XLR8-V1/V2 Tuning and Setup Guide

DIGGITY DESIGNS

FRONT KICK-UP/ ANTI-DIVE:

Kick-up refers to the angle of the front arms in relation to the horizontal plane when looked at from the side. Kick up on the XLR8 is adjusted by adding washers under the front 0 degree outer pin block. Anti-dive is the opposite and is adjusted by adding washers under the front inner pin blocks.

+ Adding kick-up will give your car more off power and mid corner steering and increase front end grip. It will also help your car handle bumpier conditions better.

- Anti-dive will work well for cars with a forward weight bias and the traction is medium-high bite. Off power and mid corner steering will decrease and front grip will decrease.

FRONT CASTER:

Refers to the angle of the front steering block carrier king pin angle in relation to the vertical plane when looked at from the side. (straight up and down is 0, as it leans to the back it adds positive caster). Caster on the XLR8 is adjusted by using different Associated steering block carriers. NOTE: when running front kick up this will give you more positive caster!

+ Adding caster to your car will give it less aggressive steering entering corners but will give it more steering mid cornering and exiting corners. It will also keep your car more stable in bumpier conditions and straight lines. NOTE: you will always have more steering with more caster especially when running on high traction tracks and or soft tires.

- Running your kit with less caster will give it more aggressive steering entering corners but will give it less steering mid cornering and exiting corners. It will make your car less stable in straight lines and can be used to take traction away on high traction tracks.

FRONT TOE-IN TOE-OUT:

Refers to the angle of your front tires when not parallel. Adjusting toe-in toe-out on the XLR8 is done by adjusting the front steering rack turnbuckles.

+ Adding toe-in will give your car less steering at corner entry and will make the car more difficult to drive.

- Adding toe-out will give your car more aggressive steering entering corners and will make your car easier to drive. 0-1 degree toe-out is a good start and will work on most tracks.

ACKERMAN:

Describes the affect of the inside front tire turning tighter than the outside front tire. Your XLR8 kits comes set for a more aggressive steering.

You can make your steering a little less aggressive by adding washers under the short black ball ends on the steering rack.

RIDE HEIGHT:

This is the height that the chassis is set to off of the ground. Remember to set this adjustment only when the car is totally ready to run but minus the body. This adjustment is made on the XLR8 by adjusting the shock collar adjusters.

We recommend running your XLR8 kit at 4 or 4.5 mm for carpet and 5 or 6 mm outside depending on the surface. Do not go under 4mm.

DIGGITY DESIGNS

REAR ANTI-SQUAT/ PRO-SQUAT:

Anti-squat refers to the angle of the rear arms in relation to the horizontal plane when looked at from the side. Anti-squat on the XLR8 is adjusted by adding washers under the rear inner pin blocks. Pro-squat is the opposite and is adjusted by adding washers under the rear 1 or 2 degree pin block.

+ Adding anti-squat will give your car less off power and mid corner steering but on power corner exiting will be increased. It will also help you car handle bumpier conditions better.

- Pro-squat will work well for cars using rubber tires on low-grip smooth asphalt. Off power and mid corner steering will increase. On power steering is reduced.

REAR TOE-IN:

Describes the angle of the rear tires in relation to parallel. The rear toe-in on the XLR8 is adjusted by swapping out the outer pin block. Kit standard is 1 degree for carpet and 2 degree for outside pavement. You can even finer tune by using the Losi XXX-S 1/2 or 1 degree rear hub carriers.

+ Adding toe-in will give your car more rear traction and less steering. NOTE: when running rear anti-squat this will increase your cars response in the same way giving you double the response.

- Taking toe-in out will give your car less rear traction and more steering.

WHEELBASE ADJUSTMENT:

Wheelbase on the XLR8 can be adjusted at multiple locations; at the front and rear pin blocks and on the rear hub carriers.

Making the cars wheelbase longer will make the car more stable. This is best for high-speed open tracks.

Making the cars wheelbase shorter will make the car less stable but will help with quick transitioning. This is best for tight technical tracks.

