

# Dauphin

progressive

BEYOND YOUR DREAM



警告：遥控模型不是玩具，请仔细阅读说明书以后飞行。  
Warning: R/C model is not a toy, please fly it after reading the instruction detailedly.

## DAUPHIN INSTRUCTION

### EK1H-E303

#### Specification

- (1) Main rotor diameter:  $\phi 340\text{mm}$
- (2) Weight: about 240g
- (3) Length: 400mm, width: 72mm, height: 180mm
- (4) Power system: 180 motor\*2pcs
- (5) KIT/ARF/RTF: RTF;
- (6) Transmitter: Standard 4 CH 2.4G transmitter (including training switch and simulator port)
- (7) Mix controller: 4 in 1 mix controller (including gyro, mixer, ESC, receiver)
- (8) Servo: Digital servo (weight: 7.5g; torque: 1.0kg cm; speed: 0.1s/60°)
- (9) Battery: 7.4V 800mAh Li-polymer battery set
- (10) Standard outfit: 0.6A charger, adaptor, 8 dry batteries, 2 pairs of spare blades

#### 产品参数

- (1) 主旋翼直径:  $\phi 340\text{mm}$
- (2) 总重量: 约240g
- (3) 机身长: 400mm, 宽: 72mm, 高: 180mm
- (4) 电机型号: 180马达\*2pcs
- (5) 装配: RTF
- (6) 发射机: 标准四通道2.4G发射机 (含教练开关, 模拟端口)
- (7) 混控系统: 4合1控制器 (包含: 陀螺仪、电子调速器、接收机、混控)
- (8) 伺服器: 数字伺服器 (重量: 7.5g, 扭力: 1.0kg cm, 速度: 0.1s/60°)
- (9) 电池: 7.4V 800mAh 锂聚合物电池组
- (10) 标准配备: 0.6A充电器, 适配器, 8个干电池, 2对主旋翼

[www.twf-sz.com](http://www.twf-sz.com)

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★说明书内容如有需要任何改动, 不需另行通知, TWF留有最终修改权。

★Other notice is not required if any changes on the manual, TWF owns the final right of modification.

## ● 关于 Dauphin About Dauphin

直升机外观设计仿真度高,制作工艺细致、精美;尾部使用涵道装饰尾桨,顶部安装彩色飞行指示灯,在飞行过程中可以不断的闪烁;起落架采用滑轮式设计,在起飞和降落过程中增加了更多的乐趣;遥控系统采用全新2.4G智能化展频传输技术与数字化跳频技术,搭配两颗数字伺服,遥控操作反应速度更快,动作更加灵敏、准确;可多人同时同地操作,使您自由尽情的飞行

Dolphin is designed with high emulation art,meticulous and fine process.The tail is styled with culvert decorated tail rotor and chromatic flight indicator is installed at the top,which can twinkle continuously in flight,the undercarriage with lifter pulley design ensure a more enjoyable flight.RC system adopts brandnew 2.4G intelligent spread spectrum transmission technology & digital FM technology,collocated with 2 digital servos,which ensure a rapider response,more precise and nimbler movement.several flyers can operatesimultaneously in the same filed.You will experience a free and relaxed flight.

## ● 整机图 The whole parts of Dauphin



工厂100%组装完成的Dauphin,只需充电即可飞行,电子系统出厂时已经过专业人士调试,无需再做调整。标准配备包含整机一台、发射机一个、充电器一组、螺旋桨一套、充电电池一颗、发射机5号电池一组(8个)ESKY加密狗一个、光盘一张,让你随时想飞就飞。

Dauphin, has been completely assembled in the factory, it can fly after finishing charging the battery. Electronic system has been completely adjusted by our engineer before packing, no adjustment is needed. Standard outfit include: a kit, a transmitter, a set of charger, main blade, a chargeable battery, transmitter battery unit (8pcs), a ESKY softdog and a Instructional Video CD for computer,which are ready to fly out of box.

