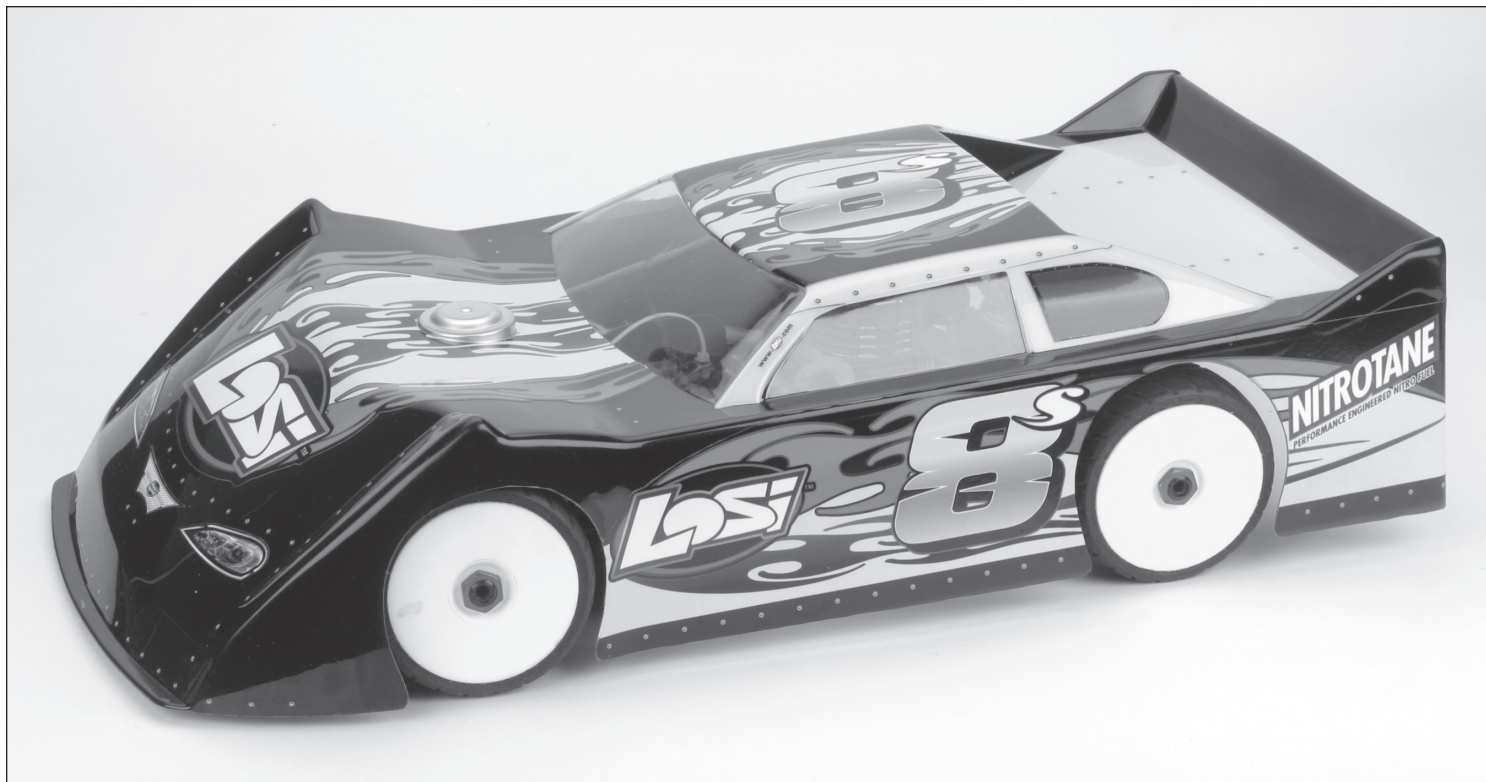




# L8IGHT

1/8 SCALE 4WD NITRO LATE MODEL RACE ROLLER



## L8IGHT Model Tuning Guide

The first thing you need to understand about chassis tuning is that there is no "magic" setup that will make you a world class driver. Also one driver's best chassis setup may very well be the worst setup for another driver. Chassis setup is not dictated by ability or experience but rather comfort level and what is commonly referred to as balance. This simply means that there is no one handling characteristic that is either exaggerated or minimized to the point where you are forced to overdrive to compensate for it. A prime example is making a change to gain low speed steering but finding that the high-speed steering is so sensitive that the car is extremely unstable and hard to drive. Our goal is to give you the information on how to use the parts we have made available for you to tune the chassis so you are comfortable driving it ..... FAST!

## What to Adjust

When making chassis changes, you should first decide where you feel the car needs to be different. This is commonly referred to as changing the balance. The L8IGHT comes out of the box with a relatively neutral set-up that favors neither the front nor the rear of the model. This has been found to be easy to drive with great confidence that the chassis will not do anything odd or unexpected. To fine tune this or any setup you must first decide if the front of the car needs to be adjusted or the back. You will want to work with the rear of the chassis if the car enters the turn with the front end sticking, and tracking well, while the rear end either does not want to follow, or simply doesn't know what it wants to do. The opposite is true if the rear end seems to want to push the front end through the corners preventing it from steering or if the front drives into the corner uncontrollably with so much steering and extreme reaction that it is hard to control comfortably. As you will see there are several different adjustments that have similar effects on the handling. You will find the best adjustment will become a personal decision based on the "feel" that each of these adjustments yield. This also reflects on the "balance" referred to earlier. So the key is to try these different adjustments and learn what makes the car drive and feel the best to you. Also don't be surprised that after you become comfortable with a setup you find that in time you are capable and comfortable with a more aggressive setup. No matter what you decide to adjust never make more than one change at a time. If the change you made works adversely, or doesn't address your need, return to the previous position and try something else.

