R/C HELICOPTER 59#D(2.4G)

User Handbook

Specifications:

Main Rotor Dia. : 630 mm	Main Motor Type: 380 PF	Transmitter: WK-2601
Tail Rotor Dia. : 136 mm	Tail Motor Type: 1627FE33	Gyro: Built-in
Overall Length: 650 mm	Battery: 11.1V 1200mAh Li-Po	Receiver: RX-2601

All-up Weight: 510g (Battery included)

Servo: weight 8.5g / speed 0.11sec/60° (4.8V)/ torque 0.9kg/cm (4.8V) / dimension 22.5X11.5X24mm

Features:

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

2) The compact structure characterized by metal main frame and metal tail boom makes the helicopter more stable. Easy-to-be mounted parts like servo are used.

3) 380PF brushed motors as drive are powerful and make you fly with much more enjoyment.

4) The flight time on the saturated Li-Po battery will be up to 6-8 minutes, depending on your flight.

5) The usage of 2.4G technology is prompter in reaction, more sensitive in operation, and stronger in anti-interference.

Contents

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 59#D 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 helicopter at the places with these signs

Transmitter Features

The code pairing instruction for wk-2601:

1. The usage of 2.4G technology is prompter in reaction, more sensitive in operation, and stronger in anti-interference.
2. The methods for automatic scanning, code pairing and ID allocation are shown as below :

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: It will take about 10 seconds for the code pairing. If code pairing is failed, please re-turn on the transmitter to match the code again. Please don't have the codes paired simultaneously when a few of people are flying their helicopters in the same field.

6-CH Transmitter Features:

1. 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.
2. 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.
3. Free to switch between left-hand and right-hand throttles.

Control Identification and function:

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.

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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.

5. 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. Antenna. Transmit the signals.

10. 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).

11. Battery box. Please note the polarities while inserting the batteries.

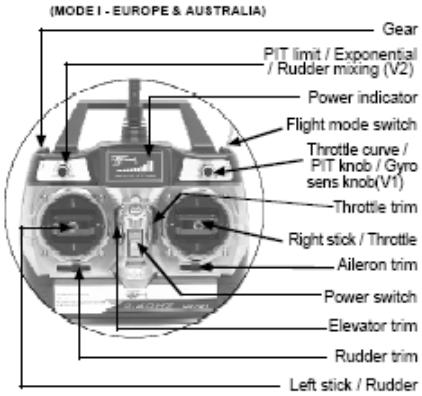
12. Battery box cover. protect the transmitter battery. please open the box according to the arrow direction when replace the battery.

13. 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.

14. Flight mode switch: There are normal flight mode and 3D inversed mode. Put it on "N" position is normal mode,and put it on "1" position is 3D inversed mode.

15. PIT limit / Exponential / Rudder mixing adjustment knob (V2). Under the help of DIP switches, all the functions can be switchable.

16. Throttle curve / PIT curve / Gyro sensitivity adjustment (V1). IUnder the help of DIP switches, the knob can experience throttle curve adjustment, PIT curve adjustment and gyro sensitivity adjustment .



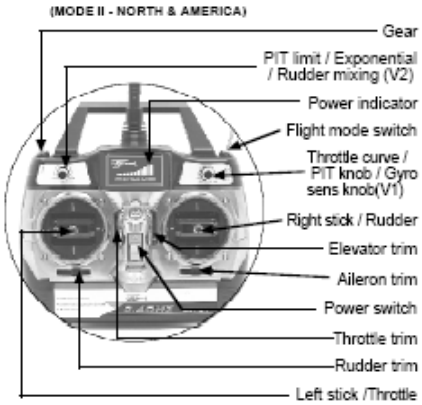


Fig. 1-1

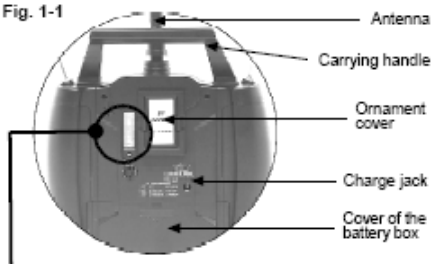
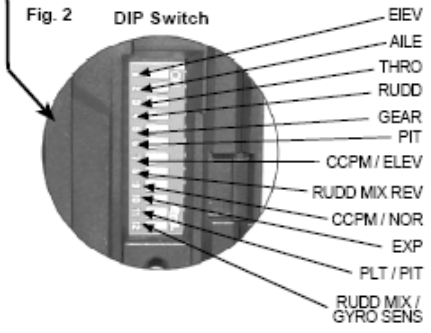


Fig. 2 DIP Switch



The Factory Default Settings:

CHANNEL	ON/OFF	CHANNEL	ON/OFF
1	OFF	7	OFF
2	OFF	8	ON
3	OFF	9	ON
4	ON	10	OFF
5	OFF	11	OFF
6	ON	12	OFF

Receiver Identification

Receiver Identification (Fig. 3):

1. ELEV. : Connect to the elevator servo.

2. AILE. : Connect to the aileron servo.

3. PIT. : Connect to the PIT servo.

4. RUDD. : Connect to the tail servo.

5. THRO. : Connect to the speed controller .

6. Not used.

7. Main motor signal cable : Connect to the main motor signal cable.

8. Tail motor signal cable : Connect to the tail motor signal cable.

9. MIX : Please regulate according to the flight effects, clockwise adjustment increases the mixing ratio control, counterclockwise decreases the mixing ratio control.

