



INSTRUCTION MANUAL 操作手册



E-RAZOR

ITEM NO: DY8918

Specifications 产品规格

Length: 25.8in(655mm)
Main Rotor Diameter: 28.3in (720mm)
Tail Rotor Diameter: 5.3in (135mm)
Height: 235MM(9.3 in)
Weight with Battery: 670g(23.7oz)
Battery: 11.1V 2200MAH 15C li-polymer
Motor: Brushless 2750KV
Transmitter: 6 Channel Transmitter
Esc: 40A brushless esc
Charger: DC Li-Po balancing charger
Receiver: 6ch receiver
Servos: 9g x 4pcs

全长: 655MM
主悬翼直径: 720MM
尾桨直径: 135MM
高度: 235MM
飞行重量: 670g
电池: 11.1V 2200MAH 15C 锂聚合物电池
马达: 2750KV无刷外转
发射机: 6通道LCD数显
电调: 40A无刷电调
充电器: 平衡冲
接收机: 6通道小型高灵敏度
舵机: 9克X4PCS

WARNINGS 安全警告

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others. This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

1. Never operate your model with low transmitter batteries.
2. Avoid operating your model in the street where injury or damage can occur. Always operate your model in an open area away from cars, traffic, or people. Never operate the model out into the street or populated areas for any reason.
3. Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
4. Keep all chemicals, small parts and anything electrical out of the reach of children. Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.
5. Never lick or place any portion of your model in your mouth as it could cause serious injury or even death.

此遥控模型直升机并非玩具,它是结合了诸多高科技技术的产物,具备完美刺激的飞行性能的同时亦有一定危险性,因此请务必遵守以下注意事项:

1. 确保飞行场地无同频之遥控设备工作,确保发射机电源充足,确保先打开发射机再连接动力电池,飞行结束后先切断动力电池再关闭发射机电源.
2. 每次飞行前应该仔细检查,确保整机零件无松动或者断裂之隐患,发现任何细微故障亦应立即排除.
3. 远离人群,楼房,高压电线,公路,居民楼等危险地带,尽量选择开阔地带进行飞行. 尽量选择良好天气,避免雷雨等恶劣天气.
4. 注意远离任何运转中之部件,初学者以及儿童最好能在有经验者的陪同下进行练习.
5. 飞机注意远离热源以及潮湿环境放置,请使用高可靠性充电设施. 推荐使用原厂配件.

Contents 配置清单

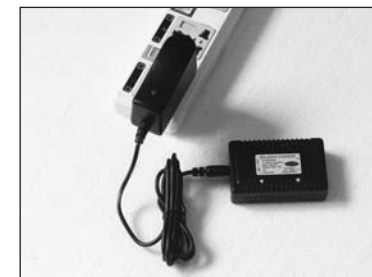
1. E-RAZOR 450 RTF Airframe
2. 6CH R/C System
3. Adaptor
4. 11.1V 2200MAH 15C Li-Po Battery
5. Balancing Charger



Battery Charging and Warning 电池充电及警告

It is important that you only charge the included 3S 11.1V 2200mAh Li-Po Battery with the included 3S 11.1V 1.0-Amp Li-Po Balancing Charger. Your battery is equipped with special Charge Protection Circuitry and Balance Charge Leads with connector that are only compatible with this charger. Attempting to charge the battery using another Li-Po charger or non Li-Po compatible charger could result in serious damage. Please familiarize yourself thoroughly with the Battery Warnings and Guidelines section before continuing. The included 3S 11.1V 1.0-Amp Li-Po Balancing Charger will charge a near fully discharged (not over-discharged) 3S 11.1V 2200mAh Li-Po battery in approximately 1.52.0 hours. In some cases the charge time may be shorter depending on the actual amount of capacity left in the battery after a flight. NEVER charge the battery unattended.

请将充电器与为其供电的开关电源连接,此时充电器的两个指示灯都呈绿色,请将电池端的平衡充电端口插入充电器端的3CELL端口,此时指示灯应为一红一绿. 我们为您配备11.1V 2200MAH 高性能锂聚合物电池以及12V输入, 1.0A充电电流之高性能平衡冲,充电时长约为:2.5小时. 当充电完成后两个指示灯皆为绿色.



Notice:

The Li-Po battery included with your e-razor 3D will arrive partially charged. For this reason the initial charge may only take approximately 3050 minutes. The charger requires up to 3-Amps of 11.515 Volt DC input power that can be supplied by the optional AC to 12V DC, 3-Amp Power Supply for convenient charging anywhere an AC outlet is available. NEVER attempt to power the charger from an AC outlet without the use of a proper AC to DC adapter/power supply.

警告:

确保充电环境干燥无杂物; 电池必须从飞机上取下单独充电; 进行相关连接前确认极性正确; 不可长时间让已冲满的电池与充电器连接; 注意飞行时间的控制,避免电池过度放电造成损坏.

HELICOPTER LI-PO BATTERY CONNECT 电池的连接

1. Turn the transmitter on first and lower the throttle/collective stick Completely, put the flight mode is NORM mode.
打开发射机,将油门杆拉到最底,将飞行模式(F. MODE)开关置 NORM模式.



2. Once the battery has been properly positioned, fasten the hook and look strap around the battery for added security. Then, plug the battery into the battery lead of the ESC.
然后将电池安装好并用扎带捆绑住,然后连接好插头后扣上头罩.



3.Put the antenna into the PVC conduit.
注意头罩的下部与机身的连接需要避开天线管使其置 头罩 之外.



