

User Handbook



Specifications:

Main Rotor Dia. A: 450mm Receiver: RX-2409 Transmitter: WK-2401

Main Rotor Dia. B: 450mm Battery: 7.4V 2200mAh Li-Po Drive System: 4 X 370SH

All-up Weight: 768g (Battery included) Overall Length: 575mm

Servo: WK-7.6-3 weight 8.5g /speed 0.11sec/60 $^{\circ}$ (4.8V) / torque 0.9kg.cm(4.8V) / dimension 22.5X11.5X24mm

Features:

- 1). Highly emulational shape with the-state-of-the-art workmanship.
- 2). New 2.4G technology, with the functions of automatic identification and precise code pairing, can allow many RC aircrafts to fly in the same field and same time.
- 3). It utilizes the 2.4G 3-in-1 receiving circuit with the functions of servo extent adjustment and built-in gyro sensitivity adjustment.
- 4). High performance 4 x 370SH motor powered by 7.4V 2200mAh Lipo offers 10 minute flight time, depending on the flight modes.

100% READY-TO-FLY R/C HELICOPTER



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Introduction

Thank you for your purchase of our product. In order to fly your helicopter more easily and conveniently, we kindly recommend you to read carefully the whole user handbook and keep it in a safe way as a reference book for maintenance and adjustment in the future.

Warning

- 1. The HM 53# series is not a toy. It is a complex combination of electronics, mechanics, and aerodynamics. It requires proper setup and fine adjustment to avoid accident. We accept no liability for damage and consequent damage arising from the use of the products, because we have no control over the way they are installed, used, and operated.
- 2. When charging the battery, do not overcharge. Overcharging may result in fire or explosion. When the battery is hot during charging, please stop charging at once. Use specified charger only. Never short circuit! The battery must be properly disposed of.
- 3. Children under 14 years old are strictly forbidden from flying the helicopter.
- 4. When your helicopter is running, any causes which stop the rotor blades spinning or make collision will result in serious damage or burning. Please immediately turn down the throttle stick at the lowest position!



Cautions

- 1. Because the helicopter is operated by radio control, it is important to make sure you are always using fresh and/ or fully charged batteries. Never allow the batteries to run low or you could lose control of the helicopter.
- 2. Do not allow any of the electrical components to get wet. Otherwise electrical damage may occur.
- 3. You should complete a successful range check of your radio equipment prior to each new day of flying, or prior to the first flight of a new or repaired model.
- 4. If the helicopter gets dirty, don't use any solvents to clean it. Solvents will damage the plastic and composite parts.
- 5. Always turn on the transmitter before plugging in the flight battery and always unplug the flight battery before turning off the transmitter.
- 6. Never cut the receiver antenna shorter or you could lose control of the helicopter during flight.
- 7. When flying the helicopter, please make sure that the transmitter antenna is completely extended and is pointed up toward the sky, not down toward the ground.



Transmitter Features

WK-2401 Instruction:

The means of automatically scanning and code pairing:

- A. Push the throttle stick to the lowest position and turn on the transmitter, and then the power indicator will flash (Note: never move any control sticks when it is flashing).
- B. The receiver LED will flash swiftly as soon as the battery is connected to the receiver, and will get a solid light 1-3 seconds later (Note: Do move the right control stick when it is having a solid light). When the power indicator of the transmitter has stopped flashing to recover to the state of power indication, the codes have been matched successfully, and you can fly the helicopter.



Note: During the code pairing process, it occasionally fails to match the code because automatic code scanning and pairing manner is used. Dont worry. This is because it didn't match the code during scanning. The code pairing time will last for about 10 seconds. If code pairing failed, please disconnect the power cable of LiPo battery to receiver, and then re-turn on the transmitter to match code again. It can allow many people to fly at the same field and the same time after the code pairing is finished.

4-CH Transmitter Features:

- 1. The usage of 2.4G technology is automatic code pairing and ID allocating, prompter in reaction, more sensitive in operation, and stronger in anti-interference.
- 4-channel micro-computer as the encoder; output power: ≤ 10mW; current drain: 50mA; power source: 1.2V X 8 Ni-Cd battery (9.6V 600mAh) or 1.5V X 8 AA dry cell battery.
- The DIP switches are available for various servos. It can perform the flight actions such as ascending, descending, forward, backward, leftward, rightward and so on.
- 4. Free to switch between left-hand and right-hand throttles.

