

TEAM LOSI

EIGHT RTR

1/8 SCALE READY - TO - RUN NITRO TRUGGY



Operations Guide



TEAM LOSI

EIGHT



Introduction

Thank you for choosing the Team Losi 8IGHT-T RTR. This is a highly developed off-road vehicle that features a sophisticated computer based radio system and does require some mechanical experience and direct adult supervision. This guide contains the basic instructions and drawings for operating and maintaining your new 8IGHT-T RTR. Please take the time to read through it completely before running the model. Your hobby dealer cannot under any circumstances, accept a model for return or exchange that has been run.

Customer Support Contact:

**Horizon Hobby Inc.
4105 Fieldstone
Champaign, IL 61821
1-877-504-0233**

Safety Precautions

THIS IS NOT A TOY! The 8IGHT-T-T RTR is a sophisticated, high performance radio controlled model, which needs to be operated with caution and common sense. Failure to operate this model in a safe and responsible manner could result in personal and/or property damage. It is your responsibility to see that the instructions are followed and precautions adhered to. The 8IGHT-T RTR is not intended for use by children without direct adult supervision. Team Losi, Spektrum and Horizon Hobby shall not be liable for any loss or damages, whether direct, indirect, special, incidental or consequential arising from the use, misuse or abuse of this product or any product required to operate it.

*** This is still a model, don't expect it to do unrealistic stunts.**

Warnings

- Fuel is dangerous if handled carelessly. Follow all directions and precautions on the fuel container.
- Keep fuel and all chemicals out of reach of children.
- Always keep the fuel container closed and never use around an open flame or while smoking.
- The exhaust emits poisonous carbon monoxide fumes. Always run the model in a well ventilated area and never attempt to run it indoors.
- The top of the engine and the exhaust pipe are extremely hot during and for a time after use. Use caution not to touch these parts, especially when refueling.
- The engine can be loud, especially when run in a confined area. If you find the noise objectionable, use ear protection.
- This model is controlled by a radio signal that is subject to interference from sources outside your control. Interference can cause temporary loss of control so it is advisable to always keep a safety margin in all directions to avoid collisions.
- Always operate your model in an open area away from people and cars. The potential speed of this model can cause injury or damage.

Required Equipment

You will need the following items to operate your new 8IGHT-T RTR

8 AA Alkaline batteries for the transmitter.

1 C Alkaline battery for the ignitor

Quality Model Car Fuel - preferably Team Losi Nitrotane with 20% Nitro content Fuel bottle.

7.2v 6 Cell "Stick" battery pack for the remote starter.

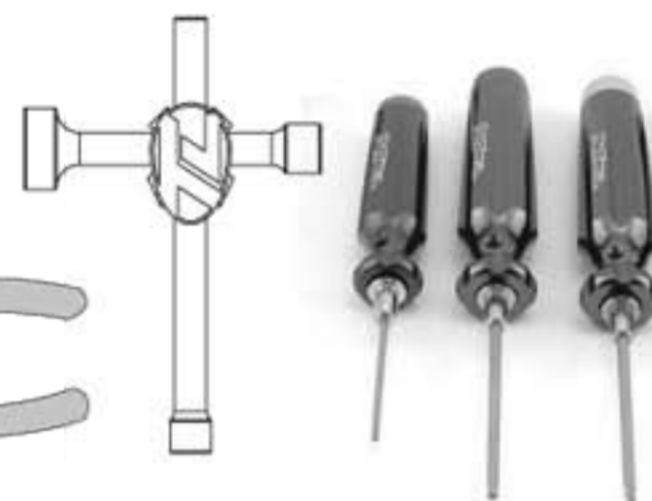
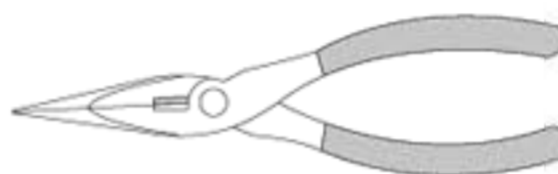
Battery charger for the 7.2v 6 cell "Stick" battery pack.



Tools You Will Find Handy

In addition to the tools included with the 8IGHT-T RTR, you will find the following both useful and in some cases necessary.

- Small flat blade and Phillips screwdrivers
- Needle nose pliers
- Quality .050", 1/16", 5/64", and 3/32" hex (allen) Drivers



Engine Break-In and Adjustments

Breaking-in your new engine is critical for proper performance. Failure to follow the break-in procedures can cause damage and shortened engine life. During break-in always use the same fuel and nitro content you plan to run.

We recommend 20% Nitrotane Sport fuel. Although the carburetor is preadjusted at the factory, you must be familiar with the following adjustments and break-in procedure. If you change fuel or run in dramatically different environments, (hot/cold, high/low elevation, etc), you will probably have to adjust at least the high speed needle to prevent overheating and maintain proper performance. Never, under any circumstances allow the engine to rev freely with the wheels off of the ground.

Break-In Procedure

The first three tanks of fuel should be run with the high and low speed needles noticeably "rich" (see explanation below). There should be a slight sluggishness and thick smoke when accelerating with the smoke decreasing as the model gains speed. At speed there should still be a noticeable trail of smoke from the exhaust pipe. Run the 8IGHT-T RTR on a flat surface in an oval pattern. Ease into the throttle as you accelerate on the straight sections easing off as you approach turns letting the model roll through the turn before easing back on the throttle. This will also allow you to get a feel for the steering response and handling characteristics of the truggy. You can also break in the engine by placing the truggy up against a wall or fixed object and allow the engine to idle through two tanks of fuel.

Understanding "Rich" and "Lean" Fuel Mixture

Adjusting the carburetor is one of the most critical facets of running a nitro powered R/C vehicle. The fuel mixture is referred to as being "rich" when there is too much fuel and "lean" when there is not enough fuel for the amount of air entering the engine. The amount of fuel entering the engine is adjusted with high and low speed threaded needle valves. The low-speed needle is located in the front of the moving slide. The high-speed needle sticks straight up at the back of the carburetor. Both feature a slotted head that is used as a reference and receptacle for a flat blade screwdriver for adjustments. The mixture is made richer by turning the needle counter-clockwise and leaner by turning in clockwise. An overly "rich" mixture will yield sluggish acceleration and performance with thick smoke from the exhaust. A "lean" mixture can cause the engine to hesitate before suddenly accelerating briskly or in some cases, to lose power momentarily after the initial acceleration. A lean mixture also makes the engine run hotter than desired and does not provide enough lubrication for the internal engine components causing premature wear and damage. It is always advisable to **run the engine slightly rich** and **never lean** to avoid overheating and possible damage.

Base Start-up Settings from the factory

High-Speed Needle -- 2.5 turns out from bottom

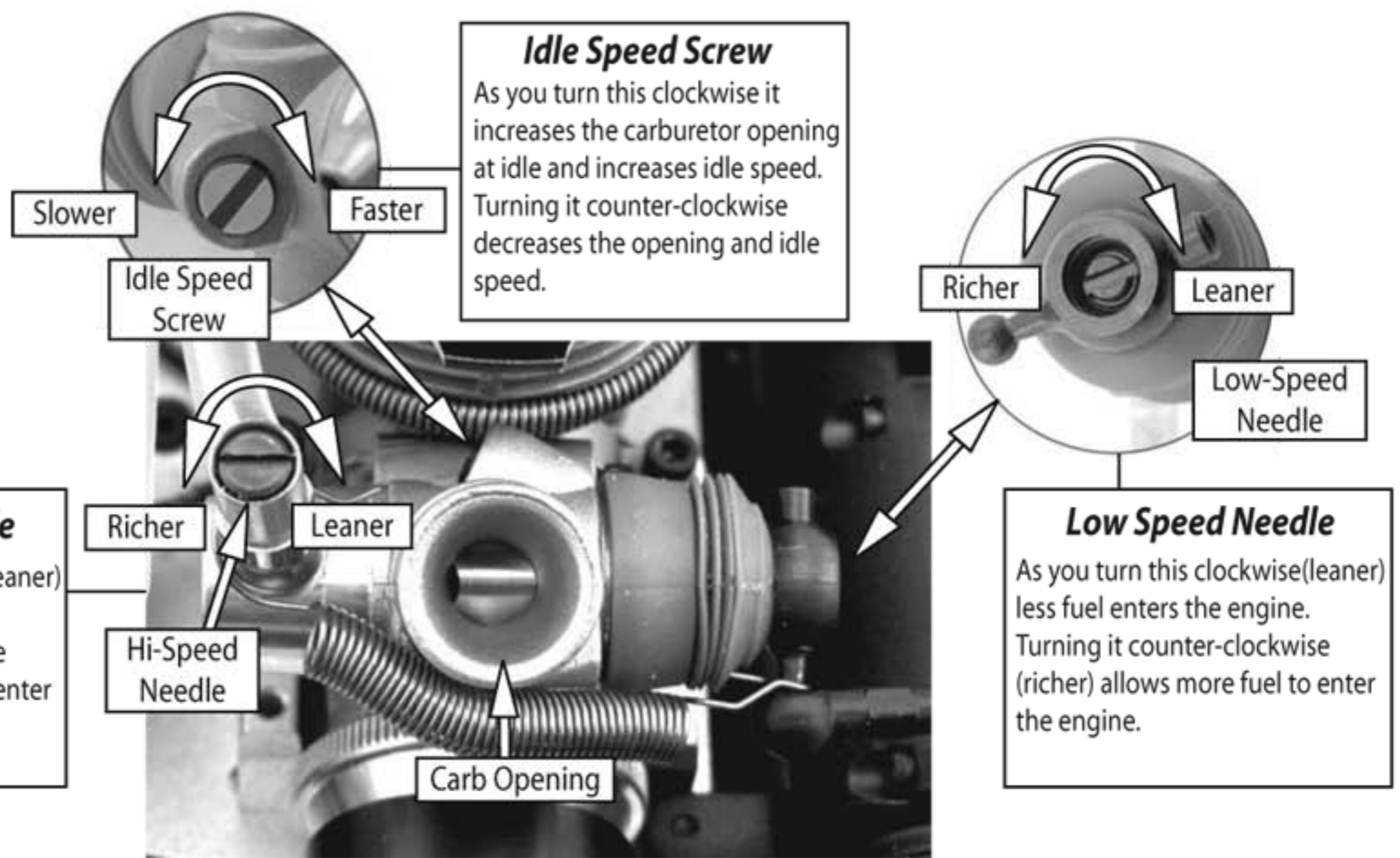
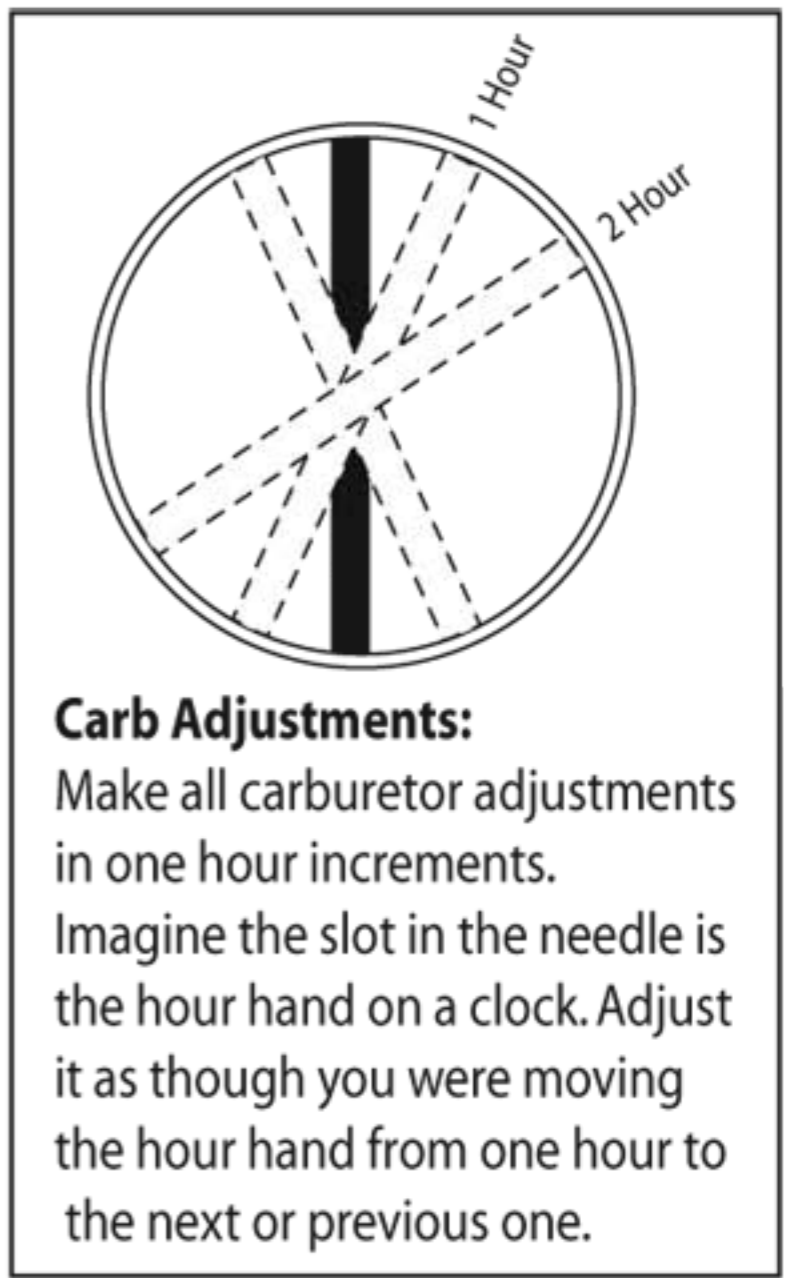
Low-Speed Needle -- 2.5 turns out from bottom

Engine Tuning

After the engine is broken in you can tune it for optimum performance. When tuning it is critical that you be cautious of overheating as severe damage and premature wear can occur. You want to make all carburetor adjustments in "one hour" increments.

