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RUSTLER⁴ **ULTIMATE**

TRAXXAS

OWNER'S MANUAL

INTRODUCTION

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This manual contains the instructions you will need to operate and maintain your model so that you can enjoy it for years to come. We want you to feel confident that you own one of the best-performing models in the market and that it is backed by a team of professionals who aim to provide the highest level of factory support possible. Traxxas models are about experiencing total performance and satisfaction, not just with your model, but also with the company that stands behind it.

We know you're excited about getting your new model on the road, but it's very important that you take some time to read through the Owner's Manual. This manual contains all the necessary set-up and operating procedures that will allow you to unlock the performance potential that

Traxxas engineers designed. Please follow the precautions and tags attached to your model to operate your model safely and avoid damage from your model.

Even if you are an experienced hobbyist, please read and follow the procedure.

Thank you again for going with Traxxas. We hope to ensure you receive the highest quality product that you really want you to enjoy your

BEFORE YOU PROCEED

Carefully read and follow all instructions in this and any accompanying materials to prevent serious damage to your model. Failure to follow these instructions will be considered abuse and/or neglect.

Before running your model, look over this entire manual and examine the model carefully. If for some reason you decide it is not what you wanted, then do not continue any further. **Your hobby dealer absolutely cannot accept a model for return or exchange after it has been run.**

WARNINGS, HELPFUL HINTS, & CROSS-REFERENCES

Throughout this manual, you'll notice warnings and helpful hints identified by the icons below. Be sure to read them!



An important warning about personal safety or avoiding damage to your model and related components.



Special advice from Traxxas to make things easier and more fun.



Refers you to a page with a related topic.

REGISTERING YOUR MODEL

In order to serve you better as our customer, please register your product within 10 days of your purchase online at Traxxas.com/register.

Traxxas.com/register

SUPPORT

If you have any questions or need assistance, please call the Traxxas Technical Support line at **1-888-TRAXXAS (1-888-877-2929)**.

Technical support is available 24 hours a day, 7 days a week, from 9:00pm central time. Technical support is available at Traxxas.com/support. You can also contact us with your question at support@traxxas.com. Registered members in our Traxxas.com database will receive priority support.

Traxxas offers a full-service, nationwide Traxxas service network. Mainframe service is available for models purchased directly from Traxxas. For more information, visit Traxxas.com/service. You can save time, along with money, by ordering replacement parts from your local Traxxas dealer.

Do not hesitate to contact us if you need any assistance. We want you to be thorough and enjoy your model.

Quick Start

This manual is designed to help you get started with your model. It outlines the necessary steps to get your model up and running. If you are an experienced R/C enthusiast, please read through the rest of the manual for more information on maintenance, and adjust

WHY IT'S THE ULTIMATE

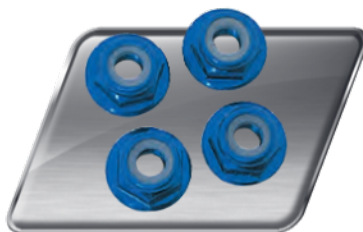
RUSTLER ULTIMATE

Rustler® 4X4 VXL took the stadium truck experience to new heights with its tough-as-nails chassis and ground-ripping 4-wheel drive traction. Now Rustler 4X4 Ultimate ratchets up the performance even further with more strength, more technology, and more fun! Rustler 4X4 Ultimate comes fully loaded with color-matched aluminum upgrades in key locations for maximum strength and durability. Carve corners like a pro thanks to Rustler 4X4 Ultimate's carefully tuned sway bars and ultra-smooth, PTFE-coated aluminum GTR shocks. The TQi Radio System with the Traxxas Link Wireless

Module and Rustler 4X4 Ultimate's factory-installed suspension and set the standard for tuning ease and versatility. For Rustler 4X4, the specs are completed with nearly every detail of the best of the best.



Aluminum C-hubs and Steering Blocks



Aluminum Wheel Nuts



Aluminum Rear Hub Carriers



Gravix™ Tires on RXT Wheels



Blue-Anodized PTFE Coated GTR Shocks

FCC Compliance

This device contains a module that complies with the limits for a Class B digital device as described in part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, including interference that may cause undesired operation.

The limits for a Class B digital device are designed to provide reasonable protection against harmful interference in residential settings. This product generates, uses and can radiate radio frequency energy, and may cause harmful interference to radio communications. 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 device.

Canada, Industry Canada (IC)

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210. This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device must not cause any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Statement

This equipment complies with radio frequency exposure limits set forth by FCC and Industry Canada for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the user and the antenna. For more information, please refer to the user manual.

Operation Frequency: 2414~2453 MHz

Maximum Radio Frequency Power: Maximum Peak Power 9.7 dBm

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Traxxas
6250 Traxxas
McKinney
Phone: 972-342-1000
Toll-free: 1-800-4-A-Traxxas

SAFETY PRECAUTIONS



All instructions and precautions outlined in this manual should be strictly followed to ensure safe operation of your model.



This model is not intended for use by children under 14 years of age without the supervision of a responsible and knowledgeable adult. Gearing and battery choice (see *LiPo Batteries*, right) affect the skill level of the model. See chart below.



Gearing: Stock Pinion
Battery: 7-Cell NIMH
Voltage*: 8.4V
mAh: 4000+mAh



Gearing: Opt./Stock Pinion
Battery: 2s/3s 25C LiPo
Voltage*: 7.4V/11.1V
mAh: 4000/5000+ mAh



Gearing: Opt. Gearing
Battery: 3s 25C LiPo
Voltage*: 11.1V
mAh: 5000/6000+ mAh

*Nominal

See the gearing chart on page 27 for more information.



All of us at Traxxas want you to safely enjoy your new model. Operate your model sensibly and with care, and it will be exciting, safe, and fun for you and those around you. Failure to operate your model in a safe and responsible manner may result in property damage and serious injury. The precautions and instructions provided or available for this product(s) should be strictly followed to help ensure safe operation. You alone must see that the instructions are followed and the precautions are adhered to.

Important Points to Remember

- Your model is not intended for use on public roads or congested areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- Never, under any circumstances, operate the model in crowds of people. Your model is very fast and could cause injury if allowed to collide with anyone.
- Because your model 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 model in order to prevent collisions.
- The motor, battery, and speed control can become hot during use. Be careful to avoid getting burned.
- Don't operate your model at night, or anytime your line of sight to the model may be obstructed or impaired in any way.
- **Most importantly, use good common sense at all times.**

Speed Control

Your model's electronic speed control (ESC) is an extremely powerful electronic device capable of delivering high current. Please closely follow these precautions to prevent damage to the speed control or other components.

- **Disconnect the Battery:** Disconnect the battery from the ESC during use, so be careful to disconnect the battery from the ESC during use, so be careful to disconnect the battery from the ESC during use, so be careful to disconnect the battery from the ESC during use.
- **Insulate the Wires:** Always use heat shrink tubing to prevent shorting the wires.
- **Transmitter on First:** Switch the transmitter on first when switching on the speed control to prevent damage to the ESC.
- **Don't Get Burned:** The motor, battery, and speed control can become hot during use, so be careful to avoid getting burned.
- **Use the Factory-Installed:** Use the factory-installed ESC and motor connectors. Do not use aftermarket ESCs or connectors. Please note that the ESC is subject to a rewiring fee.
- **No Reverse Voltage:** The ESC is sensitive to reverse polarity voltage.
- **Always adhere to the manual:** Always adhere to the manual for the speed control as stated in the manual. If your ESC operates at different types and capacities. Use the correct types and capacities. Use the correct types and capacities. Use the correct types and capacities.

Recycling Your Traxxas iD
Traxxas strongly encourages you to recycle your iD when they reach the end of their life. All Traxxas iD are RBRC (Rechargeable Battery Recycling Corporation) and they are recyclable. To find a local hobby dealer or visit



WARNING! CAUTION! DANGER!



FIRE HAZARD! Your model is able to use LiPo batteries. Charging and discharging batteries has the potential for fire, explosion, serious injury, and property damage if not performed per the instructions. Before use, read and follow all manufacturer's instructions, warnings, and precautions. In addition, Lithium Polymer (LiPo) batteries pose a SEVERE risk of fire if not properly handled per the instructions and require special care and handling procedures for long life and safe operation. LiPo batteries are intended only for advanced users that are educated on the risks associated with LiPo battery use. Traxxas does not recommend that anyone under the age of 18 use or handle LiPo battery packs without the supervision of a knowledgeable and responsible adult. Dispose of used batteries according to the instructions.

Important Warnings for users of Lithium Polymer (LiPo) batteries:

- Your model is able to use LiPo batteries. LiPo batteries have a minimum safe discharge voltage threshold that should not be exceeded. The electronic speed control is equipped with built-in Low-Voltage Detection that alerts the driver when LiPo batteries have reached their minimum voltage (discharge) threshold. It is the driver's responsibility to stop immediately to prevent the battery pack from being discharged below its safe minimum threshold.
- Low-Voltage Detection is just one part of a comprehensive plan for safe LiPo battery use. It is critical to follow all instructions for safe and proper charging, use, and storage of LiPo batteries. Make sure you understand how to use your LiPo batteries. If you have questions about LiPo battery usage, please consult with your local hobby dealer or contact the battery manufacturer. As a reminder, all batteries should be recycled at the end of their useful life.
- ONLY use a Traxxas iD charger to charge Traxxas iD batteries. ONLY use a Lithium Polymer (LiPo) balance charger with a balance adapter port to charge LiPo batteries. Never use NiMH or NiCad-type chargers or charge modes to charge LiPo batteries. DO NOT charge LiPo batteries with a NiMH-only charger. The use of a NiMH or NiCad charger or charge mode will damage LiPo batteries and may cause fire, personal injury, and/or property damage.

- NEVER charge LiPo battery packs in series or parallel. Charging packs in series or parallel may result in improper charger cell recognition and an improper charging rate that may lead to overcharging, cell imbalance, cell damage and fire.

- ALWAYS inspect your LiPo batteries carefully before charging. Look for any loose leads or connectors, damaged wire insulation, damaged cell packaging, impact damage, fluid leaks, swelling (a sign of internal damage), cell deformity, missing labels, or any other damage or irregularity. If any of these conditions are observed, do not charge or use the battery pack. Follow the disposal instructions included with your battery to properly and safely dispose of the battery.
- DO NOT store or charge LiPo batteries with or around other batteries or battery packs of any type, including other LiPos.
- Store and transport your battery pack(s) in a cool dry place. DO NOT store in direct sunlight. DO NOT allow the storage temperature to exceed 140°F or 60°C, such as in the trunk of a car, or the cells may be damaged and create a fire risk.
- DO NOT disassemble LiPo batteries or cells.
- DO NOT attempt to build your own LiPo battery pack from loose cells.

Charging and handling precautions for all battery types:

- BEFORE you charge, ALWAYS confirm that the charger settings exactly match the type (chemistry), specification, and configuration of the battery to be charged. DO NOT exceed the maximum manufacturer recommended charge rate.
- DO NOT attempt to charge batteries that have an internal charge circuit or a protection circuit, batteries that have been altered from original manufacturer configuration, or batteries that have missing or unreadable labels, preventing you from properly identifying the battery type and specifications.
- ALWAYS use a Traxxas iD charger to charge Traxxas iD batteries.
- DO NOT let any exposed battery contacts or wires touch each other. This will cause the battery to short circuit and create the risk of fire.
- While charging or discharging, place the battery (all types of batteries) in a fire retardant/fire proof container and on a non-flammable surface such as concrete.

SAFETY PRECAUTIONS

(continued from previous page)

- DO NOT charge batteries inside of an automobile. DO NOT charge batteries while driving in an automobile.
- NEVER charge batteries on wood, cloth, carpet, or on any other flammable material.
- ALWAYS charge batteries in a well-ventilated area.
- REMOVE flammable items and combustible materials from the charging area.
- DO NOT leave the charger and battery unattended while charging, discharging, or anytime the charger is ON with a battery connected. If there are any signs of a malfunction or in the event of an emergency, unplug the charger from the power source and disconnect the battery from the charger.
- DO NOT operate the charger in a cluttered space, or place objects on top of the charger or battery.
- If any battery or battery cell is damaged in any way, DO NOT charge, discharge, or use the battery.
- Keep a Class D fire extinguisher nearby in case of fire.
- DO NOT disassemble, crush, short circuit, or expose the batteries to flame or other source of ignition. Toxic materials could be released. If eye or skin contact occurs, flush with water.
- If a battery gets hot to the touch (temperature greater than 120°F), remove the battery from the charger.
- Allow the battery pack to cool before recharging.
- ALWAYS unplug the charger from the power source when not in use.
- ALWAYS unplug the battery pack from the charger when the model is not in use.
- DO NOT disassemble the battery pack.
- REMOVE the battery pack from the charger when not in use.
- DO NOT expose the battery pack to moisture.
- DO NOT use an adapter plug/connector.
- ALWAYS store batteries in a cool, dry place, away from children and pets. Children should not be allowed to touch, charge, or handle the battery pack.
- Nickel-Metal Hydride batteries should be disposed of properly.
- Always proceed with caution when charging.

TOOLS, SUPPLIES, AND REQUIRED EQUIPMENT

Your model comes with a set of specialty metric tools. You'll need to purchase other items, available from your hobby dealer, to operate and maintain your model.

Supplied Tools and Equipment



2.5mm "L" wrench



2.0mm "L" wrench



1.5mm "L" wrench



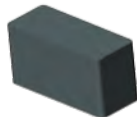
4-way wrench



8mm/4mm wrench



Optional pinion gear



Foam battery spacer block

Required Equipment (not included)



6 or 7-cell NiMH battery pack,
or 2s or 3s LiPo battery pack,
with Traxxas ID® High-Current Connector



Battery charger with iD®

EZ-Peak® Plus
(part #2970)



4 AA alkaline batteries

*Battery and charger style are subject to change and may vary from image.

