E.E LIGHTNING

64mm EDF Jet

USER MANUAL

Wingspan:583mm
Length:817mm
Empty Weight:500g (W/O Battery)

MADE IN CHINA

Freewing Lightning introduction

Thank you for purchasing our Freewing mini 64mm EDF jet--- English Electric Lightning. Before you assemble this English Electric Lightning model jet, please carefully read the instructions and follow the correct process for assembly and adjustment. If you encounter problems during assembly and debugging, please first resolve them by referring to the instructions. If the problem persists, please contact the distributor or directly contact us.

The English Electric Lightning, designed by British Electric, is a highly iconic supersonic interceptor in 20th century aviation history. It was born in the early stages of the Cold War and became a source of pride for the British aviation industry with its astonishing climb rate, unique twin engine stacked layout, and innovative design concepts. Although its appearance was avant-garde at the time, it was precisely this unconventional design that achieved its outstanding performance in high-altitude and high-speed interception missions, while also showcasing the bold innovation spirit and unique aesthetic pursuit of British engineers.

Now, through the Freewing 64mm EDF "Lightning" model jet, we are able to rediscover the charm of this legendary fighter jet. This model reproduces the iconic twin engine stacked layout of "Lightning" - its unique belly shape not only faithfully reproduces the design essence of the original aircraft, but also cleverly provides players with a stable grasping position, making hand launch takeoff easier and more comfortable.

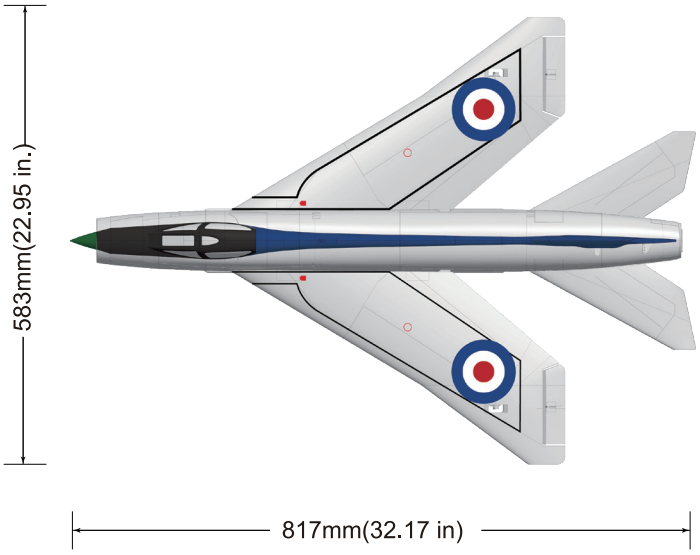
The swept back main wing design is not only faithful to the prototype, but also provides excellent stability during flight, effectively reducing the risk of stall and making the flight experience more reliable. This' Lightning 'model airplane perfectly inherits the performance genes of the prototype. Its excellent aerodynamic design, combined with the Freewing Guard Gyro, creates incredible flight stability - even in level three wind conditions, it can maintain a stable flight posture and handle situations with ease. The astonishing level flight speed of 165 KM/H not only far exceeds products of the same level, but also allows us to experience the speed and passion of a real fighter 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.

Product Basic information



Standard Version

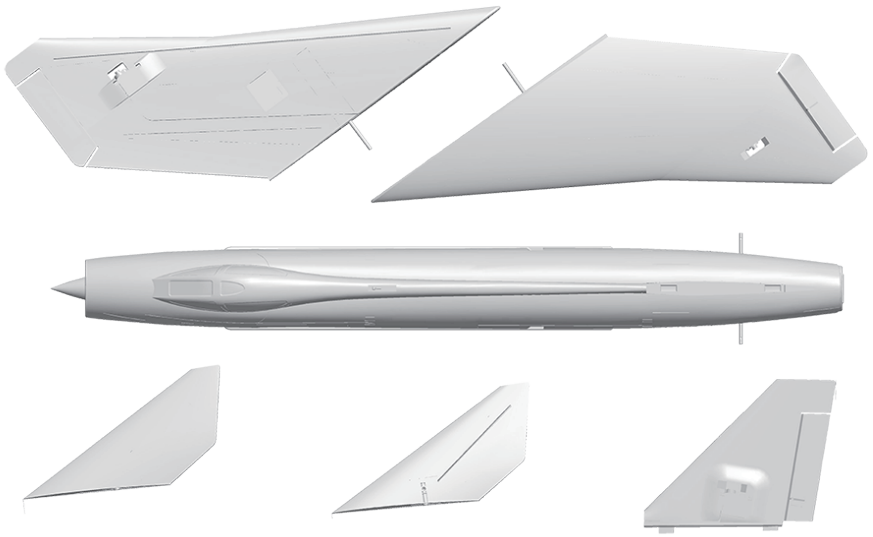
Wingload：58.2g/dm²
Wing Area：12.5 dm²
Servo：9g Digital Plastic Gear Servos (4pcs)
Motor：2840-2700KV I/R Motor
Ducted fan：64mm 12-blade fan
ESC：40A Brushless ESC(Thrust Reverse function)
Weight：500g(w/o Battery)
Li-Po Battery：4S 1800-2200mAh

Others

Landing gear:Fixed landing gear(Optional)

⚠ 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.

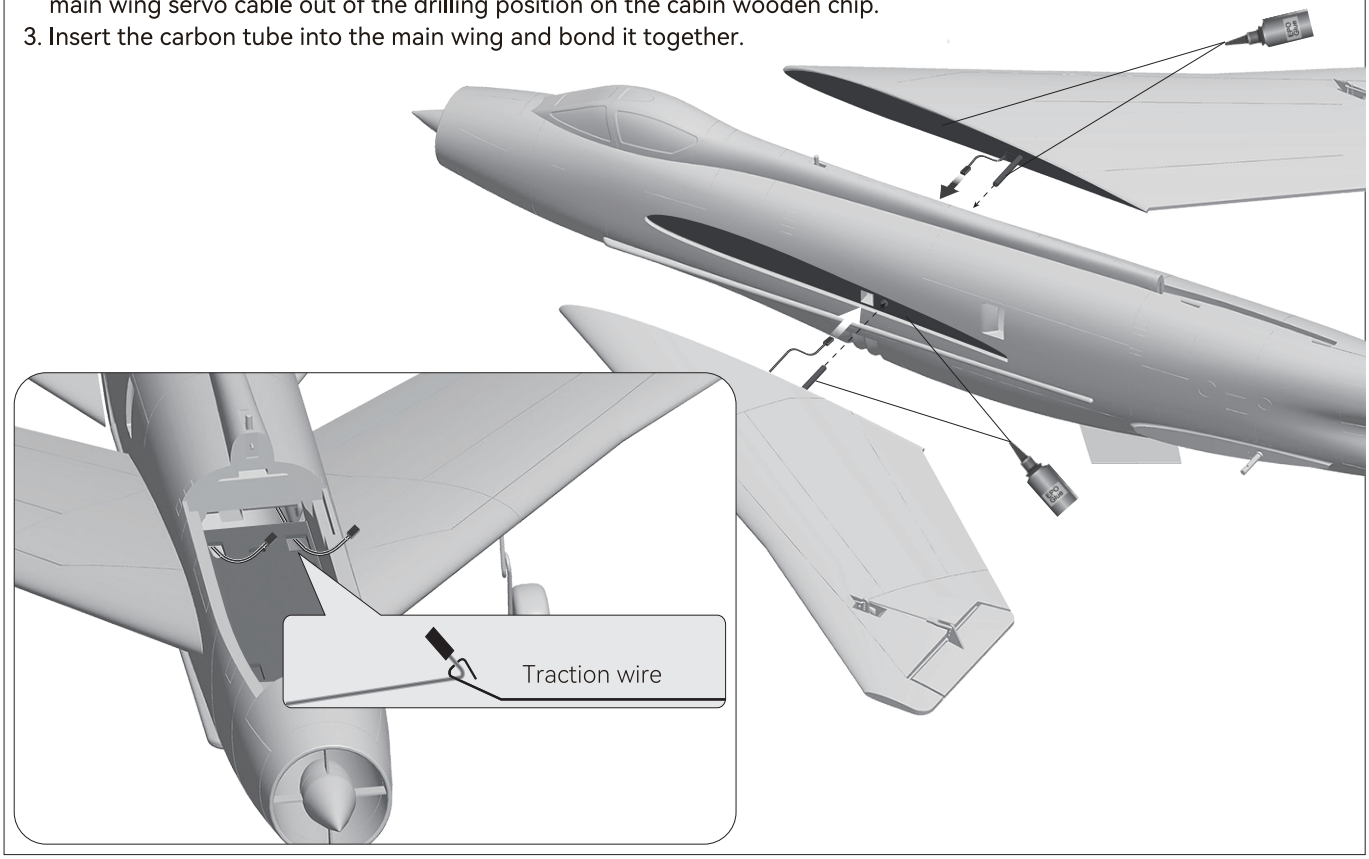
No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo
2	Main wing	Pre-installed all electronic parts	Pre-installed servo
3	Horizontal tail	√	√
4	Vertical tail	√	√

No.	Name	PNP	ARF Plus
5	Cockpit	√	√
6	Annex bag	√	√
7	Manual	√	√

Install Main Wing

As the photo show:

1. Apply the glue evenly to the bonding surfaces of the carbon fiber tube, fuselage, and main wing;
2. Thread the main wing servo cable into the fuselage, and then use a traction wire to pull the main wing servo cable out of the drilling position on the cabin wooden chip.
3. Insert the carbon tube into the main wing and bond it together.

