



# Squaring And Set-Up Guide

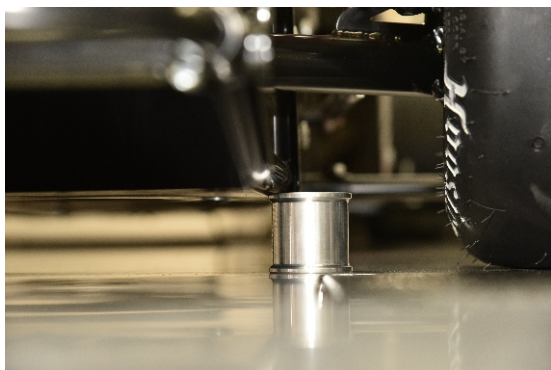
## 1. Tire Pressures /Stagger

Each time the car is setup make sure to put the tires at the pressure and stagger you will race them at to make sure that any other measurements taken is relative to how you race the car.

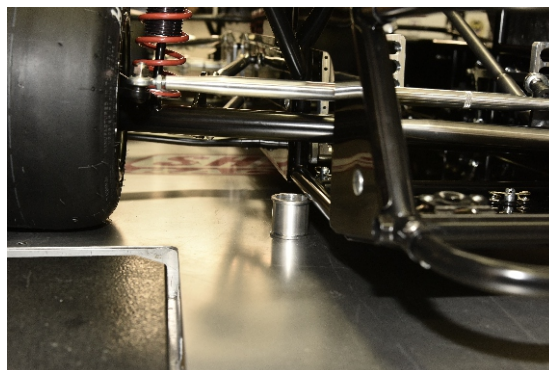
## 2. Set ride heights

Put the car on a level flat surface and then set each corner to the height you want it in race trim (most commonly 1 ½"). You can use a wheel spacer to set ride heights. Don't use the plastic ride height gauge that flexes. It is important to do this step now to ensure the next steps are accurate, even though this step will be repeated later. Doing this step without driver is the most common because these are kids racing.

