

R/C HELIG-TE 68# SERIES

User Handbook



Specifications:

Main Rotor Diameter: 622 mm

Drive System: WK-WS-26-001

Transmitter: WK-PCM-0701

Tail Rotor Diameter: 135 mm

Battery: 11.1V 1250mAh Li-Po battery

Gyro: WK-G007

Overall Length: 590 mm

All-up Weight: 600 ~ 635g
(Battery included)

Speed Controller: WTS-30A-01

Receiver: RX- PCM-701

Servo: weight 9.1g / speed 0.12sec/60° / torque 1.1kg/cm / dimension 22.5X11.8X27mm

Features:

- 1) NOR collective pitch structure make perfect 3D maneuvers such as roll, inverted, and swoop flights.
- 2) 68#B design of metal tail, metal swash plate and metal rotor head is of legerity, innovation, precise and stability. The autorotation landing system, made of high quality one-way bearing, maximally protects your helicopter from damage .
- 3) Highly efficient bevel wheel design is used in mesh between main gear and motor gear.
- 4) 68# series tail blades driven by belt provide easy adjustment, stable flight, and low noise.
- 5) Outer-rotor motor as the main power is powerful and makes the flight much stable.
- 6) 7-ch transmitter PCM701 with adjustable PIT parameter, throttle curve, and servo exponential function.

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.

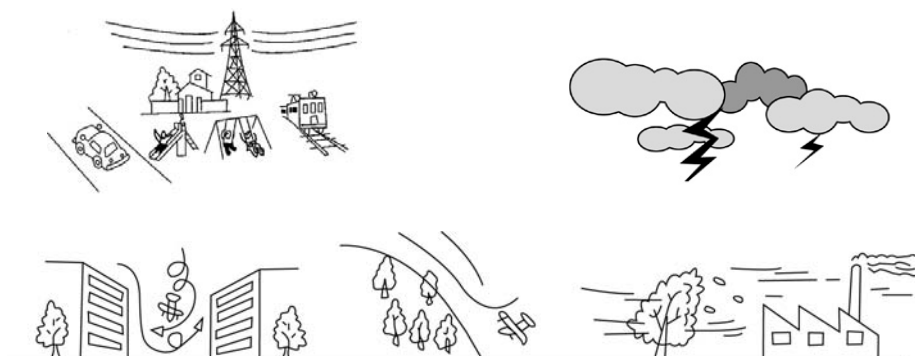
Warning

1. The HM 68# 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.

Don't fly your helicopter at the places with these signs



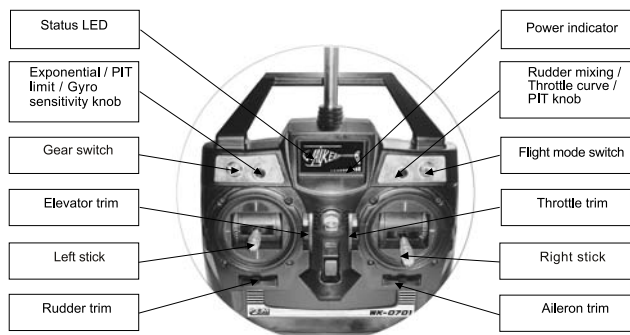
Transmitter Features

7- ch transmitter features:

1. The transmitter panel is simple to operate and the function is easy to understand.
2. The shape design accords with the ergonomics and is suitable for the pilot's hold.
3. The 7-channel transmitter can, via selecting the DIP switches, adjust the throttle curve, PIT parameter, rudder mixing, exponential function and adjust the gyro sensitivity. It is suitable for various parameter adjustments of various RC aircraft and meets the demands for various flight courses.
4. The 7-channel transmitter is of status LED. The light blue means the status of the PIT parameter adjustment; the orange means the throttle curve and the exponential function status; the dark blue means the status of the gyro sensitivity and the rudder mixing adjustment; the purple means the position of function adjustment and lock, which can lock the throttle curve, PIT parameter, rudder mixing, exponential function and the gyro sensitivity.
5. Both NOR and CCPM modes are available to provide perfect 3D maneuvers such as roll, inverted, and swoop flights.