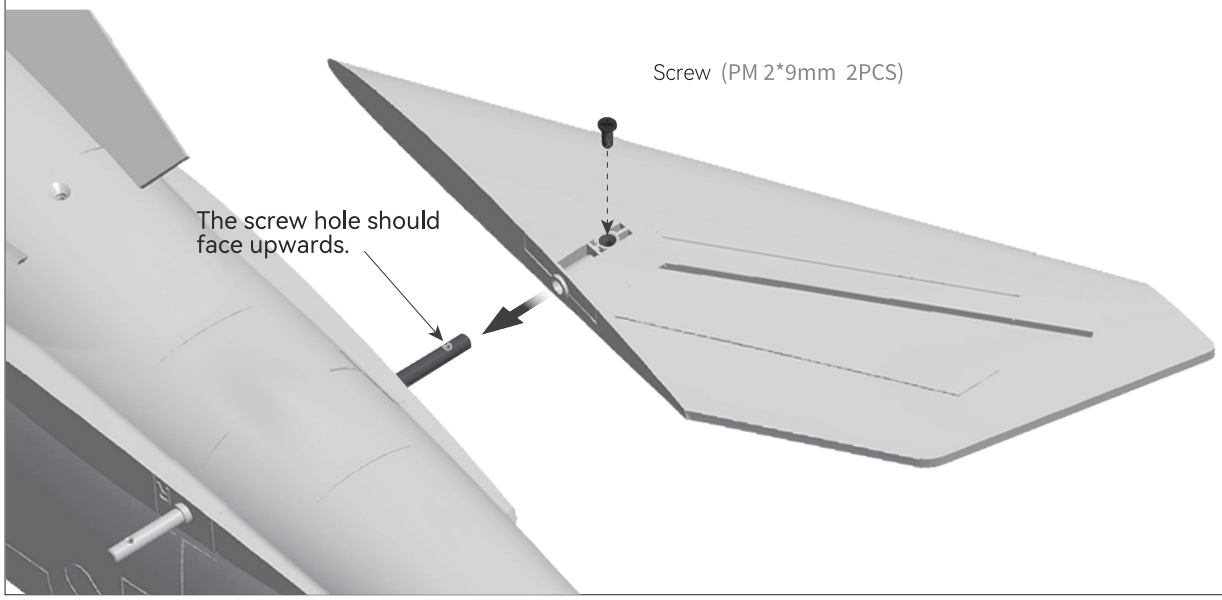


Install the Horizontal tail

As the photo show:

1.Place the horizontal tail on the rotating shaft at the rear fuselage and push it to the fuselage. Then fix with screws to prevent its fall off.

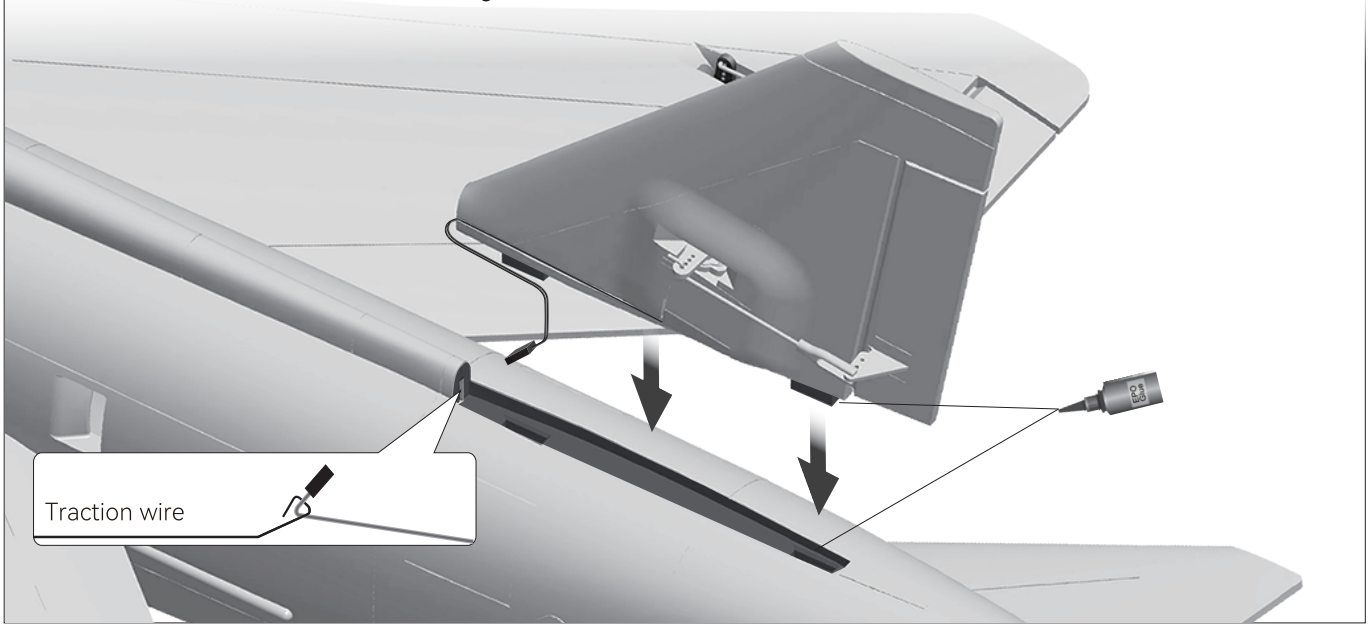
2.Repeat the above steps to install the other horizontal tail.



Install the Vertical tail

As the photo show:

1. Apply the glue evenly to the bonding surface between the fuselage and the Vertical tail;
2.Use a traction wire to pull the rudder servo cable into the fuselage cable slot;
3.Then install the vertical tail to the fuselage.

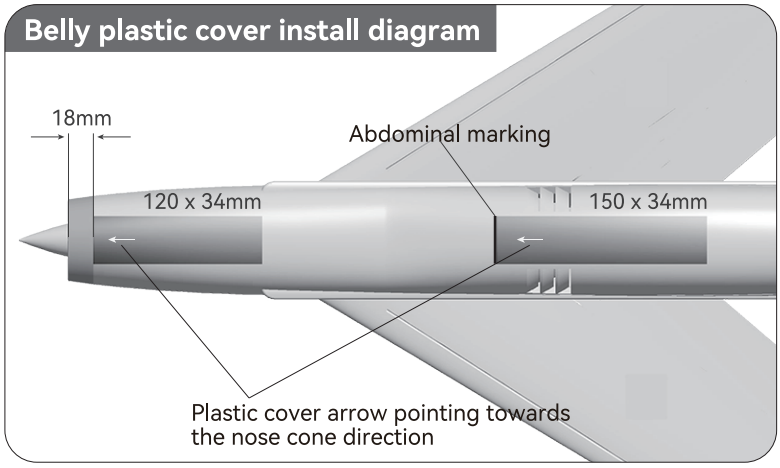


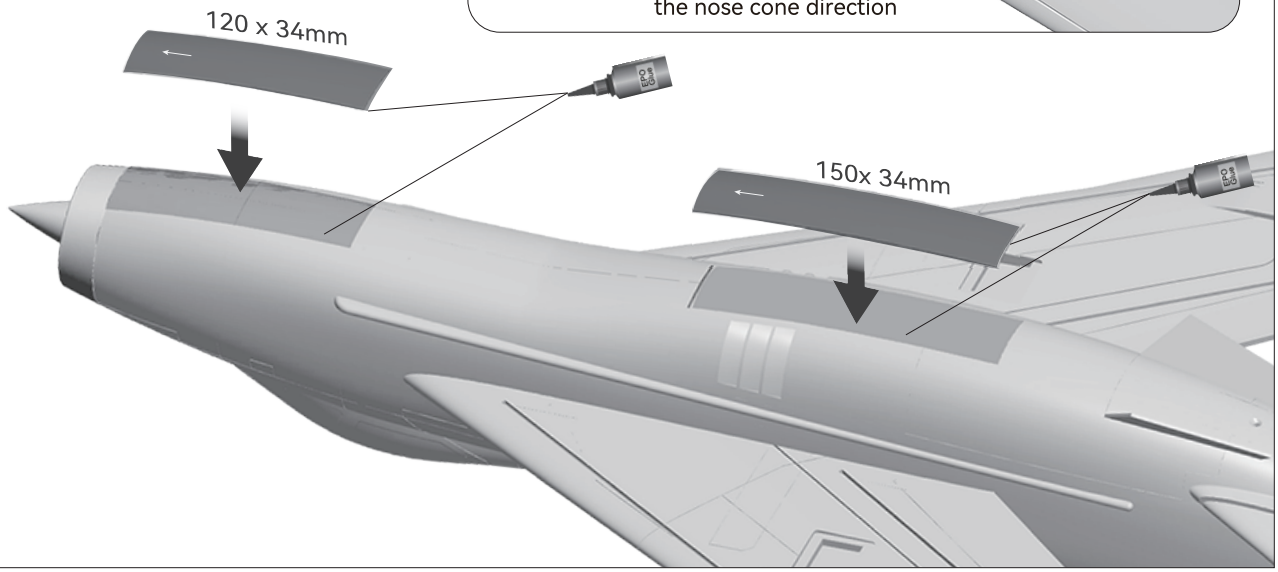
Install the belly plastic cover

-no landing gear configuration

As the photo show:

1. Apply the glue evenly to the bonding surface between the fuselage and the plastic cover;
2. Stick the plastic cover onto the fuselage

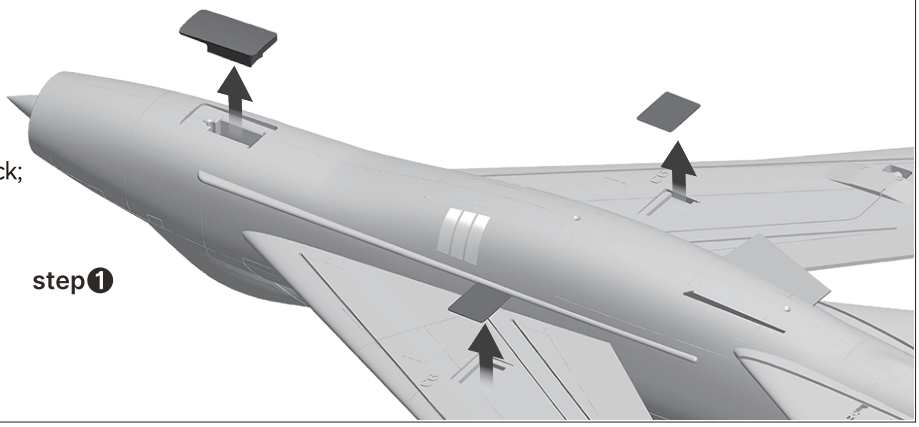




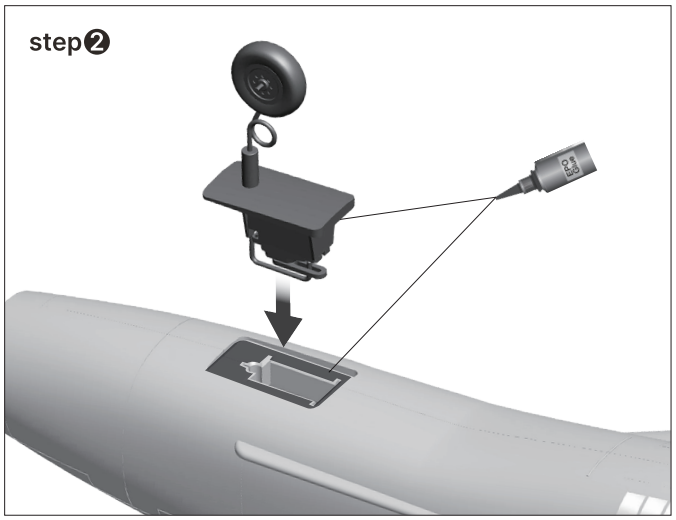
Install the Landing gear
-including landing gear configuration

