

1.6M Fieseler Fi 156 Storch

Balsawood Training Airplane



Instruction Manual

SCG21

飞行前的建议 PRE-FLIGHT CHECKS

- 安装舵机前，请先将舵机通电让舵机中心点回中，以便能更好的调试舵面。
● Check/adjust servo centering, in order to adjust the control surface better.
- 初次启动电机，您需要确认电机旋转的方向以适配您的机型。
● Double-check the spinning direction of motor at first usage, and sure it's suitable for your model.
- 请将重心 (CG) 调整至说明书所述位置并尽量靠近。如果有需要，您可以增加机头或者机尾的重量，以确保机体有更好的飞行姿态。
● Set the center of gravity (CG) at the position that manual already marked out. If necessary, add weight to the nose or tail to ensure the best flight performance.
- 检查机身内部，确保所有设备正常连接；检查机身表面，包括但不限于蒙皮，固定螺丝，舱盖，座舱罩等位置。
● Double-check the inside of the fuselage, make sure all the equipments are correctly connected; Check the heat-shrink covering material's surface, Make certain all screws, bolts, cabin and canopy remain secure.
- 在飞行前，请检查您电池情况，若有低电压，电池损坏等情况，请您停止操作并马上更换电池。
● Take great care when connecting/disconnecting the battery, pls replace the battery immediately once found low voltage or damage to battery.
- 机身内部设备连接的方式，会和您的收发设备有关，在一些功能更多的收发设备上，您可以通过设置简化机身内部设备的连接。详细请查看您的收发设备以确认是否满足您需要的功能。
● The way the internal devices of the fuselage are connected will be related to your transmitter-receiver device. For those transmitter-receiver devices with more functions, you can simplify the connection of the internal devices of the fuselage. Check your device for details to see if it meets the features you need.
- 动力设备和收发设备第一次配对时，可能需要设置油门最大行程，请您自行设置。
● When the power system and transmitter-receiver device are paired for the first time, you may need to set the maximum stroke of the throttle. Please set it yourself.

注意事项 SAFETY PRECAUTIONS

- 这个产品不是玩具，而是一个复杂的具有难度的飞行器。您和您身边人的安全取决于您如何操作它，您需要了解相关知识，并谨慎操作。禁止没有成人陪伴的儿童独自操作该设备。不适合14岁以下人群使用。再次强调，这不是一个玩具。
● This product should not be considered a toy, but rather a complicated and sophisticated flying model. Your safety depends on how you use and fly it. If not correctly operated, could cause injury to you or your family members. Children must be accompanied by an adult at all times if operating this product. Not suitable for children under the age of 14. THIS IS NOT A TOY.
- 不要在机场，军事基地，居民区或其他任何受限制的地方飞行。
● Do not fly around some restricted location like airports, military bases, residential areas, etc.
- 您需要对发射机进行距离检查，以确保没有收到任何干扰。
● You will need to range check the transmitter to be sure you are not experiencing any interference.
- 始终保持先打开发射机后打开接收机，先关闭接收机后关闭发射机的步骤。
● Always turn on the receiver last after turning on the transmitter and shut off the receiver first before turning off the transmitter.
- 如果您是初学者，建议在有经验玩家的协助下调试和飞行。
● If you are only a beginner to the radio control model flying, do not attempt to fly your model without any assistance or advice from advanced expert fliers.
- 请将相关物品放置在孩子们够不到的地方
● Keep relevant items out of reach of children.
- 这个设备的设计已经超过我们正常使用所需要刚性要求，但若您需要以超出我们推荐的动力飞行时，请合理控制动作幅度并适当增加机体强度。
● This product has been flight tested to meet or exceed our rigid performance and reliability standards in normal use, if you plan to perform any high-stress flying, you are solely responsible for taking any and all necessary steps to control movement range and reinforce the body strength.
- 您的设备中可能包括一些玻纤和碳纤维雕刻的部件，这些纤维部件所带的粉尘可能会引起眼睛，皮肤的不适，请您在需要的时候带上护目镜或者防尘服。
● This product may include some fiberglass and carbon-fiber reinforced plastic parts, which may cause eye and skin discomfort, pls wear the goggles or dust-proof clothes when needed.
- 因航空运输安全管制，您收到的产品可能没有清单中出现过的胶水，请您理解无法发送胶水给您的原因。您可以在当地文具店很方便的购买到您所需要的胶水。
● Due to air traffic safety control, the products you receive may not have the glue that appears in the list. Please understand and purchase the glue you need at your local stationery store.



历史背景 Historical Background

Fi-156于1936年由Gerhard Fieseler博士设计为侦察，联络和空中救护飞机。这架飞机的起落架设计独特，从支柱和窗户处向外伸出，它的起落架垂下，看起来非常像一只长腿的大鸟，所以它被赋予了绰号“Storch”（德语中的鹤）。这是一架为短距离起飞和降落而设计建造者的飞机，在逆风时，可以在不到200英尺的高空飞行，当它以低速着陆与强逆风相结合时，Storch几乎可以垂直降落，有时看起来像向后飞。

The Fi-156 was created as a reconnaissance, liaison and air-ambulance aircraft in 1936 by Dr. Gerhard Fieseler. This unique airplane's legs, struts and windows stuck out everywhere, and its landing gear hung down, looking very much like a long-legged, big-winged bird, so it was given the nickname "Storch" (the German word for stork). Virtually nothing about a Storch is streamlined. It was a purpose-built, short takeoff and landing (STOL) aircraft which, with a bit of headwind, could become airborne in less than 200 feet, and when its low landing speed was combined with a strong headwind, the Storch appeared to land vertically, and sometimes looked like it was flying backwards.

飞行参数 Specification

翼展:1600mm (63 inch)
机长:1000mm (40 inch)
起飞重量: 1.6-1.8kg
Wingspan: 1600mm (63 inch)
Fuselage Length: 1000mm (40 inch)
Flying Weight: 1.6-1.8kg

推荐配置 Suggested Equipment

推荐马达: 2814-2820 KV800-1000
推荐桨叶: 10-12寸
推荐电调: 40-60A
推荐舵机: 9gx8pcs
推荐电池 4S 2200-2800mAh
推荐6通道以上接收机
Suggested Motor: 2814-2820 KV800-1000
Suggested Propeller: 10-12inch
Suggested ESC: 40-60A
Suggested Servo: 9gx8pcs
Suggested Battery: 4S 2200-2800mAh
Radio: more than 6CH

选配配件 Optional Parts

舵机延长线15cm 6根
Y线 3根
舵机反向器 2个
Servo extension wires 15cm 6pcs
Y-wire 3pcs
Servo Reverser 2pcs