CONTROL TEST 飞行指导

Although each e-razor 3D is control tested at the factory, it is a good idea to test the controls prior to the first flight to ensure none of the servos, linkages or other parts were damaged during shipping and handling. Before proceeding, disconnect the three bullet connectors between the motor and ESC. It is not safe to perform the control test with the motor connected to the ESC.

直机操控的基本方法以及飞行前的舵面检查.

Position the helicopter to view it from the left or right side. Move the left-hand stick up and down to check the collective pitch control. When the stick is pushed up, the swashplate should raise, increasing the pitch of the main blades.

当油门操纵杆往上推的时候, 倾斜盘应该水平上升, 飞机往上垂直上升.



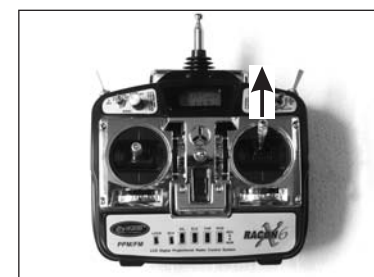
With the stick pulled back down, the swashplate should lower, decreasing the pitch of the main blades.

当油门操纵杆往下拉的时候, 倾斜盘应该水平下降, 飞机往下垂直降低.

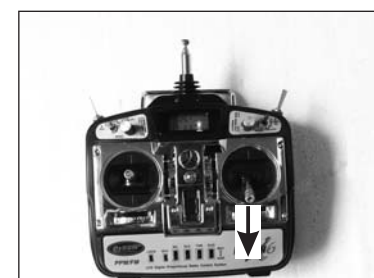


Again viewing the helicopter from the left or right side, move the right-hand stick forward and aft to check elevator pitch control. When the stick is pushed forward, the swashplate should also tilt forward.

当升降操纵杆往前压的时候, 倾斜盘往正前方倾斜, 飞机往前方飞行.

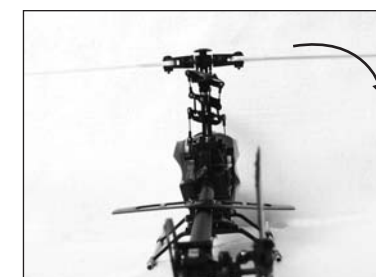
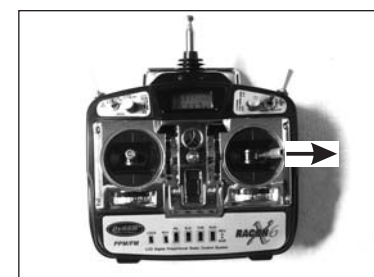


With the stick pulled back, the swashplate will tilt toward the rear.
当升降操纵杆往后拉的时候, 倾斜盘往正后方倾斜, 飞机往后方飞行.



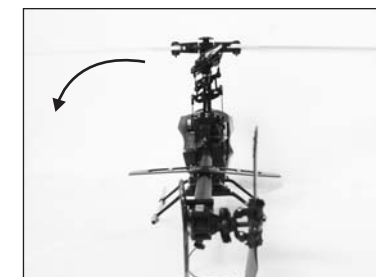
While viewing the helicopter from the rear (tail boom toward you), move the right-hand stick left and right to check aileron roll control. When the stick is pushed to the right, the swashplate should also tilt right.

当副翼操纵杆往右压的时候, 倾斜盘往右倾斜, 飞机往右方飞行.



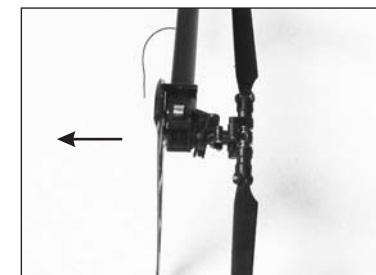
With the stick pushed left, the swashplate will tilt to the left.

当副翼操纵杆往左压的时候, 倾斜盘往左倾斜, 飞机往左侧飞行.

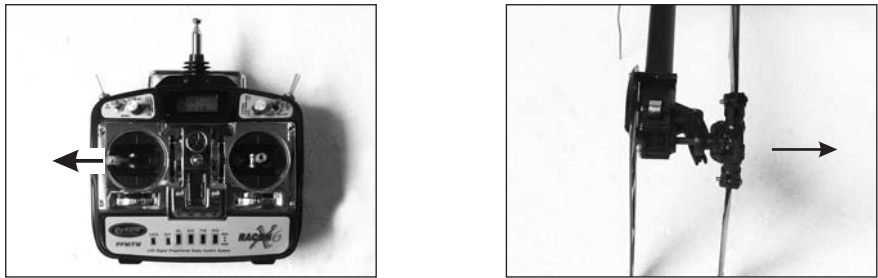


While viewing the helicopter from the rear (tail boom toward you), move the left-hand stick left and right to check rudder/tail rotor pitch control. When the stick is pushed to the right, the tail pitch slider should move to the left.

