

**TRAXXAS**<sup>®</sup>

**REVO**<sup>®</sup>

*2008 PLATINUM EDITION*

MODEL 5304

# INTRODUCTION

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## INTRODUCTION

Thank you for choosing the Traxxas Revo 2008 Platinum Edition. We believe you have purchased the most technologically advanced, track-ready R/C monster truck available. Revo proudly demonstrates Traxxas' passionate commitment to innovation, ultimate performance, and unmatched engineering. Revo's radically advanced suspension, chassis, and transmission design takes performance to a higher level. Now with over 50 proven championship features, Revo pushes the performance envelope even further with track proven accessories. We've engineered Revo to allow you to experience power, control, and responsiveness that surpasses anything else you've driven.

To complete the Revo Platinum Edition for operation you will need; two-channel transmitter with mini receiver, starter box, glow igniter, charger for the receiver battery pack (3030X recommended), paint, and Traxxas Top Fuel.

We know you're excited about getting your new Revo on the track, but it's very important that you take some time to read through the Owners Manual. This manual contains all the necessary set-up, break-in, tuning, and operating procedures that allow you to unlock the incredible performance and adjustment potential that Traxxas engineers designed into Revo. **Even if you are an experienced R/C enthusiast, it's important to read and follow the procedures in this manual. Revo contains new technologies in the engine, suspension, and transmission operation that you may not be familiar with. Pay particular attention to the fuel and break-in requirements for the engine. The advanced design of the TRX 3.3 Racing Engine has a special break-in procedure that has been developed and proven to produce the best-performing engine possible. Using traditional or old-fashioned procedures could reduce engine performance and longevity.**

We want you to feel confident that you own the best performing truck in the market and that it is backed by a team of professionals who aim to provide the highest level of factory support possible. Revo is about experiencing total performance and satisfaction, not just with your truck, but also with the company that stands behind it. We truly want you to enjoy your new Revo!

Thank you again for going with Traxxas.

## BEFORE YOU PROCEED



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

Before running your Revo, look over this entire manual and examine the truck carefully. If for some reason you decide the Revo is not what you wanted, then do not continue any further. Your hobby dealer absolutely cannot accept a Revo 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.

## TRAXXAS SUPPORT

Traxxas support is with you every step of the way. Read below to find out how to contact us and what your support options are. If you have any questions about your Revo or its operation, call the Traxxas Technical Support line toll-free at: 1-888-TRAXXAS (1-888-872-9927)\*



Technical support is available Monday through Friday from 8:30 am to 9:00 pm central time. Technical assistance is also available at [www.Traxxas.com](http://www.Traxxas.com). You may also e-mail customer support with your question at [support@Traxxas.com](mailto:support@Traxxas.com). Join hundreds of Traxxas R/C enthusiasts in our online community at [www.Traxxas.com](http://www.Traxxas.com).

Traxxas offers a full-service, on-site repair facility to handle any of your Traxxas service needs. Maintenance, replacement parts, and accessories may be purchased directly from Traxxas by phone or online at [www.BuyTraxxas.com](http://www.BuyTraxxas.com). You can save time, along with shipping and handling costs, by purchasing replacement parts from your local dealer. Do not hesitate to contact us with any of your product support needs. We want you to be thoroughly satisfied with your new Revo!

## SAFETY PRECAUTIONS

All of us at Traxxas want you to safely enjoy your new Revo. Operate your Revo sensibly and with care, and it will be exciting, safe, and fun for you and those around you. Failure to operate your Revo in a safe and responsible manner may result in property damage and serious injury. The precautions outlined in this manual 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

- Revo is very fast! The Revo is intended for experienced users with a high level of skill. The TRX 3.3 Racing Engine is extremely powerful and may require skilled driving to maintain control.
- The engine, brakes, and exhaust system may become extremely hot during use. Be careful not to touch the parts, especially when refueling or stopping the engine.
- **Model engine fuel is dangerous and highly poisonous.** Always follow all directions and precautions printed on the fuel container. Model engine fuel is poisonous to humans and animals. Drinking the fuel can cause blindness and death. Handle with care and respect.
- Model engine fuel, especially when in a fuel dispensing bottle, may look like a cool drink to a child. **Keep all fuel out of the reach of children at all times. Do not place fuel containers on the ground where children can reach them. Pay close attention to where you place your fuel and fuel bottle while you are driving.**

- **Model engine fuel is flammable. Never allow smoking, sparks, heat or flame in the presence of fuel or fuel vapors.**
- Prolonged exposure to the engine exhaust can be harmful. Avoid breathing the engine exhaust. Always run your Revo outdoors, in a well-ventilated area. Never run the engine indoors.
- Do not operate your Revo at night, or anytime your line of sight to the model may be obstructed or impaired in any way.
- Never operate your Revo in crowds of people or busy pedestrian areas. Revo is very fast and could cause injury to those unaware of its presence. Keep small children at a safe distance away from the operating area.
- Because Revo is controlled by radio, it is subject to radio interference from many sources beyond your control. Since radio interference can cause momentary loss of control, always allow a safety margin in all directions around your model to prevent collisions.
- The engine can be loud. If the noise makes you uncomfortable, wear ear protection. Be considerate of your neighbors by not running your model early in the morning or late in the evening.
- Most importantly, use good common sense at all times.



Children under 16 years of age and inexperienced drivers should not operate the Revo without the supervision of a responsible and knowledgeable (experienced) adult.

## TOOLS, SUPPLIES, AND REQUIRED EQUIPMENT

Revo 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

- Shock wrench
- 8mm slipper clutch wrench
- 7mm turnbuckle wrench
- 17mm wheel wrench
- Antenna nut tool
- Suspension multi-tool
- 4-way wrench
- Glow plug and wheel nut wrench
- 1.5mm "L" wrench
- 2.0mm "T" wrench
- 2.5mm "L" wrench
- 2.5mm "T" wrench
- 5-cell NiMH RX Power Pack battery
- Suspension tuning shims and hollow balls
- Servo cable "Y" harness
- Front and rear black swaybars (stiffer)
- Spring pairs - Green, White, and Tan
- Shock oil - 40W and 60W
- Clutch bell - 16T
- Spur gears - 36T and 40T

### Required Tools and Equipment

- **Traxxas Top Fuel**  
10% quart - #5010    10% gallon - #5060  
20% quart - #5020    20% gallon - #5070  
33% quart - #5030    33% gallon - #5080
- Fuel dispensing bottle
- Flywheel starter box
- Glow igniter
- After-run oil
- Small flat-blade screwdriver for tuning (1/8 inch blade)
- Safety glasses
- Paint for the body
- 2-channel radio system with mini receiver
- Charger for RX Power Pack battery (such as the Traxxas TRX Power Charger, part #3030X)

### Recommended Equipment

These items are not required for the operation of your model, but are a good idea to include in any R/C toolbox:

- Hobby knife
- Side cutters and/or needle nose pliers
- Philips screwdriver
- Soldering iron
- Thin, hobby-quality cyanoacrylate instant tire glue (CA glue)

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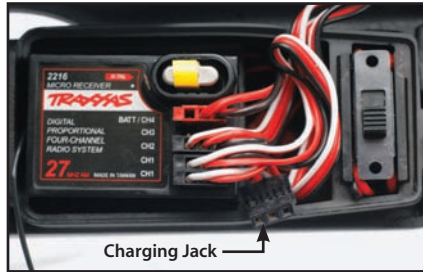
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# RADIO INSTALLATION AND BATTERY CARE

This model requires the installation of a radio system. The receiver box is designed to fit most standard size "mini" or "micro" receivers (actual dimensions of box are 32mm wide x 45mm long x 26mm tall [1.26" x 1.77" x 1.02"]). A rechargeable 5-cell nickel metal hydride (NiMH) battery pack is include to power your radio system.

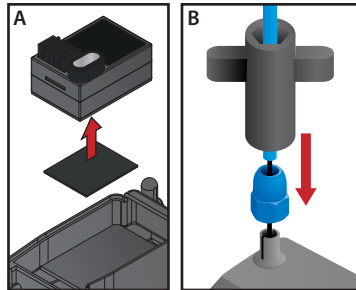
1. Remove the lid from the radio box.
2. Plug each steering servo into each of the channel 1 ports on the receiver (for receivers with only one channel 1 port, use the included Y-harness to plug both steering servos into the channel 1 port on the receiver).
3. Plug the throttle servo into the channel 2 port on the receiver.
4. Plug the red battery plug from the on/off switch into the battery port on the receiver.

5. Leave the extra male plug (black) from the on/off switch loose inside the receiver box. This is the charge plug and will need to be used for charging the receiver battery pack.

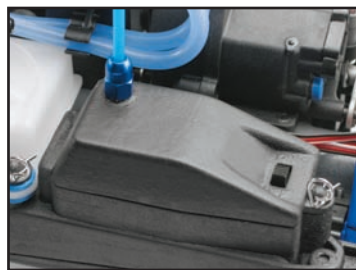


6. Make sure the battery pack is plugged into the female plug (red) of the on/off switch.
7. For receivers using crystals, make sure that the transmitter and receiver crystals are on matching frequencies.
8. Route the receiver antenna through the radio box lid and then slide the antenna wire through the antenna tube.

9. Use the supplied self-adhesive foam (located in your owner's manual package) to cushion the receiver. Remove the adhesive backing strip and attach the foam to either the bottom of the receiver or to the shelf inside the radio box (A).



10. Secure the lid to the radio box with a body clip and then slide an antenna cap over the end of the antenna tube while leaving the antenna wire exposed.



