

AGILE A-7

HELICOPTER

使用说明书

INSTRUCTION MANUAL



Thank you for buying Agile products. Please read this manual carefully before assembling. We recommend that you keep this manual for future reference regarding tuning and maintenance.

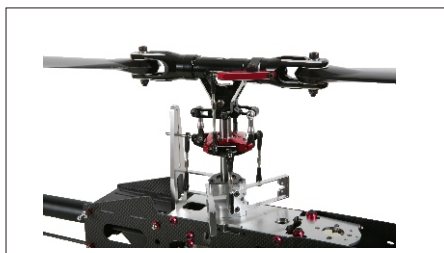
感谢您选购 KDS AGILE产品，请您详细的阅读完这本说明书之后再行进行组装以及操作这台直升机，同时请您妥善的保存这本说明书，作为日后进行调整以及维修与参考。

机身长度：1370mm
机身高度：420mm
机身宽度：200mm
主旋翼直径：&1560
主旋翼长度：690-710mm
尾旋翼直径：&294mm
尾旋翼长度：105-115mm
马达齿：20T
马达KV：540KV
传动齿轮：(20/54) (20/66)
传动比：20T (8.91:1)
尾传动比：4.75:1
空机重量：2650G (含头罩/主桨/尾桨)
起飞重量：5400G
电池：22.2V 5000MAH*2
电调：160-200A

Length : 1370mm
Height : 420mm
Width : 200mm
Main Rotor Diameter : \varnothing 1560
Main Blade Length : 690-710mm
Tail Rotor Diameter : \varnothing 294mm
Tail Blade Length : 105-115mm
Motor Pinion : 20T
Motor KV : 540KV
Driving Gear : (20/54)(20/66)
Gear Ratio : 20T (8.91:1)
Tail Gear Ratio : 4.75:1
Weight(w/o power) : 2650g (含头罩/主桨/尾桨)
Flying Weight: 5400g
Battery : 22.2V 5000mAh x2
ESC : 160-200A

1. INTRODUCTION

Congratulations on your purchase of the Agile A-7 radio controlled helicopter kit. Agile A-7 was designed in Europe by Eng. Gaziano Roberto and is proudly manufactured by KDS Model. Our goal was to offer you something different with a minimum of parts, easy maintenance, and outstanding flying performances. It's time to fly different!...



Enjoy the built and have a great time with you Agile A-7 !

IMPORTANT NOTES

R/C helicopters, including the AGILE A-7 are not toys. R/C helicopters utilize various high-tech products and technologies to provide superior performance. Improper use of this product can result in serious injury or even death. Please read this manual carefully before using and make sure to be conscious of your own personal safety and the safety of others and your environment when operating all AGILE products. Agile A-7, KDS Model, their affiliates and authorized distributors are not responsible for personal injuries to the operators and others, and property damages that could occur from the assembly, maintenance or your use/misuse of this product. Always respect the rules provided by your local remote control aircraft organization.

NOTE FOR ASSEMBLY

The following manual provide important instructions to correctly assemble the model. It is structured in a logical way, based on the work done in previous step. If you change the order, it may result in additional or unnecessary steps. So we suggest you to read this user manual very carefully to understand correctly the assembly procedure. Failure to do so may not only downgrade performances but also increase the risk of danger. Apply thread lock as indicated, allow the threadlock to cure before mounting parts. It is recommended to use threadlock on each bolt or screw that are engaged with metal parts.

2. SAFETY NOTES

● LOCATE AN APPROPRIATE LOCATION

R/C helicopters fly at high speed, thus posing a certain degree of potential danger. Choose an appropriate flying site consisting of flat, smooth ground, a clear open field, or a large open room, such as gymnasium or warehouse without obstacles. Do not fly near buildings, high voltage cables, or trees to ensure the safety of yourself, others and your model. Do not play your model in inclement weather, such as rain, wind, snow or darkness.



● OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT

Before turning on your model and transmitter, check to make sure no one else is operating on the same frequency. Frequency interference can cause your model, or other models to crash. The guidance provided by an experienced pilot will be invaluable for the assembly, tuning, trimming, and actual first flight(recommend you to practice with computer-based flight simulator).



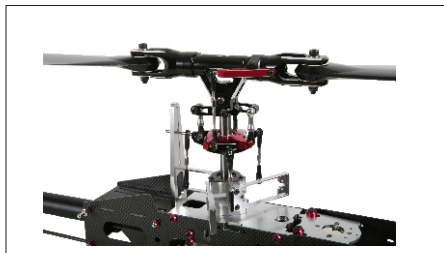
● ALWAYS BE AWARE OF THE ROTATING BLADES

During the operation of the helicopter, the main rotor will be spinning at a high rate of speed. The blades are capable of inflicting serious bodily injury and damage the environment. Be conscious of your actions, and careful to keep your face, eyes, hands, and loose clothing away from the blades. Always fly the model a safe distance from yourself and others, as well as surrounding objects. Never take your eyes off the model or leave it unattended while it is turned on. Immediately turn off the model and transmitter when you have landed the model.



1.简介

恭喜你购买 AGILE A-7 无线电遥控直升机，AGILE A-7 是来自欧洲的设计师ENG.Gaziano Roberto 设计，由 KDS 模型生产制造完成。我们的目标是用最少的配件，为客户提供高质量产品，容易维护以及达到出色的飞行



享受您的Agile A-7 直升机并玩得愉快!

重要声明:

KDS AGILE A-7 遥控直升机并非玩具，它是结合了许多高科技产品所设计出来的休闲用品，所以商品的使用不当或不熟悉都可能会造成严重伤害甚至死亡，使用之前请务必详读使用说明书，勿轻忽并注意自身安全，任何遥控直升机的使用，制造商和经销商是无法对使用者于零件使用的损耗异常或组装不当所发生之意外负任何责任，本产品是提供有操作过模型直升机经验的成人或者有相当技术的人员在旁指导，以确保安全无虞下操作使用，产品售出后本公司将不负任何操作和使用控制上的任何性能与安全责任。KDS公司，附属子公司和授权分销商不承担任何的个人伤害以及其他，永远遵守当地为遥控模型飞机提供的规范。

2. 安全注意事项

• 远离障碍物及人群

直升机飞行时具有一定的速度，相对的也潜在一定危险性，场地的选择也相对的重要，请遵守法规到合适遥控飞行场地飞行。必须注意周围有没有人，高楼，建筑物，高压电线，树木等等，避免操控的不当造成自己与他人财产的损坏。初次练习时，务必选择在空旷合法专属飞行场地并适当搭配练习架飞行，这对飞行失误造成的损伤将会大幅的降低。请勿在下雨，打雷等恶劣天气下操作，以确保本身及机体的安全。



• 避免独自操控

至飞行场飞行前，需确认是否有相同频率的同行正进行飞行，因为开启相同频率的发射机将导致自己与他人立即干扰等意外危险。遥控飞行操控技巧在学习初期有一定的难度，要尽量避免独自操作飞行，需有经验的人士在旁指导，才可以操控飞行。（勤练模拟器及老手指导是入门必要的选择）。



• 远离运转中零件

当直升机主旋翼与尾旋翼运转时，切勿触摸并远离任何物件，以避免造成危险与损坏。



● PREVENT MOISTURE

R/C models are composed of many precision electrical components. It is critical to keep the model and associated equipment away from moisture and other contaminants. The introduction or exposure to water or moisture in any form can cause the model to malfunction resulting in loss of use, or a crash. Do not operate or expose to rain or moisture.



● KEEP AWAY FROM HEAT

R/C models are made up of various forms of plastic. Plastic is very susceptible to damage or deformation due to extreme heat and cold climate. Make sure not to store the model near any source of heat such as an oven, or heater. It is best to store the model indoors, in a climate-controlled, room temperature environment.



● PROPER OPERATION

Please use the replacement of parts on the manual to ensure the safety of instructors. This product is for R/C model, so do not use for other purpose.



● SAFE OPERATION

Operate this unit within your ability. Do not fly under tired condition or improper operation, which may cause danger.



3. Safety Check Before Flying

Before flying, for safety reasons, make sure that no one else is operating a R/C model on the same frequency as yours. Before flying, please check that the power of your transmitter and your helicopter are sufficient for the flight. Before turning on the transmitter, please check that the throttle stick is in its lowest position, IDLE UP switch must be on OFF position.

When turning off the model, please follow the power on/off procedure. Power ON: turn on the transmitter first, then turn on helicopter power. Power OFF: turn off the helicopter power first and then turn off the transmitter. Improper operating procedure

may cause the model to be out of control, so please do make this your habit.

Before operation, check that every movement is smooth and directions are correct. Inspect servos carefully for interferences and broken gears.

Check for missing or loose screws and nuts. See if there is any cracked and/or incomplete assembly of parts.

Check main rotor blades and rotor holders carefully. Broken and premature failures of parts might result in a dangerous situation or crash.

Check all ball links to avoid excess play and replace as needed. Failure to do so will result in poor flight stability.

Check that the battery and power plugs are fastened. Vibrations and violent flight might loosen the plugs and so lead to out of control.

Check for the tension of main drive belt.

4. Tools Required

- Hex drivers : 1.5, 2, 2.5, 3, 4mm
- Nut Drivers : 5, 5, 7mm
- Ball link pliers
- Diagonal cutting pliers
- Scissors
- Metric ruler
- Soldering iron + solder (for motor and ESC wiring)
- Pitch gauge (for set up)
- Swashplate leveller
- Threadlock blue * (medium)
- Threadlock red * (high strength)
- Bearing retainer compound
- Epoxy A+B Glue
- Grease
- Oil

*Colors may vary depending on your area.

- 远离潮湿环境

直升机内部也是由许多精密的电子零器件组成，所以必须绝对的防止潮湿或水气，避免在浴室或雨天时使用，防止水气进入机身内部而导致机件及电子零件故障而引发不可预期的意外！



- 远离热源

- 遥控飞机多半是以PA维修或聚乙烯，电子商品为主要材质，因此要尽量远离热源，日晒以避免因高温而变形甚至熔毁损坏的可能。



- 勿不当使用本产品

请勿自行改造加工，任何的升级改装或维修，请使用KDS产品目录中的零件，以确保结构的安全，请确认于产品界限内操作，请勿过载使用，并勿用于安全，法令外其它非法用途。



- 安全操作

请于自己能力内及需要一定技术范围内操作这台直升机，过于疲劳，精神不佳或不当操作，意外风险可能会提高。



3. 飞行前安全检查重要事项

每次飞行前应先确认所使用的频率是否会干扰他人，已确保你自身与他人的安全。

每次飞行前确定你发射机与直升机电池的电量是否足够飞行的状态。

开机前确认油门摇杆是否位于最低点，熄火降落开关，定速开关（IDLE）是否于关闭状态。

关机时必须遵守电源开关机程序，开机时应先开启发射机后，再开启直升机电源，关机时应先关闭直升机电源，再关闭发射机电源，不正确的开关机程序会造成失控现象，影响自身与他人的安全，请养成正确的习惯。

开机请先确定直升机的各个动作是否顺畅，及方向是否正确，并检查伺服的动作是否有干涩或崩齿的情形，使用故障的伺服将会导致不可预期的危险。

飞行前确认没有缺少或者松眼的螺丝与螺帽，确认没有组装不完整或损毁的零件，仔细检查主旋翼是否有损坏，特别是接近主旋翼夹座的部位。

损坏或组装不完整的零件不仅影响飞行，更会造成不可预期的危险。

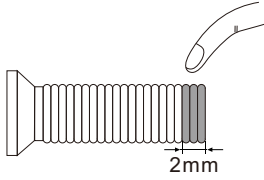
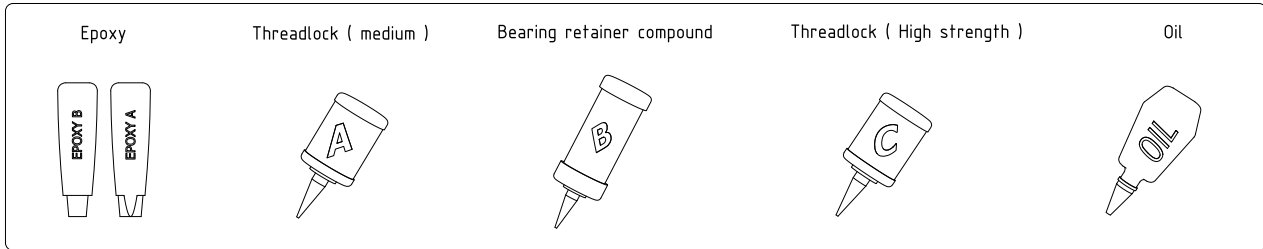
注意：对损坏，有裂痕零件更新及定期保养检查的要性，检查所有的连杆头是否有松脱的情形，过松的连杆头应先更新，否则将造成直升机无法操控的危险。

确认电池及电源接头是否固定牢靠，以及主传动皮带的拉力，飞行中的震动或激烈的飞行，可以造成接头松脱/皮带磨损及失控的危险。

4. 自行必备的工具

- 对边六角螺丝刀：1.5，2，2.5, 3, 4 MM
- 六角套筒：5.5, 7 MM
- 球头钳
- 斜口钳
- 剪刀
- 直尺
- 焊铁+焊锡（焊马达+电调转接头）
- 螺距规
- 十字盘水平仪
- 蓝色螺丝胶（中等）
- 红色轴承胶（高强度）
- 环氧树脂A+B胶
- 润滑油

When you see the marks as below, please use glue or grease to ensure flying safety.



"A" Glue width: approx. 2mm

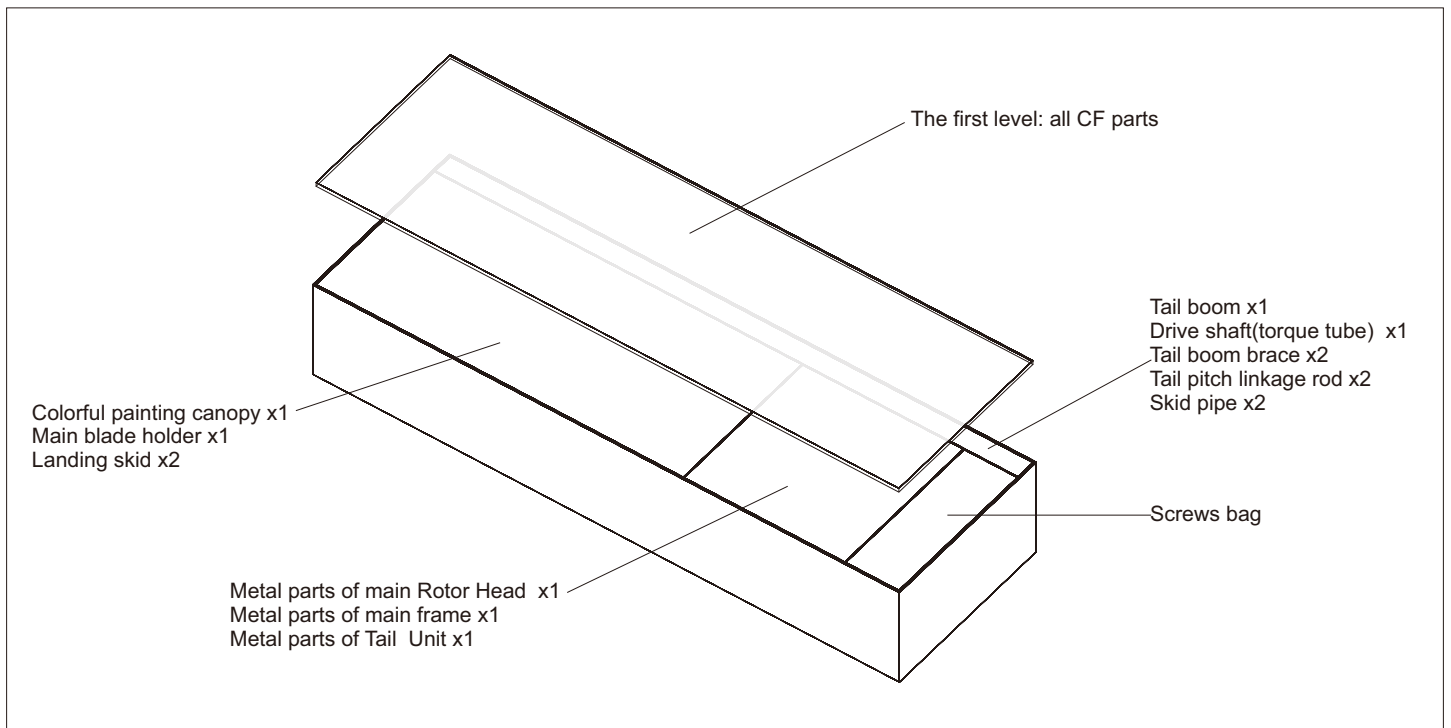
"OIL" Lubrication grease. "A" thread lock, apply a small amount on screws or metal parts and wipe surplus off. When disassembling, recommend to heat the metal joint about 15 seconds. (NOTE: Keep plastic parts away from heat.)

5. Equipment Required for Assembly

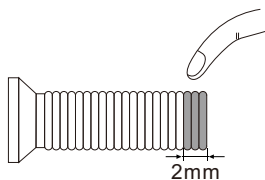
RADIO TRANSMITTER AND ELECTRONIC EQUIPMENT REQUIRED FOR ASSEMBLY

- Brushless electric motor: 12s Lipo - 500~550KV / 3000W (4mm Bolt holes, 30mm mount width, 6mm * 37mm motor shaft)
- Speed controller: minimum 160A (ESC specs limits should be rated accordingly to the maximum amps handling by the motor)
- Lipo Batteries: 12s 4000-5500 mAh
- Electronic flybarless system
- 3 cyclic servos, standard size
- 1 tail rotor servo, standard size, high speed required
- 690~720 mm main rotor blades
- 105~115 mm tail rotor blades (included)
- 6 channel or more helicopter transmitter system, 2.4 Ghz frequency preferred
- Receiver 6 channel or more (working with your transmitter specs)

6. Package Illustration



当你看到如下标记, 请使用胶水或润滑脂, 以确保飞行安全。



“A”胶水宽度：大约-2MM

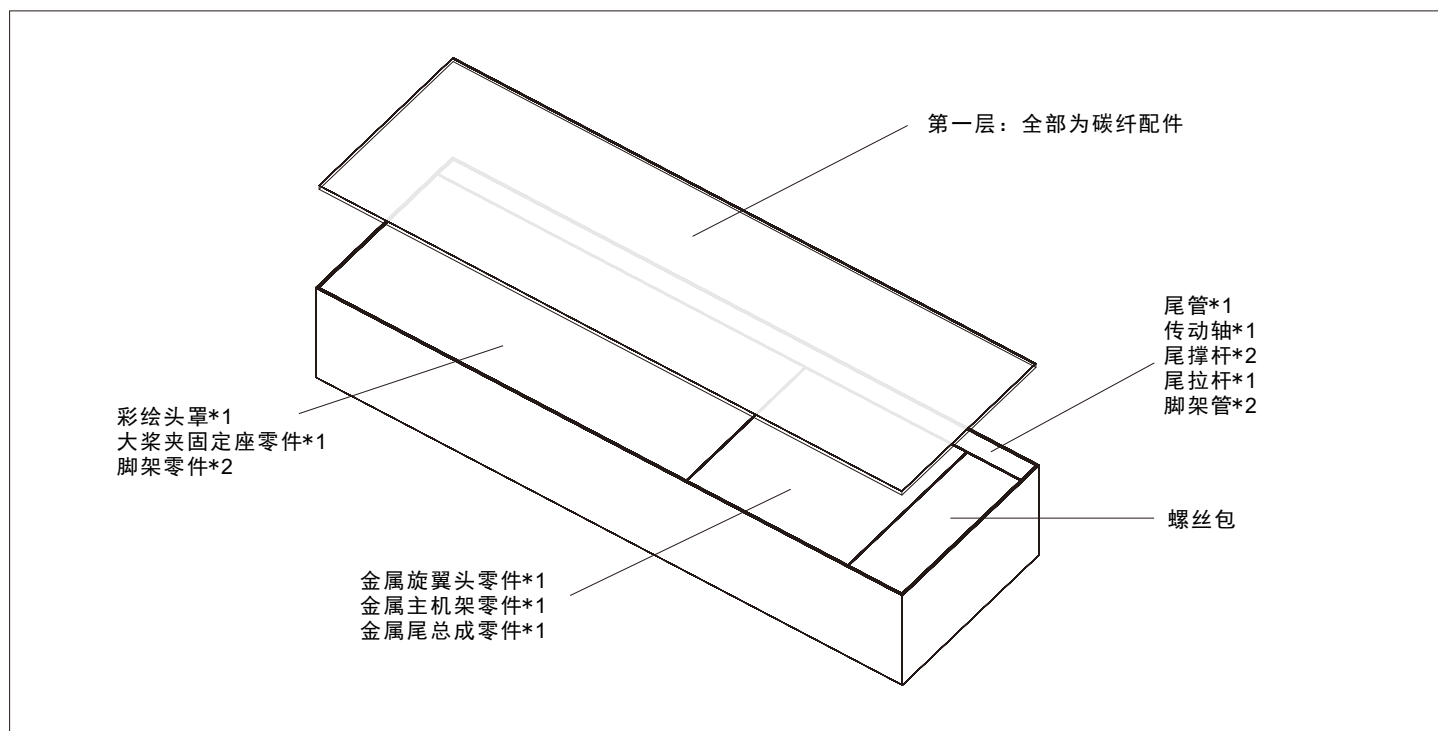
“油”润滑油。” A“螺丝胶应用少量涂敷于螺丝以及金属配件，多涂的应擦拭干净，拆卸时，建议先加热金属连接部分15秒。

