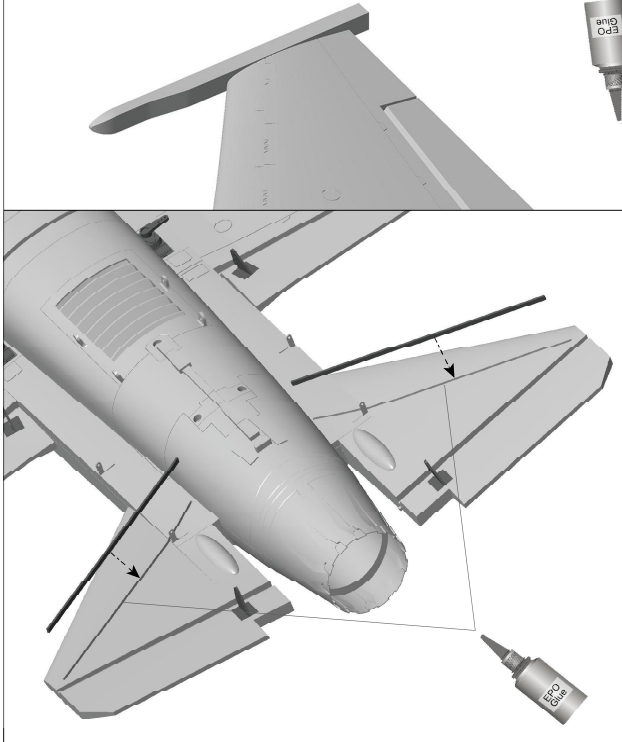
2.Apply glue to fix the main wing on the fuselage.



## Install Horizontal Stabilizer

As the photo show :

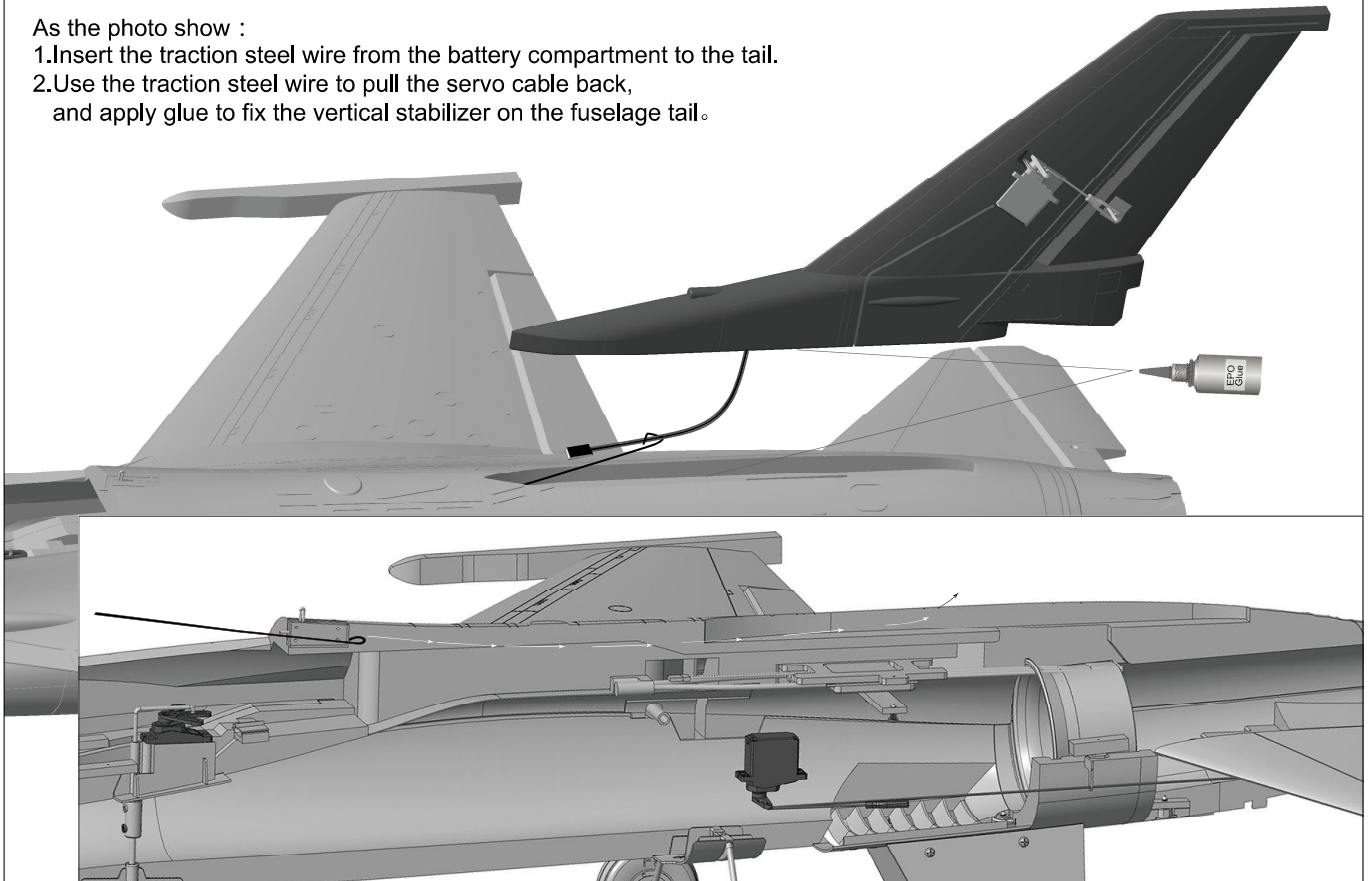
1. Apply glue to fix the horizontal stabilizer on the fuselage;



## Install Vertical Stabilizer

As the photo show :

1. Insert the traction steel wire from the battery compartment to the tail.
2. Use the traction steel wire to pull the servo cable back, and apply glue to fix the vertical stabilizer on the fuselage tail.

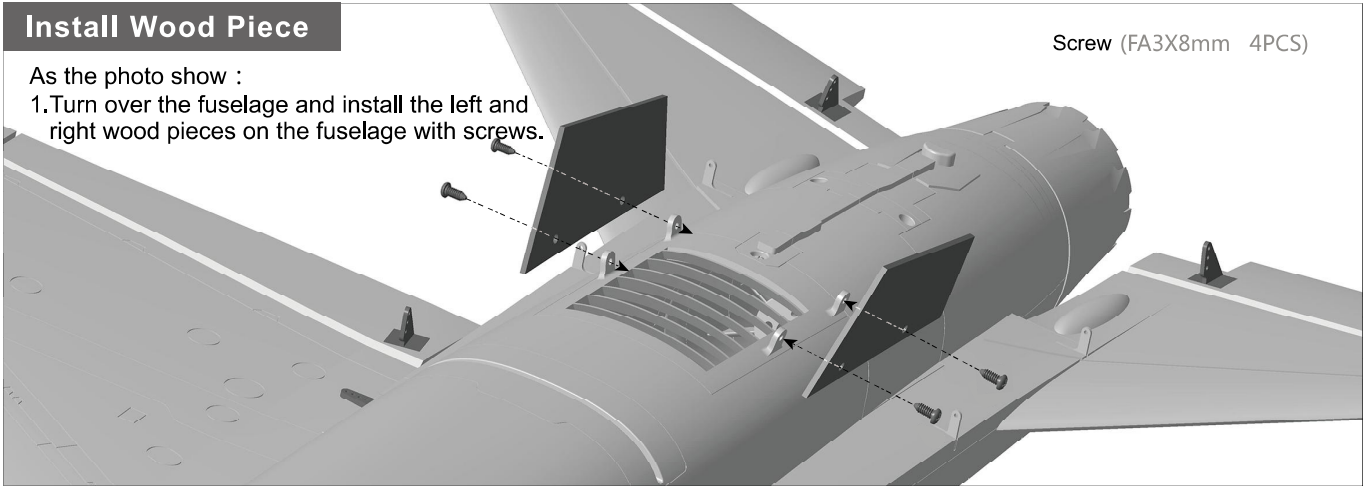


## Install Wood Piece

Screw (FA3X8mm 4PCS)

As the photo show :

1. Turn over the fuselage and install the left and right wood pieces on the fuselage with screws.

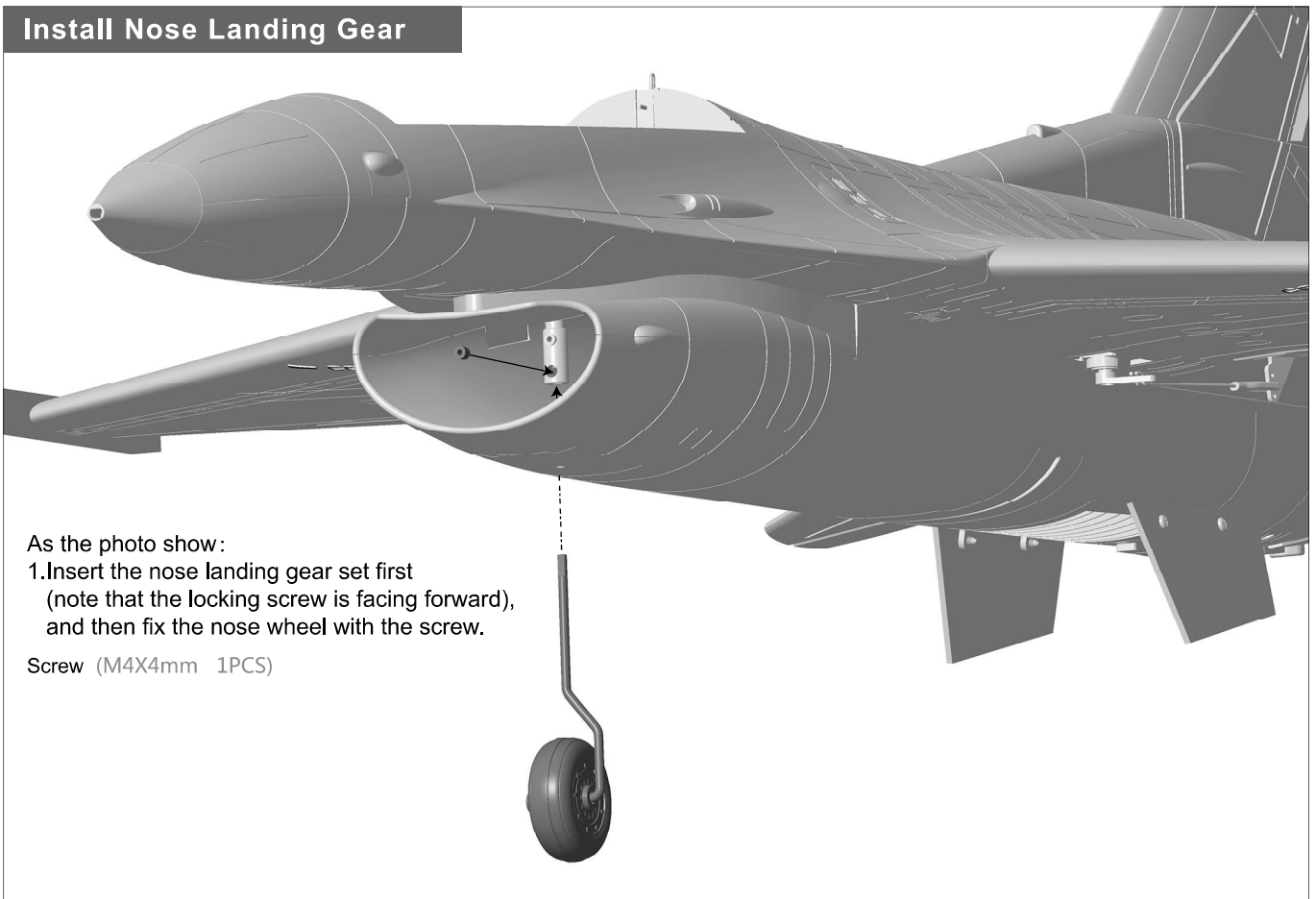


## Install Nose Landing Gear

As the photo show :

1. Insert the nose landing gear set first (note that the locking screw is facing forward), and then fix the nose wheel with the screw.