Control Identification and function:

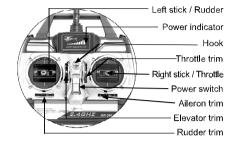
MODE I - EUROPE & AUSTRALIA

- Left stick / Rudder. It controls your helicopter forward, backward, left, and right. Push up
 to fly your helicopter forward, pull down to fly backward, push leftward to fly left, and push
 rightward to fly right.
- 2. Right stick / Throttle. It controls your helicopter ascending, descending, left moving and right moving. Push up to ascend your helicopter; pull down to descend, push leftward to move your helicopter left, and push rightward to move right.

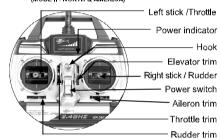
MODE II - NORTH AMERICA

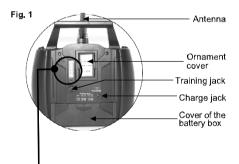
- Left stick / Throttle. It controls your helicopter ascending, descending, left, and right. Push up
 to ascend your helicopter, pull down to descend, push leftward to fly left, and push rightward
 to fly right.
- 2. Right stick / Rudder. It controls your helicopter forward, backward, left moving and right moving. Push up to fly your helicopter forward, pull down to fly backward, push leftward to move your helicopter left, and push rightward to move right.
- 3. Power indicator. The indicator is consisted of three colors: red, yellow, and green. Green LED on means the electricity is enough to fly; Green LED off and yellow LED on indicate the power is not enough and stop flying; Yellow LED off and red LED on show the power is in extreme shortage, and please stop flying at once.
- 4. Elevator trim. It controls and modifies your helicopter forward and backward. Push up to fly forward, and pull down to fly backward.
- Rudder trim. The trim controls and modifies your helicopter leftward and rightward. Move the trim left to fly leftward, and move right to fly rightward.
- 6. Throttle trim. The throttle trim controls your helicopter to ascend and descend. Push up the trim to ascend, and pull down to descend.
- 7. Aileron trim. The aileron trim controls your helicopter leftward and rightward. Push the trim left and fly left, and push the trim rightward and fly right.
- **8. Power switch.** Turn on or off the power of the transmitter. Push up the witch to turn on the power, and push down to turn off.
- 9. Hook. connect to the neck strap.
- 10. Antenna. Transmit the signals.

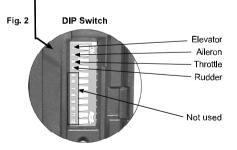
(MODE I - EUROPE & AUSTRALIA)



(MODE II - NORTH & AMERICA)









- 11. Charge jack: Charge the rechargeable battery pack at current 50mA, voltage ≤ 12V. (Notice: the charge jack is forbidden to use for non-rechargeable battery pack).
- 12. Training jack: connect to computer simulator cable.
- 13. Battery box: Please note the polarities while inserting the batteries.
- **14. Battery box cover:** protect the transmitter battery, please open the box according to the arrow direction when replace the battery.

DIP Switches Identification (Fig. 2):

- 1. Elevator. Reverse the direction of elevator servo.
- 2. Aileron. Reverse the direction of aileron servo.
- Throttle. Reverse the throttle stick direction. Note: ascertain the throttle stick to work in a correct way before flight.
- 4. Rudder. Reverse the rudder stick direction.
- 5-12. Not used.

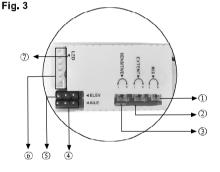
The Factory Default Settings:

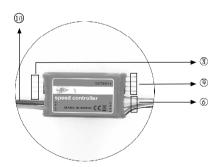
CHANNEL	ON/OFF
1	ON
2	ON
3	OFF
4	OFF
5-12	NOT USED

Receiver Identification

Receiver Identification (Fig. 3):

- Mixing ratio: adjust the mixing ratio of main motor and tail motor. Clockwise adjustment increases the mixing ratio and counterclockwise decreases the mixing ratio.
- EXTENT(Servo extent adjustment): EXTENT knob is used to set up the servo travel. Clockwise adjustment increases the servo travel, and counterclockwise adjustment decreases the servo travel.
- Gyro sensitivity adjustment (SENSITIVE). Adjust the sensitivity
 according to the flight performance. Clockwise adjustment
 increases the sensitivity and counterclockwise adjustment
 decreases the sensitivity.
- 4. AILE: Aileron, connect to the aileron servo.
- 5. ELEV: Elevator, connect to the elevator servo.
- 6.ESC signal wire: connect to ESC sinhal wire.
- 7. LED. LED indicates the receiving status. Quick flash means the signal is being received; LED on means the signal has been received; slow flash means the signal fails to be received.
- 8. Front motor. Connect to the front motor.
- 9. Back motor. Connect to the back motor.
- 10. Power cable. Connect to the battery.