10. Servo extent adjustment (EXTENT) : EXTENT knob is used to set up the servo travel. Clockwise adjustment increases the servo travel, and counterclockwise adjustment decreases the servo travel.

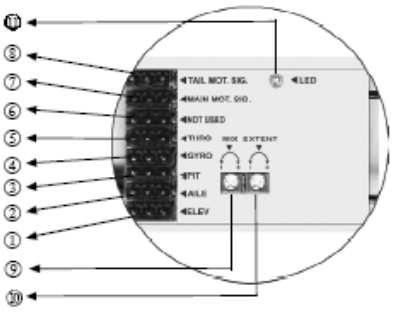
11. LED. LED indicates the receiving status. Quick flash means the signal is being received; LED on means the signal has been received; slow flash means the signal fails to be received.

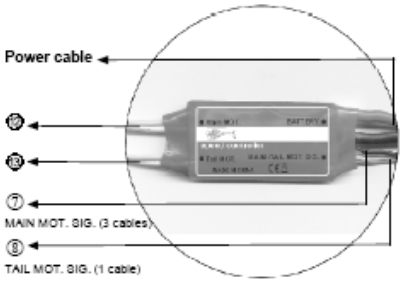
12. Main motor cable : Connect to the main motor.

13. Tail motor cable : Connect to the tail motor.

14. Power cable : Connect to the battery.

Fig. 3





Switch Between Model I and Model II

Remove the battery pack and the 4 fixing screws in the back cover of your WK-2601, and take off the back cover (Note: don't break the cables inside). Unscrew the fixing screw of linkage using cross screwdriver and fix the linkage of another side using the screw. And then remove the throttle arresting spring to fix in your expecting side. In this way, physical refit has been finished (Fig. 4).

Fig. 4

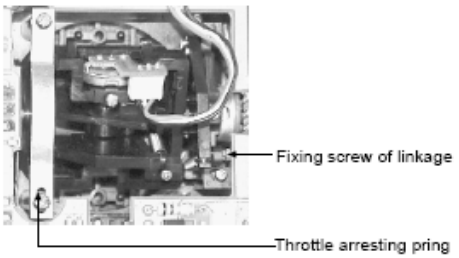


Fig. 4-1

Battery Mounting and Adjustment

1. **Battery pack mounting.** Place the battery pack in the correct position of your helicopter (Fig. 5).

2. **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. 6).

Fig. 5

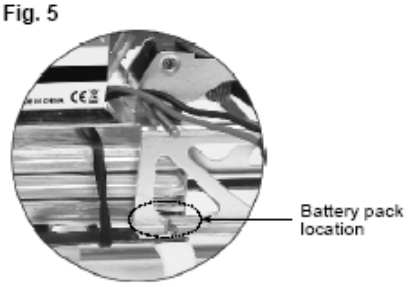
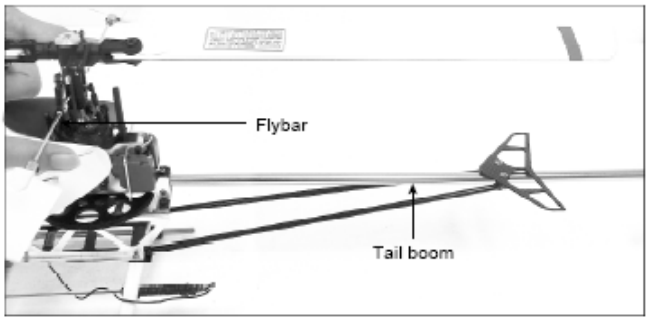


Fig. 6

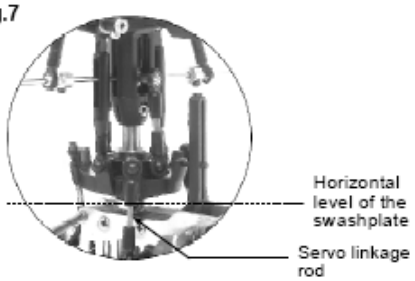


Swashplate Adjustment

1. **Swashplate check.** Turn on the transmitter. pull down the throttle stick and throttle trim to the lowest position, and put the elevator trim and aileron trim in the neutral position. Check whether the swashplate is horizontal and level after the reposition of elevator, aileron and PIT servos.

2. **Swashplate adjustment.** If the swashplate is not in a horizontal level, adjust via the following two steps: ① elevator, aileron and PIT servos adjustment. Unscrew servo bellcrank and take servo bellcrank down. Reconnect to the battery pack and adjust the angle between the servo bellcrank and servo linkage rod at 90 degrees after the reposition of elevator, aileron and PIT servos. And then tighten servo bellcrank screw (Fig.7). ② servo linkage rod adjustment. Adjust the servo linkage rod to parallel to swashplate bottom level.

Fig.7



Exponential Function

The transmitter provides servo exponential adjustment and can lock the adjustment parameters as below:

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

2. When V2 is tuned to 0 position, the curve is linear (Fig.7) ; When V2 is tuned to the "+" end, the servo curve will be changed in the form of exponential (Fig.8); When V2 is tuned to the "-" end, the servo curve will be changed in the form of negative exponential (Fig.9).

3. Rotate the knob towards "+" end V2 to "-40°" position.

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

Fig. 8

Fig. 9

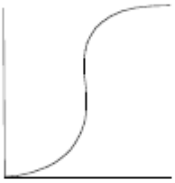


Fig. 10

PIT adjustment and locking

The transmitter provides PIT adjustment and PIT extent adjustment and can lock the adjustment parameters as below:

1. Open the transmitter power switch when adjust, turn the No.11 DIP switch to the "ON" position, let the V1、 V2 knob on the control panel at "0" position. Pull out the electric machine connect line. turn on the flight power, carry PIT adjustment and PIT limiting range adjustment.

