

m^oDEL
Freewing

T-33 SHOOTING STAR USER MANUAL

Wingspan:1350mm

Length:1200mm

Empty Weight:2280G[w/o Battery]



MADE IN CHINA



EN 1~8

中 9~16

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We are proud to announce the Freewing T-33 Shooting Star in 1/9.5 scale with a 1200mm length and generous 1350mm wingspan! Honoring the popular T-33 that flew with over 40 countries between 1948 and 2017, the Freewing T-33 faithfully represents this amazing aircraft.

Constructed from EPO foam, carbon, wood, aluminum, and other materials, the Freewing T-33 is powered by an 80mm EDF power system optimized for performance and easy flying behavior. Its wide wingspan and light wingloading allows for very stable flight behavior and a mild, gentle stall. Flaps and suspension landing gear make taking off from and landing on grass runways an easy operation. Removable tip tanks, an accurate overall outline, and landing gear doors enhance the scale fidelity of this model aircraft. Screw-together assembly is quick and convenient for modelers wanting to fly quickly!

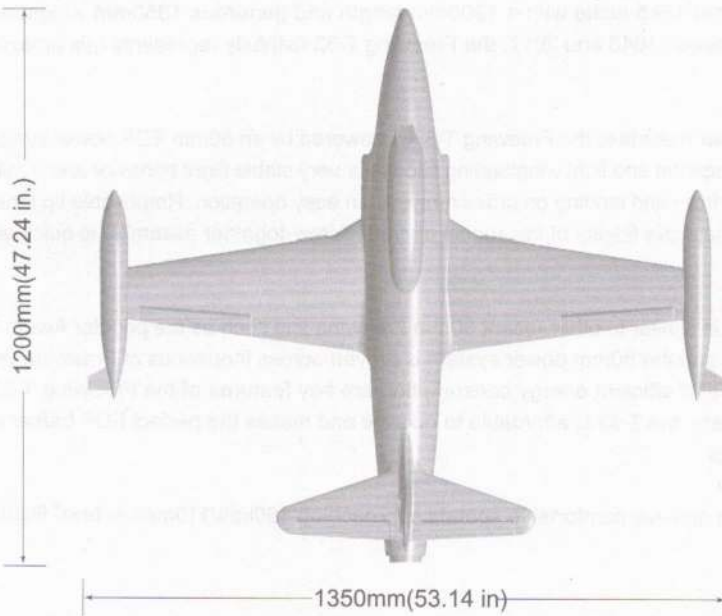
The Freewing T-33's power system provides performance that is similar to other recent 80mm Freewing jets such as the popular Avanti S. The 100A ESC provides ample headroom for high power use, and the 80mm power system is proven across thousands of Freewing jets worldwide. Rapid acceleration, low cruising throttle position, and efficient energy consumption are key features of the Freewing T-33. Although its wingspan is greater than more expensive 90mm jets, the T-33 is affordable to operate and makes the perfect EDF trainer jet for new jet pilots moving up from smaller 64mm and 70mm jets.

With the recommended 6s 5000mAh lipo battery, the T-33 can achieve comfortable speeds approaching 180kph/110mph in level flight.

⚠ 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

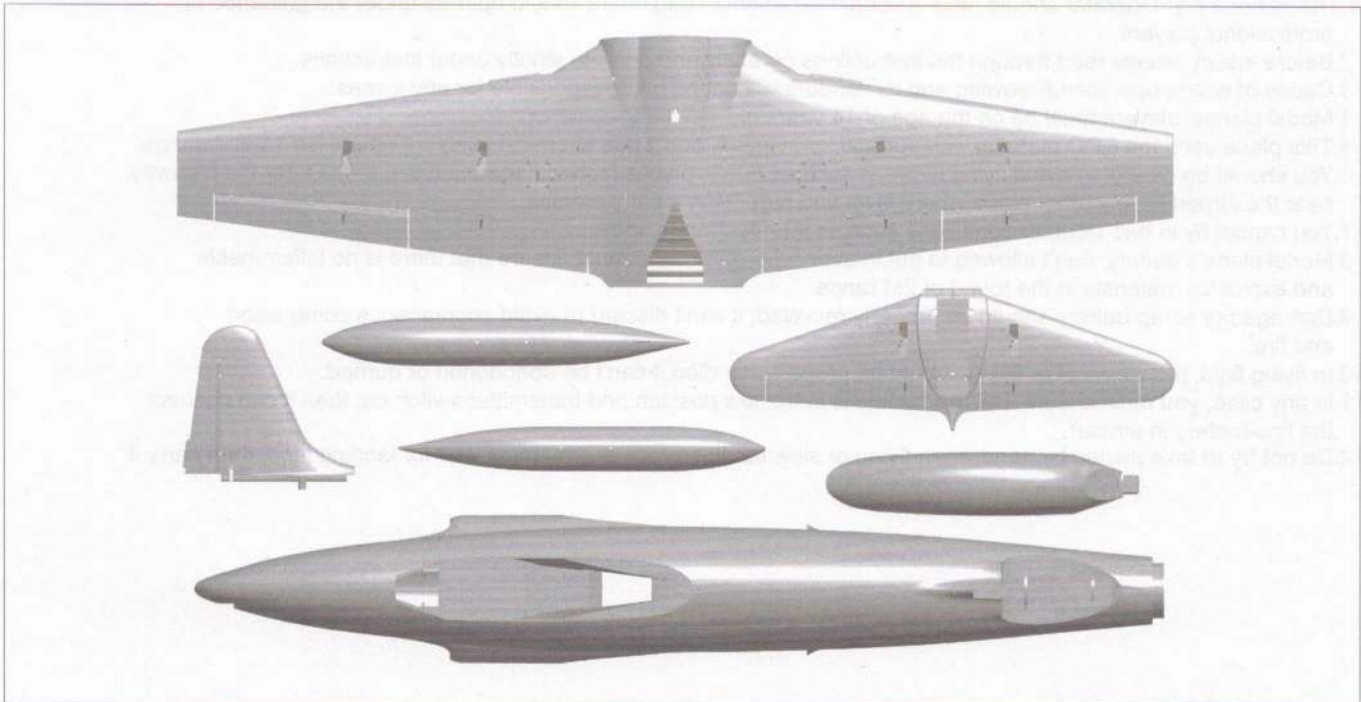
Wingload: 113 g/dm²
 Wing Area: 25 dm²
 Motor: 3658-1920KV I/R Motor
 Servo: 9g Hybrid digital servo (8pcs)
 ESC: 100A with 5A BEC
 Ducted fan: 80mm 9-blade fan
 Weight: 2280g (w/o Battery)

Other features

Material: EPO
 Aileron: Yes Flap: Yes
 Elevator: Yes Rudder: Yes
 Landing gear: Electric Landing Gear
 Cabin door: Nose gear cabin door
 Scale LED lights
 Scale Pilot figure
 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.