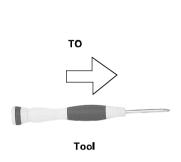




Switch Between Mode I and Mode II

Mode I Switches To Mode II:







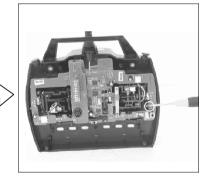
Steps:



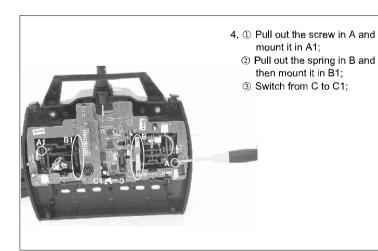
1. Unscrew the screws in the transmitter cover, shown as the picture;



2. Slightly separate the rear cover from the front one of the transmitter;



3. Pull out the pin D, shown as the picture;



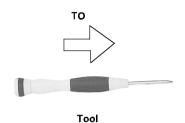




Pull in the pin D. Mount the rear cover and tighten the screws, and move the throttle trim to the lowest position. the switch process is finise.

Mode II Switches To Mode I:







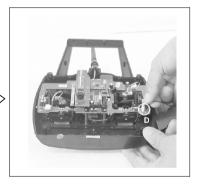
Steps:



1. Unscrew the screws in the transmitter cover, shown as the picture;



2. Slightly separate the rear cover from the front one of the transmitter;



3. Pull out the pin D, shown as the picture;



- 4. ① Pull out the screw in A and mount it in A1;
 - ② Pull out the spring in B and then mount it in B1;
 - ③ Switch from C to C1;





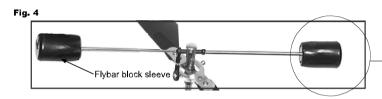
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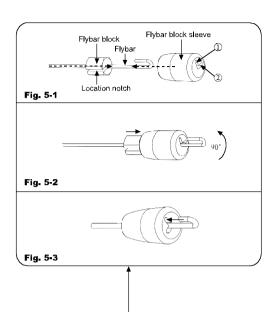


Flybar Set Assembly

- 1. Let the location notch of flybar block aim at the flybar, and press the flybar block till the flybar reaches the end of notch; Insert one end of the flybar through hole 1 (Fig. 5-1);
- 2. Let the location notch of flybar block aim at the inner location mast of flybar block sleeve, and press the flybar block along the inner location mast into the sleeve (Fig. 5-2):
- 3. Counterclockwise rotate 90° the flybar block sleeve (Fig. 5-2), let the hole 1 of flybar block sleeve aim at the hook of flybar, and then push the flybar block set outside and make the hook completely insert into the hole 2 (Fig. 5-3).

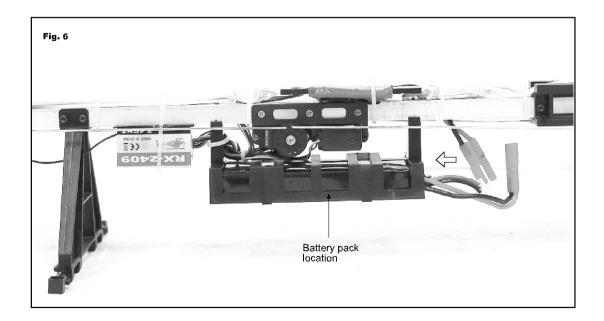
Note: the flybar set will be thrown off at high speed in flying when it is mounted improperly. A serious damage to people or property may be taken place.





Battery Mounting

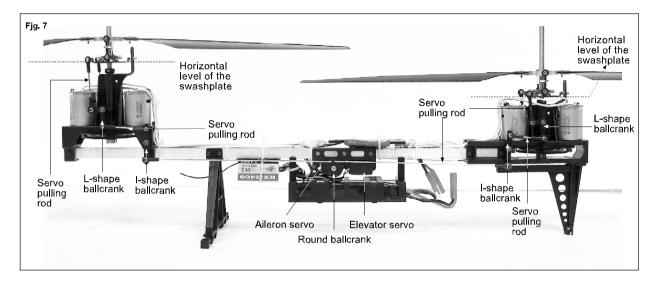
1. Battery pack mounting. Place the battery pack in the correct position of your helicopter (Fig. 6).





