Compass

Atom 500

Assembly Manual

Version 1.0
Created : 03/21/2008

Fly at your own risk !

Compass Features :

- -Precision 120° ECCPM swash plate
- -Wear resistant parts
- -Low parts count
- -Simple maintenance with easy access
- -80% Preassembled kit

With features like, G10 side frames, Anti rotation guide, Aluminum head, aluminum tail and metal swash plate the Atom 500 not only looks great but is long lasting.

Introduction / 简介

Thank you for choosing the Atom500 and welcome to Compass Model. The Atom500 has been designed to offer outstanding performance. Simplicity is the beauty. That is the message Compass try to pass to the customer with Atom500. Same as other compass products, Atom is powerful, stable, agile as well as accurate. The unique Compass Hyper Torque motor produces extreme high power and high torque which provide the model a good power base. The frame layout has been designed to create an extraordinarily rigid platform which is both durable and further improved control accuracy. The simple layout features light weight, low parts count and raise the centre of gravity. Please read the complete manual before assembly. Please take careful note of all precautions and assembly tips. Please also keep the manual as a reference for part numbers and reassembly following maintenance.

多谢选用Compass的产品。像其他compass产品一样Atom500无论在马力，控制精确性，稳定性，灵活性方面都是同类产品中的佼佼者。Compass独创的高扭矩马达为Atom提供了无以伦比的动力，简洁的机械机构设计进一步提高了控制稳定性以及马力体重比。
请在装配之前仔细阅读本说明书，并保存以备后用。

AMA Information

We strongly encourage all prospective and current R/C aircraft pilots to join the Academy of Model Aeronautics. The AMA is a non-profit organization that provides services to model aircraft pilots. As an AMA member, you will receive a monthly magazine entitled Model Aviation, as well as liability insurance plan to cover against possible accident or injury. All AMA charter aircraft clubs require individuals to hold a current AMA sporting license prior to operation of their models.
For further information, you can contact the AMA at:

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN47302

Warning / 重要声明

This radio controlled helicopter model is not a toy. It is a sophisticated piece of equipment for hobby use only.
Improper operation or assembly of this product can cause serious injury or death for both operator and spectators. This product is not recommended for use by children.
Manufacturer and Sellers assume no responsibility for using and operating this product. The customer must take full responsibility for the safe operation of this product.

遥控直升机并非玩具,而是精密复杂的休闲产品.组装,使用或操作不当都会造成严重财产损失,自己或他人身体伤害,甚至死亡.请详细阅读本说明书,切勿忽视安全.
制造商,销售商无法对使用者由于组装,维护,操作及使用不当造成的损失或伤害负任何责任. 产品一经售出,本公司将不负任何操作和使用上的安全责任.

Warranty / 保修原则

Compass Model Limited Warranty

The warranty covers defects in material or workmanship or missing components to the original purchaser for 30 days from the date of purchase. Compass Model will replace or repair, at our discretion, the defective or missing component. Defective components must be returned to us prior to replacement. Any part, which has been improperly installed, abused, crash damaged or altered by unauthorized agencies, is not covered. Under no circumstances will the buyer be entitled to consequential or incidental damages. The components used in this kit are made from special materials designed for special applications and designed strengths. We recommend that all replacement parts be original parts manufactured by Compass Model, to ensure proper and safe operation of your model. Any part used which was manufactured by any other company than Compass Model, VOIDS all warrantees of this product by Compass Model.

Compass 的保修范围包括所有在购买本公司产品时已有的缺失或损坏的零件及整机。保修期为30日，Compass有权选择修理或调换损坏或缺失的零件。该零件必须先送回Compass工厂。所有由于安装错误，过度使用，飞行事故或其他人为因素造成的损坏，Compass将不予保修。 本产品中的零件是在特定环境具有特定使用功能，切勿过度使用。切勿在本产品上使用任何其他公司生产的零件，否则Compass将不予保修。

Warranty Procedures / 保修程序

If service is required, send the component in question (if not missing) together with a photocopy of your bill of sale and an accurate description of the problem and part. Ship components fully insured and prepaid. Compass Model is not responsible for any shipping damages. We will, at our discretion notify you of any costs involved you are required to pay all postage, shipping and insurance charges.

保修时请将有问题的零件连同发票收据的影印件，以及关于问题零件的详细描述发回Compass，请预付运费以保证到达。compass会分析个案并作出妥善处理。

R/C Helicopter Safety / 遥控模型安全提示

A model helicopter must be built exactly in accordance with the assembly instructions. The kit manufacturer has spent much time and effort refining his product to make it reliable in operation and easy to build. Vibration and stress levels are high and all fasteners and attachments must be secure for safe operation. Safe operation is the responsibility of the builder/flyer and starts with careful construction and continues with selection and installation of reliable radio equipment and engine. The need for safety is nowhere greater than at the flying field. A number of guidelines for safe flight have been developed by experienced flyers and are set down here. It is urged that they be read, understood and followed.

请务必按照说明书要求装配遥控模型。 模型直升机运行时产生巨大震动及破坏力。所有零件必须牢固固定。务必使用可靠的电子设备。在飞行场地的安全运作至关重要。以下是一些专业人士给出的安全守则。请务必详细阅读并跟足提示。

Guidelines for Safe R/C Helicopter Flight

- Fly only at approved flying fields and obey field regulations.
- Follow frequency control procedures. Interference can be dangerous to all.
- Obtain assistance from experienced pilots.
- The Guidance provided by experienced pilots is valuable and sometimes necessary.
- Know your radio. Check all transmitter functions before each flight.
- Be aware that rotating blades are very dangerous and can cause serious injury.
- Never fly near or above spectators or other modelers.
- Do not fly r/c helicopter models near buildings, high voltage cables, trees or other obstacles.
- If a beginner, get help trimming the model first and flight training later.
- Don’t “track” the main blades by holding the tail boom. This is a temptation to builders who cannot hover yet and is very dangerous.
- Follow all recommended maintenance procedures for model, radio and motor.

安全提示：

*务必在已批准的场地飞行，并遵守场地规则。
*务必检查频率，以免干扰，频率干扰对所有人都会造成危险。
*如果你是新手，务必需要有经验的老手的协助。
*老手提供的帮助十分必要。
*熟悉遥控器，在飞行之前熟悉所有功能。
*注意所有旋转部件特别是大桨及尾桨在运行时十分危险，可造成严重伤害。
*决不可在人头顶飞行
*不要在建筑物，高压线，树木，或其他障碍物附近飞行
*如果你是新手，飞行前调机务必要老手协助。
*飞行时与模型保持距离。
*妥善保养模型，动力设备及遥控设备。

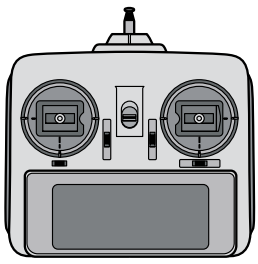
Necessary items / 必备物品

以下必备物品用户需自行购买,本产品没有提供

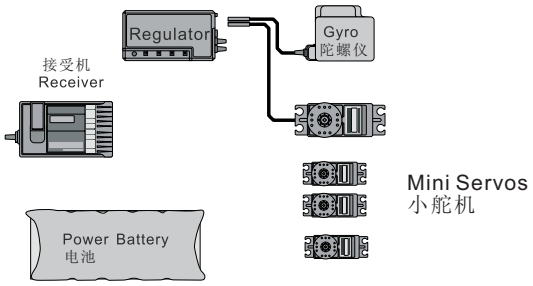
Inorder to operate this model, you need to purchase the following items which are not included in the package.

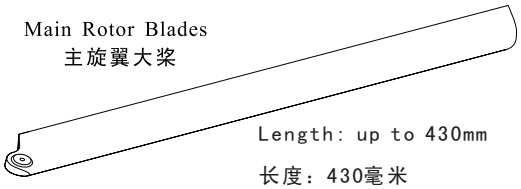
6 channel or up radio and receiver. 3 mini servos. 1 gyro with rudder servo. 6S li-po battery 2100mah~3300mah. or 2 pack 3s li-po battery with same capacity.

6通道或以上发射机及接收机。3个小舵机，1个陀螺仪带尾舵机。6节锂电池2100毫安时~3300毫安时.或同等大小2套3节锂电。



Transmitter
发射机



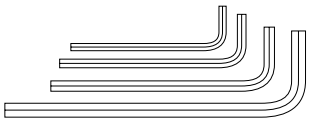


Loctite
Loctite 胶水

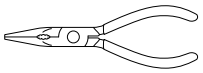
Grease
润滑油

bearing retainer
轴承胶

六角扳手（1.5mm，2mm，2.5mm，3mm）
Hexagon wrench（1.5mm，2mm，2.5mm，3mm）

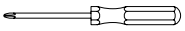


Cutter Knife
裁纸刀



Needle Nose Pliers
尖嘴钳

Screw Driver
螺丝刀



In the box / 标准装备

This model is packed according to assembling steps. Do not open all the bags at one time. Open only one bag for each step of assemply when building.

