

8IGHT™ 3.0 Tuning Tips



Before you start making changes on your 8IGHT™ 3.0 Off-Road Racing buggy, you need to make a few decisions. First of all, tires, and how they are setup, have a tremendous impact on overall performance. Before you start making changes on the chassis setup, take a moment to observe a few of the fastest cars at the track and what type of tire, compound and inserts they are running. You will find the best adjustment will become a personal decision based on the “feel” that each of these adjustments yield. 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. The

Team Losi Racing development team has put hundreds of hours on the 8IGHT 3.0 to arrive at the setup we put in the instruction manual. If you find that you have lost the “handle,” go back to the vehicle (stock) setup, as this setup has proven to be reliable, consistent and easy to drive.

All of us at Team Losi Racing are sure that you will find the 8IGHT 3.0 Off-Road Racing Buggy to be the most versatile and easiest car to drive fast, with great consistency. We hope the information in the following guide helps you to enjoy your 8IGHT 3.0, and racing it, as much as we do. For the latest in setup and accessory parts information, visit the Team Losi Racing web site at: www.tlrracing.com regularly. Please check the Team Losi Racing web site and the Team Losi Racing blog periodically to find out new setup information, as we are always testing on all types of tracks and surfaces. Also note that there are many ways to set up a car. The rules we follow can reverse sometimes with different driving styles or different setup styles, so test for yourself and you will find a set up that works right for you.

Tuning the Engine:

Should be done following the manufacturer’s instructions. Turning the needle valve clockwise, the fuel mixture will become leaner – meaning that the engine will draw less fuel. When the needle valve is turned counterclockwise, the fuel mixture becomes richer, meaning that the engine will draw more fuel. The high speed needle affects the fuel mixture at full throttle while the low speed needle only affects the fuel mixture at idle and the low end of the throttle band.

To Shut Off the Engine:

Use the included pipe plug or simply bump the flywheel with a wrench or plastic handled tool.

The Receiver Battery:

The receiver battery is an important, frequently overlooked part of gas-powered vehicles. A low receiver battery can cause the vehicle to have a mind of its own. The result can be a runaway vehicle or a poorly responding radio system. The length of time that a receiver battery pack’s charge lasts depends on the type of servos that are used.

Droop:

Always measure the drop of the 8IGHT 3.0 with the shocks on the buggy. Droop is always measured from the center of the top shock mount to the center of the bottom shock screw. We have now included small center drill holes in the shock mounts that allow a precise point to measure from.

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More droop (travel) in the front will have more on-power steering and allow the buggy to roll more on the rear when on throttle. More droop (travel) in the rear will increase off-power steering and allow the buggy to roll on the front when off throttle. More front and rear droop will accelerate better in bumps when going straight, but can cause the buggy to traction roll in rough turns. Less front and rear droop will slide over bumps better in turns and may be better on high-speed and high-traction tracks.

Front Camber Links:

The lower camber link location on the tower has more camber gain (total camber change through the suspension travel). Running the camber tie rod 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. On the 8IGHT 3.0, the short camber link location will have the most overall steering. The longer front link will keep the buggy flatter with less roll and increase high-speed steering. A short front camber link will roll more and make the vehicle more aggressive.

Rear Camber Links:

The 8IGHT 3.0 buggy has three camber locations on the rear tower. The rear hub has four camber link locations. The stock camber link setup is location #1 on the tower and B in the hub. By using a longer rear camber link, you will have less roll and improve stability and traction. A shorter rear camber link will have more roll and increase steering and better handling in the bumps. Running "A" in the rear hub will generate more corner rotation entering the turn, but decrease steering on exit. Running the camber link deeper into the wheel will be more stable entering the turn and increase steering on exit.

Pistons:

Generally smaller hole pistons (1.2mm) have stiffer damping, slower weight transfer, slower response, and will land large jumps better. Larger hole pistons (1.3mm) have softer damping, increased traction, quicker weight transfer/response, and bottom out easier off large jumps. The kit setup for the 8IGHT 3.0 buggy is 8-hole 1.3mm pistons in the front and a split combination of four 1.2mm holes and four 1.3mm holes in the rear.