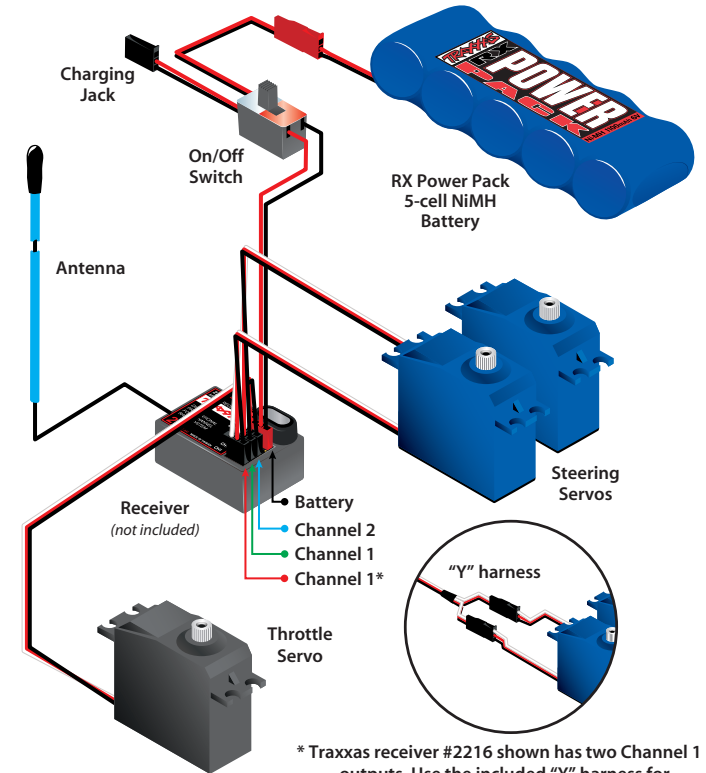
11. Insert the antenna tube into the mounting post. Slide the crimp nut over the antenna tube and screw it onto the antenna post. Use the supplied tool to tighten the crimp nut on the post just until the antenna tube is securely in place (B). Do not over tighten.

12. Refer to your radio/receiver owner's manual for proper radio set up and operation.

## CHARGING THE RECEIVER BATTERY

Your Revo is equipped with the RX Power Pack, a rechargeable 5-cell nickel metal hydride (NiMH) battery pack. The RX Power Pack must be fully charged before running the truck. Revo has a charging jack located inside the receiver box so you do not have to remove the battery pack from the model. To charge the battery, remove the receiver box cover and plug the charger output cord into the charging jack. The on/off switch must be in the off position to charge the receiver pack. **Caution! Never charge batteries in an enclosed car interior or while driving. Never leave charging batteries unattended. Monitor them closely.**

## Typical Radio System Wiring



\* Traxxas receiver #2216 shown has two Channel 1 outputs. Use the included "Y" harness for receivers with one Channel 1 output.

## BATTERY CARE

Some precautions should be taken to maintain the performance of the rechargeable NiMH receiver pack in your model. Improper use of the battery pack could result in personal injury or damage to your truck.

- Only use approved chargers for NiMH battery packs (such as the Traxxas TRX Power Charger, part #3030X). Do not exceed the maximum charge rate of 1 amp.
- Do not short-circuit the battery pack. This may cause burns and severe damage to the battery pack.
- Do not burn or puncture the batteries. Toxic materials could be released. If eye or skin contact occurs, flush with water.
- Store the battery pack in a dry location, away from heat sources and direct sunlight.
- Nickel Metal Hydride batteries must be recycled or disposed of properly.
- Do not completely discharge the RX Power Pack or you could damage it. Do not use dischargers on the pack. Store the battery with at least 25% charge. Stop running and recharge at the first indication of reduced voltage.



The optional Traxxas TRX Power Charger can be purchased separately to charge the RX Power Pack. The TRX Power Charger (Part #3030X) is a peak-detecting unit that will charge the RX Power Pack in about one hour. The peak detection circuitry automatically shuts off the charger when the maximum charge has been achieved. The TRX Power Charger can operate on either AC or DC power.



Sold Separately

The optional DC car adapter (Part #3032) features a tangle-free, extra long wire and integrated fuse. The long charging cord allows the model to remain outside the car while charging.



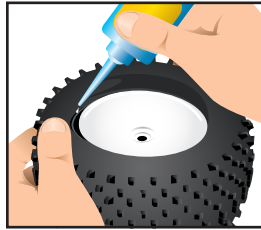
Sold Separately

# TIRE GLUING AND BODY DETAILING

## TIRE GLUING

The tires on your Revo are pre-glued and ready for the track. Revo rims are equipped with a special bead design that helps retain the tires and reduces the stress places on the glue joint. Following are instructions for how to glue your wheels and tires in future. You can glue the tires without removing the wheels from the truck. For clarity, these instructions show the process with the wheels removed. **Always wear safety glasses to prevent glue from splattering in your eyes.**

1. Remove a wheel from Revo using the included 17mm wheel nut wrench.
2. Use your thumb to push the side of the tire away from the rim. Place one or two drops of CA glue into the opening and release the tire. Capillary action will draw the glue around the bead of the tire.
3. Repeat step two at four or five points around the rim, until the tire is completely secured to the rim. Turn the rim over and repeat the process for the inside of the rim/tire. Repeat for the other 3 wheels.
4. Reinstall the wheels.



and in light coats. Be patient! Let the paint dry fully in between coats. This will prevent accidentally smearing wet paint. Take extra care when masks are being removed. After the body is completely painted, remove the peel coat from the outside of the body.

## DECALS

You are now ready to apply the decals. The decals have been die-cut for your convenience. Test the position of the decals before applying them to the body. Once the decals have been applied, they cannot be removed without damaging them. You can spray the body with window cleaner before applying the decals. This will allow you to re-position them. Once positioned, squeegee the cleaner from under the decal. The decal will adhere when it dries. If you have air bubbles in the decals, puncture the center of each bubble with a sharp pin and push the air out. If you have creases along the outer edges of a decal (especially when applied to curved surfaces), use a hobby knife to cut along the top of the crease and overlap the edges.

## PAINTING THE BODY

**Note:** Please read this entire section and plan your paint job before beginning.

### Buying Paint

The body supplied with your model is molded from lightweight and durable clear polycarbonate. It should be painted on the underside so that the color will not be scratched off while running. The best way to paint the body is by using thinned paints sprayed through an airbrush or spray gun. If you do not have these tools, the next best way is using spray can paints. Whatever paint you use, be sure that it is made for painting Lexan® or polycarbonate. Other types of paints and solvents can attack the body material and cause it to appear foggy.

### Preparing the Body

The body must be washed thoroughly with dish soap and water to remove any grease or oil (i.e. fingerprints) which may keep the paint from adhering to it. Dry the body completely with a soft, lint-free cloth.

Use the supplied masks to mask the windows. Mask off any stripes or custom effects with either masking tape or special tape made for striping. This special tape is available from automotive paint supply stores and will provide sharper edges than masking tape. For easy, custom-colored striping, automotive pin-striping tape can be applied to the inside of the body and painted over. Be sure that all of your tape and masks are fully pressed down (burnished) so that the paint will not run or bleed underneath.

Usually, the darker colors are painted first, followed by the lighter colors. If your paint scheme would be easier to mask by covering the dark areas and spraying them last, be sure the lighter colors are opaque enough to prevent the darker color from showing through. Lighter colors can be backed with silver to help make them opaque.

### Spraying the Body

Read the directions on your bottle or can of paint and shake, mix, or thin the paint, as required. It is very important to avoid breathing the paint vapors, as they are extremely harmful. Spray the paint outdoors in well-ventilated areas only. Apply the paint to the body sparingly



# THE TRX 3.3 RACING ENGINE

## INTRODUCTION

The TRX® 3.3 Racing Engine is the next generation of TRX nitro power. The large displacement and advanced porting generate class-leading horsepower while still maintaining the TRX Racing Engine characteristics of broad, linear power delivery and ease of tuning. Focused engineering and rigorous testing have yielded unprecedented power and uncompromising performance.

The TRX 3.3 Racing Engine takes a total-system approach. Each part of the engine, from the air filter to the exhaust tip, is carefully engineered to work in harmony with other engine components. Each part complements the next, to extract maximum power. The TRX 3.3 Racing Engine is designed to be tolerant of variations in tuning, and to run successfully through a wide range of variable atmospheric conditions such as changes in temperature, humidity, and altitude.

In order to get the longest engine life and keep the TRX 3.3 Racing Engine in top running condition, it is very important to perform regular routine maintenance. **The number one cause of premature engine wear and failure is lack of care and maintenance!**

## STARTER BOX AND GLOW IGNITER

The TRX 3.3 Racing engine in your Revo is equipped with a backplate the pull start or EZ-Start system. A starter box is required for running. Starter boxes designed to accommodate the Revo are available from your local hobby dealer. You will also need a glow plug igniter (glow driver) to light the glow plug. Use a high-quality rechargeable glow igniter. Make sure it is fully charged per the manufacturer's instructions.

## BREAK-IN

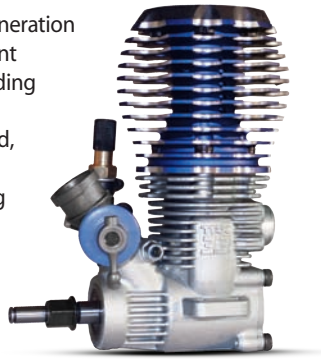
The TRX 3.3 Racing Engine is manufactured to exacting tolerances and requires a specially-designed break-in procedure to accomplish the final precision fitting of the internal engine components. It is very important that you follow the new break-in procedure as closely as possible to achieve the best performance and longest life from your TRX 3.3 Racing Engine. Engine break-in will take between one and two hours. Old style break-in procedures, such as idling the engine on the bench for several tanks of fuel or simply running the engine with a very rich fuel mixture for the first 4 tanks of fuel, will not achieve the best results. Follow the easy steps in this manual.

## AIR FILTER MAINTENANCE

A clean air filter is critical for long engine life. Due to the high-performance nature of the TRX 3.3 Racing Engine, a tremendous amount of vacuum is created to move a large volume of high-velocity air through the carburetor. Dirt is the worst enemy to your engine. Clean the air filter after each hour of running to prevent sucking dirt into the engine.

## AFTER-RUN MAINTENANCE

Perform after-run maintenance on the engine to prevent corrosion from building up on the internal engine components. The fuel naturally attracts moisture and corrosion can build up very quickly inside the engine if it is not prevented.



A few minutes spent before and after each time you run your model will allow you to enjoy it for a long time to come. Read on for more exciting details about your new engine.

## THE FUEL

### Use the Right Fuel

It's imperative that you use the correct fuel in your TRX 3.3 Racing Engine for maximum performance and engine life. Traxxas Top Fuel™ should be used to ensure correct engine lubrication, performance, and ease of tuning. Traxxas Top Fuel has been proven in thousands of engines, so you can count on it every day for great performance.