本产品是按照装配步骤依次包装。不要一次打开所有包装袋。每一步 骤请只打开相关的包装袋。

Step 1

Step 2

Step 3

Long items

Tail Set

Step 4

Step 5

Rotor Head

Step 7

Step 11

Frame set

60A ESC

Symbols & assembling / 标志含义 & 组装

Caution

Mishandling due to failure to follow these instructions may result in damage, personal injury or danger.
疏忽此项说明可能导致严重损失,严重身体伤害,造成危险.

Blue Threadlock should be applied.
此处应采用蓝色螺丝固定剂

Greace 润滑油

Use AB Glue 环氧胶

Bearing Retainer 轴承胶

* Always apply blue Threadlock when fixing Bolts on Metal parts. 所有金属元件上的螺丝需用蓝色厌氧胶加固
* Always apply green retainer where bearings has to be fit into metal parts. 所有轴承位需用绿色厌氧胶加固
* Do not over-tighten self tapping screws into plastic parts or you will strip the threads! 切勿过分收紧塑料元件上的自攻螺丝以免破坏塑料元件.

① SERVO /舵机的装配

M2.5x16 Self-Tapping Bolt X 4 自攻螺丝

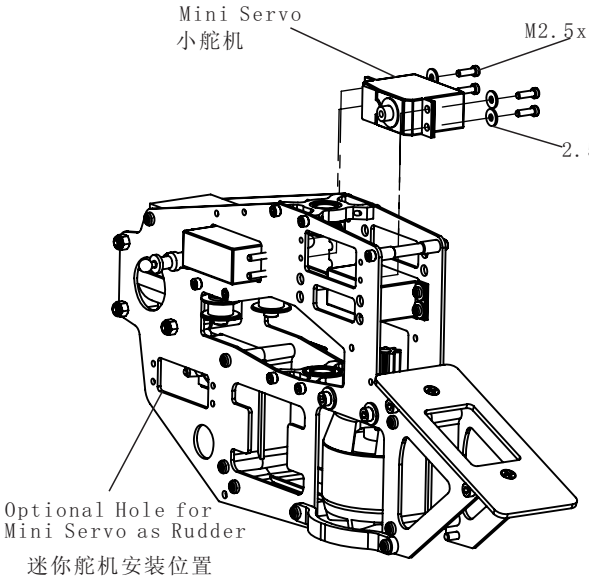
M2.5x10 Self-Tapping Bolt X 4 自攻螺丝

M2.5x8 Self-Tapping Bolt X 8 自攻螺丝

2.5mm Washer X 16 垫圈

Plastic Spacer 塑料垫圈

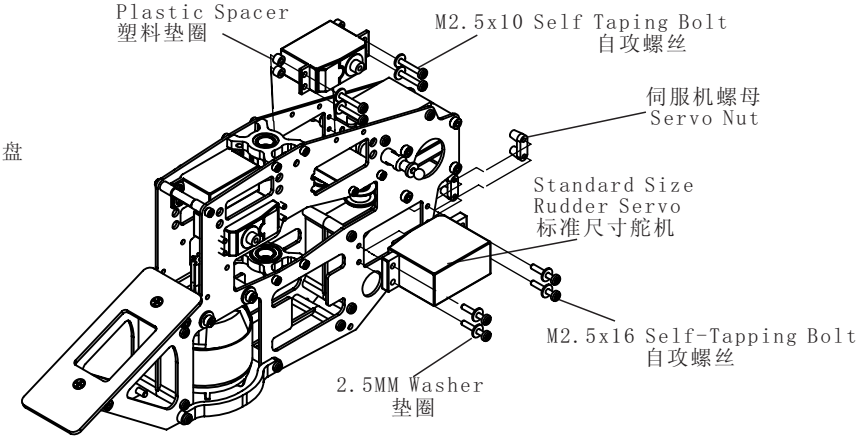
Servo Nut 伺服器螺母



Note: All Servos are installed between the 2 frames. The Self-Tapping Bolts for 3 main servos are installed between the 2 frames, while the Self-Tapping Bolt for Rudder Servo are installed from out side of the frames.
No Servo nut is needed for the 3 Main servos.
所有的舵机都装在两片侧板之间.
3个主要舵机的自攻螺丝应从侧板内侧安装.尾舵机的自攻螺丝应从侧板外侧安装.

The Plastic Spacer here is to space the elevator servo so that the servo arm is in the same line with the swash plate ball.
这里的塑料垫圈是用来垫高舵机使舵机球头和水平盘球头在一条直线上.

The Servo Rubber is not needed here. 舵机减震橡胶不需要安装.