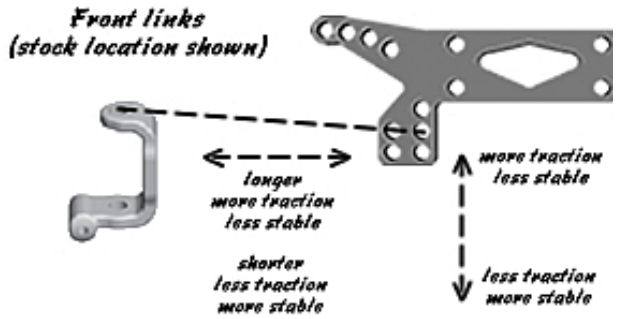
CAMBER:

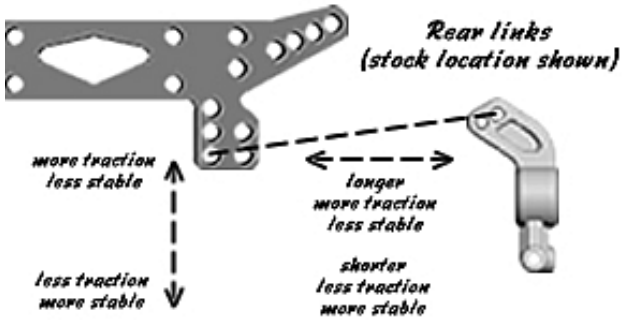
Describes the angle that the tires ride relative to the ground when looked at from the front or back. Always use negative camber and never positive camber. 2 degrees of camber front and rear will usually work on most tracks. Camber can be adjusted on the XLR8 by using the front and rear upper link turnbuckles. You will need to use a camber gage to set proper camber.

+ Adding negative camber will help on high traction tracks. Set your cars camber so that the front tires wear flat and so that the rear tires wear with a slight conical angle to the inside. - Less camber can be good for low traction tracks.

CAMBER LINK LOCATIONS:

Camber link locations are shown below. **The shorter or lower the link is the car will have less traction but more stability. The longer or higher the link is the car will have more traction but less stability.**





DIFFERENTIAL TUNING:

A good differential built to specs will be very smooth and locked so that the diff rings do not slip. One tuning option that is overlooked allot is the differentials. Always check to see if the diff slips.

Front Diff: **Running your front ball diff on the tight side will give your car less steering response and will give it more on power steering exiting corners. Running your front ball diff on the loose side will give your car more steering response and will give it less on power steering exiting corners**

Rear Diff: **Running your rear ball diff on the tight side will give your car an understeer at corner entry and will have a powerslide affect exiting corners (usually good for high-bite tracks but may decrease rear end stability at mid corner). Running your rear ball diff on the loose side will give your car a slight on power understeer (usually good for low-bite tracks or in conjunction with a front one-way diff).**

Front One-Way: **A front one-way diff will work best in conjunction with a rear ball diff or rear solid axle. It will work best when the traction is high and you need more off power steering. This is best for open swoopy tracks where a smooth driving style is present.**

Solid Axle Diff: **A front solid axle (Associated) can be used for outdoor open tracks with low traction. This would make the car easier to drive. Good for aggressive driving styles. A rear solid axle (Associated) can be used in conjunction with a front one-way diff when traction is very high.**

SETTING DROOP/ DOWNSTOPS:

Droop setting on the XLR8 can be adjusted by using the stock Associated droop gauge. Place the flat end under the chassis and then measure to the outer bottom of the front or rear arms. Make the proper adjustment using the set screws in the arms.

For smoother higher bite tracks use less droop. For bumpier low bite tracks use more droop.

SHOCK SPRINGS/ DAMPENING:

Springs: You want to try to keep your car as close to level as possible as it corners on the track. Stiffer springs will help your suspension respond more quickly but will not absorb bumps as well. Softer springs are best used on slippery or bumpy conditions.

