

**DURATRAX®**

**RAZE™**  
**ST**



**ASSEMBLY AND OPERATION MANUAL**

[www.duratrax.com](http://www.duratrax.com)



# ITEMS INCLUDED

The following items are included with your Raze ST.



Chassis  
Body  
Body Clips (Qty 4)  
Decal Sheet  
Transmitter

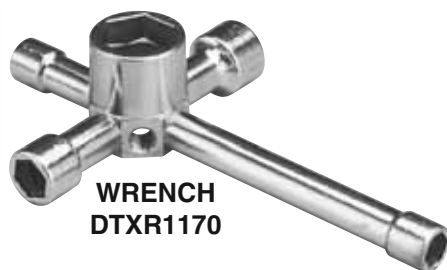
Transmitter Antenna  
Receiver Antenna Tube  
250cc Fuel Bottle  
2° and 3° Toe-Blocks  
Ride Height Clips

Glow Starter  
Kwik-Pit™ Super Start  
Instruction Manual  
Exploded View/Parts Listing  
Engine Tuning DVD

## YOU WILL NEED



ALKALINE BATTERIES



WRENCH  
DTXR1170



ULTIMATE HEX DRIVER SET  
DTXR0292



AFTER RUN OIL  
HCAP3000



AIR FILTER OIL  
DTXC2465



PHILLIPS HEAD SCREWDRIVER  
DTXR0124



SPARE GLOW PLUGS  
DTXG3005



ENGINE TUNING SCREWDRIVER  
DTXR0185



PLIERS  
DTXR0300



20% O'DONNELL FUEL  
ODOP3320

# THINGS TO KNOW

## SAFETY PRECAUTIONS

When the safety precautions are followed, the Raze ST will provide years of enjoyment. Use care and good sense at all times when operating this radio controlled truck. Failure to use this vehicle in a safe, sensible manner can result in injury or damage to property. You and you alone must insure that the instructions are carefully followed and all safety precautions are obeyed.

- Do not operate the Raze ST near people. Spectators should be behind the driver or at a safe distance away from the vehicle.
- Water can cause the electronics to short out and can cause permanent damage.
- Always turn on the transmitter before turning on the receiver.
- Fully extend the transmitter antenna before operating your vehicle.
- Before turning on your radio system, check to make sure that no one else is running on the same frequency.
- The engine and exhaust produce quite a bit of noise. Do not run this vehicle when or where it can disturb others.
- The engine and exhaust can become very hot. Avoid touching any of these parts during use and until they have cooled down.
- Model engine fuel is poisonous. Make sure you read and follow all of the precautions on the fuel container. Keep fuel out of the reach of children.
- Model engine fuel is flammable and when ignited has a flame that is difficult to see. Avoid sparks, flames, smoking, or any other ignition source when fuel is near.
- The engine emits harmful fumes just like real vehicles. Do not operate this model indoors.
- Avoid running the truck in cold weather. The plastic and metal parts can become brittle at low temperatures. In addition, grease and oil become thick, causing premature wear and poor performance.

## SPECIFICATION AND DESCRIPTION CHANGES

All pictures, descriptions and specifications found in this instruction manual are subject to change without notice. DuraTrax maintains no responsibility for inadvertent errors in this manual. Visit [www.duratrax.com](http://www.duratrax.com) for the latest updates and information for your model.

## WARRANTY

- DuraTrax® guarantees this kit to be free from defects in both material and workmanship at the date of purchase. DuraTrax will warranty this kit for 90 days after the purchase date. DuraTrax will repair or replace, at no charge, the incorrectly made part.
- Make sure you save the receipt or invoice you were given when you bought your model! It is your proof of purchase and we must see it before we can honor the warranty. Further, DuraTrax reserves the right to change or modify this warranty without notice.
- In that DuraTrax has no control over the final user assembly or material used for final user assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

To return your Raze ST for repairs covered under warranty you should send your truck to:

Hobby Services  
3002 N. Apollo Drive Suite 1  
Champaign, Illinois 61822  
Attn: Service Department  
Phone: (217) 398-0007 9:00 am-5:00 pm  
Central Time M-F  
E-mail: [hobbyservices@hobbico.com](mailto:hobbyservices@hobbico.com)  
[www.hobbyservices.com](http://www.hobbyservices.com)

**If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.**

## STRESS-TECH™ PARTS GUARANTEE

We have engineered the Raze ST to take the rough and tumble abuse that makes R/C buggies fun. We are so confident of the quality and durability of the Stress-Tech plastic parts that we will replace any Stress-Tech plastic part you break during the first 12 months you own the truck. Just send in the part to us and we will send you a FREE replacement. Please see the Raze ST parts list for the items covered under the Stress-Tech guarantee.

To receive your free replacement part please send the following to the Hobby Services address listed under the warranty on the left.

- ☐ 1. The broken part must be included.
- ☐ 2. The part number and description of the broken part.
- ☐ 3. Copy of your dated invoice or purchase receipt.
- ☐ 4. Your name, phone number and shipping address.

## REPAIR SERVICE

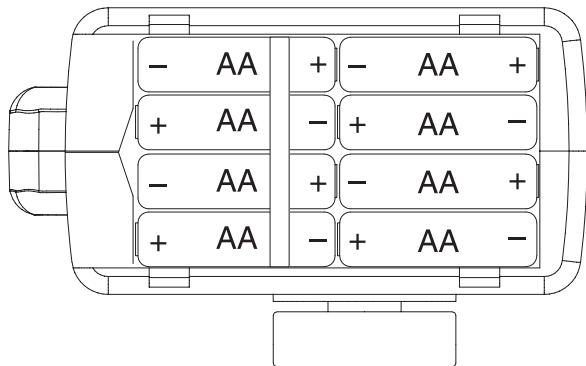
Repair service is available anytime.

- After the 90 day warranty, you can still have your Raze ST repaired for a small charge by the experts at DuraTrax's authorized repair facility, Hobby Services.
- To speed up the repair process, please follow the instructions listed below.

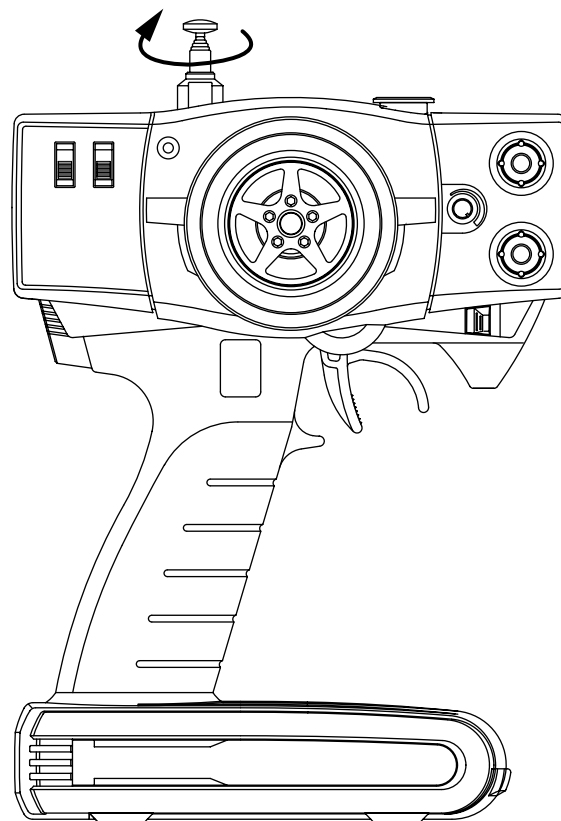
- ☐ 1. Under most circumstances return the ENTIRE vehicle. The exception would be sending in a Stress-Tech part. See the instruction under the Stress-Tech Guarantee.
- ☐ 2. Make sure the transmitter is turned off, all of the batteries are removed and the fuel tank is completely empty.
- ☐ 3. Send written instructions which include: a list of all items returned, a THOROUGH explanation of the problem, the service needed and your phone number during the day. If you expect the repair to be covered under warranty, be sure to include a proof of date of purchase (your store receipt or purchase invoice).

# FINISHING THE RAZE ST

## TRANSMITTER PREPARATION

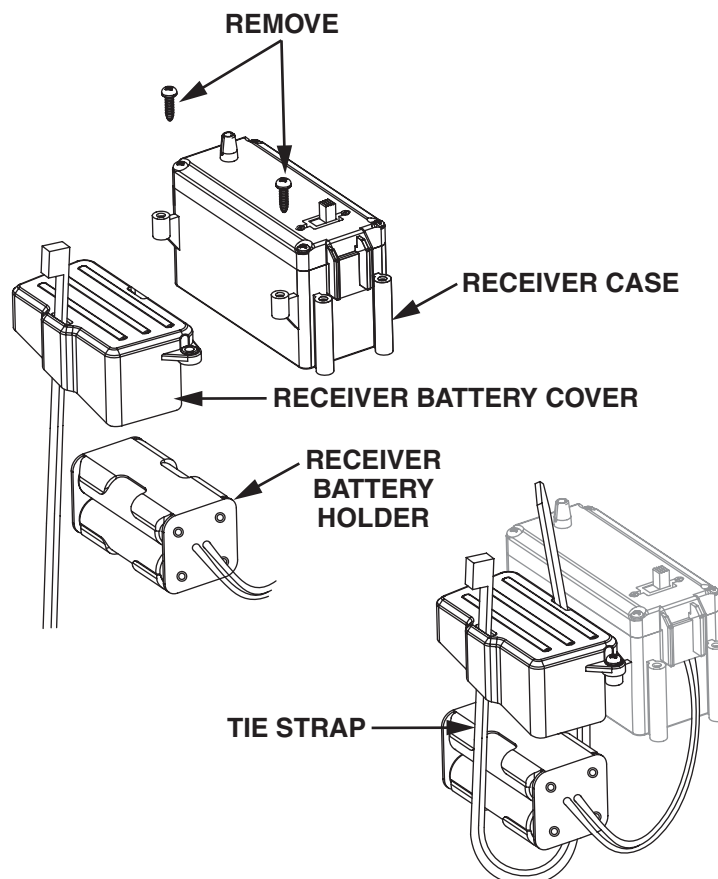


- Install eight “AA” batteries into transmitter, making sure the polarity is correct.
- Insert the antenna into the top of the transmitter and tighten.
- Turn the transmitter on and check the battery light.
- If the LED glows constantly, then the batteries are acceptable. If the LED flashes, the batteries need to be replaced.