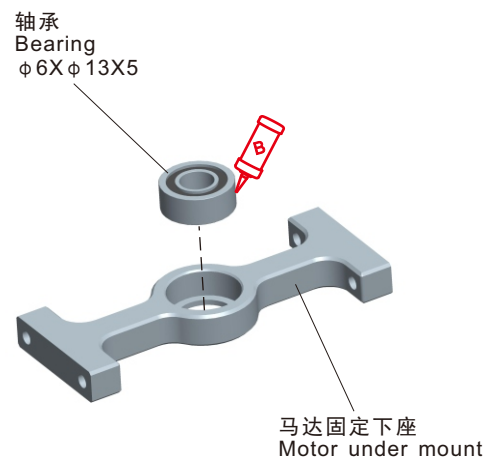
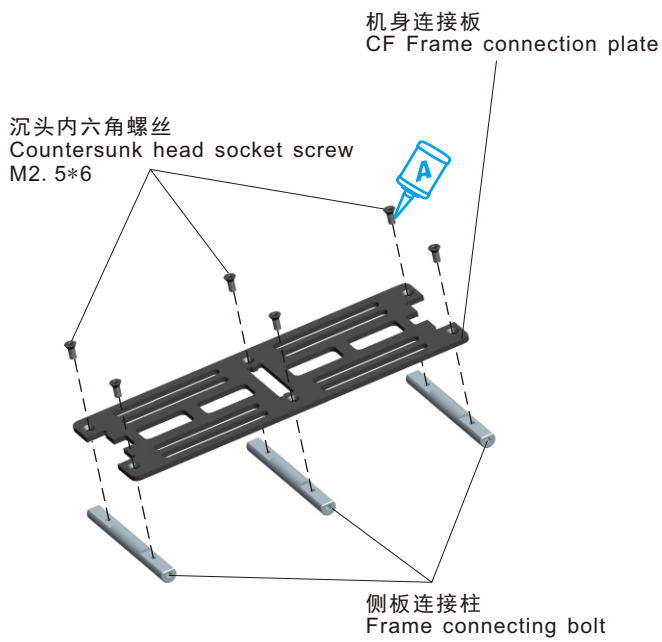
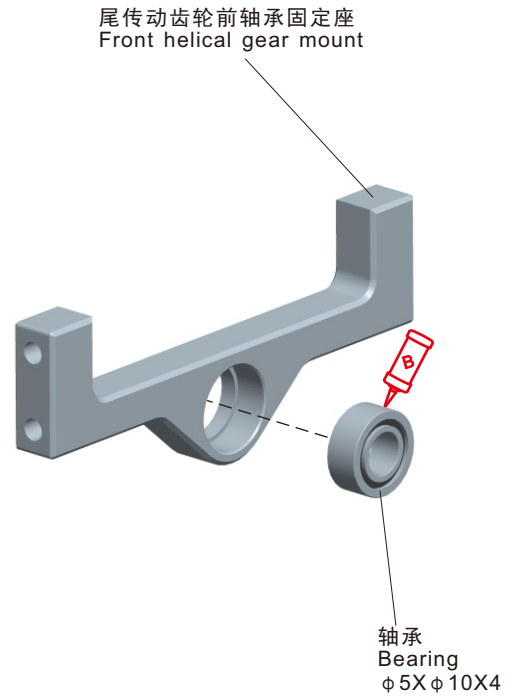
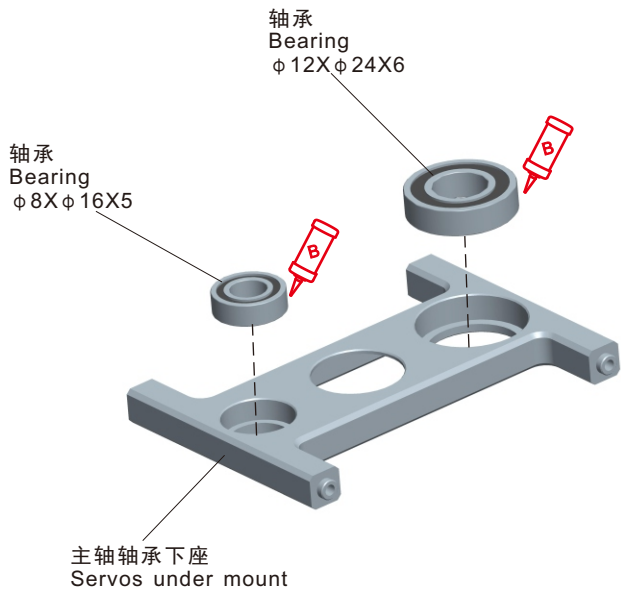
5.飞机所需的配置

发射机和电子配件

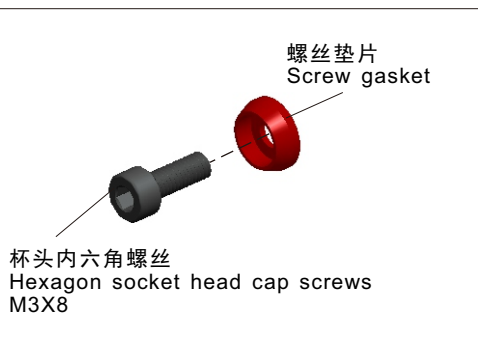
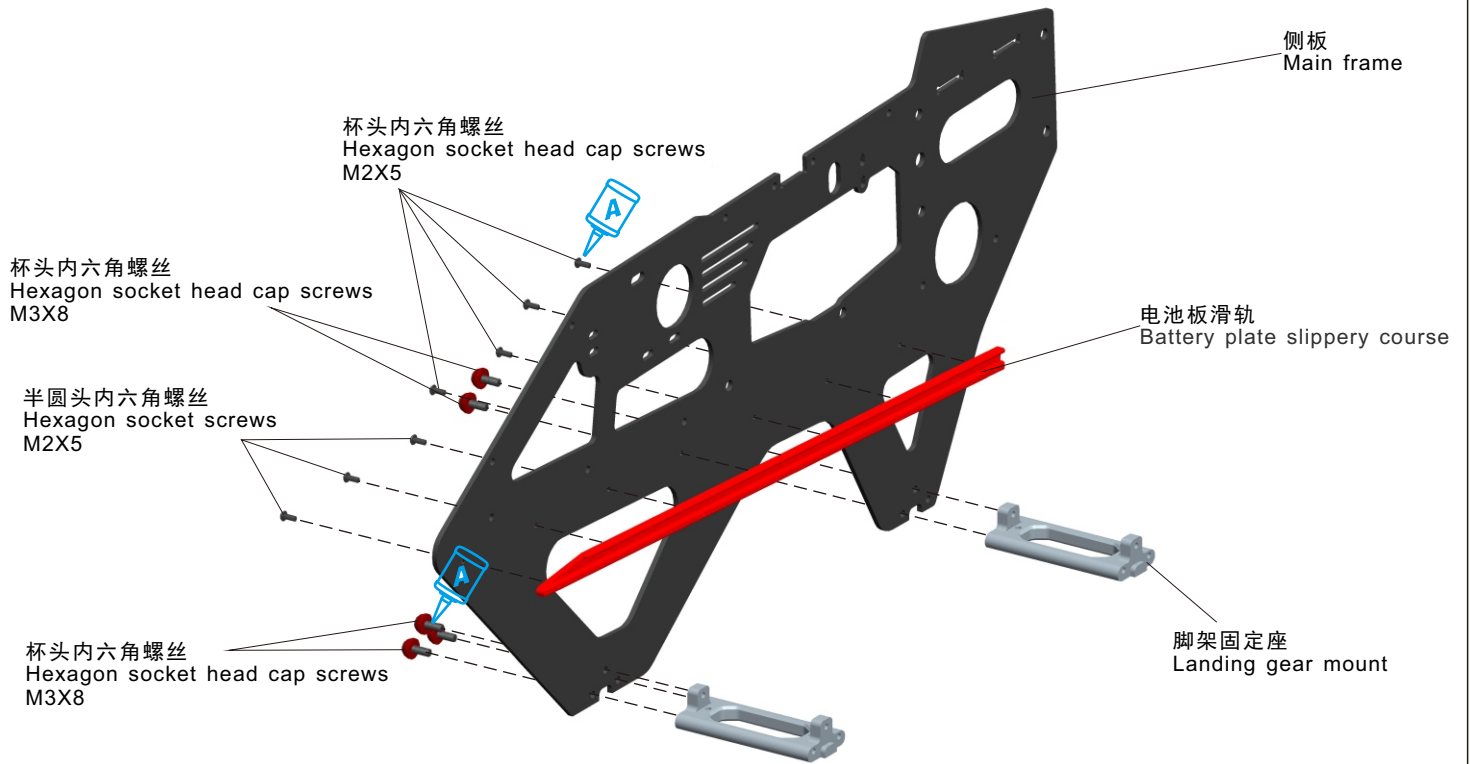
- 无刷马达：12S LIPO-500-550KV/3000W (4mm 螺丝孔，30mm安装宽度，6mm马达轴)
- 电子调速器：最低160A
- 锂电池：12S 4000-5000mAh
- 3个金属斜盘舵机，标准尺寸
- 1个金属尾舵
- 690-710mm 主旋翼碳纤桨叶
- 105-115mm 尾旋翼碳纤桨叶
- 6通以上，2.4G 遥控器
- 6通以上接收机与发射机匹配

6.包装说明

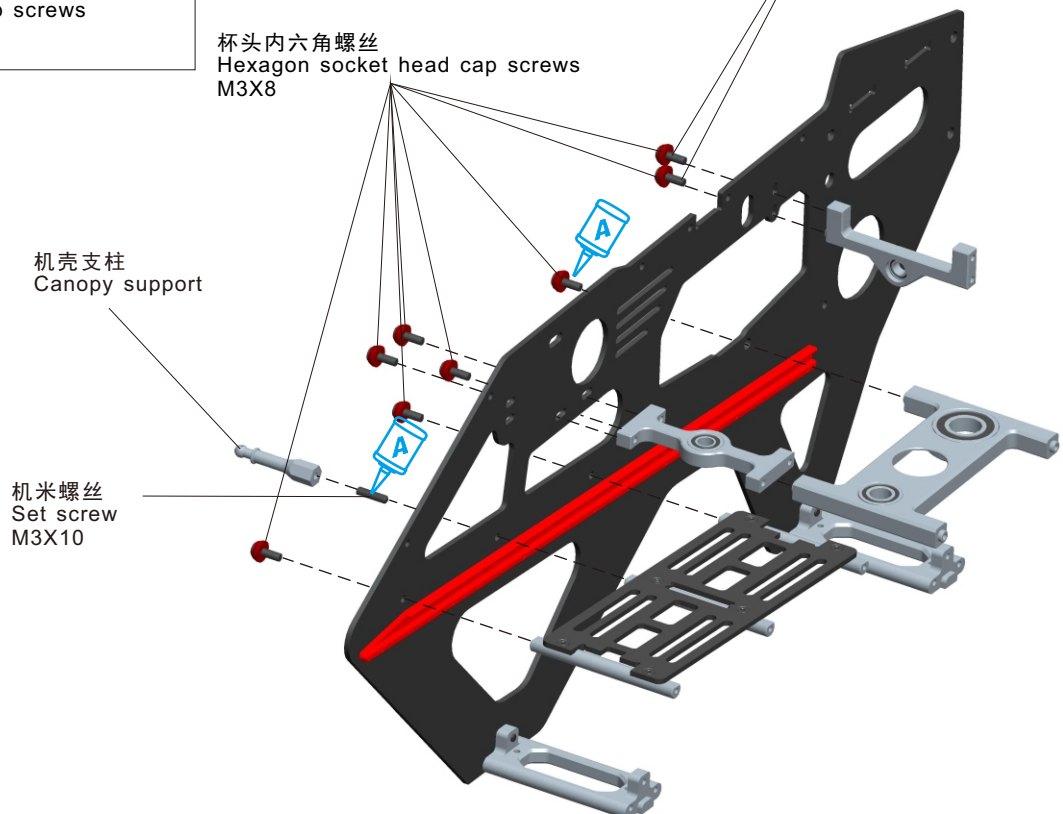




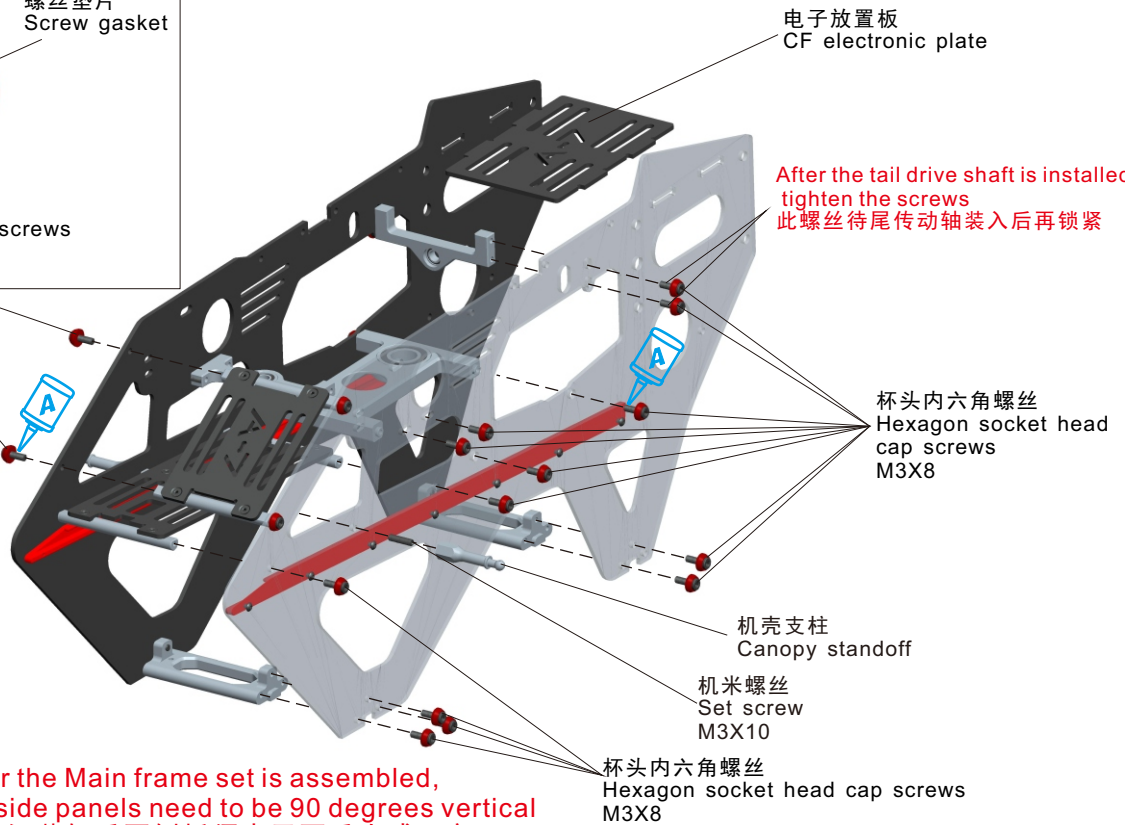
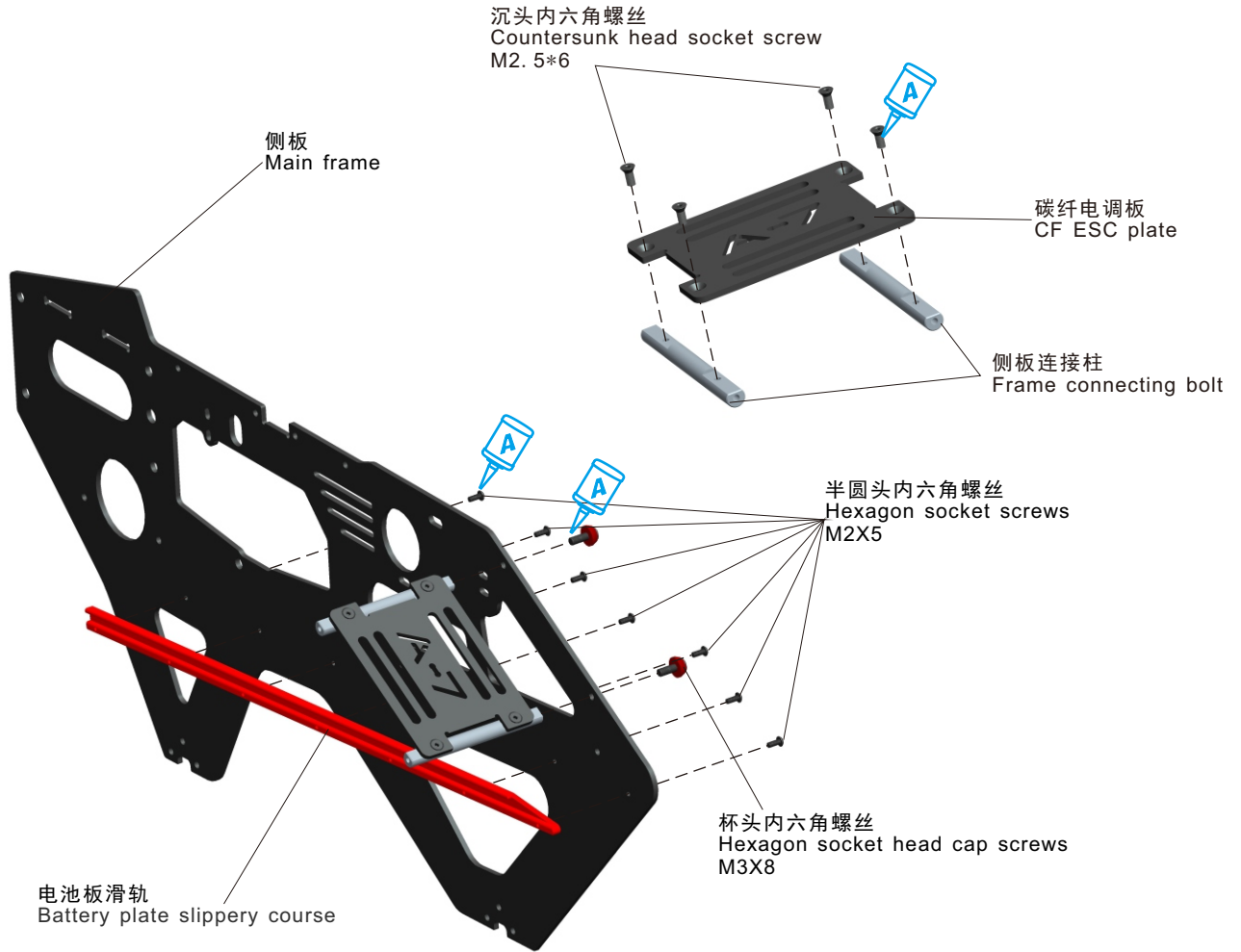
7. 组装说明 ASSEMBLY SECTION