Low Speed Adjustment

The low speed adjustment effects the idle and slightly off idle performance. The optimum setting allows the motor to idle for at least 8-10 seconds. The truggy should then accelerate with a slight amount of sluggishness and a noticeable amount of smoke. The simplest way to check this is to make sure the engine has been warmed up and let the engine idle for 8-10 seconds. If the low speed mixture is so far off that the engine won't stay running this long, turn the idle stop screw clockwise, increasing the idle speed. With the engine at idle, pinch and hold the fuel line near the carburetor, cutting off the flow of fuel and listen closely to the engine RPM (speed). If the low speed needle is set correctly, the engine speed will increase only slightly and then die. If the engine increases several hundred RPM before stopping, the low speed needle is too rich. Lean the mixture by turning the needle clockwise one hour and trying again. If the engine speed does not increase but simply dies, the needle is to lean and needs to be richened up by turning the needle counter-clockwise one hour before trying again. After you have optimized the low speed setting, the engine will probably be idling faster. You will have to adjust the idle stop screw counter-clockwise to slow down the engine idle speed. The engine should accelerate at a constant pace without hesitating.



Hi-Speed Adjustment

After initial acceleration the engine should pull at a steady rate while maintaining a two-stroke whine and a noticeable trail of smoke. If the engine labors and is sluggish with heavy smoke, the mixture is too rich and needs to be leaned by turning the hi-speed needle clockwise in one hour increments until it runs smoothly. If the engine isn't smoking, it is too lean and you must richen the mixture by turning the needle counter-clockwise. Don't be confused by the sound of the engine and the actual performance. A leaner mixture will produce a higher pitch exhaust note but this does not necessarily mean improved performance as the engine is on the verge of over heating and possible damage. Ideally you want to run the engine so that it is on the slightly rich side of optimum. This will give you the best combination of speed and engine life. **CAUTION:** The engine is too lean and overheating if it accelerates rapidly with a high pitch scream then seems to labor, stops smoking, or loses speed. This can be caused by the terrain, atmospheric conditions, or drastic altitude changes. To avoid permanent engine damage, **immediately** richen the mixture by turning the hi-speed needle counter-clockwise at least "two hours" and be prepared for further adjustments before running anymore.

About Glow Plugs

The glow plug is like the ignition system in your automobile. The coiled element in the center of the plug glows red hot when connected to a 1.5-volt battery (located in the igniter). This is what ignites the fuel/air mixture when compressed in the cylinder. After the engine fires, the heat generated by the burning fuel keeps the element hot. Common reasons for the engine not starting is the 1.5 volt battery being weak or dead, the glow plug being wet with fuel, or the element burned out. Use a spare glow plug to check the igniter. If the igniter makes the element glow, remove the plug from the engine to check it in the same manner. A wet glow plug means there is excess fuel in the engine. To eliminate this, put a rag over the head and turn the engine over a few seconds with your "Spin-Start". Reinstall the glow plug making sure you have the brass gasket on it. The engine should now start.



Testing the Temperature

The ideal operating temperature for the engine will vary with the air temperature but in general it should be in the 200°F to 230°F (93.3°C to 110°C) range. A simple way to check the engine temperature is to put a few drops of water on the top of the head/heatsink. It should take 3-5 seconds for the water to evaporate. If it boils away quickly the engine is overheating and the Hi-Speed needle richened (turned counter-clockwise) at least "two hours". If you plan on racing or prolonged hi-speed running, there are several inexpensive hand held digital temperature gauges available you may want to invest in.

About the Radio

The Spektrum DX2.0 radio installed in the 8IGHT-T RTR is a professional level system with many useful features. Be sure to read through the Spektrum DX2.0 manual for complete instructions on how and why to use these features. The following is a simple guide to commonly used and referred to features needed to run your truggy.

1. **Power Switch** - Turns your transmitter ON and OFF.
2. **Steering Wheel** - Controls the truggy's steering.
3. **Steering Trim Tab** - Allows you to fine-tune the neutral position of the steering.
4. **Throttle Trigger** - Pull back for throttle and push forward for brakes.
5. **Throttle Trim Tab** - Allows you to set the idle/brake of the truggy.
6. **Transmitter Display** - LCD readout shows battery voltage, model #, and settings.
7. **Transmitter Antenna** - Transmits signal to the receiver in the truggy.
8. **Grip Lever A** - Increases or decreases the amount of brakes.



Radio Operation

It is important that you familiarize yourself with the radio system, as this is your direct link to the truggy.

- Never run your truggy with low receiver or transmitter batteries.
- Never leave the power on or the batteries will not last long.
- Always turn the transmitter ON **before** turning the truggy ON.
- When finished running, always turn the truggy OFF **before** the transmitter.
- For best operation it will be necessary to keep the "trims" adjusted for both the steering and throttle as noted below.

Steering Trim: The truggy should go straight without turning the steering wheel. If not, tap the trim lever found just above the steering wheel in the direction needed for the truggy to go straight. Each tap of the trim button will be accompanied by an audible tone indicating a change has been made. It may take several taps to get the correct trim setting.

Throttle Trim: The truggy should idle without the tires rotating when the trigger is at its neutral position. If not, tap the trim tab located to the right of the steering wheel to reposition the throttle servo and close the carburetor and apply more brakes. Note that additional braking force is applied when you push the trigger forward.

Maintenance

In addition to the service needs pointed out in this guide, you should try to maintain your new truggy for proper performance and to prevent wear. If dirt gets in the moving parts it can seriously hinder the performance of the model. Use compressed air, a soft paintbrush, and/or toothbrush to remove dirt and dust. Avoid using solvents, if possible, as this can actually wash the dirt into bearings and areas not accessible without disassembly causing additional wear. We suggest you follow these basic guidelines.

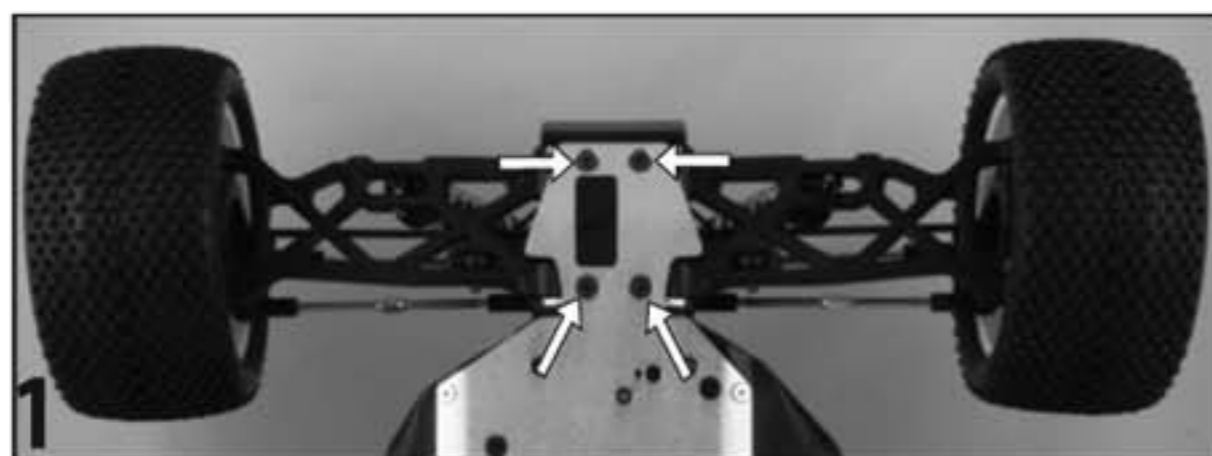
- Remove as much freestanding dirt and dust as noted above.
- Never leave fuel in the tank for more than a couple of hours.
- When done running for the day or longer, let the engine run out of fuel. Remove the air cleaner and pour a little WD40, or quality after-run engine oil into the carburetor and spin the engine over a few seconds.
- If needed, clean and re-oil the air cleaner before installing it back on the truggy.
- Inspect the truggy for worn, broken, or binding parts and repair as necessary.

Servicing the Differentials

Your 8IGHT-T RTR has three differentials and they should be serviced periodically. Be sure to clean and inspect all of the gears and replace if severely worn. Always use plenty of high-quality grease, (Team Losi 3066), on all gears. NOTE: The differentials can also be made into racing type viscous diffs as noted on page 7. Always service one diff a time and pay close attention to install the housing so the key in the housing matches up with the cutout in the chassis.

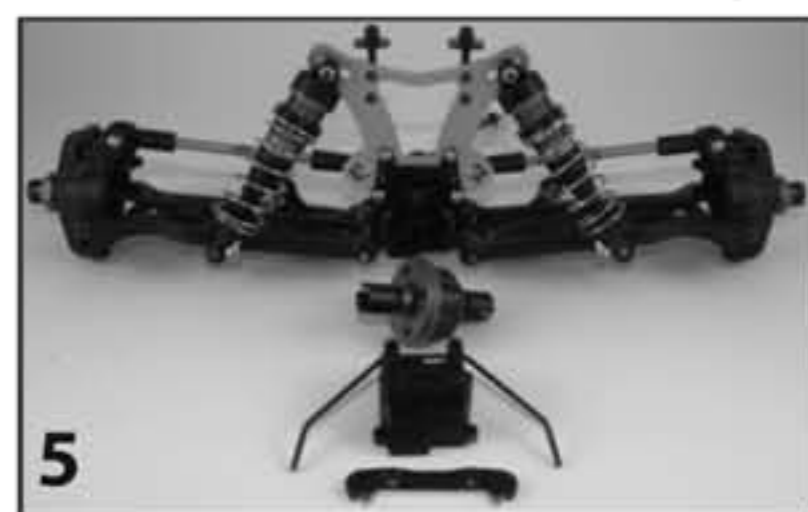
Removing The Front Differential

To remove the front differential, the "front clip" of your 8IGHT-T RTR has to be removed. Remove four 8-32 flathead screws from the chassis (fig. 1). Remove the forward most two silver 5-40 button head screws from the front chassis brace. Pop the steering tie rod ends off of the right and left steering spindles. Remove the bumper and the spacer from under the front chassis brace. Lift the front clip up then forward to remove it from the chassis. (fig. 2)



