

# 1.8M 1:5 Savage Bobber

## Balsawood Scale Airplane



### Instruction Manual

**SCG33**  
**ARF**

#### 飞行前的建议 PRE-FLIGHT CHECKS

- 安装舵机前，请先将舵机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.



#### 飞行参数 Specification

翼展:1.88M (74")  
机长:1.30M (51")  
起飞重量: ≈3.8kg  
Wingspan:1.88M (74")  
Fuselage Length:1.30M (51")  
Flying Weight:≈3.8kg

#### 推荐配置 Suggested Equipment

马达: EP: MC3520 880KV  
GP: 2C 17cc or 50-55 Class  
桨叶: 14\*7inch  
电调: 80A (4S)  
电池: 4S 5000mAh+  
舵机: 37g EP: 6pcs GP: 7pcs  
通道: 6CH  
Motor: EP: MC3520 880KV  
GP: 2C 17cc or 50-55 Class  
Prop: 14\*7inch  
ESC: 80A (4S)  
Battery: 4S 5000mAh+  
Servo: 37g EP: 6pcs GP: 7pcs  
Radio: 6CH

#### 工具 Tools Needed



KIT

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.



- SCG33-A:机身 Fuselage    SCG33-B:机翼 Wing    SCG33-C:机头罩 Cowling
- SCG33-D:水平尾翼 Horizontal tail    SCG33-E:起落架 Landing Gear+机轮 Wheels
- SCG33-F:垂直尾翼 Vertical tail    SCG33-G:机翼支架 Wing strut
- SCG33-H:螺丝及配件 Screws and accessories    I:尾轮组件 Tail wheel    J:碳管 Carbon tube
- 舵角 Rudder horn    K:PVC 风挡 PVC window shield
- 木块, 木杆 Wood block; Wood rod
- 连杆 Connecting rod

★ 装配提示符号 Assembly symbol guide

- 确保自由转动 Ensure free rotation
- 使用适量快干胶粘固 Use medium CA
- 使用少量快干胶粘固 Use thin CA
- 用铅笔做记号 Use a pencil
- 用力推入 Push tightly
- 用模型刀切割 Use hobby knife with
- 拧紧安装 Fully Tighten
- 加润滑油 Apply Oil
- 重复拼装 Repeat multiple times
- 涂抹螺丝胶 Apply threadlock
- 左右对称安装 Assemble right and left
- 使用环氧树脂粘固 Use epoxy adhesive

01 起落架安装 Assemble the Landing Gear

01-1



01-2



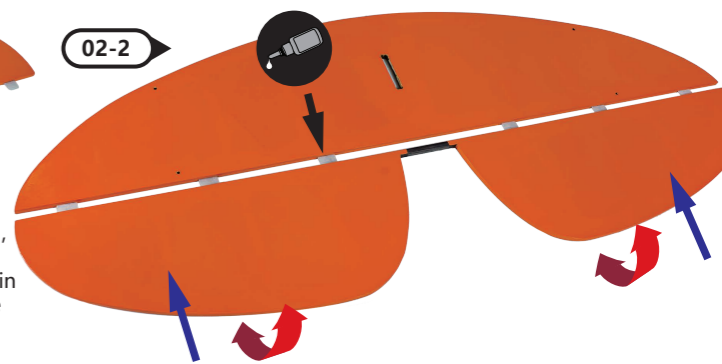
02 尾翼及尾轮安装 Assemble the Tail Wing and Tail Wheel

02-1

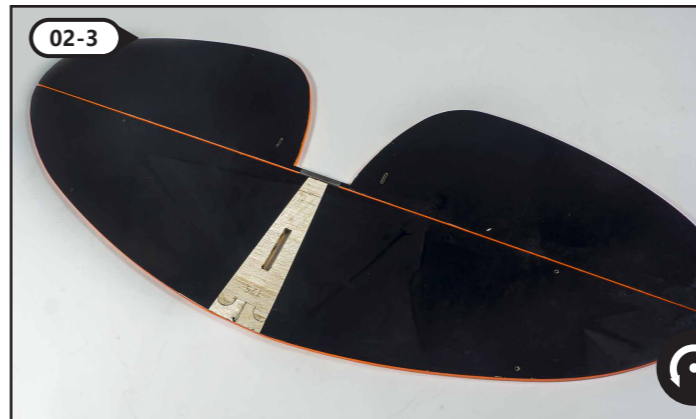


在升降舵预切的开口处插入纸合页，并把舵面插入尾翼，用快干胶粘固连接处。并保持舵面可以自由转动。 Insert the paper hinges into the pre-cut openings in the elevator, and insert the rudder surface into the tail, finally glue the joints with quick-drying glue. Make sure to keep the rudder surface free to turn.

