User Handbook

Specifications:

Main Rotor Dia. : 302mm
Main Motor : 1225FE33
Transmitter: WK-2601
Tail Rotor Dia. : 58mm
Tail Motor : 0716R
Receiver: RX-2605
Overall Length: 273mm
Battery: 3.7V 400mAh Li-Po
Gyro: Built-in
All-up Weight: 68.4g (Battery included)
Servo: wk-03-1 / weight 3.5g / speed 0.12sec/60° (3.7V) / torque 0.2kg/cm (3.7V) / dimension 17.5×6.5×21.5mm

Features:

1) CCPM mixing control system and collective pitch control system make perfect 3D maneuvers such as rolls, inverted, and swoop flights.

2) Equipped with high performance motor, the flight time will be up to 7 to 8 minutes at 3.7V 400mAh LiPo battery pack, depending on your flight mode.

3) New 2.4G technology, with the functions of identification and precise code pairing, can allow many RC aircrafts to fly in the same field and same time.

Contents

01 Forewords

Dear customer:

Thank you for your purchase of Walkera radio control aircraft model products. In order to promptly and safely master the operations of 4G3 (2.4G) RC helicopter, please carefully read the manual, and then save it in a safe place for future consultation and reference.

4G3 takes 2.4G spread spectrum technology of 3-in-1 combination of receiving circuit, gyro and CCPM mixing. It features vigorous power, stable flight, prompt response, and strong anti-jamming capacity.

2.1 Statement

(1) This product is not a toy. It is a piece of complicated equipment which harmoniously integrates together engineering materials, mechanics, electronics, aerodynamic and high frequency radio. Correct installation and adjustment are a must in order to avoid accidents taking place. The owner should operate in a safe manner. Improper operation may result in serious property damage or bodily injury, even death.

(2) We accept no liability for damage and consequent damage arising from the use of products, as we have no control over the way they are installed, used and operated.

(3) This product is suitable for RC-helicopter-experienced people aged not less than 14 years old.

(4) The flight field should be legally approved by the local government. We accept no liability for any safety duties arising from operations, uses, or controls as soon as the products are sold.

(5) We consign our distributors to offer technical support and service after sale. Please contact the local distributors for problem solutions caused by usage, operation, maintenance, etc.

02 Matters needing attention

2.2 Safety needing attention

RC helicopter is a high risk hobby, whose flight should be kept far away from other people. Misassembled or broken main frame, defective electronic equipment, and/ or strangeness to radio system will lead to unforeseen accidents such as bodily injury or property damage. The pilot MUST pay attention to the flight safety and UNDERSTAND his responsibility for accidents caused by his carelessness.

(1) Far away from obstacle and people

RC helicopter in flight is uncertain of flight speed and status, which potential risk exists in. when flying, please keep your RC helicopter far away from people, high buildings, high-tension line, etc, and avoid operating in rain, storms, thunder and lightening.

(2) Away from humidity environment

RC helicopter should be kept away from humidity and vapor because it is composed of complicated precise electronic elements and mechanic parts.

(3) Proper operation

Please use Walkera original spare parts to upgrade, modify or maintain your helicopter in order to assure its safety. Please operate your helicopter within the range of functions permitted. It is forbidden to use out of the safety laws or regulations.

(4) Avoid flying alone

At the beginning of studying radio-control flight skills, there exist some difficulties. Please avoid your flying alone, and should invite experienced pilots to guide you (it is one of the effective manners to practice via PC simulator and/ or skilled pilots' guidance).

(5) Safety operation

Please fly your helicopter according to your body status and flight skills. Fatigue, listlessness and miss-operation will increase the possibilities of accidental hazard.

(6) Away from highly spinning parts

Please keep pilot, people and object away from the spinning blades of both main rotor and tail rotor.

(7) Away from heat source

RC helicopter is made from metal, fiber, plastic and electronic elements, etc. Please keep away from heat, sunshine in order to avoid distortion, even damage, caused by high temperature.

2.3 Attention before flight

(1) Ensure the battery packs of both transmitter and receiver are fully charged (saturated).

(2) Ensure both the throttle stick and the throttle trim of your transmitter stay at the lowest positions before operation.

(3) Please strictly obey the order of turn-on and turn-off before operation. When starting your flight, please turn on your transmitter first, and connect the power cable of your helicopter last.

When finishing your flight, please disconnect the power cable of your helicopter first, and turn off your transmitter last.

(4) An upset in the order of connection may cause your helicopter to loose control. Please cultivate a correct habit of turn-on and turn-off.

(5) Ensure the directions and actions which servos execute transmitter commands are correct and smooth, respectively. Using a broken servo will result in unforeseen dangers.

(6) Check there are no missing or loose screws and nuts, no unassembled or damaged parts. Carefully check the main blades have no defects, especially the position close to the main blade connector. Broken or unassembled parts will have an effect on the flight performance, and will cause unforeseen potential dangers.

(7) Check all the connections between ball linkage and ball. Loose linkages and balls should be changed. Loose connection between linkage and ball will have an effect on the flight performance, even lose control.

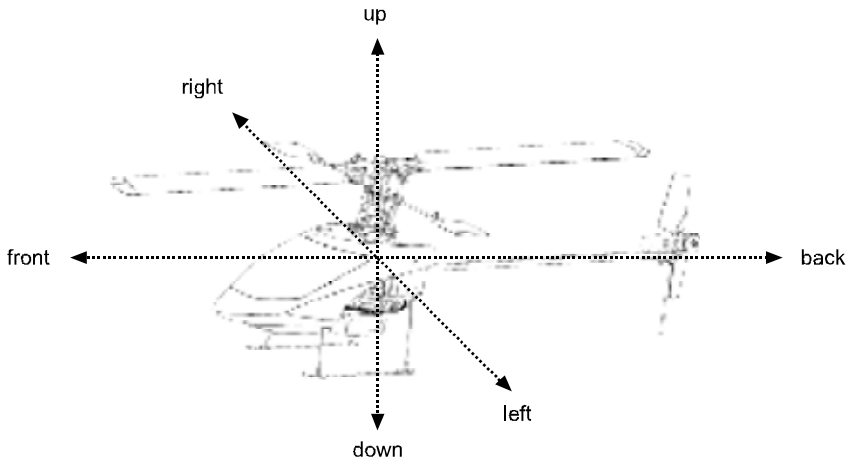
(8) Assure there are solid connections between the power cables of battery pack and motors. Continuous vibrations and drastic 3D actions in flight may loosen the battery tie-ins.

(9) Check regularly (every 10 flights) every part of your model to prevent risk of failure during flight.

03

Definition of Helicopter Orientation

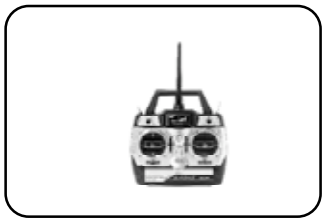
We define the orientation of helicopter in order not to cause confusion in the following descriptions. That is to say, the tail boom of helicopter is facing the pilot (tail in), and its head facing forward (front of pilot). The left hand of pilot is the left side of helicopter, the right hand of pilot is the right side of helicopter. Its head is to the front and its tail boom is to the back. The direction in which main body of helicopter is facing is up, and its skids are facing down.



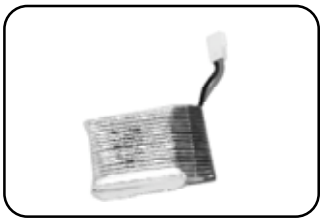
04

Standard equipments

▲ 4G3 helicopter



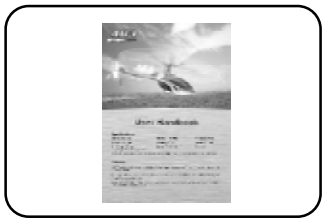
▲ WK-2601 transmitter



▲ Li-polymer battery pack

▲ Tool kit

▲ Wall adapter /Power supply



▲ Manual

05

Instruction and attention of WK-2601 transmitter

5.1 Features of transmitter

(1) WK-2601 transmitter encoder applies 6-channel micro computer system and 2.4G spread spectrum technology, which features automatic code pairing and ID assignment with prompter response, higher sensitivity and stronger anti-jamming capacity.