6. In the CCPM mode, there is an independent ELEV switch to meet the adjustment of which servos are in various positions.
7. 7-channel micro-computer system as the encoder, PCM modulation, output power $\leq 750\text{mW}$; current drain: 200 mA; 1.2V X 8 Ni-Cd (9.6V 600 mAh) or 1.5V X 8AA dry cell battery pack; output pulse: 1050 -1850 Ms (1450 neutral).

Control Identification and Function:
(MODE I - EUROPE & AUSTRALIA)



MODE II - NORTH AMERICA

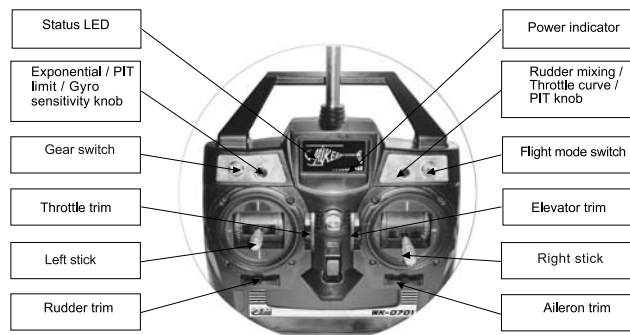
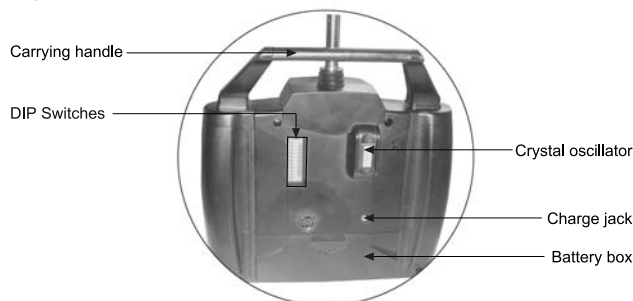


Fig. 1



MODE I - EUROPE & AUSTRALIA

1. **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

1. **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. **Throttle trim.** The throttle trim controls your helicopter to ascend and descend. Push up the trim to ascend, and pull down to descend.

4. **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.

5. **Elevator trim.** It controls and modifies your helicopter forward and backward. Push up to fly forward, and pull down to fly backward.

6. **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.

7. **Gear switch.** Convert the gear switch to fold or release the skid landing system. Switching the switch up is ON, and switching the switch down is OFF.

8. **Flight mode switch.** Convert the flight mode. Switching up is the normal flight mode, and switching down is the inverted flight mode.

9. **Exponential / PIT limit / Gyro sensitivity knob.** Under the help of DIP switches, all the functions can be switchable.

10. **Rudder mixing / Throttle curve / PIT knob.** Under the help of DIP switches, the knob can experience rudder mixing adjustment, throttle curve adjustment, and PIT adjustment.

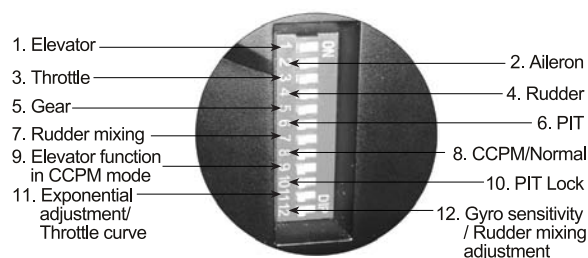
11. **Indicator.** Show the battery volume of the transmitter. Green LED on means the electricity is full; Green LED off means the electricity is not enough; Yellow LED off means the electricity is seriously short and the circuit will be automatically protected, and the flight is forbidden.