Shock Oil:

Lighter shock oil has more overall traction and responds quicker. Thicker oil has less overall traction and reacts slower. On high bite/smooth tracks, thicker oil is easier to drive. Make sure you adjust the oil when there is a drastic temperature change (20–25 degrees). If it gets cold outside, you need to go to lighter shock oil. If it gets hotter outside, you need to go to thicker weight shock oil.

Front Toe:

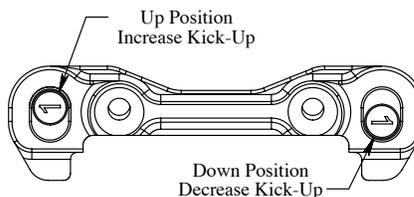
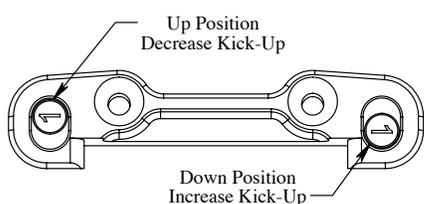
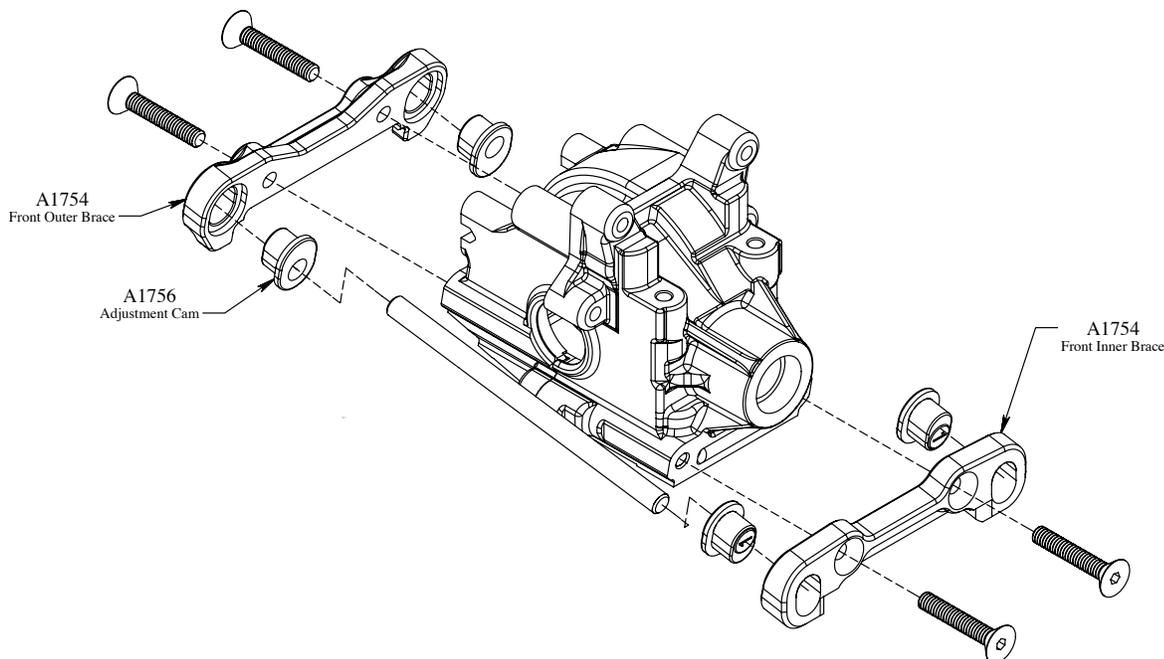
The only time you would want to run toe-in on the front of the 8IGHT 3.0 buggy is if you are running the short steering rack on a small track with tight turns.

Toe-in (longer steering rods) decreases steering response entering and in the middle of the turn, but will increase on-power steering.

Toe-out (shorter steering rods) increases steering response when entering the turn and increases straight line stability, however, it will decrease on-power steering. The standard setup for the 8IGHT 3.0 is the long steering rack with 1 degree of toe-out.

