

# SKYHAWK

FOLDABLE VIDEO GPS DRONE



DRC-447  
USER MANUAL



20%  
FASTER



20%  
LONGER  
FLIGHT



100%  
BETTER  
VIDEO



100%  
BRIGHTER  
VIDEO



20%  
MORE  
ACCURATE



20%  
STRONGER  
SIGNAL



100%  
MORE  
ACCURATE



100%  
LONGER  
BATTERY



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## PART 1: Product Profile

This section mainly introduces functions and installation guidelines of the DRC-447 and lists the components of the aircraft and remote controller.



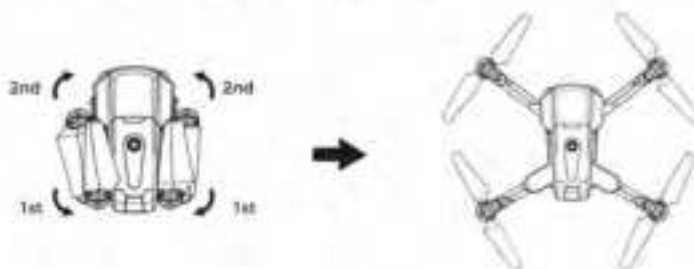
### Introduction

Thank you for purchasing the VTi SkyHawk Foldable Video GPS aircraft, item DRC-447. The included remote controlled aircraft is designed specifically for outdoor flying. In order to get the best possible results, please read this user's manual carefully before using. In addition, be sure to keep this manual in a safe place for future reference.

### Setting Up Your DRC-447

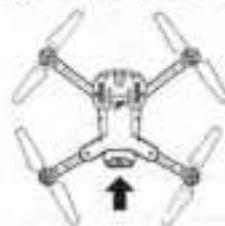
#### Unfold the aircraft

The aircraft is folded inside the package. Please unfold the aircraft before use.



**Battery Installation**

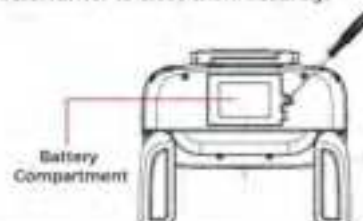
Drone battery: Insert the battery into battery case at the back of aircraft, make sure that you hear a clicking sound to indicate that the battery is inserted securely.



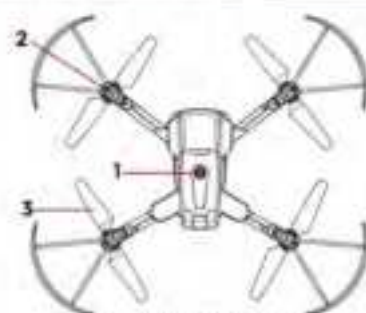
Attention: Failure to securely insert the battery can lead to your aircraft losing power mid flight and crashing.

**Setting Up the Remote Control****Inserting Batteries into Your Remote Control**

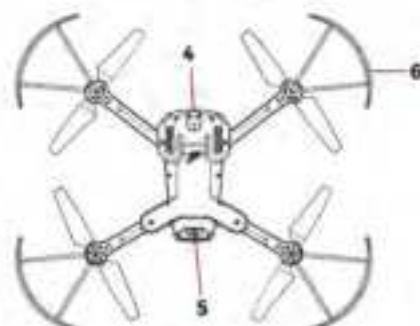
- Use a screwdriver to open up the battery compartments located on the rear of your remote control.
- Insert 3 AAA 1.5V batteries, making sure that the batteries are inserted with the correct polarity (+/-) as displayed in the battery compartment.
- Once the batteries are inserted, place the battery compartment covers back on the battery compartments, and use a screwdriver to close them securely.



- Do not mix rechargeable and non-rechargeable batteries.
- Do not mix old and new batteries or different types of batteries.
- Remove exhausted batteries and dispose of them based on the rules of your local municipality.
- Remove the batteries from your remote control if it will not be in use for an extended period of time.