2. The V1 knob on the transmitter panel rotating towards "+" end increases the PIT adjustment capacity, and rotating towards "-" end decreases the PIT adjustment capacity.

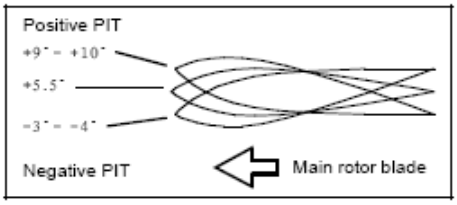
3. The V2 knob on the transmitter panel rotating towards "+" end increases the PIT extent value, and rotating towards "-" end decreases the PIT extent value.

4. PIT paramer adjustment in the normal flight mode: turn the flight mode switch to "N" position, regulate the knob V1 to "0" position, regulate the knob V2 to "+10°" position, and then set the PIT parameter :

1) The PIT parameter is " +5.5° " when the throttle stick stays at the neutral position.

2) The PIT parameter is "+9° – +10° " when the throttle stick stays at the highest position.

3) The PIT parameter is "-3° – -4° " when the throttle stick stays at the lowest position.

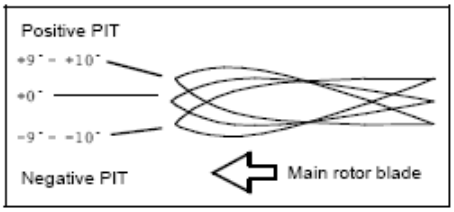


5. PIT parameter adjustment in 3D inverted flight mode: turn the flight mode switch to "1" position, regulate the knob V1 to "0°" position, regulate the knob V2 to "+10°" positon, and then set the PIT parameters:

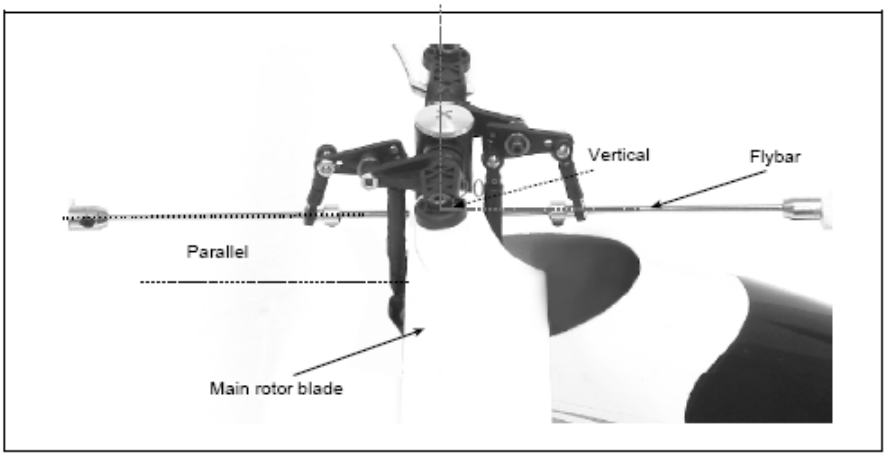
1) The PIT parameter is "0° " when the throttle stick stays at the neutral position.

2) The PIT parameter is " +9° – +10° " when the throttle stick stays at the highest position.

3) The PIT parameter is " -9° – -10° " when the throttle stick stays at the lowest position.



6. After the adjustment is finished, turn the No.11 DIP switch to "OFF" position. the regulated PIT parameters have been locked.



Gyro sensitivity and Rudder Mixing adjustment

You can adjust the gyro sensitivity and Rudder Mixing adjustment after locking the PIT parameters. The methods are shown as follows:

1. Turn the No.12 DIP switch to "ON" position, aim the V1、V2 knob on the transmitter panel to "0" position.

2. The V1 knob on the transmitter panel rotating towards "+" end increases the gyro sensitivity, and rotating towards "-" end decreases the gyro sensitivity.

3.The V2 knob on the transmitter panel rotating towards "+" end increases the Rudder Mixing, and rotating towards "-" end decreases the Rudder Mixing, the maximum value is 30%.

4. Turn the knob V1 towards "+" end to the "70° " position, the gyro sensitivity is about "70° "; Turn the knob V2 towards "-" end to the "-20° " position, the Rudder Mixing is about "-20° ".

5. After the adjustment is finished, turn the No12 switch to "OFF" position. that is to lock the regulated gyro sensitivity and Rudder Mixing parameter.

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 blade tracking decals should be stuck on each blade tip (Fig. 11, red and blue).

2. Main rotor blade inspection. The purpose of inspecting the two blades is to keep them symmetrical in weight and shape. Connect the two blades to inspect (Fig. 11).

3. Blades tracking adjustment. Before checking the blades tracking, please properly install the battery pack and initiate the gyro. Note the 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 sure you are at a safe distance away from the high spinning blades.
If the red blade is higher than the other one, please lengthen the the ball linkage of the other blade in one or more turn increments; otherwise, please shorten its length.
The blades tracking and vibration will arise from looseness and/or distortion of the blade connector. If the blade connector is loose or distorted, please adjust or substitute a new connector for the old one.

