

# VOLANTEX<sup>X</sup> RC



Owners Manual

## ***vector*** Series

VolantexRC products are NOT TOYS, to be used by ages 14 and over.

**WARNING:** Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury. This is a sophisticated hobby product and NOT a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of VolantexRC, Co., Ltd.. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

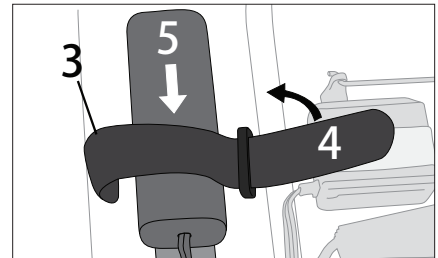
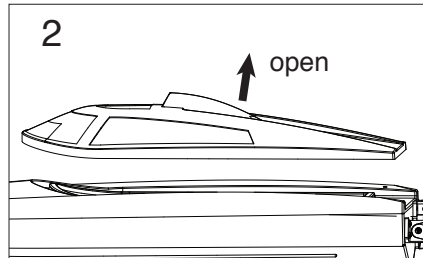
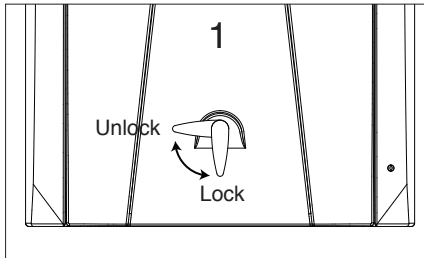
## Safety Precautions

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

- Never attempt to swim after a stalled RC boat.
- Never operate your RC boat while standing in the water.
- Never operate your RC boat in the presence of swimmers.
- NOTE: Because of the sharp running hardware included with this RC boat, we do not recommend a rubber blow up raft.
- RC boat running hardware is very sharp. Be very careful when working on and around the metal parts.
- While the motor is running pay close attention to the propeller. Do not come in contact with the propeller at any time the engine is running or serious injury will result.
- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to unprotected electronics
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Always keep all chemicals, small parts and anything electrical out of the reach of children.

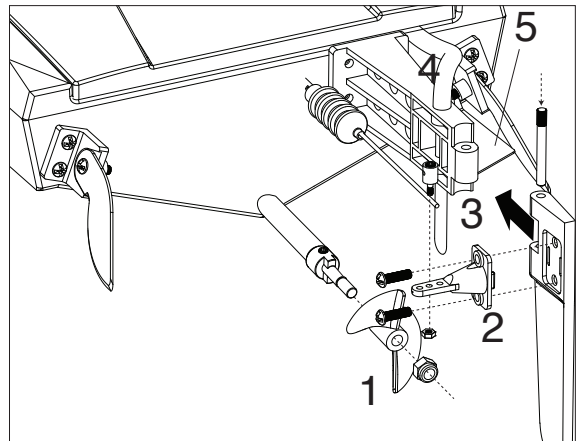
## Boat Battery Pack(s) Installation

1. Roat the hatch on the hull cover in clockwise to unlock the hatch.
2. Open the hull cover.
3. Adhere loop tape (included) to the battery.
4. Secure the boat battery on the hook strip in the boat.
5. Secure the battery in the hull with the hook and loop strap as shown.



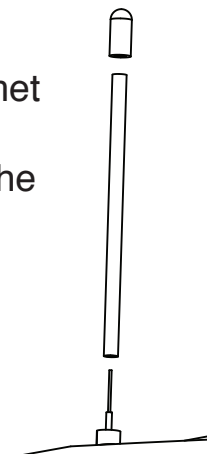
## Rudder Installation

1. Align the propeller with the drive dog on the flex shaft, then install the propeller using the included locknut.
2. Install the rudder horn to the rudder by two screw.
3. Install the rudder to the rudder holder and fix it by a bolt as show in the graphic.
4. Connect the cooling line to the fitting on the top of the rudder.
5. Ensure the trim tab panel is either perpendicular to or parallel to the bottom of the boat. If it's needed to switch the angle of the panel, tie or release the screw which is touch the panel to switch the angle.



