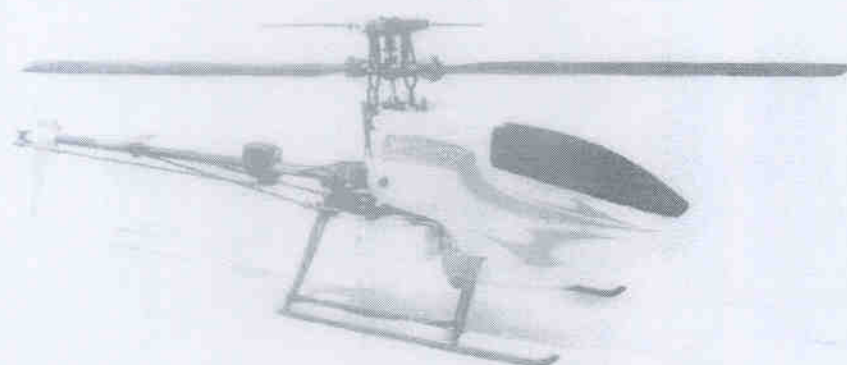


WALKERA HM022A



Specification:

Body length: 57.0mm
Total width: 185mm
Total height: 165mm
Main rotor diameter: 58mm
Total weight: 360-420g
(including the battery)
Motor: 170SD
Battery: 9.6V 350mAh Ni-MH

CONTENTS

1	statement
1	warning
2	caution
3	controlling system diagrams
4	function of the control bar and the using method
7	flying method
12	components list
16	replaced components list

Thanks for you purchase our 3D electric micro-helicopter, which adopt to CCPM stationary system and greatly elevate to helicopter stability with sensitivity. It can be available of different fans who fly very well. For more flying, please carefully read the instruction before you fly them.

Statement

1. Consumers have correctly responsibility for using and handling this product. We and our dealers take no responsibility for any loss and damage by misuse and mis-handling.

2. In order to improve the product, some aspects of instruction will be revised without state in advance.

Warning

1. This helicopter is not a toy. The purchaser of this product acknowledges and understands that they alone assume all risk and liability for personal or property damage and injury resulting from the buyers' use of this product.

2. When assembling helicopter, you must strictly follow the instructions manual. Be sure your finger and head are far away from the rotation part. Otherwise, helicopter will be damaged or injury yourself.

3. Do not fly the helicopter in the night, in the school, in hospital, in the raining day, or near high-tension electric wires.

4. This product is only suitable for children who are upwards of 12 years old. The young people must use the product with their guardians.

Don't fly the plane the plane at the place with these signs



Don't fly in these statements



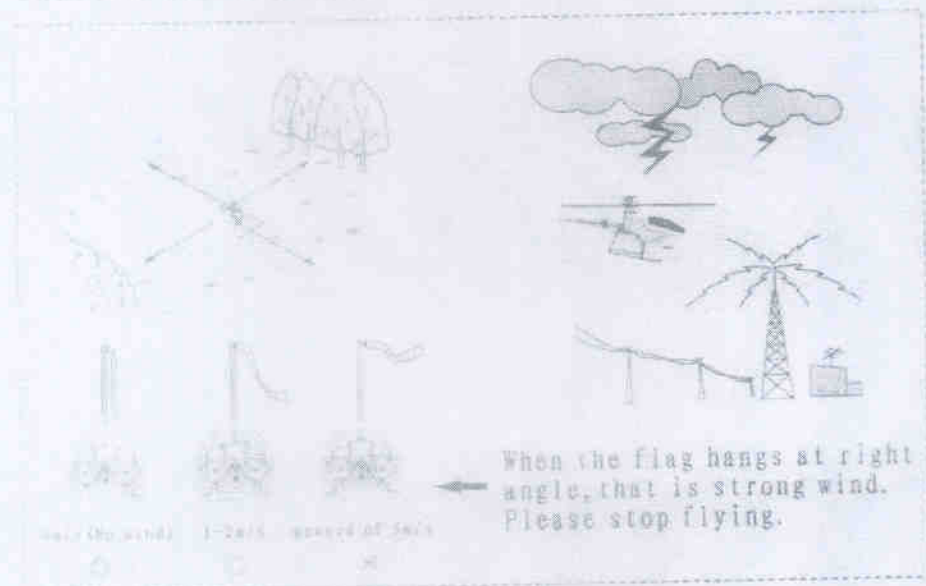
Battery safety

Never disassembly modify and heat the battery. Pay attention to the polarities. Don't put the battery in a fire and under high temperature. It is very dangerous if the battery explodes or is too hot or burns.