12. **Status LED.** LED flashes when turning on the transmitter; Light blue indicates to adjust PIT limit and PIT parameters; Orange indicates to adjust servo exponential and throttle curve; Dark blue indicates to adjust gyro sensitivity and rudder mixing parameters.

Factory Default Settings for DIP Switches (Fig. 2):

Channel No.	ON/OFF	Channel No.	ON/OFF
1	ON	7	ON
2	ON	8	OFF
3	OFF	9	ON
4	ON	10	OFF
5	OFF	11	OFF
6	OFF	12	OFF

Fig. 2 DIP switches



Receiver Identification

Receiver Identification (Fig. 3):

1. **ELEV:** Elevator, connect to elevator servo.
2. **AILE:** Aileron, connect to aileron servo .
3. **THRO:** Throttle, connect to speed controller .
4. **RUDD:** Rudder, connect to rudder servo.
5. **GEAR:** Gear, connet to gear servo.
6. **AUX 1:** Pitch / Aux 1, connect to pitch servo.
7. **AUX 2:** Extent / Aux 2, connect to gyro extent.
8. **BATT:** Battery, connect to battery (4.8V).

Fig. 3



PIT Lock and Adjustment

The transmitter provides the PIT and PIT limit adjustment functions and can lock the adjusted parameters as below:

- A. Put the No.10 DIP switch in the ON position and the status LED becomes light blue. Put the No.11 and 12 DIP switches in the OFF position. Circumrotate the V1, V2, which are individually marked on the top right and left knobs, to the 0 position.
- B. Tuning V1 to the "+" end increases the PIT value and tuning V1 to the "-" end decreases the PIT value.
- C. Tuning V2 to the "+" end increases the PIT limit value and tuning V2 to the "-" end decreases the PIT limit value.
- D. After the adjustment is finished, put the No.10 DIP switch to the OFF position and lock the adjusted PIT parameters.

Gyro Sensitivity and Rudder Mixing Adjustment

- A. Put the No.12 DIP switch in the ON position, and the No.10 & 11 DIP switches in the OFF position. Circumrotate the V1, V2 on the top left and right knobs respectively to the 0 position.
- B. V1 provides the function of rudder mixing adjustment. Adjust the rudder mixing value to 40% when is V1 at 0 position; Tuning V1 to the "+" end increases the rudder mixing value and the maximum value is 80%. Tuning V1 to the "-" end decreases the rudder mixing value and its minimum value is 0%.

C. V2 provides the function of gyro sensitivity adjustment. Tune V2 to the 0 position and the gyro sensitivity is 0. Tuning to the “-” end is the gyro NOR sensitivity, the maximum value is 100% and the gyro is in the NOR mode; tuning to the “+” end is the lock mode, the maximum value is 100%, and the gyro is in the lock mode. The gyro sensitivity in hovering flight is at 70 – 80% and for aerobatic flight is at 60 – 70%. Gyro lock mode in flight is recommended.

Throttle Curve and Servo Exponential Function

Put the No.11 DIP switch on the ON position and No.10 & 12 in the OFF position. Circumrotate V1 and V2 to the 0 position.

Normal 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, the curve is linear (Fig. 4).

Inverted flight throttle curve adjustment: switch the 3D inverted flight switch to the 3D inverted flight mode. When tune V1 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, the curve moves down and its minimum range is 40% (Fig. 5).

Servo exponential function: when tune V2 to 0 position, the curve is linear (Fig. 6); when tune V2 to the “+” end, the servo curve will be changed in the form of exponential (Fig. 7). When tune V2 to the “-” end, the servo curve will be changed in the form of negative exponential (Fig. 8).