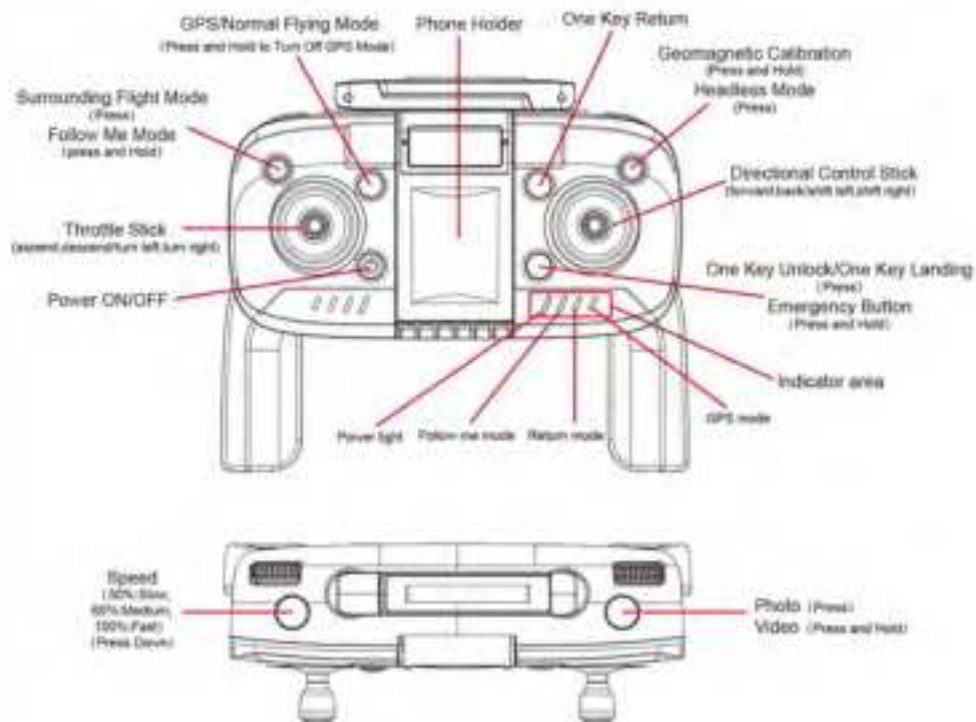
**A Quick Look at Your Device****TOP VIEW**

- 1. Power switch
- 2. Coreless motor
- 3. Propeller

**BOTTOM VIEW**

- 4. Camera
- 5. Battery
- 6. Guard rails

Note: Camera shooting angles can be adjusted by hand.



When the aircraft is turned on, it automatically goes into GPS mode.

## PART 2: Aircraft

This section introduces functions and features of the DRC-447.



### Flight Modes

Your DRC-447 has 2 flight modes.

**GPS Mode:** When the aircraft is turned on, it automatically goes into GPS mode.

**Normal flying mode:** Press and hold the GPS/Normal Flying mode button to switch to normal flying mode.



## Aircraft Status Indicator Lights



## Aircraft status indicator

GPS MODE			NORMAL MODE(NO GPS)	
Before finding GPS Signal	FRONT LED	WHITE	FRONT LED	WHITE
	REAR LED	RED	REAR LED	YELLOW
After finding GPS signal	FRONT LED	WHITE		
	REAR LED	GREEN		


## Rear Light Status Under GPS Mode

No.	Indicator status	Rear light
1	Turn on Aircraft	Flash yellow
2	Connect	Solid Red
3	Start Calibrating	Flash yellow
4	Finish Calibrating	Solid Red
5	Search GPS Singal	Solid Green
6	Return To Home	Solid Red
7	Return To Home under low battery	Flash Red
8	Headless Mode	Flash Red+Green
9	Loose control	Flash Yellow



**Return to Home (RTH)**

The Return-to-Home (RTH) function brings the aircraft back to the last recorded Home Point. There are 3 types of RTH: smart RTH, low battery RTH and failsafe RTH. This section describes these 3 scenarios in detail.

	GPS	Description
Home Point		If a strong GPS signal (satellites over 7) was acquired before takeoff, the Home Point is the location from which the aircraft launched. The GPS signal strength is indicated by the GPS icon (7/5). The aircraft rear indicator lights will be from red color to green color when the home point is recorded.