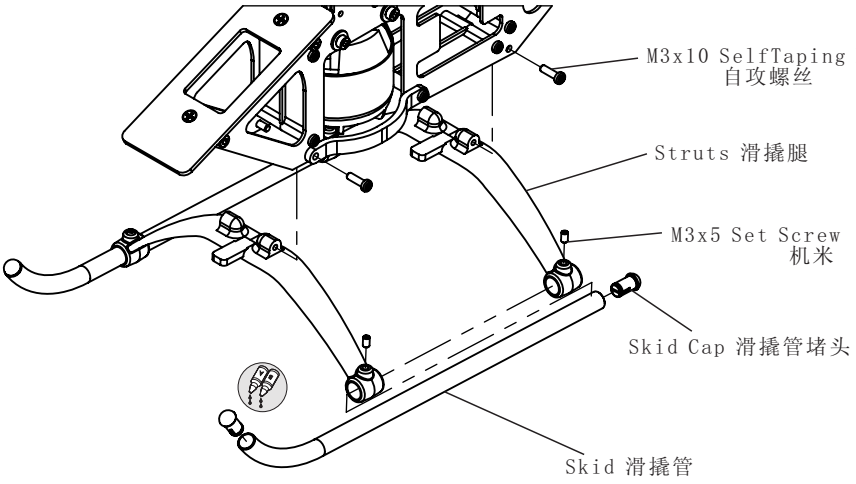


② Landing Gear / 脚架的安装

M3 x10 Self-Tapping Bolt X 4 自攻螺丝

M3x5 Set Screw X 4 机米

Use AB Glue



③ Tail/尾部的装配

M3 Washer x2 垫圈

M3 Nylon Lock Nut x6 尼龙螺母

M2.5x6 Cap Head Bolt x2 杯头螺丝

M3x40 Cap Head Bolt x4 杯头螺丝

M2.5 x8 Self-Tapping Bolt X 2 自攻螺丝

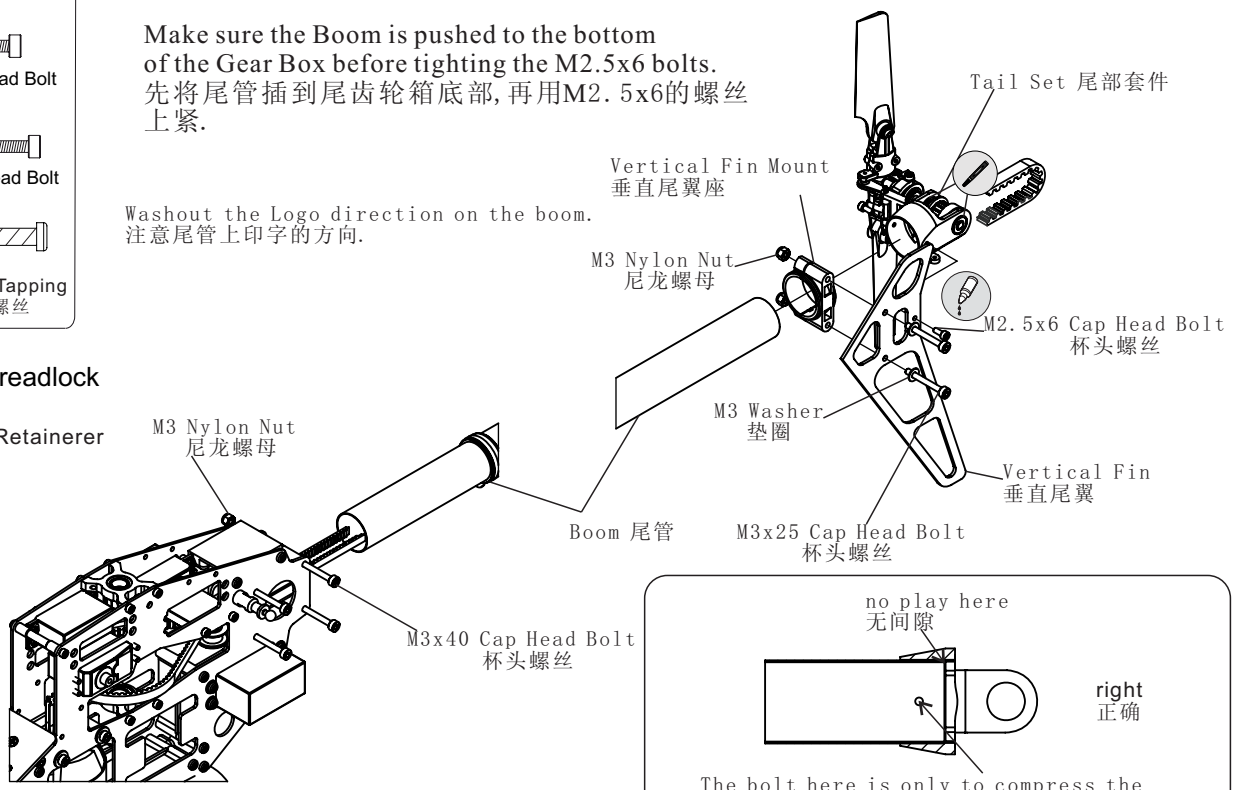
Use Threadlock

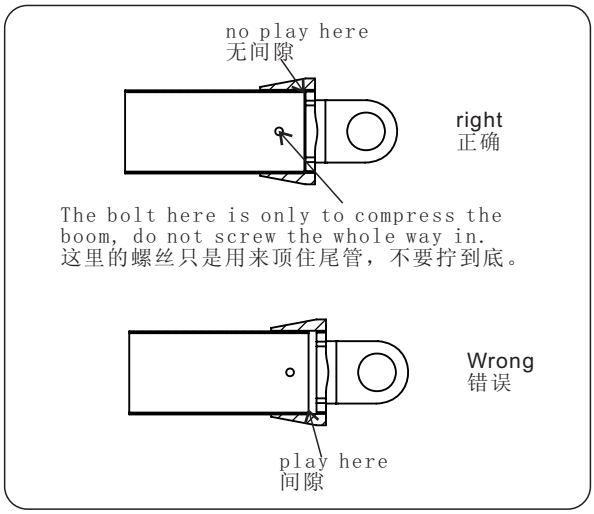
Bearing Retainerer

Caution Crimping belt damages the tensile cords and will result in premature failure.
勿折皮带,以免引起损坏.

Make sure the Boom is pushed to the bottom of the Gear Box before tighting the M2.5x6 bolts.
先将尾管插到尾齿轮箱底部,再用M2.5x6的螺丝上紧.

Washout the Logo direction on the boom.
注意尾管上印字的方向.





④ Main Gear / 齿轮的装配

M2.5 Nylon Lock Nut
x1 尼龙螺母

M2.5x10 Cap Head Bolt
x1 杯头螺丝

M2.5x18 Cap Head Bolt
x1 杯头螺丝

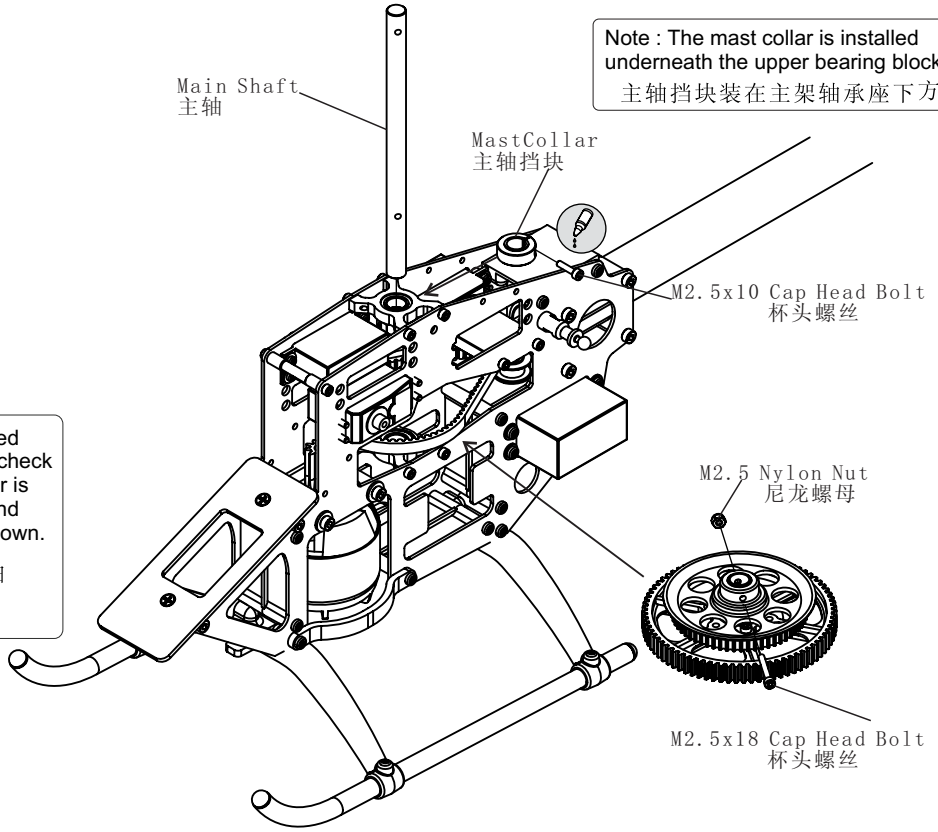
Use Threadlock

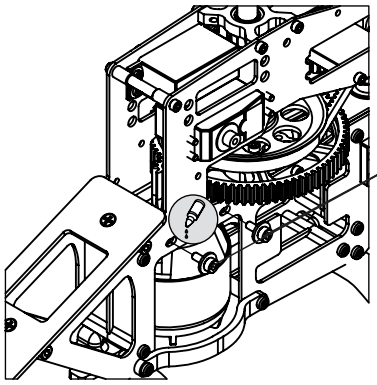
Caution

Make sure mast collar is tightened securely onto the mast. Double-check to make sure the mast lock collar is properly seated onto the mast and main shaft can not move up or down.

主轴挡块务必锁紧以免主轴飞行时上下移动.

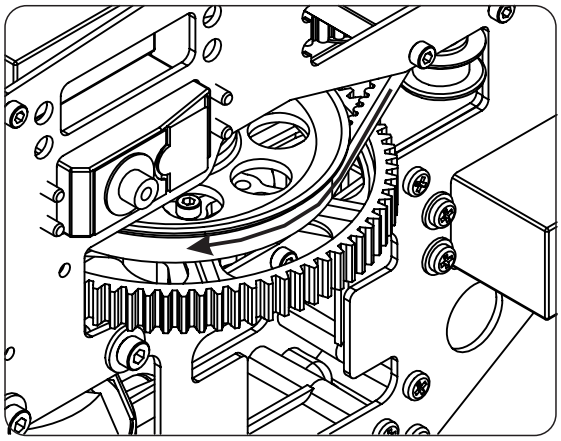
Note : The mast collar is installed underneath the upper bearing block.
主轴挡块装在主架轴承座下方.

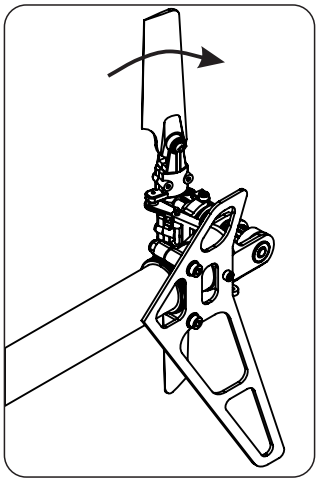




Loose the 2 Bolt here, adjust the distances between the pinion gear and main gear.
Then fix them tightly with thread lock.
松开这两个螺丝，调节齿轮间距后重新上紧并用螺丝胶固定。

Gear Backlash Adjustment:
For smooth operation and performance, it is necessary to adjust the gear backlash properly. Excess gear backlash can cause premature gear wear and damage. Insufficient gear backlash can cause vibration, as well as overheating of the motor and speed controller. Adjust the gear backlash by placing one piece of paper between the gears to set the distance. When the bolts are secure, remove the paper and test the gear backlash to insure that there is a slight amount of free movement between the gears.
用一只手抓住马达使驱动齿不动,另一只手转动主齿轮,感到大约有0.1毫米的间隙.太多或太少间隙都会导致齿轮损坏.