## If You Get Lost

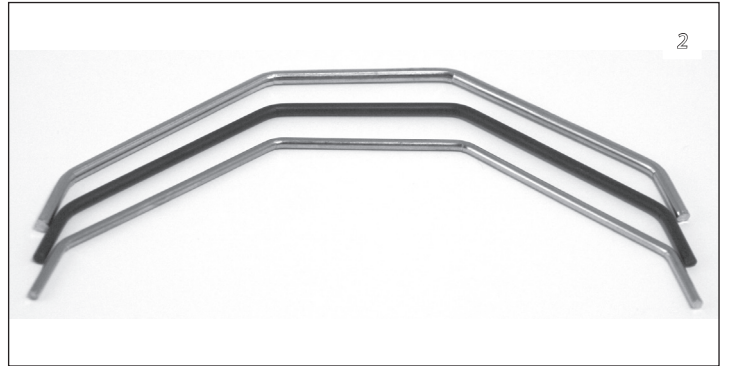
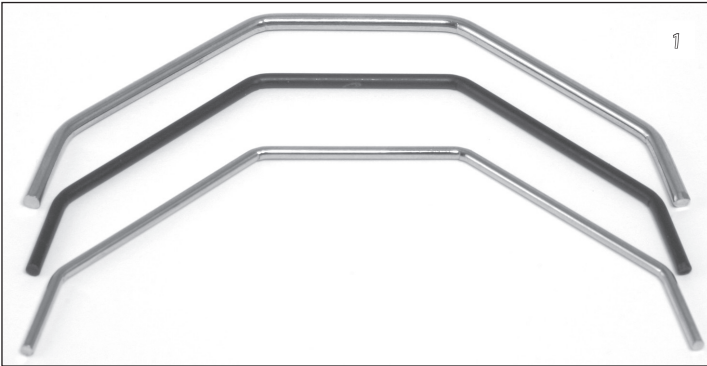
The development team has put hundreds of hours on the L8IGHT to arrive at the setup we put on the Race Roller. Think of this as your base setup or "home". If you get baffled with your tuning and find that you have lost the "handle" go back to "home" and your base setup, as this will give you a comfortable handling chassis that you know to be reliable, consistent, and easy to drive. All of us at Losi are sure that you will find the L8IGHT Oval Racer to be the most versatile and easiest car to drive fast, with great consistency. The specific information in this guide will help you to enjoy your L8IGHT, and racing it with the ability to make the changes needed to suit both track conditions and your driving capabilities. Also don't forget to check for the latest in setup and accessory parts information by visiting the Losi web site at: [www.losi.com](http://www.losi.com) regularly. Also note that there are many ways to setup a car. The rules we follow can work inversely sometimes with different driving styles or different setup styles, so test for yourself and you will find a setup that works right for you and always remember that if you get lost you can always go "home" to your base setup.

## Chassis Adjustments

Sway Bars are a flexible connection between the right and left side of the suspension. They are used to keep the chassis flat and minimize excessive weight transfer and chassis roll. Losi provides sway bars in sets of three different thicknesses (LOSA1750) for both the front and rear of the L8IGHT.

**Front Sway Bars:** The three front sway bars (Photo 1) are .080in/2mm (light), .091in/2.3mm (medium), and .105in/2.66 (heavy). A lighter front sway bar increases front traction off-power, but has less on-power steering. A heavier front sway bar decreases off-power front traction making for smoother and more predictable steering when entering the turn, but offers more on-power steering on exit.

**Rear Sway Bars:** The three rear sway bars (Photo 2) are .092in/2.3mm (light), .1055in/2.6mm (medium), and .1205in/3mm (heavy). A lighter rear sway bar tends to increase rear traction but decreases on-power steering. A heavier rear sway bar increases stability in the middle of the turn and increases on-power steering. Heavier sway bars are also more stable on high speed, high-traction tracks.

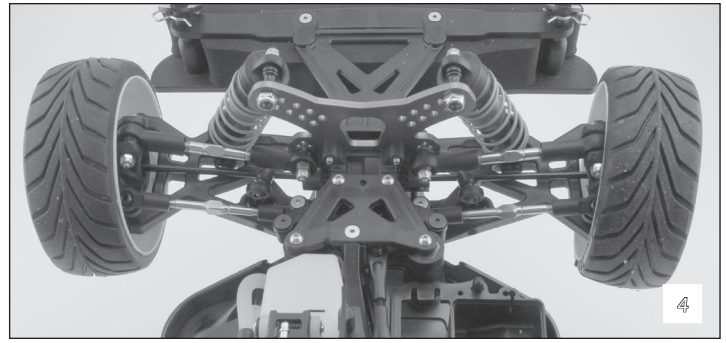
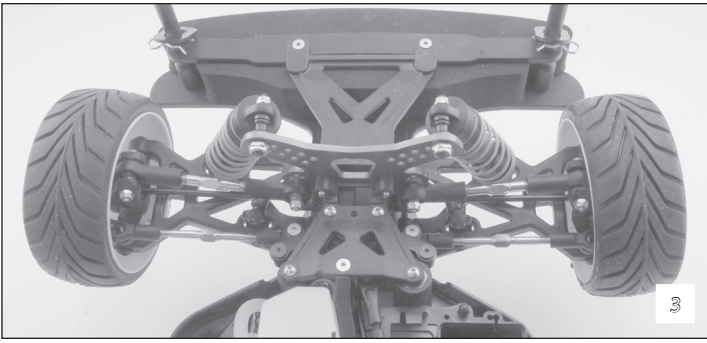


Toe-In/Out is the relationship of the tires to one another. Toe-in is when the tires point inward (Photo 3), as they face forward and toe-out is when the tires point outward (Photo 4).

