

A-4E/F Skyhawk

FREEWING 1/9 SCALE EDF JET

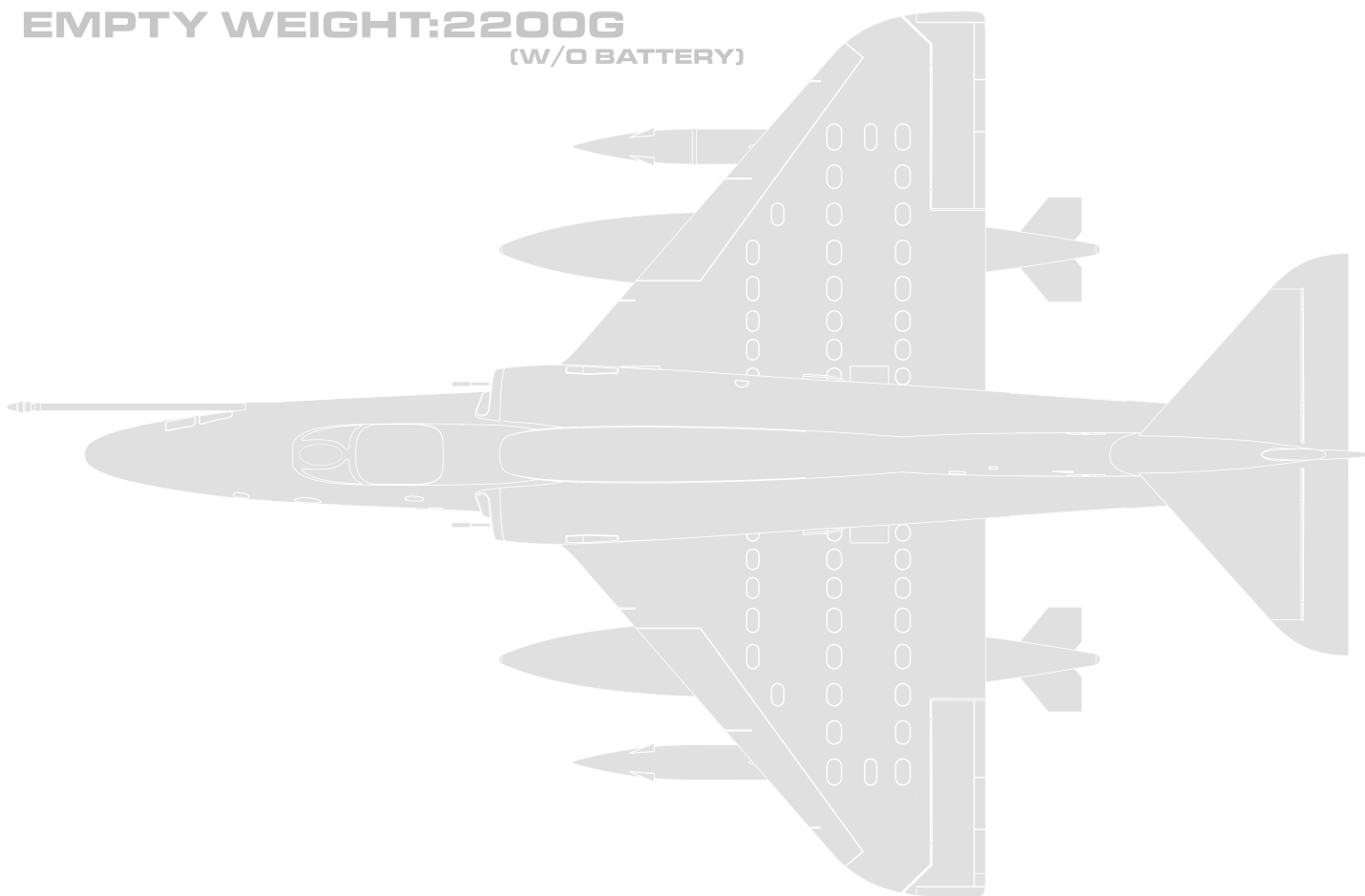
USER MANUAL

WINGSPAN:940MM

LENGTH:1430MM

EMPTY WEIGHT:2200G

(W/O BATTERY)



www.sz-freewing.com

MADE IN CHINA

EN

1~11

中

12~22

The A-4 Skyhawk commands a beloved place in aviation history. Designed by the innovative Ed Heinemann for Douglas Aircraft in the 1950s, the A-4 was optimized as a multi-role aircraft that used its low weight, high maneuverability, and straightforward reliability to lethal advantage. This aircraft's nearly 70 year history of distinguished service and its continued operation by certain countries to this day is testament to the timelessness of "Heinemann's Hotrod."

To honor this famed aircraft, Freewing and Motion RC proudly offer the Freewing 80mm A-4E/F Skyhawk! The first large foam electric PNP mass production A-4 in the world, this flying model is powered by a 3530-1850kv brushless outrunner motor and 12 blade EDF ducted fan, achieving a top speed of 106mph/170kph using the recommended 6s 4000mAh-5200mAh battery.

The Freewing 80mm A-4E/F Skyhawk features all new fold-and-twist retracts, with durable aluminum trailing link struts for confident operation on rough grass runways. Removable wings and flexible wing wire harnesses make transportation very convenient. Beyond the overall scale profile fidelity, other scale details include plastic split flaps, and detachable fuel tanks, AGM-12 missiles, and refueling probe.

Adding to the model's versatility, the later version avionics "hump" is also included! Attach this magnetic "hump" onto the fuselage's top spine to change between the -E and -F variations of the Skyhawk. Two decal sets are also included, depicting a US Navy A-4 from VA-22 and a US Marines A-4 from VMA-311. Fly these with pride, or personalize with another livery of your choosing!

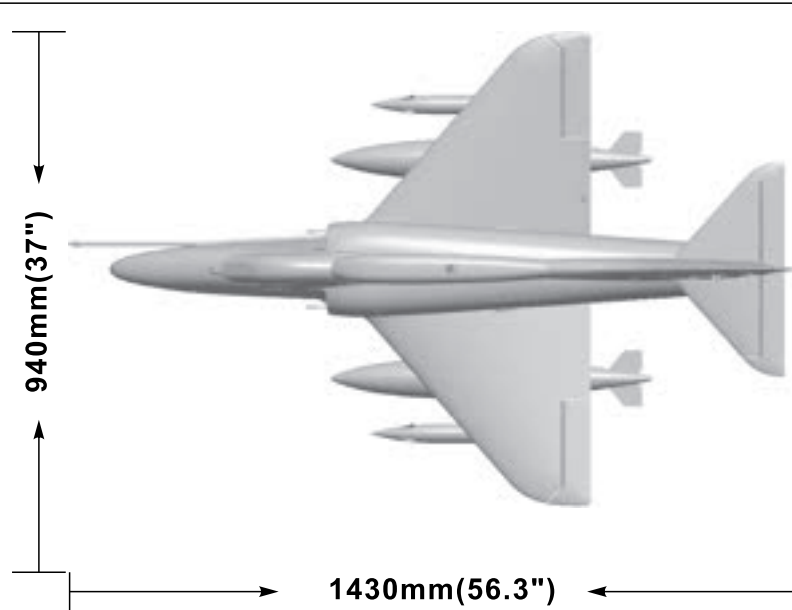
⚠ NOTE: This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

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.

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⚠ 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.

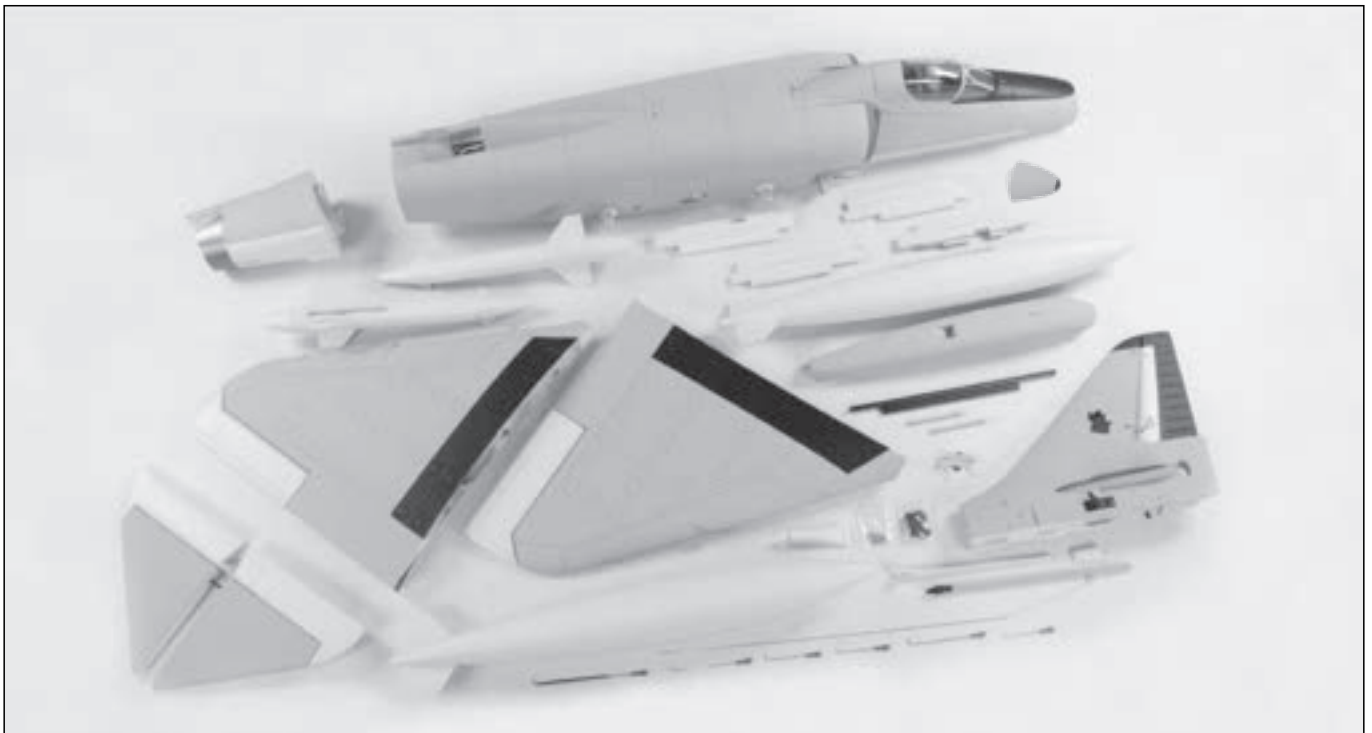
Standard version

Wing loading: 116g/dm²
 Wing area: 24 dm²
 Motor: 3530-1850KV
 brushless outrunner motor
 Ducted fan: 80mm 12-blade fan
 ESC: 100A brushless
 Servo: 17g digital metal gear servo (1pcs)
 9g digital metal gear servo (6pcs)
 Flight speed : 170KPH/110MPH
 Empty Weight: 2200g (without battery)
 Thrust: 3200g (Uninstalled Bench Test)

Other features

Material : EPO
 Aileron: Yes
 Split Flaps: Yes
 Elevator: Yes
 Rudder: Yes
 Landing gear: Retractable, Suspension
 Scale Pilot figure
 Battery : 6S 4000~5200mAh (1pcs)

Package list



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

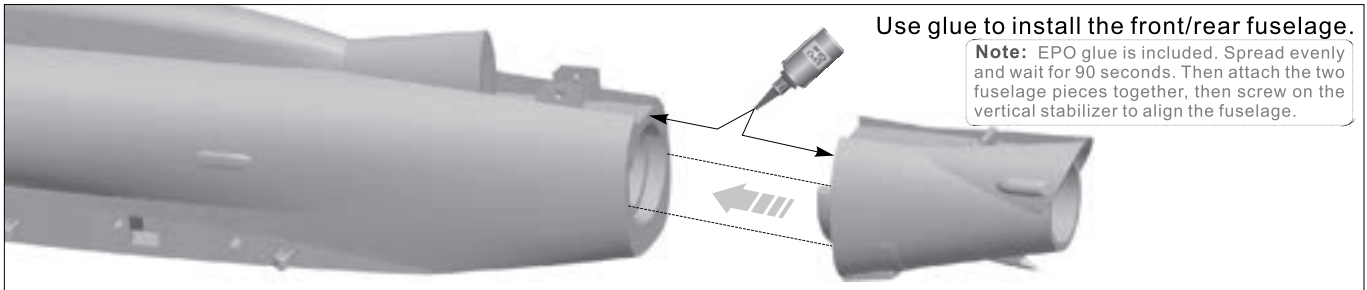
No.	Name	PNP	ARF Plus	Airframe	No.	Name	PNP	ARF Plus	Airframe
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	7	Scale accessories	✓	✓	✓
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	8	Linkage Set	✓	✓	✓
3	Horizontal tail	✓	✓	✓	9	Carbon tube & Cannon barrels	✓	✓	✓
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	10	Glue & Non-slip mat	✓	✓	✓
5	Drop tank & missiles	✓	✓	✓	11	Manual & Decals	✓	✓	✓
6	Magnetic Nose cone & drop tanks	✓	✓	✓	12	Screw	✓	✓	✓

Traction steel wire use instruction

To minimize servo connections, the Elevator and Rudder servos' wires each reach from the servo itself directly to the receiver. A rigid steel wire hook is included in the box to allow you to pull the servo wires through the model's internal fuselage.