## ● 电池的充电 Charging the battery pack

锂聚合物电池的充电方式如图示:  
Li-po battery charging is as the picture shows:



⚠警告: 充电时间最长不得超过120分钟。

WARNING: The time for battery charging can not exceed 120 minutes.

## ● 电池的充电 Charging the battery pack

- 1.将充电器与电源连接,此时充电器电源指示灯显示红灯,电源连接正常。
- 2.将需要充电的2节或3节锂离子电池分别(不可以同时)插入充电器电池接口,绿色指示灯闪烁,表示正在充电。
- 3.待绿色指示灯停止闪烁时表示电池已经充满。  
1.Connect the charger with power,then the red power indicator lights up,which indicates that the power connection is normal.  
2.Connect the 2 cells or 3cells Li-polymer battery with charging ports of charger respectively or simultaneously,then the green charging indicator flashes and it indicates the battery is on charge.  
3.Green indicator stops flashing shows that the battery is full.

## ● 充电注意事项 Charging precautions

- 1.接通电源后,电源指示灯红灯会亮,红灯未亮表示电源没有连接好(图1)。
- 2.当电池连接好后,绿色指示灯会闪烁,表示正在充电;如果指示灯红灯和绿灯同时闪烁表示电池有误,请检查电池是否损坏。如果绿灯不亮,红灯闪烁时表示充电器进入保护状态,请断开充电器电源3秒以后重新接通电源(图2)。
- 3.充电完成后绿色指示灯恒亮,如果电池长时间不断开时,自放电使单节电池电压低于4.15V时充电器会重新给电池充电,直至再次充满,而且此过程会反复进行,确保电池为饱和状态。(图3)
- 4.充电时电池必须从直升机上取下来进行充电。
- 5.锂聚合物电池在充电时必须有人看护。
- 6.充电器充电时应放在干燥通风处,远离热源,远离易燃易爆物品。
- 7.为了您更安全快捷的充电,请使用ESKY原厂出品的充电器。  
1.After connecting the power,the red indicator would get light,otherwise,it indicates that power connection goes wrong(fig 1).  
2.Green indicator would flash after connecting the battery with charger,which indicates that battery is on charge. If green and red indicators flash simultaneously,it indicates the error with battery,please check whether the battery has been damaged.If green indicator goes out and red indicator flashes,it shows that the charger is under protection mode,please disconnect the power for 3 seconds and switch the power on again (fig 2).  
3.Green indicator gets constant light after the charge finished.If the battery has not been unplugged for a long time after charge finished,the battery would be recharged when single battery voltage is lower than 4.15V after self discharge.Also,this procedure will circulate,so make sure the battery is in saturated state.(fig 3)  
4.Take the battery out from the helicopter while charging.  
5.Fire or serious injury would be resulted in under certain conditions,so please follow the instructions and never leave equipment unattended while charging.  
6.Keep the battery charged in cool and ventilating place and be away from heat source,flammable and explosive materials.  
7.To ensure secure and quick charging,please use ESKY original chargers.



电源指示灯  
POWER  
充电指示灯  
CHARGER



STEP 1



STEP 2

绿色指示灯闪烁  
Green indicator flashes



STEP 3

绿色指示灯恒亮  
Green indicator stops twinking

## 2.4G的介绍 Introduction to 2.4G system

天外飞公司最新研发2.4Ghz频段、2.4G遥控系统采用智能化展频传输与数字跳频编码技术，与传统的发射接收系统相比表现出了巨大的优势。

1. 传统遥控空距在250米左右时，发射机发射功耗为750mW，2.4G发射机只需要4mW功耗
2. 2.4G频道使用相当广泛，通过自动对频或自动跳频产生相对应的频点，同时飞行时几乎不可能发生同频干扰现象
3. 2.4G遥控系统，采用高度集成的频率合成及FSK跳频技术，在微处理器的支持下自动规划和设定工作频点，使用户再也不会为更换晶体设置频率产生烦恼。
4. 具有双向传输特性，使得数据在发射机和接收机之间进行双重传输、确认，由此可使许多扩展功能成为可能
5. 2.4G遥控系统具有响应速度快、精度高和不抖舵的特点
6. 2.4G遥控系统的频率波长是通常使用频率波长的1/4，2.4Ghz设备由于频率高，波长短，所以发射机天线仅有14.5cm