(2) Technical data of WK-2601

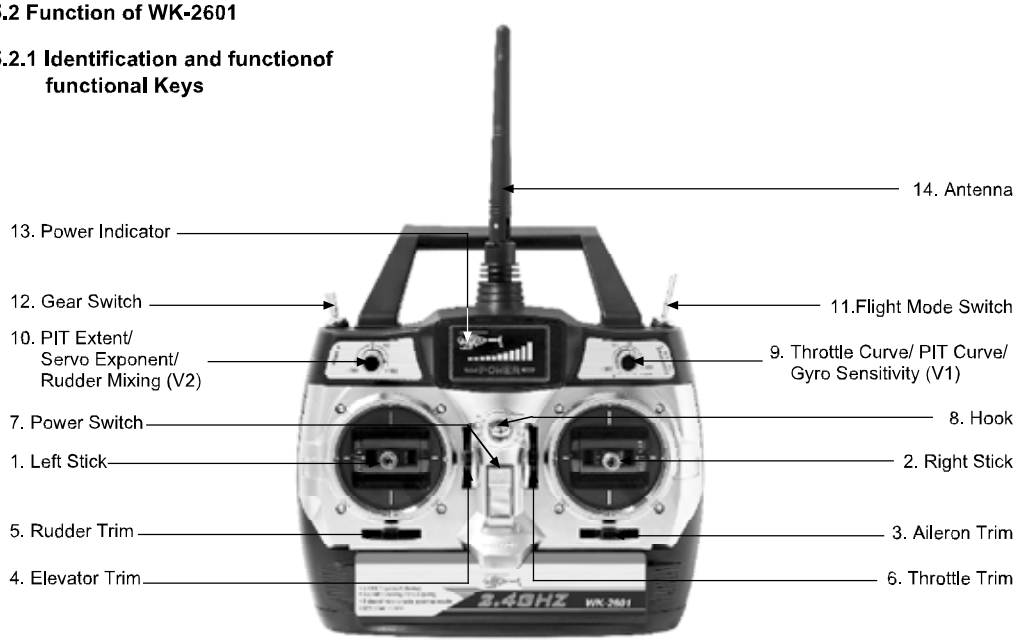
Output power	Drain current	Battery type and spec
⩽100mW	⩽120mA	1.5V × 8 AA dry cells or 1.2V × 8 NiCd（9.6V 650mAh）

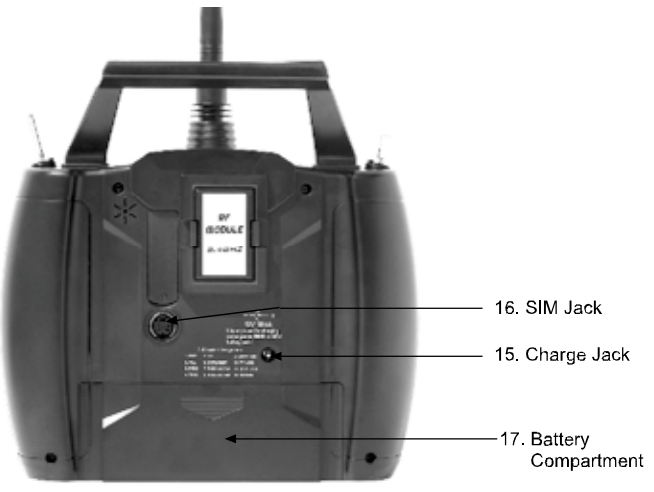
(3) On the reverse of transmitter there are a number of DIP switches, which may be used in conjunction with a variety of different servos, to perform ascending, descending, forward, backward, leftward, rightward flights and so on.

(4) It is possible to mechanically switch between mode 1and 2 (regarding the switching method, please visit website: http://www.walkera.com and click at “Service”).

5.2 Function of WK-2601

5.2.1 Identification and functionof functional Keys



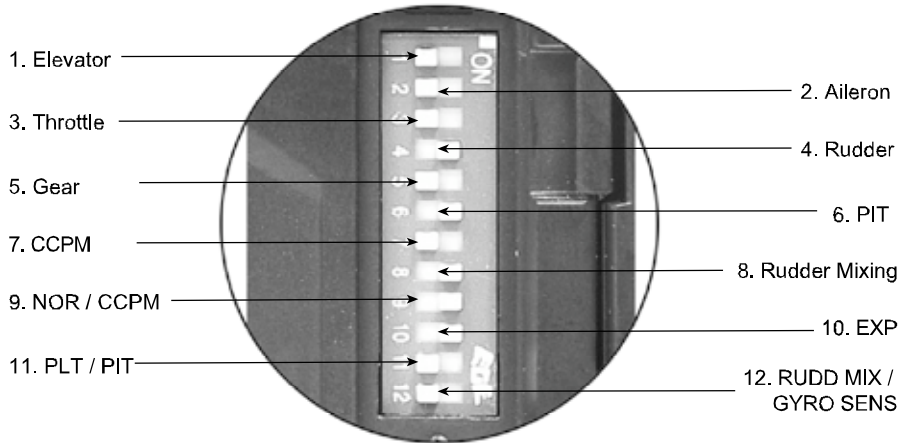


05

Instruction and attention of WK-2601 transmitter

S/N	Identification	Function
1	Left Stick	**Mode 1** (throttle stick at right hand): forward and backward moving the left stick flies your helicopter forward and backward, respectively; leftward and rightward shaking the left stick turns your helicopter leftward and rightward, respectively. **Mode 2** (throttle stick at left hand): forward and backward moving the left stick makes your helicopter ascending and descending, respectively; leftward and rightward shaking the left stick turns your helicopter leftward and rightward, respectively.
2	Right Stick	**Mode 1** (throttle stick at right hand): forward and backward moving the right stick makes your helicopter ascending and descending, respectively; leftward and rightward shaking the right stick turns your helicopter leftward and rightward, respectively. **Mode 2** (throttle stick at left hand): forward and backward moving the right stick flies your helicopter forward and backward, respectively; leftward and rightward shaking the right stick turns your helicopter leftward and rightward, respectively.
3	Aileron Trim	Aileron trim subsidiary adjusts left- and right-spinning of tail blades.
4	Elevator Trim	Elevator trim subsidiary adjusts helicopter forward and backward.
5	Rudder Trim	Rudder trim subsidiary adjusts left- and right-turning.
6	Throttle Trim	Throttle trim subsidiary adjusts helicopter ascending and descending.
7	Power Switch	Pushing up switches on and pulling down switches off the power of transmitter.
8	Hook	Neck strap releases the tension of your hands from holding transmitter.
9	Throttle Curve / PIT Curve / Gyro Sensitivity (V1)	Under the help of DIP switches, can adjust the throttle curve, PIT curve and gyro sensitivity (refer to the relative contents in section 8).
10	PIT Extent / Servo Exponent / Rudder Mixing (V2)	Under the help of DIP switches, can adjust PIT extent, servo exponent, and ruder mixing (refer to the relative contents in section 8).
11	Flight Mode Switch	There are two flight modes: normal and 3D. "N" position is normal flight mode and "1" position is 3D flight mode.
12	Gear Switch	Putting the gear switch forward is to drop landing gear, and pulling it back is to fold landing gear (this function is not available in Creata).
13	Power Indicator	Indicates the current battery volume status of transmitter: 1) Green LED on: battery is saturated and normal flight is permitted; 2) Green LED off but yellow LED on: battery is short of power. Please stop flying as soon as possible; 3) Yellow LED off but red LED on: battery is seriously short of power. Please stop flying immediately.
14	Antenna	Transmits wireless signal.
15	Charge Jack	Can be used to charge the transmitter battery pack at charge current 50mA, voltage ⩽ 12V. Notice: 1) It is forbidden to charge non rechargeable battery pack via this charge jack; 2) It is forbidden to use the accompanied wall adapter as a DC power supply please see section 4 – "standard equipment".
16	SIM Jack	Connects to the data cable of computer simulator.
17	Battery Compartment	Mounts 1.5V X 8AA dry cells battery or 1.2V X 8 NiCd (9.6V 650mAh). Please notice the polarities of the cells while mounting.
18	Battery Cover	When changing cells, please lightly press down the center of battery cover and then pull down the cover to open.

5.2.2 Identification of DIP switches



Note: OFF ◄·····► ON

5.2.3 Function status of DIP switches

S/N	Function	NO	OFF
1	Elevator	Reverse	Normal
2	Aileron	Reverse	Normal
3	Throttle	Reverse	Normal
4	Rudder	Reverse	Normal
5	Gear landing	Reverse	Normal
6	PIT	Reverse	Normal
7	CCPM adjusting elevator servos	Reverse	Normal
8	Rudder mixing	Reverse	Normal
9	CCPM/NOR	CCPM	Normal
10	Refer to the adjustment of throttle curve and servo exponent in section 8		
11	Refer to PIT adjustment in section 8.6		
12	Adjustments of gyro sensitivity and rudder mixing in section 8.8		

5.2. 4 Default settings of DIP switches

Note: ON position is marked "ON", and the reverse position of ON is default "OFF".