- The aircraft can not avoid obstacles when it is flying back with the RTH function initiated.
- The aircraft can not return to the Home Point when the GPS signal is weak or unavailable.

**Smart RTH**

When the GPS signal is available (more than 7 satellites is presented), use the RTH button on the remote control (Pic. 1) or tap the RTH button in the "VTI SkyHawk" APP (Pic. 2) and then follow the on-screen instructions to initiate Smart RTH.




Pic. 1



Pic. 2

**Low Battery RTH**

When the battery level of your aircraft is low, it automatically returns directly to the take-off point. During the state of low battery, the aircraft cannot be controlled beyond 20 meters. If the aircraft is returned to within 20 meters from the take-off point, it can be controlled. If it is beyond 20 meters, the aircraft then enters into the landing protection mode in which it performs as follows – because it will not be able to fly more than 20 meters and will not be able to automatically return, it will safely land immediately when the battery is totally depleted.

 Note: When the aircraft is in a state of low battery, the front white light is on, and the rear red light flashes.

**Aircraft guard rails installation**

Align the guard rails with the hole in the boom position of the aircraft, and install and fasten it.



### Aircraft Power Switch

#### Turn on the aircraft

Once the battery is inserted securely, press and hold the power button for 3 seconds. The aircraft makes beeping sounds and the rear light keeps flashing.

#### Turn off the aircraft

Press the power button, the aircraft's light goes off and the aircraft will then power off.



### Aircraft Battery

- Made by high-energy battery cells
- Standard battery capacity is 7.4V 1500mAh



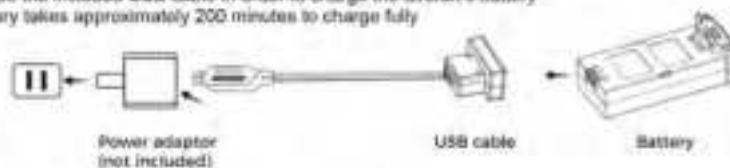
Aircraft battery



USB cable

#### Charging the aircraft battery

- The aircraft's battery needs to be fully charged before every flight
- Please use the included USB cable in order to charge the aircraft's battery
- The battery takes approximately 200 minutes to charge fully



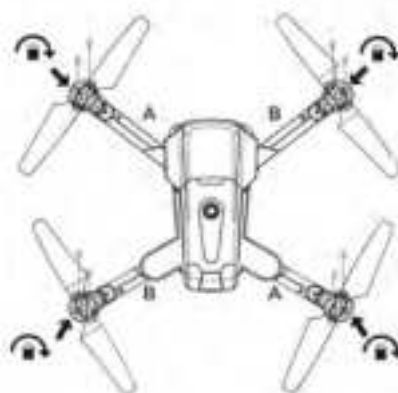


- Do not let children play with this aircraft without adult supervision.
- Insert batteries with correct polarity.
- Rechargeable batteries are to be removed from the aircraft before being charged.
- Rechargeable batteries are only to be charged under adult supervision.
- Exhausted batteries are to be removed from the aircraft.
- The supply terminals are not to be short-circuited.
- The charging line should regularly be examined for potential hazards, such as damage to the cable, cord, plug, enclosure or any other parts. In the event of such damage, the product must not be used until such damage has been properly removed.

### Attaching and Detaching the Propellers

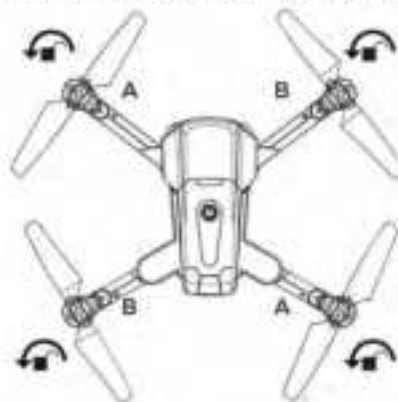
#### Attach the propellers

Install propeller A and propeller B on the corresponding motor shaft and fix the propellers screws tightly by rotating them in a clockwise direction. (A/B markings are at the bottom of each propeller.)



**Detach the propellers**

Take out the screws by rotating them in counter-clockwise direction and then remove the propellers.