Front Kick:

The 8IGHT 3.0 is equipped with adjustable hinge pin braces that can increase or decrease front kick. Under the current setup, the 8IGHT 3.0 has 12 degrees of kick and 15° of caster built into the caster blocks. Increasing front kick (increasing the angle of the hinge pin in relation to the ground) will increase off-power steering and forward traction, as well as bump absorption. Decreasing front kick will decrease off-power steering and increase on-power steering, but is less forgiving in bumps.



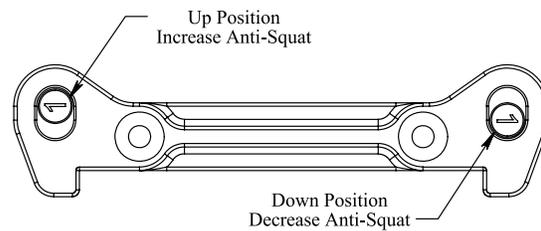
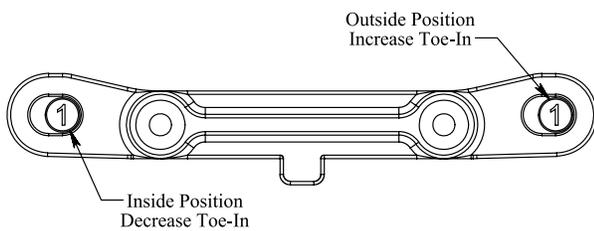
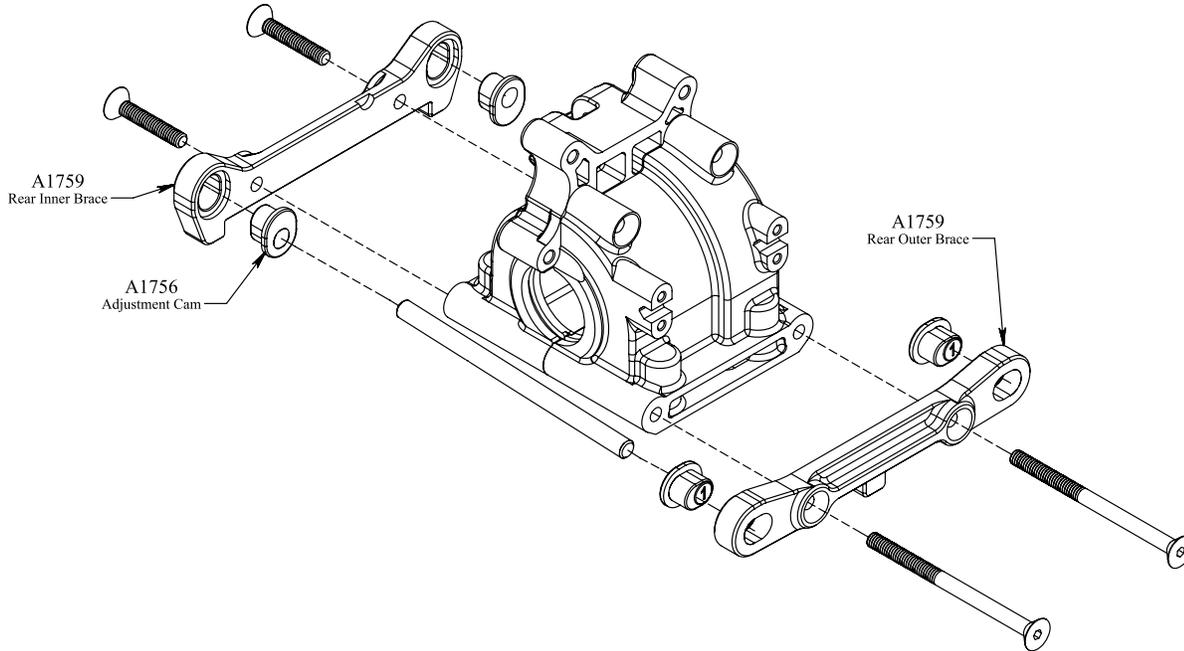
Front Kick-Up Angle Adjustment				
Outer Front Brace		Inner Front Brace		Total Kick-Up
Insert Position	Insert Number	Insert Position	Insert Number	
Up	1°	Down	1°	+2°
Up	0.5°	Down	0.5°	+1°
Middle	0°	Middle	0°	0°
Down	0.5°	Up	0.5°	-1°
Down	1°	Up	1°	-2°

