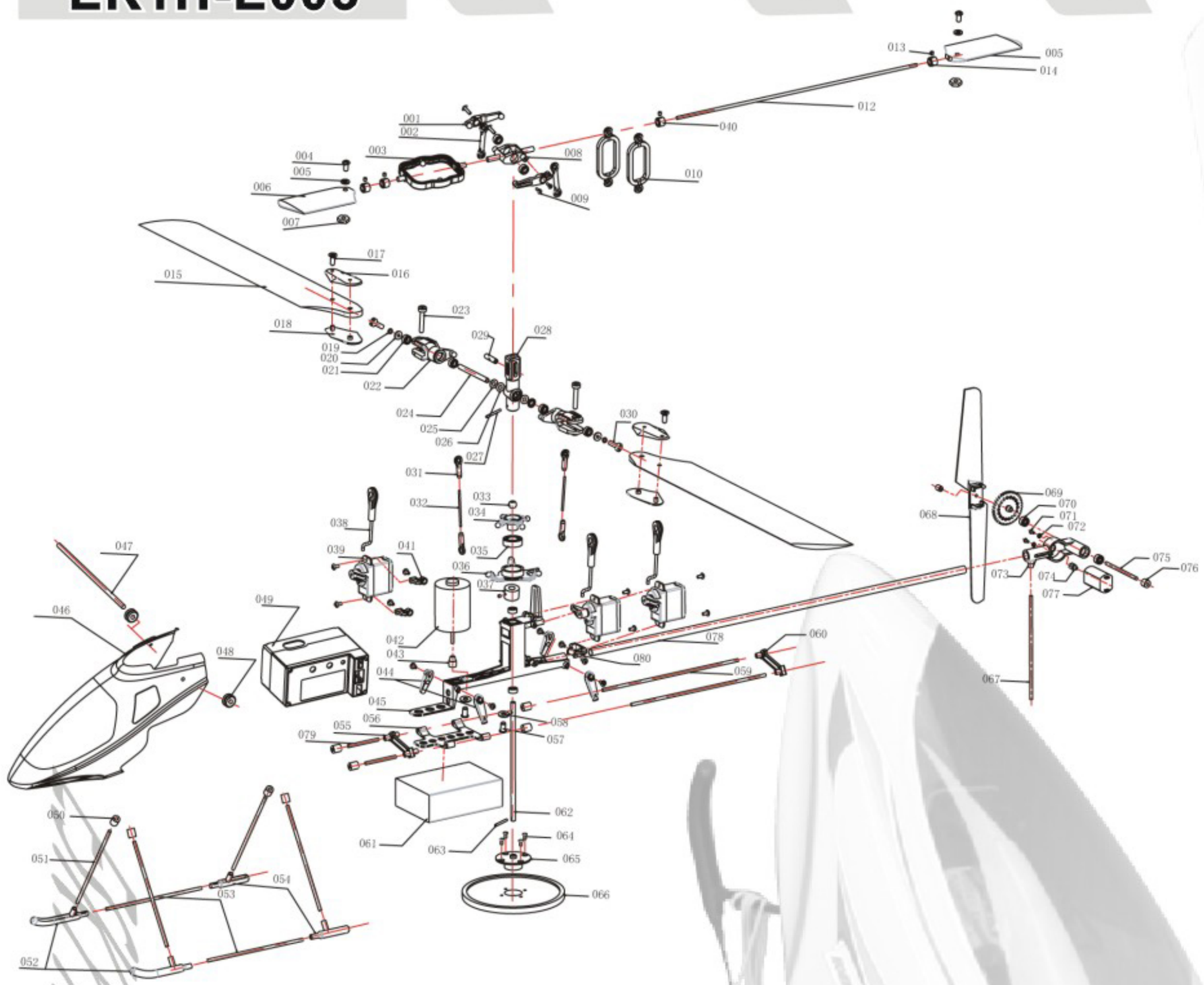
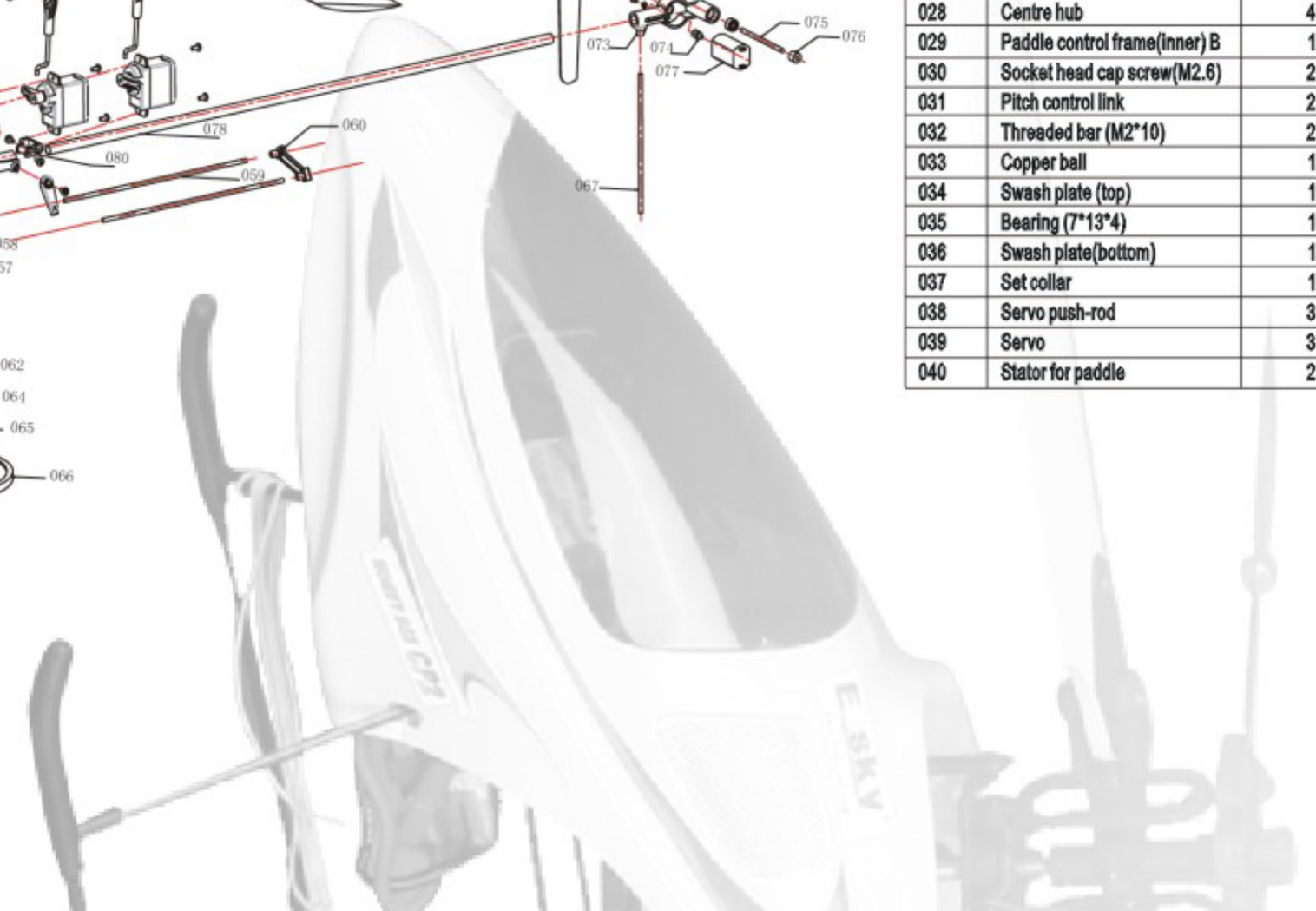
Handleiding Esky Honey Bee CP2