- Please make sure that the propellers are attached to the correct motors, because the aircraft will not fly normally if the wrong propellers have been attached.
- Be aware of the sharp edges of the propellers. Handle with care.
- Use only original default propellers. **DO NOT** mix propeller types.
- Stand clear of the motors and **DO NOT** touch the propellers when they are spinning.
- Check that the propellers and motors are installed correctly and are attached securely before every flight.
- Ensure that all propellers are in good condition before each flight. **DO NOT** use aged, chipped, or broken propellers.
- To avoid injury, **STAND CLEAR** of and **DO NOT** touch propellers or motors when they are spinning.
- **ONLY** use original default propellers for a better and safer flight experience.

## PART 3: Remote Control And APP

This section describes the features of the remote control and app, and includes instruction on how to operate DRC-447.



### Remote Control & APP Functions

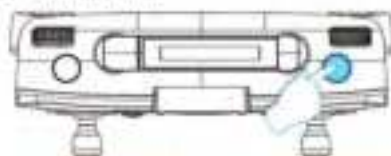
#### Photo/Video

**Photo:** Tap the photo/video button on the remote control and app to take photo.

**Video:** Press and hold the photo/video button to take video on remote, press and hold again to stop recording.

Tap the video button on app to take video, tap again to stop recording.

All photos and videos will be saved at phone.



#### One-key unlock/landing

- Tap the button, and the aircraft will be unlocked, pull up the throttle stick, the aircraft will fly up.
- Tap the same button to land.



#### Emergency stop

Press the button for 3 seconds to stop the flight immediately. Only do this in urgent, emergency situations as it may cause the aircraft to crash.

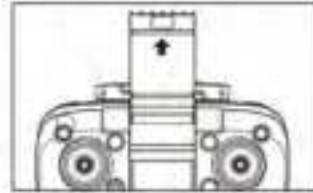


**Installing the Mobile Phone Holder**

1. Open the mobile phone holder (Pic. 1);
2. Adjust the mobile phone holder upward or downward according to the size of your mobile phone (Pic. 2).



Pic. 1



Pic. 2

**PART 4: App Download & Installation**

This section explains how to download the "VTI SkyHawk" APP and connect with mobile device.






## Downloading the "VTI SkyHawk" Software Application

### Where to download "VTI SkyHawk" APP

1. For Apple iOS users, please go to the Apple App store, and search "VTI SkyHawk" or scan the QR code below to download the software application.
2. For Android users, please go to the Google Play store, and search "VTI SkyHawk" or scan the QR code below to download the software application.



### How to link the app to the aircraft's camera

Power on the aircraft, then enter your phone's settings menu. Turn on WiFi, find VTI Skyhawk aircraft \*\*\*\* on the list and connect it. When the  symbol appears, it means WiFi has been successfully connected. Exit the settings menu and tap the "VTI SkyHawk" APP on your mobile device. Select your aircraft model on the home page and click "GO" to enter into the real-time image transmission interface.



Connect WiFi



Tap "VTI SkyHawk" App



Click "GO"

### Photo and video saving feature

Video and Photos will be saved at the app.

## PART 5: Flight

This section reviews safe flight requirements and basic aircraft operations.



### Environmental Requirements

1. Please don't fly in areas with extremely high temperatures, snow, strong wind (level 5), rain or fog.
2. Always choose a wide open area for every flight. Tall structures and large metal structures may affect the accuracy of the onboard compass and GPS system.
3. Never fly directly over people or animals.
4. To minimize interference, please do not fly the aircraft in locations near power lines, base stations, electrical substations and broadcasting towers.
5. Aircraft and battery performance is subject to environment factors like temperature. Be very careful when flying over 1000ft above sea level since the performance will be affected.
6. Your aircraft cannot use GPS within polar regions.

### Flight limits and GEO zones

Abide by all laws and regulations when flying your aircraft. Flight limitations are applied by default to help users operate this product safely and legally. Flight limitations include altitude limits, distance limits and GEO Zones. Altitude limits, distance limits and GEO Zones function concurrently to manage flight safety when operating in GPS Mode.