Screw (M4X4mm 1PCS)



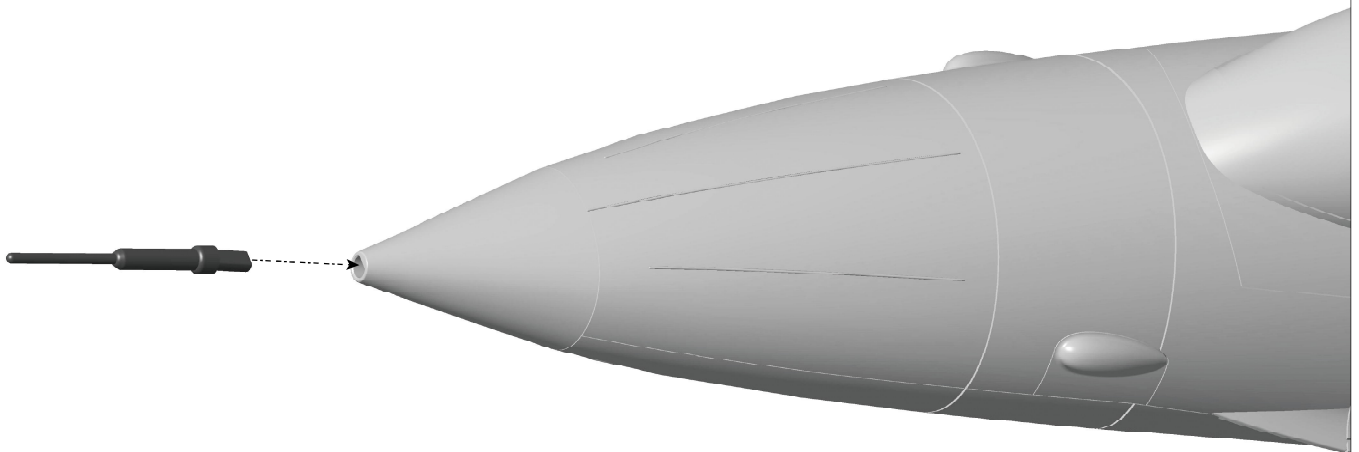
## Install Rear Landing Gear

As the photo show :  
1.Insert the rear landing gear into  
the rear landing gear fixed mount.



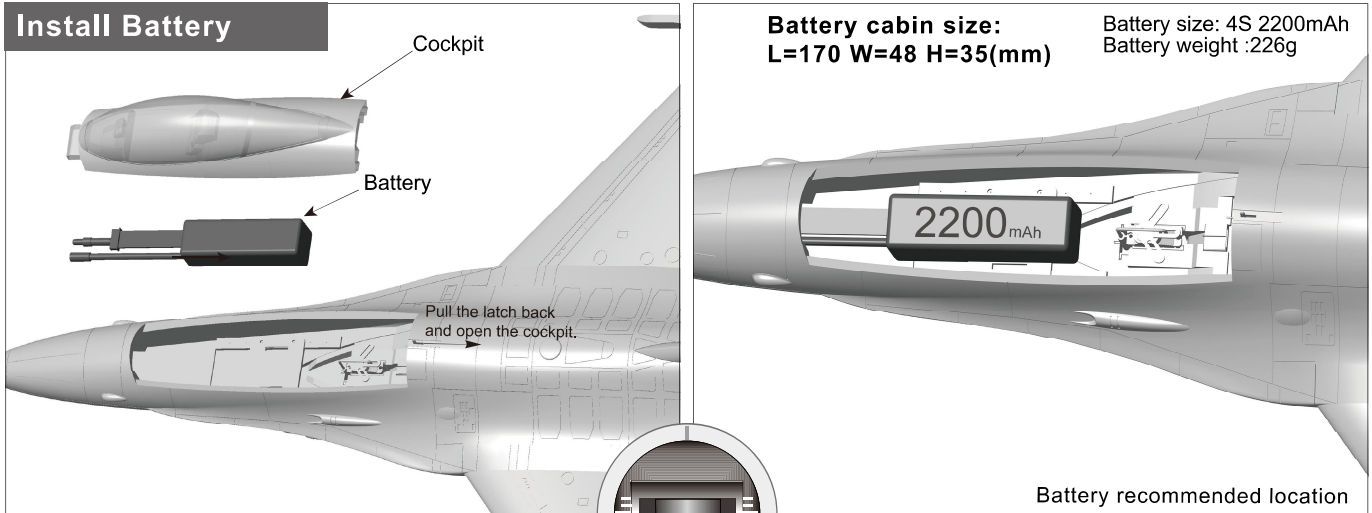
## Install Pitot Tube

As the photo show :  
1.Insert the Pitot tube into the nose cone ( plug directly).





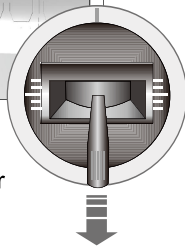
## Install Battery



**Battery cabin size:**  
L=170 W=48 H=35(mm)

Battery size: 4S 2200mAh  
Battery weight :226g

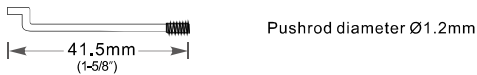
Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.



We recommend the following LiPo battery:  
**4S 14.8V 1600mAh~4S 14.8V 2600mAh**  
Discharge rate of C ≥ 35C

## Pushrod instructions

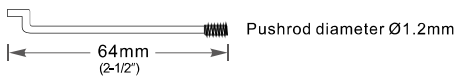
### Rudder pushrod length



### Rudder pushrod length



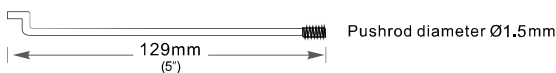
### Main wing pushrod length



### Main wing pushrod length



### Elevator pushrod length



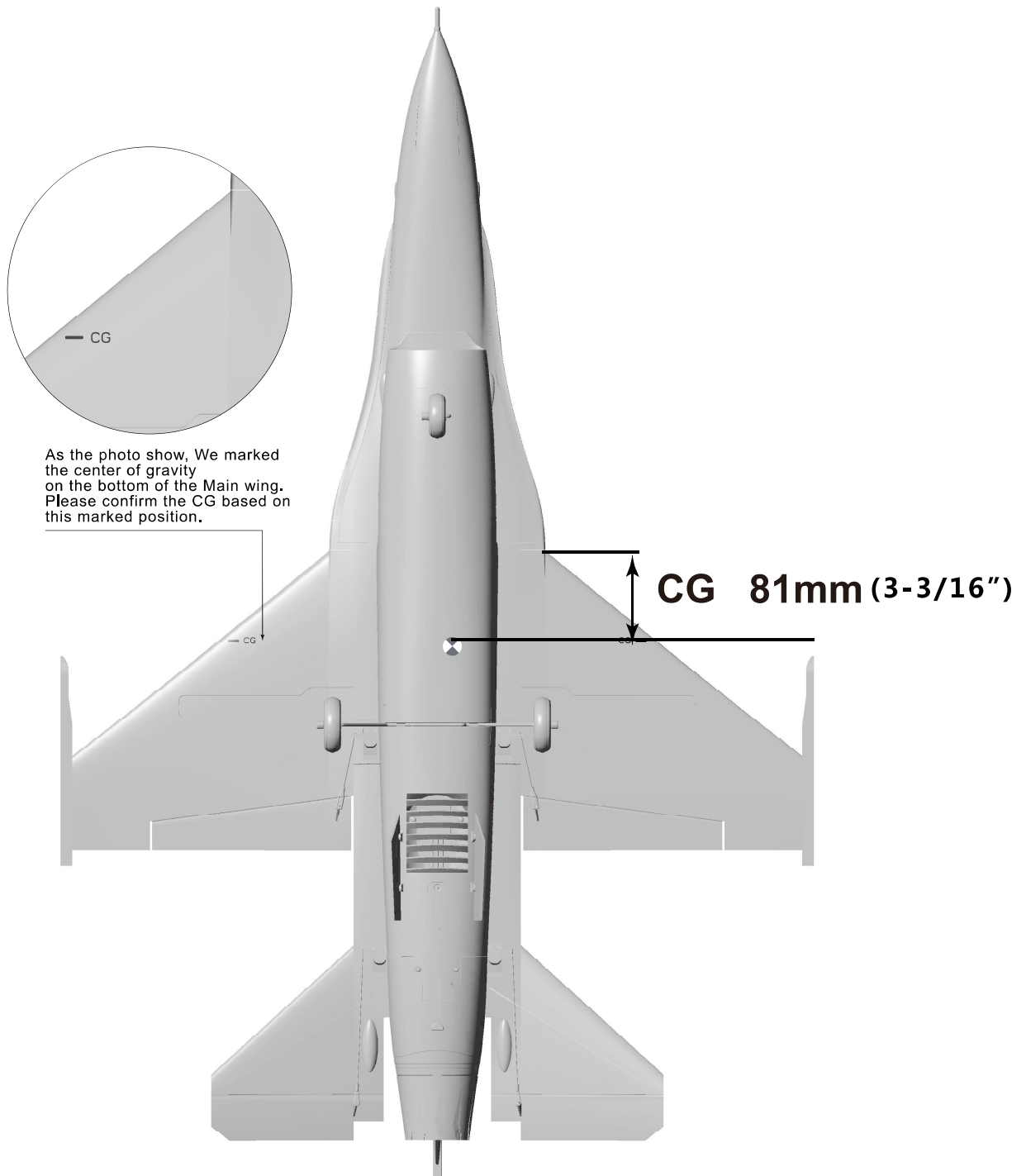
### Elevator pushrod length



## 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.

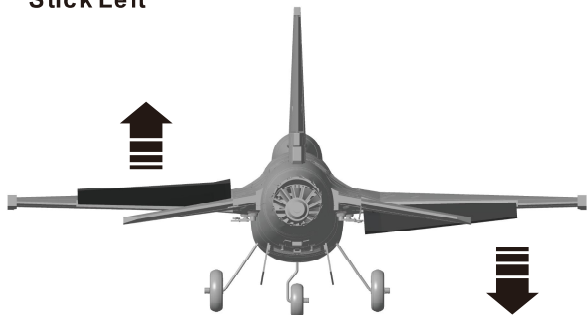


**Control Direction Test**

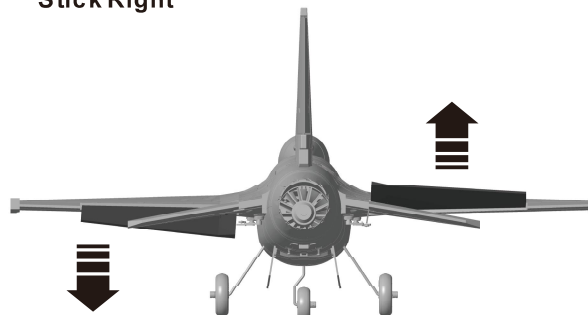
After installed the plane, before flying, we need a fully charged battery and connect to the ESC, then use radio to test and check that every control surface work properly.