- Top Fuel is the only fuel which is 100% certified for use in Traxxas engines.
- Traxxas Top Fuel is made with just the right balance of the highest grade natural and synthetic lubricants to allow excellent throttle response and the best top-end performance, without sacrificing long-term durability.
- All of the components in the fuel are carefully selected from the best materials available and then custom blended to match the metallurgy and temperature characteristics of Traxxas engines.

You may use 10%, 20% or 33% nitro-content fuel. Try to use the same percentage all the time and avoid switching back and forth between fuels. We recommend that if you break in your engine on 20% fuel that you continue to use that percentage. If you do move to a higher or lower percentage, make sure you readjust your fuel mixture to compensate.

### What about Other Fuels?

Can other brands of fuel be used besides Top Fuel? There are other fuels that can provide satisfactory performance; however there could be long-term costs in the form of decreased engine performance, loss of tuning ease, and shorter engine life. Only use fuels that contain both castor and synthetic oil.

Everyone has an opinion or a claim to make about fuel. The engineering team at Traxxas has spent years developing TRX Racing Engines. No one knows more about the specific fuel requirements of Traxxas engines than Traxxas engineers. We strongly urge you not to take chances with your engine investment and use the Traxxas fuel made for the TRX 3.3 Racing Engine.

### Choosing a Nitro Percentage

A commonly asked question is "what is the difference between 10%, 20%, and 33% fuels?" Increasing the nitro in the fuel is almost like adding extra oxygen to the combustion process. It burns more efficiently, improves combustion, and delivers more power. When increased nitro is used, more of the other fuel components are then required inside the combustion chamber to maintain the perfect air/fuel ratio. Therefore, overall fuel mixtures need to be richened slightly (on the high speed needle, about 3/4 of a turn counterclockwise when changing from 20% to 33%, about 1/2 of a turn counterclockwise when changing from 10% to 20%). This allows greater fuel flow through the engine and promotes cooler running, even at the maximum lean settings.



Traxxas strongly discourages changing or modifying any part of the TRX 3.3 Racing Engine. Old tech tips and tricks that may have boosted the power of other engines could seriously diminish the performance of the TRX 3.3 Racing Engine.

There's more advanced thinking, development and testing in the stock parts of your TRX 3.3 Racing Engine than in many aftermarket manufacturer's performance parts. The TRX 3.3 Racing Engine is already the most powerful engine in its class and may not benefit from average, low-tech, aftermarket bolt on performance items.

If 33% improves power, then it seems that the highest nitro content available (beyond 33%) should always be used in the engine. In reality, there are practical limitations. Engines are designed to run best within a range of nitro percentages. How the engine is ported, the size of the combustion chamber and other factors determine how much nitro can be efficiently used in the engine. The TRX 3.3 Racing Engine responds exceptionally well to a maximum of 33% nitro, returning cooler temps, more power, and a smoother throttle response. For those who want to run higher nitro, 33% Top Fuel is the optimum nitro percentage for the TRX 3.3 Racing Engine. Increasing the nitro beyond 33% can introduce the need for engine modifications (ports, head shimming, etc.) to avoid starting and tuning difficulties. There are limits to how much nitro an engine can effectively use to make more power. Lower nitro percentages have their own advantages. Nitro is an expensive component in the fuel so 10% nitro blend is more economical for the sport user. 10% also provides greater latitude with the needle settings for easier tuning.

When using Traxxas Top Fuel, using higher nitro percentages does not cause the engine to wear out faster. 33% Top Fuel contains the same quality lubrication package as 10 and 20% Top Fuel. Some non-Traxxas high-percentage nitro racing fuels do sacrifice some lubrication in attempts to increase performance. We urge you to not take chances with your engine investment and use Top Fuel for consistent performance and long engine life.

#### Handling the Fuel

- Follow all directions and warnings on the fuel can.
- Keep the fuel tightly capped at all times. Some components in the fuel can evaporate very quickly and upset the balance of the fuel.
- Do not store unused fuel in the fuel dispenser. Immediately return fresh unused fuel back into the fuel can.
- Do not mix old and new fuel. Never mix different fuel brands together.
- Store the fuel in a cool dry location, away from any source of heat, ignition, flame or combustion.
- Read and follow the safety precautions on page 3 in this manual.



**DANGER!** Model engine fuel is poisonous to humans and animals. Drinking the fuel can cause blindness and death. Handle with care and respect. Keep it out of reach of small children at all times! While driving, do not leave your fuel dispensing bottle on the ground where a child could have access to it. Follow fuel label warnings.

#### BREAKING IN YOUR TRX 3.3 RACING ENGINE

The TRX 3.3 Racing Engine uses a ringless, aluminum-brass-chrome (ABC) piston/sleeve construction. This type of engine design relies on a very precise running fit between the piston and sleeve for cylinder sealing. **Engine break-in is necessary to allow the piston and sleeve to develop an extremely precise fit and optimum cylinder sealing. Therefore, proper engine break-in is critical to achieving the fastest, most reliable engine performance.**

Allow yourself about 1 to 1½ hours to complete the break-in procedure. The engine break-in period will take 5 tanks of fuel in a Revo. The break-in time is not the time to impress your friends with your new Revo. **You must wait until the engine is fully broken in before attempting sustained high speed running.** Patience and careful attention during break-in will reward you with the best-performing TRX 3.3 Racing Engine possible.

During break-in, your engine may appear to malfunction with symptoms like stalling, inconsistent performance, and fouled glow plugs. These are simply the normal “break-in pains” engines sometimes go through. They will disappear once your engine is fully broken in. Many owners report not experiencing any of these symptoms with TRX Racing Engines. **We recommend to go ahead and replace the glow plug with a new one after the engine break in procedure.**



People have differing opinions on what is the proper procedure to break-in a model engine. **Only use the Traxxas break-in procedure. Other break-in procedures could result in a weak, damaged, or otherwise poor performing engine.** The procedure outlined here was extensively tested and proven to yield better performing engines than other “common” break-in methods. **Even if you have years of experience using model engines, please do not ignore this caution!**

#### Engine Break-in Procedure

The focus during break-in is to vary and limit the engine speed. This will be accomplished by accelerating and stopping at different rates for the first 5 tanks of fuel. As the engine begins to break-in, the duration and intensity of the acceleration will gradually increase. **Sustained high-speed running is not permitted until the 6th tank of fuel.** Perform the initial break-in on a large, flat, paved surface. **Revo is very fast and by tanks 4 and 5 you will need plenty of room for the truck to run in. Apply all throttle and braking actions gently. Abrupt acceleration or braking could cause the engine to stall unnecessarily.**

- Special break-in fuels are not recommended. Use the same fuel you plan to use everyday.
- If possible, avoid breaking-in the engine on extremely hot or cold days (see page 9).
- Pay careful attention to the fuel level. Do not allow the fuel tank to run completely empty. An extremely low fuel level causes the mixture to run too lean. This could result in a burned glow plug or extremely high engine temperatures.
- **Do not attempt to break in the TRX 3.3 Racing Engine by idling it on a stand. This will produce poor results.**
- Keep extra Traxxas glow plugs handy. The break-in process can cause deposits to form on the plug leading to plug failure.
- Change or clean your air filter after break-in.
- Follow the instructions exactly for each of the first 5 tanks of fuel.
- Never run your Revo indoors. Since the TRX 3.3 Racing Engine exhaust fumes are harmful, always run your model outdoors, in a well-ventilated area.
- Read and follow the safety precautions on page 3 in this manual.

#### Starting Your TRX 3.3 Racing Engine for the First Time

Before you start your TRX 3.3 Racing Engine for the first time, make sure you have read all instructions and precautions in this manual. **Pay close attention to the tank-by-tank break-in instructions in the next section, and make sure you have read and understood them before you run your engine.**



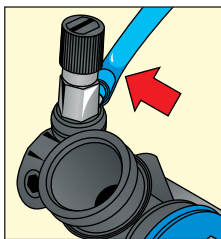
Your TRX 3.3 Racing Engine doesn't usually require priming. If you do need to prime your engine, watch the fuel line carefully to avoid flooding your engine.

**Your engine must be at room temperature (70°F or 21° C) or above the first time you start it.** If it's cooler than room temperature outside, remove all fuel and keep your Revo indoors until you're ready to start it and then take it outside. If it's colder than 45 degrees, special considerations should be made. See cold weather break-in on page 9. We do not recommend running the model in temperatures below 35 degrees.

**Note: The initial startup fuel mixture settings have been pre-set at the factory. Do not change the settings.**

1. Turn on the radio system.
2. Make sure the throttle trigger on the transmitter is in the idle (neutral) position.

3. Connect the glow igniter to the engine.
4. Place the model on a starter box and engage the starter. Watch for fuel moving through the fuel line up to the carburetor. Watch closely! The fuel moves very fast. If the fuel doesn't move through the line within 5 seconds, prime the engine by briefly (one or two seconds) covering the exhaust outlet with your finger until the fuel is just visible in the carburetor fuel line. **Watch carefully! If the engine is primed too long, it will flood with fuel and stop turning.**
5. Once fuel reaches the carburetor, the engine should quickly start and idle.
6. Disconnect the glow igniter from the model.
7. Proceed with the engine break-in.
8. Do not rev your engine with no load (wheels off the ground).

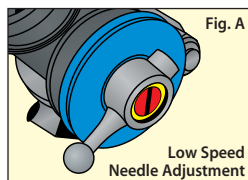


If your engine doesn't start, refer to the troubleshooting tips on [www.traxxas.com/support](http://www.traxxas.com/support). If you still have problems, contact Traxxas Customer Support at 1-888-TRAXXAS or [support@traxxas.com](mailto:support@traxxas.com).

**Factory Needle Settings**

If your factory preset carburetor adjustments have been tampered with, use the following settings:

- Set the high-speed needle to 4 turns out from closed.
- Set the low-speed needle so the screw head (red in Fig. A) is flush (even) with the end of the slide (yellow in Fig. A).



Always use the factory settings for initial starting. Only use these settings when the factory settings have been lost.