工具 Tools Needed



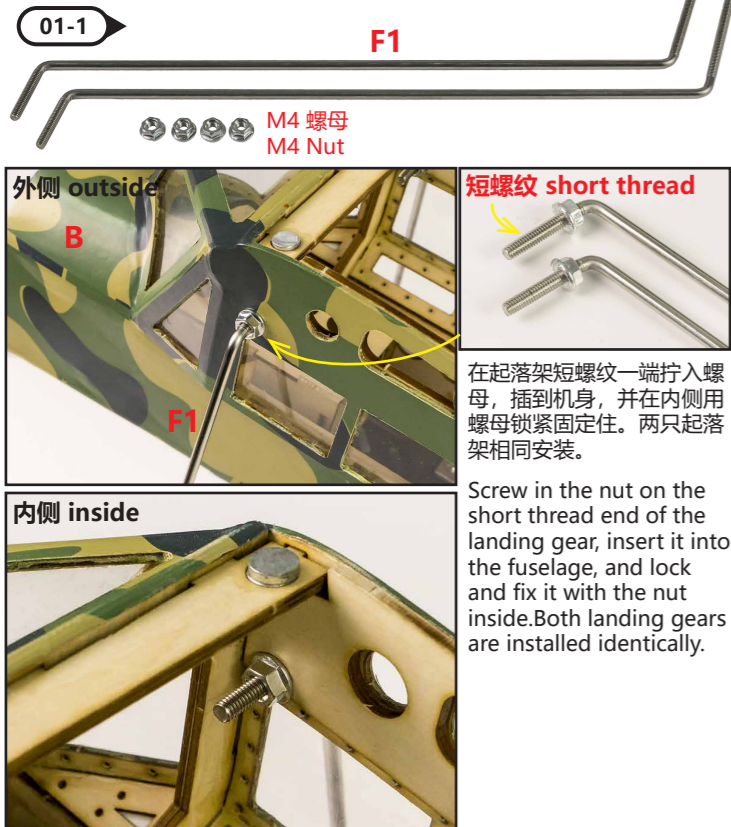
配件图仅做参考用，您收到的实物可能因为修改/优化的原因导致与图片略有不同。
Photos shown here just for reference, the product you received may be slightly differ from the photos due to continuous improvement on products.



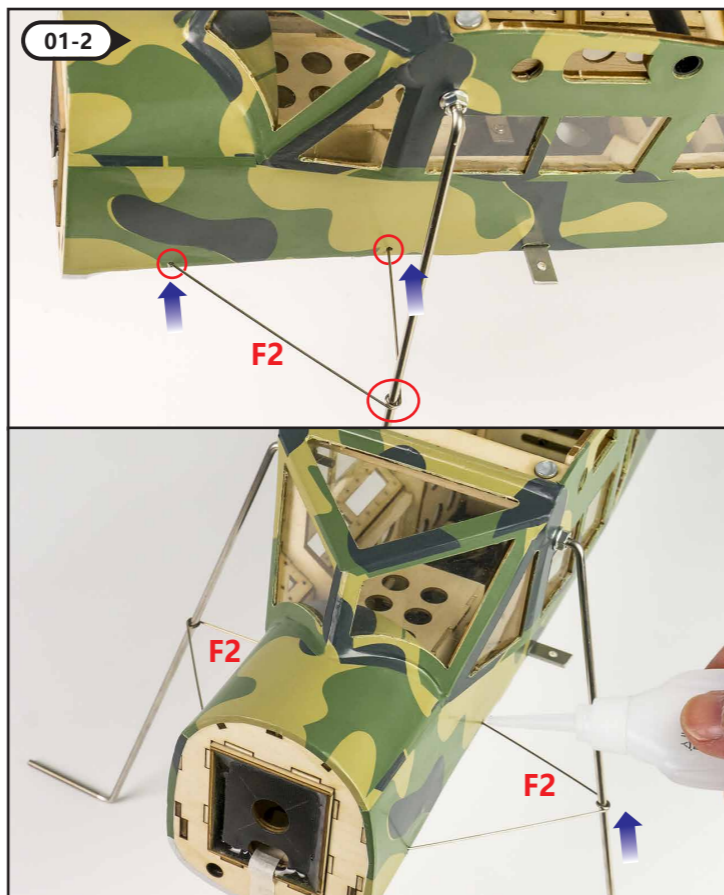
不同涂装版本，安装方法相同。
Same assembly method for different color scheme airplanes.

- A1-2:水平尾翼 A3-4:垂直尾翼 B:机身 C1:机翼 C2:副翼 C3:襟翼 C4:前缘缝翼 D:机翼支架 E1-2:起落架支架
F1:起落架 F2:起落架支架 G1:座 G2:机枪 G3:天线 G4:副油箱 H:机翼连接杆 I:起落架套 J:尾翼支撑架 K1-2:舵角
L:舵机连杆 M:像真木件 O:像真木件 P:木块 Q:马达盒固定铝片 R:机头罩 S:机轮 T:尾轮组 U:螺丝，金属件
- A1-2:Horizontal tail A3-4:Vertical tail B:Fuselage C1:Wing C2:Aileron C3:Flap C4:Leading edge slat D:Wing bracket
E1-2:Landing gear bracket F1:Landing gear F2:Landing gear bracket G1:Seat G2:Machine gun G3:Antenna
G4:Auxiliary Tank H:Wing connecting rod I:Landing gear set J:Tail bracket K1-2:Servo horns L:Servo linkage rod
M:Scale wood pieces O:Paper Hinge P:Blocks Q:Alu.sheet for holding motor box R:Cowling S:Wheel
T:Tail wheel set U:Screws/ Metal parts

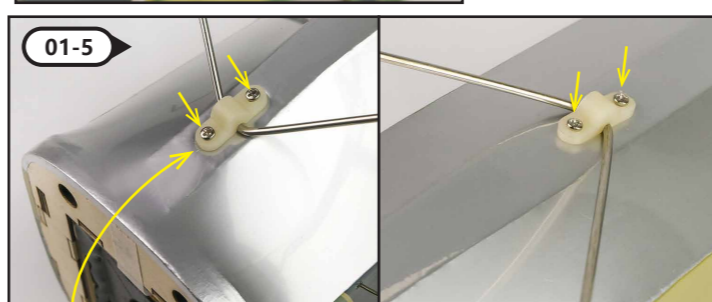
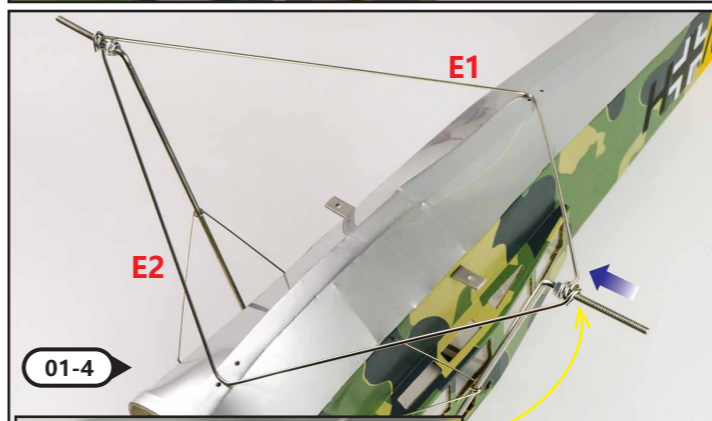
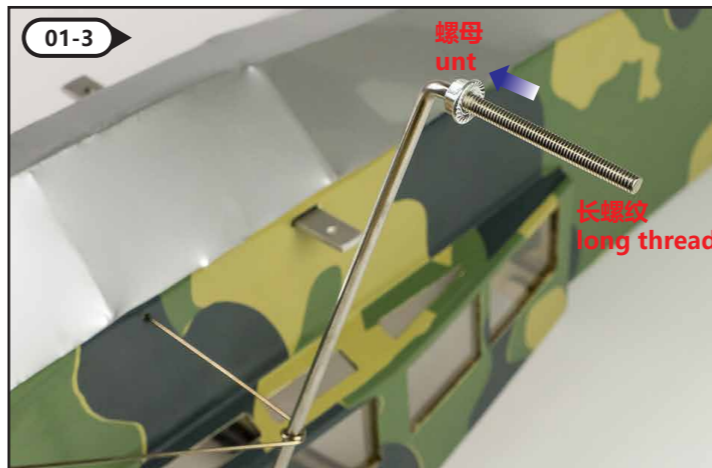
01 起落架安装
Assemble the Landing Gear