Exploded view

EK1H-E005



Item No.	Description	Qty. needed in r one helicopte	ItemNo.	Description	Qty. needed in one helicopter
001	Paddle control frame	2	041	Servo control	3
002	control link	2	042	Main motor	1
003	Paddle control frame(outer)	1	043	Main motor gear	1
004	Cap head screw(M2)	2	044	Ball link	2
005	Washer	2	045	Main frame assembly	1
006	Paddle	2	046	Cabin	1
007	Nut (M2)	2	047	Cabin fixed bar	1
008	Rotor head	1	048	Grommet	2
009	Screw (pw1.7*4)	2	049	in 1ontroller	1
010	Paddle control link	2	050	PVC tube	4
011	Screw(1.2*18)	2	051	Strut A	4
012	Fly-bar	1	052	Skid A	2
013	Socket set screw(M3)	3	053	Strut B	2
014	Set collar	2	054	Skid B	2
015	Main blade	2	055	Front frame assembly	1
016	Main blade hold-down plate A	2	056	Battery holder	1
017	Flat head screw	2	057	Main motor screw	2
018	Main blade hold-down plate(B)	2	058	Main motor washer	2
019	Washer	2	059	Battery bar	2
020	Washer	2	060	Bar joiner	2
021	Bearing(3*6*2.5	8	061	Battery pack	1
022	Main blade clamp	2	062	Main shaft	1
023	Socket head cap screw(M2*12)	2	063	Pin (1.5x8)	1
024	Main blade shaft	1	064	Screw (TPF1.7x4)	4
025	Washer	2	065	Main gear fixed set	1
026	ring	2	066	Main gear	1
027	Pin Φ1*11	1	067	Tail protect bar	1
028	Centre hub	4	068	Tail blade	1
029	Paddle control frame(inner) B	1	069	Tail gear	1
030	Socket head cap screw(M2.6)	2	070	Bearing (2*6*3)	2
031	Pitch control link	2	071	Cap head screw(1.4*3)	2
032	Threaded bar (M2*10)	2	072	Nut(1.5*4*0.4)	2
033	Copper ball	1	073	Tail rotor housing	1
034	Swash plate (top)	1	074	Tail motor gear	1
035	Bearing (7*13*4)	1	075	Tail rotor shaft	1
036	Swash plate(bottom)	1	076	Spacer	1
037	Set collar	1	077	Tail motor	1
038	Servo push-rod	3	078	Tail boom	1
039	Servo	3	079	Carbon fibre bar	2
040	Stator for paddle	2	080	Servo control	2



E_SKY

TWF Ready for your fly!

SPECIFICATION OF HONEY BEE Cp2

EK1H-E005

1.Content:

1). A complete honey bee Cp2 ready to fly.

2). 11.1V./1000m Ah Li-Polymer battery

3). 3-Cells Li-Polymer charger)

4).6CH with CCPM system transmitter EK2-0406

2.Specification

1). Main rotor diameter: 530mm

2). Fuselage length: 520mm

3). Max all-up-weight: 305g

4). Power:11.1V.Li -Polymer battery pack

5).Radio: 6CH/CCPM system

3. Description

★ High performance main electric drive motor for extended duration flight.
★ Capable of excellent performance indoor and outdoor.
★ CCPM system will make various aerobatic actions
★ Lightweight pre-built cabin with quick fasteners will make you fly happy.
★ The symmetrical wood blades are required for invertal flight.

CCPM works:

CCPM stands for cyclic/collective pitch mixing, it allows you to fly using a unique, electronically mixed three servo system offering increased response and reduced complexity over traditional mechanical mixing system. All three servos work together as team to achieve control inputs for aileron and collective pitch. CCPM achieves these control responses without the need for complex mechanical mixing systems that require many more control and parts by utilizing advanced electronic mixing built in to the honeybee CP's (include FM 6ch transmitter).

EK1H-E005

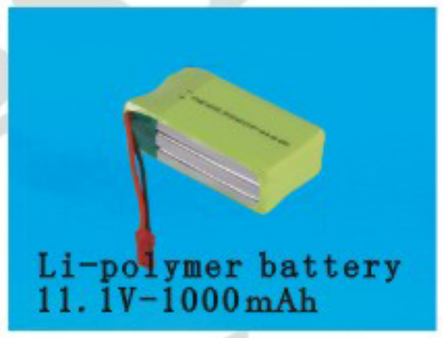
ORDER NO. ILLUSTRATION

EK1-0000A

EK1-0001A

EK2-0906

EK1-0223



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EK2-0907

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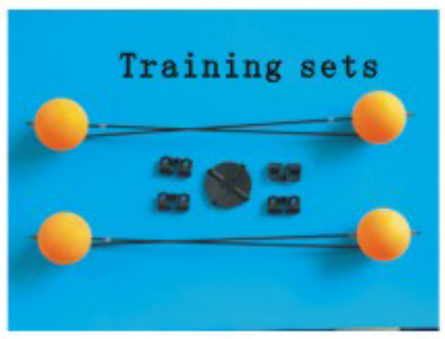

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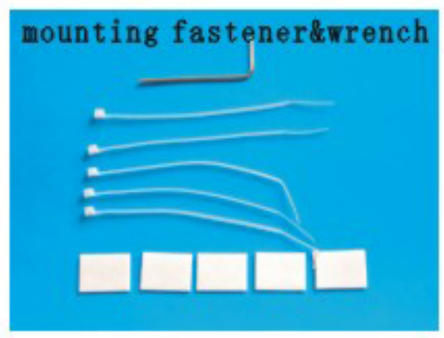