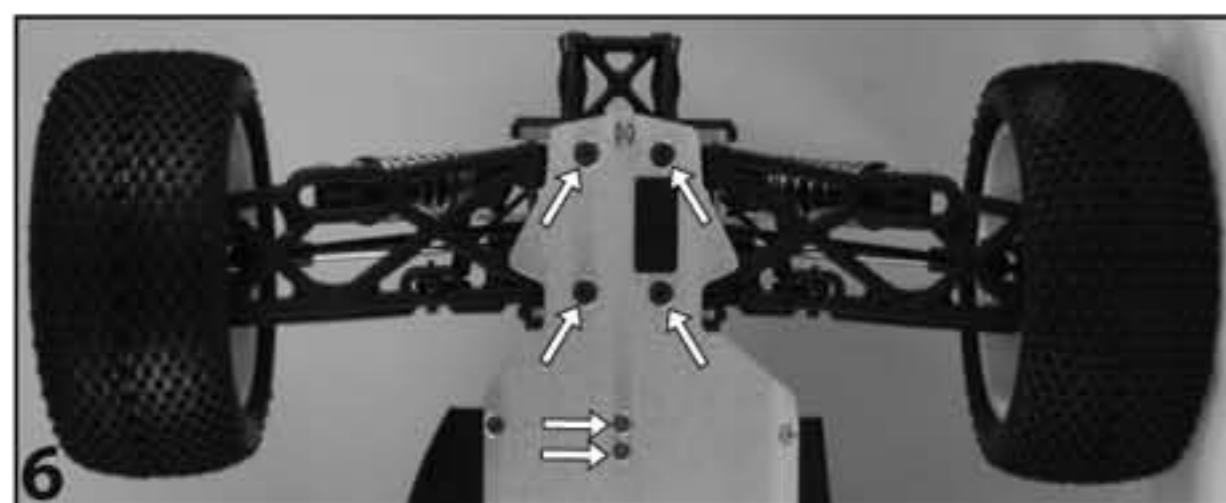
Removing The Front Differential - continued

Remove the 5-40 shock screws from the suspension arms. (fig. 3) Loosen the 5-40 set screws on the sway bar ball ends. Remove the two 5-40 flathead screws from the front of the diff cover (fig. 4), and remove the two 5-40 caphead screws from the bottom of the diff cover. Slide the diff cover off of the bulkhead and remove the diff. (fig. 5)

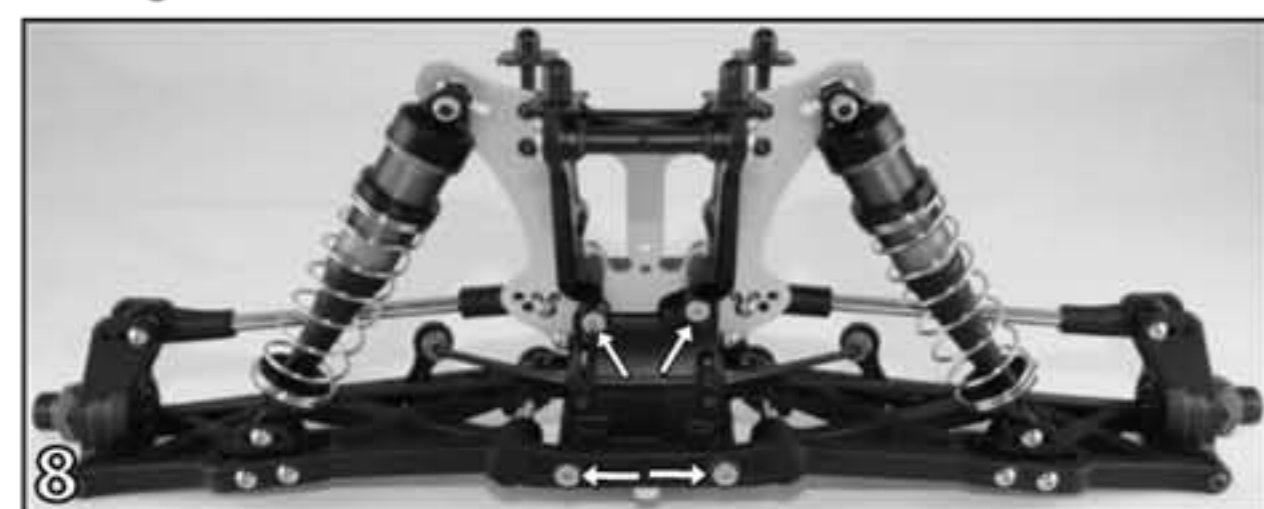


Removing The Rear Differential

To remove the rear differential, the "rear clip" of your 8IGHT-T RTR has to be removed. Remove four 8-32 flathead screws from the chassis and two 5-40 flathead screw from the brace (fig. 6). Lift the rear clip up and off of the chassis (fig. 7).



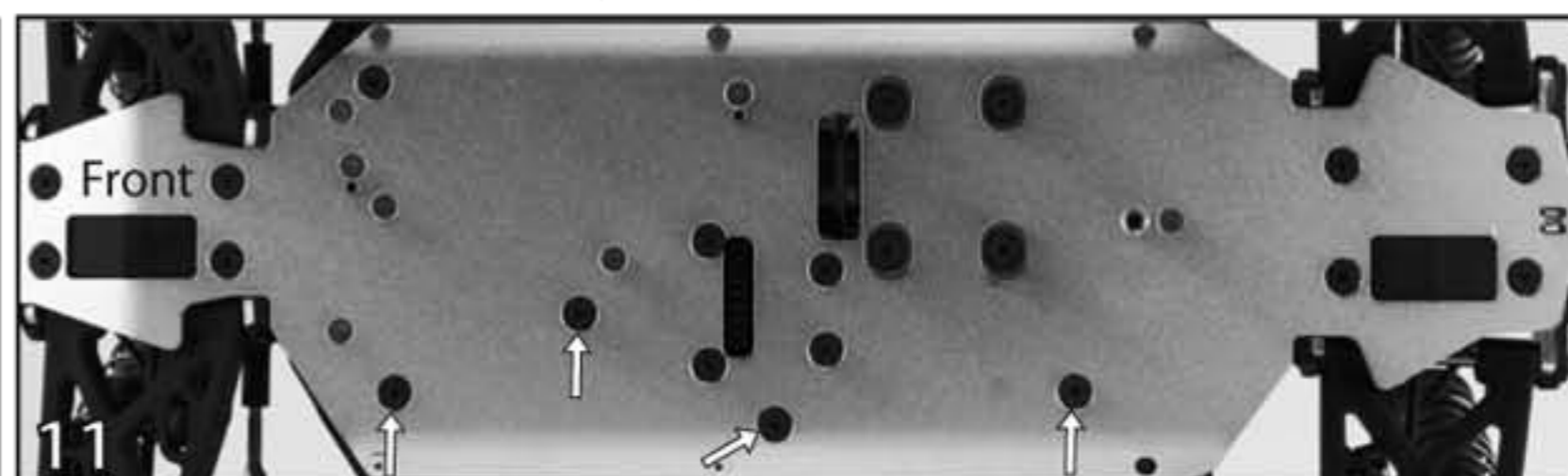
Loosen the 5-40 setscrews on the sway bar ball ends and remove the ball ends from the sway bar. Remove four 5-40 flathead screws from the rear clip (fig. 8). Slide the pivot support and rear diff cover off of the bulkhead and remove the diff (fig. 9).



Removing The Center Differential

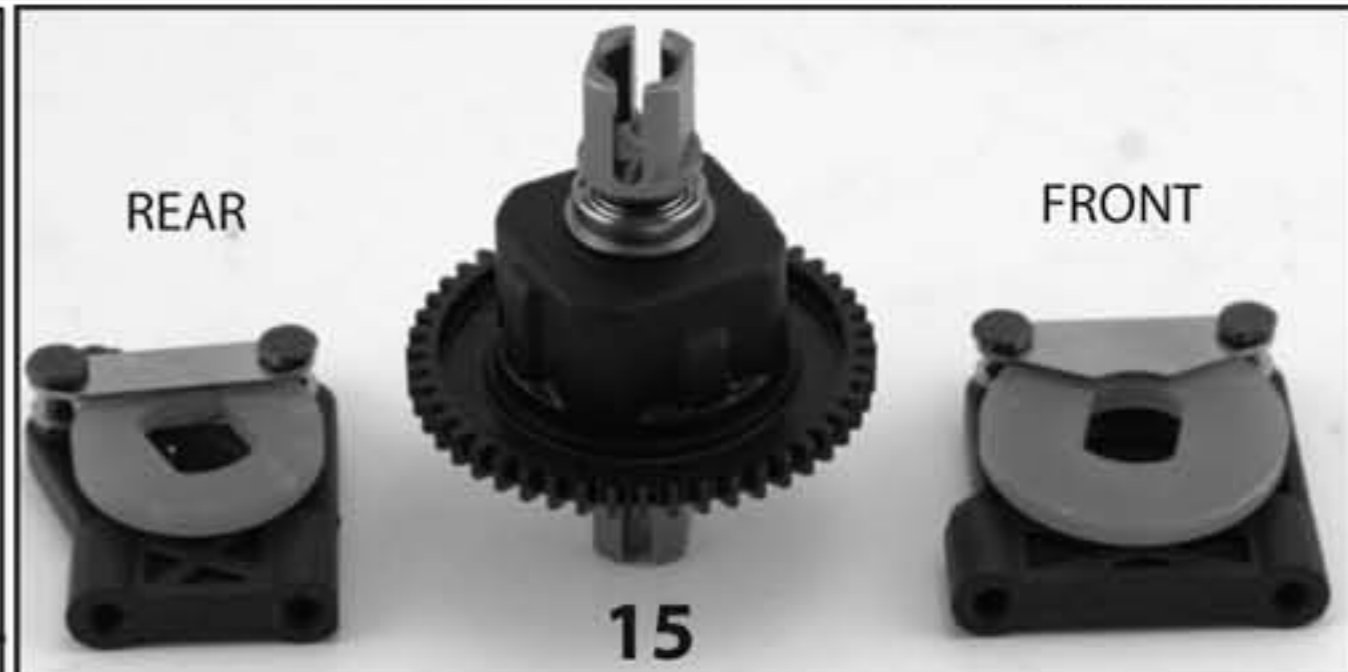
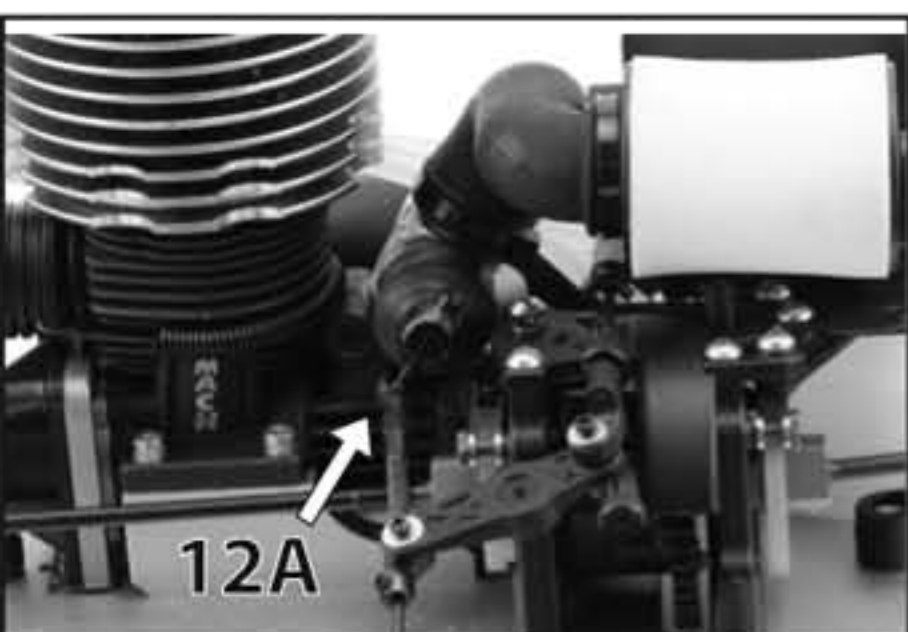
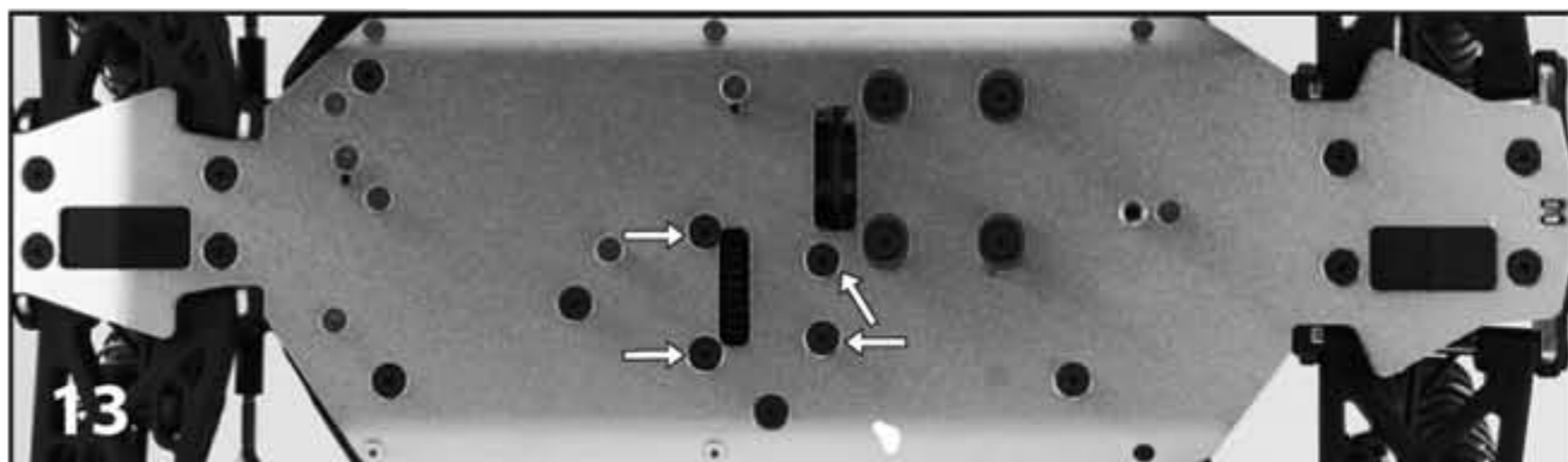
To remove the center differential, the radio tray on your 8IGHT-T RTR has to be removed.