**Break-in Checklist**

- Tank 1**
  1. Drive the model with the **body off**.
  2. Driving procedure: **Gently pull the throttle trigger to 1/4 throttle over a 2-second count. Then gently apply the brake to stop.** Count the two seconds out while accelerating: one thousand one, one thousand two, and then stop. Operate the throttle trigger as smoothly as you can. **Repeat this starting and stopping procedure until the first tank of fuel is nearly empty.**
  3. Look for thick blue smoke exiting the exhaust outlet. If there is no smoke, richen the high-speed needle 1/4 turn, by turning the needle counterclockwise.
  4. When the fuel tank is nearly empty, shut off the engine by pinching the fuel line connected to the carburetor (use the installed clamp).
  5. Let the engine cool for 15 minutes.  
**Note:** If at any point the engine cuts out or stalls during gentle acceleration, richen the high-speed needle 1/4 turn by turning the needle counterclockwise.

- Tank 2**
  1. From tank 2 forward, Revo should be driven **with the body on**.
  2. Driving procedure: **Gently pull the throttle trigger to 1/2 throttle over a 2-second count. Then gently apply the brake to stop.** Count the two seconds out while accelerating: one thousand one, one thousand two, and then stop. **Repeat this starting and stopping procedure until the second tank of fuel is nearly empty.**
  3. When the fuel tank is nearly empty, shut off the engine and let it cool for 15 minutes.

- Tank 3**
  1. Driving procedure: **Gently pull the throttle trigger to 1/2 throttle over a 3-second count. Then gently apply the brake to stop.** Count the three seconds out while accelerating: one thousand one, one thousand two, one thousand three, and then stop. **Repeat this starting and stopping procedure until the third tank of fuel is nearly empty.**
  2. As the engine loosens, the idle speed may increase and cause the model to try to creep forward when stopped. Reduce the idle speed by turning the idle adjustment on the carburetor counterclockwise.
  3. When the fuel tank is nearly empty, shut off the engine and refuel. From here on, you do not need to let the engine cool between tanks.

- Tank 4**
  1. Driving procedure: **Gently pull the throttle trigger to full throttle over a 3-second count. Then gently apply the brake to stop.** Count the three seconds out while accelerating: one thousand one, one thousand two, one thousand three, and then stop. **Repeat this starting and stopping procedure until the fourth tank of fuel is nearly empty.**
  2. Apply the throttle gradually! Your finger should not reach full throttle until the end of the three-second count. Revo may try to shift into second gear. If it does, reduce the throttle input. Do not let Revo shift out of first gear.
  3. Keep your driving smooth and consistent.
  4. When the fuel tank is nearly empty, shut off the engine and refuel.

- Tank 5**
  1. Driving procedure: **Gently pull the throttle trigger to full throttle over a 3-second count, hold for 2 more seconds, and then gently apply the brake to stop.** Count the five seconds out while accelerating. **Repeat this starting and stopping procedure until the fifth tank of fuel is nearly empty.**
  2. The model should now be shifting into second gear. If it is not, try turning the high-speed needle clockwise 1/8 turn to lean the fuel mixture slightly and test for shifting.
  3. When the fuel tank is nearly empty, shut off the engine and refuel.

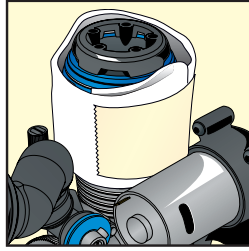
- Tank 6**  
**STOP! Clean your air filter before you proceed.** During the sixth tank of fuel, the engine can be tuned for general performance use.

TANK	THROTTLE	TIME	COOL	BODY	NOTES
1	1/4	2 seconds	15 minutes	Off	Apply throttle gradually.
2	1/2	2 seconds	15 minutes	On	Apply throttle gradually.
3	1/2	3 seconds	-	On	Reduce idle speed if necessary.
4	Full	3 seconds	-	On	Do not allow shifting to high gear.
5	Full	5 seconds	-	On	Accelerate over 3 second count, hold for 2 seconds.



### Winter Break-in Tips

During the break-in process, the piston and sleeve wear into each other to form a precise fit. The engine needs to heat up to a temperature around 200 to 215 degrees to allow the piston and sleeve to achieve this fit properly. A precise fit between these two components is critical for proper compression, and optimum performance. If the engine runs too cold during break-in, the piston and sleeve will not expand to their appropriate sizes for break-in, and this can lead to premature wear of these components. This wear may not become apparent until after winter has past, and the engine is operated under warmer running conditions.



- Warm the engine to approximately room temperature by removing all fuel and storing the vehicle inside at room temperature until just before starting the engine. An extremely cold engine can become difficult to start.
- After the engine is running, it is important to keep the temperature of the engine up around 200 to 215 degrees during break-in. In weather below 45 degrees, the TRX 3.3 Racing Engine will tend to run at lower temperatures between 160 to 180 degrees (when tuned at proper break-in mixture settings). This is too cool for break-in. Do not lean the fuel mixture to increase engine temperature! This will also decrease lubrication and cause your piston/sleeve to wear prematurely.
- Wrap the cooling head with a paper towel, clean rag or sock to help keep the engine running around the recommended 200 to 215 break-in temp. If too much heat is contained, the engine can actually run too hot. Make sure that you monitor the engine's temp closely for the first couple of tanks until you get the right amount of cover for the cooling head. This will, of course, depend on your current weather conditions. Adjusting the cover up and down, exposing more or fewer cooling fins, is a convenient way to regulate engine temps.
- For owners that do not have access to a temperature probe, a drop of water on the cooling head (around the glow plug area) should slowly sizzle for approximately 6 to 8 seconds around 200 to 210 degrees. If the water sizzles for only a few seconds, then it is likely that it is over 220 degrees, and needs to cool down. If the water takes a long time or does not evaporate at all, then the engine is too cool.
- We do not recommend that you operate your engine below 35 degrees Fahrenheit. If you insist on running your vehicle below 35 degrees, be aware that nitro engines may be very difficult to start and tune at extremely cold temperatures. Also, at temperatures below freezing, nitro fuel can actually begin to gel, and this can be harmful to the engine.

Follow the remaining break-in procedures as outlined in this Owners Manual. This, along with the steps listed above, will ensure a good break-in for your new nitro engine, and provide many hours of enjoyment.



**High Altitude Operation:** If you live in a high altitude region (5000 or more feet above sea level), the lower air density may require you to lean your high-speed fuel mixture slightly from the factory break in settings. Try this if you are experiencing difficult starting or extremely sluggish engine performance at high altitude.

### TUNING YOUR TRX 3.3 RACING ENGINE

The engine's performance depends on the fuel mixture. Turn the mixture needles clockwise to lean the fuel mixture and counterclockwise to richen it. Leaning the fuel mixture will increase engine power up to the engine's mechanical limits.

**Never run the engine too lean (not enough fuel flow). Never lean the engine until it begins to cut-out or stall.** Leaning the engine beyond the safe allowable limits will result in poor performance and almost certain engine damage. Indications of an overly lean mixture include:

- **Cutting out or sudden loss of power during acceleration.**
- Overheating (temperature beyond 270° F at the glow plug).
- Little or no blue smoke coming from the exhaust.

If any of these conditions are present, stop immediately and richen the high speed mixture 1/4 turn. The engine will probably be slightly rich at that setting and you can then retune for performance. Always tune for performance by starting rich and moving leaner toward the ideal setting. Never try to tune from the lean side. There should always be a light stream of blue smoke coming from the exhaust.

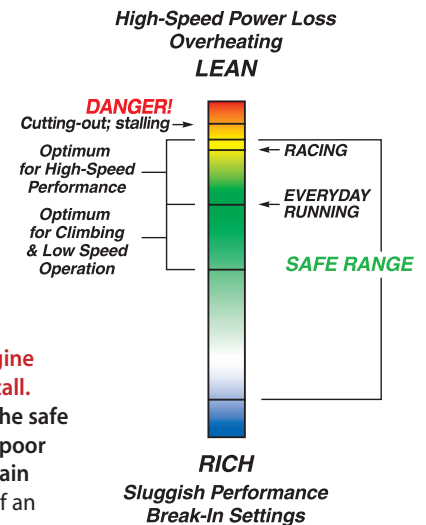
Before you begin tuning, the engine should be warmed up to its normal operating temperature and running slightly rich. All final tuning adjustments must be made to the engine at its normal operating temperature. You can tell the engine is running rich by noting any of the following:

- Sluggish acceleration with blue smoke coming from the exhaust.
- Revo may not shift into second gear.
- There is unburned fuel spraying from the exhaust tip.
- Leaning the high-speed fuel mixture increases performance.

#### High-Speed Fuel Mixture Adjustment

With the engine warm and running at a rich setting, gradually lean the high-speed fuel mixture in 1/16 turn increments. Make several high-speed passes after each adjustment to clear out the engine and note any change in performance. The TRX 3.3 is extremely powerful. Remember to apply the throttle gradually to prevent wheelies or loss of control. Continue this procedure until there is no longer any performance improvement. **If any one of the following conditions occurs, the fuel mixture is already past the maximum safe lean setting:**

1. There is no longer any performance improvement.
2. The engine begins to cut out at high speed (**Danger!**).
3. There is a sudden loss of power during acceleration (**Danger!**).
4. The engine begins to overheat. Symptoms of overheating include:
  - Steam or smoke coming from the engine (not exhaust).
  - Hesitation or stalling during acceleration.
  - Popping or clattering sound when decelerating (detonation).
  - Fluctuating idle speed.
  - Temperature measurement above 270° F at the glow plug (A temperature reading above 270° alone does not necessarily indicate overheating. Look for other symptoms of overheating combined with temperature for a more accurate warning).



Richen the fuel mixture to the optimum setting by enriching the high-speed needle at least 1/8 turn counterclockwise and retest. This setting will extend engine component life.

**Low-Speed Fuel Mixture Adjustment**

The low-speed mixture is always set after the high-speed needle is correctly adjusted. The low-speed mixture is set using the pinch test.

1. Once the engine is warm, do several high-speed runs to confirm that the high-speed needle is set correctly.
2. Bring the vehicle in and pinch closed the fuel line going into the carburetor (use the engine shut-off clamp). The engine should run for 2-3 seconds, speed up, and then shut off.
3. If the engine runs longer than 3 seconds, then lean the low-speed needle 1/16 turn, make several more high-speed runs, and retest.
4. If the engine shuts off immediately without speeding up, then richen the low-speed needle 1/8 turn, make several more high-speed runs, and retest.

When the low-speed needle is set correctly, the engine's throttle response should be very quick, even to the point of making it difficult to keep Revo from doing a wheelie when you accelerate!