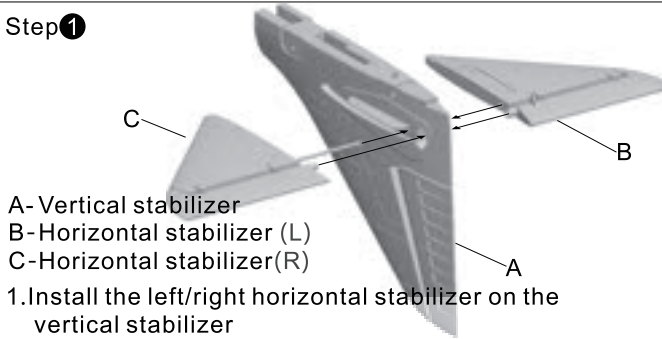


Install fuselage

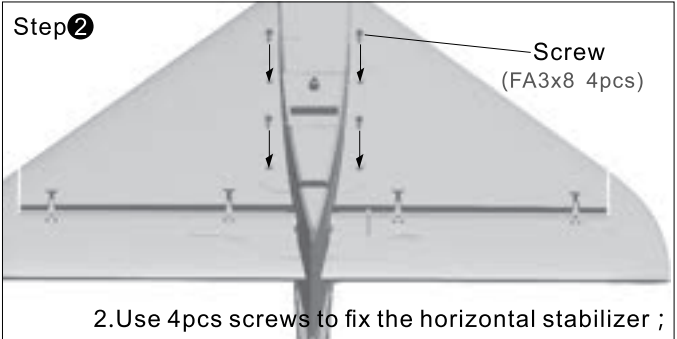


Install Horizontal stabilizer / Vertical stabilizer

Step 1



Step 2



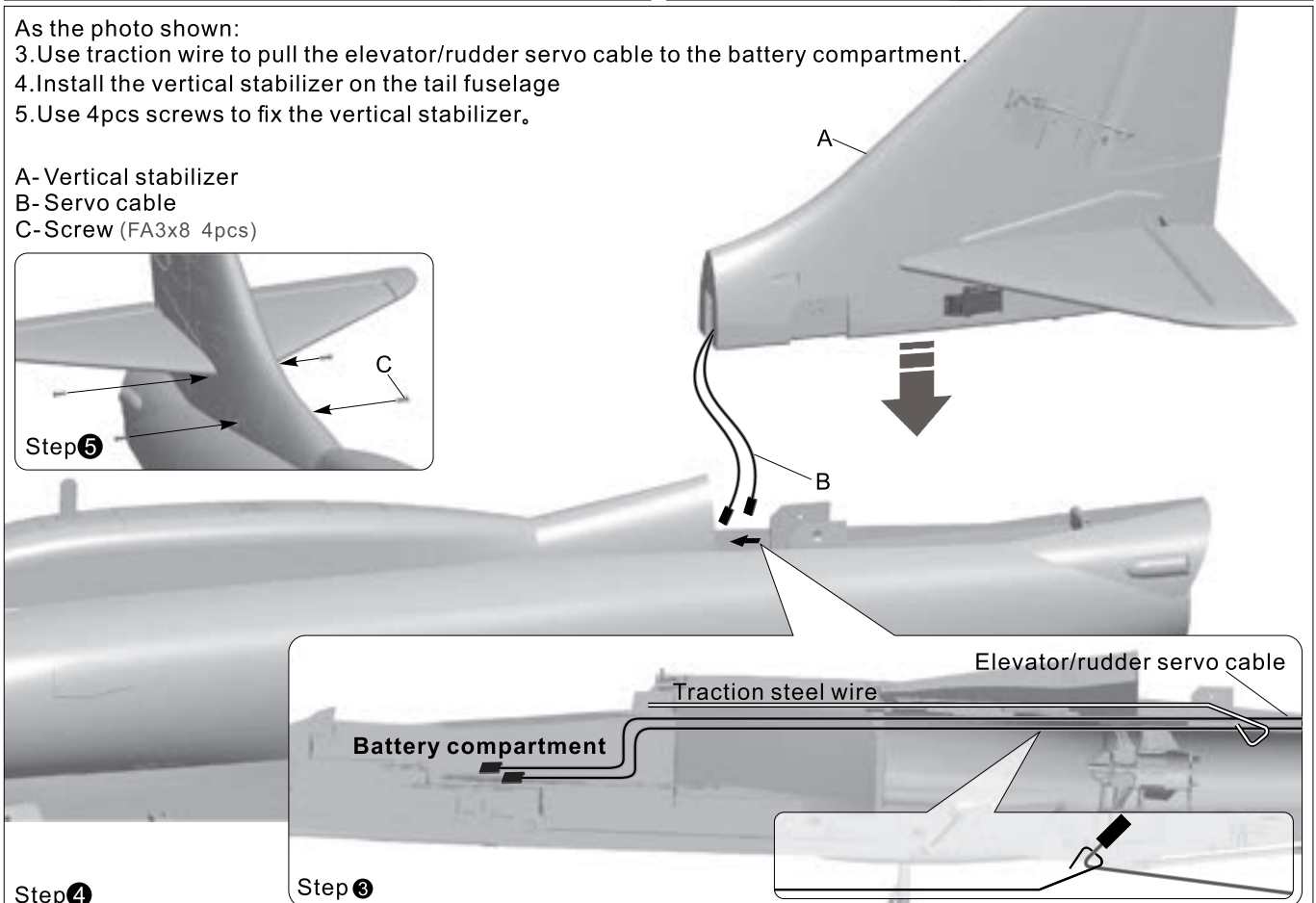
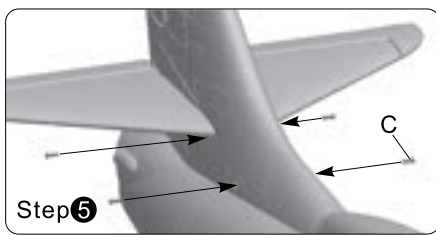
As the photo shown:

3. Use traction wire to pull the elevator/rudder servo cable to the battery compartment.

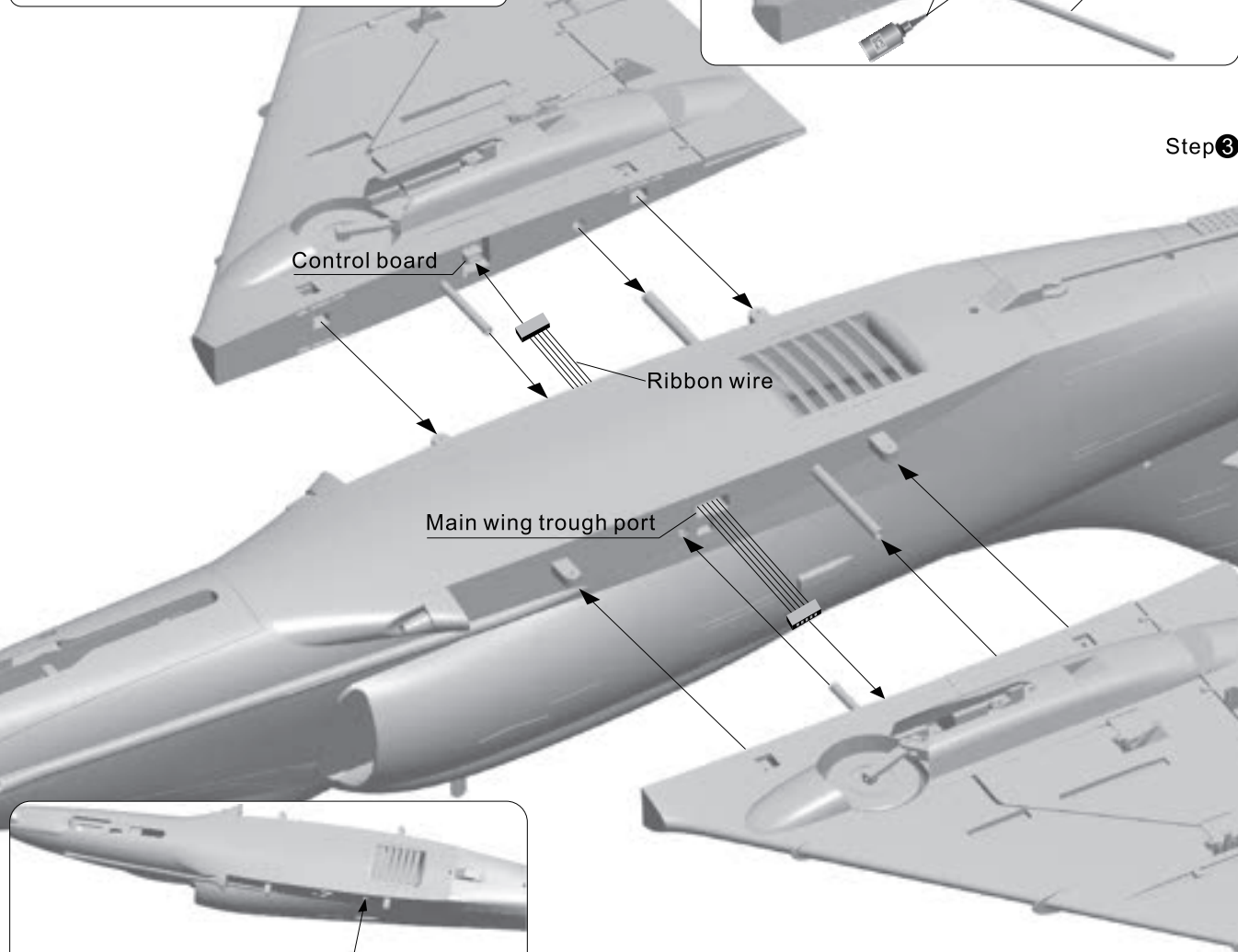
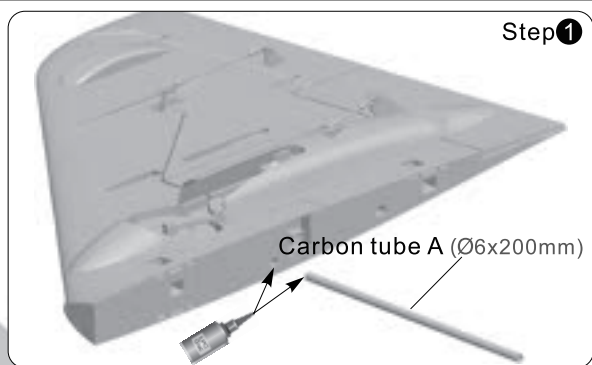
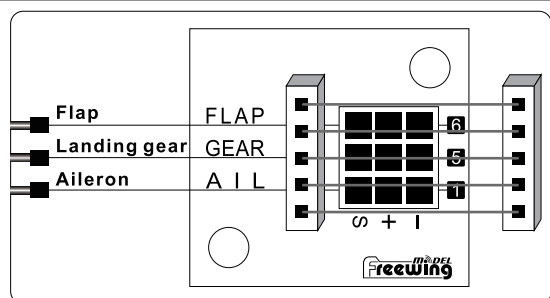
4. Install the vertical stabilizer on the tail fuselage

5. Use 4 pcs screws to fix the vertical stabilizer.

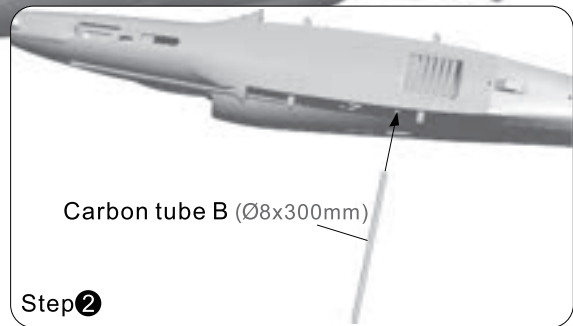
A - Vertical stabilizer
B - Servo cable
C - Screw (FA3x8 4pcs)



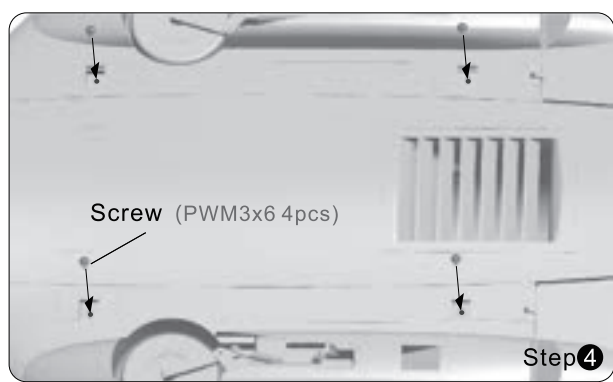
Install Main wing



Step 3

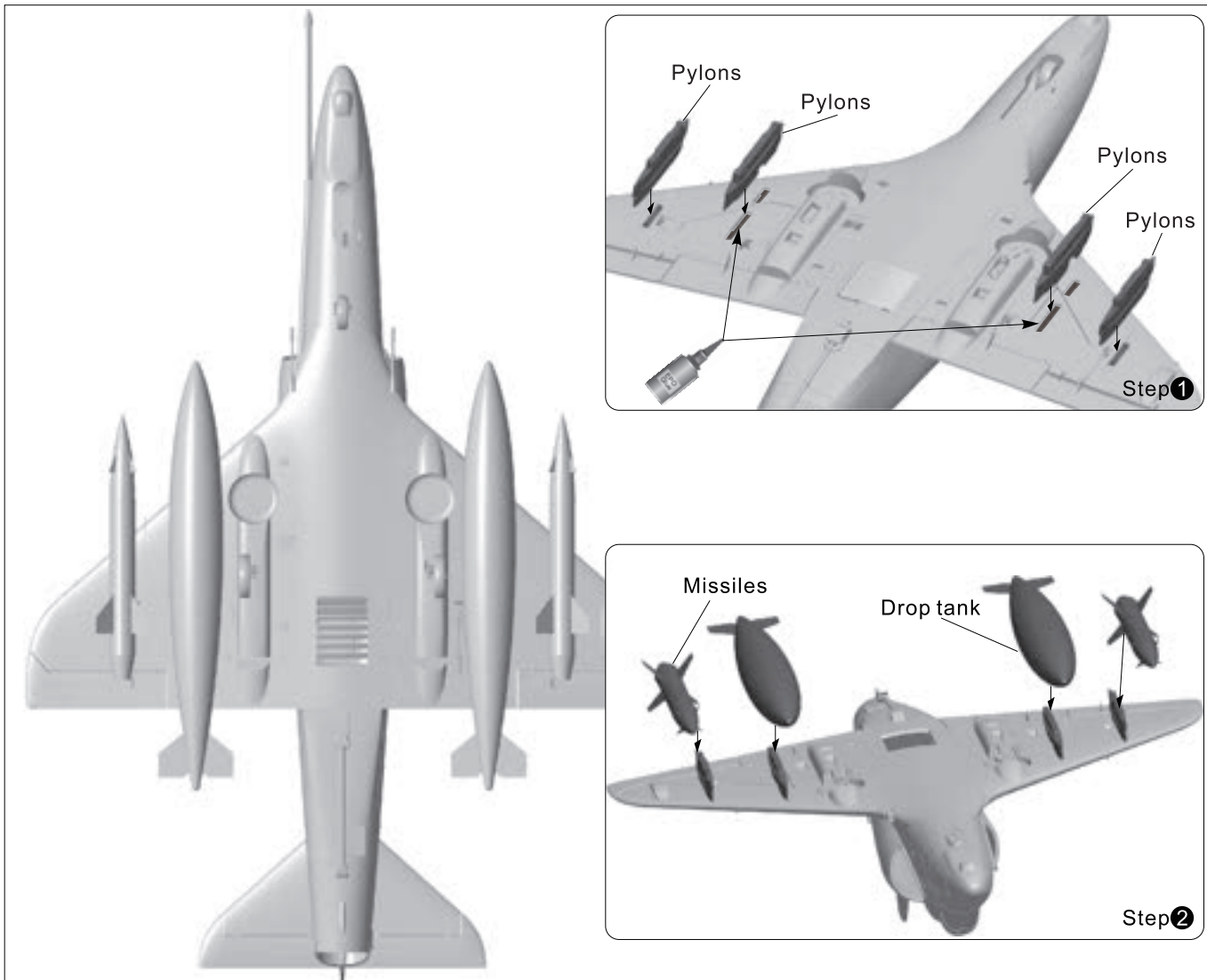


- As the photo shown:
1. Attach the glue on the surface of carbon tube A, and insert carbon tube A to the main wing, ensuring both sides of the exposed rod are equal in length.
 2. Insert the carbon tube B.
 3. Insert the ribbon wire to the control board, then install the left/right main wing on the fuselage.
 4. Use 4 pcs screws to fix the main wing.

