

**CHAPARRAL**   
***Villain IV***<sup>®</sup>



# **OPERATING INSTRUCTIONS**

***COVERS MODELS 1508, 1501***

## INTRODUCTION

Thank you for purchasing the new Traxxas Villain IV offshore racing boat. This manual contains the instructions you will need to operate and maintain your new Villain IV boat. **Look over the manual and examine the Villain IV carefully before running it.** If for some reason you think the Villain IV is not what you wanted, then do not continue any further. Your hobby dealer *absolutely cannot* accept a Villain IV for return or exchange after it has been run, or after any of the parts bags have been *opened* (kit version).

Please read all of the Operating Instructions and Precautions before attempting to drive your new Villain IV. These instructions are written with the assumption that this is your first radio-controlled model. Even if you are an experienced R/C enthusiast, please continue reading to learn about the special features that make the Villain IV unique. Pay special attention to the mechanical and safety precautions outlined in this manual.

This manual includes steps for operating the radio system which is only included on Villain IV model 1508. Other models may not include the radio system.

If you have any questions about your new model, then call Traxxas' technical support line at 1-888-TRAXXAS or 1-800-323-0069 (U.S.A. residents only. Outside U.S. call 972-613-3300). Technical support is available Monday through Friday, from 8:30 AM to 5:30 PM Central Standard Time. We hope that you will enjoy many hours with your Villain IV.

## PERSONAL SAFETY PRECAUTIONS

If the precautions are followed, and your Villain IV is operated sensibly and with care at all times, it is exciting, safe, and fun for you and your spectators. Failure to operate your Villain IV in a safe and responsible manner could result in property damage and injury. You alone must see to it that the instructions are followed and the precautions are adhered to.

The Villain IV is not intended for use by children without the supervision of a responsible adult. Every precaution outlined in this manual should be followed to help ensure safe operation. **Traxxas Corporation shall not be liable for any loss or damages, whether direct, indirect, special, incidental, or consequential, arising from the use, misuse, or abuse of this product and any chemical or accessory required to operate this product.**

- Do not drive the Villain IV at night.
- Never, under any circumstances, operate the Villain IV in any water where people are swimming or wading. The Villain IV is fast and could cause injury if allowed to collide with anyone.
- Because the Villain IV is controlled by radio, it is subject to radio interference from many sources that are beyond your control. Since radio interference can cause momentary losses of radio control, always allow a safety margin in all directions around the boat in order to prevent collisions.
- Do not reach underneath the rear of the Villain IV. The propellers could spin unexpectedly. Always pick up the boat from the front or the side.
- Because of the many dangers involved with any body of water, Traxxas recommends that you **never try to wade or swim to retrieve the boat.** Another section in this manual outlines safer alternative methods for boat retrieval.
- Due to the high-performance nature of the Stinger 20-turn electric motors, they will become **extremely hot** during use. Do not touch the motor when installing and removing battery packs.
- **Most importantly, use good, common sense** when you are around the water to avoid mishaps such as slipping on a muddy bank. Always observe water safety rules and regulations.

## REQUIRED EQUIPMENT

To operate the Villain IV, you will need the following equipment. All of it should be available from your hobby shop. Some models also require a two-channel radio system.

1. Small phillips head and flat screwdrivers (for adjustments)
2. "AA" size batteries for your radio system(12)
3. One or two 6 or 7-cell rechargeable battery packs (1700mah or more is recommended for long run time)
4. A charger for the battery pack(s)

## WHERE TO RUN

Select a body of water which is calm and free of debris, tree stumps, moss, etc. Also, find a clean, stable area of shoreline to launch from. The water must be at least 10-inches deep. Be aware that some ponds restrict the use of model boats. Always choose a launch site which is downwind so that the wind and waves will drift the boat back to you if it should ever flip. **Running the Villain in salt water is not recommended. Damage from corrosion is not covered by the warranty**

## THE RADIO SYSTEM (Model 1508)

**TWO-CHANNEL RADIO SYSTEM** - The radio system in your model consists of the RECEIVER, the TRANSMITTER, the steering SERVO, the ELECTRONIC SPEED CONTROL, and the CRYSTALS. It has two channels, one to operate the throttle, and one to operate the steering. (Unassembled kits do not include the radio system.)

**TRANSMITTER** - The TRANSMITTER is the hand-held radio unit which sends throttle and steering instructions to the model.