**Aileron**

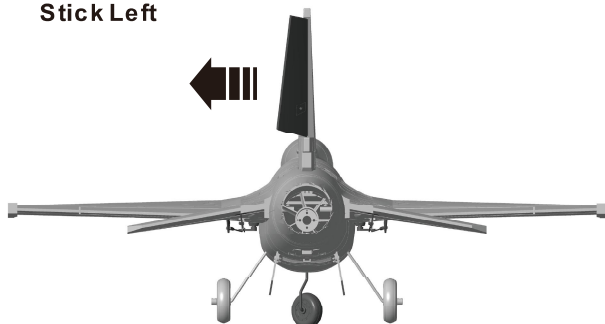
Stick Left



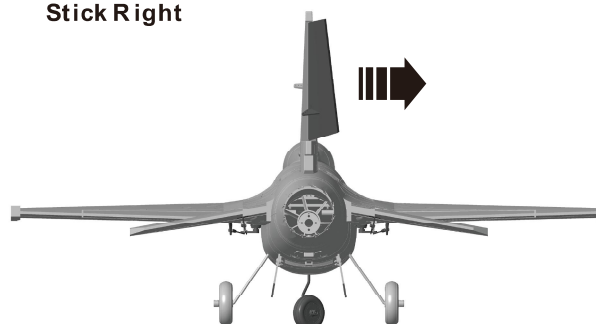
Stick Right

**Rudder**

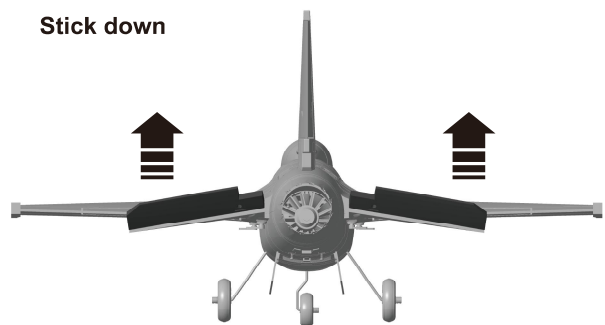
Stick Left



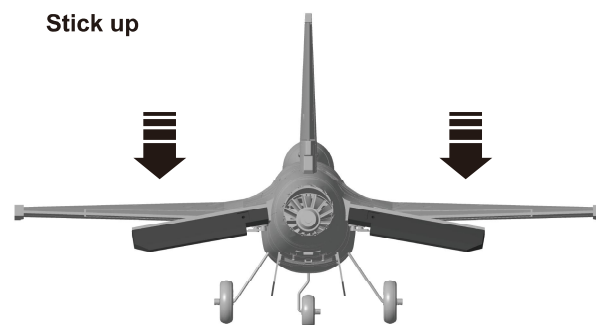
Stick Right

**Elevator**

Stick down

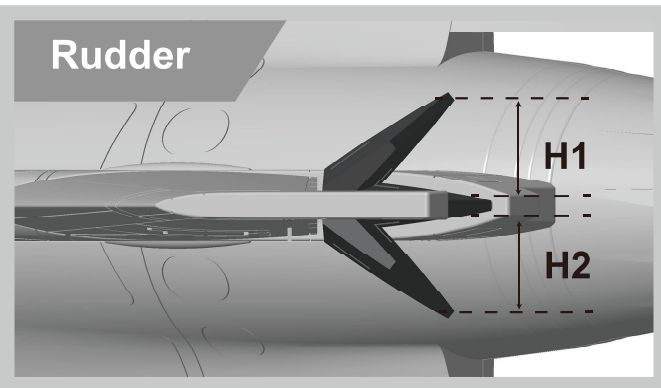
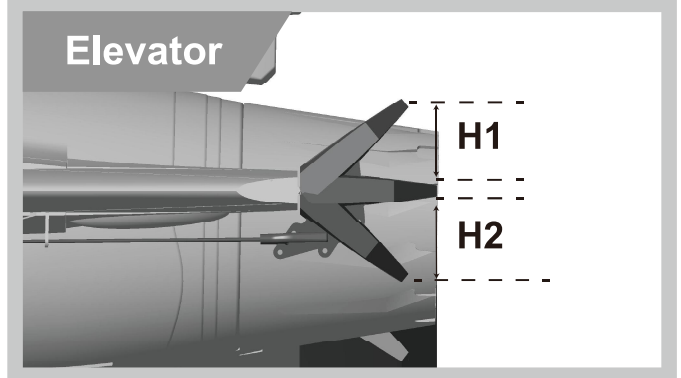
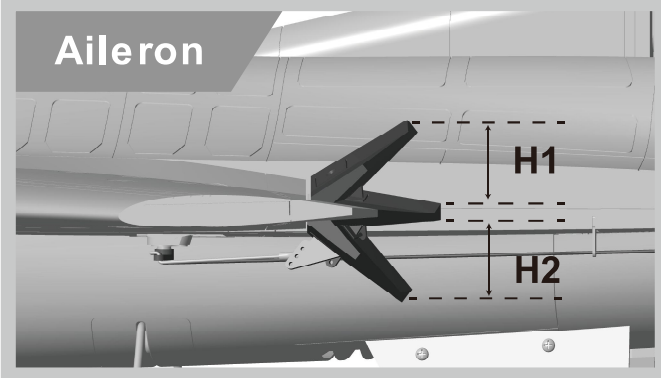


Stick up



Dual Rates

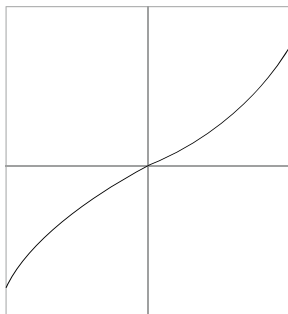
According to our testing experience, use the following parameters to set Aileron/Elevator Rate. Program your preferred Exponential % in your radio transmitter. We recommend using High Rate for the first flight, and switching to Low Rate if you desire a lower sensitivity. On successive flights, adjust 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>Low Rate</b>	H1/H2 16mm/16mm D/R Rate : 60%	H1/H2 11mm/11mm D/R Rate : 60%	H1/H2 18mm/18mm D/R Rate : 70%
<b>High Rate</b>	H1/H2 21mm/21mm D/R Rate : 80%	H1/H2 16mm/16mm D/R Rate : 80%	H1/H2 28mm/28mm D/R Rate : 100%

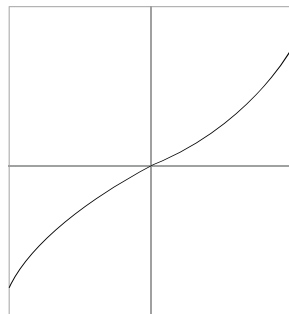
Remote Control EXP Setting Suggestion

1. Aileron EXP curve is shown as below :



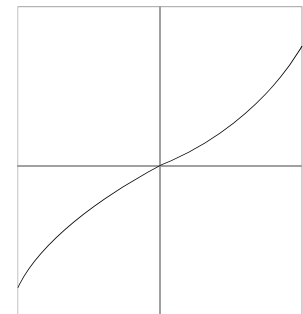
Futaba brand Remote Control : EXP A -30  
EXP B -30

2. Elevator EXP curve is shown as below :



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

## ⚠ ESC Instruction

1. This product uses the new 40A V2 ESC, and adds the "Reverse throttle deceleration after landing" function.
2. This ESC has two connecting cables: "Throttle" signal control cable and "Reverse Brake" control cable.

### 3. Connection Instruction:

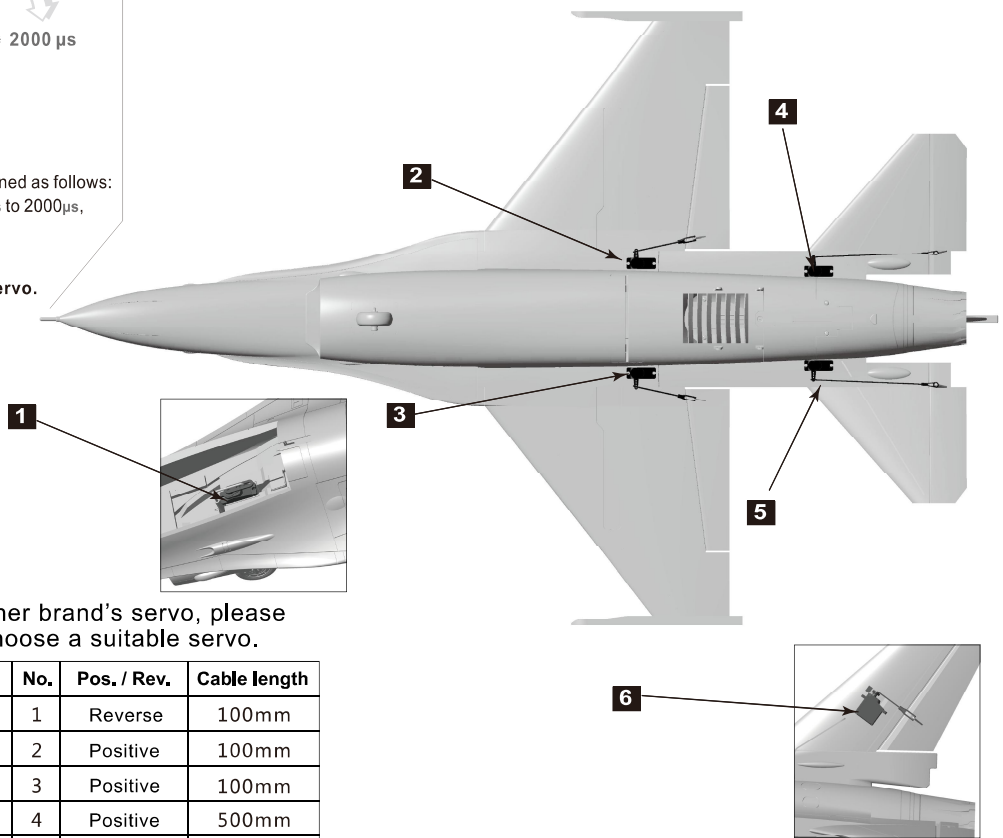
- "Throttle" signal control cable insert into the throttle channel of receiver to control the throttle size.
- "Reverse Brake" control cable insert into any free two-way switch channel of receiver. After the plane lands on the ground, switch the corresponding channel switch on the radio to turn on the "Reverse throttle deceleration" function.

### Note:

After the model aircraft is off the ground, during the flight, the "throttle reverse thrust" function cannot turn on, otherwise the forward power will be lost, and resulting in a serious flight accident.

## 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 plastic servo	1	Reverse	100mm
Fuselage(L)	9g plastic servo	2	Positive	100mm
Fuselage(R)	9g plastic servo	3	Positive	100mm
Elevator(L)	9g plastic servo	4	Positive	500mm
Elevator(R)	9g plastic servo	5	Reverse	500mm
Rudder	9g plastic servo	6	Positive	600mm

## Motor Specification

**2840-2850**

2840-2850KV brushless motor use 4S 14.8V lipo battery and 40A ESC.

**⚠ Note:** If you need other motor to use, please refer to the dimension shown on the left to select your motor, to make sure that the motor you purchased can install successfully.

