



09

Steps of
flight

9.4 Adjustment of main rotor blades

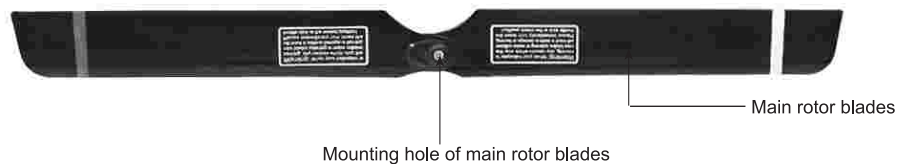
The aim of adjustment is to equalize the weight and centre of gravity of the main rotor blades and to ensure the blades are at the same level when rotating. Correct adjustment of the blades reduces vibration which improves performance and durability.

9.4.1 Color decal (tracking tape)

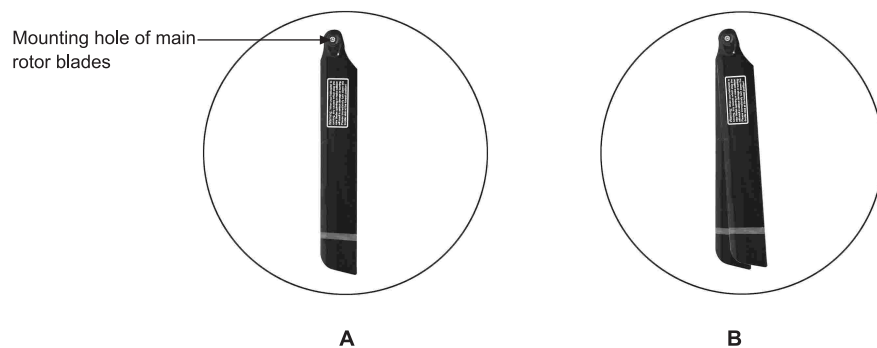
Two different colored blade tracking decals (red and silver) should be placed 6 mm away from the end of each blade tip. The purpose is to identify the position of each spinning blade in the following blade tracking inspection process.

9.4.2 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, or move the low end stick to the high end until balanced.



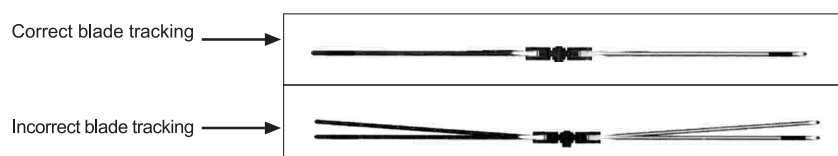
- (2) Longitudinal inspection of gravity center. Shown as below, take the mounting hole of main rotor blades as the fulcrum to vertically hang in the air. If the two main rotor blades are almost superposed, it means normal (shown as Fig. A); otherwise abnormal.



9.4.3 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 silver decals, are superposed in the same level. Superposition is correct; otherwise there exists tracking problem and adjustment is required.



9.4.4 Adjustment of blade tracking

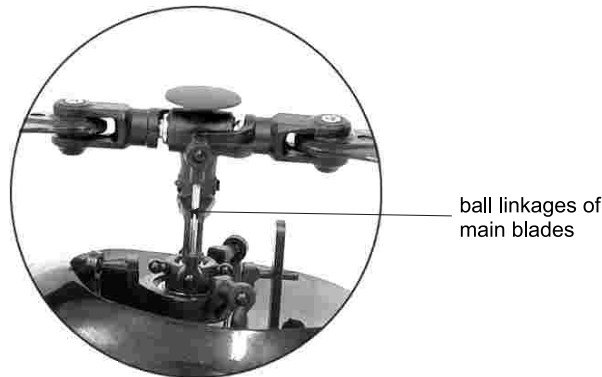
Below are the main causes for incorrect blade tracking:

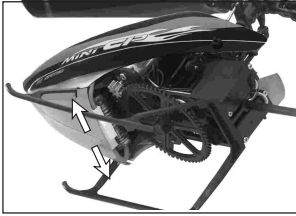
- (1) The weights of two blades are unequal.
- (2) The gravity center distribution of two blades is unequal.
- (3) The lengths of ball linkages of two blades are set improperly.
- (4) When blades are too loose, blades shake due to gap, or main blade connectors distort.