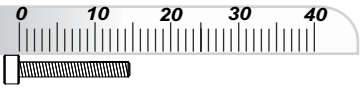
Team Tip :
Check tail rotor direction. Top rotor blade moves to rear
尾桨转动方向

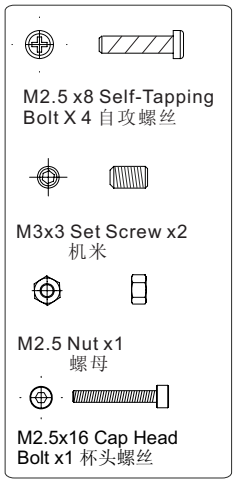
Caution

At this point you will notice that the belt twists 90 degrees as it runs trough the tail boom. Care must be taken to assure that the belt is twisted in the correct direction. The key to this is to make sure the tail rotor rotates backward when the main rotor rotates in the proper direction. If the tail rotor rotates incorrectly, simply pull out the main shaft and twist the belt in the other direction.

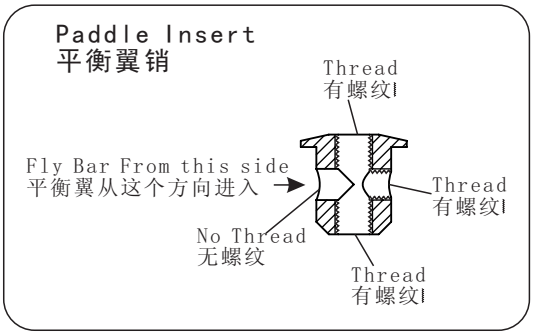
当同步带如上图方向运行时,尾桨应向后方转动,如右上图示.如尾桨转动方向相反,则同步带的安装方向 错了. 拉出主轴,翻转皮带从新装配.

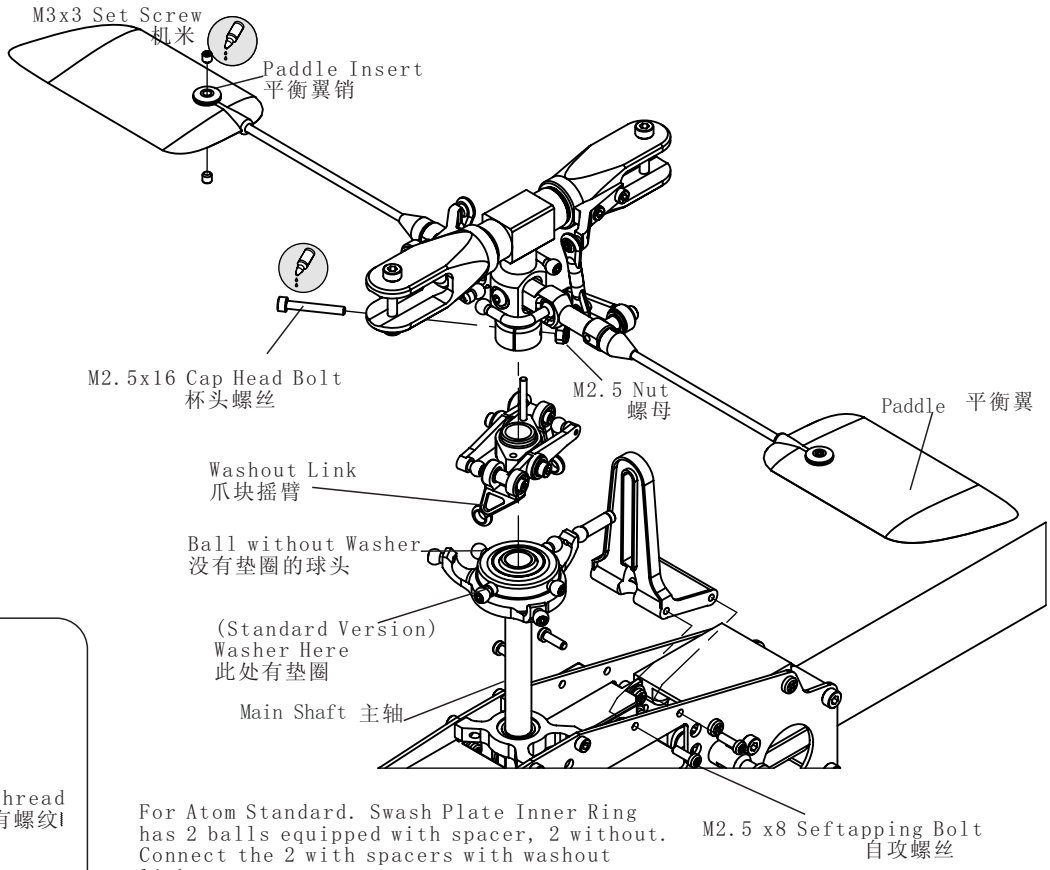
⑤ Rotor,Washout & Swashplate/旋翼头的安装





Use Threadlock





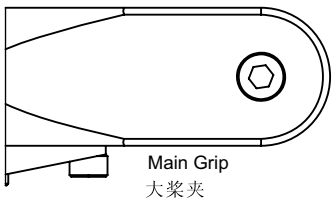
For Atom Standard. Swash Plate Inner Ring has 2 balls equipped with spacer, 2 without. Connect the 2 with spacers with washout links.
在标准版本中，水平盘内环4个球头中有两个有垫圈，这两个应该与爪块摇臂相连。

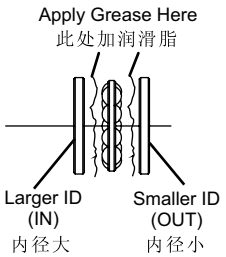
Thrust Bearing Direction

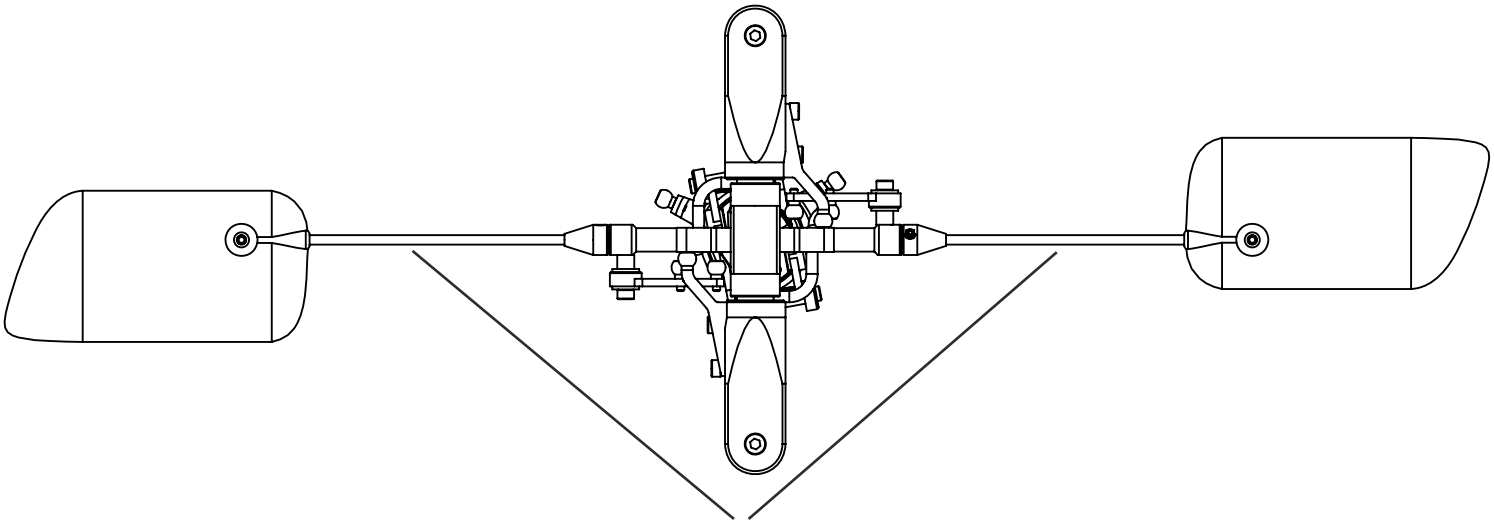
Main grips are factory preassembled, in case of reassembling, be sure to note correct placement of large/small I.D. washers during assembly.