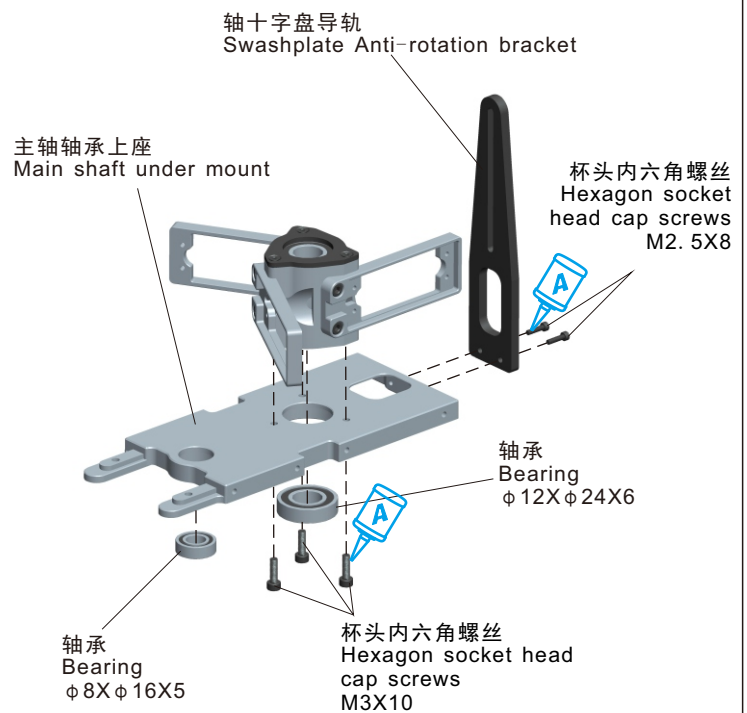
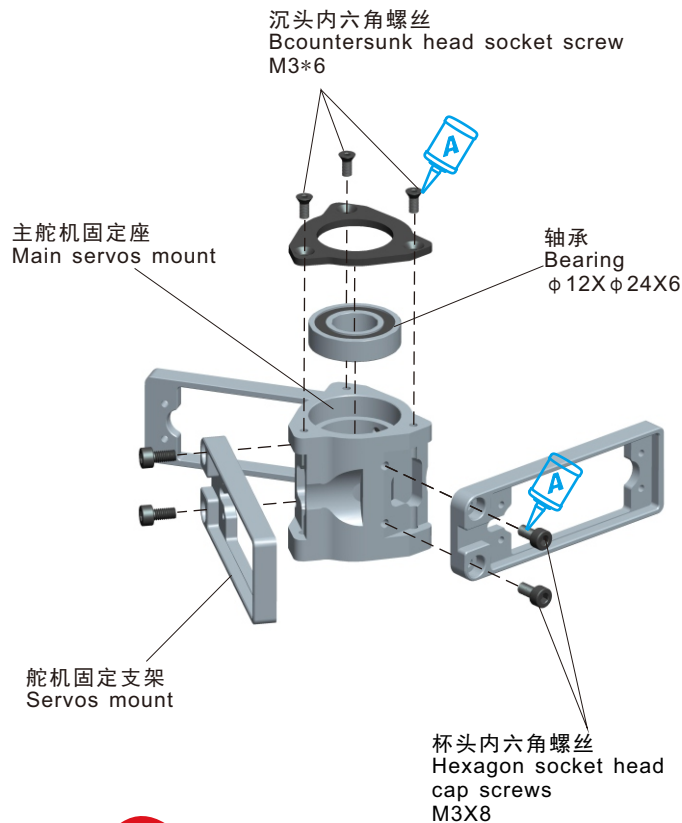
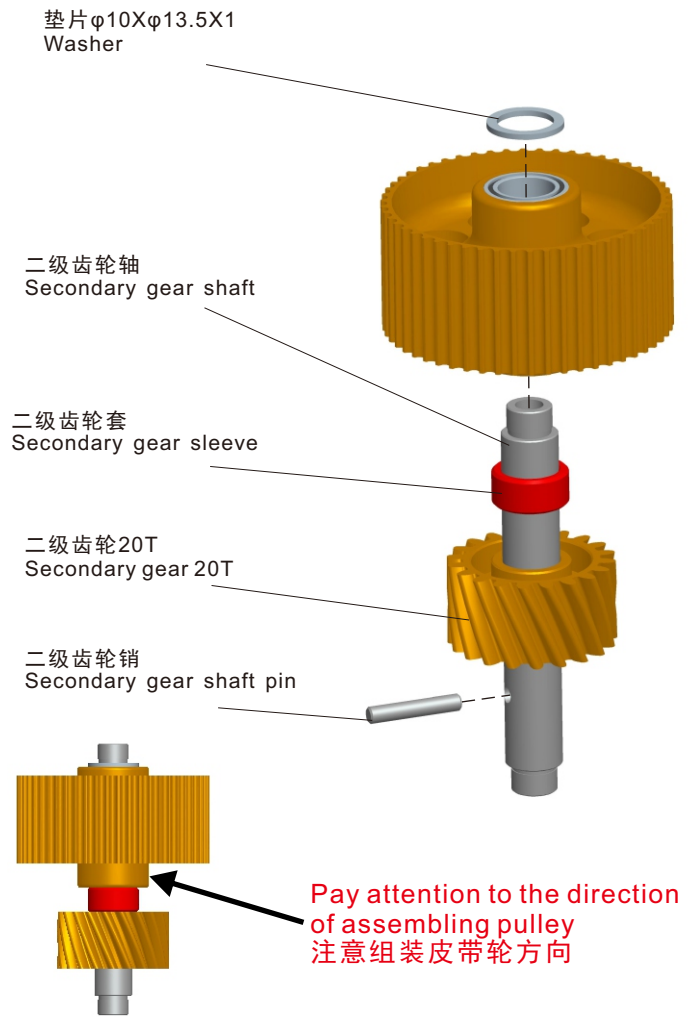
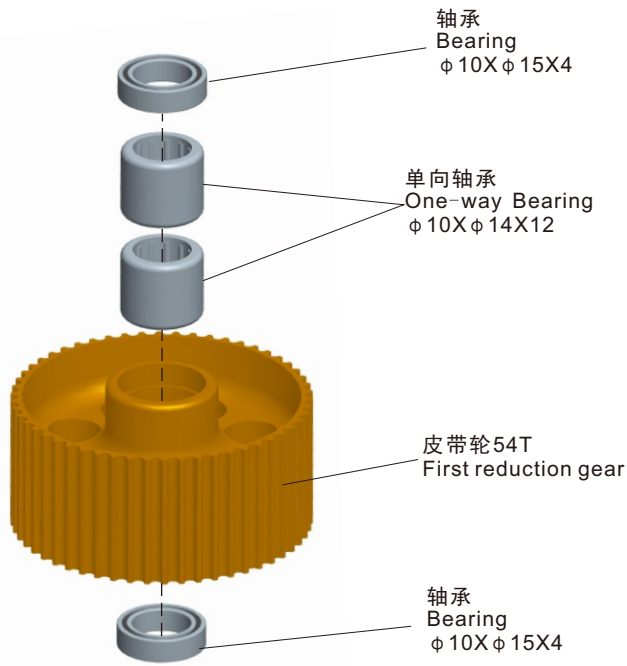
After the tail drive shaft is installed,
tighten the screws
此螺丝待尾传动轴装入后再锁紧



7. 组装说明 ASSEMBLY SECTION

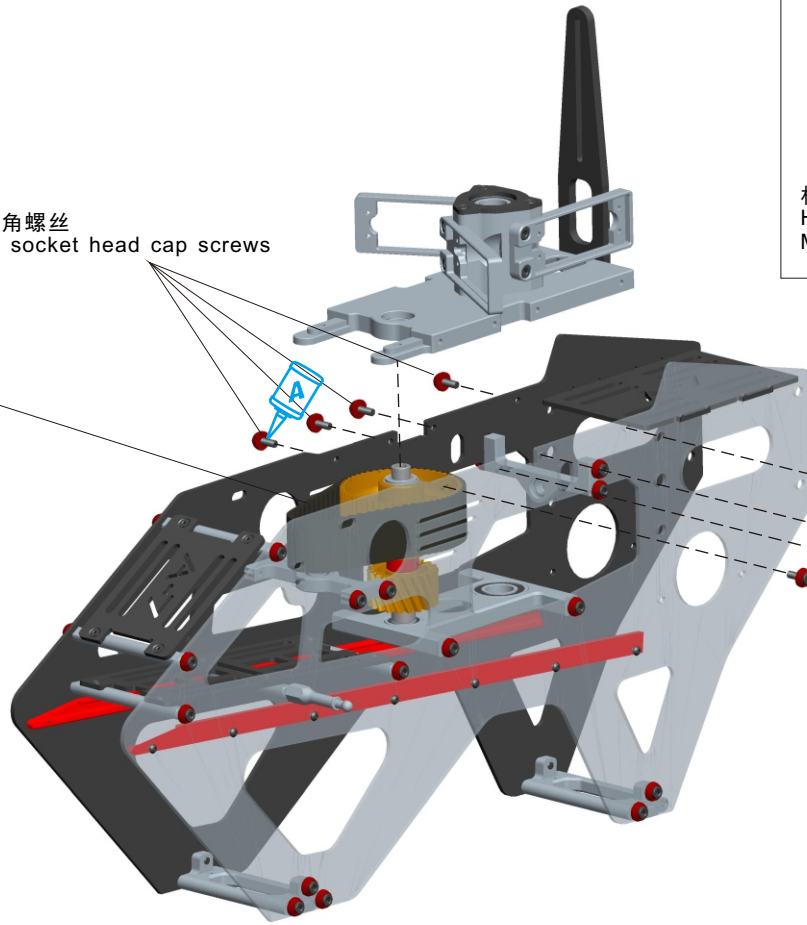


7. 组装说明 ASSEMBLY SECTION



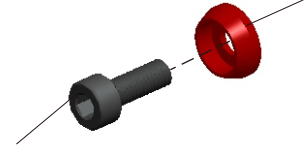
杯头内六角螺丝
Hexagon socket head cap screws
M3X8

皮带
Motor belt

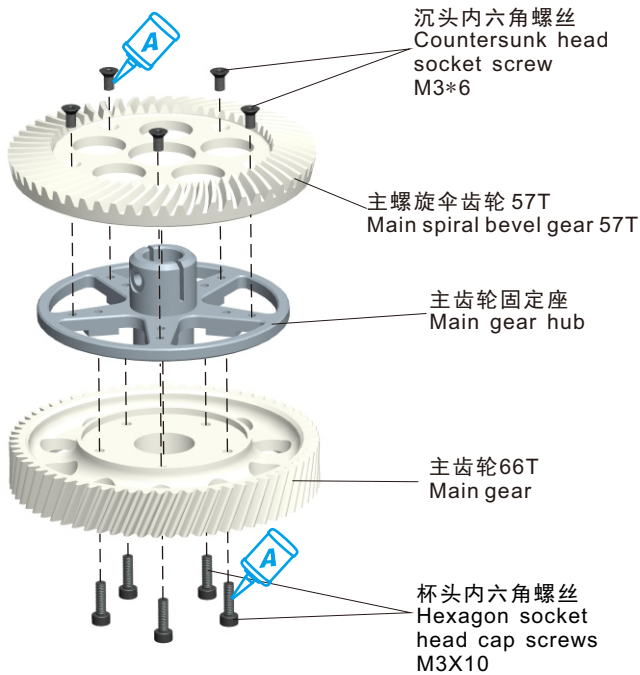


杯头内六角螺丝
Hexagon socket head cap screws
M3X8

螺丝垫片
Screw gasket



杯头内六角螺丝
Hexagon socket head cap screws
M3X8



沉头内六角螺丝
Countersunk head
socket screw
M3*6

主螺旋伞齿轮 57T
Main spiral bevel gear 57T

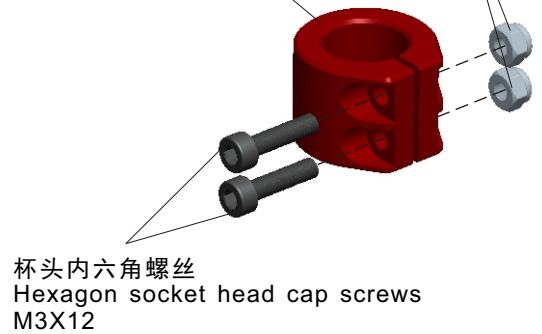
主齿轮固定座
Main gear hub

主齿轮 66T
Main gear

杯头内六角螺丝
Hexagon socket
head cap screws
M3X10

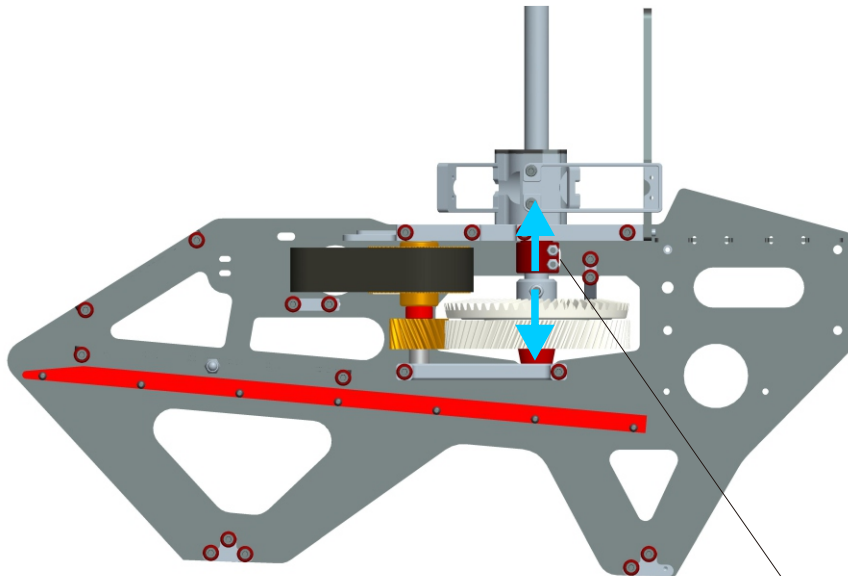
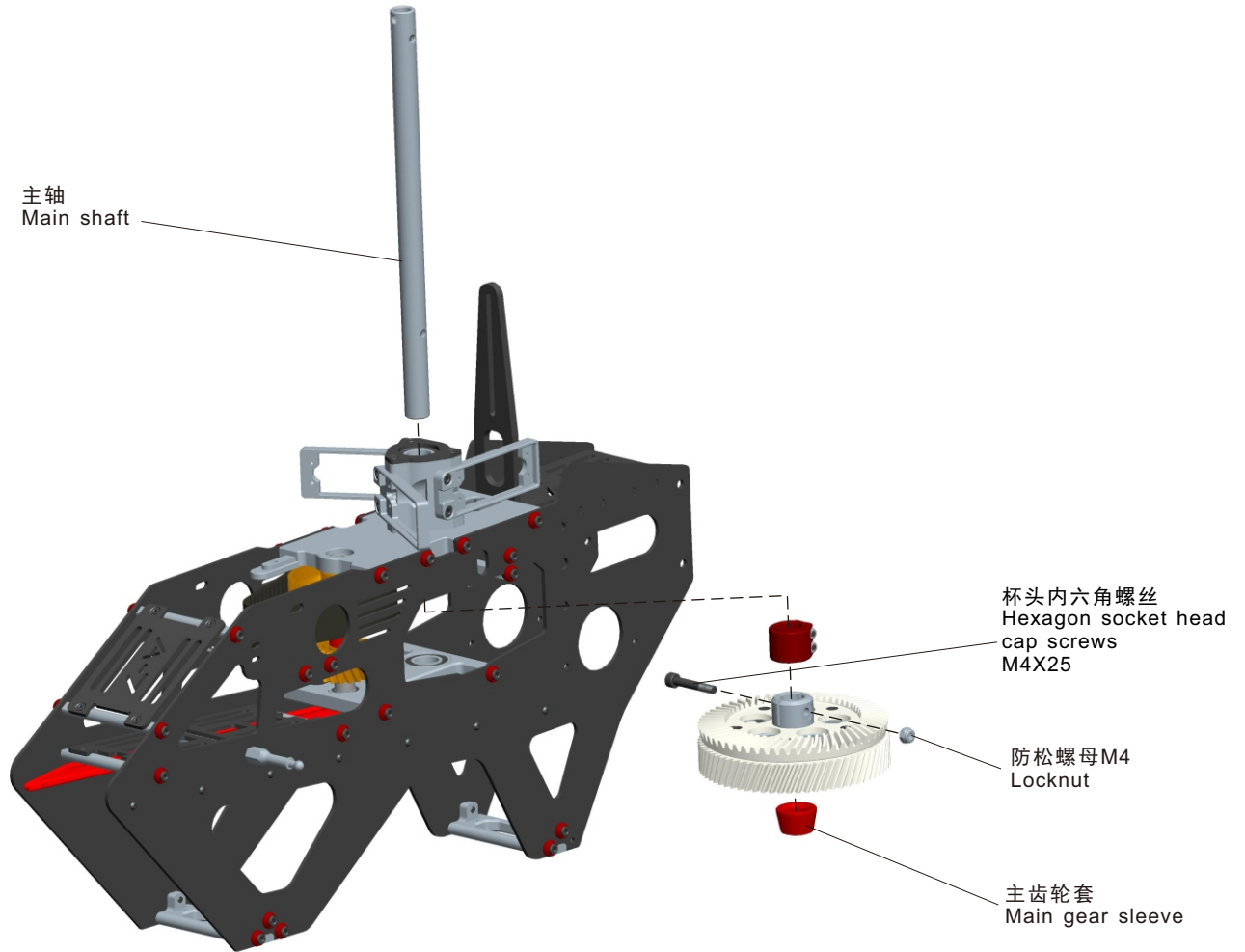
主轴定位环
Main shaft locating ring

防松螺母 M3
Locknut



杯头内六角螺丝
Hexagon socket head cap screws
M3X12

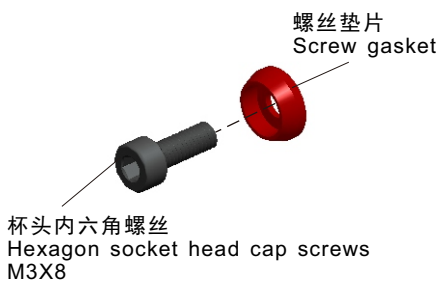
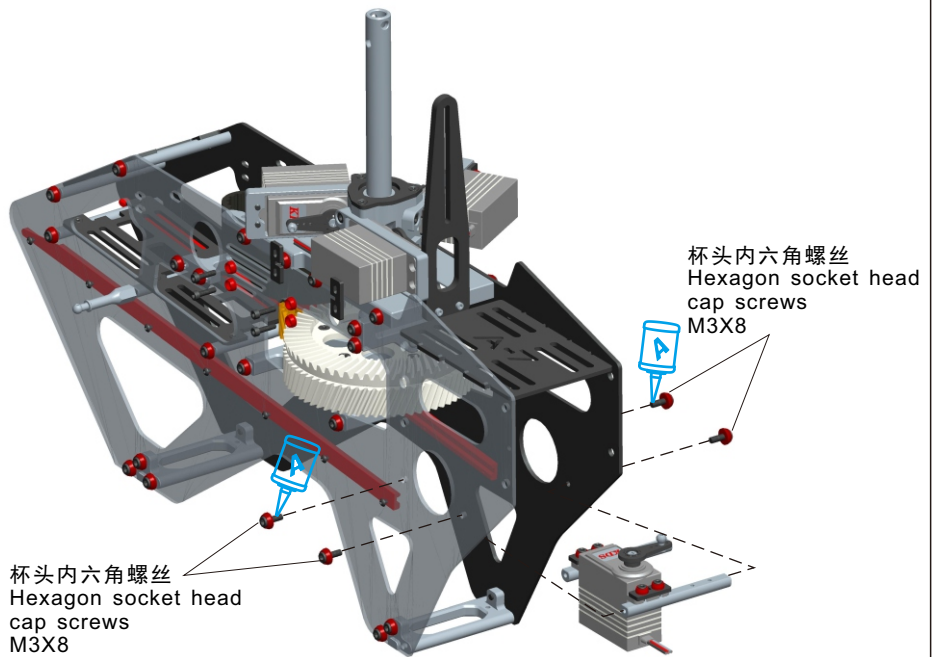
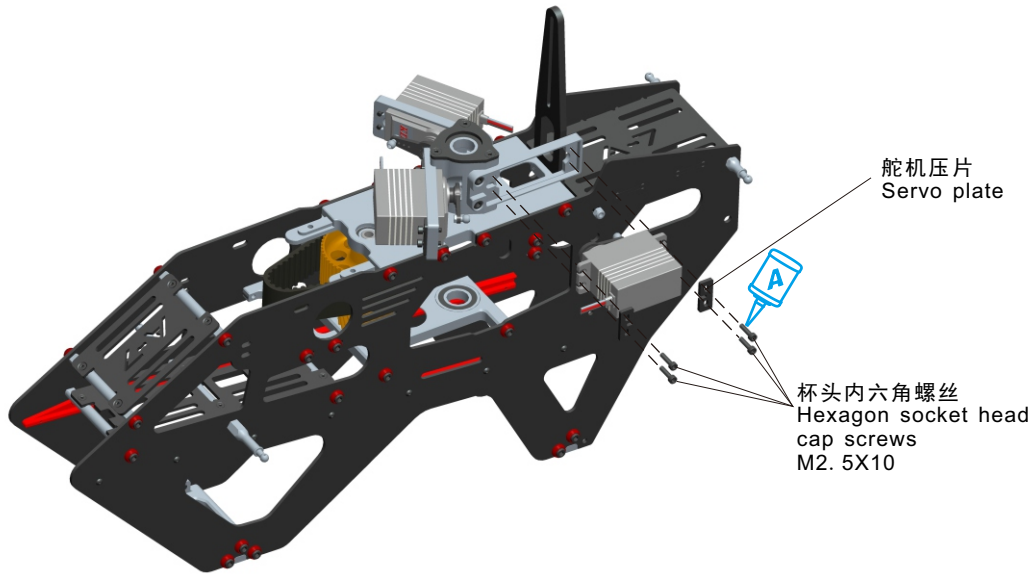
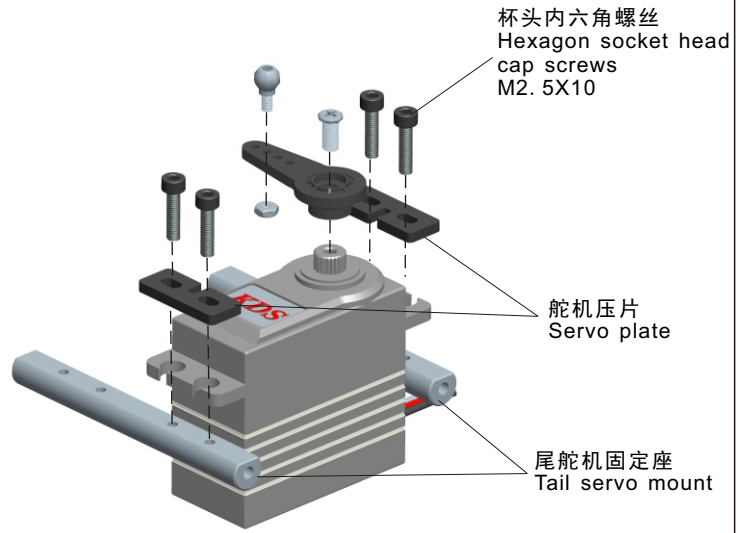
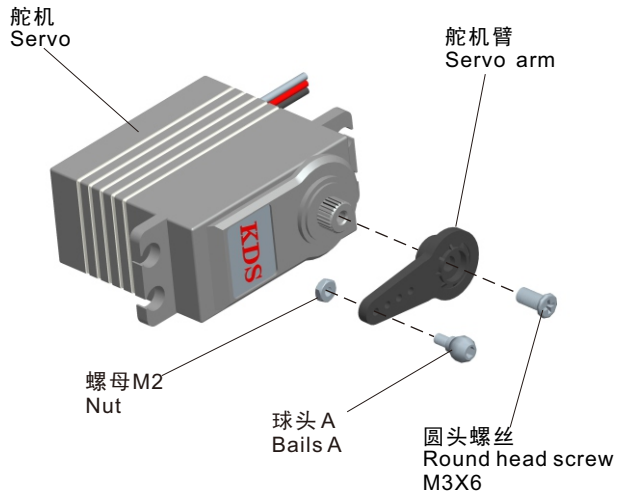
After the frame is installed,
tighten the Main shaft locating ring screws
主轴定位环螺丝装入机架后再锁紧