- Turn on the transmitter and receiver.
- Note the position of the throttle and steering servo horns. This is important so you know where to position the servo horns during re-assembly.
- Remove the 3mm x 6mm Button head machine screws from the steering and throttle servos, (fig. 10).
- Remove the servo horns leaving the inserts on the servos. Turn the transmitter and receiver off.
- Remove the four 8-32 x 3/8" flathead screws from the radio tray, (fig. 11).



Removing The Center Differential - continued

- Remove the radio tray from the chassis, (fig. 12).
- Pop the ball end off of the carburetor slide, fig. (12A)
- Remove four 8-32 x 1/2" flathead screws from the center differential housing, (fig. 13), and remove the center diff from the chassis.
- Remove four 5-50 x 3/8" button head screws from the center top brace, (fig. 14).
- Slide the front and rear brake rotor assemblies off of the center diff, (fig. 15). NOTE: There are two different size brake discs. The large disc is in the front brake assembly and the small disc is in the rear brake assembly.



Diff Service - Refer to exploded views on page 8.

- Remove the four 3mm flat head screws from the ring gear allowing it to be removed (use the 5/64 allen wrench).
- Inspect the ring and pinion gears for wear - replace if necessary.
- Remove the cross shafts and bevel gears from the carrier.
- Clean and inspect all parts - replace as needed.
- Check all ball bearings. Clean or replace as necessary.
- Lube all shafts and gears with LOSA3066 assembly grease and reassemble.
- Load cross shafts with gears into the carrier with extra grease. Apply the diff seal gasket to the carrier and reinstall ring gear.
- Lube ring and pinion and with grease (LOSA #3066), and reassemble diff into diff housing.
- Grease the edges of the gear cases. This will ensure a dust free seal.
- Reinstall into chassis

For Viscous Differential

Instead of grease you can use silicon fluid in the differential for a limited slip feel as desired for racing. Simply fill the diff up to the top of the gears before replacing the ring gear. (Be sure to reinstall the rubber gasket). You may have to replace the o-rings on the outdrives at the same time you change to this type of differential if the old ones are worn. Team Losi recommends 7000cs. fluid for the front diff, 10000cs. fluid for the center diff, and 5000cs. fluid for the rear diff.

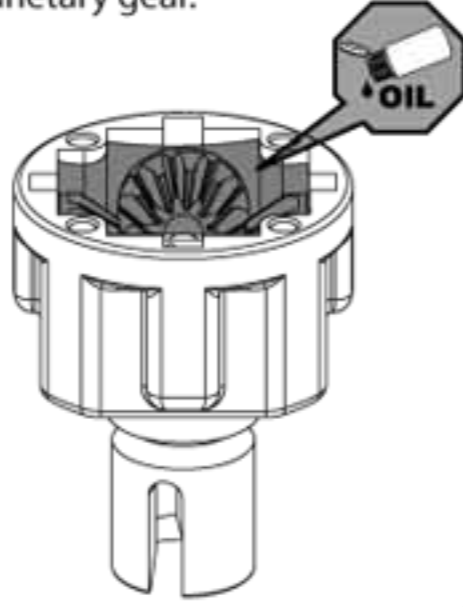
TEAM LOSI
SILICON DIFF FLUID
A5280 - 5000 cs.
A5281 - 7000 cs.
A5282 - 10000 cs.

Front, Rear and Center Differential Exploded Views

Front & Rear Differentials

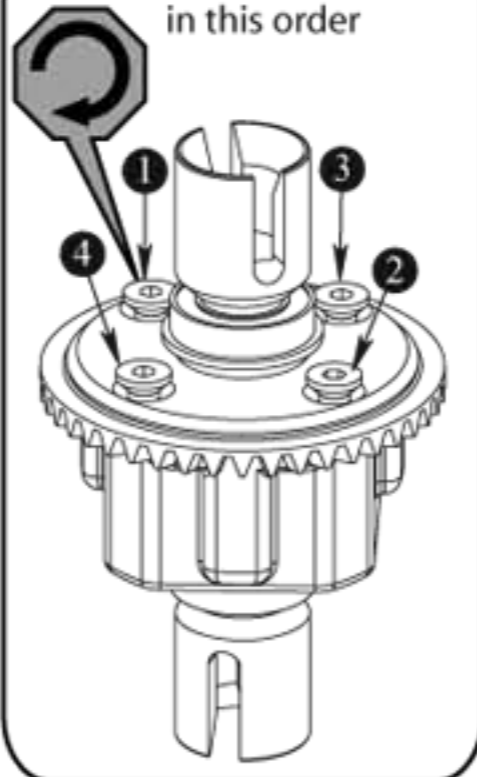
(Front Shown)

Fill with 7000cs. oil (front) or 5000cs. oil (rear) just above the planetary gear.



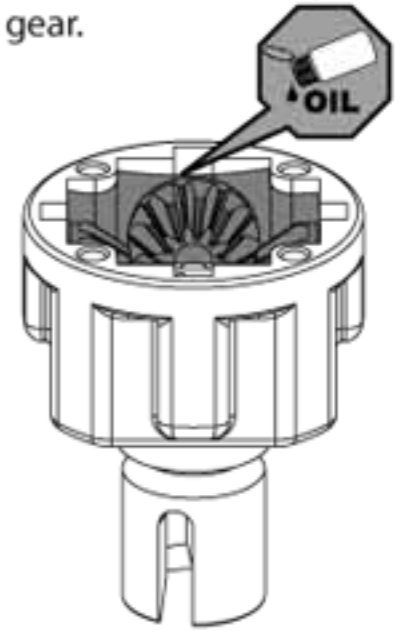
NOTE: When servicing the differentials, be sure to check all four slots in the diff housings for wear. If a notch occurs around the planetary gear shafts, the diff housing(s) should be replaced.

Tighten the diff screws in this order

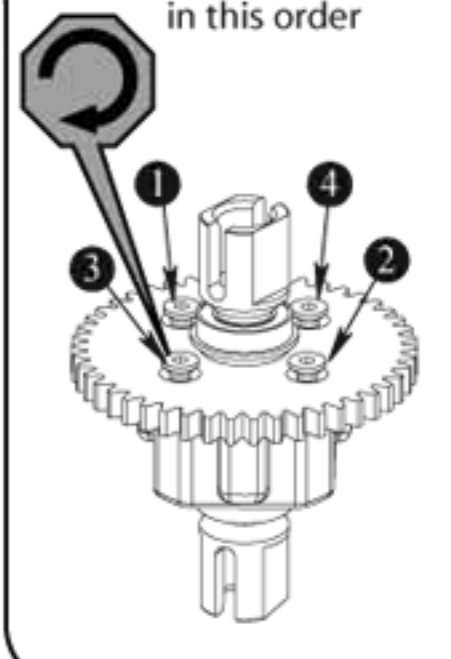


Center Differential

Fill with 10,000cs. oil just above the planetary gear.