Front Springs: **Stiffer front springs will give your car more understeer during mid and corner exiting and will increase the cars responsiveness. Softer front springs will give your car more steering especially during mid and corner exiting.**

Rear Springs: **Stiffer rear springs will give your car less rear traction but will help give your car more steering during mid and exiting corners especially on long high speed corners. Softer rear springs will give your car more rear traction, side traction during mid cornering, bumpy sections, and while accelerating.**

Dampening: Dampening mainly affects how the car will absorb bumps and how it acts initially to steering, braking, and acceleration. When the shock is compressing or rebounding the shock oil resists the movement of the piston through it and can be tuned using different viscosity (thickness) oils, along with different shock piston sizes (amount of holes in the piston). NOTE: always use 100% silicone shock oils (we recommend Trinity brand).

Front Pistons: **Using more holes in the front shocks will give your car slower steering response, decreases steering at corner entry but increases corner exiting under acceleration. Using less holes will give your car faster steering response, increases steering at corner entry but decreases on corner exiting under acceleration.**

Rear Pistons: **Using more holes in the rear shocks will give your car faster steering response, increases rear grip at corner exit under acceleration but decreases rear grip under braking. Using less holes will give your car slower steering response, decreases rear grip at corner exit under acceleration but increases rear grip under braking.**

CONTINUED---------->

DIGGITY DESIGNS

SHOCK SPRINGS/ DAMPENING:(continued)

Front Shock Oil: **Using thinner viscosity shock oil in the front will give your car slower steering response, decreases steering at corner entry but increases corner exiting under acceleration. Using thicker viscosity shock oil will give your car faster steering response, increases steering at corner entry but decreases on corner exiting under acceleration.**

Rear Shock Oil: **Using thinner viscosity shock oil will give your car faster steering response, increases rear grip at corner exit under acceleration but decreases rear grip under braking. Using thicker viscosity shock oil will give your car slower steering response, decreases rear grip at corner exit under acceleration but increases rear grip under braking.**

One key pointer is that when you have found the close to optimal set up and you adjust dampening either softer or harder the car will always loose grip (noticeable).

ANTI ROLL BARS:

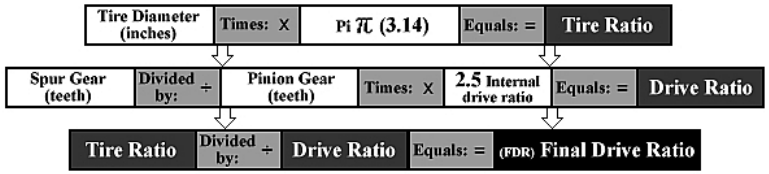
Anti roll bars are used to help keep the chassis level on cornering to help keep the weight more centered. Use anti roll bars for very high traction tracks. Roll bars (#420-058) for the XLR8 is an optional part but uses the stock Associated sway bar hardware.

Front **roll bars affect mainly off power steering at corner entry:** ***Rear*** **roll bars affect mainly on power steering and stability at mid corner and corner exiting.**

When on high traction surface and your car has an aggressive steering feel and after you have tried different shock spring and oil set ups then use the front anti roll bar only. If your car wants to push or has a soft steering feel then try the rear roll bar only. To equalize your car on high traction tracks then use both.

GEARING:

Optimal gearing is usually found when you hear your motor winding out at maximum rpm's near the end of the straight away. Of course during a race day your tires will wear and you might change set-ups so you will always be changing your gearing. One good tip is to always ask the fast guys at the track what their FDR (final drive ratio) is and if not that ask for their gearing and tire size so you can figure it out. Here is a guide to help you find out your FDR (final drive ratio) on your car.



RACING PARTICIPATION:

The success of a race car and its drivers depends primarily on the sharing of information on set-up and tricks. Always post good information and try to use the set-up sheets for any new set-ups used for the XLR8. Try to help other racers and take in any good information from other racers even if its not a racer using the same car, you can use that information to work with on your car. Success is in the drivers ability to set-up and drive his/her car smooth and consistent.