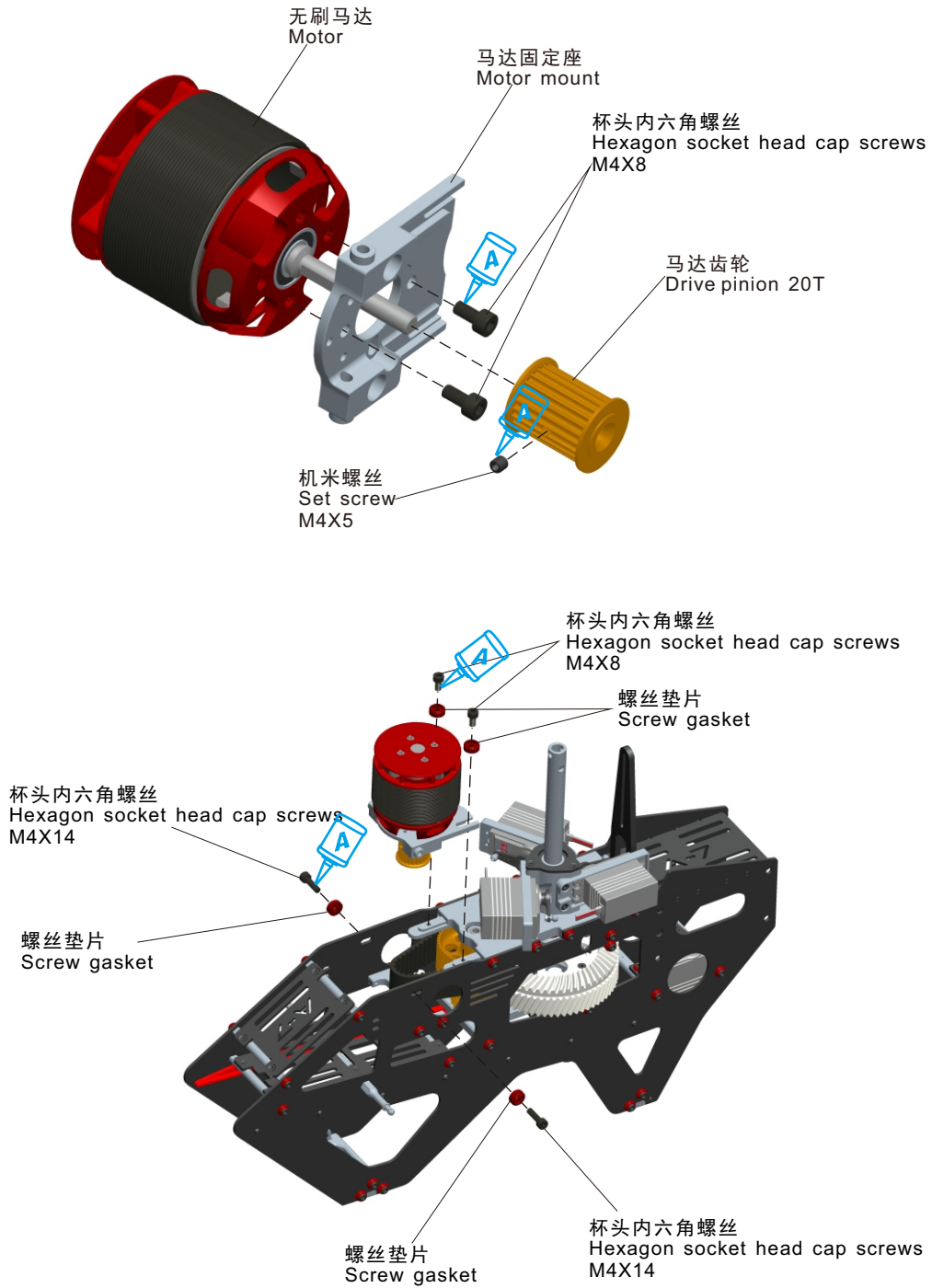
After the main gear is assembled, the gear is pressed down,
The Main shaft locating ring jacked up , Then tighten the screws .
主齿轮组装好后, 齿轮向下压紧,
主轴固定环向上顶紧, 后将螺丝锁紧

7. 组装说明 ASSEMBLY SECTION

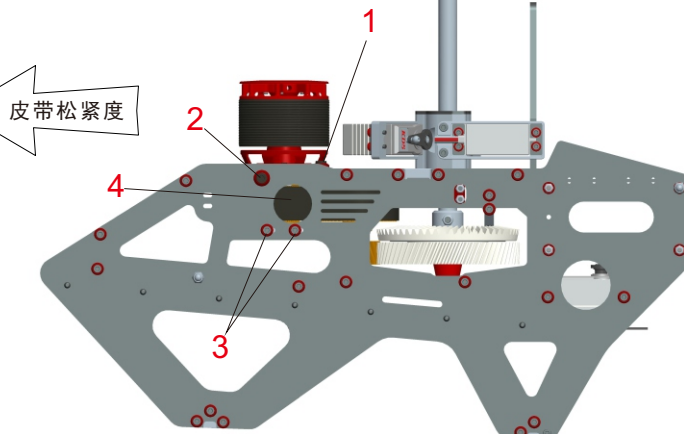
X3

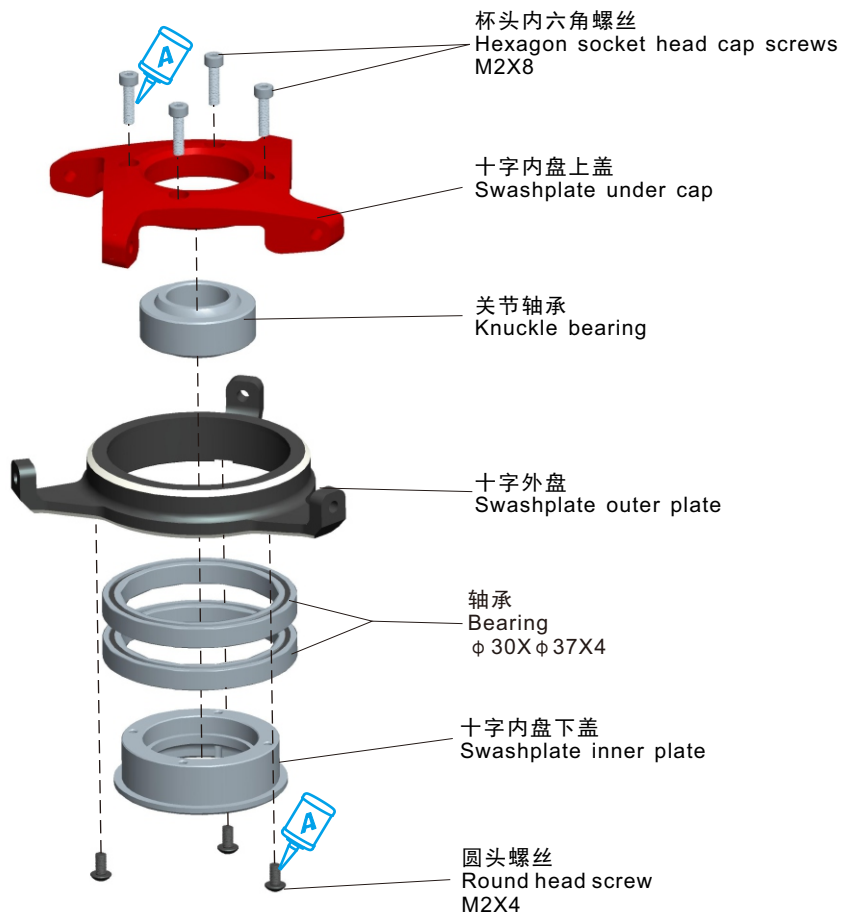
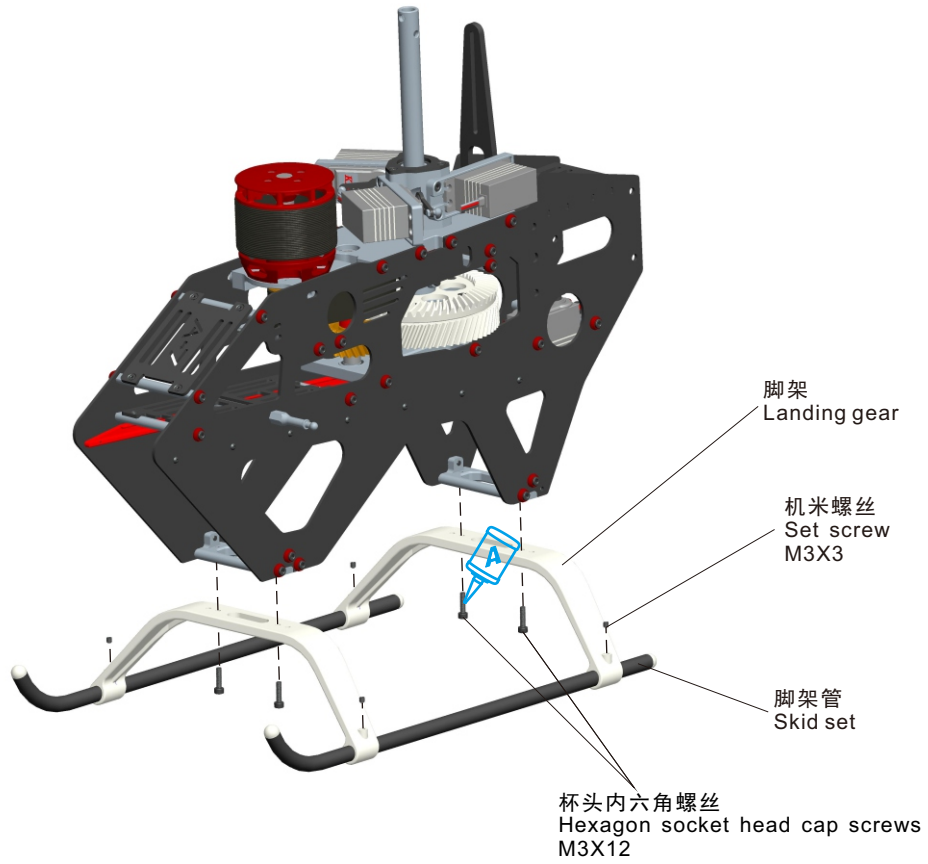


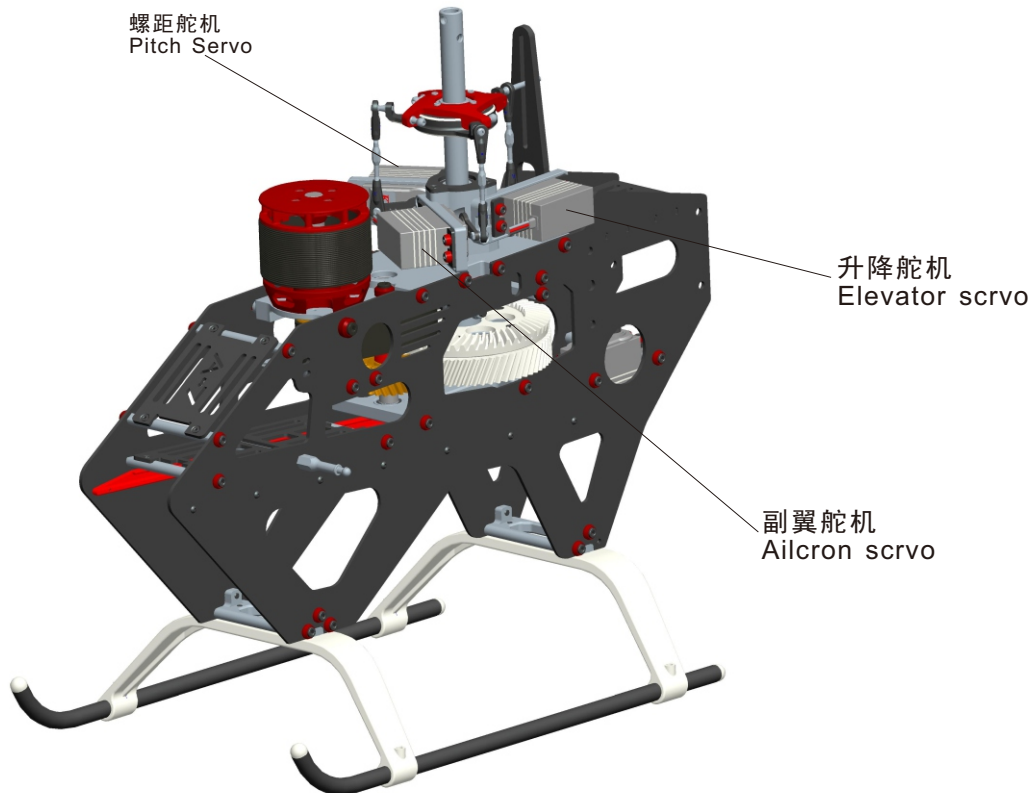
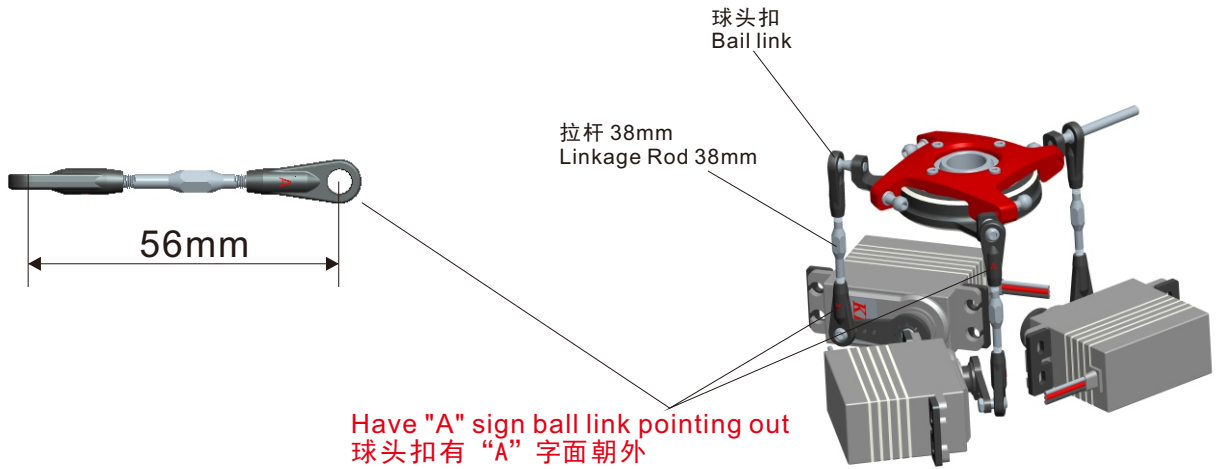
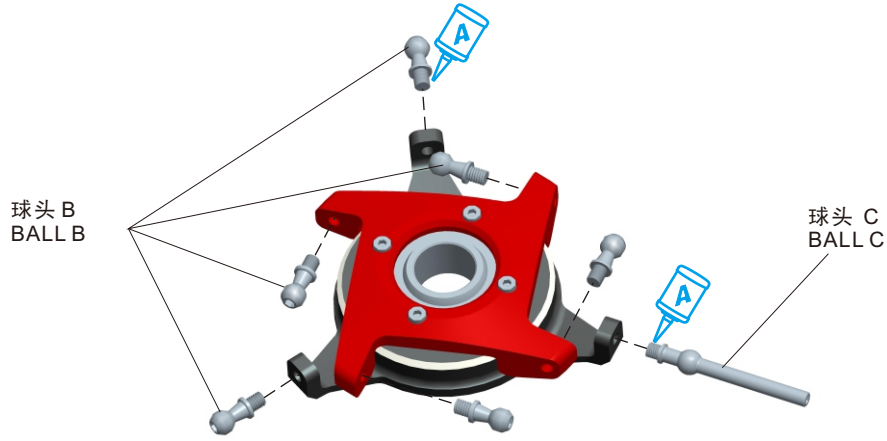
7. 组装说明 ASSEMBLY SECTION

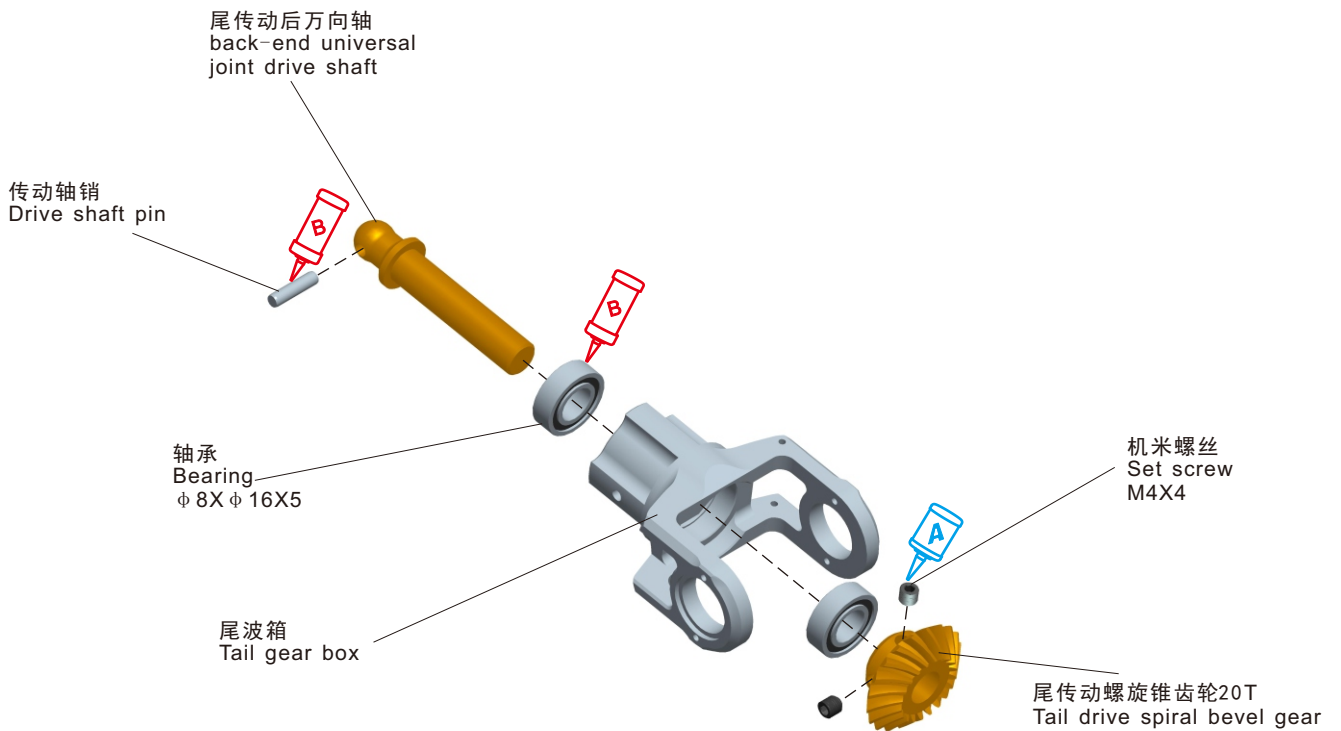
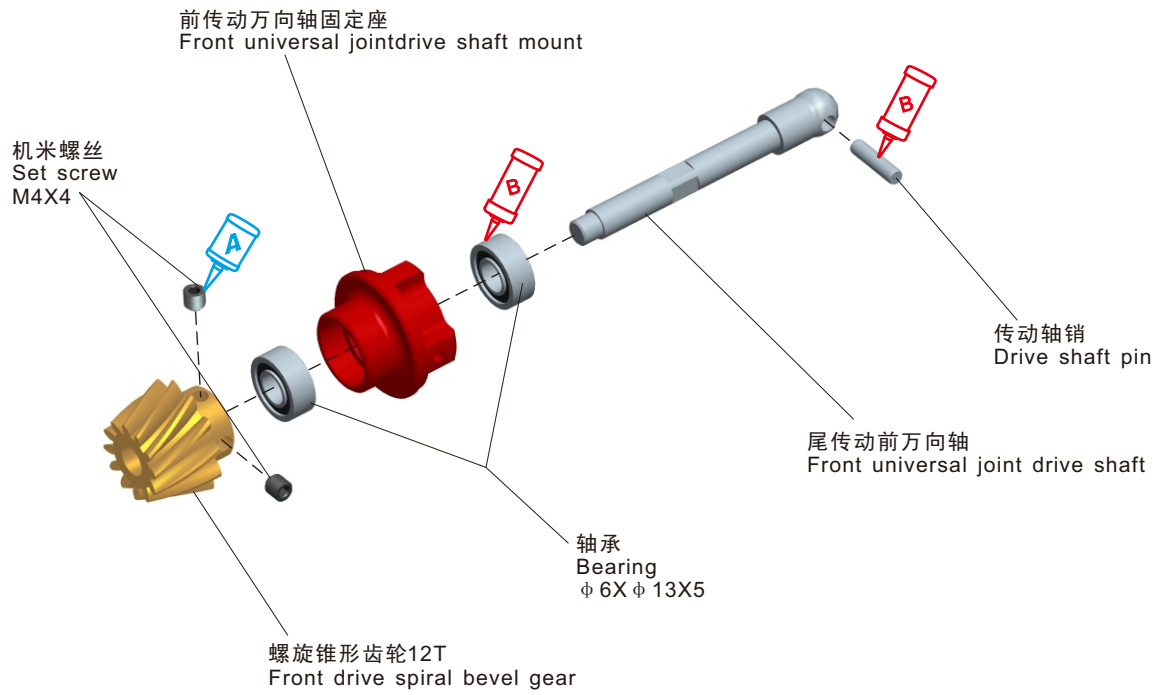