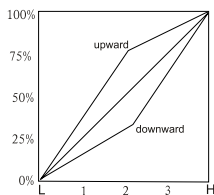


Fig. 4

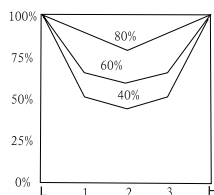


Fig. 5

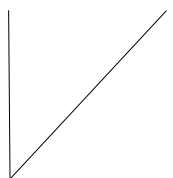


Fig. 6

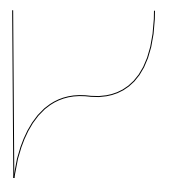


Fig. 7

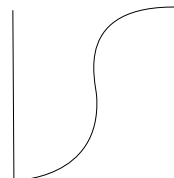


Fig. 8

Battery Mounting and Adjustment

- Battery pack mounting.** Place the battery pack in the correct position of your helicopter (Fig. 9).
- CG balance.** Put your helicopter in a horizontal ground and make the flybar vertical to the tail boom of your helicopter. Lift your helicopter using your index fingers to support the two sides of flybar, and check the balance. The tail boom should be level with the ground. If it is not, move the battery pack backwards or forwards to balance. Always check the Center of Gravity (CG) with the battery pack and canopy installed (Fig. 10).

Fig. 9

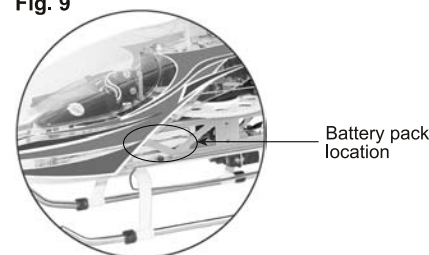
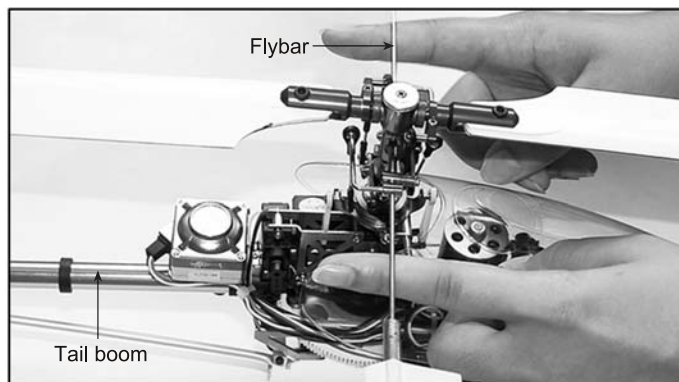


Fig. 10



Belt Inspection

- 1. Belt direction inspection.** CW spin the rotor head of your helicopter and check the direction of tail rotor blade. If the tail rotor blades are spinning backwards, the direction is correct. Otherwise, the belt is wrongly distorted and need to be re-mounted (Fig. 11).
- 2. Belt tension inspection.** Use your finger to lightly press the belt and check its tension. If the pressed belt just reaches the central line of the drive pulley, the belt is in a proper tension (Fig. 12); if the pressed belt is beyond the central line, the belt is too loose (Fig. 13); if the pressed belt doesn't reach the central line, the belt is too tense (Fig. 14). Either looseness or tension of the belt needs to be re-adjusted.

Fig. 12

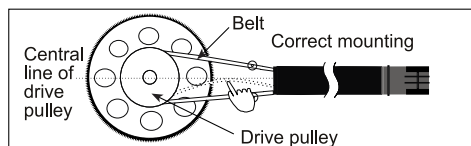


Fig. 13

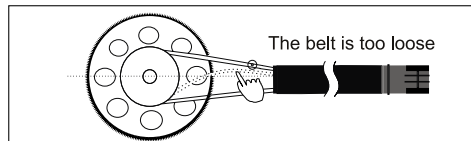


Fig. 14

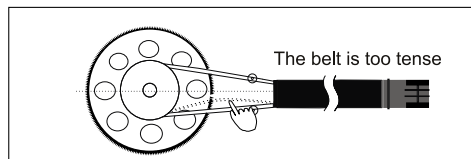
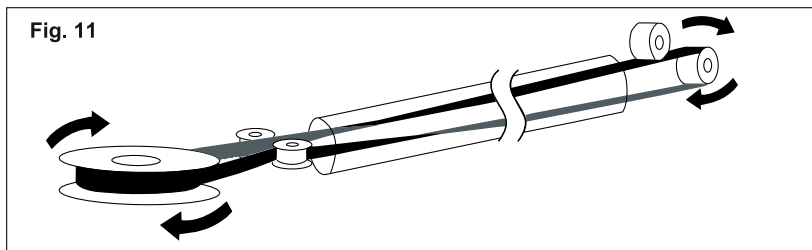