## RECEIVER BATTERY INSTALLATION

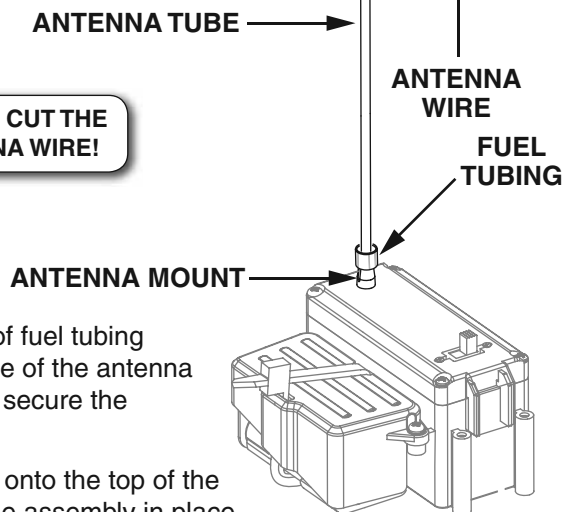
- Remove the receiver battery cover from the receiver case.
- Remove the receiver battery holder from the receiver cover.
- Install (4) “AA” batteries.
- Reinstall the receiver battery holder to the cover using the included tie-strap.
- Secure the receiver cover to the receiver case.



## RECEIVER ANTENNA INSTALLATION

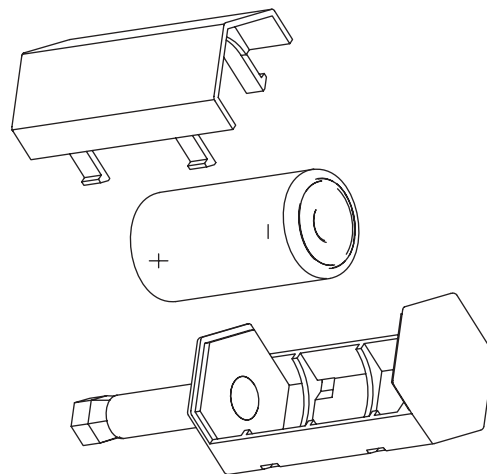
- Uncoil and straighten the antenna wire.
- Route the receiver antenna wire through the antenna tube.
- Install the tube into the antenna mount.

**X DO NOT CUT THE ANTENNA WIRE!**



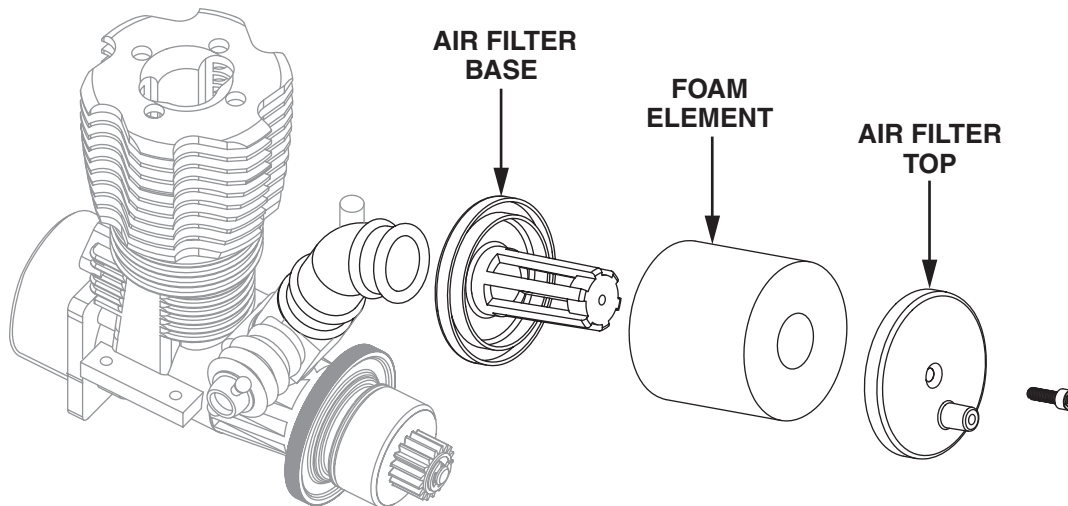
- Install the small piece of fuel tubing (included) onto the base of the antenna tube/antenna mount to secure the antenna tube in place.
- Install the antenna cap onto the top of the antenna tube to hold the assembly in place.

## GLOW STARTER BATTERY



- Install a "C" battery (not included) into the glow starter.

## AIR FILTER MAINTENANCE



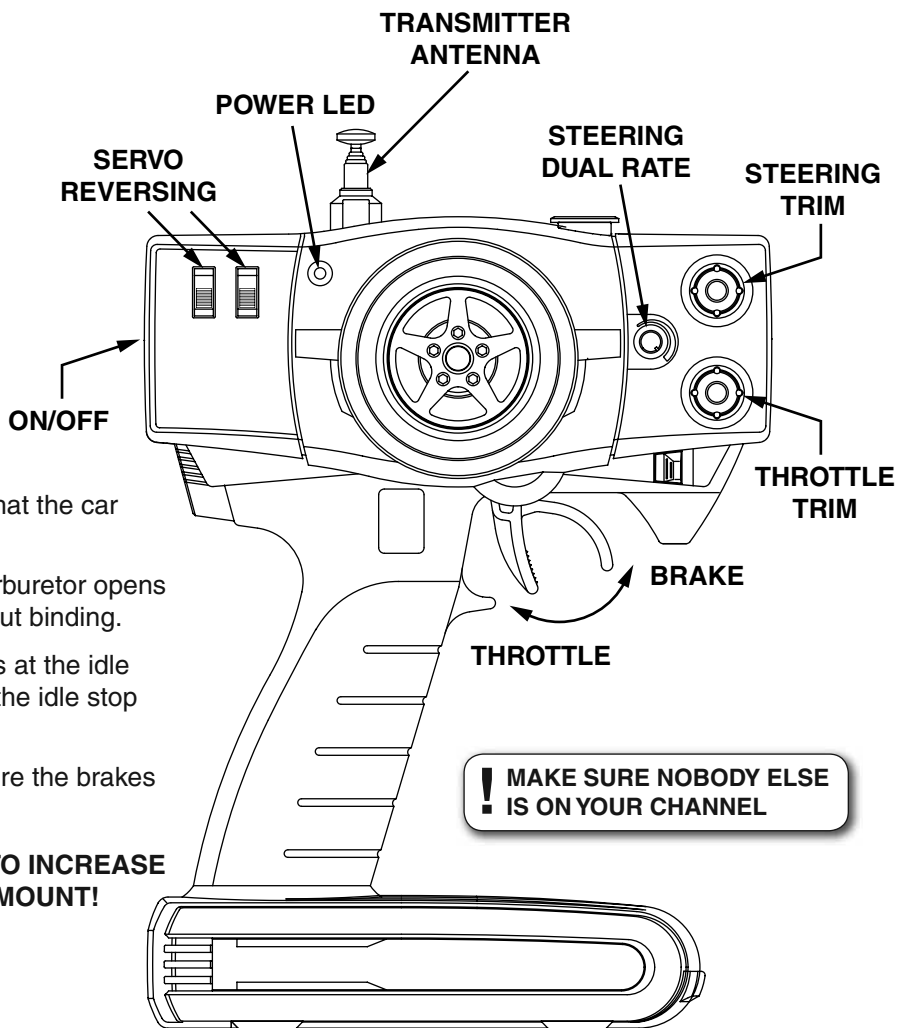
- The air filter comes pre-oiled. However, after runs in dusty conditions, clean and re-oil the foam element.
- Remove the air filter top and foam element.
- Clean the foam using soap and water.
- Apply air filter oil (DTXC2465) onto the foam element, squeezing the element until it is completely coated with the oil.  
**TIP!** Placing the element in a plastic bag will help keep your hands clean.
- Remove any excess oil with a paper towel.
- Reinstall, making sure the filter is properly seated on the base.

## RADIO SYSTEM CHECK

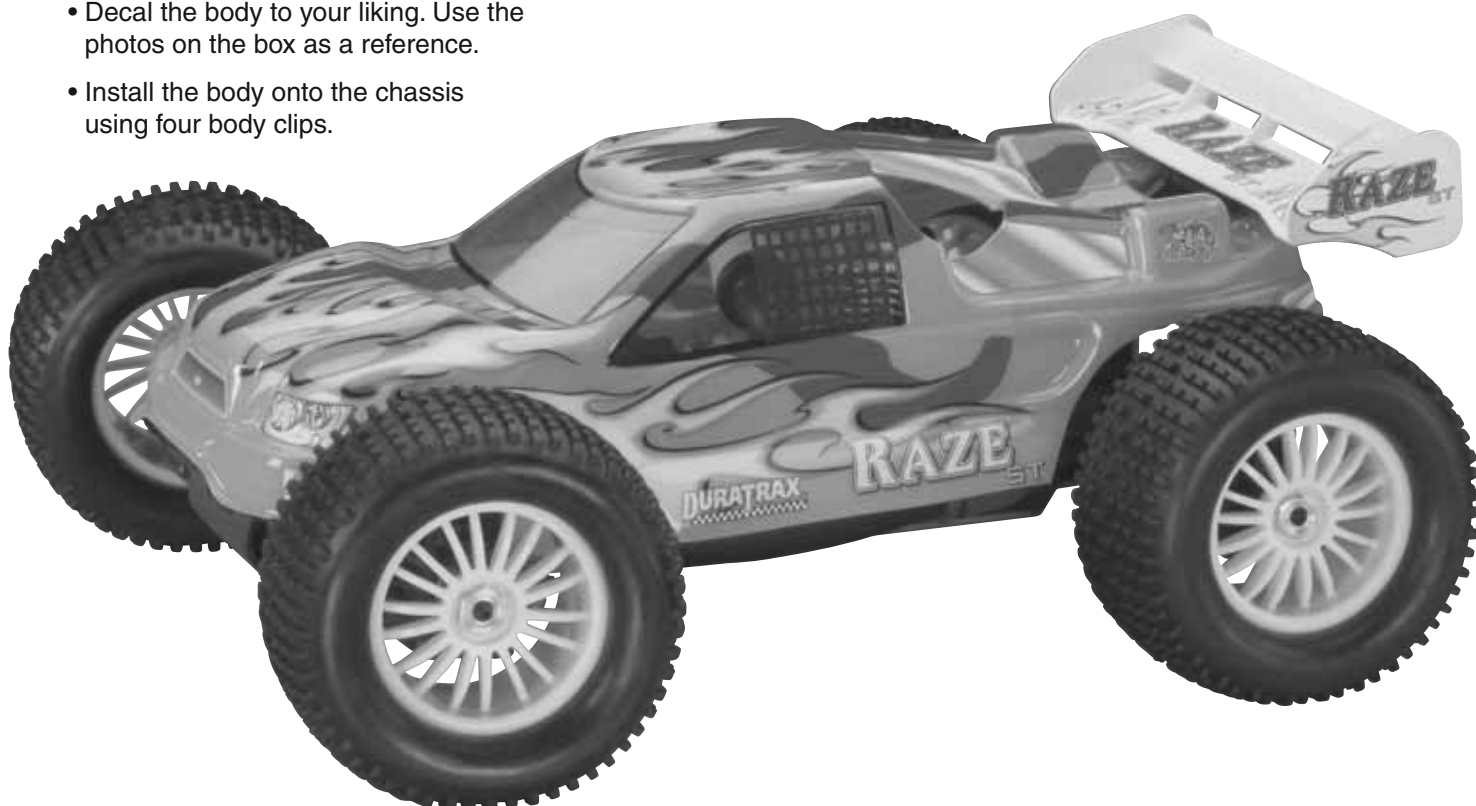
**! ALWAYS CHECK THE RADIO  
OPERATION *BEFORE* EACH RUN**