在起落架短螺纹一端拧入螺母，插到机身，并在内侧用螺母锁紧固定住。两只起落架相同安装。
Screw in the nut on the short thread end of the landing gear, insert it into the fuselage, and lock and fix it with the nut inside. Both landing gears are installed identically.

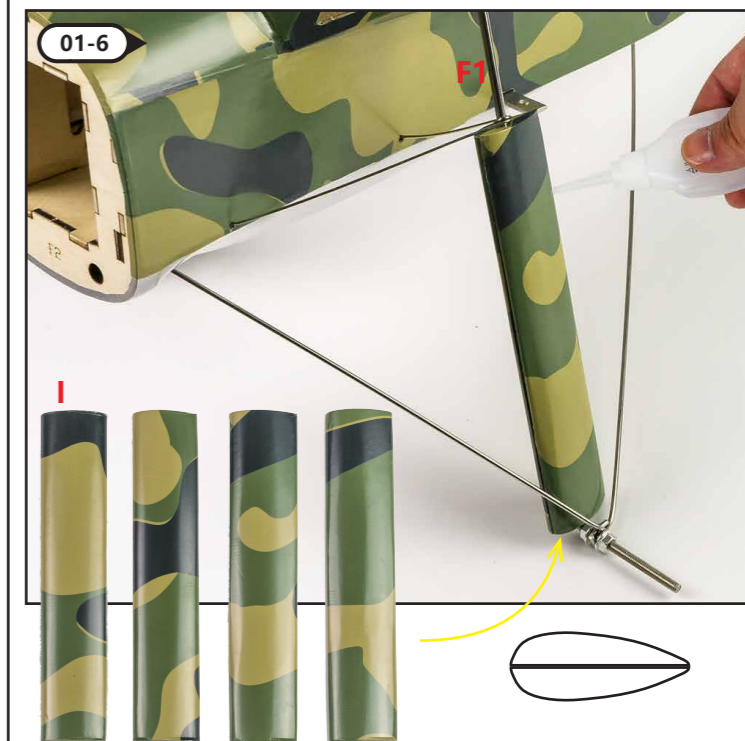


支架F2穿入起落架F1，并插入机身预留孔固定，在孔内点入CA胶粘合。
The bracket F2 penetrates into the landing gear F1 and is inserted into a reserved hole of the fuselage for fixing, and CA glue is clicked into the hole.



在预留螺丝孔中点入少量CA胶，然后用塑料扣加螺丝固定E1-2支架。
Put a small amount of CA glue in the reserved screw hole, and then fix the E1-2 bracket with plastic buckles and screws.

M4*15mm 自攻螺丝
M4*15mm Self-tapping screw



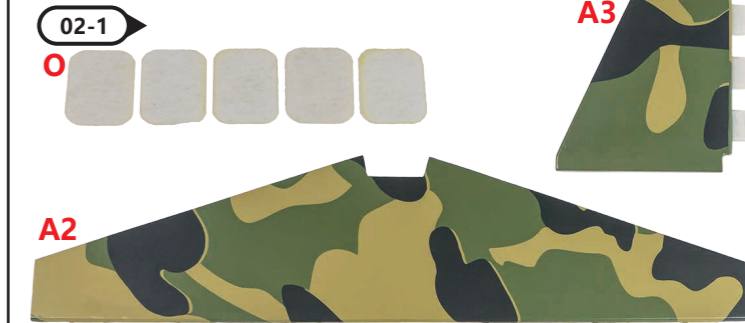
在起落架上安装像真件I，两片合在一起夹住F1用胶水粘合。
Install the scale piece I on the landing gear, and clamp the F1 together with glue.



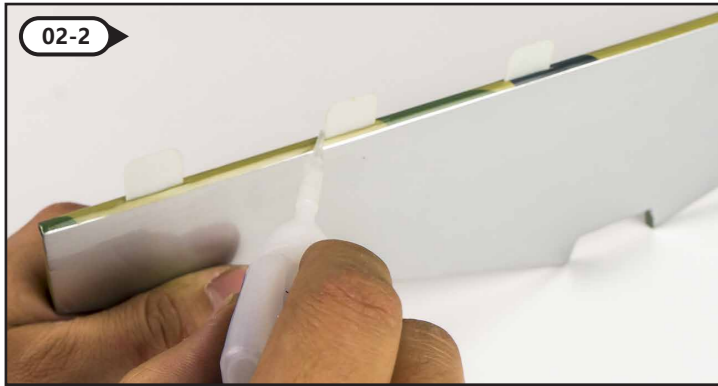
安装机轮，用自锁螺母固定，并使机轮可以转动。
Install the wheel, fix it with self-locking nut, and make the wheel turn.

M4 自锁螺母
M4 self-locking nut

02 垂直尾翼/水平尾翼/后尾轮安装
Vertical Tail/Horizontal Tail/Rear-tail wheel Installation



在尾翼预留槽内插入纸合页。
Insert the paper hinges in the reserved groove at the tail.



在纸合页缝隙间点入CA胶水粘固。
Put CA glue between the gaps of paper hinges



把升降舵、转向舵和尾翼通过纸合页连接，连接处点入CA粘固，并保持舵面可以自由摆动。
Connect the elevator, steering rudder and tail wing by paper hinges, put the CA glue at the joints, and keep the rudder surface free to swing.