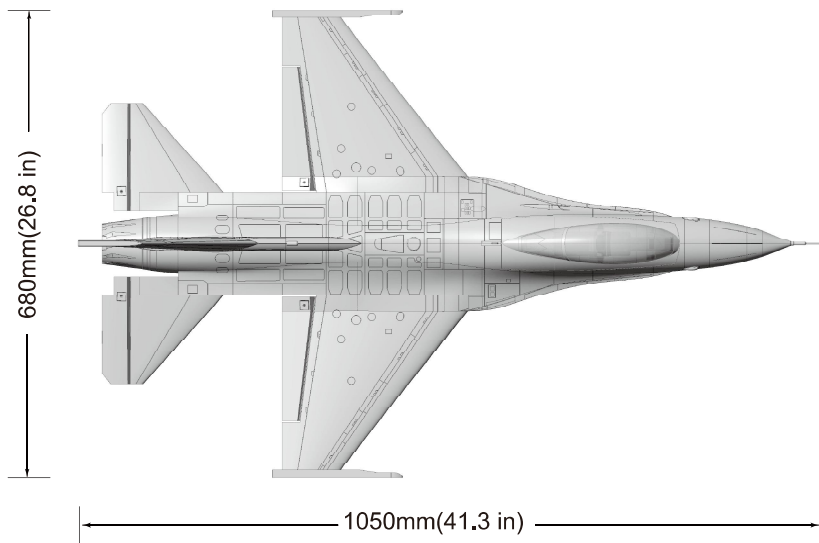
Model	KV Value	Volute (V)	Current (A)	Pull (g)	RPM	Weight (g)	No Load Current	Propeller	ESC
2840-2850KV	2850RPM/V	14.8	40	1350	42180	145	2.7A	64mm Ducted Fan	40A

感谢您购买我们的Freewing F-16 64mm电动涵道模型飞机。此模型飞机采用高密度EPO发泡材料制作，PNP版本在出厂前已完成喷涂和贴花工作、并已预装了涵道动力组、电调、舵机和其它操控类结构件。一直以来，F-16这款机型，其优异的飞行性能和漂亮的外形，深受众多涵道飞机爱好者的喜爱。这款最新的64mm涵道模型飞机，在保证精美的主体外观形态的同时，简化了操控结构和起落架，减轻机体重量，减少翼载荷，在改善和提升了飞行性能的同时，有效地控制了产品成本。是非常适合新晋电动涵道领域的模型飞机爱好者们，尝试和体验的一款入门级产品。

## 重要提示

- 1.模型飞机不是玩具,操作者需要具备一定的经验;没有经验的初学者,必须在有丰富经验的专业人士指引下,逐步学习!
- 2.在组装之前,必须认真阅读产品说明书,严格按照说明书指示操作。
- 3.飞翼模型及其销售商,对于违反说明书的要求操作而造成的损失、将不负任何法律责任!
- 4.模型飞机的使用年龄必须是14岁以上的儿童或者成人。
- 5.此模型产品使用EPO材料制成,表面喷涂油漆,不可随意使用化学制剂擦拭,否则会损坏模型产品。
- 6.不能在公共场合、高压线密集区、高速公路附近、机场附近或者其它法律法规明确禁止飞行的场合飞行。
- 7.不能在雷雨、大风、大雪或者其它恶劣气象环境下飞行。
- 8.模型飞机的电池产品,不可以随意乱扔,乱放。存放时,必须保证周边2M范围内,无易燃、易爆物体。
- 9.损坏或者报废处理的模型飞机电池,应妥善回收处理,不准随意抛弃,避免自燃而引发火灾。
- 10.在飞场飞行时,应做到妥善处理飞行后所产生的垃圾,不可随意抛弃、焚毁模型及其配件。
- 11.在任何情况下,都必须保证油门杆处于起始位、发射机处于打开状态时,才能连接模型飞机内部的动力电池。
- 12.无论是模型飞机是在正常飞行过程中,或者是在缓慢降落过程中,都不要尝试用手去回收模型。必须等模型降落停稳以后,再进行回收!

**⚠ 注意：**模型产品是具有一定危险性的产品，请禁止14岁以下的儿童玩耍，14岁以上的儿童，请在有飞行经验的成人指导下使用，无飞行经验的购买者，应当在具有一定电动涵道飞机飞行经验的成人指导下使用！组装模型前，请仔细阅读说明书，按照说明书的要求进行安装。进行调试和飞行时，请根据说明书指示的参数进行调整。

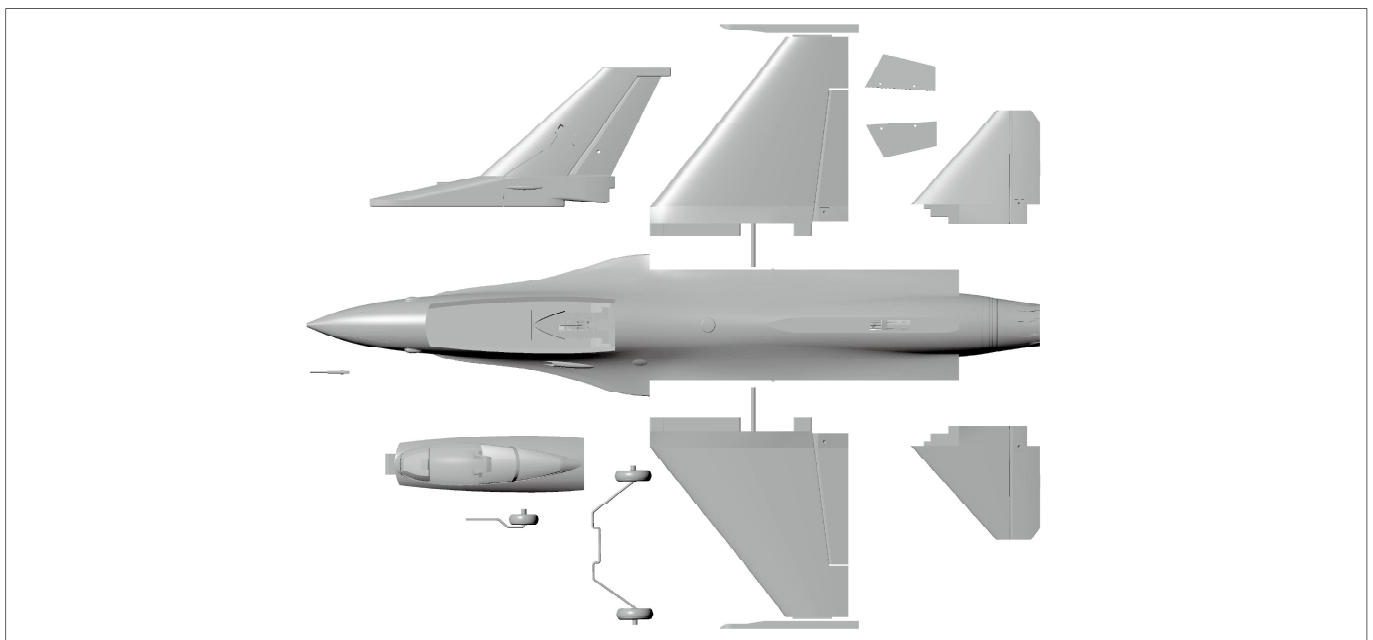


标准版

- 翼载荷：110 g/dm<sup>2</sup>
- 翼面积：9 dm<sup>2</sup>
- 舵机：9g塑料齿数字舵机×6
- 电机：2840-2850KV无刷外转电机
- 涵道风扇：64mm 12叶塑料涵道
- 电调：40A无刷电调（带反推刹车功能）
- 起飞重量：780g(不含电池)
- 电池范围：4S 1600-2600mAh
- 起落架：固定式起落架

**注意：**此处各项参数，均使用本公司配件测试得出，如果使用副厂配件，会有所差异。使用副厂配件时所产生的问题，我们将无法给予技术支持！

产品包装清单



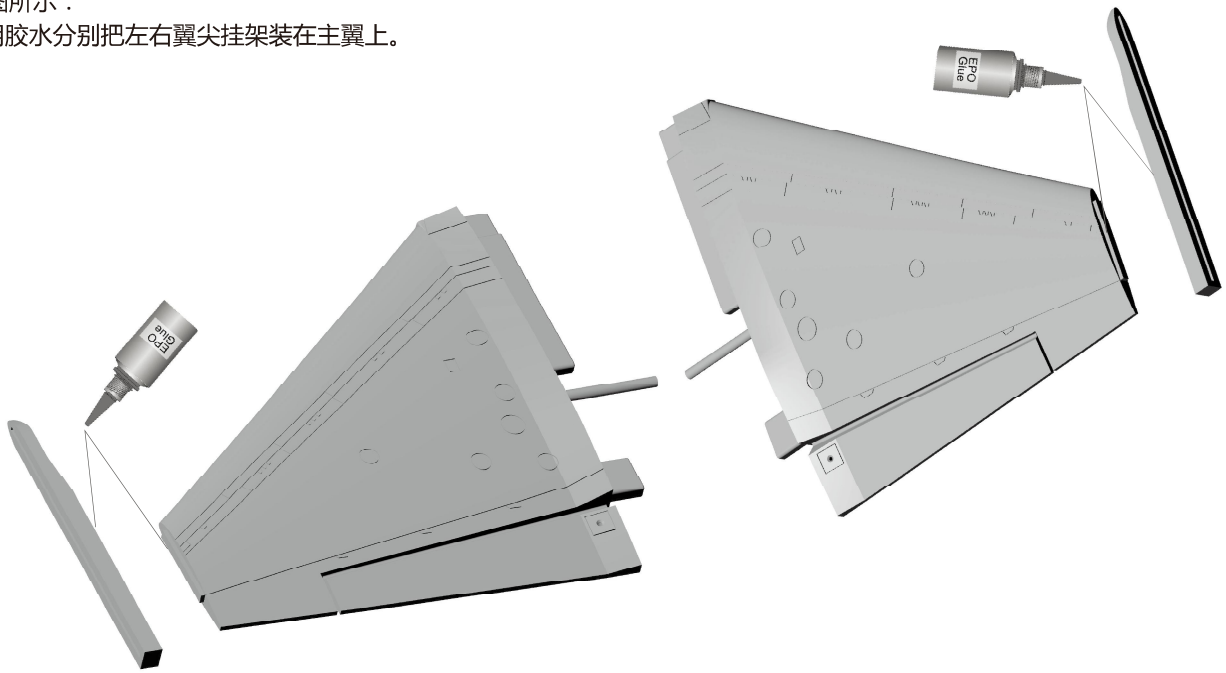
打开产品包装，核对包装清单。（不同配置的版本，包含内容不同！）

序号	配件名称	PNP	ARF Plus	序号	配件名称	PNP	ARF Plus
1	机身	预装所有电子设备	预装舵机	5	机轮	✓	✓
2	主翼	预装所有电子设备		6	舵面控制钢丝	✓	✓
3	平尾	预装所有电子设备		7	胶水	✓	✓
4	垂尾	预装所有电子设备	预装舵机	8	说明书	✓	✓