大桨夹已经预先装配好,如果要重新装配.务必注意压力轴承的安装方向

压力轴承的安装

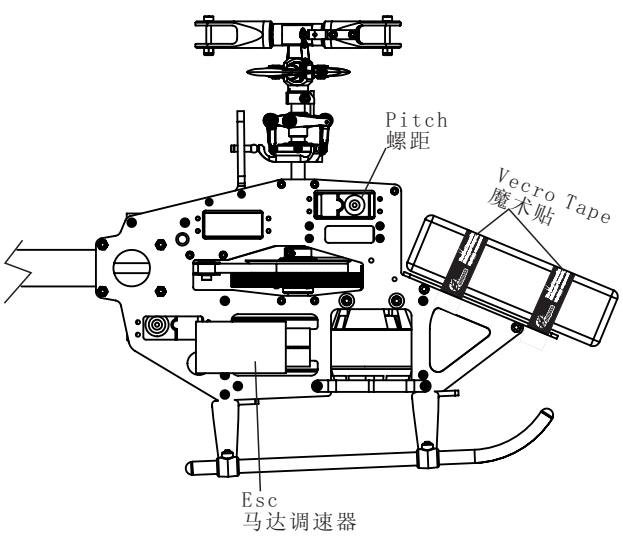


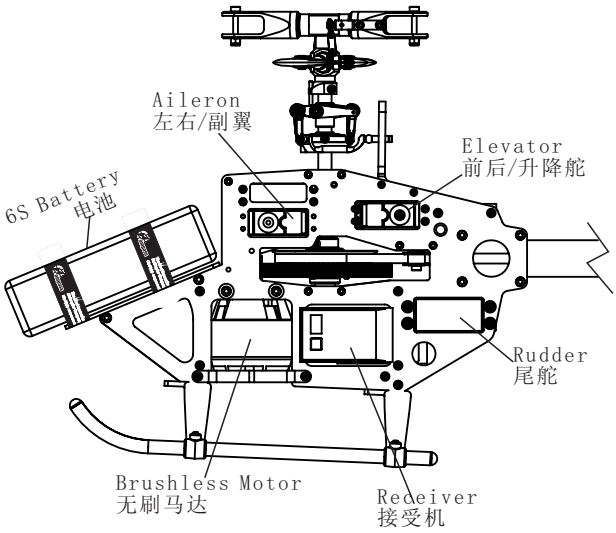


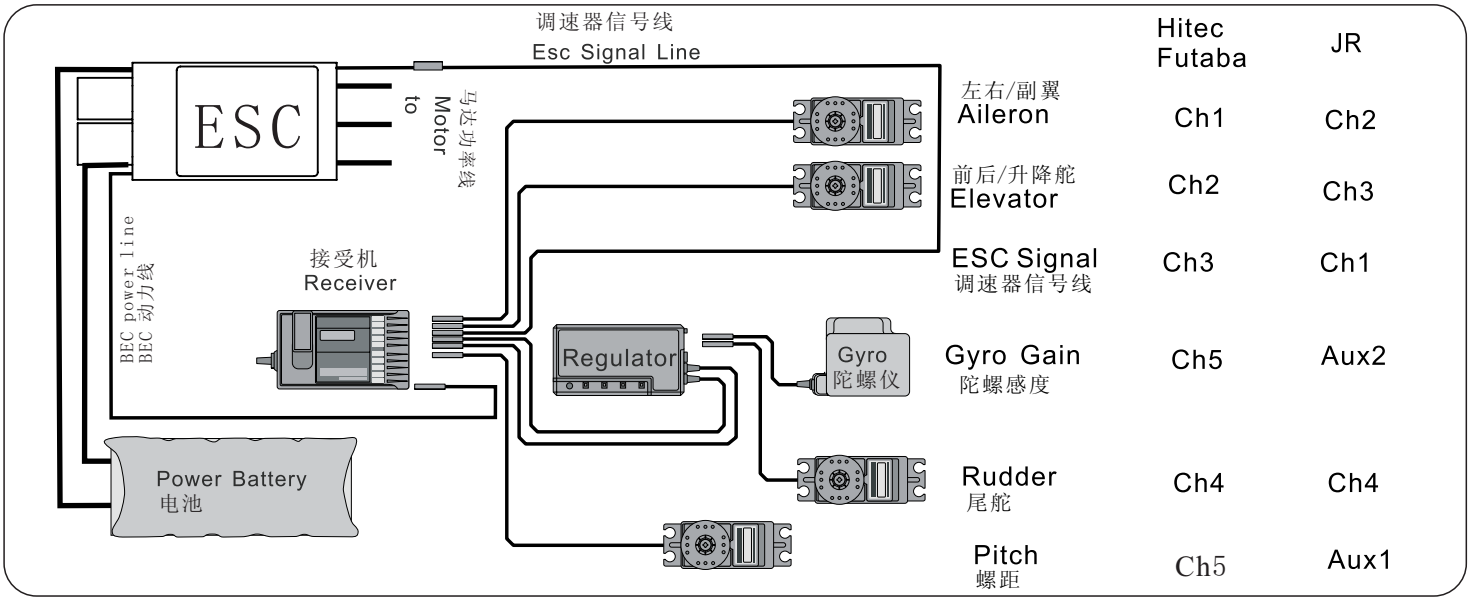


Adjust so that each side has exactly the same length
两边距离要一致

⑥ Equipment illustration / 设备建议配置

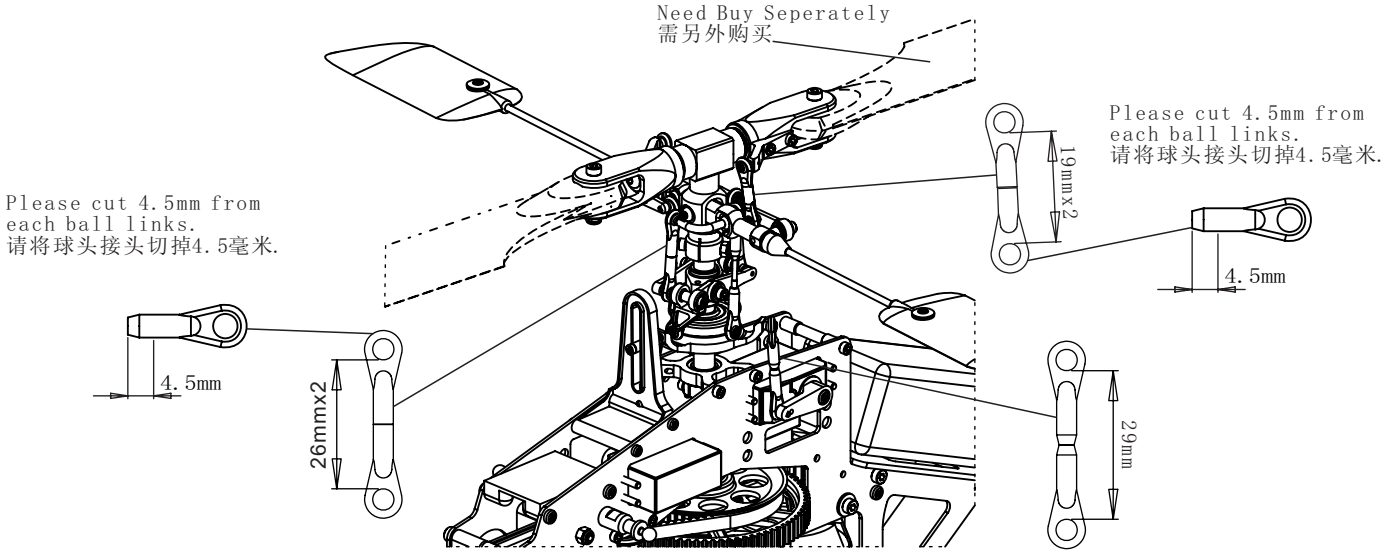


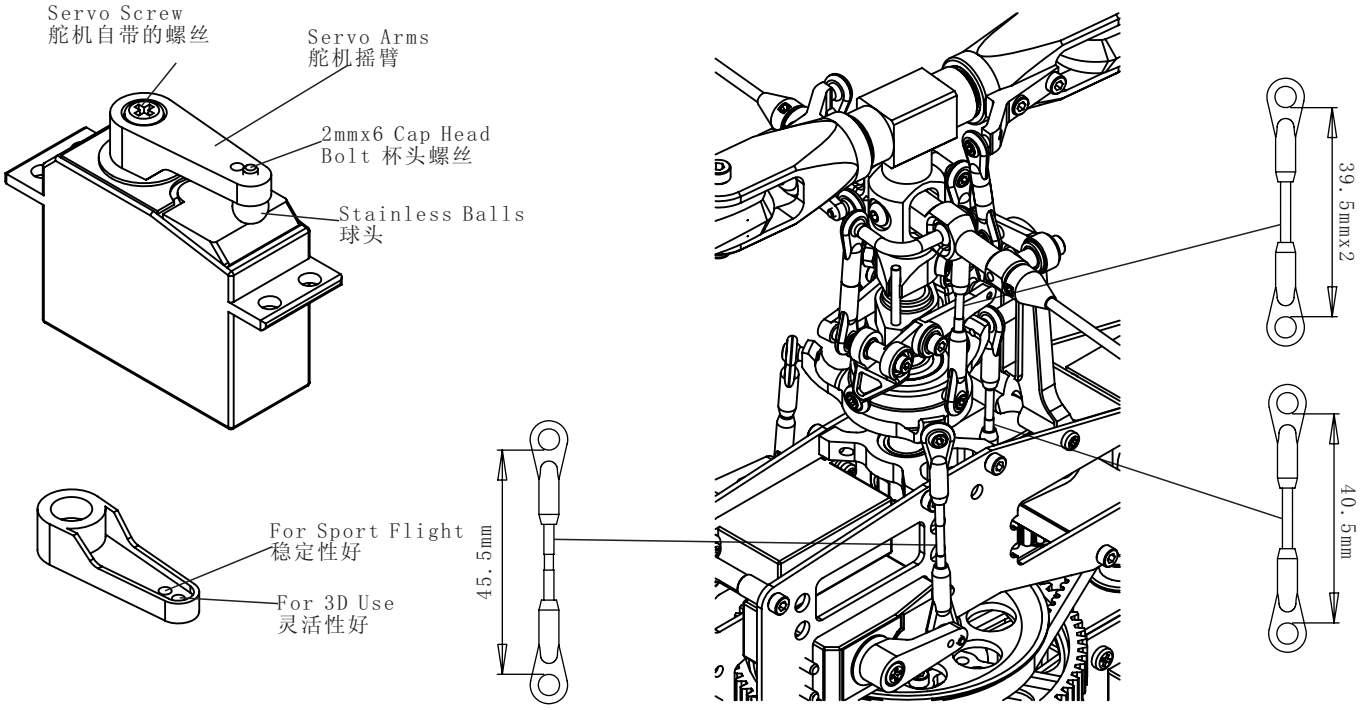




⑦ Linkage/连杆的设定

The following linkage lengths indications are basic values which could vary depend on used servos. Some fine adjustments are still needed in following setup steps. 图中所示连杆长度为初步设定, 后续步骤中会精确调整.





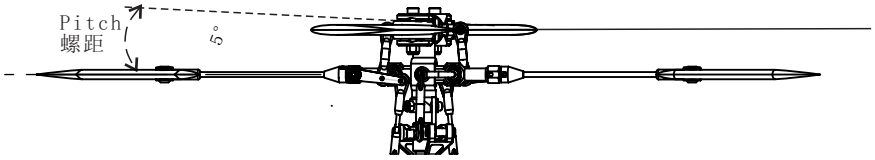
Caution

Do not apply plier to resize Balllinks. Pliers could cause hidden damage to balllinks and hence result in failure when operation.

切勿用钳子夹球头,以免造成潜在损伤

If you find the Balllinks are too tight suggest use a Balllink sizing tool.
如果觉得球头接头太紧,可用专用工具刨松.