02-2

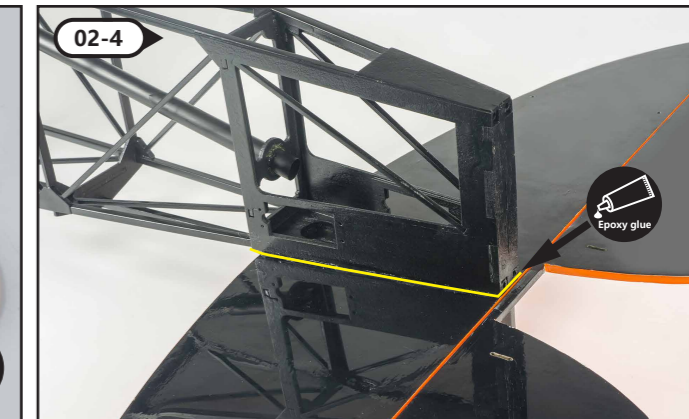


02-3

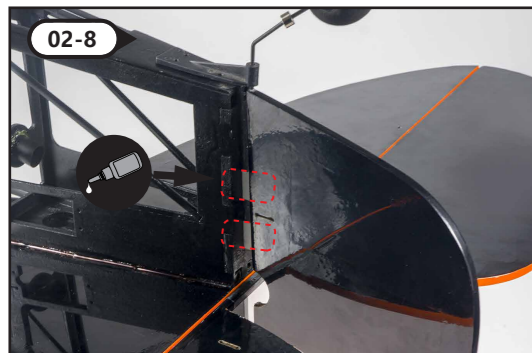
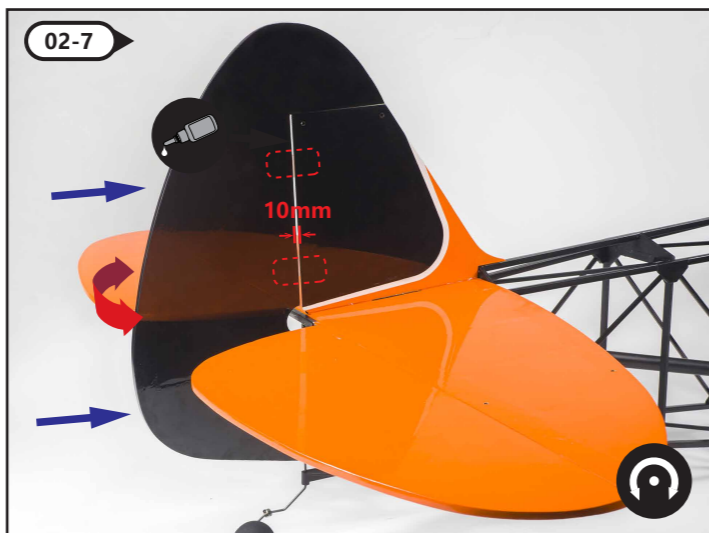
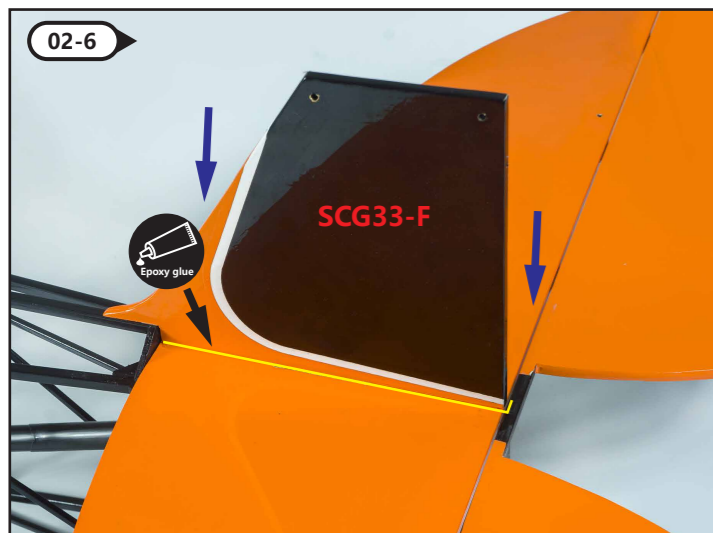


按上图所示切除多余部分的蒙皮  
Cut off the spare part of the covering film as shown above

02-4



安装垂直尾翼到机身尾部，用大量环氧树脂粘固。  
Install the vertical tail to the rear of the fuselage and glue firmly with a lot of epoxy glue.

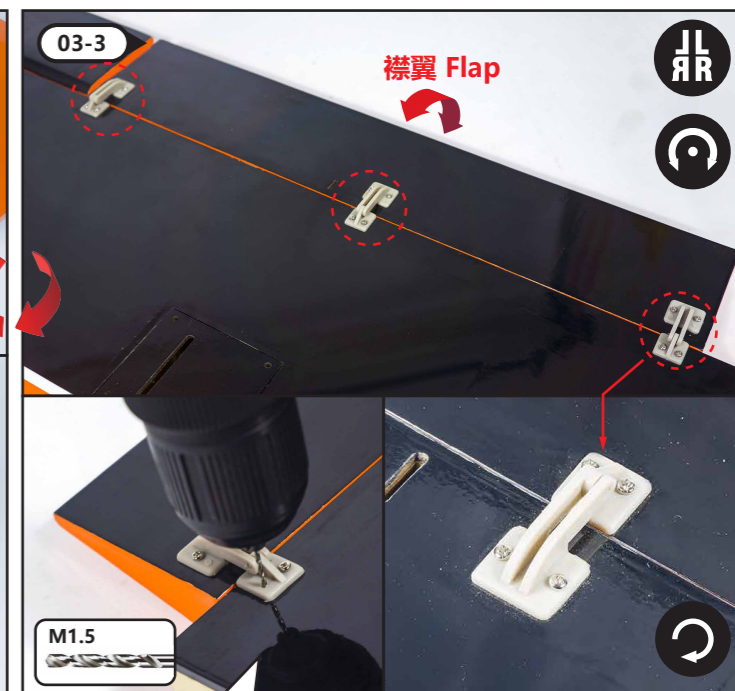


锁紧上图2处轮挡  
Tighten the two wheel stoppers in above picture.