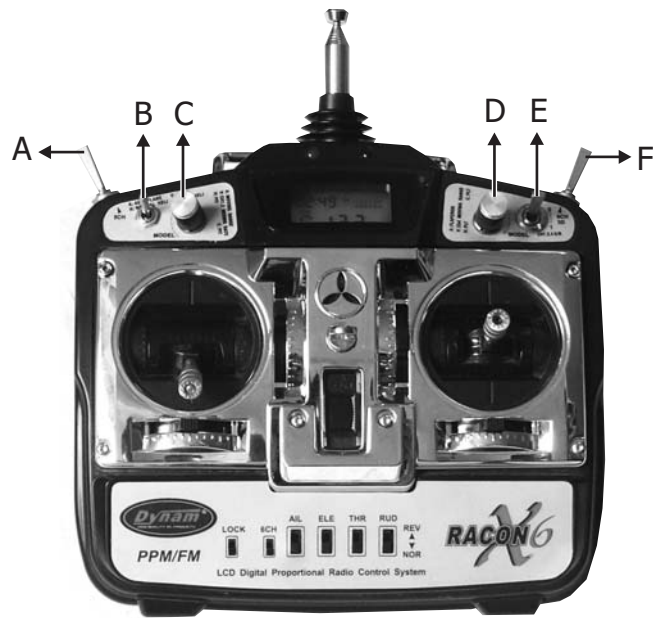
当方向操纵杆往右压的时候, 尾变距滑块往左运动, 飞机头部向右偏转.



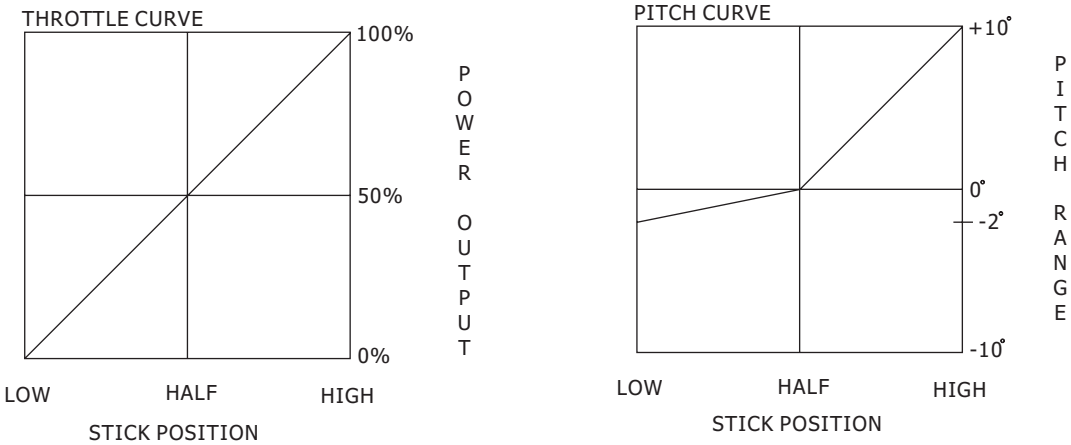
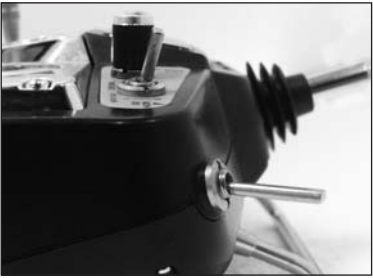
With the stick pushed left, the tail pitch slider should move to the right.
当方向操纵杆往左压的时候,尾变距滑块往右运动,飞机头部往左偏转.



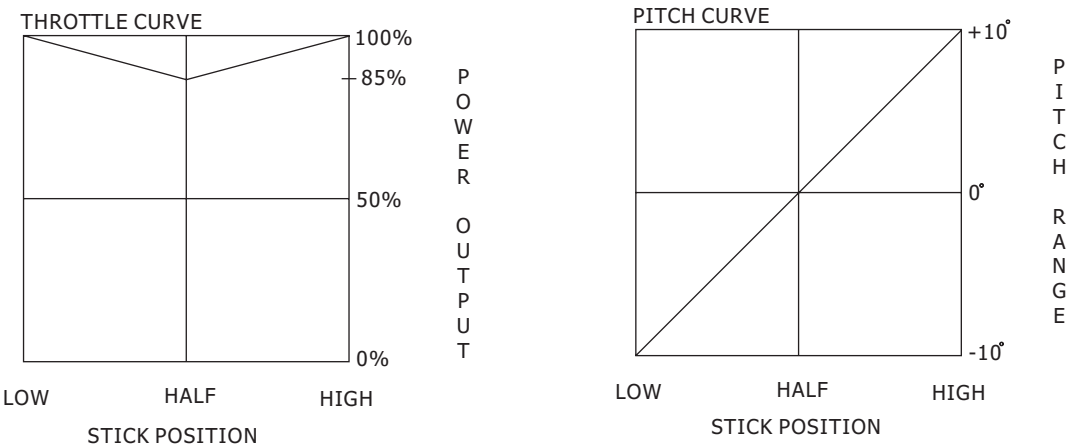
TRANSMITTER MANUAL 遥控器的使用说明



Switch A---The 5 ch switch, it is no use in the RTF helicopter.
开关A-----第5开关通道之开关, 在本RTF模型中此开关对飞行无任何影响.
Switch B---Mode select , it is be setting at factory , please not change it.
开关B-----模型类型选择, 在本RTF模型中相关设定出厂前已经设定完成, 请勿碰触此开关.
Knob C-----Adjustment pitch the midpoint in the NORM MODE.
旋钮C-----NORM模式下螺距中立点调整, IDLE模式下无效.
Knob D----Adjustment the HOV pitch in the NORM MODE.
旋钮D-----NORM模式下螺距行程量的调整, IDLE模式下无效.
Switch E---D/R Switch, 0=D.
开关E-----D/R 大小舵角切换, 当处 “0” 时为大舵角, IDLE /NORM皆适用.
Switch F----F.MODE flight mode switch, NORM mode for stable flight ,throttle and pitch curve as below.
开关F-----F. MODE 飞行模式切换开关, 当它处 原位置时为NORM模式, 适用 一般悬停以及航线飞行, 油门以及螺距曲线如下图所示.