Fig. 11

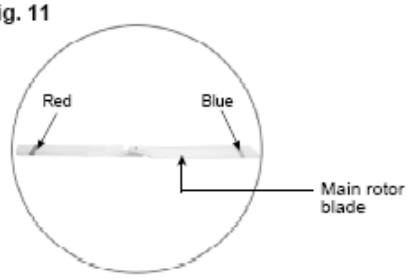
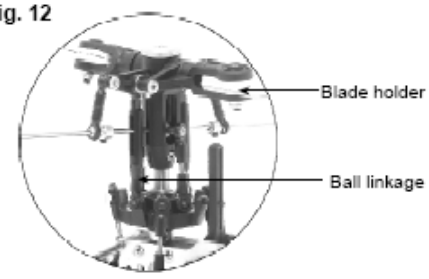


Fig. 12

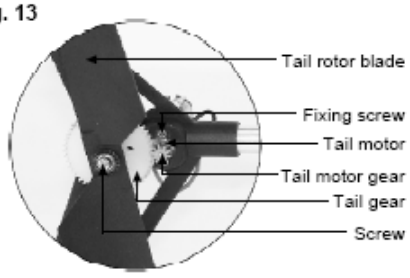


Tail Rotor Blade Adjustment

1. Tail rotor blade inspection. ① Check whether the tail gear and the tail motor gear are properly meshing. ② Check whether the tail rotor blades are fixed well (Fig. 13).

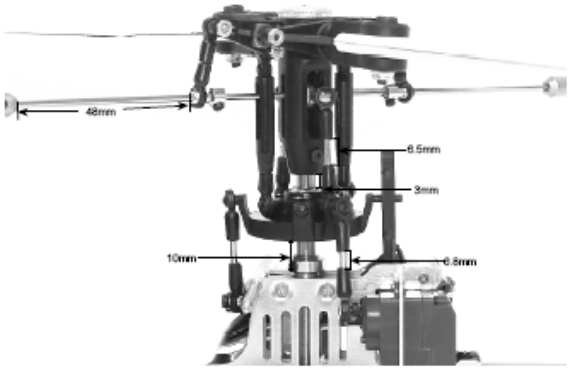
2. Tail rotor blade adjustment. ① If the tail gear and the tail motor gear are not properly meshing, unscrew the fixing screws and adjust the tail motor to the optimal position, and then tighten the fixing screws. ② If the tail rotor blades are not fixed well, adjust the screw.