Fig. 11



Swashplate Adjustment

- 1. Swashplate check.** Pull down the throttle stick and throttle trim to the lowest position, and put the elevator trim and eileron trim in the neutral position. Check whether the swashplate is in a horizontal level.
- 2. Swashplate adjustment.** If the swashplate is not in a horizontal level, adjust via the following two steps: servo and servo bellcrank adjustment. Re-connect the battery cable to themotor again and await the servo reposition. After the reposition is ready, adjust the angle between the servo bellcrank and servo linkage rod at 90 degrees (Fig. 16). Servo linkage rod adjustment, Adjust the servo linkage rod to pallel to swashplate bottom level .

Fig. 15

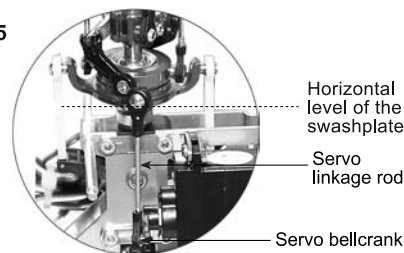
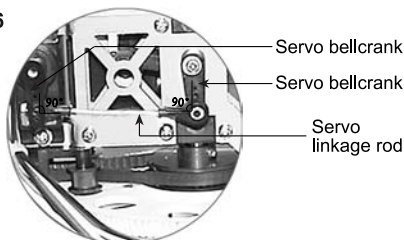


Fig. 16



Main Rotor Blade Adjustment

The purpose of adjusting the main rotor blade is to correctly set up the collective pitch and to assure the main rotor blades are spinning at the same horizontal level.

- 1. Color decal.** Two different colored balde tracking decals should be sticked on each blade tip (Fig. 17, red and blue).
- 2. Main rotor blade inspection.** The purpose of inspecting the two blades is to keep them symmetrical in weight and shape. Screw the two blades and keep them in line.
- 3. Blade tracking adjustment.** Before checking the blade tracking, please properly install the battery pack, initiate the gyro, and place a red stick on one blade tip. Place your helicopter on the reasonable level so that you can view the blades at your eye level. Please make you are in a safe difference to the high spinning blades. If the red blade is higher than the other one, please lengthen the length of the ball linkage of the other blade in one or more turn increments; otherwise, please shorten its length. The blade tracking and vibration will arise from looseness and/ or distortion of the blade holder. If the blade holder is loose or distorted, please adjust or substitute new holder for the old one.

Fig. 17

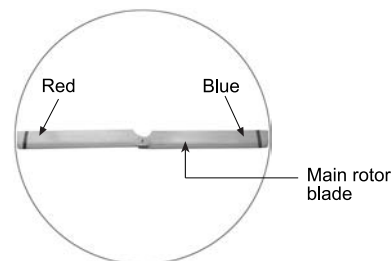
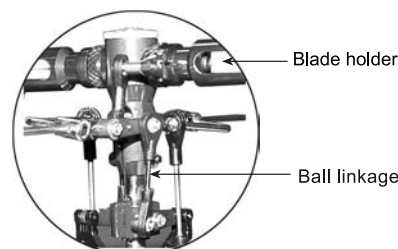


Fig. 18



Rudder Servo Adjustment

1. Tail servo direction adjustment. Move the rudder stick in the transmitter left and right respectively, and inspect the tail servo direction. If the positive angle of the tail rotor blade increases by pushing up the Rudder Stick, the tail servo direction is correct (Fig. 19). Otherwise, please reverse the No. 4 DIP switch on the back of the transmitter.

