

KDS MODEL

KDS 450QS HELICOPTERS INSTRUCTION MANUAL 使用说明书



www.kdsmodel.com

1. INTRODUCTION 前言

Thank you for buying KDS Products. The KDS 450QS Helicopter is designed as an easy to use, full featured helicopter R/C model capable of all forms of rotary flight. Please read the manual carefully before assembling the model, and follow all precautions and recommendations located within the manual. Be sure to retain the manual for future reference, routine maintenance, and tuning. The KDS 450QS is a new product developed by KDS. It features the best design available on the micro-Heli market to date, providing flying stability for beginners, full aerobatic capability for advanced fliers, and unsurpassed reliability for customer support.

感谢您选购KDS 产品，为了让您容易方便的使用KDS 450QS直升机、请您详细的阅读完这本说明书之后再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的参考。KDS 450QS是由KDS自行研发的新产品，不论你是需求飞行稳定性的初学者或是追求性能的飞行爱好者。KDS 450QS将是你最佳的选择。

IMPORTANT NOTES 重要声明

R/C helicopters, including the KDS 450QS are not toys. R/C helicopters utilize various high-tech products and technologies to provide superior performance. Improper use of this product will result in serious injury, 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 KDS products. Manufacturer and seller assume no liability for the operation or the use of this product. Intended for use only by adults with experience flying remote control helicopters. After the sale of this product we cannot maintain any control over its operation or usage.



It is not a Toy!

KDS 450QS 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。

NOTE 声明

Fly only in safe areas, away from other people. Do not operate R/C helicopter within the vicinity of homes or crowds of people. R/C helicopter is prone to accidents, failures, and crashes due to a variety of reasons including, lack of maintenance, pilot error, and radio interference. Pilots are liable for their actions and damage or injury occurring during the operation or as of a result of R/C helicopter models.

2. SAFETY NOTES 安全注意事项

• LOCATE AN APPROPRIATE LOCATION 远离障碍物及人群

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.

直升机飞行时具有一定的速度，相对的也潜在着一定危险性，场地的选择也相对的重要，请需遵守法规到合法遥控飞行场地飞行。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。



• OBTAIN THE ASSISTANCE OF AN EXPERIENCED PILOT 避免独自操控

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).



至飞行场飞行前，需确认是否有相同频率的同好正在进行飞行，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。遥控飞机操控技巧在学习初期有着一定的难度，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。（勤练电脑模拟器及老手指导是入门必要的选择）。

● ALWAYS BE AWARE OF THE ROTATING BLADES 远离运转中零件

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.



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，以避免造成危险及损坏。

● PREVENT MOISTURE 远离潮湿环境

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.



直升机内部也是由许多精密的电子零组件组成，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！

● KEEP AWAY FROM HEAT 远离热源

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.



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。

● PROPER OPERATION 勿不当使用本产品

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.

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。请确认于产品限界内操作，请勿过载使用，并勿用于安全、法令外其它非法用途。



● SAFE OPERATION 安全操作

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

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，意外发风险将可能会提高。



3.SAFETY CHECK BEFORE FLYING 飞行前安全检查重要事项

Before flying, please check to make sure no one else is operating on the same frequency for the safety.

Before flying, please check if the power of transmitter and helicopter are enough for the flight.

Before turn on the transmitter, please check if the throttle stick is in the lowest position, IDLE switch is OFF.

When turn off the unit, please follow the power on/off procedure. Power ON-Please turn on the transmitter first, and then turn on helicopter power. Power OFF-Please turn off the helicopter power first and then turn off the transmitter. Improper procedure may cause out of control, so please to have this correct habit.

Before operation, check every movement is smooth and directions are correct. Inspect servos carefully for interference and broken gear.

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

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

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

Check the battery and power plug are fastened. Vibration and violent flight may cause the plug loose and lead to out of control.

Check for the tension of tail drive belt.

每次飞行前应先确认所使用的频率是否会干扰他人，以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源的电量是在足够飞行的状态。

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）是否于关闭位置。

关机时必须遵守电源开关机的程序，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可能会造失控的现象，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涉或崩齿的情形，使用故障的伺服器将导致不可预期的危险。

飞行前确认没有缺少或松脱的螺丝与螺帽，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。

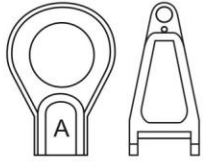
损坏或组装不完整的零件不仅影响飞行，更会造成不可预期的危险。注意：对损耗、有裂痕零件更新及定期保养检查得要性。

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，飞行中的震动或激烈的飞行，可以造成接头松脱而造成失控的危险。

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

标有下符号之组装步骤，请配合上胶或上油，以确保使用之可靠度。



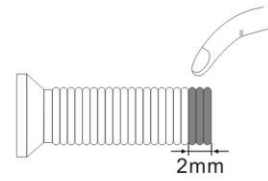
AB : Apply to AB glue to fix.
609 : Add grease.
340 : Apply thread lock to fix.
AB : 使用AB胶固定
609 : 添加润滑油
340 : 使用螺丝缺氧胶固定



Red
红色



Green
绿色



340 Glue width: approx. 1mm
340上胶宽度约1mm

When assembling ball links, make sure the "A" character faces outside.

各项塑胶制连杆头扣接时，A字请朝外。

609 Lubrication grease. 340 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.)

609 为滑润脂，340为螺丝胶，胶合螺丝或金属内外径请务必少量使用，必要时请用手去除胶量，欲拆卸时可以金属接合部位热烤约15秒。（注意！塑胶件避免接近热源）

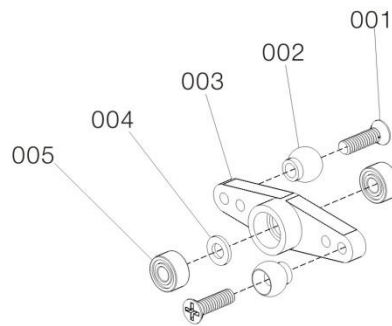
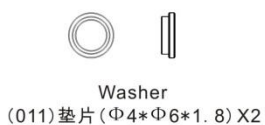
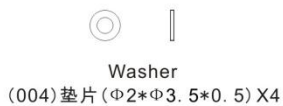
4.ASSEMBLY PROCESS OF MAIN ROTOR HEAD

主旋转头组装步骤(1)

Dosage form of spare parts 零件用量表

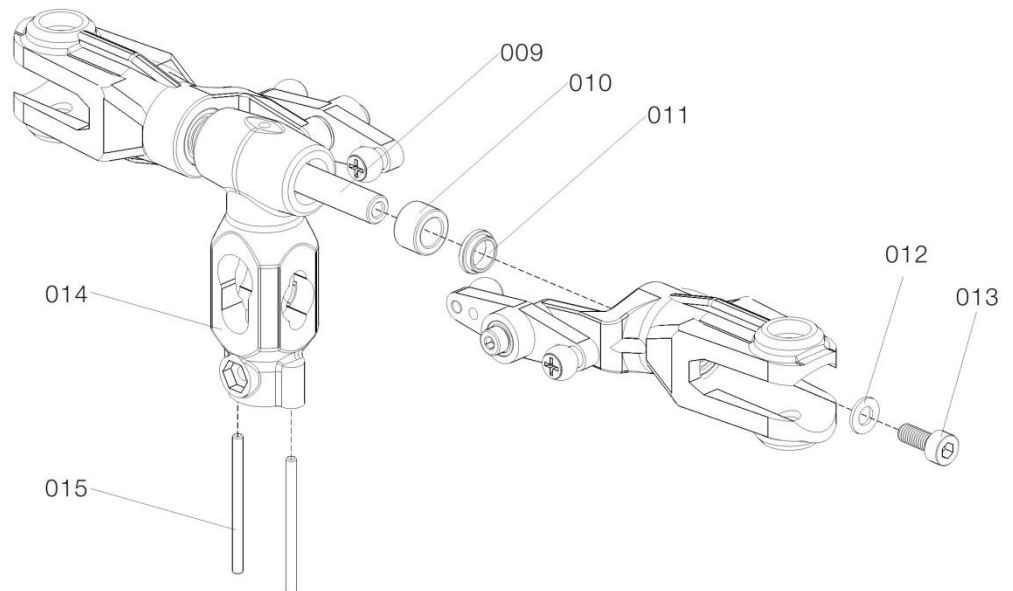
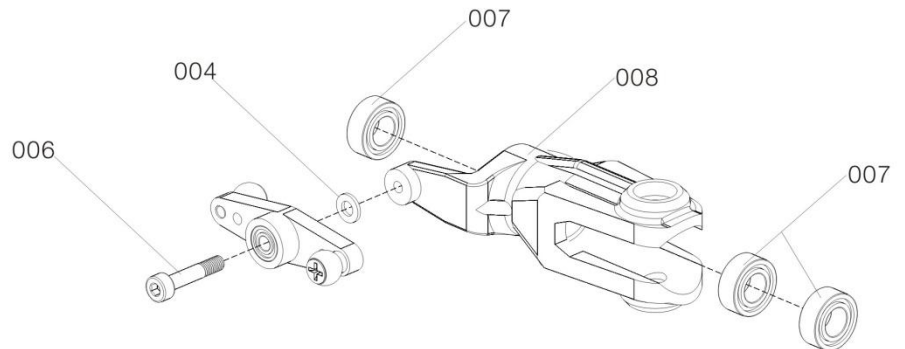
No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
001	QS-002	Cruciform slotted screw 十字槽平头螺丝	22	M2*7
002	QS-002	Linkage ball A 球头A	22	Φ4.7*4.2
003	QS-002	Main rotor holder arm 大桨夹摇臂	2	
004	QS-002	Washer 垫片	9	Φ2*Φ3.5*0.5
005	QS-002	Bearing 滚珠轴承	16	Φ2*Φ5*2.5
006	QS-024	Hex socket cap screw 圆柱头内六角螺丝	11	M2*10
007	QS-001	Bearing 滚珠轴承	6	Φ4*Φ8*3
008	QS-001	Plastic main rotor holder 主翼夹头	2	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
009	1011-Q	Feathering shaft 横轴	1	Φ4*42.5
010	1003-1	Damper rubber 横轴胶圈	2	
011	1003-4	Washer 垫片	2	Φ4*Φ6*1.8
012	1011-Q	Washer 垫片	2	Φ2.6*Φ5*0.5
013	1011-Q	Hex socket cap screw 圆柱头内六角螺丝	4	M2.5*6
014	QS-003	Main rotor hosing 中联	1	
015	QS-003	Pin 固定座插销	2	Φ1.4*20



Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意, 适当扭力即可。而过大的扭力可能会导致滑牙, 断裂。



4.ASSEMBLY PROCESS OF MAIN ROTOR HEAD

主旋转头组装步骤(2)