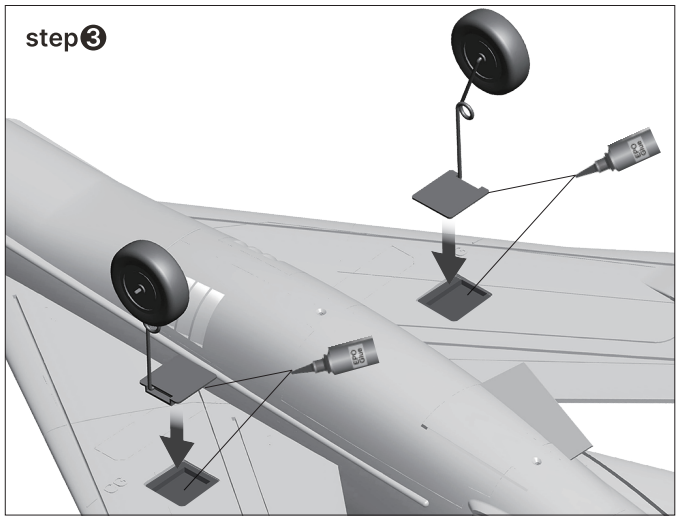
As the photo show:

1.Remove the landing gear assembly block;

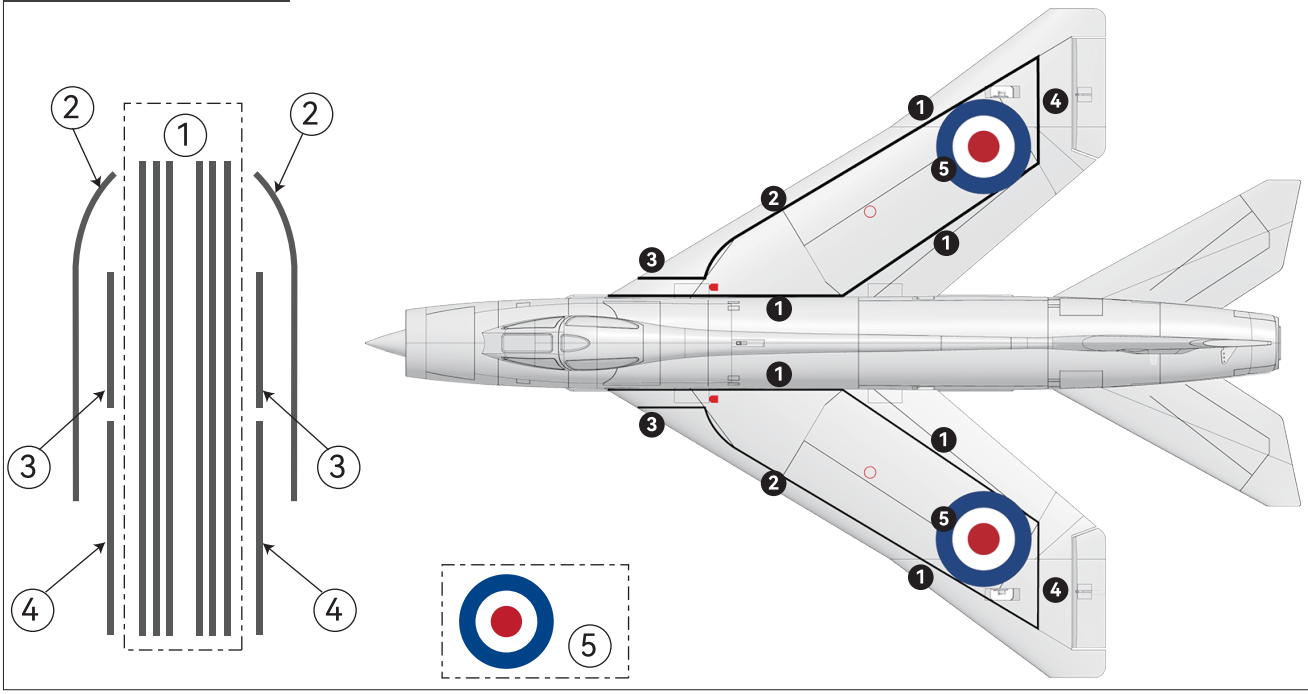


2. Apply the adhesive evenly to the bonding surfaces between the landing gear, fuselage, and main wing;
3. Glue the landing gear onto the fuselage and main wings.

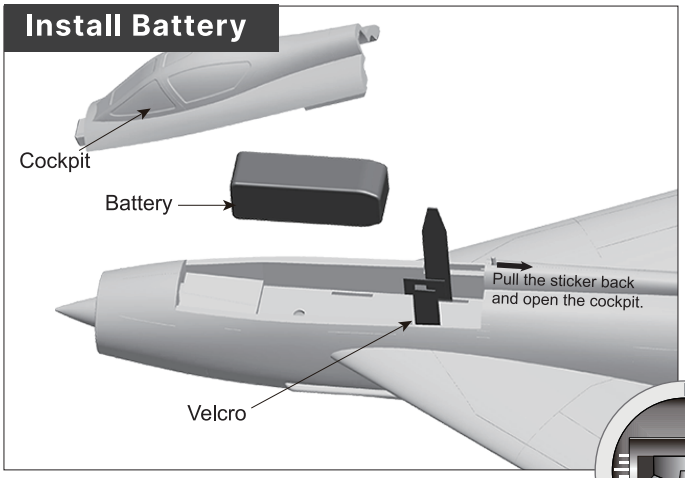


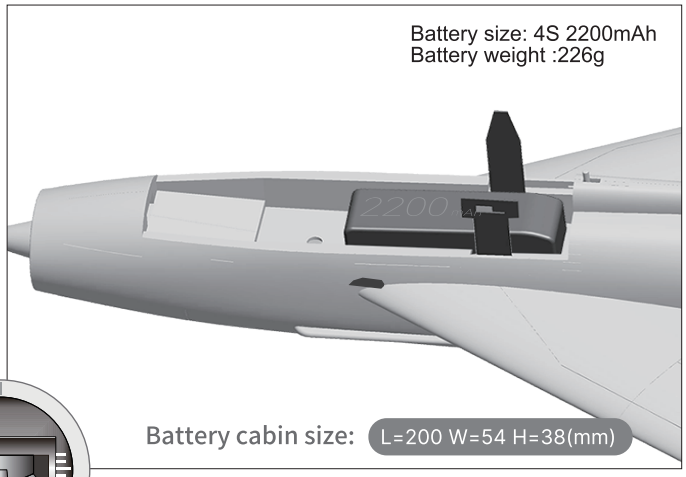


Decal Reference



Install Battery



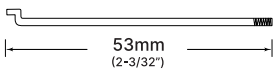


Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.

We recommend the following LiPo battery:
4S 14.8V 1800mAh~4S 14.8V 2200mAh (1pcs)
Discharge rate of C ≥35C

Pushrod Instructions

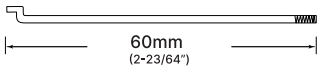
Aileron pushrod length



Pushrod diameter Ø1.2mm

Aileron pushrod mounting hole

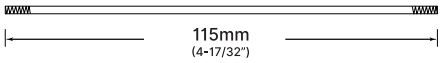
Rudder pushrod length



Pushrod diameter Ø1.2mm

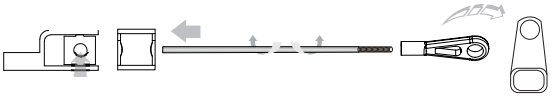
Rudder pushrod mounting hole

Elevator pushrod length

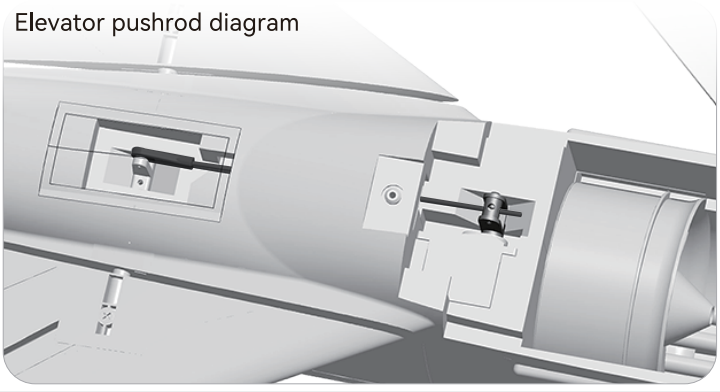


Pushrod diameter
Ø 1.5mm

Elevator pushrod mounting hole



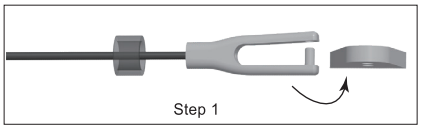
Elevator pushrod diagram

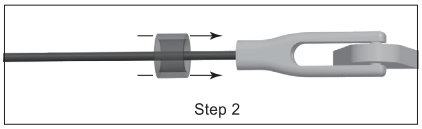


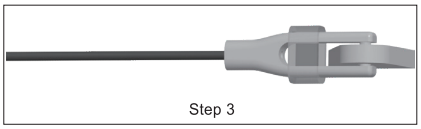
Important additional notes

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.