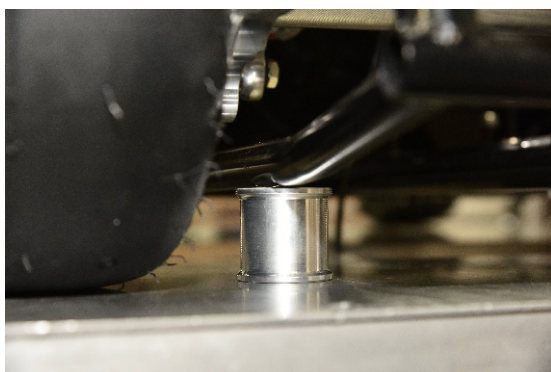
### LF



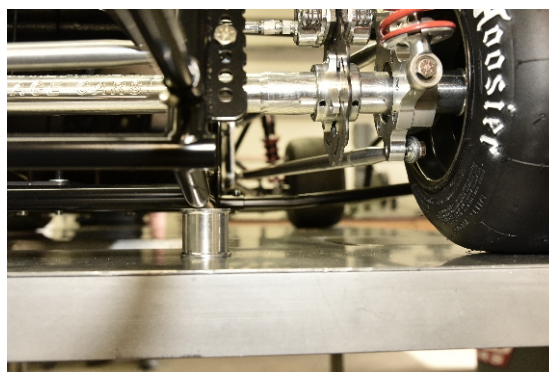
### RF



### LR

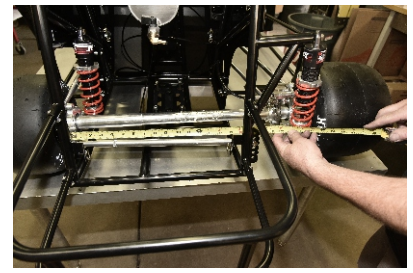
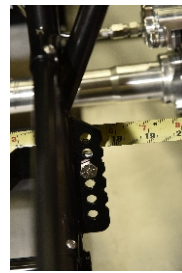
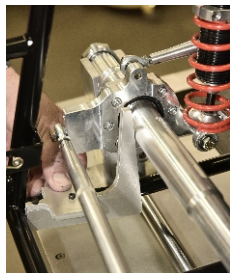
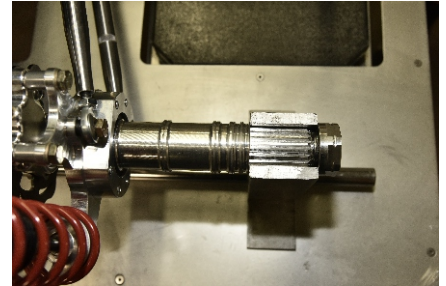
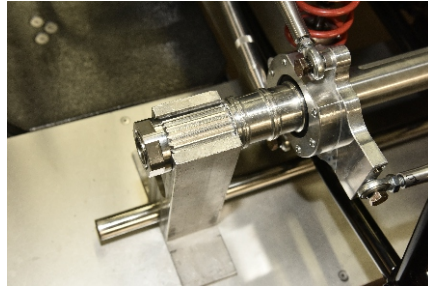
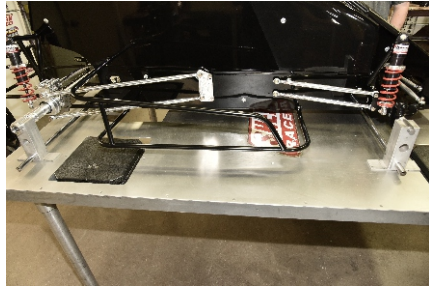


### RR



### 3. Square the rear axle

After setting the ride heights, next take off the wheels and hubs and placing the car into a set of squaring/alignment bars. Set the measurement on the rear panhard bar at 17 5/8" (see pic below) Set the rear axle parallel to the lower rear cross bar using our squaring tool behind the rear axle to the front of the lower rear cross tube. Be careful to set it precisely, using your squaring tool to make sure your measurements on each side are consistent. Adjust your rear radius rods accordingly to put the axle square.



### 4. Square birdcages

Our cars are designed so that the rear bird cages or "bearing carriers" are positioned so that the two radius rod mounting points are directly above / below each other. If a line was drawn from the top point to the bottom and continued to your level surface, it would be perpendicular to the level surface. This is also adjusted by lengthening and shortening the radius rods. Use an angle finder on top of the right brake mount ears and on top of the left panhard mount on birdcage (see pics below). Zero it to the lower frame rail and run birdcages at 0 degrees. Be careful either to make equal adjustments on top and bottom or to re-square the rear axle when you are finished.



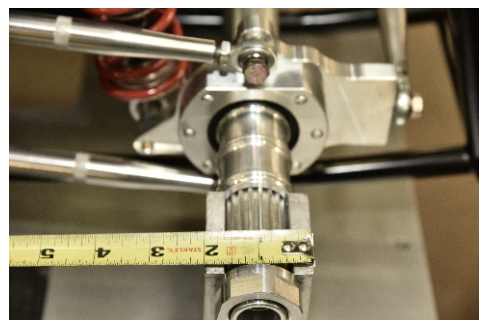


## 5. Square the front axle

While the car is still in the squaring/alignment bars set the center to center measurement on the front panhard bar at 13 7/8". Measure from center of rear axle to center of the front spindle and set your wheel base to the correct wheel base for your size/year car (see attached sheet for year/measurement chart). If your squaring/alignment bar blocks are the same size measuring front to rear of the block you can place your tape measure on the back edge of the rear block and measure to the back edge of the front block (see pic below). Or you can measure center to center of the rear axle to the front axle.