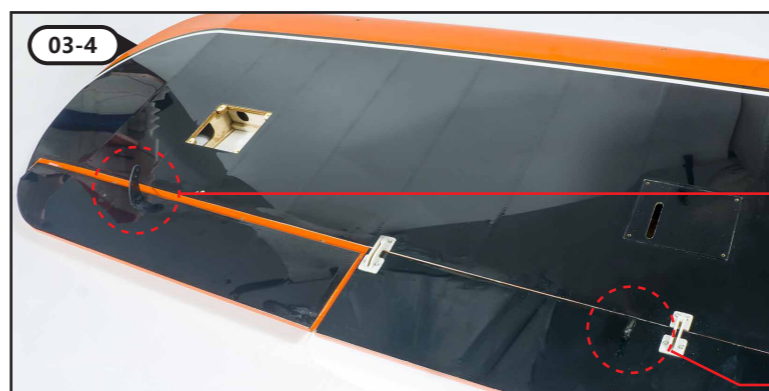
## 03 机翼安装 Install the Wing



在针式铰链结合处打润滑油（防止胶水焊死）。  
使用环氧树脂胶安装和固定针式铰链前，请先确认舵面可以自由摆动。  
Add some lubricating oil in the joint of needle type hinge.(Avoid the glue stuck dead.)  
Before install and fasten the needle type hinge with epoxide-resin glue, please confirm the surface can swing freely in advance.



安装襟翼时在各预留螺丝孔位置钻孔，然后点入少量CA胶，待固化后拧入自攻螺丝安装铰链，并使襟翼可以自由摆动。  
When installing the flap, drill holes in the reserved screw holes, and then tap a small amount of CA glue. After curing, screw in the self-tapping screws to install the hinges, so that the flaps can swing freely.

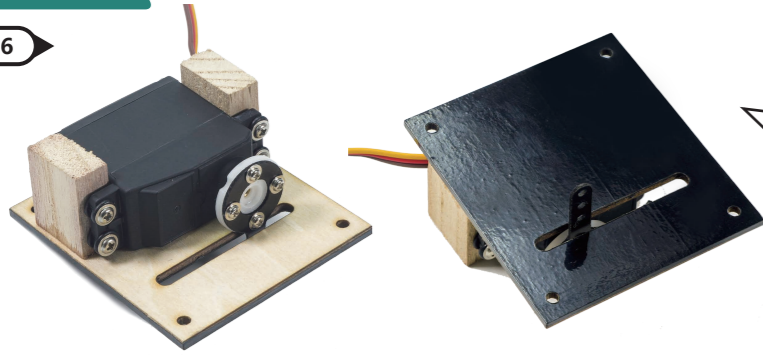


在副翼，襟翼舵角孔位置安装舵角。如下图所示。  
Install the rudder horn at the rudder horn holes of the aileron and flap as shown in the figure below.



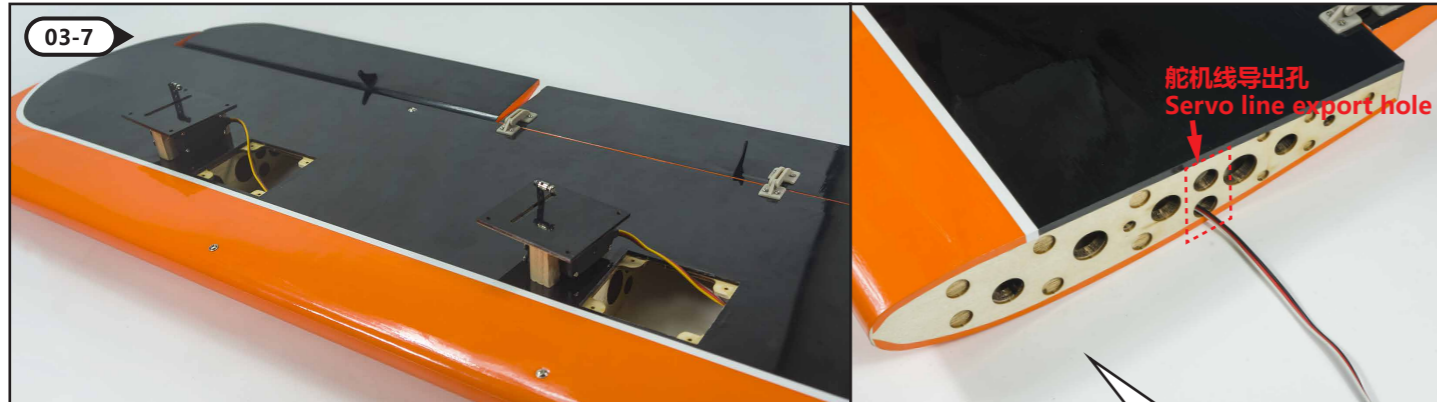
如图制作舵臂，并把舵臂安装到舵机上。安装舵臂时，将舵机通电回中，两个舵机相同操作。  
Make the rudder arm as shown, and install the rudder arm to the steering servo. When installing the rudder arm, power on the servos back to the center.

03-6



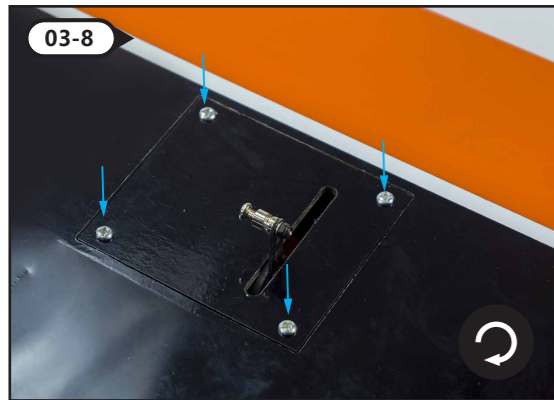
从机翼上取下舵机仓盖板, 粘贴辅助木块, 把舵机安装到木块之间。  
Remove the servo compartment cover from the wing, and install the servos between the small wooden blocks.