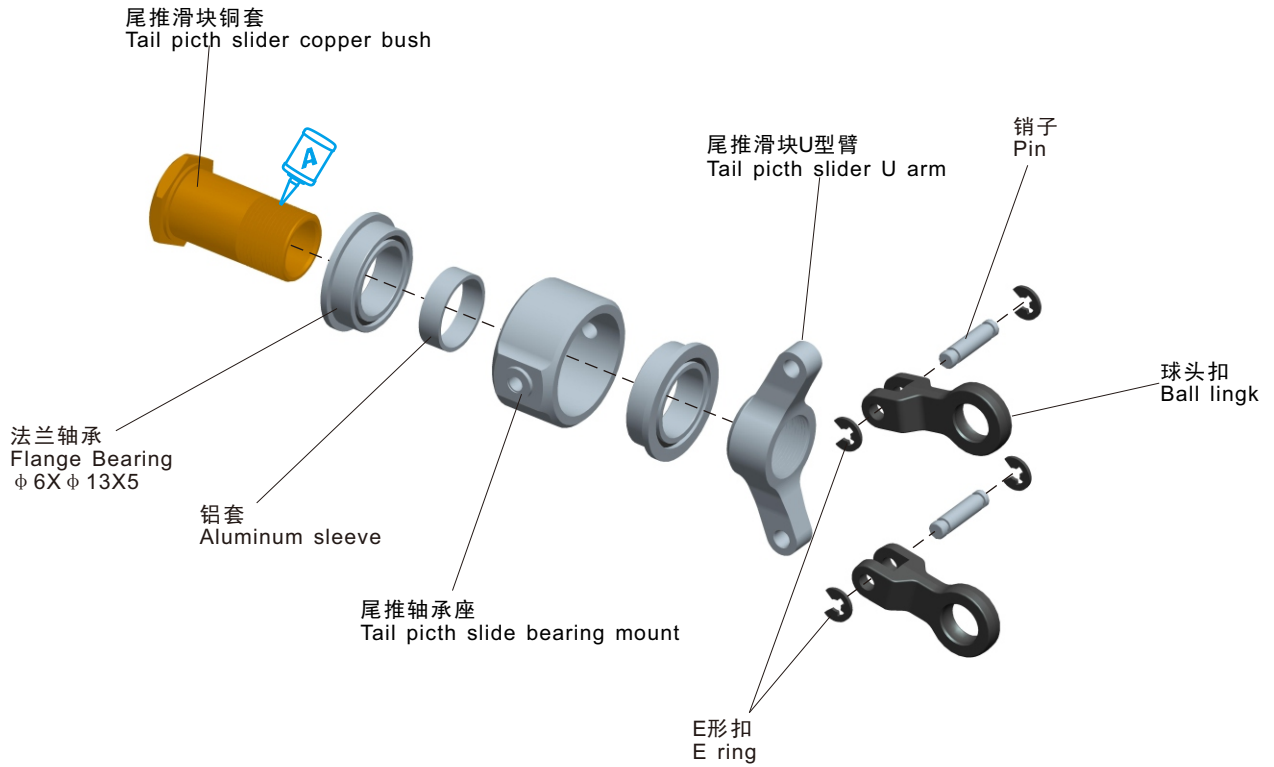
1. Push the motor in the opposite direction of the main shaft as far as you can (by hand).
 2. Tighten slide screws #1
 3. Tighten motor mount locking screws #2
 4. Rotate the motor several times by hand. Ensure that belt is correctly aligned with the big pulley
 5. Tighten counter bearing screws #3
 6. You can check the belt tension by hand. you just have to push the belt with one of your finger through the round opening on frame #4. It should be difficult to push motor belt
1. 用手沿着主轴反方向推动马达;
 2. 锁紧螺丝#1;
 3. 锁紧马达螺丝#2;
 4. 用手转动马达, 确保皮带与大齿平行;
 5. 锁好#3;
 6. 最后检查马达皮带松紧, 用一个手指穿过孔推动皮带, 困难时需调整适合松紧度;



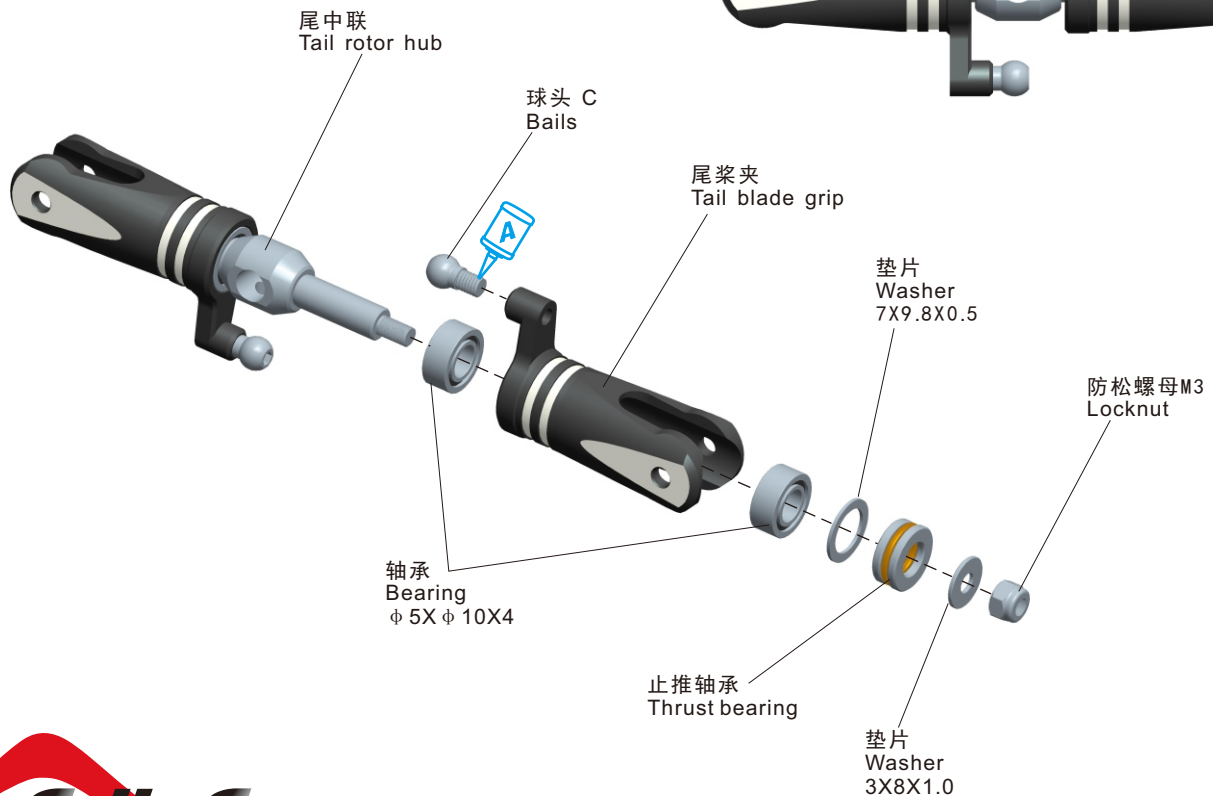
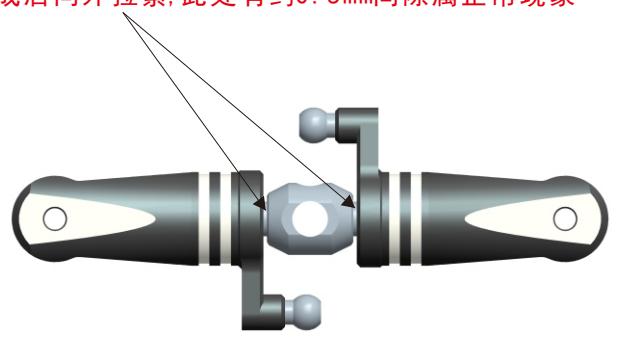


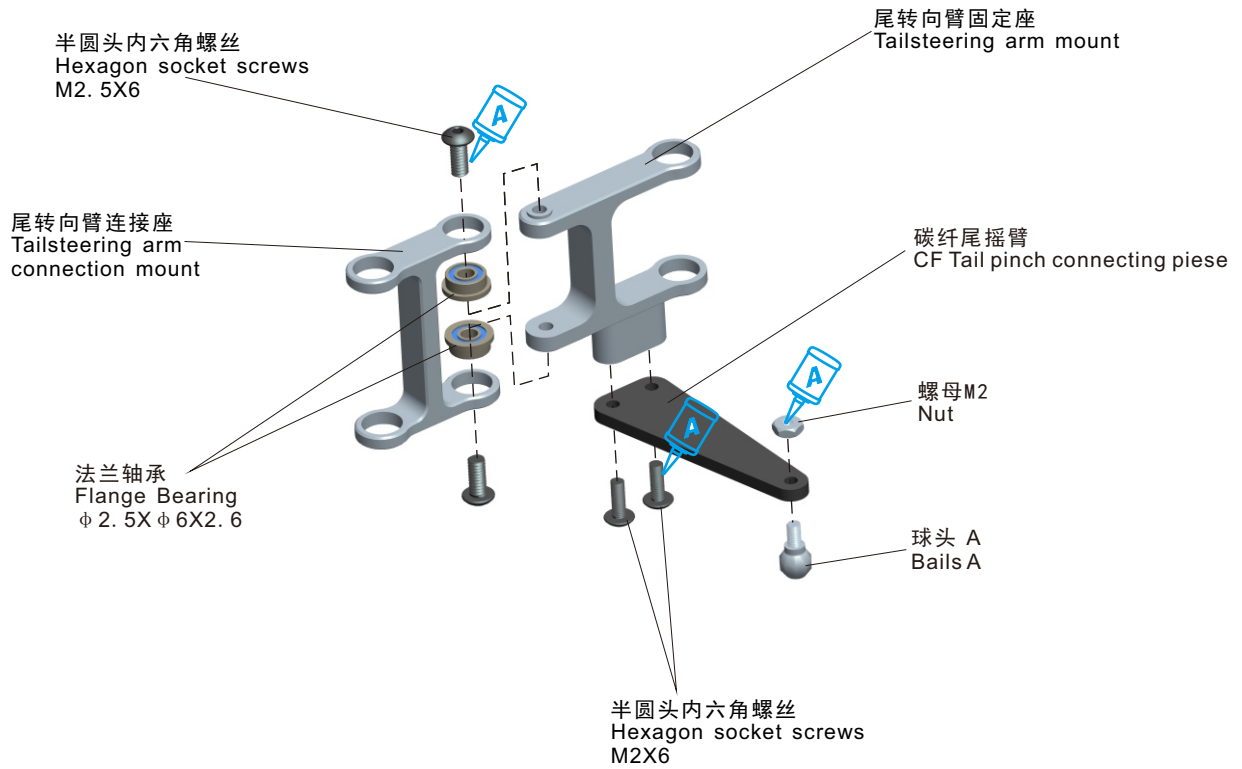
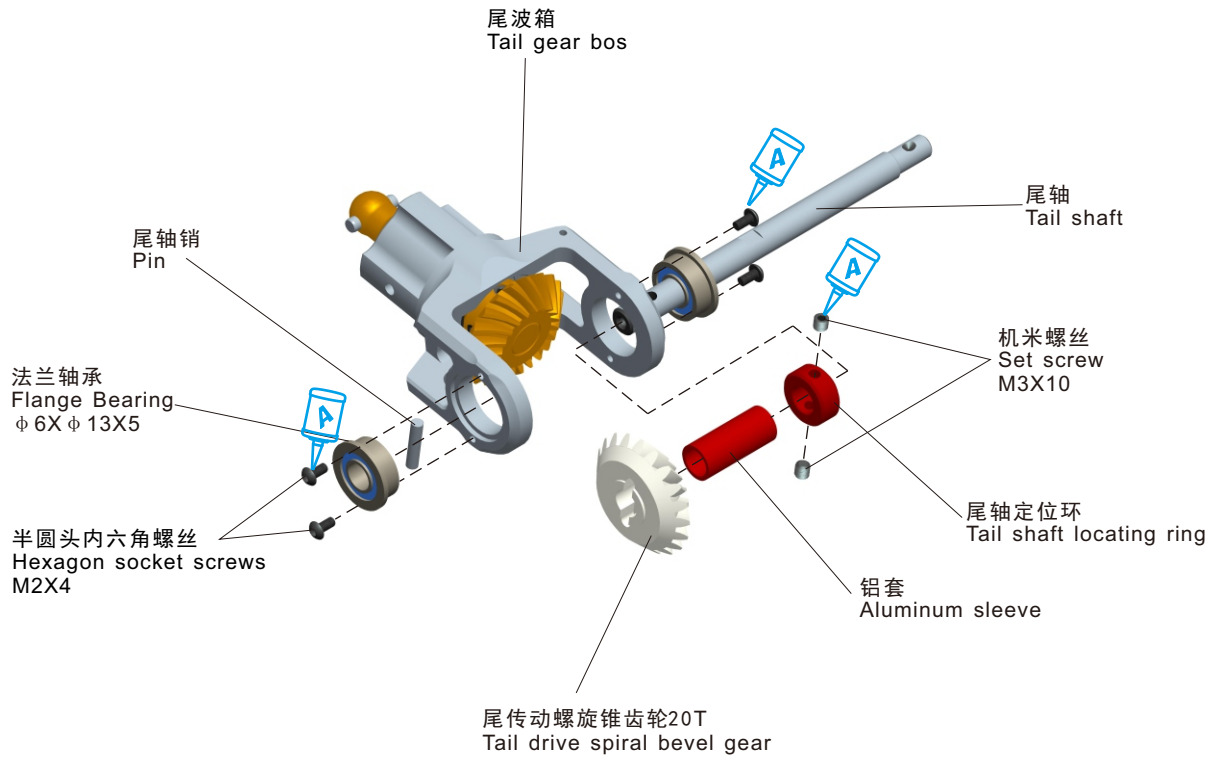


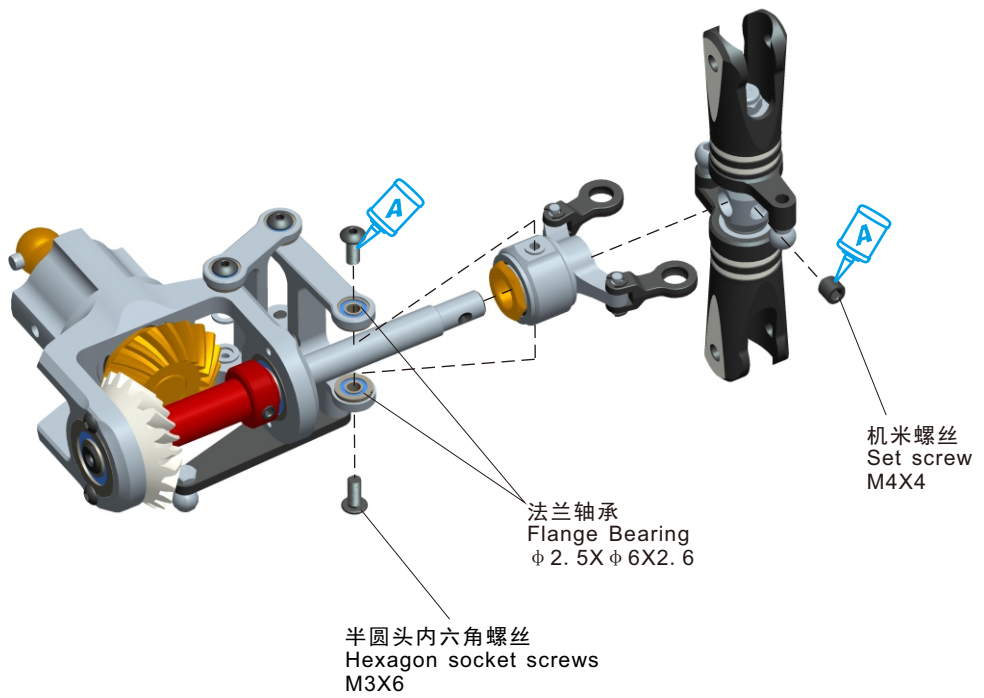
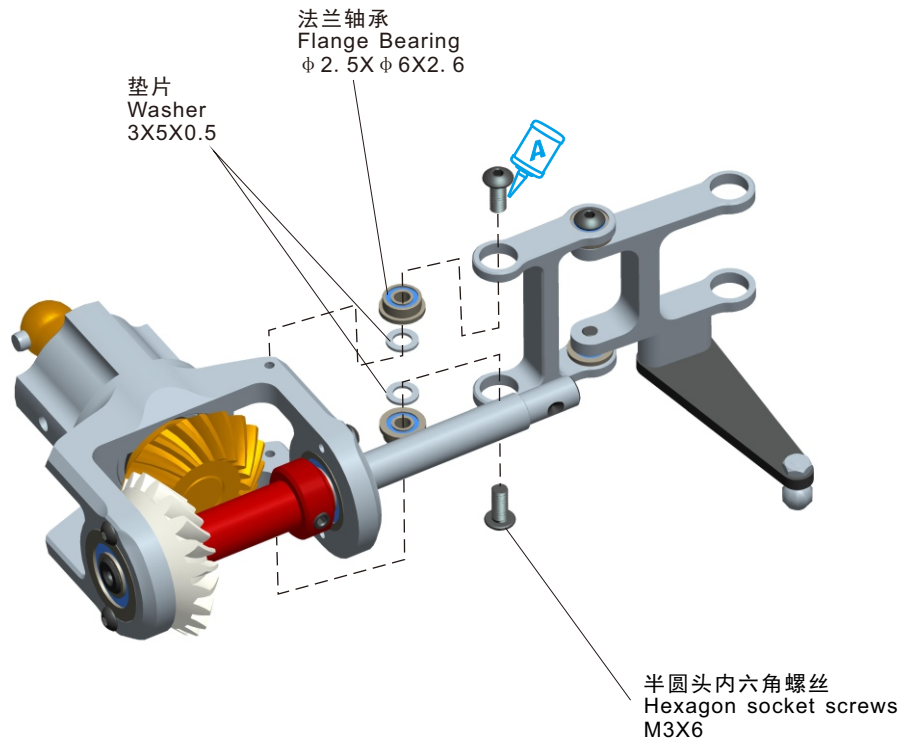


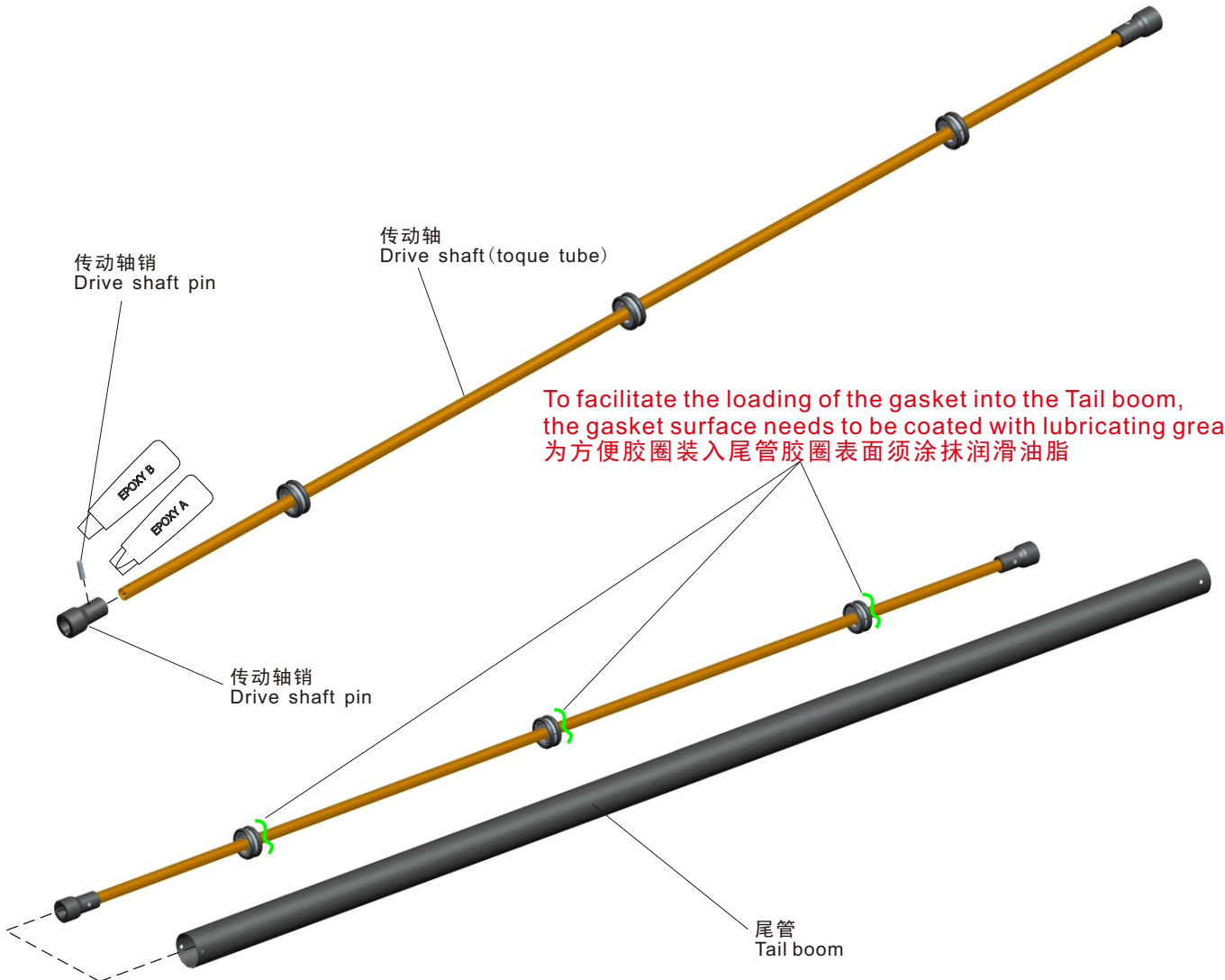
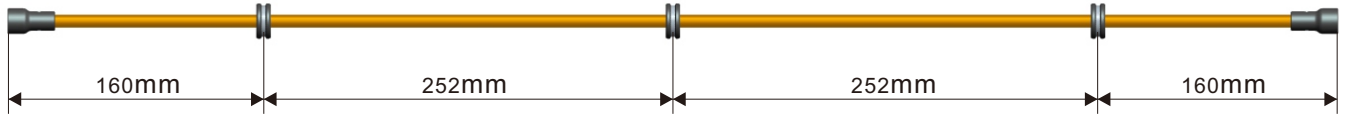
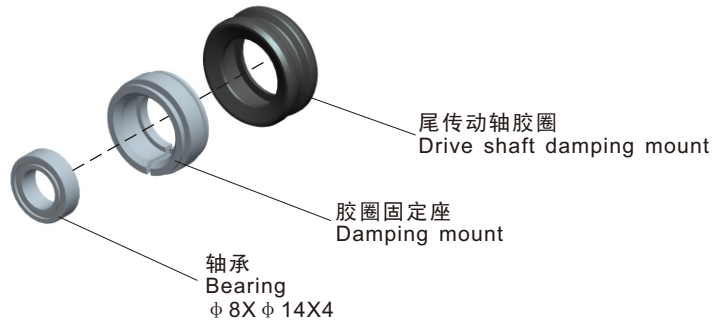