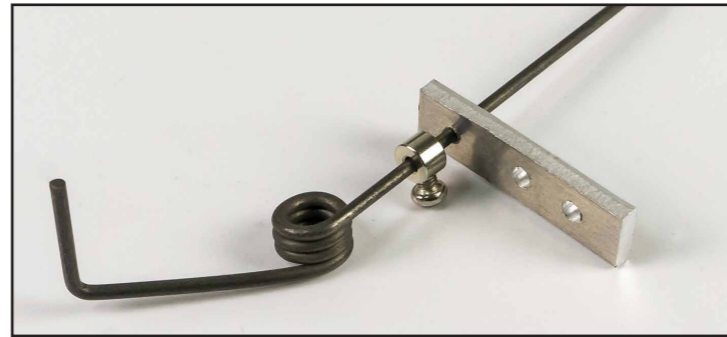
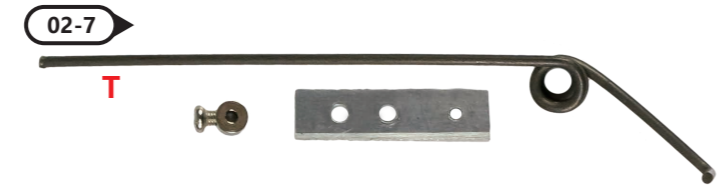
参考尾翼和机身尾部的结合面，用美工刀切除结合面的蒙皮。
With reference to the joint surface of the tail wing and the fuselage tail, use a utility knife to cut off the film of the joint surface.



把尾翼安装到机身尾部，调整到平行于机身，连接处用CA胶水粘固。
After mounting the tail wing to the rear of the fuselage, adjust it to be parallel to the fuselage, and fix the joint with CA glue.



垂直尾翼安装完成后，用美工刀切除与机身结合面的蒙皮。
After the vertical tail is installed, use a utility knife to cut off the film of the joint surface with the fuselage.



按上图顺序，把轮挡和铝件穿入尾轮组钢丝。
According to the sequence in the figure above, thread the wheel stopper and aluminum part into the tail wheel wire.



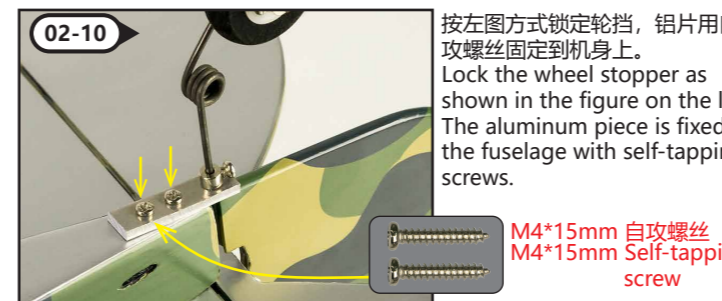
参考尾翼预留的尾轮安装孔的深度将尾轮组钢丝弯折起来。
Bend the tail wheel wire with reference to the depth of the tail wheel mounting hole reserved for the tail wing.



弯折好的尾轮组插入尾翼，用大量CA胶水粘固。
Insert the bent rear wheel set into the tail wing and fixed with a large amount of CA glue.



垂直尾翼插入机身尾部，调整使其与机身垂直后，连接处用CA胶水粘固。
Insert the vertical tail into the rear of the fuselage, adjust it so that it is perpendicular to the fuselage, and fix the joint with CA glue.



按左图方式锁定轮挡，铝片用自攻螺丝固定到机身上。
Lock the wheel stopper as shown in the figure on the left. The aluminum piece is fixed to the fuselage with self-tapping screws.

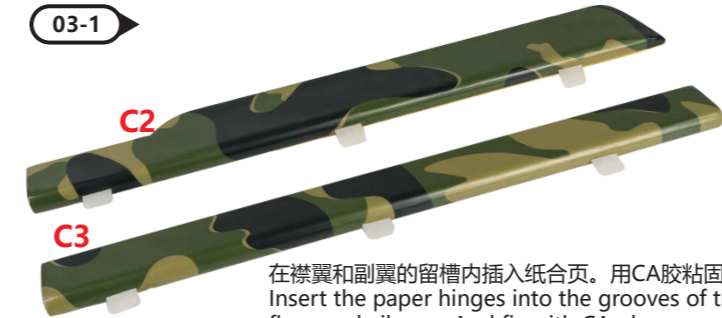
M4*15mm 自攻螺丝
M4*15mm Self-tapping screw



如左图安装尾翼支架，用自攻螺丝固定。
Install the tail wing bracket as shown on the left, and fix it with self-tapping screws.

注意：此处为选择安装，建议使用油动引擎时安装。
Note: This is a selective installation. It is recommended to install when using an oil-powered engine.

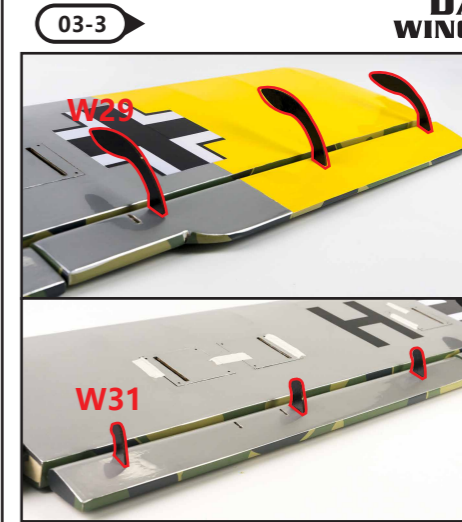
03 机翼安装 Assemble the Wing



在襟翼和副翼的留槽内插入纸合页。用CA胶粘固。
Insert the paper hinges into the grooves of the flaps and ailerons. And fix with CA glue.



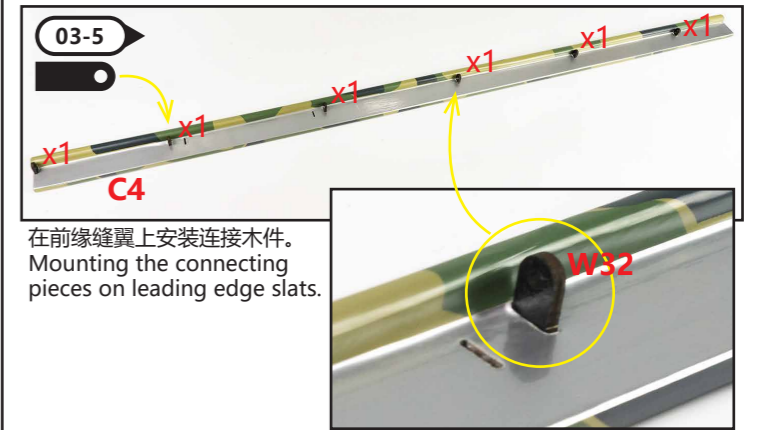
把襟翼，副翼如上插入机翼末端预留槽，通过纸合页连接，并在连接处用CA胶水粘固。粘完后确保襟翼和副翼可以自由摆动。
Insert the flaps and ailerons into the reserved slot at the end of the wing as shown above, connect them with paper hinges, and use CA glue at the connection. Make sure flaps and ailerons can swing freely after sticking



从M板上取下像真木件，安装到襟翼和副翼上，具体安装位置见左图。连接处用少量CA胶水粘固。
Remove the scale wood pieces from the M board and install them on the flaps and ailerons. See the left for details. The joint is glued with a small amount of CA glue.