**RECEIVER** - The RECEIVER is the radio unit inside the model which receives signals from the TRANSMITTER, and relays them to the SERVO and ELECTRONIC SPEED CONTROL.

**SERVO** - The SERVO is the small motor unit in the model which operates the steering mechanism.

**FREQUENCY BAND** - The FREQUENCY band is the radio frequency that the transmitter uses to send signals to the model. The FREQUENCY BAND for radio control vehicles is 27 MHZ (mega-hertz).

**CHANNEL** - The 27 MHZ FREQUENCY BAND is divided into 6 CHANNELS so that up to six boats can be operated simultaneously. These CHANNELS are referred to by their number and flag color. The chart below lists the channels and their flag colors.

**CRYSTAL (X-TAL)** - The CRYSTAL is the plug-in device that

Available crystal sets

27MHZ	FLAG COLOR	CH#	TRAXXAS CRYSTAL PART#
26.995	BROWN	1	2031
27.045	RED	2	2032
27.095	ORANGE	3	2033
27.145	YELLOW	4	2034
27.195	GREEN	5	2035
27.255	BLUE	6	2036

determines which channel (1-6) that the RADIO SYSTEM will operate on. For Each CHANNEL, there are two CRYSTALS; one for the RECEIVER and one for the TRANSMITTER. Of those two CRYSTALS the one marked with the lower number (.455 MHZ lower) must be inserted in the RECEIVER.

**ELECTRONIC SPEED CONTROL** - The ELECTRONIC SPEED CONTROL is the device in the boat which controls the speed. The electronics make it fully digital-proportional for precise throttle control at all speeds.

**NICAD (Ni-Cd)** - These terms stand for rechargeable, nickel cadmium batteries. These batteries are the most economical and can be recharged up to 500 times.

**NEUTRAL POSITION** - The NEUTRAL POSITION is the standing position that the SERVO seeks when the TRANSMITTER controls are at neutral.

**TRIM** - TRIM is the fine-tuning adjustment of the NEUTRAL POSITION of the SERVOS. This adjustment is made by moving the throttle and steering trim sliders on the face of the TRANSMITTER.

## PREPARING TO RUN

### • INSTALLING TRANSMITTER BATTERIES

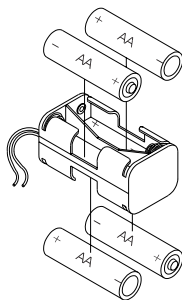
Your transmitter uses 8 "AA" size batteries. They should be alkaline dry cells or nicad rechargeable batteries. The battery compartment is located in the back of the transmitter. To remove the battery door, push down and slide in the direction of the arrow. Be sure that the switch is turned off before installing the batteries. Insert the batteries into the battery compartment, making careful note of the polarity. Now, slide the battery door back in place.

### • OPENING THE TOP COVER

The top cover is held secure with 4 plastic nuts. A plastic T-handle wrench has been supplied to help remove the plastic nuts. Removing the top cover provides access to the battery compartment and radio system.

### • INSTALLING THE RECEIVER BATTERIES

Locate the 4-cell battery holder on the radio tray inside the boat. Insert 4 "AA" Alkaline batteries into the battery holder, making careful note of the polarity. Secure the battery holder into its compartment with the rubber band



### • INSTALLING THE NiCd BATTERY PACKS IN THE VILLAIN IV

Place one or two, fully-charged, 6 or 7-cell NiCd battery packs into the front of the boat, and secure them tightly with the Velcro™ straps. The battery connectors in the Villain are wired in parallel so that adding the second battery pack will increase your run time, not double the voltage. Do not attempt to modify the wiring to increase the input voltage or severe damage to your speed control will result. **Do not connect the battery packs yet.**

### • ANTENNA SETUP

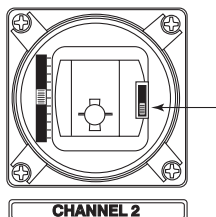
Locate the metal wire-whip antenna. Screw the base of the whip antenna into the mount in the top cover. Under no circumstances should you ever cut your antenna wire. Its length is specially tuned to the frequency band, and cutting it could severely shorten the radio's range.

On top of the transmitter, insert the chrome telescopic antenna into the hole in the top of the transmitter and screw it down until it stops. Do not overtighten.