Dosage form of spare parts 零件用量表

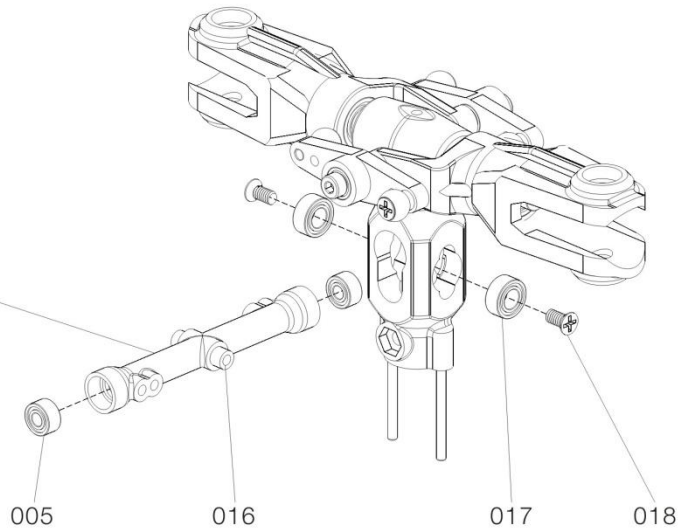
No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
016	QS-004	Flybar seesaw holder 平衡杆固定座	1	
017	QS-004	Bearing 滚珠轴承	2	Φ3*Φ6*2.5
018	QS-004	Cruciform slotted screw 十字槽平头螺丝	2	ST2*4
019	QS-005	Kimi screw 基米螺丝	5	M3*3
020	QS-005	Flybar control arm 平衡翼控制臂	2	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
021	QS-005	Flybar control rod 平衡翼球型控制杆	2	
022	QS-005	Hex socket cap screw 圆柱头内六角螺丝	12	M2*6
023	QS-023	Dual-bore linkage rod 双孔连杆	2	
024	1004	Flybar rod 平衡杆	1	Φ2*220

Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意, 适当扭力即可。而过大的扭力可能会导致滑牙, 断裂。

After fixing flybar seesaw holder on the main rotor head, rotate it 90 degree, and the fix then bearing
平衡杆固定座装入旋翼头后旋转90度, 再装入轴承



 
Bearing
(005) 滚珠轴承 (Φ2*Φ5*2.5) X2

 
Bearing
(017) 滚珠轴承 (Φ3*Φ6*2.5) X2

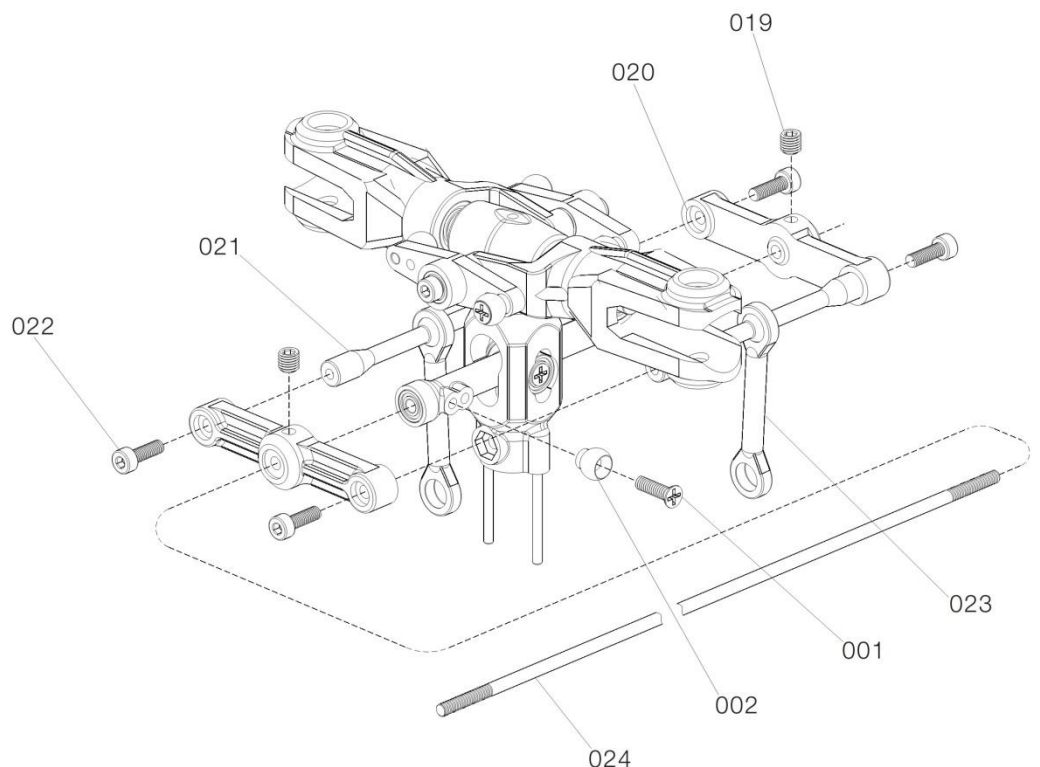
 
Linkage ball A
(002) 球头A (Φ4.7*4.2) X2

 
Cruciform slotted screw
(018) 十字槽平头螺丝 (ST2*4) X2

 
Hex socket cap screw
(022) 圆柱头内六角螺丝 (M2*6) X4

 
Cruciform slotted screw
(001) 十字槽平头螺丝 (M2*7) X2

 
Kimi screw
(019) 基米螺丝 (M3*3) X2



4.ASSEMBLY PROCESS OF MAIN ROTOR HEAD

主旋转头组装步骤(3)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
025	QS-006	Copper sheath 铜套	1	Φ5*Φ5.8*10
026	QS-006	Washout base 方位器	1	
027	QS-007	Washout control arm 稳定控制摇臂	2	
028	QS-007	Hex socket cap screw 圆柱头内六角螺丝	4	M1.5*4
029	QS-007	Bearing 滚珠轴承	4	Φ1.5*Φ4*2
030	QS-007	Shear type arm 剪型臂	2	
031	QS-003	M2 Nut 螺母	42	M2
032	QS-008	Upper cover of inner swashplate 倾斜内盘上盖	1	
033	QS-008	Swashplate metal ball 倾斜盘球	1	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
034	QS-008	Cruciform slotted screw 十字槽平头螺丝	1	M2*20
035	QS-008	Linkage ball B 球头B	1	Φ4.7*17
036	QS-008	Outer part of swasplate 倾斜外盘	1	
037	QS-008	Bearing 滚珠轴承	1	Φ20*Φ27*4
038	QS-008	Cross recess head screw 十字槽带华司螺丝	7	ST1.7*4
039	QS-008	Low cover of swashplate inner 倾斜内盘下盖	1	
040	QS-010	Main shaft 主轴	1	Φ5*109.5

Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意，适当扭力即可。而过大的扭力可能会导致滑牙，断裂。

Hex socket cap screw
(006)圆柱头内六角螺丝 (M2*10) X3

Cruciform slotted screw
(001)十字槽平头螺丝 (M2*7) X8

Cruciform slotted screw
(034)十字槽平头螺丝 (M2*20) X1

Cross recess head screw
(038)十字槽带华司螺丝 (ST1.7*4) X7

Hex socket cap screw
(028)圆柱头内六角螺丝 (M1.5*4) X4

Bearing
(029)滚珠轴承 (Φ1.5*Φ4*2) X2

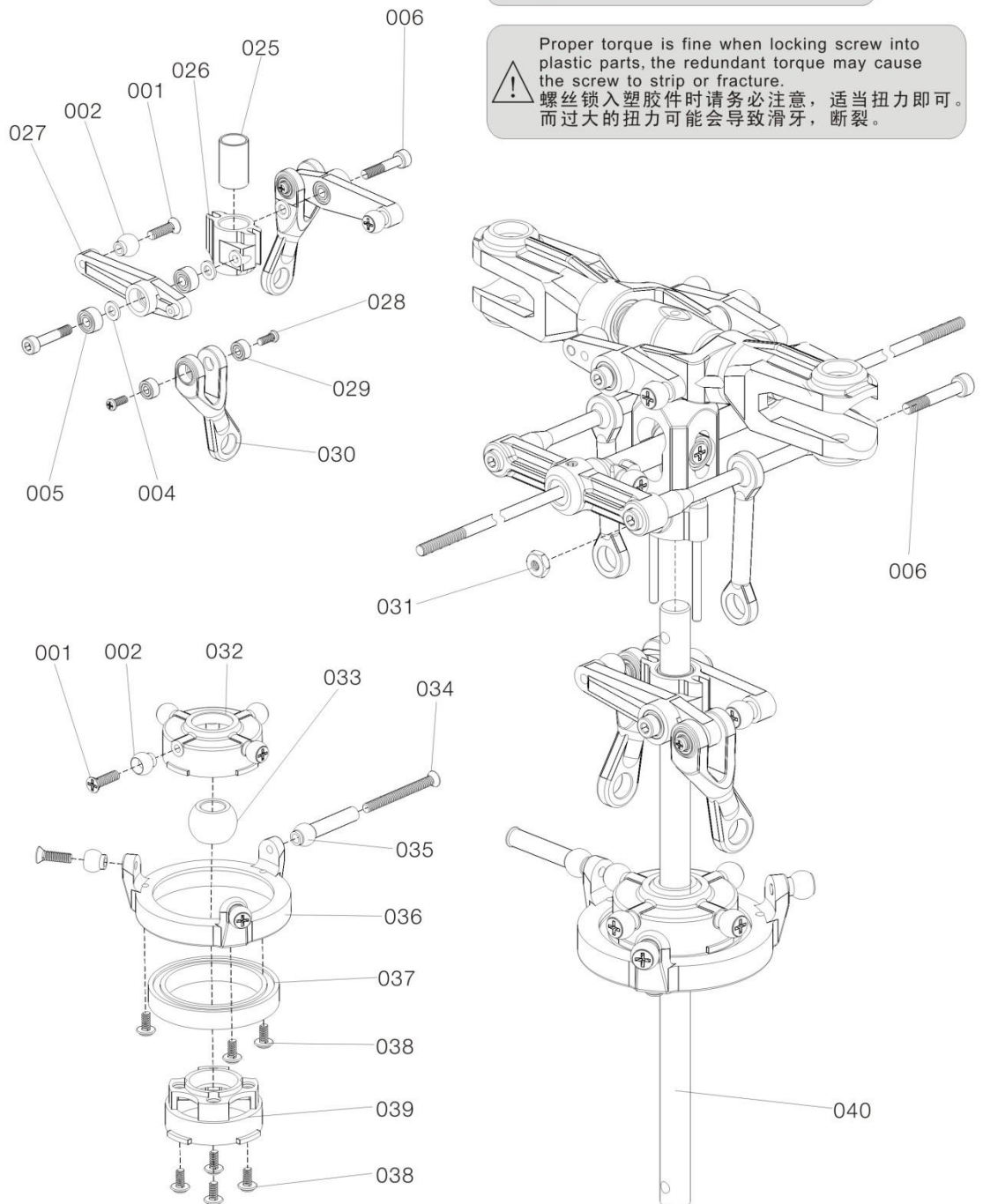
Bearing
(005)滚珠轴承 (Φ2*Φ5*2.5) X4

Washer
(004)垫片 (Φ2*Φ4*0.5) X4

M2 Nut
(031)螺母 (M2) X1

Linkage ball B
(035)球头B (Φ4.7*17) X1

Linkage ball A
(002)球头A (Φ4.7*4.2) X8

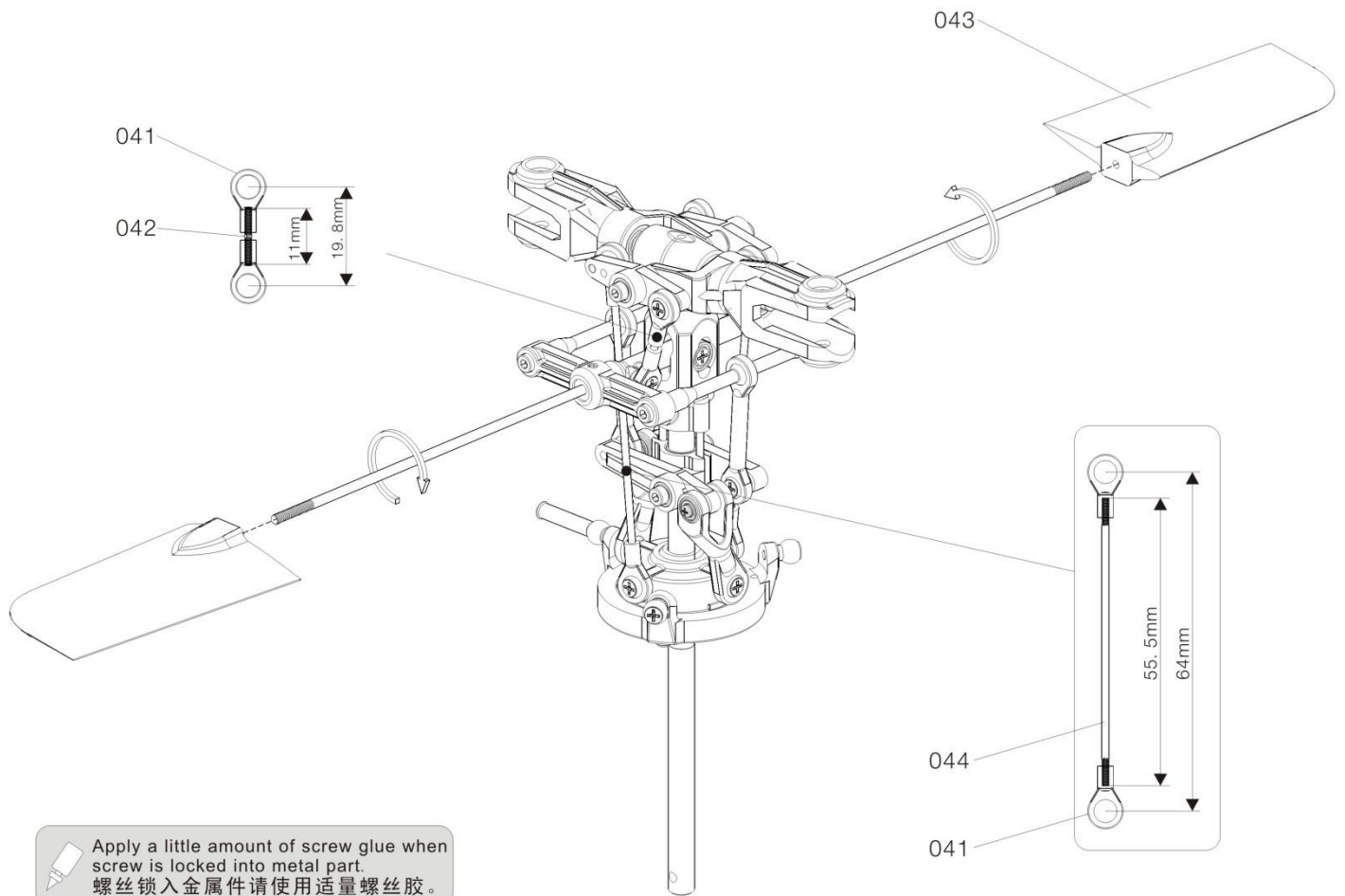


4.ASSEMBLY PROCESS OF MAIN ROTOR HEAD

主旋转头组装步骤(4)

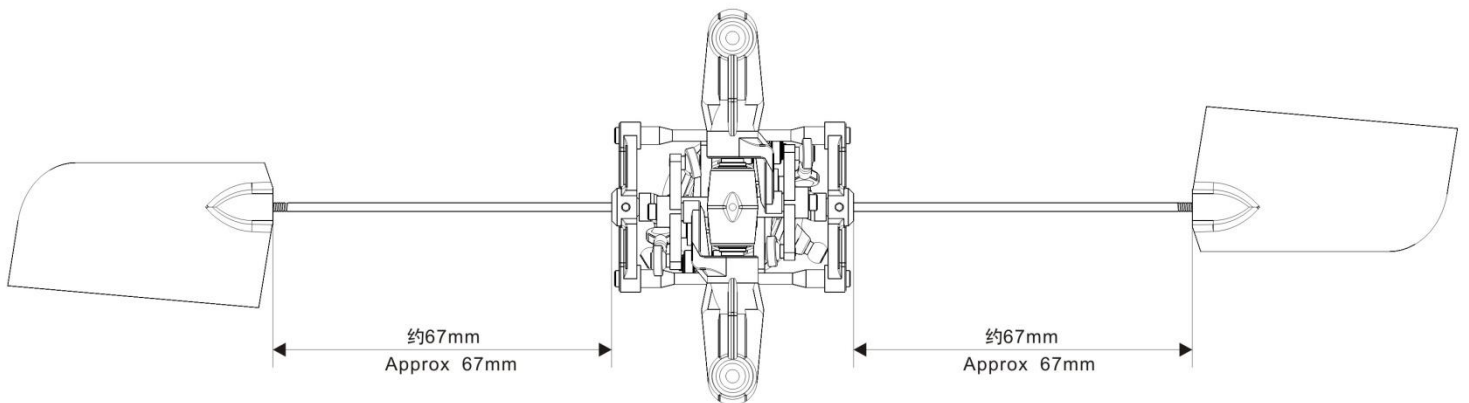
Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
041	QS-023	Ball link 拉杆头	16	
042	QS-022	Linkage rod (A) 连杆(A)	2	Φ1.4*11
043	1191-Q	Flybar paddle 平衡翼	1	
044	QS-022	Linkage rod (B) 连杆(B)	2	Φ1.4*55.5



Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意，适当扭力即可。而过大的扭力可能会导致滑牙，断裂。



5.ASSEMBLY PROCESS OF MAIN FRAME AND POWER SYSTEM

主体侧板与动力系统组装步骤(1)

Dosage form of spare parts 零件用量表

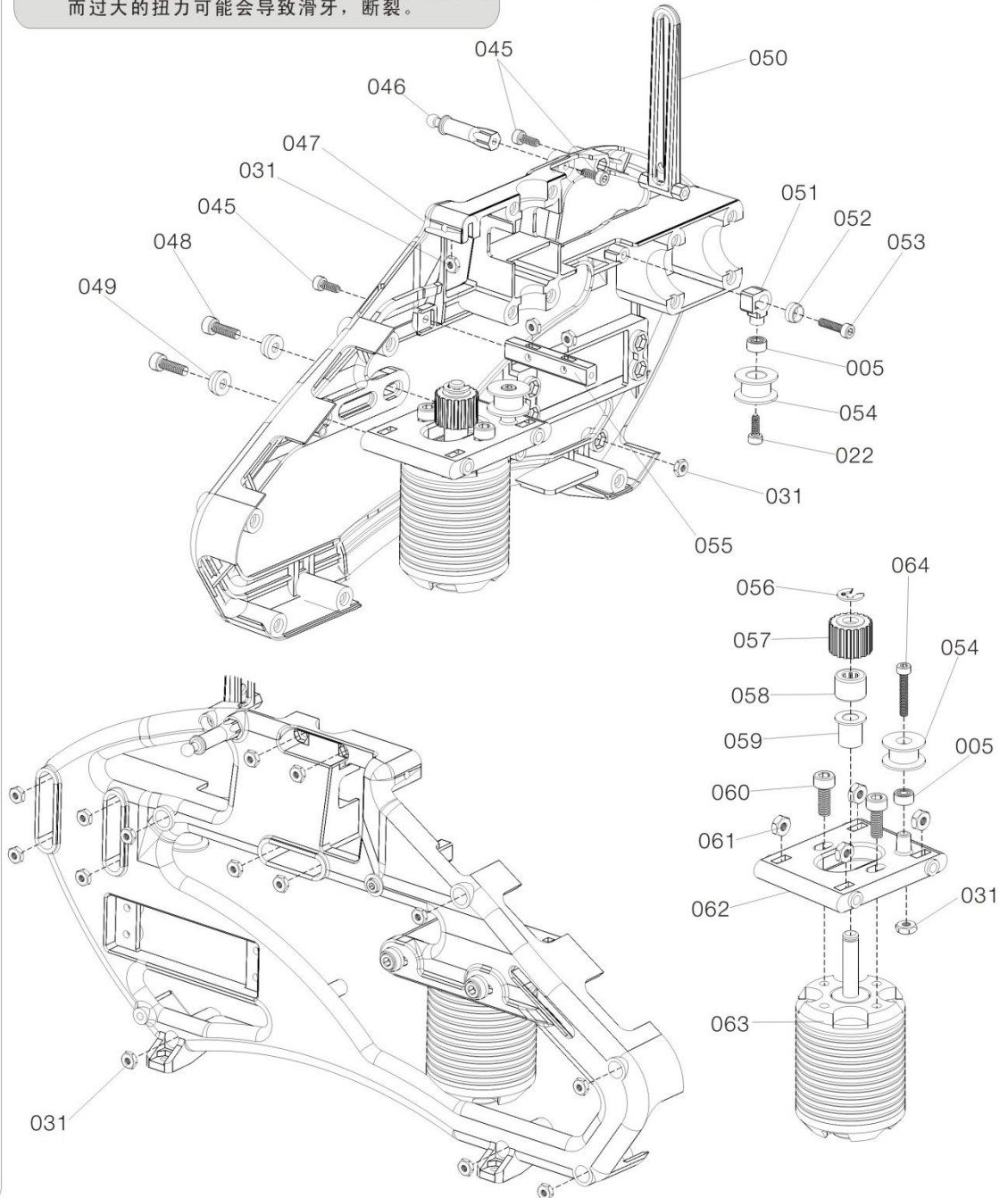
No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
045	QS-012	Hex socket cap screw 圆柱头内六角螺丝	6	ST2*8
046	QS-034	Canopy mounting bolt 机壳固定柱	2	
047	QS-012	Right frame 右侧板	1	
048	QS-024	Hex socket cap screw 圆柱头内六角螺丝	4	M2.5*10
049	QS-025	Washer 螺丝铝垫	4	Φ2.6*Φ6.2*2.7
050	QS-009	Anti-rotation bracket 十字盘导板	1	
051	QS-030	Belt pinch roller holder 皮带压轮座	2	
052	QS-025	Washer 螺丝铝垫	2	Φ2.1*Φ5*2.3
053	QS-024	Hex socket cap screw 圆柱头内六角螺丝	8	M2*8
054	QS-031	Belt pinch roller 皮带压轮	4	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
055	QS-014	Servo mount 舵机固定座	1	
056	2001AQ	E-snap ring E型卡环	1	
057	2001AQ	Motor pinion 马达齿轮	1	
058	2001AQ	One-way Bearing 单向轴承	1	Φ4*Φ8*6
059	2001AQ	Copper sheath 铜套	2	
060	QS-024	Hex socket cap screw 圆柱头内六角螺丝	2	M3*8
061	QS-013	Nut 螺母	4	M2.5
062	QS-013	Motor mount 马达固定座	1	
063	2808	Motor 马达	1	
064	QS-013	Hex socket cap screw 圆柱头内六角螺丝	2	M2*12