03-7



舵机线导出孔  
Servo line export hole

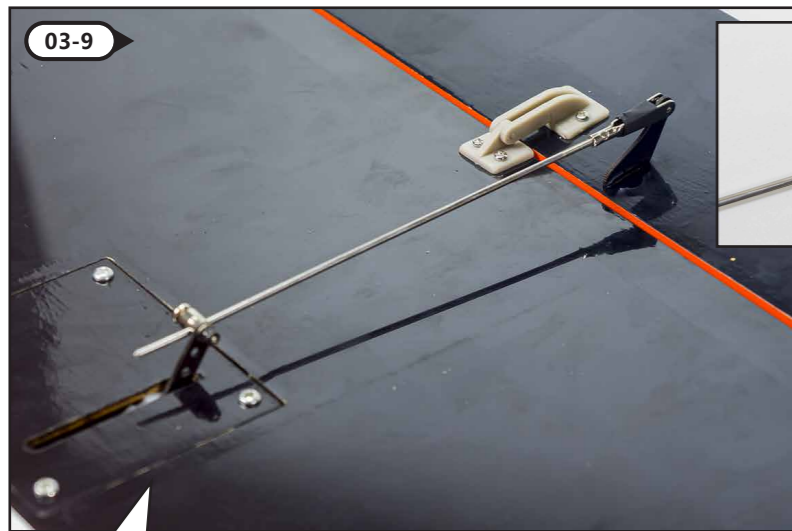
03-8



自攻螺丝  
Self-tapping screw  
M3x10mm

把舵机线导入机翼内, 从机翼侧面导出, 两个舵机相同操作  
Guide the steering servo line into the wing and lead it out from the side of the wing. The two steering servos operate the same.

03-9



舵臂上安装快装接头, 然后安装连杆连接舵臂与副翼上舵角, 调整到合适位置后, 拧紧快装接头螺丝固定住连杆。  
Install the EZ-connector on the rudder arm, and then install the connecting rod to connect the rudder arm and the upper rudder horn of the aileron. After adjusting to the proper position, tighten the screw of EZ-connector to fix the connecting rod.

03-10



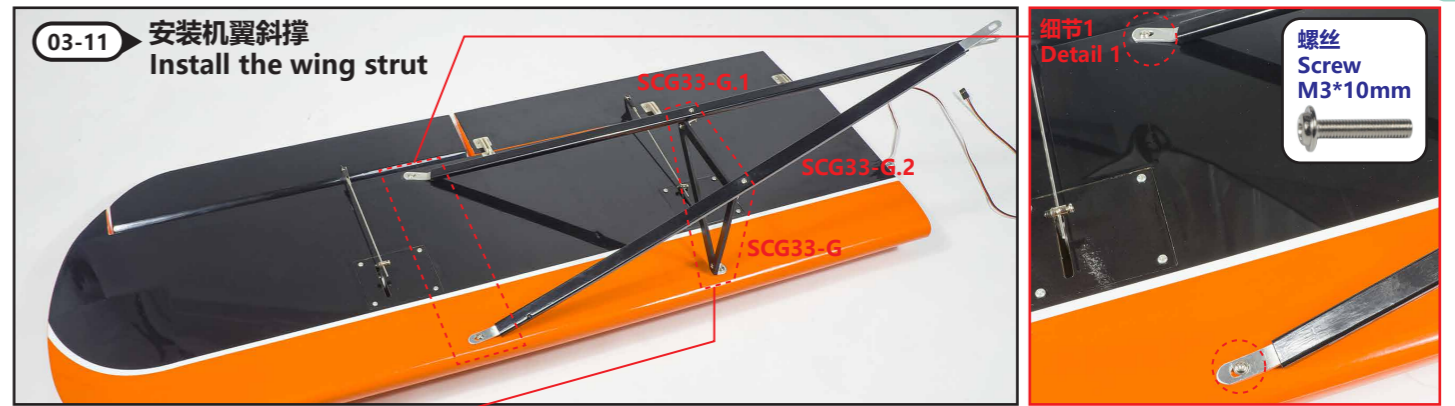
副翼, 襟翼连杆安装方法相同。  
Connecting rod installation for aileron and flap in the same way.

### 连杆夹头安装方法: Connecting rod collet installation method

1. 打开连杆夹头, 扣住舵角。  
Open the connecting rod collet and buckle the rudder horn.
2. 然后按紧夹头, 再用热缩管固定住夹头并加热缩减。  
Then press the collet tightly, fix the collet with heat shrinking tube.

