

INSTRUCTION MANUAL

VORTEX

Best flying micro helicopter



100% RTF easy for beginner!

Main Rotor Diameter: 13.60 in (345mm)

Length: 15.75 in (400mm)

Height: 7.17 in (185mm)

Weight RTF w/Battery: 232 g

Main Motor: 180 (2 installed)

Battery: 7.4V 800mAh Li-Po (included)

Transmitter: FM 4-Channel (included)

Servo: High-Speed, High-Torque (2 installed)

On-Board Electronics: 4-in-1 Receiver/Mixer/ESC/Gyro (installed)

INTRODUCTION

READ THIS FIRST!

This helicopter is 100% ready to fly. It has been factory tested and trimmed to fly as soon as the batteries are ready. This manual is an overview of the construction and operation of this R/C helicopter to be used as a reference.

INTRODUCTION

The VORTEX is a truly Ready-for-Anyone-to-Fly micro class electric helicopter. Coaxial counter-rotating blades cancel out the rotational torque that makes hovering a conventional helicopter so difficult while providing unsurpassed stability in all other phases of flight too. Whether you are a first-time helicopter pilot or an experienced pilot looking for the best in coaxial micro helicopter performance, you'll enjoy many of the outstanding features that have the VORTEX flying in no time such as pre-installed main motors, 4-in-1 control unit with receiver, mixer, ESC and gyro, and high-speed, high performance micro servos. With the included 4-channel FM transmitter, 2-cell 800mAh Li-Po battery pack and DC charger, you'll have precise control for hovering, forward flight and more with durations of up to 15 minutes per charge.

While the VORTEX is nearly ready-to-fly right from the box, please take the time to read through this manual completely for tips on battery safety and charging, control checks, flying and more. Please also take a few minutes to watch the included Instructional Video CD for additional tips and to see the VORTEX in action.

INDEX

INTRODUCTION AND SAFETY GUIDELINES	2
PACKAGE CONTENTS / RADIO OPERATION	3
BATTERY USAGE	4
OPERATION AND FINE TUNING OF THE MODEL	5
BASIC CONTROL.....	6
FLYING.....	7
VORTEX PARTS LISTING	8

SAFE OPERATION GUIDELINES



The information in this manual is important information for understanding the helicopter and it's components. This information is also valuable to keep you safe!

Warning: Always turn the transmitter ON first before plugging the battery into the control center. If the transmitter is OFF when the control center is ON, the motors may turn on unpredictably.

Use protective eyewear when operating a model with rapidly rotating parts. Main and tail rotors turn very fast and can be very dangerous if close to the face.

Keep away from small children. The model is made from many small and possibly sharp parts. Only operate and store model where children cannot possibly ingest pieces of the helicopter.

Handle any parts with care as they are fragile and may break under excessive stress. Be careful with small parts as they can be sharp and may cut you.

Do not store model or electronics in high temperature or anywhere that is very humid for an extended period of time as this can damage or deform the model.

When not in use or after use, always disconnect the battery. This will stop the batteries from leaking or overheating.

Only use batteries designed for the HUGHES 300 model helicopter from Century Helicopter Products. Always connect the batteries with the correct polarity otherwise you may damage the electronics.

Keep away from spinning rotors. Standing too closely puts the pilot at risk of being cut by the rotor blades. Keep roughly 2 meters between you and the model.

Keep fingers and hands away from rotating blades, moving gears and moving parts as this may cause injury. Obstructing moving parts during operation may result in serious damage to the model.

Batteries and motors become hot after operation. Allow a few minutes to cool before touching the battery or motors directly after flying.

The antenna of the radio should be extended at all times during operation as the signal can be compromised otherwise. Do not cut the antenna mounted on the control center as doing so will degrade signal strength.

Do not operate model on the same band/frequency as other R/C models as they cancel each other's signals.

Do not operate model near traffic, small children or crowds of people. This may cause accident or injury.

Do not operate model in dirty, sandy or wet conditions. Avoid operating model near pets as pet hair can get sucked in to the rotor and wound around operating parts obstructing them.