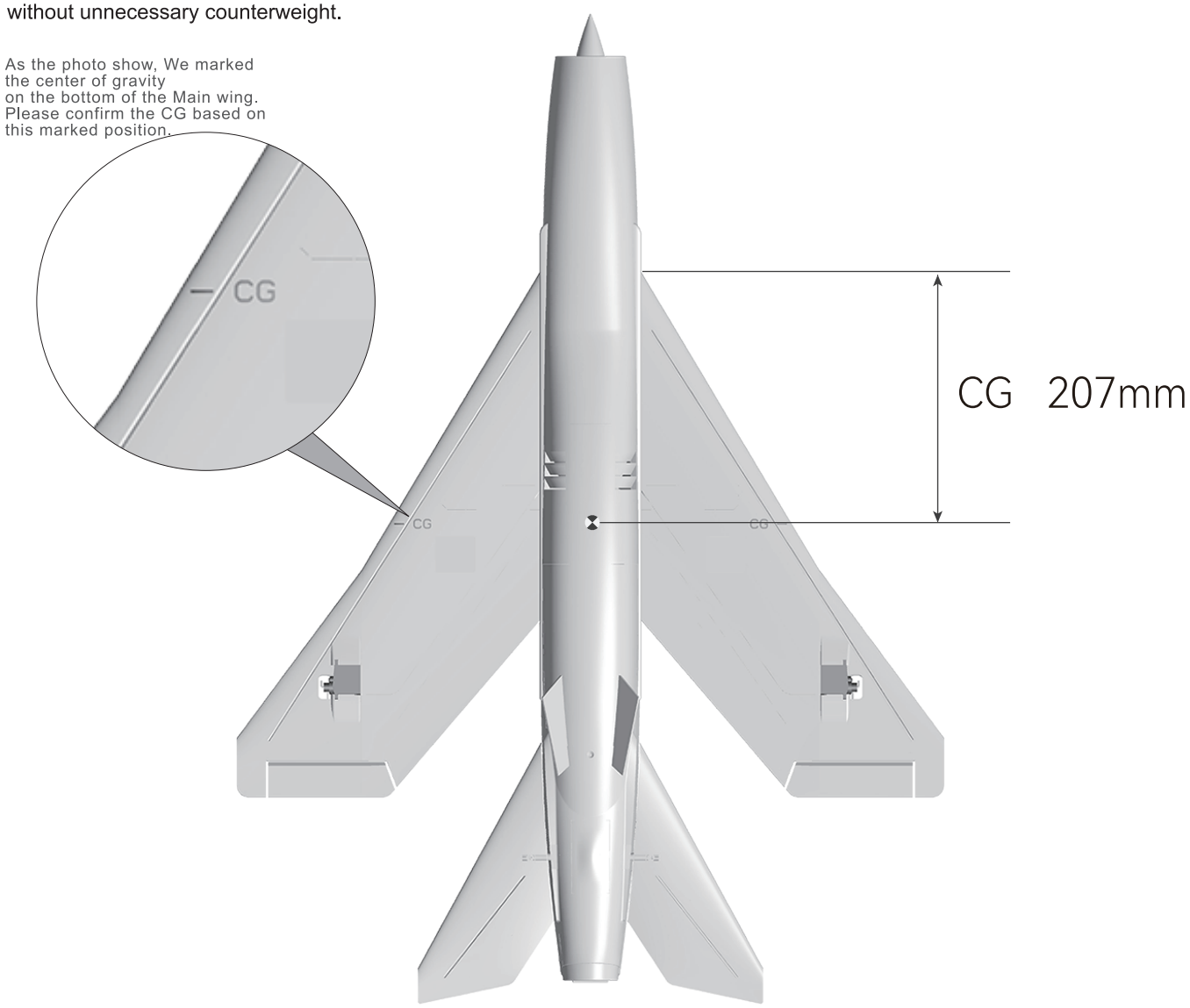




Center of Gravity

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 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.



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.

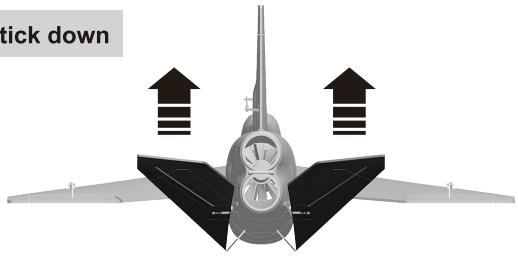
Aileron

Stick Left

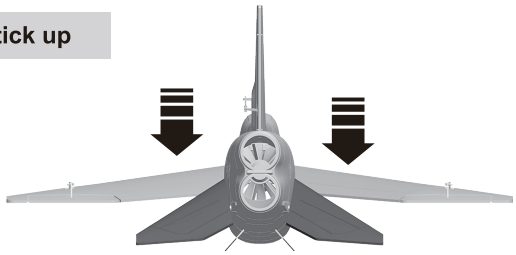
Stick Right

Elevator

Stick down

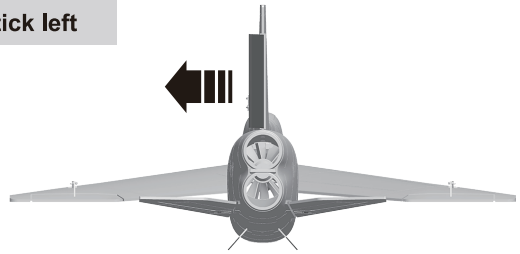


Stick up

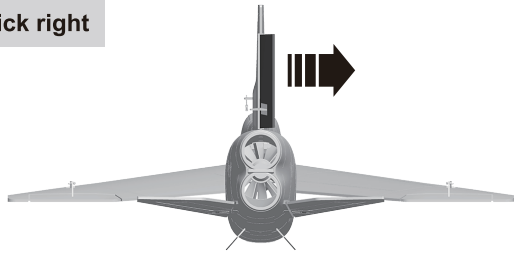


Rudder

Stick left

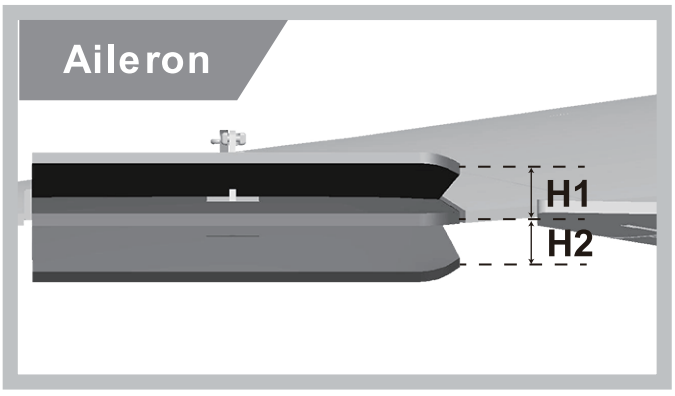


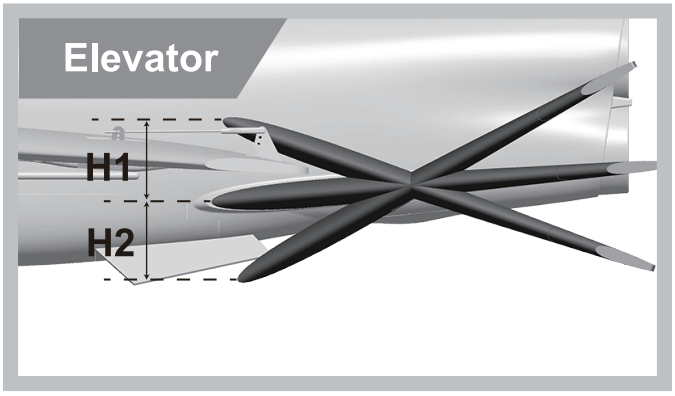
Stick right

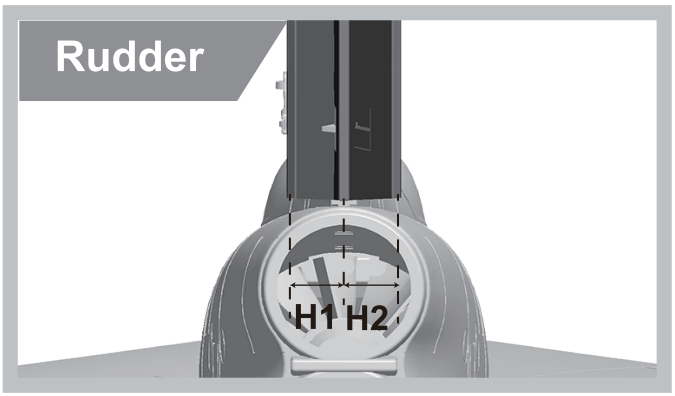


Dual Rates

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.





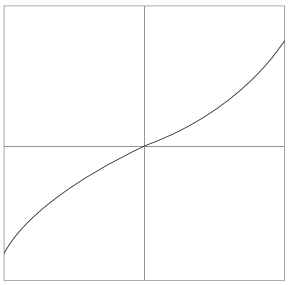


	Aileron (Measured closest to the fuselage)	Elevator (Measured closest to the fuselage)	Rudder (Measured from the bottom)
Low Rate	H1/H2 7mm/7mm D/R Rate: 60%	H1/H2 17mm/17mm D/R Rate: 40%	H1/H2 15mm/15mm D/R Rate: 80%
High Rate	H1/H2 11mm/11mm D/R Rate: 80%	H1/H2 26mm/26mm D/R Rate: 60%	H1/H2 19mm/19m D/R Rate: 100%

Pre-Installed Component Overview

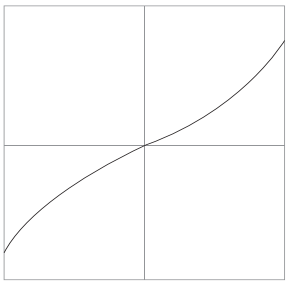
Remote Control EXP Setting Suggestion

1.Aileron EXP curve is shown as below :



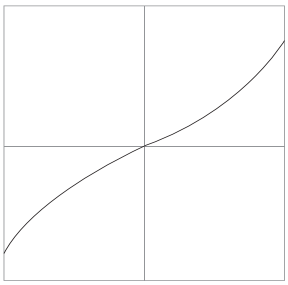
Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

2.Elevator EXP curve is shown as below :



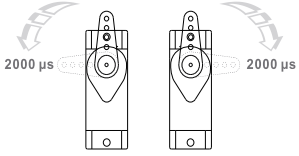
Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

3.Rudder EXP curve is shown as below :

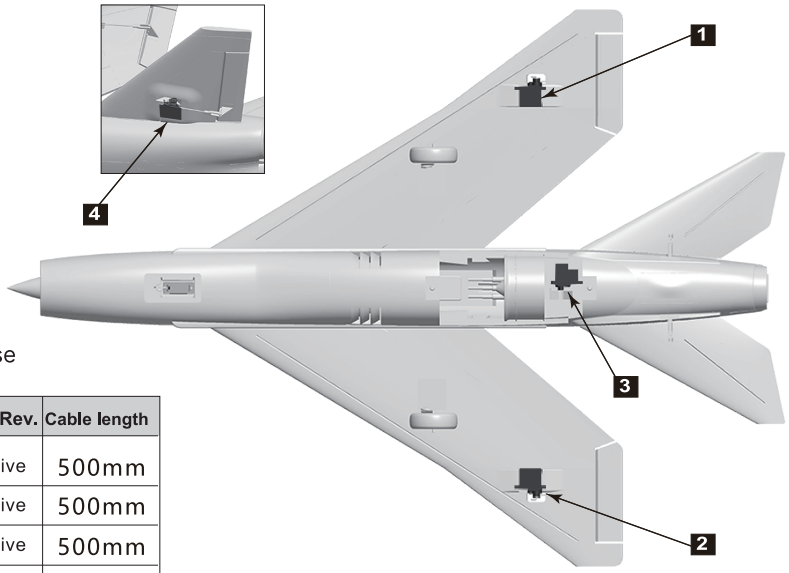


Futaba brand Remote Control : EXP A -30
EXP B -30
Spektrum brand Remote Control : EXPO 30% 30%

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.