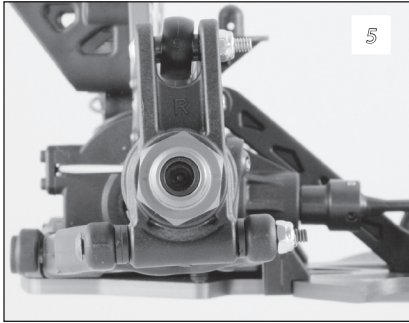
**Front Toe-In:** (longer steering rods) decreases steering response entering and in the middle of the turn. This also increases on-power steering at exit and may cause loss of rear traction.

**Front Toe-Out:** (shorter steering rods) increases steering response when entering the turn and increases straight line stability. Toe out will also decrease on-power steering giving the car more forward traction.

**Rear Toe-In:** More rear toe-in increases forward traction and stability on-power and produces more off-power steering and less side bite. Less rear toe-in: will increase the wheel base of the model and increase the top speed, on-power steering and side bite in the middle of a turn. It will also decrease forward traction and stability under acceleration. You will **never** want to run rear toe-out.



Rear Squat/Anti-Squat (photo 5), is the result of suspension geometry that mechanically allows the rear of the chassis to dip under acceleration (squat) or fight the tendency to do so (anti-squat) and actually rise on acceleration. This can be changed using the pivot pin supports. The L8IGHT Race Roller comes with two degrees of anti-squat.

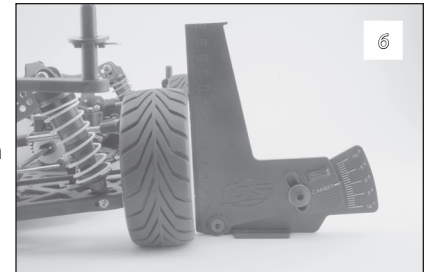


**Less Anti-Squat:** will produce less off-power steering and allow the chassis to roll (side to side) more across the rear. Less anti-squat will also tend to loosen up the rear under acceleration on the oval.

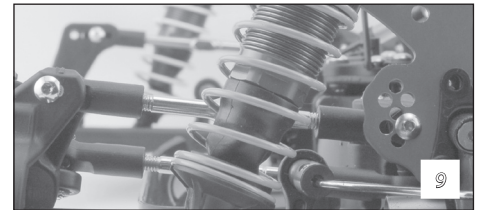
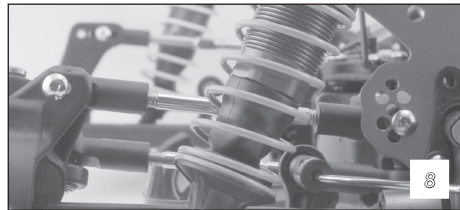
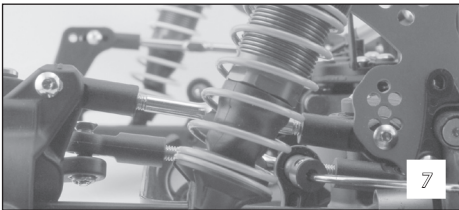
**More Anti-Squat:** will produce more roll resistance (side to side), increase steering in the middle of the turn and have better rear traction under acceleration.

NOTE: Besides using the fixed rear pivot mounts (LOSA1746, 1747 & 1748) to alter the anti-squat and toe-in the more advanced oval tuners will want to try the LOSA1754 front and LOSA 1755 rear independently adjustable pivot mounts so that different settings can be made from one side to the other just like the full size race chassis.

**Camber:** (photo 6), is the attitude of the wheel and tire in relation to the ground or flat surface. As seen in the photo this can be measured using the LOSI LOSA99172 Camber Gauge a fuel can or similar item that stands upright next to the tire. If the tire leans in at the top it has negative camber, and if it leans out at the top it has positive camber. The camber link controls the position of the wheel and tire as it moves up and down through its suspension travel. Camber has a tremendous effect on how the tires react and provide grip on the surface you are running on.

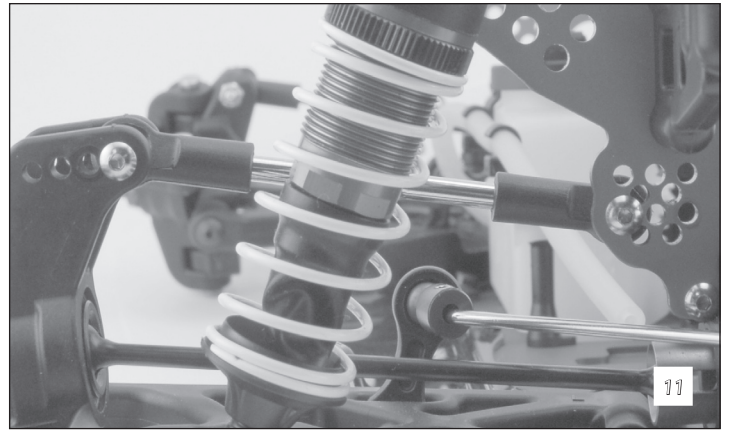
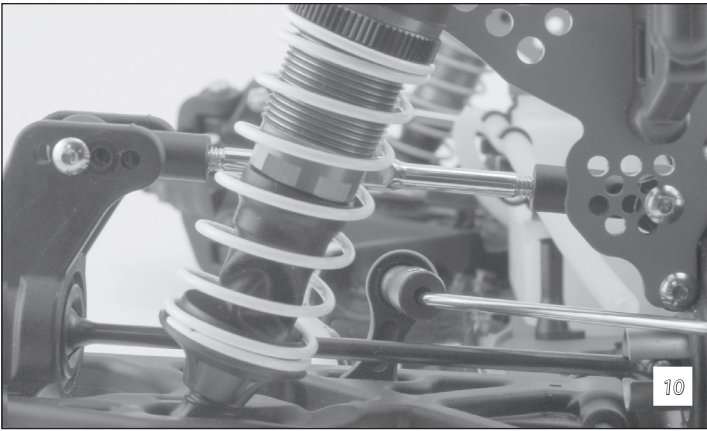