## Antenna Tube Installation

1. Carefully feed the end of the receiver antenna through the grommet inside the hull.
2. Pull the antenna wire out of the grommet towards the outside of the boat, then slide the antenna through the antenna tube.
3. Insert the tube into the grommet, then fit the cap onto the tube.
4. Apply clear tape to the antenna, grommet and hull in the boat to keep the antenna from moving.



## Getting Started

1. Power on the transmitter.
  2. Connect the battery.
  3. Test the transmitter's control of the boat with the boat on the display stand.
  4. After launching the boat in the water, start driving slowly. If the boat does not go straight, adjust the trimer on the transmitter to run it straight.
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## Checking the Radio System

**CAUTION:** Always keep all body parts, hair and dangling or loose items away from a spinning propeller, as these could become entangled.

**NOTICE:** Always power on the transmitter before powering on the ESC. Always power off the ESC before powering off the transmitter. Never transport the boat with the battery connected to the ESC.

1. Turn the transmitter throttle and rudder trim to the middle position.
  2. Power on the transmitter.
  3. Connect a fully charged battery to the ESC.
  5. Ensure the rudder moves in the proper direction when the controller is moved left or right.
  6. Pull the throttle to full, then return the throttle to neutral, ensuring the propeller turns counterclockwise. The ESC auto-sensing voltage cutoff will engage when the ESC detects a low battery charge. Release the throttle and recharge the battery when necessary.
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## Testing Your Boat in the Water

1. Carefully place the boat in the water.
  2. Operate the boat at slow speeds near the shoreline. Avoid objects in the water at all times.
  3. Once you are comfortable operating the boat at slow speeds, it is safe to operate the boat farther from the shore.  
**Tip:** If you are using too much steering trim on your transmitter to make the boat drive straight, return the trim to neutral and mechanically center the rudder. To do this, loosen the ball link from the rudder horn, then turn the ball link on the linkage threads until the rudder is properly centered.
  4. Bring the boat back to shore when you notice the boat starting to lose speed.
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5. Power off the ESC and disconnect the battery packs.
6. Allow the motor, ESC and battery packs to cool before charging the batteries or operating the boat again.

**NOTICE:** DO NOT TURN OFF THE TRANSMITTER FIRST OR THE RECEIVER MAY PICK UP STRAY SIGNALS AND RUN OUT OF CONTROL.

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## Boating Tips

Avoid boating near other watercraft, stationary objects, waves, wakes and other rapidly moving water, wildlife, floating debris or overhanging trees. You should also be careful to avoid boating in areas where there are many people, such as swimming areas, park waterways or fishing areas. Consult local laws and ordinances before choosing a location to pilot your boat. Maximum speeds are only achieved when the water conditions are smooth and there is little wind. A sharp turn, wind or waves can turn over a boat when it is moving quickly. Always pilot your boat for the wind and water conditions so that the boat does not turn over. When running your boat for the first time, we recommend calm wind and water conditions so that you can learn how the boat responds to your control. When making turns, decrease the throttle position in order to decrease speed and probability of flipping the boat over.

**NOTICE:** When running at full speed in choppy waters, the prop may exit and re-enter the water repeatedly and very quickly, subjecting the propeller to some stress. Frequent stress may damage the propeller.

**CAUTION:** Never retrieve your boat from the water in extreme temperatures, turbulence or without supervision.

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## Motor Care

- Prolong motor life by preventing overheating conditions. Undue motor wear results from frequent turns, stops and starts, pushing objects, boating in rough water or vegetation and boating continuously at high speed.
  - Over-temperature protection is installed on the ESC to prevent circuit damage, but cannot protect the motor from pushing against heavy resistance.
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## When you finish

1. Power off the ESC.
2. Disconnect the battery.
3. Power off the transmitter.
4. Remove the battery from the boat.

Tip: Always store the boat open (without the hatch and inner liner sealed) or moisture may allow mold and mildew to grow in the boat.

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## Maintenance

Always replace the flexshaft when it is damaged or shows visible wear or injury and property damage may result.

Lubricating the flexshaft is vital to the life of the drivetrain. The lubricant also acts as a water seal, keeping water from entering the hull through the stuffing box.