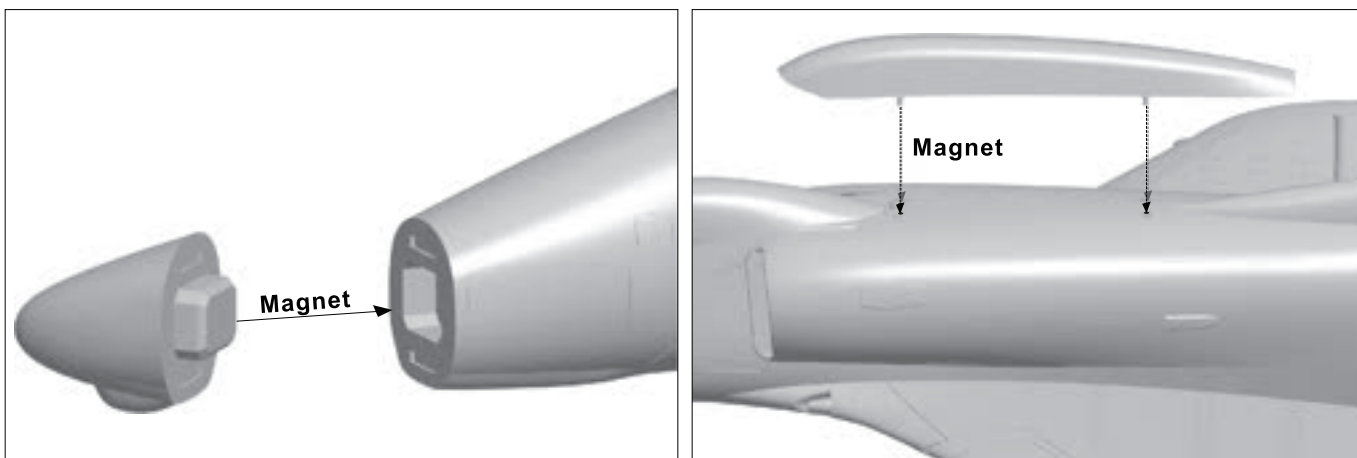


Install Missiles & Drop tank

Install the missiles, pylons, and drop tanks according to these pictures.



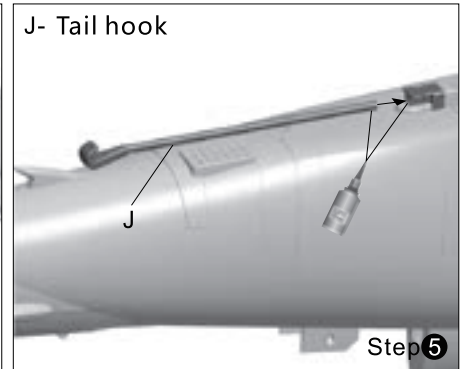
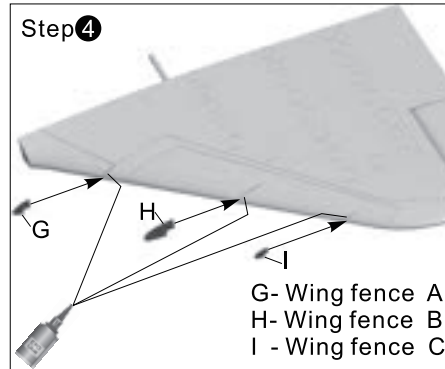
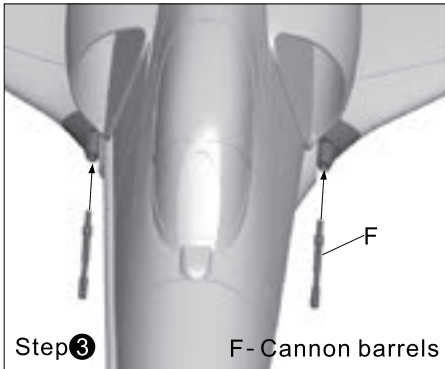
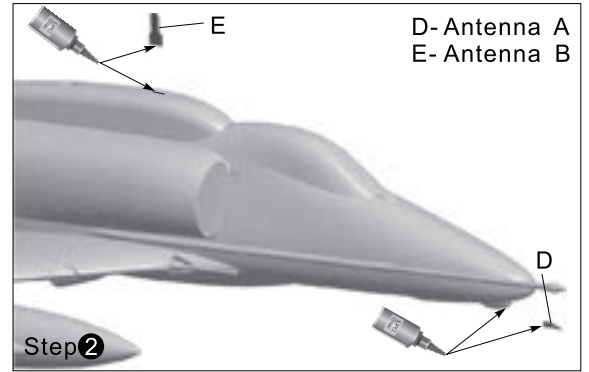
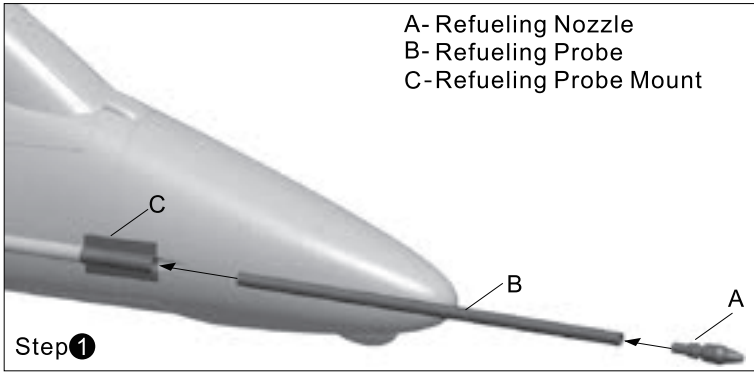
Install Magnetic nose cone and fuel tanks



PNP Install instructions

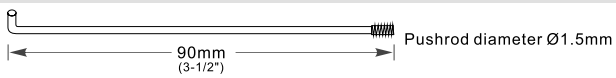
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Install scale accessories



Pushrod instructions

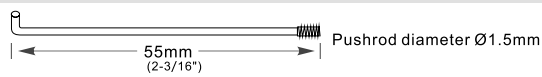
Aileron pushrod size



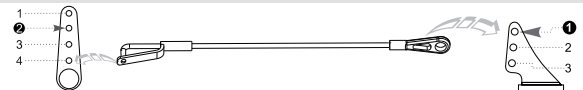
Aileron pushrod mounting hole



Flap pushrod size



Flap pushrod mounting hole



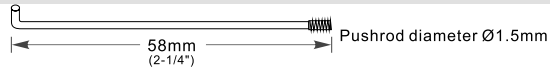
Elevator pushrod size



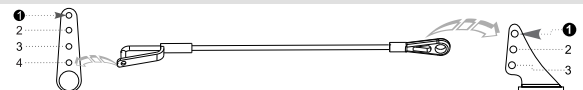
Elevator pushrod mounting hole



Rudder pushrod size

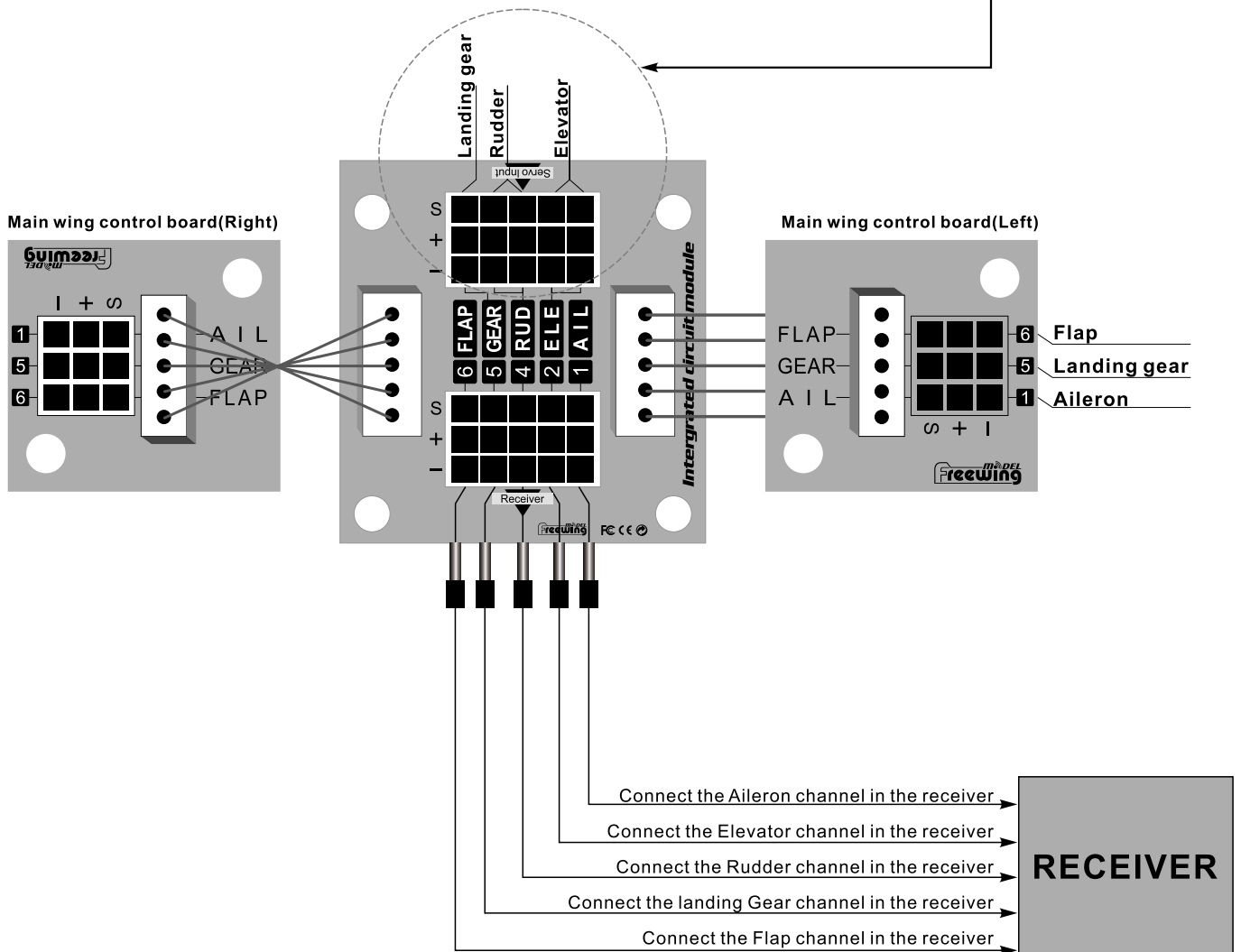
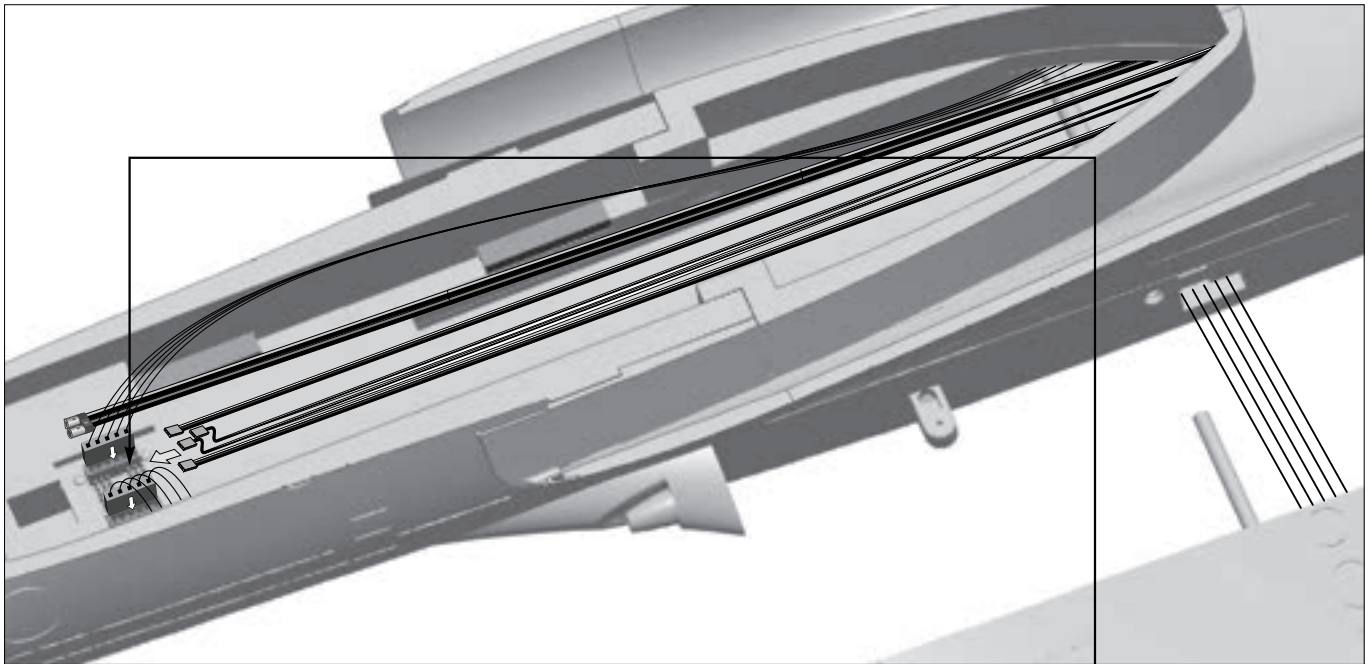


Rudder pushrod mounting hole

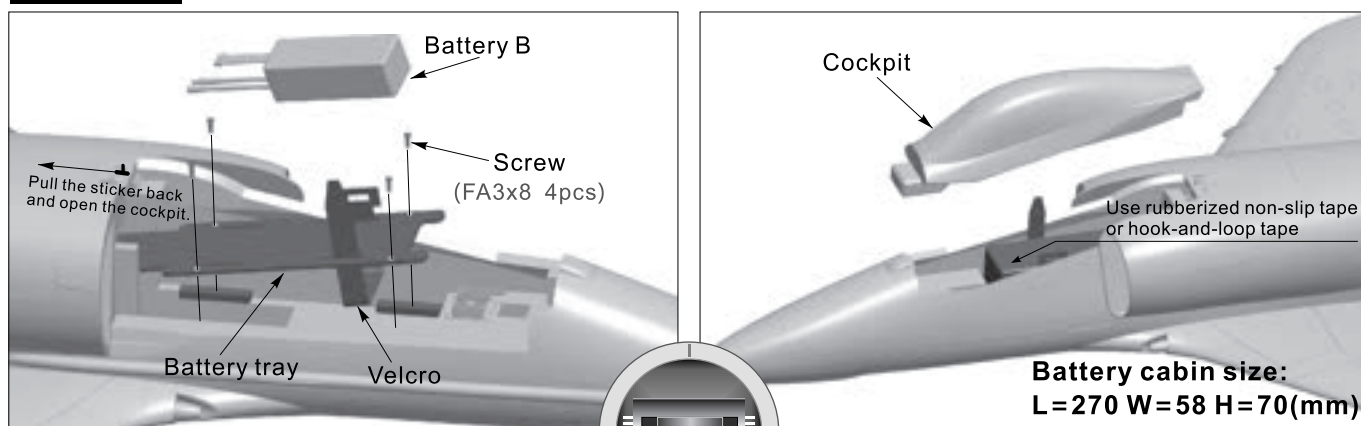


Control board connection diagram

The A-4 uses a convenient flexible ribbon wire harness to consolidate wiring. Connect according to the photo.