从M板上取下前缘缝翼连接件，如上图方式在机翼前端安装。
Remove the leading edge slat connectors from the M board, and install them on the front of the wing as shown above.

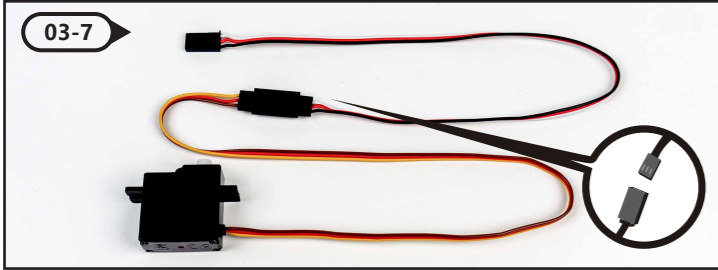


在前缘缝翼上安装连接木件。
Mounting the connecting pieces on leading edge slats.

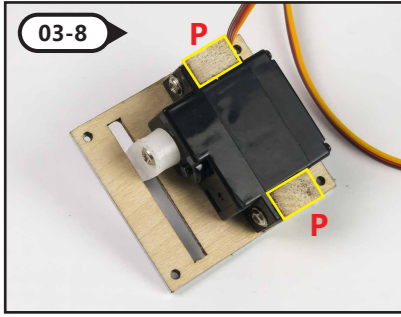


把前缘缝翼和机翼连接，用螺丝螺母锁定。
Connect the leading edge slats to the wing and lock it with screws and nuts.

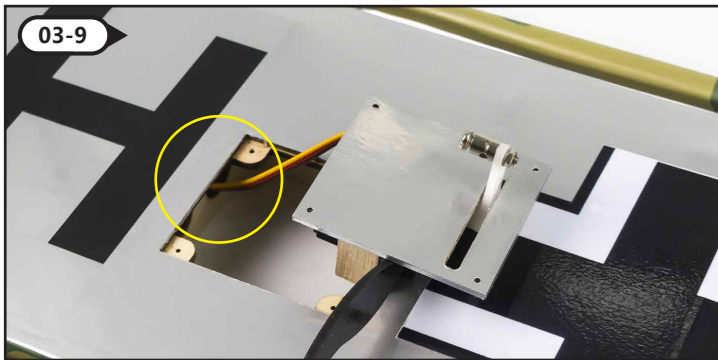
M2*10mm 螺丝+螺母
M2*10mm



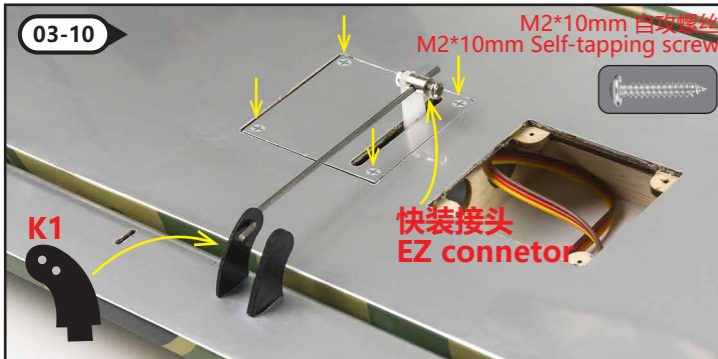
在安装机翼上舵机前，您的舵机可能需要接延长线。
Before installing servo of the wings, your servo may need to connect extension line.



从机翼上取下舵机放置位的盖板，在反面安装舵机，如左图所示，安装舵机时，粘小木块辅助舵机固定。Remove the cover board of the servo position from the wing, and install the servo on the reverse side. As shown on the left, when installing the servo, you need to stick some small wooden blocks to fix it.



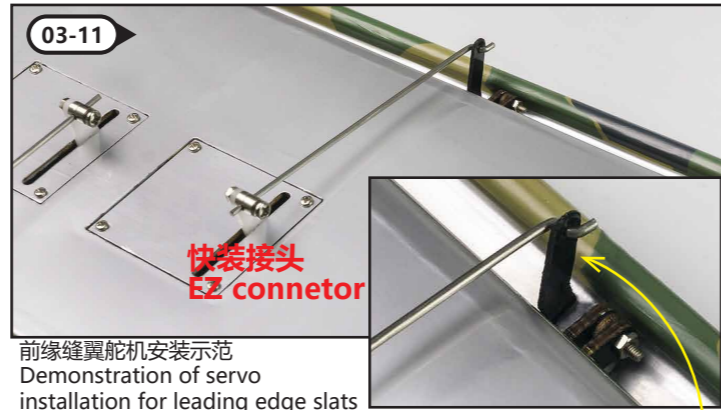
舵机线穿入机翼内部，从圆孔延伸至机翼侧面导出。
Route the servo wire into the inside of the wing and extend from the circular hole to the side of the wing.



舵机盖装到槽位上，用自攻螺丝锁定。
Install the servo cover in the slot and locked with self-tapping screws.

在舵臂上安装快装接头，襟翼上舵机位下方的预留槽安装舵角，钢制连杆 Z 型一端穿入舵角，另一端插入舵臂的快装接头并锁紧。
Install the EZ connector on the servo arm, install the servo horn in the reserved slot under the rudder position on the flap, thread one end of the Z-shaped steel wire rod into the servo horn, and insert the other end into the EZ connector of the servo arm and lock it.

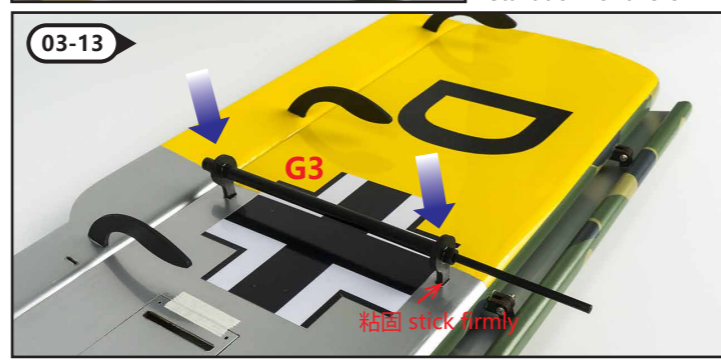
注意：此处以襟翼为例，前缘缝翼，副翼的舵机安装方法相同。
Note: Here we take the flaps as an example. The leading edge slats and ailerons have the same servo installation.