Lubricate the flexshaft, propeller shaft and all moving parts after every 2–3 hours of operation. Always replace any parts that show visible wear or damage.

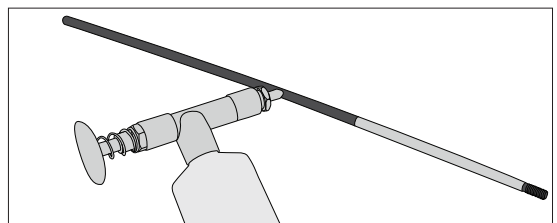
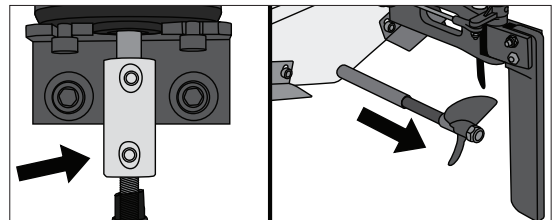
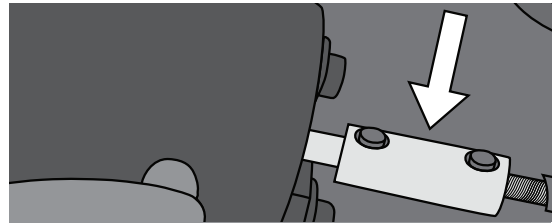
1. Loosen the coupling between the motor and the flexshaft.
2. Loosen the setscrew from the flexshaft and remove the flexshaft from the back of the boat.

Tip: Use paper or cloth to touch the flexshaft.

3. Remove the drive shaft by sliding it out of the stuffing box. Wipe lubricant and material from the flexshaft. Lubricate the full length of the flexshaft assembly up to the drive dog using marine grease.

4. Apply threadlock to the coupling setscrew. Threadlock will help prevent the flexshaft from loosening during use.

5. Carefully reinstall the drive shaft, ensuring that there is a 1–2mm gap between the prop strut and the drive dog to allow for flexshaft shrinkage under load.



**NOTICE:** Running the boat in salt water could cause some parts to corrode. If you run the boat in salt water, rinse it thoroughly in fresh water after each use and lubricate the drive system.

**NOTICE:** Because of its corrosive effects, running RC boats in saltwater is at the discretion of the modeler.

# Check lists

## Before Boating

- Install fully charged batteries in your boat and transmitter
- Connect the boat's battery to the ESC
- Make sure the boat is bound to the transmitter (otherwise, bind the boat to the transmitter using the included binding instructions)
- Make sure all linkages move freely on the boat
- Ensure the motor mount is secured to the hull so that the motor does not move
- Perform a Control Direction Test with the transmitter
- Adjust the steering rate on your transmitter as desired
- Find a safe and open boating area
- Plan a safe boating route for the water and wind conditions

## After Boating

- Always power off the receiver before powering off the transmitter to maintain control of the boat and to retain transmitter binding
- Disconnect the battery from the receiver and remove the batteries from the boat
- Fully dry the inside and outside of the boat, including the water cooling lines and jackets around the motor and ESC. Remove the hatch and radio box cover before storing your boat
- Repair any damage or wear to the boat.
- Lubricate the flex shaft
- Make note of lessons learned from the trimming of your boat, including water and wind conditions

Tip: The hook and loop strips in the boat retain water. To dry them, press on them with a dry cloth.

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## Battery Safety Precautions

**IMPORTANT NOTE:** Lithium Polymer (LiPo) batteries are significantly more volatile than the alkaline , NiCd and NiMH batteries also used in RC applications. All instructions and warnings must be followed exactly to prevent property damage and/ or personal injury as mishandling of LiPo batteries can result in fire. By handling, charging or using the included LiPo battery you assume all risks associated with LiPo batteries. If you do not agree with these conditions, please return your complete product in new, unused condition to the place of purchase immediately. You must read the following safety instructions and warnings before handling, charging or using the LiPo battery.