TWF Company newly designed 2.4G frequency band, "2.4G" RC system with advanced Spread Spectrum Technology and digital FSK (frequency shift key) Coding Technology, which manifested tremendous vantage compared to traditional transmitter.

1. Traditional remote control distance is about 250meters, required a transmitter with 750mW transmitting power consumption, but 2.4G transmitter just need 4mW power consumption.

2. 2.4G Channel with wide use, can generate corresponding frequency through binding or FSK, there will be no frequency interfering when fly simultaneously.

3. 2.4G remote control system adopts superintegrated frequency synthesis and FSK(frequency shift key) technology, which can automatically program and set the working frequency under the supporting of microprocessor. Flyers would enjoy a free flight without changing crystal.

4. With dual transmission characteristic, the data will be in dual transmission & confirmation between transmitter and receiver. So probabilize many extended functions.

5. With the characteristics of quick response, high precision and non servo quiver.

6. 2.4G RC System frequency wave range is 1/4 of the usual used frequency wave range, because 2.4Ghz device with high frequency, short wave range, so the transmitter antenna is just 14.5cm in length.

## 2.4G遥控设备 About 2.4G system

在出厂之前每台直升机的遥控系统编码对频都已完成，不须另做调试。

正常工作表现方式如下：

打开发射机电源后，前3秒发射机2.4G信号指示灯闪烁，该状态表示发射机所发的是编码对频信息。3秒过后2.4G状态指示灯由闪烁变为恒亮则表示发送通道数据；再接通四合一电源，观察四合一2.4G信号指示灯由闪烁两次转为恒亮，表示已成功收到通道数据可以飞行。

打开发射机，连接直升机电源，四合一信号指示灯闪烁两次之后熄灭，表示编码对频工作失败，需要洗码和重新编码对频。

### 1. 如何洗码

关掉发射机

接通四合一电源

在编码对频按键开关上接住1-2秒。

四合一LED灯会快速闪烁不止，表示洗码已完成。

### 2. 重新编码对频

先断开四合一电源，再接通四合一电源，信号指示灯慢闪烁表示接收机正在接收机身码，这时打开发射机电源，四合一信号指示灯由慢闪变为快闪，然后转为恒亮，表示对码成功。（注意：发射机只有在打开发射机电源的前3秒发码，如果3秒后四合一没有成功收到码，请重新打开发射机电源。）

Binding for RC System of each model has been completed in factory, without needing to debug again.

Normal operation manifested as below:

Power on the transmitter, the indicator of 2.4G transmitter will twinkle for 3 seconds, which indicates that transmitter is sending code binding information. After 3 seconds, the twinkling 2.4G transmitter indicator becomes solid, indicating that sending the channel data; Then connect the 4 in 1 mix controller, observe the 4 in 1 mix controller, 2.4G transmitter indicator twinkles two times and gets solid, which indicates that the reception of the channel data is successful and are ready to fly.

Turn on the transmitter and power on the helicopter. LED indicator of 4 in 1 mix controller go out after twinkling two times, indicating that binding is failing and need to unbind firstly and rebind.

1.How to unbind?