**Idle Speed Adjustment**

Once the high and low-speed mixtures have been set, reduce the idle speed to the minimum reliable idle speed. Remember, this adjustment should be made while the engine is running at normal operating temperature.

1. Turn the throttle trim on the transmitter so the brakes are applied (note its original position). This ensures that the throttle slide is resting against the idle adjustment screw.
2. Turn the screw counterclockwise to reduce the idle speed, or clockwise to increase it. The idle speed should be set as low as possible while still maintaining reliable running characteristics.
3. Reset the throttle trim on the transmitter to its original position.

**Fine-Tuning the Carburetor**

After fine-tuning your TRX 3.3 Racing Engine at the end of the break-in procedure, no major adjustments to the fuel mixture are usually necessary. Make note of the temperature, humidity, and barometric pressure at the time you finished fine tuning your carburetor. Current weather conditions can be found online from national websites, local TV news websites, and television. This information will be considered your baseline setting.

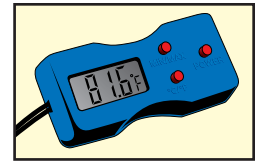
You may need to adjust your carburetor needles to compensate for changes in temperature and barometric pressure (air density) from day to day. Generally, you'll need to richen the fuel mixture when the weather is colder than your baseline temperature and the air density is higher. Lean the fuel mixture when weather is warmer than your baseline temperature and the air density is lower. The chart below provides general guidelines on how weather conditions affect air density when they move higher or lower than your baseline setting.

**Fuel Mixture Adjustment Chart**

If the...	is...	then the air density is...	adjust (correct) the fuel mixture to be...
humidity	lower	slightly more dense	slightly richer
	higher	slightly less dense	slightly leaner
pressure (barometer)	lower	less dense	leaner
	higher	more dense	richer
temperature	lower	more dense	richer
	higher	less dense	leaner
altitude	lower	more dense	richer
	higher	less dense	leaner
nitro %	lower	-	leaner
	higher	-	richer

**Tuning the Engine by Temperature**

The following procedures require an optional infrared temperature probe or on-board temperature gauge (Traxxas on-board digital temperature gauge, part #4091). Engine temperature can be used as an effective tuning aid when you understand the relationship between engine temperature and ambient temperature. The engine operating temperature, when tuned for maximum performance, will vary according to atmospheric conditions, engine load, gauge accuracy, and many other factors. The atmospheric condition that has the most influence on engine temperature is air temperature. Expect the engine temperature to vary almost in direct proportion to air temperature. Assuming you tuned the engine for the same maximum performance each day, the engine will run about twenty degrees hotter when it's ninety degrees outside than it would in seventy-degree weather. For this reason, we cannot give you a definitive temperature range that indicates the best possible engine tuning.



**There is NO optimal temperature that can be used as a target to deliver the best engine tuning. Do not rely on a temp gauge alone to tune your engine. Tune the engine by paying very close attention to how it responds to changes in fuel mixture (more smoke/less smoke, fast/sluggish, reliable/stalling, smooth sound/ muffled sound, etc). Once the engine is tuned, then observe the temperature.**

The temperature gauge can aid you in tuning by giving you a relative indication of how your adjustments are affecting the engine and to help prevent you from reaching excessive engine temperatures. For example, as you lean the fuel mixture, the engine performance will increase along with the temperature. If you continue to lean the fuel mixture and the temperature increases but the engine performance does not change, then you have exceeded the maximum safe lean setting. Make note of the engine temperature. Generally, try to keep your engine from exceeding 270°F when measured at the glow plug. If necessary, increase airflow to the engine by cutting out the rear of the body, windshield, and front valance. In some situations, the engine may perform very well with no stalling, lagging, or hesitation at temperatures above 270°F, particularly in very hot climates. If richening the fuel mixture to bring the temperature down to 270°F results in poor, sluggish performance (engine never cleans out) then return the engine back to a satisfactory state of tune based on how it sounds and performs (always with a visible stream of blue smoke coming from the exhaust). If engine temperature is exceeding 270°F with proper cooling and no signs of abnormal running, then avoid running the engine at its maximum lean setting. Watch closely for **any** signs of overheating. Richen the fuel mixture slightly to provide a safety margin of additional cooling lubrication. Symptoms of overheating include:

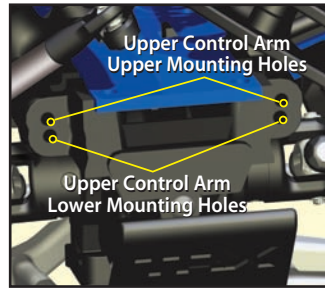
- Steam or smoke coming from the engine (not exhaust).
- Hesitation or stalling during acceleration.
- Popping or clattering sound when decelerating (detonation).
- Fluctuating idle speed.

# TUNING ADJUSTMENTS

## SUSPENSION AND ALIGNMENT SETTINGS

### Roll Center

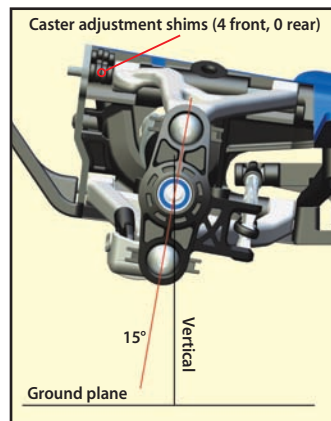
There are two holes on the bulkheads to mount each upper suspension arm. The roll center of the vehicle can be raised by mounting the upper control arm in the lower of the two holes. This will effectively increase the roll stiffness of the vehicle (similar to installing swaybars). Adding roll resistance to one end of the vehicle will tend to add traction to the opposite end.



For example, increasing roll resistance in the rear by installing the upper arms in the lower holes will provide more traction for the front wheels and potentially more steering. Installing the upper arms in the lower holes on the front and rear will increase overall roll resistance without changing the handling balance. From the factory, the arms are installed in the upper position in the front and the lower position in the rear for track tuning. **Note:** When the suspension arms are moved to the either mounting holes, the front outer toe link ends and the rear toe control links should be repositioned to eliminate bump steer. Refer to the Bump Steer Elimination chart on this page, and look up your suspension combination (caster angle and roll center position) to find the correct position for the front outer toe links and the rear toe control links. Adjustment is achieved using the shims and hollow balls provided with the vehicle.

### Caster Adjustment

The caster angle of the front suspension may be used to adjust the understeer (push)/oversteer handling characteristics of the model. Generally, increasing the caster angle will move the truck towards an oversteer condition (more traction on the front tires, less on the rear tires). Decreasing the caster angle will create a tendency towards understeer (pushing in the turns). From the factory, the front suspension is set to a caster angle of 15-degrees. The rear caster angle is not adjustable. The caster angle of the front suspension can be adjusted from 5° to 15°. Adjust the caster by positioning the caster adjustment shims on the upper control arms as shown in the table to the right.



Number & Position of Caster Adjustment Shims (Front Upper Control Arm)

Caster	In Front of Hinge Pin Boss	Behind Hinge Pin Boss
5.0°	None	Four
7.5°	One	Three
10.0°	Two	Two
12.5°	Three	One
15.0°	Four	None

### Caster Angle, and Bump Steer

Bump steer is unwanted change in the steering angle of the wheels as the suspension travels up and down. It can result in unstable and unpredictable handling. Bump steer is affected by the position of the outer toe link end on the axle carrier. From the factory, the toe links are positioned so that bump steer is virtually eliminated (about 3/100 of a degree through the entire range of travel). When the caster angle is changed, the outer toe link end should be repositioned on the axle carrier to maintain zero bump steer geometry. Adjustment is achieved using the shims and hollow balls provided with the vehicle. Refer to the Bump Steer Elimination chart and look up your caster angle setting to find the correct position for the outer toe links. Positioning the toe-links correctly will maintain the original factory geometry and eliminate the unwanted steering angle changes caused by bump steer.

### Bump Steer Elimination Chart

The illustrations and the following table detail the position of the outer toe link end for various caster and roll center settings to eliminate bump steer. The shims and the hollow balls used to adjust bump steer are provided with your vehicle.

#### FRONT

Outer Toe Link End Setup	Caster				Control Arm Mounting Hole on Front Bulkhead
	5°	7.5°	10°	12.5°	
Standard Hollow Ball Thin Shim Thick Shim					Upper
Thin Shim Standard Hollow Ball Thick Shim				☉	Lower
Tall Center Hollow Ball			☉		Upper
Thick Shim Standard Hollow Ball Thin Shim		☉			Lower
Thick Shim Thin Shim Standard Hollow Ball	☉				Upper
Thick Shim Thin Shim Standard Hollow Ball	☉				Lower

#### REAR

When the rear upper control arms are mounted in the upper of its two mounting holes in the bulkhead (roll center), the tall lower hollow ball should be used.

Outer Toe Link End Setup	Control Arm Mounting Hole on Rear Bulkhead
Tall Lower Hollow Ball	Upper
Tall Center Hollow Ball (stock)	Lower

### Rockers (Progressive Rate/ Suspension Travel)

One of the most exciting aspects of Revo's suspension is the inboard shock (damper) arrangement that uses pivoting rockers to translate vertical wheel travel into linear shock motion. The rockers can be changed to increase or decrease the maximum wheel travel and also to change the progressive rate of the suspension.

The progressive rate determines how much the force at the wheel produced by the springs being compressed (wheel force) will vary with suspension travel (or vertical travel of the wheel). On a progressive suspension arrangement, the wheel force will increase at a faster and faster rate as the suspension is compressed. It feels as though the shock spring gets progressively stiffer the more you compress the suspension. On a linear suspension arrangement, the wheel force increases linearly as the suspension is compressed. The spring does not feel any stiffer, even when the suspension is fully compressed. This provides a very "plush" feeling suspension with seemingly bottomless suspension travel.