After the Tail blade grip is assembled, pull tight on both sides .
The clearance of about 0.5mm in this position is normal.
尾桨夹组装完成后向外拉紧, 此处有约0.5mm间隙属正常现象

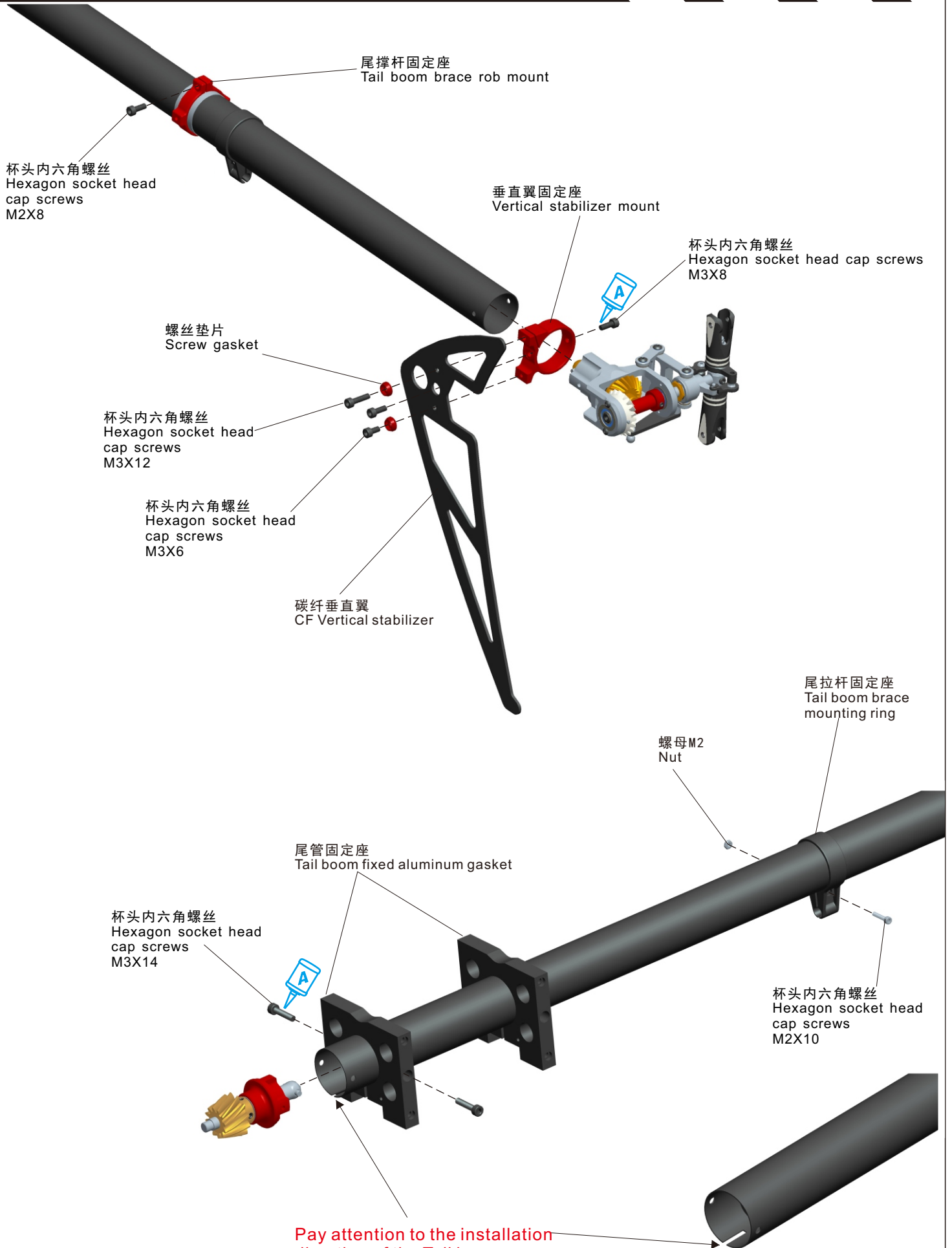


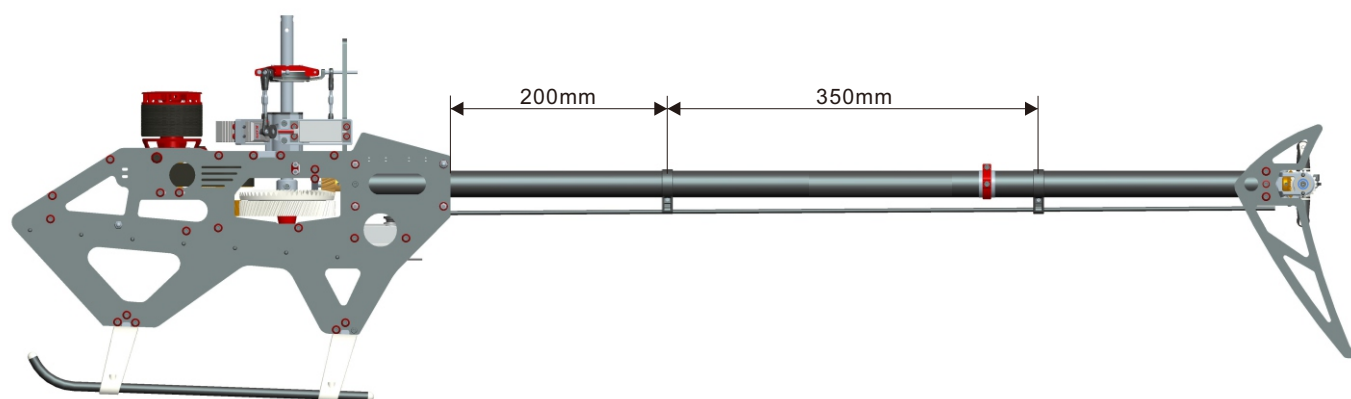
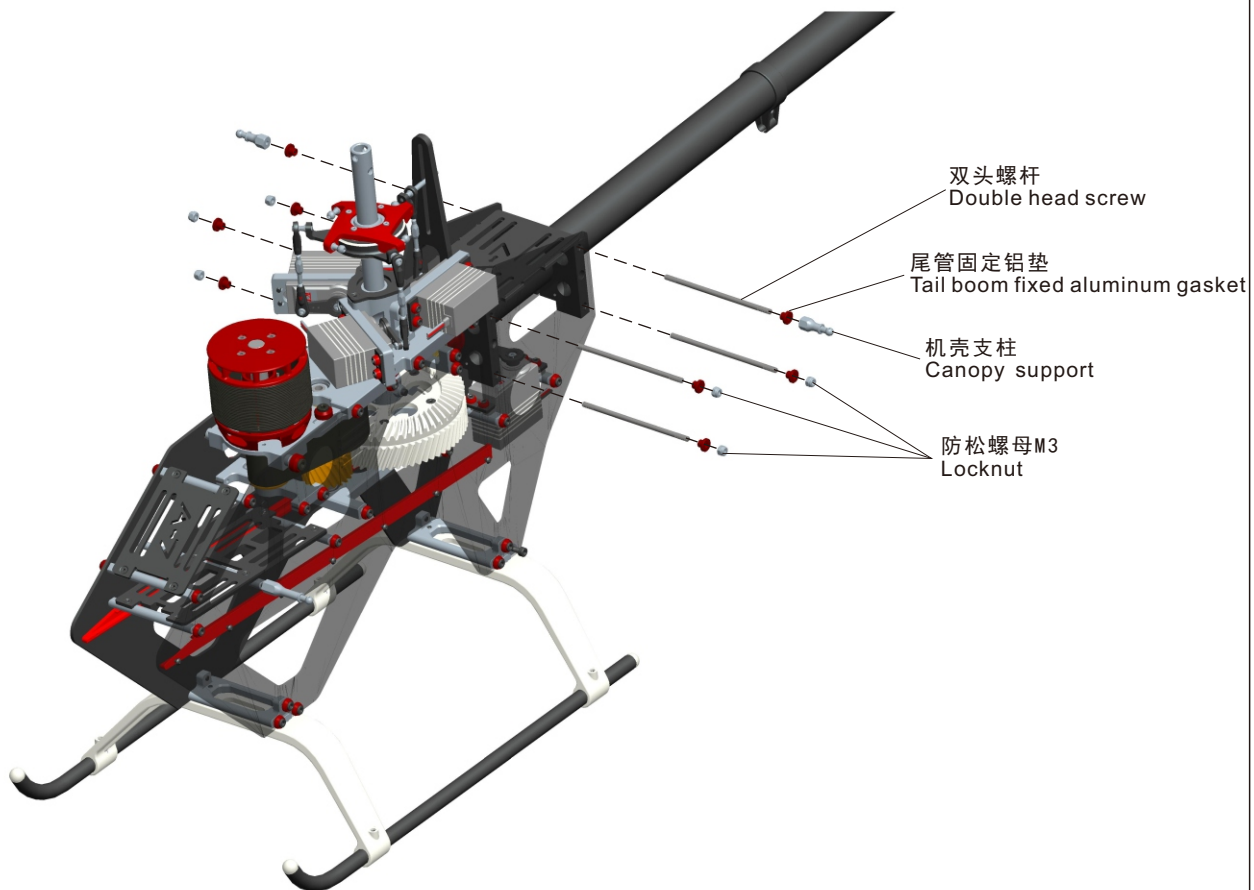


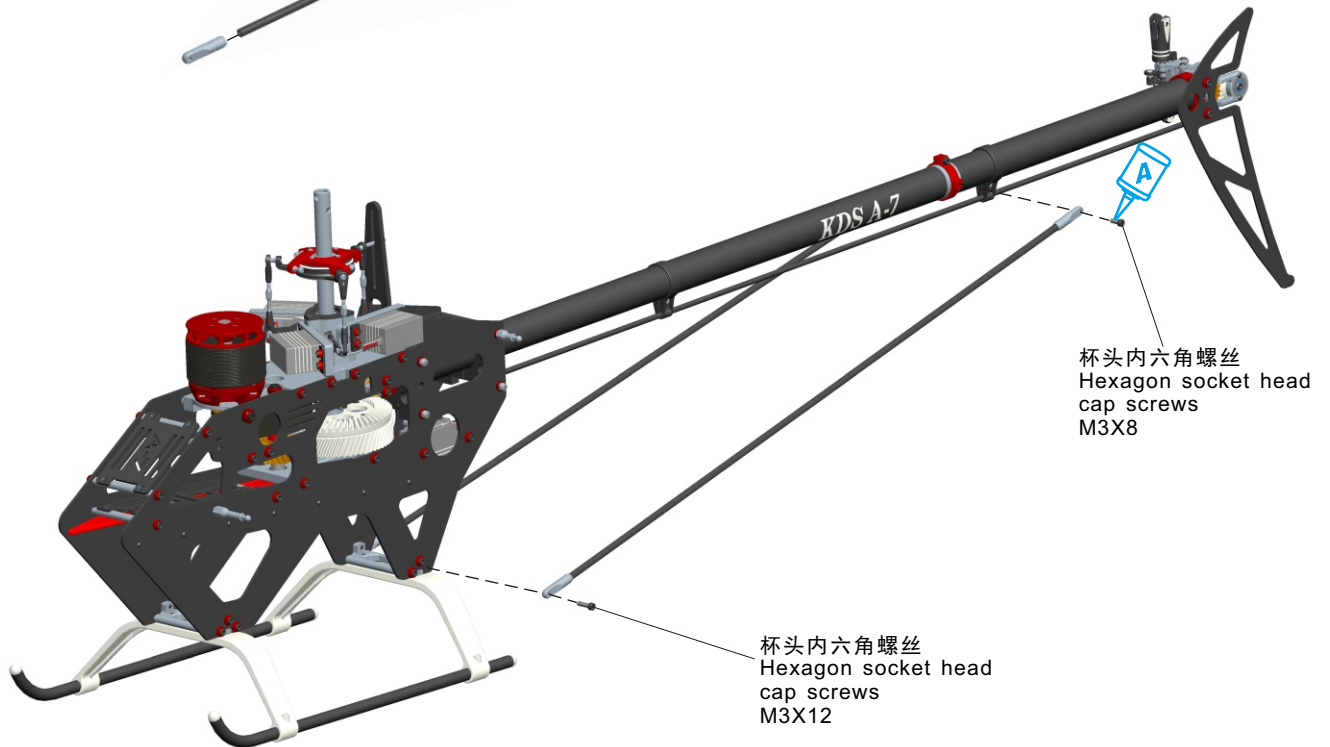
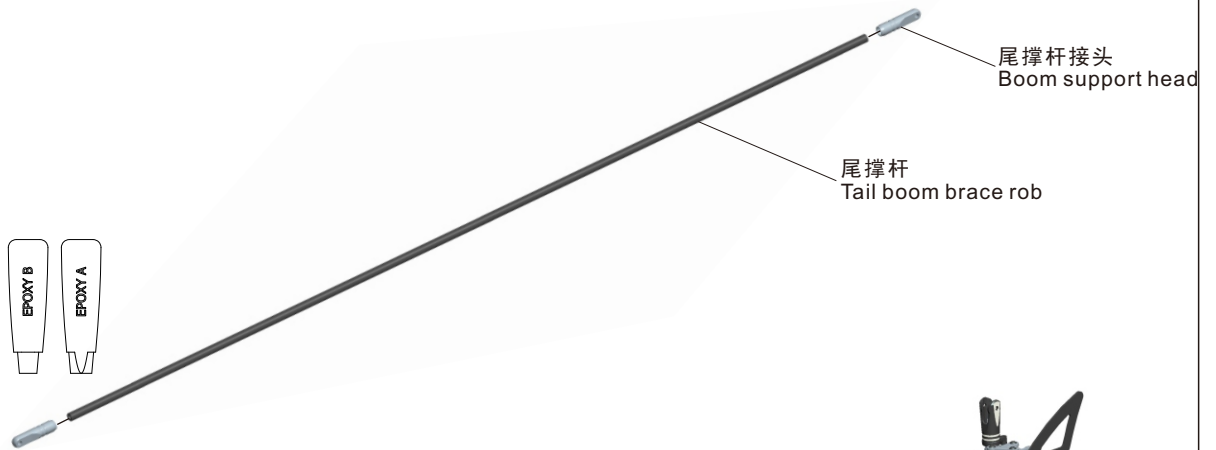
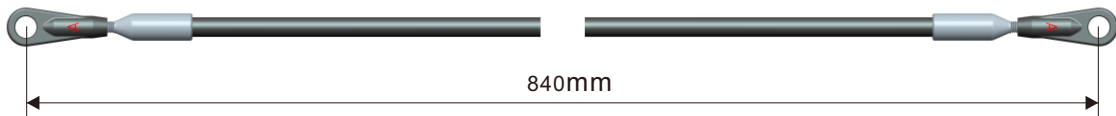
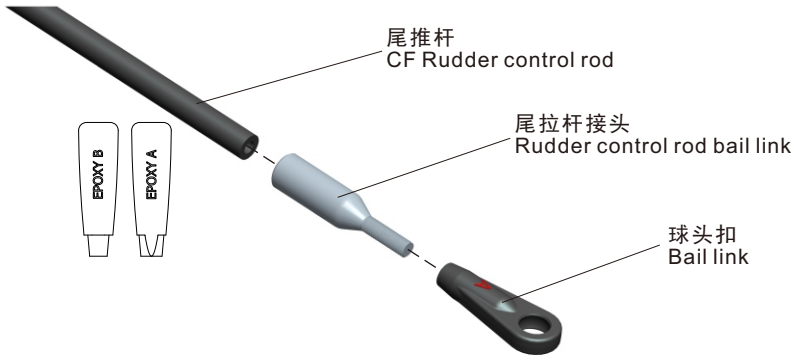