1. Fully extend the transmitter antenna.
2. Turn the transmitter on, then turn the receiver on.
3. The transmitter wheel will move the front wheels of the car left or right. If the wheels turn the incorrect direction, change the servo reversing switch.
4. When running, adjust the steering trim so that the car tracks straight.
5. Pull the throttle trigger to make sure the carburetor opens fully and the throttle linkage functions without binding.
6. Adjust the throttle trim until the carburetor is at the idle position. Always adjust the idle speed with the idle stop screw on the car, not the throttle trim.
7. Push the trigger and roll the car to make sure the brakes are applied.

• **USE THE STEERING DUAL RATE KNOB TO INCREASE OR DECREASE THE TOTAL STEERING AMOUNT!**



- Decal the body to your liking. Use the photos on the box as a reference.
- Install the body onto the chassis using four body clips.

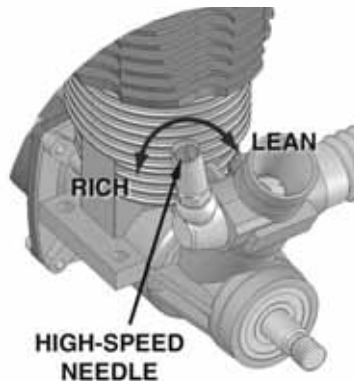




# ENGINE TUNING GUIDE

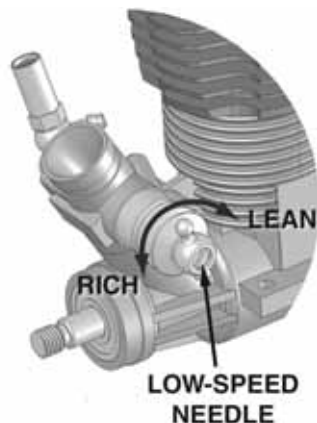
## HIGH-SPEED NEEDLE

The “high-speed” needle is sticking up from the carburetor. This controls the fuel to air mixture of the carburetor. The needle is pre-set for break-in from the factory at 4-1/2 turns out from fully closed. Once the engine is broken-in, the high-speed needle would typically run from 4 to 4-1/4 turns out from closed, depending on the weather, humidity and altitude above sea level. To richen the mixture turn the needle counterclockwise. To lean it, turn the needle clockwise.



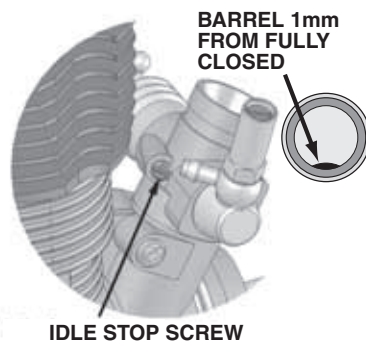
## LOW-SPEED NEEDLE

The “low-speed” needle is located on the side of the carburetor. It controls the fuel mixture at low throttle settings/idle and is preset from the factory at 12-1/2 turns from fully closed while holding the carburetor open. Low speed needle adjustment should only be done after break-in. There is a simple way of adjusting the low-speed needle correctly called the “pinch test.” With the engine at idle, pinch the fuel line and listen to how the engine speeds up or slows down. If the engine increases its speed for about 2 or 3 seconds and then loses speed, the needle is set correctly. If the engine loses RPM quickly, it is set too lean and the low-speed needle needs to be opened (counterclockwise) to richen the mixture. Pinch again to check the mixture. If the engine takes longer than 4 seconds to slow down, lean (clockwise) the low-speed needle and then pinch again to check the mixture.



## IDLE STOP SCREW

The “idle stop” screw is located on the backside of the carburetor. This increases or decreases the idle speed without changing the fuel mixture. The barrel should be approximately 1mm from fully closed.



**IMPORTANT!** To insure long life and good performance from your engine, you **MUST** break-in the engine. The break-in period is critical for long life of the internal parts of the engine. This should be done over the first 5 tanks of fuel.

# RUNNING THE ENGINE

*Before running the engine, read the manual and watch the assembly and engine tuning video that came with this kit.*

## STARTING THE ENGINE

**IMPORTANT!** Your radio system must **ALWAYS** be turned on and the transmitter antenna fully extended when running the engine!

1. Fill the fuel tank.
2. Charge the 6-cell battery (not included) for the Kwik-Pit Super Start. Install the battery into the unit and connect it to the starter. Press the button on the starter to check that it is functioning properly.
3. Attach the glow starter to the glow plug.
4. With the throttle at idle, start the engine using the Kwik-Pit Super Start.

Sometimes it is helpful to start the engine at around half throttle. When the engine starts, immediately return the throttle to idle.

## IMPORTANT! FIXING A FLOODED ENGINE

If the engine is difficult to turn over with the Super Start, especially if it is brand new, loosen the glow plug a half turn before starting the engine. This allows some compression to escape, but the engine will still start. Make sure you tighten the glow plug after the engine starts. If the Super Start is still having problems turning the engine over, it is flooded – there is too much fuel inside the engine. Remove the glow plug, then turn the truck upside down and run the Super Start for 5 or 6 seconds. This will clear the engine of fuel, and you will notice the engine turns over easier. Replace the glow plug and repeat the starting procedure.

## STOPPING THE ENGINE

Pinch the fuel tubing leading to the carburetor until the engine stops running. **Never place your finger over the exhaust to stop the engine. This could result in serious burns on your finger. It also causes fuel to back up in the engine, making it harder to start the next time you run your Raze ST.**

# BREAK IN PROCEDURE

## SOME THINGS TO REMEMBER DURING BREAK-IN

1. Run with the body off. This will keep the engine cooler.
2. Keep the air cleaner on at ALL times
3. Run on a smooth, hard surface. An empty parking lot is perfect.
4. Use the same fuel that you will use for normal running.
5. Resist the urge to accelerate and decelerate quickly.
6. Break-in puts stress on the glow plug and can burn it out. Make sure you have an extra plug or two on hand.
7. Do NOT overheat the engine (see page 9). You can check the head temperature by using one of the temperature gauges that are readily available (DuraTrax Flashpoint™, DTXP3100).

## TANK 1

Your first tank of fuel should be running the Raze ST at a very rich needle valve setting. This allows the fuel to carry as much oil as possible into the engine to properly lubricate the internal parts during the break-in.

1. Open the high speed needle valve 4-1/2 turns from fully closed (counterclockwise). This is factory set already, but check it to make sure. When closing the high-speed needle, close until you feel some resistance. DO NOT overtighten or you will damage the engine.
2. Fill the fuel tank and start the engine.
3. Run the truck on a smooth surface with the body off.
4. Run back and forth at medium speeds, slowly accelerating and decelerating the truck.
5. Run the truck until the tank is almost out of fuel. Do not allow the tank to run out of fuel during break-in. This leans out the engine and can cause overheating.
6. Stop the engine and allow it to cool. This normally takes around 10-15 minutes.

**NOTE:** If your engine does not stay running consistently, increase the idle speed by turning the idle stop screw clockwise.

## TANK 2

Lean the high-speed needle 1/12 turn from "tank 1" setting. Run the truck for the complete tank and then let cool.

## TANK 3

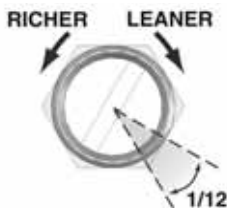
Lean the high-speed needle another 1/12 turn from "tank 2" setting. Run the truck for the complete tank and then let cool.

## TANK 4

Lean the high-speed needle another 1/12 turn from "tank 3" setting. Run the truck for the complete tank and then let cool. You should notice the engine running much better at this point.

## TANK 5

Lean the high-speed needle another 1/12 turn from "tank 4" setting. Run the truck for the complete tank and then let cool. The engine is now ready to be performance tuned.



**Important!** At this point, the engine will likely be running at a faster idle speed than needed (This is typical after break-in). Adjust the idle stop screw to lower the idle speed so that the wheels do not, or just barely, rotate when you lift the truck off the ground.

## TUNING TIPS

After break-in, run the truck where you plan to do most of your driving (grass, street, track, etc). Tune the high speed needle so the engine makes good power without overheating. Using a temperature gauge, tune the engine so that it will consistently stay under 230° F. Keep in mind, RC engines usually take a minute or two to warm up. It is common not to reach full power right away. Never tune a cold engine!

If needed, tune the low speed needle so that the truck idles and accelerates smoothly and consistently. **Note:** You may sometimes experience "run-on" when running the truck. "Run-on" is when the engine does not drop back down to idle after the trigger on the transmitter is released. To correct this, richen the low-speed needle using 1/8 turn increments until the engine idles normally when the trigger is released.