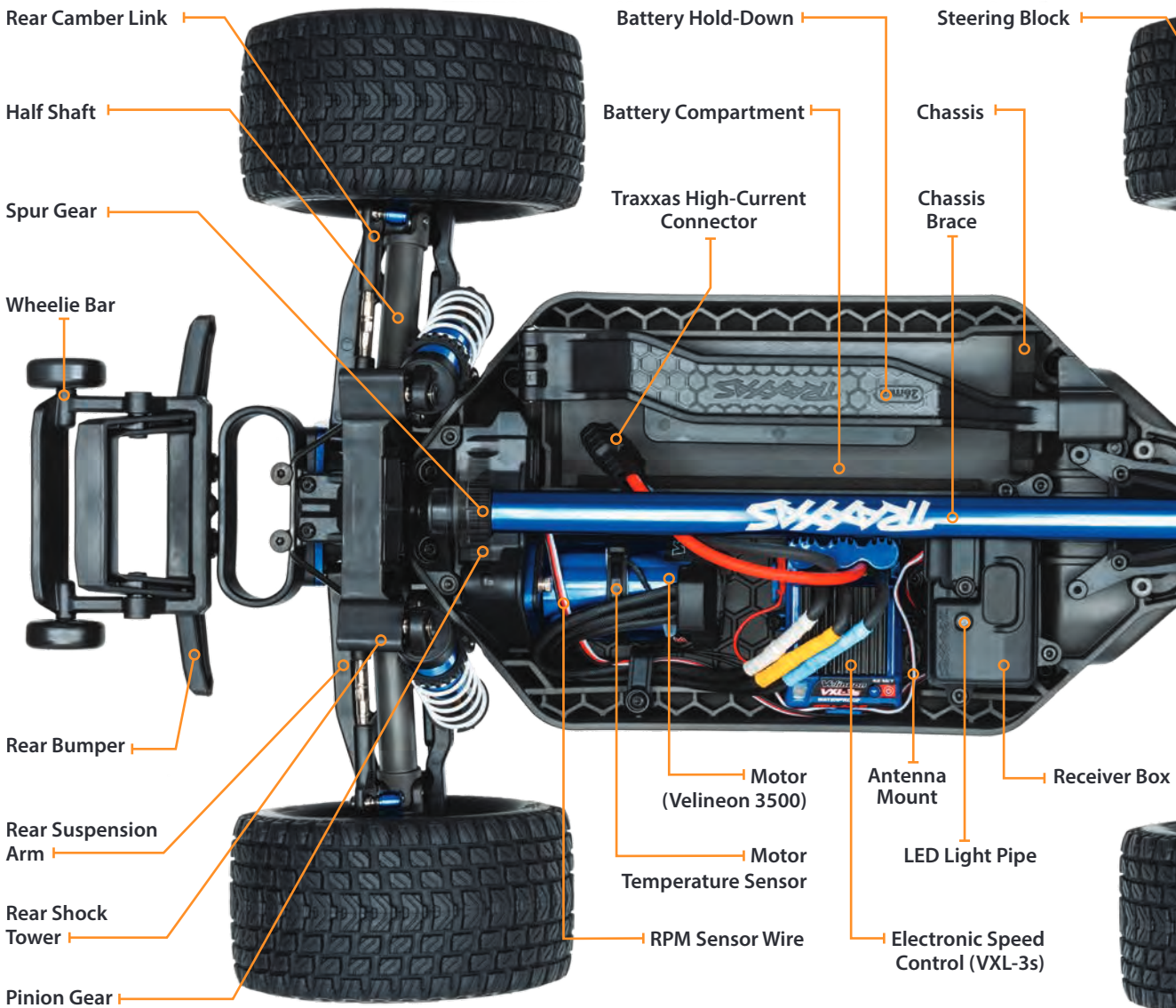
REMOVING AND INSTALLING THE BODY

Your Rustler 4X4 Ultimate includes an innovative latching system for securing the body to the chassis. To remove the body for chassis access:


1. Turn the handle 90 degrees counterclockwise to unlock the body latch.
2. Open the latch to release the truck body from the rear shock tower.
3. Slide the body backward away from the front shock tower to release the front body tab. **Note:** The body latch must clear the rear shock tower.
4. Gently lift the body straight up from the chassis. Lift the front and rear of the body evenly or it may become difficult to remove. (Installation of the body is the reverse of removal.)
5. Practice this a few times until you become familiar with the latching mechanism. The more you do it, the faster you will be.



ANATOMY OF THE RUSTLER 4X4 ULTIMATE



QUICK START: GETTING UP TO SPEED

 The following guide is an overview of the procedures for getting your model running. Look for the Quick Start logo on the bottom corners of Quick Start pages.

1. Read the safety precautions on pages 4-6

For your own safety, understand where carelessness and misuse could lead to personal injury and product damage.

6. Check servo operation • See page 15

Make sure the steering servo is working correctly.

2. Charge the battery pack • See page 13

Your model requires a battery pack and a compatible battery charger (not included). Never use a NiMH or NiCad charger to charge LiPo batteries.

7. Range test the radio system • See page 16

Follow this procedure to make sure your radio system works properly a distance, and that there is no interference from outside sources.

3. Install batteries in the transmitter • See page 13

The transmitter requires 4 AA alkaline batteries (sold separately).

8. Detail your model • See sidebar, page 10

Apply other decals if desired.

4. Install the battery pack in the model • See page 14

Your model requires a fully charged battery pack (not included).

9. Drive your model • See page 21

Driving tips and adjustments for your model.

5. Turn on the radio system • See page 14

Make a habit of turning the transmitter on first and off last.

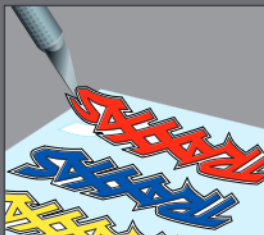
10. Maintaining your model • See page 26

Follow these critical steps to maintain the performance of your model and keep it in excellent running condition.



Applying the Decals

The main decals for your model have been applied at the factory. Additional decals are printed on self-adhesive clear mylar and are die-cut for easy removal. Use a hobby knife to lift the corner of a decal and lift it from the backing.



To apply the 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 air pockets. Look at the photos on the box for typical decal placement.



INTRODUCTION

Your model includes the latest Traxxas TQi 2.4GHz transmitter with Traxxas Link™ Model Memory. The transmitter's easy-to-use design provides instant driving fun for new R/C enthusiasts, and also offers a full complement of pro-level tuning features for advanced users – or anyone interested in experimenting with the performance of their model. The steering and throttle channels feature adjustable Exponential, End Points, and Sub-Trims. Steering and braking Dual-Rate are also available. Many of the next-level features are controlled by the Multi-Function knob, which can be programmed to control a variety of functions. The detailed instructions (page 33) and Menu Tree (page 37) included in this manual will help you understand and operate the advanced functions of the new TQi radio system. For additional information and how-to videos, visit Traxxas.com.

RADIO AND POWER SYSTEM TERMINOLOGY

Please take a moment to familiarize yourself with these radio and power system terms. They will be used throughout this manual. A detailed explanation of the advanced terminology and features of your new radio system begins on page 33.

2.4GHz Spread Spectrum – This model is equipped with the latest R/C technology. Unlike AM and FM systems that require frequency crystals and are prone to frequency conflicts, the TQi system automatically selects and locks onto an open frequency and offers superior resistance to interference and “glitching.”

BEC (Battery Eliminator Circuit) - The BEC can either be in the receiver or in the ESC. This circuit allows the receiver and servos to be powered by the main battery pack in an electric model. This eliminates the need to carry a separate pack of 4 AA batteries to power the radio equipment.

Brushless Motor - A D/C brushless motor replaces the brushed motor's traditional commutator and brush arrangement with intelligent electronics that energize the electromagnetic windings in sequence to provide rotation. Opposite of a brushed motor, the brushless motor has its windings (coils) on the perimeter of the motor can and the magnets are mounted to the spinning rotor shaft.

Cogging - Cogging is a condition sometimes associated with brushless motors. Typically, it is a slight stutter noticed when accelerating from a stop. It happens for a very short period as the signals from the electronic speed control and the motor synch with each other. The VXL-3s electronic speed control is optimized to virtually eliminate cogging.

Current - Current is a measure of the flow of electrons through a conductor, usually measured in amperes. Think of it like water flowing through a garden hose, current is the amount of water flowing through the hose.

ESC (Electronic Speed Control) - The ESC is the electronic motor control system that provides speed control uses advanced electronics to provide proportional throttle control. It allows the motor to run more efficiently and the batteries run longer. Many ESCs include circuitry that prevents the motor from overheating and the batteries lose their charge.

Frequency band - The radio system sends signals to your model through a specific direct-sequence spread spectrum frequency band.

kV Rating - Brushless motor speed is measured in kV. The kV rating equals the number of RPM the motor will spin at 1 volt. As the kV increases, the motor's speed also increases. The Velineon motor is optimized for the best performance in scale models.

LiPo - Abbreviation for Lithium Polymer battery packs are known for their high energy density, allows extremely high discharge rates in a compact size. These are not to be taken with special care and handling instructions from users only.

mAh - Abbreviation for milliampere hours of the battery pack. The higher the mAh, the longer the battery will last between charges.

Neutral position - The position of the transmitter control sticks when the transmitter is powered on.

NiCad - Abbreviation for Nickel-Cadmium rechargeable hobby pack. They are known for their handling, high capacity, and long life. Good charging procedure is essential to developing a “memory effect” in NiCad batteries.

NiMH - Abbreviation for nickel-metal hydride. Rechargeable NiMH batteries offer high current handling and much greater resistance to the "memory" effect. NiMH batteries generally allow higher capacity than NiCad batteries. They can last up to 500 charge cycles. A peak charger designed for NiMH batteries is required for optimal performance.

Receiver - The radio unit inside your model that receives signals from the transmitter and relays them to the servos.

Resistance - In an electrical sense, resistance is a measure of how an object resists or obstructs the flow of current through it. When flow is constricted, energy is converted to heat and is lost. The Velineon power system is optimized to reduce electrical resistance and the resulting power-robbing heat.

Rotor - The rotor is the main shaft of the brushless motor. In a brushless motor, the magnets are mounted to the rotor, and the electromagnetic windings are built into the motor housing.

Sensored - Sensored refers to a type of brushless motor that uses an internal sensor in the motor to communicate rotor position information back to the electronic speed control. The VXL-3s electronic speed control is able to use sensed motors when applications benefit from them (such as some sanctioned racing classes).

Sensorless - Sensorless refers to a brushless motor that uses advanced instructions from an electronic speed control to provide smooth operation. Additional motor sensors and wiring are not required. The VXL-3s electronic speed control is optimized for smooth sensorless control.

Servo - Small motor unit in your model that operates the steering mechanism.

Solder Tabs - Accessible, external contacts on the motor that allows for easy wire replacement. The Velineon 3500 is equipped with solder tabs.

Transmitter - The hand-held radio unit that sends throttle and steering instructions to your model.

Trim - The fine-tuning adjustment of the neutral position of the servos, made by adjusting the throttle and steering trim knobs on the face of the transmitter. **Note:** The Multi-Function knob must be programmed to serve as a throttle trim adjustment.

Thermal Shutdown Protection - Temperature sensing electronics used in the VXL-3s electronic speed control detect overloading and overheating of the transistor circuitry. If excessive temperature is detected, the unit automatically shuts down to prevent damage to the electronics.

2-channel radio system - The TQi radio system, consisting of the receiver, the transmitter, and the servos. The system uses two channels: one to operate the throttle and one to operate the steering.

Voltage - Voltage is a measure of the electrical potential difference between two points, such as between the positive battery terminal and ground. Using the analogy of the garden hose, while current is the quantity of water flow in the hose, voltage corresponds to the pressure that is forcing the water through the hose.

IMPORTANT RADIO SYSTEM PRECAUTIONS

- Do not kink the receiver's antenna wire. Kinks in the antenna wire will reduce range.
- DO NOT CUT any part of the receiver's antenna wire. Cutting the antenna will reduce range.
- Extend the antenna wire in the model as far as possible for maximum range. It is not necessary to extend the antenna wire out of the body, but wrapping or coiling the antenna wire should be avoided.
- Do not allow the antenna wire to extend outside the body without the protection of an antenna tube, or the antenna wire may get cut or damaged, reducing range. It is recommended to keep the wire inside the body (in the antenna tube) to prevent the chance of damage.