- You must charge the LiPo battery in a safe area away from flammable materials.
- Never charge the LiPo battery unattended at any time. When charging the battery you should always remain in constant observation to monitor the charging process and react immediately to any potential problems that may occur.
- After flying / discharging the battery you must allow it to cool to ambient / room temperature before recharging. Also, it is NOT necessary or recommended to discharge the battery 'completely' before charging ( LiPo batteries have no 'memory' and it's safe to charge partially discharged batteries when using an appropriate charger and settings).
- To charge the battery you must use only the stock included Charger or a suitably compatible LiPo battery charger. Failure to do so may result in a fire causing property damage and/ or personal injury. DO NOT use a NiCd or NiMH charger to charge Li-Po battery.
- If at any time during the charge or discharge process the battery begins to balloon or swell, discontinue charging or discharging immediately. Quickly and safely disconnect the battery then place it in a safe , open area away from flammable materials to observe it for at least 15 minutes. Continuing to charge or discharge a battery that has begun to balloon or swell can result in a fire. A battery that has ballooned or swollen even a small amount must be removed from service completely.
- Never discharge a Li-Po battery below 3V per cell.
- Always disconnect a battery from the ESC when not in use.
- Avoid continually operating to LVC ( Low Volt Cutoff), as this could result in damage to the battery.
- Store the battery partially charged (approximately 50% charged/3.85V per cell), at room temperature (approximately 68–77° Fahrenheit [F] ) and in a dry area for best results.
- When transporting or temporarily storing the battery, the temperature range should be from approximately 40–100°F. Do not store the battery or model in a hot storage car or direct sunlight whenever possible. If stored in a hot garage or car the battery can be damaged or even catch fire.
- Do not over-discharge the LiPo flight battery. Discharging the LiPo flight battery to a voltage that is too low can cause damage to the battery resulting in reduced power, flight duration or failure of the battery entirely.
- LiPo cells should not be discharged to below 3.0V each under load. In the case of the 2-Cell/ 2S 7.4V LiPo battery used to power the plane you will not want to allow the battery to fall below 6.0V during flight.

The included ESC features a 'soft' low voltage cutoff ( LVC ) that smoothly reduces power to the motor (regardless of the power level you have set with the throttle stick) to let you know the voltage of the battery is close to the 6.0V minimum.



However, even before this reduction in power , if you find that more than the typical amount of throttle/ power is required to cruise or climb you should land the model and disconnect the battery immediately to prevent over-discharge. And while it is possible to continue running the model after the soft LVC occurs, this is NOT recommended. Continued discharging can result in reaching the 5.0V 'hard' LVC which may cause permanent damage to the LiPo battery resulting in reduced power and flight duration during subsequent flights ( or failure of the battery entirely which is not covered under warranty).

Also, it is not recommended that you run to the soft LVC every time you run. Instead you should be aware of the power level of the battery through out, and if at any time the boat begins to require more throttle/ power than typical to maintain speed you should let the boat run back and disconnect the LiPo battery immediately. Constantly discharging the battery to the soft LVC can still cause permanent damage to the battery so it's best to use a timer or stop-watch to time the duration of your running and to stop flying at a reasonable time before the soft LVC is reached.

**IMPORTANT NOTE: DO NOT LEAVE THE LIPO BATTERY CONNECTED TO THE ESC UNLESS YOU ARE READY TO RUN. IF THE BATTERY IS LEFT CONNECTED TO THE ESC WHEN IT IS NOT IN USE THE LIPO BATTERY WILL BE OVER-DISCHARGED BY THE SMALL AMOUNT OF CURRENT THE ESC CONSUMES.**

It can sometimes take a few hours or even up to a few days to over-discharge the battery this way but doing so will likely cause permanent damage to or failure of the battery entirely (which is not covered under warranty).

**IMPORTANT NOTE: DO NOT STORE THE LIPO FLIGHT BATTERY FULLY CHARGED.**

For improved safety and longevity of the LiPo battery it's best to store it only partially charged for any length of time. Storing the LiPo battery at approximately 50% charged (which is approximately 3.85V per cell) is typically best, however it will take some careful management of the charge time and the use of a voltmeter to achieve this voltage.