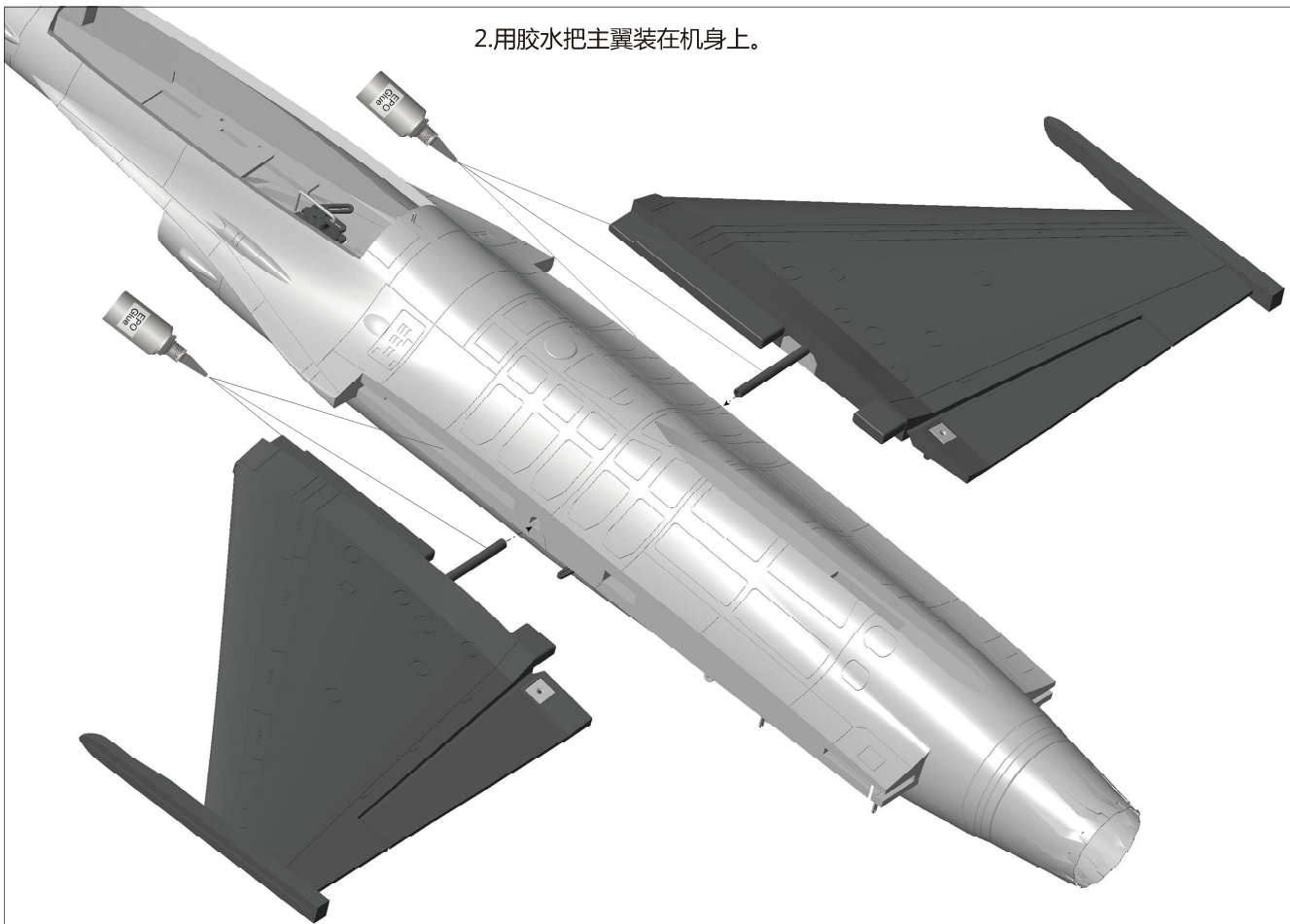
## 主翼安装

如图所示：

1.用胶水分别把左右翼尖挂架装在主翼上。



2.用胶水把主翼装在机身上。

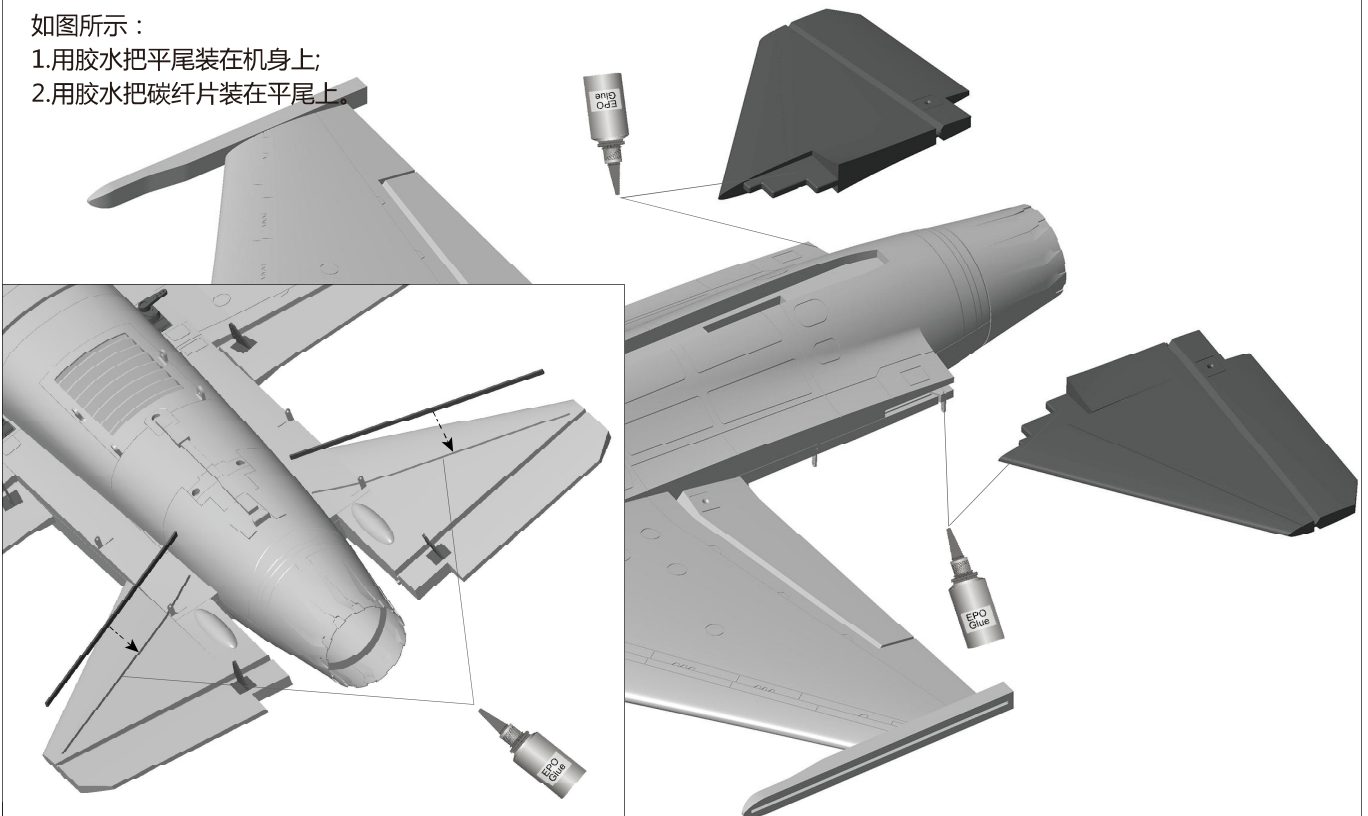




## 平尾组装

如图所示：

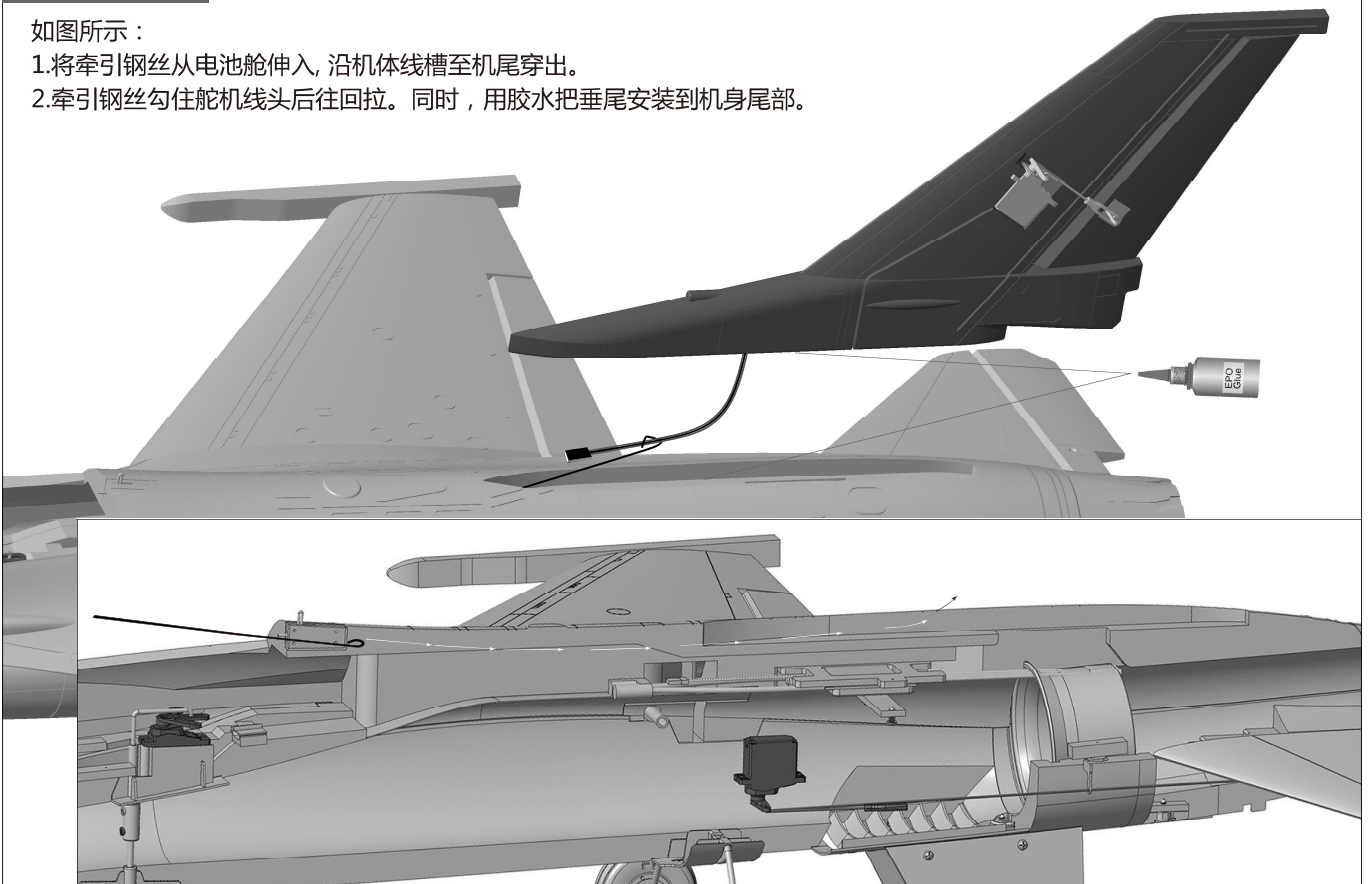
- 1.用胶水把平尾装在机身上；
- 2.用胶水把碳纤维片装在平尾上。



## 垂尾组装

如图所示：

- 1.将牵引钢丝从电池舱伸入,沿机体线槽至机尾穿出。
- 2.牵引钢丝勾住舵机线头后往回拉。同时,用胶水把垂尾安装到机身尾部。

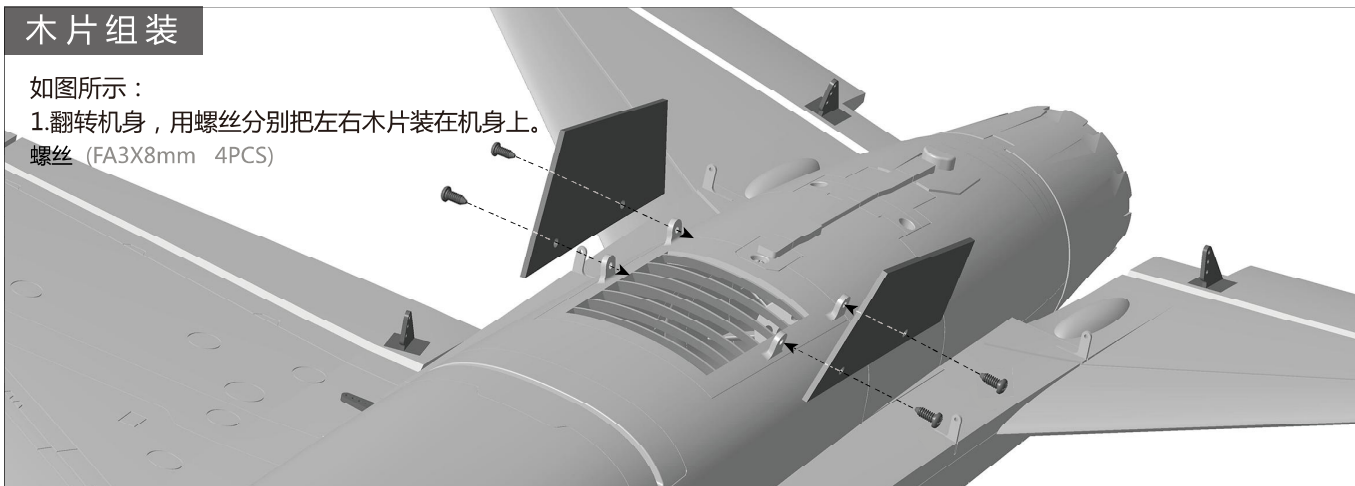


## 木片组装

如图所示：

1. 翻转机身，用螺丝分别把左右木片装在机身上。

螺丝 (FA3X8mm 4PCS)