When be pushed down is IDLE MODE, for 3D flight ,throttle and pitch curve as below:
当它被扳下时为IDLE模式, 适合 特技飞行, 油门以及螺距曲线如下所示:



Gyro adjustment :
The helicopter had be tested at factory ,not need more adjustment ,but because shipping , maybe you need adjustment gyro.
产品在出厂前已经完成基本调整, 为了便 您日后飞机需要再次调整, 特附陀螺仪的调整说明如下:

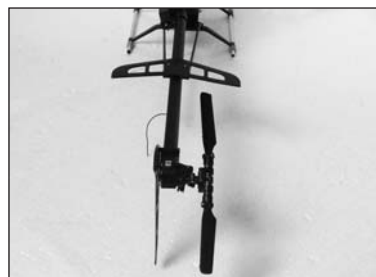
1. Knob G is GAIN , if the tail is out of control and always keep left-right wobbling vioiently, please adjust the Gain trimmer to increase (+) the gyro gain.

关 感度的调整, 旋钮G为感度调整用, 向右旋转感度增加, 向左旋感度降低, 当飞行中若尾巴出现左右晃动, 可尝试降低感度, 在不出现追踪的前提下, 感度越高越好.



2. Adjustment of gyro Gain direction ,In normal ,if helicopter tail keep left-right wobbling , the gyro will correct auto, (tail right wobbling ,gyro let the tail blade move left, tail left wobbling, gyro let the tail blade move right)if direction is wrong ,please turn the gyro 180 degree install uprightness.

关 陀螺感应方向的调整, 在正常情况下, 当您的飞机机尾朝右摆时, 陀螺会修正尾变距滑块向左滑动, 反之则朝右运动, 若尾变距滑块运动方向与此相反, 请将陀螺在垂直方向掉转180度进行安装。



3. Adjustment of neutrality . if helicopter tail have small excursion when you flight ,you can adjust use RUD, if big excursion ,please move the tail servo ,advise not move servo arm .

关 中立点的调整, 若尾部发生细微偏移请使用方向舵微调进行修正, 若偏移幅度较大, 请前后移动尾舵机安装架来修正, 最好不要去调整尾舵机的舵臂, 使它基本处 垂直尾舵连杆角度.

Main Rotor Blade Tracking Adjustment 双桨的调整

Caution: Be sure to maintain a safe distance from the helicopter (2025 feet) when tracking the main rotor blades. Blade tracking is a critical element to the flight performance of just about any helicopter, Main rotor blades that are out of track may cause vibration, instability, and loss of power due to increased drag. Although the main rotor blades of each e-razor 3D helicopter are tracked at the factory, minor adjustments to blade tracking may be required after blade changes, linkage adjustments or repairs. To check main rotor blade tracking and make any required adjustments, please note the following tips: Before proceeding with the test flight of a new model, or any model to which changes or repairs have been made, be certain that the main rotor blades have been properly installed and secured. The main rotor blade mounting bolts should be tightened so that the blades can pivot in the blade grip when moderate pressure is applied. Never allow the main rotor blades to swing freely in their grips.

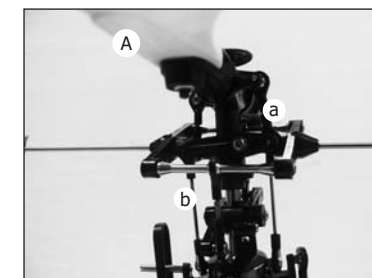
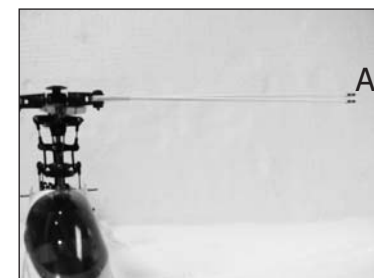
After powering the model on and allowing the ESC and gyro to properly arm and initialize, bring the main rotor blades of your e-razor 3D up to speed. You can check the blade tracking either on the ground or in the air at approximately eye level. It might be a good

idea to have an assistant on hand to help sight the blades. Again, be certain to maintain a safe distance of (20-25 feet) from the helicopter when checking the tracking of the main rotor blades.

Once the main rotor blades have been brought up to speed, note which blade is running low and which blade is running high (by the colored tracking tape).

The helicopter with main rotor blade all have pitch control links .you only need to turn the control link to achieve the blade tracking adjustment .certainly the best way is to adjust both pitch control link at the same time. If you made small adjustment on one rotor blade ,the main rotor blades are still out of track ,you need to adjust another blade ,and repeat the process to check the blade tracking and make adjustment until both blades run in track .with proper adjustment ,the helicopter will fly stably and smoothly.

如图所示, 当两片桨的旋转面出现开叉时证明有双桨。调整方法是减小处 上部的桨的螺距 (或者增加处 下部桨的螺距), 图中处 上部的A桨的螺距连杆为a, b. 当分叉角度比较大时我们将 a连杆的球头扣往外拧出, 当分叉角度小的时候我们将b连杆的球头扣往里拧入.