2. Rudder servo adjustment. Move leftwards and rightwards the rudder stick of your transmitter, and check the leftward and rightward movement range of the tail rotor sliding sleeve (Fig. 19), and check the angles between servo bellcrank and short rudder rod, between short rudder rod and rudder servo bellcrank, and between long rudder rod and rudder servo bellcrank. If the movements of tail rotor sliding sleeve keep left- and right-symmetrical, it is correct (Fig. 19); otherwise, please adjust the rudder servo and the lengths of short rudder rod and long rudder rod. The method for adjustment: unscrew the servo bellcrank screw and loosen the servo bellcrank (Fig. 20), and then re-connect the battery to your helicopter. After the rudder servo has been repositioned, adjust the angles above to 90 degrees, and then tighten the servo bellcrank screw.

Fig. 19-1

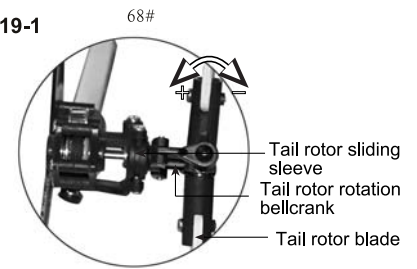


Fig. 19-2

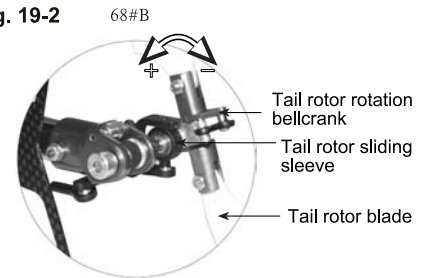
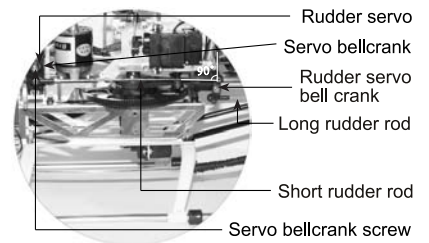
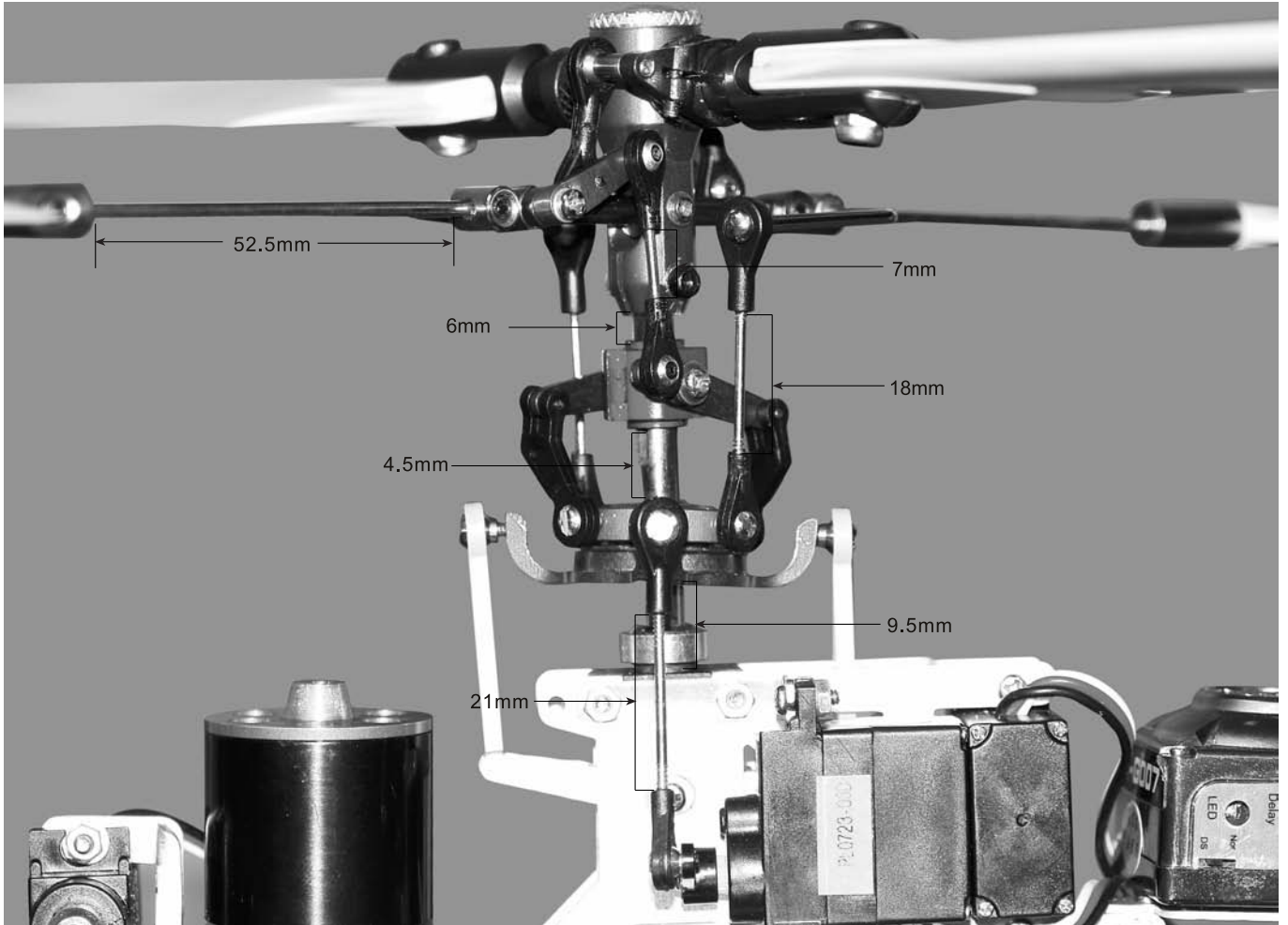