## TRANSMITTER CONTROLS

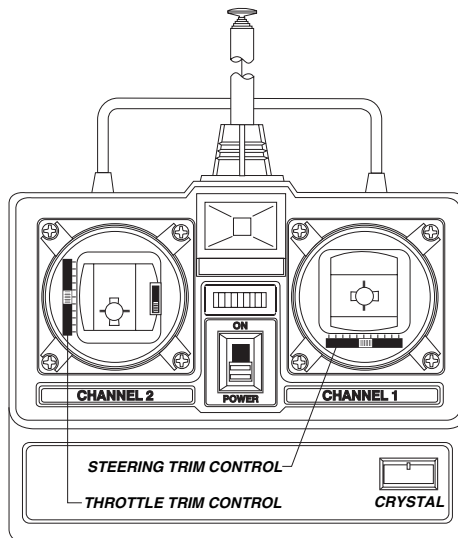
### • THROTTLE NEUTRAL ADJUST:

The throttle neutral adjust, is located on the right of the throttle stick (channel 2). It controls the amount of desired forward and reverse travel of the throttle stick. It should stay in the down position as shown in the drawing (arrow). If you change this adjustment, your transmitter throttle trim will have to be reset and the electronic speed control may have to be readjusted. See "Adjusting the Electronic Speed Control."



### • THROTTLE TRIM/ STEERING TRIM:

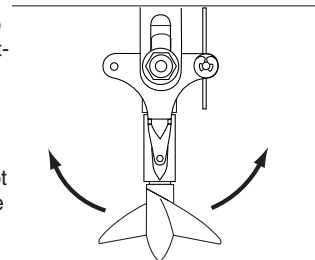
Adjust the throttle trim control so that the motor in the Villain does not run after the battery pack is plugged in. Adjust the steering trim so that the Villain will drive straight without veering to the left or right.



## RADIO SYSTEM ADJUSTMENT

Your radio system was pre-adjusted before it left the factory however, the adjustment should be checked prior to running the Villain IV. These instructions are for Traxxas radio systems only. If you installed your own radio, refer to your radio system's instructions.

- 1) Before you ever turn your radio system on, you must "clear" your frequency. Clearing your frequency means checking to be sure that no one else in the area is operating on the same channel as you. There are six different channels numbered 1 through 6. Each of the six channels is represented by a color. Look at the crystal on the face of the transmitter to determine which of the channels your Villain IV is operating on.
- 2) **Always turn the transmitter on first, before you turn on the receiver in the boat. If you do not, the boat could run out of control.** Slide the transmitter switch to the "on" position. The red light should be on and not flashing. A flashing red light indicates weak transmitter batteries. Weak batteries will cause the range of your model to be limited, and you could lose control. **CAUTION:** When nicad batteries begin to lose their charge, they will fade much faster than alkaline dry cells. **Stop immediately at the first sign of weak nicad batteries.**
- 3) Push the switch inside the boat to the "on" position. The steering servo should jump and move to its idle (neutral) position. Keep fingers and obstacles away from the propeller.
- 4) Operate the steering control on the transmitter (channel 1). Check for rapid operation of the steering servo and that none of the steering mechanism is loose or binding. If the servo operates slowly, check for weak batteries. Adjust the "steering trim" control on the transmitter to adjust the servo so that the outriggers are pointing straight out from the back of the boat. Also, check to be sure that the outriggers do not turn more in one direction than in the other. If you cannot align the outrigger, refer to the section "Centering Your Servos."







- Always be ready to reduce the throttle if the Villain IV appears to be unstable or “chine walking” (rocking violently from side-to-side). Always reduce the throttle when turning, especially in rough water. **Jumping the Villain IV or towing anything with it should not be attempted.**
- **Return the Villain IV to shore at the first sign of weak batteries.** The Villain IV will begin to slow and the controls will become sluggish.

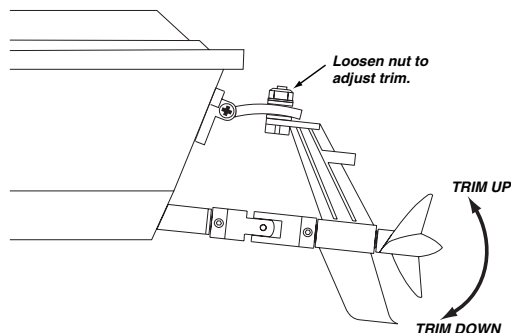
• **CAVITATION:** If the Villain IV is running at full throttle but is only barely moving forward then the propeller is cavitating. Try advancing the throttle slowly to get the Villain IV on plane.