**Front Camber Links:** More front negative camber on the outside (right) wheel produces more steering and is more responsive. Less front negative camber will have less steering but will be smoother. To a point more front positive camber on the inside (left) wheel will give better steering into and out of a turn. Less positive camber will similarly smooth out the steering but be less responsive. The lower camber link location on the shock tower (photo 7), (Hole #4 as seen on the setup sheet) has more camber gain which is the total camber change through the suspension travel. Running the camber link in the lower hole will increase off-power steering and make the vehicle more aggressive - however you may lose some consistency. More camber gain is good on small tight tracks. We have found that running less camber gain in the front suits the car the best for consistency and steering balance. A longer front camber link (photo 8), (hole #2 as seen on the setup sheet) will make the L8IGHT feel stiffer. This will keep the chassis flatter with less roll and increase high-speed steering. A short front camber link (photo 8), (hole #3 as seen on the setup sheet) will allow more chassis roll and make the vehicle more aggressive but lack steering under acceleration. If the front link is made too short it may make the vehicle feel twitchy.

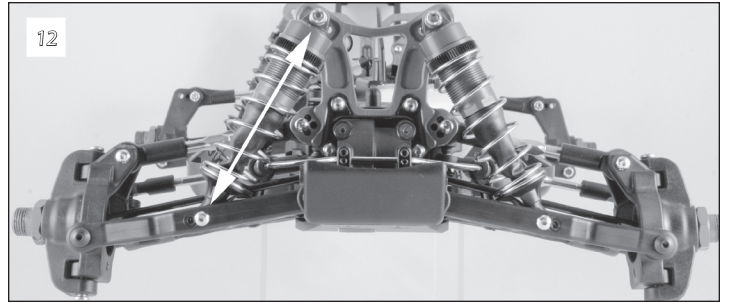


**Rear Camber Links:** More rear negative camber will have less rear traction, but will increase on-power steering. Less rear negative camber will have more rear traction and make the rear of the L8IGHT stay flatter, but if traction is lost it will be more violent. You will notice that the L8IGHT uses positive left side camber and negative right side camber to provide optimum traction. The lower camber link locations on the shock tower (#4 & #5 as seen on the setup sheet), have more camber gain. Running the camber link in the lower holes on the shock tower will increase corner speed and allow the buggy to sit on the rear more when on throttle. The upper camber link locations work better on high traction surfaces and improve stability. Using a longer rear camber link (photo 10), (#1 as seen on the setup sheet), will have less roll and improve stability and traction. A shorter rear camber link (example: position #3 or #8, as seen on the setup sheet) will allow more chassis roll and increase steering on entry but will also loosen up the rear and may make it unstable. Running in the A or B position (as seen in the setup sheet) in the rear hub will generate more corner rotation entering the turn allowing the car to turn into the turn easier and increase steering on exit. Running in the C or D position in the hub will be more stable entering the turn but still increase the steering on exit.

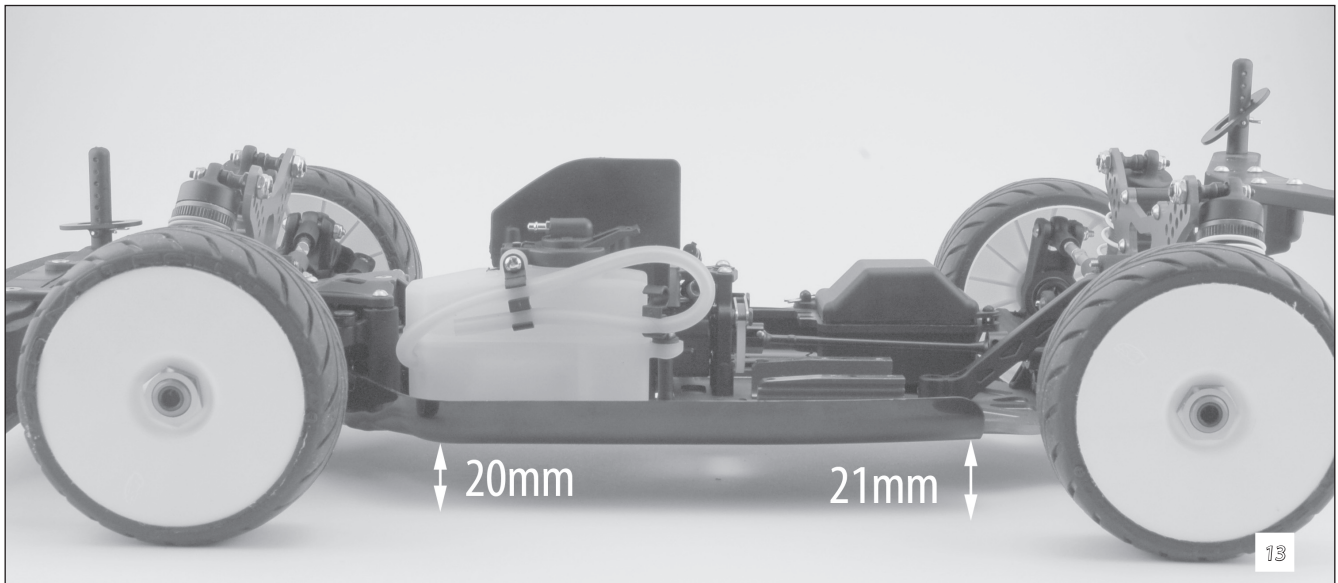




**Droop:** is the amount of suspension downward travel from ride height. Always measure the droop of the L8IGHT with the shocks on the model. Measure from the center of the top shock mount to the center of the bottom shock screw, (photo 12). More droop (travel) in the front will have more on-power steering and allow the L8IGHT to roll more across the rear when on throttle. More rear droop will increase off-power steering and allow the chassis to roll over on the front while off-power.