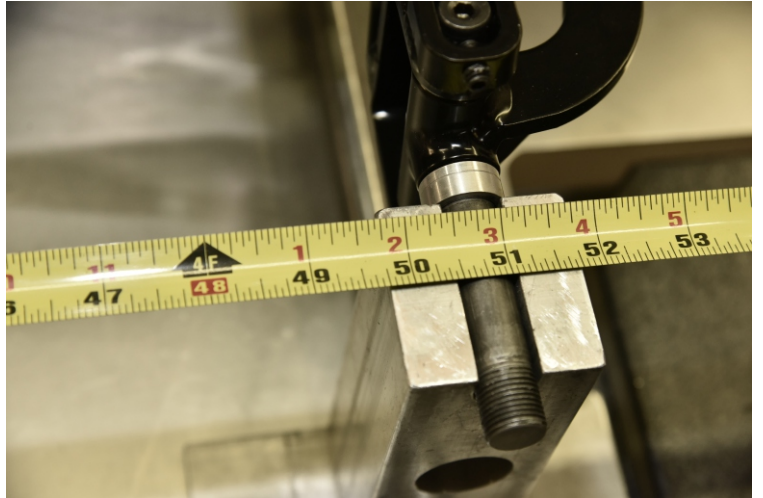
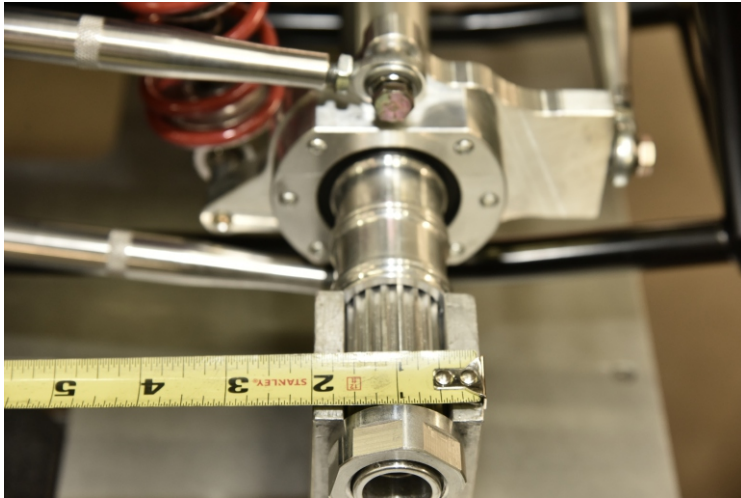
**RIGHT  
SIDE**



**LEFT  
SIDE**



**See next page for more squaring photos**

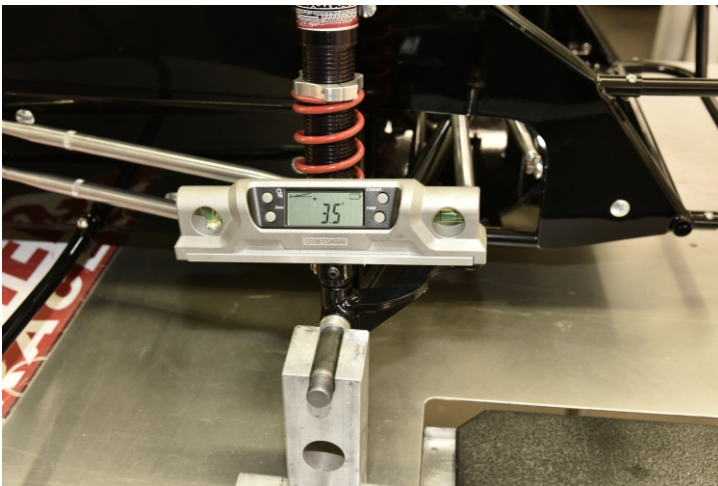




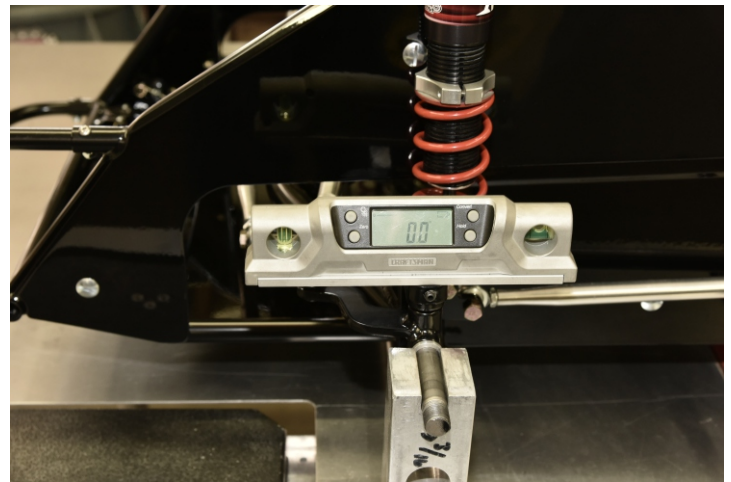
## 6. Set Caster

After putting the front and rear wheels and tires back on the car set the caster. Caster can be set with either a caster/ camber gauge or an angle finder (caster/ camber gauge is more precise). If you use an angle finder remember to zero it off of the lower frame rail and measure the angle on top of the right front camber block (see pic below). Right front caster is set at 3.5 - 4.0 degrees. Caster is adjusted by shortening or lengthening the top or bottom rods on the right front of the car. If your front axle is square you want to lengthen or shorten the rods equally to ensure the axle stays square. Small adjustments make a big difference. Our front axles have a caster split built into them so setting the caster is done on the right front corner and the LF will be 0.