Turn off the transmitter,

Connecting the battery to 4 in 1 mix controller

State indicator

Bind keystroke

Press the bind keystroke for 1 or 2 seconds

LED indicator of 4 in 1 mix controller will twinkle constantly, which indicates that unbinding has completed. (As shown in the right picture)

2.Rebind

Firstly disconnect 4 in 1 mix controller, then connect the 4 in 1 mix controller to the power, the state indicator twinkles slowly, which indicates that 4 in 1 mix controller is receiving signal. Then Power on the transmitter, if the indicator of RX display from slow twinkling to rapid twinkling, then solid, which indicate the binding is successful.(Note: transmitter just will transmit code in first 3 seconds, if 4 in 1 mix controller can not receive code within 3 seconds, please turn on the transmitter again.)



#### 注意事项

- 1.打开发射机电源发射机信号指示灯在前3秒内闪烁50次为编码对频时间，编码对频后指示灯恒亮（注意：在编码对频过程中，必须先接通四合一电源，然后打开发射机电源）。
- 2.在编码对频不成功时，四合一的信号指示灯闪烁两次后熄灭。
- 3.由于各厂家产品拥有不同的频段、频道与不同的编码、解码方法，不同品牌的产品是互不兼容的，所以只能使用同一品牌的遥控系统。
- 4.每一次在编码对频时须重新将发射机电源打开。

#### Remarks:

- 1.Power on the transmitter, indicator twinkles 50times within 3 seconds of binding period, the indicator get solid after the binding.(Please note that in the process of binding, first connect the or 4 in 1 mix controller before powering on the transmitter)
- 2.If binding is not successful, the indicator of 4 in 1 mix controller will twinkle two times then go out.
- 3.Since different manufacturers have different frequency band, channel and different coding and decoding method, so different products are incompatible, all RC system should be under the original trademark.
- 4.Do turn on the transmitter once again in each binding.



Step 1

1. Charging battery  
给电池充电



Step 2

2. Loading battery  
安装电池



Step 3

3. Extend the transmitter Antenna straight  
将发射机天线拉直



Step 4

4. Turn on the transmitter pushing the throttle stick and trimmer to the lowest

将油门拉杆和微调调至最低，  
打开发射机。



Step 5

5. Connecting battery  
接通直升机电源



Step 6

6. After the red light stops flashing, the green light is kept on constantly, which indicates ready to fly.

红灯闪烁后，绿灯恒亮即显示待飞

**⚠注意:**

直升机接通电源后，直升机不能正常操作，有以下主要几种情况：（如图仅供参考）

1: 打开发射机后，油门的微调 and 摇杆没有拉至最低(四合一控制器会一直亮红灯)，

2: 发射机内的电池电量用尽。(发射机LED指示灯会只显示红灯)

3: 有可能是四合一控制器损坏。

**Attention:**

The helicopter can not work normally after connecting the power, the main problems are as follows: (just for reference)

1. After turn on the transmitter, throttling or rocking lever hasn't been pulled to the lowest. (the light in 4 IN 1 mix controller is red all the time)

2. The battery in the transmitter has been used up. (only the red LED indicator will be solid).

3. The 4 in 1 mix controller has broken.



微调  
Trimmer lever      拉杆  
Stick



LED电压指示  
LED Voltage indicator



四合一控制器  
4 IN 1 mix controller



## ● Dauphin的操控 Operation of Dauphin

模拟器接口 (背面)  
Simulator port (Back)

升降微调 (制式1)  
Elevator trimmer(mode 1)  
油门微调 (制式2)  
Throttle trimmer(mode 2)

升降及副翼操作杆 (制式1)  
Elevator(mode 1)/Aileron stick  
油门及副翼操作杆 (制式2)  
Throttle(mode 2)/Aileron stick

方向舵微调  
Rudder trimmer

信号指示灯  
Signal indicator

伺服倒置开关  
Servo reversing switches



天线  
Antenna

LED电压显示  
LED Voltage indicator

教练开关  
Trainer switch

油门微调 (制式1)  
Throttle trimmer(mode 1)

升降微调 (制式2)  
Elevator trimmer(mode 2)

油门及副翼操作杆 (制式1)  
Throttle(mode 1)/Aileron stick

升降及副翼操作杆 (制式2)  
Elevator(mode 2)/Aileron stick

副翼微调  
Aileron trimmer

电源开关向上打开电源  
Push the power switch to the upper position to turn on the power.