### Pre-flight Checklist

#### Before flight, make sure that:

1. The aircraft, remote control and mobile device are full charged.
2. The propellers are installed correctly.
3. The arms and propellers are properly unfolded.
4. The camera lens is clean.

### Calibrating Your aircraft (Preparing for Flight)

Before preparing your aircraft for flight, first make sure that you have a suitable environment for flight. Avoid flying in rain or snow, or in windy conditions. Stay away from people, trees, power lines, tall buildings, airports and signal towers. Your aircraft is specifically designed for outdoor flying. Do not attempt to fly your aircraft or calibrate it indoors.



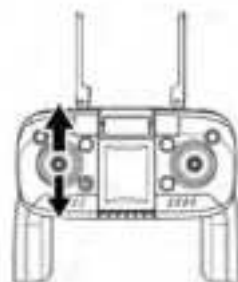
To power on your remote control, press the Power ON/OFF button. You will hear a beep when it powers on. To power on your aircraft, press and hold the Power button. The LED light on the aircraft flashes rapidly. Once your aircraft and remote control are powered on, follow the calibration steps below in order to prepare your aircraft for flight.



#### Calibrating Your Aircraft with Your Remote control

- With your aircraft and remote control both powered on, pull the throttle stick on the remote control all the way up, and then push it all the way down and hold it down.
- When you hear your remote control make a beeping sound, then your aircraft is synchronized with your remote control.

**NOTE:** Once you turn on your aircraft, it will go into GPS mode automatically.



**Aircraft compass calibration**

Compass calibration should be performed after your aircraft is successfully initialized. Aircraft compass calibration should be aircraft prior to flying the first time in a new location.

**Note:** Your aircraft needs to go through the geomagnetic calibration process only when flying it for the first time from the new location. Thereafter, when flying from the same location, there is no need to go through the geomagnetic calibration process. Your aircraft can then fly under GPS mode.

When the environment is not suitable for flying, your aircraft quickly recovers a stable altitude and automatically returns to the take-off position after circling for a few seconds.

1. Press and hold the geomagnetic calibration button. (Pic 1)



Pic 1

2. Rotate your aircraft horizontally, spinning it in a clockwise direction continuously until the white lights on the front of your aircraft keep flashing, while the lights on the back of your aircraft solidly shine yellow, and your aircraft will emit a beep sound. (Pic 2)



Pic 2

3. Turn the head downwards and rotate your aircraft vertically, spinning it continuously until the white lights on the front of your aircraft and the red lights on the back of your aircraft both stop blinking and continue to shine steadily. Calibration is complete. After several seconds, once the aircraft can find a GPS signal, the front LEDs will turn solid white and the back LEDs will turn green, and your aircraft will emit a beep sound. (Pic 3)



Pic 3

**Exiting GPS Mode**

If you would like to exit GPS flying mode and enter normal flying mode, press and hold the GPS/Normal Flying Mode button to switch to normal flying mode.





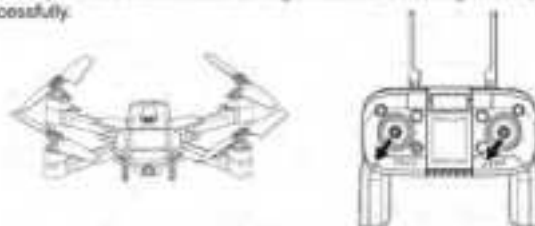
**Attention:** To fly in GPS mode, please choose an open and wide open space for flight, making sure that the satellite amount is over 7.



- Please do not calibrate the compass in strong magnetic areas, such as: magnetic field, parking place or construction zones with underground reinforcement.
- Please do not carry magnetic materials with you (such as keys, cell phones, etc) when calibrating the compass.
- Please keep away from metal when calibrating the compass.

#### Gyroscope calibration

When the compass calibration is finished, place the aircraft on a flat surface and follow the actions in the graphic below to calibrate the gyroscope. Once the aircraft's rear light turns from flashing to solid, it means that the gyroscope has been calibrated successfully.