03-11

### 安装机翼斜撑 Install the wing strut



螺丝  
Screw  
M3\*10mm



螺丝M3\*15mm+自锁螺母  
Screw+Self-locking nut

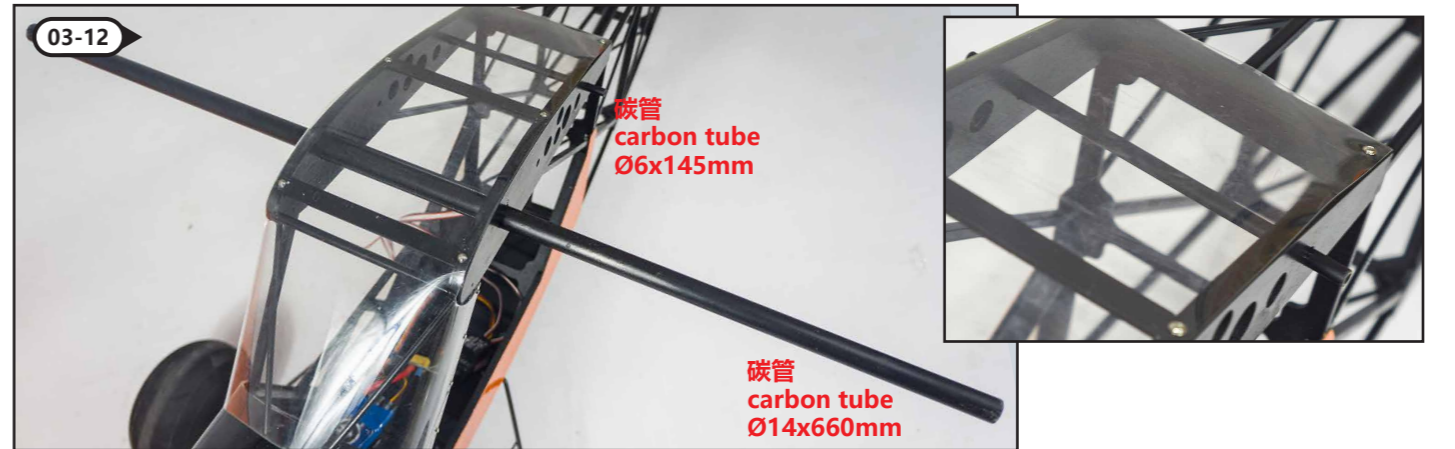
螺丝M3\*15mm+自锁螺母  
Screw+Self-locking nut



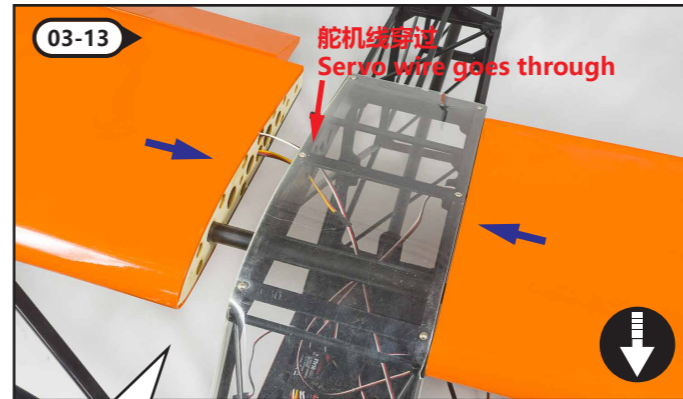
螺丝  
Screw  
M3\*10mm

注意: 左右机翼相同安装, 按以上步骤完成另一边机翼安装  
Note: the left and right wings are installed in the same way. Follow the above steps to complete the installation of the other wing.

03-12



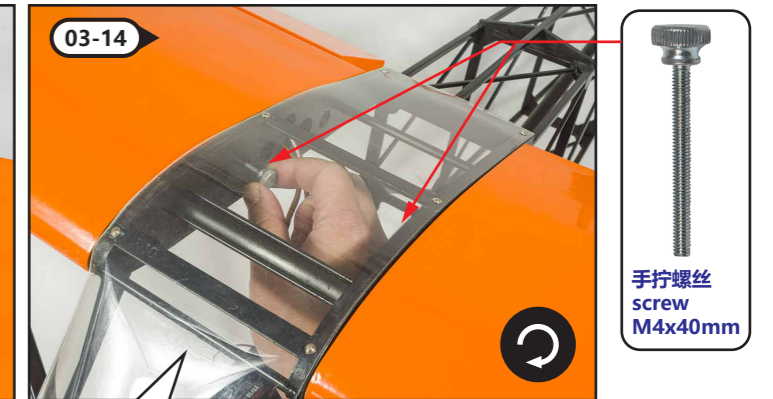
03-13



舵机线穿过  
Servo wire goes through

安装机翼插入碳管内, 注意对接2个碳管。舵机线穿过预留孔。  
Install the wing and insert it into the carbon tube, pay attention to butt the two carbon tubes, the servo wires pass through the reserved hole.

03-14



手拧螺丝  
screw  
M4x40mm

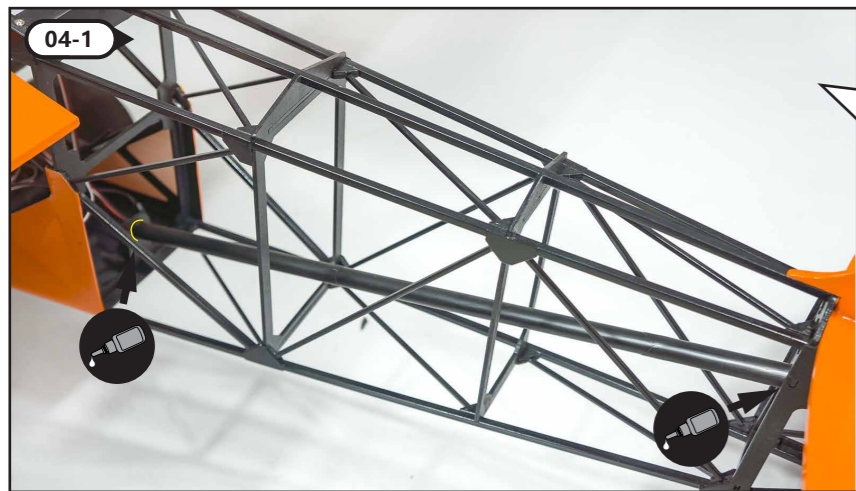
拧紧上图两个螺丝固定住两边机翼。  
Tighten the two screws in the picture above to fix the wings on both sides.