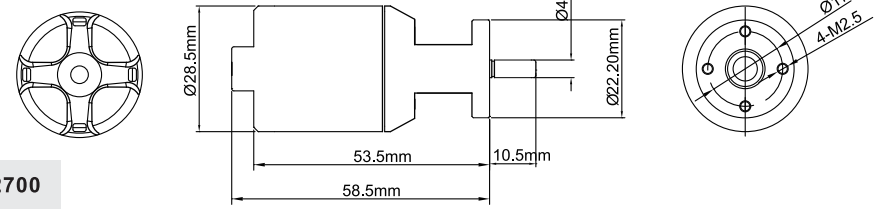
Position	Servo regulation	No.	Pos. / Rev.	Cable length
Aileron(L)	9g plastic servo	1	Positive	500mm
Aileron(R)	9g plastic servo	2	Positive	500mm
Elevator	9g plastic servo	3	Positive	500mm
Rudder	9g plastic servo	4	Positive	500mm

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:
1.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.

Motor Specification



2840-2700

2840-2700KV 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	Volate (V)	Current (A)	Pull (g)	RPM	Weight (g)	No Load Current	Propeller	ESC
2840-2700KV	2700RPM/V	14.8	38	1000	39900	140	2.7A	64mm Ducted Fan	40A

前　言

欢迎您购买飞翼64迷你系列English Electric Lightning “闪电” 模型飞机。在您组装这架飞机前，请认真阅读说明书和组装视频，按照正确的方式进行组装、设定与调试。在此过程中，如遇特殊问题且无法自行解决的，请立即联系经销商，或直接联系我们，寻求帮助。

英国电气公司设计的“闪电”战斗机（English Electric Lightning）是20世纪航空史上极具标志性的超音速截击机。它诞生于冷战初期，以其惊人的爬升率、独特的双发叠置布局和突破传统的设计理念，成为英国航空工业的骄傲。尽管其外形在当时显得前卫，但正是这种不拘一格的设计，成就了它在高空高速拦截任务中的卓越表现，同时也展现了英国工程师大胆创新的精神与独特的审美追求。

如今，通过飞翼64迷你系列“闪电”电动仿真模型飞机，我们得以重新领略这款传奇战机的风采。这款模型还原了“闪电”标志性的双发叠置布局——其独特的机腹造型不仅忠实再现了原机的设计精髓，更巧妙地为玩家提供了稳当的抓取位置，使投掷起飞更加轻松自如。后掠角主翼设计不仅忠实于原型，更在飞行中提供了优异的稳定性，有效降低失速风险，让飞行体验更加可靠。这款"闪电"航模完美继承了原型机的性能基因。其出色的空气动力学设计配合飞翼卫士陀螺仪，创造了令人难以置信的飞行稳定性——即便在三级风况下，依然能够保持稳定的飞行姿态，从容应对。而165公里/小时的惊人平飞时速，不仅远超同级别产品，更让我们体验到真实战机般的速度与激情。

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.不可以在公共场合、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.不可以在雷雨、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。

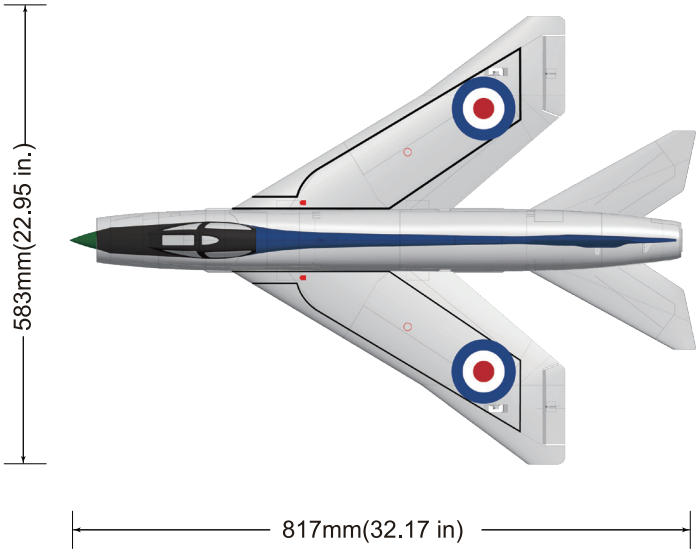
10.在飞场飞行时，应做到妥善处理飞行后所产生的垃圾，不可随意抛弃、焚毁模型及其配件。

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。

产品基本参数



标准版

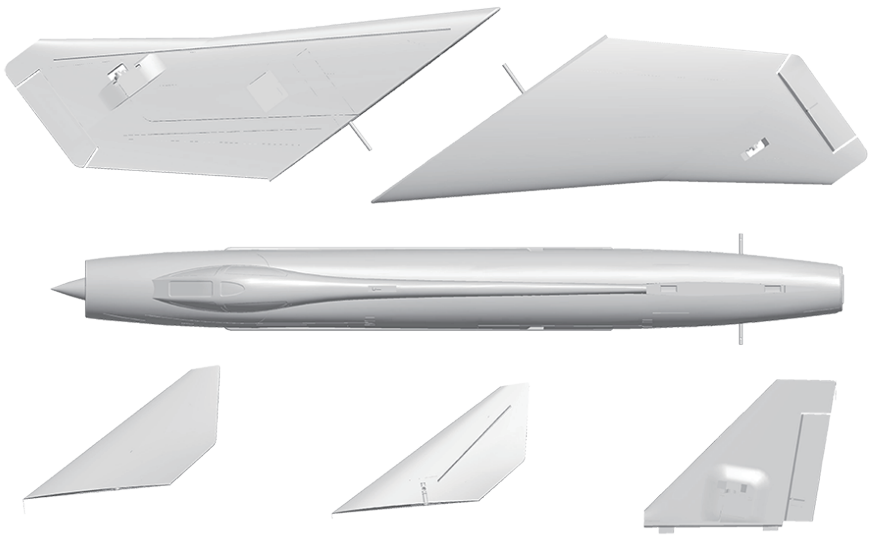
翼载荷：58.2g/dm²
翼面积：12.5 dm²
舵机：9g塑料齿舵机×4
电机：2840-2700KV外转电机
涵道风扇：64mm 12叶塑料涵道
电调：40A无刷电调(带反推刹车功能)
起飞重量：500g(不含电池)
电池范围：4S 1800-2200mAh

其他

起落架：固定式起落架（选配）

⚠ **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
1	机身	预装所有电子设备	预装舵机
2	主翼	预装所有电子设备	预装舵机
3	平尾	√	√
4	垂尾	√	√

序号	配件名称	PNP	ARF Plus
5	座舱	√	√
6	附件包	√	√
7	说明书	√	√

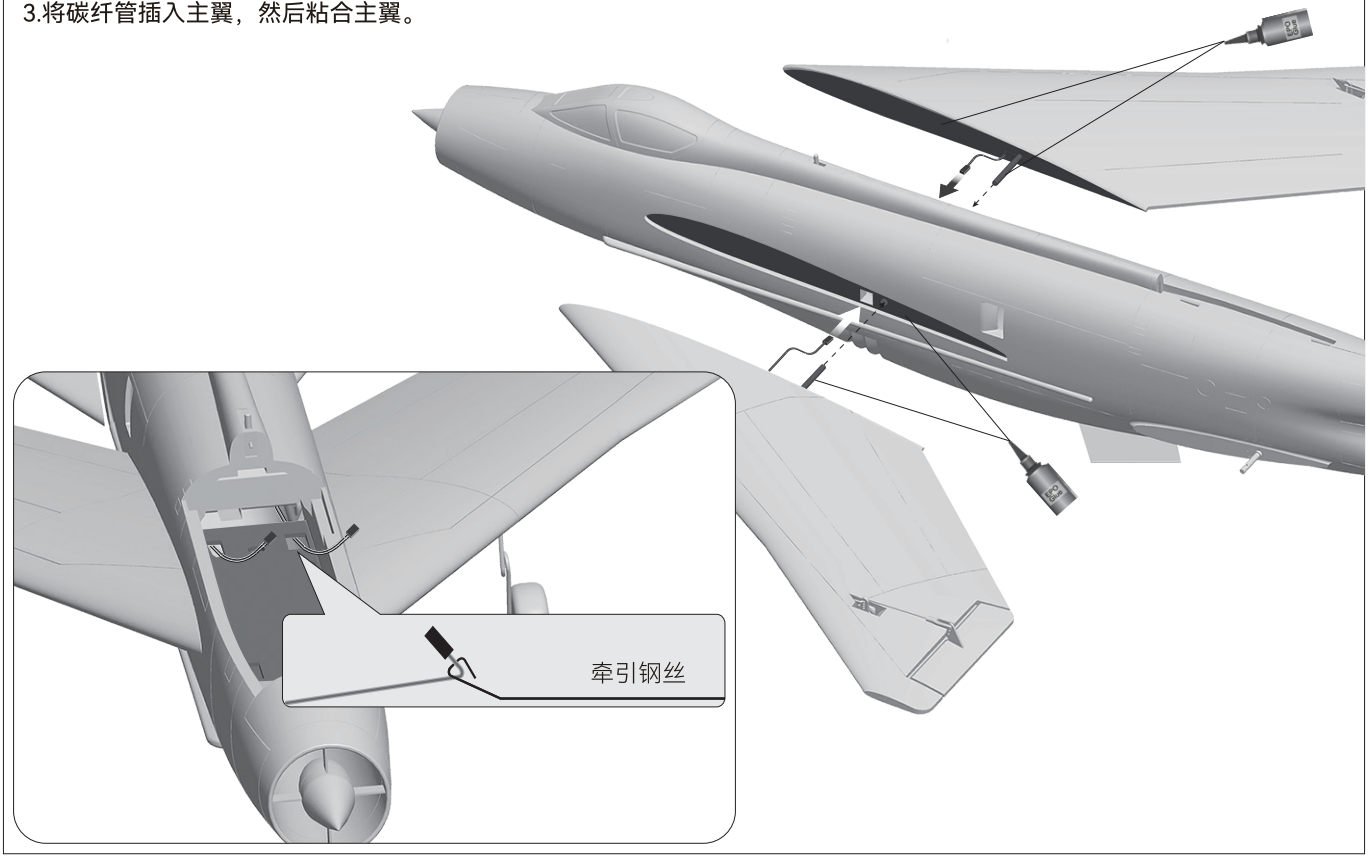
主翼组装

如图所示:

1.把胶水均匀抹在碳纤管、机身和主翼粘合面上;

2.主翼与机身即将合拢前，将主翼舵机线穿入机身，然后用牵引钢丝将主翼舵机线从座舱木片的打孔位置拉出;