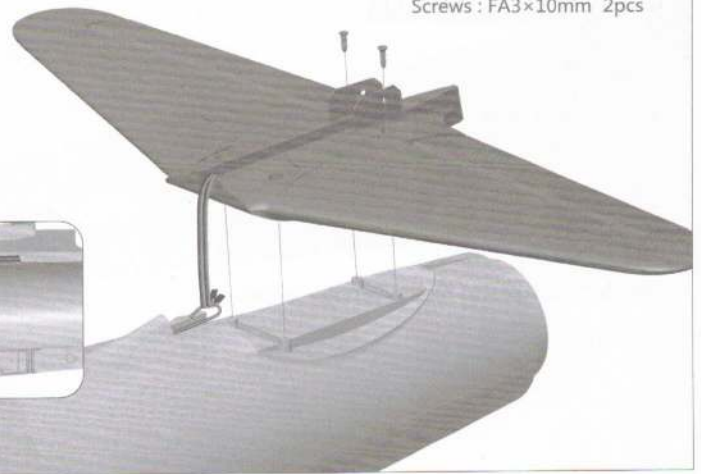
No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo
2	Main wing	Pre-installed all electronic parts	Pre-installed servo
3	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo
5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

No.	Name	PNP	ARF Plus
6	Manual	✓	✓
7	Pushrod	✓	✓
8	Non-slipmat	✓	✓
9	Screw	✓	✓

Install Horizontal Stabilizer

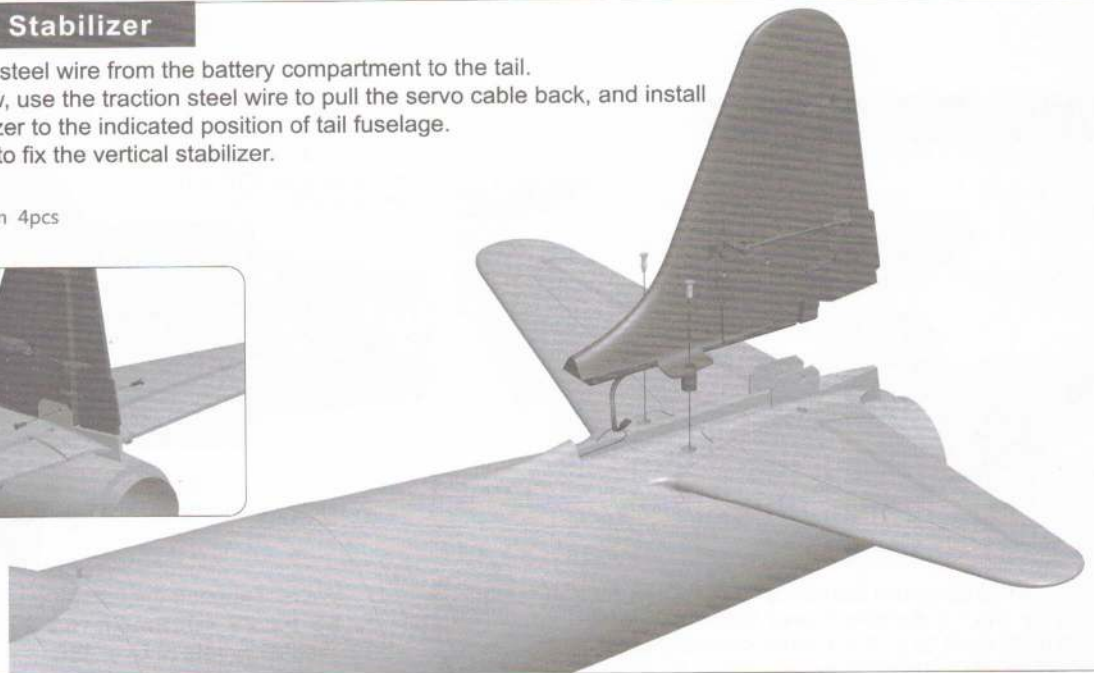
Screws : FA3×10mm 2pcs

- 1.Insert the traction steel wire from the battery compartment to the tail.
- 2.As the photo show, use the traction steel wire to pull the servo cable back, and install the horizontal stabilizer to the indicated position of tail fuselage,
- 3.Use 2pcs screws to fix the horizontal stabilizer

**Install Vertical Stabilizer**

- 1.Insert the traction steel wire from the battery compartment to the tail.
- 2.As the photo show, use the traction steel wire to pull the servo cable back, and install the vertical stabilizer to the indicated position of tail fuselage.
- 3.Use 4pcs screws to fix the vertical stabilizer.

Screws : FA3×10mm 4pcs

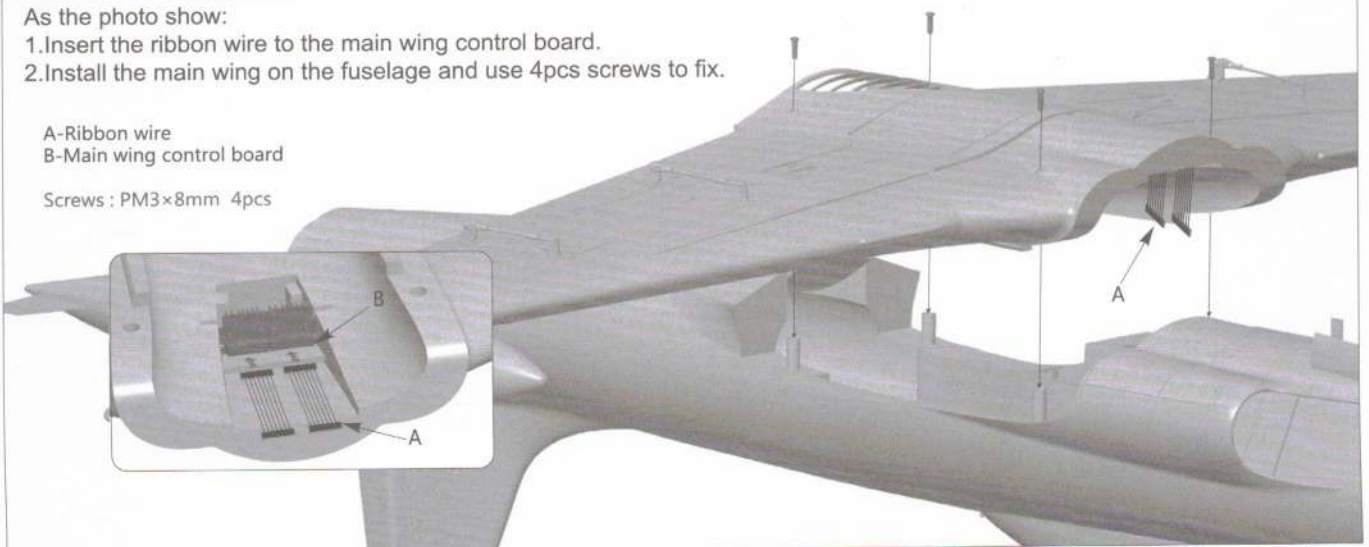
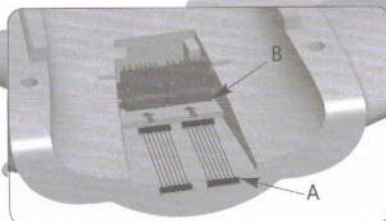
**Install Main wing**

As the photo show:

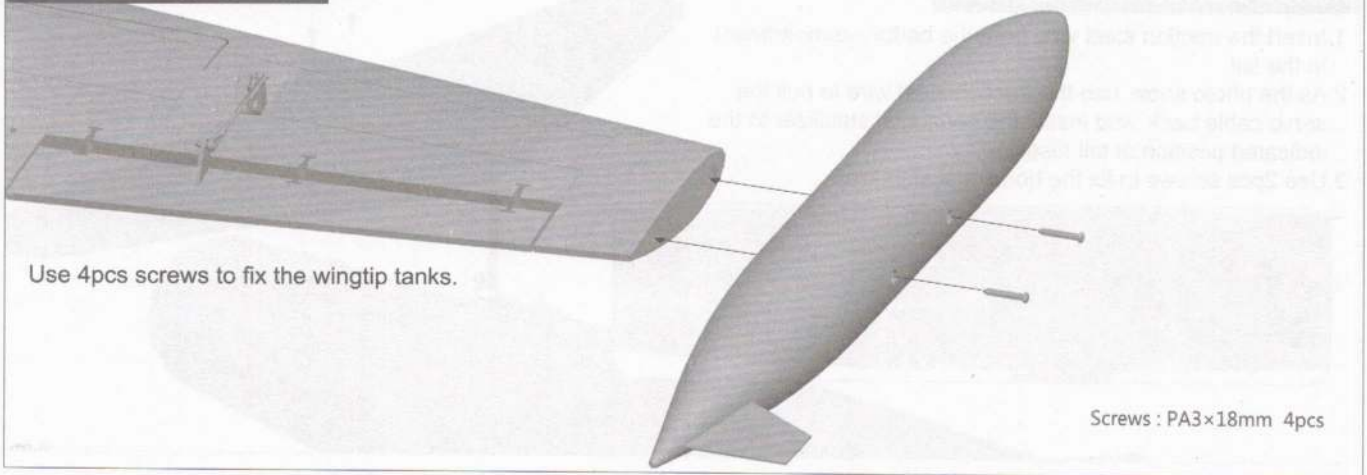
- 1.Insert the ribbon wire to the main wing control board.
- 2.Install the main wing on the fuselage and use 4pcs screws to fix.

A-Ribbon wire
B-Main wing control board

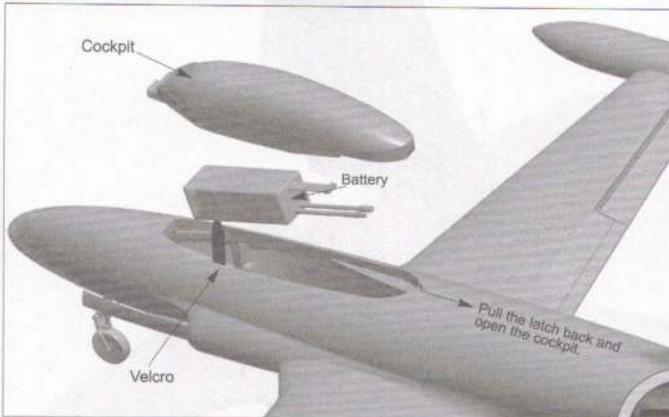
Screws : PM3×8mm 4pcs



Install Wingtip tank



Install Battery





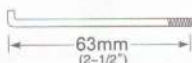


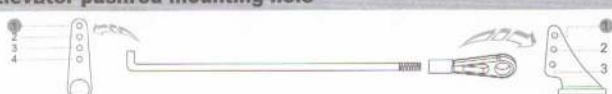

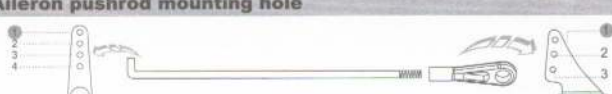
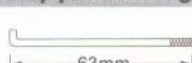



Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.



We recommend the following LiPo battery:
6S 22.2V 4000mAh~6S 22.2V 5000mAh
Discharge rate of C ≥ 35C

Pushrod instructions

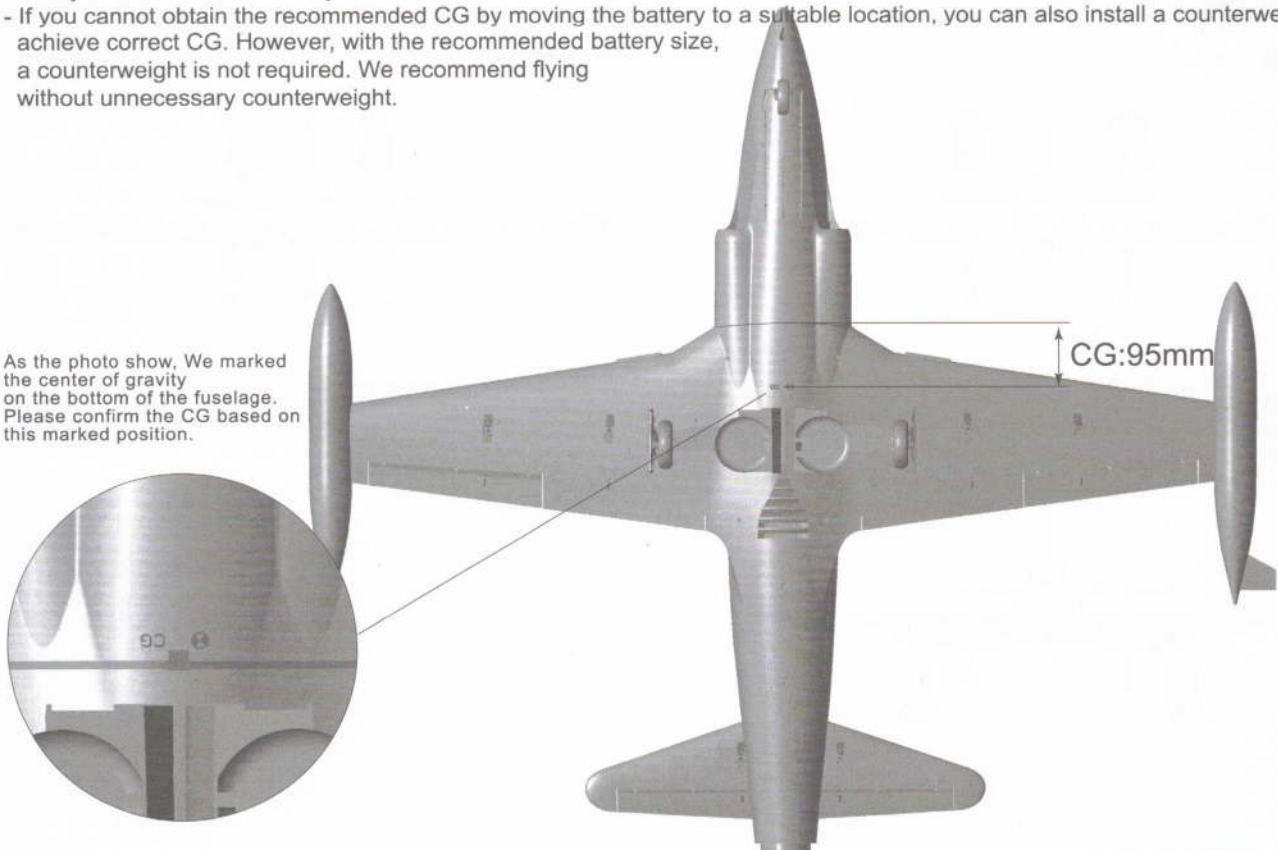
<p>Nose gear steering pushrod length</p>  <p>55mm (2-3/16")</p> <p>Pushrod diameter Ø1.2mm</p>	<p>Nose gear steering pushrod mounting hole</p> 
<p>Nose cabin door pushrod length</p>  <p>24mm (1")</p> <p>Pushrod diameter Ø1.2mm</p>	<p>Aileron pushrod mounting hole</p> 
<p>Rudder pushrod length</p>  <p>63mm (2-1/2")</p> <p>Pushrod diameter Ø1.5mm</p>	<p>Rudder pushrod mounting hole</p> 
<p>Elevator pushrod length</p>  <p>48mm (1-13/16")</p> <p>Pushrod diameter Ø1.5mm</p>	<p>Elevator pushrod mounting hole</p> 
<p>Aileron pushrod length</p>  <p>63mm (2-1/2")</p> <p>Pushrod diameter Ø1.5mm</p>	<p>Aileron pushrod mounting hole</p> 
<p>Flap pushrod length</p>  <p>63mm (2-1/2")</p> <p>Pushrod diameter Ø1.5mm</p>	<p>Flap pushrod mounting hole</p> 