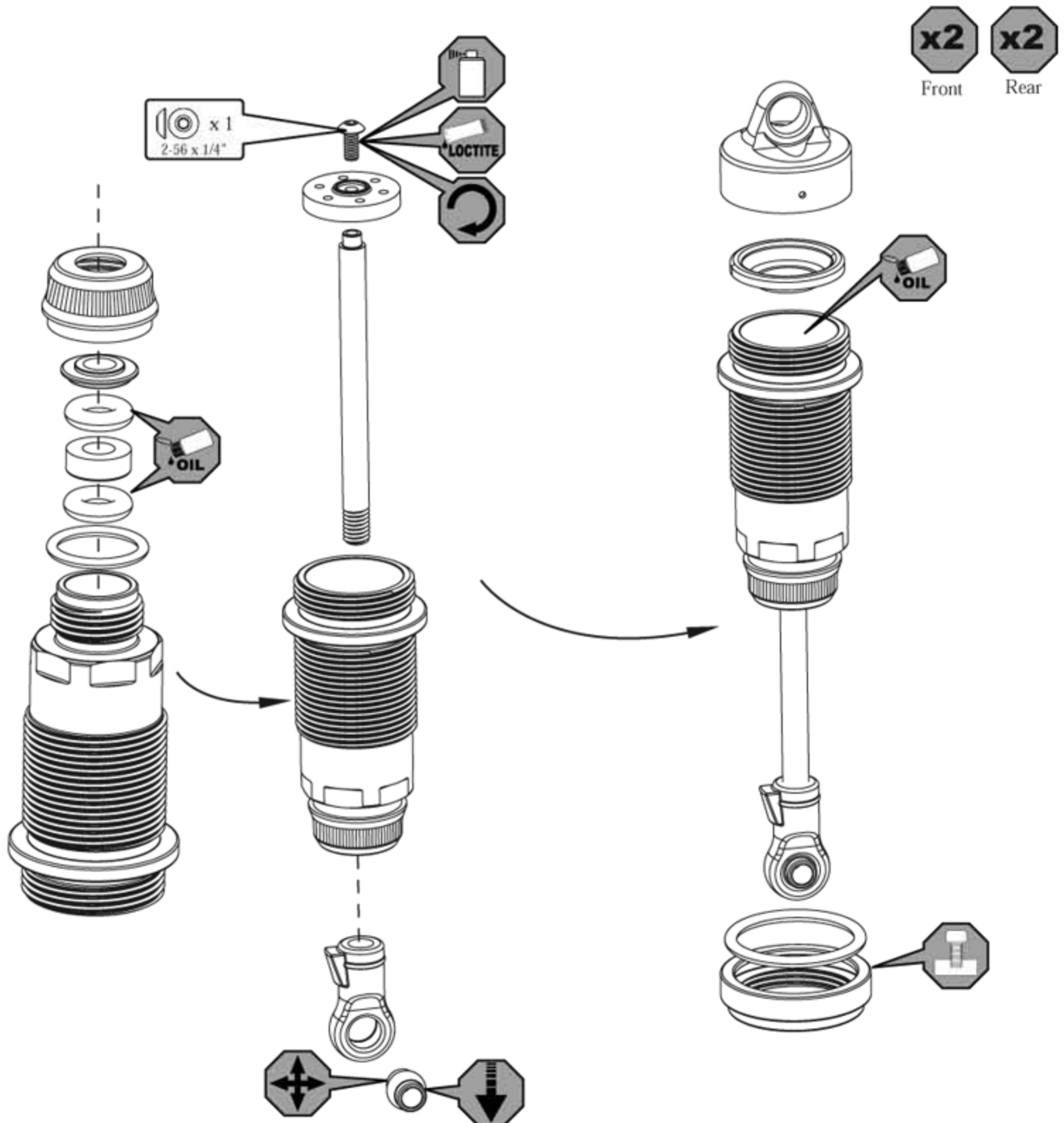
Tighten the diff screws in this order



Rebuilding/Refilling the Shocks

- Clean the 2-56 x 1/4" button head screw and apply loctite to the threads.
- Install the #55 shock piston using the 2-56 x 1/4" button screw into the shock shaft with a .050" allen wrench.
- Place a drop of Shock Oil into the bottom of the Shock Body to lubricate the Shock Seals.
- Thread the shock shaft into the shock end using pliers. Use caution when threading the shock shaft ends onto the shafts. Avoid gouging or scratching the shock shaft while gripping the shock shaft with pliers by placing the edge of a towel over the shaft, then gripping the portion of the shaft covered by the towel. This method will work very well to protect the shock shafts from damage.
- **Ensure the shaft is fully extended when filling the shock.**
- Fill the shock body with 45wt. shock oil until the oil is to the top of the body.
- **"Work" the shock shaft up and down a few times. This will release the air bubbles trapped beneath the piston. Place the filled shock, in the upright position, off to the side for a few minutes until the air bubbles escape from the oil.**
- Once all the air bubbles are out of the oil, gently place the shock bladder onto the shock as shown. Some oil should "bleed" from the shock.
- Screw the shock cap onto the body until some resistance is felt.
- Slowly push the shock shaft up. This will bleed excess oil from the shock.
- Tighten the cap all the way down using the shock tools included in your kit.
- Move the shock shaft up and down. The shaft should be easy to push up into the body of the shock. If increased pressure is felt towards the top, there is too much oil in the shock. Loosen the shock cap and "bleed" the shock as done previously.
- Make sure each pair (front/rear) shocks have the same rebound and compression. This is checked by holding one shock in each hand horizontally and pushing them together by the shock end. Watch carefully to ensure that both compress evenly. Now release both shocks and again watch carefully as they should rebound the same.

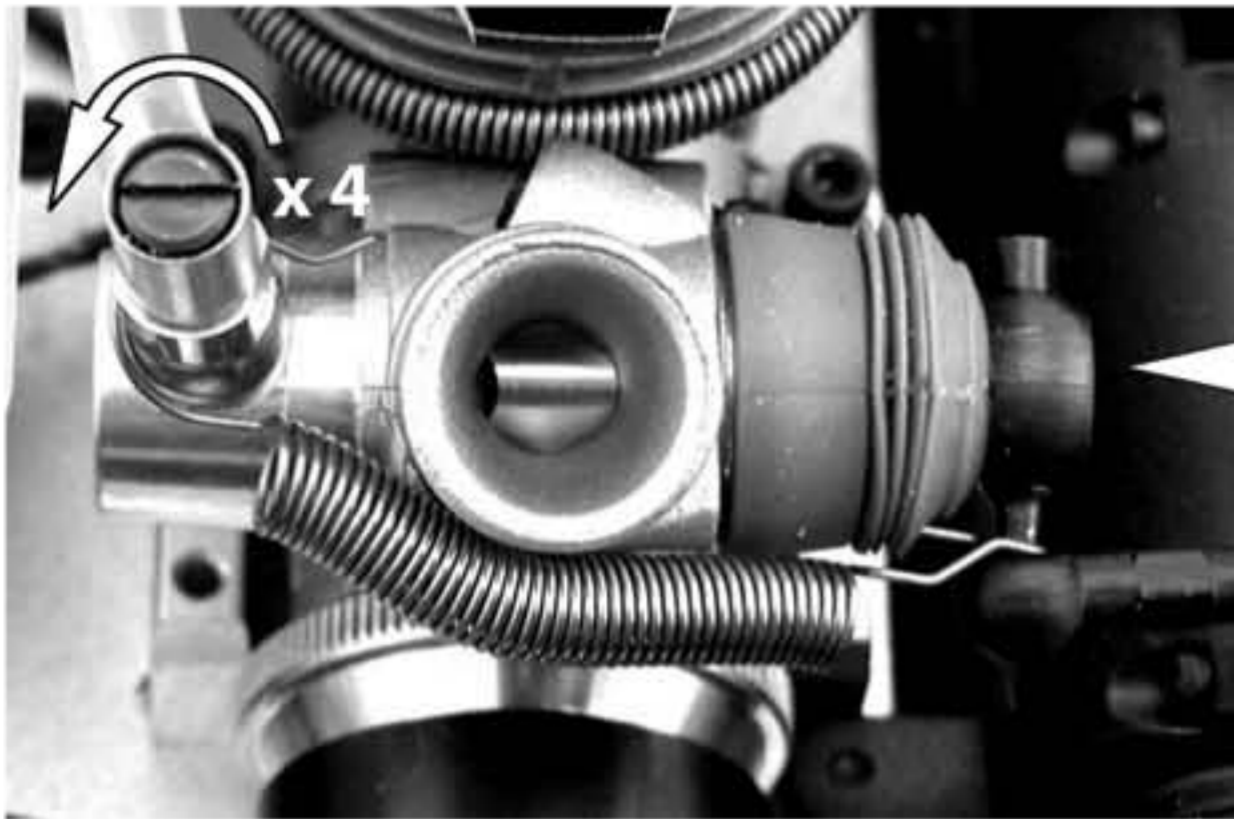
TEAM LOSI SILICON SHOCK FLUID	
LOSA5221	15 Wt.
LOSA5212	17.5 Wt.
LOSA5222	20 Wt.
LOSA5213	22.5 Wt.
LOSA5223	25 Wt.
LOSA5214	27.5 Wt.
LOSA5224	30 Wt.
LOSA5215	32.5 Wt.
LOSA5225	35 Wt.
LOSA5216	37.5 Wt.
LOSA5226	40 Wt.
LOSA5218	45 Wt.
LOSA5227	50 Wt.
LOSA5228	60 Wt.
LOSA5229	70 Wt.
LOSA5230	80 Wt.
LOSA5231	90 Wt.
LOSA5232	100 Wt.



Quick Reference Guide

Initial Factory Settings

Engine

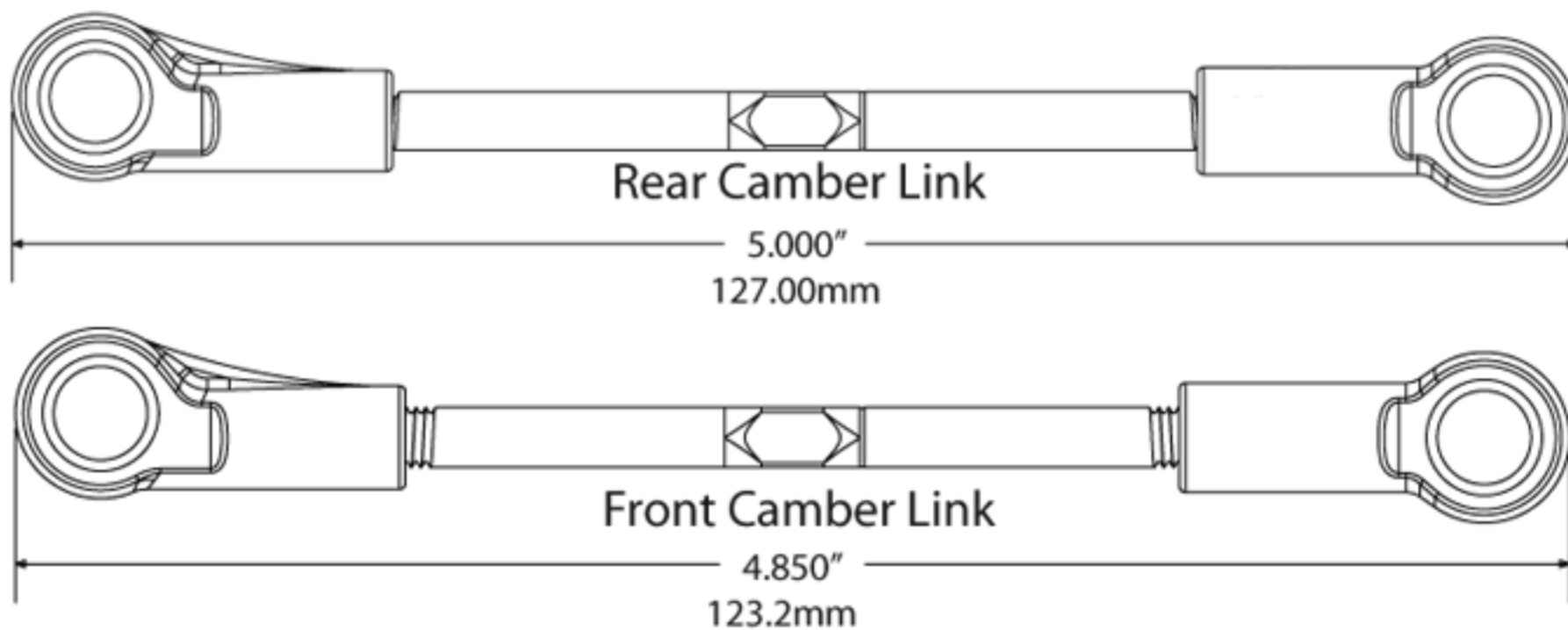


Hi-Speed Needle - 2.5 turns out



Low-Speed Needle 2.5 turns out

Camber Links

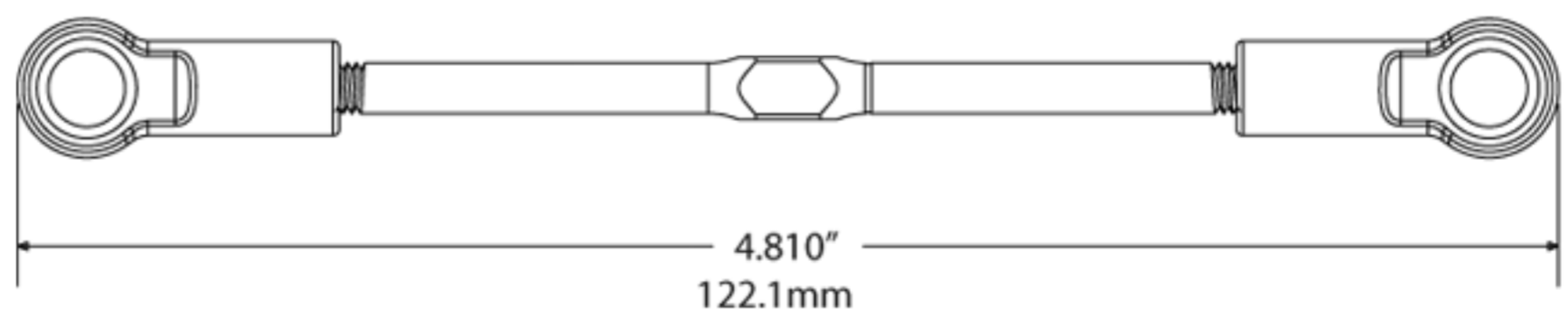


Shocks



Team Losi 45wt
Shock Oil
(LOSA5218)