- Hex socket cap screw
(064) 圆柱头内六角螺丝 (M2*12) X1
- Hex socket cap screw
(048) 圆柱头内六角螺丝 (2.5*10) X2
- Hex socket cap screw
(045) 圆柱头内六角螺丝 (ST2*8) X3
- Hex socket cap screw
(053) 圆柱头内六角螺丝 (M2*8) X1
- Hex socket cap screw
(060) 圆柱头内六角螺丝 (M3*8) X2
- Hex socket cap screw
(022) 圆柱头内六角螺丝 (M2*6) X1
- M2.5 Nut
(061) 螺母 (M2.5) X4
- M2 Nut
(031) 螺母 (M2) X19
- Bearing
(005) 滚珠轴承 (Φ2*Φ5*2.5) X2
- One-way Bearing
(058) 单向轴承 (Φ4*Φ8*6) X1
- Washer
(049) 螺丝铝垫 (Φ2.6*Φ6.2*2.7) X2
- Washer
(052) 螺丝铝垫 (Φ2.1*Φ5*2.3) X1

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意，适当扭力即可。而过大的扭力可能会导致滑牙，断裂。

Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。



5.ASSEMBLY PROCESS OF MAIN FRAME AND POWER SYSTEM

主体侧板与动力系统组装步骤(2)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
065		Bearing 滚珠轴承	2	$\Phi 5 * \Phi 11 * 5$
066	QS-012	Left frame 左侧板	1	
067	QS-012	Hex socket cap screw 圆柱头内六角螺丝	13	M2*8.5
068		Servo horn 伺服器舵片	3	

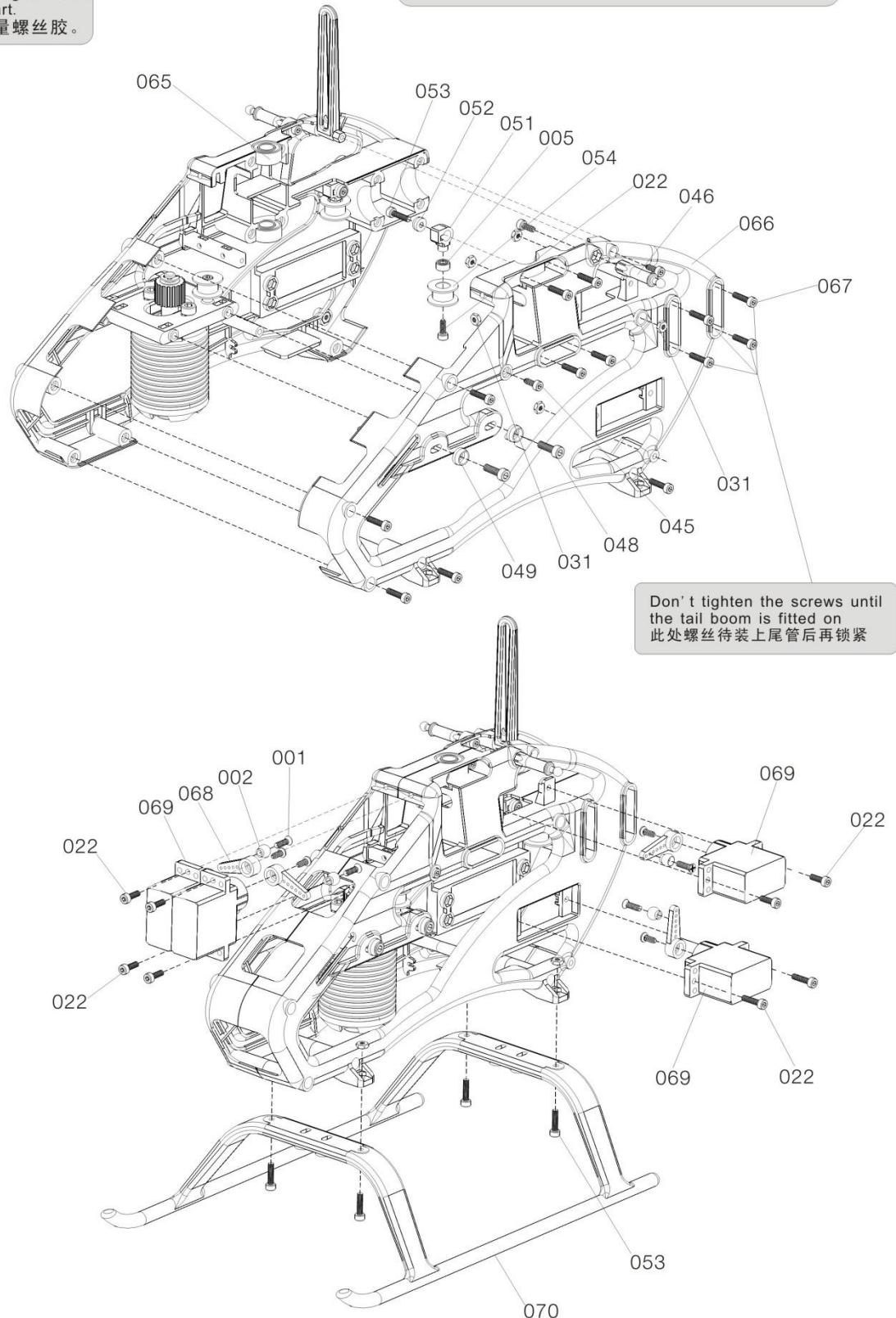
No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
069		Servo 伺服器	3	
070	QS-016	Landing skid 脚架	1	

Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。



Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意, 适当扭力即可。而过大的扭力可能会导致滑牙, 断裂。

-  Hex socket cap screw
(053) 圆柱头内六角螺丝 (M2*8) X5
-  Hex socket cap screw
(048) 圆柱头内六角螺丝 (M2. 5*10) X2
-  Hex socket cap screw
(022) 圆柱头内六角螺丝 (M2*6) X9
-  Hex socket cap screw
(045) 圆柱头内六角螺丝 (ST2*8) X3
-  Socket screw
(067) 圆柱头内六角螺丝 (M2*8. 5) X13
-  Cruciform slotted screw
(001) 十字槽平头螺丝 (M2*7) X4
-  M2 Nut
(031) 螺母 (M2) X8
-  Bearing
(005) 滚珠轴承 ($\Phi 2 * \Phi 5 * 2. 5$) X1
-  Bearing
(065) 滚珠轴承 ($\Phi 5 * \Phi 11 * 5$) X2
-  Washer
(052) 螺丝铝垫 ($\Phi 2. 1 * \Phi 5 * 2. 3$) X1
-  Washer
(049) 螺丝铝垫 ($\Phi 2. 6 * \Phi 6. 2 * 2. 7$) X2
-  Linkage ball A
(002) 球头A ($\Phi 4. 7 * 4. 2$) X4



Don't tighten the screws until the tail boom is fitted on
此处螺丝待装上尾管后再锁紧

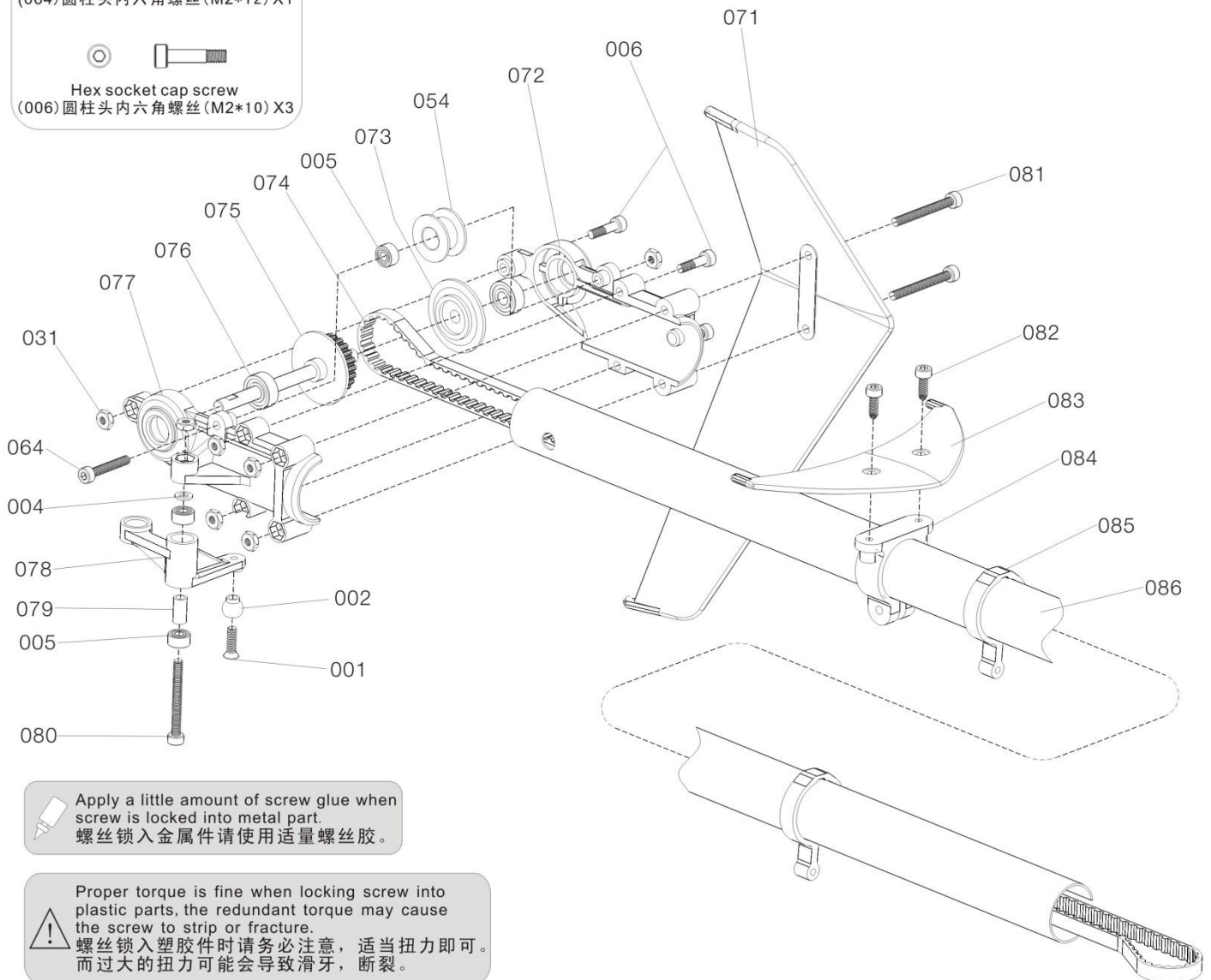
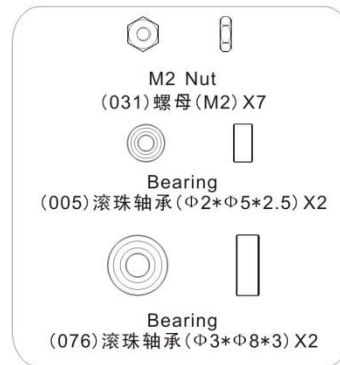
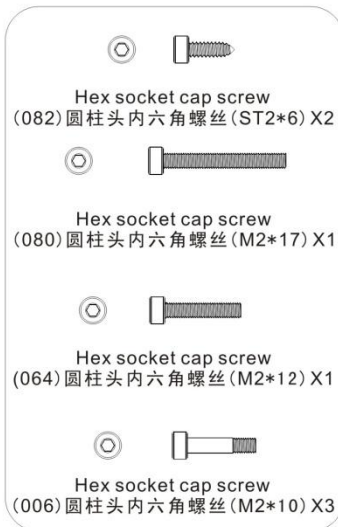
6.ASSEMBLY PROCESS OF TAIL ROTOR SET