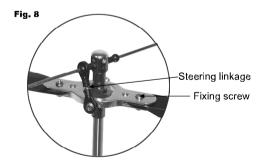
Swashplate Adjustment

- 1. Swashplate inspection. Turn on the transmitter. Pull down the throttle stick and throttle trim to the lowest position, and put the elecator trim and aileron trim in the neutral position (MODE I). Then re-connect the power cable of the helicopter to check whether or not the swashplate is in a horizontal level after the reposition of the elevator and aileron servos.
- 2. Swashplate adjustment. If the swashplate is not horizontal, you can adjust through the following two steps: ① Servo adjustment. Unscrew the screw in the Round Ballcrank and take the Round Ballcrank out. Re-connect the power of your tandem helicopter. After the servos are initialized, adjust the angles to 90° between I-shape Ballcrank and its Servo Pulling Rod, L-shape Ballcrank and its Servo Pulling Rod, respectively. Then assemble the Round Ballcrank and tighten the screw. ② Servo linkage rod adjustment. Adjust the length of the servo linkage rod to make the swashplate horizontal (Fig.7).



Main Rotor Blade Adjustment

- **1. Main rotor blade inspection**. ① check whether the fixing screws of main rotor blade are too loose or tight. ② check the tracking problem.
- 2. Main rotor blade adjustment. ① If the fixing screws are too loose, tighten to some extent; otherwise, unscrew to some extent. ② If there exists tracking problem, adjust long or short the steering linkage (Fig. 8).





Flight Mode

Normal Mode	(MODE I - EUROPE & AUSTRALIA)	MODE II - NORTH AMERICA	
ascending			throttle pushing up
descending			throttle pulling down
head turning left			rudder stick moving left
head turning right			rudder stick moving right
head forward			elevator stick pushing up
head backward			elevator stick pulling down
helicopter moving left			aileron stick moving left
helicopter moving right			aileron stick moving right





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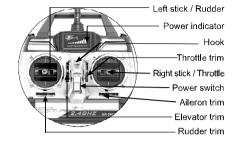
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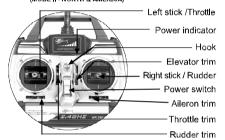
MODE II - NORTH AMERICA

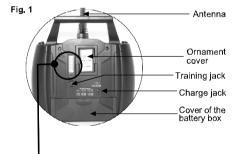
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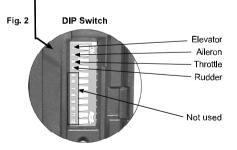
(MODE I - EUROPE & AUSTRALIA)



(MODE II - NORTH & AMERICA)









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- 5-12. Not used.

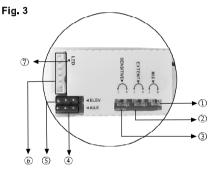
The Factory Default Settings:

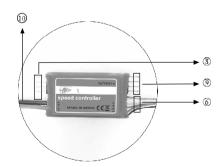
CHANNEL	ON/OFF
1	ON
2	ON
3	OFF
4	OFF
5-12	NOT USED

Receiver Identification

Receiver Identification (Fig. 3):

- Mixing ratio: adjust the mixing ratio of main motor and tail motor. Clockwise adjustment increases the mixing ratio and counterclockwise decreases the mixing ratio.
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- 8. Front motor. Connect to the front motor.
- 9. Back motor. Connect to the back motor.
- 10. Power cable. Connect to the battery.



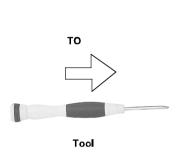




Switch Between Mode I and Mode II

Mode I Switches To Mode II:







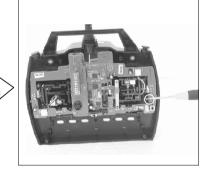
Steps:



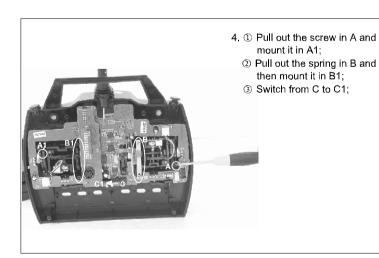
1. Unscrew the screws in the transmitter cover, shown as the picture;



2. Slightly separate the rear cover from the front one of the transmitter;



3. Pull out the pin D, shown as the picture;

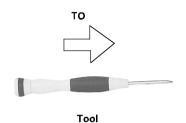




Pull in the pin D. Mount the rear cover and tighten the screws, and move the throttle trim to the lowest position. the switch process is finise.