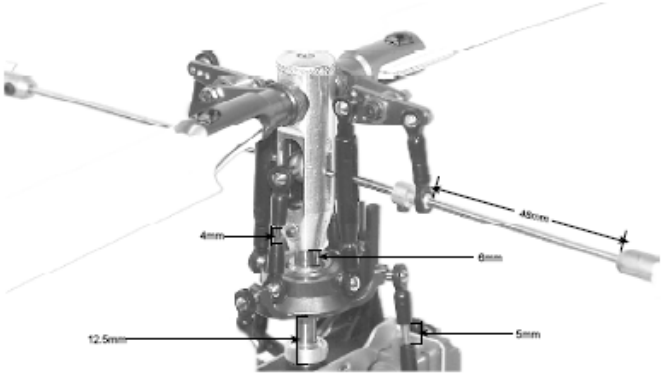
Fig. 13



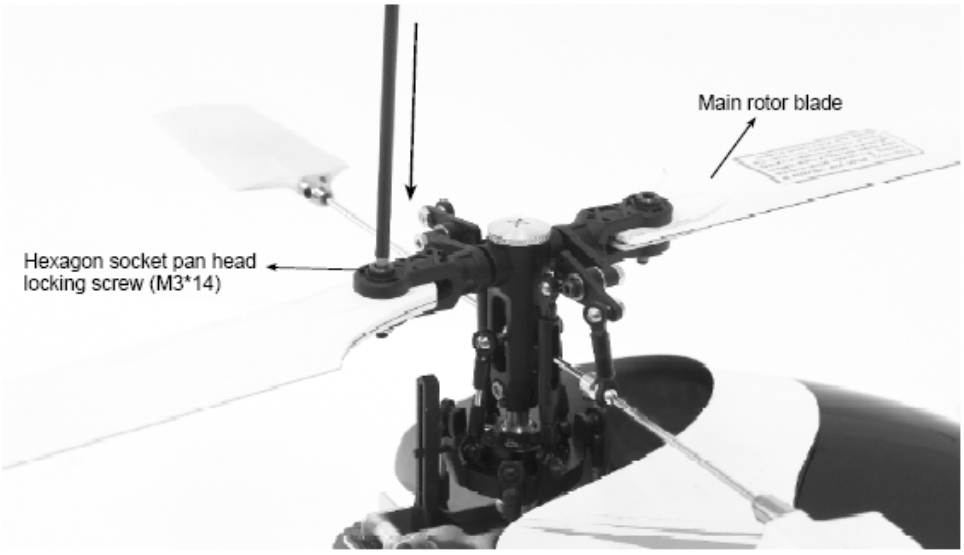
Technical Data for Adjustment

Plastic rotor head ⟶ Upgrade ⟶ Metal rotor head

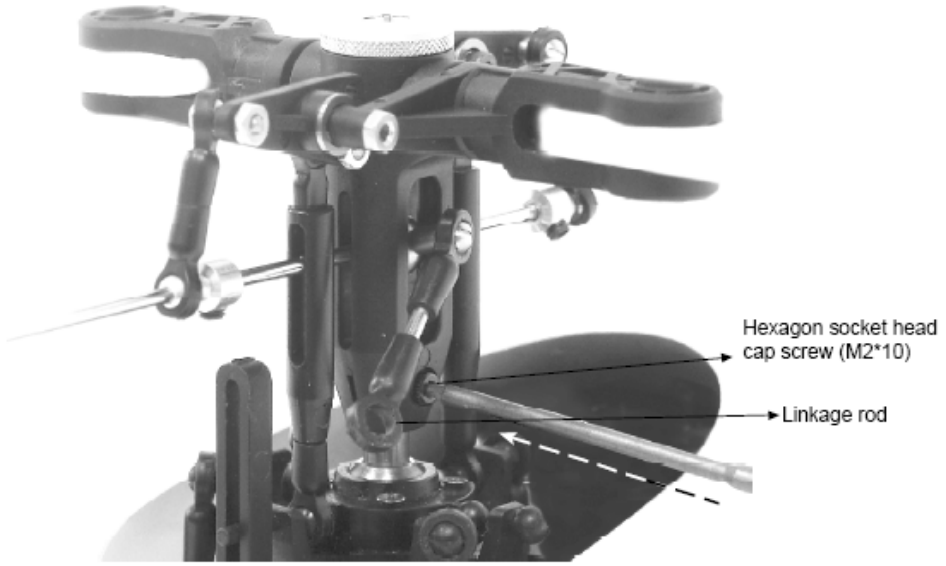




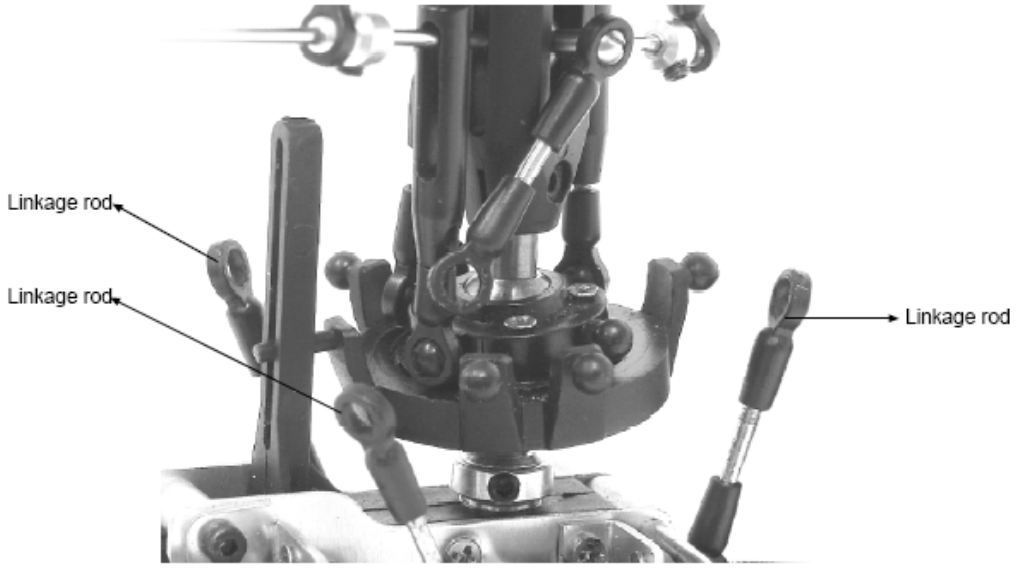
The Disassembly Steps of Rotor Head



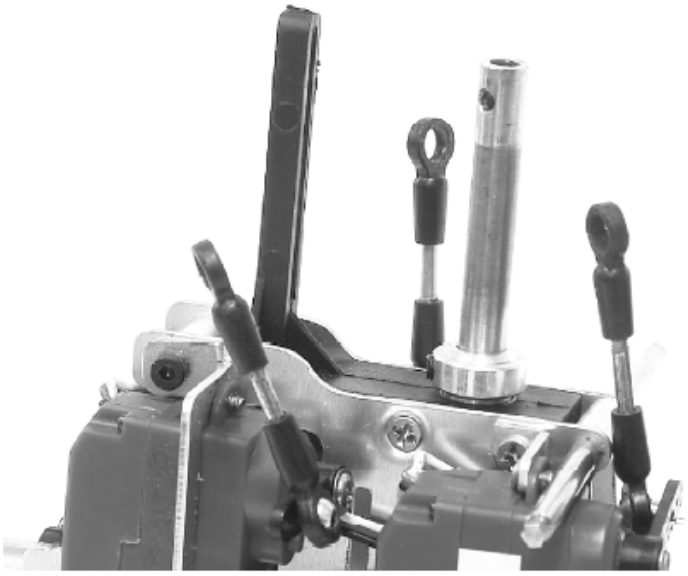
1. Unscrew the hexagon socket head cap screw (M3*14),and take down the main rotor blades.