**Right Front**



**Left Front**

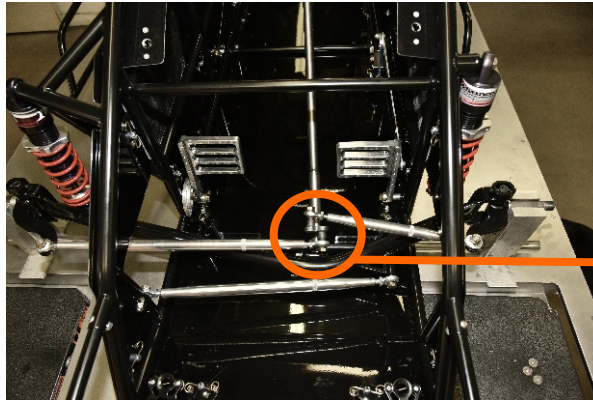


## 7. Set Camber

Camber can be set with either a caster/ camber gauge or an angle finder (caster/ camber gauge is more precise). If you use an angle finder to measure the angle you can put it vertically on outside edge of the wheel to measure the angle. Using the set screws in the camber block on the top of the axle move them accordingly to get your desired camber. A good base starting point will be. Right Front -2.0 - 3.0 degrees. The left front will be +3/4 - 1.0 degrees.

## 8. Set Tow

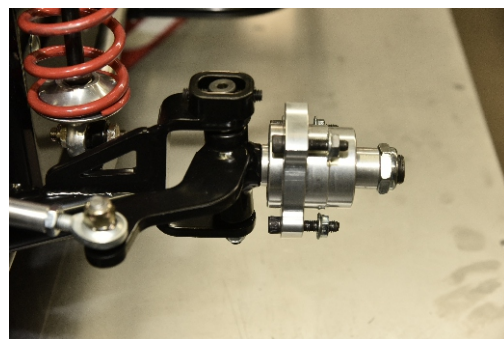
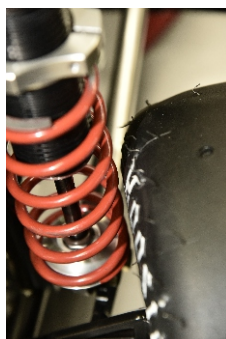
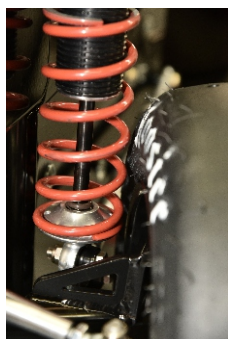
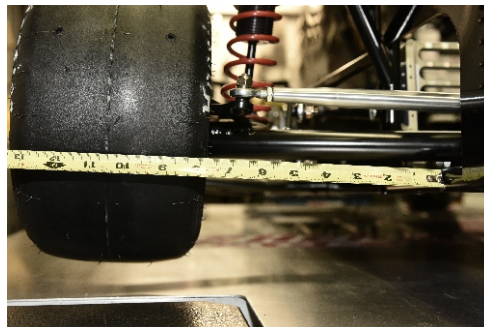
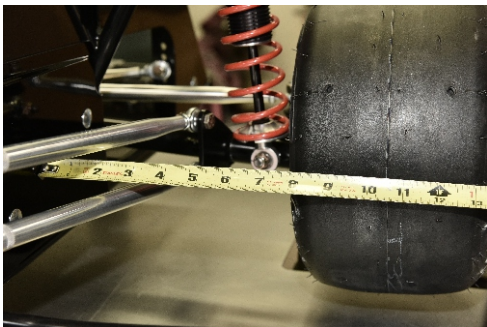
The Toe-In / Toe-Out is set next. Putting the front end back in the squaring/alignment bars set the tow so that the spindles slide up and down easily when picking the front end up out of the bars. When setting the tie rods keep the center of the steering shaft tab lined up in the center of the steering shaft.



**Center This Tab**

## 9. Front Wheel Spacing

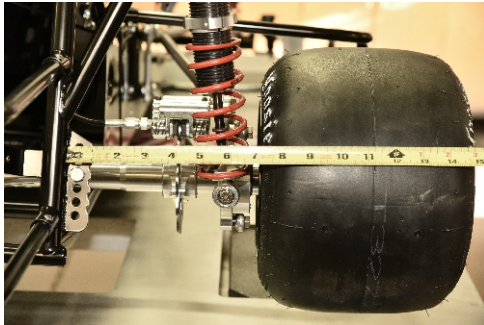
When placing the front hubs on the spindles both hubs will have a 1/8" spacer in between the spindle and hub. The outer spacer on the right front will have 2- 1/4" spacers then the nut. The left front will have 1- 1/2" spacer then the nut. The right front hub will have the thick part of the hub facing towards the car and the left front will have the thick part of the hub facing away from the car. With the wheels straight measuring on the back side of the tire from the panel to the center of the tire you will have a measurement of 10 1/2" on the right front and 5 3/4" on the left front.