尾旋翼组组装步骤(1)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
071	QS-019	Vertical fin 垂直翼	1	
072	QS-018	Tail gear box (left) 尾牙箱左侧板	1	
073	QS-011	Pulley cover 尾皮带轮盖	1	
074	1031-Q	Belt 皮带	1	B541MXL
075	QS-011	Tail pulley 尾皮带轮	1	
076	QS-018	Bearing 滚珠轴承	2	Φ3*Φ8*3
077	QS-018	Tail gear box (right) 尾牙箱右侧板	1	
078	QS-015	Tail servo control arm(left) 尾舵控制L臂	1	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
079	QS-015	Copper sheath 铜套	1	Φ2*Φ3*5.7
080	QS-024	Hex socket cap screw 圆柱头内六角螺丝	1	M2*17
081	QS-024	Hex socket cap screw 圆柱头内六角螺丝	2	M2*19
082	QS-024	Hex socket cap screw 圆柱头内六角螺丝	2	ST2*6
083	QS-019	Horizontal fin 水平翼	1	
084	QS-029	Horizontal fin holder 水平翼固定座	1	
085	QS-028	Tail control rod fixing ring 尾控制杆固定环	2	
086	QS-017	Tail boom 尾管	1	Φ13*Φ14*380



Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意, 适当扭力即可。而过大的扭力可能会导致滑牙, 断裂。

6.ASSEMBLY PROCESS OF TAIL ROTOR SET

尾旋翼组组装步骤(2)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
087	1192	Tail rotor blade 尾旋翼	2	
088	QS-021	Bearing 滚珠轴承	2	$\Phi 2.5 * \Phi 6 * 2.6$
089	QS-021	Tail rotor holder 尾翼夹头	2	
090	QS-021	Tail hub 尾中联	1	
091	QS-020	Copper sheath 铜套	1	

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
092	QS-020	T type arm 尾推T控制臂	1	
093	QS-020	Pin 销子	2	$\Phi 1.5 * 5.5$
094	QS-020	Tail control link end 尾控制连杆头	2	
095	QS-020	Tail blade control bearing sleeve 尾翼控制轴承套	1	
096	QS-020	Bearing 滚珠轴承	2	$\Phi 4 * \Phi 7 * 2.5$



Hex socket cap screw

(013) 圆柱头内六角螺丝 (M2.5*6) X2



Cruciform slotted screw

(001) 十字槽平头螺丝 (M2*7) X3



Hex socket cap screw

(006) 圆柱头内六角螺丝 (M2*10) X2



Kimi screw

(019) 基米螺丝 (M3*3) X1



M2 Nut

(031) 螺母 (M2) X2



Linkage ball A

(002) 球头A ($\Phi 4.7 * 4.2$) X3



Bearing

(088) 滚珠轴承 ($\Phi 2.5 * \Phi 6 * 2.6$) X2



Bearing

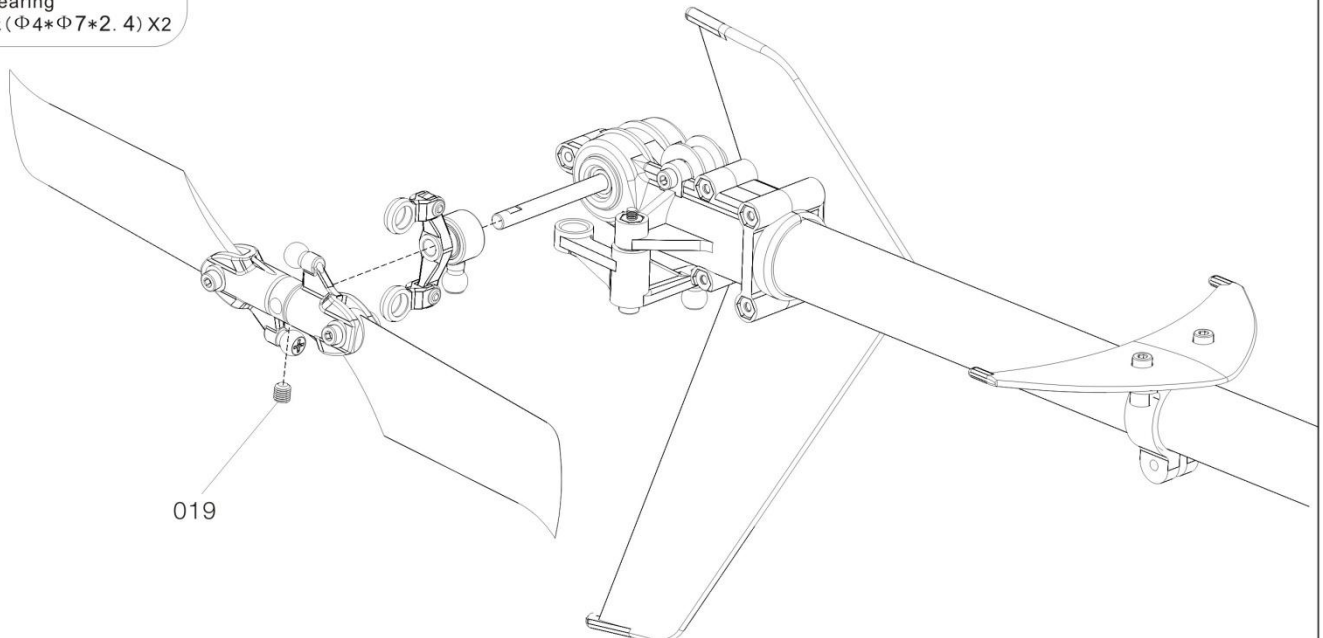
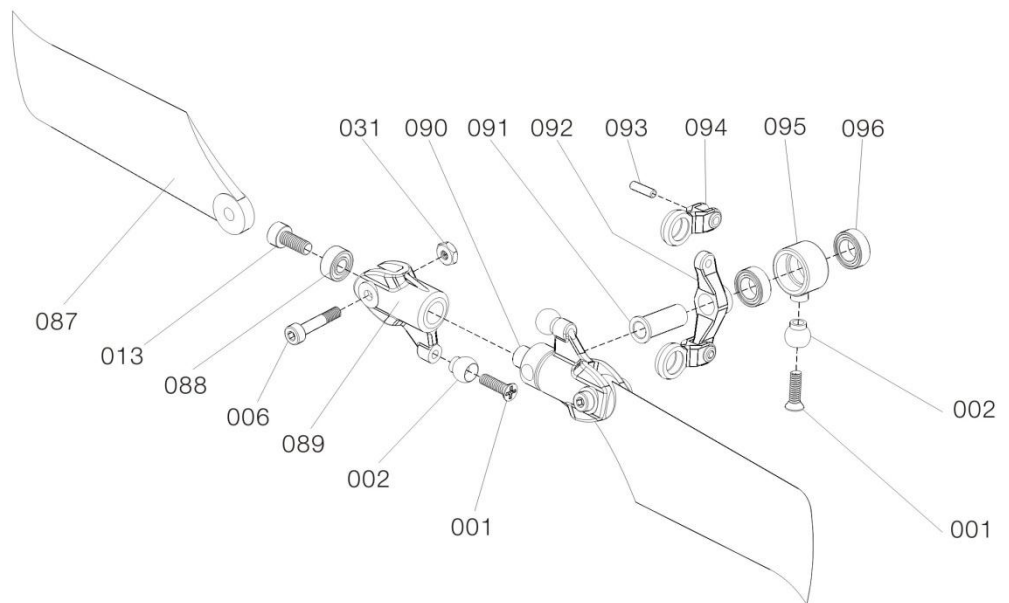
(096) 滚珠轴承 ($\Phi 4 * \Phi 7 * 2.4$) X2



Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。



Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意，适当扭力即可。而过大的扭力可能会导致滑牙，断裂。



6.ASSEMBLY PROCESS OF MAIN FRAME AND POWER SYSTEM

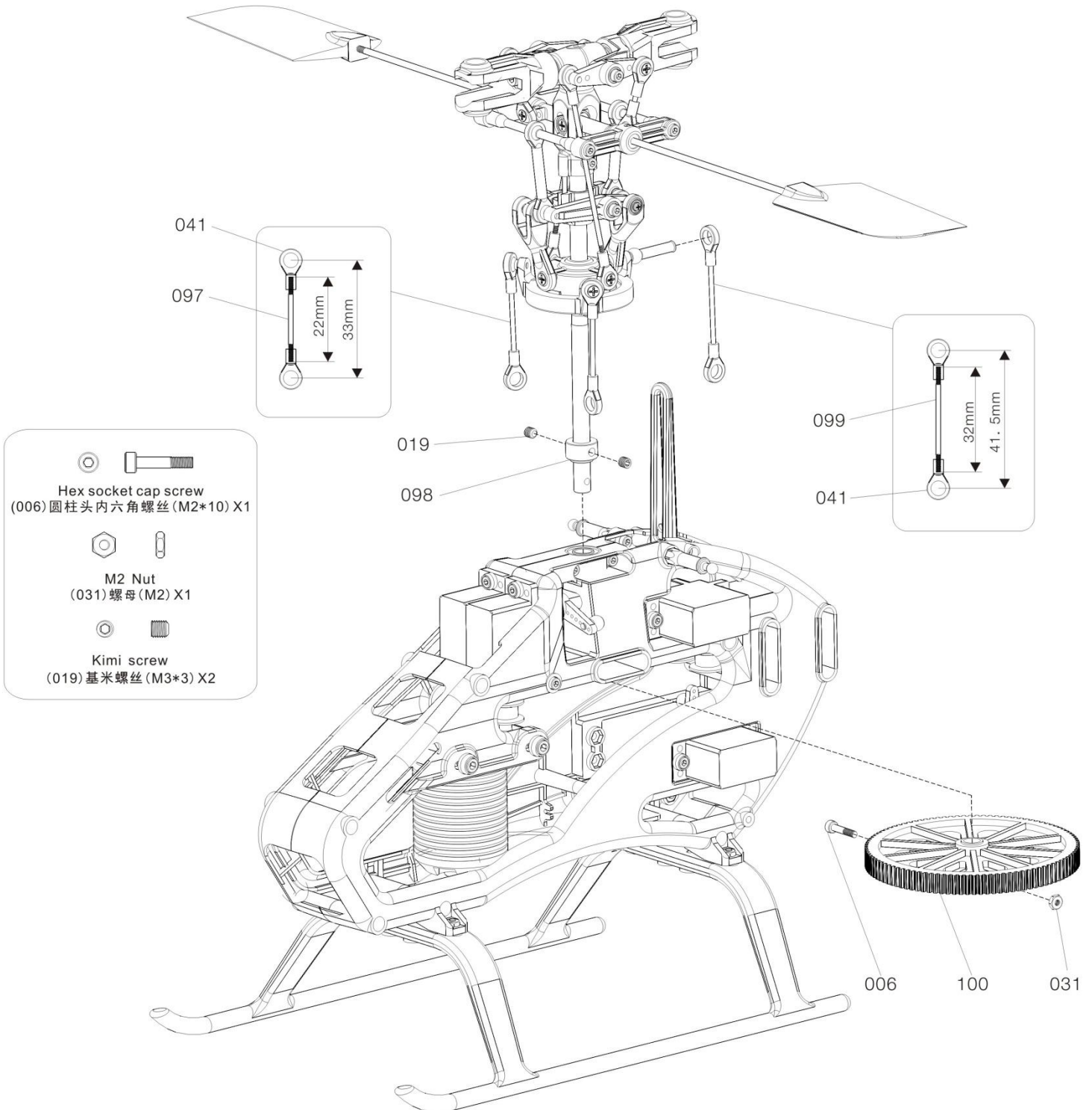
主体侧板与动力系统组装步骤(3)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
097	QS-022	Linkage rod (C) 拉杆	2	Φ1.4*22
098	1011-4	Main shaft lock collar 主轴固定环	1	
099	QS-022	Linkage rod (D) 拉杆	1	Φ1.4*32
100	1154-2-Q	Main drive gear 主齿轮	1	

Apply a little amount of screw glue when screw is locked in to metal part.
螺丝锁入金属件请使用适量螺丝胶。

Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意，适当扭力即可。而过大的扭力可能会导致滑牙，断裂。



6.ASSEMBLY PROCESS OF MAIN FRAME AND POWER SYSTEM

主体侧板与动力系统组装步骤(4)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
101	QS-029	Hex socket cap screw 圆柱头内六角螺丝	1	M2*14
102	QS-027	Tail boom brace end 尾支撑杆接头	4	
103	QS-027	Tail boom brace 尾支撑杆	2	
104	QS-026	Tail linkage rod 尾拉杆	1	Φ1.4*390



Apply a little amount of screw glue when screw is locked into metal part.
螺丝锁入金属件请使用适量螺丝胶。



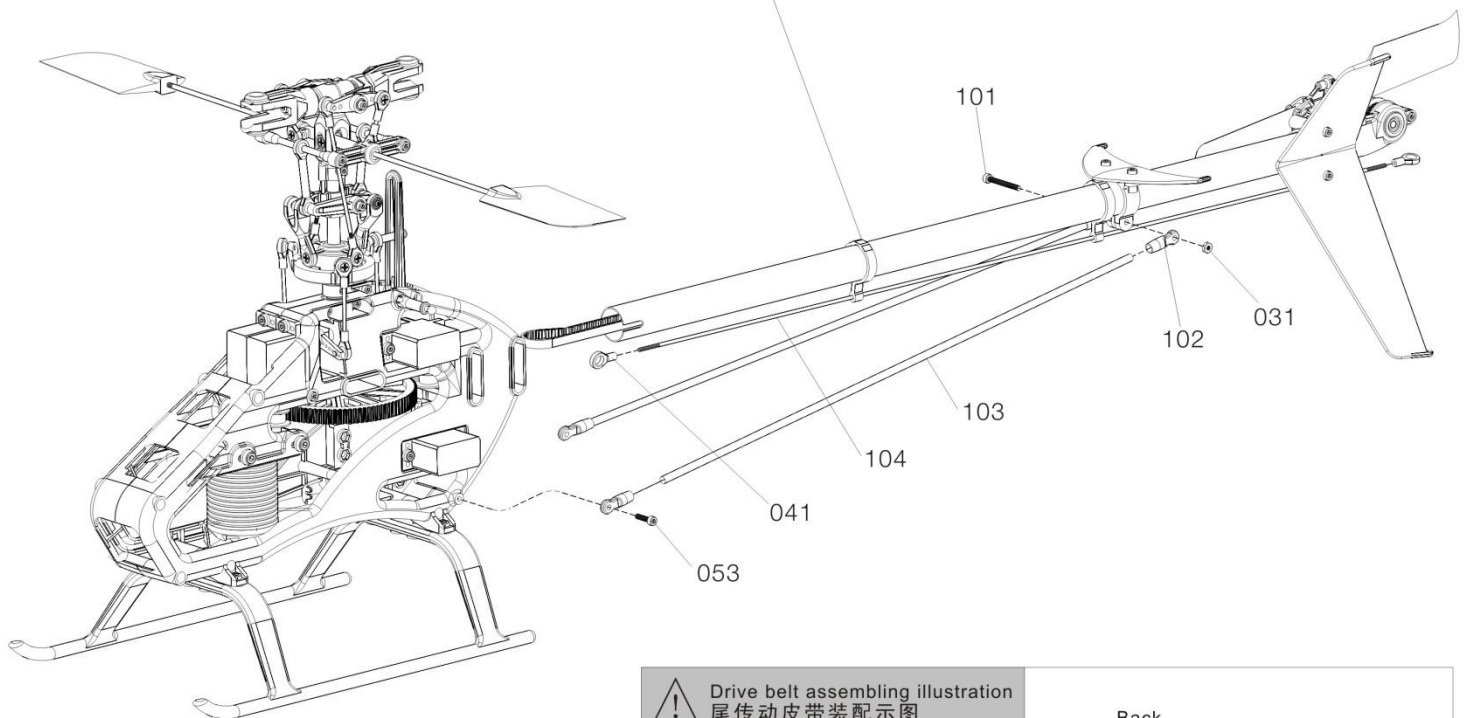
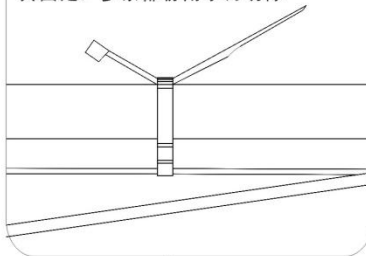
Proper torque is fine when locking screw into plastic parts, the redundant torque may cause the screw to strip or fracture.
螺丝锁入塑胶件时请务必注意, 适当扭力即可。而过大的扭力可能会导致滑牙, 断裂。


Hex socket cap screw
(053)圆柱头内六角螺丝(M2*8) X2

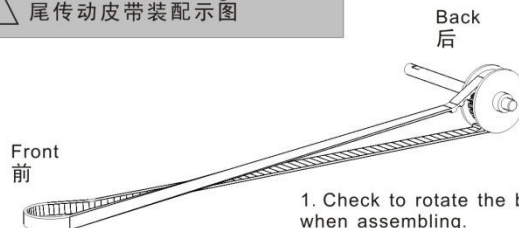

Hex socket cap screw
(101)圆柱头内六角螺丝(M2*14) X1


M2 Nut
(031)螺母(M2) X1

Fasten the tail control rod fixing ring with nylon cable tie and cut the redundant part of the tie.
使用尼龙扎带穿过尾控制杆固定环, 将其固定, 多余部份用小刀切除



Drive belt assembling illustration
尾传动皮带装配示意图



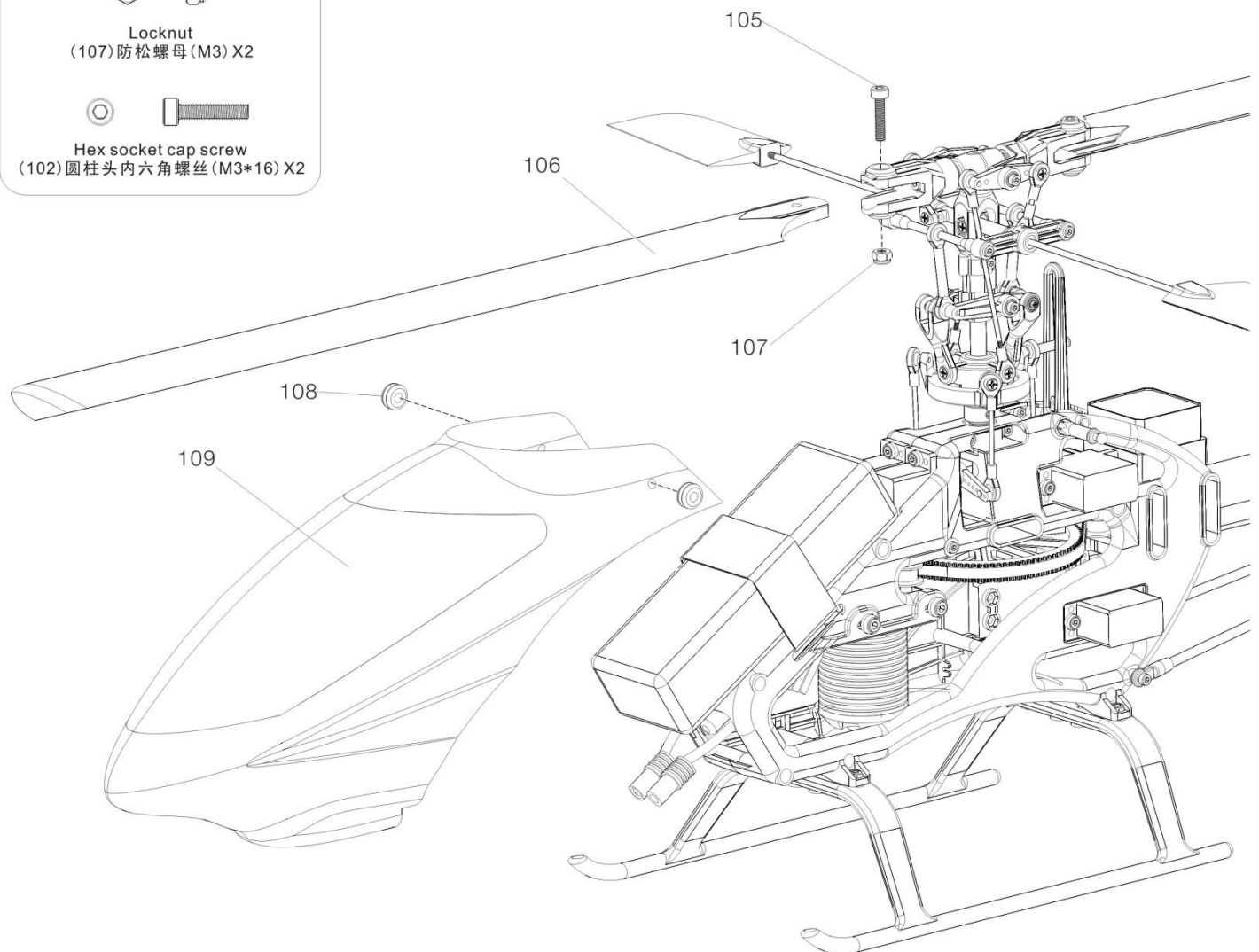
1. Check to rotate the belt back 90 degrees when assembling.
 2. Belt tension: Recommend to lightly tighten the belt to prevent vibration, belt friction and rotation slip after assembling tail boom.
1. 组装时确认皮带顺转90度。
2. 皮带紧度: 建议尾管组装后皮带请稍微拉紧, 避免震动皮带摩擦或转支打滑