Battery size



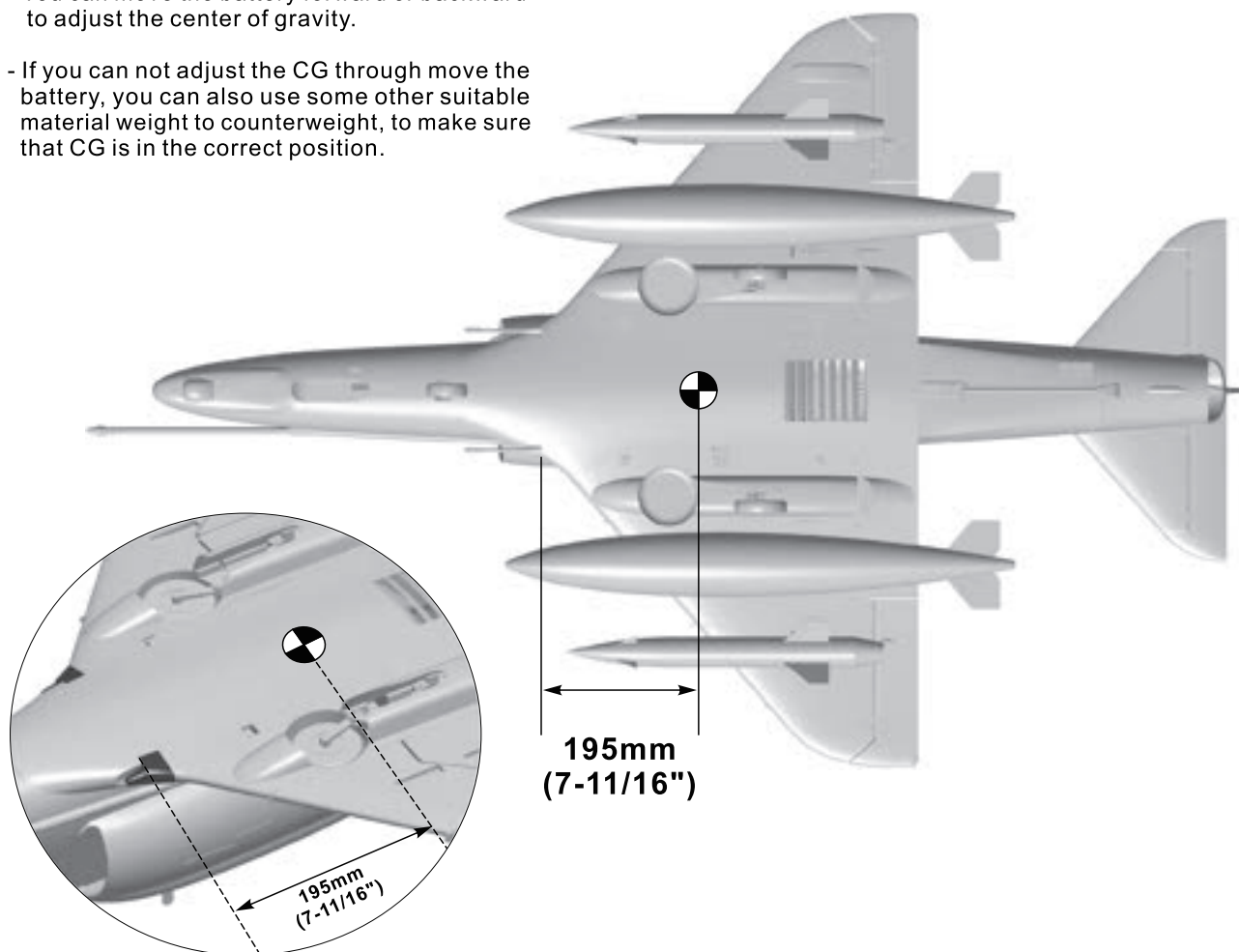
Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position.

We recommend the following LiPo battery:
6S 22.2V 4000mAh ~ 6S 22.2V 5200mAh (1pcs)
 Discharge rate of C ≥ 35C

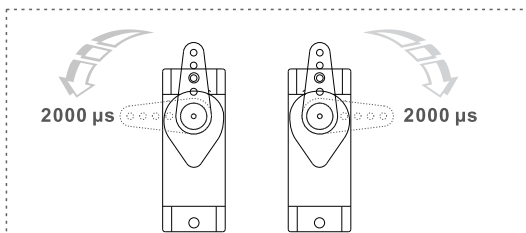
Center of gravity

Correct center of gravity is directly related to the success of the flight, please refer to the following CG diagram to adjust your plane's center of gravity.

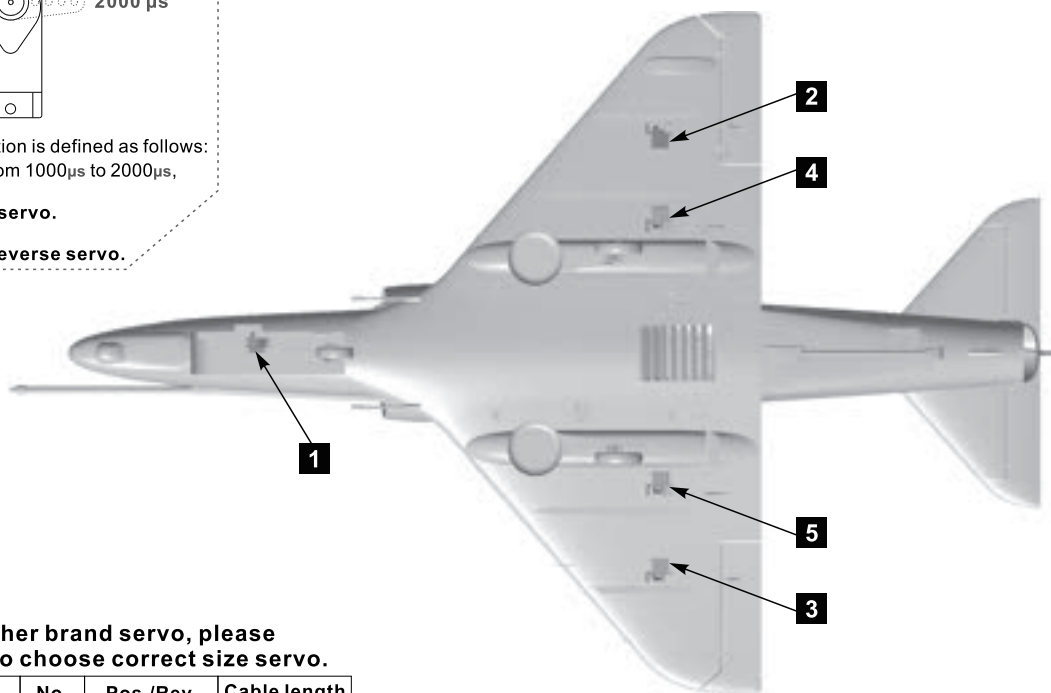
- You can move the battery forward or backward to adjust the center of gravity.
- If you can not adjust the CG through move the battery, you can also use some other suitable material weight to counterweight, to make sure that CG is in the correct position.



Servos Introductions

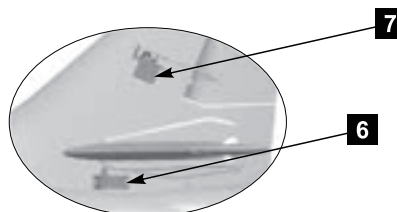


The servo positive or reverse rotation is defined as follows:
 When servo input signal change from 1000μs to 2000μs,
 The servo arm is **rotated clockwise**, its **positive servo**.
 The servo arm is **rotated counterclockwise**, its **reverse servo**.



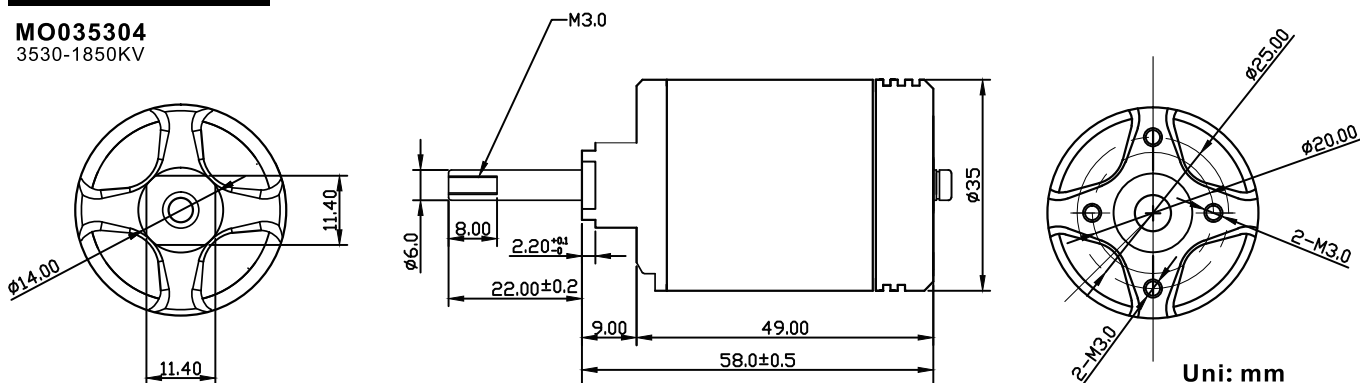
If you need to purchase other brand servo, please refer to the following list to choose correct size servo.

Position	Model	No.	Pos./Rev.	Cable length
Nose gear steering servo	9g Digital-MG	1	Positive	100mm
Aileron(L)	9g Digital-MG	2	Positive	250mm
Aileron(R)	9g Digital-MG	3	Positive	250mm
Flap(L)	9g Digital-MG	4	Positive	250mm
Flap(R)	9g Digital-MG	5	Positive	250mm
Elevator	17g Digital-MG	6	Positive	950mm
Rudder	9g Digital-MG	7	Positive	1050mm



Parameter of motor

MO035304
3530-1850KV



Item No.	Use motor	motor(KV)	Thrust(g)	Current(A)	Use voltage (V)	Use ESC (A)	EDF Weight (g)	Max power (W)	Efficiency (g/w)
E7239	MO035304 3530-1850KV	1850	3350	90	22.2(6S)	100	318	2000	1.67