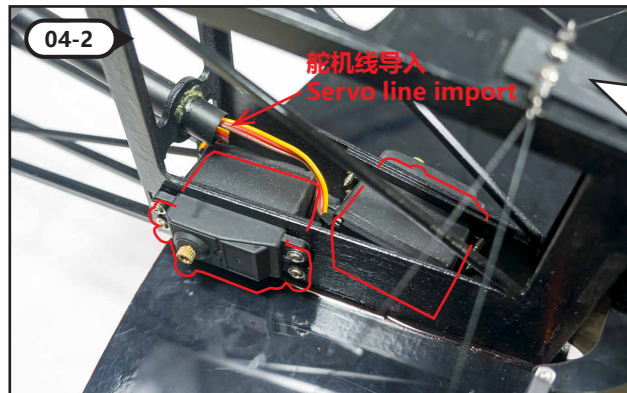
螺丝M3\*20mm+自锁螺母  
Screw+Self-locking nut



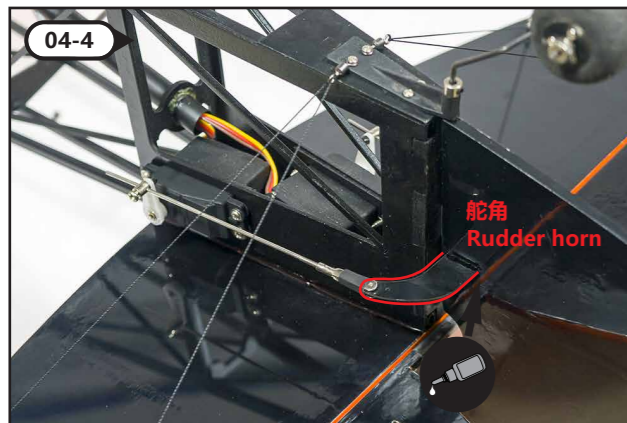
## 04 方向舵、升降舵舵机及连杆安装 Install rudder and elevator steering gear and connecting rod



如左图在机身内放置线管，此线管为三段短管拼接而成。穿入预留的孔位用CA胶粘固连接处。  
Place a conduit inside the fuselage as shown in the figure on the left, the conduit is spliced by three short tubes. Pass through the reserved hole and fix the joints with CA glue.



在机身尾部预留位置安装2个舵机，如左图所示，舵机线导入线管，从另一端导出。  
Install 2 servos in the reserved position at the rear of the fuselage as shown in the left figure, the steering servo wire is introduced into the wire tube and exported from the other end.



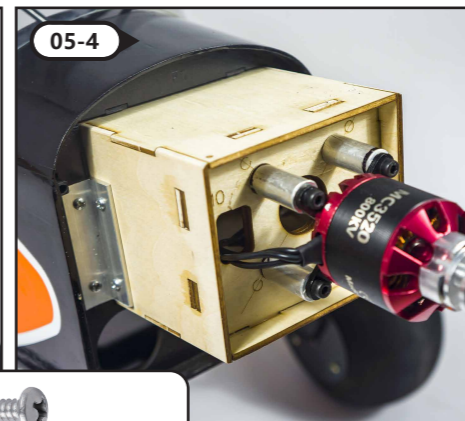
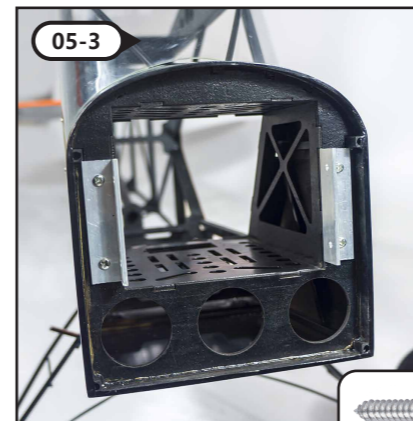
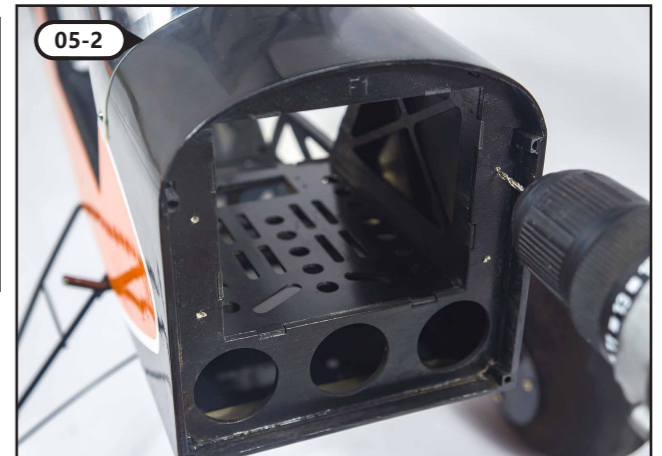
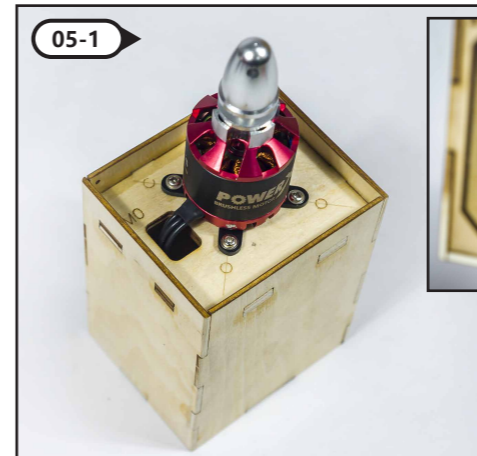
夹头安装方法见步骤03-9  
Collet installation method Refer to the step 03-9

此处连杆根据选用不同的舵机可能需要弯曲。  
Here the connecting rod may need to be bent according to the choice of different servos.