前缘缝翼舵机安装示范
Demonstration of servo installation for leading edge slats

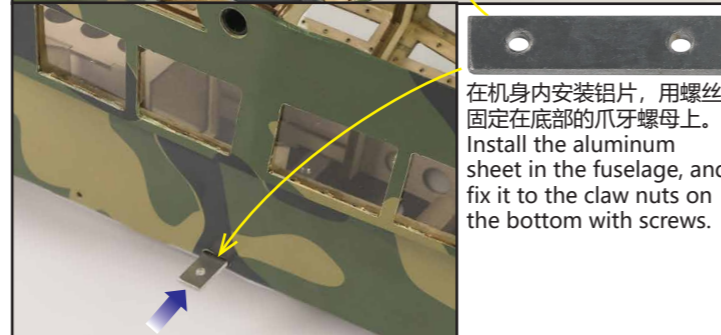
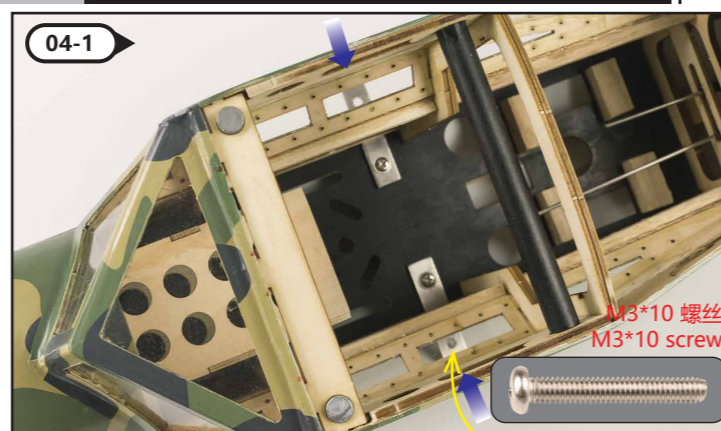


副翼舵机安装示范
Demonstration of servo installation for aileron



在机翼预留孔位置安装像天线。
Install scale antennas in the wing's reserved holes.

04 机翼安装到机身 Assemble the horizontal and vertical tails



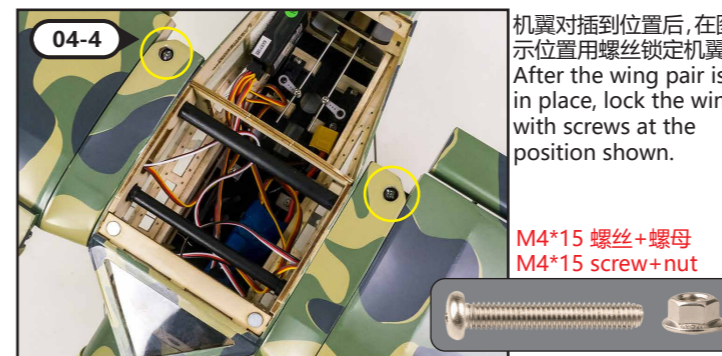
在机身内安装铝片，用螺丝固定在底部的爪牙螺母上。
Install the aluminum sheet in the fuselage, and fix it to the claw nuts on the bottom with screws.



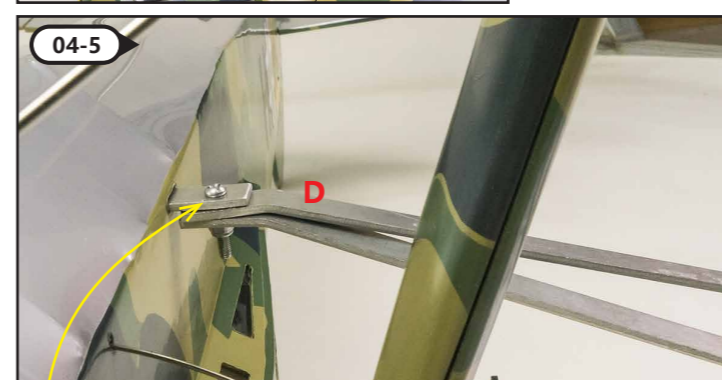
从机翼侧面拆下链接件，通过碳杆安装到机身。
Remove the connector from the side of the wing and attach it to the fuselage via carbon rod.



把碳杆插入机身，然后机翼对插到碳杆上。舵机线从预留孔导入，穿入机身内。
Insert the carbon rod into the fuselage, and then insert the wings onto the carbon rod. The servo wire is introduced from the reserved hole and penetrates into the fuselage.



机翼对插到位置后，在图示位置用螺丝锁定机翼。
After the wing pair is in place, lock the wing with screws at the position shown.



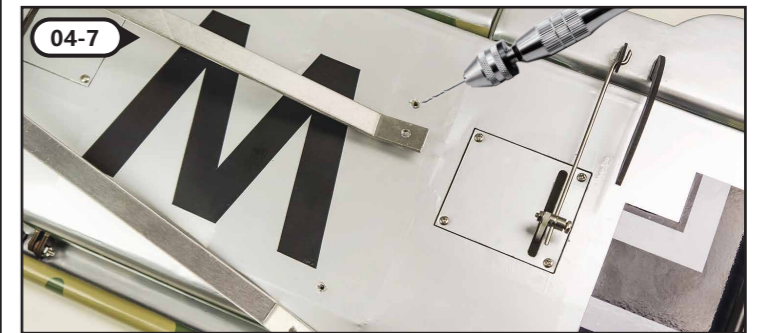
把支撑架用螺丝螺母固定到步骤 04-1 安装的铝片上。
Fix the bracket frame with the screw and nut to the aluminum sheet installed in step 04-1

M3*15 螺丝+自锁螺母
M3*15 screw+self-locking nut

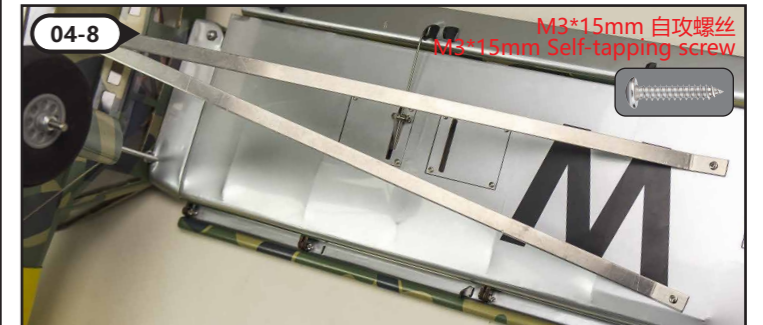


调整支架另一端位置，支撑起机翼，保持两个机翼平直。
Adjust the other end of the bracket to support the wings and keep the two wings straight.

调整完支架位置，用记号笔在确定的位置上做记号，并确保记号位置在机翼内预埋的木杆上。（木杆可用手触摸判断大概位置）
After adjusting the bracket position, use a marker to mark at the determined position, and make sure that the marker position is on a wooden pole embedded in the wing. (The wooden pole can be touched to determine the approximate position)

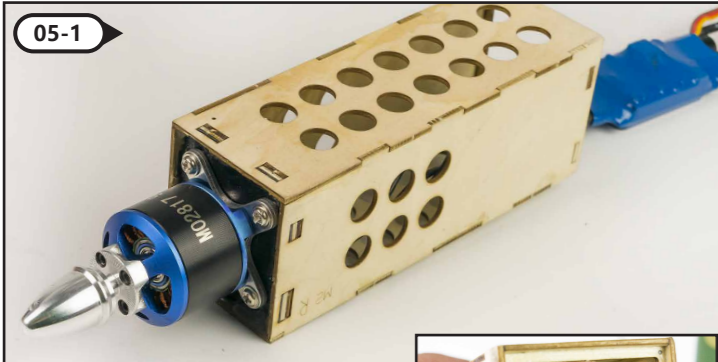


在记号位置钻孔，并在孔内点入少量 CA 胶水。
Drill holes at the marked positions, and put a small amount of CA glue in the holes.