## ENGINE CARE

Never store your Raze ST with fuel in the tank. We recommend that after the final run of the day, you empty the fuel tank and then run the engine at idle until all the fuel is out of the fuel lines and engine. Remove the air filter and glow plug. Then place two drops of Hobbico® After Run Engine Oil (HCAP3000) in the carburetor and two into the cylinder to help prevent corrosion. Run the Super Start a few times to circulate the oil.

## 10 WAYS TO ENSURE LONG LIFE FROM YOUR ENGINE

1. Keep your engine and air filter clean. Dirt will act as insulation on an engine. It will not be able to shed heat as easily. Clean and re-oil the element often.
2. Do not over-lean your engine.
3. Do not run your engine with little or no load. Don't throttle up the engine to full throttle when the wheels are not in contact with the ground.
4. Do not overheat the engine (see page 9).
5. Do not use a fuel with a low oil content. Make sure you use a model car fuel from a reputable manufacturer, such as O'Donnell Fuels.
6. Avoid using old fuels in the engine.
7. Do not scratch the piston or cylinder sleeve. Avoid jamming something into the exhaust port when removing or re-installing the clutch or flywheel. Use a special tool called the Ultimate Flywheel Wrench (DTXR1105) to keep the crankshaft from moving.
8. Do not use silicone sealer on the engine joints. Silicone sealer contains acetic acid, which is corrosive if it gets inside your engine.
9. Do not allow any water to get inside the engine. This sounds easy, but temperature changes can cause condensation inside the engine. This is a good reason to use an after-run oil. Store your engine inside the house, not in a garage or shed where there will be temperature extremes.



# GENERAL INFORMATION

## GLOW PLUG

The glow plug is an item that will wear out and need replacement from time to time. It is a good idea to remove the glow plug before your first run, connect the plug to the glow starter and see how well it glows. You should see a bright orange glow from the filament. If a coil or two will not glow or the plug will not glow at all, replace the plug. If the engine quits when you remove the glow starter, the plug might need to be changed, although this may be because you are running too rich and need to lean your high-speed needle. Look at the glow plug when you are running the engine. If you see some bubbles coming from around the plug, replace the glow plug. The only real way to test a glow plug is to replace it. Make sure you have a spare plug or two on hand every time that you run the Raze ST. We recommend the DuraTrax Gold Plug (DTXG3005).



## AIR FILTER

Dirt can get into your carburetor and engine through the air filter. Ensure that your air filter has a good seal to the top of the carburetor. Periodically wash the air filter foam element (using dish soap and water) and re-oil the filter with filter oil (DTXC2465). Any air filter that has a torn element or a bad seal should be replaced immediately.

## FUEL

Use fuels that are specially formulated for car and truck engines like O'Donnell 20% Race Fuel (ODOP3320).



Fuel can go bad. The main ingredient in model fuel is methanol, which is basically alcohol. Alcohol will absorb water out of the air, so keep your fuel jug capped at all times. Store your fuel out of the sunlight and in a cool place, off the ground away from temperature extremes. Bad fuel is one of the most difficult problems to diagnose in engines. If you have tried everything you can think of to remedy an engine that is not running correctly, try using some fresh fuel.

## FUEL SYSTEM

The fuel line is susceptible to pinhole leaks. You usually cannot see the hole in the fuel line, but if you see air bubbles in the line going to the carburetor, replace the fuel line. Another symptom of a leak in the fuel line is a surging engine. A properly tuned engine will surge when the air bubbles hit the carburetor. It is basically leaning out the mixture.

Dirt can get caught in the needle seat and cause an inconsistent running engine. If you suspect that some dirt has lodged itself in the carburetor, remove the needles and clean the carburetor with denatured alcohol or fuel. It can help to use compressed air to blow out the fuel passages as well.



## OVERHEATING

One of the worst things you can do to your engine is overheat it. The oils that lubricate the engine are carried in the fuel. If your engine is set too lean, there will not be enough oil in the engine to lubricate the internal parts. This will cause premature wear in the engine and cause damage. The easiest way of checking the temperature of the cylinder head is by using one of the available temperature gauges (we recommend the DuraTrax Flashpoint Temperature Gauge, DTXP3100). This will give you a direct reading of the cylinder head temperature. Hold the temperature gauge directly on the cylinder head so the gauge is pointed directly at the glow plug. Do not let the head temperature exceed 230° Fahrenheit.

# MAINTENANCE TIPS



## BEFORE EACH RUN

1. **IMPORTANT:** Check to make sure that all screws are tight. Always use threadlock (DTXR2010) on screws going into metal.
2. Before running always check the condition of your radio system batteries and replace/recharge if necessary.
3. Check to make sure that all of the moving parts of the Raze ST move freely and do not bind.
4. Check the fuel tank and fuel lines for leaks.
5. Before starting the engine, turn on the radio and make sure the servos move easily and in the proper direction.
6. Inspect the air filter for a torn or damaged element. Also look for dirt in the air cleaner element and wash it if necessary.
7. Check for broken or damaged parts. Replace any broken or damaged parts before running the Raze ST. Running of the Raze ST with broken or damaged parts could result in damage to other parts.
8. Check to make sure that all wires are properly connected.

## AFTER EACH RUN

1. Clean any large globs of dirt or debris from the chassis and moving parts.
2. Drain the fuel tank of any leftover fuel. **DO NOT** return the fuel to your fuel jug.
3. Check for any broken or damaged parts. This way parts may be replaced before the next run.
4. Put 2 drops of after-run oil in the carburetor and 2 drops in the cylinder (removing the glow plug to access the cylinder) and turn the flywheel several times to work the oil into the engine. This will protect the engine from rusting, especially when stored for a long period of time.

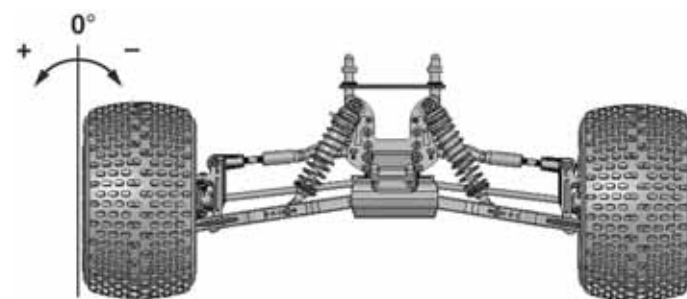
## AFTER EVERY 10 RUNS

1. Check to make sure that the bearings are free of dirt and debris, and roll smoothly.
2. Check the shocks for oil leakage. Inspect the shaft and O-rings for damage and replace if necessary. (A shock shaft with scratches you can feel with a fingernail should be replaced.)
3. Make sure the servo saver is free moving and does not bind. This will help prevent stripping of the servo during running.
4. Check for proper gear mesh between the spur and clutch bell.

# TUNING GUIDE

When tuning the Raze ST make sure that you have equal lengths from one side to the other on the shocks, camber rods and steering rods. Also, make sure to have the shock pre-load adjusters at the same setting from left to right. They do not have to be the same front to rear.

## CAMBER

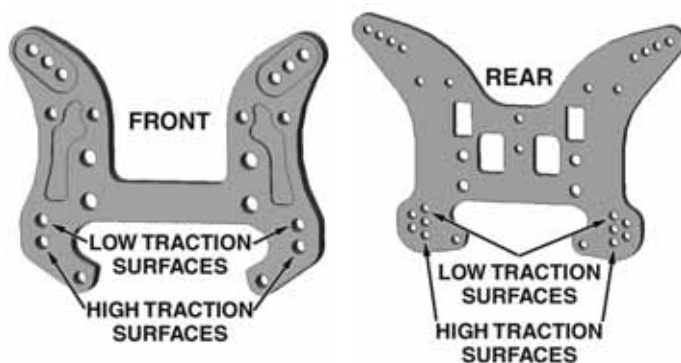


Camber refers to the angle at which the tire and wheel ride in relation to the ground when viewed from the front or rear. Negative camber is when the wheels lean inward and positive camber is when the wheels lean outward. Usually adding a small amount of negative camber ( $0^{\circ}$  to  $-2^{\circ}$ ) will increase traction. However, adding too much camber will decrease traction. The objective is to keep as much of the tire as possible in contact with the running surface. Never put in positive camber. Make sure that both sides are equal.



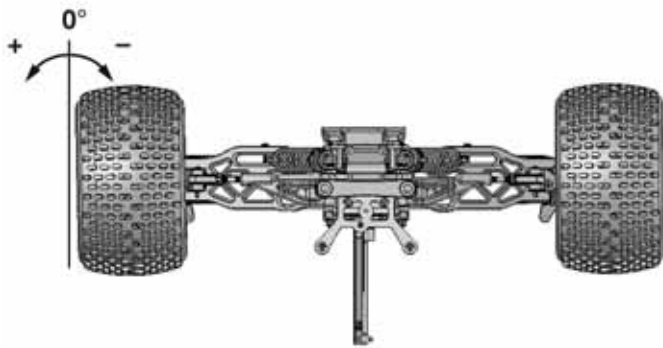
Use the DuraTrax Pit Tech™ Camber Gauge (DTXR1145) to accurately set up your Raze ST.

## ROLL CENTER ADJUSTMENT



Install the inner upper arm in the lower position for high-traction surfaces and in the upper position for low-traction surfaces.

## TOE-IN AND TOE-OUT



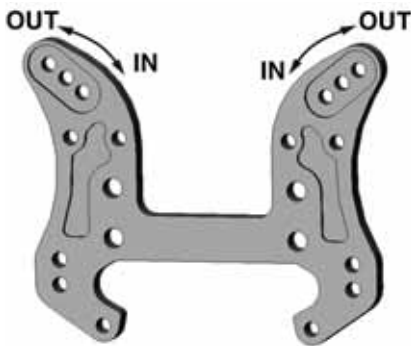
Toe-in is when the fronts of the tires point towards each other. Toe-in increases stability during acceleration and high speed. However, toe-in also decreases steering when entering a corner. Toe-out will increase steering into corners, but will decrease the overall stability during acceleration. The front typically is set-up with 0° to -2° of toe-in. Toe-out is when the fronts of the tires point away from each other.

Rear toe-in affects the traction of both the front and rear of the truck. Rear toe-in increases the amount of traction in the rear, but decreases steering. Decreasing rear toe-in will increase steering, but will give less rear traction. The Raze ST comes with 2° and 3° rear toe-in blocks.