整机内配有ESKY原装加密狗, 连接模拟器接口接入电脑, 使用发射机可以在电脑上进行模拟器飞行(软件安装步骤请参考光盘内容)。

Original softdog is included in the packing. Connecting the transmitter to computer with softdog, then you can fly in the computer. (please refer to the CD for the assembly step of software)

### 制式1 (右手油门)

#### Mode 1(Right throttle)



当副翼操作杆向左移动时, 直升机飞向左边。  
当副翼操作杆向右移动时, 直升机飞向右边。  
When the aileron stick is moved to the left, the helicopter moves to the left.  
When the aileron stick is moved to the right, the helicopter moves to the right.



当油门操作杆向上推动时, 直升机上升。  
当油门操作杆向下推动时, 直升机下降。  
When the throttle stick is pushed up, the helicopter lifts up.  
When the throttle stick is pushed downward, the helicopter descends.



当方向操作杆向左推动时, 直升机机头向左转。  
当方向操作杆向右推动时, 直升机机头向右转。  
When the rudder stick is moved to the left, the head of helicopter moves to the left.  
When the rudder stick is moved to the right, the head of helicopter moves to the right.



当升降操作杆向上推动时, 直升机向前飞。  
当升降操作杆向下推动时, 直升机向后飞。  
When the elevator stick is pushed up, the helicopter flies forward.  
When the elevator stick is pushed downward, the helicopter flies backward.

## 制式2 (左手油门) Mode 2(left throttle)



当副翼操作杆向左移动时, 直升机飞向左边,  
当副翼操作杆向右移动时, 直升机飞向右边。  
When the aileron stick is moved to the left,  
the helicopter moves to the left.  
When the aileron stick is moved to the right,  
the helicopter moves to the right.



当油门操作杆向上推动时, 直升机上升,  
当油门操作杆向下推动时, 直升机下降。  
When the throttle stick is pushed up, the  
helicopter lifts up.  
When the throttle stick is pushed downward,  
the helicopter descends.



当方向操作杆向左推动时, 直升机机头向左转,  
当方向操作杆向右推动时, 直升机机头向右转。  
When the rudder stick is moved to the left,  
the head of helicopter moves to the left.  
When the rudder stick is moved to the right,  
the head of helicopter moves to the right.



当升降操作杆向上推动时, 直升机向前飞,  
当升降操作杆向下推动时, 直升机向后飞。  
When the elevator stick is pushed up, the  
helicopter flies forward.  
When the elevator stick is pushed downward,  
the helicopter flies backward.

**注意:** 新手飞行时要保持机头方向和自己站立方向一致。

**Attention:** It is suggested that the novice flies with the tail of helicopter toward himself.

### 直升机双桨的调整 Blade tracking adjustment

主旋翼出现复影表示需要对它进行调整

Blades out of normal tracking Adjustment needed



Main blades don't on one plane  
飞行时, 主旋翼旋转不在同一平面



Adjusting method of main  
blades attack-angle  
主旋翼攻角的调整方法



Main blades rotate in one plane  
主旋翼旋转在同一平面上

**注意:**

如果主旋翼出现破裂或大量的划痕, 会影响直升机的飞行, 请及时更换。  
更换时请注意主翼A和主翼B, 不能错换。

**Attention:**

If there is a breakage or lot scratch on main rotor, which may impact the flying of the helicopter, please change in time. Please pay attention to main rotor A and main rotor B while replacing them, they shouldn't be confounded.