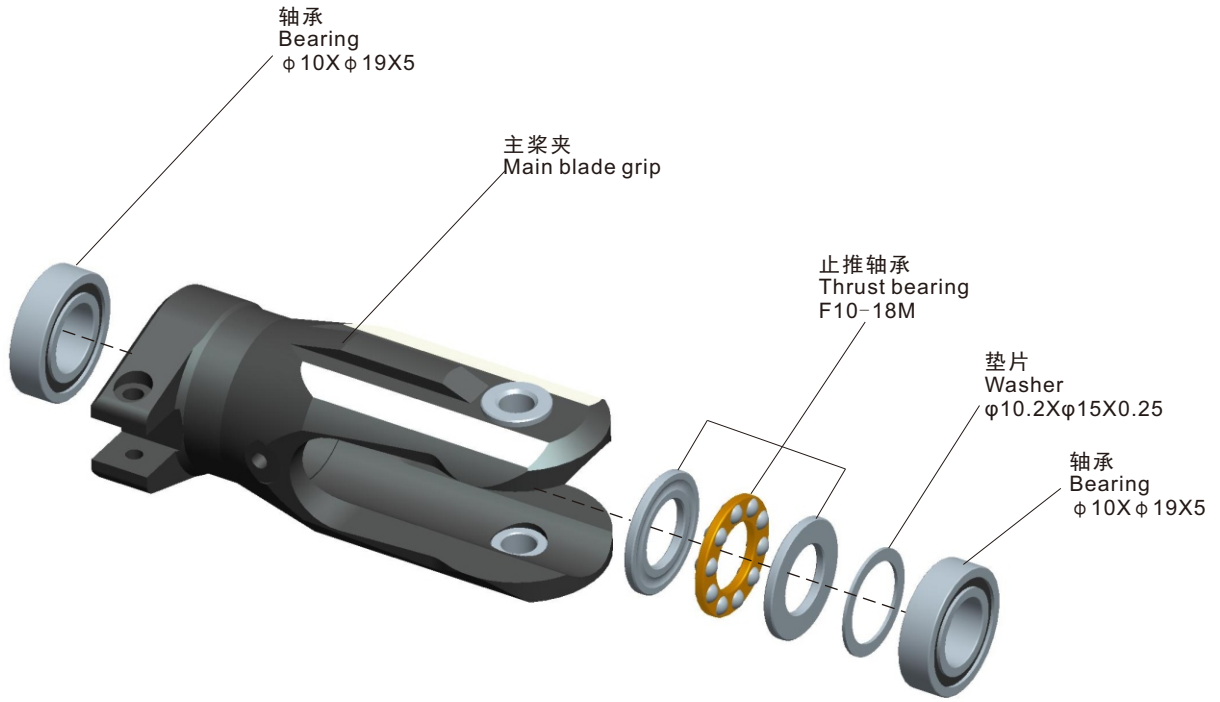


9. 组装说明 ASSEMBLY SECTION





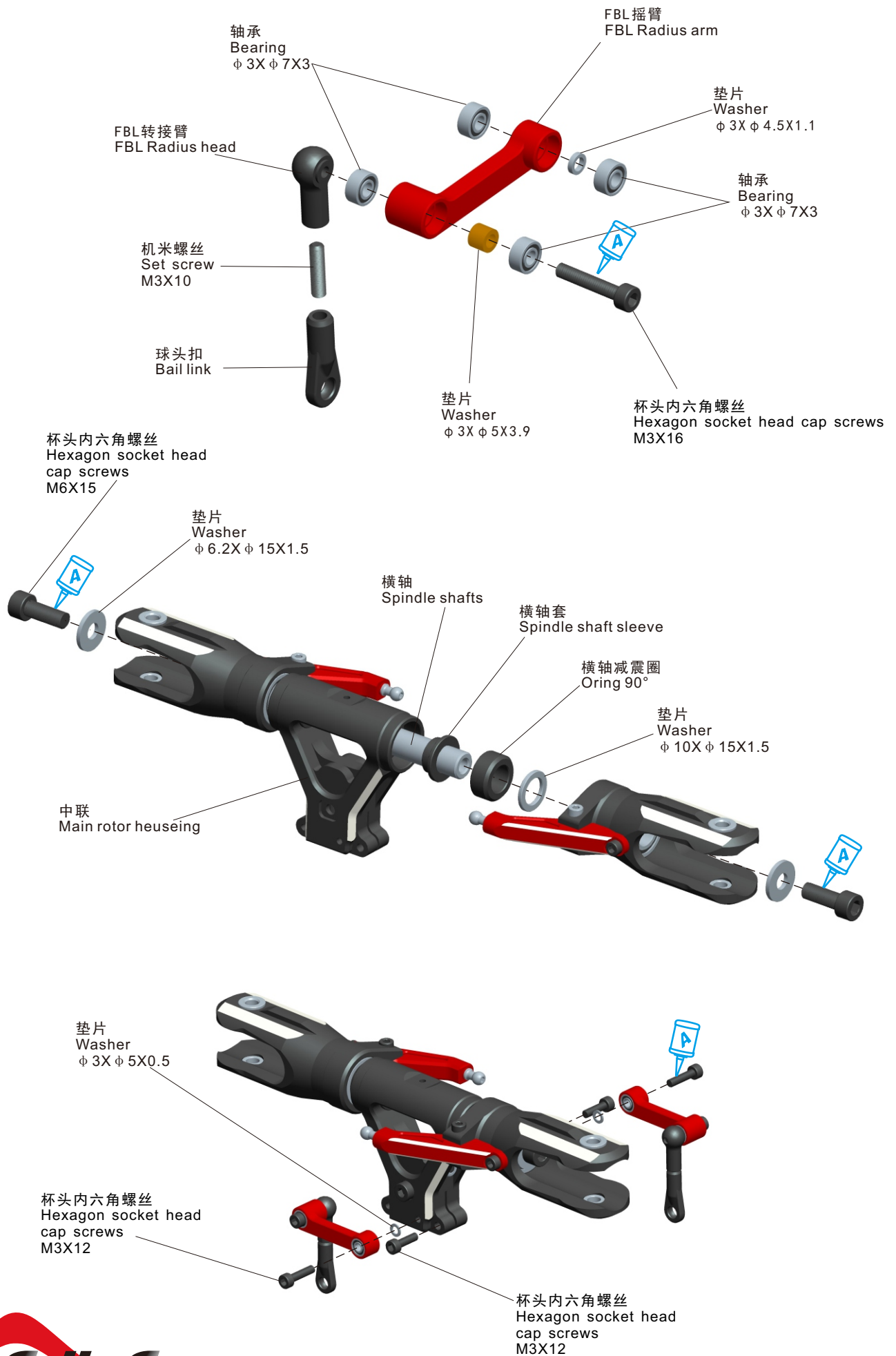


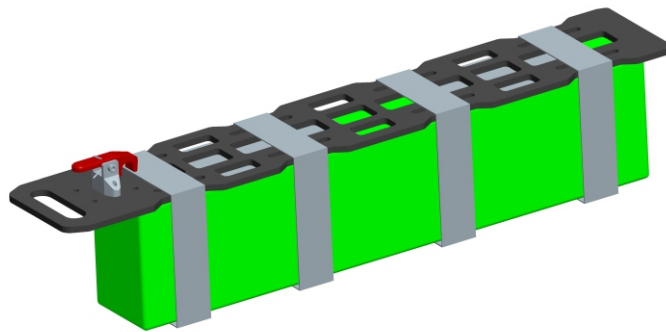
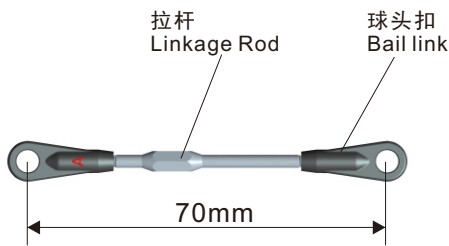
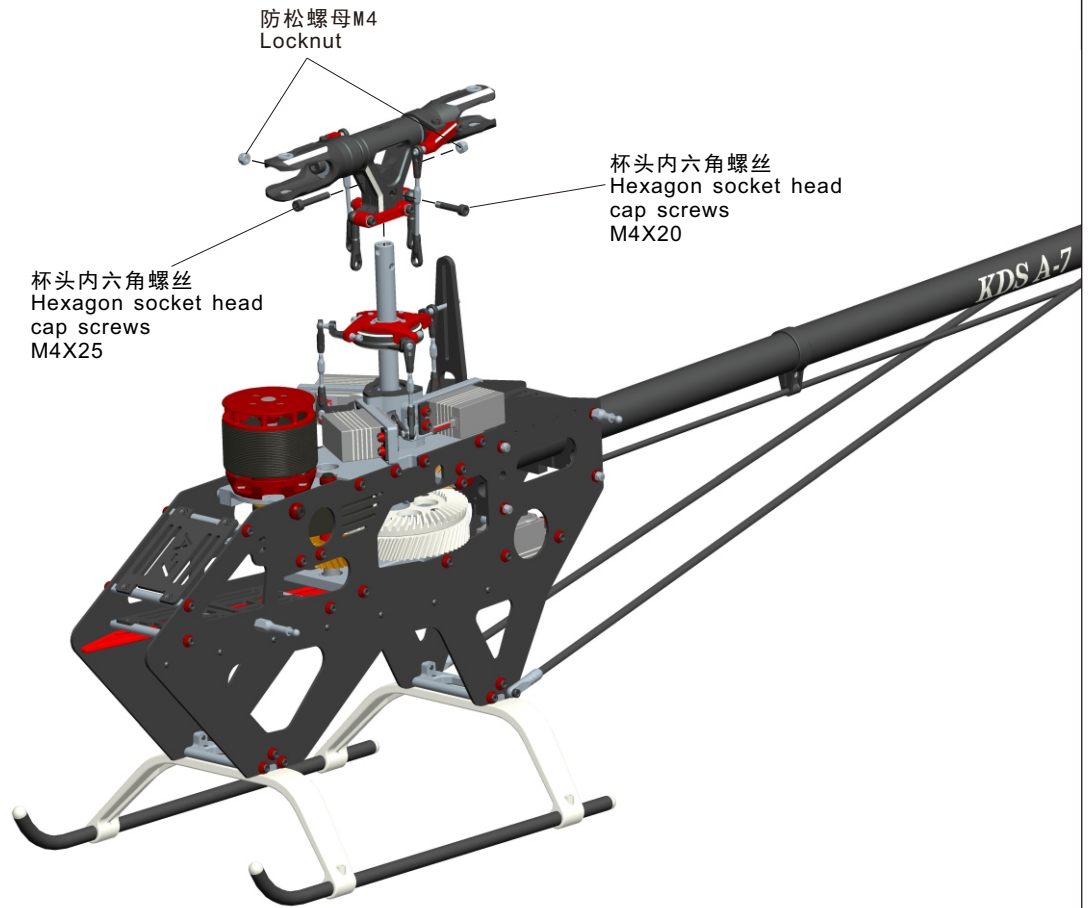


杯头内六角螺丝
Hexagon socket head
cap screws
M3X14



9. 组装说明 ASSEMBLY SECTION





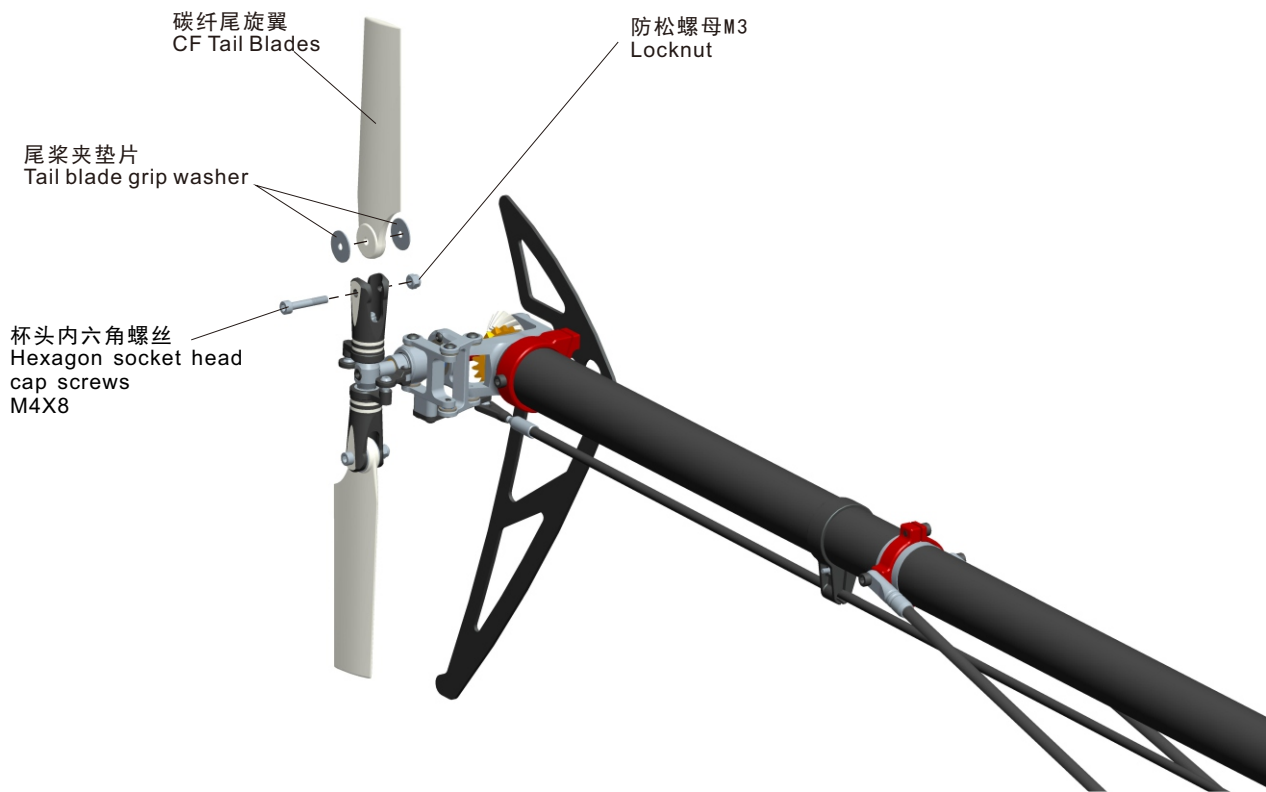
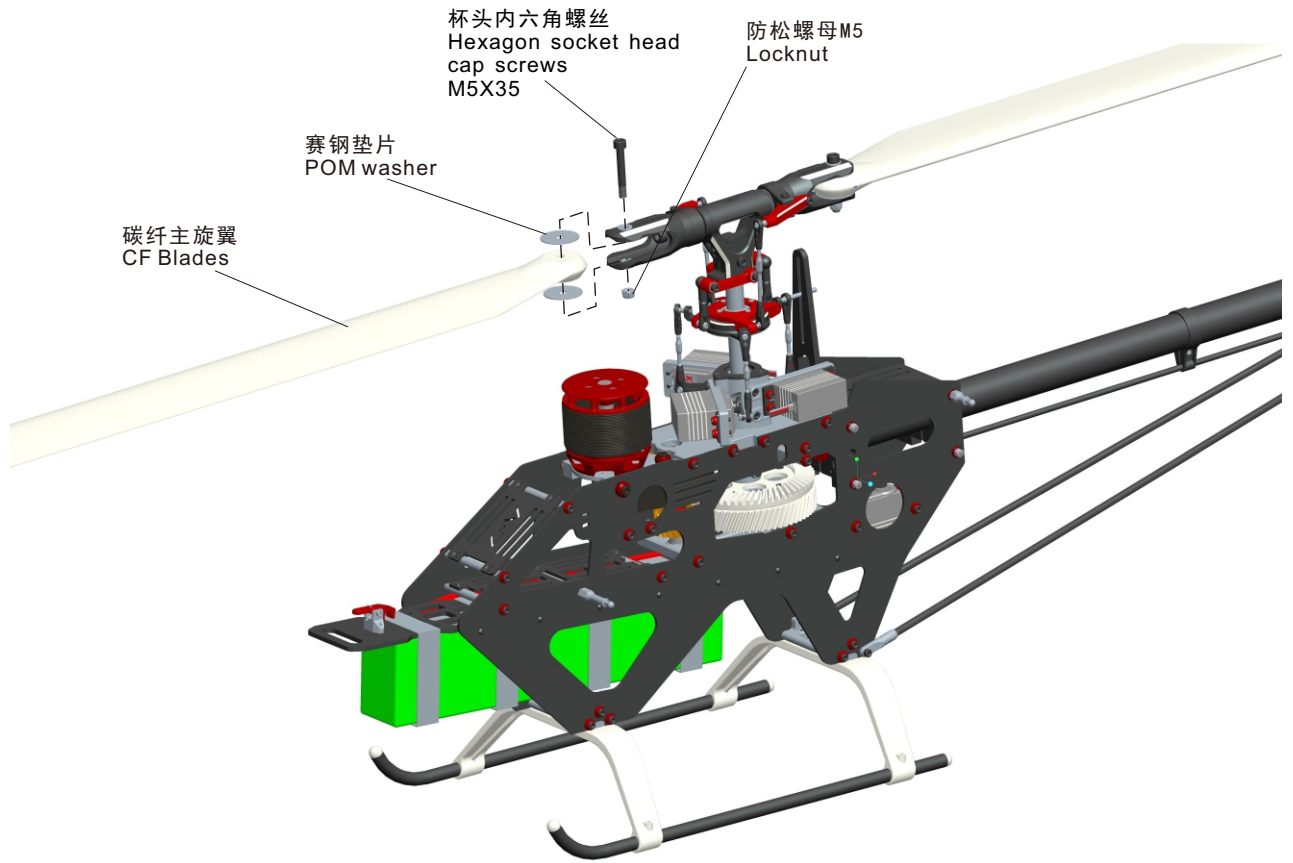
电池板固定座
Battery plate buckle mount

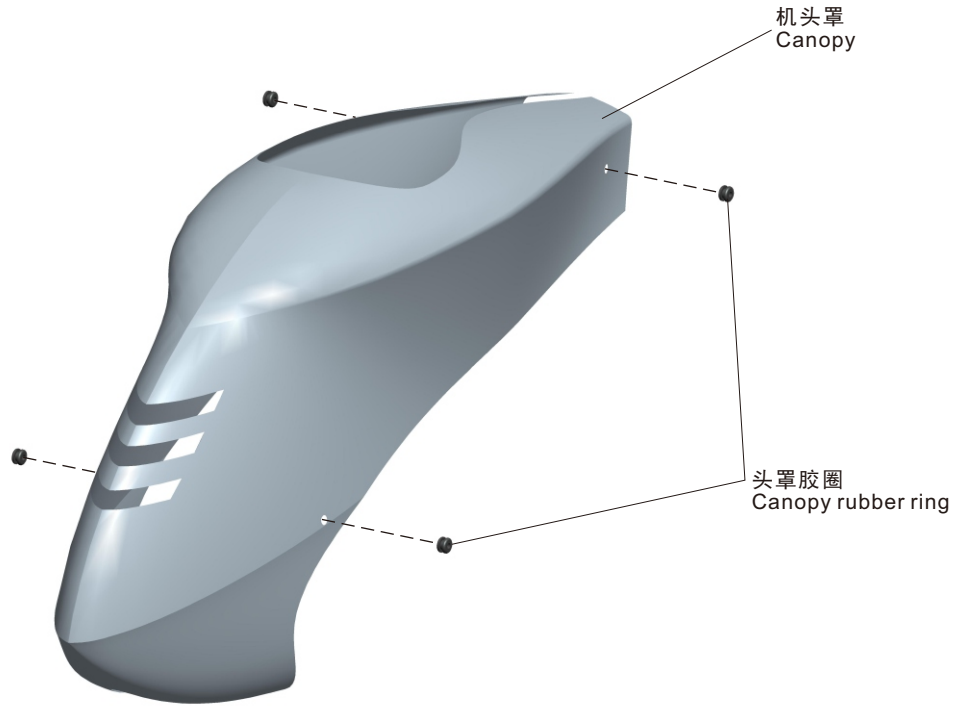
碳纤维电池板
CF Battery plate

沉头内六角螺丝
B countersunk head socket screw
M2. 5*6
























双面胶

电池
Battery









33.PARTS LIST 1

<p>Main rotor holder 大桨夹 KA-72-002</p>  <p>2 x Main rotor holder 大桨夹 4 x Rotor holder washer 桨夹套 2 x Stainless steel gasket $\varnothing 10.2 \times 0.15 \times 0.25 \text{mm}$ 垫片 2 x Plane bearing $\varnothing 10 \times 0.19 \times 5 \text{mm}$ 平面轴承 2 x Thrust bearing F10-18M 止推轴承 2 x Nylon lock nuts M5 尼龙螺母 2 x Hexagon socket head cap screws M5x35mm 杯头内六角螺丝 4 x Washers $\varnothing 5 \times 0.26 \times 0.5 \text{mm}$ POM垫片</p>	<p>Main Rotor head block Housing 主中联 KA-72-092</p>  <p>1 x Main Rotor head block Housing 主中联 2 x Stainless steel gasket $\varnothing 10.2 \times 0.15 \times 1.5 \text{mm}$ 垫片 2 x Oring 90° 横轴减震圈 1 x Hexagon socket head cap screws M4 x 20 杯头内六角螺丝 1 x Hexagon socket head cap screws M4 x 25 杯头内六角螺丝 2 x Nylon lock nuts M4 尼龙螺母</p>	<p>Main rotor arm 大桨支臂 KA-72-004</p>  <p>2 x Main rotor arm 2 x Hexagon socket head cap screws M3x14mm 杯头内六角螺丝 2 x Hexagon socket head cap screws M3x6mm 杯头内六角螺丝</p>	<p>Canopy 头罩 A7-70-078</p>  <p>4 x Canopy rubber ring 头罩胶圈 1 x Canopy 头罩</p>
<p>FBL Radius arm FLB摇臂 A7-70-005</p>  <p>2 x FBL Radius arm 摇臂 2 x FBL Radius head 转接臂 2 x Plane bearing $\varnothing 3 \times 0.7 \times 3 \text{mm}$ 平面轴承 4 x Ball head buckle $\varnothing 5.0$ 球头扣 2 x Set screw M3X10 机米螺丝 2 x Hexagon socket head cap screws M3x16mm 杯头内六角螺丝 2 x Hexagon socket head cap screws M3x16mm 杯头内六角螺丝</p>	<p>Swash plate set 十字盘 KA-72-007</p>  <p>1 x Swash plate set 十字盘组</p>	<p>Swashplate outer ring 十字盘外盘 KA-72-008-1</p>  <p>1 x Swashplate outer ring 十字盘外盘</p>	<p>Servos mount 舵机固定支架 A7-70-012</p>  <p>3 x Servos mount 舵机固定支架 12 x Hexagon socket head cap screws M2.5x10mm 杯头内六角螺丝</p>
<p>Main shaft up bearing block 主轴上轴承座 A7-70-010</p>  <p>1 x Imported plane bearing $\varnothing 12 \times 0.24 \times 6 \text{mm}$ 平面轴承 1 x Imported plane bearing $\varnothing 8 \times 0.16 \times 5 \text{mm}$ 平面轴承 1 x Main shaft up bearing block 主轴上轴承座 8 x Cup head socket head screw M3x8mm 杯头内六角螺丝 2 x Aluminum gasket 铝垫片 2 x Cup head socket head screw M4x8mm 杯头内六角螺丝</p>	<p>Main shaft under bearing block 主轴承座 A7-70-011</p>  <p>1 x Under bearing block 主轴承座 1 x Imported plane bearing $\varnothing 12 \times 0.24 \times 6 \text{mm}$ 平面轴承 1 x Imported plane bearing $\varnothing 8 \times 0.16 \times 5 \text{mm}$ 平面轴承 4 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝</p>	<p>Main servos mount 舵机固定座架 A7-70-009</p>  <p>1 x Main servos mount 舵机固定座架 1 x Imported plane bearing $\varnothing 12 \times 0.24 \times 6 \text{mm}$ 平面轴承 6 x Cup head socket head screw M3x6mm 杯头内六角螺丝</p>	<p>Main shaft 主轴 A7-70-013</p>  <p>1 x Main Shaft</p>
<p>Feathering Shaft 横轴 KA-72-014</p>  <p>2 x Feathering Shaft 4 x Cup head socket head screw M6x16mm 杯头内六角螺丝 4 x Stainless steel gasket $\varnothing 6.2 \times 0.15 \times 1.5 \text{mm}$</p>	<p>Tail shaft 尾轴 KA-72-015</p>  <p>2 x Tail shaft</p>	<p>Connecting arm Linkage Ball Set 连接球头 KA-72-008</p>  <p>4 x Connecting arm Linkage Ball Set 连接球头</p>	<p>Feathering shaft dampers 横轴减震圈 KA-72-017</p>  <p>4 x Feathering shaft dampers</p>
<p>Upper motor block 马达上固定座 A7-70-018</p>  <p>1 x Upper motor block 2 x Cup head socket head screw M4x14mm 杯头内六角螺丝 2 x Cup head socket head screw M4x8mm</p>	<p>Motor under mount 马达固定下座 A7-70-019</p>  <p>1 x Motor under mount 1 x Imported plane bearing $\varnothing 6 \times 0.13 \times 5 \text{mm}$ 平面轴承 4 x Cup head socket head screw M3x8mm 杯头内六角螺丝</p>	<p>Battery plate slippery course 电池板滑轨 A7-70-034</p>  <p>2 x Battery plate slippery course 电池板滑轨 14 x Hexagon socket screws M2X5 半圆头内六角螺丝</p>	<p>Synchronous main motor belt 马达皮带 KA-72-021-W</p>  <p>1 x synchronous belt 213-3M-22MM 皮带</p>
<p>Main shaft locating ring 主轴限位环 A7-70-016</p>  <p>1 x Main shaft locating ring 主轴限位环 1 x Main gear sleeve 主齿轮套 2 x Hexagon socket head cap screws M3 x 12 杯头内六角螺丝 2 x Nylon lock nuts M3 尼龙螺母</p>	<p>Conical washers 机身螺丝垫片 KA-72-074</p>  <p>10 x Conical washers</p>	<p>Servos arm 金属舵机臂 2004-5-25T</p>  <p>3 x Servos arm 金属舵机臂 3 x Cup head socket head screw M2x6mm 杯头内六角螺丝 3 x Hexagon socket screws M2.5X6 半圆头内六角螺丝</p>	<p>First reduction gear 54T 皮带轮54T A7-70-026</p>  <p>1 x First reduction gear 54T 2 x Plane bearing $\varnothing 10 \times 0.14 \times 4 \text{mm}$ 平面轴承 2 x One-way Bearing $\varnothing 10 \times \varnothing 14 \times 12$ 单向轴承</p>










