

# LOWLINE

## Racing

### OVAl SETUP GUIDE v 1.6

## TIRE PRESSURES

<b>LEFT FRONT</b>	
Plus PSI	Loosen Entry / Center
Neg PSI	Tighten Entry / Center



<b>RIGHT FRONT</b>	
Plus PSI	Tighten Entry / Center
Neg PSI	Loosen Entry / Center

<b>LEFT REAR</b>	
Plus PSI	Tighten Exit / Center
Neg PSI	Loosen Exit / Center

<b>RIGHT REAR</b>	
Plus PSI	Loosen Exit / Center
Neg PSI	Tighten Exit / Center

<b>REAR STAGGER</b>	
More Stagger	Loose Under Acceleration
Less Stagger	Tighten Under Acceleration

### Tips

For maximum tire grip, a tire with a higher load should have higher pressures. (Unless there is a loss in traction due to a bumpy surface condition.)

Higher Pressures = More Responsiveness

For maximum grip a tire with a lower load should have lower pressures.

Lower pressures = Less Responsiveness (Sluggish Feel)

Try to maintain higher inside temps/wear, than outside temps (5-10 degrees hotter).

## Toe-In / Toe-Out

<b>LEFT FRONT</b>	
Plus Toe	Loosen Entry
Neg Toe	Tighten Entry



<b>RIGHT FRONT</b>	
Plus Toe	Tighten Entry
Neg Toe	Loosen Entry

<b>LEFT REAR</b>	
Plus Toe	Tighten Exit
Neg Toe	Loosen Exit

<b>RIGHT REAR</b>	
Plus Toe	Loosen Exit
Neg Toe	Tighten Exit

### Tips

Keeping toe at or closer to 0 will result in higher straight-away speeds at the cost of stability or responsiveness. +Toe in the rear will stabilize the car throughout the corner.

-Toe in the rear will make the car rapidly transition to a loose condition while cornering.

# ANTI-ROLL BARS (ARB)

As the suspension on this side travels upward...



...the anti-roll bar twists along its length providing torsional resistance...

...because it is effectively anchored at this end to the other suspension components.

## FRONT ANTI-ROLL BAR EFFECTS

Stiffer Anti-Roll Bar	More Stability / Tighter / Better Suited For Smoother Tracks
Softer Anti-Roll Bar	Less Stability / Looser / Front End Complies Better with Bumps
Higher Assymetry	Better Turn-In / Tighten Off / Set Too High Can Cause Snap Loose
Lower Assymetry	Tighten Entry / Loosen Center Off
Positive Pre-Load	Better Turn-In / Tighten Exit / Can Cause Snap Loose
Negative Pre-Load	Tighten Turn-In / Tighten Exit

## REAR ANTI-ROLL BAR EFFECTS

Stiffer Anti-Roll Bar	Loosen Under Throttle Mid-Corner Out / Can Cause Snap-Loose
Softer Anti-Roll Bar	Tighten Under Throttle Mid-Corner Out / Too Soft = Gradual Loose
Higher Assymetry	More Grip On Exit
Lower Assymetry	Less Grip On Exit
Positive Pre-Load	Tighten Entry
Negative Pre-Load	Loosen Entry

### Tips

Larger (or stiffer) bars, increase the load on the outside tire throughout the corner unless both front and back bars are equal to each other, and reduce roll by stiffening the chassis.

If building a coil binding setup, a larger sway bar is recommended. 1.75+ This will help keep the nose planted while cornering.

Build your setup around your front sway bar setting if you know what sway bar you are typically comfortable with. Set this size and leave as is.

# BRAKE BIAS

BRAKE BIAS	
More Front Bias	Tighter Under Braking
Less Front Bias	Looser Under Braking



### Tips

Brake bias is best left at a standard default until all other chassis adjustments have been made.

Brake bias can be known to mask chassis entry problems when braking otherwise.

# CASTER



- Less caster in the LF will help the car turn from entry of the corner through the center.
- Increasing caster split will loosen the car
- A set once adjustment that should be driver preference and track type particular.

## Tips

- Less Caster required on smaller track and more caster on longer wider tracks.
- Higher banking calls for higher caster split.