**Ride Height:** is the level of the chassis above the track surface as it sits on its suspension. As the chassis sits on a flat surface measure up to the bottom face of the chassis. The LOSI LOSA99173 Ride Height Gauge is ideal for accurately setting and measuring this. For your base line you will want to adjust the front of the chassis with 20mm of ride height and 20mm in the rear. We have found the L8IGHT handles best when the front ride height is 1mm to 2mm lower and no more than level with the rear of the chassis.

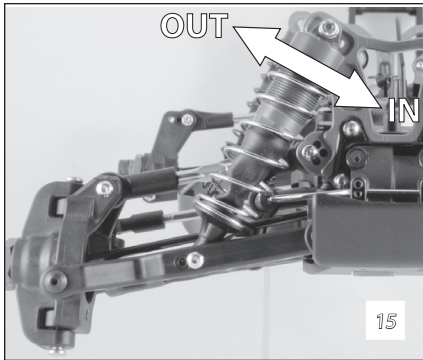


**Shock Pistons:** Shock pistons are available and marked with different size holes that control the flow of the shock fluid as it moves up and down with the suspension movement. If you look closely you will see the hole size (54, 55, 56) molded into the pistons. Note that the larger the number the smaller the hole size. Using pistons with smaller holes (#56) provides stiffer damping, slower weight transfer, and slower response. Pistons with larger holes (#55 & #54) provide softer damping, increased traction, quicker weight transfer and response.

**Shock Fluid:** is graded by its viscosity or thickness. Lighter fluids are lower numbers like 20 and 25 weights while heavier fluids are larger numbers like 35 to 50 weights. Lighter shock fluid will give more overall traction and allows quicker response to suspension movement but also has a tendency to allow too much chassis roll in the corners. Heavier fluids have less overall traction and react slower but on high bite and smooth tracks, heavier fluid tends to be easier to drive. Heat makes shock fluids lighter and cold makes them heavier. Make sure you adjust shock fluid when there is a drastic temperature change (20-25 degrees) to maintain the same dampening. If it gets cold you will need to go to a lighter weight shock fluid. If it gets hotter you will need to go to heavier weight shock fluid.



**Springs:** In general, running softer springs will produce more traction until you get so soft that the chassis rolls over to the point where there is no suspension left and it starts to slide the tires. A softer front spring will usually produce more steering while a firmer spring will tend to decrease steering response. Soft rear springs are better on very slick tracks but as the traction increases so must the spring rate.

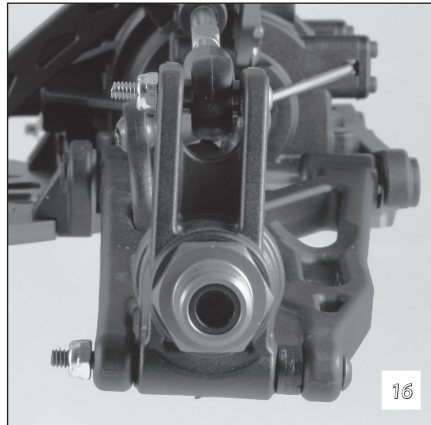


#### Shock mounting positions:

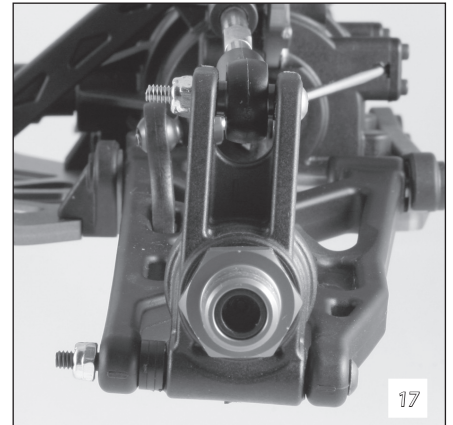
Leaning the shocks inward on the shock tower produces softer initial damping and is more forgiving. Moving the shocks out on the shock tower makes the car more responsive and is better for tight tracks where you need quicker steering reaction.

**Wheelbase:** A shorter wheelbase (spacers behind the rear hubs, photo 16), increases on-power traction, rear weight transfer, and has more off-power steering. The shorter wheelbase is better on tight or slick tracks. A longer wheelbase (spacers in front of the rear hubs, photo 17), decreases off-power steering. The longer wheelbase tends to be more stable and has more on-power steering.

**Short**



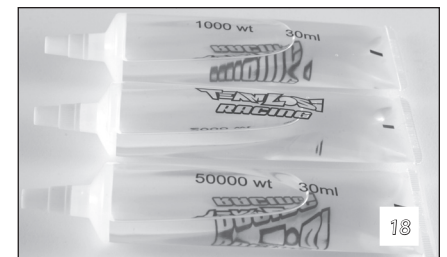
**Long**



#### Differentials:

Differential Fluids are just like shock fluids in that the larger the number the thicker/heavier the fluid.

**Front:** Thinner/lighter fluid in the front differential increases off-power steering but decreases steering and acceleration exiting the turn. You must be careful not to go too light as the steering will become grabby and inconsistent. If you experience this go at least one step heavier. Although lighter fluid will have a little better steering entering a corner it will have less acceleration on exit. In general, thicker/heavier front differential fluid increases off-power stability and increases on-power steering.