A total of four different rocker arm sets are available for Revo. All rocker arms except the Long Travel rocker arms will allow the wheel to travel a total of

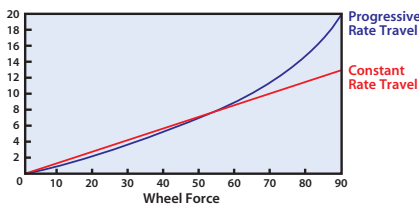


Rocker Arm	Total Travel	Progressive Rate
Progressive 1	90mm (60mm up / 30mm down)	Low
Progressive 2	90mm (60mm up / 30mm down)	Medium
Progressive 3	90mm (60mm up / 30mm down)	High
Long Travel	120mm (80mm up / 40mm down)	Low

90mm in the vertical direction. From the ride height position, the wheel will be able to travel 60mm in the upward direction (bump), and 30mm in the downward direction (droop). The Long Travel rocker arm increases total travel to 120mm. The progressive rate can be increased or decreased by installing different rocker arm sets. The rockers are labeled Progressive 1 to Progressive 3. Progressive 1 rockers will provide a low progressive rate that maintains consistent damping force across through the whole range of suspension travel. These are best for extremely rough terrain that requires maximum suspension articulation. Progressive 3 rockers use high progressive rate that will improve high-speed cornering on smooth surfaces by providing a firmer feel. Body roll, brake dive and rear squat will also be reduced. Always change all four rockers as a complete set. Do not mix rates and travel.

Using rockers with lower progressive rate may require the use of stiffer springs to maintain proper spring pre-load and ride height. The spring pre-load adjuster on each shock is designed for minor adjustments. If the adjuster needs to be turned all the way down (compressing the spring) in order to maintain proper ride height, then the next stiffer spring should be used.

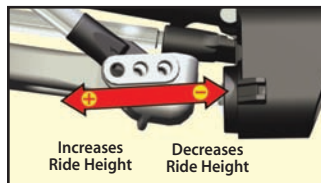
The chart demonstrates the effect of the various rocker arms on wheel force as the suspension is compressed. On the progressive rate, wheel force is light at first and increases as the suspension is compressed.



**Ride Height Adjustment**

The rocker arm suspension uses push rods on each suspension arm. Changing the length and/or position of the push rod adjusts the ride height without affecting or compromising other suspension parameters. For example, you can raise and lower the ride height without changing up/down travel distribution, changing springs, or affecting your progressive rate. This feature is unique to Revo and is extremely beneficial in a racing environment where you can achieve a low center of gravity (by lowering the ride height) without losing any suspension capability. Increasing the ride height will increase ground clearance for rough terrain.

The ride height of the model can be changed by mounting the push rod in a different hole in the lower suspension arm. From the factory, the push rod comes installed in the center hole of the lower suspension arm's push rod mount. If the push rod is mounted in the inner hole, the ride height of the vehicle increases. If mounted in the outer hole, the ride height decreases.



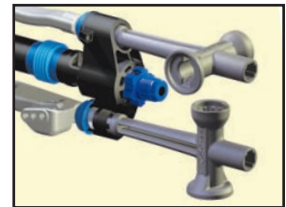
The ride height can be finely tuned by adjusting the sag of the suspension. **Do not attempt to make large changes to the ride height by adjusting the spring pre-load on the shock bodies.** If suspension sag is severe and requires a large increase of the spring pre-load to compensate, then a firmer spring should be used. The lowest ride height

can be achieved by installing the optional adjustable push rod in the outermost hole of the lower suspension arm's push rod mount. Turn the rod ends all the way in until they stop (shortening the length).

The optional Long Travel rocker arms are designed to be used only with the standard non-adjustable push rods installed in the hole labeled "LT" (the middle hole of the lower suspension arm's push rod mount). Any minor adjustments to the ride height are accomplished by adjusting the spring pre-load.

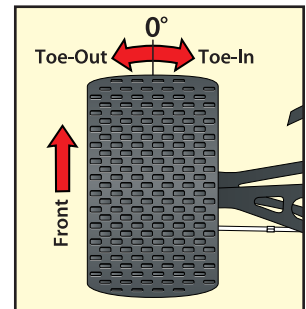
**Adjusting the Pivot Ball Caps**

The pivot ball caps should be adjusted so that the pivot balls operate freely in the axle carriers with no excess play. Use the provided four-way suspension multi-tool to tighten or loosen the pivot ball cap.

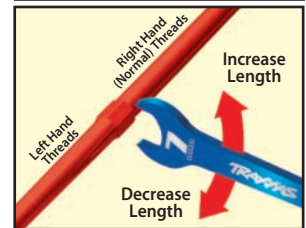


**Toe Adjustment**

The wheels can be adjusted to point straight ahead or have a toe-in or toe-out setting. To help you remember, look down at your feet. For toe-in, your feet point towards each other. For toe-out, your feet point away from each other.



The toe angle of the front wheels can be adjusted by varying the length of the toe links that connect the steering linkage to the front axle carriers. The toe angle of the rear wheels can be adjusted by varying the length of the metal toe links that connect the rear bulkheads to the rear axle carriers. The front toe links and rear toe links are equipped with turnbuckles. The lengths of the toe links can be adjusted by turning them with the included 7mm Traxxas wrench.



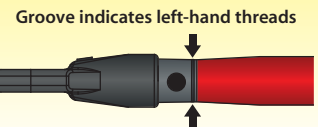
**Toe Base Factory Settings**

- Front: 0-degrees
- Rear: 1-degree toe-in each side

Under certain conditions, toe-in can be increased to a maximum of 3 degrees. To avoid potential interference of suspension components with the long travel rockers installed, see the maximum alignment limits table on page 13.

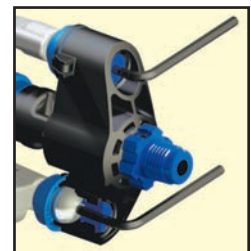


All of the toe links were originally installed on the truck so that the left hand thread indicators point in the same direction. This makes it easier to remember which way to turn the wrench to increase or decrease toe link length. Note that a groove indicates the side of the Tube with the left-hand threads.



**Static Camber Adjustment**

The wheels can be set to have either positive or negative camber (see illustration, page 13). The camber angle changes as the wheel moves up and down through its range of travel. Static camber is the camber angle at the wheel when the vehicle is set at its normal, stationary ride height. The suspension pivot balls located in the axle carriers adjust the static camber. The pivot balls are protected by blue dust plugs. To adjust

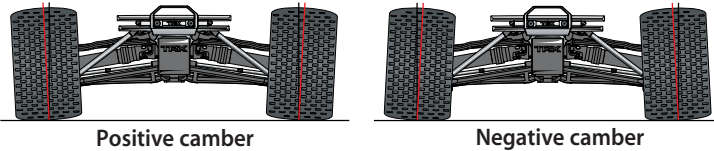




your static camber, insert the supplied 2.5 mm hex wrench through the slit in the dust plug and engage the end of the pivot ball (compressing the suspension until the arms are parallel to the ground will allow for easier hex wrench engagement). The upper pivot ball is normally screwed all the way in. Negative camber is achieved by screwing the pivot ball of the lower control arm out. **Note:** When camber is changed, the toe angle of the wheel has to be reset.

**Static Camber Base Factory Settings**

**Front:** 1-degree negative camber each side  
**Rear:** 1-degree negative camber each side



**Maximum Alignment Limits (using stock push rod length)**

Revo's maximum toe and camber alignment settings can be limited by the ride height setting. Do not exceed the maximum limits or you could experience interference between suspension components. The ride height is controlled by where the push rod is installed in the lower suspension arm. First determine which of the following configurations you are using:

- a. **Stock Configuration** – When the pushrod is in the middle position of the lower control arm.
- b. **Raised Configuration** - When the pushrod is in the raised position to increase the vehicle's ride height (innermost hole in lower control arm).
- c. **Lowered Configuration** - When the pushrod is in the lowered position to decrease the vehicle's ride height (outermost hole in lower control arm).
- d. **Long Travel Configuration** – When the pushrod is in the middle position of the lower control arm with the Long Travel rockers installed.

**Front Suspension**

The following are suggested maximum settings for the front suspension in order to avoid interference between suspension components:

Configuration	Available Camber (degrees)	Available Toe (degrees)	
		Toe In	Toe Out
Stock	+3 to -5	3	3
Raised	+3 to -1	1	1
Lowered	+3 to -5	3	3
Long travel	+3 to -1	1	1

**Rear Suspension**

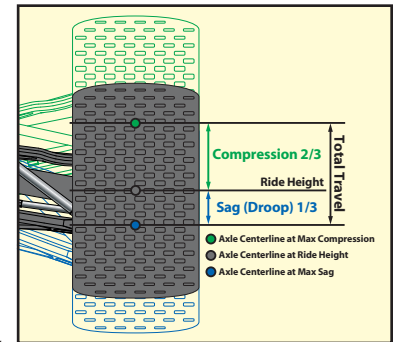
The following are suggested maximum settings for the rear suspension for all configurations. Toe out is not normally used on the rear of Revo.

Configuration	Available Camber (degrees)	Available Toe (degrees)	
		Toe In	Toe Out
All	+3 to -5	3	2

**Springs**

The front and rear springs on Revo have different spring rates. The rear springs are about 20% stiffer than the front springs. The spring's pre-load tension can be adjusted by turning the spring pre-load adjuster. Adjusting the pre-load changes the suspension sag. Suspension sag basically defines how much the suspension compresses when the truck is at rest. Adjust the pre-load so that the suspension compresses about one third of its full suspension travel (see illustration). If suspension sag is severe and requires a large increase of the spring pre-load to compensate, then a firmer spring should be used. Firmer springs (supplied) must be used when the Long Travel rocker arms are installed.

Use a stiffer spring to reduce sag, reduce body lean, control brake dive, and provide a firmer, more responsive overall feel. If Revo is lightened significantly, softer springs will be necessary to allow the suspension to sag properly. Heavier configurations will require stiffer springs. Ride height is adjusted by changing the length or position of the push rods in the lower suspension arms. See Ride Height Adjustments on page 12. The suspension sag and spring pre-load should be readjusted anytime the springs are removed and/or replaced.



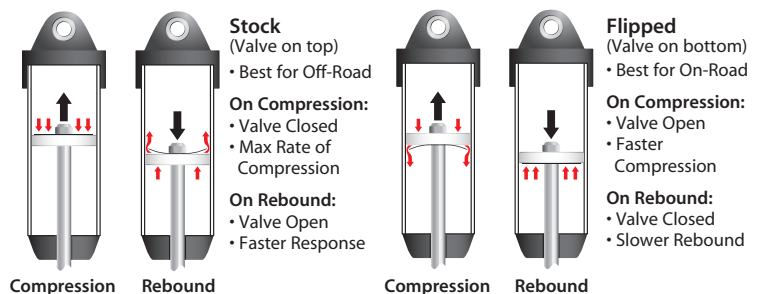
Optional springs available from Traxxas are listed below. Refer to your parts list for a complete part number listing. Higher rate springs are stiffer. Springs can be identified by dots of color on one end.