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

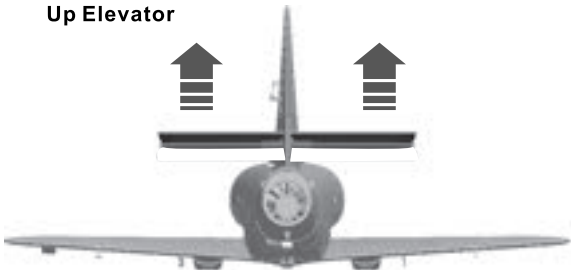


Stick Right

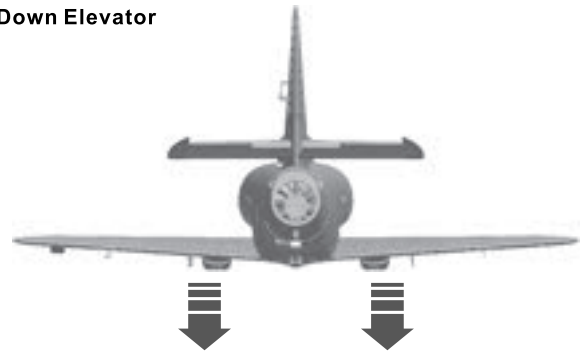


Elevator

Up Elevator



Down Elevator

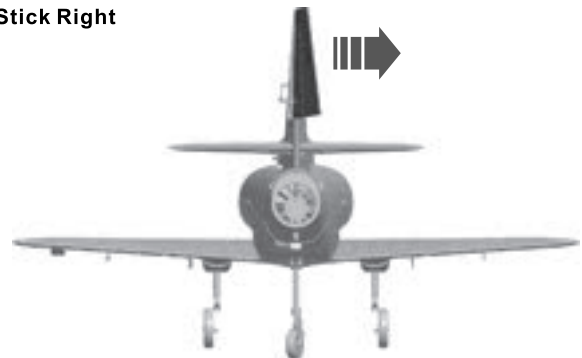


Rudder

Stick Left

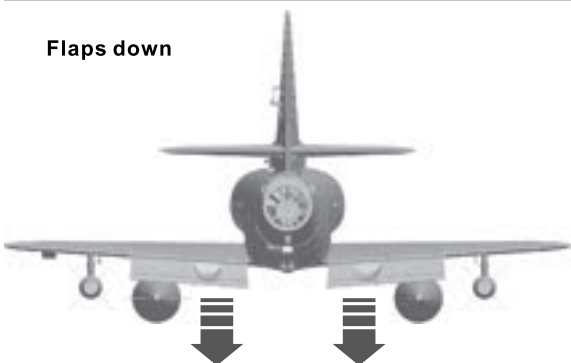


Stick Right



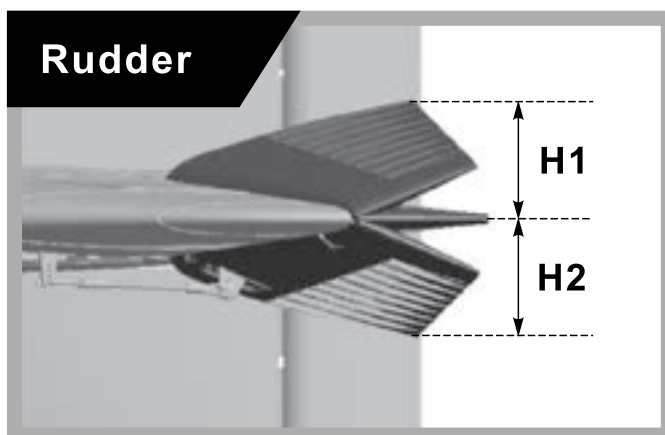
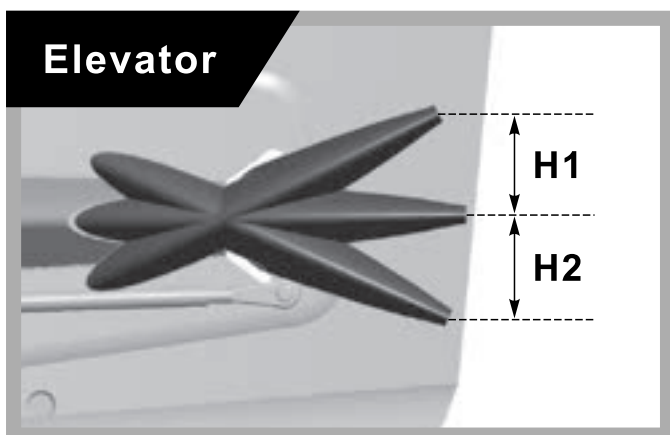
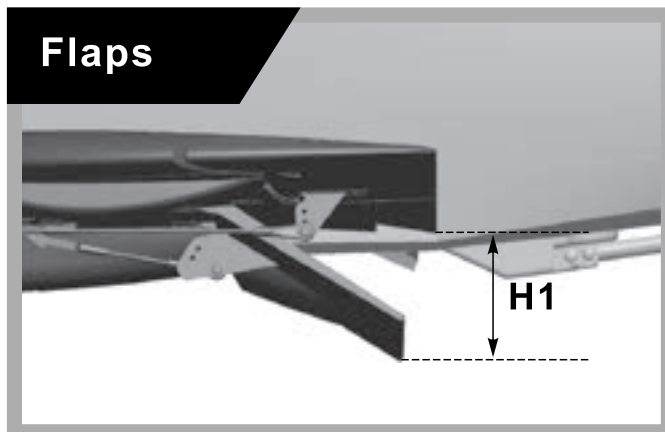
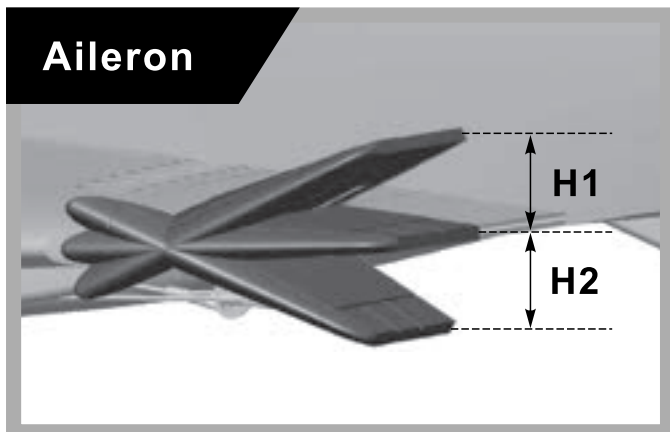
Flaps

Flaps down



Dual rates

According to our testing experience, use the following parameters to set aileron/elevator rate, it will be useful for flight. In low rate, it will operate more stable. In high rate, it will operate more sensitive. We advise to use high rate in your first flight, then according to your habit to choose low/high rate.



	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 : 65%	H1/H2 21mm/21mm D/R Rate : 80%	H1/H2 24mm/24mm D/R Rate : 80%	H1 27mm
High Rate	H1/H2 24mm/24mm D/R Rate : 100%	H1/H2 25mm/25mm D/R Rate : 100%	H1/H2 30mm/30mm D/R Rate : 100%	H1 43mm

- ⚠ Flight attention: 1. When the flaps are down, the nose will go down also, so we need to mix the flap-to-Up-elevator, please set the mix parameter as the following data:
 Flap rate: 27mm, mix the elevator rate: 2mm
 Flap rate: 43mm, mix the elevator rate: 3.5mm
2. The weapons weight of this model plane is mainly distributed in the tail. When you fly with full weapons, please check the CG again.

A-4天鹰是道格拉斯的天才设计师爱德华·海尼曼博士为美国海军设计的一款轻型舰载攻击机。在其长达近60年的生命历史中，共发展了17个不同型号，并出口多个国家，经受住了战争的考验，成为越战、马岛战争、赎罪日等战争的关键角色之一。

飞翼模型的80mm A-4天鹰电动涵道模型，采用EPO材料制作，运用了大量塑料件实现快捷组装。全新的涡杆收放起落架，模拟真实飞机的起落架收起状态，旋转90度贴于主翼下方。

PNP版本的A-4，预装一体式12叶塑料风扇组，配备3530-1850KV无刷电机，100A电子调速器，使用6节，4000mAh~5200mAh的大功率锂电池，最高时速约170KPH。

在包装盒内，有二套贴纸和一个泡沫驼峰配件，使您可以在A-4E型和A-4F型之间自由选择！

无论是从外形还是性能上，A-4天鹰电动涵道模型，非常符合有一定电动涵道飞行经验的爱好者，轻盈敏捷，绝不呆滞的操控体验，将带来精彩的空战动作视觉盛宴！

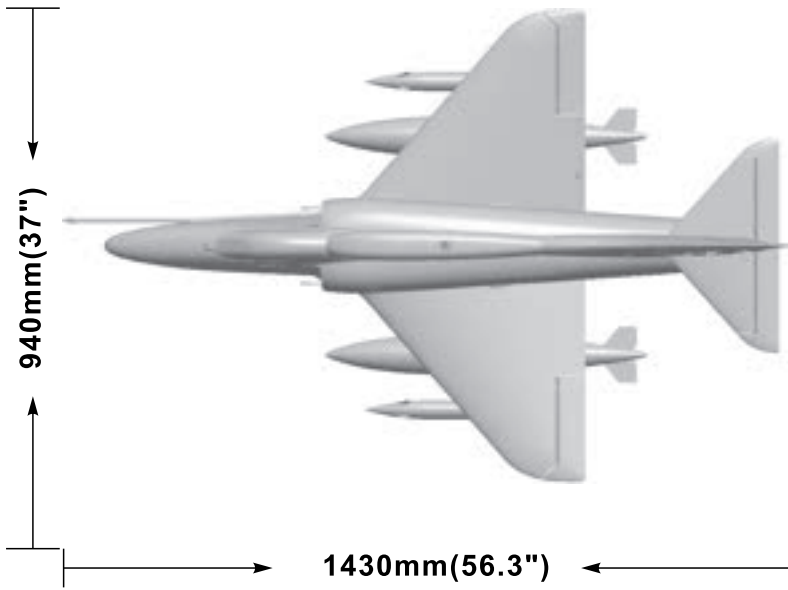
⚠ 注意：模型产品是具有一定危险性的产品，请禁止14岁以下的儿童玩耍，14岁以上的儿童，请在有飞行经验的成人指导下使用，无飞行经验的购买者，应当在具有一定电动涵道飞机飞行经验的成人指导下使用！组装模型前，请仔细阅读说明书，按照说明书的要求进行安装、进行调试和飞行时，请根据说明书指示的参数进行调整。

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!

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⚠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!

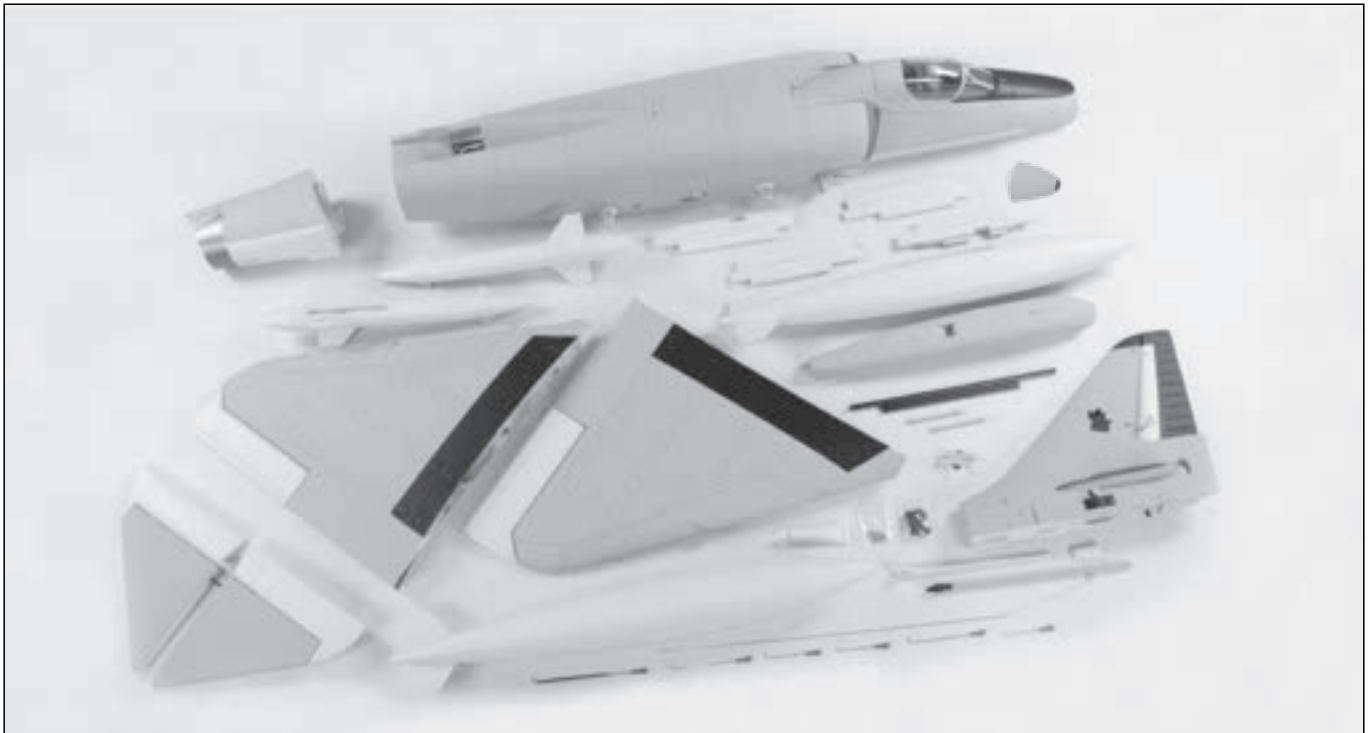
标准版

翼载荷: 116g/dm²
 翼面积: 24 dm²
 电机: 3530-1850KV外转无刷电机
 涵道风扇: 80mm 12叶涵道
 电调: 100A无刷电调
 舵机: 17g数码-金属舵机 (1pcs)
 9g数码-金属舵机 (6pcs)
 飞行速度: 170公里/小时
 起飞重量: 2200g (不含电池)
 推力: 3300kg

其它特性

机体材料: EPO
 副翼功能: 有
 襟翼功能: 有
 平尾功能: 有
 垂尾功能: 有
 起落架: 电动可收放起落架
 飞行员: 仿真飞行员
 电池范围: 6S 4000~5200mAh (1pcs)

产品包装清单



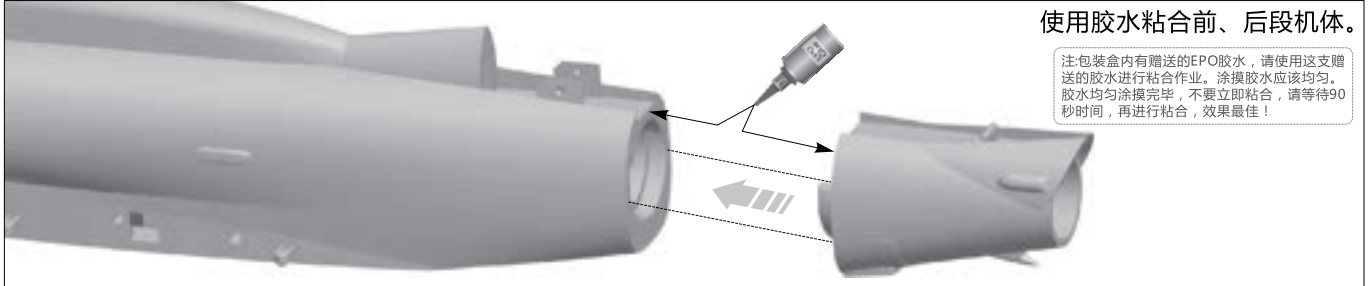
打开产品包装, 核对包装清单。(不同配置的版本, 包含内容不同!)

序号	配件名称	PNP	ARF Plus	Airframe	序号	配件名称	PNP	ARF Plus	Airframe
1	机身套件	预装所有电子设备	预装舵机	不含电子设备	7	仿真小配件	✓	✓	✓
2	主翼	预装所有电子设备	预装舵机	不含电子设备	8	舵面控制钢丝	✓	✓	✓
3	平尾	✓	✓	✓	9	碳纤维管、机枪	✓	✓	✓
4	垂尾	预装所有电子设备	预装舵机	不含电子设备	10	胶水、防滑垫	✓	✓	✓
5	副油箱、导弹	✓	✓	✓	11	说明书、贴纸	✓	✓	✓
6	保型油箱、挂架	✓	✓	✓	12	螺丝	✓	✓	✓

牵引钢丝使用说明

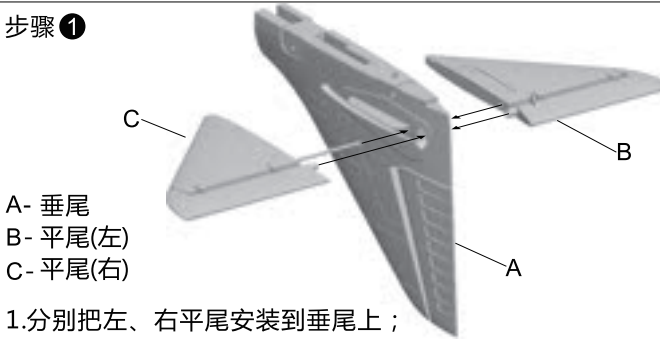
通过调查,过多的舵机延长线会增加连接处接触不良的风险,严重时,导致飞行过程,舵机断电而造成飞行事故。由于A-4内部线槽空间大且平直,故此模型的机体内,未使用舵机延长线。如下图所示,包装盒内包含一根牵引钢丝,PNP配置下,我们可以利用这根牵引钢丝,顺利的将主翼、平尾、垂尾舵机线布置到电池舱内。