2. Remove the linkage rod and unscrew the hexagon socket head cap screw (M2*10).



3. Take down the linkage rod and the plastic rotor head set.



4. The disassembled profile.

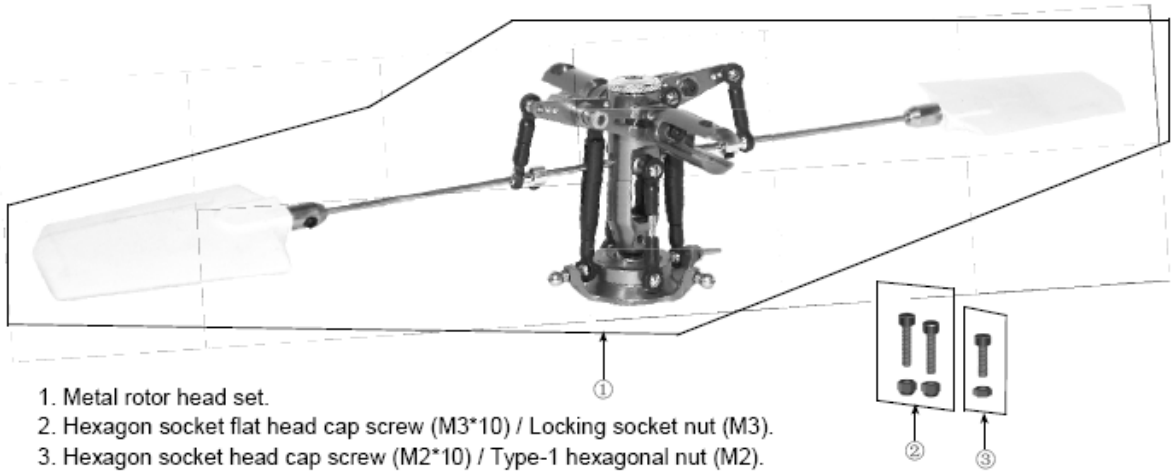
The Assembly Steps of Rotor Head


Rotor head set

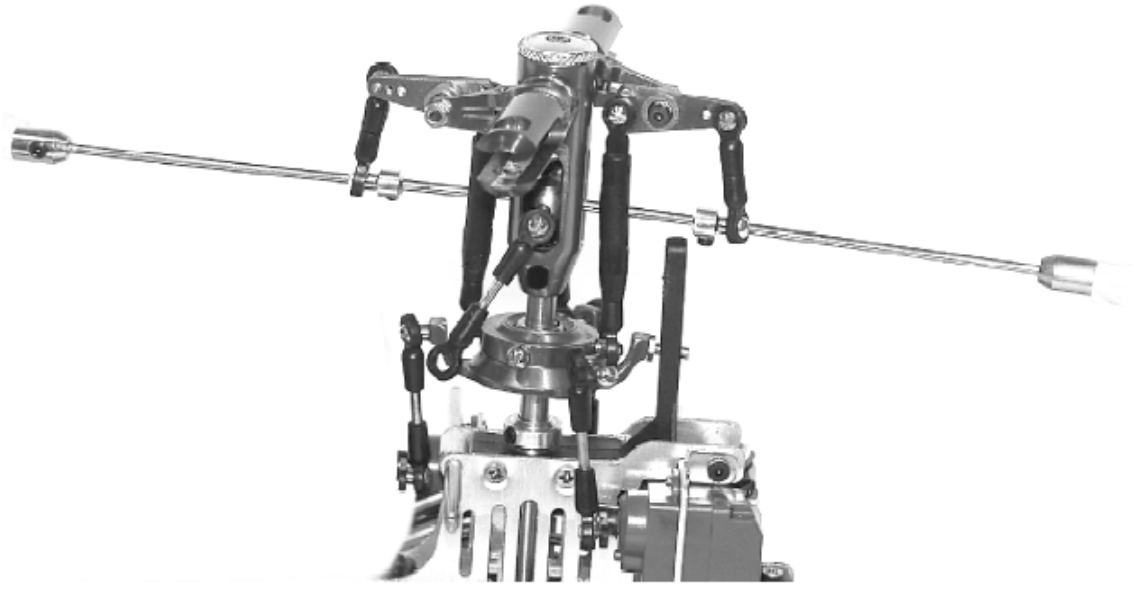

Flybar set


Swashplate

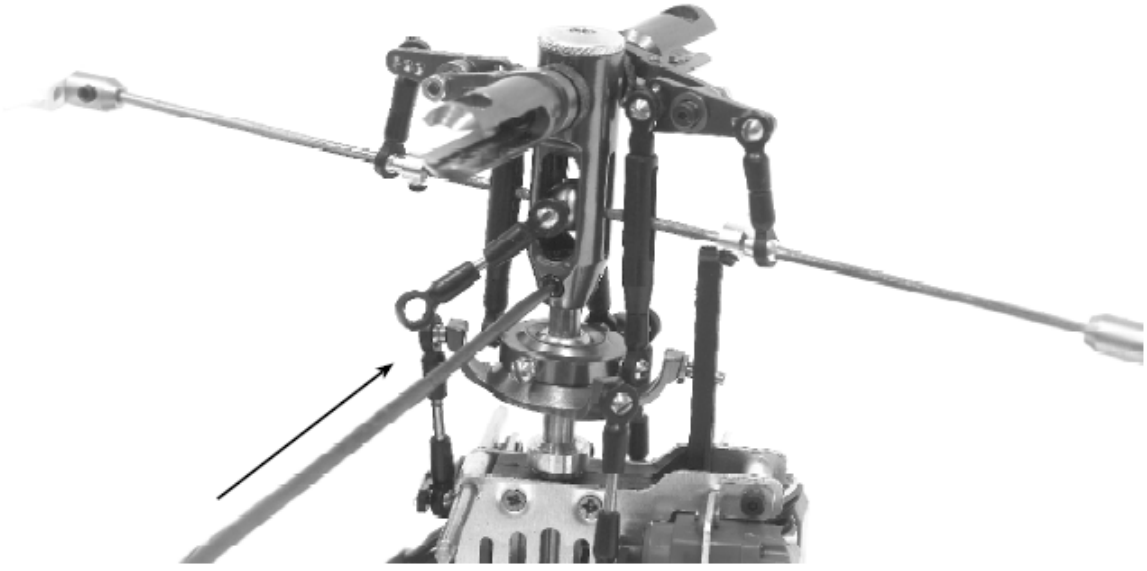

Ball linkage set