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 fuselage. 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

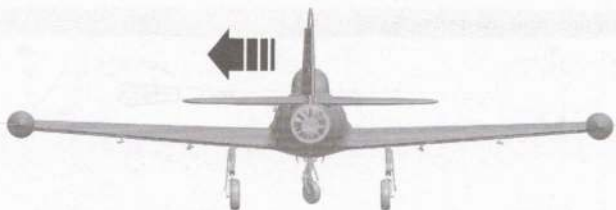


Stick Right

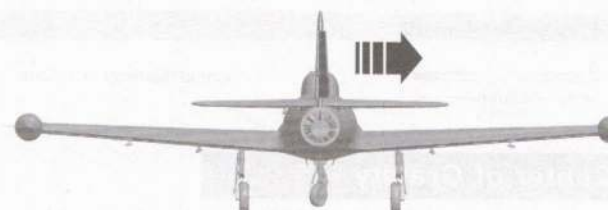


Rudder

Stick Left

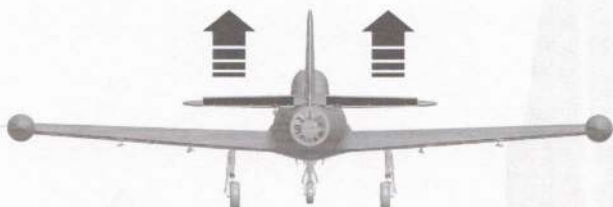


Stick Right

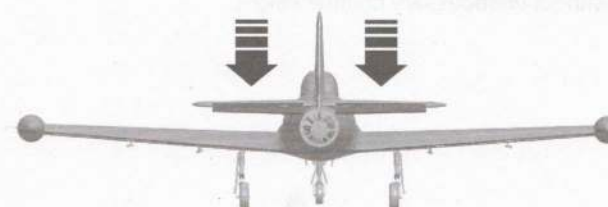


Elevator

Stick down



Stick up



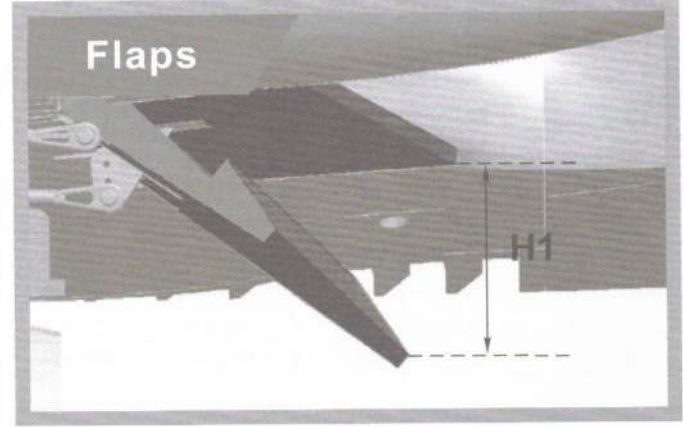
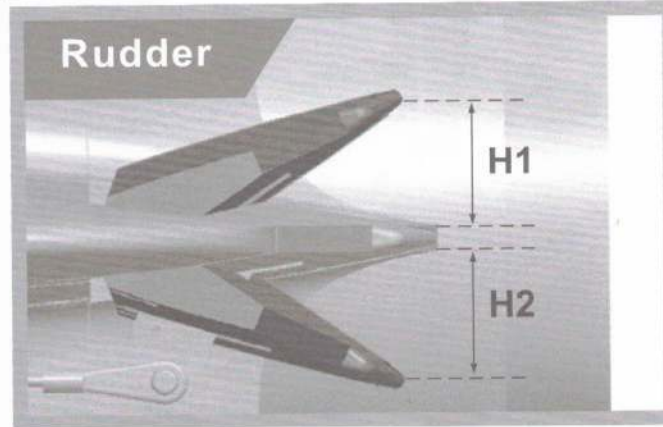
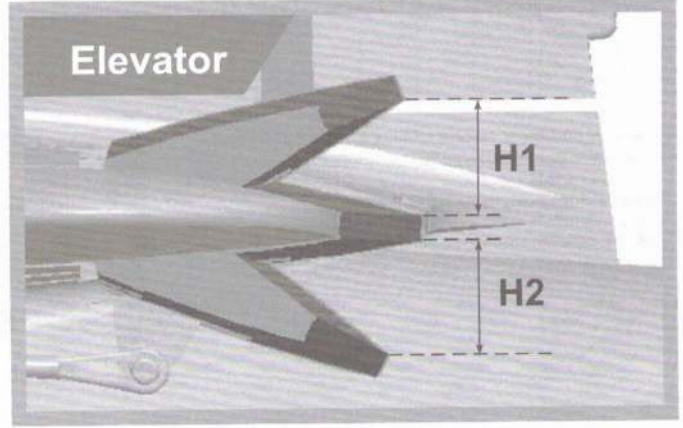
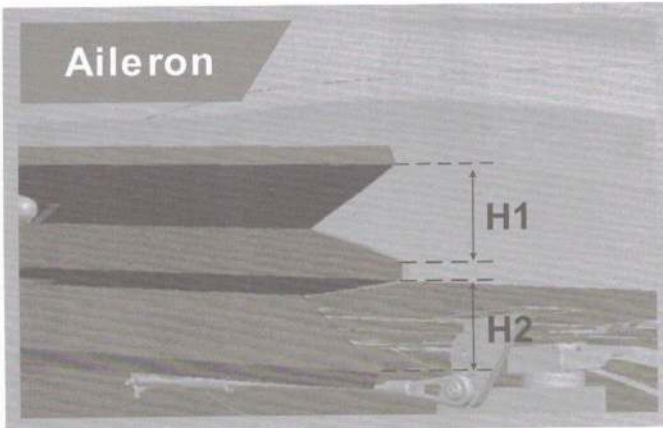
Flaps

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.



	Aileron (Measured closest to the fuselage)	Elevator (Measured closest to the fuselage)	Rudder (Measured from the bottom)	Flaps
Low Rate	H1/H2 18mm/18mm D/R Rate : 85%	H1/H2 18mm/18mm D/R Rate : 85%	H1/H2 19mm/19mm D/R Rate : 85%	H1 16mm
High Rate	H1/H2 20mm/20mm D/R Rate : 100%	H1/H2 20mm/20mm D/R Rate : 100%	H1/H2 24mm/24mm D/R Rate : 100%	H1 30mm

Flap-to-Elevator Mix

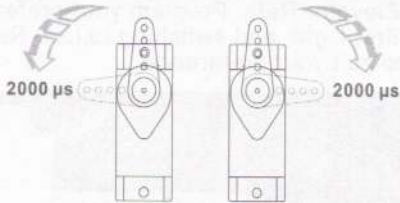
A Flap-to-Elevator Mix is required to maintain level flight when the flaps are deployed. The detail is as below:

- With low rate flaps deployed, mix 0.5mm (1.5%) of DOWN elevator to maintain level flight.
- With high rate flaps deployed, mix 1mm (3%) of DOWN elevator to maintain level flight.