90mm Travel		120mm Travel	
Dot Color	Spring Rate	Dot Color	Spring Rate
● Yellow	14.8 lb/in (2.6 N/mm)	○ Silver	28.0 lb/in (4.9 N/mm)
○ White	16.6 lb/in (2.9 N/mm)	(Standard Front)	
● Orange	18.3 lb/in (3.2 N/mm)	● Pink	30.8 lb/in (5.4 N/mm)
(Standard Front)		● Blue	33.7 lb/in (5.9 N/mm)
● Green	20.0 lb/in (3.5 N/mm)	(Standard Rear)	
● Gold	21.7 lb/in (3.8 N/mm)	● Purple	36.5 lb/in (6.4 N/mm)
(Standard Rear)			
○ Tan	23.4 lb/in (4.1 N/mm)	<b>Note:</b> 90mm Travel springs are not recommended for use with the Long Travel Rockers.	
● Black	25.1 lb/in (4.4 N/mm)		

**SHOCK TUNING**

**Shock Pistons**

The shock pistons are Variable Damping Pistons. The piston design greatly enhances the tuning ability of the suspension. The key to the shock's unique operation is the flexible plate which seals two of the piston holes. When the shock is compressed, full damping rate is delivered. While rebounding, this new valve action allows additional bypass of shock fluid, speeding shock response. The direction at which the shock responds faster depends on the orientation of the piston and valve assembly. This is selectable by flipping the piston assembly into the desired position as shown in the diagrams. For off-road use, it is generally desirable for the shock to rebound faster than compress, requiring the valve plate to be on the top of the piston (stock position). The opposite is generally true for on-road use.



## TUNING ADJUSTMENTS

To further alter the characteristics of the variable rate, the diameter of the bypass holes may be fine tuned by enlarging them - speeding even further the rebound rate. Optional pistons with bypass holes that are larger or smaller (1, 2, or 3) than the factory installed stock pistons can be used to decrease or increase damping respectively.

From the factory, the shocks are filled with SAE-50W silicone oil. Only use 100% silicone oil in the shock. The stock Revo is equipped with #2 pistons front and rear.

### Shock disassembly

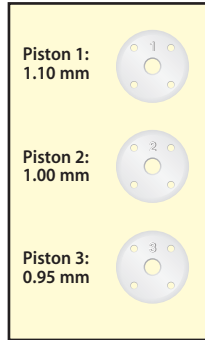
The shocks must be removed from the vehicle and disassembled to change the pistons. Use the shock exploded views included with the model to aid in the assembly process.

1. Remove the spring and lower spring retainer from the shock.
2. Remove the shock cap (A) and empty the shock body of shock oil.
3. Remove the lower cap (B) and the X-ring from the shock body.
4. Use side cutters to grip the shock shaft just above the rod end (C). 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 thin steel valve or 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. **Only tighten the nut enough to remove vertical "play" of the piston. Over tightening the nut will deform the steel valve and cause the shock to malfunction. The piston should be free to rotate on the shaft when tightened.**
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. Slide the bump stop onto the shaft.
8. Grip the shaft close to the threads with needle nose pliers or side cutters and thread the rod end onto the shock shaft until the rod end bottoms out (C).

Shock piston hole sizes



Multi-tool Shock Functions



A. Tighten/Loosen Upper Cap



B. Tighten/Loosen Lower Cap

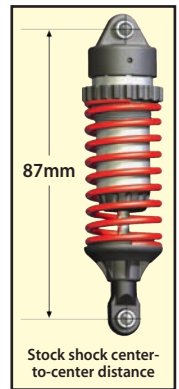


C. Remove/Install Rod End



Piston Installation/Removal

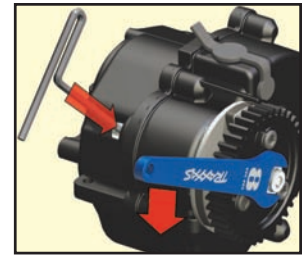
9. Fill the shock with new silicone shock oil up to the top of the shock body. Slowly move the piston up and down (always keeping it submerged in oil) to release the air bubbles. Let the shock sit for a few minutes to allow any remaining air bubbles to surface.
10. Slowly thread the upper cap with the installed shock bladder onto the shock body with the suspension multi tool (A). 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 shock body while tightening.
11. Reinstall the spring and lower retainer.



## TRANSMISSION AND DIFFERENTIAL TUNING

### Adjusting the Slipper Clutch

Your Revo is equipped with an adjustable Torque-Control™ slipper clutch. The slipper clutch is integrated into the main spur gear on the transmission. The slipper clutch is adjusted by loosening the spring-loaded locknut on the slipper shaft. Use the supplied 8mm open-end metric wrench. To tighten or loosen the slipper nut, insert the 2.0mm hex wrench into the hole in the end of the slipper shaft. This locks the shaft for adjustments. Turn the adjustment nut clockwise to tighten (less slippage) and counter-clockwise to loosen (more slippage). The slipper clutch has two functions:



1. Limiting the engine's torque output to the wheels to prevent wheelspin on low traction surfaces and help to prevent damage to the gears in the transmission during on-throttle landings.
2. Protecting the drivetrain from sudden impact or shock loads (such as landing from a jump with the engine at full throttle).

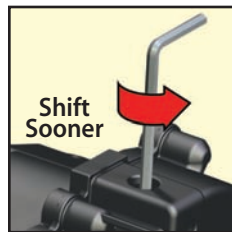
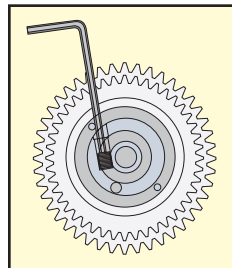
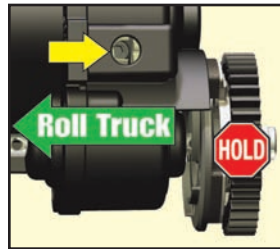
From the factory the slipper clutch is set for minimal slippage, just enough to protect the drivetrain from shock loads. On slippery, low traction surfaces such as a hard-packed, dry racetrack you may benefit from loosening the slipper adjustment nut to allow for more clutch slippage. This will make the truck easier and more forgiving to drive by helping to reduce the amount of wheel spin. Loosening the slipper adjustment can also improve performance on extreme high traction surfaces by preventing the front end from lifting off of the ground when accelerating. Make slipper adjustments in small 1/8 turn increments.

The maximum tight setting for the slipper is just at the point where there is little or no tire slippage on a high traction surface such as carpet or a prepared racetrack. The slipper should not be tightened to the point that clutch slippage is completely eliminated. Do not overtighten the slipper nut or you could damage the slipper bearings, pressure plates, or other components.

### Adjusting the Two-Speed Transmission

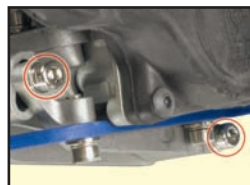
Revo comes equipped with an adjustable two-speed transmission. When the shift point on the transmission is adjusted correctly, it will maximize acceleration and improve driveability. Use a 2mm hex wrench to adjust the shift point. To make the adjustment, the engine must be off (not running).

1. Remove the rubber access plug from the top of the transmission housing.
2. While looking through the opening, rotate the spur gear to align the cutout (notch) on the internal two-speed clutch drum with the opening.
3. Hold the spur gear and slowly roll the truck forward until the hex on the black adjustment set screw becomes visible in the opening. **Note:** the truck will only roll forward (not backwards) when the spur gear is held stationary.
4. Insert the 2.0mm hex wrench through the clutch drum and into the adjustment screw.
5. Turn the adjustment screw 1/8 turn counter clockwise to lower the shift point (shifts sooner). Be careful not to loosen the adjustment screw too much or you may cause the screw and spring to fall out (requiring major disassembly and repair). Turn the adjustment screw clockwise for later shifts.
6. Reinstall the rubber access plug to prevent dirt from entering the transmission. Do not put oil or other lubricants into the transmission through the two-speed adjustment access.
7. Check performance by running a test lap after each adjustment. On a small race track with many tight turns, try setting the shift point later so that the truck only shifts into second gear on the main straightaway. This will prevent an unexpected shift in the middle of a turn. On larger tracks it may be necessary to allow earlier shifts for increased speed.



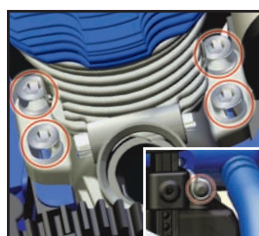
### Adjusting the Spur Gear/Clutch Bell Gear Mesh

The ideal spur gear/clutch bell gear mesh for Revo is 0.1mm. To set the gear mesh, place a strip of standard letter/A4 size copy or printer paper (about 0.1mm thick) between the mating teeth. Loosen the two horizontal engine mount screws and slide the engine mount up to push the clutch bell gear against the spur gear so that the paper is not too tight to pull out or too loose that it will fall out. Tighten the two horizontal engine mount screws securely. When the paper is removed, you should feel only the slightest amount of play between the gears (almost none) and there should be no binding or friction.



### Changing the Spur Gear

1. Remove the four cap head screws that secure the engine to the engine mount.
2. Remove the button head screw that secures the pipe hanger to the rear body mount (see inset).
3. Carefully remove the engine and exhaust system from the spur gear area to allow enough room to remove the spur gear.



4. Remove the three screws on the slipper clutch assembly using a 2.5mm hex wrench. Slide the spur gear off of the slipper shaft. If the spur gear is too tight on the shaft, gently pry on the back of the gear with a flat screw driver to loosen it.



Repeat the above steps in reverse order to install the new spur gear.

### Adjusting the Gear Ratio

The gear ratio on Revo can be adjusted for different conditions that may require either increased acceleration or increased top speed. Adjusting the gear ratio is accomplished by changing the clutch bell on the engine and/or the spur gear (slipper clutch gear) on the transmission. From the factory, Revo is equipped with a 15-tooth clutch bell and a 38-tooth spur gear. This combination will provide a good balance of acceleration and top speed. Optional spur gears and clutch bell gears are listed on your parts list. Refer to the gear ratio chart for possible gearing combinations.