3.将碳纤管插入主翼，然后粘合主翼。



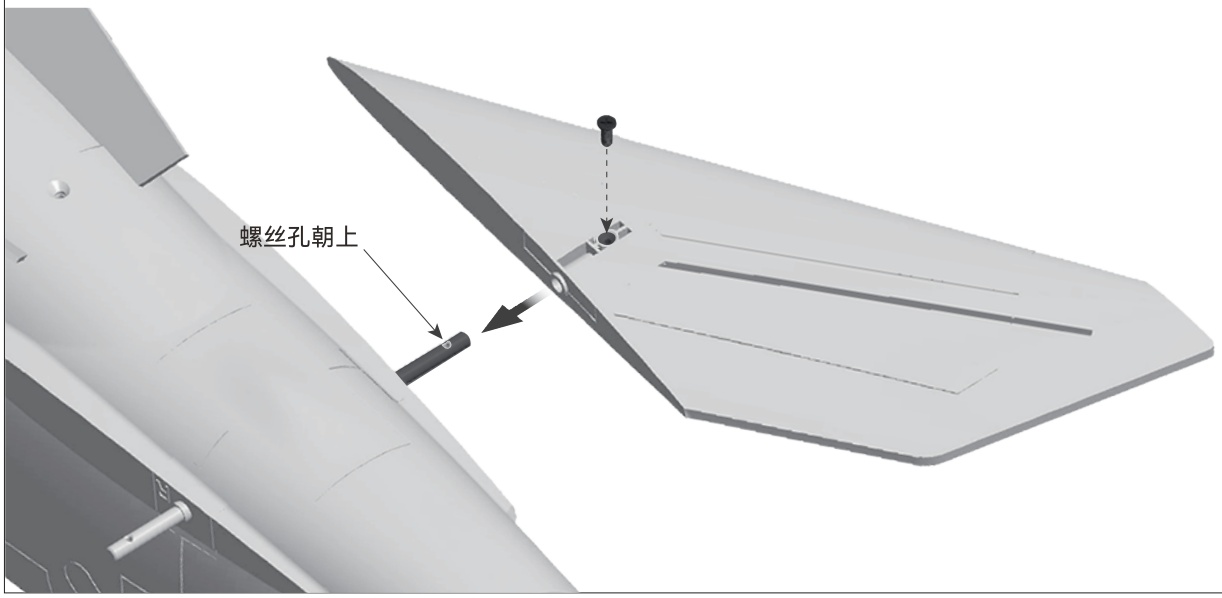
平尾组装

如图所示:

1.将平尾套在机身端旋转轴上，沿机身方向推动，到底为止。然后用螺丝固定，防止脱落;

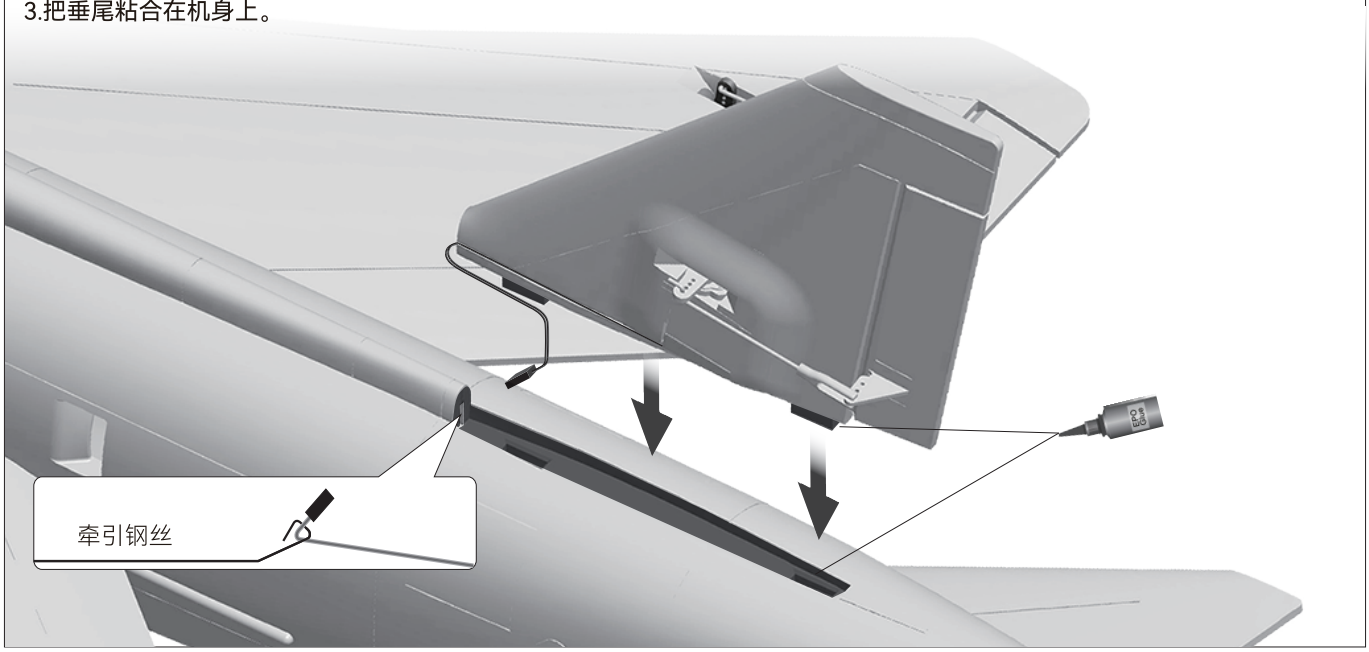
2.重复以上步骤，安装另一侧平尾。

螺丝（PM 2X9mm 2PCS)



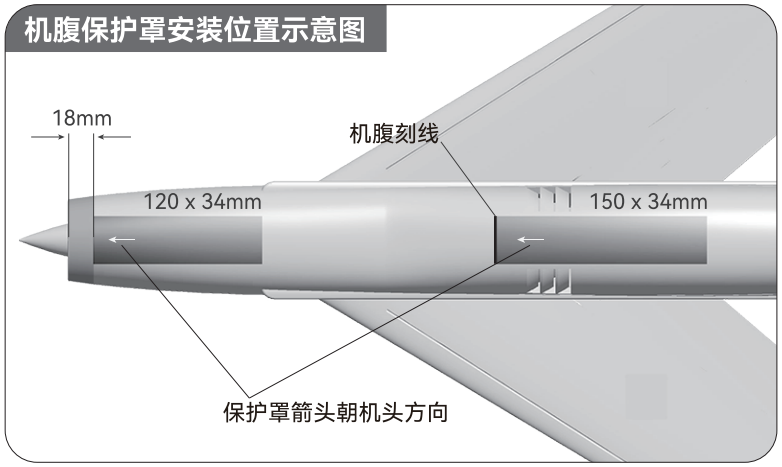
垂尾组装

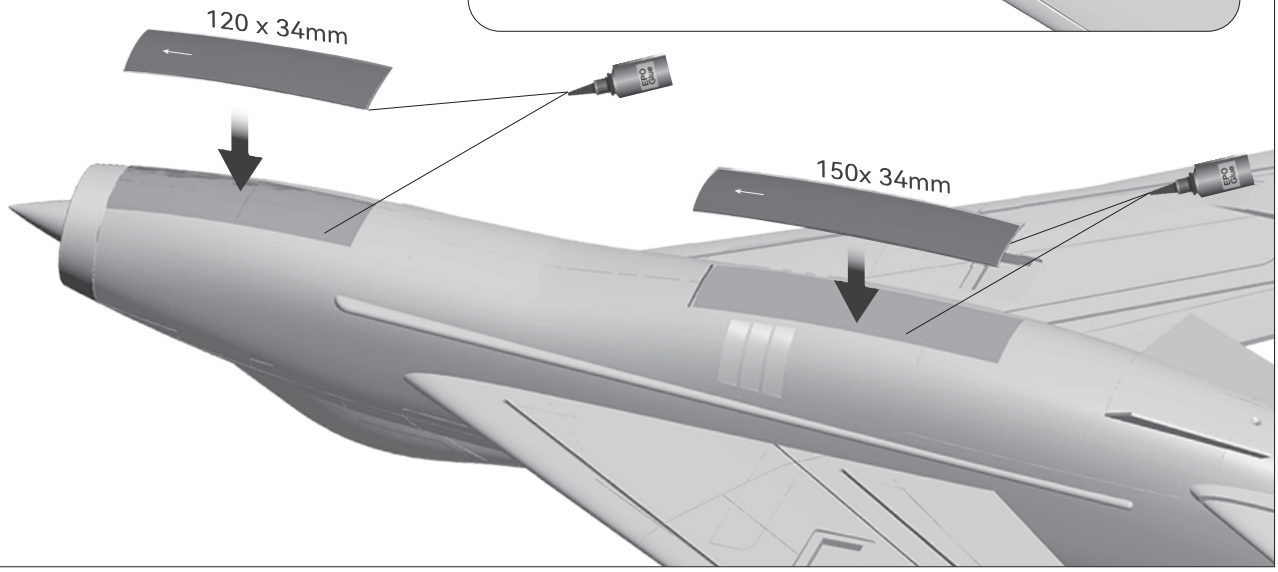
如图所示:
1.把胶水均匀抹在机身与垂尾粘合面上;
2.用牵引钢丝将垂尾舵机线拉入机身线槽;
3.把垂尾粘合在机身上。



机腹保护罩组装 -无起落架配置

如图所示:
1.把胶水均匀抹在机身与保护罩粘合面上;
2.把保护罩粘合在机身上。

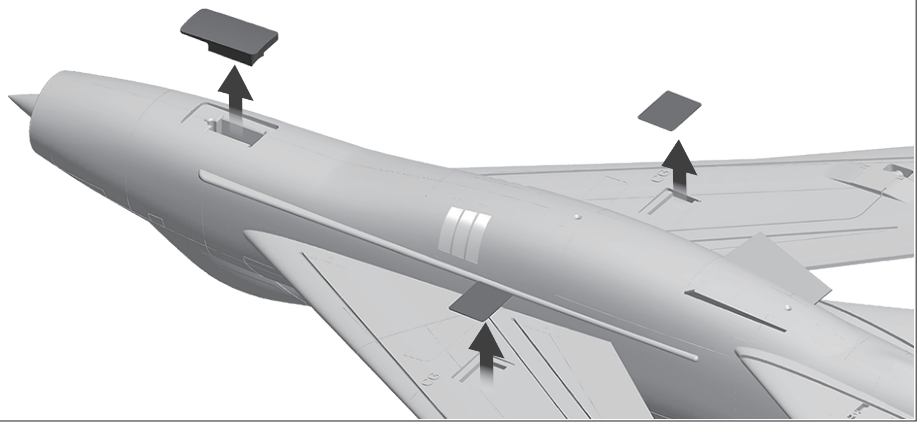




起落架组装 - 含起落架配置

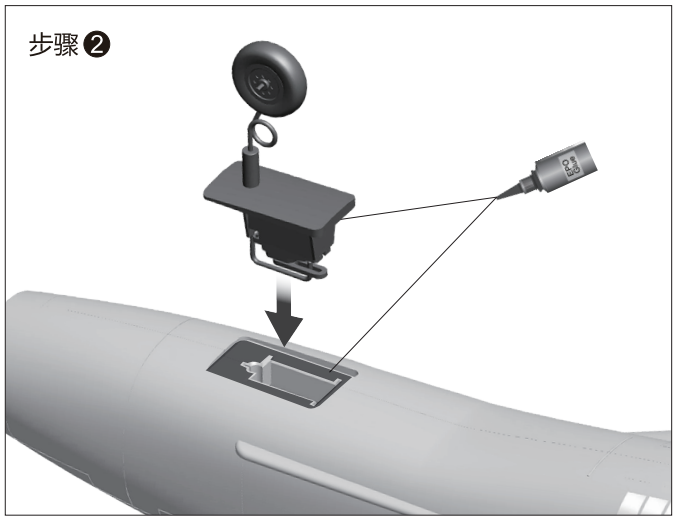
如图所示:
1.取出起落架拼块;