**Center:** Using thinner/lighter fluid in the center differential tends to make the model easier to drive on rough and slick tracks but allows it to unload easier under acceleration and provides less forward drive. Thicker/heavier center differential fluids offer better acceleration, increased on-power steering and less off-power steering. In general, using thicker center differential fluid is better on high bite and smooth oval tracks.

**Rear:** Using thinner/lighter fluid in the rear differential provides more cornering traction and increases steering response in the middle of the turn. Thicker/heavier fluids in the rear differential provide less steering in the middle of the turn but greater forward traction.

**Ackerman:** This is the name given to the type of geometry needed to maintain the difference in the angles of the inside and outside wheels necessary for each front tire to maintain the proper turning radius. Since the inside tire must run a smaller radius than the outside tire this is critical. The Long Ackerman plate will have smoother steering and is generally more forgiving.

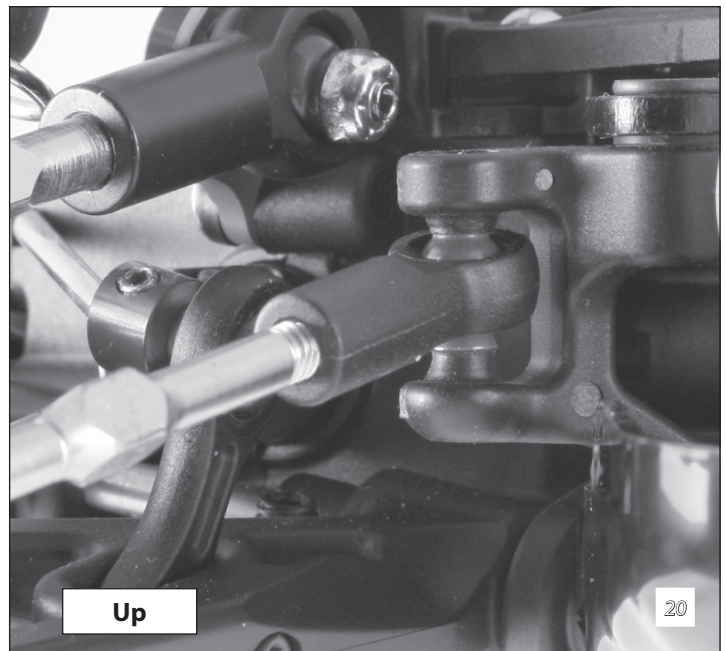
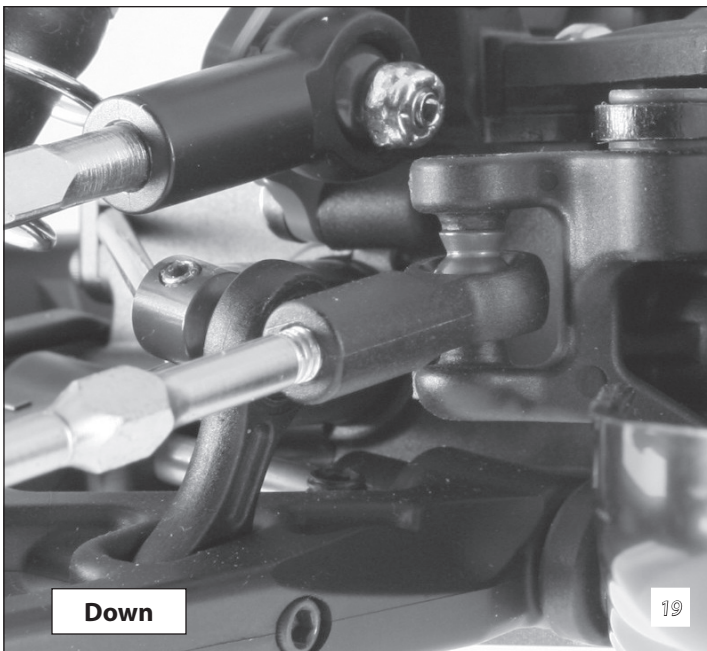
The Short Ackerman plate produces a quicker reaction and steering response and has more steering in the middle of the turn. The short Ackerman plate would be better suited for tight tracks.

**Bump Steer:** is the side-to-side movement of the front wheels that can be caused by the suspension moving up and down.

**Down:** Running the bump steer ball in the "down" position (photo 19), will produce smoother steering in the middle of the turn.

**Up:** Running the bump steer ball in the "up" position (photo 20), will increase the steering in the middle of the turn.





### Clutch:

The 4 shoe clutch system is far advanced over the norm allowing much greater tuning with easily made changes. This includes both the clutch shoes and the clutch springs. (Photo 21)

**Springs:** You have four different color coded clutch springs to choose from. As seen in the table the softest are the .036in "Black" and slightly harder "Green" springs that have more preload (angle). The harder springs are the .040in "Gold" and hardest "Silver" (more angle).

### Clutch spring table

LOSA9112 .036in Black - Soft

LOSA9113 .036in Green – Medium (Soft with more preload)

LOSA9114 .040in Gold - Hard

LOSA9114 .040in Silver - Hardest (Hard with more preload)



**Softer Springs:** Engage the clutch at a lower rpm and provide a smoother power band but often less vigorous acceleration. If the engine doesn't have enough low-end power try running more preload (the same size spring with more angle) or a stiffer (thicker wire size) spring.

**Stiffer springs:** engage at a higher rpm and allow the car to launch harder but this is often accompanied by wheel spin and momentary loss of traction. You should also be careful not to go too stiff with the clutch springs as this can cause the clutch to slip and prematurely wear out the clutch shoes.