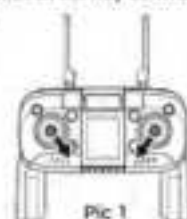


- The gyroscope come pre-calibrated by default. The gyroscope does not need to be calibrate unless the aircraft is not initializing properly.
- Please make sure to place the aircraft on horizontal surface when performing calibration, failure to do this will affect the flight.

#### How to lock and unlock the aircraft

Method 1: Move the left stick all the way down and to the right. At the same time move the right stick all the way down and to the left. (Pic 1)

Method 2: Move the left stick all the way down and to the left. At the same time move the right stick all the way down and to the right. (Pic 2)



Pic 1

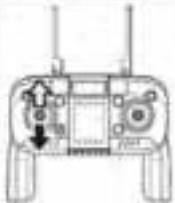
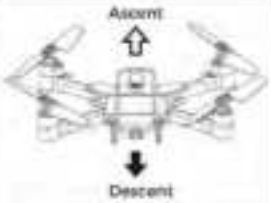
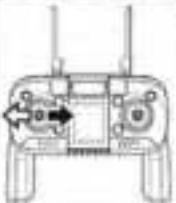
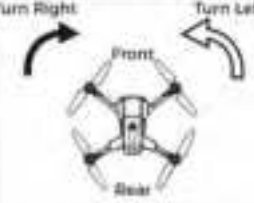



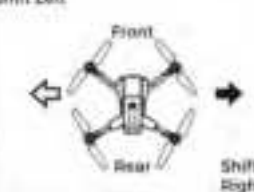


Pic 2

**Tips:**

- Please do not lock the aircraft by pressing the emergency button directly during the flight.
- Press the emergency button for 3 seconds to stop the flight ONLY when the aircraft encounters emergency, or the aircraft has crash.

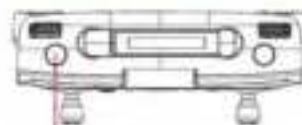
**Operating the aircraft**

Remote control	Aircraft	Remote control	Aircraft
	 <p>Ascent</p> <p>Descent</p>		 <p>Turn Right</p> <p>Turn Left</p>
	 <p>Forward</p> <p>Backward</p>		 <p>Shift Left</p> <p>Shift Right</p>

## Speed Adjustment

Your aircraft has three speed modes. To cycle through the speed modes, press the right throttle down to change speeds. Each mode will be identifiable by a series of beeps. The default speed for the aircraft is low speed. Press the right throttle once to change the speed.

Low Speed Mode: One beep  
Medium Speed Mode: Two beeps  
High Speed Mode: Three Beeps



Speed  
(30% : Slow, 60% : Medium, 100% : Fast)  
(Press Down)

## Point of Interest (Surrounding Flight Mode)

When activated, Point of Interest will make the aircraft circle around a desired point of interest.

To activate Point of Interest, aim the aircraft at the desired point of interest and then press the Surrounding Flight Mode button on the remote controller and it will beep.



1. Push the right throttle stick to the right to make the aircraft circle the target clockwise while focusing on the target.
2. Move the right throttle stick forward and backwards to change the radius distance between the aircraft and the point of interest.
3. Continue moving the right throttle stick to the right to make the aircraft increase its flight speed. Move the right throttle stick to the left to make the aircraft decrease its flight speed. When in a lower speed by continuing to move the right throttle left, you will make the aircraft circle the target counter clockwise while focusing on the target.



## Follow Me

When activated, the Follow Me function will make the aircraft follow your smart phone's GPS location. To activate Follow Me, press and hold the Follow Me Mode button on the top left of the remote controller.

Note: It is important that the GPS and smart phone are correctly connected to the aircraft and that the horizontal distance between the aircraft and your smartphone is greater than 5 meters. Follow me function only starts after the map of your position loading completely.



## Test Flight

### Basic flight operation steps

1. Place the aircraft in a wide open area so that you are directly facing the front of the aircraft.
2. Turn on the aircraft and remote control.
3. Connect the remote control with the aircraft and then proceed to the aircraft initialization steps.
4. Connect the DRC-447 with your phone.
5. Unlock the aircraft after the gyroscope detection of the aircraft is complete.
6. Pull up the throttle stick and the aircraft takes off. Control the aircraft using the left and right stick.
7. Pull down the throttle stick to land the aircraft.
8. Turn off the aircraft.
9. Pull out the battery from the aircraft and then turn off the remote control.