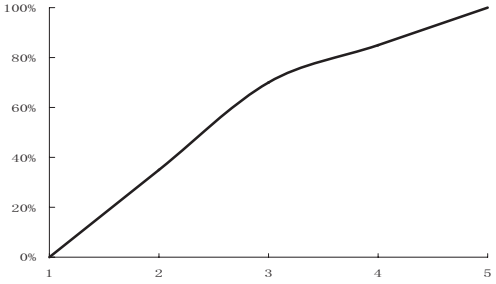
⑧ Electronic Setup/电子设备设定



General Flight 一般飞行

	Throttle	Pitch
5	100%	13 deg
4	85%	
3	70%	4~5deg
2	35%	
1	0%	-4deg

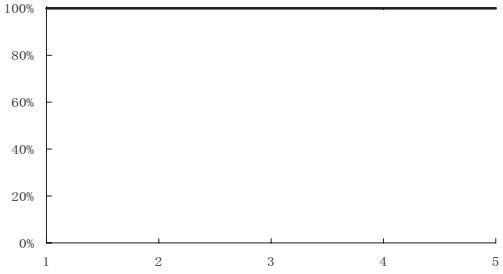
Throttle Curve



3D Style 3D 飞行

	Throttle	Pitch
5	100%	13deg
4	100%	6.5deg
3	100%	0 deg
2	100%	-6.5deg
1	100%	-13deg

Throttle Curve



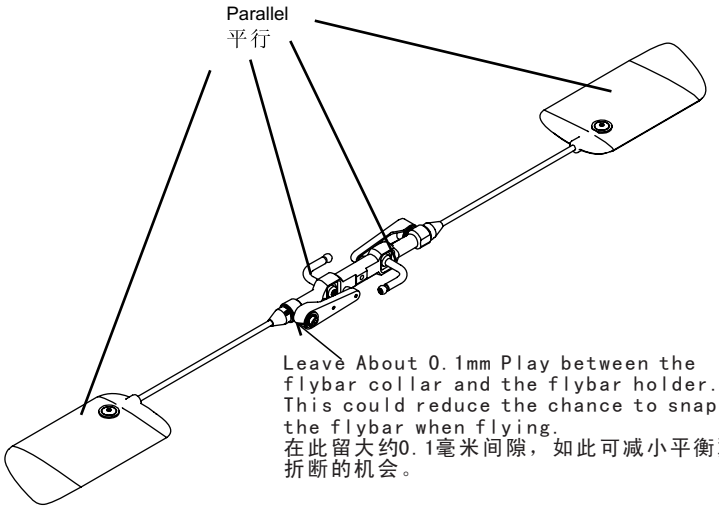
Swash Type Setting
水平盘混合比

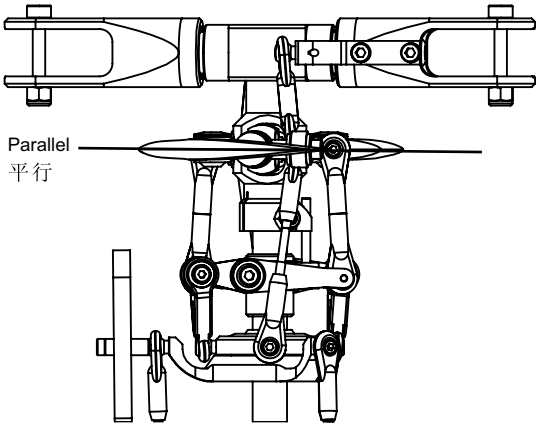
JR		Futaba
Swash Type		SWH
S3 120		SR3
Aile	Elev	Pitch
45%	50%	45%

On Atom 500, pitch range can be set as much as 26deg. If pitch is set too high, flight time will be shorter.
螺距范围最大可被设定为26度范围，螺距设定的越大飞行时间越少。

- **Esc Setup 调速器设定:**
- Mid Timing: 中进角
- No Brakes: 无刹车
  Very Soft Start: 最慢启动

⑨ Setup / 设定

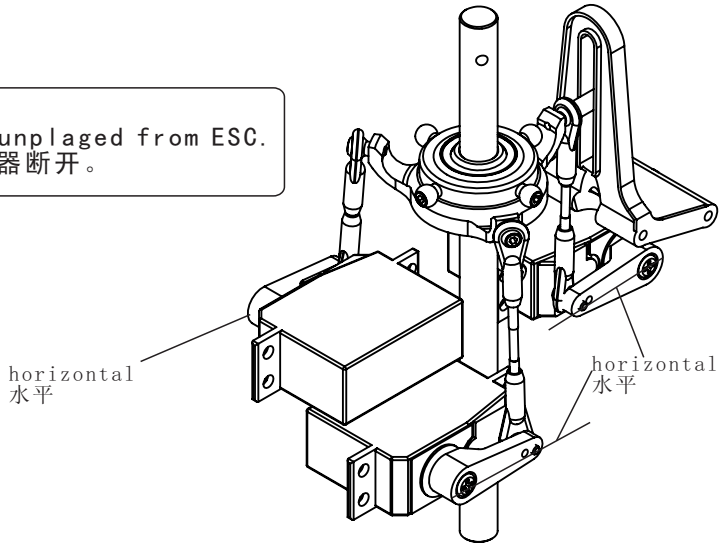




Make sure the flybar control arm and paddle are in line as in the diagram.
保证平衡翼控制臂和平衡翼相互平行,开始设定.