DIP S/N	1	2	3	4	5	6	7	8	9	10	11	12
Status	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF

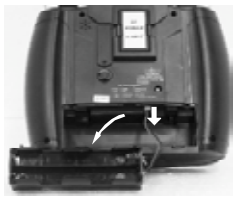
05 Instruction and attention of WK-2601 transmitter

5.3 Instruction and attention of transmitter

5.3.1 Battery mounting


1

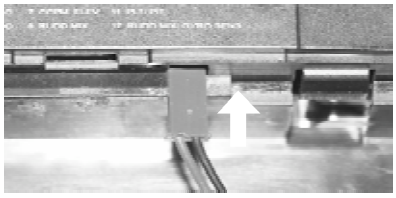
Lightly press down the center of battery cover, and remove along the arrow direction.


2

Take out the battery holder and pull out the JST jack.


3

According to the correct polarities, mount 1.5V X 8AA dry cells or 1.2V X 8 NiCd (9.6V 650mAh)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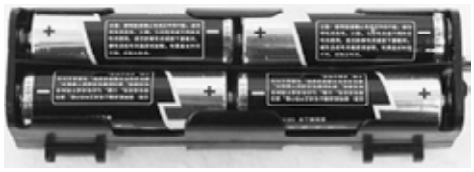

4

Insert the JST jack shown as the picture. Notice: the flat plain of the JST should be upward and the concave downward.


6

Mount the battery holder according to the correct direction.


7

Mount the battery cover according to the arrow direction.


8

Mounting is finished.

5.3.2 Matters needing attention

Ensure saturated power and correct polarity of transmitter battery pack and solid buckle connection to avoid shortage of battery power or sudden power off.

5.3.3 Code pairing and its attention

(1) Put the flight mode switch in “N” position.

(2) Keep both the throttle stick and throttle trim at the lowest position. Turn on the transmitter. The power indicator in transmitter quickly flashes (it is in the process of code pairing. DON’T move any sticks or trims).

(3) And then connect the power cable of your helicopter. The receiver LED becomes solid lighting after flashing 1-3 seconds, and simultaneously the servos will automatically initialize and sound mechanic beeps. Please pull down the left or right stick to the lowest position and move it leftward and rightward one time (notice: DON’T move the throttle stick forward or backward in order to avoid main blades sudden spinning at high speed). The LED indicator of transmitter stops flashing and resumes the status of power indication. It means the code pairing is successfully finished and you can operate your helicopter. In general, the code pairing time is less than 10 seconds.

(4) Automatic scanning method is utilized. During the process of code pairing, occasionally failure of code pairing will happen because ID matching fails during scanning. Please disconnect power cable of your helicopter and turn off transmitter in sequence. Then turn on transmitter and connect the power cable in order within 10 seconds and re-enter the status of code pairing.

(5) It is forbidden to allow many pilots to make code pairing at the same time.

(6) After the code pairing is successfully finished, many pilots are allowed to fly at the same time and in the same field.

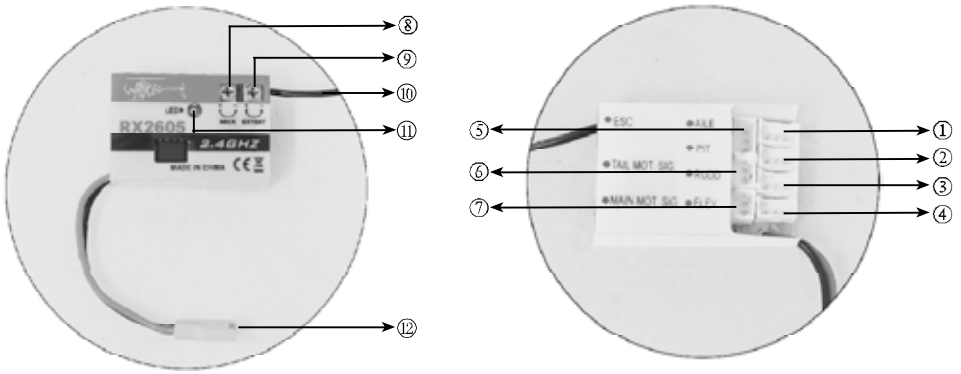
6.1 Features of receiver RX 2605

(1) Receiver RX 2605 adopts 2.4G spread spectrum technology with the functions of automatic scanning, code pairing and LED receiving indication.

(2) The usage of high signal receiving circuit dramatically reduces the possibility of missing signal and ensures the accuracy and reliability of signal receiving.

(3) 6-channel signal output makes fine actions and powerful functions available.

(4) Servo extent offer fine and customized adjustments to relevantly meet the habits of your operation.



6.2 Function of receiver

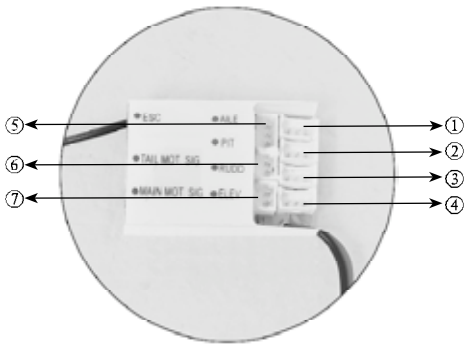
S/N	Name for short	Full name	Function
1	AILE	Aileron servo	Connects to the aileron servo and receives the control signal of aileron servo.
2	PIT	Pitch servo	Connects to the PIT servo and receives the control signal of PIT servo.
3	RUDD	Rudder servo	Connects to the rudder servo and receives the control signal of rudder servo.
4	ELEV	Elevator servo	Connects to the elevator servo and receives the control signal of elevator servo.
5	ESC	ESC	Connects to the ESC and receives the signal of ESC (Electronic Speed Controller).
6	TAIL MOT. SIG	Tail motor signal wire	Connects to the signal wire of tail motor and receives the control signal of tail motor.
7	MAIN MOT. SIG	Main motor signal wire	Connects to the signal wire of main motor and receives the control signal of main motor.
8	MIX	Mixing ratio knob	Mixing ratio knob is used to change the flight status by amending the amount of tail motor's RPM.
9	EXTENT	Servo extent knob	Servo extent knob is used to set up the servo travel.
10	Antenna	Antenna	Receives the signal from transmitter.
11	LED	LED	Displays the status of receiving signal.
12	Power cable	Power cable	Connects to the power.

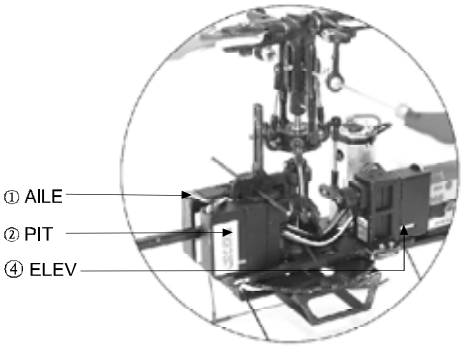
06

Instruction and attention of RX2605

6.3 Channel connection and adjustment of receiver

6.3.1 Sketch map of channel connection of receiver





S/N	Receiver terminal	Connection method	Wire direction
1	AILE.	Connects to the plug of aileron servo signal wire	The white wire is facing back
2	PIT.	Connects to the plug of pitch servo signal wire	The white wire is facing back
3	RUDD.	not used	
4	ELEV.	Connects to the plug of elevator servo signal wire	The white wire is facing back
5	ESC	not used	
6	TAIL MOT. SIG.	Connects to the plug of orange-color single wire	The red wire is facing dowm
7	MAIN MOT. SIG.	Connects to the plug of ESC's three-color wire	The red wire is facing dowm

6.3.2 Adjustment of receiver

(1) Status of LED indicator of receiver: quick flash means the signal is being received; solid lighting means the signal has been received; slow flash means no signal has been received.

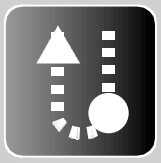
(2) Mixing ratio knob (MIX): CW rotating toward (+) increases the revolution of tail motor and CCW rotating toward (-) decreases the revolution.

(3) Servo extent knob (EXTENT): CW rotating toward (+) increases the servo travel and CCW rotating toward (-) decreases the travel.

6.4 Matters needing attention

(1) All the signal wires should be connected in a correct way. Misconnection will result in failure to receive signal, even damage to receiver and motor.

(2) Please use special adjustment pen to rotate the mixing ratio knob and the servo extent knob in order to avoid damaging knobs.