Only use Century replacement and optional parts. Do not modify the design of the model. Using aftermarket parts or modifying the model's design voids the warranty and may damage your model.

Do not clean model using thinner, alcohol or other chemicals as this may warp or deform the model. Simply wipe the pieces off with a dry cloth if they get dirty.

PACKAGE CONTENTS MOUNTED COMPONENTS AND RADIO CONTROLS

SECTION 1: REVIEW PACKAGE CONTENTS

The 100% Ready To Fly VORTEX is just as it's name implies. Below is a list of all the components required to operate the model.

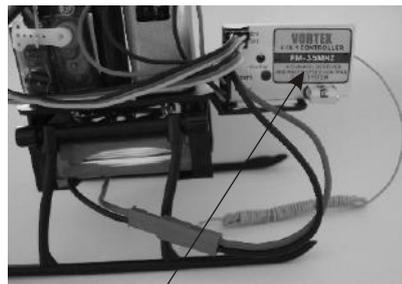


SECTION 2: COMPONENTS MOUNTED ON THE HELICOPTER

Electronic controls are installed by the factory and set in position onto the helicopter frame. The factory has adjusted these electronics for basic flight. Check these components to ensure that they're installed snugly as some shifting may have occurred in shipping.



Elevator Servo Aileron Servo



4in1controller



Motor 1 Motor2

SECTION 3: INTRODUCING 4CH FM RADIO

The 4 channel radio system features all you need to control the model. Examine the controls carefully and refer to this section regularly to identify terms used for making control and trim adjustments. When the voltage indicator falls below 9.5V you will need to change the batteries.

Transmitter Antenna

Emits the radio signal

Throttle Trim

Adjusts center position on throttle

Throttle/Rudder Stick

Throttle: controls height
Rudder: controls heading

Rudder Trim

Adjusts center position of rudder

Power Switch

Power on/off switch

Channel Reverse Switches



Voltage Indicator

Displays Transmitter power level

Elevator Trim

Adjust center for elevator

Aileron/Elevator Stick

Elevator: forward/back
Aileron: left/right

Aileron Trim

Adjust center for aileron

Battery Case

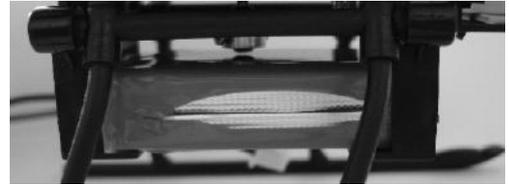
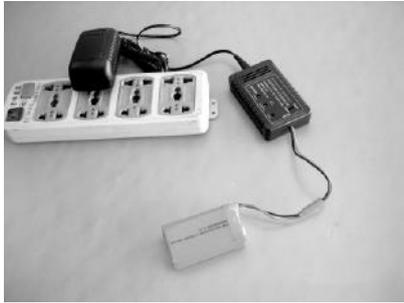
8 "AA" batteries mount here



BATTERY USAGE

SECTION 4: BATTERY PREPARATION AND INSTALLATION

Battery use and installation is important to function the model. An improperly charged or damaged battery can be dangerous to use. Using poorly maintained or damaged batteries will not supply current in relation to the requirements of the control center and may damage the control center.



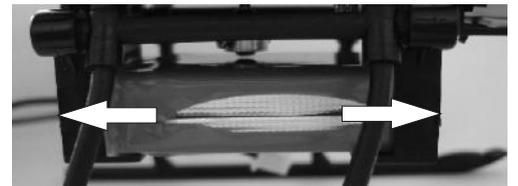
Warning: Do not leave battery unattended while charging! Improperly using/charging battery may result in damage!

SECTION 6: BALANCING AND CENTER OF GRAVITY

The center of gravity will determine how the natural forces of gravity will effect the helicopter. Having the center of gravity too far forward or backward will cause the helicopter to drift accordingly. it's best to grasp the flybar while it is at a 90 degree angle to the tailboom and hold the helicopter up. Reposition the battery until the helicopter is level for optimal center of gravity.