- Remove the Bulkhead from the chassis.
- Remove the existing Hinge Pin Braces and plastic covers.
- Select the desired Adjustment Cam and press it into the new Adjustable Hinge Pin Braces.
- **Note the position of the number on the outside of the Cam. Always install the same number Cam in the same orientation on each side of the car.*
- Install the Inner Adjustable Hinge Pin Brace re-using the mounting hardware.
- Align the Arms and Hinge Pins with the Adjustment Cam.
- Install the Outer Adjustable Hinge Pin Brace re-using the existing hardware.
- Re-attach the bulkhead to the chassis.
- Check the suspension to ensure it moves freely and does not bind.

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Rear Squat:

The 8IGHT 3.0 comes with three degrees of anti-squat. Running less anti-squat will have less off-power steering and roll (side to side) more on the rear. Less anti-squat will accelerate better in small bumps and have more traction on throttle. More anti-squat will have more support (side to side) and be better on rough tracks with big jumps.



Rear Toe-In Adjustment		
Insert Position	Insert Number	Total Toe-In
Inside	1°	2°
Inside	0.5°	2.5°
Middle	0	3°
Outside	0.5°	3.5°
Outside	1°	4°

Rear Anti-Squat Adjustment		
Insert Position	Insert Number	Total Anti-Squat
Up	1°	3°
Up	0.5°	2.5°
Middle	0	2°
Down	0.5°	1.5°
Down	1°	1°

- Remove the Bulkhead from the chassis.
- Remove the existing Hinge Pin Braces and plastic covers.
- Select the desired Adjustment Cam and press it into the new Adjustable Hinge Pin Braces.
- **Note the position of the number on the outside of the Cam. Always install the same number Cam in the same orientation on each side of the car.*
- Install the Inner Adjustable Hinge Pin Brace re-using the mounting hardware.
- Align the Arms and Hinge Pins with the Adjustment Cam.
- Install the Outer Adjustable Hinge Pin Brace re-using the existing hardware.
- Re-attach the bulkhead to the chassis.
- Check the suspension to ensure it moves freely and does not bind.

Rear Toe-in:

The 8IGHT 3.0 buggy is equipped with adjustable hinge pin braces to allow the adjustment of toe-in and anti-squat. The kit is setup with 3 degrees of toe-in per side. Less rear toe-in will increase the wheel base of the buggy and decrease forward traction, but will increase top speed and side traction in the middle of a turn. More toe-in will increase forward traction, have more off-power steering and less side traction.

Wheel Base:

The 8IGHT 3.0 kit setup is equipped with a long wheelbase. A shorter wheelbase (spacers behind the rear hubs) increases on-power traction, rear weight transfer, and has more off-power steering. A shorter wheelbase is better on tight or slick tracks. A longer wheelbase (spacers in front of the rear hubs) decreases off-power steering, but is more stable, better in bumps, and has more on-power steering.

Sway Bars:

The 8IGHT 3.0 is equipped with 2.3mm sway bars on the front and rear. A thinner front sway bar increases front off-power traction, but has less on-power steering. A thicker front sway bar decreases front off-power traction, making the steering smoother entering the turn, but has more on-power steering. A thinner rear sway bar increases rear traction and decreases on-power steering. A thicker rear sway bar increases stability in the middle of the turn and increases on-power steering. Thicker sway bars are more stable on high-speed, high-traction tracks.

Clutch:

On new clutch bells, make sure to clean the inside of the clutch bell with a scouring pad or fine sand paper to improve the break-in period. Softer springs engage at a lower rpm and have a smoother power band. If the engine doesn't have enough low-end power, try running more preload (spring with more angle) or a stiffer spring. Stiffer springs engage at a higher rpm and hit much harder. If the springs are too stiff it will cause the clutch to slip.