Don't shock the battery.
Don't put the battery in the humidity.
Using the special charger.

Cautions

1. Choose an open area. Be sure that all the spectators are behind you before flying.
2. Don't fly in the windy weather.
3. Don't use the controller with the same frequency in the flying place. That may cause interferences.
4. Other waves and similar frequencies may interfere the controller. So make sure to fly the plane in the area far away from the tall buildings and other electrical appliances.
5. You should be far away from the battery when charging. Check the temperature and the voltage frequently. Charging too much may cause damage and danger.
6. When don't fly the plane, store the battery in low voltage until next flying.
7. Check the controller and be sure that the function of it is OK before flying. And push the antenna to the longest place.
8. The antenna of the receiver must be far away from the motor and the rotation place. Never shorten the antenna.



This package includes following components.
Check carefully when you are buying the plane.
If the components are not enough and damaged,
please contact with the local dealers.



Main body support



Receiver



Servo X4



Motor



Gear



Battery
4 x 1.5 x 1.4mm Ni-MH



Charger
1.5V 300mAh



Controller

(1) Controlling system collecting pictures

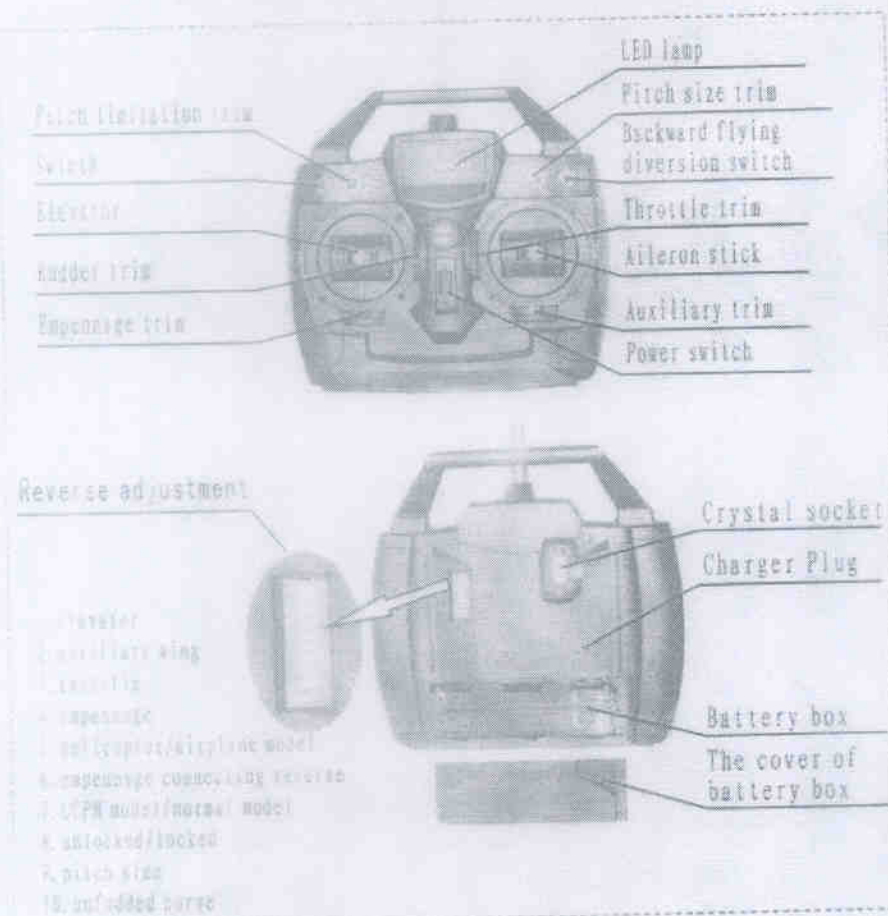
1. Elevator (back and front)
2. Roll (left wing/right and left)
3. Aileron (left/right)
4. Engine
5. Battery
6. Switch



Note: This electronics includes receiver, actuator and mixing controller. But if the output electricity of the plane is above 1.5V, please install the outside actuator. (the inner installed actuator will be off automatically).