步骤❶

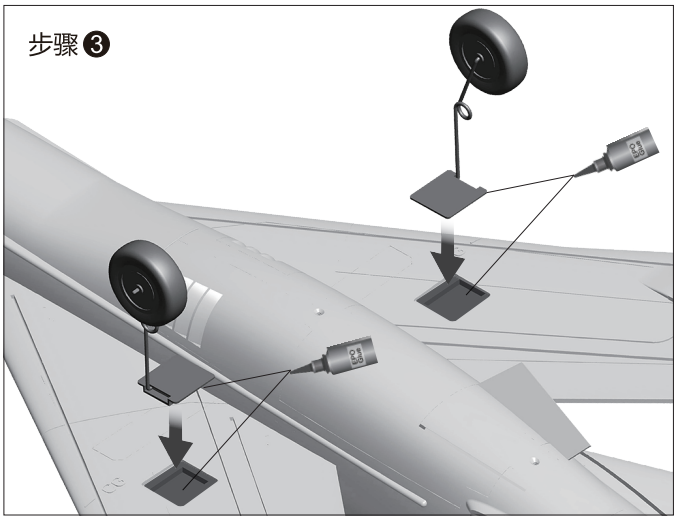


2.把胶水均匀抹在起落架与机身、主翼粘合面上;
3.把起落架粘合在机身与主翼上。

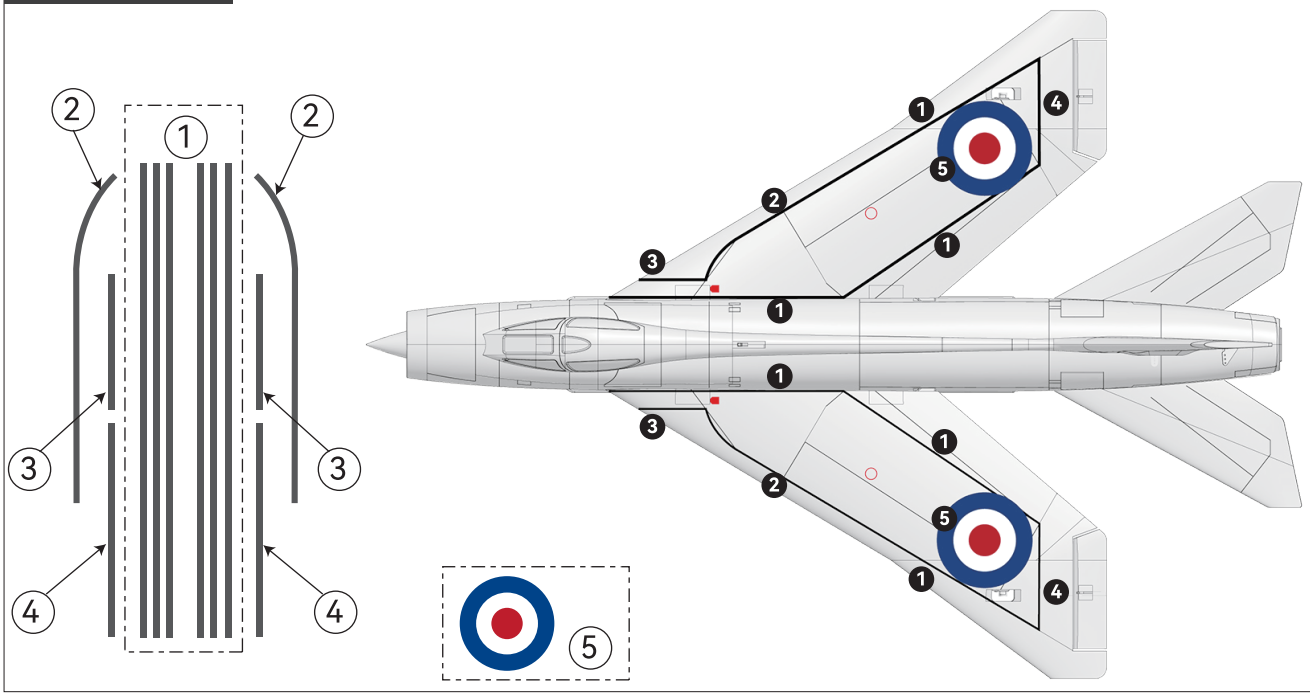
步骤❷



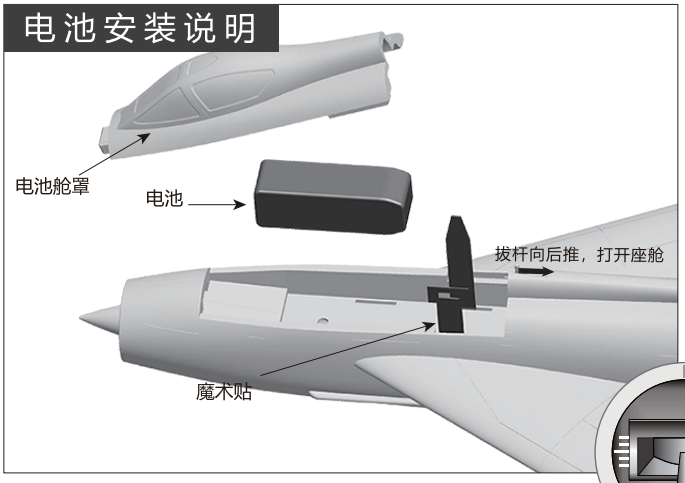
步骤❸

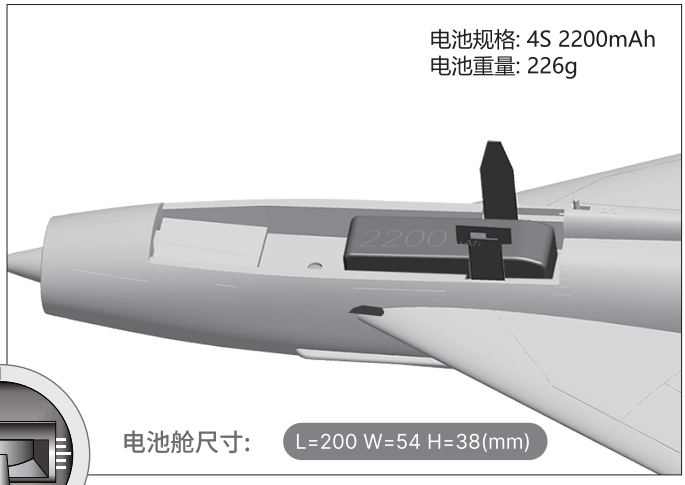


贴花参考图



电池安装说明



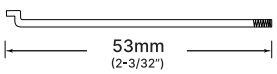


将电池与电调连接前，首先请打开发射机电源，确认油门杆处于低位。
安装电池后，启动油门前，请保证没有任何物体在螺旋桨转动直径以内，以免造成事故和人身伤害！

我们建议使用的电池容量和放电倍率如下：
4S 14.8V 1800mAh~4S 14.8V 2200mAh (1pcs)
放电倍率 ≥ **35C**

舵面控制钢丝尺寸及安装孔位

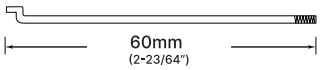
副翼控制钢丝尺寸



钢丝直径 Ø 1.2mm

副翼控制钢丝安装孔位

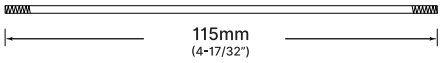
垂尾控制钢丝尺寸



钢丝直径 Ø 1.2mm

垂尾控制钢丝安装孔位

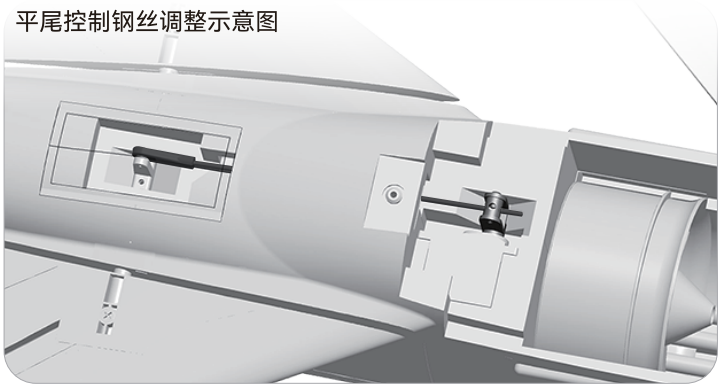
平尾控制钢丝尺寸



钢丝直径 Ø 1.5mm

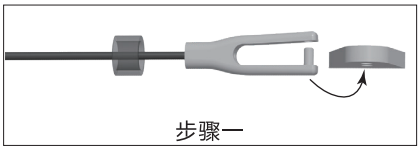
平尾控制钢丝安装孔位

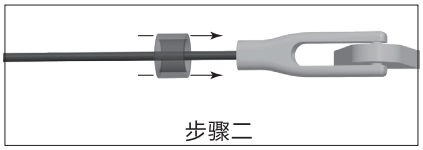
平尾控制钢丝调整示意图



重要附加说明:

本产品所使用的“Y”型夹头，均配备了透明硅胶圈进行二次加固，能有效防止夹头意外松开。
如下图所示，当您将夹头扣入舵面摇臂后，请使用硅胶圈套住夹头。


步骤一


步骤二


步骤三

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,在主翼下表面表面已经雕刻了重心位置标记.
请根据此标示线来确认重心。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