## RIDE HEIGHT

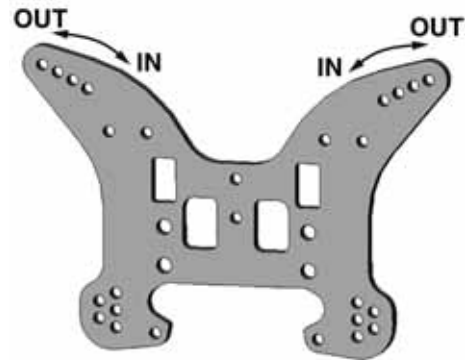
The Raze ST shocks use preload clips to adjust the truck's ride height. By adding the included preload clips to the shock, the truck's ride height will increase. Removing the preload clips will lower the ride height. Typically, a good place to start is with the ride height set so the dogbones are parallel to the surface.

## FRONT SHOCK ADJUSTMENT (IN AND OUT)



Moving the tops of the shocks out will increase steering resulting in quicker reaction. Moving the tops of the shocks in will result in slower steering reaction, but will be smoother over bumps. Mounting the bottoms of the shocks in the inside holes will give more slow speed steering but will take away some high speed steering.

## REAR SHOCK ADJUSTMENT (IN AND OUT)



Moving the tops of the shocks in will result in more traction in the corners and will be smoother over the bumps. Moving the tops of the shocks out will give the truck more steering and handle large jumps better.

## SHOCK OILS AND SHOCK SPRINGS

Many different combinations can be used between the shock oils and shock springs. Some basic guidelines when setting up the Raze ST are that if the rear end is stiff it will give the truck more steering and have less rear traction. Stiffening the front will result in less steering and more rear traction. Changing the shock pre-load adjusters results in ride-height change only. It does **not** change the spring tension.

Thinner shock oil makes the shocks react faster which works well on rough tracks, but makes the truck less stable and may cause the truck to bottom out over large jumps. Thicker shock oil makes the truck smoother over large jumps and in straights, but less reactive over rough sections.

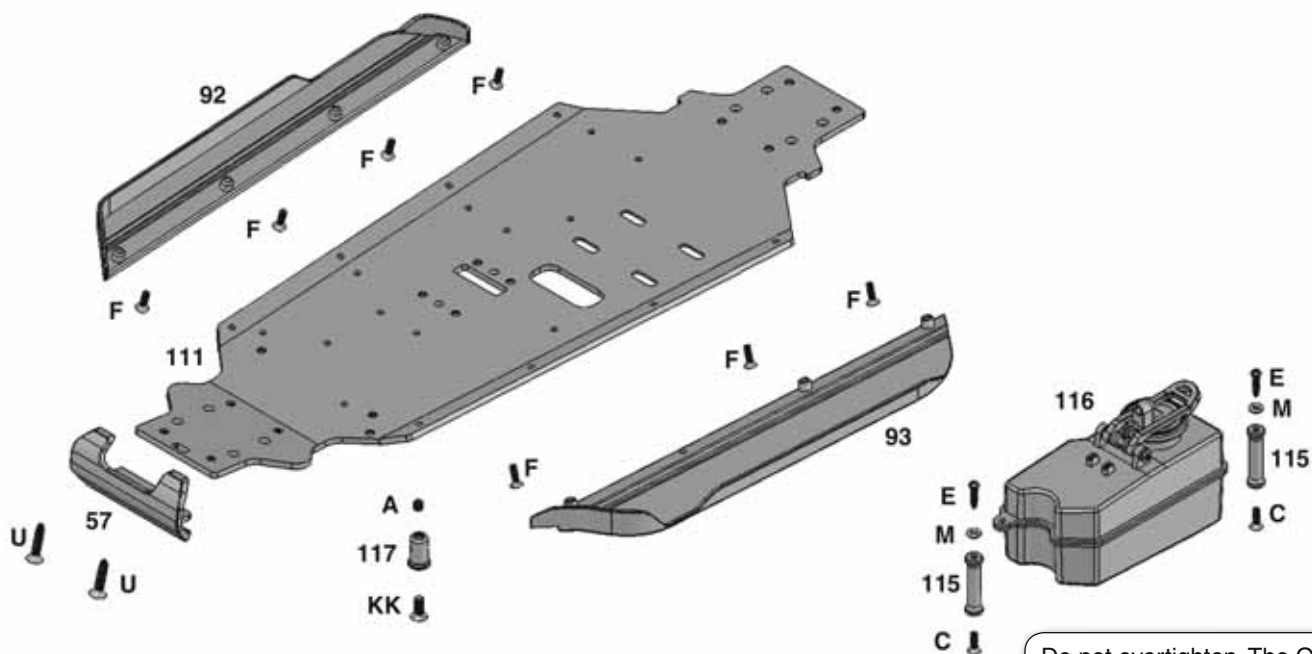
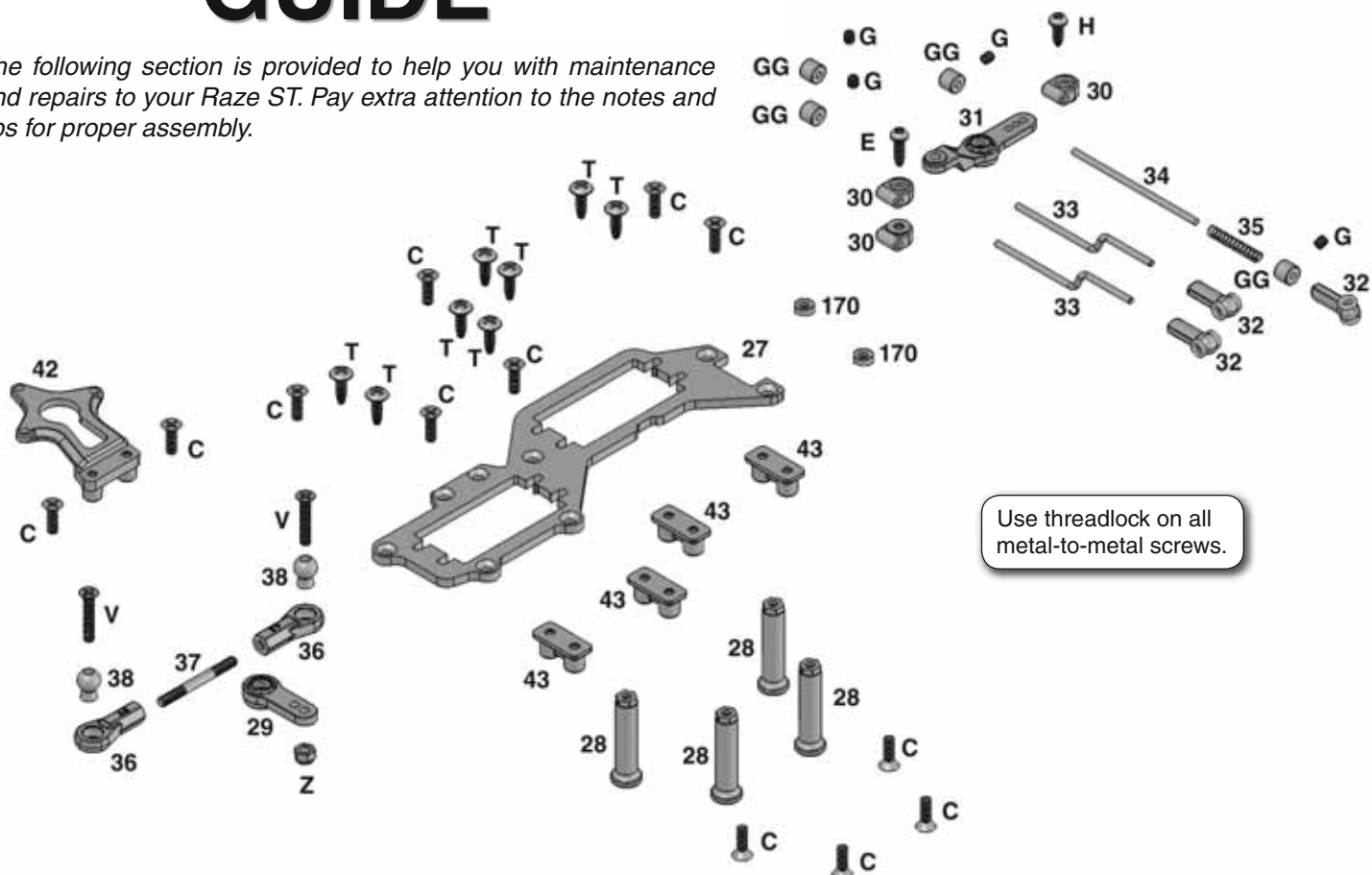
## DIFFERENTIAL OIL/GREASE

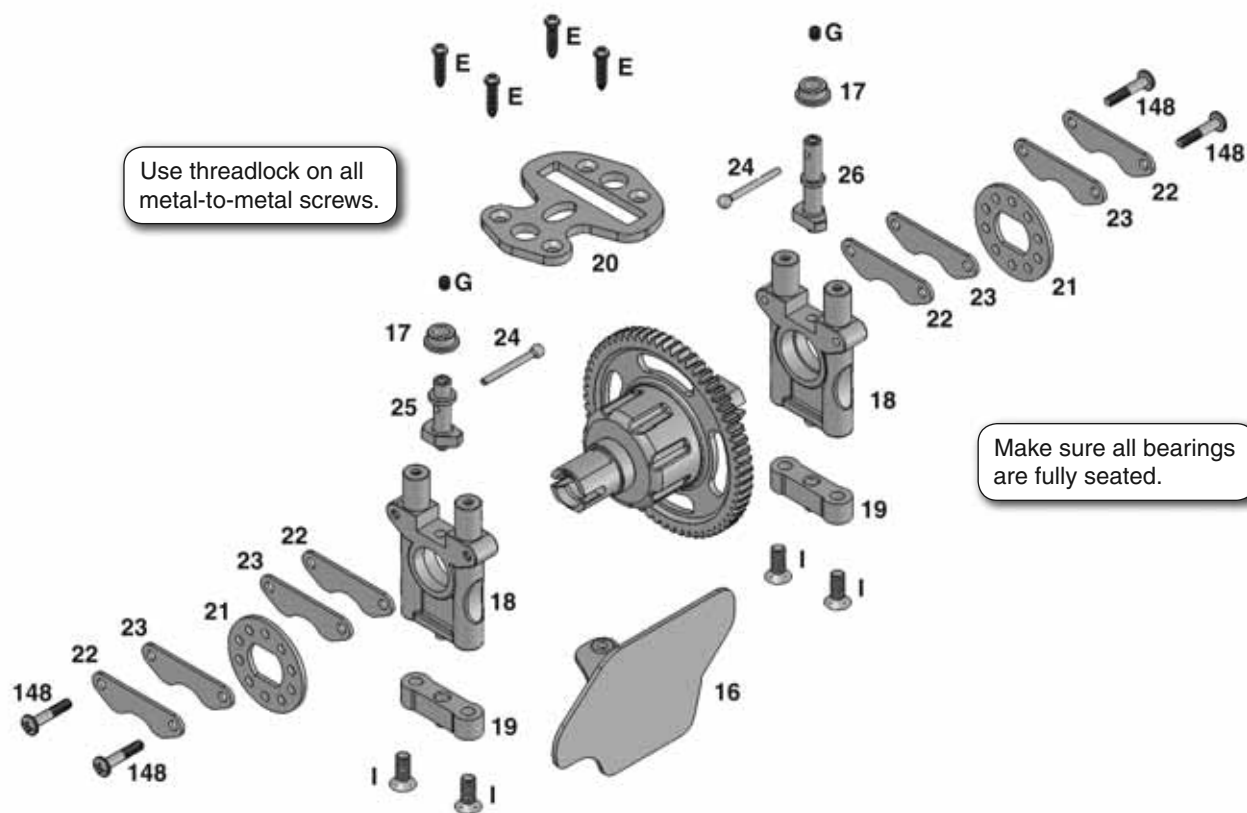
The Raze ST comes with sealed differentials filled with medium grease. You can tune the truck by changing the oil/grease either heavier or lighter.