机身组装

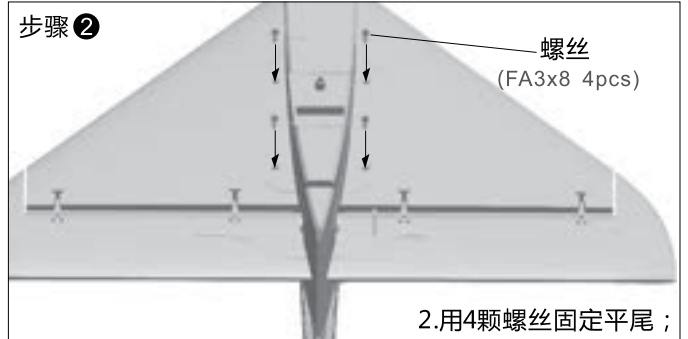


平尾、垂尾组装

步骤①



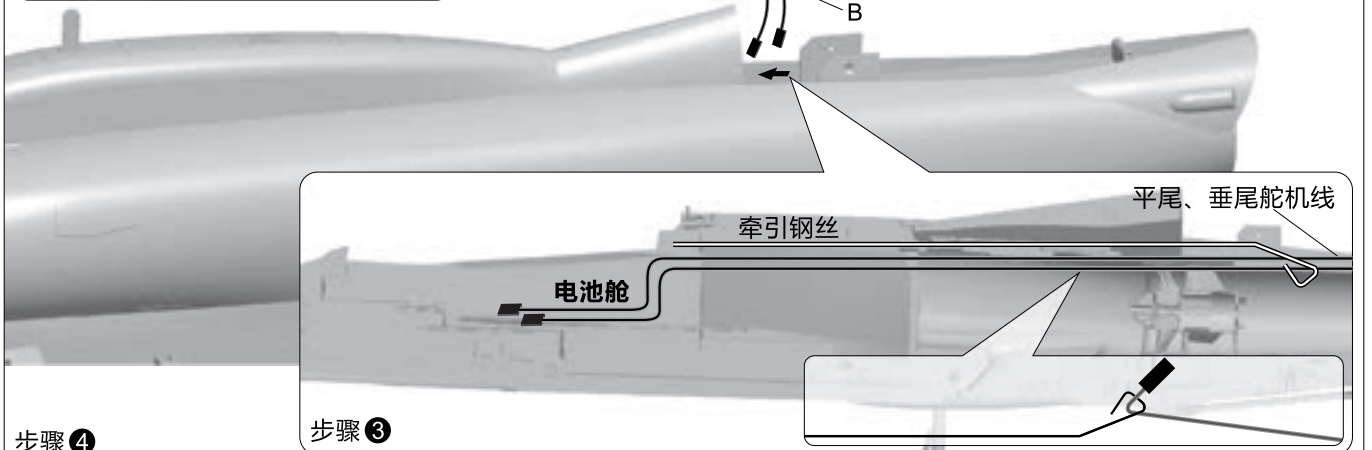
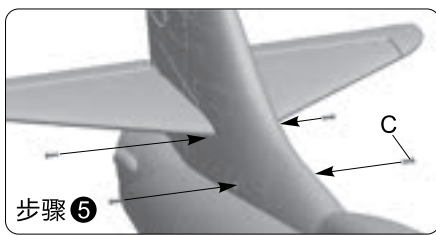
步骤②



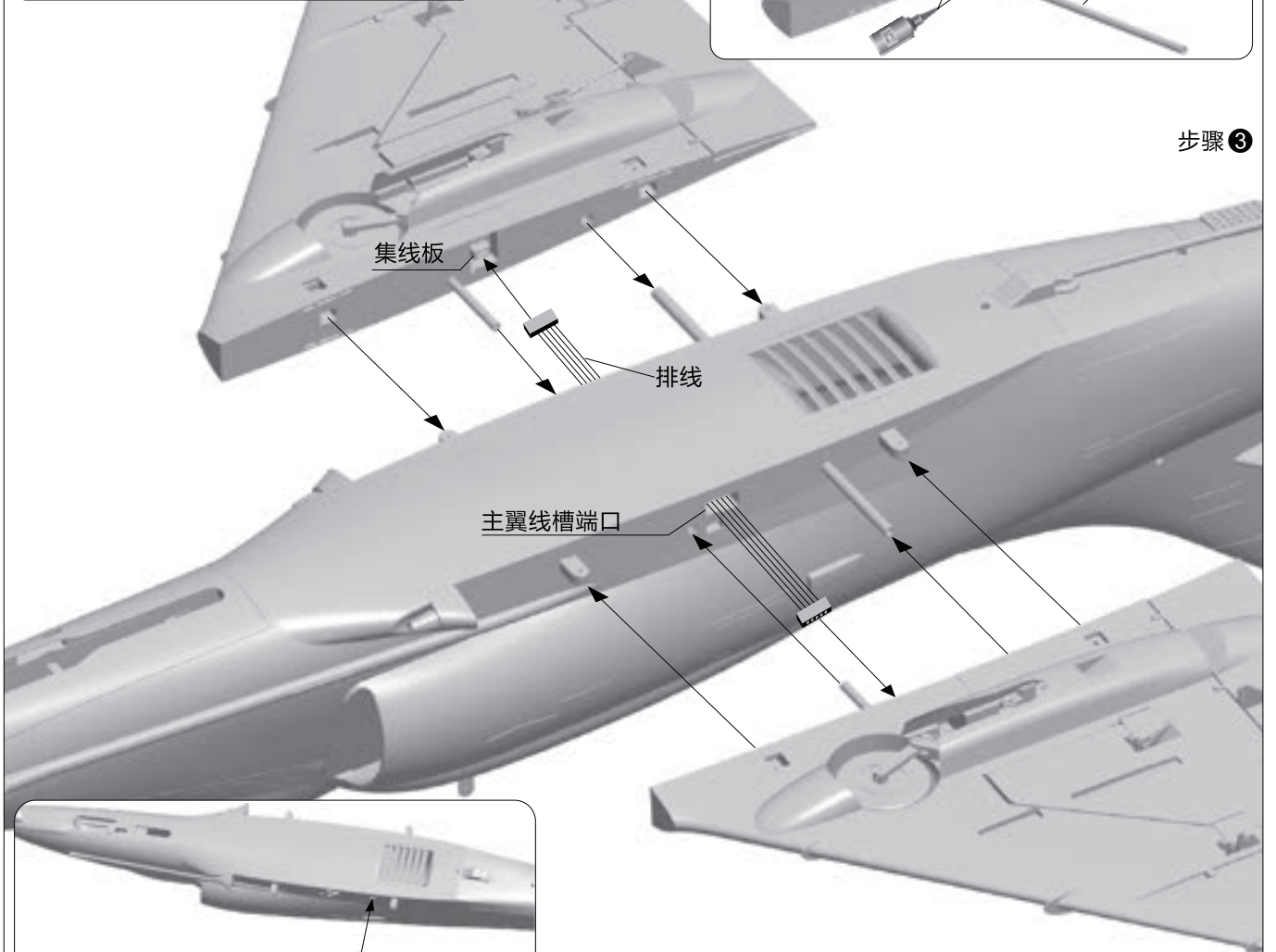
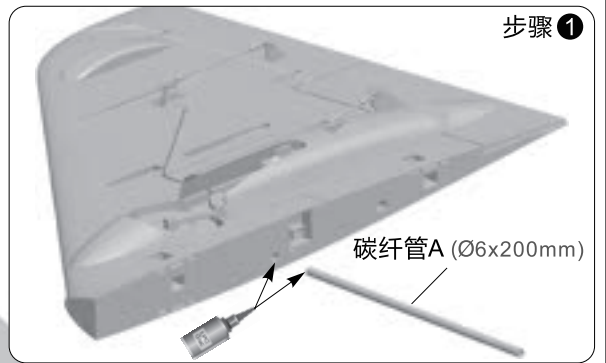
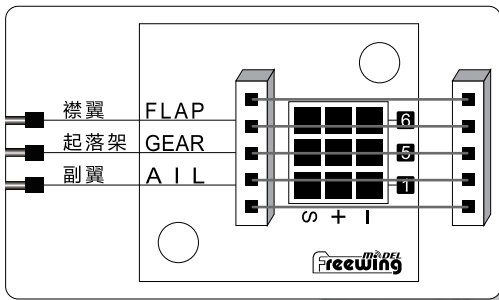
如图所示:

3. 使用牵引钢丝,将平尾、垂尾舵机线沿线槽拉入到电池舱内;
4. 将垂尾安装在机身尾部;
5. 用4颗螺丝固定垂尾。

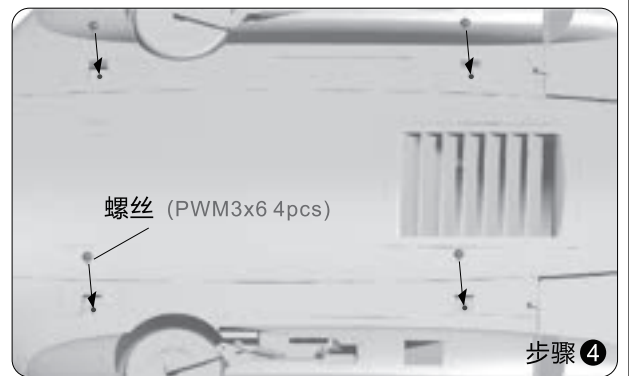
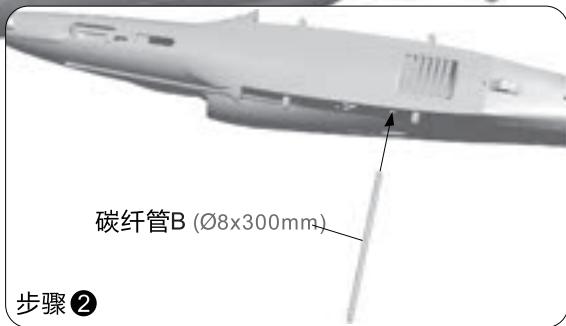
- A- 垂尾
B- 舵机线
C- 螺丝 (FA3x8 4pcs)



主翼组装



步骤 3

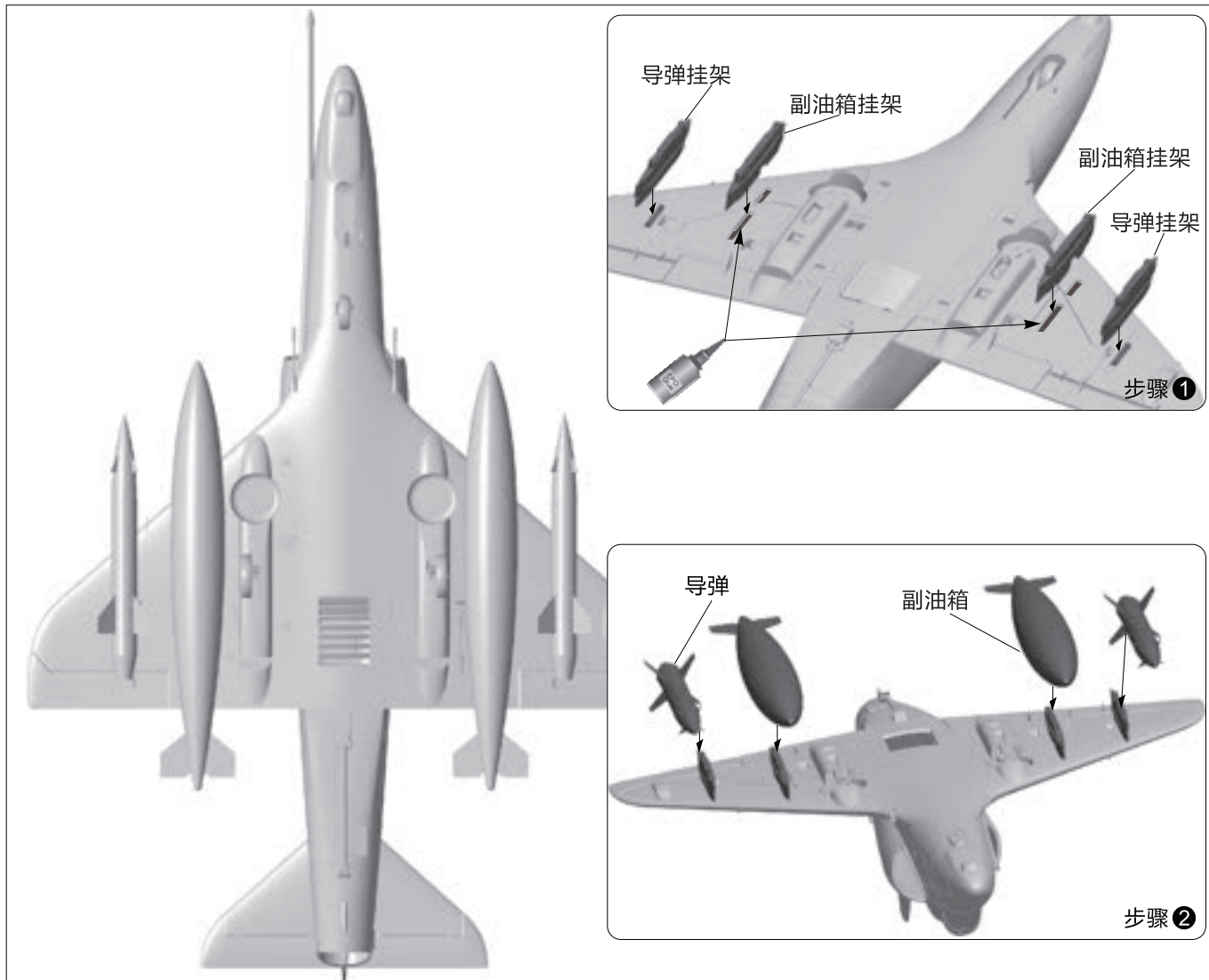


如图所示:

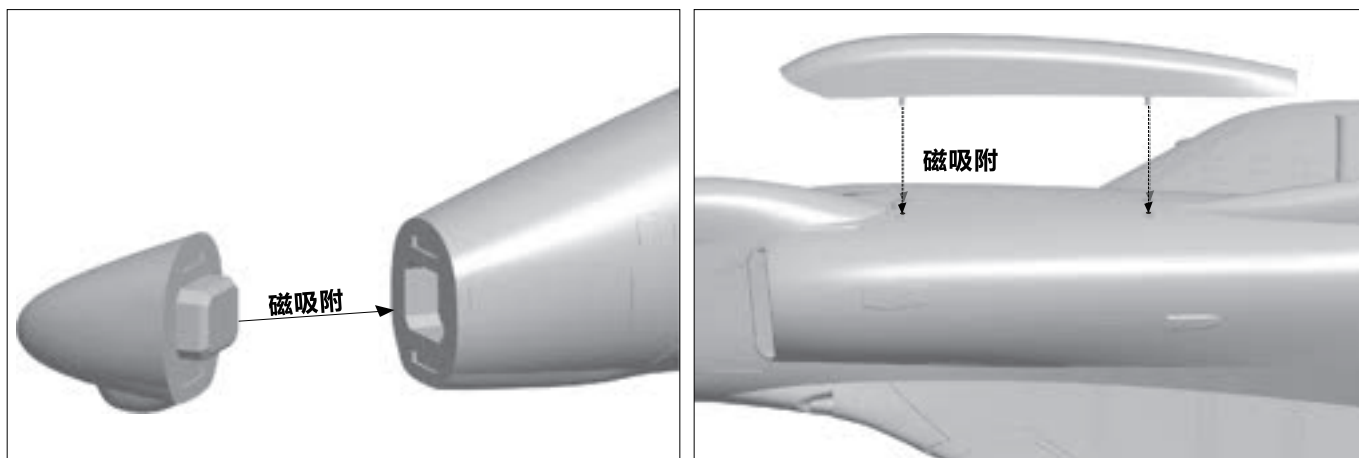
1. 预先在碳纤维A表面涂抹较薄一层胶水, 然后把碳纤维A分别插入二侧主翼, 等待胶水凝固。(等待时长约15分钟)
2. 将碳纤维穿入机身内, 保持居中的位置;
3. 将排线插入主翼侧面集线板上, 然后把左、右主翼安装在机身上;
4. 用4颗螺丝固定主翼。