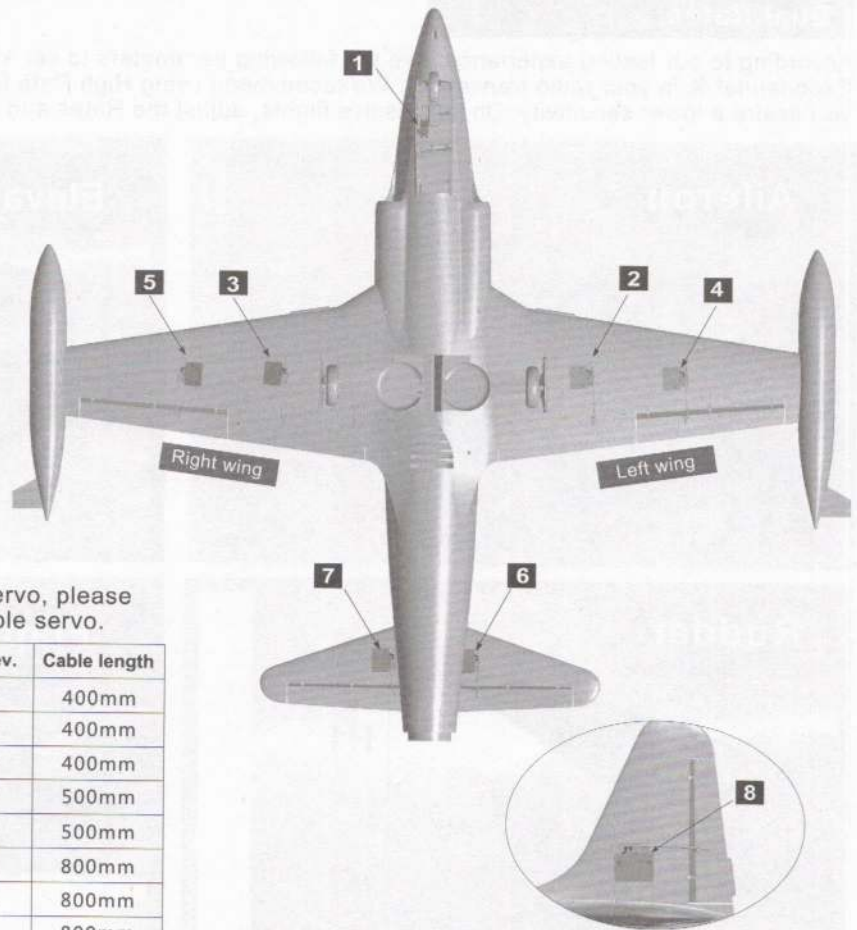
Or

Trim the elevator DOWN 3 times (low rate) or 6 times (high rate) when the FLAP are deployed.

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.

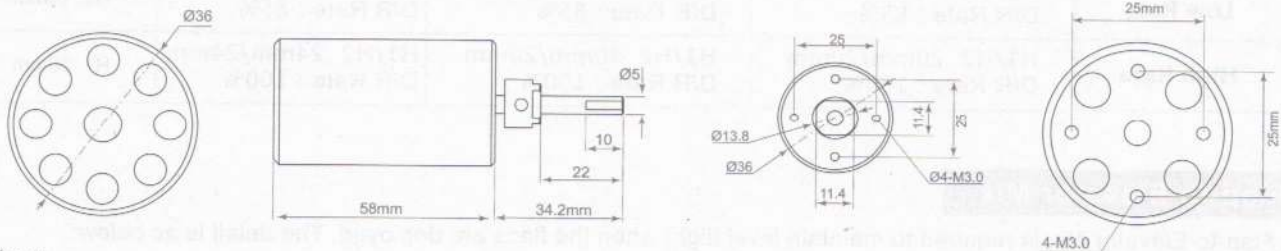


If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

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

Motor Specification

#MOI36584
3658-1920KV



Unit:mm

Item No.	Fan size	Motor specifications	Voltage (V)	Current (A)	Max power (W)	Thrust (g)	Efficiency (g/W)	Speed (rpm)	Weight (g)
E72313	80mm 9-Blade	3658-1920KV	22.2	90	2000	3400	1.7	42000	345

感谢您购买飞翼模型80mm电动涵道系列T-33仿真模型飞机，T-33是美国一型双座单发平直翼亚音速高级喷气教练机。共计生产6557架，它的双座设计因满足了当时培养飞行员的需求而得到广泛使用，美国及大部分美国盟友都曾使用过T-33来训练大量的飞行员。

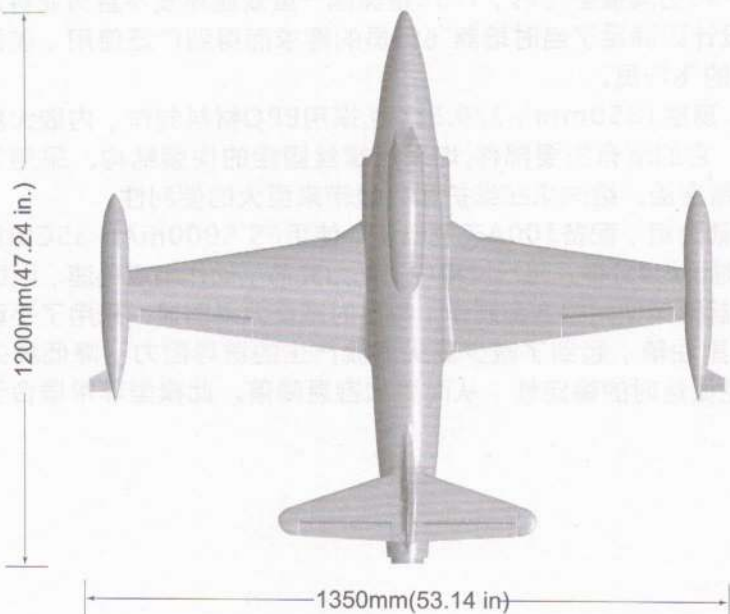
此模型轮廓精准，外形逼真。机长1200mm，翼展1350mm，1/9.5比例，采用EPO材料制作，内嵌大量碳纤维材料加固，最大程度上限制了产品的重量。它的所有主要部件，均采用螺丝固定的快装结构。采用了集线控制板及排线来简化主翼与机身之间的线路连接。给未来在维护和升级带来巨大的便利性。

T-33仿真模型飞机，使用了80mm-9叶内转动力组，配备100A无刷电调，使用6S 5000mAh 35C电池测试得出：最大飞行速度约180KM/H，最大飞行时长约4分钟。飞行过程中，动力充沛，动作响应迅速，回馈精准，可以轻松完成多种标准飞行动作。前、后起落架使用铝合金制作，降落时减震效果明显。采用了平直翼的T-33机型，能够产生更多升力，而翼尖的副油箱，起到了减少翼尖涡流产生的诱导阻力，降低翼尖部份的升力损失。这些设计，保证了此模型低空低速时的稳定性，从而更加容易降落。此模型非常适合于电动涵道初级学员进阶练习使用。

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、大雪或者其他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。必须等模型降落平稳以后，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