07

Instruction and attention of WK-03-1

7.1 Specification and function of WK-03-1

7.1.1 Specification of WK-03-1

Weight	Voltage	Torque	Speed	Dimension
3.5g	3.7V	0.2kgf.cm	0.12sec/60°	17.5×6.5×21.5mm

7.1.2 Basic function of servo

Servo is a kind of electromechanical device that converts the signal from the receiver into mechanical movement, the function of which mainly aims at transforming the electronic signal into relevant mechanical movement, by means of which the control for its direction and speed can be achieved.

7.2 Connection and adjustment of servo

7.2.1 Connection of servo

Please refer to the channel connection shown as the sketch map in the section 6.3.1.

S/N	Receiver terminal	Connection method	Wire direction
1	AILE	Connects to the plug of aileron servo signal wire	The white wire is facing back
2	PIT	Connects to the plug of pitch servo signal wire	The white wire is facing back
3	RUDD	not used	
4	ELEV	Connects to the plug of elevator servo signal wire	The white wire is facing back

7.2.2 Adjustment of servo

Before departure from Factory, all the servos have been given correct adjustment and are locked at the initiation status. In general, we don't need make any adjustment. If we need make adjustment to the main rotor blades or flybar paddle, please shorten or prolong the lengths of servo linkages: prolonging the length of linkage increases PIT angle, and shortening the length decreases PIT angle.

7.2.3 Matters needing attention

(1) All the plugs should be correctly connected. Otherwise wrong connection will make servos not function or lead to the direction which is different from the pre-set.

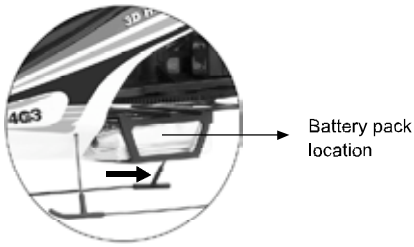
(2) Before departure from Factory, all the servos have been given correct adjustment and are locked at the initiation status. Please ensure that the travels of servo bell cranks should be within the range of its fixed extent during replacement, installation, and adjustment of servo linkages.

08

Steps of flight

8.1 Installation of battery pack

Install the battery pack into the battery compartment along the arrow direction.

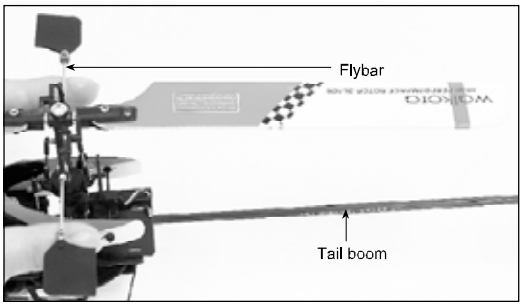


Sketch map of battery installation

8.2 Center of Gravity adjustment

Place the helicopter in the horizontal level, make its head is facing the pilot and assure the flybar is vertical to the tail boom. Keep the main rotor blades stretched in line, and assure the main rotor blades are parallel to the tail boom. Then use two index fingers to horizontally lift the flybar of helicopter.

If the head of helicopter goes down, it means the CG is too close to the foreside. Please move the battery pack a little backward. If the tail boom goes down, it means the CG is too close to rear end. Please move the battery pack a little forward.



Sketch map of CG adjustment

8.3 Turn on the power

8.3.1 Turn on the power

1. Take off the canopy, and install the battery pack in the battery compartment.

2. Pull down the throttle stick and throttle trim of transmitter to the lowest position, and then move the elevator trim, aileron trim, and rudder trim at the neutral positions, respectively.

3. Turn on the power of transmitter.

4. Connect the power cable of helicopter to receive signal from transmitter.

8.3.2 Matters needing attention

(1) When operating, please obey the principle of **"turn on transmitter first, and connect the power cable of helicopter last"** Connect the power cable of helicopter in 10 seconds after the transmitter turned on. The red LED in receiver begins to flash. If the red LED becomes solid lighting and the mechanic beeps of servos initialization are heard, the receiver has received the signal from transmitter. The code pairing is successfully finished.

(2) If failed to connect the power cable of helicopter in 10 seconds after transmitter is turned on, please turn off the transmitter and repeat the step (1).

8.3.3 Troubleshoot of receiver LED keeping on flashing after power cable connected

Possible causes	Solutions
Failure to code pairing.	Re-turn on transmitter and re-connect the power cable of helicopter.
The throttle trim and throttle stick of transmitter are not at the lowest position.	Pull down the throttle trim and throttle stick to the lowest position and re-pair code.
The electricity of transmitter is short or used up.	Change new battery of transmitter, and pair code again.
The electricity of helicopter is short or used up.	Change new battery pack of helicopter, and pair code again.
No function in receiver or transmitter.	Change receiver or transmitter, and pair code again.

8.4 Adjustment before flight

Warning: Disconnect the power cable of main motor before adjustment for the sake of pilot's safety.

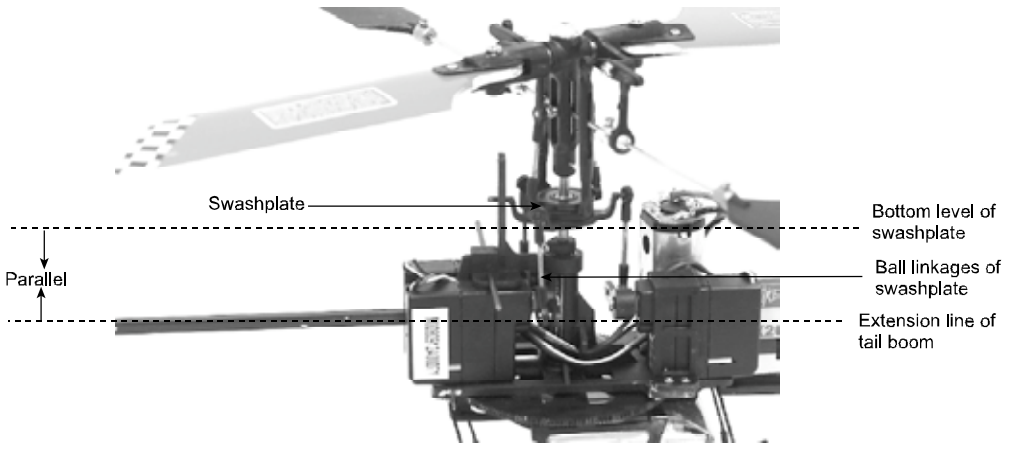
Matters needing attention: all the original equipments have been adjusted well before departure from factory. In general, it is unnecessary to make adjustment. Due to bump caused in long-distance transportation, some joint parts may be loose, even broken off. For the sake of safety, please strictly refer to the section 2.3 – "attention before flight" and check throughout your helicopter.

84.1 Adjustment of swashplate

Inspection of swashplate

Warning: Disconnect the power cable of main motor before adjustment for the sake of pilot's safety.

Put your helicopter in a spacious horizontal ground. Move the throttle stick and throttle trim of transmitter to the lowest position, and move the elevator trim, aileron trim and rudder trim at the neutral position, respectively. Turn on the transmitter first and then connect the power cable of helicopter. After the LED in the receiver stops flashing while mechanic beeps of servos initiation heard, the signal has been received. Then check whether the bottom level of swashplate is parallel to the longitudinal axis of the helicopter – the extension line of tail boom. Check also that the bottom level of swashplate is parallel to the lateral axis of the helicopter.



08

Steps of flight

Adjustment of swashplate

Warning: Disconnect the power cable of main motor before adjustment for the sake of pilot's safety.

Servo bellcranks must be horizontal at mid throttle. Swashplate must be at centrer of travel at mid throttle

If the bottom of swashplate is not in horizontal level, it can be adjusted via the following three steps:

(1) Adjust the bellcrank of servo. Disconnect the power cable of helicopter first and then turn off transmitter. Unscrew the screw in the bellcrank of servo and take off the bellcrank. Re-turn on transmitter and re-connect the power cable of helicopter in sequence. After servos' initialization, re-mount the bellcrank of servo and make sure the angle is 90 ∫ between bellcrank and ball linkage of servo, and then tighten the screw of bellcrank.

(2) Adjust the ball linkage of servo. Make the swashplate parallel to the horizontal level via adjusting the length of servo ball linkage.

(3) Check that the swashplate is at center of travel. Switch transmitter in 3D mode and move throttle to see where are both ends of swashplate travel. At mid throttle, swashplate must be at the middle.

8.5 Adjustment of exponential parameter of servo

Adjusting throttle curve and servo exponential curve can improve pilot's flight handle feeling. Below are the concrete adjustment methods:

1. Open the transmitter power switch when adjust, turn the No.10 DIP switch to the "ON" position, let the V1、V2 knob on the control panel point at "0" position.