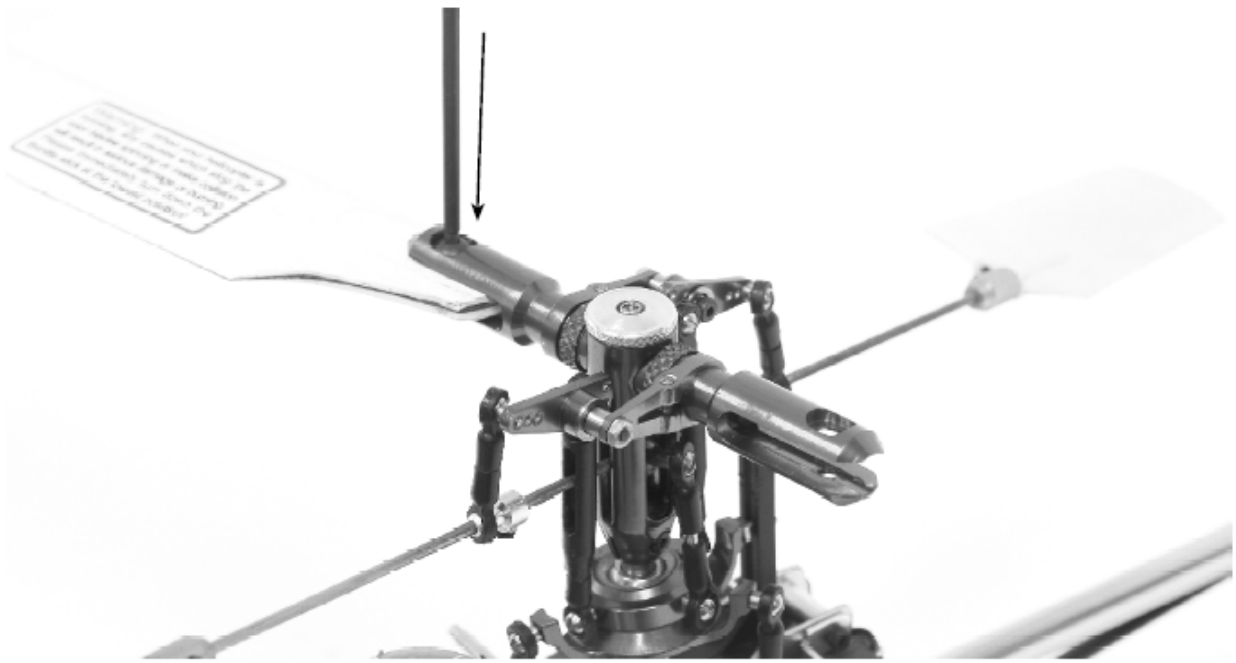
1. Metal rotor head set.
2. Hexagon socket flat head cap screw (M3*10) / Locking socket nut (M3).
3. Hexagon socket head cap screw (M2*10) / Type-1 hexagonal nut (M2).



1. Assemble the metal rotor head set and linkage rod.



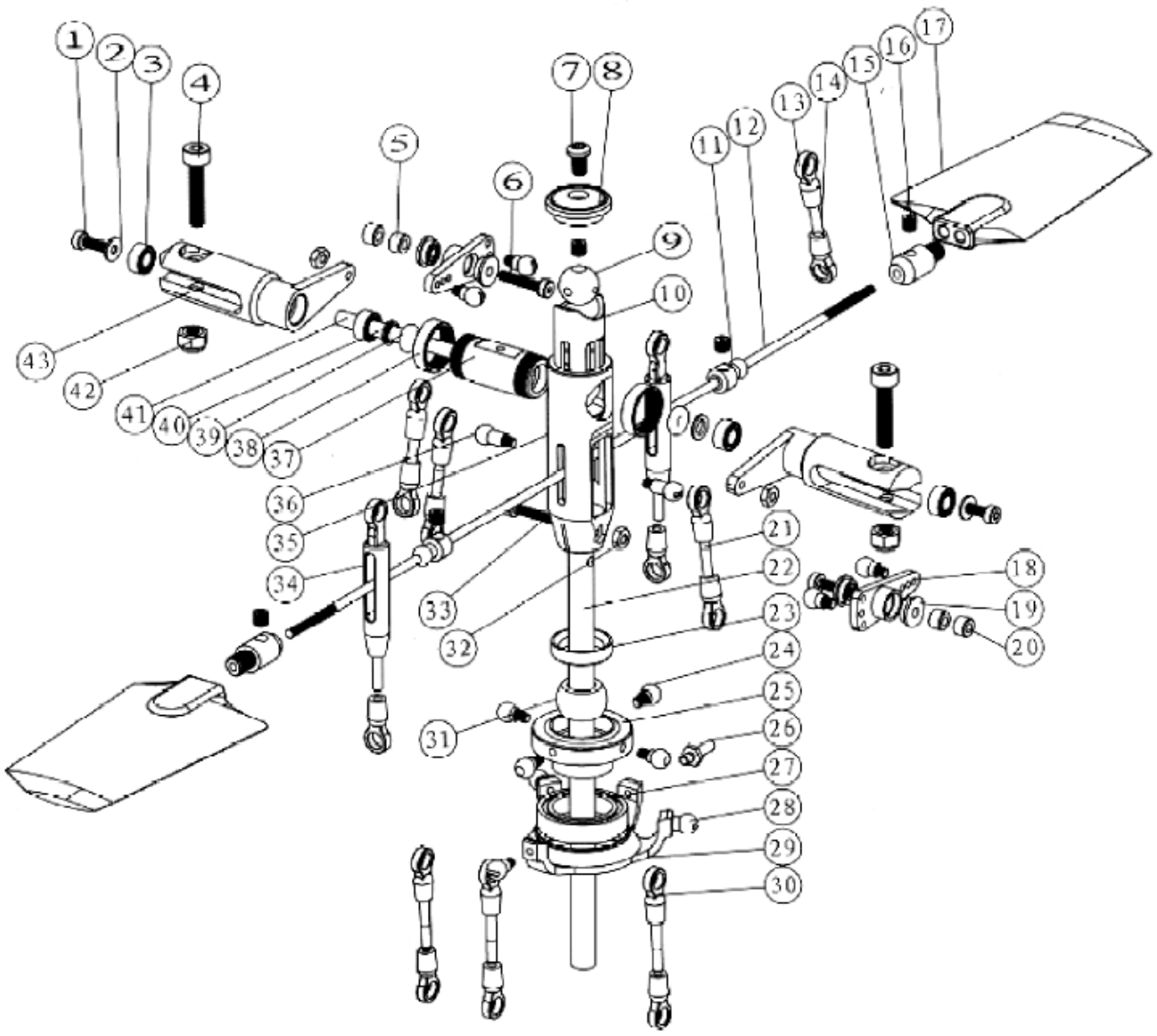
2. Tighten the hexagon socket head cap screw (M2*10), and then set up the linkage rod.