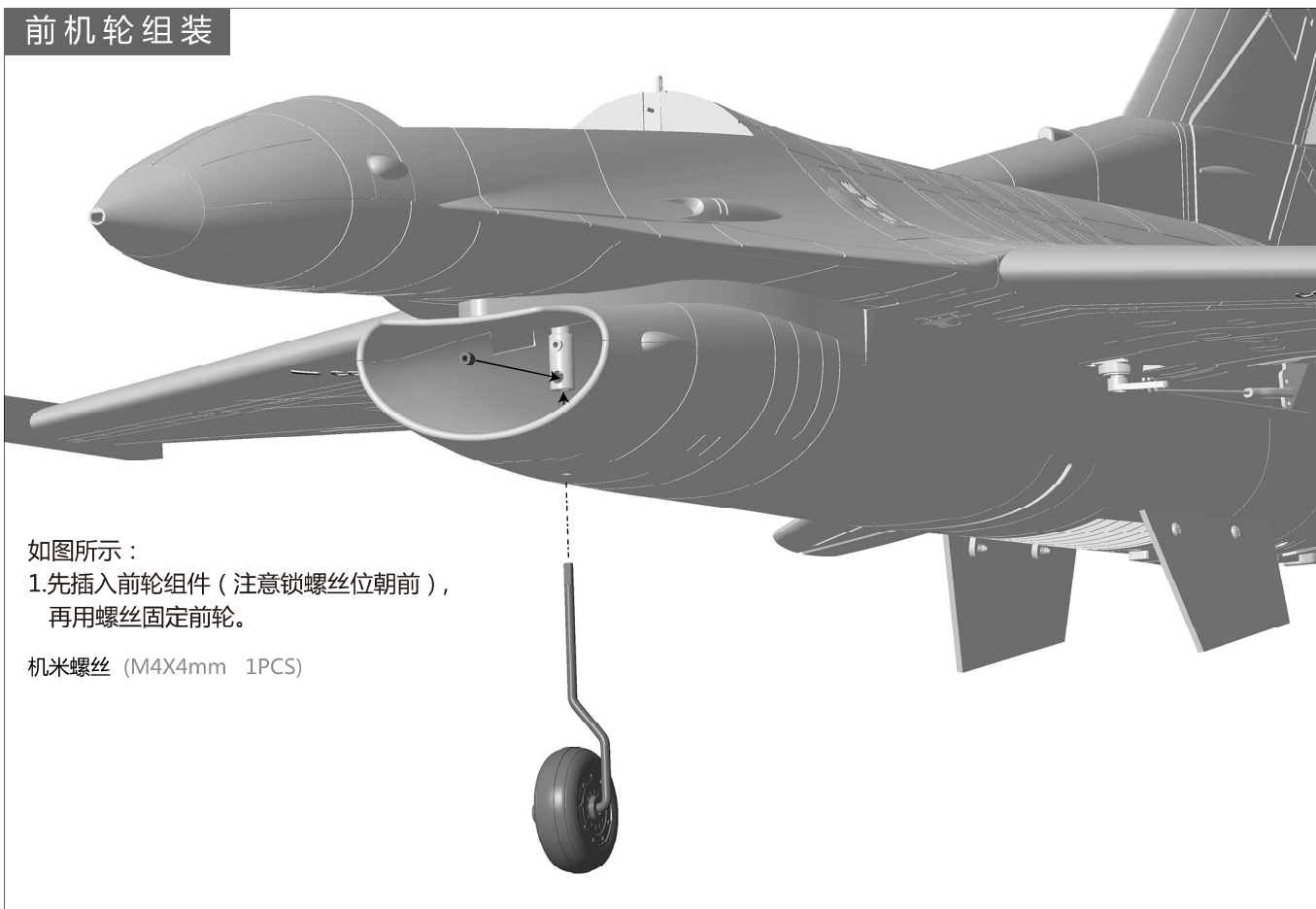


## 前机轮组装

如图所示：

1. 先插入前轮组件（注意锁螺丝位朝前），  
再用螺丝固定前轮。

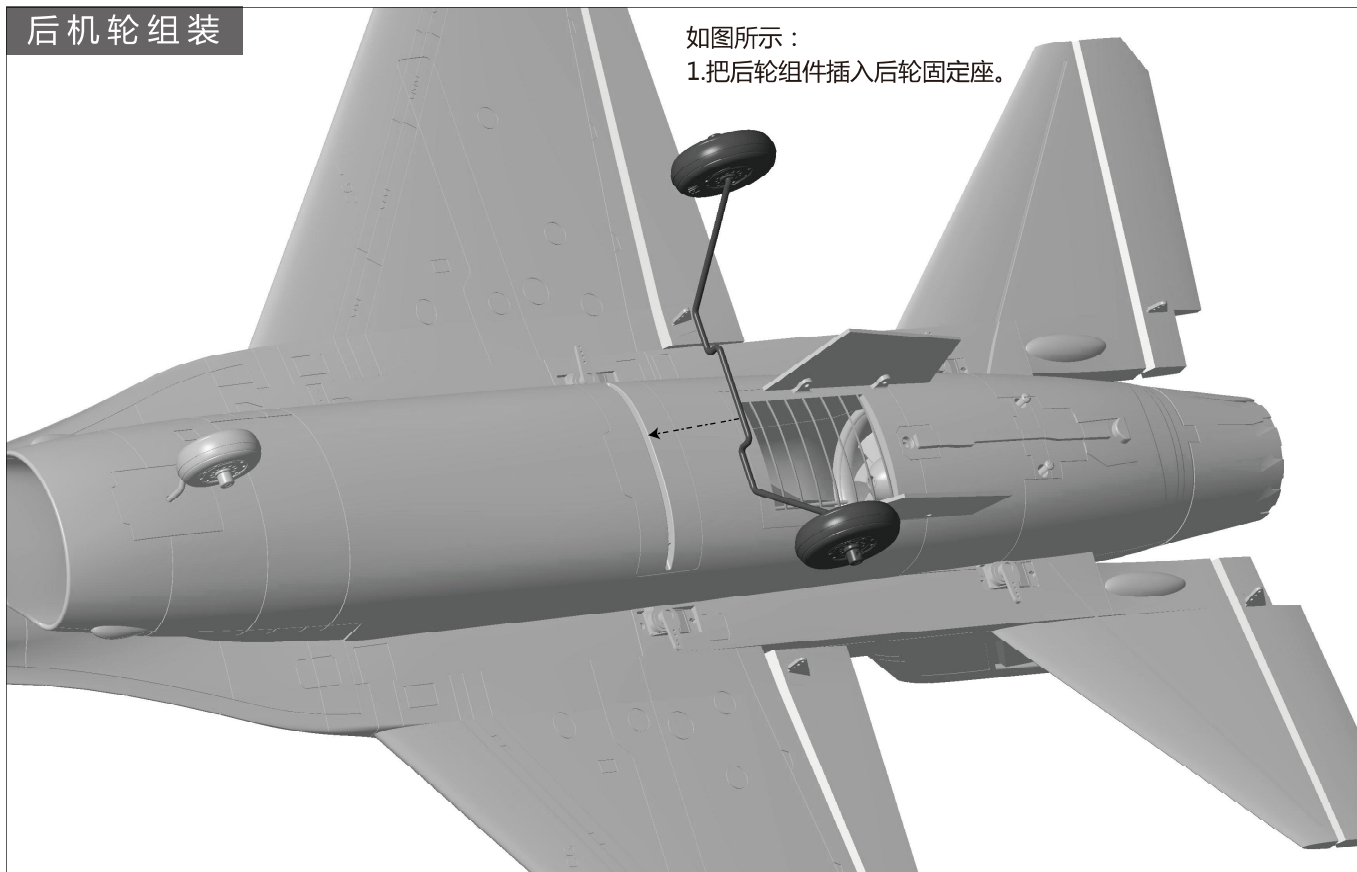
机米螺丝 (M4X4mm 1PCS)