2. ①Normal throttle curve adjustment: switch the 3D inverted flight switch to the normal flight mode. Tune V1 to the "+" end and move the throttle curve upward. The maximum range is 80% upward; tune V1 to the "-" end and move the throttle curve downward and the maximum range is 40% downward. Tune V1 to 0, and the curve is linear (Fig. 1).
②Inverted flight throttle curve adjustment: switch the 3D inverted flight switch to the 3D inverted flight mode. When V1 is tuned to 0 position, the curve is V-shape and the throttle center is at 60%. Tune V1 to the "+" end, and the curve moves up and its maximum range is 80%; tune V1 to the "-" end, and the curve moves down and its minimum range is 40% (Fig. 2).

3. When V2 is tuned to 0 position, the curve is linear (Fig.3) ; When V2 is tuned to the "+" end, the servo curve will be changed in the form of exponential (Fig.4); When V2 is tuned to the "-" end, the servo curve will be changed in the form of negative exponential (Fig.5). The regular set is 0%.

4. After the adjustment is finished, turn the No.10 DIP switch to "OFF" position. the regulated servo exponential parameters have been locked.

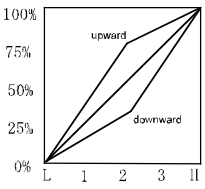


Fig. 1

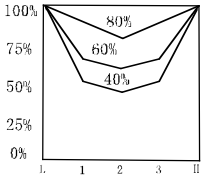


Fig. 2

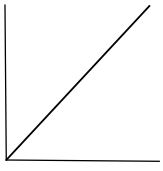


Fig. 3

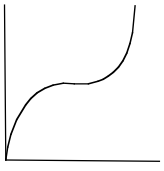


Fig. 4

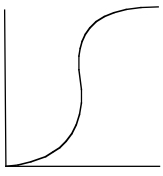
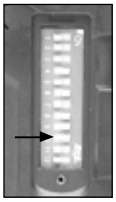


Fig. 5

1

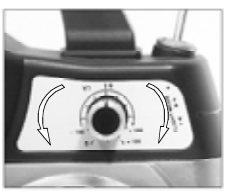


DIP switch

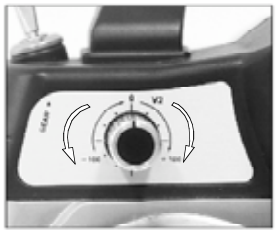
2

Flight mode switch

3



Adjust the throttle curve via rotating the knob V1 leftward or rightward.



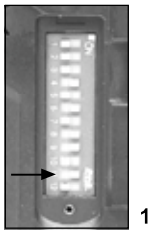
4

5

Rotating V2 leftward or rightward can discretionarily adjust the exponential parameter of servo.

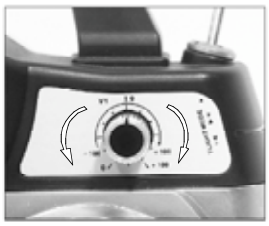
8.6 PIT adjustment

Via rotating the knobs V1 and V2, the PIT angle can be adjusted to perform prompt ascending and descending in flight. The concrete methods are shown as below:

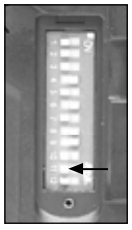


1 DIP switch

2 Flight mode

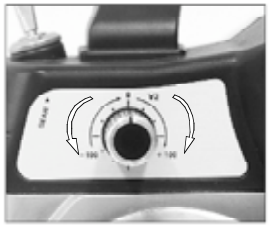


3 Rotating V1 leftward or rightward to discretionarily adjust PIT value.



5

Rotating V2 leftward or rightward to discretionarily adjust the amount of PIT limitation extent.



4

(1) Put the No. 11 DIP switch in the "ON" position, rotate the knobs V1 and V2 on the panel of transmitter to aim at "0", and switch the flight mode to the "N" position.

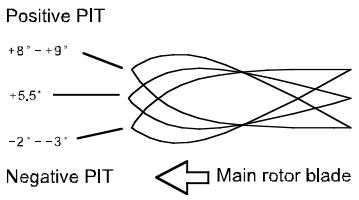
(2) Rotating the knob V1 toward "+" in the panel of transmitter increases PIT and speeds up the velocity of helicopter ascending and descending. Rotating V1 toward "-"decreases PIT and slows down the velocity of helicopter ascending and descending.

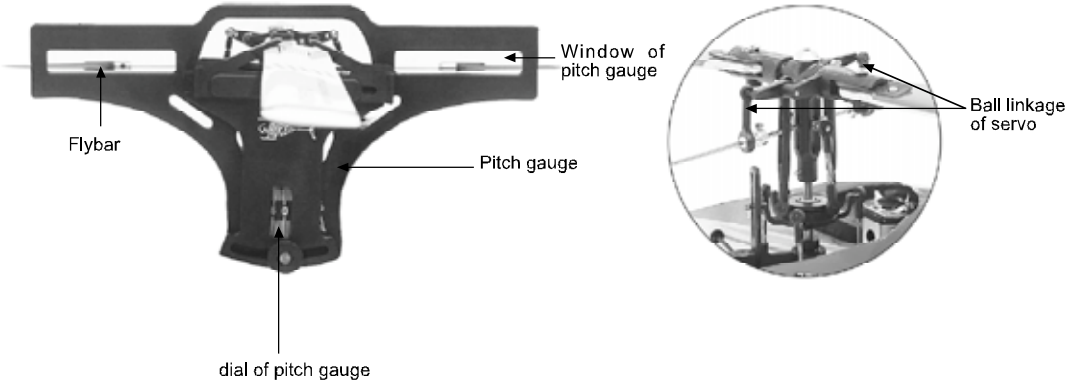
(3) Rotating the knob V2 toward "+" in the panel of transmitter increases the amount of PIT limitation extent, and just speeds up the velocity of helicopter ascending; rotating V2 toward "-" decreases the amount of PIT limitation extent, and just decreases the velocity of helicopter descending.

(4) After adjustment, pull back the No. 11 DIP switch to the "OFF" position. The adjusted PIT parameters are locked.

8.6.1 Adjustment of PIT parameters in normal mode

Adjustment of PIT parameters: switch the flight mode to the "N" position (a pitch gauge should be prepared by pilot), and put the No. 11 DIP switch in the "ON" position. Please refer to the following chart and sketch map to adjust the PIT parameters:

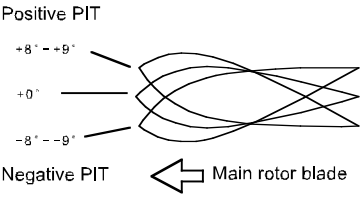
PIT adjustment	position of throttle stick	PIT angle	Adjustment method	Sketch map
1	Neutral position	+ 5.5°	Adjust the length of ball linkage of servos to make the flybar parallel to the bottom line of window of pitch gauge.	
2	The highest position	+ 8° ~ +9°	Idem	
3	The lowest position	- 2° ~ -3°	Idem	
4	After the adjustment finished, pull back the No. 11 DIP switch to the "OFF" position. The PIT parameters are locked.			



Put the pitch gauge in one of the main rotor blades, and preset a proper angle. Make the flybar almost parallel to the bottom line of the window of pitch gauge via adjusting the length of servo linkages.

8.6.2 Adjustment of PIT parameter in 3D mode

Switch the flight mode to the "1"position. Please refer to the following chart and sketch map to adjust the PIT parameters:

PIT adjustment	position of throttle stick	PIT angle	Adjustment method	Sketch map
1	Neutral position	0°	Adjust the length of ball linkage of servos to make the flybar parallel to the bottom line of window of pitch gauge.	
2	The highest position	+ 8° ~ +9°	Idem	
3	The lowest position	- 8° ~ - 9°	Idem	
4	After the adjustment finished, pull back the No. 11 DIP switch to the "OFF" position. The PIT parameters are locked.			

8.7 Adjustment of receiver

8.7.1 Adjustment of servo extent

Rotate the EXTENT knob in the receiver to adjust the servos' extent. The bigger the extent amount sets, the prompter the flight is; the smaller the extent amount sets, the slower the flight is. Please adjust a proper amount which is suitable for your flight via rotating the EXTENT knob in trial and error. Check that servo's travel is not stopped and all travel is free.