If you have the equipment and skills to achieve the 50% charge level for storage it is recommended. If not, simply be sure to not store the battery fully charged whenever possible. In fact ,as long as the battery will be stored at approximately room temperature and for no more than a few weeks before the next use, it may be best to store the battery in the discharged state after the last flight (as long as the battery was not over-discharged on the last flight).

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# Troubleshooting Guide

problem	possible Cause	Solution
Boat will not respond to throttle but responds to other controls	Throttle servo travel is lower than 100%	Make sure throttle servo travel is 100% or greater
	Throttle channel is reversed	Reverse throttle channel on transmitter
Extra noise or extra vibration	Damaged propeller, shaft or motor	Replace damaged parts
	Propeller is out of balance	Balance or replace propeller
Reduced runtime or boat underpowered	Boat battery charge is low	Completely recharge battery
	Boat battery is damaged	Replace boat battery and follow battery instructions
	Blocking or friction on shaft or propeller	Disassemble, lubricate and correctly align parts
	Boat conditions may be too cold	Make sure battery is warm before use
	Battery capacity may be too low for conditions	Replace battery or use a larger capacity battery
	Drive dog is too close	Loosen coupling at flex shaft and move out flex shaft a small amount
	Too little lubrication on flex shaft	Fully lubricate flex shaft
	Vegetation or other obstacles block the rudder or propeller	Remove boat from the water and obstacles
Boat will not Bind (during binding) to transmitter	Transmitter is too near boat during binding process	Move powered transmitter a few feet from boat, disconnect and reconnect battery to boat
	Boat or transmitter is too close to large metal object	Move boat or transmitter away from large metal object
	Bind plug is not installed correctly	Install bind plug and bind boat to transmitter
	Boat battery/Transmitter battery charge is too low	Replace/recharge batteries
	ESC switch is off	Power on ESC switch
Boat will not link (after binding) to transmitter	Transmitter is too near boat during linking process	Move powered transmitter a few feet from boat, disconnect and reconnect battery to boat
	Boat or transmitter is too close to large metal object	Move boat or transmitter away from large metal object
	Bind plug is left installed	Rebind transmitter to boat and remove bind plug before cycling power
	Boat battery/transmitter battery charge is too low	Replace/recharge batteries
	Transmitter may have been bound to a different model (using different DSM Protocol)	Bind boat to transmitter
	ESC switch is off	Power on ESC switch
Boat tends to dive in the water or takes on water	The boat hull is not completely closed	Dry out the boat and ensure the hatch is fully closed on the hull before returning the boat to the water
	Center of gravity is too far forward	Move batteries back in the hull
	Trim tabs are angled incorrectly on the back of the boat	Angle each trim tab up a small amount to lift the bow or down a small amount to lower the bow
Boat tends to turn one direction	Rudder or rudder trim is not centered	Repair rudder or adjust rudder and rudder trim for straight running when control is at neutral
	Vertical fins of trim tabs are angled incorrectly	Angle the fins a small amount right or left so that the boat goes straight when the rudder is at neutral

Rudder does not move	Rudder, linkage or servo damage	Replace or repair damaged parts and adjust controls
	Wire is damaged or connections are loose	Do a check of wires and connections, connect or replace as needed
	Transmitter is not bound correctly or the incorrect model was selected	Re-bind or select correct model in transmitter
	BEC (Battery Elimination Circuit) of the ESC is damaged	Replace ESC
	ESC switch is off	Power on ESC switch
Controls reversed	Transmitter settings are reversed	Do the Control Direction Test and adjust controls on transmitter appropriately
Motor or ESC overheats	Blocked water cooler tubes	Clean or replace water tubes
Motor power pulses then motor loses power	ESC uses default soft Low Voltage Cut - off (LVC)	Recharge boat battery or replace battery that is no longer performing
	Weather conditions might be too cold	Postpone until weather is warmer
	Battery is old, worn out or damaged	Replace battery
	Battery C rating might be too small	Use recommended battery

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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.

# CE 0890

Company Name: VOLANTEXRC CO., LTD.

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Shanzhang Road Shantou, China

Product Name: RADIO CONTROL TOY

Item No: V795