Velineon 3500 Specs

Type: Sensorless brushless
 RPM/volt: 3500
 Magnet type: Ultra High-Temperature Sintered Neodymium
 Connection type : 3.5mm bullet
 Wire size: 12 Gauge
 Max RPM: 50,000
 Diameter: 36mm (1.42") (540 size)
 Length: 55mm (2.165")
 Weight: 262g (9.24oz)

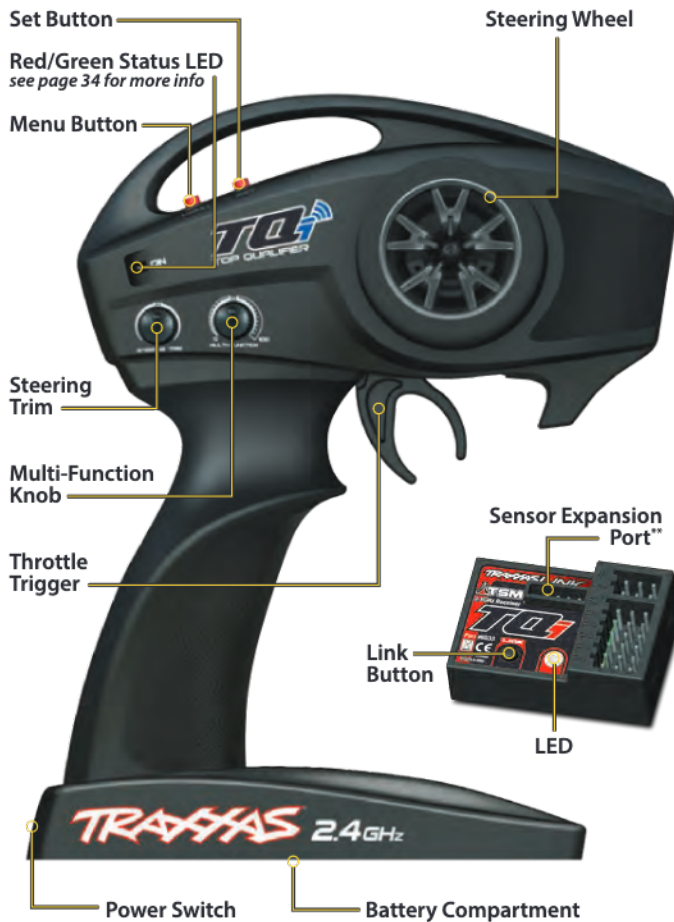
ESC/Motor Wiring Diagram



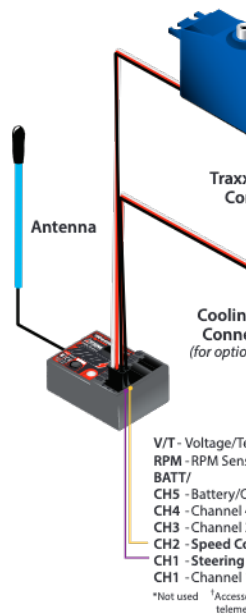
+ Positive
 - Negative
 A
 B
 C

Your model is equipped with the newest TQi 2.4GHz transmitter with Traxxas Link™ Model Memory. The transmitter has two channels for controlling your throttle and steering. The receiver inside the model has 5 output channels. Your model is equipped with one servo and an electronic speed control.

TRANSMITTER AND RECEIVER



MODEL WIRING D



VXL-3s ELECTRONICS



** Accessory sensor expansion port for use with the Telemetry Expander Module (see Traxxas.com and included materials for more information)

INSTALLING TRANSMITTER BATTERIES

Your TQi transmitter uses 4 AA batteries. The battery compartment is located in the base of the transmitter.



1. Remove the battery compartment door by pressing the tab and sliding the door open.
2. Install the batteries in the correct orientation as indicated in the battery compartment.
3. Reinstall the battery door and snap it closed.
4. Turn on the transmitter and check the status indicator for a solid green light.

If the status LED flashes red, the transmitter batteries may be weak, discharged or possibly installed incorrectly. Replace with new batteries. The power indicator light does not indicate the charge level of the battery pack installed in the model. Refer to the Troubleshooting section on page 34 for more information on the transmitter Status LED codes.



SELECTING BATTERIES FOR YOUR MODEL

Your model does not include a battery or charger. One NiMH or LiPo battery equipped with a Traxxas iD® High-Current Connector is required. **Traxxas Power Cell iD batteries are strongly recommended for maximum performance and safer charging.** The following chart lists available Power Cell iD batteries for your model:

LiPo Batteries with iD

2842X	5000mAh 7.4V 2-Cell 25C LiPo Battery
2843X	5800mAh 7.4V 2-Cell 25C LiPo Battery*
2869X	7600mAh 7.4V 2-Cell 25C LiPo Battery
2849X	4000mAh 11.1V 3-Cell 25C LiPo Battery*
2872X	5000mAh 11.1V 3-cell 25C LiPo Battery

*requires use of included foam block for a more secure fit

**requires optional battery hold-down (part #6726X, sold separately)

NiMH Batteries with iD

2923X	Battery, Power Cell, 3000mAh (NiMH, 7-C flat, 8.4V)
2940X	Battery, Series 3 Power Cell, 3300mAh (NiMH, 7-C flat, 8.4V)
2950X	Battery, Series 4 Power Cell, 4200mAh (NiMH, 7-C flat, 8.4V)
2960X	Battery, Series 5 Power Cell, 5000mAh (NiMH, 7-C flat, 8.4V)



WARNING: FIRE HAZARD!

Users of Lithium Polymer (LiPo) batteries must read the Warnings and Precautions beginning on page 4. You **MUST** use a LiPo charger for LiPo batteries or battery damage with the potential for fire will result.

SELECTING A CHARGER FOR YOUR MODEL

Make certain you choose the correct type of charger for the batteries you select. Traxxas recommends you choose a genuine Traxxas EZ-Peak charger for safer charging and maximum battery life and performance.

Charger	Part No.	NiMH Compatible	LiPo Compatible	Battery iD	Max Cell
EZ-Peak Plus, 4 amps	2970	YES	YES	YES	3
EZ-Peak Live, 12 amps	2971	YES	YES	YES	4
EZ-Peak Dual, 8 amps	2972	YES	YES	YES	3
EZ-Peak Live Dual, 26+ amps	2973	YES	YES	YES	4



Battery iD

Traxxas recommended battery packs are equipped with Traxxas Battery iD. This exclusive feature allows Traxxas battery chargers (sold separately) to automatically recognize connected battery packs and optimize the charge settings for the battery. This eliminates the need to worry over charger settings and menus for the easiest and safest charging solution possible. Visit Traxxas.com to learn more about this feature and available Traxxas iD chargers and batteries.



Battery Compartment Specs:

- 143.45mm (5.65") long x 50.37mm (1.98") wide
- Height with stock strap: 25mm (.94")
- Height with accessory strap: 41mm (1.61")

INSTALLING THE BATTERY PACK

Install the battery pack with the battery wires facing the front of the model. Swing the battery hold-down towards the chassis and snap (lock) the end into the front hold-down retainer. Do not connect the battery pack yet.



RADIO SYSTEM



RADIO SYSTEM

- Always turn your TQi transmitter on first. This procedure will help to prevent interference with signals from another transmitter and prevent your model from going out of control. Your model may experience a type of malfunction, but the best way to prevent this model is to always turn your transmitter on first.



Always turn your transmitter on first.



- Always use new batteries for the radio system. Weak batteries will limit the radio signal between the receiver and the transmitter. Loss of the radio signal can cause you to lose control of your model.
- In order for the transmitter and receiver to bind to one another, the receiver in the model must be turned on within 20 seconds of turning on the transmitter. The transmitter LED will flash fast red, indicating a failure to link. If you miss it, simply turn off the transmitter and start over.
- Always turn on the transmitter before plugging in the battery.

RADIO SYSTEM BASIC ADJUSTMENTS

Steering Trim

The electronic steering trim located on the face of the transmitter adjusts the neutral (center) point of the steering channel.

Note: Traxxas Stability Management (TSM) must be completely turned off while adjusting steering trim. See page 16 for TSM adjustments.



Multi-Function Knob

The Multi-Function knob can be programmed to control a variety of functions. From the factory, the Multi-Function knob controls Traxxas Stability Management (TSM). For more detail on TSM, refer to page 16.



USING THE RADIO SYSTEM

The TQi Radio System has been pre-adjusted at the factory. The adjustment should be checked before running the model in case of movement during shipping. Here's how:

1. Turn the transmitter switch on. The status LED on the transmitter should be solid green (not flashing).
2. **Elevate the model on a block or a stand so that all the tires are off the ground.** Make sure your hands are clear of the moving parts of the model.
3. Plug the battery pack in the model into the speed control.
4. The on/off switch is integrated into the speed control. With the transmitter on, press and release the EZ-Set button (.25 seconds). The LED will shine RED (see note below). This turns the model on. To turn the VXL-3s off, press and hold the EZ-Set button until the LED turns off (.5 seconds).

Note: If the LED shines green, Low-Voltage Detection is activated. This will cause erratic performance from NiMH battery packs. The default factory setting is for Low-Voltage Detection to be disabled (LED shines red). Make sure to turn the low voltage detection on when using LiPo batteries. **Never use LiPo batteries while Low-Voltage Detection is turned off.** See page 18 for more information.

5. Turn the steering wheel on the transmitter back and forth and check for rapid operation of the steering servo. Also, check that the steering mechanism is not loose or binding. If the steering operates slowly, check for weak batteries.
6. When looking down at the model, the front wheels should be pointing straight ahead. If the wheels are turned slightly to the left or right, turn off TSM (see page 16) and slowly adjust the steering trim control on the transmitter until they are pointing straight ahead; then, return the multi-function knob to the desired TSM setting.
7. Gently operate the throttle trigger to ensure that you have forward and reverse operation, and that the motor stops when the throttle trigger is at neutral. **Warning: Do not apply full throttle in forward or reverse while the model is elevated.**
8. Once adjustments are made, turn off the receiver on your model, followed by the hand-held transmitter.



Range-Testing the Radio System

Before each running session with your model, you should range-test your radio system to ensure that it operates properly.

1. Turn on the radio system and check its operation as described in the previous section.
2. Have a friend hold the model. Make sure hands and clothing are clear of the wheels and other moving parts on the model.
3. Walk away from the model with the transmitter until you reach the farthest distance you plan to operate the model.
4. Operate the controls on the transmitter once again to be sure that the model responds correctly.
5. Do not attempt to operate the model if there is any problem with the radio system or any external interference with your radio signal at your location.



Using Reverse: While driving, push the throttle trigger forward to apply brakes. Once stopped, return the throttle trigger to neutral. Push the throttle trigger forward again to engage proportional reverse.

Higher Speeds Require Greater Distance

The faster you drive your model, the more quickly it will near the limit of radio range. At 60mph, a model can cover 88 feet every second! It's a thrill, but use caution to keep your model in range. If you want to see your model achieve its maximum speed, it is best to position yourself in the middle of the truck's running area, not the far end, so you drive the truck towards and past your position. In addition to maximizing the radio's range, this technique will keep your model closer to you, making it easier to see and control.

No matter how fast or far you drive your model, always leave adequate space between you, the model, and others. Never drive directly toward yourself or others.

TQi Binding Instructions

For proper operation, the transmitter and receiver must be electronically "bound." **This has been done for you at the factory.**

Should you ever need to re-bind the system or bind to another transmitter or receiver, follow these instructions. **Note:** The receiver must be connected to a 4.8-6.0v (nominal) power source for binding, and the transmitter and receiver must be within 5 feet of each other.

1. Press and hold the transmitter's SET button as you switch the transmitter on. The transmitter's LED will flash red slowly. Release the SET button.
2. Press and hold the receiver's LINK button as you switch on the speed control (by pressing the EZ-Set button). Release the LINK button.
3. When the transmitter and receiver's LEDs turn solid green, the system is bound and ready for use. Confirm that the steering and throttle operate properly before driving your model.

TRAXXAS STABIL



control of the vehicle in l
straight ahead full-thrott
without fishtailing, spin
improves braking contro
made possible as TSM ma
on your fun, or creating u

The Multi-Function knob
the TQi transmitter has b
programmed to control T
recommended (default) s
for TSM is to rotate the k
the 12:00 position (the ze
on the dial).

Turn the knob clockwise
increase assistance; turn
knob counterclockwise t
decrease assistance. Turn
knob counterclockwise t
stop to turn TSM comple
Note: TSM is deactivated
automatically when drivi
braking in reverse.

When driving on surface
some traction, decrease t
more "loose" for power sl
very little traction (loose
TSM to maximize acceler

Drive with TSM on and of
the vehicle easier and mo
Traxxas.com/tsm.

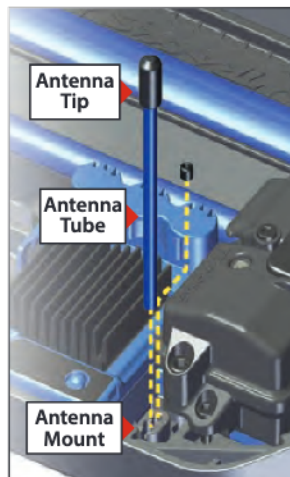
Note: TSM must be comp
trim.

SETTING UP THE ANTENNA

The receiver antenna has been set up and installed from the factory. The antenna is secured by a 3x4mm set screw. To remove the antenna tube, simply remove the set screw with the included 1.5mm wrench.

When reinstalling the antenna, first slide the antenna wire into the bottom of the antenna tube until the white tip of the antenna is at the top of the tube under the black cap. Next insert the antenna tube into the mount while making sure that antenna wire is in the slot in the antenna mount, then install the set screw next to the antenna tube.

Use the supplied 1.5mm wrench to tighten the screw just until the antenna tube is securely in place. Do not over tighten. **Do not bend or kink the antenna wire! See the sidebar for more information. Do not shorten the antenna tube.**



SELF RIGHTING

Your model is equipped with Traxxas Self Righting that will allow you to automatically return it to an upright position after a rollover. *** Make sure there is adequate space**



around your Rustler 4X4 Ultimate and no people or animals are nearby before self righting. The model moves quickly and the tires are spinning at high speed. If a person or animal approaches the model during self righting, cancel immediately by moving the steering wheel or the throttle trigger. Press and hold the SET button on the transmitter for four (4) seconds to activate the self-righting feature. Once activated, the SET button can be released. Note: Certain driving surfaces or conditions may prevent the model from uprighting itself. After several attempts, self righting will cancel. Press the SET button to try again, or go and retrieve your model.