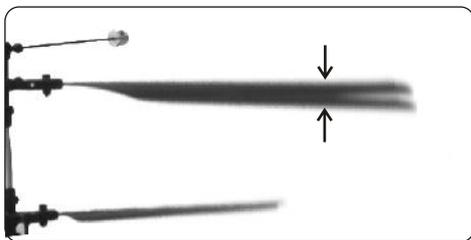


Hold flybar 90 degrees to the tail to test center of gravity.

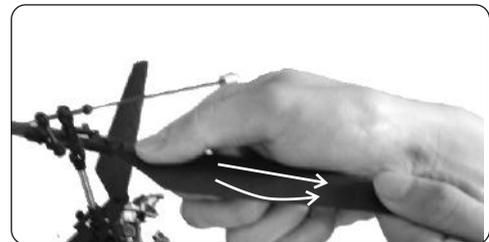


Adjusting battery to change center of gravity.

SECTION 5: main blade angle of attack adjustment



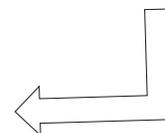
Main blades don't rotate in one plane.



Adjustment way to angle of attack of main blades.



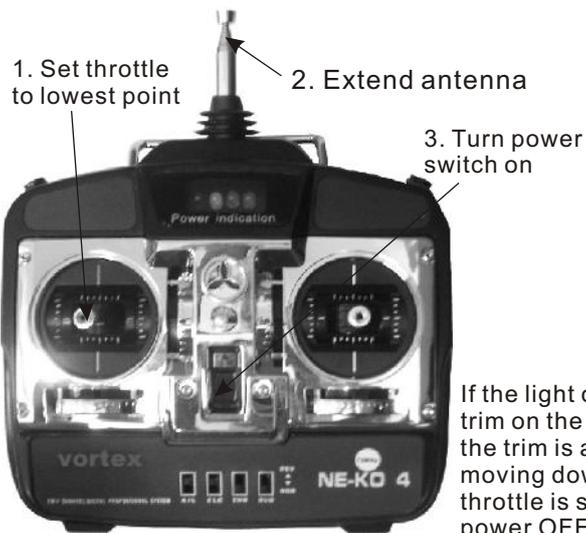
Main blades rotate in one plane.



OPERATING AND FINE TUNING OF THE MODEL

SECTION 6: OPERATING THE VORTEX FOR THE FIRST TIME

Test the electronics to be sure the electronics operate properly. The helicopter must now be "trimmed" or fine tuned for optimal flight performance. Always turn the transmitter on before plugging the battery into the VORTEX.



4. Connect battery to control center



5. Wait for the LED to turn solid green

If the light on the control center does not become solid green, check the throttle trim on the radio. Try sliding the trim down until the light becomes green (when the trim is adjusted downward the center or zero position of the throttle is moving downward). The green light indicates everything is ready and the throttle is set to zero. After making this inspection disconnect the battery to power OFF or move on to the next step.

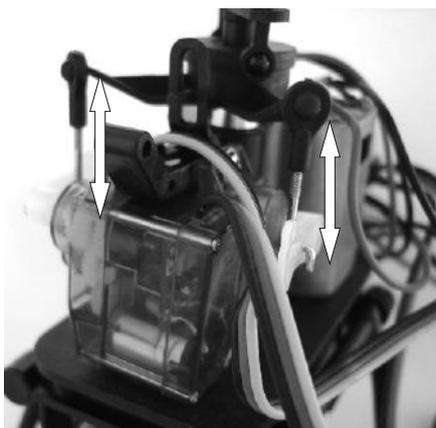


Warning: Always turn the transmitter ON first before plugging the battery into the control center. If the transmitter is OFF when the control center is ON the motors may turn on unpredictably possibly damaging the model or causing injury.

SECTION 7: TESTING AND ADJUSTING AILERON AND ELEVATOR CONTROL

The two servos mounted on your helicopter control response. An aileron input from the radio will cause the helicopter to tilt either left or right. The Elevator control causes the helicopter to tilt forward or back. Fine tuning these controls will cause the helicopter to tilt left to right and forward naturally.