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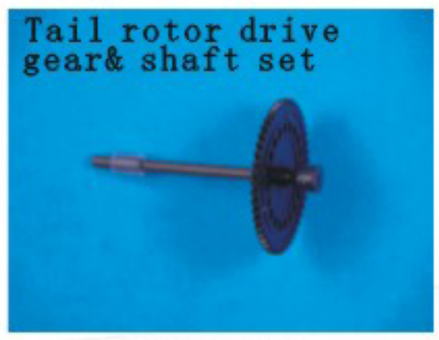

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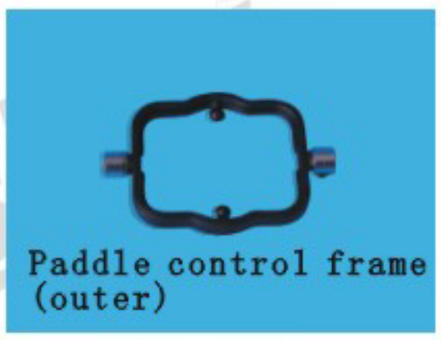
EK1-0216B



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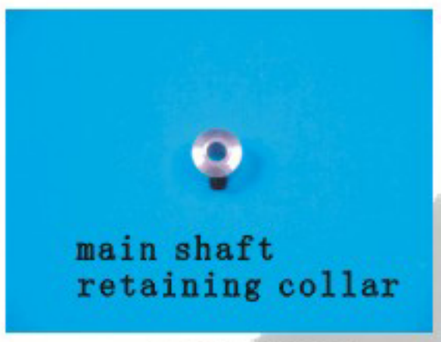

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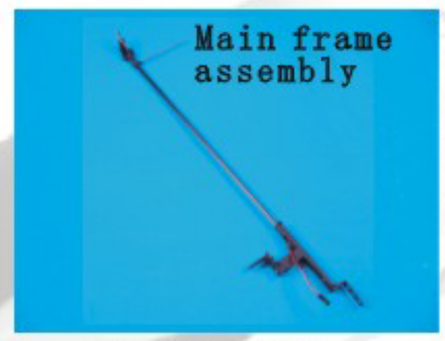

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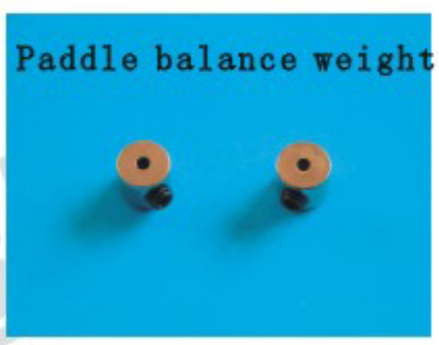

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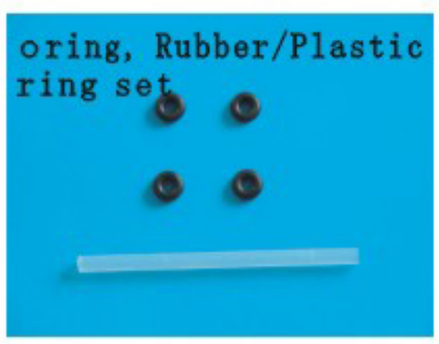

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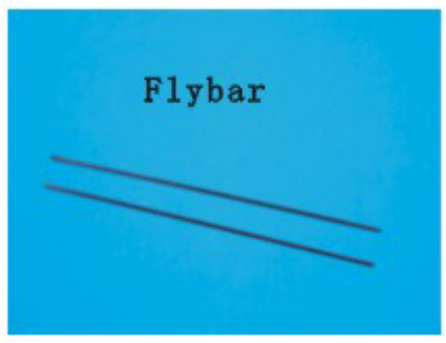
EK1-0242



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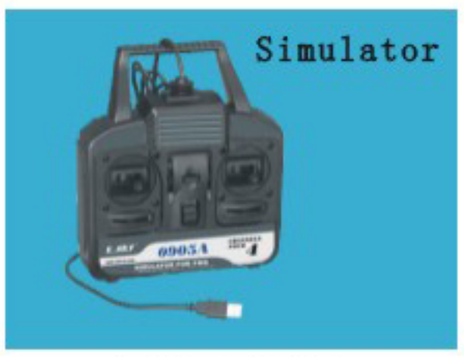

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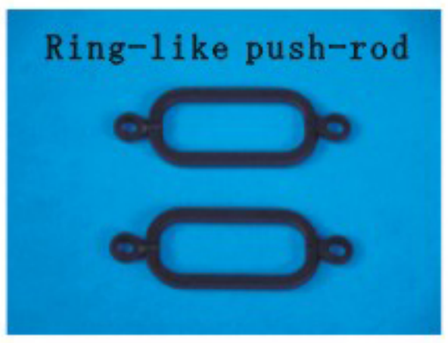

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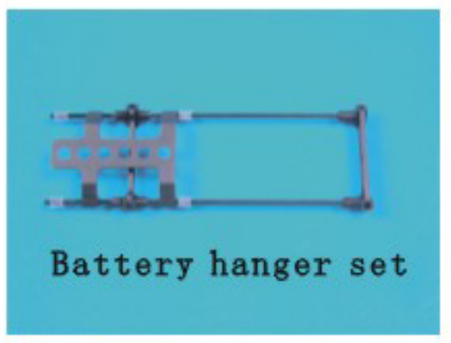

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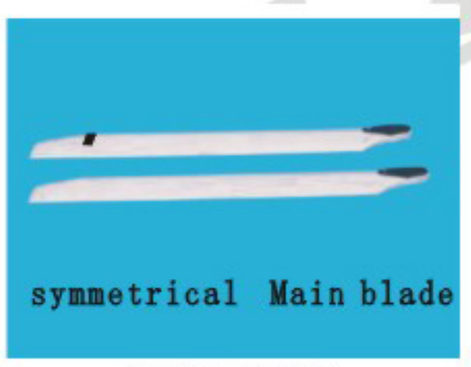

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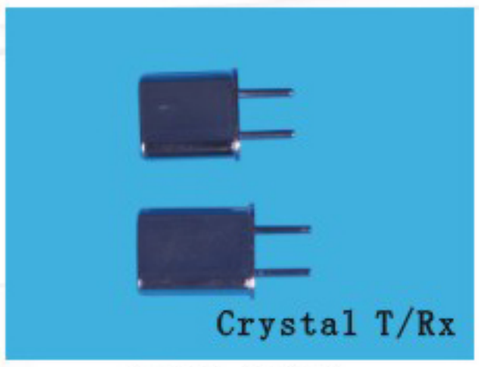