Mode II Switches To Mode I:







Steps:



1. Unscrew the screws in the transmitter cover, shown as the picture;



2. Slightly separate the rear cover from the front one of the transmitter;



3. Pull out the pin D, shown as the picture;



- 4. ① Pull out the screw in A and mount it in A1;
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 - ③ Switch from C to C1;





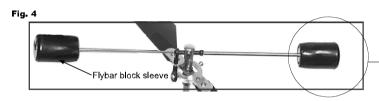
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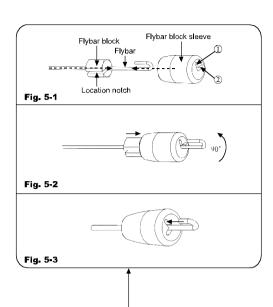


Flybar Set Assembly

- 1. Let the location notch of flybar block aim at the flybar, and press the flybar block till the flybar reaches the end of notch; Insert one end of the flybar through hole 1 (Fig. 5-1);
- 2. Let the location notch of flybar block aim at the inner location mast of flybar block sleeve, and press the flybar block along the inner location mast into the sleeve (Fig. 5-2):
- 3. Counterclockwise rotate 90° the flybar block sleeve (Fig. 5-2), let the hole 1 of flybar block sleeve aim at the hook of flybar, and then push the flybar block set outside and make the hook completely insert into the hole 2 (Fig. 5-3).

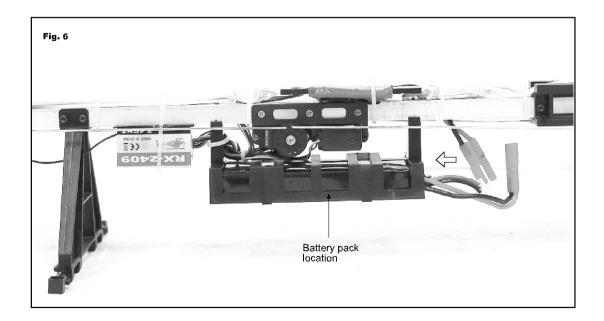
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Battery Mounting

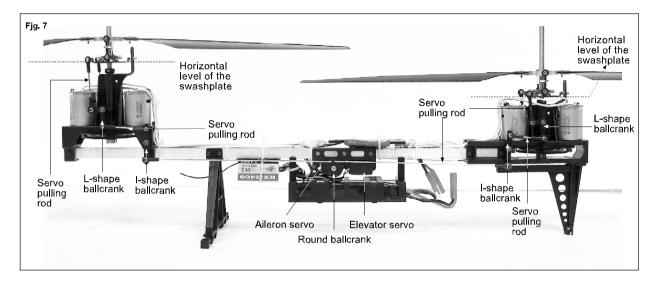
1. Battery pack mounting. Place the battery pack in the correct position of your helicopter (Fig. 6).





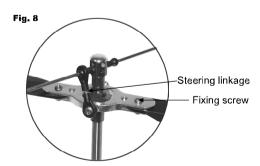
Swashplate Adjustment

- 1. Swashplate inspection. Turn on the transmitter. Pull down the throttle stick and throttle trim to the lowest position, and put the elecator trim and aileron trim in the neutral position (MODE I). Then re-connect the power cable of the helicopter to check whether or not the swashplate is in a horizontal level after the reposition of the elevator and aileron servos.
- 2. Swashplate adjustment. If the swashplate is not horizontal, you can adjust through the following two steps: ① Servo adjustment. Unscrew the screw in the Round Ballcrank and take the Round Ballcrank out. Re-connect the power of your tandem helicopter. After the servos are initialized, adjust the angles to 90° between I-shape Ballcrank and its Servo Pulling Rod, L-shape Ballcrank and its Servo Pulling Rod, respectively. Then assemble the Round Ballcrank and tighten the screw. ② Servo linkage rod adjustment. Adjust the length of the servo linkage rod to make the swashplate horizontal (Fig.7).



Main Rotor Blade Adjustment

- **1. Main rotor blade inspection**. ① check whether the fixing screws of main rotor blade are too loose or tight. ② check the tracking problem.
- 2. Main rotor blade adjustment. ① If the fixing screws are too loose, tighten to some extent; otherwise, unscrew to some extent. ② If there exists tracking problem, adjust long or short the steering linkage (Fig. 8).





Flight Mode

Normal Mode	(MODE I - EUROPE & AUSTRALIA)	MODE II - NORTH AMERICA	
ascending			throttle pushing up
descending			throttle pulling down
head turning left			rudder stick moving left
head turning right			rudder stick moving right
head forward			elevator stick pushing up
head backward			elevator stick pulling down
helicopter moving left			aileron stick moving left
helicopter moving right			aileron stick moving right