## 10. Rear Wheel Spacing

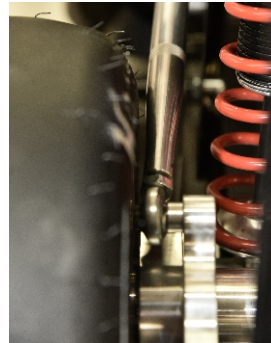
When placing the rear wheels space accordingly to get to the desired measurements. When setting the right rear we measure from the outside of the rear frame rail above the panhard tab to the center of the tire. In most cases a good starting point will be 11"-11 1/4". On the left rear your wheel will be right at 1/8" off of the left rear radius rods. We measure from the outside of the chassis to the center of the tire when taking notes on the left rear as well



RR



LR



## 11. Final Ride Heights

With all the wheels and tires back on the car and in the correct position and back on your level surface, check the tire pressures one more time then re-measure to make sure each corner of the car is set to the desired height.

## 12. Scale Car

Using anything from accurate bathroom scales to electronic scales put each wheel on its appropriate scale pad. Adjust the coil spring adjusters to achieve the Cross Weight or Left Rear Weight you are looking for. Make sure to make 4 equal adjustments all the way around the car. This will ensure that the ride heights remain where they should be.

For example if the cross weight is 50% (LR + RF) / Total and you are looking for 54% then put 1/2 turn in the LR and RF (clockwise) And take a turn out of RR and LF (counter-clockwise).





**13. Take Notes** Take good notes to have a reference for working through a handling issue or if the car was good on a certain day.

<b>WHEEL BASE</b>				
2011 - 2017		X SMALL	43 3/4	
2011 - 2017		SMALL	45 3/4	
2011 - 2017		MEDIUM	47 3/4	
2011 - 2017		LARGE	49 3/4	
2018-NEWER		X SMALL	43 3/4	
2018-NEWER		SMALL	47 3/4	
2018-NEWER		MEDIUM	49 3/4	
2018-NEWER		LARGE	49 3/4	
<b>RADIUS ROD LENGTHS</b>				
<b>2011-2016</b>				
<b>Radius rod lengths without heims</b>				
Quantity	Description	Length		
		Small	Medium	Large
1	Left front tie rod	7 1/2	7 1/2	7 1/2
1	Left rear bottom (short)	8 1/2	8 1/2	8 1/2
1	Left rear bottom (long) (RECOMMENDED TO RUN 9 1/2" TOP AND BOTTOM)	9 1/2	9 1/2	9 1/2
1	Left rear top	9 1/2	9 1/2	9 1/2
1	Left front	11 1/2	9 1/2	11 1/2
1	Front panhard	12	12	12
2	Right front	12 1/4	10 3/4	12 1/4
1	Right front tie rod	14 1/2	14 1/2	14 1/2
1	Rear panhard (OLDER STYLE BIRDCAGE WITH OFFSET PANHARD MOUNT)	15	15	15
2	Right rear (RR RADIUS ROD BRACKET CAN BE ADDED AND USE 22" RODS)	23 1/2	23 1/2	23 1/2
<b>2016-2019</b>				
<b>Radius rod lengths without heims</b>				
Quantity	Description	Length		
		Small	Medium	Large
1	Left front tie rod	7 1/2		
2	Left rear top and bottom	9 1/2		
1	Left front	11 1/2		
1	Front panhard	12		
2	Right front	12 1/4		
1	Right front tie rod	14 1/2		
1	Rear panhard (OLDER STYLE BIRDCAGE WITH OFFSET PANHARD MOUNT)	15		
2	Right rear (RR RADIUS ROD BRACKET CAN BE ADDED AND USE 22" RODS)	23 1/2		
<b>2019-NEWER</b>				
<b>Radius rod lengths without heims</b>				
Quantity	Description	Length		
		Small	Medium	Large
1	Left front tie rod	7 1/2		
2	Left rear top and bottom	9 1/2		
1	Left front	11 1/2		
1	Front panhard	12		
2	Right front	12 1/4		
1	Right front tie rod	14 1/2		
1	Rear panhard (BIRDCAGE HAS STRAIGHT PANHARD MOUNT)	15 1/2		
2	Right rear (ADDED RR RADIUS ROD BRACKET 2019-NEWER)	22		