***3s LiPo battery pack required for the self-righting feature to operate properly.**

ADJUSTING THE ELECTRONIC SPEED CONTROL



VXL-3s Specifications

Input voltage:

4.8-11.1V (4 to 9 cells NiMH or 2S to 3S LiPo)

Supported Motors:

Brushless

Motor limit:

None

BEC voltage:

6.0V DC

Transistor type:

MOSFET

Battery connector:

Traxxas High-Current Connector

Motor connectors:

TRX 3.5mm bullet connectors

Motor/Battery Wiring:

12-gauge Maxx[®] Cable

Thermal Protection:

2-stage thermal shutdown

VXL-3s Battery Settings (Low-Voltage Detection Setting)

The Velineon VXL-3s electronic speed control is equipped with built-in Low-Voltage Detection. The Low-Voltage Detection circuitry constantly monitors the battery voltage. When the battery voltage begins to reach the minimum recommended discharge voltage threshold for LiPo battery packs, the VXL-3s will limit the power output to 50% throttle. When the battery voltage attempts to fall below the minimum threshold, the VXL-3s will shut down all motor output. The LED on the speed control will slowly blink red, indicating a low-voltage shutdown. The VXL-3s will stay in this mode until a fully charged battery is connected.

When you turn your model on, the VXL-3s speed control's status LED will glow green, indicating that **Low-Voltage Detection is activated** to prevent over-discharging of LiPo batteries. **LiPo batteries are intended only for the most advanced users that are educated on the risks associated with LiPo battery use.**



WARNING: FIRE HAZARD!

Do not use LiPo batteries in this vehicle with Low-Voltage Detection disabled.

To verify the Low-Voltage Detection setting:

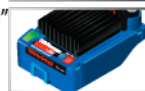
1. Turn on the transmitter (with the throttle at neutral).
2. Connect a fully charged battery pack to the VXL-3s.
3. Press and release the EZ-Set button to turn the VXL-3s on. If the LED is solid red, then the Low-Voltage Detection is **DISABLED** (not safe to use LiPo batteries). If the LED is solid green, then Low-Voltage Detection is **ACTIVATED**.

To activate Low-Voltage Detection (LiPo setting):

1. Make sure the LED on the VXL-3s is on and red.
2. Press and hold the EZ-Set button for ten seconds. The LED will turn off and then light green. Also, a "rising" musical tone will be emitted from the motor.
3. Low-Voltage Detection is now **ACTIVATED**.

To disable Low-Voltage Detection (NiMH setting):

1. Make sure the LED on the VXL-3s is on and green.
2. Press and hold the EZ-Set button for ten seconds. The LED will turn off and then light red. Also, a "falling" musical tone will be emitted from the motor.
3. Low-Voltage Detection is now **DISABLED**.



Transmitter Adjustment

Before attempting to program the transmitter, make sure that your transmitter is set to the factory defaults. Other settings may be changed from your speed control.

The transmitter should be set to the factory defaults.

If the transmitter settings are not the factory defaults.

1. Turn the transmitter off.
2. Hold both MENU and MODE buttons.
3. Turn the transmitter on.
4. Release MENU and MODE buttons.
5. Press SET to clear settings. The transmitter is restored to factory defaults.

VXL-3s Setup Program

Read through all of the settings before you get lost during programming. If you get lost, unplug the battery, wait 30 seconds, and start over.

1. Connect a fully charged battery pack to the VXL-3s.
2. Turn on the transmitter.
3. Press and hold the EZ-Set button for ten seconds. The LED will first turn green and then red. Release the EZ-Set button.
4. When the LED blinks red, press the throttle trigger to the left (A) and hold it there (B).
5. When the LED blinks green, press the throttle trigger to the right (C) and hold it there (C).
6. When the LED blinks red, the transmitter programming is complete. The LED will then shine green or red. Press the EZ-Set button (Low-Voltage Detection setting), into the transmitter (neutral (D)).

VXL-3s Operation

To operate the speed control and test programming, place the vehicle on a stable block or stand so that all of the drive wheels are off the ground. Disconnect motor wires "A" and "C" (see page 12), this will ensure the motor does not drive the wheels during testing. Do not test programming without disconnecting the motor wires.

Note that in steps 1-7 below, Low-Voltage Detection is ACTIVATED (factory default) and the LED shines green. If Low-Voltage Detection is DISABLED, the LED will shine red instead of green in steps 1-7 below.

Never use LiPo batteries while Low-Voltage Detection is disabled.

1. With the transmitter on, press and release the EZ-Set button. The LED will shine green. This turns the VXL-3s on.
2. Apply forward throttle. The LED will turn off until full throttle power is reached. At full throttle, the LED will illuminate green.
3. Move the trigger forward to apply the brakes. Note that braking control is fully proportional. The LED will turn off until full braking power is reached. At full brakes, the LED will illuminate green.
4. Return the throttle trigger to neutral. The LED will shine green.
5. Move the throttle trigger forward again to engage reverse (Profile #1). The LED will turn off. Once full reverse power is reached, the LED will illuminate green.
6. To stop, return the throttle trigger to neutral. Note that there is a programmed delay when changing from reverse to forward. This prevents damage to the transmission on high-traction surfaces.
7. To turn the VXL-3s off, press the EZ-Set button until the LED turns off (.5 seconds).

VXL-3s Profile Selection

The speed control is factory set to Profile #1 (100% forward, brake and reverse). To disable reverse (Profile #2) or to allow 50% forward and 50% reverse (Profile #3), follow the steps below. The speed control should be connected to the receiver and battery, and the transmitter should be adjusted as described previously. The profiles are selected by entering the programming mode.

Profile Description

Profile #1 (Sport Mode): 100% Forward, 100% Brakes, 100% Reverse

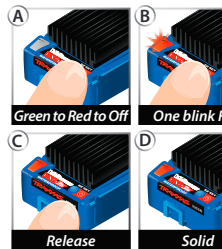
Profile #2 (Race Mode): 100% Forward, 100% Brakes, No Reverse

Profile #3 (Training Mode): 50% Forward, 100% Brakes, 50% Reverse

Selecting Sport Mode

(Profile #1: 100% Forward, 100% Brakes, 100% Reverse)

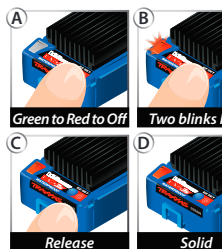
1. Connect a fully charged battery pack to the VXL-3s and turn on your transmitter.
2. With the VXL-3s off, press and hold the EZ-Set button until the LED turns solid green, then solid red and then begins blinking red (indicating the Profile numbers).
3. When the LED blinks red once, release the EZ-Set button.
4. The LED will blink and then turn solid green (Low-Voltage Detection ACTIVE) or red (Low-Voltage Detection DISABLED). The model is ready to drive.



Selecting Race Mode

(Profile #2: 100% Forward, 100% Brakes, No Reverse)

1. Connect a fully charged battery pack to the VXL-3s and turn on your transmitter.
2. With the VXL-3s off, press and hold the EZ-Set button until the LED turns solid green, then solid red and then begins blinking red (indicating the Profile numbers).
3. When the LED blinks red twice, release the EZ-Set button.
4. The LED will blink and then turn solid green (Low-Voltage Detection ACTIVE) or red (Low-Voltage Detection DISABLED). The model is ready to drive.





Patented Training Mode (Profile #3) reduces forward and reverse throttle by 50%. Training Mode is provided to reduce the power output, allowing beginning drivers to better control the model. As driving skills improve, simply change to Sport or Race Mode for full-power operation.



Tip For Fast Mode Changes
The VXL-3s is set to Profile 1 (Sport Mode) as the default. To quickly change to Profile 3 (Training Mode), with the transmitter on, press and hold the EZ-Set button until the light blinks red three times and then release. For full power, quickly change back to Profile 1 (Sport Mode) by pressing and holding the EZ-Set button until the light blinks red one time and then releasing.

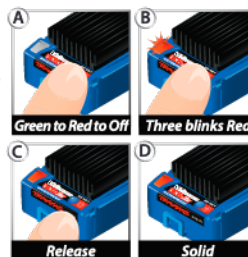


The VXL-3s has built-in programming that prevents accidental activation of reverse while in forward motion and vice-versa. You must come to a complete stop, release the throttle trigger, then apply opposite throttle to engage the motor in the desired direction.

Selecting Training Mode

(Profile #3: 50% Forward, 100% Brakes, 50% Reverse)

1. Connect a fully charged battery pack to the VXL-3s and turn on your transmitter.
2. With the VXL-3s off, press and hold the EZ-Set button until the LED turns solid green, then solid red and then begins blinking red (indicating the Profile numbers).
3. When the LED blinks red three times, release the EZ-Set button.
4. The LED will blink and then turn solid green (Low-Voltage Detection ACTIVE) or red (Low-Voltage Detection DISABLED). The model is ready to drive.



Note: If you missed the mode you wanted, keep the EZ-Set button pressed down and the blink cycle will repeat until the button is released and a Mode is selected.

LED Codes and Protection Modes



• **Solid Green:** VXL-3s power-on light. Low-Voltage Detection is ACTIVATED (LiPo setting).



• **Solid Red:** VXL-3s power-on light. Low-Voltage Detection is DISABLED (NiCad/NiMH setting). **Never use LiPo batteries while Low-Voltage Detection is disabled.**



• **Slow Blinking Red (with Low-Voltage Detection on):** The VXL-3s has entered **Low-Voltage Protection**. When the battery voltage begins to reach the minimum recommended discharge voltage threshold for LiPo battery packs, the VXL-3s will limit the power output to 50% throttle. When the battery voltage attempts to fall below the minimum threshold, the VXL-3s will shut down all motor output. The LED on the speed control will slowly blink red, indicating a low-voltage shutdown. The VXL-3s will stay in this mode until a fully charged battery is connected.



• **Fast Blinking Red:** If the motor has become very hot, the VXL-3s will enter **Low-Voltage Protection** to stop current flow. If the motor is very hot, the VXL-3s will enter **Low-Voltage Protection** and stop the motor. Allow the VXL-3s cool. Make sure the motor is in good conditions (see page 20).



• **Very Fast Blinking Red:** Low Voltage Protection. The LED will blink the same time.



• **Alternating; Blinking Green:** If the VXL-3s is in full power, the VXL-3s will enter **Low-Voltage Protection** if a battery with a low voltage is inserted into a fail-safe mode. The LED will blink approximately every 1.2 seconds. If the LED exceeds 12.6 mV, the VXL-3s will enter **Low-Voltage Protection**.



• **Blinking Green:** Throttle Trim (S) Function knob. Turn the Throttle Trim to the middle position.

DRIVING YOUR MODEL

Now it's time to have some fun! This section contains instructions on driving and making adjustments to your model. Before you go on, here are some important precautions to keep in mind.

- Allow the model to cool for a few minutes between runs. This is particularly important when using high-capacity battery packs that allow extended periods of running. Monitoring temperatures will extend the lives of the batteries and motors. See page 28 for advanced user information on monitoring temperatures.
- Do not continue to operate the model with low batteries or you could lose control of it. Indications of low battery power include slow operation, sluggish servos (slow to return to center), or ESC shutdown due to the Low-Voltage Detection circuitry. Stop immediately at the first sign of weak batteries. When the batteries in the transmitter become weak, the power light will begin to flash red. Stop immediately and install new batteries.
- Do not drive the model at night, on public streets, or in large crowds of people.
- If the model becomes stuck against an object, do not continue to run the motor. Remove the obstruction before continuing. Do not push or pull objects with the model.
- Because the model is controlled by radio, it is subject to radio interference from many sources beyond your control. Since radio interference can cause momentary losses of control, allow a safety margin of space in all directions around the model in order to prevent collisions.
- Use good, common sense whenever you are driving your model. Intentionally driving in an abusive and rough manner will only result in poor performance and broken parts. Take care of your model so that you can enjoy it for a long time to come.
- When using the supplied optional pinion for top-speed running, limit your driving to paved surfaces only. Running in grass and off-road could cause excessive loads on the electrical system in the model.
- High-performance vehicles produce small vibrations that may loosen hardware over time. Frequently check wheel nuts and other screws on your vehicle to ensure that all hardware remains properly tightened.

About Run Time

A large factor affecting run time is the type and condition of your batteries. The milliamp hour (mAh) rating of the batteries determines how large their "fuel tank" is. A 3000mAh battery pack will theoretically run twice as long as a 1500mAh sport pack. Because of the wide variation in the types of batteries that are available and the methods with which they can be charged, it's impossible to give exact run times for the model.

Another major factor that affects run time is how the model is driven. Run times may decrease when the model is driven repetitively from a stop to top speed and with repetitive hard acceleration.

Tips for Increasing Run Time

- Use batteries with the highest mAh rating you can purchase.
- Use a high-quality peak-detecting charger.
- Read and follow all maintenance and care instructions provided by the manufacturer of your batteries and charger.
- Keep the VXL-3s cool. Get plenty of airflow across the ESC heat sinks.
- Use the correct Low-Voltage Detection setting for your battery (see page 18). Low-Voltage Detection can be off for maximum NiMH battery runtime. Never use LiPo batteries while Low-Voltage Detection is turned off.
- Lower your gear ratio. Installing a smaller pinion or larger spur gear will lower your gear ratio, causing less power draw from the motor and battery, and reducing overall operating temperatures.
- Maintain your model. Do not allow dirt or damaged parts to cause binding in the drivetrain. Keep the motor clean.

mAh Ratings and Power Output

The mAh rating of the battery can affect your top-speed performance. The higher capacity battery packs experience less voltage drop under heavy load than low mAh rated packs. The higher voltage potential allows increased speed until the battery begins to become discharged.