33.PARTS LIST 2

<p>Secondary gear 20T 二级齿轮20T KA-70-027</p>  <p>1 x Second reduction gear (20Z) 二级齿轮20T 1 x Secondary gear shaft pin 二级齿轮轴销 1 x Secondary gear shaft 二级齿轮轴 1 x Secondary gear sleeve 二级齿轮套</p>	<p>Main gear 大齿轮 A7-70-028</p>  <p>1 x Second reduction gear (66Z) 主齿轮</p>	<p>Front spiral bevel gear 前传动螺旋伞齿轮 KA-72-029</p>  <p>1 x Front spiral bevel gear(57Z) 前传动螺旋伞齿轮</p>	<p>Front drive spiral bevel gear 前传动轴螺旋伞齿轮 KA-72-030</p>  <p>1 x Helical bevel gear 12Z 前传动轴螺旋伞齿轮 2 x Set screw M4X4 机米螺丝</p>
<p>CF Main frame identical 碳纤维侧板 A7-70-033</p>  <p>2 x CF Main frame identical 碳纤维侧板</p>	<p>CF ESC plate 碳纤维电调板 A7-70-038</p>  <p>1 x CF ESC plate 碳纤维电调板</p>	<p>CF Frame connection plate 机身连接板 A7-70-039</p>  <p>1 x CF Frame connection plate 机身连接板</p>	<p>CF electronic plate 电子放置板 A7-70-035</p>  <p>1 x CF electronic plate 电子放置板</p>
<p>CF Battery plate 碳纤维电池板 A7-70-036</p>  <p>1 x CF Battery plate 碳纤维电池板</p>	<p>Tail boom Double-headed screw 尾管固定座双头螺杆 A7-70-042</p>  <p>8 x Nylon lock nuts M3 防松螺母 8 x Tail boom mount aluminum gasket 尾管固定铝垫 4 x Doubled-headed screw rod 双头螺杆</p>	<p>Tail boom fixed aluminum gasket 尾管固定座 A7-70-040</p>  <p>2 x Tail boom fixed aluminum gasket 尾管固定座</p>	<p>CF Vertical stabilizer 碳纤维直翼 KA-72-041</p>  <p>1 x CF Vertical stabilizer 碳纤维直翼</p>
<p>Landing gear 脚架 KA-70-044</p>  <p>4 x Set screw M3X3 机米螺丝 2 x Landing gear 脚架</p>	<p>Aluminum landing gear pipe 脚架管 KA-72-043</p>  <p>2 x Aluminum landing gear pipe 脚架管 4 x Plastic rubber ring 脚架管堵头</p>	<p>Landing gear 脚架 KA-55-044</p>  <p>4 x Landing gear 脚架 6 x Hexagon socket head cap screws M3x10mm 杯头内六角螺丝 4 x 14 x Hexagon socket screws M3X6 半圆头内六角螺丝 2 x Hexagon socket head cap screws M3x14mm 杯头内六角螺丝 4 x Set screws M3X3</p>	<p>Landing gear mount 脚架固定座 A7-70-045</p>  <p>2 x Landing gear mount 脚架固定座 10 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝 6 x Hexagon socket head cap screws M3x12mm 杯头内六角螺丝</p>
<p>Front drive shaft mount 传动轴前端固定座 A7-70-046</p>  <p>1 x Front helical gear mount 尾传动齿轮前轴承固定座 4 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝 1 x Plane bearing 05x10x4mm 平面轴承</p>	<p>Middle drive shaft mount 前传动万向轴承座 A7-70-047</p>  <p>1 x Middle drive shaft mount 前传动万向轴承座 2 x Hexagon socket head cap screws M3x14mm 杯头内六角螺丝 2 x Plane bearing 06x11x5mm 平面轴承</p>	<p>Drive shaft(toque tube) 传动轴 A7-70-048</p>  <p>1 x Drive shaft(toque tube) 传动轴 2 x Tail drive bearing mount 尾传动轴万向轴承座 2 x Drive shaft pin 03x12mm 传动轴销子</p>	<p>Drive shaft damping 传动轴减震圈 A7-70-049</p>  <p>3 x Surface bearings 08x14x4mm 平面轴承 3 x Rubber ring 尾传动轴减震圈 3 x Tail drive bearing mount 尾传动轴承固定座</p>
<p>Back-end universal joint drive shaft 尾传动后万向轴 A7-72-050</p>  <p>1 x Back-end universal joint drive shaft 尾传动后万向轴 1 x Drive shaft pin 03x12mm 传动轴销子</p>	<p>Front universal joint drive shaft 尾传动前万向轴 KA-72-051</p>  <p>1 x Drive shaft pin 03x12mm 传动轴销子 1 x Front universal joint for tail drive shaft 尾传动前万向轴</p>	<p>Tail gear box 尾波箱 A7-70-052</p>  <p>1 x Tail gear box 尾波箱 2 x Flange Bearings(imported) 06x11x5mm 法兰轴承 2 x Hexagon socket head cap screws M3x14mm 杯头内六角螺丝 4 x Hexagon socket screws M2X4 半圆头内六角螺丝 2 x Surface bearing 08x16x5mm 平面轴承</p>	<p>Tail pitch slider 尾推滑块 KA-72-053</p>  <p>1 x Copper Sleeve for tail push slider 尾推滑块铜套 1 x Tail push bearing 尾推轴承座 1 x U-type arm for Tail push slider 尾推滑块U型臂 2 x Tail push bolt 尾推销 2 x Hexagon socket screws M2.5X6 半圆头内六角螺丝 4 x Split washer 开口挡圈 2 x Flange bearing 08x12x3.5mm 法兰轴承 1 x Aluminium sleeve 铝套 2 x Ball head buckle for tail holder 尾架夹球头扣</p>

33.PARTS LIST 3

<p>Tail pitch assembly 尾推组 KA-72-054</p>  <p>6 x Umbrella head socket head machining screws M2.5x6mm伞头内六角机械牙螺丝 6 x Flange bearing M2.5x6x2.6mm 法兰轴承 1 x Tail rocker arm mount 尾摇臂固定座 2 x Copter washers 02.6x5x0.5mm 铜垫片 1 x Tail rocker arm 尾摇臂 2 x Umbrella head socket head machining screws M2x6mm 伞头内六角机械牙螺丝</p>	<p>Tail rotor holder 尾桨夹 KA-72-055</p>  <p>2 x Thrust bearing (F5-10M) 推力轴承 1 x Tail rotor hub (outer-teethed) 尾中联 2 x Tail rotor holder 尾桨夹 4 x Washers for Tail rotor holder(PVC)尾桨夹垫片 2 x Short ball head 05.0x10mm-M3 短球头 4 x Surface bearings 05X010X4mm 平面轴承 2 x Cup head socket head half tooth screw M3x20mm 1 x Grub screw M4x4mm 机米 4 x Nylon nuts M3 尼龙螺帽 2 x Iron washers 03x8X0.6mm 铁垫片</p>	<p>Tail rotor hub 尾中联 KA-72-056</p>  <p>2 x Grub screw M4x4mm 机米 4 x Nylon nuts M3 尼龙螺帽 4 x Iron washers 03x8X0.6mm 铁垫片 2 x Tail rotor hub 尾中联</p>	<p>CF Tail boom support 尾撑杆配件包 A7-70-057</p>  <p>2 x Grub screw M3x12mm 杯头六角螺丝 2 x Grub screw M3x8mm 杯头六角螺丝 2 x CF rudder control rod 尾撑杆 4 x Tail boom connector 尾撑杆接头</p>
<p>CF Rudder control rod 尾推杆 A7-70-058</p>  <p>2 x CF rudder control rod 碳纤维尾推杆 4 x Metal head of rudder control rod 尾推杆金属头 4 x Ball link 05.0 球头扣</p>	<p>Linkage rod set 连杆包 A7-70-063</p>  <p>2 x Linkage rod (56MM) 连杆 3 x Linkage rod (38MM) 连杆 10 x Ball head buckle 5.0 球头扣</p>	<p>Frame connecting bolt 侧板连接柱 A7-70-060</p>  <p>5 x Frame connecting bolt 侧板连接柱 10 x Countersunk head socket screw M2.5X6 沉头内六角螺丝 10 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝</p>	<p>CF Swashplate Anti-rotation bracket 碳纤维十字盘导轨 A7-70-061</p>  <p>1 x CF Swashplate Anti-rotation bracket 碳纤维十字盘导轨</p>
<p>canopy mounting bolt 头罩固定柱 KA-72-062</p>  <p>2 x behind canopy mounting bolt 头罩后固定柱 2 x Canopy mounting bolt 头罩固定柱 2 x Front canopy damping 头罩前减震胶圈 2 x Aluminium sleeve for case bolts 机壳支柱铝套 2 x grub screw M3x12mm 机米螺丝 4 x retainer ring 卡扣 2x Hexagon socket head cap screws M3x14mm 杯头内六角螺丝</p>	<p>Metal rear gear 20T 后传动轴螺旋伞齿轮 KA-72-095</p>  <p>1 x Metal rear gear 20T 后传动轴螺旋伞齿轮 2 x Set screw M4x4 机米螺丝</p>	<p>Umbrella gear 20T 尾轴螺旋伞齿轮 KA-72-096</p>  <p>1 x Umbrella gear 20T 尾轴螺旋伞齿轮 1 x Tail shaft pin 02 x 12 尾轴销</p>	<p>The tail shaft gear fixed axle housing 尾轴铝套 KA-72-097</p>  <p>2 x The tail shaft gear fixed axle housing 尾轴铝套</p>
<p>Tail servo mount 尾舵机固定座 A7-70-008</p>  <p>2 x Tail servo mount 4 x Hexagon socket head cap screws M2.5x10mm 杯头内六角螺丝 4 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝</p>	<p>Main gear hub 主齿轮固定座 A7-70-067</p>  <p>1 x Main gear hub 主齿轮固定座 10 x Countersunk head socket screw M3X6 沉头内六角螺丝 10 x Hexagon socket head cap screws M3x10mm 杯头内六角螺丝 1 x Cup head socket head half tooth screw M4x25mm 1 x Nylon nuts M4</p>	<p>Vertical stabilizer mount 垂直翼固定座配件包 KA-55-068</p>  <p>1 x Vertical stabilizer mount 垂直翼固定座 2 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝 1 x Hexagon socket head cap screws M3x6mm 杯头内六角螺丝 1x Hexagon socket head cap screws M3x12mm 杯头内六角螺丝 2 x Aluminum spacer 铝垫片</p>	<p>Tail boom brace mount 尾撑杆固定座配件包 KA-55-069</p>  <p>1 x Tail boom brace mount 尾撑杆固定座 2 x Conical washers 铝垫片 2 x Hexagon socket head cap screws M3x8mm 杯头内六角螺丝</p>
<p>Tail boom 尾管 A7-70-070</p>  <p>1 x Tail boom 尾管</p>	<p>Tail boom brace mounting ring 尾撑杆固定环配件包 KA-55-071</p>  <p>2 x Tail boom brace mounting ring 尾推固定环 2 x Nylon nuts M2 杯头内六角螺丝 2 x Cup head socket head screw M2x10mm 六角螺帽</p>	<p>CF Tail pitch connecting piece 尾推组碳纤维片 KA-72-072</p>  <p>2 x Hexnuts M2 六角螺帽 2 x CF tail pitch connecting piece 碳纤维尾推组 2 x Umbrella head socket head machining screws M2x6mm 伞头内六角机械牙螺丝 2 x Short linkage ball 短球头</p>	<p>Tail shaft locking collers ring 尾轴定位环 KA-72-073</p>  <p>2 x Tail shaft locking collers ring 尾轴定位环 4 x Grub screw M3x3mm 机米</p>
<p>Linkage ball set 球头 KA-72-064</p>  <p>1 x Cross plate guide post 十字盘导柱 4 x Intermediate linkage ball 5.0x10.7mm 球头 2 x Short ball head 5.0x10mm M3 球头 5 x Short ball head 5.0x10mm M2 球头</p>	<p>Ball link set 球头扣 KA-72-065</p>  <p>2 x Linkage Ball 尾桨夹球头扣 8 x Linkage Ball 5.0 球头扣 2 x Linkage Ball 5.0 球头扣</p>	<p>Battery straps 电池绑带 KA-55-075</p>  <p>Battery straps x2 电池绑带</p>	<p>Surface bearings 单向轴承 A7-70-022</p>  <p>2 x Surface bearings 010x014x12mm 单向轴承</p>

33.PARTS LIST 4

<p>Thrust bearings 止推轴承 KA-7</p>  <p>2 x Thrust bearings F5-10M 止推轴承</p>	<p>Thrust bearings 止推轴承 KA-72-080</p>  <p>2 x Thrust bearings F10-18M 止推轴承</p>	<p>Flange bearings 法兰轴承 KA-72-081</p>  <p>2 x Flange bearings 02.5x06x2.6mm 法兰轴承</p>	<p>Flange bearings 法兰轴承 A7-72-083</p>  <p>2 x Flange bearings 06x013x5mm 法兰轴承</p>
<p>Flange bearings 法兰轴承 KA-72-082</p>  <p>2 x Flange bearings 08x012x3.5mm 法兰轴承</p>	<p>Surface bearings 平面轴承 A7-70-092</p>  <p>2 x Surface bearings 010x014x4mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-72-084</p>  <p>2 x Surface bearings 03x07x3mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-72-085</p>  <p>2 x Surface bearings 05x010x4mm 平面轴承</p>
<p>Surface bearings 平面轴承 KA-72-086</p>  <p>2 x Surface bearings 06x013x6mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-72-087</p>  <p>2 x Surface bearings 08x016x5mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-72-088</p>  <p>2 x Surface bearings 010x019x5mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-55-090</p>  <p>2 x Surface bearings 08x014x4mm 平面轴承</p>
<p>Surface bearings 平面轴承 KA-72-090</p>  <p>2 x Surface bearings 012x024x6mm 平面轴承</p>	<p>Surface bearings 平面轴承 KA-72-091</p>  <p>2 x Surface bearings 030x037x4mm 平面轴承</p>		
<p>Motor pinion gear 19T 马达齿轮 A7-70-022</p>  <p>1 x Motor gear 马达齿轮 2 x Set screws M4X5mm</p>	<p>Motor pinion gear 20T 马达齿轮 A7-70-023</p>  <p>1 x Motor gear 马达齿轮 2 x Set screws M4X5mm</p>	<p>Motor pinion gear 21T 马达齿轮 A7-70-024</p>  <p>1 x Motor gear 马达齿轮 2 x Set screws M4X4mm</p>	

Regular maintenance is required to keep the KDS AGILE 7.2 helicopter in optimal and safe flying condition. The model requires precise configuration of the components and settings to be kept by the owner. Maintain regular maintenance on the model to avoid accidents or loss, and optimum performance.

MAINROTOR CHECKLIST

- 1.Main Rotor Housing: when the main rotor housing is worn or faulty, there will be obvious vibration and poor flight control. Check the main rotor, main shaft, and feathering shaft for wear or deformity. Replace parts as necessary to eliminate imbalance.
- 2.O-Rings:The O-Rings will lose their elasticity over time. This will cause excess play on rotor and cause instability. Replace them as needed.
- 3.Main Rotor Holder: When the helicopter dose not fly or reacts sluggishly, even after checking for proper setting of pitch and throttle, check the following items: Plastic parts, Bearings, Ball bearings, Rotor Blades. Check for excess play or broken parts, or binding or restricted movement. It is important to check for main rotor balance before each flight. Operating the model when out of balance will cause excessive wear and premature failure of parts, possibly resulting in a dangerous situation.
- 4.Control Arm Assembly: Check regularly for cracked, worn, bent or binding control arms and pushrods. Smooth movement of control arms and linkages is required for stable, vibration free flight.
- 5.Swashplate:Check for excess slop in the main ball where the main shaft rides on, and slop or looseness between the plastic and metal surfaces. Swashplate wear will result in poor stability and lack of control during flight. Replace them as necessary.

FUSELAGE/CHASSIS

- 1.Main Shaft Bearing: Normal replacement interval for proper operation is between 60-100 flights. If flying 3D or extreme aerobatics often, inspect the bearing more frequently and shorten the interval as necessary.
- 2.One-way Bearing: One-way bearings have longer lifetimes. Failure is not common. To keep the one-way bearing in good operation, remove it to clean and lubricate after every 50 flights. If the main drive gear is loose, you should replace the one-way bearing.
- 3.Drive Belt: Agile and KDS uses only top quality, stretch-proof belts. It is however, impossible to prevent the belt from stretching or wearing out. Check belt tension regularly, and check for the wear on the teeth. Replace it as necessary.

LINKAGE RODS CONNECTING PARTS

During assembly, take special care to keep the connecting parts in smooth operation, and avoid excess play or binding. Failure to do so will result in poor flight stability. The linkage rods and ends will break and wear due to normal usage, crashing, and poor maintenance and environment. Check for wear and proper operation regularly,replace them as needed.

TAIL ROTOR SYSTEM

- 1.Tail Rotor Control Set: Check the tail rotor bearing regularly. If there is excess play or gaps, replace it immediately. Avoid any binding or improper contact on the tail components and bearings as this will cause excess wear and heat, potentially melting or deforming the tail system.
- 2.Tail Unit Assembly: Avoid flying in tall grass or weeds. If grass or weed becomes lodged in the tail rotor unit, it will interfere with the operation, and cause the helicopter to lose control. Always check for foreign objects in the tail and clean them off immediately. Avoid using lubricants on the exposed surfaces of the model as it will attract and collect dirt and debris, and cause failure.
- 3.Tail Rotor Housing: Disassemble tail totor housing for cleaning and maintenance after every 50 flights. If the tail does not operate smoothly or shows any signs of stress or wear, please replace immediately.
- 4.Tail Rotor: Check the tail rotor blades regularly for damage, especitlly if the helicopter ever strikes the ground while flying, or after hard landings. Damaged tail rotor blades can induce vibration.

34. 常规维修

请定期检查：KDS AGILE 7.2 电动遥控直升机 为精密零组件构成之精密模型商品。所以飞行者须注意确保各控制组件及结构之性能良好，使能发回优异稳定飞行特性。如果您的维护不当，飞行时将可以导致意外或任何损失，建议您注意养成直升机定期检查的习惯，以确保让您的爱机随时保持最佳性能。

主旋翼机构检查重点

1. 主旋翼固定座：当主旋翼运转发生异常时，飞行当中发生的震动情形，请检查主旋翼，横轴，主轴是否有变形或平衡不良，必要时请将主旋翼头固定座更新。
2. 主旋翼缓动油封：缓动油封长期使用会发生弹性疲乏，会影响飞行稳定性，此时建议更新。
3. 主旋翼夹座：主旋翼夹座一般飞行前虽然确认过螺距，但实际飞行时仍需增加螺距行程才足够使用，如果飞行时升降动作迟缓情形：检查重点包含了塑胶件以及轴承，球轴承等，塑胶件及球轴承若发现明显间隙，轴承钢轴脱落均需要更换新品。注意：飞行前主旋翼必须详细的做好动平衡的动作，并请修正正双桨不良的状况，以提升升力为效能，注意因平衡不佳将导致各零件损坏和松脱。
4. 控制臂组：定期检查各控制臂控制顺滑，减少左右摇晃虚位可确保停态稳定性能。
5. 十字盘组：当十字盘组发生严重虚位时，会导致停态时稳定性能不稳定，操控性能也会劣化，并可能发生不明原因的双桨现象，严重时则必须更新。

机身组检查重点

1. 主轴轴承：主轴轴承经长期负载运作，正常飞行约60-100趟必须更换新品以维持动作顺畅度。但是若经常进行激烈的3D飞行，建议您必须时常检查主轴轴承，当发现主轴轴承有明显的间隙或是转动有明显的阻碍都必须更换新品。
2. 单向轴承组：单向轴承组并不经常发生损坏的情形。但是为了保持良好的顺畅的运作，建议您约50趟的周期当中拆卸下来上油。如果发生主齿轮明显异动，请立即更换单向轴承盘。
3. 尾转动皮带：尾转动皮带虽然采用日制原装耐变形皮带，长时间使用仍会发生延展的现象。请随手检查施以心向尾管重新拉伸修正调整，以维持良好的尾舵控制机能。如果当您发现皮带的边缘磨损严重现象或是断齿的状况，为了维护飞行的安全建议您将它更新。

控制杆组头检查重点

控制连杆，控制臂连接座，升降舵连接座组装时请特别注意各连接部位需保持顺滑且尽量减少轴向左右摇晃间隙，此要点将严重影响飞行稳定性能。各连接杆如因跌机损坏之外，因自然磨损或是因飞行场地恶劣因素也会发生磨损或松脱的情形。当您发现任何连接杆发生间隙或是轻推可脱出，建议您立即更新，确保飞行性能与安全。

尾旋翼系统检查重点

1. 尾齿轮组：尾齿轮组请注意尾旋翼轴承的检查，当您发现轴承有明显的间隙时请更新，避免轴承咬死，并注意尾舵轮不可将它锁死，必须能保持顺畅运动以免发生塑胶件熔毁的情形。
2. 尾旋翼控制滑座：当您于草地飞行时，请注意避免尾旋翼滑座是否有发生落地时卷入杂草的状况，若有必须将它清除再进行下一次飞行，否则可能会因为杂草纤维阻碍动作，造成尾旋翼控制失常的情形。平常保养尽量避免使用润滑油于外部结构，避免沾染灰尘等杂物。
3. 尾旋翼固定座：尾旋翼固定座飞行约50趟左右请拆卸进行清洁保养，确认轴承间隙是否正常。如转动不顺或间隙过大请更换轴承，确保控制系统完善，
4. 尾旋翼：飞行时发生触地的情形请立即检修。若发现尾旋翼有明显的外观损坏时请立即更换，以避免发生尾部震动并因此损坏其它零件，确保飞行品质。



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