IDLE MODE PITCH ADJUSTMENT 螺距的调整

In order to upgrade the e-razor or repair later, and adjustment helicopter pitch ,here ,we introduce some adjust pitch way. We advise cut off the link between battery and motor. prevent helicopter running when you operating .

为了便 您日后升级或者维修时能自行对螺距进行设定, 我们特附上有关螺距设定的一些方法供您参考。建议您在进行设定前将电机与电调的连接切断, 防止飞机意外转动, 等设置完成后再连接好.

1 ,Put the transmitter all sticker trimmer in midder, switch F. MODE to IDLE ,put throttle sticker in midder station.

2, Adjustment 3 pitch servos's arm to level. and adjustment helicopter razor shape arm ,SF arm to level ,if you confirm now the main blade pitch degree 0,---finished IDLE mode pitch adjustment.

首先, 请将发射机各个舵面的微调置 中立位置, 将发射机F. MODE开关切换到IDLE模式, 将油门拉杆推到中点位置. 然后将3个斜盘舵机摇臂调成基本水平状态, 将剪型摇臂, SF摇臂调成水平, 并且此时大桨螺距为0度, 则IDLE模式螺距调整完成.



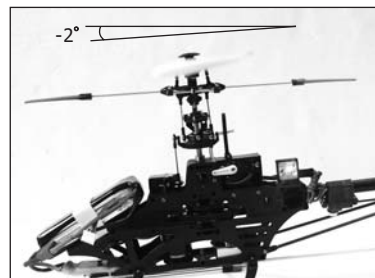
NORM MODE pitch adjustment

1. Switch transmitter F MODE to NORM MODE, down the throttle sticker to zero.

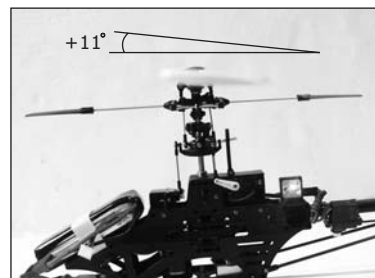
2. Adjust the knob C, let the pitch degree -2.

接下来我们调整NORM模式螺距 (机械部分请勿再调整).

首先我们把发射机F MODE开关切换到NORM模式, 把油门杆拉到最低, 然后我们调整旋钮C, 使此时的螺距为-2度.



3. Push up throttle sticker, adjustment knob D, let the pitch degree +9-+11.
其次我们把发射机油门杆推到最高, 然后我们调整旋钮D, 使此时螺距为+9--+11度.



WARNING 注意事项

RC helicopter is not toys! Incorrect operation may cause serious injury or damage. if you are a novice pilot we strongly suggest that you should find an experienced pilot in RC helicopter to assist you.

1. It is absolutely necessary to read the manual of the helicopter before operation, it is mandatory to check all control systems and mechanical linkages for proper operation before every flight. safety first!
2. Since the helicopter fly very fast, it may cause potential danger, so the choice of the flight field is of great importance.
3. Do not fly near crowd, high voltage cables or trees to ensure the safely of yourself and others.
4. Do not fly in the bad weather such as rainy or thundering to ensure the safety of yourself.
5. It is suggested to fly at an open field for beginners, and fly with the training set to practice yourself. in this case can the helicopter be protected and damage caused by the improper operation can be reduced.

为了更好的感受我们产品的乐趣, 更快的掌握您手中的模型, 我们强烈建议您在有经验的人士指导下进行初始阶段的练习. 并且我们推荐您使用我们公司的或者类似产品进行电脑模拟飞行. 以下是一些有关 飞行的一些提醒供您参考:

- (1) 我们建议您选择一个能见度好, 风小的天气.
- (2) 能有一个空旷的空地, 最好是一片草坪.
- (3) 请务必记得电力必须充足.
- (4) 请务必确保飞机调整到位, 无明显震动, 无双桨.
- (5) 我们建议您首先在机尾对着您的条件下进行操纵练习, 并且注意控制高度确保飞机不会离地面太高.