## 拆卸步骤 Disassembling instruction



按下后纽扣

Pluck rear button

按下前纽扣

Pluck rear button

取下平衡锤

Take of the balance bob

取下主旋翼

Take off the main blade

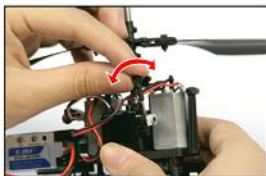
取下机壳, 注意电源线

Take off the canopy, take notice of the power cord.

## 伺服器拉杆的调节 Adjustment of Servo pull-rod.



飞行时, 确保发射机上油门微调调至最低, 其他微调已经居中。如果直升机依然一直朝左或右边倾斜, 请取下机壳, 待飞状态下, 检查十字倾斜盘是否水平。如果不是水平位置, 可以取下两边伺服器拉杆调整至适当长度(如右图), 直至两边配合把倾斜盘保持在水平位置, 再试飞。



When flying, ensure throttle trimmer of the transmitter has been regulated to the lowest position, other throttling are in position of centre. If the helicopter still lean to left or right, please remove the canopy, and examine the balance of the cross swashplate under state of ready to fly, if not horizontal, you can regulate the servo pull-rod, tighten or loosen correspondingly(as the picture above). Adjust both sides to keep the swashplate in horizontal and then test flight.

## "四合一"控制器的调节 Adjustment of "4 in 1" mix ncontroller

敬告:

"四合一"控制器出厂之前都经过专业人士的检测, 一般无须再次调试, 经过说明书所述的所有调试后, 直升机依然出现以下几种情况, 请按照说明谨慎调试四合一控制器。

1. 飞行时, 机尾总是往左或往右旋转不受控制, 先试试发射机上的微调能否调节好, 依然不受控制时, 可以适当调节四合一上的前后马达比例调节孔, (Proportinal)调小或调大一点("小"; "+大")。
2. 飞行时, 机尾总是左右小幅度摆动不受控制, 是因为尾部被锁的太紧, 须调小陀螺仪的感度孔(GAIN); 如果是左右大幅度摆动, 则调大感度。("小"; "+大")。

"4 in 1" mix controller are tested by engineer before entering the market, which don't need adjustment. If the helicopter still occurs below situations after all adjustments, please readjust the "4 in 1" mix controller according to the instruction.

1. The tail of helicopter spins to left or right and uncontrollable when flying, first try the adjustment on the transmitter, if it's still out of control, please adjust the motor ratio regulating port on the controller, turn small or large.
2. The tail of helicopter spins to left or right lightly and uncontrollable when flying, maybe the tail is locked too tight, you can adjust the gyro GAIN, if swing seriously, please enlarge sensitivity.



如果您想晋升为CO-COMANCHE室内飞行的高手，以下飞行图片可以告诉您飞一些简单的航线。(建议，一定要了解直升机飞行的操作，飞行自如以后，再试着飞航线，一定要谨慎，不要勉强，避免不必要的失误和损失。)

If you want to become a CO-COMANCHE indoor flying superior, the pictures listed below will tell you some simple flight line.(Advice: Mastering the basic operation, try the flight line after you can flight freely .Please be cautious, don't concede to avoid damage.

1. 寻一个固定的地点做为起降平台。在规定的范围内进行起飞和降落训练，起飞和降落要尽量保持平稳和垂直，动作不要过于猛烈，训练您定点起降技术。

Look for a fixed location as the flying flat, practice taking off and landing flying in regulated area, try to keep stable and vertical while taking off and landing. Try to practice take off and fall in a fixed decimal avoid violent actions.



2. 以起降点为中心，划一个边长为约2M的正方形，让直升机绕正方形四边进行飞行，飞行高度大约为目测平视高度，在正方形的角点让直升机做90度的旋转，调整飞行的方向，训练您的直线飞行与飞行中进行直角调整航线。

Take the landing point as a centre, draw a square with 2M length of side, try to fly along the square, the flight height is about eye survey height, made the helicopter spin with 90 angle, adjust flying direction, practice straight flight and adjust rectangle flight line.