RUNNING IN WET CONDITIONS

Your new Traxxas model is designed with water-resistant features to protect the electronics in the model (receiver, servos, electronic speed control). This gives you the freedom to have fun driving your model through puddles, wet grass, snow, and through other wet conditions. Though highly water resistant, the model should not be treated as though it is submersible or totally 100% waterproof. Water resistance applies only to the installed electronic components. Running in wet conditions requires additional care and maintenance for the mechanical and electrical components to prevent corrosion of metal parts and maintain their proper function.

Precautions

- **Without proper care, some parts of your model can be seriously damaged due to contact with water. Know that additional maintenance procedures will be required after running in wet conditions in order to maintain the performance of your model. Do not run your model in wet conditions if you are not willing to accept the additional care and maintenance responsibilities.**

DRIVING YOUR MODEL

- **Not all batteries can be used in wet environments.** Consult your battery manufacturer to see if their batteries can be used in wet conditions. Do not use LiPo batteries in wet conditions.
- The Traxxas TQi transmitter is not water resistant. Do not subject it to wet conditions such as rain.
- Do not operate your model during a rain storm or other inclement weather where lightning may be present.
- Do not allow your model to come in contact with salt water (ocean water), brackish water (between fresh water and ocean water), or other contaminated water. Salt water is highly conductive and highly corrosive. Use caution if you plan to run your model on or near a beach.

Before Running Your Vehicle in Wet Conditions

1. Consult the section "After Running Your Vehicle in Wet Conditions" before proceeding. Make sure you understand the additional maintenance required with wet running.
2. The wheels have small holes molded in to allow air to enter and exit the tire during normal running. Water will enter these holes and get trapped inside the tires if holes are not cut in the tires. Cut two small holes (3mm or 1/8" diameter) in each tire. Each hole should be near the tire center-line, 180 degrees apart.
3. Confirm that the receiver box O-ring and cover are installed correctly and secure. Make sure the screws are tight and the blue O-ring is not visibly protruding from the edge of the cover.
4. Confirm that your batteries can be used in wet conditions.
5. Use lower gearing (smaller pinion gears, as low as 9T or spur gear as large as 54T) when running in mud, deep puddles, snow, or other similar situations that will restrict the tires and put much higher loads on the motor.

Motor Precautions

- Velineon motor life can be greatly reduced in mud and water. If the motor gets excessively wet or submerged, use very light throttle (run the motor slowly) until the excess water can run out. Applying full throttle to a motor full of water can cause rapid motor failure. Your driving habits will determine motor life with a wet motor. Do not submerge the motor under water.
- Do not gear the motor by temperature when running in wet conditions. The motor will be cooled by water contact and will not give an accurate indication of appropriate gearing.

- Use special care when operating your model if the mud or build-up of material on the motor or pack area.

After Running Your Vehicle

1. Drain the tires by spinning them out. One way to do this is to spin them on a dry surface (if possible).
 2. Remove the batteries.
 3. Rinse excess dirt and mud from the truck as from a garden hose. Do not use high pressure water. Avoid oil, etc.
 4. Blow off the truck with compressed air. Wear safety glasses when using compressed air.
 5. Remove the wheels from the truck.
 6. Spray all the bearings, gears, and other moving parts with a water-displacing light oil.
 7. Let the truck stand or yoke it in a warm, sunny area. The truck will continue to drip from the receiver box or piece of cardboard that it is on.
 8. As a precautionary step, if humidity or time is unlikely, humidity or time will enter the receiver box and cause problems with the sensor. Remove the receiver box cover during the next run. This can improve the long-term life of the receiver.
 9. **Additional Maintenance:** Perform a visual inspection, and lubricate the truck after extended wet use. A short period of time (such as 10 minutes) is needed to prevent any rust on steel components.
- **Stub axle housing bearings:** Remove the stub axle housing bearings from an auto parts store. Refer to the exploded view diagram.
 - **Differentials:** Remove the differential components from an auto parts store. Refer to the exploded view diagram.

- **Velineon motor:** After operating your model in wet or muddy conditions, remove the motor and clean any mud or dirt from the bearings. To access the rear bearing, remove the plastic cap with thumb pressure, or gently pry the cap off with a flat-blade screwdriver. To prevent corrosion and assure maximum bearing life, lubricate the bearings with a light oil (available at your local hobby store). Following these steps will extend motor life and maintain peak performance. Be sure to wear eye protection when using spray aerosol cleaners.

RECEIVER BOX: MAINTAINING A WATERTIGHT SEAL

Removing and Installing Radio Gear

The unique design of the receiver box allows the removal and installation of the receiver without losing the ability to maintain a watertight seal in the box. The patent-pending wire clamp feature gives you the ability to also install aftermarket radio systems and maintain the watertight features of the receiver box.

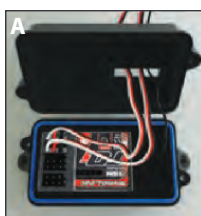
Removing the Receiver

1. Remove the wire clamp by removing the two 2.5x8mm cap screws.
2. Remove the cover by removing the two 3x10mm cap screws.
3. To remove the receiver from the box, simply lift it out and set to the side. The antenna wire is still inside the clamp area and cannot be removed yet.
4. Unplug the servo cables from the receiver and remove the receiver.

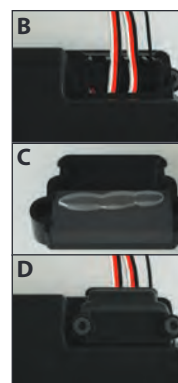
Receiver Installation

1. Install the electronic speed control (ESC), servo, and antenna wiring through the receiver box top (A).
2. Using double-sided adhesive foam tape, install the receiver into the box. Make sure the box light pipe is aligned with the receiver LED.

Note: For best performance, it is recommended that the receiver be installed in the original orientation as shown.



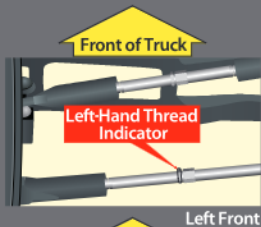
3. Plug ESC and servo wires into the receiver. Refer to page 12 for the wiring diagram.
4. Make sure the O-ring is properly seated into the groove in the receiver box bottom so that the cover will not pinch it or damage it in any way.
5. Place receiver box top onto receiver box bottom and install and tighten the two 3x10mm cap screws securely.
6. Inspect the cover to make sure that the O-ring seal is not visible.
7. Arrange the wires neatly using the wire guides on the receiver box top (B). Excess ESC and servo wiring should be bundled inside the receiver box. Pull out all available antenna wiring from the receiver box.
8. Apply a small bead of silicone grease (Traxxas part #1647) to the foam on the wire clamp (C).
9. Install the wire clamp and tighten the two 2.5x8mm cap screws securely (D).



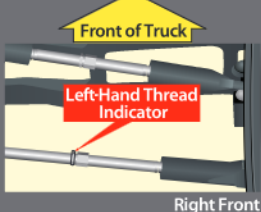
BASIC TUNING ADJUSTMENTS



All of the toe links are installed on the truck so the left-hand thread indicators point to the same direction. This makes it easier to remember which way to turn the wrench to increase or decrease toe link length (the direction is the same at all four corners). Note that the groove in the hex indicates the side of the toe link with the left-hand threads.



Left Front



Right Front



Rear toe-in can be adjusted using accessory rear axle carriers, Traxxas Part #1952X. These can add or remove 1.5° toe per side, for a total of 1 to 4 degrees per side.

Once you become familiar with driving your model, you might need to make adjustments for better driving performance

ADJUSTING GEAR MESH

Incorrect gear mesh is the most common cause of stripped spur gears. Rustler 4X4 Ultimate makes improper gear mesh virtually impossible. A factory installed fixed gear adapter helps set the motor in the proper place according to the pinion and spur gear that are selected. Access the gears by removing the single screw on the top gear cover.



		Spur Gear		
		50	52	54
Pinion Gear	11	-	-	A
	13	-	A	-
	15	A	-	-
	17	-	-	B
	19	-	B	-



If you choose to do so, you can also set the gear mesh manually without using the fixed gear adapter. With the adapter removed, loosen the motor screw. Cut a narrow strip of notebook paper and run it into the gear mesh. Slide the motor and pinion gear into the spur gear. Retighten the motor screw, and then remove the strip of paper. You should be able to run a fresh strip of paper through the gears without binding them.



ADJUSTING THE TOE-IN

Geometry and alignment specs play an important role in your model's handling. Take the time to set them correctly. Turn off TSM (see page 16); then, set the steering trim on your transmitter to neutral. Now, adjust your servo and tie rods so that both wheels are pointing straight ahead and are parallel to each other (0° toe-in). This will ensure the same amount of steering in both directions.

For increased stability adjust the turnbuckles to adjust



Toe Base Factory Settings
Front: 0-degrees
Rear: 2.5-degree toe-in

ADJUSTING THE CAMBER

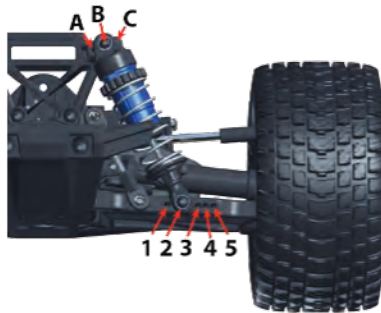
The camber angle of both wheels is set with the camber links (upper control arms) using an angle triangle to set the camber to 1° to 2° of negative camber. The truck positioned at its normal



Static Camber Base Factory Settings
Front: 1-degree negative
Rear: 1-degree negative

SHOCK MOUNTING POSITIONS

Big bumps and rough terrain require a softer suspension with the maximum possible suspension travel and ride height. Racing on a prepared track or on-road use requires a lower ride height and firmer, more progressive suspension settings. The more progressive suspension settings help reduce body roll (increased roll stiffness), dive during braking, and squat during acceleration.



The suspension of your model has been set up for off-road performance (position 2 on the front suspension arms and position 3 on the rear suspension arms). If you plan on driving on hard surfaces, the following changes should be made:

1. Move the front shocks to position 3 on the suspension arms.
2. Move the rear shocks to position 4 on the suspension arms.
3. Add additional preload spacers.
4. Position 1 is not recommended for front or rear.

Experiment with different springs and shock oils to find what works best for your current track conditions.

CENTERING YOUR SERVO

If you have removed the servo horn from your model's steering servo or the servo has been removed for service or cleaning, the servo must be re-centered prior to installation of the servo horn or installation of the servo in the model.

1. Remove the servo horn from the steering servo.
2. Connect the steering servo to channel 1 on the receiver. Connect the electronic speed control (ESC) to channel 2. The white wire of the servo lead is positioned toward the receiver's LED.
3. Turn the transmitter power switch on. Make certain the transmitter's batteries are not depleted.
4. Turn off TSM (see page 16).
5. Turn the transmitter's steering trim knob to the center "0" position.
6. Disconnect motor wires "A" and "C" (see page 12) to prevent the motor from turning during the next steps. Connect a fresh battery pack to the speed control and turn on the ESC (see page 18). The servo's output shaft will automatically jump to its center position.
7. Install the servo horn onto the servo output shaft. The servo horn should face toward the center of the chassis and be perpendicular to the servo body.
8. Check servo operation by turning the steering wheel back and forth to ensure that the mechanism has been centered properly and you have equal throw in both directions. Use the transmitter's steering trim knob to fine-tune the position of the servo horn so the model tracks straight when the steering wheel is at neutral.

ADJUSTING THE SLIPPER CLUTCH

The model is equipped with an adjustable slipper clutch, which is built into the large spur gear. The purpose of the slipper clutch is to regulate the amount of power sent to the wheels to prevent tire slip. When it slips, the slipper clutch makes a high-pitch, whining noise. To adjust the slipper, remove the slipper gear assembly from your model (see page 26 for instructions), and turn the adjusting nut clockwise to tighten or counterclockwise to loosen. Adjust the slipper so that you can hear it slip for a moment from a standing, full throttle start. (Learn more about adjusting the slipper clutch in the sidebar.)

MAINTAINING YOUR MODEL



Always wear eye protection when using compressed air or spray cleaners and lubricants.



High performance vehicles generate small vibrations while driving. These vibrations may loosen hardware over time and require attention. Always check your wheel nuts and other hardware and tighten or replace when necessary.

Your model requires timely maintenance in order to stay in top running condition. **The following procedures should be taken very seriously.**

Frequently inspect the vehicle for obvious damage or wear. Look for:

1. Cracked, bent, or damaged parts
2. Check the wheels and steering for binding.
3. Check the operation of the shock absorbers.
4. Check the wiring for any frayed wires or loose connections.
5. Check the mounting of the receiver and servo(s) and speed control.
6. Check the tightness of the wheel nuts with a wrench.
7. Check the operation of the radio system, especially the condition of the batteries.
8. Check for any loose screws in the chassis structure or suspension.
9. Check the operation of the steering servo and ensure that it is not binding.
10. Inspect the gears for wear, broken teeth, or debris lodged between the teeth.
11. Check the tightness of the slipper clutch.

Other periodic maintenance:

• **Slipper clutch pads** (friction material):

Under normal use, the friction material in the slipper clutch should wear very slowly. If the thickness of any one of the slipper clutch pads is 1.8mm or less, the friction disc should be replaced. Measure the pad thickness using calipers or measuring against the diameter of the 1.5 and 2.0mm hex wrenches provided with the model.

• **Chassis:** Keep the chassis clean of accumulated dirt and grime. Periodically inspect the chassis for damage.

• **Suspension:** Periodically inspect the model for signs of damage such as bent or dirty suspension pins, bent turnbuckles, loose screws, and any signs of stress or bending. Replace components as needed.

• **Steering:** Over time, you may notice increased looseness in the steering system. The tie rod ends may wear out from use (Traxxas Parts #2742 and #5525). Replace these components as needed to restore factory tolerances.