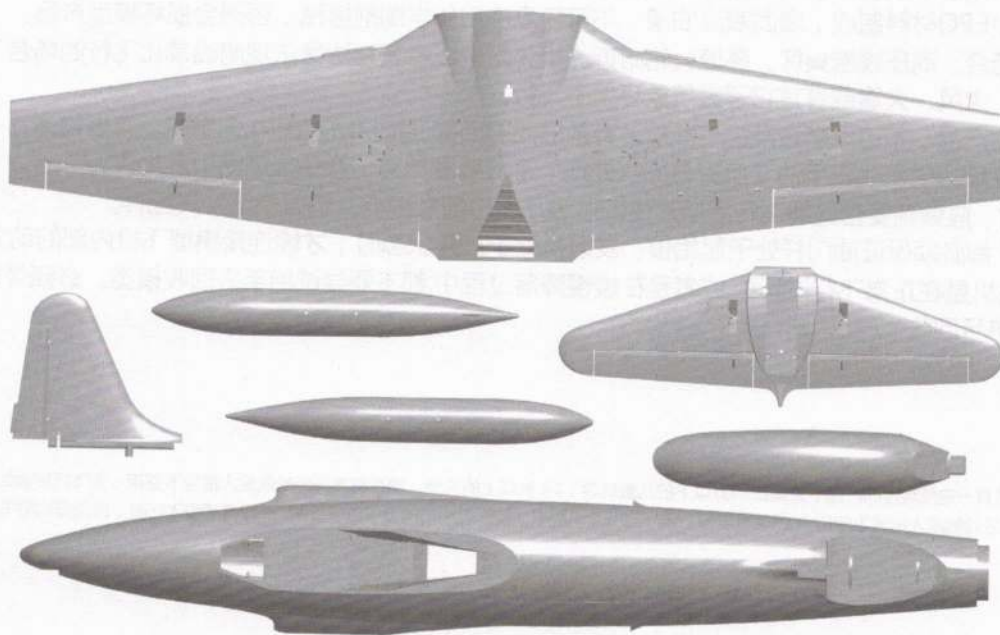
翼载荷：113 g/dm²
 翼面积：25 dm²
 舵机：9g数码混合齿 (8pcs)
 电机：3658-1920KV内转无刷电机
 涵道风扇：80mm 9叶塑料涵道
 电调：100A无刷电调 BEC 5A
 起飞重量：2280g(不含电池)

其它说明

机体材料：EPO, ABS工程塑料
 副翼：有 襟翼：有
 升降舵：有 方向舵：有
 起落架：电动金属减震起落架
 舱门：前-全舱门、后-随动舱门
 飞行员：仿真飞行员
 电池范围：6S 4000-5000mAh

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！）

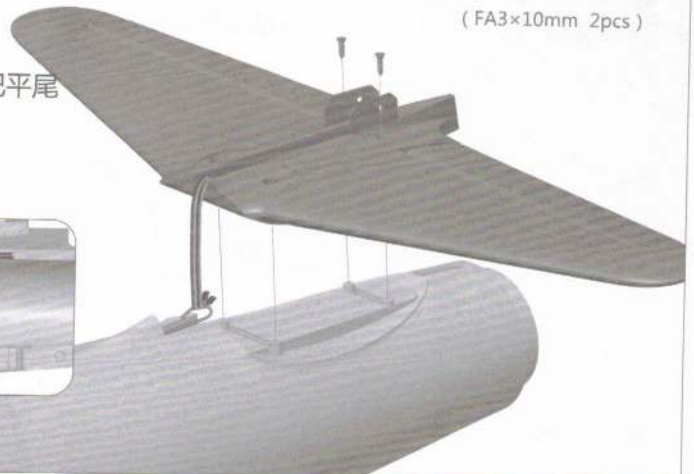
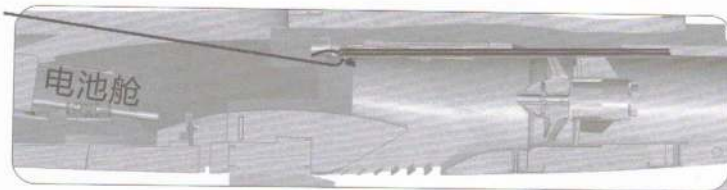
序号	配件名称	PNP	ARF Plus
1	机身	预装所有电子设备	预装舵机
2	主翼	预装所有电子设备	预装舵机
3	平尾	预装所有电子设备	预装舵机
4	垂尾	预装所有电子设备	预装舵机
5	翼尖油箱	✓	✓

序号	配件名称	PNP	ARF Plus
6	说明书	✓	✓
7	舵面控制钢丝	✓	✓
8	防滑垫	✓	✓
9	螺丝	✓	✓

平尾组装

(FA3×10mm 2pcs)

1. 将牵引钢丝从电池舱伸入, 沿机体线槽至机尾穿出。
2. 如图所示, 牵引钢丝勾住舵机线头后往回拉。同时, 把平尾安装到机体尾部正确区域。
3. 用二颗螺丝固定好水平尾翼。



垂尾组装

1. 将牵引钢丝从电池舱伸入, 沿机体线槽至机尾穿出。
2. 如图所示, 牵引钢丝勾住舵机线头后往回拉。同时, 把垂尾安装到机体尾部指定区域。
3. 用四颗螺丝固定好垂直尾翼。

螺丝 (FA3×10mm 4pcs)



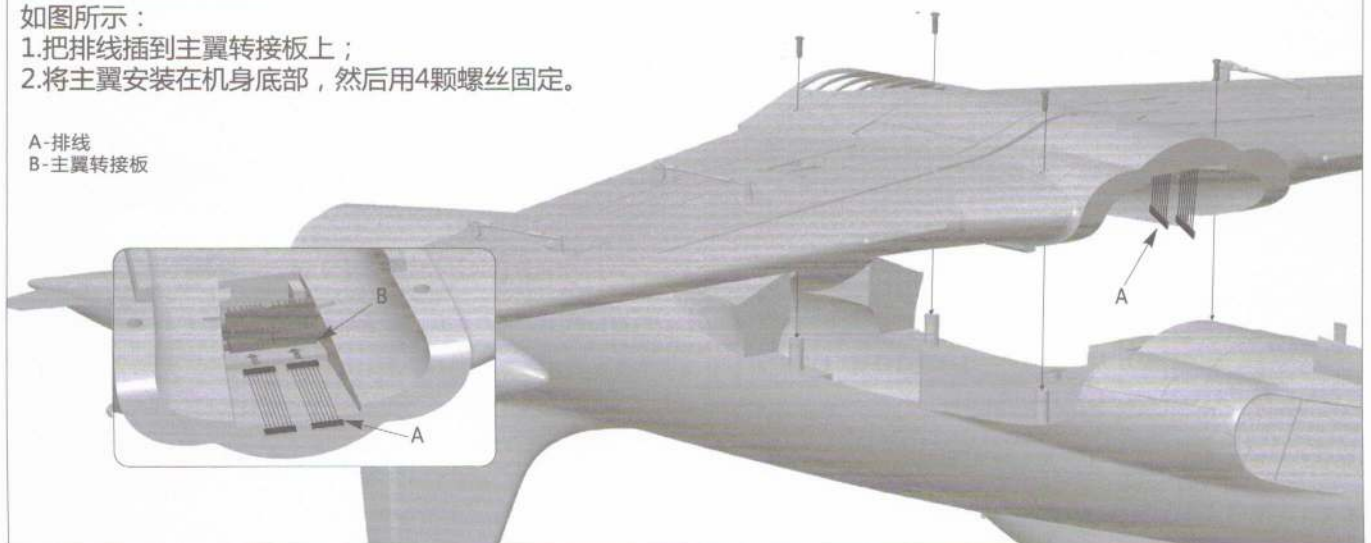
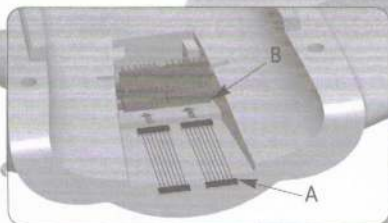
主翼组装

螺丝 (PM3×8mm 4pcs)

如图所示:

1. 把排线插到主翼转接板上;
2. 将主翼安装在机身底部, 然后用4颗螺丝固定。

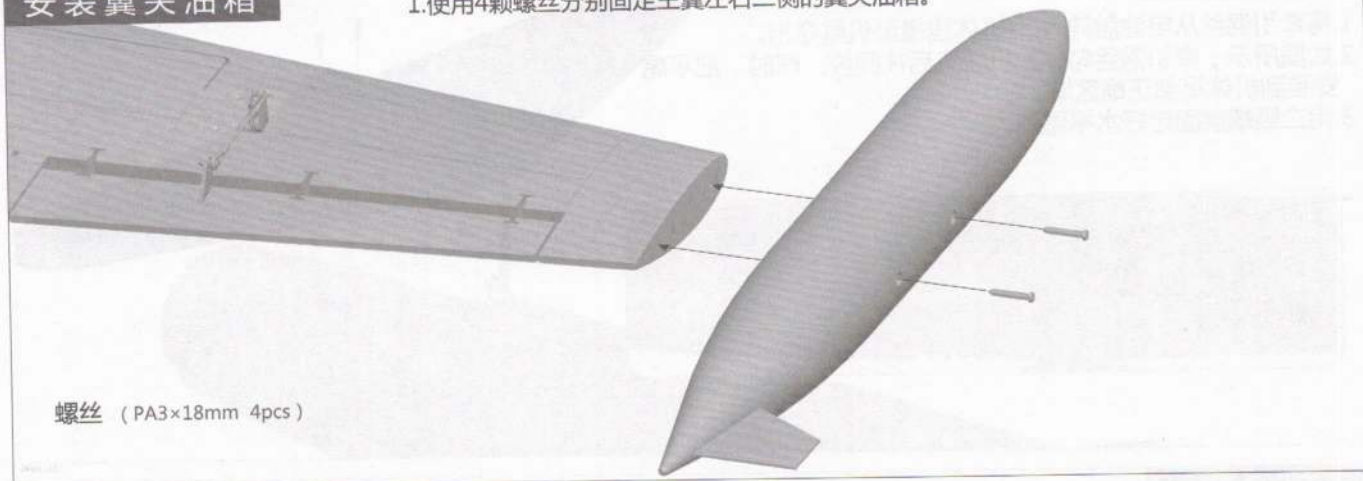
A-排线
B-主翼转接板



PNP 组装介绍

安装翼尖油箱

1. 使用4颗螺丝分别固定主翼左右二侧的翼尖油箱。



电池安装说明



将电池与电调间接前, 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!

舵面控制钢丝尺寸及安装孔位

前轮转向控制钢丝尺寸



钢丝直径: Ø1.2mm

前轮转向控制钢丝安装孔位



前舱门控制钢丝尺寸



钢丝直径: Ø1.2mm

前舱门控制钢丝安装孔位



垂尾方向舵控制钢丝尺寸



钢丝直径: Ø1.5mm

垂尾方向舵控制钢丝安装孔位



平尾升降舵控制钢丝尺寸

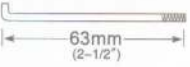


钢丝直径: Ø1.5mm

平尾升降舵控制钢丝安装孔位



副翼控制钢丝尺寸



钢丝直径: Ø1.5mm

副翼控制钢丝安装孔位



襟翼控制钢丝尺寸



钢丝直径: Ø1.5mm

襟翼控制钢丝安装孔位



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,在机腹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。



PNP测试及设定

舵面测试

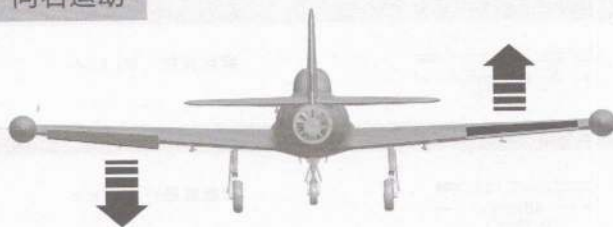
当您按前面的步骤组装好飞机后，我们需要一块充满电的电池，连接到电调。用遥控器测试每个舵面的工作情况，检查是否正常！

副翼

副翼摇杆
向左运动

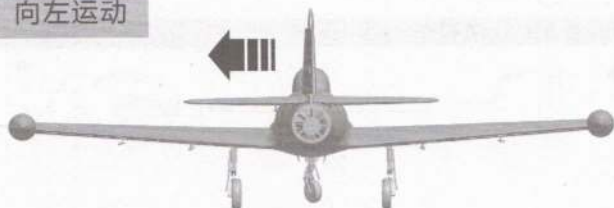


副翼摇杆
向右运动

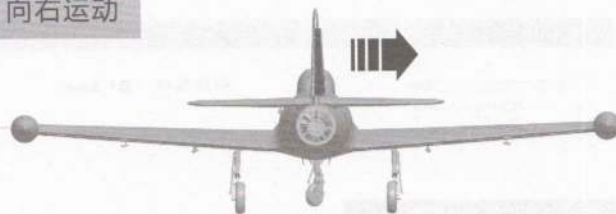


方向舵

方向摇杆
向左运动

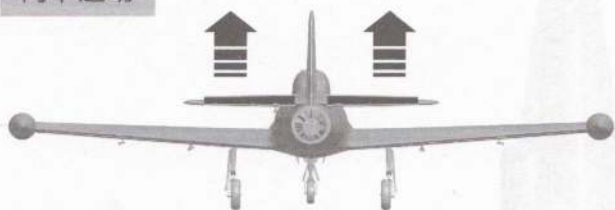


方向摇杆
向右运动

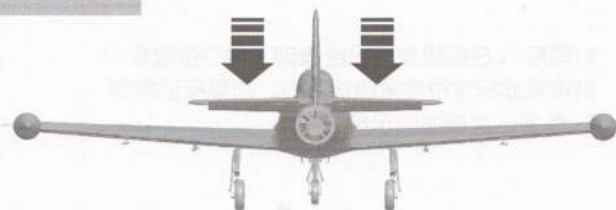


升降舵

升降摇杆
向下运动



升降摇杆
向上运动



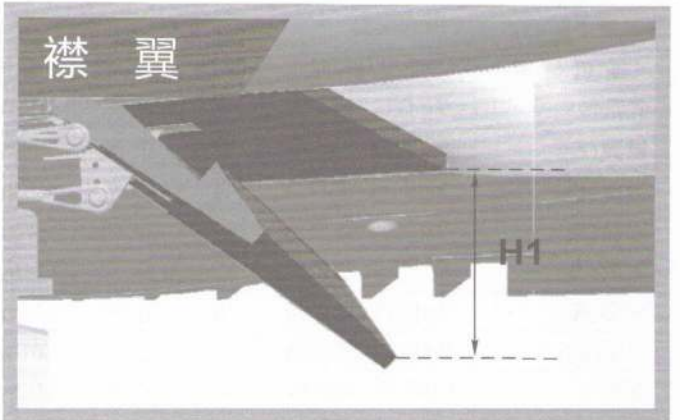
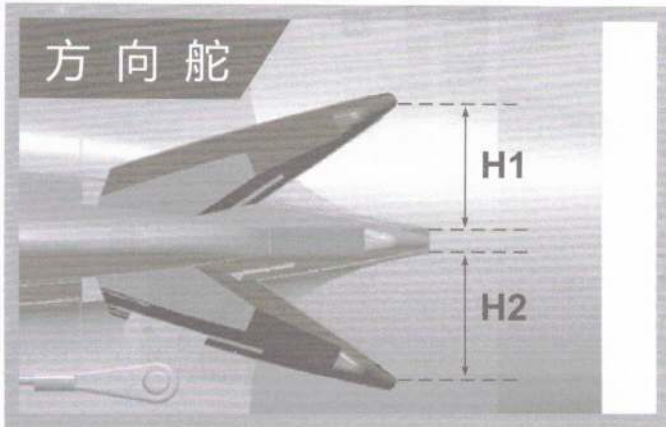
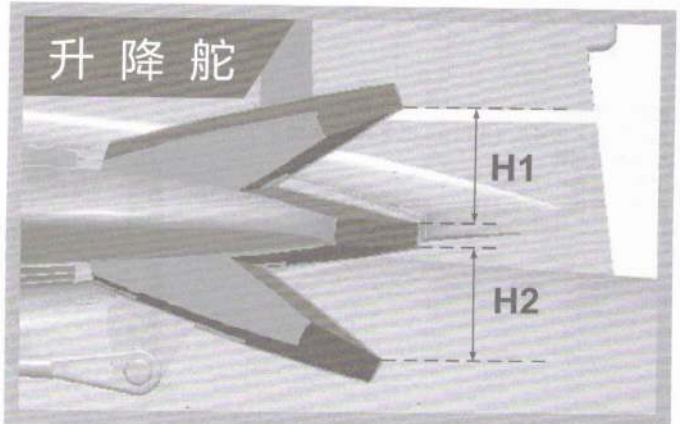
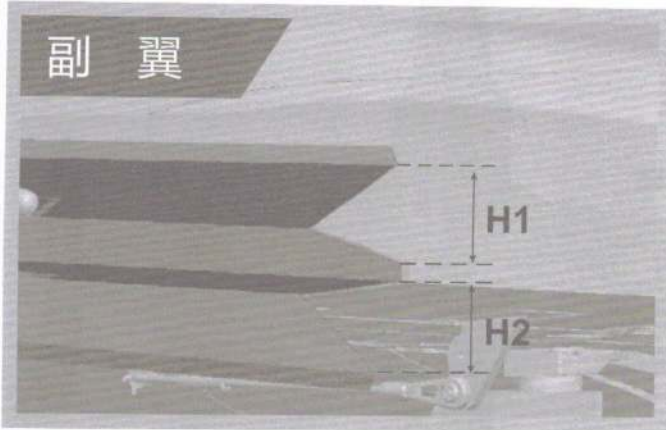
襟翼