## 后机轮组装

如图所示：

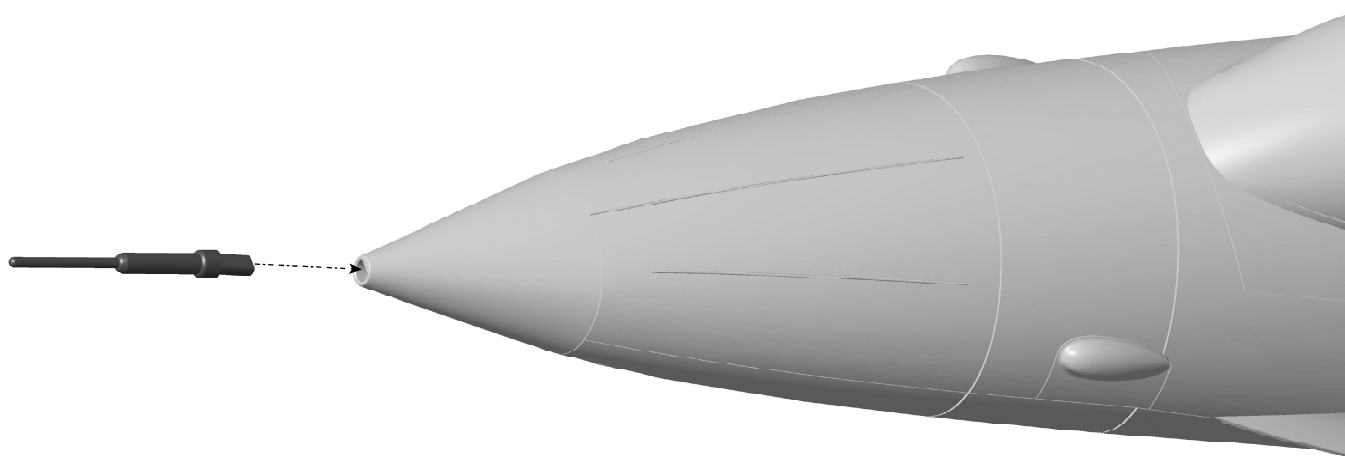
1.把后轮组件插入后轮固定座。



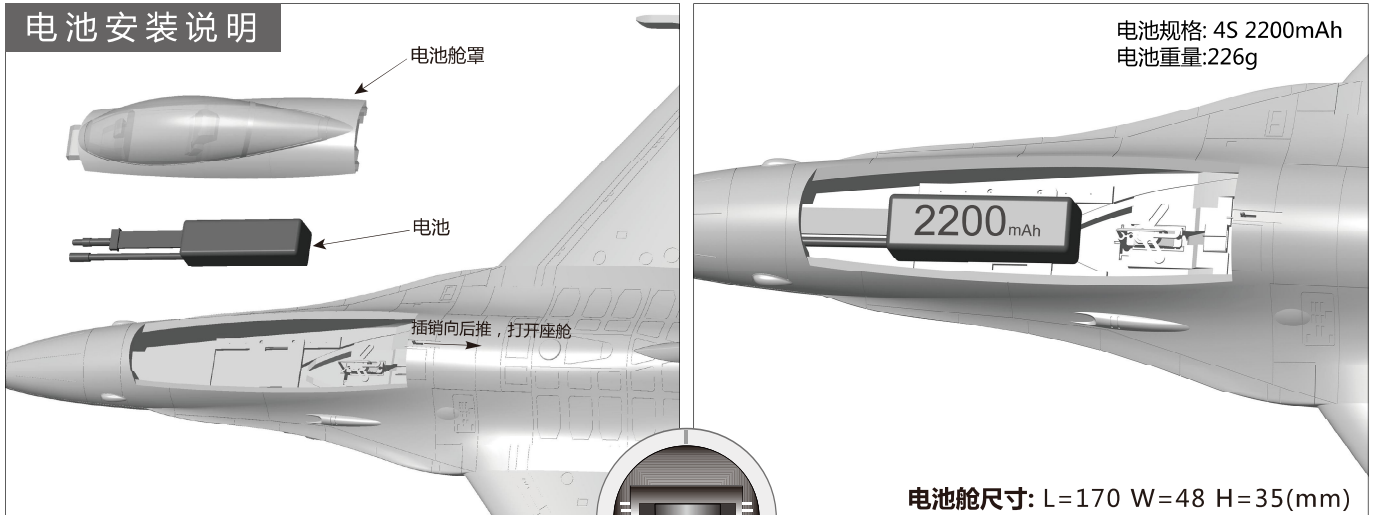
## 空速管组装

如图所示：

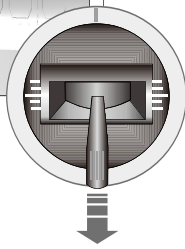
1.把空速管插入机头罩（直接拔插）。



## 电池安装说明



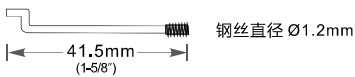
将电池与电调连接前, 首先请打开发射机电源, 确认油门杆处于低位。  
安装电池后, 启动油门前, 请保证没有任何物体在螺旋桨转动直径以内, 以免造成事故和人身伤害!



我们建议使用的电池容量和放电倍率如下：  
**4S 14.8V 1600mAh~4S 14.8V 2600mAh (1pcs)**  
放电倍率  $\geq 35C$

## 舵面控制钢丝尺寸及安装孔位

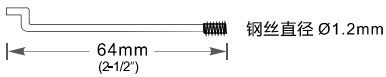
### 垂尾控制钢丝尺寸



### 垂尾控制钢丝安装孔位



### 主翼控制钢丝尺寸



### 主翼控制钢丝安装孔位



### 平尾控制钢丝尺寸



### 平尾控制钢丝安装孔位

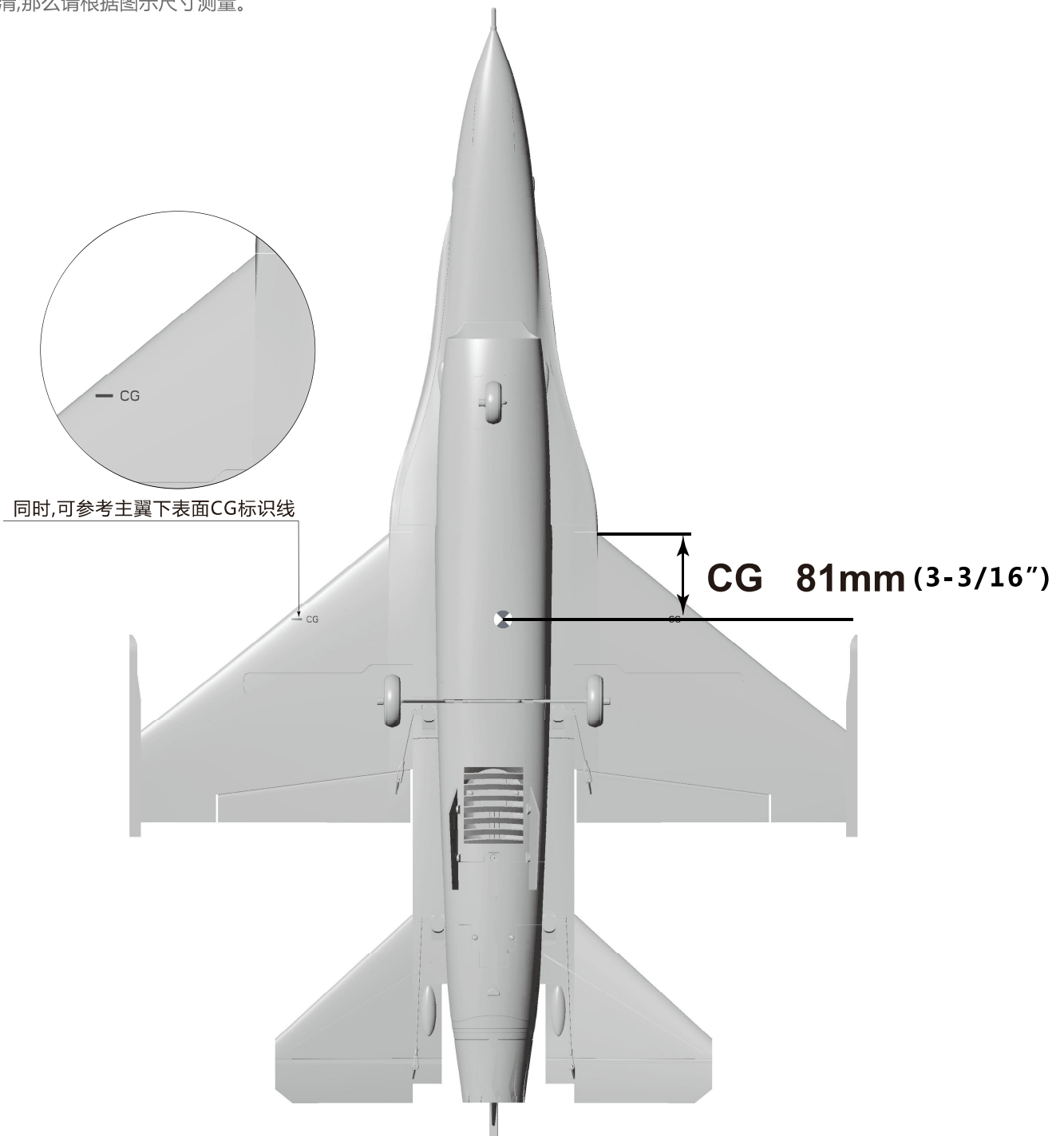


## 重心示意图

**正确的重心，直接关系到飞行的成功与否，请参考下面的重心标示图，来调整飞机的重心。**

- 您可以将电池向前，或者向后移动，来调整飞机的重心;
- 如果通过电池的移动无法调整到正确的重心位置，您还可以适当的使用一些其它材料来配重，使飞机的重心处于正确的位置！

如图所示,在主翼下表面已经雕刻了重心位置标记.  
请根据此标注位置来确认重心。如果标记模糊不清,那么请根据图示尺寸测量。

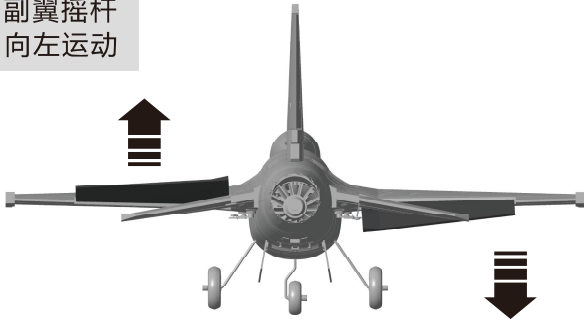


## 舵面测试

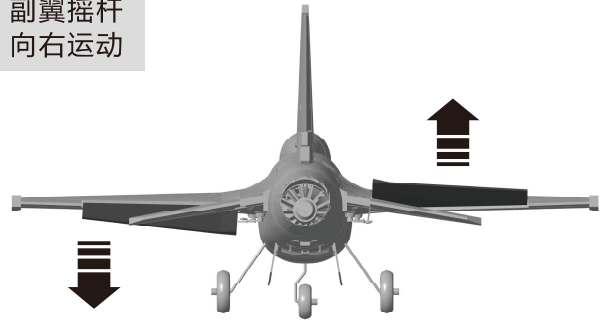
当您按前面的步骤组装好飞机后，连接电池，用遥控器测试每个舵面的工作情况，检查各个舵面是否处于居中位置，是否正常工作！