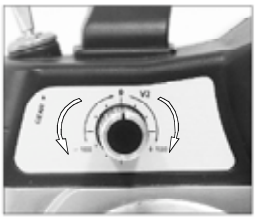
8.7.2 Adjustment of Mixing ratio

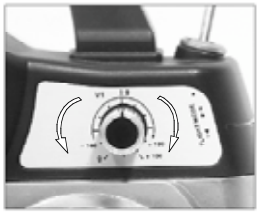
If non-head locking is taken place in flight, it can be corrected via rotating the MIX knob in the receiver. CW rotation increases the RPM (revolutions per minute) of tail motor; CCW rotation decreases the RPM of tail motor.

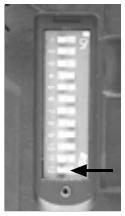
8.8 Adjustment of gyro sensitivity and rudder mixing

If tail is shaking left or right during flight, it means the sensitivity of gyro is too small and can be improved via increasing the sensitivity of gyro. If poor mixing effect (non-axle following) happens when pushing up the throttle stick, it can be improved via adjusting the rudder mixing ratio. The concrete method is shown as below:


1


2


3


4

(1) Put the No. 12 DIP switch in the "ON" position, and rotate the knob V1 in the panel of transmitter to aim at the "0" position.

(2) Rotating V1 toward "+" increases the sensitivity of gyro and can correct CCW direction of tail boom; rotating V1 toward "-"decreases the sensitivity of gyro and can correct CW direction of tail boom. Normally the amount is set as about 80%.

(3) Rotating the knob V2 toward "+" in the panel of transmitter increases the mixing ratio of rudder servo, and can improve the mixing effect of your helicopter to stop shaking left or right when pushing up the throttle stick; rotating V2 toward "-"decreases the mixing ratio of rudder servo, and can correct the mixing effect of tail boom. Normally the amount is set as about 30%.

(4) After the adjustment is finished, pull back the No. 12 DIP switch to the "OFF" position. The adjusted gyro sensitivity and rudder mixing ratio are locked.

8.9 Adjustment of main rotor blades

The purpose of adjustment is to make the weight and gravity center of main rotor blades equally distributing and ensure the main rotor blades are in same level during high speed spinning.

8.9.1 Color decal (tracking tape)

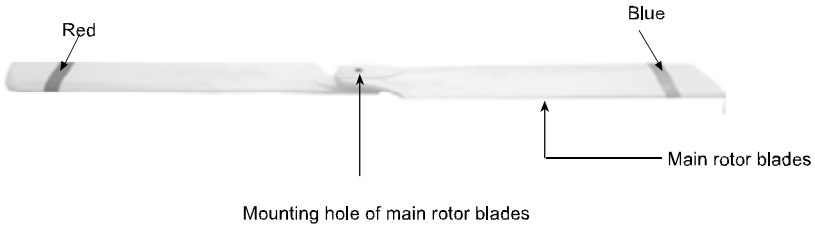
Two different colored blade tracking decals (red and blue) should be placed 20 mm away from each end of blade tip, whose purpose is to identify the position of each spinning blade in the following inspection of blade tracking.

08

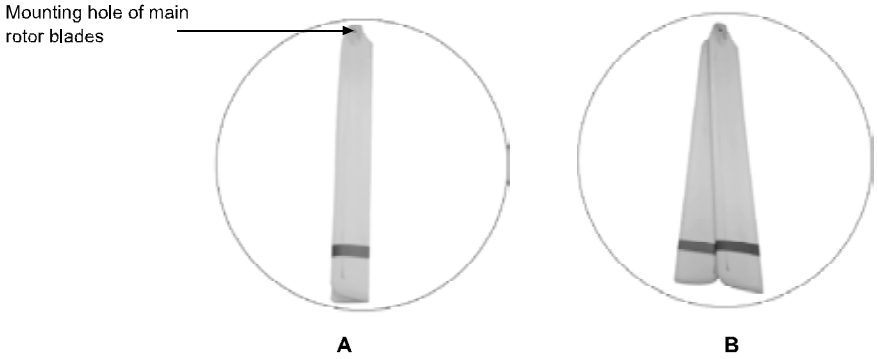
Steps of flight

8.9.2 Inspection and gravity center adjustment of main rotor blades

(1) Transverse inspection and adjustment of gravity center. Use a bolt to insert the mounting hole of main rotor blades and screw the bolt cap, and then stretch the main rotor blades in line. Hang the couple of main rotor blades in the air using the bolt as a fulcrum. If the main rotor blades keep in a horizontal line, it means ok; if one end of the main rotor blades is higher than the other one, please move the high end stick to the high direction, and/ or move the low end stick to the high end until balanced.



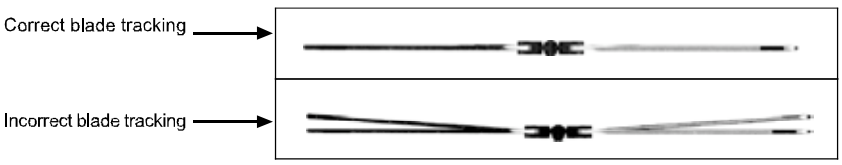
(2) Longitudinal inspection of gravity center. Shown as below, take the mounting hole of main rotor blades as the fulcrum to vertically hang in the air. If the two main rotor blades are almost superposed, it means normal (shown as Fig. A); otherwise abnormal.



8.9.3 Tracking inspection

Note: for the sake of safety, please keep the main rotor blades of helicopter at least 3 meters away from the pilot when his inspecting the tracking problem.

Slowly push up the throttle stick of transmitter and ensure both the line of sight of pilot and the main rotor blades are in the same horizontal level. When the main rotor blades are spinning, please observe whether or not the two levels, respectively caused by the red and blue decals, are superposed in the same level. Superposition is correct; otherwise there exists tracking problem and adjustment is required.



8.9.4 Adjustment of blade tracking

Below are the main causes for incorrect blade tracking:

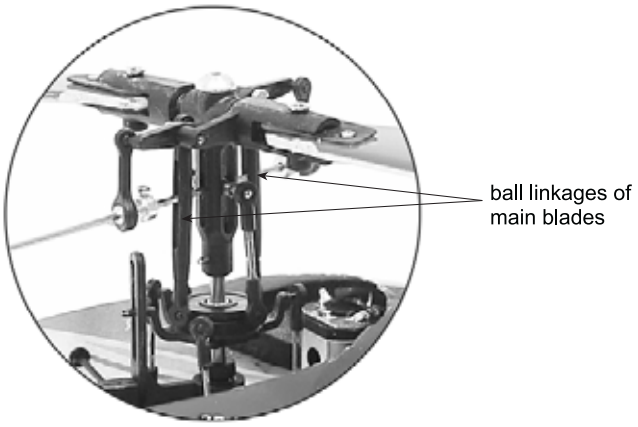
(1) The weights of two blades are unequal.

(2) The gravity center distribution of two blades is unequal.

(3) The lengths of ball linkages of two blades are set improperly.

(4) When blades are too loose, blades shake due to gap, or main blade connectors distort.

The lengths of ball linkages of main blades are required to adjust when there exist tracking blades. If the decal color of the high blade is red, please shorten the length of the ball linkage of red blade and/ or prolong the length of the ball linkage of blue blade. If the decal color of the high blade is blue, please shorten the length of ball linkage of blue blade and/ or prolong the length of ball linkage of red blade.



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Step 1: disconnect the power cable of helicopter.

Step 2: turn off the transmitter.

Step 3: take off the canopy and remove the battery pack.