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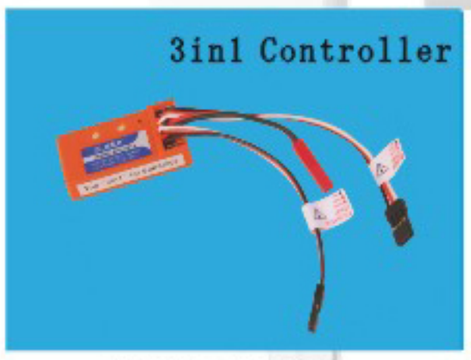

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Welcome to R/C models world

GENERAL GUIDE

TWF Hobby is the perfect choice for R/C model fans. We offer a variety of radio control helicopters to meet the demands of different levels and interests.
Our electronic helicopters include the 300series, 500series, 600series, etc. based on main rotor diameter.
Our glow model helicopters include the 15size, 30size, 50size, etc. based on the size of the engine.
TWF Hobby brings are various models for novice pilot, such as the Honey Bee, Lama 2, as well as the glow model Smart, which can meet different interests.
TWF Hobby also made a special design for advanced pilot, the Honey Bee CP2, Honey Bee Cool and Honey Bee King ,which are ideal for advanced flight.
We offer different models for every level of pilot.

Warning

1.R/C models are not toys! Incorrect operation may cause serious injury or damage.
2.If you are a novice pilot we strongly suggest that you should find an experienced pilot in R/C model to assist you.
3.It is absolutely necessary to read the readiness of the helicopter before every flight, it is mandatory to check all control systems and mechanical linkages for proper operation before every flight. Safety first!

Warranty

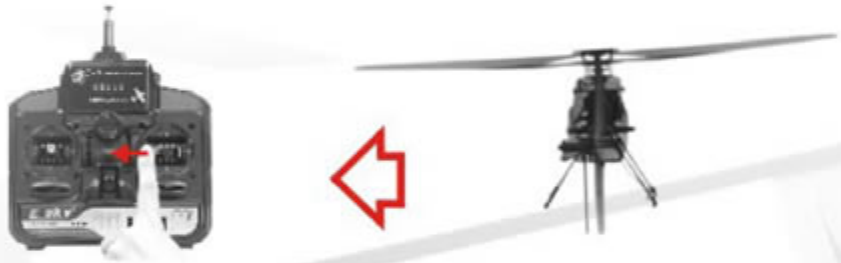
We guarantee that this helicopter is free from defects in material and workmanship at the time of purchase. This warranty does not cover any component damaged by use, unauthorized modification, adjustment and replacement of parts on this product. If you need assistance in the maintenance or adjustment on the helicopter, please read first this manual carefully, which answer most common questions. For further assistance please contact your local dealer or our company directly via phone or e-mail.
In no event should our liability exceed the original purchase price of the model. Besides, we reserve the right to change or modify this warranty without notice.
Special notice: this warranty applies only to TWF HOBBY s products!

BASICS OF HELICOPTER

Unlike regular airplanes with fixed wings, helicopters use rotating wings, called rotor blades. The rotor blades generate lift when they rotate, similar to propeller of an airplane. The motor driven rotor blades also introduce twisting force to the fuselage. This twisting force is called reactive torque and pushes the fuselage in the opposite direction of the main rotor blade. This torque is countered by the thrust of the tail rotor blades at the end of the tail boom. This heck rotor thrust counteract so this undesired torque.
In case of the coaxial rotor helicopter, the two pairs of rotor blades, spinning in opposite directions automatically counteract this torque.

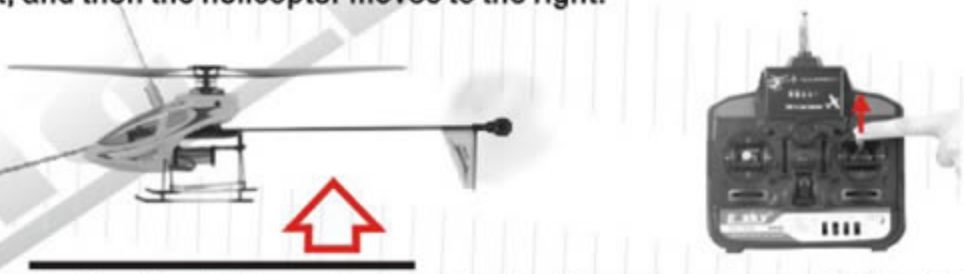
Both types of helicopter with main & tail blades structure and coaxial-rotor structure have the same performance, but the transmitter has two mode based on different countries all over the world.

i.e. Mode 1 (right throttle)



When the aileron stick is moved to the left, the swash-plate should also tilt to the left, and then the helicopter moves to the left.

When the aileron stick is moved to the right, the swash-plate should also tilt to the right, and then the helicopter moves to the right.



When the throttle stick is pushed up, the electric motor power and pitch of the main rotor increase. As a result, the helicopter lifts up.

When the throttle stick is pulled back, the electric motor power and pitch of main rotor decrease. As a result, the helicopter descends.

When the elevator stick is pushed forward, the nose of helicopter will tilt down ward. As a result, the helicopter moves forward at a decreasing airspeed.

When the elevator stick is pulled back, the nose of helicopter will tilt upward. As a result, the helicopter moves backward at a increasing airspeed.

When the rudder stick is moved to the right, then the nose of helicopter moves to the right, and the flight direction of helicopter turns to the right. Please pay attention to the nose direction of helicopter.

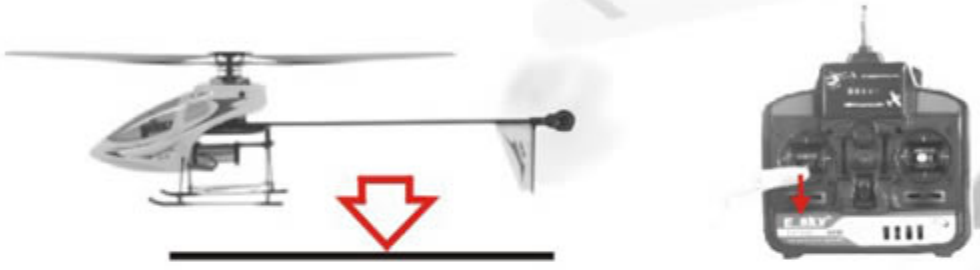
When the rudder stick is moved to the left, the nose of helicopter moves to the left and the flight direction of helicopter should turn to the left. Always pay attention to the nose direction of helicopter.