导弹、副油箱组装

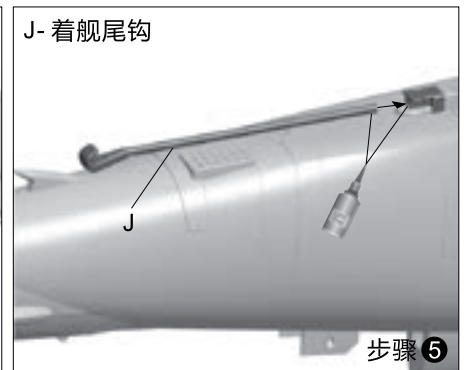
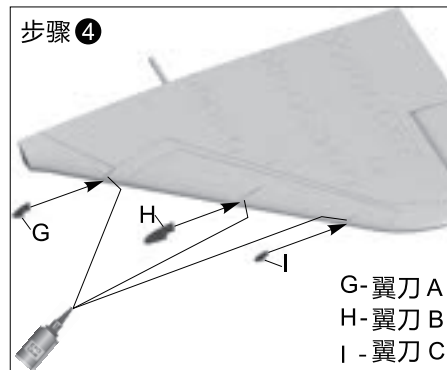
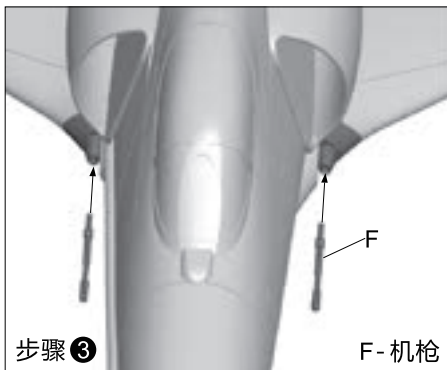
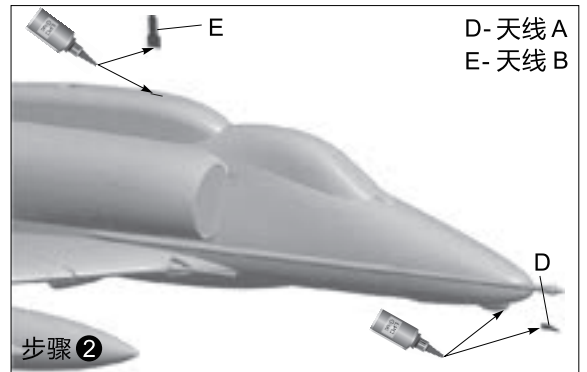
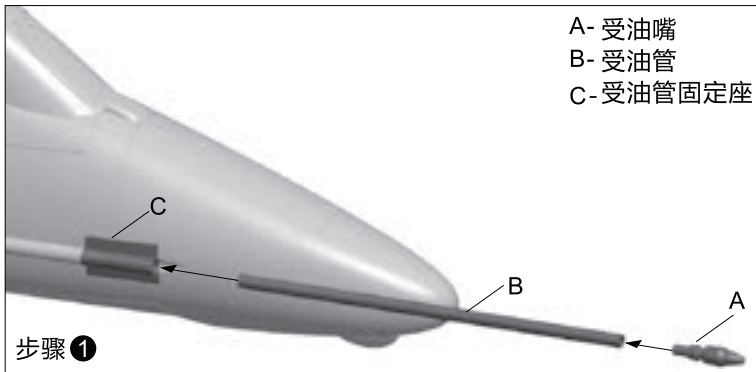
请参考以下图示组装挂架及导弹、副油箱



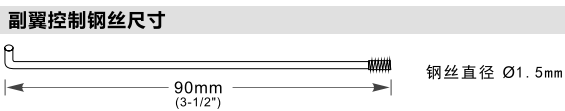
机头罩、保型油箱安装



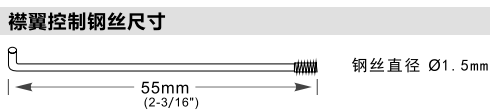
仿真小配件组装



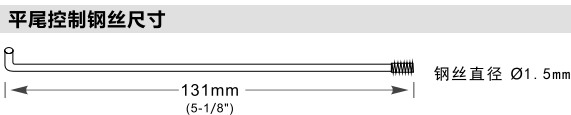
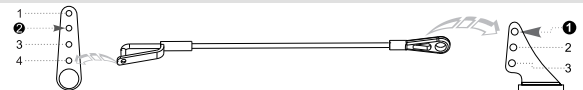
舵面控制钢丝尺寸



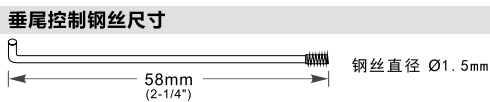
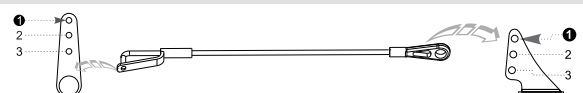
副翼舵机钢丝安装孔位



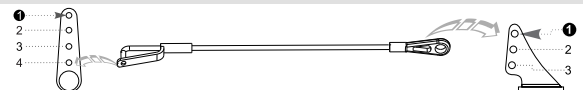
襟翼舵机钢丝安装孔位



平尾舵机钢丝安装孔位

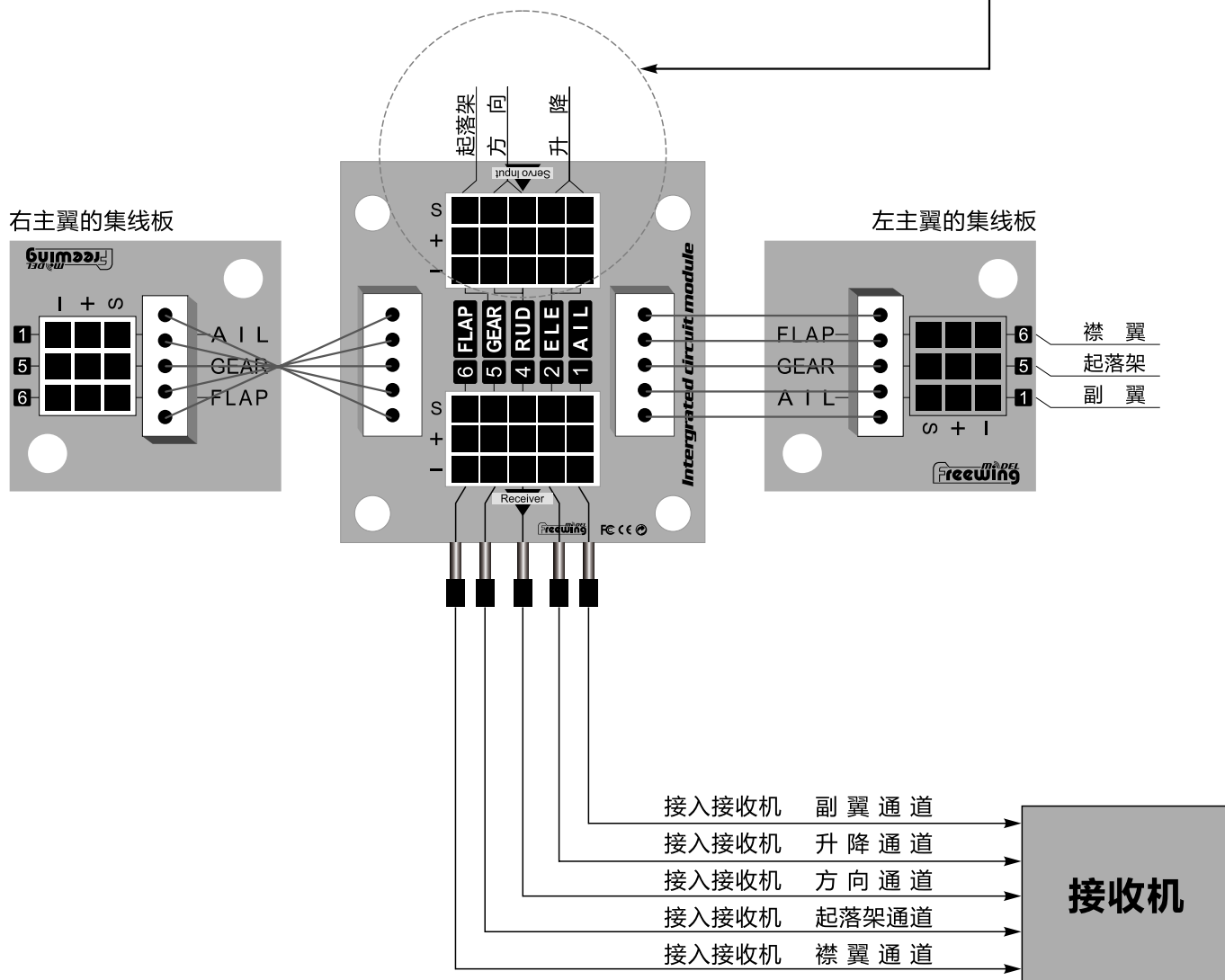
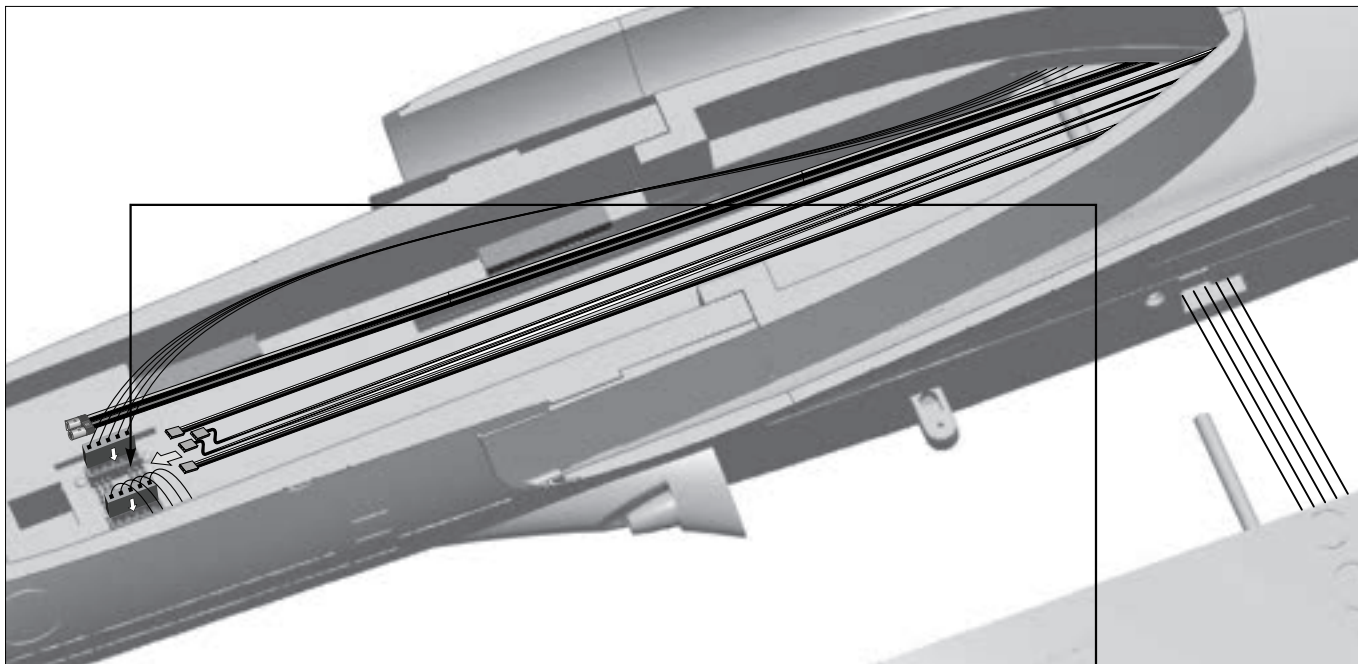