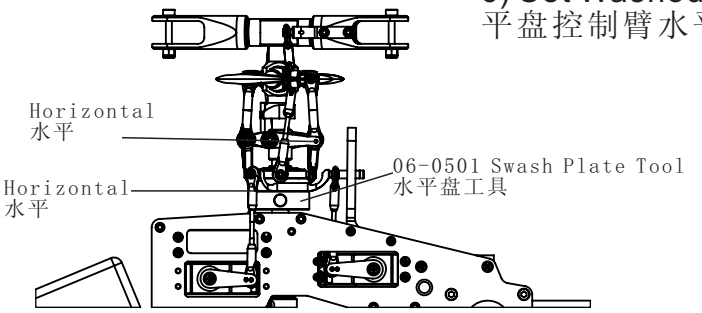
A) Turn on the radio, set throttle to middle position for 0 degree. Use the subtrim in radio program to adjust all the 3 servo to get control horn level.
打开遥控器,油门控制杆推到中位(0位),用subtrim功能调节3个舵机摇臂到水平位置.

Caution
Attion:
motor must be unplaged from ESC.
马达务必与调速器断开。

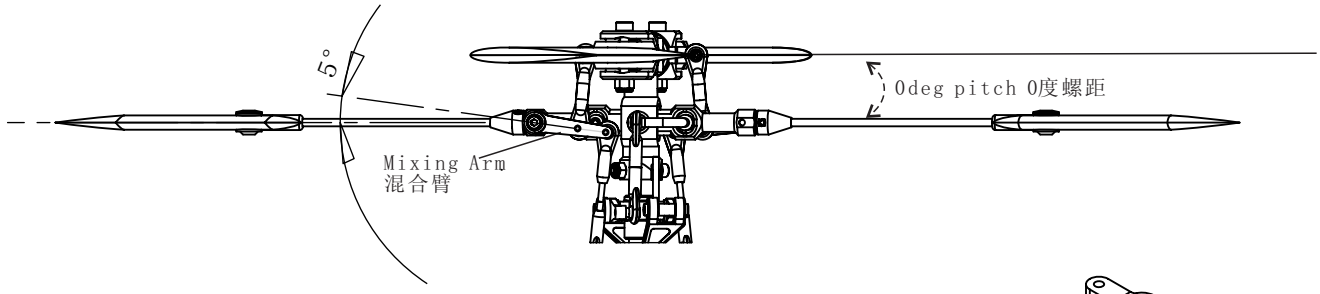


B) Adjust the link from the servo arms to the swash plate to level the swash plate. Use a compass swash Plate Tool as guide. 调节舵机连杆使水平盘水平。可以用水平盘工具作为辅助。

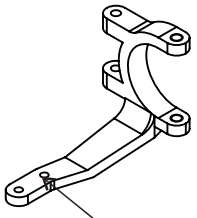
c) Set Washout Arms level. 调节使水平盘控制臂水平。



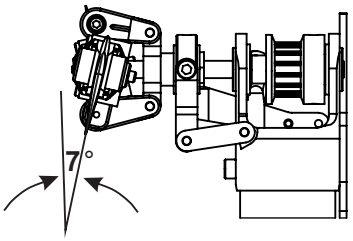
D) Adjust the link from swash plate to mixing arm to set mixing arm 5 deg downwards.
设定混合臂向下5度。

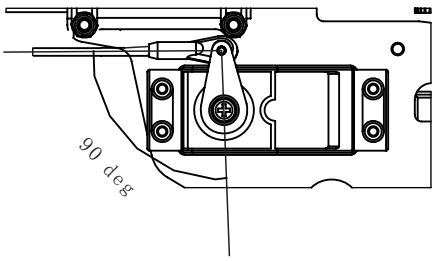


E) Adjust the link from mixing arm to main grip to set main blade pitch to 0 deg. 设定大桨的螺距为零度。



Use this Hole for Tail Link Ball
用这个孔安装球头。

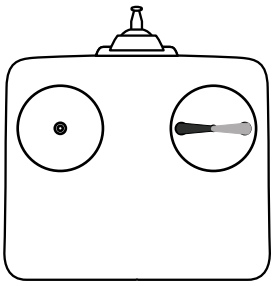
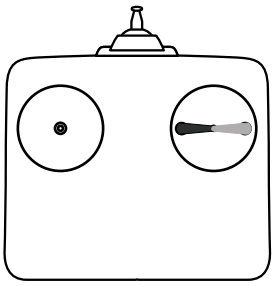
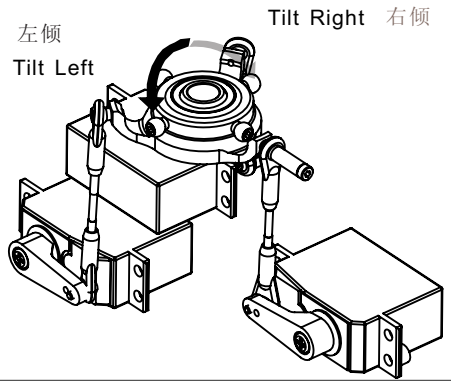
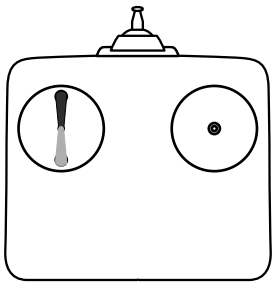
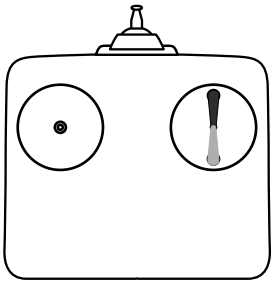
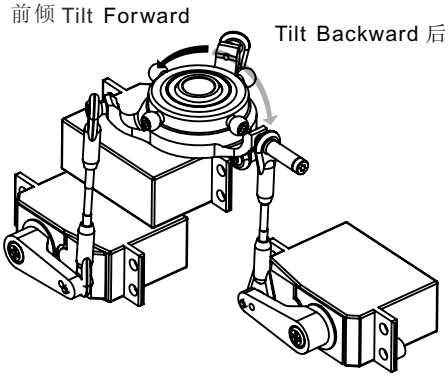
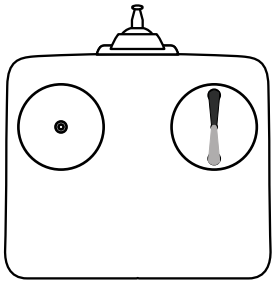
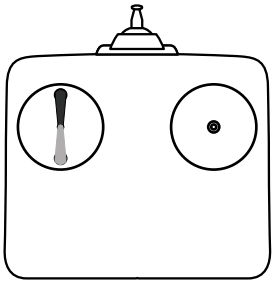
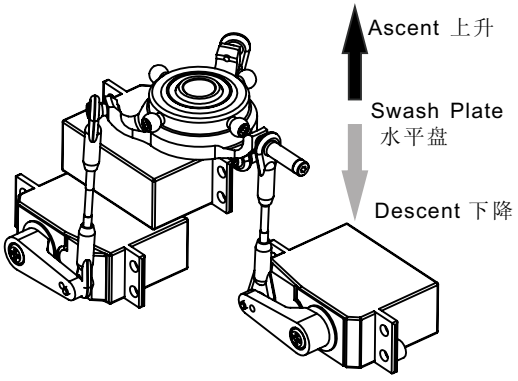
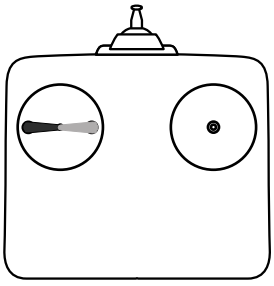
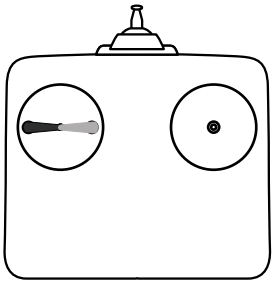
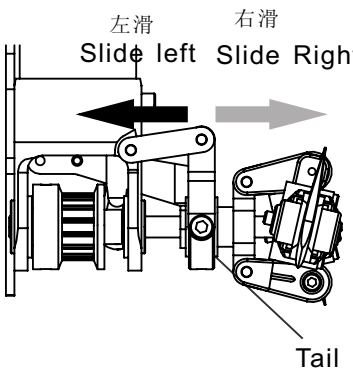




F) At rudder middle stick, set rudder servo 90 deg to the tail link. And set Tail Blade to 7 deg pitch.
调节连杆使尾舵机摇臂与连杆摇臂成90度,尾桨螺距为7度.