Contact Info:

Diggity Designs R/C

Fremont, Michigan 49412

www.diggitydesigns.com

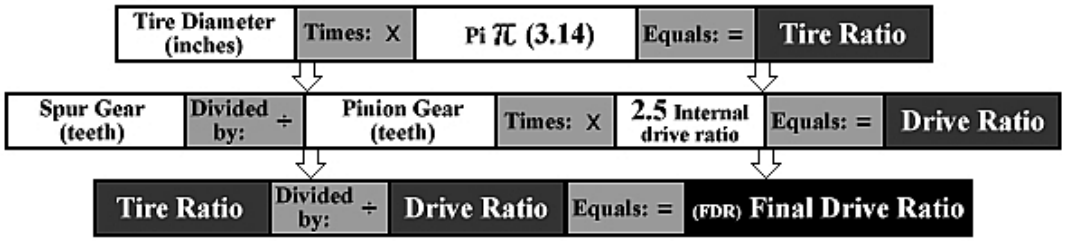
Email:

info@diggitydesigns.com

sales@diggitydesigns.com

XLR8-V1/V2 Quick Reference Chart

Final drive ratio will differ depending on the size of your tires and the spur gear and pinion gear used. Use the chart to the right to figure out your exact final drive ratio



Increase/ Lengthen Harder/ Higher Do not use

Decrease/ Shorten Softer/ Lower Use

1 Order of Importance

		Throttle		FRONT														REAR										
				Droop	Camber	Caster	Ride Height	Toe	Roll Center	Roll Bar	Tires	Shock Springs	Shock Dampening	Shock Position	One Way	Solid Axle	Front Diff	Droop	Camber	Ride Height	Roll Center	Roll Bar	Tires	Shock Springs	Shock Dampening	Shock Position	Rear Diff	Solid Axle
How to get rid of UNDERSTEER	Corner Entry	OFF		5	6	4	5	5	3	1	1	3	3	4	5	5	6	3	6	5	2	1	3	3	3	4	4	3
			ON	2	6	3	5	8	2	1	3	4	3	4	5	5	6	7	5	5	2	1	1	3	3	4	4	3
	Mid Corner	OFF		5	6	4	5	8	3	1	1	3	5	4	5	5	6	7	6	5	2	1	3	3	5	4	4	5
			ON	2	6	3	5	8	2	1	3	4	5	4	5	5	6	8	5	5	2	1	1	3	5	4	4	3
	Corner Exit		ON	2	6	3	5	7	2	1	3	4	3	4	5	5	6	8	5	5	2	1	1	4	2	3	4	3
	Braking	OFF		6	6	4	5	7	4	2	4	4	5	4	3	3	4	3	4	5	2	1	1	3	3	3		
How to get rid of OVERSTEER	Corner Entry	OFF		5	6	4	5	5	3	1	1	3	3	4	5	5	6	3	6	5	2	1	3	3	3	4	4	3
			ON	2	6	3	5	8	2	1	3	4	3	4	5	5	6	7	5	5	2	1	1	3	3	4	4	3
	Mid Corner	OFF		5	6	4	5	8	3	1	1	3	5	4	5	5	6	7	6	5	2	1	3	3	5	4	4	5
			ON	2	6	3	5	8	2	1	3	4	5	4	5	5	6	8	5	5	2	1	1	3	5	4	4	3
	Corner Exit		ON	2	6	3	5	7	2	1	3	4	3	4	5	5	6	8	5	5	2	1	1	4	2	3	4	3
	Braking	OFF		6	6	4	5	7	4	2	4	4	5	4	3	3	4	3	4	5	2	1	1	3	3	3		
How to get rid of TRACTION ROLLS	Corner Entry	OFF			8	2	1		2	1	1	2	3	4	4	4	5	3	6	1	2	1	1	3	4	5	2	2
			ON	6	8	2	1		2	1	1	3	4	5	4	4	5	5	6	1	2	1	1	2	3	4	2	2
	Mid Corner		ON	6	8	2	1		2	1	1	2	5	5	4	4	5	5	6	1	2	1	1	2	5	5	5	5
	Corner Exit		ON	6	8	2	1		2	1	1	3	4	5	4	4	5		6	1	2	1	1	2	3	4	2	2
	Braking	OFF			8	2	1		2	1	1	2	3	4	4	4	5	3	6	1	2	1	1	3	4	5	2	2
STRAIGHT LINE STABILITY to make better				7	5	3	7	4	7	5	3	8	4	8	8	8	8		5	6	7	7	3	8	4	8	6	6
STEERING RESPONSE to make faster					6	4	4	5	1	2	4	2	1	4						4	2	3	4	4	3	4		