- For loose track conditions, use a lighter oil/grease. For high traction conditions, use a thicker oil/grease.
- For more pull in the corners, use a thicker oil in the front than in the rear.
- To reduce steering and increase overall forward traction, use a thicker oil in the rear than in the front.

# MAINTENANCE GUIDE

The following section is provided to help you with maintenance and repairs to your Raze ST. Pay extra attention to the notes and tips for proper assembly.

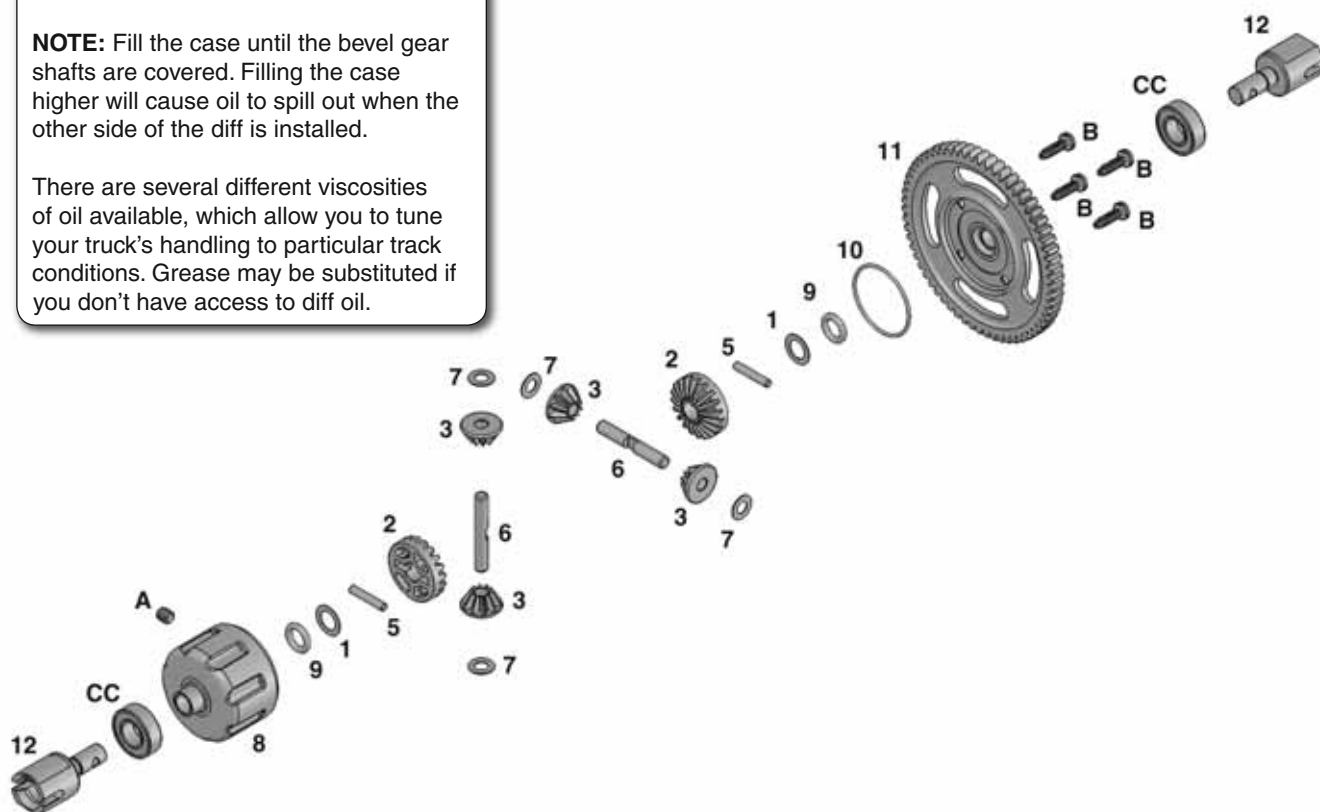




Fill the diff case with quality oil or grease.

**NOTE:** Fill the case until the bevel gear shafts are covered. Filling the case higher will cause oil to spill out when the other side of the diff is installed.

There are several different viscosities of oil available, which allow you to tune your truck's handling to particular track conditions. Grease may be substituted if you don't have access to diff oil.



Use threadlock on all metal-to-metal screws.

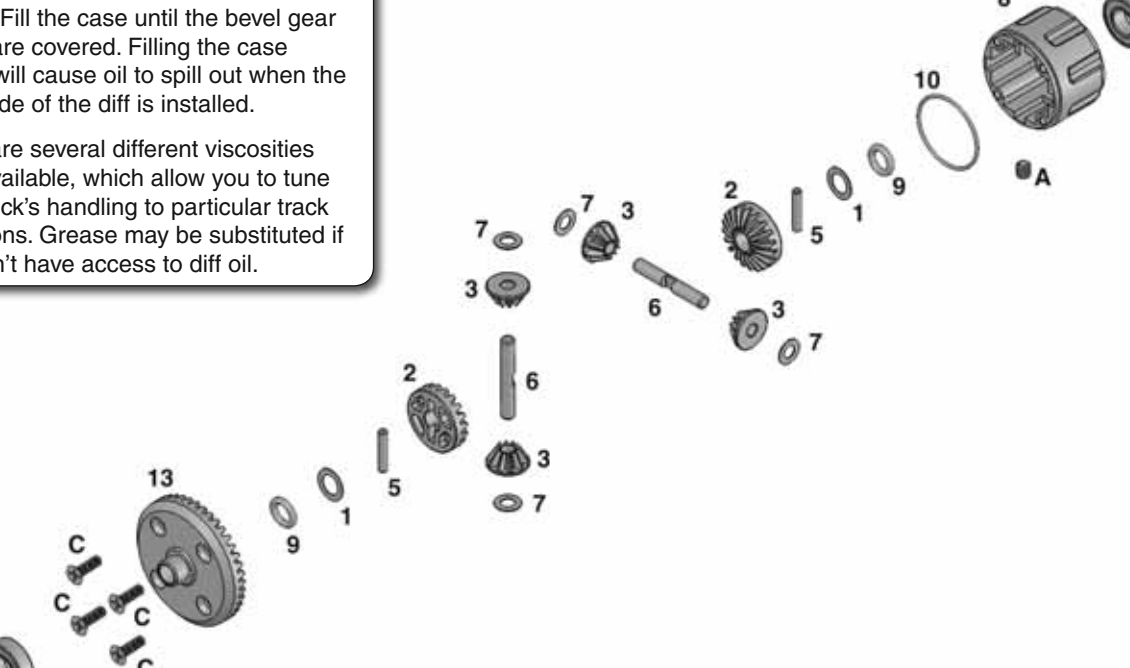
Thread the ball ends onto the turnbuckles equally. Adjust after assembly is complete.

Make sure all bearings are fully seated.

Fill the diff case with quality oil or grease.

**NOTE:** Fill the case until the bevel gear shafts are covered. Filling the case higher will cause oil to spill out when the other side of the diff is installed.

There are several different viscosities of oil available, which allow you to tune your truck's handling to particular track conditions. Grease may be substituted if you don't have access to diff oil.