Please shorten the length of the ball linkage of the higher blades or lengthen ball linkage of lower blades to adjust blade tracking.


If the main rotor blades happen to be normal at low speed; abnormal at high speed, or abnormal at low speed, normal at high speed, please check whether it is loose or distortion. If it is loose, please re-lock tightly. If it is distortion, please replace it immediately. The blades tracking can only be avoided after your repeated precise adjustment.

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.






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

Steps of flight



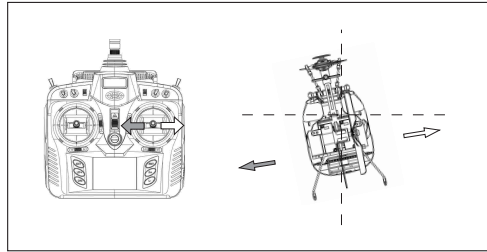
10

Flight over

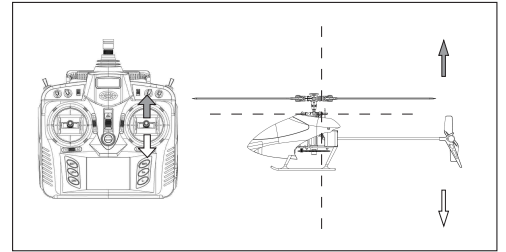


**Appendix 1-
Flight control**

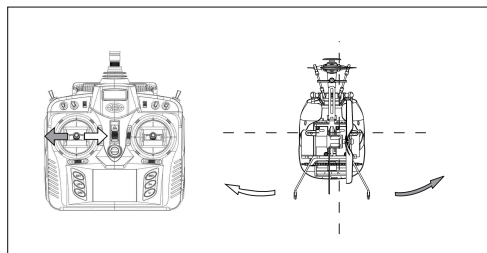
Mode 1 (throttle stick at right hand)



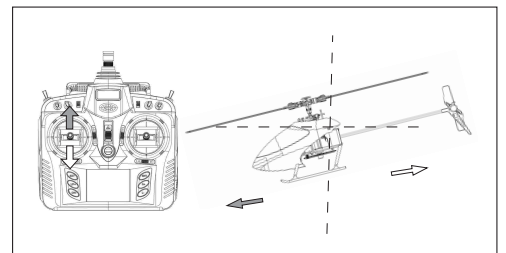
1. When moving the aileron stick left or right, the helicopter accordingly flies left or right.



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

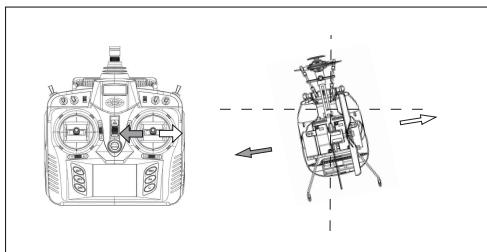


3. When moving the rudder stick left or right, the head of helicopter accordingly rotates to the left or right.

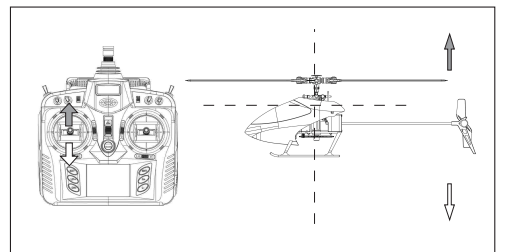


4. When moving the elevator stick up or down, the helicopter accordingly flies forward or backward.

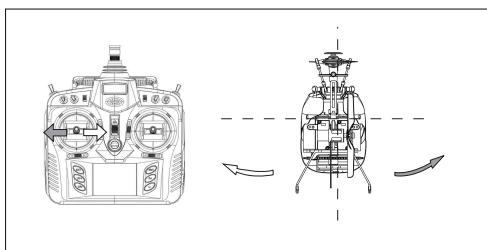
Mode 2 (throttle stick at left hand)



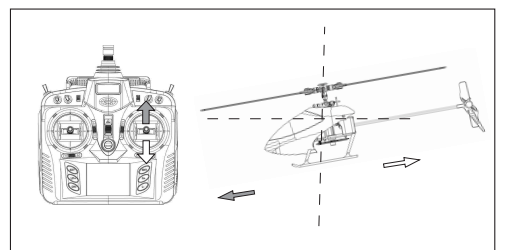
1. When moving the aileron stick left or right, the helicopter accordingly flies left or right.