6.ASSEMBLY PROCESS OF MAIN FRAME AND POWER SYSTEM

主体侧板与动力系统组装步骤(5)

Dosage form of spare parts 零件用量表

No.序号	Part No.零件编号	Description名称	Quantity数量	Specification规格
105	QS-001	Hex socket cap screw 圆柱头内六角螺丝	2	M3*16
106	1193-1	Main blade 主翼	1	315mm
107	QS-001	Locknut 防松螺母	2	M3
108	QS-035	Canopy rubber gasket 头罩胶圈	2	
109	QS-035	Canopy 机头罩	1	

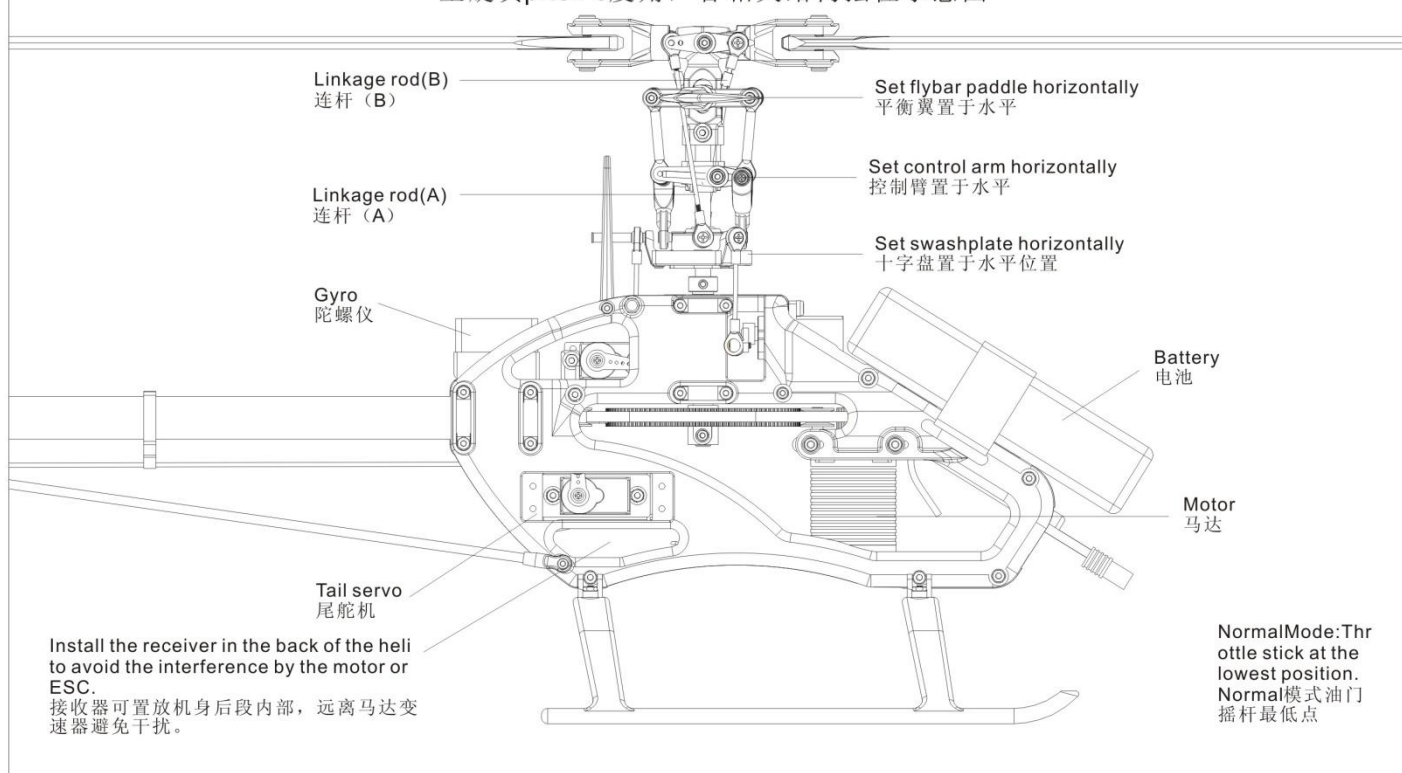


7.EQUIPMENT ILLUSTRATION 设备建议配置图示

PARTS AND EQUIPMENT ASSEMBLY ILLUSTRATION 零件与组件的组装图

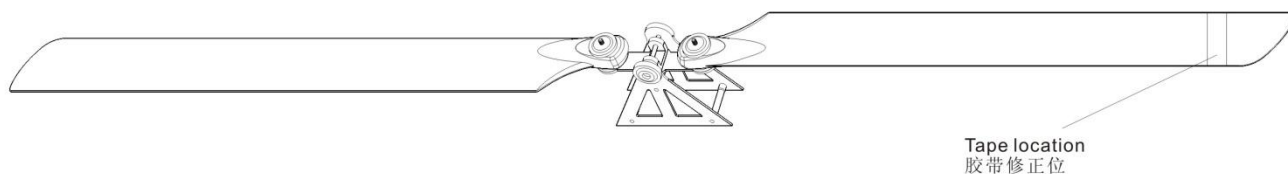
Illustration of Main Rotor's Pitch at 0 degree

主旋翼pitch 0度角，各相关结构摆位示意图



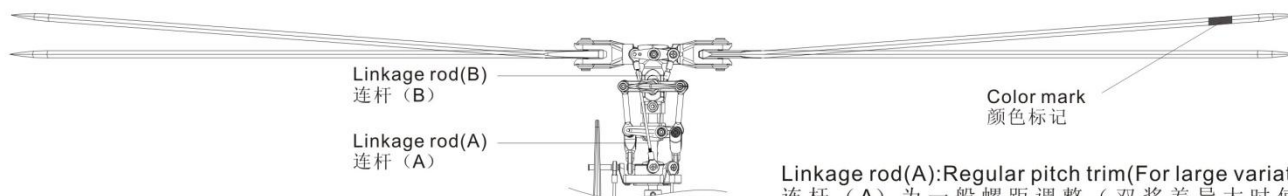
8.MAIN ROTOR BLADE BALANCING AND CORRECTION

设备建议配置图示



Important-Before flying it is necessary to balance the blades. Screw the rotor blades together as in the illustration. The rotor blades are properly balanced when they are suspended exactly horizontally. If not, the blades are not in equilibrium. This is corrected by applying tape to lighter blade.

当主旋翼转动时，请先执行平衡校正将两支主旋翼使用M3螺丝固定保持两支将成一直线，至于测试跨台后可以用胶带修正达两支主旋翼成水平最佳状态。

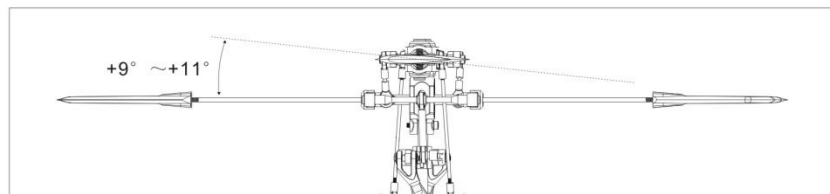


Apply a red piece of tape on one blade, or paint a red stripe with a marker or paint to identify one blade. Run the helicopter at a safe distance and have someone look at the spinning blades at the reference angle shown in the photo. If the blade tracking is not set correctly, you will be able to identify the blade with the red identifying mark rotating higher or lower than the other blade. Adjust the linkage rod length shorter or longer to make both blades track level.

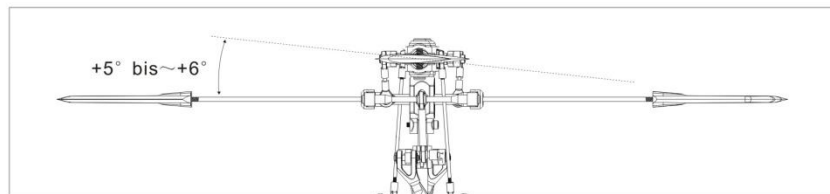
可使用螺旋桨附赠的红、蓝贴纸分别贴于两桨翼端，或于单桨翼端处画上颜色记号，方便双桨调整辨记。标示颜色桨偏高（螺距过大）请调整连杆（A）修正，或需要更小螺距微调修正请调短连杆（B）修正。