# CAMBER

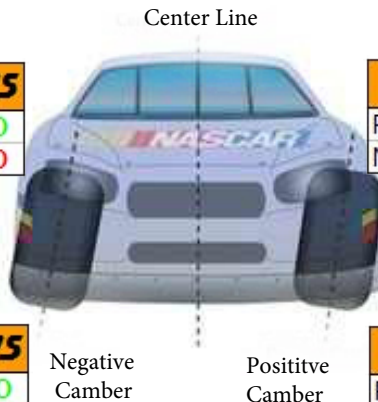
I M O Below shows the effect each adjustment will have on temps across tires with adjustment.

Green = Will IncreaseTemp Red = Will Decrease Temp

LEFT FRONT			RIGHT FRONT		
TEMPS			TEMPS		
Pos Camber	Loosen Entry	I M O	Pos Camber	Tighten Entry	I M O
Neg Camber	Tighten Middle-Out	I M O	Neg Camber	Loosen Entry	I M O

LEFT REAR			RIGHT REAR		
TEMPS			TEMPS		
Pos Camber	Tighten Entry	I M O	Pos Camber	Loosen Middle-Out	I M O
Neg Camber	Loosen Entry	I M O	Neg Camber	Tighten Middle-Out	I M O



## Tips

- Inside temps should maintain up to 5-10 degrees hotter than Outside temps for maximum tire effectiveness on ovals.
- Camber can have a large effect both on straight away speeds and cornering speeds as it controls how much tire contact is available. More contact with tire patch=better cornering while less= better straight line speeds.

# Weight/Ballast

WEIGHT BALLAST	
Pos Front Weight	Tighten Mid-Corner / Exit (High Speed Tracks)
Neg Front Weight	Loosen Mid-Corner / Exit (High Speed Tracks)

## Tips:

- When adjusting weight throughout the corners of your car or front to back, imagine that it is a grocery cart and what effect weight would have in each corner of the cart. Example: Weight in the RR of the cart would make the right rear of the cart want to pass the front in a corner.
- If having an issue with one particular tire overheating first check corner weights for a huge difference between left and right side.



# SPRINGS

FRONT SPRING EFFECTS	
Stiffer Front Springs	Stabilizes / Tightens Car
Softer Front Springs	Adds Front Grip / Loosen

REAR SPRING EFFECTS	
Stiffer Rear Springs	Loosen Mid-Corner / Loosen Exit
Softer Rear Springs	Tightens Car

LEFT FRONT	
Stiffer Spring	Loosen Entry
Softer Spring	Tighten Entry

LOOSEN CENTER	
Softer RF Spring	Loosen Middle
Stiffer RRSpring	Loosen Middle

LEFT REAR	
Stiffer Spring	Tighten Exit
Softer Spring	Loosen Entry



RIGHT FRONT	
Stiffer Spring	Loosen Exit
Softer Spring	Tighten Exit

TIGHTEN CENTER	
Stiffer RF Spring	Tighten Middle
Softer RR Spring	Tighten Middle

RIGHT REAR	
Stiffer Spring	Loosen Exit
Softer Spring	Tighten Exit

SPRING STAGGER	
More Front Stagger	Tighten Exit / Loosen Entry
Less Front Stagger	Loosen Exit / Tighten Entry
More Rear Stagger	Loosen Exit / Tighten Entry
Less Rear Stagger	Tighten Exit / Loosen Entry

## Tips

Springs have a very large effect on car handling and should be one of the first chasis settings that you work with in building a setup. -

If building a coil binding setup, too soft of a front spring will make the car feel very loose but if too stiff they may not bind causing a very tight condition. -

Be sure to keep an eye on ride heights and cambers following spring adjustments and reset them to your desired settings. -

Change only one shock setting at a time. Afterwards, reset ride height and test. -

# RIDE HEIGHT

LEFT FRONT	
Pos Ride Height	Loosen
Neg Ride Height	Tighten

RIGHT FRONT	
Pos Ride Height	Tighten
Neg Ride Height	Loosen

LEFT REAR	
Pos Ride Height	Tighten
Neg Ride Height	Loosen

RIGHT REAR	
Pos Ride Height	Loosen
Neg Ride Height	Tighten



CROSS-WEIGHT	
Higher Cross-Weight	Tighten
Lower Cross-Weight	Loosen

## Tips

Dialing a car in is often done using rear ride heights.

By running a higher LF Ride Height than RF it will help mid-corner turn in.

A higher front end height %, will tighten the car on corner exit.