**Clutch Shoes:** The L8IGHT is equipped with two aluminum shoes that allow smooth progressive clutch engagement. Two composite shoes are included for your tuning as note. Both composite and aluminum clutch shoes are available for use in the 8IGHT 4-shoe clutch. Two of each of these are usually best for tuning and wear characteristics but both can be used separately or in fours. If the track surface is very loose or rough we have found that four plastic shoes will allow more slip and smoother acceleration. Running all four aluminum clutch shoes will have the quickest and hardest hitting clutch action with the most punch. This isn't as good on slick or rough tracks where you need a longer smoother clutch engagement with less wheel spin.

**Gearing:** The stock gearing for the 8IGHT is 14/48 which is a good all-around ratio for acceleration and top speed. If you are running on a smaller track or need more low-end power/acceleration, a 13-tooth clutch bell is recommended but be aware that although the acceleration increases the top speed will be less. Similarly, if you are running on a longer track with sweeping corners you may want to try using a 15-tooth clutch bell for added speed without over-revving the engine. Be very careful not to over-gear the engine as it will cause poor acceleration, overheating and prematurely wear out the clutch shoes and bearings.

### Brake Setup:

The standard suggested brake bias for the 8IGHT is 60% rear - 40% front. If you need the model to rotate more under braking, adjust the linkage for less front brake and more rear brake. If the L8IGHT is loose entering turns under braking, adjust the linkage for less rear brake or more front brake.

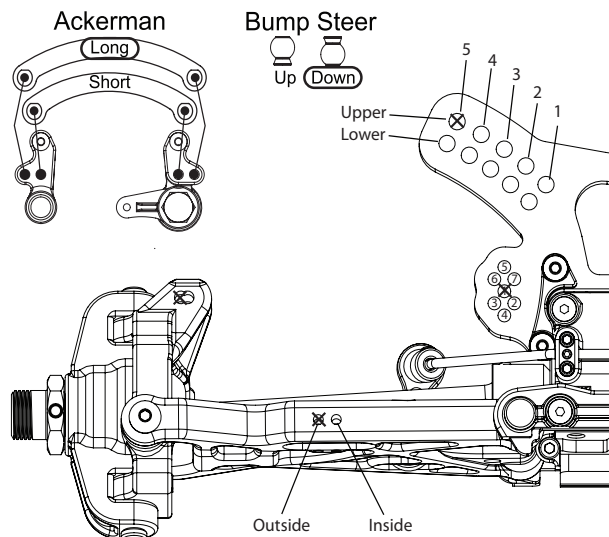
### Outdrives and Traction:

When your 8IGHT is new it will have more chassis roll and be a little loose on throttle due to the lack of friction in the outdrives and crossbones. After about 45-60 minutes of running, these parts wear into each other and the 8IGHT will gain traction and stability. Replacing worn out outdrives and crossbones with new parts will provide more corner speed.

Name: <b>L8IGHT KIT</b>		Date: <b>10-01-08</b>	Event:
City:		State:	
Track		Track:	
<input type="checkbox"/> Indoor <input type="checkbox"/> Tight <input type="checkbox"/> Smooth <input type="checkbox"/> Hard Packed <input type="checkbox"/> Blue Groove <input type="checkbox"/> Conditions <input type="checkbox"/> Outdoor <input type="checkbox"/> Open <input type="checkbox"/> Rough <input type="checkbox"/> Loose/Loamy <input type="checkbox"/> Dry		<input type="checkbox"/> Wet <input type="checkbox"/> Low Bite <input type="checkbox"/> High Bite <input type="checkbox"/> Dusty <input type="checkbox"/> Med Bite <input type="checkbox"/> Other <b>General Oval</b>	

## Front Suspension

Toe: 2 Degrees Out  
 Ride Height: 20mm  
 Camber: (L) +3 Degrees (R) -2 Degrees  
 Caster: Stock  
 Sway Bar: 2.0mm  
 Piston/Oil: 56/50wt  
 Spring: 2.3-inch Gray  
 Limiter/Droop: 87mm  
 Overall Shock Length: \_\_\_\_\_  
 Steering Ackerman: Long  
 Bump Steer: Down  
 Camber Link: #1/Outside Carrier  
 Shock Location: #5 Upper/Outside Arm  
 Front Diff Fluid: 125,000  
 Receiver Battery Type: \_\_\_\_\_  
 Center Diff Fluid: 50,000



Notes: \_\_\_\_\_

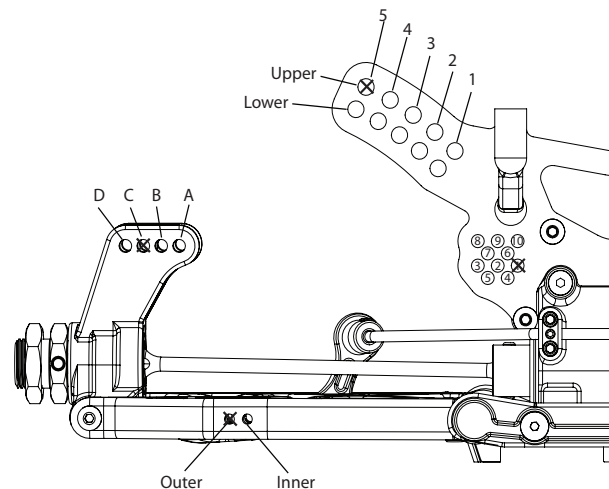
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## Rear Suspension

Toe: 3 Degree  
 Anti-Squat: 2 Degree  
 Ride Height: 21mm  
 Camber: (L) +1.5 Degree (R) -1.5 Degree  
 Rear Hub Spacing: All Spacers In Front  
 Sway Bar: 2.3mm  
 Piston/Oil: 56/40wt  
 Spring: 2.3-inch White  
 Limiter/Droop: 94mm  
 Overall Shock Length: \_\_\_\_\_  
 Camber Link: #1/C  
 Shock Location: #5 Upper/Outside Arm  
 Rear Diff Fluid: 10,000