• **Shocks:** Keep the oil level in the shocks full. Use only 100% pure silicone shock oil to prolong the life of the seals. If you are experiencing leakage around the top of the shock, inspect the bladder in the top cap for signs of damage or distortion from overtightening. If the bottom of the shock is leaking, then it is time for a rebuild. The Traxxas rebuild kit for two shocks is part #2362.

• **Driveline:** Inspect the driveline for signs of wear such as worn drive yokes, dirty axle half shafts, and any unusual noise or binding. If a U-joint pops apart, then

it is time to replace the part. Inspect for wear and check the tightness of the hardware. Clean, or replace components as needed.

Storage

When you are through running your model, disconnect the compressed air or use a soft brush to clean the model. Always disconnect and remove the battery when the model is stored. If the model will be stored for a long time, remove it from the transmitter.

Suspension and slipper clutch

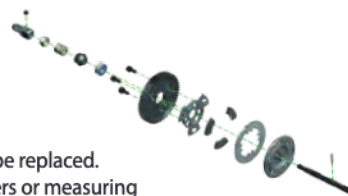
The your model was designed for easy suspension and rear suspension assembly and disassembly with the removal of only a few screws. See the your model's Service Supplement for more details.

• **Removing the front suspension**

1. Remove the two 4x12 button-head screws.
2. Remove the two 4x10 button-head screws.
3. Remove the 3x15 button-head screw.
4. Pull the front suspension assembly away from the chassis.

• **Removing the rear suspension**

1. Remove the two 4x12 button-head screws.
2. Remove the two 4x14 button-head screws.
3. Pull the rear suspension assembly away from the chassis.
4. The slipper clutch assembly can now be removed.





ADVANCED TUNING ADJUSTMENTS

CAMBER GAIN

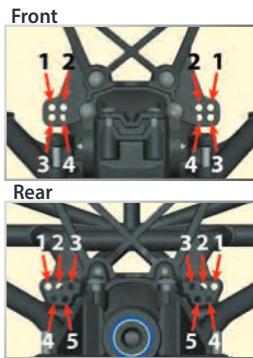
Your model has provisions for adjusting the camber gain geometry of the front and rear suspension. "Camber gain" refers to an increase in camber angle as the suspension is compressed. The camber gain of the vehicle can be changed by moving the camber link attachment to a different horizontal mounting position. Adjusting the camber gain will alter the tire contact patch as the suspension is compressed. Making the camber link shorter will increase the camber gain. This makes the vehicle more stable over bumps, but reduces traction on smooth surfaces. Lengthening the camber links has the opposite effect.

• Front Camber Gain

To increase the camber gain on the front suspension, move the inner camber link ends out to Position 3. Position 4 is the stock setting.

• Rear Camber Gain

To increase the camber gain on the rear suspension, move the inner camber link ends out to a different attachment hole (Position 4 in the image. Position 5 is the stock setting).



Once you make adjustments to the camber gain, you may need to re-adjust the static camber to suit your tuning needs.

ROLL CENTER

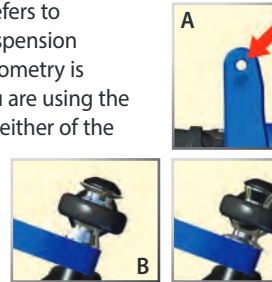
Your model has provisions for adjusting the roll center geometry of the front and rear suspension. Roll center refers to the virtual axis around which the chassis will roll when subjected to cornering forces. The roll center of the vehicle can be raised by mounting the inner ends of the camber links in a lower position. Raising the roll center will effectively increase the roll stiffness of the vehicle (similar to installing swaybars). Adding roll resistance to one end of the vehicle will tend to add traction to the opposite end. For example, increasing roll resistance in the rear will provide more traction for the front wheels and potentially more steering. Raising the roll center on the front and rear equally will increase overall roll resistance without changing the handling balance. The default factory locations are designed to make the truck easier and more forgiving to drive and less likely to traction roll in turns.

• Front Roll Center

To lower the roll center on the front suspension, move the inner camber link ends up to a different attachment hole (Position 1 or 2. Position 4 is the stock setting). To lower the roll center further, move the outer camber link ends to the lower position on the C-hub.

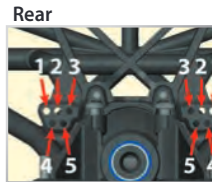


Bump steer correction - "Bump steer" refers to unwanted steering inputs caused by suspension movement. Your model's suspension geometry is designed to minimize bump steer. If you are using the upper hole on the C-hub (image A) and either of the two lower holes on the shock tower (positions 3 or 4 in "Front" image), the tie rod ball should be oriented with the large flat end on top (stock position - image B). When using any other combination of camber link attachment points, the tie rod ball should be oriented with the large flat end on the bottom (C).



• Rear Roll Center

To lower the roll center on the rear suspension, relocate the inner camber links to one of the three holes (position 1, 2 or 3 in image) in the upper row of the rear camber link attachment, located near the base of the rear shock tower.



Once you make adjustments to the roll center, you may need to re-adjust the static camber to suit your tuning needs.

GEARING

One of the more significant advantages to your model's transmission is the extremely wide range of available gear ratios. Changing the gearing allows you to fine tune the speed of the model and control the temperatures of the battery pack and motor. Use a lower gear ratio (numerically larger) to reduce current draw and temperatures. Use a higher gear (numerically lower) to increase top speed. Use the following formula to calculate the overall ratio for combinations not listed on the gear chart:

$$\frac{\# \text{ Spur Gear Teeth}}{\# \text{ Pinion Gear Teeth}} \times 2.85 = \text{Final Gear Ratio}$$

ADVANCED TUNING ADJUSTMENTS



Always use the proper length motor bolts. The standard motor mounting bolts are 3x8mm. Using motor bolts that are too long can interfere with the motor's rotation and damage the motor's internal parts!



The VXL-3s features Locked Rotor Protection. The VXL-3s checks to make sure the motor is turning. If the motor is locked or damaged, the ESC will enter fail-safe until the motor is free to rotate.

When using higher gear ratios, it is important to monitor the temperatures of the battery and motor. If the battery is extremely hot (150°F) and/or the motor is too hot to touch (200°F), your model is probably over-gearred and drawing too much current. This temperature test assumes that the model is close to factory stock weight and operates freely with no excessive friction, dragging, or binding, and the battery is fully charged and in good condition. **Note:** Check and adjust gear mesh if a spur and/or pinion gear is changed.

This model is equipped with a Velineon 3500 motor. The gear combination that comes stock on each model provides good overall acceleration and top speed. If you want more top speed, install the included optional large pinion gear (more teeth). **The included optional large pinion gear is intended for high-speed running on hard surfaces, and this gearing is not recommended for off-road or repetitive starting and stopping.**

LIPO BATTERIES

LiPo batteries are intended only for the most advanced users that are educated on the risks associated with LiPo battery use. It is critical to follow all instructions supplied by the battery manufacturer and the charger manufacturer for proper charging, use, and storage of LiPo batteries. Make sure you understand how to use your LiPo batteries. See *safety precautions and warnings* on page 4 for more information.

TEMPERATURES

Monitoring temperatures v
motors. There are many o
temperatures and cool yo

Temperature sensor

To accurately monitor mo
prevent overheating, a te
sensor (part #6523) can b
motor to continually mor
you drive. Generally, try to
below 200° F. If necessary,
the motor by cutting out
windshield.



Heat sink cooling fan

The VXL-3s is equipped w
connector to supply powe
sink cooling fan (part #33
sink cooling fan can assist
in high current motor app

Velineon

EXTREME BRUSHLESS POWER SYSTEM

FUN ZONE

Rustler 4X4 Ultimate	30+mph	40+mph	45+mph
Pinion/Spur	11/54*	17/54**	11/54*
Battery	7-Cell NiMH	2s LiPo	3s LiPo
Nominal Voltage	8.4V	7.4V	11.1V
mAh	4000+ mAh	5000+ mAh	4000+ mAh
Skill Level			

*Stock gearing

**Optional, included gearing

†Optional gearing, sold separately

TUNING THE SEALED GEAR DIFFERENTIALS

The action of your model's front and rear gear differentials can be tuned for different driving conditions and performance requirements, without major disassembly or removal of the suspension system.

From the factory, the differentials are sealed to maintain consistent long-term performance. Changing the oil in the differential with either lower or higher viscosity oil will vary the performance characteristics of the differentials. Changing to a higher viscosity oil in the differential will reduce the tendency for motor power to be transferred to the wheel with the least traction. You may notice this when making sharp turns on slick surfaces. The unloaded wheels on the inside of the turn have the least traction and tend to spin up to extremely high rpms. Higher viscosity (thicker) oil causes the differential to act like a limited-slip differential, distributing more equal power to the left and right wheels.

Your model will generally benefit from higher viscosity oil when climbing or racing on low-traction surfaces. **Note:** Heavier oil will allow power to be transferred even with one or more tires off the ground. This can make the vehicle more likely to overturn on high-traction surfaces.

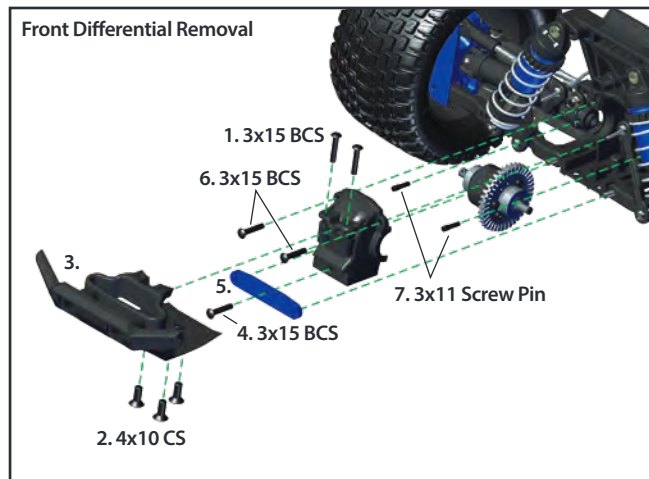
From the factory, the front differential is filled with SAE 30,000W viscosity silicone oil. The rear differential is filled with grease, but can also be tuned with silicone differential oil.

Only use silicone oil in the differentials. Traxxas offers SAE 10,000W, 30,000W, and 50,000W viscosity oil (see your parts list). The differentials have to be removed from the vehicle and disassembled to change/replace oil.

Follow the steps below to access and refill the front and rear differentials.

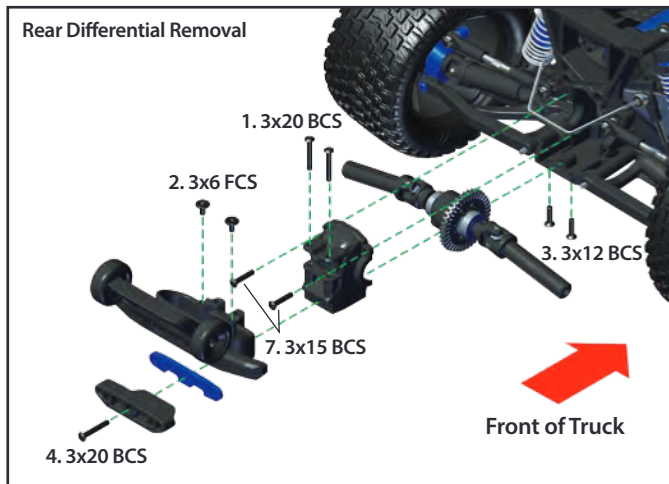
Front differential:

1. Remove the two 3x15mm button-head screws that secure the top bumper mount to the differential (diff) case.
2. Turn the chassis over and remove the three 4x10mm countersunk screws that hold bumper/skid plate to the bulkhead. The two 4x10mm screws do not need to be removed.
3. Slide bumper assembly off of the chassis.
4. Remove 3x15mm button-head screw from diff tie bar.
5. Slide tie bar off truck.
6. Remove two 3x15mm button-head screws from diff cover. Do not remove the two screws that secure the shock tower.
7. Use a 1.5mm hex wrench to remove the two screw pins that hold the driveshaft yokes to the differential output shafts. Remove the differential cover and slide the differential out of the front differential case.
8. To reinstall the differential, reverse the steps.



Rear differential:

1. Remove the two 3x20mm button-head screws that secure the top bumper mount to diff case.
2. Remove the two 3x6mm flat-head screws that secure the sway bar to rear bumper.
3. Turn the chassis over and remove the two 3x12mm countersunk screws that hold the bumper/skid plate to the bulkhead. The two front screws do not need to be removed.
4. Remove the 3x20mm button-head screw from the bumper mount and tie bar.
5. Slide bumper assembly off of the chassis.
6. Remove the tie bar from the chassis.
7. Remove the two 3x15mm button-head screws from differential cover. Do not remove the two screws that secure the shock tower.
8. Remove the differential cover and slide the differential out of the front of the case.
9. To reinstall the differential, reverse the steps.



Refilling the differential:

1. Remove the four 2.5x10mm screws from the differential case and carefully pull the diff case halves apart. Work over a towel to collect any fluid that drips from the differential.
2. Drain the fluid from the differential. You may wish to remove the spider gears from the differential to make this easier.
3. Place the spider gears back into the diff case, if you removed them. Fill the diff case with fluid until the spider gears are submerged half way.

4. Rejoin the diff case halves. Be sure the rubber gas seal is seated.
5. Install the 2.5x10mm screws.

Center differential

The optional center differential allows the power from the motor to be sent to both differentials independent of each other. When the truck is under more load than the front wheels, power is transmitted to the front wheels and makes hard acceleration easier by keeping the nose down. The 100K differential lube from the base point for most conditions.