Parts Listing 配件明细



Main blade
ERZ-001



Plastic paddle
ERZ-002



Tail blade
ERZ-003



Canopy set
ERZ-004



Main blade clamp set
ERZ-005



Main blade housing
ERZ-006



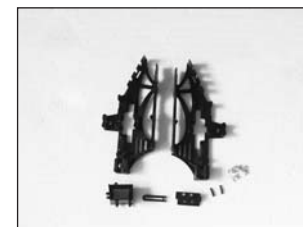
Seesaw and sf-arm set
ERZ-007



Washout control arm
and washout base set
ERZ-008



Linkage rod set
ERZ-009



Main frame set
ERZ-0010



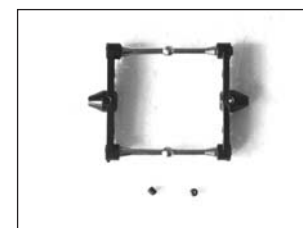
Tail driven set
ERZ-0011



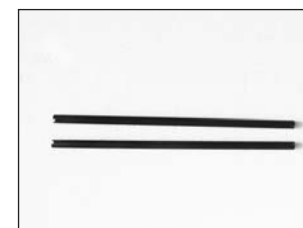
Tail blade controlling set
ERZ-0012



Tail blade clamp set
ERZ-0013



Fly bar caddles
ERZ-0014



Tail boom set
ERZ-0015



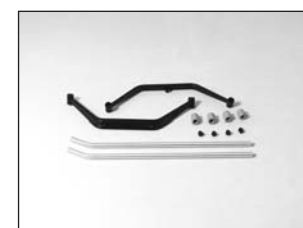
Swash plate set
ERZ-0016



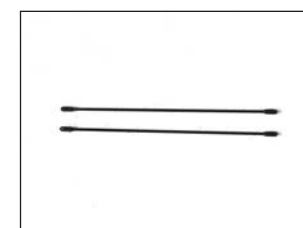
Main shaft set
ERZ-0017



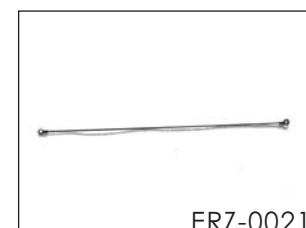
Main gear set
ERZ-0018



Landing skid set
ERZ-0019



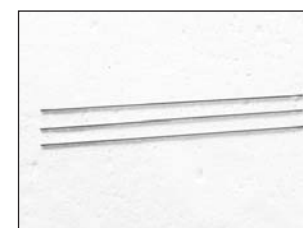
Tail driven pedestal set
ERZ-0020



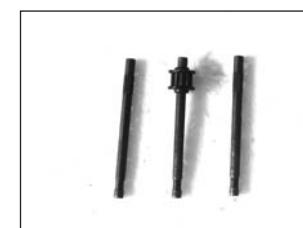
Tail servo control
push rod set
ERZ-0021



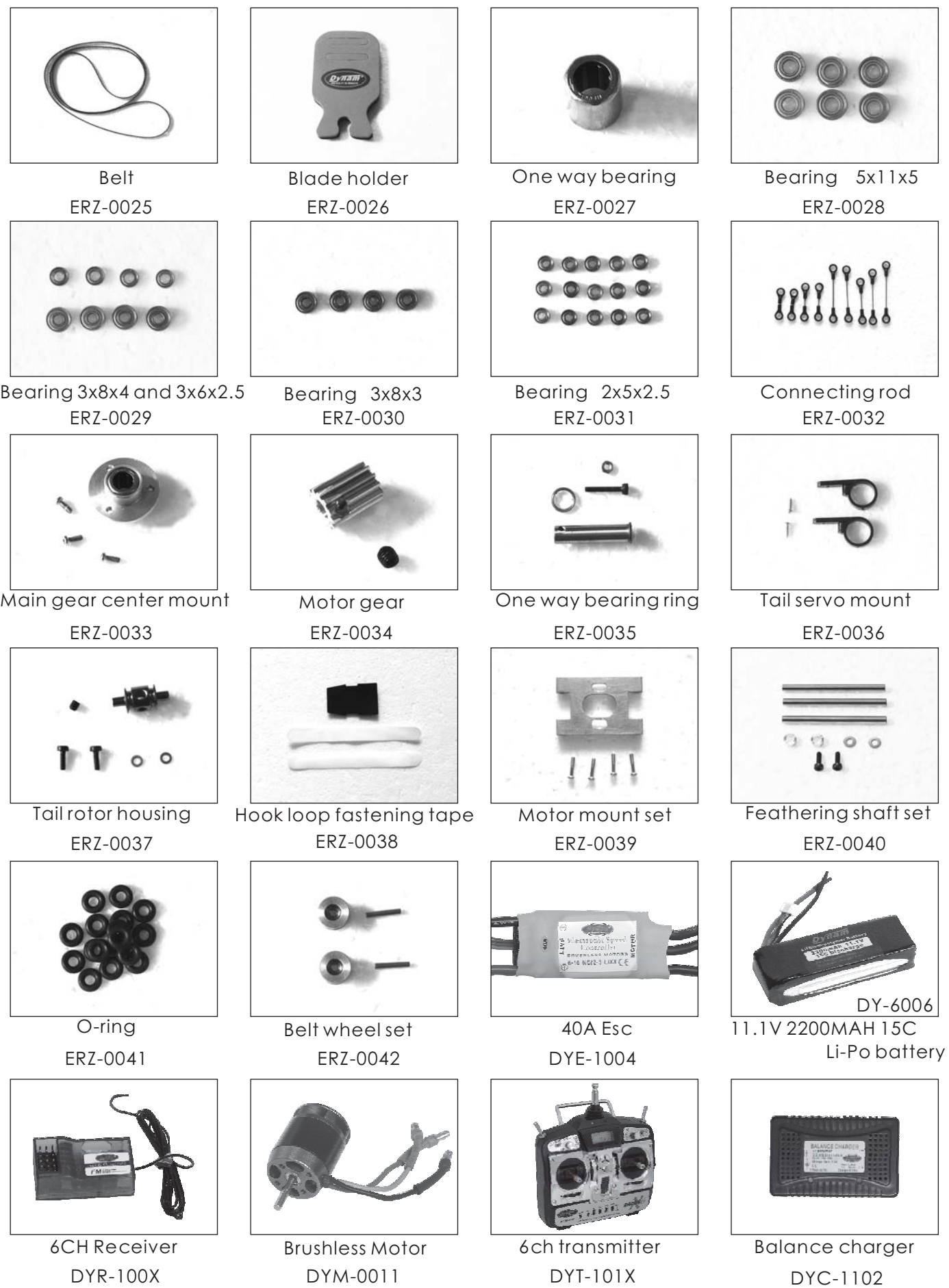
Vertical and horizontal
tail blade set
ERZ-0022