垂尾舵机钢丝安装孔位

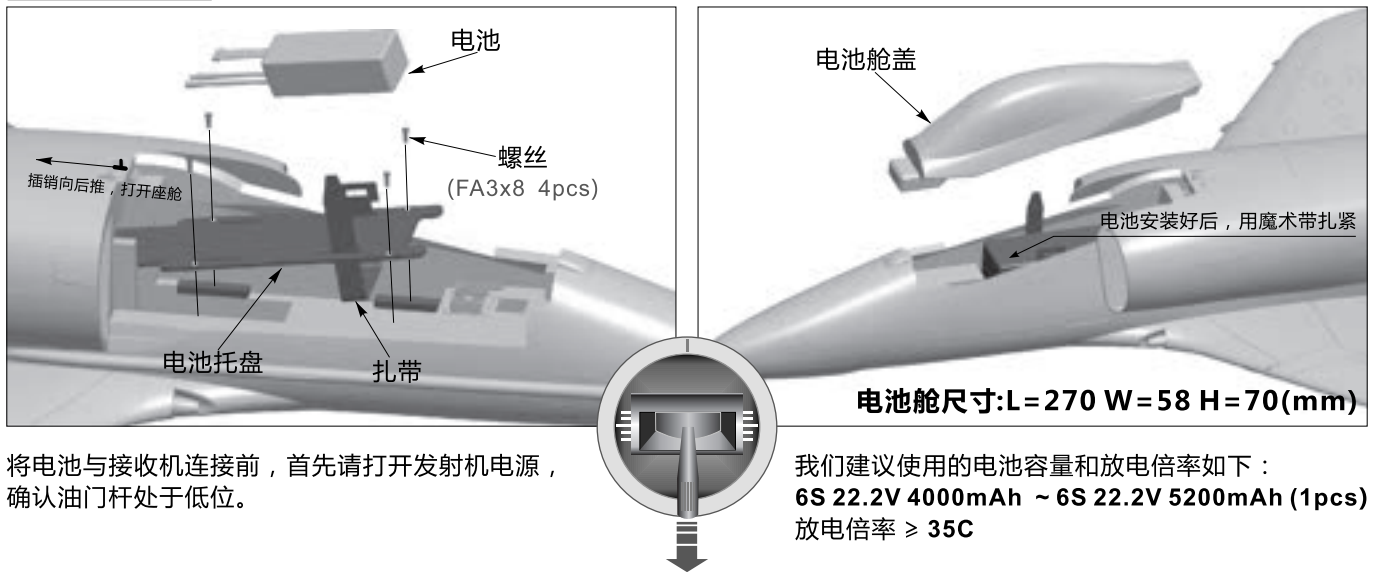


集线板连接示意图

A-4 模型飞机，使用了集线板，以达到后期便捷使用的目的。请参考下图，连接电子设备。



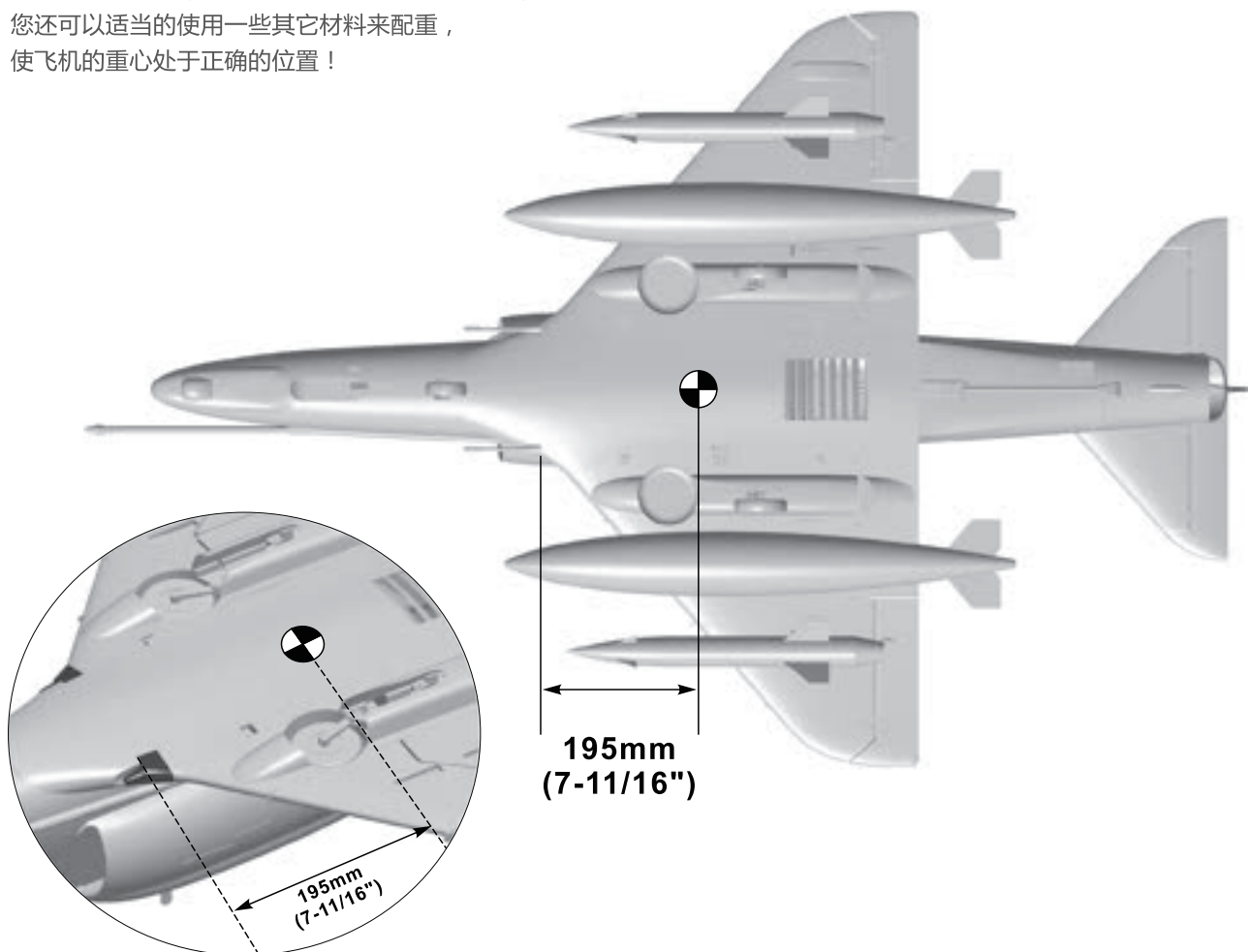
电池安装说明



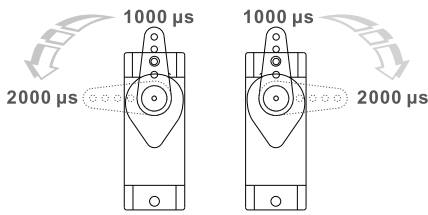
重心示意图

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。

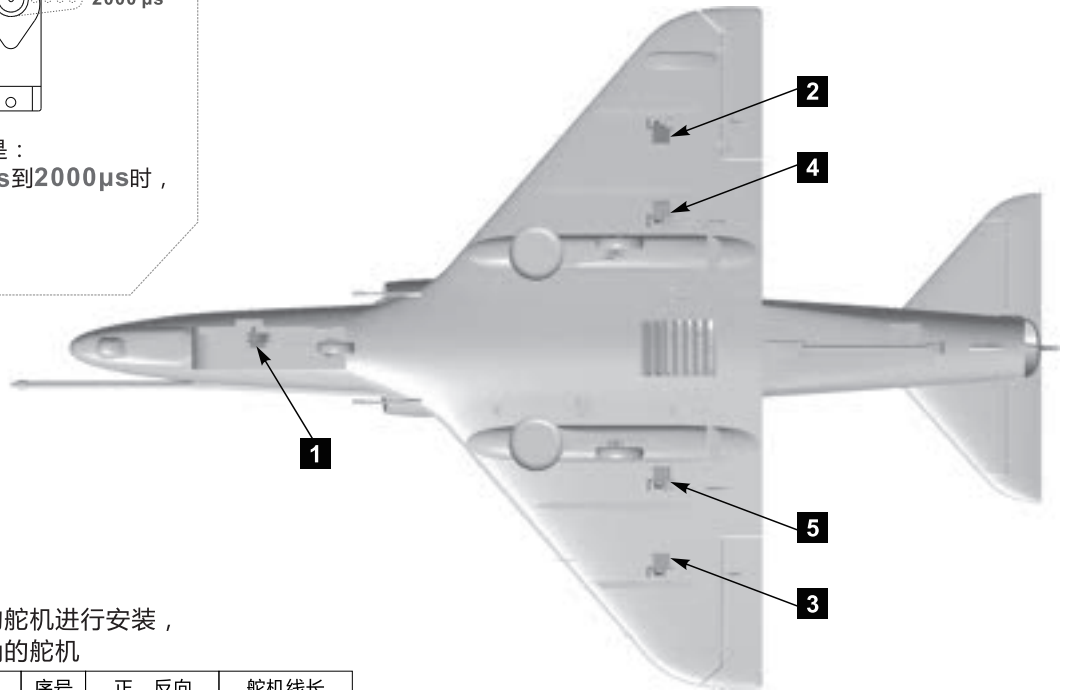
- 您可以将电池向前，或者向后移动，来调整飞机的重心；
- 如果通过电池的移动无法调整到正确的重心位置，您还可以适当的使用一些其它材料来配重，使飞机的重心处于正确的位置！



舵机使用说明

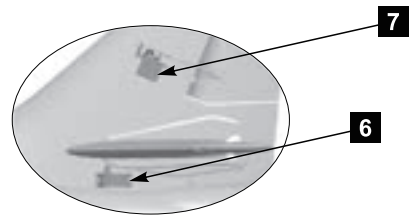


我们的舵机正、反向标准是：
当舵机输入信号从1000μs到2000μs时，
如果舵机摇臂，
顺时针旋转---正向舵机
逆时针旋转---反向舵机



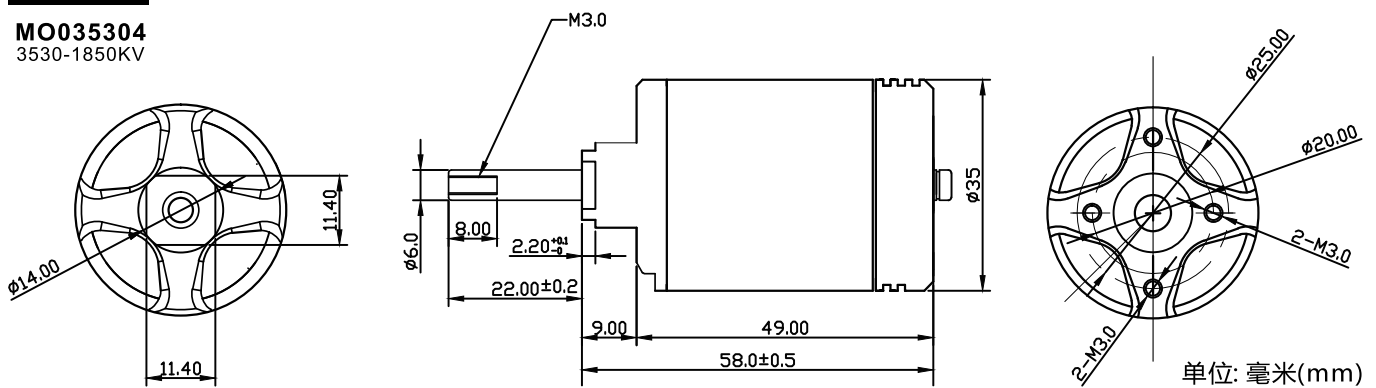
如果您需要选购其它品牌的舵机进行安装，
请参考下面的表格选择正确的舵机

舵机位置	舵机规格	序号	正、反向	舵机线长
前轮转向	9g数码-金属	1	正向	100mm
副翼(左)	9g数码-金属	2	正向	250mm
副翼(右)	9g数码-金属	3	正向	250mm
襟翼(左)	9g数码-金属	4	正向	250mm
襟翼(右)	9g数码-金属	5	正向	250mm
平尾	17g数码-金属	6	正向	950mm
垂尾	9g数码-金属	7	正向	1050mm



电机参数

MO035304
3530-1850KV



动力组编号	使用电机	电机(KV)	推力(g)	电流(A)	使用电压(V)	使用电调(A)	涵道重量(g)	最大功率(W)	效率(g/w)
E7239	MO035304 3530-1850KV	1850	3350	90	22.2(6S)	100	318	2000	1.67

舵面测试

当您按前面的步骤组装好飞机后，在飞行前，我们需要用一块充满电的电池，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

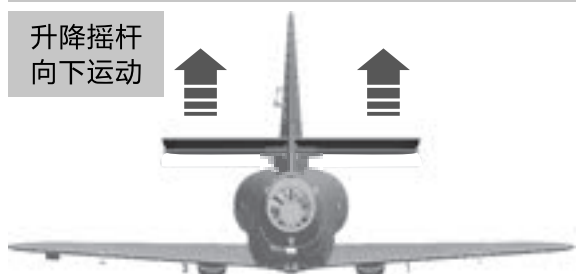


副翼摇杆
向右运动



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



襟翼

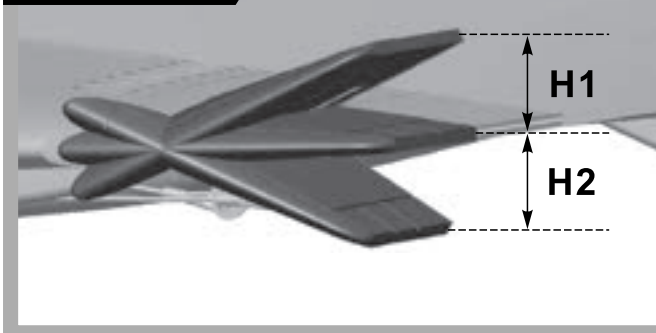
襟翼放下



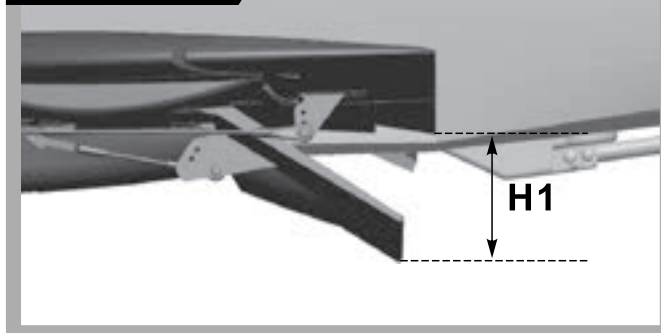
大、小舵参数

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。小舵量飞机的操纵会笨拙些，大舵量飞机的操纵会灵敏些，我们建议初次飞行使用大舵量起飞，然后视操纵习惯选用小舵量或者大舵量飞行。

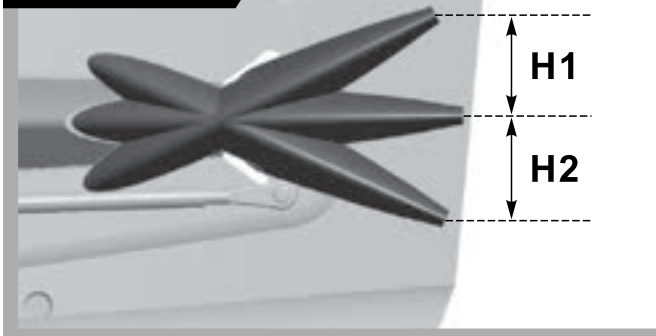
副翼



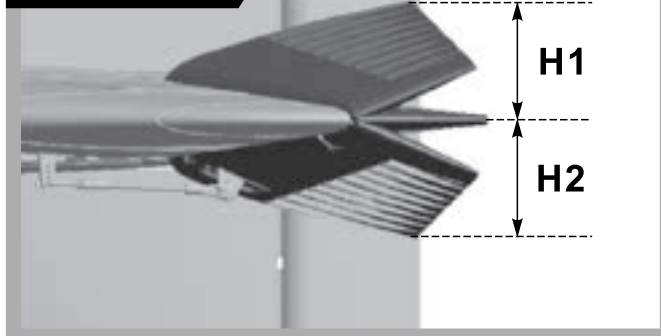
襟翼



升降舵



方向舵



	副翼(内侧)	升降舵(内侧)	方向舵(下端)	襟翼
小舵量	H1/H2 18mm/18mm 舵量比率：65%	H1/H2 21mm/21mm 舵量比率：80%	H1/H2 24mm/24mm 舵量比率：80%	H1 27mm
大舵量	H1/H2 24mm/24mm 舵量比率：100%	H1/H2 25mm/25mm 舵量比率：100%	H1/H2 30mm/30mm 舵量比率：100%	H1 43mm

- ⚠ 注意事项：**
- 1.在飞行中，放下襟翼，飞机的飞行姿态向下（俗称“低头”），此时，我们需要设置“襟翼-升降”混控来解决这个问题，使得飞机的姿态在放下，收起襟翼时，保持不变。请参考以下数据设定混控参数：
襟翼舵量：27mm 需混控的升舵舵量：2mm
襟翼舵量：43mm 需混控的升舵舵量：3.5mm
 - 2.此模型武器套件的重主要分布在机尾方面，所以，我们挂载武器套件飞行时，需要重新校正，确认飞机的重心，是否处于说明书所规定位置，根据您的情况移动电池，配平重心。



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HK Freewing Model International Limited

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