## 副翼

副翼摇杆  
向左运动

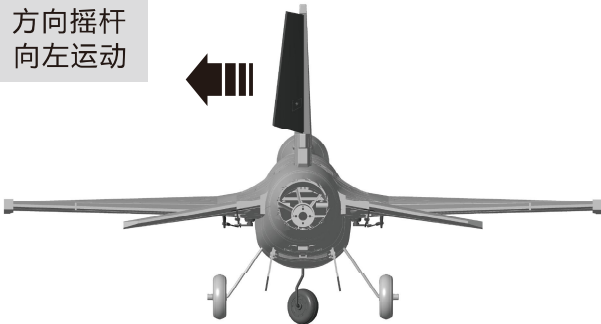


副翼摇杆  
向右运动

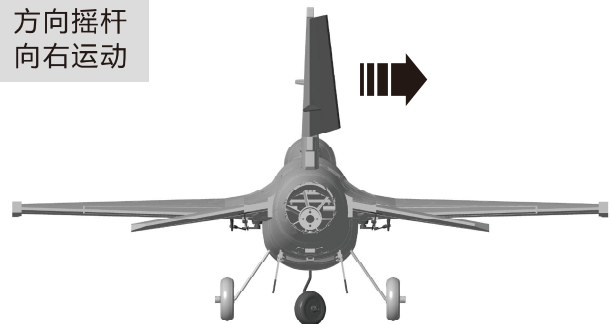


## 方向舵

方向摇杆  
向左运动

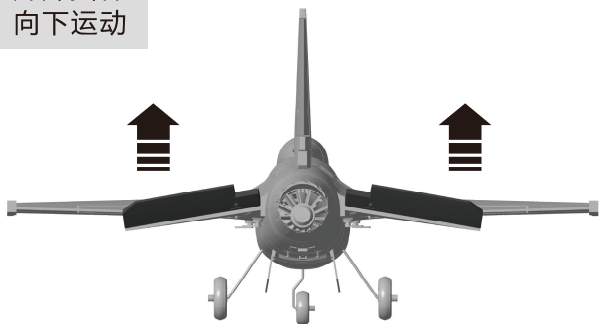


方向摇杆  
向右运动

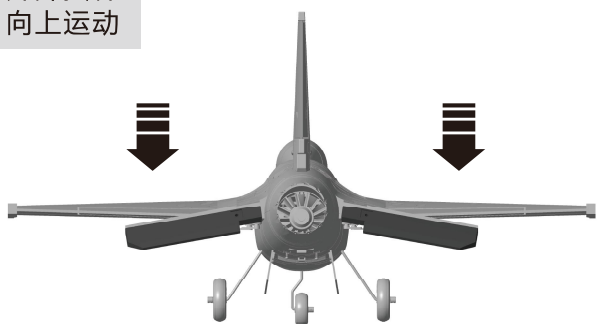


## 升降舵

升降摇杆  
向下运动

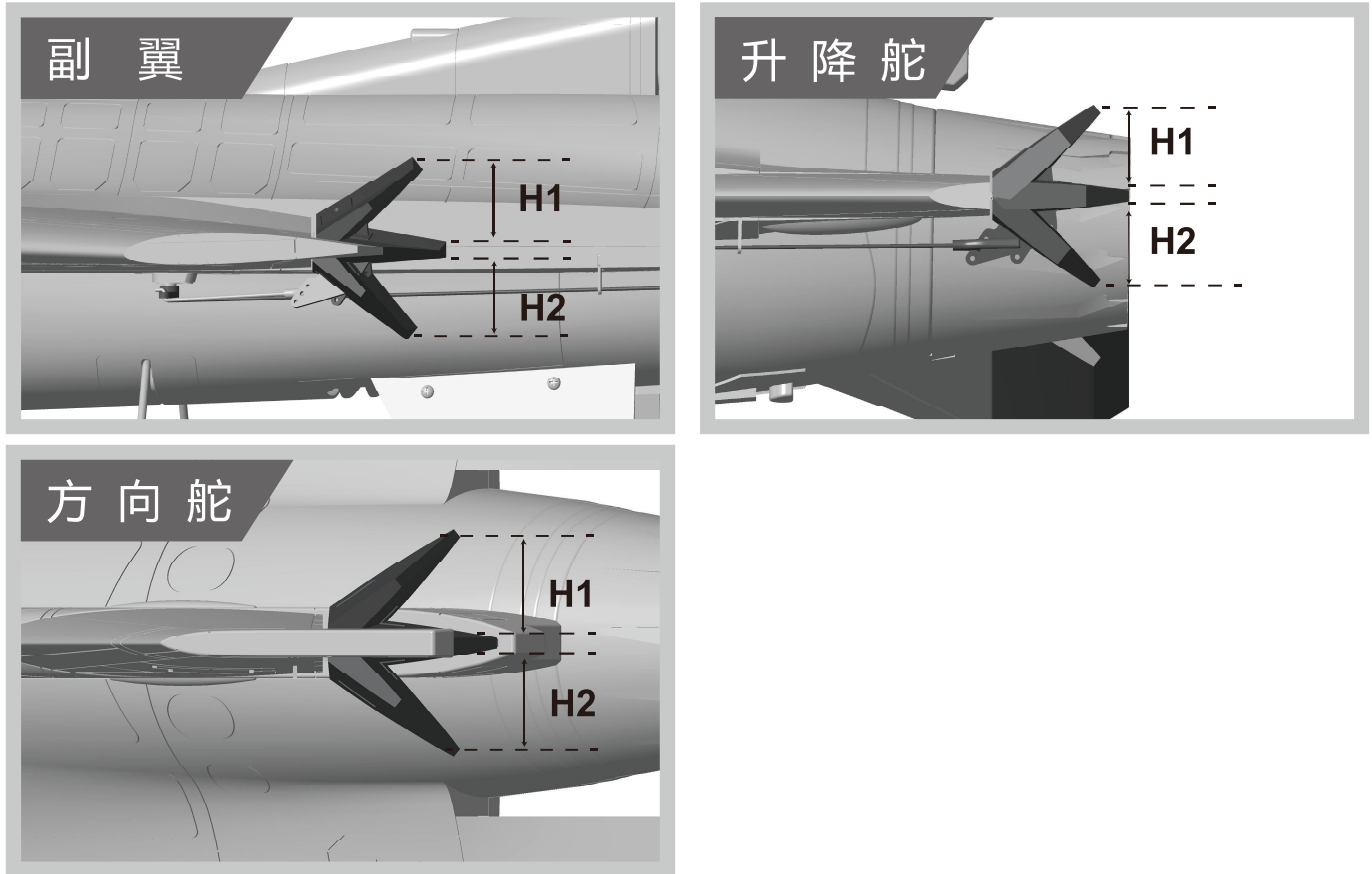


升降摇杆  
向上运动



大、小舵参数

根据我们的测试经验，我们认为，按以下参数来设置大小舵量，将有助于飞行，舵量越大，模型飞机的动作响应更快，动作幅度可以更大。我们建议初次飞行使用大舵量起飞，然后根据个人情况调整到适合您的舵量。



	副翼（内侧）	升降舵（内侧）	方向舵（下侧）
<b>小舵量</b>	H1/H2 16mm/16mm 舵量比率：60%	H1/H2 11mm/11mm 舵量比率：60%	H1/H2 18mm/18mm 舵量比率：70%
<b>大舵量</b>	H1/H2 21mm/21mm 舵量比率：80%	H1/H2 16mm/16mm 舵量比率：80%	H1/H2 28mm/28mm 舵量比率：100%

遥控器EXP设置建议

<p>1.副翼EXP曲线如下图：</p> <p>Futaba系列遥控器：EXP A -30 EXP B -30</p> <p>Spektrum系列遥控器：EXPO 30% 30%</p>	<p>2.升降舵EXP曲线如下图：</p> <p>Futaba系列遥控器：EXP A -30 EXP B -30</p> <p>Spektrum系列遥控器：EXPO 30% 30%</p>	<p>3.方向舵EXP曲线如下图：</p> <p>Futaba系列遥控器：EXP A -30 EXP B -30</p> <p>Spektrum系列遥控器：EXPO 30% 30%</p>
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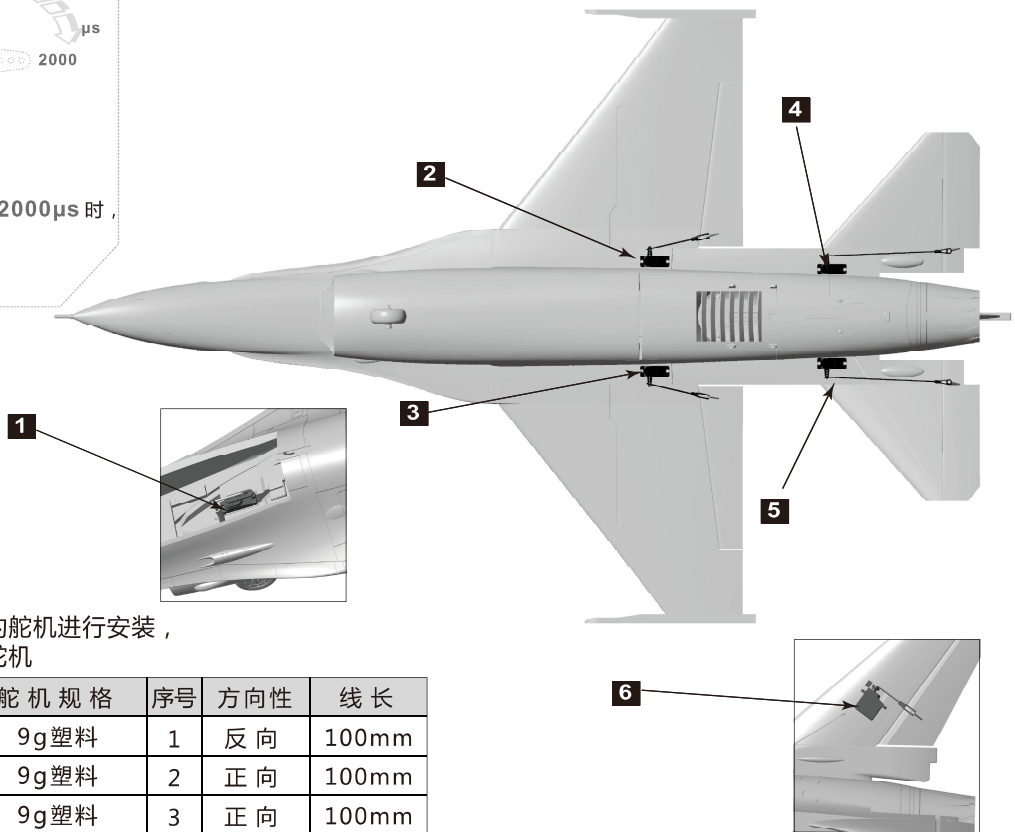
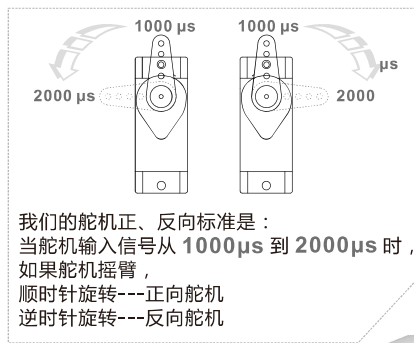
**⚠ 电调使用说明：**

- 1.本款产品使用了新的40A V2版电调，新增“降落后油门反推刹车”功能。
- 2.此电调有二条连接线，分别为：油门（Throttle）信号控制线及油门反推刹车（Reverse Brake）控制线。
- 3.连接说明：
  - 油门信号控制线（Throttle）  
插入接收机油门通道，控制油门大小。
  - 油门反推刹车（Reverse Brake）控制线  
插入接收机任意空闲二程开关通道。飞机降落着地后，在遥控器上，通过切换此对应通道开关，开启“油门反推刹车”功能。

**警告：**

模型飞机离地后，在飞行过程中，不能开启“油门反推刹车”功能，否则会丧失动力，导致严重飞行事故。

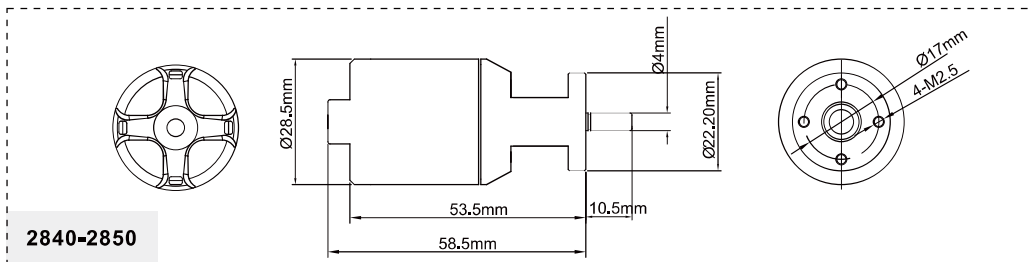
**舵机使用介绍**



如果您需要选购其它品牌的舵机进行安装，  
请参考下面的表格选择的舵机

舵机位置	舵机规格	序号	方向性	线长
前轮转向	9g塑料	1	反向	100mm
机身(左)	9g塑料	2	正向	100mm
机身(右)	9g塑料	3	正向	100mm
平尾(左)	9g塑料	4	正向	500mm
平尾(右)	9g塑料	5	反向	500mm
垂尾	9g塑料	6	正向	600mm

**电机参数**



2840-2850KV无刷马达，使用  
4S 14.8V的电池和40A电调。

**⚠ 注意：**如果需要购买副厂马达  
使用，请参考左图所示的尺寸图，  
来选择马达，确保您所购买的马达  
能够顺利安装。

Model	KV Value	Volute (V)	Current (A)	Pull (g)	RPM	Weight (g)	No Load Current	Propeller	ESC
2840-2850KV	2850RPM/V	14.8	40	1350	42180	145	2.7A	64mm Ducted Fan	40A





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