Plastic vs. Aluminum Clutch Shoes:

We have found the two plastic and two aluminum clutch setup to work best on most tracks, but if the track is very loose, rough, and doesn't have jumps that are difficult to get over, four plastic shoes will allow more slip and smoother acceleration. Running all four aluminum clutch shoes will have the most punch, but isn't as good on slick, rough tracks. Our recommended clutch setup is two aluminum shoes with green springs and two plastic shoes with black springs. Whenever you need to rebuild your clutch, we recommend the following tips. First of all, be sure to clean all parts with Dynamite® Nitro Force™ Cleaner (DYN5505) to ensure there is no oil or debris on any of the parts. Cleaning will include all clutch parts, including the clutch bearings. We like to spray out the inner clutch bearing (5X13X4) to ensure that there is no grease slung from the bearing at high rpm, which would cause premature clutch wear or slippage. When re-installing the clutch pins, we recommend NOT using any type of thread-lock on the clutch pins. By using thread-lock on this part, it only makes it difficult to remove the pins. Once the new shoes are installed, pull back each clutch shoe 1mm to make sure they spring back to position to ensure proper movement. You will also want to make sure the clutch bell has anywhere from .25mm to .50mm of movement and spins freely on the crank shaft. You can use a Losi® Metric Shim Set (LOSA6356) to dial this in properly. Now that your clutch is fully rebuilt, it is time to break it in. This is done by starting your buggy and having it idle on the ground. While firmly holding the vehicle down, apply ½ throttle for three seconds. Repeat this three times to fully seat in your new clutch.

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Clutch setups ranging from softest to hardest.

Clutch Engagement Softest to Hardest	Clutch Setup Number	Shoe /Spring	Description
	1	4 Plastic w/ Black	Ultimately the smoothest and easiest to drive setup
	2	2 Aluminum w/ Black 2 Plastic w/ Black	Used on very loose tracks where little punch is needed
	3	4 Plastic w/ Green	Used on loose high speed tracks where there are no jumps out of turns
	4	2 Aluminum w/ Green 2 Plastic w/ Black	Very smooth, yet has good punch. Motor must have adequate power to pull this clutch setup
	5	4 Plastic w/ Gold	Very forgiving and reduces wheel spin with punch being sacrificed slightly. Can be used with motors that have great bottom end
	6	2 Aluminum w/ Gold 2 Plastic w/ Green	Good all around setup. Best compromise for punch and mileage
	7	2 Aluminum w/ Gold 2 Aluminum w/ Gold	Increased punch with slightly less mileage
	8	4 Aluminum w/ Gold	Increased punch, good for jumps right out of turn, with average mileage.
	9	4 Aluminum with 2 Silver and 2 Gold	Very aggressive with great punch, Engine will run hotter and shoe life will diminish
10	4 Aluminum with Silver	Most aggressive, maximum punch. Use with motor that has very low bottom end	

Differentials:

The 8IGHT 3.0 comes equipped with 5000wt in the front, 7000wt in the center and 3000wt in the rear diff.

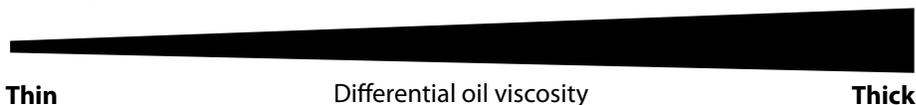
Front

Thinner front differential oil increases off-power steering, but if the oil is too thin the steering will become grabby and inconsistent. Thicker front differential oil increases off-power stability and on-power steering.