i.e. Mode 2 (left throttle)

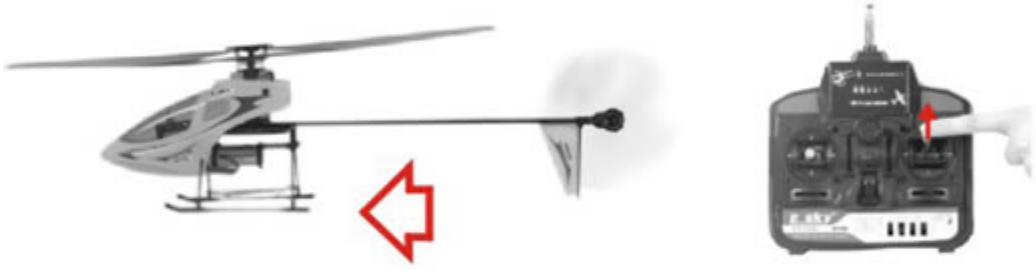
When the aileron stick is moved to the left, the swash-plate should slant to the left side, and then the helicopter moves to the left.

When the aileron stick is moved to the right, the swash-plate should slant to the right side, and then the helicopter moves to the right.

When the throttle stick is pushed up, then the electric motor power and pitch of main rotor increase. As a result, the helicopter lifts up.



When the throttle stick is pulled back, then the electric motor power and pitch of main rotor decrease. As a result, the helicopter descends.



When the elevator stick is pushed forward, the nose of helicopter will tilt down ward, and then the helicopter moves forward at a decreasing airspeed.

When the elevator stick is pulled backward, the nose of helicopter will tilt upward, and then the helicopter moves backward at an increasing airspeed.

The rudder stick operation for mode 2 is the same as mode 1.

CONNECTION AND ADJUSTMENT OF THE ELECTRONIC COMPONENTS

TWF has two kinds of electronic control systems, one is a multifunction control system, the other is a single function control system. Though the assembly is completed at the factory, we would like to give you a basic understanding of the connections.

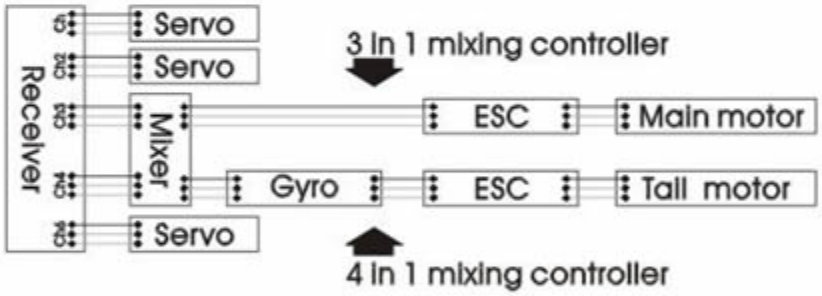
Connection of multifunction control system and single function control system

Connection of multifunction control system:

The mixing controller is a combines with several electronic functions.
TWF HOBBY offers three kinds of mixing controller for helicopter use.

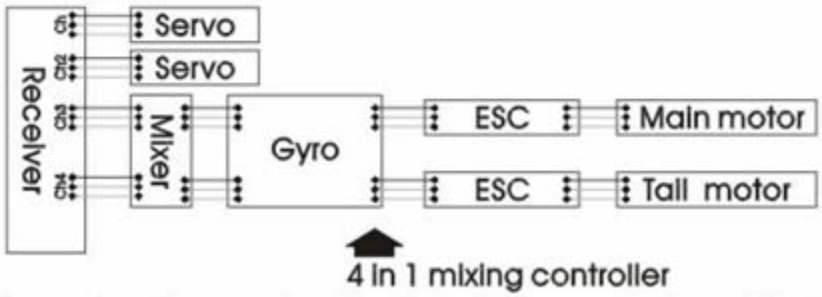
A. 4 in 1 mixing controller includes receiver, gyro, electronic speed controller and mixer;
B. 3 in 1 mixing controller includes gyro, electronic speed controller and mixer;
C. 2 in 1 mixing controller includes electronic speed controller and mixer.

Adopt different connection methods according to different kinds of mixing controller, but the basic theory is the same. The diagrams of the basic component connection are as below:



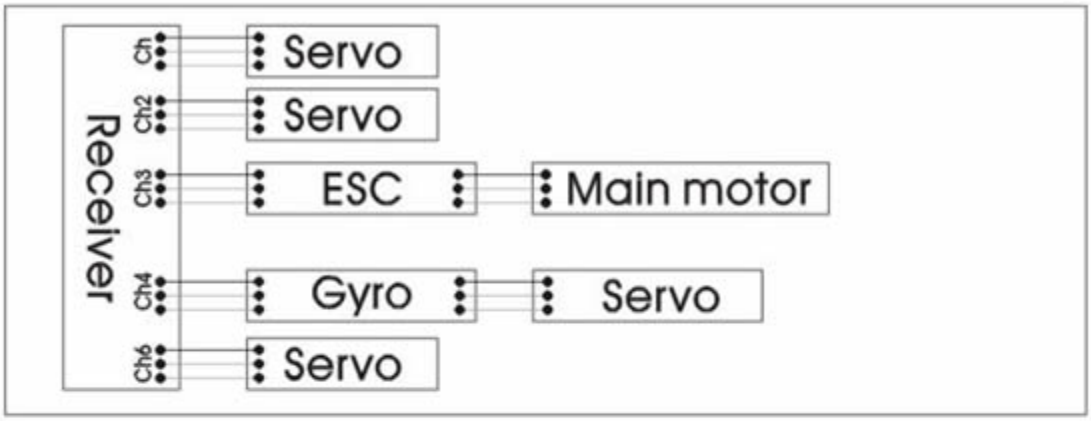
The above diagram shows the connection of the electronic component for the helicopter which controlled by main and tail motor.

The color illustrations of mixing controller in the instruction manual give R/C model fans a clear guidance to use TWFproducts.



The above diagram shows the connection of the electronic component for the coaxial-rotor helicopter.

Connection of single function machine control system:



This control system applies to helicopters with mechanical pitch controlled tail rotor drive system.

Adjustment of the mixing controller

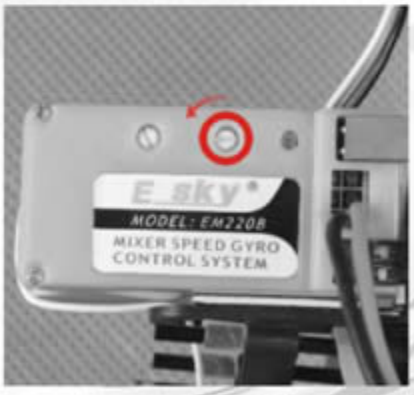
Adjustment of Proportion Trimmer and Gain Trimmer.