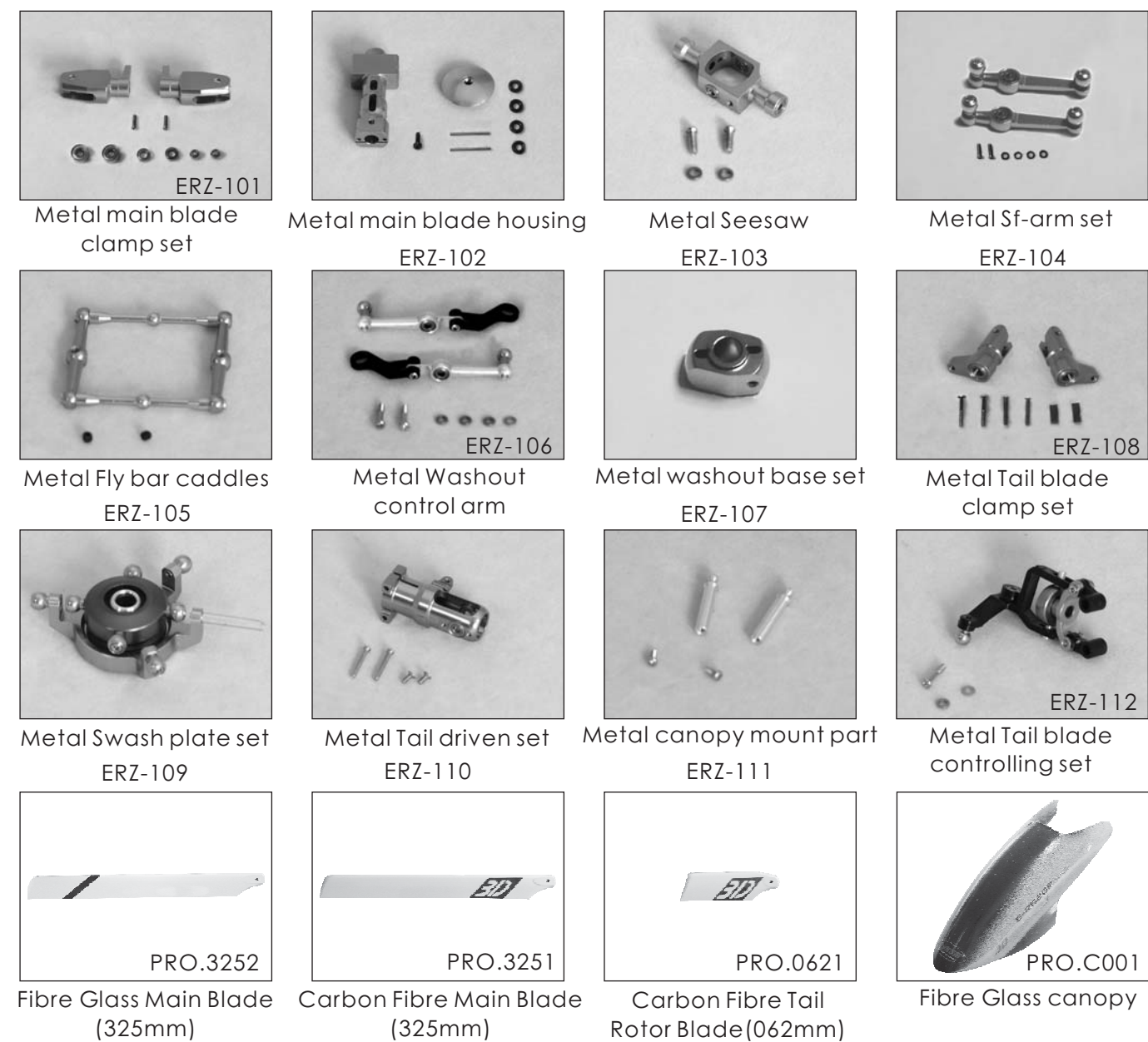
Fly bar
ERZ-0023



Tail blade main shaft set
ERZ-0024



UP GRADE PARTS 升级件明细



Exploded view parts listing

1. Fly bar paddle

2. Cross screw m2*5

3. Mount arm

4. Ball part connection part

5. Linkage rod of washout control arm and fly bar caddles

6. Fly bar

7. Socket screw m2*7

8. Brake plate

9. Main rotor housing

10. Set screw m3*3

11. Copper ring 2*5.5*6.5

12. O shape circle

13. Main rotor feathering shaft

14. Cross screw m2*7

15. Ball part

16. Bearing 3*6*2.5

17. Main blade grip

18. Socket screw m3*16

19. Nylon nut m3

20. Bearing 3*8*4

21. Feathering shaft copper washers

22. Socket screw m2*5

23. Main rotor blade

24. Feathering shaft copper aluminum washers

25. Cross screw

26. Ladder screw m2*5

27. Coper washer 3.5*2*0.2

28. Washout control arm

29. Bearing collar screw 2*5*2.5

30. Cross screw m2*10

31. Linkage rod of main blade grips and st-arm

32. Cross screw m2*10

33. Nylon nut m2

34. Socket screw m2*12

35. Fly bar seesaw holder

36. Washout case mounting heedle

37. Collar screw m1.4*7

38. Washout base

39. Stabilizer control lever arm

40. Stabilizer control arm connecting part

41. Linkage rod of swash plate and st-arm

42. Main shaft

43. Inner swash plate ring

44. Swash plate control ball

45. Bearing 17*23*4

46. Outer swash plate ring