# Set Up Sheet

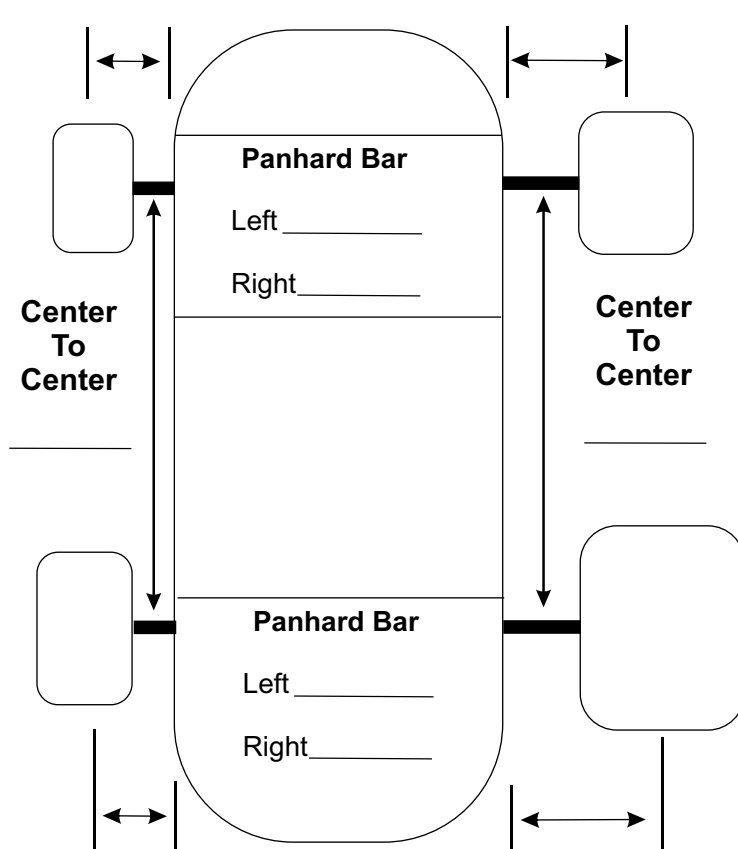
Car \_\_\_\_\_ Track \_\_\_\_\_ Engine \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

	Gears	Ratio	Lap	Time	RPM	Lap	Time	RPM	Track Temp
Practice 1									
Practice 2									
1st Heat									
2nd Heat									
Main									

### LF WEIGHT

**Left Front**  
 Tire \_\_\_\_\_  
 Wheel \_\_\_\_\_  
 Circumference \_\_\_\_\_  
 Air Pressure \_\_\_\_\_  
 Spring Rate \_\_\_\_\_  
 Ride Height \_\_\_\_\_  
 Shock \_\_\_\_\_  
 Caster \_\_\_\_\_  
 Camber \_\_\_\_\_

### Stagger



### RF WEIGHT

**Left Front**  
 Tire \_\_\_\_\_  
 Wheel \_\_\_\_\_  
 Circumference \_\_\_\_\_  
 Air Pressure \_\_\_\_\_  
 Spring Rate \_\_\_\_\_  
 Ride Height \_\_\_\_\_  
 Shock \_\_\_\_\_  
 Caster \_\_\_\_\_  
 Camber \_\_\_\_\_

**Left Rear**  
 Tire \_\_\_\_\_  
 Wheel \_\_\_\_\_  
 Circumference \_\_\_\_\_  
 Air Pressure \_\_\_\_\_  
 Spring Rate \_\_\_\_\_  
 Ride Height \_\_\_\_\_  
 Shock \_\_\_\_\_

### Stagger

**Left Rear**  
 Tire \_\_\_\_\_  
 Wheel \_\_\_\_\_  
 Circumference \_\_\_\_\_  
 Air Pressure \_\_\_\_\_  
 Spring Rate \_\_\_\_\_  
 Ride Height \_\_\_\_\_  
 Shock \_\_\_\_\_

### LR WEIGHT

Ratchet \_\_\_\_\_ Unlocked \_\_\_\_\_ Locked \_\_\_\_\_

### RR WEIGHT

Cross Weight %	Left %	Rear %	Total Weight #
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**Notes:**

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