(2) The function of the controller and using method

1. The introduction of the function



Note: There are three colors for the LED lamp, Green means it is OK for flying. If the green lights are off, the power is in shortage and you should charge the battery. When the green and the red lights are off at the same time, the power will be seriously in shortage. Fly the plane under this condition will cause damage to your plane.

2. Using method

Normal model

Note: these diagrams are just for illumination

UP			push right throttle stick up
DOWN			push right throttle stick down
Head turn left			push left elevator stick left
Head turn right			push left elevator stick right
Head under forward			push left elevator stick up
Head up backward			push left elevator stick down
Body turn left			push right throttle stick left
Body turn right			push right throttle stick right

Backward flying model

Note: these diagrams are just for illumination

Up			push right throttle stick down
Down			push right throttle stick up
Head turn left			push left throttle stick left
Head turn right			push left throttle stick right
Head under forward			push left throttle stick down
Head up backward			push left throttle stick up
Body turn left			push right throttle stick left
Body turn right			push right throttle stick right

Note: This manual only fits for the right hand throttle. If your plane is left hand throttle, please use this manual relatedly!

(3) The way of flying

1. Flying preparations

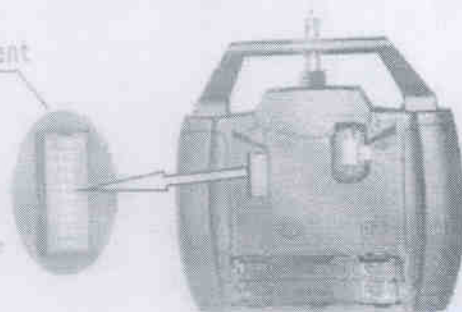
Fly the plane in a area without wind or in a big room with no obstructions. Firstly, turn on the transmitter and make sure that there is enough power for flying. Then push the throttle stick to the lowest place and the aileron trim and the elevator trim and the empennage trim to the middle place. Then set the flying model to be the normal model and push the antenna to be the longest. Then connect the batteries. The plane model must be quiescency and the LED lamp of the receiver must be flashing and the LED lamp of the servo is off at this moment. When the LED lamps of the receiver and servo are lighting, it means the adjustment of the plane is OK now. But don't be vexedly to fly the model. You should do more checking of the plane before flying. You should pay more attention to the following points:

a) Check whether all the channels of the transmitter are ok. Adjust the reverse adjustment of the transmitter (picture 1)

(1)

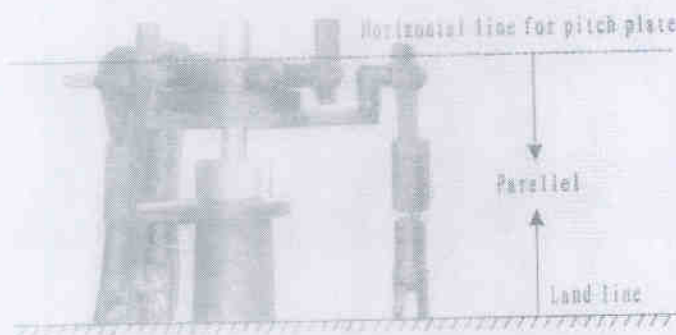
Reverse adjustment

- 1. elevator
- 2. auxiliary wing
- 3. throttle
- 4. empennage
- 5. helicopter/plate model
- 6. empennage connecting reverse
- 7. (PA model) normal model
- 8. adjusted/locked
- 9. aileron stick
- 10. aileron model



b) Check if the pitch plate is on the horizontal line (picture 2). If the plate is not in the horizontal, please adjust the CG of the servo arm or the transmitter trim correctly. It is possible to change the length of the plate connector to reach the horizontal as well.