襟翼放下



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 (底端)	襟翼
小舵量	H1/H2 18mm/18mm 舵量比率：85%	H1/H2 18mm/18mm 舵量比率：85%	H1/H2 19mm/19mm 舵量比率：85%	H1 16mm
大舵量	H1/H2 20mm/20mm 舵量比率：100%	H1/H2 20mm/20mm 舵量比率：100%	H1/H2 24mm/24mm 舵量比率：100%	H1 30mm

襟翼混控设定

放下襟翼时，飞机会轻微抬头，建议在遥控器中按以下参数设定“襟翼-升降”混控，以便获得更好的操作体验！

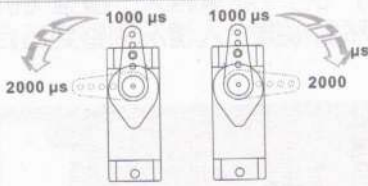
- 当襟翼舵量为小舵量时，设置0.5mm (1.5%) 的降舵舵量进行配平
- 当襟翼舵量为大舵量时，设置1mm (3%) 的降舵舵量进行配平

或者

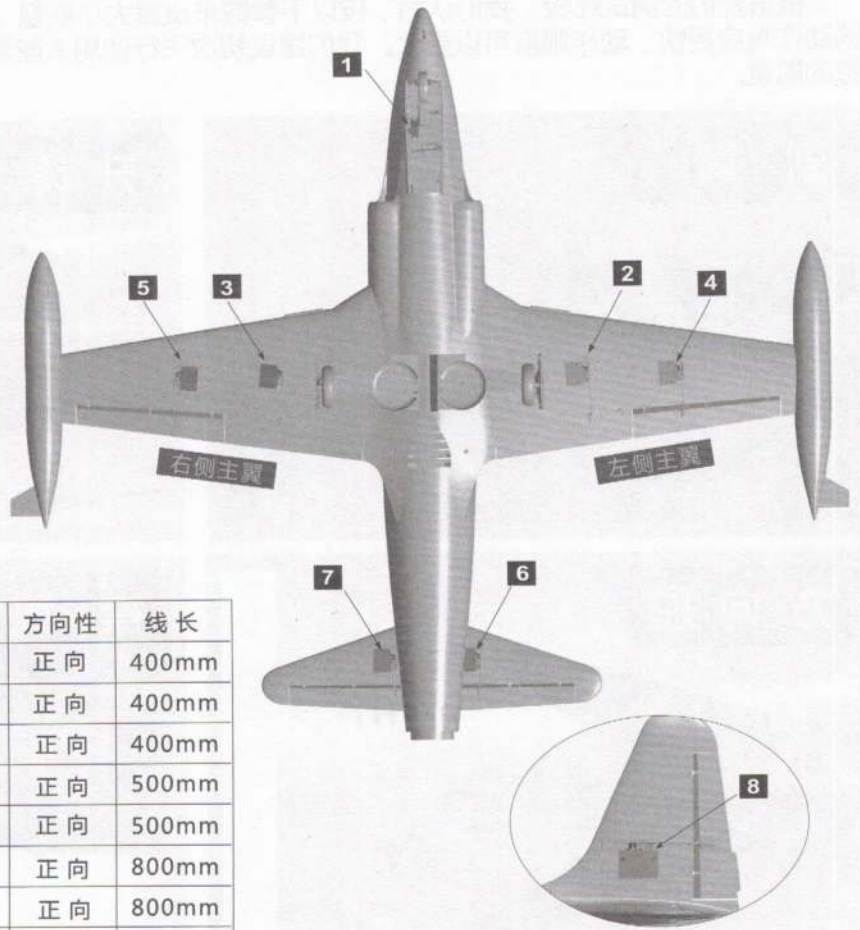
放下襟翼时，给予3格 (小舵量) 或6格 (大舵量) 的降舵微调以消除抬头现象。

PNP电子设备介绍

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

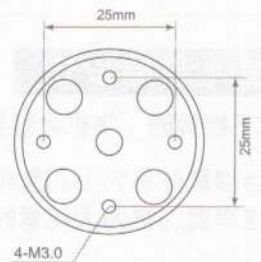
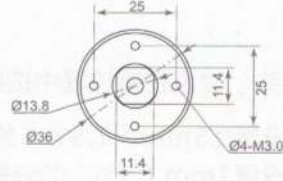
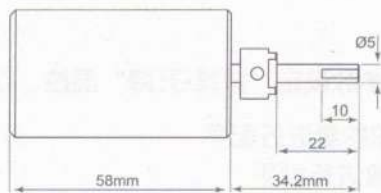
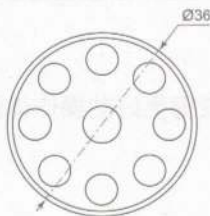


如果您需要选购其它品牌的舵机进行安装，
请参考下面的表格选择的舵机

舵机位置	舵机规格	序号	方向性	线长
前轮转向	9g数码-混合齿	1	正向	400mm
襟翼(左)	9g数码-混合齿	2	正向	400mm
襟翼(右)	9g数码-混合齿	3	正向	400mm
副翼(左)	9g数码-混合齿	4	正向	500mm
副翼(右)	9g数码-混合齿	5	正向	500mm
平尾(左)	9g数码-混合齿	6	正向	800mm
平尾(右)	9g数码-混合齿	7	正向	800mm
垂尾	9g数码-混合齿	8	正向	800mm

电机参数

#MOI36584
3658-1920KV



Unit:mm

Item No.	Fan size	Motor specifications	Voltage (V)	Current (A)	Max power (W)	Thrust (g)	Efficiency (g/W)	Speed (rpm)	Weight (g)
E72313	80mm 9-Blade	3658-1920KV	22.2	90	2000	3400	1.7	42000	345



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