2. When moving 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 rotates to the left or right.



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

1 Flight practice for the beginner

1.1 Matters needing attention

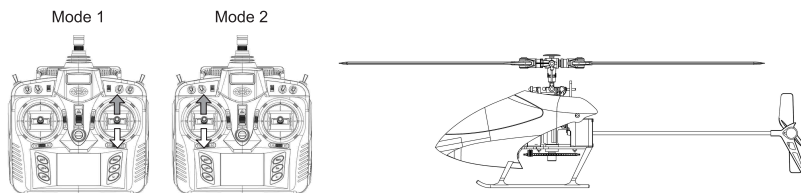
- (1) Beginners should be supervised and guided by skilled pilots when learning.
- (2) For the sake of safety, people should keep at least 5 meters away from the helicopter during practice.
- (3) Choose a spacious open ground without people and obstacles as the flight practice field.
- (4) This is a 3D helicopter. We kindly suggest that the knowledge of flying 2D/ coaxial helicopter is a pre-requisite before flying this model.
- (5) The use of a suitable training gear attachment is recommended while learning.

1.2 Steps

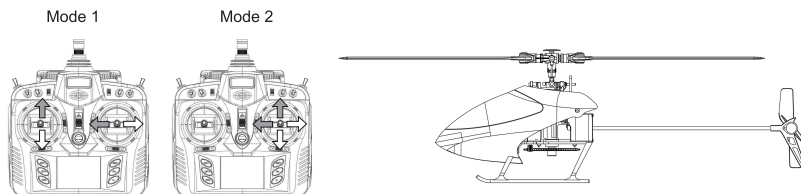
(1) Practicing throttle control - stationary flight

Start by standing directly behind the helicopter, tail closest to you and head/nose pointing away. Practice taking off from the ground and then by slowly pulling down on the throttle stick, land it softly and horizontally. Repeat this step until the throttle can be finely and carefully controlled.

When hovering, the 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.

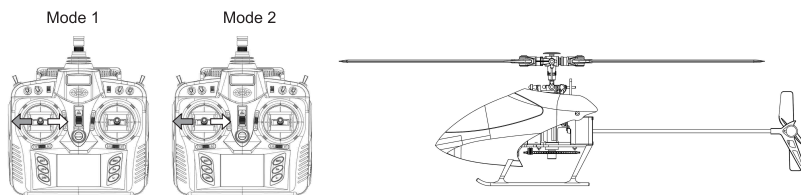


(2) Practice of aileron and elevator control



First increase throttle and enter a stable hover as practiced in the previous section. Next, use the elevator and aileron sticks to purposely fly the helicopter in a 'cross pattern' forwards, backwards, to the left and to the right. In between each direction, return to hover over the take off point. Continue to repeat this step until it can be completed with ease.

(3) Practicing rudder control

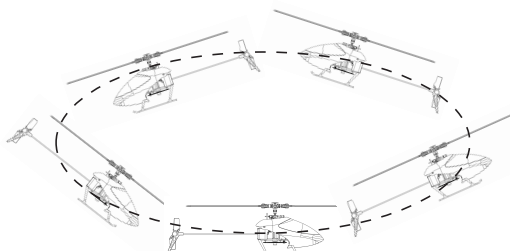


Enter a stable hover as practiced in step one, then practice rotating the head of the helicopter to face left then back to face right and back to facing forwards (away from the pilot). Start with a rotation angle of 30 degrees or less and gradually increase it as you become more comfortable and more experienced.

(4) Practicing circular flight

After mastering steps (1) to (3) with ease, please draw or mark a large circle on the ground. Fly your helicopter along this circular track until the flight is smooth and controlled.

You may wish to stand inside the circle at first to practice circular flight before needing to control the nose in orientation. Fly circles in both directions and at a constant altitude to be comfortable with this step.



Appendix 2 – Flight practice