Steering Tie Rods



Trouble shooting Chart

Problem

Things To Check

Remedy

Engine won't start.....	<ul style="list-style-type: none"> Out of fuel Spoiled or improper fuel Glow plug not lighting Glow igniter not charged Engine overheating Engine flooded Air cleaner blocked Exhaust blocked 	<ul style="list-style-type: none"> Check/Replace Glow plug Charge/change battery Let cool - see "Testing the Temperature" Clean & reoil aircleaner
Engine won't turn over.....	<ul style="list-style-type: none"> Engine is flooded Engine seized 	See "About Glow Plugs"
Engine starts then stalls.....	<ul style="list-style-type: none"> Idle speed set too low Glow plug is fouled/weak Air bubbles in fuel line Engine is overheated Insufficient fuel tank pressure/blockage 	<ul style="list-style-type: none"> See "Engine Tuning" See "About Glow Plugs" Check for split/hole in fuel line See "Testing the Temperature" Clear pressure line
Engine performing poorly.....	<ul style="list-style-type: none"> Hi-Speed fuel mixture is too rich Engine overheating Leaking glow plug Carburetor dirty or blocked Fuel bad or contaminated Clutch slipping Bound up drive-train Engine worn out 	<ul style="list-style-type: none"> See "Engine Tuning" Replace glow plug Try fresh fuel Clean/Adjust/Repair Check for binds in drive-train Rebuild
Engine overheats.....	<ul style="list-style-type: none"> Hi-Speed fuel mixture is too lean Low-Speed fuel mixture too lean Spoiled or improper fuel Cooling air is being blocked Excessive load on the engine 	<ul style="list-style-type: none"> See "Understanding Rich and Lean" Clean head fins Check for binds
Engine hesitates or stumbles.....	<ul style="list-style-type: none"> Engine overheated Hi-Speed mixture too lean Low-Speed mixture too rich Air bubbles in fuel line Glow plug fouled 	<ul style="list-style-type: none"> See "Engine Tuning" Check fuel line for holes Change glow plug
Engine stalls instantly when throttle is fully opened from idle.....	<ul style="list-style-type: none"> Glow plug fouled Hi-Speed mixture too rich Low-Speed mixture too lean 	<ul style="list-style-type: none"> Change glow plug See "Engine Tuning"
Engine stalls while driving around turns.....	<ul style="list-style-type: none"> Fuel level is low Idle speed set too low 	<ul style="list-style-type: none"> Add Fuel Increase Idle speed
Engine stalls while idling.....	<ul style="list-style-type: none"> Low-Speed mixture too rich Low-Speed mixture too lean Idle speed too low Clutch shoes dragging Clutch spring broken Clutch bearings failed Engine worn out 	<ul style="list-style-type: none"> See "Engine Tuning" Increase idle speed Check for broken clutch springs Check/Clean/Replace Rebuild



Installing and Adjusting your 8IGHT Throttle/Brake Linkage

Before proceeding, become familiar with the operation of your radio system. Refer to your operation manual and become familiar with the End Point Adjustment (EPA) or Travel Adjustment for throttle, brake, and all trim adjustments.

Brake Disc and Pad Set-up

Proper brake pad to disc clearance is essential for optimal braking performance, use this method for initial set-up and maintenance and to check the presets from the factory. Due to normal brake wear, this setting should be checked after every 60-90 minutes of use.

1. With the radio tray powered off and the throttle servo arm removed, move the brake linkage wires towards the engine to the full throttle position.
2. Push the brake pads closed towards the center diff mount by hand. The brake cams and linkage should not engage, if they are engaged the pads will not compress all the way to the center diff mount.
3. Using a 4-40 washer as a gauge, adjust the brake screw to set the gap between the head of the screw and the brake pad to .020 - .030" (0.5 - 0.75mm). The washer should fit snug into the gap. (Fig. 1)

NOTE: Removing the center diff assembly will make this adjustment easier.

4. Repeat on all four brake screws.

Installing the Throttle Linkage

1. Turn on your transmitter. Adjust the throttle trim on the transmitter to the neutral or centered position, this will allow for fine adjustment later.

2. With the servos, receiver, switch and charged receiver battery installed and connected, turn on the radio tray. When throttle is applied, ensure the servo is rotating in the proper direction. (Fig.2)

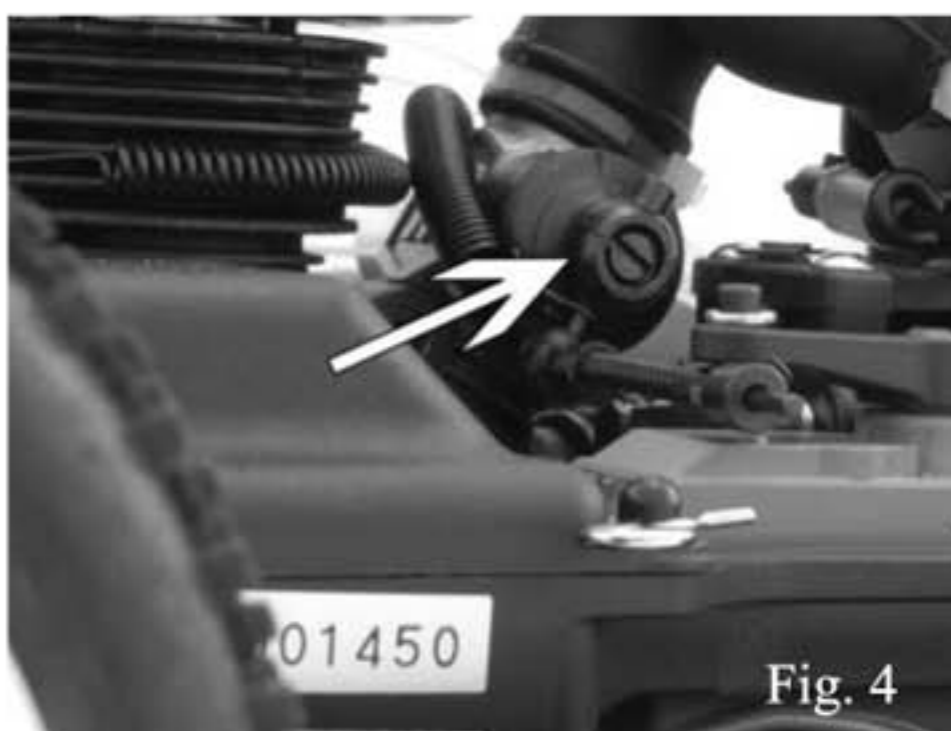
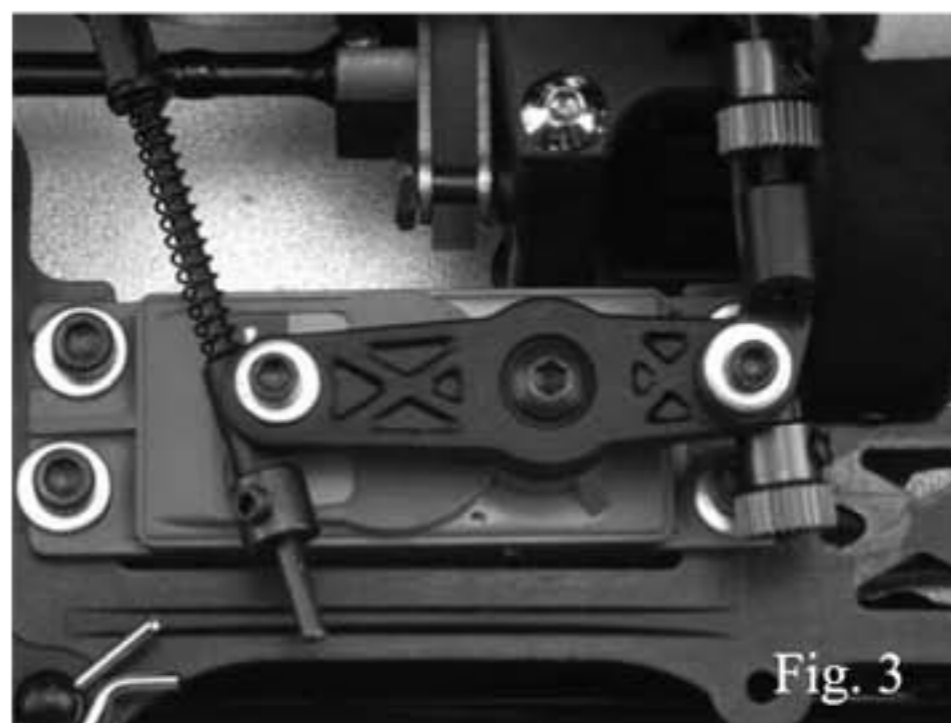
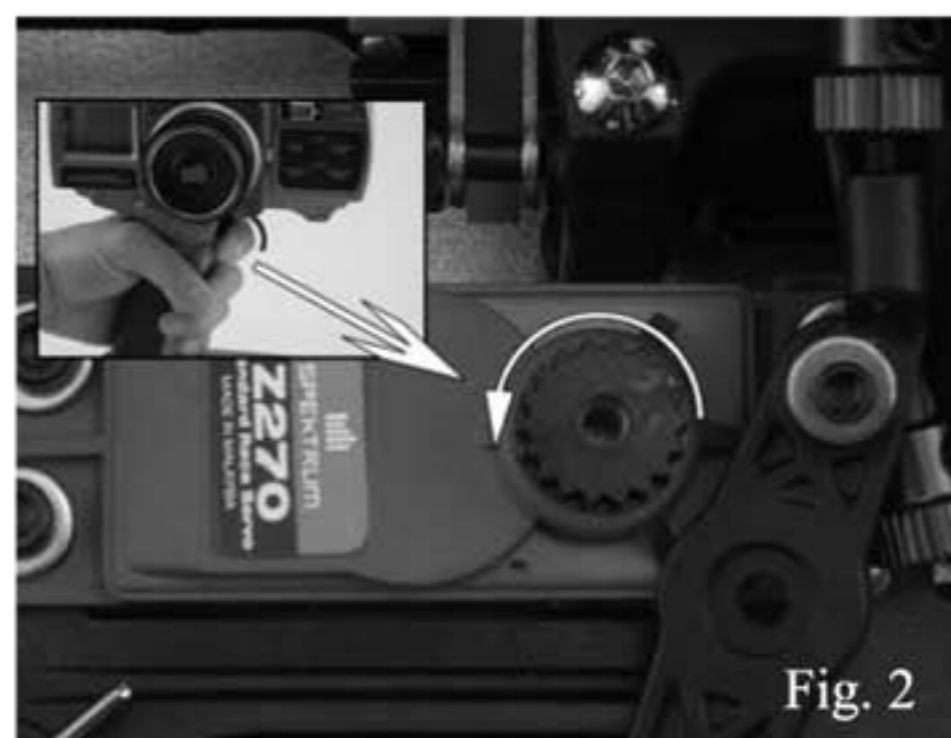
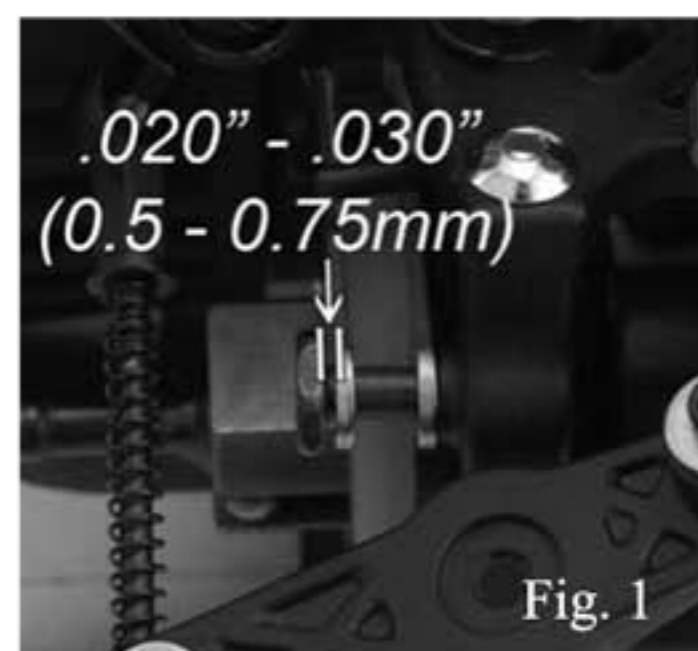
NOTE: To change the servo rotation, locate the servo reversing function on your transmitter and switch the direction of the servo.

3. Select a servo adapter that matches the number of splines on your servo (refer to your owners guide).

4. Place the servo arm adaptor onto the output shaft of the servo. Aligning the throttle servo arm parallel with the side of the servo case, place the arm onto the splines of the adaptor. If there is a slight angle, use the trim adjustment on your radio to position the arm as shown (Fig. 3). Secure the throttle servo arm with the screw supplied with the servo.

NOTE: If the arm cannot be positioned as shown using trim adjustment, the angle can be changed by removing the arm and adaptor and rotating the adaptor one spline in either direction until the arm is positioned as shown (Fig. 3).