Note: Before making adjustments to push-rods make sure the aileron/elevator trims are centered on the transmitter (see section 3). That way, you can be sure you're adjusting the servo center (zero) point. After adjusting the push-rod, use the trims to fine tune the settings



Carefully remove/ replace pushrod from plastic ball. Too much force may break the plastic balls.



Twisting clockwise will subtract length.



Twisting counter-clockwise will add length.

Shortening the Aileron pushrod causes the helicopter to tilt more to the left.
Lengthening the Aileron pushrod causes the helicopter to tilt more to the right.
Shortening the Elevator pushrod causes the helicopter to tilt more backwards.
Lengthening the Elevator pushrod causes the helicopter to tilt more to the forwards.

BASIC CONTROL FOR AN R/C HELICOPTER

SECTION 8: CONTROLS FOR THE VORTEX R/C HELICOPTER

Warning: This section covers R/C helicopter movement. If your helicopter is ON when you move these controls the motors may turn unexpectedly! Do not move the sticks on the transmitter while the helicopter is ON unless you're sure the model is working properly and you are ready to fly or make adjustments safely.

1. Quickly move the throttle to the lowest position



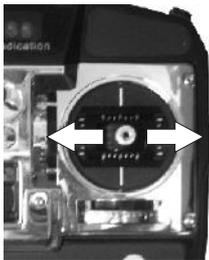
2. Disconnect battery to control center



3. Inspect the model for damage. If there is no physical damage, check the components for realignment



Aileron controls the helicopter's left and right tilt. This control will result in the helicopter drifting in the direction the stick is moved. Be careful! Too much Aileron can cause the helicopter to tip too far.

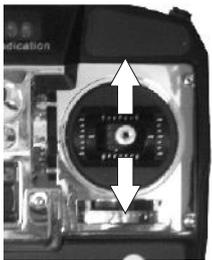


Helicopter tilts/drifts left by adding left Aileron input.



Helicopter tilts/drifts right by adding right Aileron

Elevator controls the helicopter's forward and reverse tilt. This control will result in the helicopter drifting in the direction the stick is moved. Be careful! Too much Elevator can cause the helicopter to tip too far.

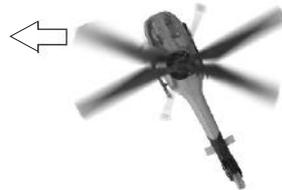
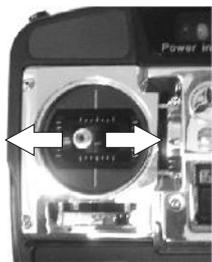


Helicopter tilts/drifts forward by adding upward Elevator input.



Helicopter tilts/drifts reverse by adding downward Elevator input.

Rudder controls the helicopter's facing direction and tail motor power. This control will result in the nose of the helicopter drifting in the direction the stick is moved. Be careful! Too much Rudder can cause the helicopter to spin too fast or lose orientation.

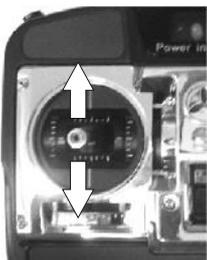


Helicopter nose moves left by decreasing the tail motor speed.



Helicopter nose moves right by decreasing the tail motor speed.

Throttle controls the helicopter's elevation and motor power. This control will result in the helicopter changing elevation (height) in the direction the stick is moved. Be careful! Too much Throttle can cause the helicopter to fly out of visible range!



Adding throttle moves the helicopter higher in the air by increasing speed to the motors.

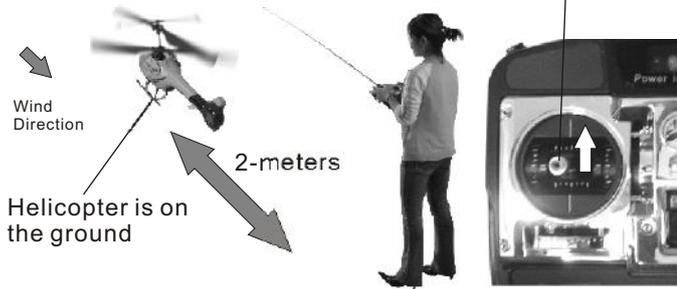


Reducing throttle moves the helicopter lower in the air by decreasing speed to the motors.