*If you are having trouble with cavitation, check the propellers for nicks or tangled debris. The Villain IV's propellers are specially designed for their application and are very sensitive to any changes or modifications. If a prop is damaged it should be replaced.*

## ADJUSTMENTS

### • ADJUSTING THE TRIM ANGLE

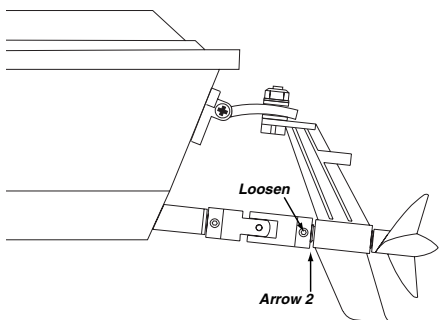
The outdrive strut on the Villain IV will allow you to adjust the trim angle of the propeller. The trim angle changes how high the bow of the boat rides out of the water. Setting the trim angle correctly will provide the maximum speed and efficiency from the Villain IV. As the outdrive is trimmed up, the bow (front) of the boat will ride higher. The Villain IV will run slightly faster however, it will be more unstable in the wind. Do not trim the outdrive up on windy days or when running in choppy water. If the trim is set too high, then the bow will bounce up and down (“porpoise”), and the prop may begin to cavitate.



As the outdrive is trimmed down, the bow of the boat is lowered thus increasing the wetted surface of the boat. This will slow the Villain IV slightly but, stability and control will be improved. Experiment with this adjustment to find out what works best for your particular conditions. Make sure the trim angle on both outdrives is set the same.

### • ADJUSTING THE OUTDRIVE SHAFT END PLAY

There should be a slight amount of shaft endplay in each outdrive housing. To adjust the endplay loosen the grub screw on the U-joint yoke (see drawing). Pull the propeller shaft until there is no more than 1mm of distance at arrow 2 in the drawing. Retighten the grub screw.



## BOAT RETRIEVAL

If the Villain IV accidentally flips over and fills with water, it is equipped with foam flotation to help prevent it from sinking. **Traxxas does not recommend ever trying to swim or wade to retrieve a boat.** If you have chosen your launch sight carefully (downwind), the Villain IV will probably drift back to you on its own.

If there is no wind, you will need a tennis ball and a length of string. Tie the tennis ball securely to one end of the string and then throw the ball over the drifting boat. Pull the ball in and try to entangle the boat in the string. Pull the boat back slowly to shore. If only the bow of the boat remains visible, try using a fishing lure with many hooks and a fishing pole. Try to snag the lip of the upper deck or drive mechanism with the hooks.

## MAINTENANCE

- Keep the Villain IV clean of accumulated dirt and oil.
- Re-oil the motor bushings before each day of running. Use an oil made for electric motors such as 3-in-1 Oil™.
- Periodically re-oil the bushings in the outdrive housings and the driveshaft tubes. There are metal oiling nipples in each drive unit to accommodate oiling the driveshaft tube bushings.
- Keep all of the screws in the drive system tight.

## STORAGE

Drain all water out of the Villain IV and thoroughly dry it before you store it. Store the Villain IV with the hatch cover removed so that any remaining moisture will evaporate.

## DETAILING THE HULL

If you wish to paint your hull some other color than the factory white, then choose your paint with caution. Only use paint made for plastic models (available from your hobby dealer). Test the paint on an inconspicuous and non-critical area before painting the entire boat. The paint on the bottom must be smooth to prevent a loss of performance.

The decals are printed on self-adhesive clear mylar. Carefully cut the decals out as close to the printed edges as you can. Test fit and trim each decal before removing the backing. Use the photos on the box as a guide for decal placement. To apply the long decals, Place one end down, hold the other end up, and gradually smooth the decal down with your finger as you go. This will prevent air bubbles. Placing both ends of the decal down and then trying to smooth it out will result in large air pockets. If you do have air pockets, slice the center of the pocket with a hobby knife and then smooth out the air.

To install the chrome rails, first sand the chrome off of the attachment points (feet) of each rail. The ABS glue will not stick to the chrome. Use the photos on the box as a guide for rail placement. Place a SMALL dab of glue on each rail foot and then place the rail on the boat. Hold it in place for about 60-seconds. On the long bow rails, only place glue on 3 of the rail feet at a time. Allow the glue to dry overnight before running the boat.