5. Snap the throttle linkage ballcup onto the carburetor ball. The linkage should be level with the bottom of the chassis, and NOT hitting the servo case. Test for free movement. If necessary, rotate the ball/ring on the carburetor. (Fig. 4)

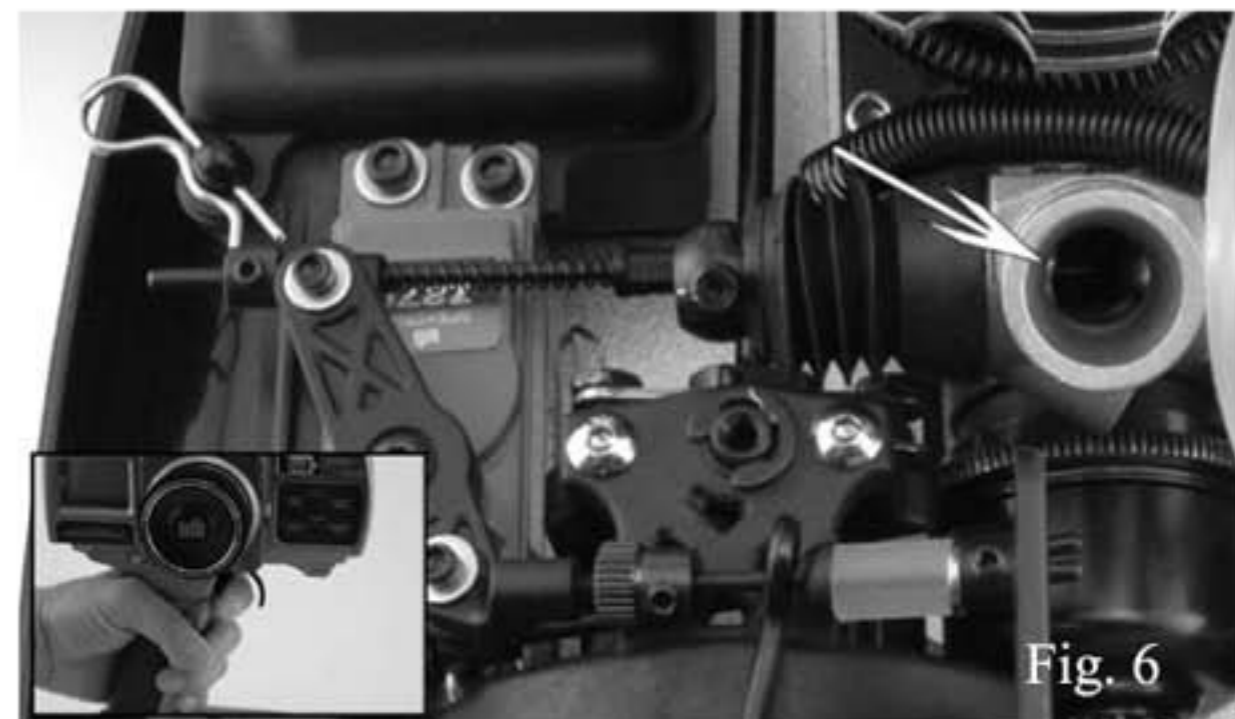


6. With the air filter assembly removed from the carburetor, adjust the collar so that there is .030" (about the thickness of a #4 washer) space between the throttle actuator and adjustment collar (Fig. 5).

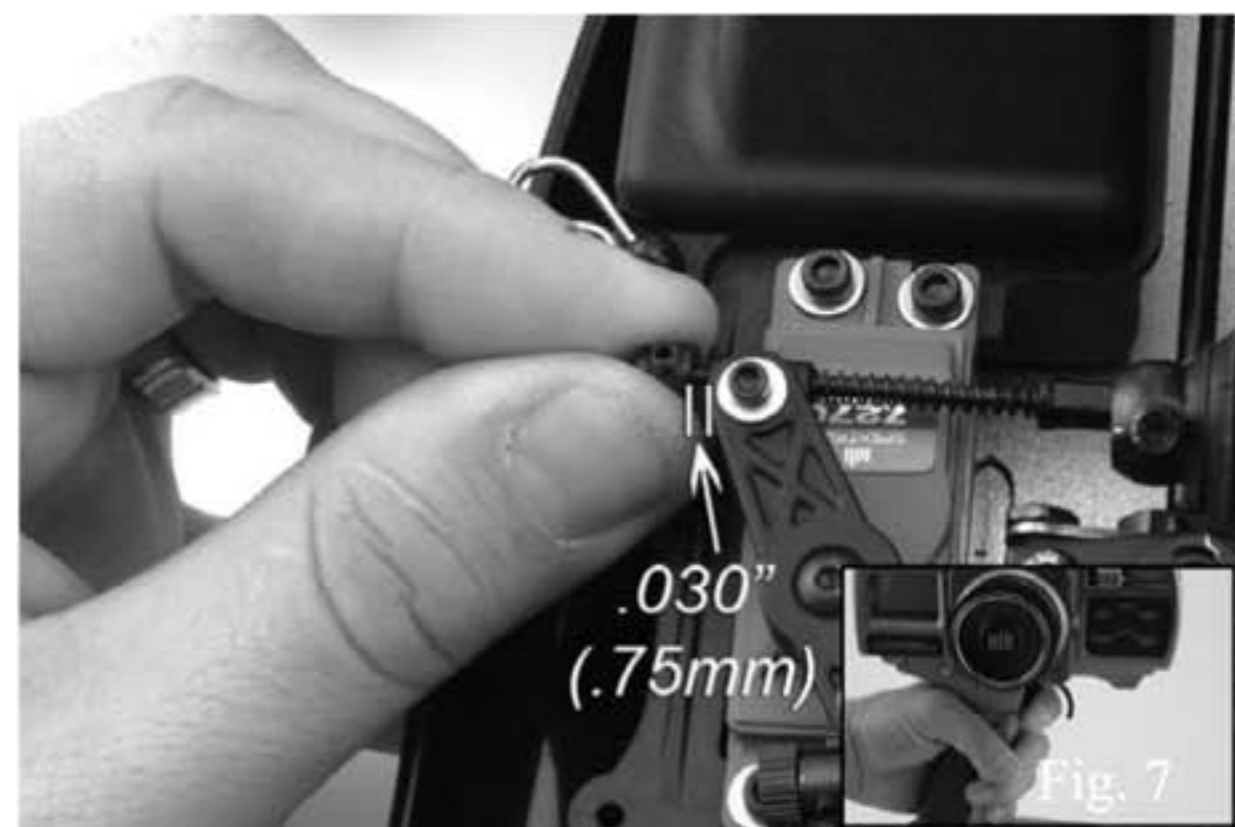


7. Watch the throttle linkage as the transmitter trigger is slowly moved to the full throttle position. Adjust the throttle EPA on the transmitter so that the carburetor only opens 90-95% of its total travel (Fig. 6).

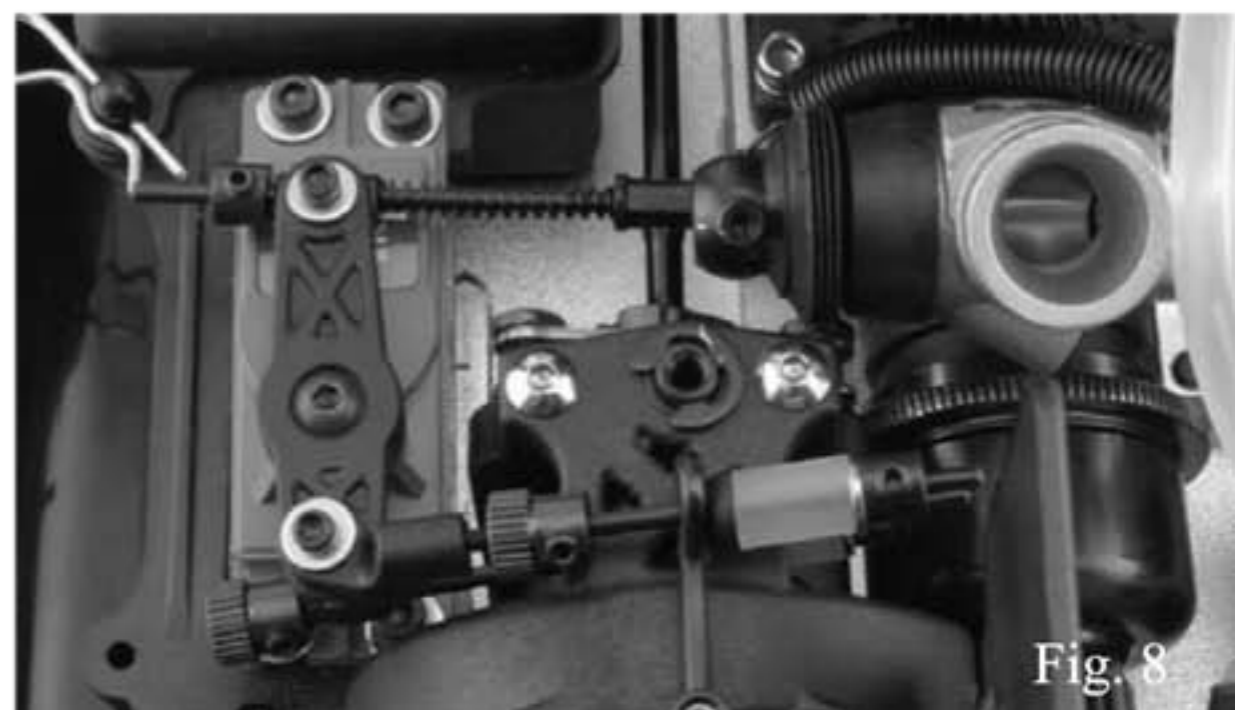
NOTE: Never set the carburetor to open 100% of its travel, some play must be left to allow for chassis flex. This adjustment will not affect the overall performance of the vehicle.



8. To ensure that the EPA or Travel Adjustment is set correctly, apply full throttle on the radio and gently pull on the throttle linkage rod. There should be at least 0.030" (0.75mm) of additional travel (Fig. 7).



9. Return the throttle to the neutral position and check the linkage. Repeat a couple times to make sure all linkage is free and not binding. If correctly adjusted, the linkage will return the same position every time. (Fig. 8)



The throttle portion of the linkage adjustment is now complete. Do NOT proceed if the above test does not work, repeat the procedure if necessary.

Adjusting the Brake Linkage

1. With the throttle in the neutral position, adjust the brake linkage rods as shown. Note the amount of thread showing on each brake rod.(Fig. 9)

2. Slide the collar (black) along the front brake rod (upper) towards the fuel tubing, until there is no play left in the linkage. The fuel tubing should NOT be compressed. Repeat this process for the rear brake rod (lower).

NOTE: The upper adjustment rod is for the front brake and the lower for the rear brake (Fig. 10).