off-power steering increases

on-power steering increases

Front Diff

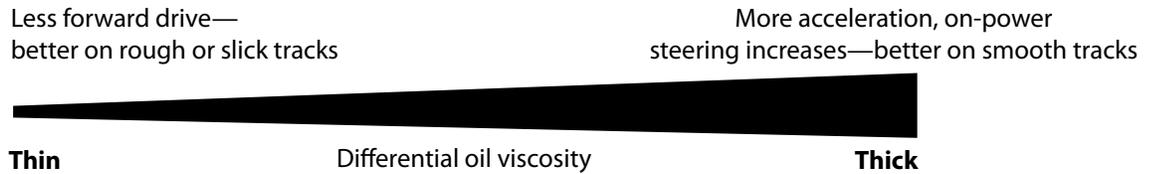


Thin

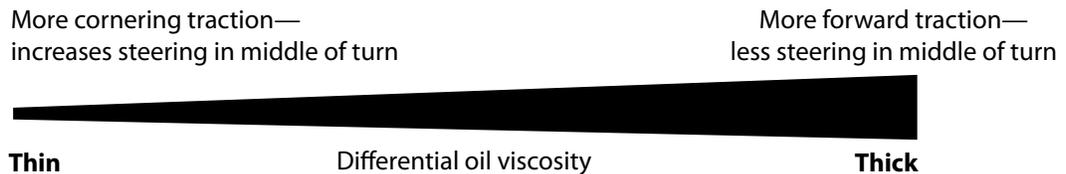
Thick

Center

Thinner center differential has less forward drive, can unload more under acceleration and is easier to drive on rough and slick tracks. Thicker center differential has more acceleration, increases on-power steering and less off-power steering. Thicker center differential is better on high-bite/smooth tracks.

Center Diff**Rear**

Thinner rear differential has more cornering traction and increases steering in the middle of the turn. Thicker rear differential has less steering in the middle of the turn and more forward traction.

Rear Diff**Shock Mounting Positions:**

More inclined (moving the shocks in on the tower) has softer initial damping and is more forgiving. Less inclined (moving the shocks out on the tower) makes the car more responsive and is better for technical tracks. Moving the shocks in on the arm will make the suspension softer and more responsive as well increasing grip. The outside holes on the arm will be more stable and easier to drive.

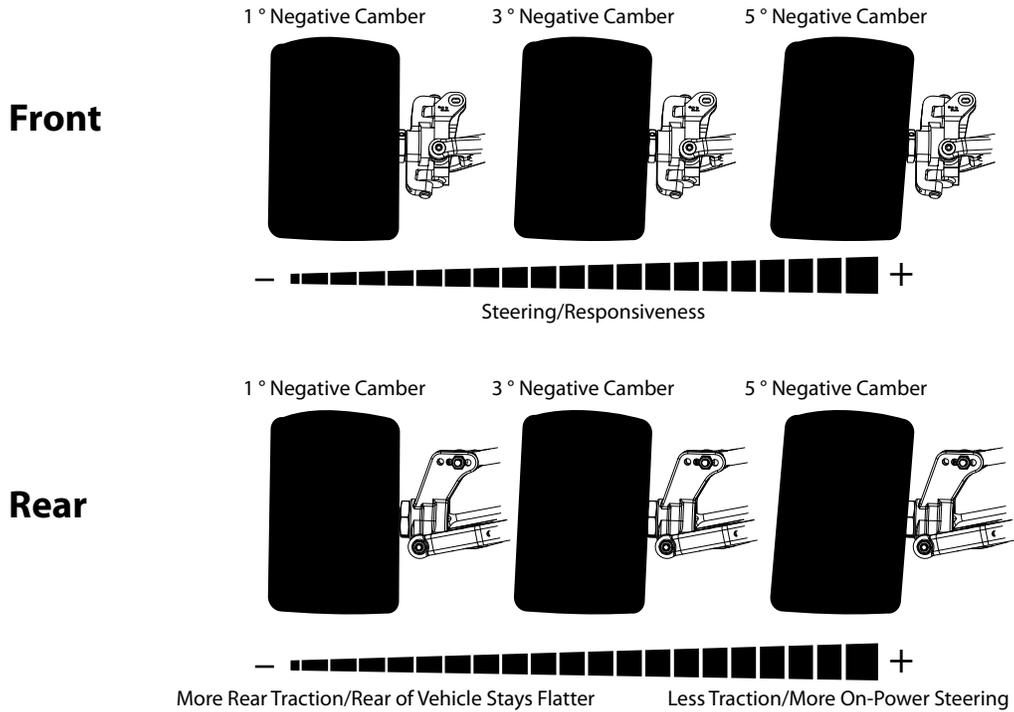
Ackerman:

A long Ackerman plate will have smooth off-power steering, but more overall steering. The long Ackerman plate will have more steering on-power. A short Ackerman plate is more responsive off center, but will have less overall steering. A short Ackerman plate is better suited for high-speed technical tracks.