## LIMITED WARRANTY INFORMATION

Every effort has been made in component design and material selection to make your model as durable as possible. Because the model is intended to be a hobby-class model and operate at a much higher level of performance than a “toy,” no warranties can be expressed or implied relating to the longevity of the parts. Parts will wear out and require replacement. If any part of the model appears to be defective, or incorrectly assembled when it is new (before it is used), it will be repaired or replaced at Traxxas’ discretion. This warranty will not cover damage from wear, abuse, neglect, crashes, or water.

The radio system that is provided with the ready-to-run models is covered by separate warranty on a separate page (included in your documentation package). The radio system warranty does not cover water damage.

This model is not intended for use by children without the supervision of a responsible adult. Every precaution outlined in this manual should be followed to help ensure safe operation. Traxxas Corporation shall not be liable for any loss or damages, whether direct, indirect, special, incidental, or consequential, arising from the use, misuse, or abuse of this product and any accessory or chemical required to operate this product.

Traxxas corporation reserves the right to make changes, modifications, and improvements to this product without notification, and which may not be reflected in these documents. Upgrades and improvements are not necessarily retroactive. Traxxas may not provide improved or updated components free of charge for models built prior to any change in specification.

#### • TO OBTAIN WARRANTY SERVICE

**For technical assistance, call 1-888-TRAXXAS or (800) 323-0069.**

**For orders & other information, call (972) 613-3300.**

If it has been determined that your model is somehow defective, return it to Traxxas with a note describing the problem, and a copy of the purchase receipt or invoice. Remove all batteries. Remember that the warranty only covers brand new products which are defective right out of the box. All other service will be estimated on an individual basis. **Be sure to include a return address and a daytime phone number.**

#### MAIL OR SHIP TO:

**TRAXXAS CORPORATION  
12150 SHILOH ROAD  
DALLAS, TEXAS 75228**

## Villain IV

### PERFORMANCE TIPS

The Traxxas Villain IV, in its stock form, will run at speeds of approximately 15-18 MPH (with the Stinger™ 20 turn motors). Many different parts and accessories are available from aftermarket manufacturers which can greatly enhance the speed of the Villain. When all of the add-on accessories are combined with high performance motors and batteries, speeds can reach, or even exceed, 30MPH. Traxxas engineers have radar-clocked their own test Villains in excess of 30MPH.

**PROPS:** New props are the least expensive and most beneficial modification you can make to your Villain.

*1 Octura X447 (LH) Beryllium copper prop*

*1 Octura X447 (RH) Beryllium copper prop*

*2 Octura OCGCSS prop shafts*

**WATER COOLING:** Water cooling is highly recommended for all levels of Villain modification and is mandatory for all 12-cell applications. The cooling system consists of aluminum tubing which picks up water from underneath the boat, circulates it through coils wrap-ped around the motors, and in some cases, the speed control, and then exits through the side or rear of the boat. These systems can remove up to 50% of the heat generated inside high-

performance boats. The Traxxas water cooling kit, part #1575, includes all the parts necessary to water cool the Villain.

**MOTORS:** Modified motors are available in reverse rotation for perfect compatibility

with the Villain's counter rotating

props. Using approved modified motors will cause significantly increased current draw through the boat's electrical components. As the horsepower of your motors increases, so should the thickness of the wires and the quality and current capacity of the speed control and batteries.

**SPEED CONTROLS:** The ultimate set-up is to use a fully proportional electronic speed control which is designed to handle the increased voltage and huge current draw. There are many different brands of these speed controls available, along with many different features such as water cooling, reverse capability, and thermal shutdown protection. Consult your hobby dealer to find which suits your needs and budget.

**Some final thoughts...**Careful assembly is crucial to obtaining the best results with the high-performance Villains. This means making sure all the rotating mechanisms operate freely with as little friction as possible. The left and right drive systems should be equal to each other. If one side runs faster or is adjusted differently from the other side, the Villain will exhibit inconsistent performance. Experiment with the trim adjustments on the drive units to find which angle offers the best overall performance with your particular motors, and gear ratios. Also, look for ways to reduce weight and bottom surface drag. When all of these elements are combined, your Villain will be one of the fastest electric V-hulls around.