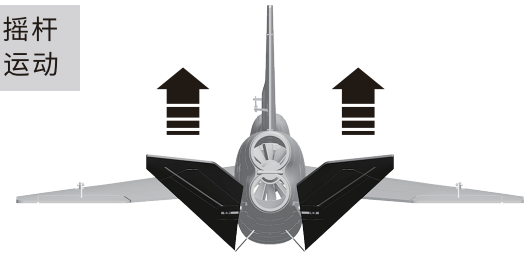
副翼摇杆
向左运动

副翼摇杆
向右运动

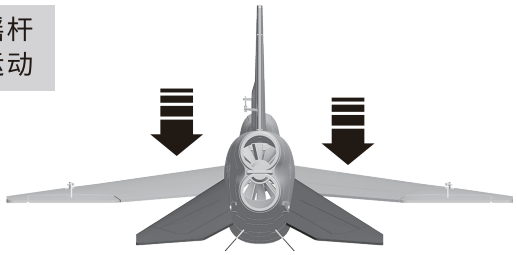
舵面运动方向测试

升降舵

升降摇杆
向下运动

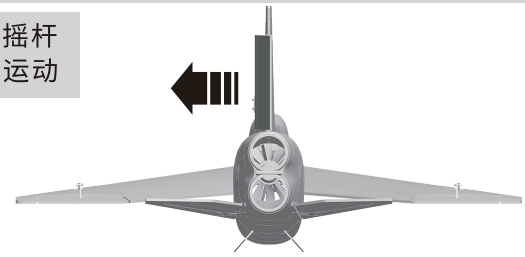


升降摇杆
向上运动

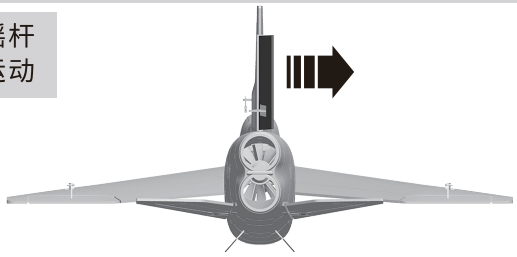


方向舵

方向摇杆
向左运动

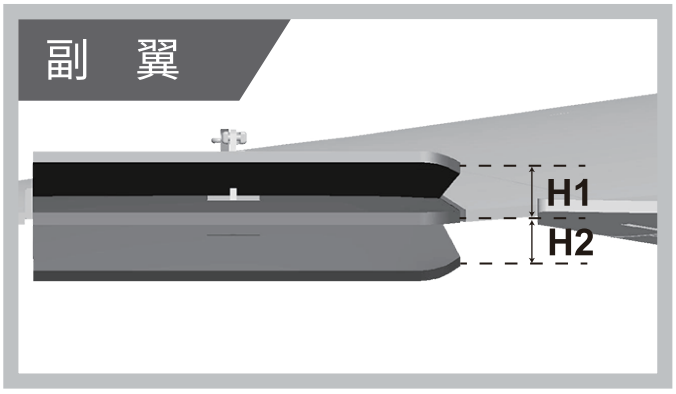


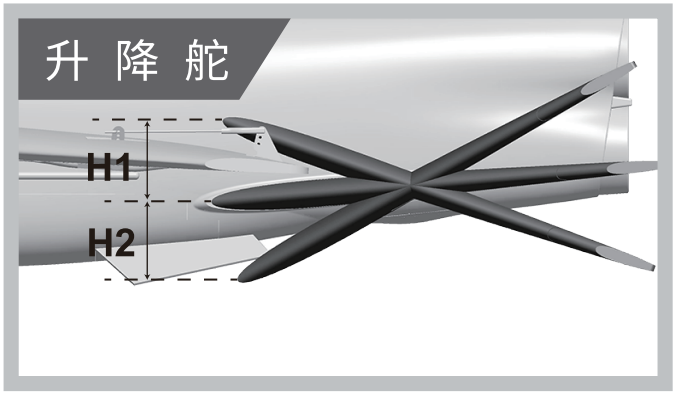
方向摇杆
向右运动

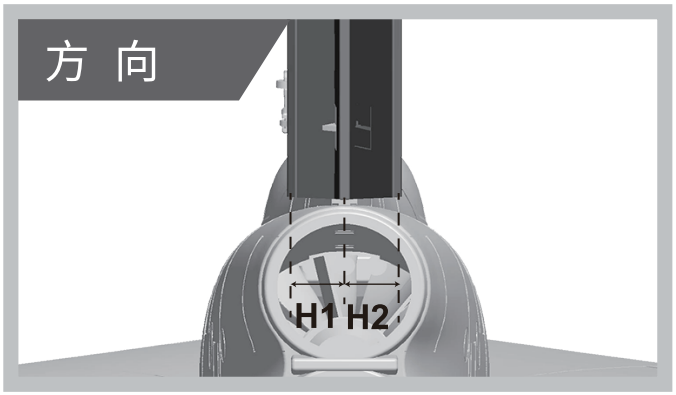


大、小舵参数

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。



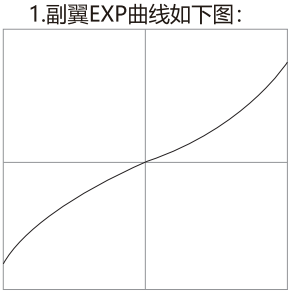




	副翼（内侧）	升降舵（前点）	方向舵（下端）
小舵量	H1/H2 7mm/7mm 舵量比率：60%	H1/H2 17mm/17mm 舵量比率：40%	H1/H2 15mm/15mm 舵量比率：80%
大舵量	H1/H2 11mm/11mm 舵量比率：80%	H1/H2 26mm/26mm 舵量比率：60%	H1/H2 19mm/19mm 舵量比率：100%

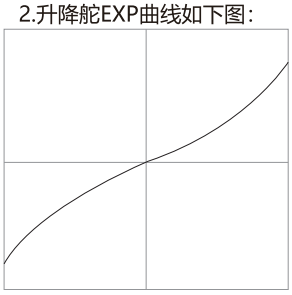
遥控器EXP设置建议

1.副翼EXP曲线如下图:



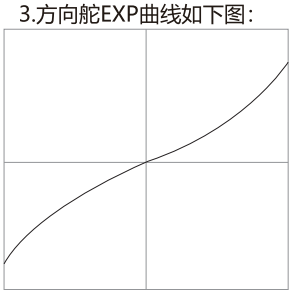
Futaba系列遥控器: EXP A -30
EXP B -30
Spektrum系列遥控器: EXPO 30% 30%

2.升降舵EXP曲线如下图:



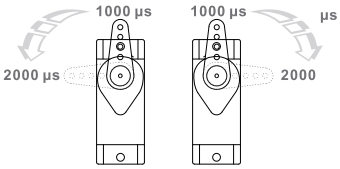
Futaba系列遥控器: EXP A -30
EXP B -30
Spektrum系列遥控器: EXPO 30% 30%

3.方向舵EXP曲线如下图:

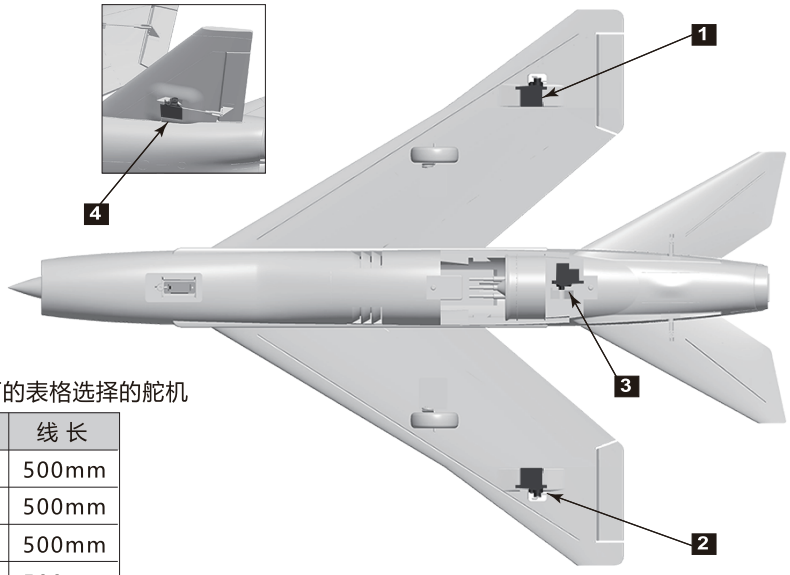


Futaba系列遥控器: EXP A -30
EXP B -30
Spektrum系列遥控器: EXPO 30% 30%

舵机使用介绍



我们的舵机正、反向标准是:
当舵机输入信号从 1000µs 到 2000µs 时,
如果舵机摇臂,
顺时针旋转---正向舵机
逆时针旋转---反向舵机



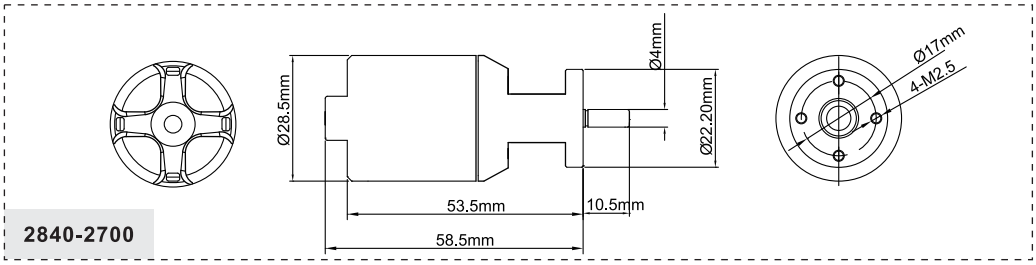
如果您需要选购其它品牌的舵机进行安装，请参考下面的表格选择的舵机

舵机位置	舵机规格	序号	方向性	线长
副翼(左)	9g塑料	1	正向	500mm
副翼(右)	9g塑料	2	正向	500mm
平尾	9g塑料	3	正向	500mm
垂尾	9g塑料	3	正向	500mm

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： 1.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。

电机参数



2840-2700 KV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。

型号	电机（KV）	使用电压（V）	电流（A）	推力（g）	转速	涵道重量（g）	无负载电流	扇叶	电调
2840-2700KV	2700RPM/V	14.8	38	1000	39900	140	2.7A	64mm Ducted Fan	40A

Dongguan Freewing Electronic Technology Ltd
HK Freewing Model International Limited

Add.:FeiYi Building, 402-408#, Fumin Middle Road, Dalang Town,
Dongguan City , Guangdong Province, China
Web: http://www.sz-freewing.com www.freewingmodel.com
Email:freewing@sz-freewing.com
Tel: 86-769-82669669 Fax:86-769-82033233

东莞市飞翼电子科技有限公司
香港飞翼模型国际有限公司
地址：广东省东莞市大朗镇富民中路402-408号飞翼楼四楼
Web: http://www.sz-freewing.com www.freewingmodel.com
Email:freewing@sz-freewing.com
Tel: 86-769-82669669 Fax:86-769-82033233