Turn on the radio, position the heli tail point to yourself. Make sure radio is set to 120 degree ccpm mode. Move the stick and check the reaction of the Swash Plate, Throttle and Tail Pitch Plate.Adjust radio settings accordingly.

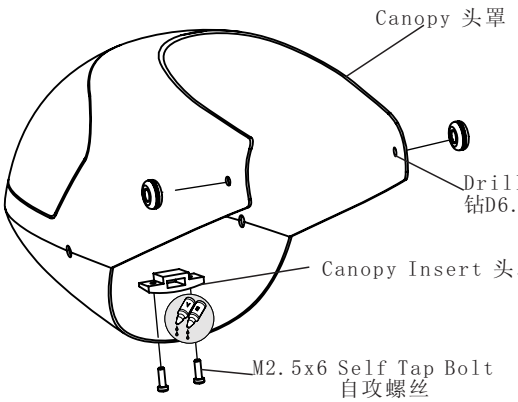
打开遥控器，将直升机的尾部指向自己。注意将遥控器设为ccpm模式。如下图摇动控制杆检查各个舵机运动是否正常。

Mod 1	Mod 2	Swash PlateReaction 水平盘的反应
		
Aileron Check 副翼检查		左倾 Tilt Left　Tilt Right 右倾
		
Elevator Check 升降舵		前倾 Tilt Forward　Tilt Backward 后倾
		
Pitch Check 螺距检查		Ascent 上升　Swash Plate 水平盘　Descent 下降
		
Rudder Check 尾舵检查		左滑 Slide left　右滑 Slide Right　尾螺距盘 Tail PitchPlate

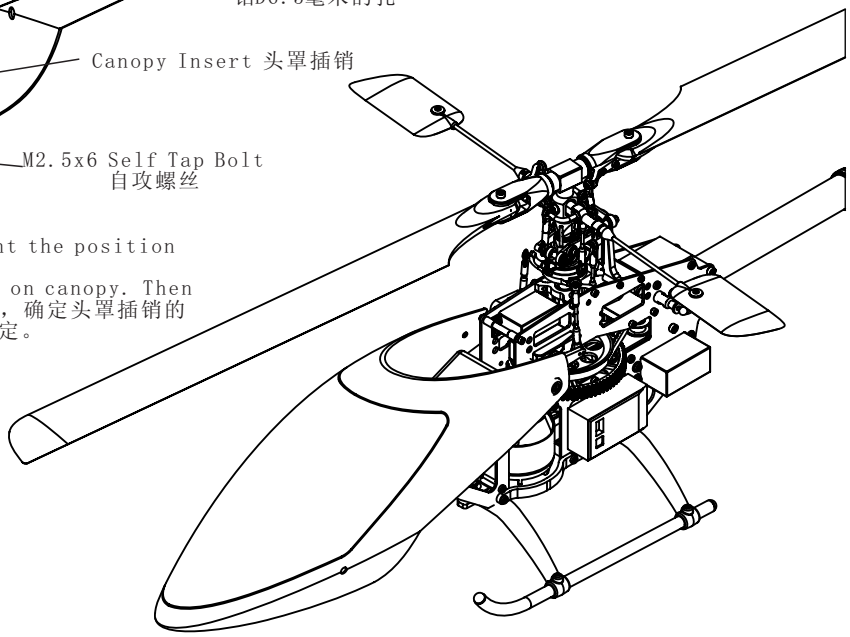
⑪ Canopy /头罩的装配

M2.5x6 Self-Tapping Bolt X 2 自攻螺丝

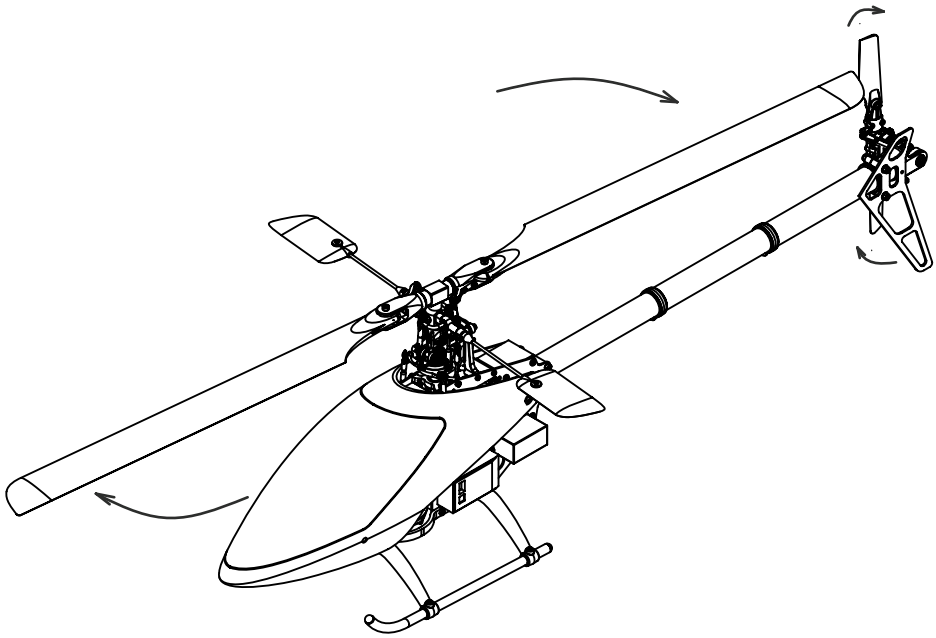
Use AB Glue



Put the canopy on the body and mark the right the position of the canopy insert.
Apply ab glue to attached the canopy insert on canopy. Then use Self Tap Bolt fix it. 把头罩试装到机身上，确定头罩插销的位置。用环氧胶粘牢头罩插销，然后用自攻螺丝固定。



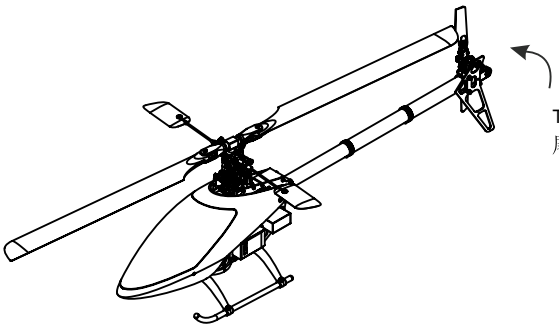
⑫ Rotor Direction /皮带安装方向检查

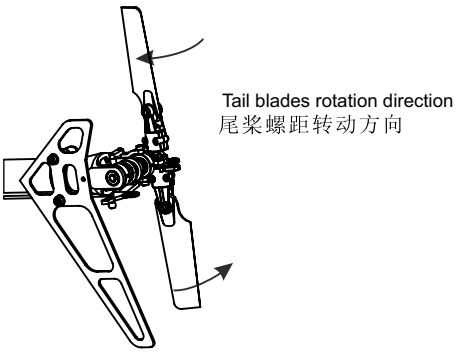


When main blades turn clockwise, tail blades should turn clockwise when view from the tail fin side.
If not belt is installed incorrectly.

当大桨顺时针旋转时,从垂直尾鳍方向看去,尾桨应顺时针旋转.如果不是,皮带的安装方向不对.

1. Ensure that receiver & transmitter battery are fully charged. 确认接收机发射机的电池已充满电。
2. Check all bolts and screws are tight. 检查所有螺丝已上紧并以上胶。
3. Repeat step 10 to check all servo functions are correct. 照第10步再次检查各舵机运作正常。
4. Ensure tail and gyro direction are correctly set. 确认尾舵机及陀螺仪的方向正确。



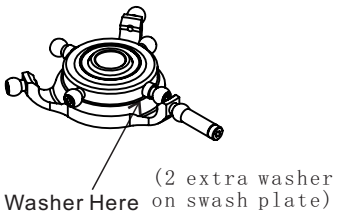


5. Check that main blades, paddles and tail blades are installed in the right direction.
   检查大桨,平衡翼及尾桨的安装方向是否正确.
6. Check that there are no missing or damaged parts, never fly with any damaged parts.
   检查有无损坏或缺失的零件.如有此情况立即更换.切勿强行起飞.
7. Make sure all electronic devices are firmly fastened and connected.
   确认所有电子元件都已连接妥当,固定妥当.
8. Before starting the motor, make sure the IDLE switch is OFF and throttle stick is in the low position.
   接通无刷马达电源之前,确认IDLE开关关闭,油门控制杆在最低位.
9. Only turn off the transmisser after turning off the receiver.
   只在关闭接受机电源后才关闭发射机电源.

Atom Standard VS Atom R

Atom Standard *VS* Atom R

More Agile



More Stable