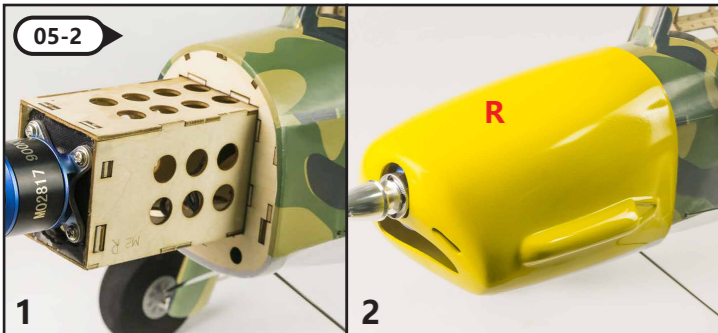


用自攻螺丝锁定两个支架。
Lock both brackets with self-tapping screws.

05 马达/桨叶/电调安装 Motor/Propeller/ESC Installation



从机身头部取出马达安装座, 安装马达到玻璃纤维板上, 马达线从预留孔导入马达座内, 并连接电调。
Take out the motor mounting base from the head of the fuselage, install the motor on the fiberglass board, the motor cable is introduced into the motor base from the reserved hole, and connected with the ESC.



把装好马达的马达座装入机身头部, 然后试装机头罩, 做到马达不干扰头罩, 此时取下头罩确定好马达伸出长度, 用加号笔在左图位置做记号。
Install the motor mount with the motor into the fuselage head, and then try to install the cowl so that the motor does not interfere with the cowl. At this time, remove the cowl to determine the length of the motor base extension. Use a marker pen at the left position mark.



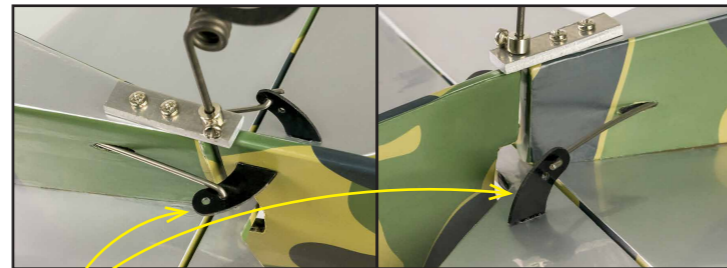
在马达座内部粘加固木块, 木块位置在步骤 05-2 记号处, 然后用角型铝片固定马达座, 用自攻螺丝固定, 如上图所示。
Wooden blocks are reinforced inside the motor base, and the position of the wooden block is marked at step 05-2. Then fix the motor base with angle aluminum sheet and fix it with self-tapping screws as shown above.



安装机头罩和桨叶, 机头罩用自攻螺丝固定。
Install the cowl and propeller, and fix the cowl with self-tapping screws.

M2*5mm 自攻螺丝
M2*5mm Self-tapping screw

06 机身内舵机安装 Servo installation inside the fuselage



K1 在升降舵, 转向舵上安装舵角, 用 CA 胶水粘固。舵角连接预装在机身内的钢丝连杆, Z 型一头穿入舵角。
Install the servo horn on the elevator and rudder, and fix it with CA glue. The servo horn is connected to the steel wire rod pre-installed in the fuselage, and the Z-shaped end penetrates into the servo horn.



在机身内安装舵机, 舵机固定在机身内的木块上, 舵臂上安装快装接头。钢丝连杆另一端穿入快装接头固定住。
Install the servo inside the fuselage, the servo is fixed on the wooden block inside the fuselage, and the EZ connector is installed on the servo arm. The other end of the steel wire rod is threaded into the EZ-connector and fixed.