1.在舵机上安装舵臂，舵臂上安装快装接头。  
Install the servo arm on the servo, and install the EZ-connector on the servo arm

2.连杆夹头一端夹住舵角，另一端穿入舵臂上的快装接头，调整到合适位置后，锁紧快装接头上的螺丝  
One end of the connecting rod collet clamps the rudder horn, and the other end is inserted into the EZ-connector on the rudder arm. After adjusting to the proper position, lock the screws on the EZ-connector.

## 05 安装马达及头罩 Install the Motor and Cowling



自攻螺丝  
Self-tapping screw  
M3x10mm

马达座装入机头部，结合头罩的安装位置调整马达座伸出的长度，调整到马达，桨叶与头罩互不干涉，最后用自攻螺丝固定马达座。  
Install the motor mount into the head of the aircraft, adjust the length of the motor mount according to the installation position of the cowling, so that the motor, propeller and cowling do not interfere with each other, and finally fix the motor mount with self-tapping screws.

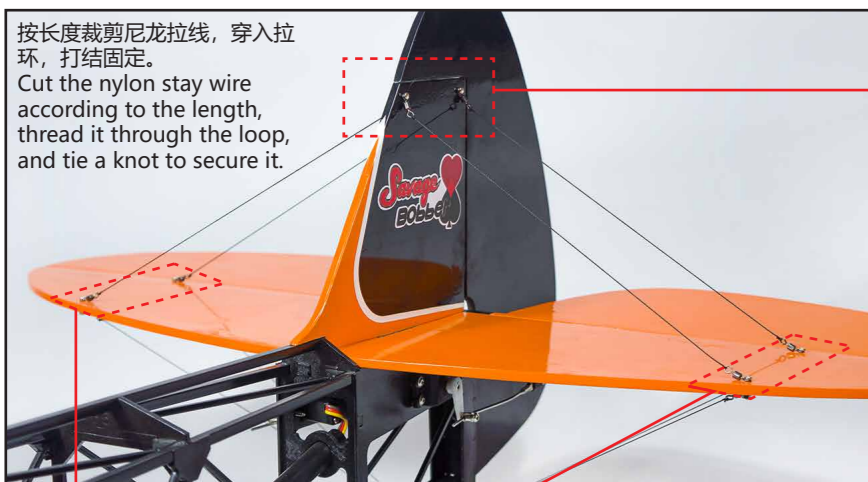


自攻螺丝  
Self-tapping screw  
M3x10mm

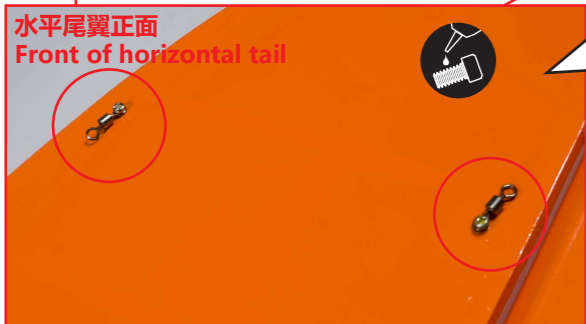
自攻螺丝  
Self-tapping screw  
M3x8mm

## 06 机翼拉线及像真件安装示范 Display the stay wire and scale parts

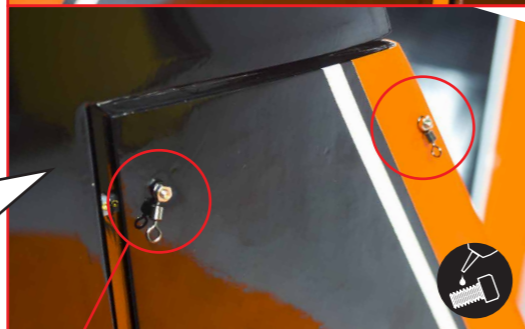
按长度裁剪尼龙拉线，穿入拉环，打结固定。  
Cut the nylon stay wire according to the length, thread it through the loop, and tie a knot to secure it.



水平尾翼正面  
Front of horizontal tail

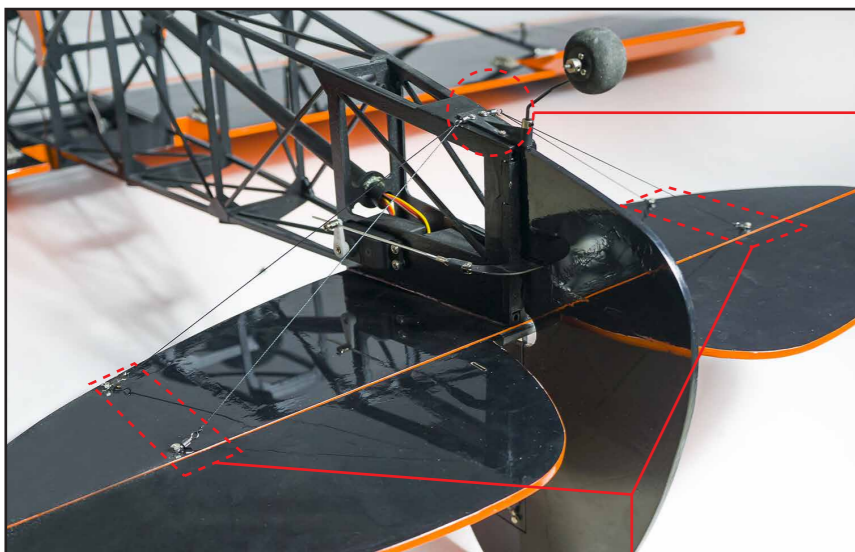


在图示预留孔位置，安装拉线扣。  
Install the cable tie at the reserved hole position as shown in the figure.