### Video suggestion and tips

1. Do a pre-flight checklist.
2. Camera shooting angles can be adjusted by hand.
3. Fly in a good weather with no wind.
4. Perform test flights to establish flight routes and to preview scenes.
5. Push the control stick gently to keep the aircraft movement smooth and stable.



Please keep proper operation and flight safety guidelines in mind for your own safety and others around you as well. For more information,



**Important Statement**

- This aircraft is not a toy. It should be assembled and operated properly. Pilots must operate this aircraft in a safe way. Improper operation may cause injury or property damage.
- This aircraft is suitable for pilots aged 14+ who are have experience piloting a aircraft styled aircraft.
- The manufacturer of this product is not responsible for damages caused by misuse.
- Keep small accessories away from children and the infirm to avoid accidents.

**Flight Safety Guidelines**

Users should firmly uphold the principle of "safety comes first" when flying this aircraft. Never fly the aircraft near airports, above crowds or in zones storing dangerous goods and be mindful of the damage that can be caused by improper operation.

- Stay away from obstacles, crowds, power lines, trees or water.  
Always choose a wide open area for every flight, well away from people and property. Never fly directly over people or animals. Don't fly in bad weather conditions, high temperature, snow, strong wind (level 5), rain or fog. Maintain a 7ft (2m) distance from the aircraft when taking off and landing.

- Keep the aircraft in a dry environment.

The aircraft is composed by sophisticated electronic components and mechanical parts. To avoid damage of the mechanical and electronic components, please keep the aircraft in a dry environment and use a clean, soft cloth to wipe the surface and keep it clean.

- Practice flying together with a skilled, experienced pilot.

Beginners are recommended to practice flying with a skilled pilot's guidance. Do not fly alone.

- Keep proper operation and safe flight guidelines in mind.

Please take a careful look at this manual before flying for important information regarding the product's functions and operating tips. Stay informed of and abide strictly by relevant local laws and regulations. Keep away from any non-flight zones and respect other people's privacy.

- Safe flying

Please make sure you are in good shape mentally before every flight. Fly the aircraft as per your flying experience. Never fly under influence of alcohol or drugs. Keep the remote control at least 20 cm away from your body when flying the aircraft.

- Keep distance from a flying aircraft.

Never use your hands to touch a flying aircraft under any circumstance. Don't approach and touch a landed aircraft before its propellers are completely locked.

- **Keep away from heat sources**

This aircraft is made of metal, fiber, plastic, electronic components and other materials. Please keep it away from heat sources to avoid deformation or even damage caused by sun exposure and high temperature.

- **Environmental protection requirements**

To protect our lovely planet, please recycle this aircraft as per local laws and regulations.

#### **FCC Compliance Statement**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**VIVITAR 1 YEAR WARRANTY**

This warranty covers the original consumer purchaser only and is not transferable.

This warranty covers products that fail to function properly UNDER NORMAL USAGE, due to defects in material or workmanship. Your product will be repaired or replaced at no charge for parts or labor for a period of one year.

**What Is Not Covered by Warranty**

Damages or malfunctions not resulting from defects in material or workmanship and damages or malfunctions from other than normal use, including but limited to, repair by unauthorized parties, tampering, modification or accident.

**To Obtain Warranty Service and Troubleshooting Information:**

Call 1-800-592-9541 in the U.S. or visit our website at [www.vivitar.com](http://www.vivitar.com).

To receive Warranty service along with the name and address of an authorized product service center, the original consumer purchaser must contact us for problem determination and service procedures. Proof of purchase in the form of a bill of sale or receipted invoice, evidencing that the product is within the applicable Warranty period(s), MUST be presented in order to obtain the requested service. It is your responsibility to properly package and send any defective products along with a dated copy of proof of purchase, a written explanation of the problem, and a valid return address to the authorized service center at your expense. Do not include any other items or accessories with the defective product. Any products received by the authorized service center that are not covered by warranty will be returned unrepaid.

**RF Exposure Compliance(for Camera)**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