Camber:

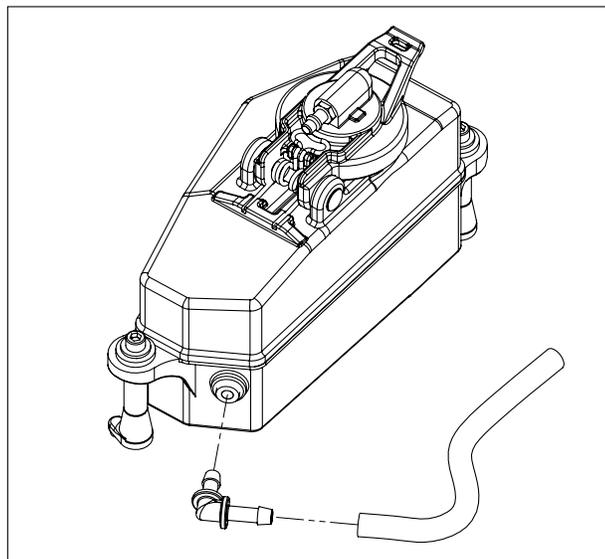
More negative camber in the front has more steering and is more responsive. Less negative camber in the front will have less steering and will be smoother. More negative camber in the rear will have less rear traction, but will increase on-power steering and will be less grabby in bumps. Less negative camber in the rear will have more rear traction and make the rear of the buggy stay flatter, but if traction is lost it will be more violent. To ensure your 8IGHT 3.0 has the correct camber, we recommend using our Losi Camber Gauge (LOSA99172).

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Fuel Tank:

Your 8IGHT 3.0 buggy comes preinstalled with a fuel tank insert to meet ROAR and IFMAR 125cc fuel tank rules. If you are not racing your 8IGHT 3.0 where these rules apply, you can remove the insert to allow for an additional 5cc of fuel and longer run time. Also included in your 8IGHT 3.0 is an EFRA Fuel Kit. This should be used at all EFRA races to ensure your fuel tank volume will not change during racing. The EFRA Fuel Kit ensures that the fuel line and clunk does not come out of the tank, increasing fuel volume.



Gearing:

The 8IGHT 3.0 uses a 43-tooth ring gear with a 13-tooth pinion gearing, giving the car a drive ratio of 3.31:1. The final drive ratio, with the stock gearing of 13/48 is 12.22:1. If you are running on a large sweeping track and need more top speed, a 14-tooth clutch bell (LOSA9127) is recommended. You can also tune with optional center spur gears, available in 45, 46, 47, and 50-tooth sizes.

Gear Ratio Chart		Spur Gear				
Clutch Bell		45	46	47	48	50
	12	12.41	12.69	12.96	13.24	13.79
	13	11.46	11.71	11.97	12.22	12.73
	14	10.64	10.88	11.11	11.35	11.82
	15	9.93	10.15	10.37	10.59	11.03
	16	9.31	9.52	9.72	9.93	10.34

Brake Setup:

The standard brake bias for the 8IGHT 3.0 buggy is 60% rear—40% front. If you need the buggy to rotate more under braking, adjust the linkage for less front brake. If the buggy is loose entering turns under braking, adjust the linkage for less rear brake or more front brake.

Outdrives and Traction:

When your buggy is new, it will have a lot of chassis roll and be a little loose on throttle due to lack of friction in the out drives and crossbones. After about 45–60 minutes of running, it will gain traction and stability. Once your 8IGHT 3.0 buggy is broken in, replacing the out drives and CVAs with new parts will have more corner speed.

Bump steer:

Running the bump steer ball down you will have smoother steering in the middle of the turn. With the bump steer ball up, this will increase steering in the middle of the turn.

Rear Squat:

The 8IGHT 3.0 comes with three degrees of anti-squat. Running less anti-squat will have less off-power steering and roll (side to side) more on the rear. Less anti-squat will accelerate better in small bumps and have more traction on throttle. More anti-squat will have more support (side to side) and be better on rough tracks with big jumps.

Ride Height:

Measuring from a flat surface to the bottom face of the chassis, adjust the front of the chassis with 28mm of ride height and 29mm in the rear. We have found the 8IGHT 3.0 buggy handles best when the front ride height is 1mm to 2mm lower or at least level than the rear of the truck. To measure your ride height properly, we recommend using the Losi Ride Height Gauge (LOSA99173).