螺丝M2\*10mm+螺母  
Screw+nut

X2



水平尾翼背面  
Back of the horizontal tail

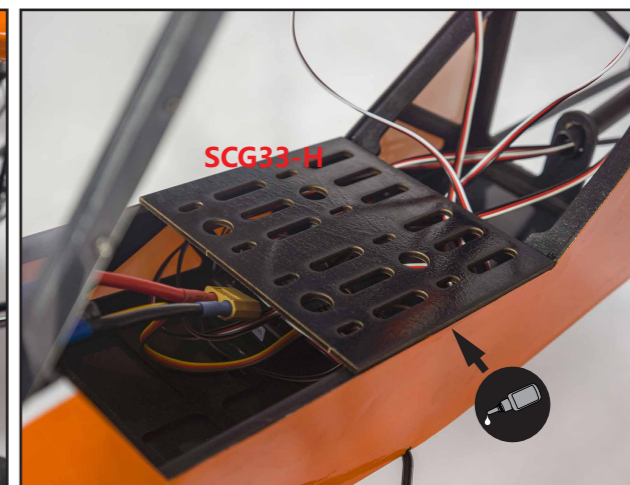
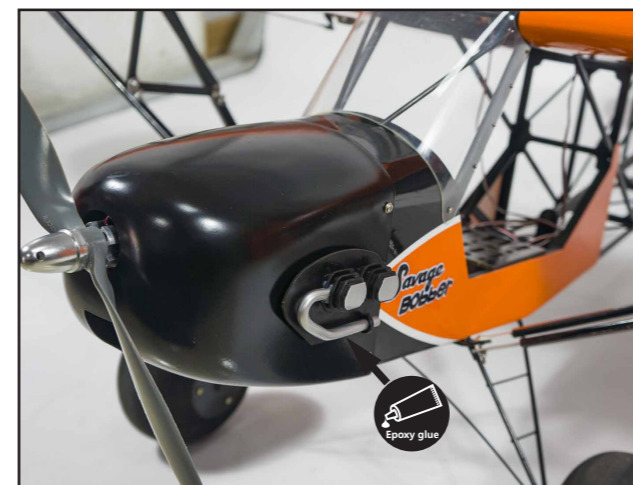


按长度裁剪尼龙拉线，穿入拉环，打结固定。  
Cut the nylon stay wire according to the length, thread it through the loop, and tie a knot to secure it.

螺丝M2\*10mm+螺母  
Screw+nut

X2

在图示预留孔位置，安装拉线扣。  
Install the cable tie at the reserved hole position as shown in the figure.

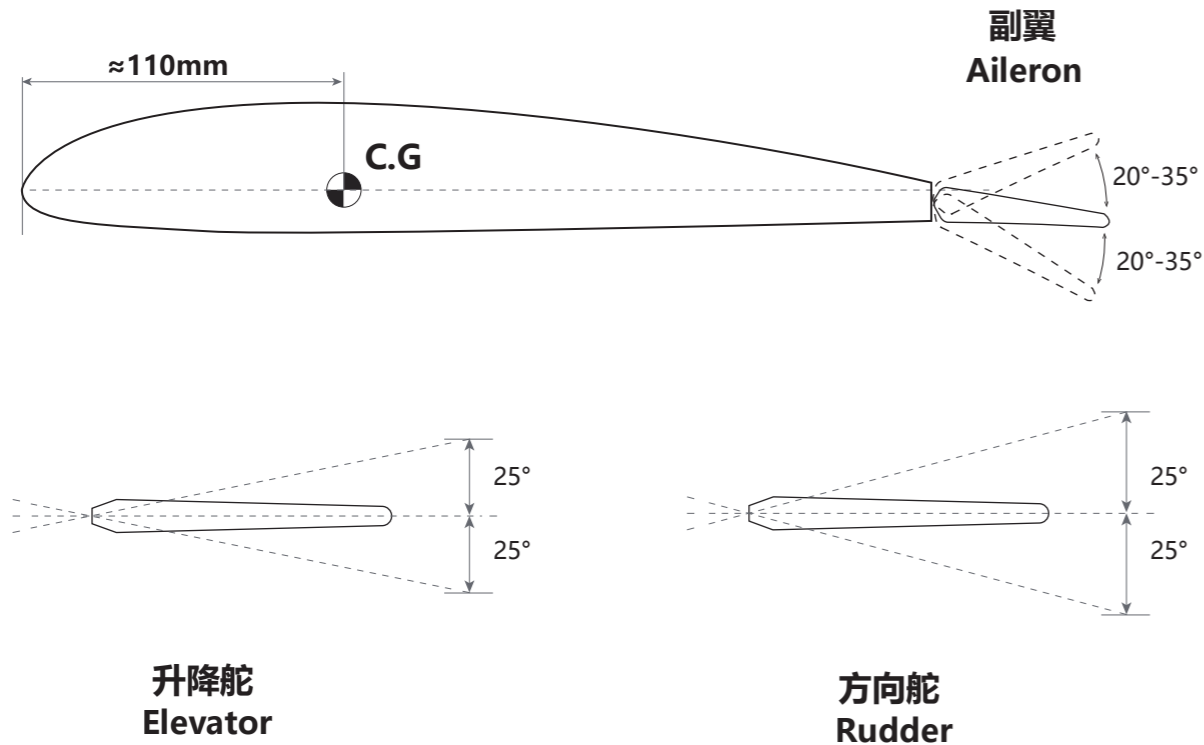


## 08 设置和调试 Set and Adjust

重心位置展示  
Display the C.G



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.

## 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	



更多电子设备调试细节可参考以下链接查看 (可直接扫二维码)  
More details about power system adjustment, please refer to below link: (You can scan QR Code directly.)  
<http://www.dwhobby.com/art/connection>