1. Locate and remove the two 3x20mm button head machine screws from the suspension bulkhead.
2. Remove the modular rear differential backward away from the chassis and the slipper unit. Remove the slipper unit from the chassis.
3. Insert the included center differential into the chassis (where the slipper unit was) and line it up with the chassis. The key must key into the aluminum chassis.
4. Attach the rear end universal joint to the shaft of the center differential. Secure the universal joint head screws. **Tip:** Rotate the rear end to the chassis. The shaft of the center differential must be in the rear end set into the bottom of the chassis.

TUNING AND MAINTENANCE

Rustler 4X4 Ultimate features a suspension system that utilizes friction-reducing tie rod ends and control bodies with PTFE-coated bushings for improved damping control. The shock absorbers may wish to install lower viscosity oil ("thicker") fluid to alter damping characteristics based on terrain, or driving style. Do not overfill the pistons inside the shock absorbers. The rear shock absorbers have 1/8" diameter holes. The rear

Shock Oil

The 4 oil-filled aluminum shocks (dampers) effectively control the suspension movement by preventing the wheels and tires from continuing to “bounce” after rebounding from a bump. Changing the oil in the shocks can vary the suspension damping effect. Changing the viscosity of the oil will cause the suspension damping to be reduced. Damping should be increased (with higher viscosity oil) if the model is bottoming easily over jumps. Damping should be decreased (with thinner viscosity oil) if the model is hopping over small bumps and feels unstable. The viscosity of shock oil is affected by extremes in operating temperature; an oil of certain viscosity will become less viscous at higher temperatures and more viscous at lower temperatures. Operating in regions with cold temperatures may require lower viscosity oil. From the factory, the shocks are filled with SAE-30W silicone oil. Only use 100% silicone oil in the shock.

Replacing Shock Oil

For easier service, the shocks should be removed from the vehicle and disassembled to change the oil.

1. Remove the lower spring retainer and shock spring.
2. Remove the upper shock cap using the shock wrench and suspension multi-tool (A).
3. Empty the used shock oil from the shock body.
4. Fill the shock with new silicone shock oil up to the top of the shock body.
5. Slowly move the piston up and down (always keeping it submerged in oil) to release the air bubbles. Let the shock sit for a few minutes to allow any remaining air bubbles to surface.
6. Slowly thread the upper cap with the installed shock bladder onto the shock body with the suspension multi-tool. The excess oil will bleed out of the small hole in the shock cap.
7. Tighten the shock cap until snug. Use the included steel shock wrench to hold onto the shock body while tightening (A).

Multi-tool Shock Functions



A. Tighten/Loosen Upper Cap



B. Tighten/Loosen Lower Cap



C. Remove/Install Rod End

Shock disassembly

The shocks must be removed from the vehicle and disassembled to change the pistons. Use the shock exploded views included with the model to aid in the assembly process.

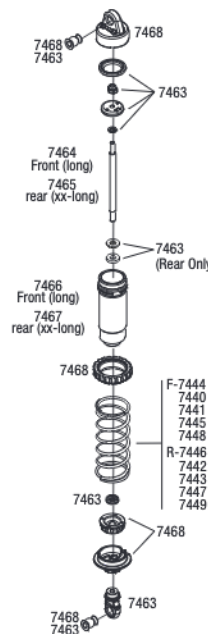
1. Remove the spring and lower spring retainer from the shock.
2. Remove the shock cap and empty the shock body of shock oil (A).
3. Remove the lower cap and the X-ring from the shock body (B).
4. Use side cutters to grip the shock shaft just above the rod end. Remove the rod end from the shock shaft using the suspension multi-tool (C).
5. Remove the shock shaft with piston from the shock body out through the top of the shock body.

Shock assembly

1. Replace the stock piston with desired optional piston. Be careful not to lose the small washer located below the piston.
2. Position the new piston onto the shock shaft above the small washer. Grip the threads of the shaft with side cutters or needlenose pliers and tighten the nut with the 4-way wrench to secure the assembly (D).
3. Insert the shock shaft assembly through the shock body until the piston bottoms out.
4. Lubricate the shaft and X-ring with silicone oil.
5. Install the X-ring over the shaft and into the bore of the shock body.
6. Install the lower cap using the suspension multi-tool (B).
7. Grip the shaft close to the threads with needlenose pliers or side cutters and thread the rod end onto the shock shaft until the rod end bottoms out (C).
8. Fill the shock with new silicone shock oil up to the top of the shock body. Slowly move the piston up and down (always keeping it submerged in oil) to release the air bubbles.



D. Piston Installation/Removal

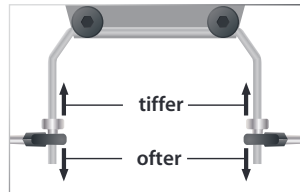


ADVANCED TUNING ADJUSTMENTS

- Let the shock sit for a few minutes to allow any remaining air bubbles to surface.
- Slowly thread the upper cap with the installed shock bladder onto the shock body with the suspension multi-tool. The excess oil will bleed out of the small hole in the shock cap. Tighten the shock cap until snug. Use the included steel shock wrench to hold onto the shock body while tightening (A).
 - Reinstall the spring and lower retainer.

SWAY BAR SETTINGS AND ADJUSTMENTS

- Adjust the sway bar links so the sway bars are level (parallel to the ground) when the truck is on the ground and the suspension is at rest (normal ride height). This allows equal sway bar travel in both unloaded and loaded suspension conditions. Always adjust the left and right sway bar links equally to prevent suspension tweak.
- The adjustable hollow balls can be moved closer to or farther from the sway bar mount (pivot point) to increase torsion response and fine tune the sway bar's response for different track conditions. Closer to the pivot point results in a stiffer setup, farther from the pivot point will result in softer sway bar response.



For smooth surfaces with

- Adjust linkage placement (closer to the sway bar)

For rough surfaces with

- Adjust linkage placement (farther from the sway bar)

To reduce understeer (pull)

- Adjust front linkage placement (farther from the sway bar)

- Adjust rear linkage placement (closer to the sway bar)

To reduce oversteer (loose)

- Adjust front linkage placement (closer to the sway bar)

- Adjust rear linkage placement (farther from the sway bar)

If you have questions

1-888-888-8888

(1-888-888-8888)

TQi ADVANCED TUNING GUIDE

The model's TQi transmitter is equipped with the Traxxas Link Wireless Module. This innovative accessory transforms your Apple® iPhone®, iPad®, iPod touch®, or Android™ device into a powerful tuning tool that equips your TQi with an intuitive, high-definition, full-color graphical user interface.

Traxxas Link

The powerful Traxxas Link™ App (available in the Apple App Store™ or on Google Play™) gives you complete control over the operation and tuning of your Traxxas model with stunning visuals and absolute precision. With the installed Traxxas Link telemetry sensors on the model, Traxxas Link displays real-time data such as speed, RPM, temperature, and battery voltage.

Intuitive iPhone, iPad, iPod touch, and Android interface

Traxxas Link makes it easy to learn, understand, and access powerful tuning options. Control Drive Effects settings such as TSM assistance percentage; steering and throttle sensitivity; steering percentage; braking strength; and throttle trim by simply touching and dragging the sliders on the screen.



Tap and slide to adjust TSM, Steering Sensitivity, Throttle Trim, Braking Percent, and more!

Real-Time Telemetry

With the installed telemetry sensors, the Traxxas Link dashboard comes to life showing you speed, battery voltage, RPM, and temperature. Set threshold warnings and log maximums, minimums, or averages. Use the recording function to document your dashboard view, with sound, so that you can keep your eyes on your driving and not miss a single apex.



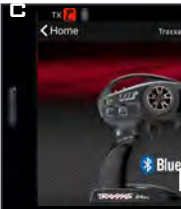
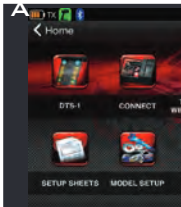
The customizable Traxxas Link dashboard delivers real-time rpm, speed, temperature, and voltage data.

Manage up to 30 Models with Traxxas Link

The TQi radio system automatically keeps track of what vehicles it has bound to and what settings were used for each—up to 30 models total! Traxxas Link provides a visual interface to name the models, customize their settings, attach profiles, and lock them into memory. Simply choose a model and any previously bound transmitter, power them up, and start having fun.

Pairing the TQi transmitter with the Traxxas Link Wireless Module and the Traxxas Link App for the first time:

1. Turn the transmitter switch on.
2. Open the Traxxas Link App on your mobile device. Touch the Garage button, and then touch the Wireless Module button (A).
3. Press the button on the Traxxas Link Wireless Module. The blue LED on the module will blink (B).



4. Within 10 seconds, touch the "Search for Traxxas Link Wireless Module" button on your mobile device (C).
5. The Bluetooth® icon in the status bar will turn blue, and the blue LED on the module will glow (D).
6. The Traxxas Link Wireless Module and the Traxxas Link App will automatically connect when the transmitter's app is running.



TRAXXAS LINK MODULE LED CODES

LED Color / Pattern	Name	Notes
Blue LED off	Connecting mode	Traxxas Link is paired with a device.
Slow blue (0.5 sec on / 0.5 sec off)	Pairing mode	See above for the module's pairing mode.
Solid blue	Connected	See page 10 for more information on how to use your Traxxas Link module.



Throttle Trim Seek Mode

When the Multi-Function knob is set to throttle trim, the transmitter remembers the throttle trim setting. If the throttle trim knob (Multi-Function knob) is moved from the original setting while the transmitter is off, or while the transmitter was used to control another model, the transmitter ignores the actual position of the trim knob. This prevents the model from accidentally running away. The LED on the face of the transmitter will rapidly blink green and the throttle trim knob (Multi-Function knob) will not adjust the trim until it is moved back to its original position saved in memory. To restore throttle trim control, simply turn the Multi-Function knob either direction until the LED stops blinking.



Fail-safe

Your Traxxas radio system is equipped with a built-in fail-safe function that returns the throttle to its last saved neutral position in the event of a signal loss. The LED on the transmitter and the receiver will rapidly flash red.



Starting Over:

Restoring Factory Defaults

When programming your TQi transmitter, you may feel the need to start over with a clean slate. Follow these simple steps to restore the factory settings:

1. Turn the transmitter off.
2. Hold both MENU and SET.
3. Turn the transmitter on.
4. Release MENU and SET. The transmitter LED will blink red.
5. Press SET to clear settings. The LED will turn solid green and the transmitter is restored to default.

Available Tuning Adjustments

The following items can be adjusted most easily using your mobile device and the Traxxas Link application. All the features described below may also be accessed using the MENU and SET buttons on the transmitter and observing signals from the LED. An explanation of the menu structure follows on page 37.

Your Traxxas transmitter has a programmable Multi-Function knob that can be set to control various advanced transmitter functions (set to Traxxas Stability Management by default, see page 16). Experiment with the settings and features to see if they can improve your driving experience.

Steering Sensitivity (Exponential)

The Multi-Function knob on the TQi transmitter can be set to control Steering Sensitivity (also known as exponential). The standard setting for Steering Sensitivity is “normal (zero exponential),” with the dial full left in its range of travel. This setting provides linear servo response: the steering servo’s movement will correspond exactly with the input from the transmitter’s steering

wheel. Turning the knob “negative exponential” a the servo less responsive as the servo nears the limit. As you turn the knob, the more movement will be. The total of the servo’s travel changes from the steering wheel. The percentage—the greater the illustrations below show

Normal Steering Sensitivity (0% exponential):

In this illustration, the steering servo’s travel (and with it, the steering motion of the model’s front wheels) corresponds precisely with the steering wheel. The ranges are exaggerated for illustrative purposes.

TRANSMITTER LED CODES

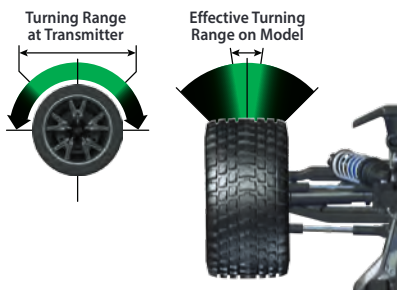
LED Color / Pattern	Name	Notes
	Solid green	Normal Driving Mode
	Slow red (0.5 sec on / 0.5 sec off)	Binding
	Flashing fast green (0.1 sec on / 0.15 sec off)	Throttle Trim Seek Mode
	Flashing medium red (0.25 sec on / 0.25 sec off)	Low Battery Alarm
	Flashing fast red (0.125 sec on / 0.125 sec off)	Link Failure / Error
Programming Patterns		
	Counts out number (green or red) then pauses	Current menu position
	Fast green 8 times	Menu setting accepted (on SET)
	Fast red 8 times	Menu SET invalid

RECEIVER LED CODES

LED Color / Pattern	Name	Notes
	Solid green	Normal Driving Mode
	Slow red (0.5 sec on / 0.5 sec off)	Binding
	Flashing fast red (0.125 sec on / 0.125 sec off)	Fail-Safe / Low-Voltage Detect

Decreased Steering Sensitivity (Negative Exponential):

By turning the Multi-Function knob clockwise, the steering sensitivity of the model will be decreased. Note that a relatively large amount of steering wheel travel results in a smaller amount of servo travel. The farther you turn the knob, the more pronounced the effect becomes. Decreased steering sensitivity may be helpful when driving on low-traction surfaces, when driving at high speed, or on tracks that favor sweeping turns where gentle steering inputs are required. The ranges are exaggerated for illustrative purposes.



Throttle Sensitivity (Throttle Exponential)

The Multi-Function knob can be set to control Throttle Sensitivity. Throttle Sensitivity works the same way as Steering Sensitivity, but applies the effect to the throttle channel. Only forward throttle is affected; brake/reverse travel remains linear regardless of the Throttle Sensitivity setting.