47. Certripetal bearing 5*11*5

48. Tail driver gear

49. Aluminum washer

50. One-way bearing 6*10*12

51. Main gear

52. Main gear center mount

53. One-way bearing ring

54. Main shaft mount aluminum ring

55. Motor gear

56. Motor mount

57. Brushless motor

58. Canopy

59. Skid pipe cover

60. Skid pipe plastic ring

61. Landing skid aluminum pipe

62. Landing skid

63. Micro servos

64. Servo mount(front)

65. Main frame(right)

66. Canopy mount part

67. Main frame(left)

68. Servo mount(back)

69. Swash plate anti rotation bracket

70. Gyro

71. Belt wheel set

72. Tail servo mount

73. Tail boom

74. Horizontal stabilizer

75. Tail servo linkage rob

76. Horizontal stabilizer bracket

77. Driver belt

78. Bearing 4*8*3

79. Brace rod

80. Tail rotor

81. Collar screw m2*9

82. Tail rotor holder

83. Copper ring m3*6.5

84. Cross screw m2*10

85. Tail control lever

86. Copper ring m3*2.5

87. Tail rotor housing

88. Tail pusher

89. Swing ring

90. Tail pitch fork

91. Belt wheel

92. Copper silver 4*10*2

93. Tail case right

94. Bearing 3*8*3

95. Tailbelt wheel

96. Tail feathering shaft

97. Tail case left

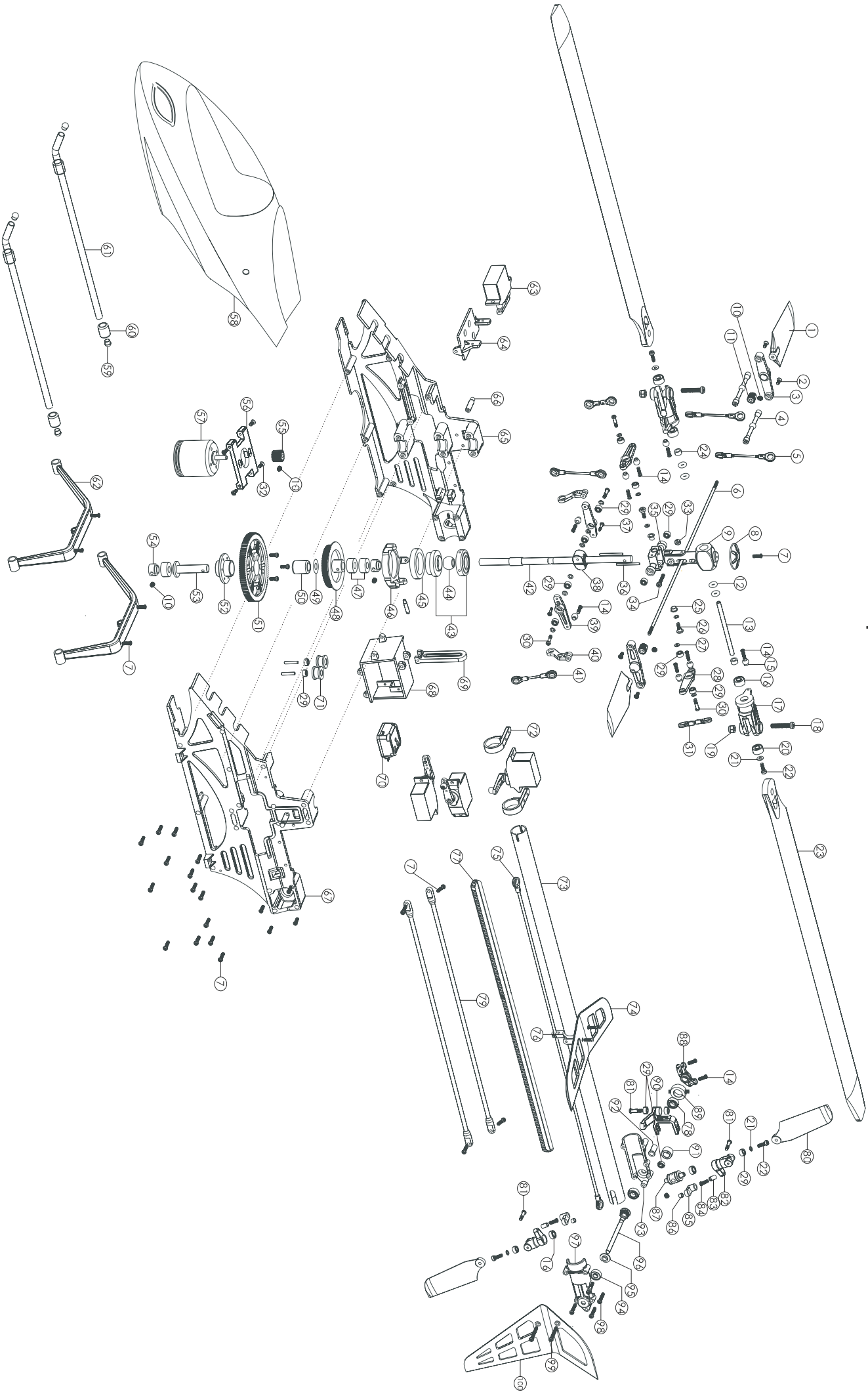
98. Cross screw m2*10

99. Cross screw m2*16

100. Vertical stabilizer

—14—

Exploded view



—13—



3D R/C Helicopter



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