Rear Dogbones:

An optional rear axle and dog bone set (TLR342002) is available for the Team Losi Racing 8IGHT 3.0 buggy. The dog bones have less mechanical bind than the standard CVA type driveshaft that comes stock on the 8IGHT 3.0. The decrease in mechanical bind allows the car to handle bumps better, but will offer less rear support. The CVAs will produce more lock-up and forward traction, but the dog bones work best when the track is really rough.

BIGHT 3.0 Tuning Tips

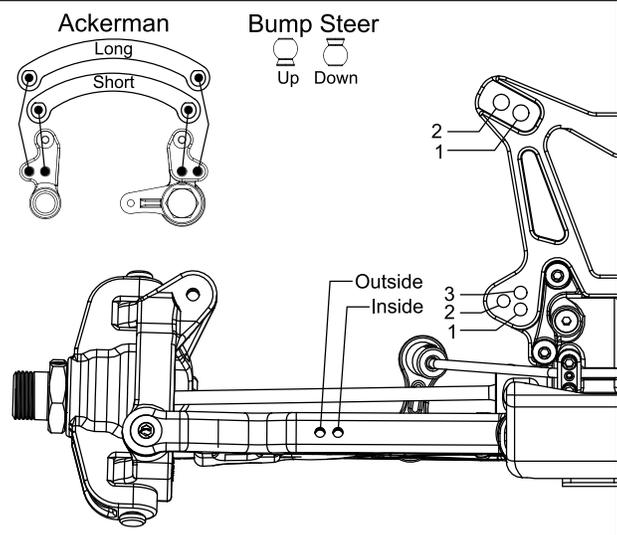
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City: _____ State: _____	Track: _____
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Front Suspension

Toe: _____
 Ride Height: _____
 Camber: _____
 Caster: _____
 Wheel Hex: _____
 Sway Bar: _____
 Piston/Oil: _____
 Spring: _____
 Limiter/Droop: _____
 Overall Shock Length: _____
 Steering Ackerman: _____
 Bump Steer: _____
 Camber Link: _____
 Shock Location: _____
 Receiver Battery Type: _____

Differentials

Front: Standard Smart
 Spring Wire Dia: _____
 Qty of Springs: _____
 Ramp Plate: _____
 Grease: _____
 Diff Fluid: _____
 Center: Standard Smart
 Spring Wire Dia: _____
 Qty of Springs: _____
 Ramp Plate: _____
 Grease: _____
 Diff Fluid: _____



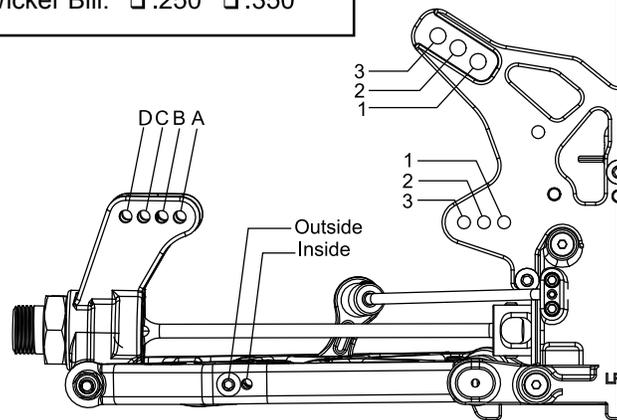
Notes: _____

Rear Suspension

Roll Center: HRC LRC
 Toe: _____
 Anti-Squat: _____
 Ride Height: _____
 Camber: _____
 Rear Hub Spacing: _____
 Wheel Hex: _____
 Sway Bar: _____
 Piston/Oil: _____
 Spring: _____
 Limiter/Droop: _____
 Overall Shock Length: _____
 Camber Link: _____
 Shock Location: _____
 Rear Diff Fluid: _____

Wing Setup

Wing Type: 2.0 3.0
 Wing Spacer: .250 .500
 Wicker Bill: .250 .350



Notes: _____

Engine

Engine: _____ Fuel: _____
 Glow Plug: _____ Head Clearance: _____
 Pipe/Header: _____ Gearing: _____

Clutch



Clutch Shoes and Springs Info

Tires

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