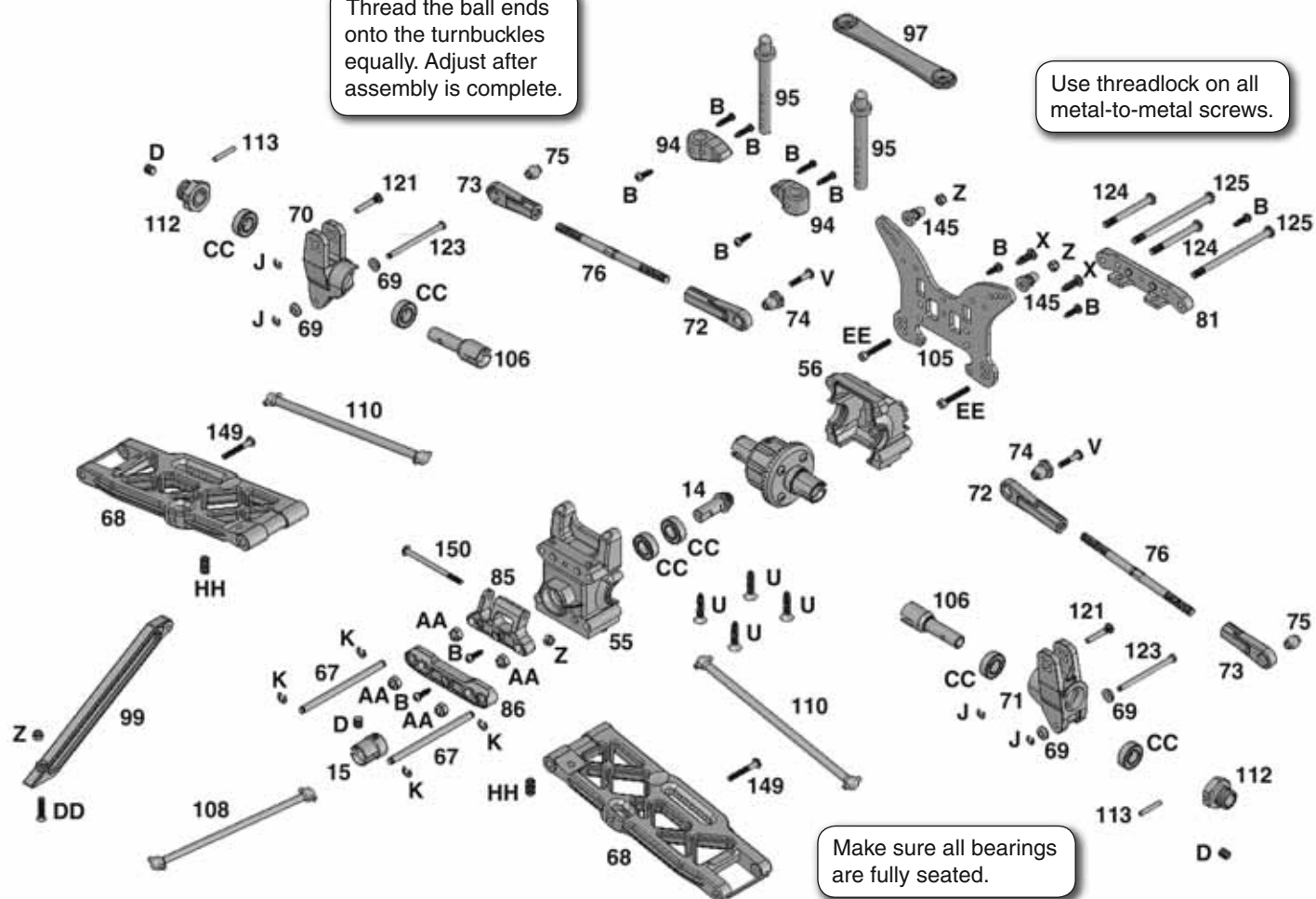


The diagram shows an exploded view of a differential assembly. The components are numbered 1 through 13. Key parts include: 1. Washers; 2. Bevel gears; 3. Pinion gears; 4. Axle shafts; 5. Shims; 6. Pinion shafts; 7. Pinion bearings; 8. Diff case; 9. Seal rings; 10. O-ring; 11. Pinion nut; 12. Pinion lock; 13. Diff cover. Labels 'A', 'B', 'C', and 'CC' point to specific components: 'A' is a pinion lock, 'B' is a pinion nut, 'C' is a pinion lock, and 'CC' is a pinion nut. The diagram illustrates the assembly sequence from the axle shafts and gears to the final assembly of the diff case and cover.

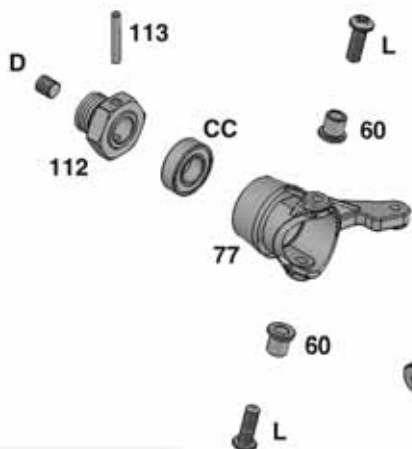


Thread the ball ends  
onto the turnbuckles  
equally. Adjust after  
assembly is complete.

Use threadlock on all  
metal-to-metal screws.

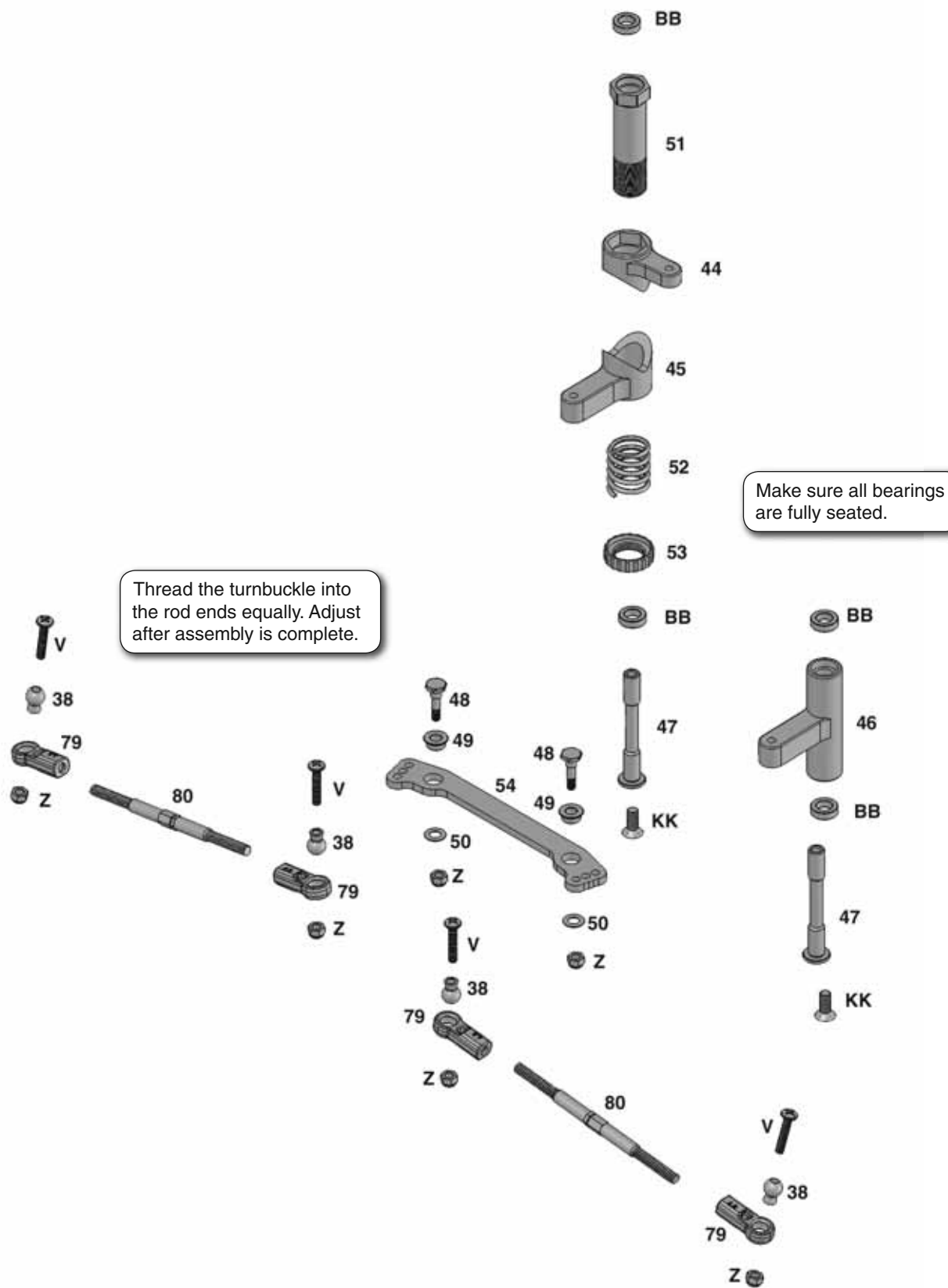


Make sure all bearings  
are fully seated.

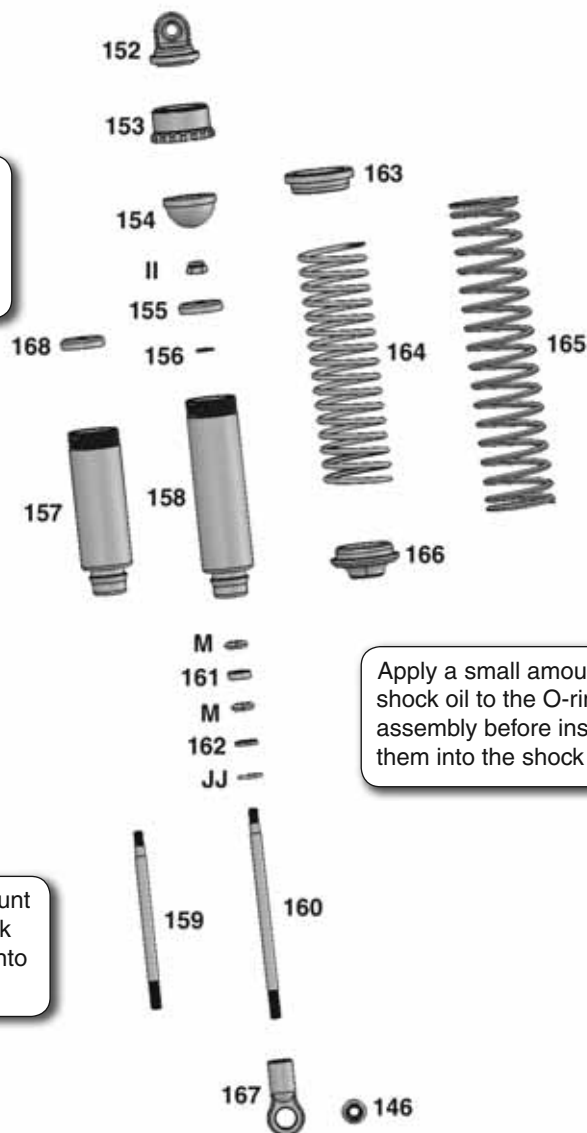


Make sure all bearings  
are fully seated.

Use threadlock on all  
metal-to-metal screws.