3. Set up the main rotor blades, and tighten the hexagon socket flat head cap screw (M3*10).

4. The assembled profile.

Exploded Diagram for 59#D Upgrade

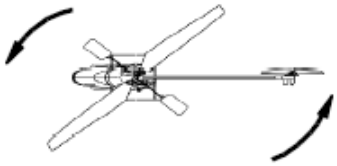
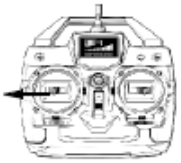
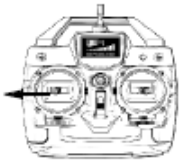
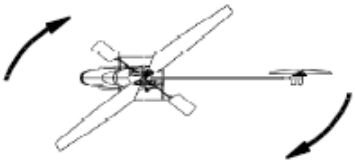
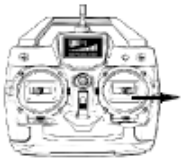


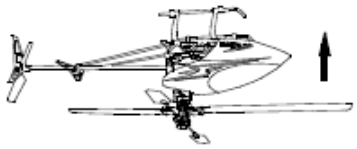
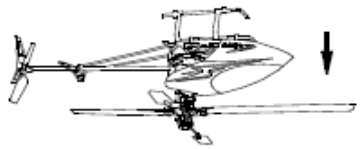
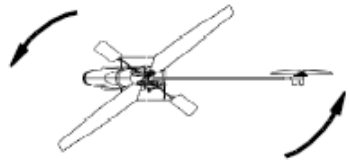
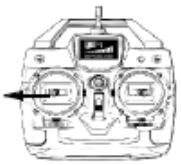
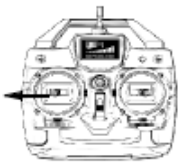
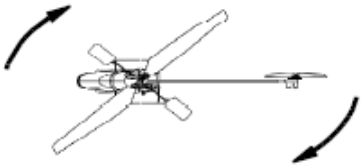
Part Code	Description	Specificagion	Q'ty
001	Hexagon socket head cap screw	M2*6	2
002	Plain washer (class C)		2
003	Bearing	Φ3*Φ6*2,5	4
004	Hexagon socket head cap screw	M3*10	2
005	Bearing transmission sleeve		2
006	Hexagon socket head cap screw	M2*12	2
007	Cross recessed pan head screw	M2*6	1
008	Blade arrester		1
009	Steering ball		1
010	Rotor head inner sleeve		1
011	Flybar steering ball		2
012	Flybar		1
013	Ball linkage 2		6
014	Point less locking screw	M2*8	4

Part Code	Description	Specificagion	Q'ty
015	Balance block		2
016	Hexagon socket pan head locking screw	M3*3	6
017	Flybar paddle		2
018	Blade controller		2
019	Stop bearing	Φ2*Φ5*2	4
020	Fixing sleeve		2
021	Connecting rod 1		5
022	Principal axis		1
023	Swashplate main body (upper)		1
024	Steel ball C		4
025	Swashplate main body (lower)		1
026	Steering rod		1
027	Bearing		1
028	Steel ball B		7

Part Code	Description	Specificagion	Q'ty
029	Swashplate base		1
030	Ball linkage 3		10
031	Swashplate steel ball		1
032	Type-1 hexagonal nut	M2	3
033	Hexagon socket head cap screw	M2*10	1
034	Ball linkage 1		2
035	Rotor head outer sleeve		1
036	Steel ball A		2
037	Rotor head transver shaft		1
038	Decoration ring		2
039	Rubber ring		2
040	Plain washer		2
041	Main blade shaft		1
042	Locking socket nut	M3	2

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

Caution

This device complies with Part 15 of the FCC rules.
Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device.

The manufacture is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

R/C WALKERA PRODUCT

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