Please note that start those adjustment after connecting the helicopter power supply.

In order to make a clear understanding of the following sentences, set the direction of the helicopter's tail face to you.

1.Proportion Trimmer:

During the flight, the tail rotor blades rotate in a proper proportion to the main rotor blades. If the tail rotor blades rotate exceedingly quick, the tail of the helicopter will move to left side; In that case, please adjust the Proportion Trimmer to decrease(-) the r.p.m. of the tail rotor blades(fig. 1).



（Fig. 1）

（Fig 2）

If the tail rotor blades rotate exceedingly slow, and do not counteract the reactive torque, the tail of the helicopter will move to right side; In that case, please adjust the Proportion Trimmer to increase(+) the r.p.m. of the tail rotor blades(fig.2).

2.Gain Trimmer:

During the flight, if the tail is out of control, wobbling slightly from left to right, which indicate that the tail is locked too tight, please adjust the Gain Trimmer to decrease(-) the gyro gain(fig.3 and fig.4).

（图 3）

（图 4）

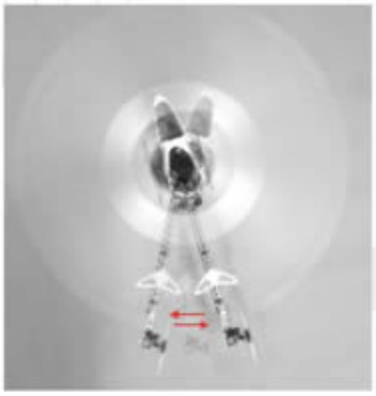
If the tail move a large angle to the left or right , wobbling considerably from left to right. Then please adjust the Gain Trimmer to increase(+) the gyro gain(fig.5 and fig.6).

（图 5）

（图 6）

Adjustment of the single function helicopter control system

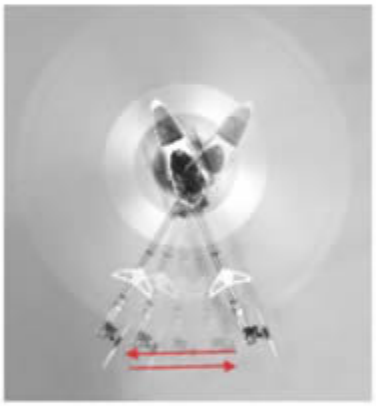
The single function helicopter control system mainly applies to helicopters with tail rotor drive system. Because the rotation of the main rotor blades and the tail rotor blades are automatically fixed, this helicopter just need the adjustment of Gain Trim. During the flight, the tail rotor blades rotate in a fixed proportion to the main rotor blades, if the tail is out of control, wobbling slightly from left to right, Which indicate that the tail is locked too tight, please adjust the Gain Trimmer to decrease(-) the gyro gain(fig.7 and fig.8).



（ 图 7 ）

（ 图 8 ）

If the tail move a large angle to the left or right , wobbling considerably from left to right. please adjust the Gain Trimmer to increase(+) the gyro gain(fig.9 and fig.10).

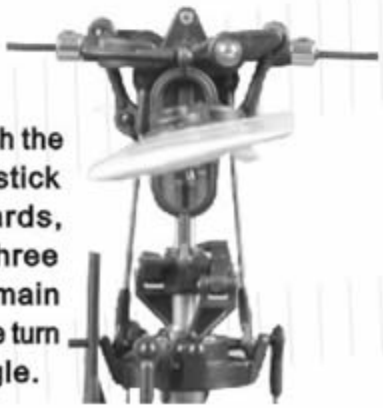


（ 图9 ）

（ 图 10 ）

The following pictures will show you How Does CCPM Work

while push the throttle stick upwards , also do three servos, main rotor blade turn to "+" angle.



while push the Throttle stick Downwards, also do three servos , main rotor blade turn to "-" angle.

When elevator control stick is moved backward, the all three servos move together tilting the swash plate backward.

When elevator control stick is moved forward, all three servos move together tilting the swash plate forward.

When aileron control stick is moved to the right, both rear servos move together, tilting the swash plate right.

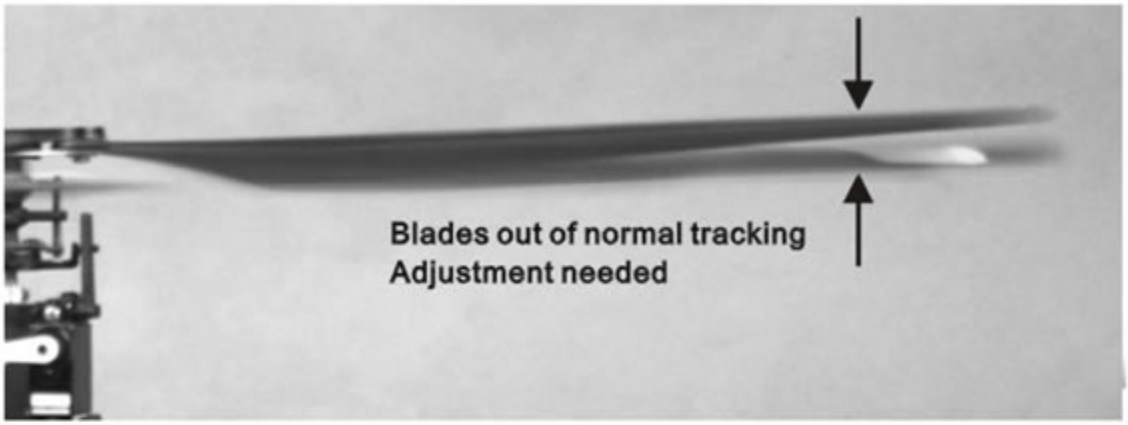
When aileron control stick is moved to the left, both rear servos move together, tilting the swash plate left.