Steering Percentage (Dual Rate)

The Multi-Function knob can be set to control the amount (percentage) of servo travel applied to steering. Turning the Multi-Function knob fully clockwise will deliver maximum steering throw; turning the knob counterclockwise reduces steering throw (note: turning the dial counterclockwise to its stop will eliminate all servo travel). Be aware that the steering End Point settings define the servo's maximum steering throw. If you set Steering Percentage to 100% (by turning the Multi-Function knob fully clockwise), the servo will travel all the way to its selected end point, but not past it. Many racers set Dual Rate so they have only as much steering throw as they need for the track's tightest turn, thus making the car easier to drive throughout the rest of the course. Reducing steering throw can also be useful in making a car easier to control on high-traction surfaces, and limiting steering output for oval racing where large amounts of steering travel are not required.

Steering and Throttle End Points

The TQi transmitter allows you to choose the limit of the servo's travel range (or its "end point") independently for left and right travel (on the steering channel) and throttle/brake travel (on the throttle channel). This allows you to fine-tune the servo settings to prevent binding caused by the servo moving steering or throttle linkages (in the case of a nitro car) farther than their mechanical limits. The end point adjustment settings you select will represent what you wish to be the servo's maximum travel; the Steering Percentage or Braking Percentage functions will not override the End Point settings.

Steering and Throttle Sub-Trim

The Sub-Trim function is used to precisely set the neutral point of the steering or throttle servo in the event that simply setting the trim knob to "zero" does not completely center the servo. When selected, Sub-Trim allows finer adjustment to the servo output shaft's position for precise setting of the neutral point. Always set the Steering Trim knob to zero before making final adjustment (if required) using Sub-Trim. If Throttle Trim has been previously adjusted, the Throttle Trim will need to be reprogrammed to "zero" before making final adjustment using Sub-Trim.

Braking Percentage

The Multi-Function knob may also be set to control the amount of brake travel applied by the servo in a nitro-powered model. Electric models do not have a servo-operated brake, but the Braking Percentage function still operates the same way in electric models. Turning the Multi-Function knob full clockwise will deliver maximum brake throw; turning the knob counterclockwise reduces brake throw (**Note:** Turning the dial counterclockwise to its stop will eliminate all brake action).

Throttle Trim

Setting the Multi-Function knob to serve as throttle trim will allow you to adjust the throttle's neutral position to prevent unwanted brake drag or throttle application when the transmitter trigger is neutral. **Note:** Your transmitter is equipped with a Throttle Trim Set mode to prevent accidental runaways. See the sidebar on page 34 for more information.

Setting Lock

Once you've adjusted all of these settings the way you like them, you may want to disable the Multi-Function knob so none of your settings can be changed. This is especially handy if you operate multiple vehicles with a single transmitter via Traxxas Link™ Model Memory.

Multiple Settings and the Multi-Function Knob

It is important to note that settings made with the Multi-Function knob are "overlaid" on top of each other. For example, if you assign the Multi-Function knob to adjust Steering Percentage and set it for 50%, then reassign the knob to control Steering Sensitivity, the transmitter will "remember" the Steering Percentage setting. Adjustments you make to Steering Sensitivity will be applied to the 50% steering throw setting you selected previously. Likewise, setting the Multi-Function knob to "disabled" will prevent the knob from making further adjustments, but the last setting of the Multi-Function knob will still apply.

TRAXXAS LINK MODEL MEMORY

Traxxas Link Model Memory is an exclusive, patent-pending feature of the TQi transmitter. Each time the transmitter is bound to a new receiver, it saves that receiver in its memory along with all the settings assigned to that receiver. When the transmitter and any bound receiver are switched on, the transmitter automatically recalls the settings for that receiver. There is no need to manually select your vehicle from a list of model memory entries.

Model Lock

The Traxxas Link Model Memory feature can store up to thirty models (receivers) in its memory. If you bind a thirty-first receiver, Traxxas Link Model Memory will delete the "oldest" receiver from its memory (in other words, the model you used the longest time ago will be deleted). Activating Model Lock will lock the receiver in memory so it cannot be deleted.

You may also bind multiple TQi transmitters to the same model, making it possible to pick up any transmitter and any previously bound model in your collection and simply turn them on and drive. With Traxxas Link Model Memory, there is no need remember which transmitter goes with which model and there is never a need to have to select any model from a list of model memory entries. The transmitter and receiver do it all for you automatically.

To activate Model Lock:

1. Switch on the transmitter.
2. Press and hold MENU.
3. Press MENU three times repeatedly.
4. Press SET. The status LED will flash at short intervals.
5. Press SET once. The status LED will blink once repeatedly.
6. Press MENU once. The status LED will blink twice repeatedly.
7. Press SET. The LED will blink once. The memory is now locked. The transmitter is now in driving mode.

Note: To unlock a memory entry, the status LED will blink rapidly green to indicate that the memory is unlocked. For all models, press MENU.

To delete a model:

At some point, you may want to delete a model from the memory.

1. Switch on the transmitter.
2. Press and hold MENU.
3. Press MENU three times repeatedly.
4. Press SET once. The status LED will blink once repeatedly.
5. Press MENU once. The status LED will blink twice repeatedly.
6. Press SET. The memory entry will be deleted. Press SET to delete the memory entry and return to driving mode.

MENU TREE

The Menu Tree below shows how to navigate through the TQi transmitter's various settings and functions. Press and hold MENU to enter the Menu Tree, and use the following commands to navigate through the menu and select options.

MENU: When you enter a menu, you always start at the top. Press MENU to move down the Menu Tree. When you reach the bottom of the tree, pressing MENU again will return you to the top.

SET: Press SET to move across the Menu Tree and select options. When an option is committed to the transmitter's memory, the status LED will rapidly blink green.

BACK: Press both MENU and SET to go back one level in the Menu Tree.

EXIT: Press and hold MENU to exit programming. Your selected options will be saved.

ECHO: Press and hold SET to activate the "echo" function. Echo will "play back" your current position on the Menu Tree should you lose your place. For example: If your current position is Steering Channel End Points, holding SET will cause the LED to blink green twice, green once, and then red three times. Echo will not alter your adjustments or change your position in the programming sequence.

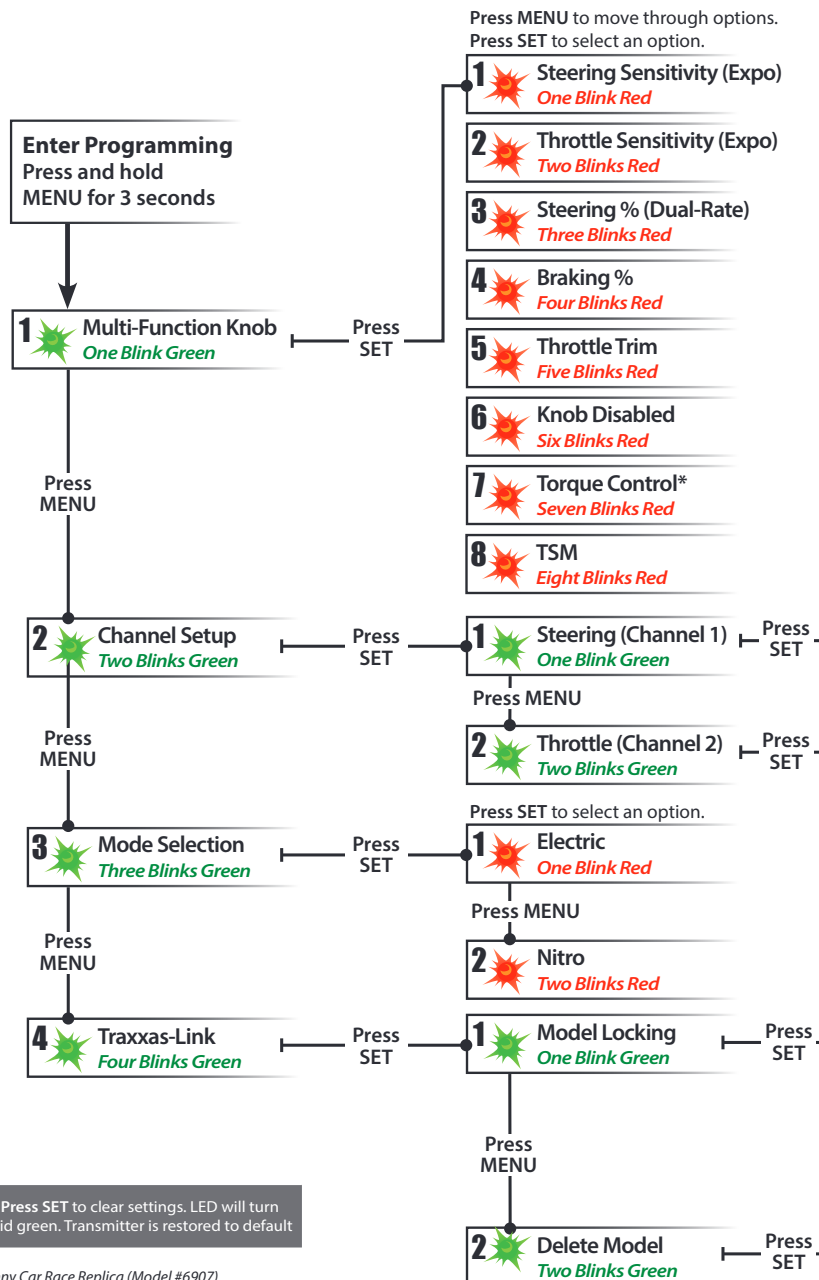
Below is an example of how to access a function in the Menu Tree. In the example, the user is setting the Multi-Function knob to be a Steering % (Dual-Rate) control.

To set the Multi-Function knob to control STEERING % (DUAL-RATE):

1. Switch the transmitter on.
2. Press and hold MENU until the green LED lights. It will blink in single intervals.
3. Press SET. The red LED will blink in single intervals to indicate Steering Sensitivity (Expo) has been selected.
4. Press MENU twice. The red LED will blink three times repeatedly to indicate Steering % (Dual-Rate) has been selected.
5. Press SET to select. The green LED will blink 8 times fast to indicate successful selection.
6. Press and hold MENU to return to driving mode.

Restoring Factory Defaults:

Transmitter OFF	Hold both MENU and SET	Transmitter ON	Release MENU and SET red LED blinks	Press SET to clear settings. LED will turn solid green. Transmitter is restored to default
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*Torque Control is a feature designed only for use with the power system in the Traxxas Funny Car Race Replica (Model #6907).

TQi ADVANCED TUNING GUIDE

Set Multi-Function knob for STEERING SENSITIVITY (Expo)	Press/hold MENU green LED blinks	Press SET red LED blinks	Press SET to confirm green LED blinks (x8)	Press/hold MENU returns to driving mode			
Set Multi-Function knob for THROTTLE SENSITIVITY (Expo)	Press/hold MENU green LED blinks	Press SET red LED blinks	Press MENU to confirm red LED blinks (x2)	Press SET to select green LED blinks (x8)	Press/hold MENU returns to driving mode		
Set Multi-Function knob for STEERING DUAL RATE (%)	Press/hold MENU green LED blinks	Press SET red LED blinks	Press MENU twice red LED blinks (x3)	Press SET to select green LED blinks (x8)	Press/hold MENU returns to driving mode		
Set Multi-Function knob for BRAKING PERCENTAGE (%)	Press/hold MENU green LED blinks	Press SET red LED blinks	Press MENU 3 times red LED blinks (x4)	Press SET to select green LED blinks (x8)	Press/hold MENU returns to driving mode		
Set Multi-Function knob for THROTTLE TRIM	Press/hold MENU green LED blinks	Press SET red LED blinks	Press MENU 4 times red LED blinks (x5)	Press SET to select green LED blinks (x8)	Press/hold MENU returns to driving mode	Adjust the Multi-Function knob until the LED turns solid green.	
To LOCK the Multi-Function knob	Press/hold MENU green LED blinks	Press SET red LED blinks	Press MENU 5 times red LED blinks (x6)	Press SET to lock green LED blinks (x8)	Press/hold MENU returns to driving mode		
To REVERSE the direction of STEERING servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press SET red LED blinks	Press SET to reverse servo direction	Press/hold MENU returns to driving mode	
To set the SUB TRIM of the STEERING servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press SET red LED blinks	Press MENU red LED blinks (x2)	Use Multi-Function knob to set neutral	Press SET to save position
To set the END POINTS of the STEERING servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press SET red LED blinks	Press MENU twice red LED blinks (x3)	Turn steering wheel to desired max left and right travel	Press SET to save each position
To reset the END POINTS of STEERING servo to defaults	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press SET red LED blinks	Press MENU 3 times red LED blinks (x4)	Press SET to reset end points	Press/hold MENU returns to driving mode
To REVERSE the direction of THROTTLE servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press MENU green LED blinks (x2)	Press SET red LED blinks	Press SET to reverse servo direction	Press/hold MENU returns to driving mode
To set the SUB TRIM of the THROTTLE servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press MENU green LED blinks (x2)	Press SET red LED blinks	Press MENU red LED blinks (x2)	Use Multi-Function knob to set neutral
To set the END POINTS of the THROTTLE servo	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press MENU green LED blinks (x2)	Press SET red LED blinks	Press MENU twice red LED blinks (x3)	Use throttle trigger to set desired max throttle or brake
To reset the END POINTS of THROTTLE servo to defaults	Press/hold MENU green LED blinks	Press MENU green LED blinks (x2)	Press SET green LED blinks	Press MENU green LED blinks (x2)	Press SET red LED blinks	Press MENU 3 times red LED blinks (x4)	Press SET green LED blinks (x8)

MENU TREE

To select functions a referencing the menu left column you wish



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