3. At the end of this adjustment process, the brakes should NOT apply any resistance at the neutral throttle position.

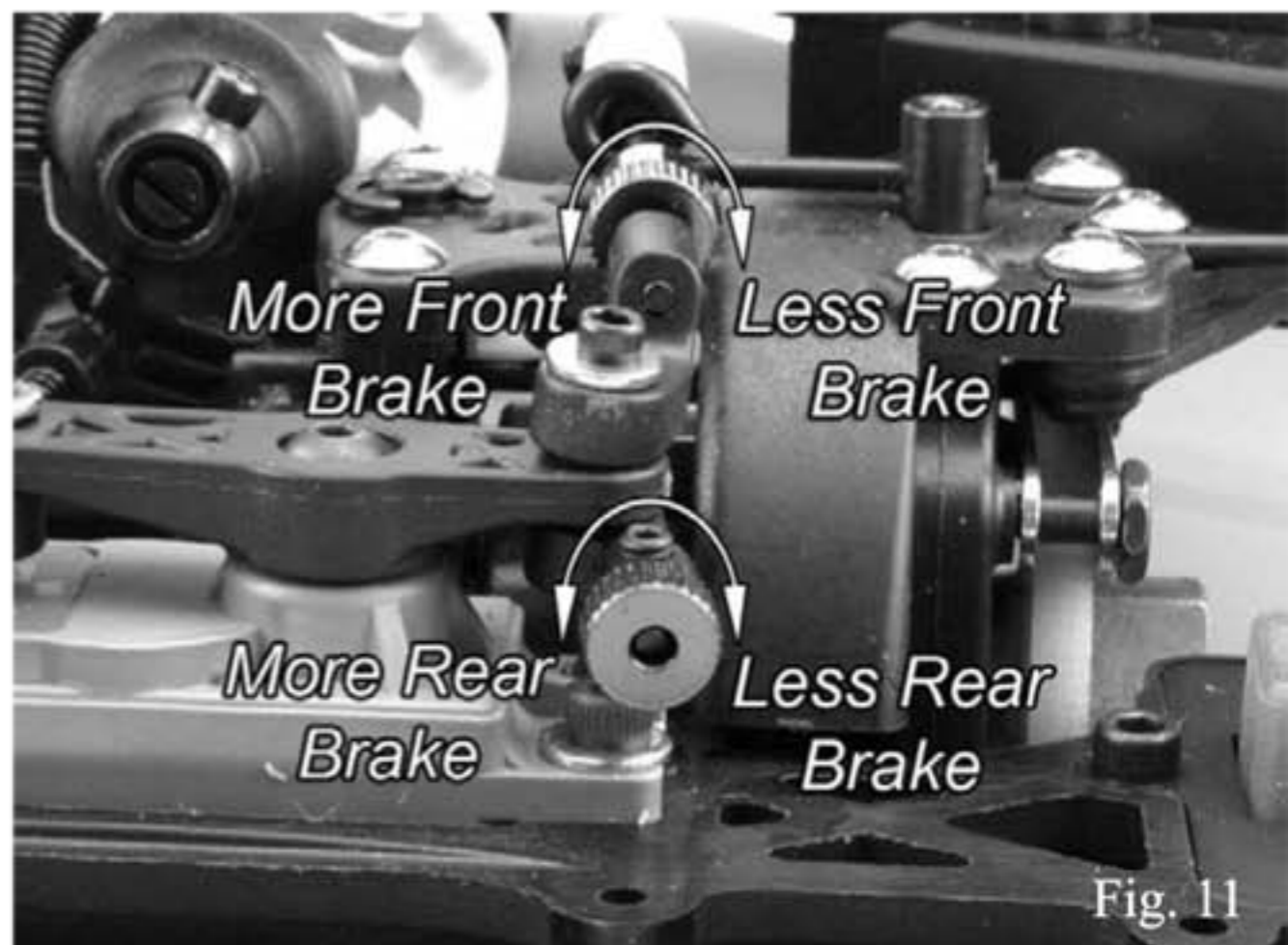
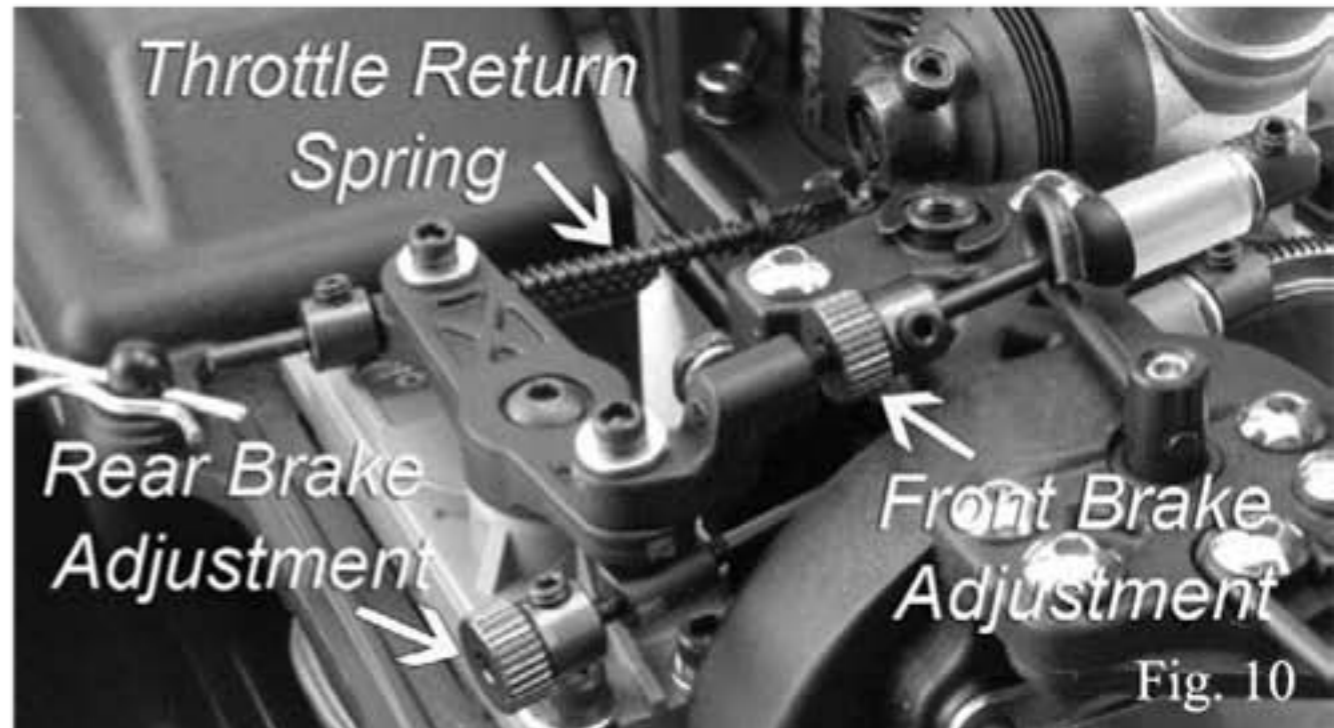
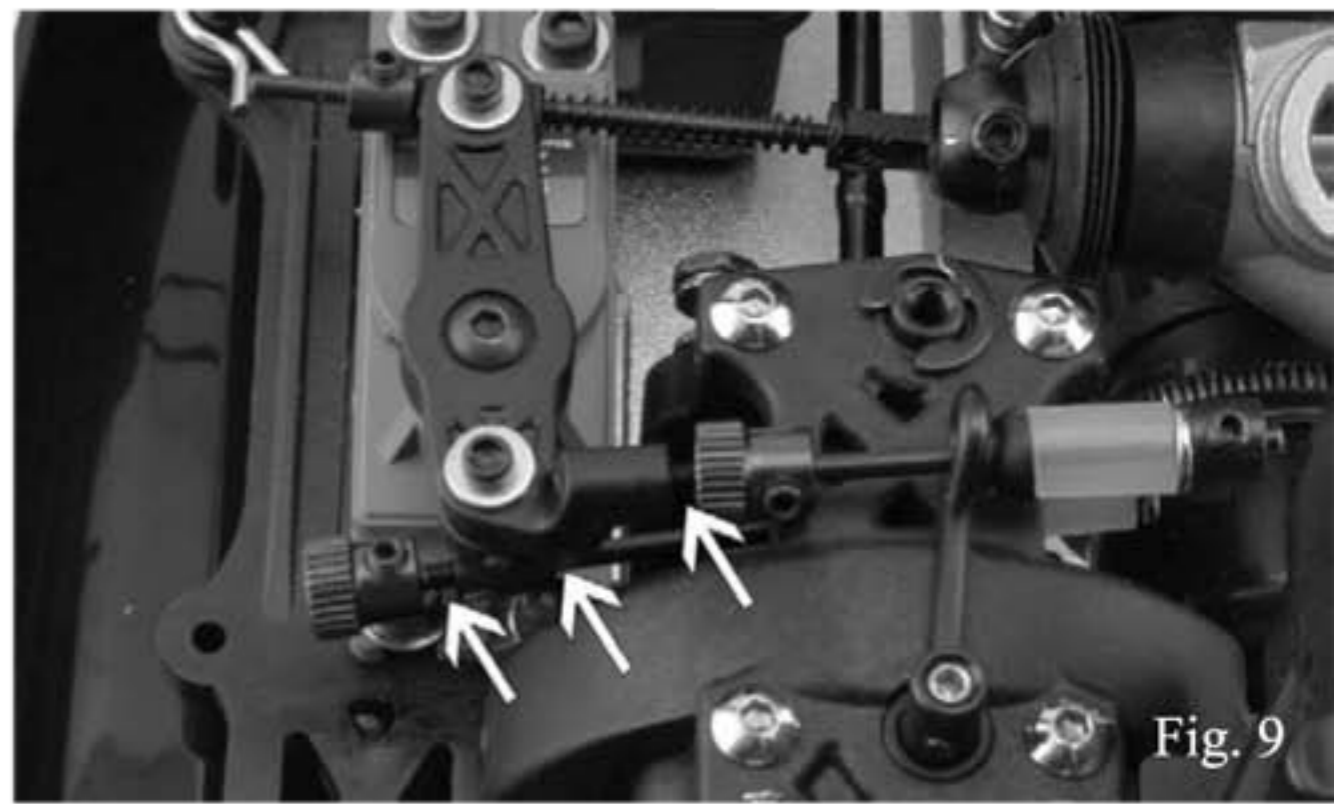
From adjustment in step 2, the brakes may be applying some resistance which can be felt by rotating the spur gear by hand through the bottom of the chassis. To ensure there is no resistance, rotate each of the adjustment knobs (blue) one turn in the clockwise direction (Fig. 11)

4. Check the adjustment, apply full throttle and return to neutral and check the brakes for resistance. Repeat a couple times and check for consistent operation.

5. Watch the brake linkage as the transmitter trigger is slowly moved to the full brake position. Adjust the brake EPA of the transmitter so that when full brake is applied the spur gear is difficult to turn by hand. The brake EPA can be adjusted later to get the desired amount of brake for various driving conditions.

8. Before proceeding, move the trigger to the full brake position and check the throttle return spring to ensure that it is not compressed completely.

NOTE: If the throttle return spring is fully compressed, the most probably cause is either the throttle servo arm is installed improperly or the EPA is set too high. Proper adjustment should allow for at least .250" (6.5mm) of additional movement in the full brake position.



The brake portion of the linkage adjustment is now complete. Do NOT proceed if the above test does not work, repeat the procedure if necessary.

Checking the Brake Bias

Brake bias is the difference between the amount of rear and front braking pressure.

1. To check the amount of rear brake bias, place the vehicle on a table, move the trigger to the full brake position and press down on both front and only one rear wheel to keep them from rotating.
2. Lift the remaining rear wheel off the table and rotate it in the forward direction. The resistance required to rotate the wheel, is the amount of rear brake being applied. This may vary from little resistance to full lock up.
3. Take note of how much resistance is required to turn the wheel.
4. Repeat for the front brake by holding both rear and only one front wheel. Again moving the trigger to the full brake position and rotating the other front wheel, noting the resistance required.
5. Do this several times for both the front and rear brakes to establish a "feel" for the applied braking resistance. Often the resistance will be different from front to rear.

Adjusting the Brake Bias

1. For most applications, begin by setting the braking bias to 40% front, 60% rear.
2. Brake bias is adjusted by adding or removing either front or rear brake. It is best to add to the under-powered brake to obtain the desired bias.

For example: if there is too much front brake bias, add rear brake by rotating the upper adjustment knob counter-clockwise. If there is too much rear brake, add front brake by rotating the upper brake knob counter-clockwise to obtain the desired bias.

3. Adjust only ONE brake rod at a time, a maximum of a $\frac{1}{4}$ turn, and re-check the bias with the method used above. Repeat until the desired brake bias is achieved.
4. Return the throttle to neutral and turn the spur gear by hand. No resistance should be felt while turning the spur gear at neutral throttle.
5. If the brakes are dragging, turn BOTH adjustment knobs clockwise the exact same amount ($\frac{1}{4}$ turn at a time) until the spur gear turns freely.
6. Always go back and check the bias after making any adjustment.
7. The brake system requires very little pressure to operate, and should engage quickly with only a small amount of servo arm movement (0.050")(1.3mm).
8. The brake bias has now been set, and linkage adjusted, final braking power will be set later for various driving conditions.

Linkage Adjustment Checklist

- 1. The linkage must be free for movement and not bind.
- 2. The linkage should not hit anything, servo, body etc.
- 3. The servo should not move more than 0.050" (1.3mm) before the brakes start to engage.
- 4. At least 0.250" (6.5mm) of travel should be allowed for the throttle return spring.
- 5. The brakes should not drag at neutral throttle.

If any of these conditions exist, the linkage has not been properly adjusted, repeat this procedure until the linkage has been properly adjusted