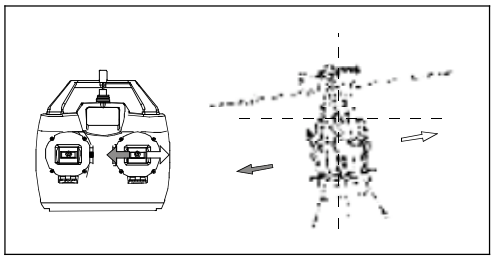
09
Flight over

10

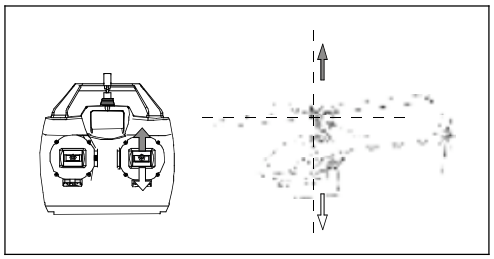
FAQ

Questions	Causes	Countermeasures
Tracking blades	the lengths of ball linkages of servo are different	Adjust the lengths of ball linkages to same long
The speed of main rotor blades is too low	The PIT angle of main rotor blades is too big	Decrease the PIT angle to ab.1600 RPM during hover
	The throttle curve at hover is too low	Adjust the throttle curve higher at hover
The speed of main rotor blades is too high	The PIT angle of main rotor blades is too low	Adjust the ball linkage (ab.1600 RPM during hover)
	The throttle curve at hover is too high	Adjust the throttle curve lower at hover
The tail rotor blades shake left or right when pushing up the throttle stick in flight	The setting of mixing ratio is incorrect	Rotate right the knob V2 in the transmitter to increase the amount of mixing ratio; otherwise, rotate left the V2 to decrease the amount of mixing ratio
Feel the response of helicopter is too sensitive or slow in flight	The parameter setting of servo exponent is incorrect	Rotate right or left the knob V2 in transmitter to adjust the servo exponent
	The travel setting of servo is incorrect	Rotate right or left the knob EXTENT in receiver to adjust the travel amount of servo

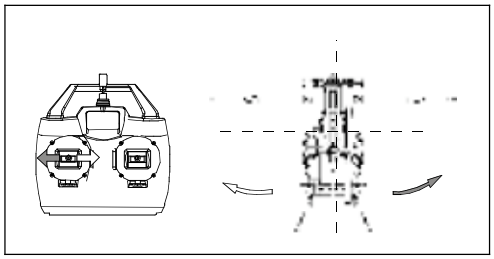
Mode 1 (throttle stick at right hand)



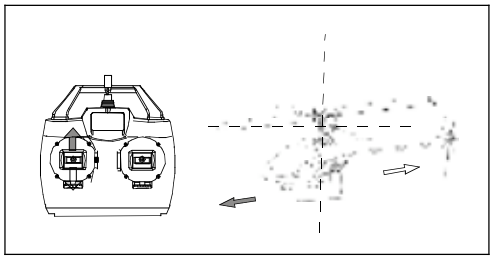
1. When moving the aileron stick left or right, the helicopter accordingly flies left or right.



2. When moving the throttle stick up or down, the helicopter accordingly flies up or down.

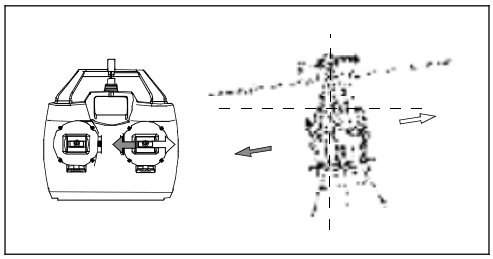


3. When moving the rudder stick left or right, the head of helicopter accordingly flies left or right.

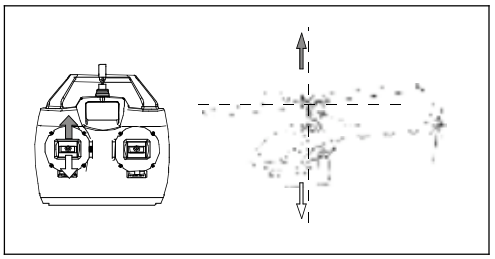


4. When moving the elevator stick up or down, the helicopter accordingly flies forward or backward.

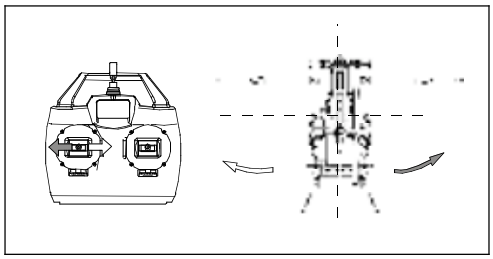
Mode 2 (throttle stick at left hand)



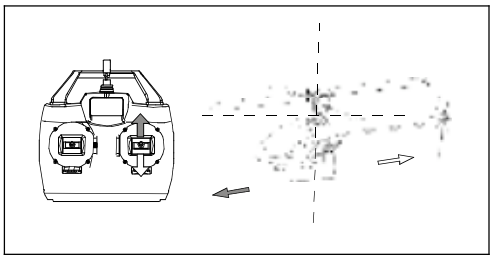
1. When moving the aileron stick left or right, the helicopter accordingly flies left or right.



2. When moving elevator stick up or down, the helicopter according flies forward or backward.



3. When moving the rudder stick left or right, the head of helicopter accordingly flies left or right.

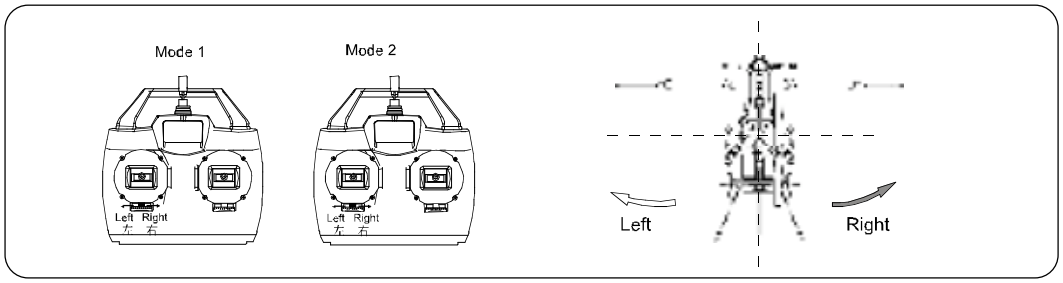


4. When moving the throttle stick up or down, the helicopter accordingly flies up or down.

Appendix 1- flight control

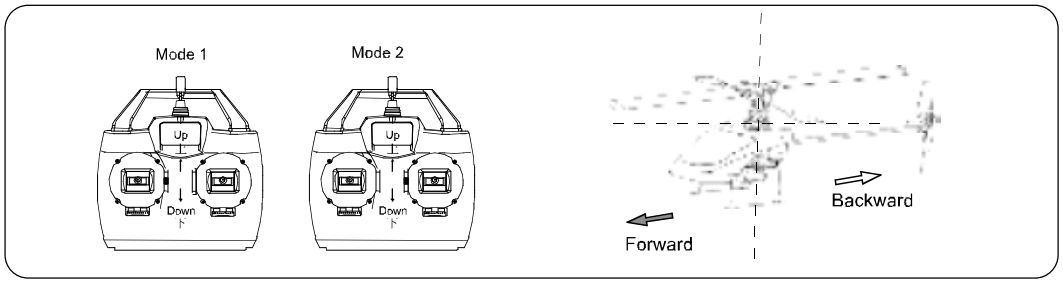
Appendix 2 – trimming the flight actions

1. Adjust the rudder trim



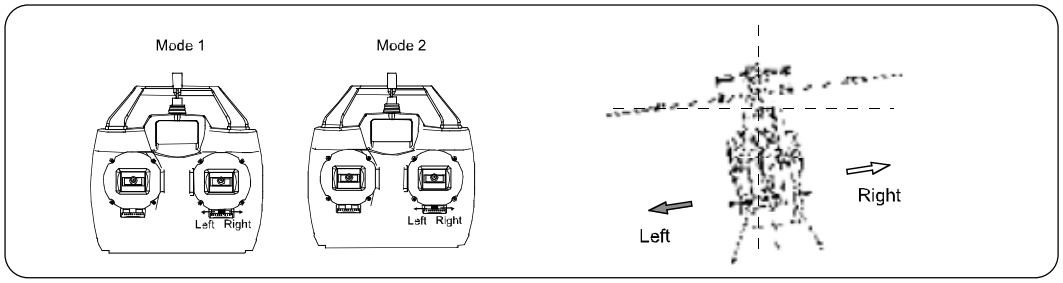
Move the rudder trim left if the head of helicopter flies right during take off; otherwise move the rudder trim left .

2. Adjust the elevator trim



Move the elevator trim down if the helicopter flies down during takeoff; otherwise move it up.

3. Adjust the aileron trim



Move the aileron trim right if the helicopter flies left during takeoff; otherwise move it left.

1 flight practice for the beginner

1.1Matters needing attention

(1) The beginners should be supervised and guided by skilled pilots when practicing.

(2) For the sake of safety, people should keep at least 5 meters away from the helicopter during practicing.

(3) Choose a spacious ground without people and obstacles as the flight practice field.

(4) This is a 3D helicopter. We kindly suggest that the knowledge of flying 2D/ coaxial helicopter is preliminary before flight.

1.2 Steps

(1) Practice of throttle control - stationary flight

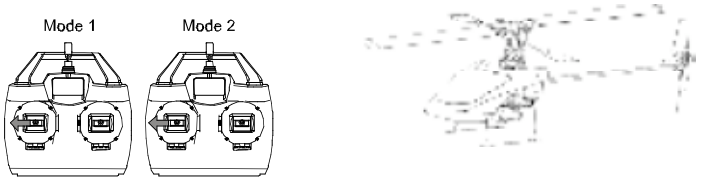
When helicopter taking off from the ground, slowly pull down the throttle stick and land it on gradually and stably. Repeatedly practice this step until controlling over the throttle stick with facility.