FLYING YOUR HELICOPTER FOR THE FIRST TIME

SECTION 10: FLYING (Always make small corrections to the controls. Do not move sticks too far or you may overcorrect!)

Place the helicopter so that its nose is facing into the wind (if there is any). Keep elbows down and stand about 2 meters from the model.



Slowly increase the throttle until the helicopter seems to begin lifting upwards. Focus on the nose while keeping the tail facing towards you.

Practice lifting the helicopter a few centimeters off the ground. Continue to slowly raise the throttle stick. Practice making small corrections to the controls.



Keep focus on the nose of the helicopter and correct using the rudder control any time the nose turns too far left or right.

Practice landing the helicopter. Note that the helicopter will drop rapidly if the throttle stick is moved too low too fast so do so gradually.



When landing, dip the nose downward slightly to avoid having a tail rotor strike. Landing with the tail drooping may allow the tail blades to touch the ground which will break them.

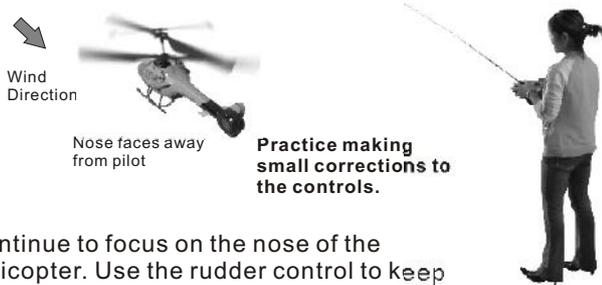
Make short hops with the helicopter increasing elevation as you become more comfortable while practicing making landings. Continue to land softly (**hard landings can damage landing gear or worse**) by slowly moving the throttle stick down.

Land in forward positions following the model. Keep a comfortable distance at all times.



The higher the helicopter flies the more corrections you will need to make to control it. Make note of any tendency to drift in order to make corrections to trims or pushrods (page 5, section 7).

Maintain a mid-air position by keeping the same elevation and staying in the same position using constant throttle, rudder, aileron and elevator corrections.



Continue to focus on the nose of the helicopter. Use the rudder control to keep the nose facing away from you.

While in mid-air try using the aileron and elevator controls to move the helicopter forwards, backwards and side to side while maintaining the same elevation.

Practice making small corrections to the controls.



Only slight inputs are needed to move the helicopter. Too much input can cause the helicopter to tip too far to one side. Continue to make small corrections to keep it level.

Turning the helicopter and flying a circle is important because in certain positions the helicopter's nose will be facing you. Slowly use aileron and elevator to move the helicopter around in a circle. Be careful not to move too fast and lose control. Height may vary when making these adjustments. Try adjusting throttle to maintain a constant height.

Control inputs for turning right:

1. Tilt the model right by adding right aileron.
2. Move elevator upwards and rudder to the right.
3. After turning, return elevator and rudder to neutral and add left aileron to make the model level. (in order to turn left reverse the aileron and rudder controls listed)



It may take some time to learn how to fly the helicopter. Practicing the techniques above will help the process go more quickly.

VORTEX HELICOPTER PARTS LISTING



Main blade **VTX-001**



Flybar set **VTX-002**



Inner shaft **VTX-003**



Out shaft & gear set **VTX-004**



Main frame **VTX-005**



Main blade grip set **VTX-006**



Gear & shaft set **VTX-007**



Swashplate set **VTX-008**



Rotor head **VTX-009**



Battery support **VTX-010**



Landing skid **VTX-011**



Shaft retaining **VTX-012**



Gearing 4*8*3 **VTX-013**



Bearing 2*6*3 **VTX-014**



Servo pushrod **VTX-015**



Hard ware set **VTX-016**



Tool package **VTX-017**



Main motor(2pcs) **VTX-018**



4-in-1 **VTX-019**



Servo **Dy004**



4CH transmitter **Dy001**



Li-po battery **LIP002**



Front body **VTX-020**



Rear body **VTX-021**