(2)



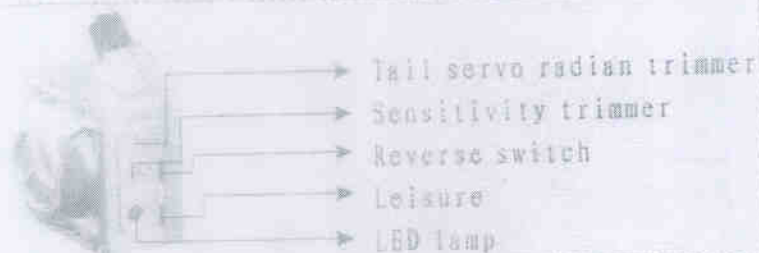
c) Check the pitch collection in normal standard. Make sure the power is off before your checking. We recommended the angle of rotating blades should be under 15 degrees. When the angle is above 15 degrees, the rotate speed of motor will be decrease and the current increase. At the same time, the flight time and the motor life will be shorten. Pitch is very important in flying function. You can find out the best angle in flying according to the helicopter condition and your experience.

Pitch data

Normal Mode			3D Mode		
Throttle stick	Throttle stick supposedly	Pitch adjustable supposedly	Throttle stick	Throttle stick supposedly	Pitch adjustable supposedly
100%	100%	$-9^{\circ} - +11^{\circ}$	100%	100%	$+9^{\circ} - +11^{\circ}$
50%	65%	$-5^{\circ} - +7^{\circ}$	50%	75%	0°
0%	0%	0°	0%	100%	$-8^{\circ} - -10^{\circ}$

d) Check the gyro if it could work well. Rock the tail pole with your hand. The rudder will auto run. Otherwise, please check the connection of the connector. Then adjust the sensitivity of the gyro according to the aero ways if the gyro were original. (fig 3).

(3)



e) Check the both screws, hold the helicopter in hand. But the parts of body should be far from your hands and all the other obstructions. Make the helicopter to about 30 degrees forth lean. And keep the screws to level, force the throttle pole slowly, then check the both screws if have disparity. The fig 4 is OK but the fig 5 not. If there are disparity please notice the color show red, please make pitman if screws with red sticker to shorter or make it to longer. If the screws was natural made with slow speed But it is deviant model with high speed or otherwise please check lean tray if keep level when running with both speeds or may be the lamina nip or make the part of the lamina nip were laid back you only need to adjust careful.

(4)



Normal model

(5)



Up and lower blades model

2. Flying the helicopter

If you are a tyro, we advise you ask a skilled operator's guidance, or learn from experienced people from local model shop or flying club, you also can practice on computer simulator so that you can fly this helicopter more handy.

Make sure that you are at least 2m off the helicopter (with the tail facing you), the direction of wind must be from head to tail. Gently push the right control rod up, the airscrew will be speed up inchmeal until your helicopter leave the ground. Now, you need use two control rod to control your helicopter's balance, if the helicopter always slide in one direction, it can be solved by adjust the trimmer, connected rod and angle of asway arm of gyro. If you are a tyro, please practice this step repeatedly until you familiar with the function of all kind of control rod. Then you can fly up the helicopter, it will be better to keep the helicopter not higher than 1m over the ground. If the helicopter is imbalance or out of control, land the helicopter immediately and flying again after adjustment. Practice repeatedly until the helicopter can hang in the air for a rather long time, then you can increase the flight height, when the helicopter flew out of its airflow vortex, the flight will be more steady. If you can make the helicopter hang in the air at any position and hover freely, then you can try some simple line. But we advise you don't try 3D flying at this time because when the helicopter moving backward, the aileron and tail wing or elevator will in inverted state. For a tyro, to flying a inverted helicopter is very difficult, only when you are skilled, you can flying some aerial acrobatics. If you have been operated other models and already more experienced, you can leave out some practice steps. But the test-fly step is indispensably. You can fly the helicopter to 1m directly, and then adjust your helicopter according to flight state until you consider it is on the best state. You can flying more high, but we advise you don't flying too far, though we assure

our control range enable you flying even more high and more far, but you need control the helicopter within your vision range so that you can operate the helicopter right. When you flight mode switch to aerobatics mode, moreover the plane still in flying state, better not push the gun rocker below to 50% state, because when below 50% situation, the plane will fly in submit minus angle, here the plane will be falling in high speed state. If this flying plane is very dangerous. Contrarily, when flying in moving backward or other 3D action, the plane may lower some height. So you must ensure the plane flying in a certain height before switch. Besides, you must ensure the battery of the plane is enough, if the battery is not enough then the rotate speed of the screw will fall, which will affect the flying capability.