9.PITCH AND THROTTLE SETTING 主旋翼螺距与油门设定

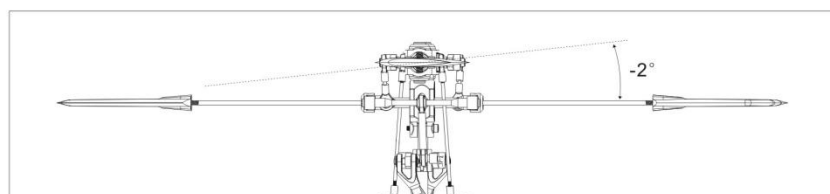
GENERAL FLIGHT 一般飞行模式



Stick position at high/Throttle 100%/Pitch+9° ~+11°
摇杆高速/油门100%/螺距+9° ~+11°

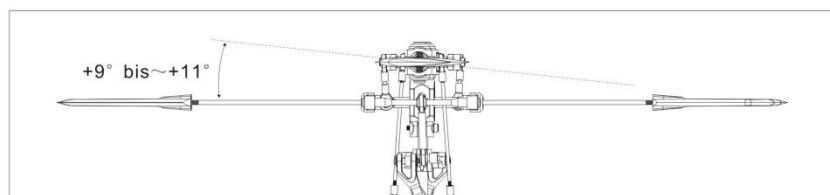


Stick position at high/Throttle 65%~70%/Pitch+5° ~+6°
摇杆停息/油门65%~70%/螺距+5° ~+6°

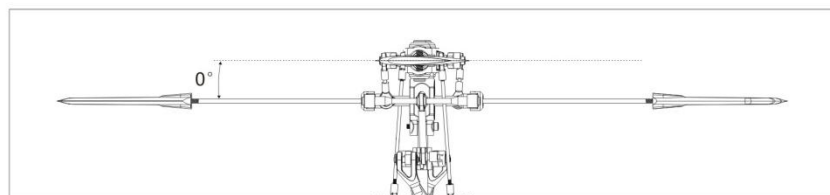


Stick position at low/Throttle 0%/Pitch 0°
摇杆低速/油门0%/螺距 0°

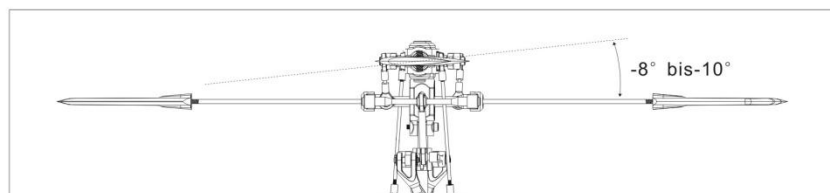
3D FLIGHT 3D特技飞行模式



Stick position at high/Throttle 100%/Pitch+9° ~+11°
摇杆高速/油门100%/螺距+9° ~+11°



Stick position at high/Throttle 90%/Pitch 0°
摇杆高速/油门90%/螺距 0°

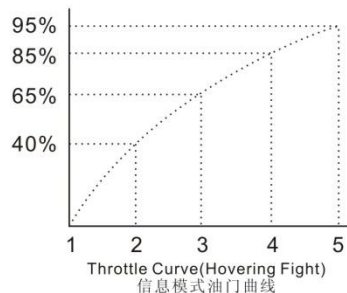


Stick position at low/Throttle 100%/Pitch-8° ~-10°
摇杆低速/油门100%/螺距-8° ~-10°



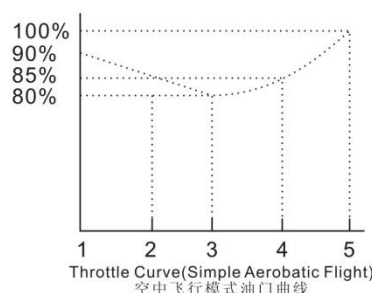
- 1.Pitch range:Approx.25 degrees.
 - 2.If the pitch is set too high,it will result in shorter flight duration and poor motor performance.
 - 3.Setting the throttle to provide a higher speed is preferable to increasing the pitch too high.
- 1.螺距 (Pitch) 总行程约25°
 - 2.过大螺距设定, 会导致动力与飞行时间降低。
 - 3.动力提升以较高转速的设定方式, 位于螺距调大的设定。

Standard-Flug		Pitch 螺距
Throttle 油门		
5	100%High speed 100%高速	+9° ~+11°
4	85%	
3	65%Hovering 100%停息	+5° ~+6°
2	40%	
1	0%LOW SPEED 100%低速	-2°

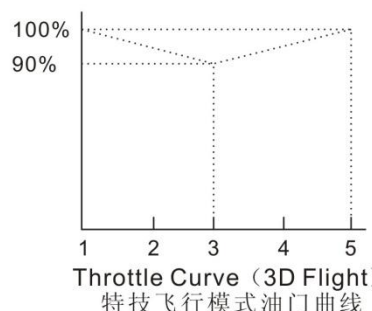


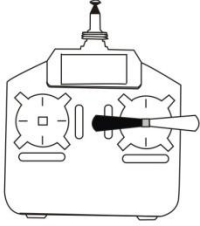
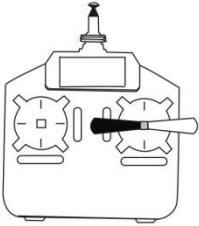




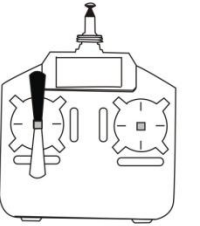
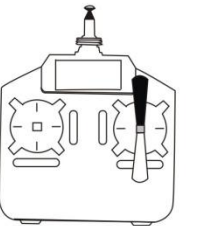




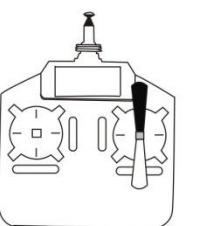
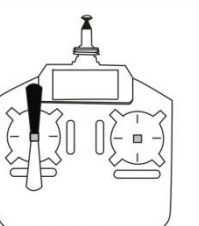


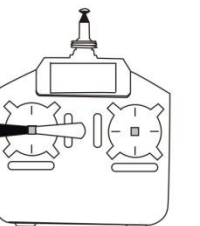
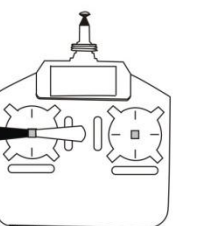

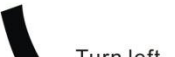
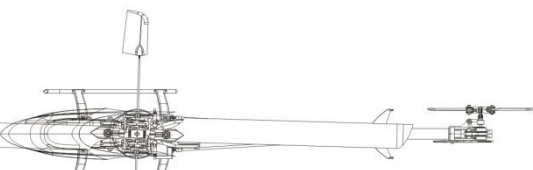

Pitch and Rotation Speed 螺距与转速关系
TIP:It is recommended to use a lower pitch setting when using higher RPM/Head speed. This will allow for better power.
搭配要领: 如果使用较高转速马达动力建议搭配调低螺距, 将获得较佳传动力效能。

IDLE1:SPORT FLIGHT		Pitch 螺距
Throttle 油门		
5	100%	
4	85%	
3	80%	+5° ~+6°
2	85%	
1	90%	-5°



IDLE1:SPORT FLIGHT		Pitch 螺距
Throttle 油门		
5	100%	+9° ~+11°
3	90%	-5°
1	100%	+8° ~+10°



Mode 1	Mode 2		
 <p data-bbox="199 470 478 526">Aileron副翼</p>		 <p data-bbox="790 347 901 403">Move left 左移</p>  <p data-bbox="790 459 901 515">Rotate left 左翻</p>	 <p data-bbox="1197 347 1308 403">Move right 右移</p>  <p data-bbox="1197 459 1308 515">Rotate right 右翻</p>
 <p data-bbox="199 795 478 851">Elevator升降/前后</p>		 <p data-bbox="686 649 798 705">Fly forward 前进</p>  <p data-bbox="686 772 798 828">Forward rotate 前翻</p>	 <p data-bbox="1284 649 1396 705">Fly backward 后退</p>  <p data-bbox="1284 772 1396 828">Rotate backward 后翻</p>
 <p data-bbox="199 1108 478 1164">Throttle油门</p>		 <p data-bbox="1069 896 1149 952">Ascent 上升</p>  <p data-bbox="1069 1108 1149 1164">Descent 下降</p>	
 <p data-bbox="199 1422 478 1478">Rudder方向</p>		 <p data-bbox="798 1232 901 1288">Turn right 右旋</p>  <p data-bbox="798 1422 901 1478">Turn left 左旋</p>	 

11.PARTS LIST 零件明细



QS-001
Main rotor holder
大桨夹



QS-002
Main rotor holder
arm
大桨夹摇臂



QS-003
Main rotor
housing
中联



QS-004
Flybar seesaw
arm
平衡杆固定座



QS-005
Flybar control
set
日字框



QS-006
Washout base
holder
向位器



QS-007
Washout base
control arm
向位器摇臂



QS-008
CCPM swashplate
十字盘



QS-009
Anti-rotation
bracket
十字盘导轨



QS-010
Main shaft
主轴



QS-011
Tail rotor shaft
assembly
尾轴



QS-012
Frame set
机架



QS-013
Motor mount
马达固定座



QS-014
Servo mounting
plate
舵机安装座



QS-015
Tail pitch
control arm(L)
尾推控制臂



QS-016
Landing skid
脚架



QS-017
Tail boom
尾管



QS-018
Tail unit holder
尾波箱



QS-019
Stabilizer
水平垂直翼



QS-020
Tail pitch
assembly
尾推组



QS-021
Tail rotor holder
尾桨夹



QS-022
Linkage rod
拉杆包



QS-023
Linkage ball
球头扣包



QS-024
Screw set
整机螺丝包



QS-025
Screw set
整机垫片包



QS-026
Tail linkage rod
尾推杆



QS-027
Tail boom brace
尾撑杆



QS-028
Tail boom brace
mounting ring
尾推杆固定环



QS-029
Stabilizer mount
水平翼固定座



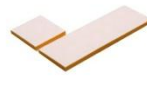
QS-030
Rear belt wheel
后压带轮



QS-031
Belt wheel
压带轮



QS-032
battery tape
电池扎带



QS-033
Sponge tape
海棉胶垫



QS-034
Canopy mounting
bolt
头罩固定座



QS-035
Canopy
头罩



1004
Flybar rod
平衡杆



1001-4
Main shaft lock
ring
主轴限位环



1031-Q
Drive belt
皮带



1192
Tail blade
尾桨



1191-Q
Flybar paddle
副翼



1048-1
Metal ball head
球头包



1011-Q
Feathering shaft
横轴



1154-2-Q
Main gear
大齿轮



2001AQ
Motor pinion
马达齿轮



1003-1
Main rotor
housing washer
中联胶圈



1003-4
Main rotor housing
alu ring
中联铝垫片

12.REGULAR MAINTENANCE 常规维修

Regular maintenance is required to keep the KDS 450QS 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.

请定期检查: KDS 450QS 电动遥控直升机为精密零组件构成之精细模型商品。所以飞行者须注意确保各控制组件及结构之性能良好, 使能发挥优异稳定飞行特性。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。

MAIN ROTOR CHECKLIST 主旋翼机构检查重点

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 does 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.
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, 并请修正双桨不良的状况, 以提升升力效能, 注意因平衡不佳将各导致零件损坏与松脱。
 4. 控制臂组: 定期检查各控制臂控制滑顺, 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。

FUSELAGE/CHASSIS 机身组检查重点

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: 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.
1. 主轴轴承: 主轴轴承经长期重负载运作, 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趟的周期当中请拆卸下来上油。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纤维耐变形皮带, 长时间使用时仍然会产生延展的现象。请随时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。

LINKAGE RODS & CONNECTING PARTS 控制杆组头检查重点

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. 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滑顺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即可脱出, 建议您立即更新, 确保飞行性能与安全。

TAIL ROTOR SYSTEM 尾旋翼系统检查重点

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 rotor 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 it immediately.
 4. Tail Rotor: Check the tail rotor blades regularly for damage, especially if the helicopter ever strikes the ground while flying, or after hard landings. Damaged tail rotor blades will induce vibration.
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, 若有必须立即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, 严重时甚至会发生其它部位轴承磨损及尾旋翼滑座无法运作的情形。
 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。



SPECIFICATION (规格)

Length(长度): 650mm
Width(宽度): 120mm
Height(高度): 230mm
Main Rotor Diameter(主旋翼直径): 710mm
Main Blade Length(主旋翼长度): 315mm
Motor Pinion(马达齿): 14T
Main Drive Gear(主传动齿轮): 100T
Autorotation Tail Drive Gear(尾驱动主齿): 22T
Drive Gear Ratio(齿轮传动比): 5.6:1:4.6
Flying Weight(全配重): 780g

Equipment (配置)

Gyro(陀螺仪): KDS820
BL ESC(无刷电调): 40A
Servo(舵机): 9g x 4
BL motor(无刷马达): 1650KV
Transmitter(遥控器): K-7XII 2.4GHz
Lipo(锂电池): 2200mAh 11.1V 20C
Charger(平衡充电器): KDS-3S

KDS MODEL

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