3. 以起降点作为中心，划一个直径约为2M的圆，让直升机围绕圆圈进行飞行，在飞行中高度大约为目测平视高度，飞行速度要尽量保持均匀。训练您的曲线飞行的方向控制能力。

Take the landing point as a center, draw a circle with 2M diameter, try to fly along the circle, the flight height is about eye survey height, and keep a even flight speed. To train the directional control ability for curve flight.



4. 如果您对前面的动作掌握熟练了，那么您就可以进行漂亮“8”字飞行，飞行要点如图所示。

If you had commanded the above flight actions, then you can fly a nice“8”, please find the tips in right picture.



4. 飞行后进行定点降落，如果这些动作都已经掌握的很好了，那你

就是一名优秀的CO-COMANCHE飞行高手了。

Make a fixed-point landing after flying, if you had mastered all the skills, you would become an excellent CO-COMANCHE flying superior.



● 结束飞行步骤 Steps of finishing the flight



Step 1  
1 Disconnect battery  
拔掉直升机电源



Step 2  
2 Turn off the transmitter  
关闭发射机



Step 3  
3 Take out the battery  
取出电池



Step 4  
4 pay attention to the storage  
and maintaining.  
注意存放和保养。

● 机体局部设备示意图 Construction schematic diagram to inner equipments.



CH 1 副翼伺服器  
Aileron servo



导航灯  
Course light

CH 2 升降伺服器  
Elevator servo



前马达 Motor(rear)

前马达 Motor(front)

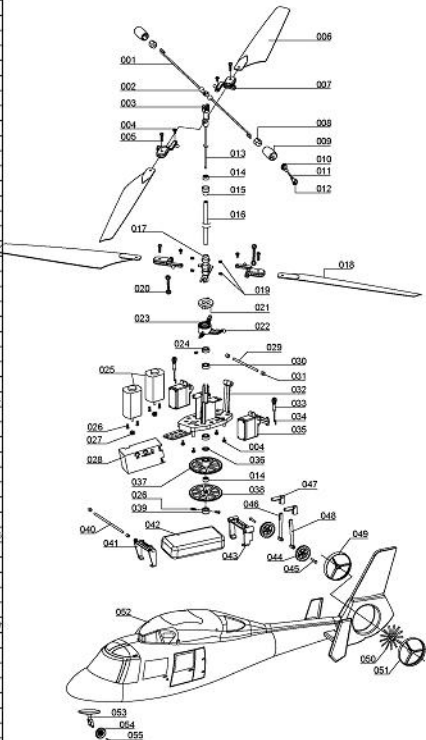


后马达 Motor(rear)