### Adjusting the Two-Speed Ratios

Revo is equipped to allow adjustment to the two-speed by installing optional standard and wide-ratio gearsets. This requires transmission removal and disassembly (see www.Traxxas.com for detailed instructions). The standard ratio gearsets will increase top speed slightly. The optional wide-ratio gear set can also be installed in the Revo. The additional horsepower and torque output of the TRX 3.3 engine provides seamless shifting even with the larger gap between first and second gears. The gear ratio chart shows the available combinations with optional spur gears, clutch bells, and two-speed gear sets.

#### Gear Ratio Chart

With 14T Clutch Bell		# of Spur Gear Teeth		
2nd gear sets	Gear	36	38	40
17T/39T (Standard)	1st	24.21	25.55	26.90
	2nd	16.79	17.72	18.66
16T/40T (Close)	1st	24.21	25.55	26.90
	2nd	18.30	19.31	20.33
18T/38T (Wide)	1st	24.21	25.55	26.90
	2nd	15.45	16.31	17.17

With 15T Clutch Bell (standard)		# of Spur Gear Teeth		
2nd gear sets	Gear	36	38	40
17T/39T (Standard)	1st	22.59	23.85	25.10
	2nd	15.67	16.54	17.41
16T/40T (Close)	1st	22.59	23.85*	25.10
	2nd	17.08	18.03*	18.97
18T/38T (Wide)	1st	22.59	23.85	25.10
	2nd	14.42	15.22	16.02

With 16T Clutch Bell		# of Spur Gear Teeth		
2nd gear sets	Gear	36	38	40
17T/39T (Standard)	1st	21.18	22.36	23.54
	2nd	14.69	15.51	16.32
16T/40T (Close)	1st	21.18	22.36	23.54
	2nd	16.01	16.90	17.79
18T/38T (Wide)	1st	21.18	22.36	23.54
	2nd	13.52	14.27	15.02

With 17T Clutch Bell		# of Spur Gear Teeth		
2nd gear sets	Gear	36	38	40
17T/39T (Standard)	1st	19.94	21.04	22.15
	2nd	13.83	14.60	15.36
16T/40T (Close)	1st	19.94	21.04	22.15
	2nd	15.07	15.90	16.74
18T/38T (Wide)	1st	19.94	21.04	22.15
	2nd	12.72	13.43	14.14

\*stock configuration out of the box



### Tuning The Sealed Gear Differentials

Revo's front and rear gear differentials allow the left and right wheels to spin at different speeds while turning so that the tires do not scuff or skid. This decreases the turning radius and increases steering performance.

The performance of the front and rear differentials can be tuned for different driving conditions and performance requirements. The differentials are filled with silicone differential fluid (oil) and are sealed to maintain consistent long-term performance. Changing the oil in the differentials 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 engine 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. Revo will generally benefit from higher viscosity oil when climbing, rock crawling, 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.

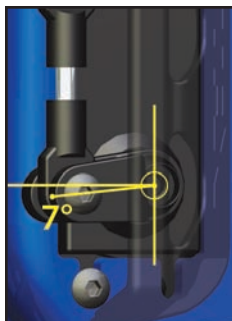
From the factory, the front differential is filled with SAE 50,000W oil and the rear differential is filled with 10,000W oil. The center differential is filled with SAE 500,000W oil. For the best center differential performance, only use the 500,000W diff fluid. This viscosity provides the best balance for acceleration and handling. Power will be more equally distributed to the front and rear differentials. Lighter viscosity center diff fluid may increase the tendency for the front tires to be over-driven (spin faster than the rear tires). Over-driving the front tires will reduce handling and acceleration authority. Only use silicone differential fluid (oil) in the differentials. Traxxas sells a range of oil viscosities (see your parts list). The differentials have to be removed from the vehicle and disassembled to change/replace oil.

### DUAL SERVO STEERING SYSTEM

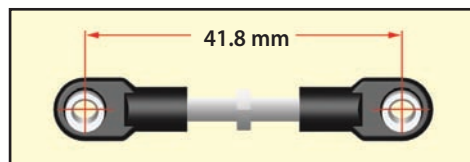
Revo uses dual-servo steering and a single heavy-duty servo saver for powerful, responsive steering. To prevent unnecessary receiver battery drain it is important to make sure that the servos are "at rest" when the steering is at neutral. If one servo is out of adjustment, then both servos will work against each other, fighting to find center.

#### Adjusting The Steering System

1. Remove the servo horns and steering links from the servos. Disconnect the steering links from the servo saver.
2. Adjust both the steering links to be the exact same length (41.8mm - use "Steering Servo Horn Link Length Template" below to set length).
3. Switch on the power to the receiver and the transmitter.
4. Adjust the steering trim on the transmitter to the neutral "0" position.
5. Connect one end of a steering link to the steering servo saver arm and the other end to the servo horn
6. Position the steering servo saver arm perpendicular to the centerline of the vehicle.
7. While holding the steering servo saver arm in the position mentioned in step 6, install the servo horn onto the servo such that the steering link is parallel with the centerline of the vehicle. This will automatically set the servo horn at the 7-degree offset shown in the illustration.
8. Install the second servo horn on the other side following the same procedure.



If necessary, fine-tune the length of the second steering link to eliminate any load on the steering system in the neutral position.



Steering Link Length Template

If you are using aftermarket servos, it is important to use servo horns designed for Revo. Optional steering servo horns are sold separately for use with non-Traxxas servos.

### Servo Saver Tuning

An optional stiffer spring is available for the servo saver when using servos with metal gear sets (see parts list for details). Do not use this spring with standard Traxxas high-torque servos.

### BRAKE SETUP & ADJUSTMENT

Revo is equipped with front and rear disc brakes. The brakes are preset at the factory and should not require attention. As the brake material wears, future adjustments may be necessary.

#### Brake Shoulder Screw Adjustment

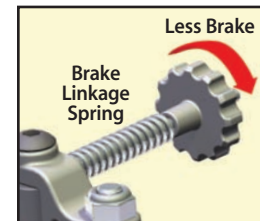
The two shoulder bolts that are used to secure the brake pads to the transmission housing may need to be adjusted periodically as the brake material wears down. They should be tightened so a 0.50mm (.020") gap exists between the disk and the brake pad (on the transmission side). Adjust in one of the following ways:



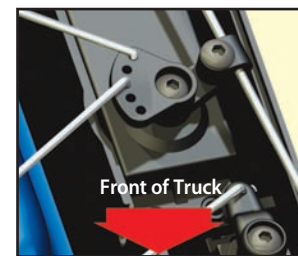
1. Use a .50mm feeler gauge between the brake pad insert and brake disk.
2. Push the outer brake pad firmly against the inner pad with your finger, sandwiching the brake disk between the brake calipers. Tighten the brake shoulder bolts until they just barely touch the brake pads. Do not over tighten these fasteners or you could damage the brake calipers. Loosen each of the shoulder bolts by 1 turn.

#### Brake Linkage Adjustment

When correctly adjusted, the brake linkage spring should barely touch the rod guide when the servo is in neutral position (closed throttle). This will ensure no brake drag during operation of the vehicle. The brake adjustment knob can be threaded away from the spring for less braking power if desired. Do not adjust knob to apply pressure against the spring while the servo is in the neutral position. This will induce brake drag and cause undesirable handling.



The position of the z-bend from the factory is the middle position of the servo horn for the front brakes and in the rear position for the rear brakes. Changing this position will affect the way the brake force is applied. The brake adjustment knob will need to be readjusted if this position is changed.





### Brake Set-up Tips

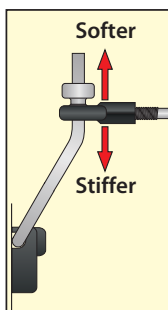
- All four wheels should lock at the same time. This is the base setting for the brake system. If the brakes do not engage simultaneously, then thread the adjustment wheels in toward the brake levers until they actuate the brakes when pushing the transmitter trigger forward.
- **Front brake bias** - Setting the front brakes to engage before the rear brakes will create a slight push while entering a corner.
- **Rear brake bias** - Setting the rear brakes to engage before the front brakes will cause the truck to oversteer when entering a corner.
- Use different brake bias settings to tailor the handling characteristics of the truck to suit your driving style in different conditions.
- The dual rear brake is intended for off-road use. It is not intended for repeated brake application on concrete or pavement.

### Brake Pad Wear and Replacement

During normal use the brake pads should wear at a relatively slow rate. However, if the brake pads wear down close to the metal pad holders, they should be replaced. Any more wear than this could cause damage to the brake parts and improper operation of the brake system.

### SWAY BAR SETTINGS AND ADJUSTMENTS

- The sway bar set includes two different front and rear sway bars. The thicker of the two (black) is stiffer and will further reduce body roll in cornering.
- Adjust the sway bar links so the sway bars are almost vertical while 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 raised or lowered closer to or further 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, further from the pivot point will result in softer sway bar response.



#### For smooth surfaces with high traction:

- Use black front and rear sway bars. Adjust linkage placement for stiffer response (lower on sway bar).

#### For rough surfaces with low traction:

- Use silver front and rear sway bars. Adjust linkage placement for softer response (higher on sway bar).

#### To reduce understeer (pushing in corners):

- Use silver front sway bar. Adjust front linkage placement for softer response (higher on sway bar).
- Use black rear sway bars. Adjust linkage placement for stiffer response (lower on sway bar).

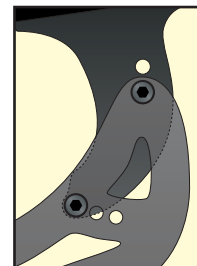
#### To reduce oversteer (loose in corners):

- Use black front sway bars. Adjust linkage placement for stiffer response (lower on sway bar).
- Use silver rear sway bar. Adjust front linkage placement for softer response (higher on sway bar).

### WING ADJUSTMENT

The wing mount can be adjusted for both height and deflection angle.

- The two top holes set the wing height. Using the upper hole will lower the level of the wing by approximately 3/8 inches.
- The lower three holes adjust the angle of wing incidence. By using the rear hole, wing down force will be maximized by adding negative wing deflection. For less deflection, the front holes can be used to fine tune the amount of down force needed for your track conditions.



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