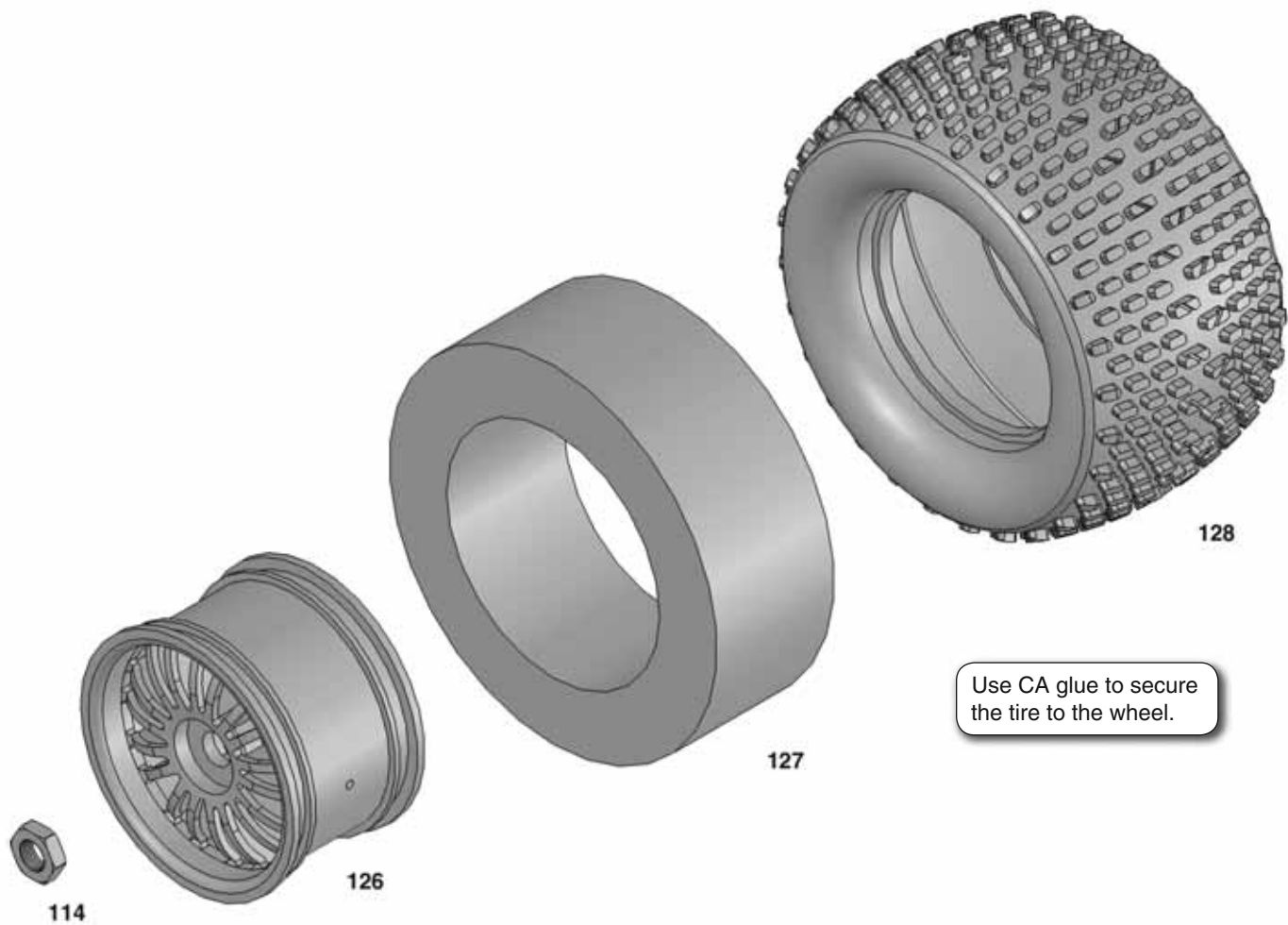
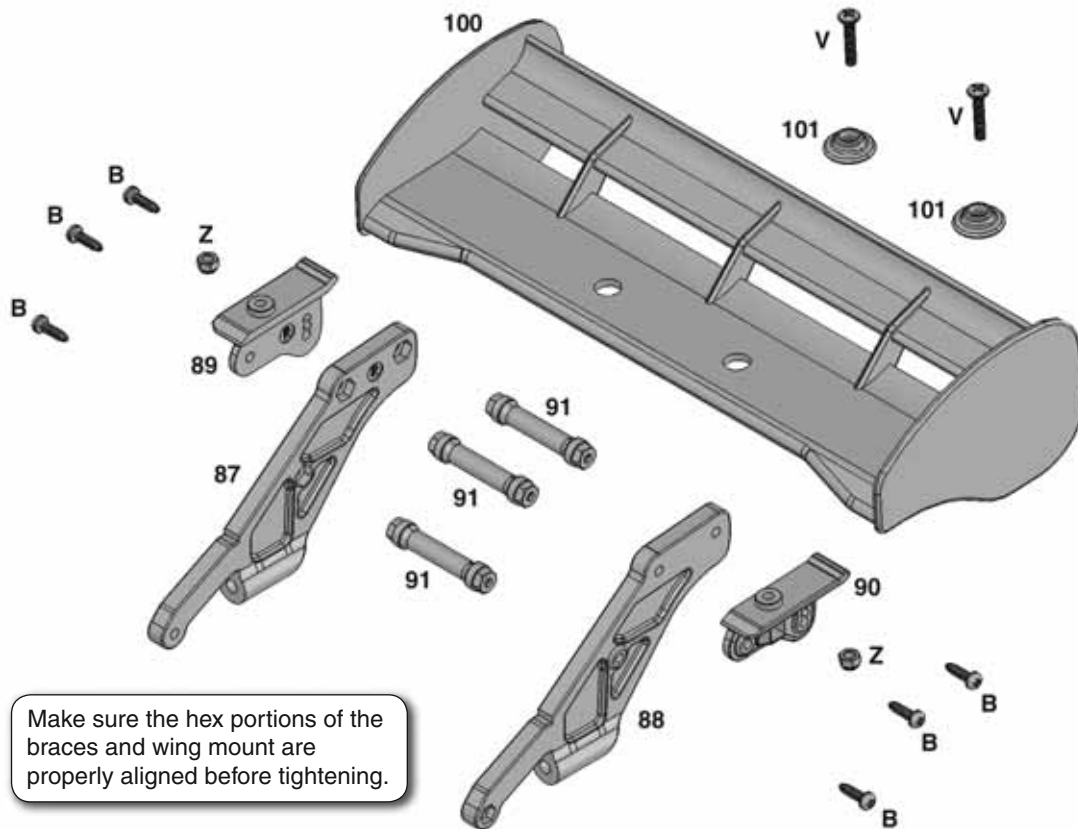


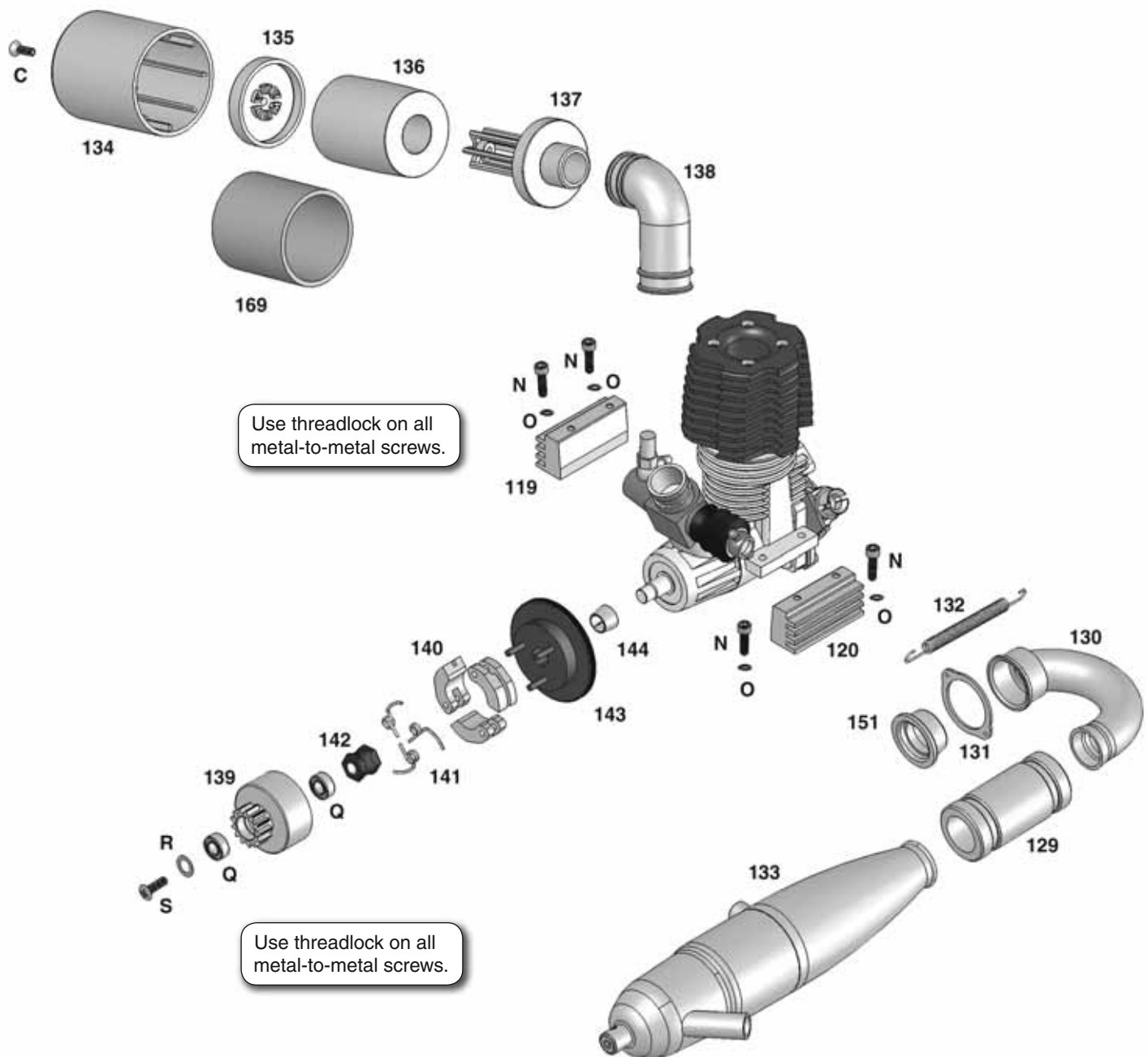
Completely fill the shock body with shock oil. Slowly work the piston up and down to remove air bubbles. Slowly tighten the shock cap onto the shock body to allow the remaining air to escape.



Apply a small amount of shock oil to the O-ring assembly before installing them into the shock body.

Apply a generous amount of shock oil to the shock shaft before installing into the O-ring assembly.





# ENGINE TROUBLESHOOTING