Most adjustments in the garage such as balast forward, tire pressures, cambers, springs etc., also effect ride height. It is generally a good idea to check your ride heights often, and use the spring perches to compensate.

When building a coil binding setup, a high-crossweight car will usually bind the RF first, while a low crossweight car will usually bind the LF first.

# SHOCKS



<b>LEFT FRONT</b>	
Pos Bump	Loosen Entry
Neg Bump	Tighten Entry
Pos Rebound	Loosen Exit
Neg Rebound	Tighten Exit

<b>FRONT</b>	
Pos Bump	Tighten Entry
Neg Bump	Loosen Entry
Pos Rebound	Tighten Exit
Neg Rebound	Loosen Exit



<b>RIGHT FRONT</b>	
Pos Bump	Tighten Entry
Neg Bump	Loosen Entry
Pos Rebound	Loosen Exit
Neg Rebound	Tighten Exit

<b>LEFT REAR</b>	
Pos Bump	Tighten Exit
Neg Bump	Loosen Exit
Pos Rebound	Loosen Entry
Neg Rebound	Tighten Entry

<b>REAR</b>	
Pos Bump	Loosen Exit
Neg Bump	Tighten Exit
Pos Rebound	Loosen Entry
Neg Rebound	Tighten Entry

<b>RIGHT REAR</b>	
Pos Bump	Loosen Exit
Neg Bump	Tighten Exit
Pos Rebound	Loosen Entry
Neg Rebound	Tighten Entry

<b>LEFT SIDE</b>	
Pos Rebound = Better Turn-In	

<b>UN-BALANCED ADJUSTMENTS</b>	
Loose In / Tight Off	Neg RR Rebound
Tight In / Loose Off	Pos RR Rebound

<b>RIGHT SIDE</b>	
Pos Bump = Better Turn-In	

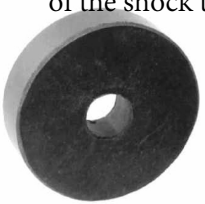
## Tip

Shocks are a great way of fine tuning your setup once you have gotten fairly close. Starting with default shock settings is recommended until you feel that your setup is fairly close to what you desire.

Bump and Rebounds have an effect on center as well, and can be used to fine tune the center of the corner in stages. (Early Center, Late Center Etc.)

# BUMP STOPS

Bump stops limit the travel of shocks and are used to allow softer spring use on the front, end while still avoiding bottoming the chasis out on high speed ovals, used most commonly with coil binding setups. Typically the higher the speed of the oval and more banking it has, the stiffer the bump stop needs to be, if it is needed. Bump stops can only be added to the front shocks and in effect, limit the travel of the shock to prevent bottoming out the front splitter with the track surface. Though they may be used on traditional setups, this makes bump stops invaluable to many coil binding setups.



# PACKER SHIMS

Packer Shims control the height at which the bump stops sit, which in turn controls how much travel is available to the shocks.

## ***REAR TRACK-BAR***

<i><b>LEFT REAR</b></i>	
Raise =	Tighten Exit / Loosen Entry
Lower =	Loosen Exit / Tighten Entry

<i><b>OVERALL</b></i>	
Raise =	Loosen
Lower =	Tighten

<i><b>RIGHT REAR</b></i>	
Raise =	Loosen Exit / Tighten Entry
Lower =	Tighten Exit / Loosen Entry

**Note: A traditional setup has lower left side track bars and higher right sides. Reversing this and running a higher left side track bar than right is commonly referred to as "Hillbillying the Track Bars".**

---

## ***REAR TRUCK ARM MOUNTS***

<i><b>LEFT REAR</b></i>	
Raise =	Loosen Entry
Lower =	Tighten Entry

<i><b>OVERALL</b></i>	
Raise =	Loosen
Lower =	Tighten

<i><b>RIGHT REAR</b></i>	
Raise =	Loosen Exit
Lower =	Tighten Exit

### **Tip**

**Using truck arm mounts has an effect on weight distribution dynamics. Sometimes changing truck arm mounts can benefit a spring package or setup that is prone to bottoming out issues.**

---

## ***ACKNOWLEDGEMENTS***

This guide was created and edited by Chris Alex (LoWLiNE Racing Founder and Admin). Note that this is a work in progress and may be updated occasionally. Many thanks to all of our members who contribute weekly to the growth of setup knowledge.

Please feel free to take the time and visit us at

[www.lowlinerracing.net](http://www.lowlinerracing.net)