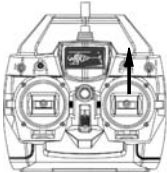
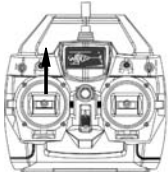

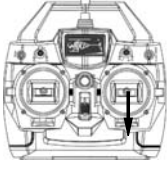
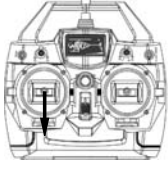
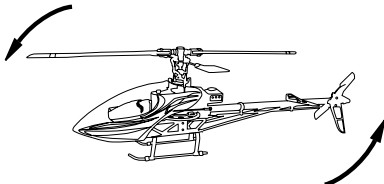
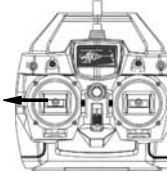
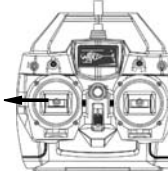
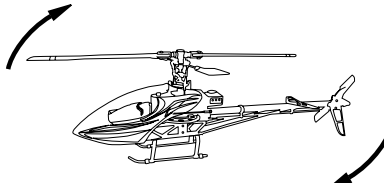
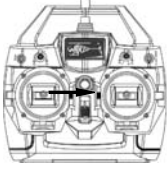
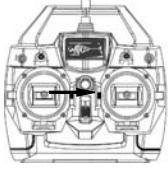