● 机体爆炸图 Exploded view

序号 NO	名称 Description	用量 Dosage	规格 Specification
001	平衡杆Flybar	1	1.5*207
002	平衡杆Flybar	1	
003	主旋转头A Center hub set A	1	
004	伞头十字螺丝Umbrella-head screw	8	1.7*4
005	内六角螺丝Inner hexagonal screw	4	M2*8
006	主旋翼A Main blade A	2	
007	主翼夹头Main blade grip set	4	
008	前重块Balance weight	2	
009	稳定磅Stabilizing weight	2	
010	单孔拉杆A Control link A	1	
011	无头螺钉Threaded screw	1	M1 4*7
012	单孔拉杆B Control link B	1	
013	主轴B Main shaft B	1	2*130.5
014	滚珠轴承Ball bearing	2	φ2*φ6*L3
015	轴承架Bearing bracket	1	
016	主轴A Main shaft A	1	4*101
017	主旋转头 B Center hub set B	1	
018	主旋翼B Main blade B	2	
019	圆头十字螺丝Round screw	5	ISO2*2.5
020	双孔连杆Ring-like push-rod	2	
021	摆臂内盘Inner swashplate	1	
022	摆臂外盘Outer swashplate	1	
023	滚珠轴承Ball bearing	1	φ*φ13*L4
024	定位环Collar set	1	8*4
025	主马达Main motor	2	180
026	圆头十字螺丝Round screw	6	M2*4
027	主马达齿Main motor gear	2	M=0.5 T=8
028	四合一控制器4 IN 1 controller	1	
029	机身支柱A Airframe bearing rod A	1	80mm
030	滚珠轴承Ball bearing	2	φ4*φ8*L3
031	胶套Plastic cannula	4	φ1.5*φ3*4
032	机架Main frame	1	
033	拉杆头Push-rod head	2	
034	拉杆A Push-rod A	2	M1.4*22
035	数字伺服器Digital servo	2	
036	垫片washer	1	φ4*φ7.5*0.5
037	齿轮B Main gear B	1	
038	齿轮A Main gear A	1	
039	齿轮固定环Fix collar for gear	1	8*4
040	机身支柱B Airframe bearing rod B	1	80mm
041	前电池架Front battery holder	1	
042	电池Battery	1	7.4V 800mAh
043	后电池架Rear battery holder	1	
044	后轮 Rear wheel	2	
045	轮销 Wheel pin	2	φ1.6*10.5
046	右后轮杆 Right back lever	1	
047	后轮固定座 Rear wheel independent seat	2	
048	左后轮杆 Left back lever	1	
049	右尾旋翼Right tail rotor blade mount	1	
050	尾旋翼 Tail rotor blade	1	
051	左尾旋翼Left tail rotor blade mount	1	
052	机身 airframe	1	
053	前轮支架 Front wheel bracket	1	
054	前轮Front wheel	1	
055	销子Pin	1	φ1*7



<p>EK1-0005</p>	<p>EK1-0005A</p>	<p>EK1-0218</p>	<p>EK1-0324</p>	<p>EK1-0312</p>
前马达 Front motor(8T)	后马达 Rear motor(8T)	2*6*3轴承 Bearing 2*6*3	轴承座/固定环 Bearing set collar	主旋翼A Plastic blade A
<p>EK1-0313</p>	<p>EK1-0314</p>	<p>EK1-0315</p>	<p>EK1-0557</p>	<p>EK1-0317</p>
主旋翼B Plastic blade B	稳定锤 Stabilizer set	主旋转头A和主轴B Center hub set A&Main shaft B	主动齿轮B和主轴A Main gear B&Main shaft A	旋转头 Main blade grip set
<p>EK1-0318</p>	<p>EK1-0321</p>	<p>EK1-0328</p>	<p>EK1-0181</p>	<p>EK2-0902</p>
主旋转头B Center hub set B	主齿轮A和固定环 Main gear A&retainer ring	轴承4*6*3 Bearing4*6*3	锂聚合物电池 7.4V Li-Polymer battery 7.4V	适配器 switching adapter
<p>EK2-0508</p>	<p>EK2-0705</p>	<p>EK2-0851</p>	<p>EK2-0404G</p>	<p>EK1-0222</p>
数字伺服器 Digital servo	四合一控制器 "4 IN 1" Controller	充电器 Charger	4通道 2.4G发射机 4CH 2.4G Transmitter	工具包 Alien Key
<p>EK1-0569</p>	<p>EK1-0570</p>	<p>EK1-0571</p>	<p>EK1-0600</p>	<p>EK1-0573</p>
机架 frame kit	单孔拉杆 Control link	斜盘 swashplate	机壳支杆 canopy shoring	螺丝组 screw sets
<p>EK1-0602</p>	<p>EK1-0601</p>	<p>EK1-0603</p>	<p>EK2-0900A</p>	<p>EK2-0606</p>
滑梯 landing skit	电池架 battery holder	尾旋翼组 Tail rotor blade	加密狗 Softdog	导航灯组 Course light set
<p>EK1-0604</p>	<p>EK1-0605</p>			
红色机壳组 Housing case(red)	蓝色机壳组 Housing case(blue)			