3. After flying

Please cut power and turn off the controller after flying, and check-up each parts is there any mar or bad abrasion, if there is please replace at once. If you will don't fly for a long time please clean the helicopter by dry cloth or brush, and wipe antirust oil on metal parts, take out the battery of controller. After it flying 50 times, we advise you take apart the helicopter fully, replace the parts which bad abrasion, and wipe lubricant on bearing and rotational parts. Only you service the helicopter earnest, its function and life then can be advanced.

(4) Components list



HM022A-001

main rotor
assembly



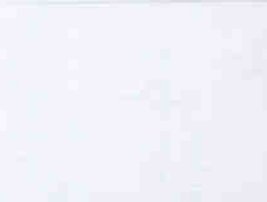
HM022A-002

blade grip
assembly



HM022A-003

stabilizer rod
assembly



HM022A-004

stabilizer rod



HM022A-005

stabilizer
blades



HM022A-006

main axis
assembly



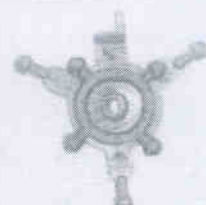
HM022A-007

turning Rack set



HM022A-008

T set assembly



HM022A-009

swash plate
assembly



HM022A-010

fuselage
assembly



HM022A-011

motor fixing
board



HM022A-012

main body
surpporter
assembly

Components list



HM022A-013

motor supporter
assembly



HM022A-014

main gear
assembly



HM022A-015

tail bar



HM022A-016

gyro fixing set



HM022A-017

back crutch
pole assembly



HM022A-018

tail gear axis



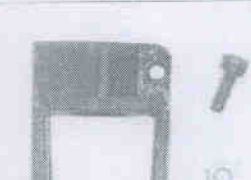
HM022A-019

empennage pole



HM022A-020

back crutch
frame assembly



HM022A-021

tail frame



HM022A-022

empennage axes
assembly



HM022A-023

empennage
turning rack



HM022A-024

empennage

Components list



HM022A-025

empennage nip
assembly



HM022A-026

little gear
assembly



HM022A-027

axletree
(2x6x2.3mm)



HM022A-028

axletree
(3x6x2mm)



HM022A-029

step bearing
(2x6x2.5mm)



HM022A-030

step bearing
(3x6x2.5mm)



HM022A-031

nut



HM022A-032

column screw
one: with six Angles



HM022A-033

turning pull pole



HM022A-034

Y-connector



HM022A-035

screw



HM022A-036

assembly

Components list



HM022A-037

cover assembly



HM022A-038

motor assembly



9.6V 650 mAh Ni-MH
HM022A-039

battery Ni-MH 9.6v



HM022A-040

controller



HM022A-041

receiver speed
adjuster included



15V 300mAh
HM022A-042

charger



HM022A-043

servo assembly
7.5g



HM022A-044

servo assembly
9g (high speed)

(5) Selected components list

Following are selected assembly. If you want to upgrade your plane, please buy these assembly.



11. 1V 1200mAh Li-Battery
HM022A-051

li- battery



HM022A-052

gyro



HM022A-053

brushless motor



HM022A-054

brushless actiyator



HM022A-055

brain charger

WARNING:

- Any unauthorized adjustment on this product could result in a violation of part 95 of the FCC Rules. Please have a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by an organization or committee representative of users of the services.
- Replacement of any transmitter component (crystal, semiconductor, etc.) could result in a violation of part 95 of the FCC Rules.
- A license may be required to operate this product in some countries. Consult about the license issue from the radiology department of the country.
- Changes or modifications to this unit not expressly approved by the party responsible for compliance will void the user's authority to operate the equipment. Any change to the equipment will void FCC grant.

NOTE:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 95 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.