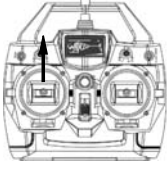
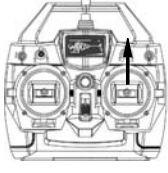
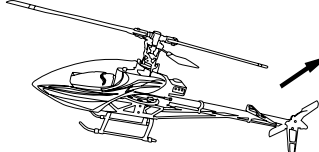
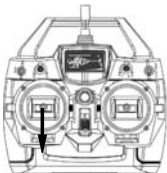
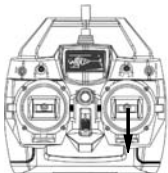

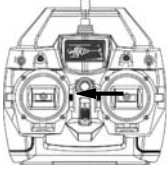
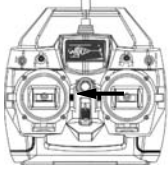

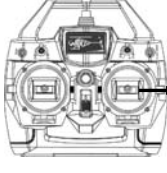
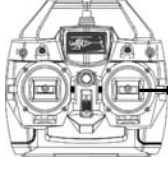
Fig. 20


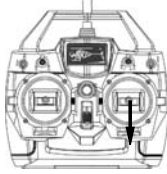
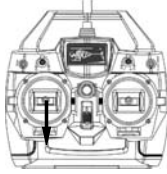
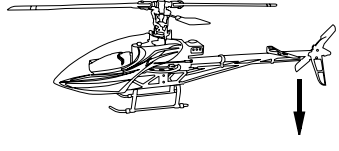
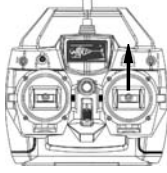
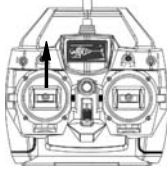
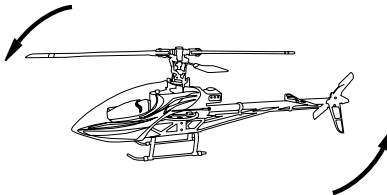
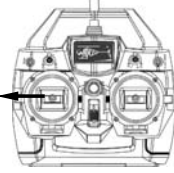
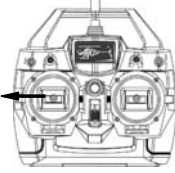
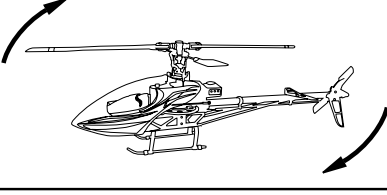
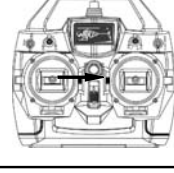
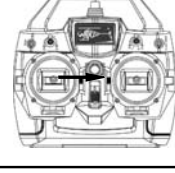
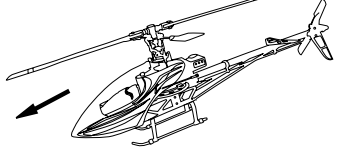
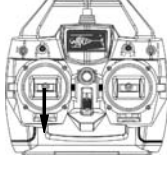
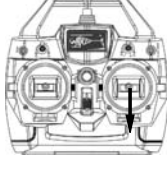
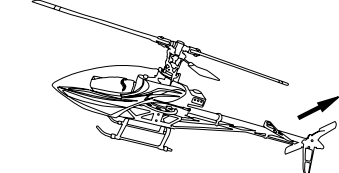
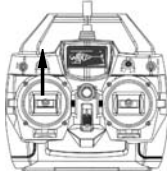
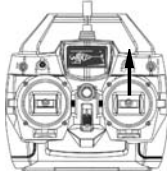

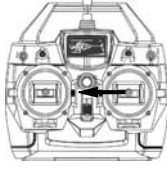
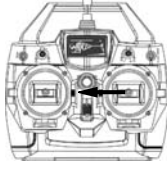

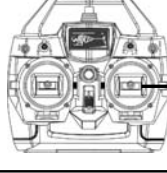
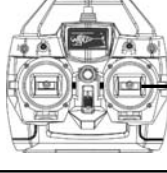


Technical Data for Adjustment



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

Inverted Flight 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



***RC* WALKERA PRODUCT**

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