Blade tracking adjustment

Flying helicopters, it is very necessary to track the main blade properly. We should adjust blades tracking as they are required so as to achieve a stable flight. If the angle of attack of the two rotor blades are not the same, the blades do not track in the same line , with a consequent vibration and decrease in lift. The detailed adjustments are as below:

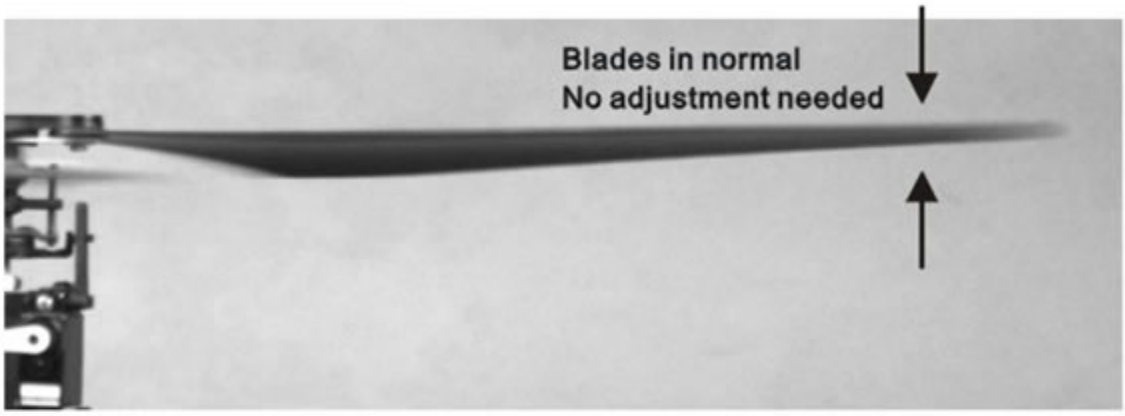
Plastic main rotor blade adjustment

Plastic products are easy distorted because of air humidity and other factors. If they are distorted respectively, the plastic main rotor blades may be out of track, showing as below:



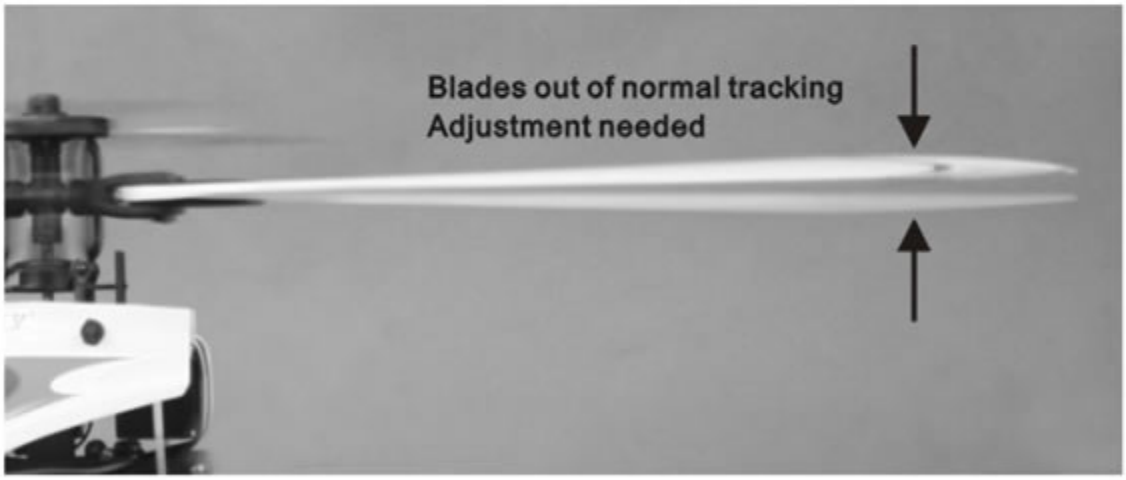
By observing the white shadow of the rotor blades, you can determine which blade is higher, which blade is lower. The higher blade is at a high angle of attack, the lower blade is at a low angle of attack. You need to adjust the angle of attack of each rotor blade by pushing the blade in the desired direction. If the angle of attack is too high(blade above), twist the rotor blade toward lower angle. If the angle of attack is too low(lower blade), twist the rotor blade toward higher angle.

You can only adjust either pitch link, you can also adjust both. The purpose is to make the different main rotor blade turning at the same level. With a correct adjustment, the helicopter will fly stably show as below;



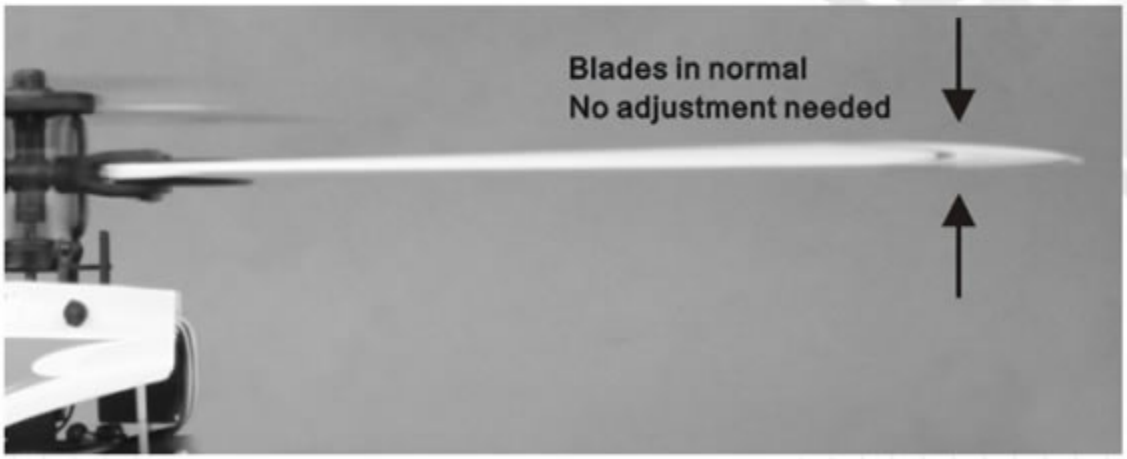
Wood main blade adjustment

The influence of blade distortion with wood main rotor is small, the main reason that the wood main rotor blades are out of track are structure clearance, tolerance of the main rotor blades shape and the distorted plastic component, showing as below:



The helicopter with wood 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 adjusting 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, if so, 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.



PRECAUTIONS

Pre-flight inspection and adjustment

TWF electronic R/C model system has self-calibration features.

1.Be sure the throttle stick and the throttle trimmer are at the lowest position before turning on the transmitter.

2.Always turn on the transmitter first, and then power on the helicopter, If this is not, dangers and injuries may happen.

3.After turning on the transmitter and helicopter, the helicopter electronic system calibrates itself.

4.Never move the helicopter during the process of calibration. During the calibration, the light display blinking or steady red, when the light turns steady green, the helicopter is finished calibration and is ready for flight.

5.For the adjustments of multifunction control system and single function control system, please refer to page 8 and 10.

Charging the battery pack

Charging battery should be part of your procedure for flight. It is recommended that you completely discharge the battery during the initial test flight before following the charging guidelines outlined below.