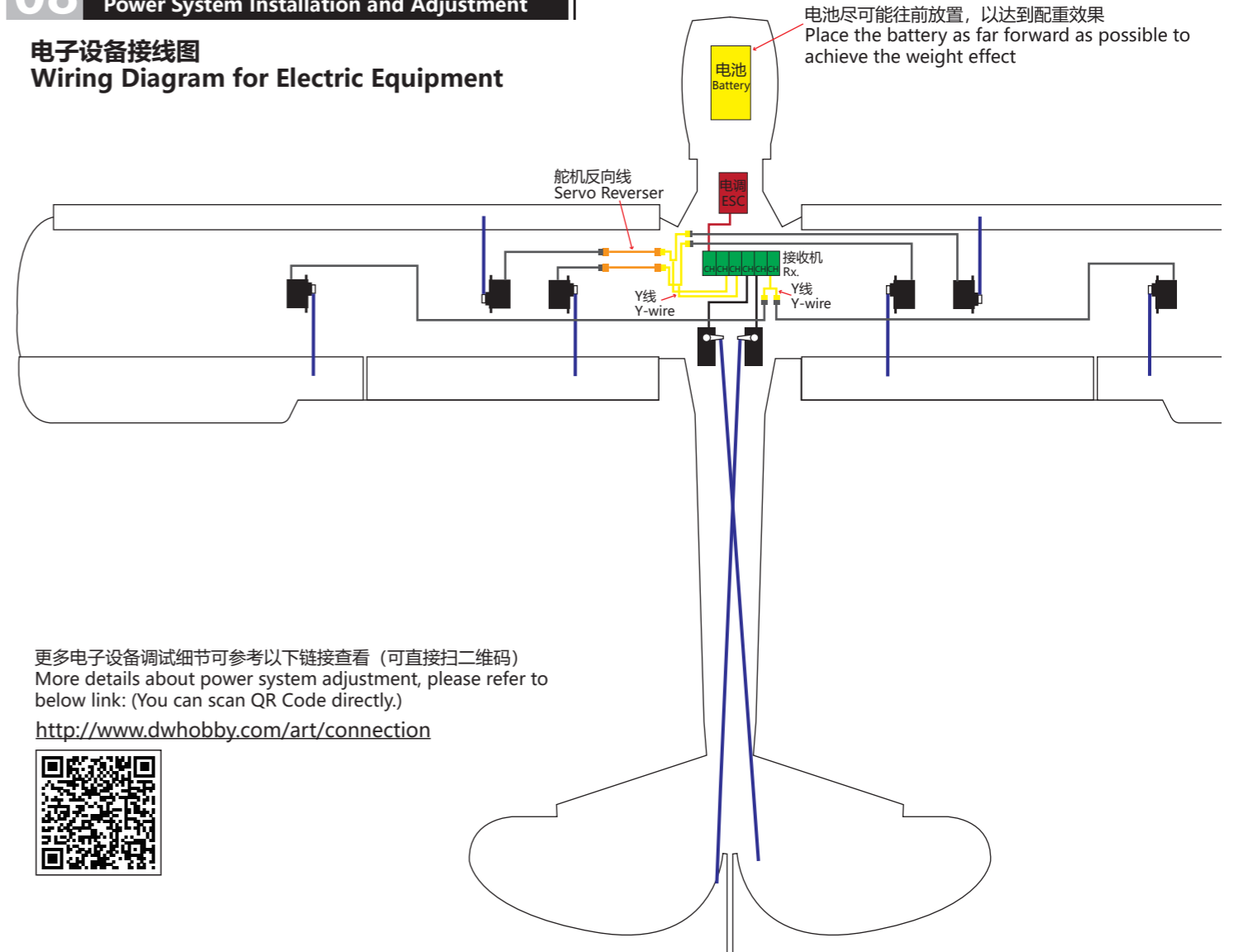
07 检查与调试 Check and Adjustment

	舵角 Horns	舵臂 Arms	更多控制量 More control throw
升降舵 Elevator			
方向舵 Rudder			
副翼 Ailerons			

这个表格展示了出厂默认设置舵角和舵臂, 请用默认设置试飞飞机。飞行之后, 你可以选择调整连杆的位置, 以达到期望的控制效果。
The table shows the factory settings for the control horns and servo arms. Fly the aircraft at the factory settings before making changes. After flying, you may choose to adjust the linkage positions for the desired control response.

08 电子设备安装调试 Power System Installation and Adjustment

电子设备接线图 Wiring Diagram for Electric Equipment



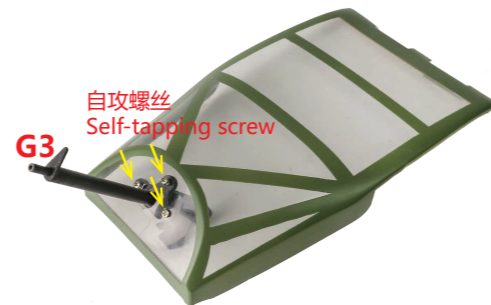
09 设置和调试
Set and Adjust

重心位置展示
Display the C.G



注意：设置重心时，可用电池配重，调整电池位置以达到合适的重心。然后用魔术胶带把电池固定在机身内。

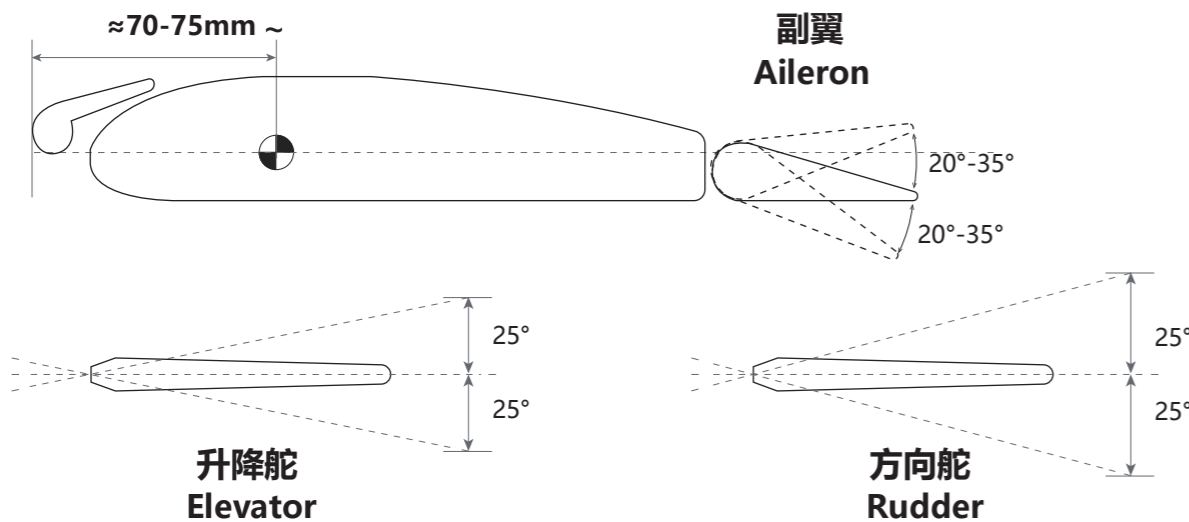
Note: When you adjust CG, you can use battery as balance weight, adjust battery position to find the suitable CG, then fasten the battery on the cabin with magic tape.



M2*10mm 自攻螺丝
M2*10mm Self-tapping screw



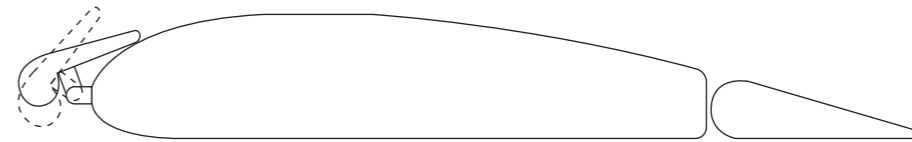
通常情况下，舵面角度的设置如下：
Usually, the control throws set as below:



常规飞行(Normal Flying)	3D飞行 部分飞机支持(3D Flying only support some models)
副翼 Aileron ± (15°-30°)	±40° 或者更大(or larger)
平尾 Elevator ±15°	±40° 或者更大(or larger)
垂尾 Rudder ±15°	±40° 或者更大(or larger)
常用襟翼 Flap (起飞 take-off) 15°-20° (降落 Landing) 20°-40°	

部分特殊机型会有V型尾翼，襟翼，前缘机翼或舵面很小等，可以以常规飞行的角度作为参考，在您不确认且没有有经验人员指导的情况下，我们建议您先以小角度试飞以确认您的设置是否正确。
Some special models will have V-tails, flaps, leading edge wings, etc., which can be used as a reference for conventional flight angles. If you do not confirm and there is no experienced person to guide you, we recommend that you first test at a small angle to confirm that your settings are correct.

前缘缝翼
Leading Edge Slat



当前缘缝翼 Leading Edge Slat 紧贴机翼时 速度保持不变 升力保持不变。
当打开一定角度的前缘缝翼时，速度减慢，升力提升。（注意不要设置开启角度过大，当角度太大时，速度过慢，升力会减小。）
When the leading edge slat is close to the wing, the speed remains the same and the lift remains the same. When the leading edge slat is opened at a certain angle, the speed decreases and the lift increases. (Be careful not to set the opening angle too large. When the angle is too large, the speed will be too slow and the lift will decrease.)

地面控制方向测试
Control Directions Tests

	遥控器动作 Transmitter Command	飞机反应 Aircraft Reaction
升降舵 Elevator	升降杆下拉 Lifting rod down	
	升降杆上推 Lifting rod up	
副翼 Aileron	转向杆向右 Steering rod to the right	
	转向杆向左 Steering rod to the left	
方向舵 Rudder	方向杆向右 Direction rod to the right	
	方向杆向左 Direction rod to the left	