When hovering, tail rotor counteracts torque but also pushes helicopter to the left. Don't forget to counteract this effect using cyclic stick to the right and take off slightly inclined. It is important to hover vertically, stabilize helicopter at 1.5m height and then land it.

(2) Practice of aileron and elevator control

Slowly push up the throttle stick to purposely fly your helicopter forward, backward, left and right; then reversely control over the aileron stick and elevator stick to fly your helicopter back to the takeoff point. Repeatedly practice this step until controlling with facility.

(3) Practice of rudder control



Slowly push up the throttle stick to change the head of your helicopter left and right, respectively; reversely control over the relative sticks to restore your helicopter. Repeatedly practice this step until controlling with facility.

(4) Frog-hopping practice

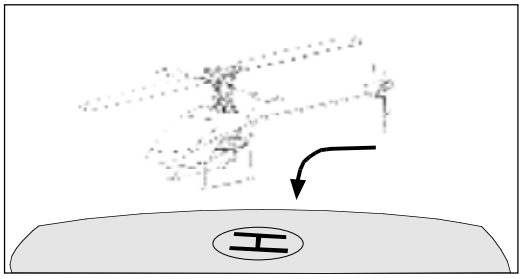
Repeatedly push up and pull down the throttle stick of transmitter to vertically take off and land your helicopter. It is called "frog-hopping practice" because the whole practice process is like a frog jumping

Appendix 3 – flight practice

2 Advanced practice

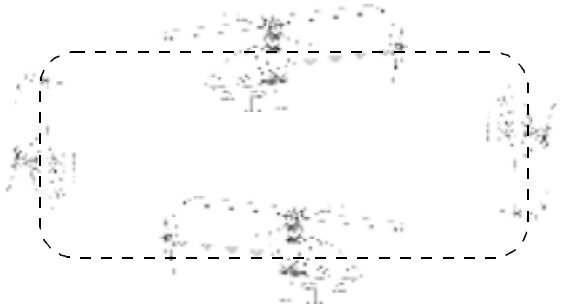
2.1 practice of takeoff and landing

Select a patch of fixing ground as the flight platform to purposely take off and land your helicopter in a set range. The process of takeoff and landing should be kept stable and vertical as best as possible.



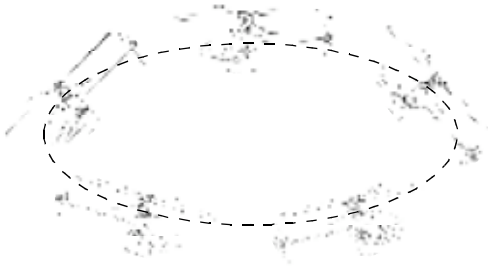
2.2 practice of square flight

Take the takeoff point as the center to draw a square whose side length is about 2 meters. Fly your helicopter along the 4 sides and keep the flight height parallel to the line of sight. Make 90∞rotate at each corner of the quadrangle to adjust the flight direction. Train you the skill of straight flight and the adjustment of flight courses at right angle in flight.



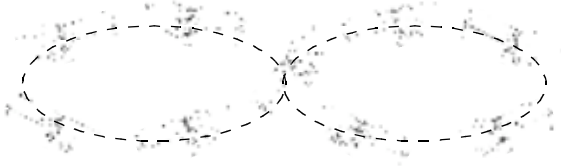
2.3 Practice of circular flight

After you master the operations with facility from step 2.1 to 2.2, please draw a proper size of circle in the ground. Then fly your helicopter along the circle track until you are skillful. This maneuver is more complex than first impressions may suggest because you have to use all orientations.



2.4 Figure eight practice

If you are skillful in the previous practices, you can try the figure eight flights shown as below.

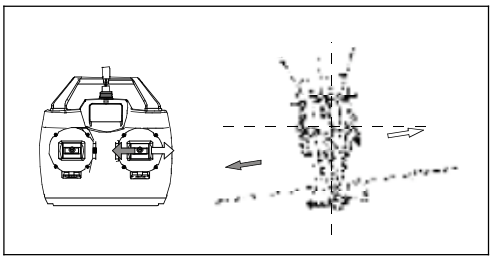


2.5 Aerobatic flight

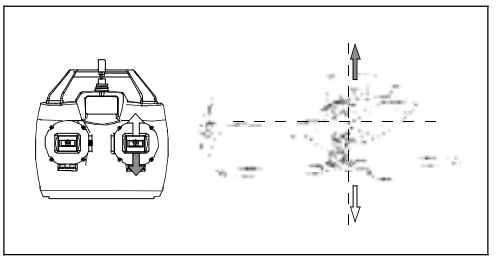
Your 4G3(2.4G) can perform such breathtaking and exciting aerobatic flight as dive's and 3D inverted.

Inverted flight

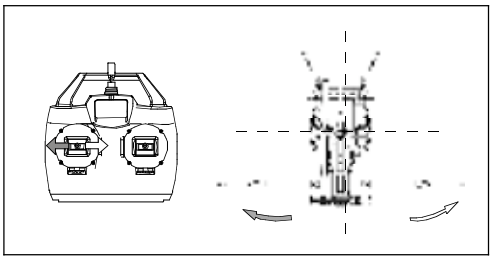
Mode 1 (throttle stick at right hand)



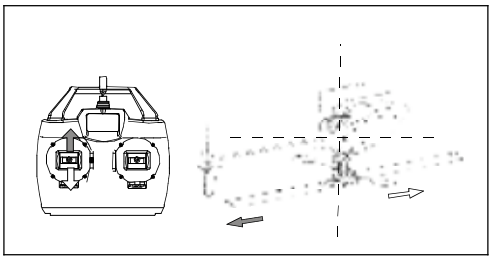
1. When moving the aileron stick left or right, simultaneously your helicopter flies left or right, respectively.



2. When moving the throttle stick up or down, simultaneously your helicopter flies up or down, respectively.

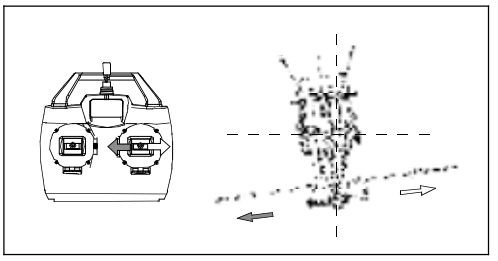


3. When moving the rudder stick left or right, your helicopter simultaneously flies left or right, respectively.

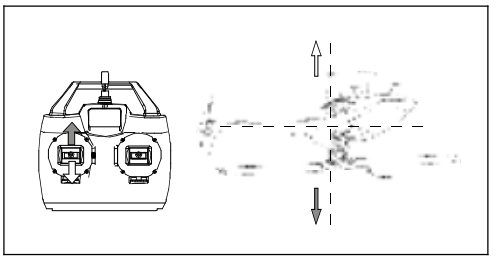


4. When moving the rudder stick up or down, your helicopter simultaneously flies forward or backward, respectively.

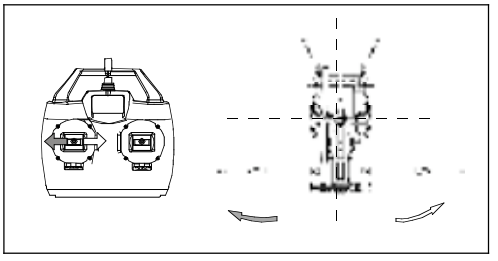
Mode 2 (throttle stick at left hand)



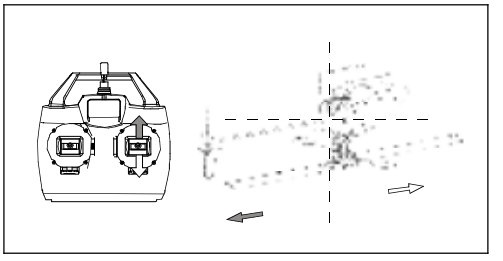
1. When moving the aileron stick left or right, your helicopter simultaneously flies left or right, respectively.



2. When moving the throttle stick up or down, your helicopter simultaneously flies down or up, respectively.



3. When moving the rudder stick left or right, the head of your helicopter simultaneously flies left or right, respectively.



4. When moving elevator stick up or down, your helicopter simultaneously flies forward or backward, respectively.

The specifications of the R/C aircraft may be altered without notice.

walkera

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