Notes: \_\_\_\_\_

\_\_\_\_\_

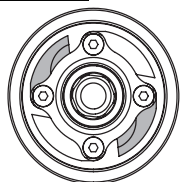
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## Engine

Engine: \_\_\_\_\_ Fuel: \_\_\_\_\_  
 Glow Plug: \_\_\_\_\_ Head Clearance: \_\_\_\_\_  
 Pipe/Header: \_\_\_\_\_ Gearing: \_\_\_\_\_

## Clutch



### Clutch Shoes and Springs Info

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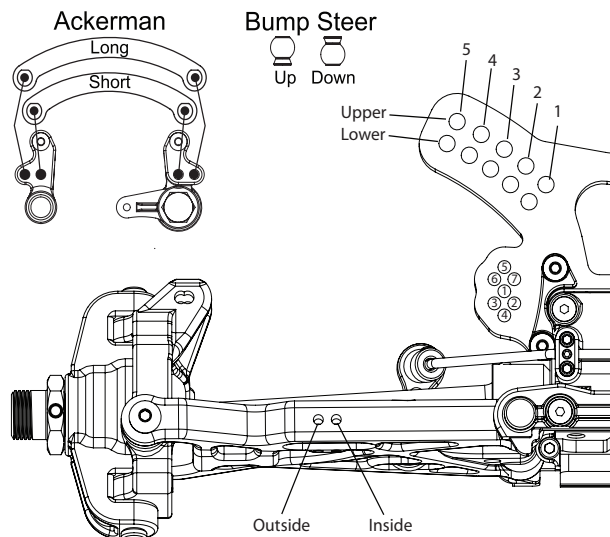
## Tires

Type	Compound	Insert
Front: _____	_____	_____
Rear: _____	_____	_____
Notes: _____		
_____		

Name: _____		Date: _____ Event: _____	
City: _____ State: _____		Track: _____	
Track <input type="checkbox"/> Indoor <input type="checkbox"/> Tight <input type="checkbox"/> Smooth <input type="checkbox"/> Hard Packed <input type="checkbox"/> Blue Groove <input type="checkbox"/> Wet <input type="checkbox"/> Low Bite <input type="checkbox"/> High Bite Conditions <input type="checkbox"/> Outdoor <input type="checkbox"/> Open <input type="checkbox"/> Rough <input type="checkbox"/> Loose/Loamy <input type="checkbox"/> Dry <input type="checkbox"/> Dusty <input type="checkbox"/> Med Bite <input type="checkbox"/> Other _____			

## Front Suspension

Toe: \_\_\_\_\_  
 Ride Height: \_\_\_\_\_  
 Camber: \_\_\_\_\_  
 Caster: \_\_\_\_\_  
 Sway Bar: \_\_\_\_\_  
 Piston/Oil: \_\_\_\_\_  
 Spring: \_\_\_\_\_  
 Limiter/Droop: \_\_\_\_\_  
 Overall Shock Length: \_\_\_\_\_  
 Steering Ackerman: \_\_\_\_\_  
 Bump Steer: \_\_\_\_\_  
 Camber Link: \_\_\_\_\_  
 Shock Location: \_\_\_\_\_  
 Front Diff Fluid: \_\_\_\_\_  
 Receiver Battery Type: \_\_\_\_\_  
  
 Center Diff Fluid: \_\_\_\_\_



Notes: \_\_\_\_\_

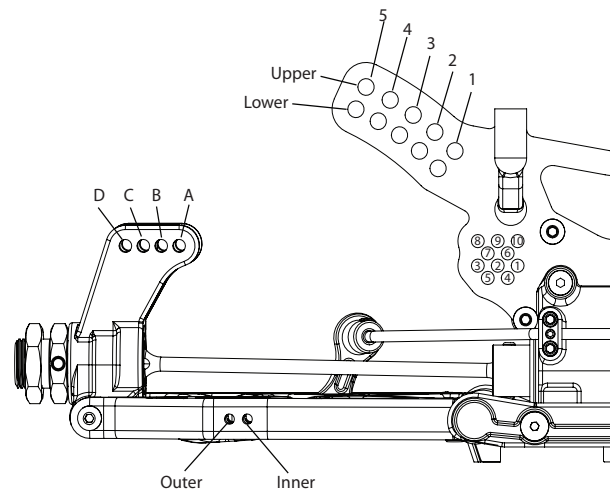
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## Rear Suspension

Toe: \_\_\_\_\_  
 Anti-Squat: \_\_\_\_\_  
 Ride Height: \_\_\_\_\_  
 Camber: \_\_\_\_\_  
 Rear Hub Spacing: \_\_\_\_\_  
 Sway Bar: \_\_\_\_\_  
 Piston/Oil: \_\_\_\_\_  
 Spring: \_\_\_\_\_  
 Limiter/Droop: \_\_\_\_\_  
 Overall Shock Length: \_\_\_\_\_  
 Camber Link: \_\_\_\_\_  
 Shock Location: \_\_\_\_\_  
 Rear Diff Fluid: \_\_\_\_\_



Notes: \_\_\_\_\_

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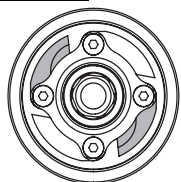
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## Engine

Engine: \_\_\_\_\_ Fuel: \_\_\_\_\_  
 Glow Plug: \_\_\_\_\_ Head Clearance: \_\_\_\_\_  
 Pipe/Header: \_\_\_\_\_ Gearing: \_\_\_\_\_

## Clutch



### Clutch Shoes and Springs Info

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\_\_\_\_\_

\_\_\_\_\_

## Tires

Type	Compound	Insert
Front: _____	_____	_____
Rear: _____	_____	_____
Notes: _____		
_____		