Note:

Do not leave the charger and battery unattended during the charging.
Also please keep away from the combustibles.
During the charging process, you can determine whether the battery is fully charged as follows:

1.Voltage measurement:
Use a voltage indicator. This is the best way.

2.Temperature:
When charging, examine the temperature of the battery all the time. When the temperature of the battery is rising, it shows that the charging is close to finish. Please turn off the charger.

3.Calculation of the charging time:
charging time = capacity of the battery / charging current

1.Ni-Mh battery charging

Our charger can fully discharge the Ni-Mh battery before recharging it. When the helicopter starts to decrease its airspeed or is not able to take off, you have to recharge the battery.

This picture shows how to charge Ni-Mh battery.

2.About Lithium polymer battery

Using TWF 's Li-Po battery to fly your helicopter is your best choice. The Li-Po battery will improve flight performance and flight time, which is longer than Ni-Mh battery . With Li-po battery, your helicopter will do the best aerobatic performance.

Please notice the label on the battery.

1.The red light flashing indicate power on.

2.steady red, it has been charged completely

3.when it is displays red and green, it is charging. if red and green flash, it indicate charged error

4.In order to charge safely and fast, please use only TWF's chargers.

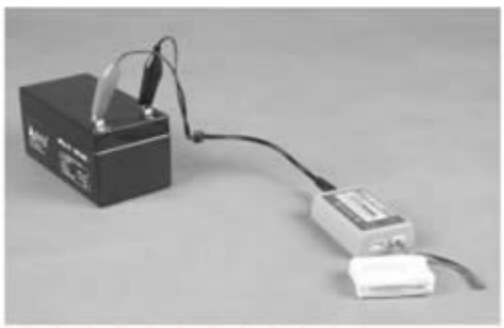


illustration of Li-po battery charging

Flight instructions

Before flying

Warning: if you are a beginner, you must seek assistance from an experienced RC model helicopter pilot. You should be aware that the main rotor blade and tail rotor blade spin at a very high r.p.m. and are capable of injuring someone if hit by them. You must take care when you are flying to make sure there are no children or animals in the room. In addition, make sure the room is large enough when you fly your mini helicopter. Such as big room of indoor, small hall or meeting room are all perfect. We suggest that you should make sure the take off floor is a smooth surface and be prepared until the flight r.p.m. has been reached that the helicopter might slide around on the floor. If flying outdoors. Suitable flying space should be sunny, the sun is not fierceness and no wind if possible.

Step 1: simulated flight in computer:

It's good for many helicopter amateurs, especially for beginner, ESKY hobby Company have developed and evolved two kits of simulator to simulate flight in computer. Please see the picture as follows;

1.using soft dog to connect with 4CH transmitter's simulator port and connect the computer with RS232 port, then following the instruction which in our website and operate it correctly.

2.using the simulator to connect with your computer directly, then fly with out 8 〝AA〞 battery operate as per the instruction (Please find the instruction in AUX FITTING page in our website.)

step 2:

now, turn on the transmitter before you connect battery pack to the control box!

1.check the C.G. position first before flight. Shift the battery pack forward until the model balance level when suspended by fly-bar. Finally, fix the battery holders in place with 4PVC sleeves supplied on the two hanger bars.

2.check again and make sure that the throttle stick and its trimmer are set to the lowest position. And the throttle servo reversing switch is at normal position.
3.center all the trims. Move right throttle stick to the lowest position. Plug the flight battery into the controller and let the machine sit for a few seconds until the controller LED illuminates. Do not move the machine while the system is calibrating by itself.
4.when the LED grow green, the electronics are active. Move the elevator stick back and forth and make sure that the swash-plate is also operated in the right direction. Move the aileron stick from side to side and confirm that the swash-plate is also operated in the right direction. Confirm all the control system operate normally.
5.now, slowly move the right throttle. The main rotor will begin to rotate first, then the tail rotor. Throttle down again and un-plug the flight battery if you are not to start flying.
6.don't forget to fully charge your battery before flight. When the mini helicopter landing slowly and failed to fly up again, or when stay on the ground, rotor speed slowed down or servos lost of control, the batteries require to be re-charged.

Step 3:

Instruction for Model 1 transmitter as below;
In the appropriate room which is quite large and with no obstacles, place the model in the middle, turn the transmitter on and them plug in the flight battery and wait until the LED light is activated. Then test the servo operate properly but please remember do not apply any throttle. Keep the throttle stick at the off position. If everything is working correctly, position yourself at least 2 metres behind the helicopters and slightly off to one side. Please be sure that you are able to see the nose of the helicopter.
If the nose of helicopter twists to the left, you need to push left throttle to right. Be suit to adjust throttle until helicopter take off ground. Please notice: before the helicopter take off the ground, side push power from tail rotor blade and air flow form main rotor blade to ground backset effect which make the helicopter turn left, it is normally, you need to push right throttle to balance it.

*** Too much throttle will make the helicopter climb too quickly and you may have difficulties in correcting it quickly enough.**

First flights should be what are called bunny hops. This is initially applying a slight amount of power to get the machine light on its skids. Once this has happened, apply more power to lift the machine so it is approximately 30 cm.
This is the initial technique to learn to fly. You must do this until you believe you are starting to put in the right correction commands to keep the helicopter in one spot. How many times you will reach this it will depend on your ability to become familiar with the feeling and feedback from the model.
Keep 30 cm out of ground, it is best space for training. Always make sure you watch the nose of your helicopter not the tail. Keep practicing and you will find that your flights will become longer.

As you become more familiar with your helicopter, you will find that your hand and eye co-ordination will enable. Once happen warp, you are able to correct, and this will start to show smooth flight.

Setp4:

Once you believe you are now familiar with the basic hovering of your helicopter, you should now start experimenting with turning the helicopter slightly to the left or fight in the sky.

Take-offs are a little easier than landing. This is due to the ground effect turbulence of the rotor blades. However, sport landing at a modest rate of descent is not as difficult as it might seem. Now you become more proficient with your helicopter finding a larger hall so you can start to fly around more or even on dead calm days, by going outside you can achieve some forward flying circuits. If you do fly outside, please keep this in mind and do not surprised if it suddenly climbs or drops without you make any input. This can be caused by a slight breeze or even a thermal wind coming through.

Remember practice makes perfect and even we suggest buying a computer flight simulator can greatly enhance and speed up the learning technique. In addition, a simulator is best ways for self-study.

Please keep in mind once you notice that the performance of helicopter is dropping , this is a sigh that the battery is going flat. We suggest that you immediately land and re-charge your battery. And remember the proper environment of no wind and a large space without obstacles is the key to learning.

Enjoy your flight.