



# **Assembly Manual**

**For G17**

**Economy Kit**

# INTRODUCTION

At NC Chassis we greatly appreciate your purchase of our Economy Kit. We are continuing our effort to provide the best product packages in Quarter Midget racing.

As you read through this manual please call with any questions. You can reach Customer Service at (330) 798-7744. **Refer** to the Spec Sheets and Axle Alignment Block Kit for proper measurements and settings when positioning the front and rear axles once assembly is complete.

## Dirt Set-Up Kit

For chassis kits purchased as a Dirt Set-Up there are two differences that you will need to be aware of upon assembly. The steering shaft has two holes in each ear for the steering rods. Use the top hole. The second difference is the left steering rod length. Instead of an 8 ½" rod length you will have a 9" rod length. If you have any questions; please contact us at NC Chassis.

## Disclaimer Notice

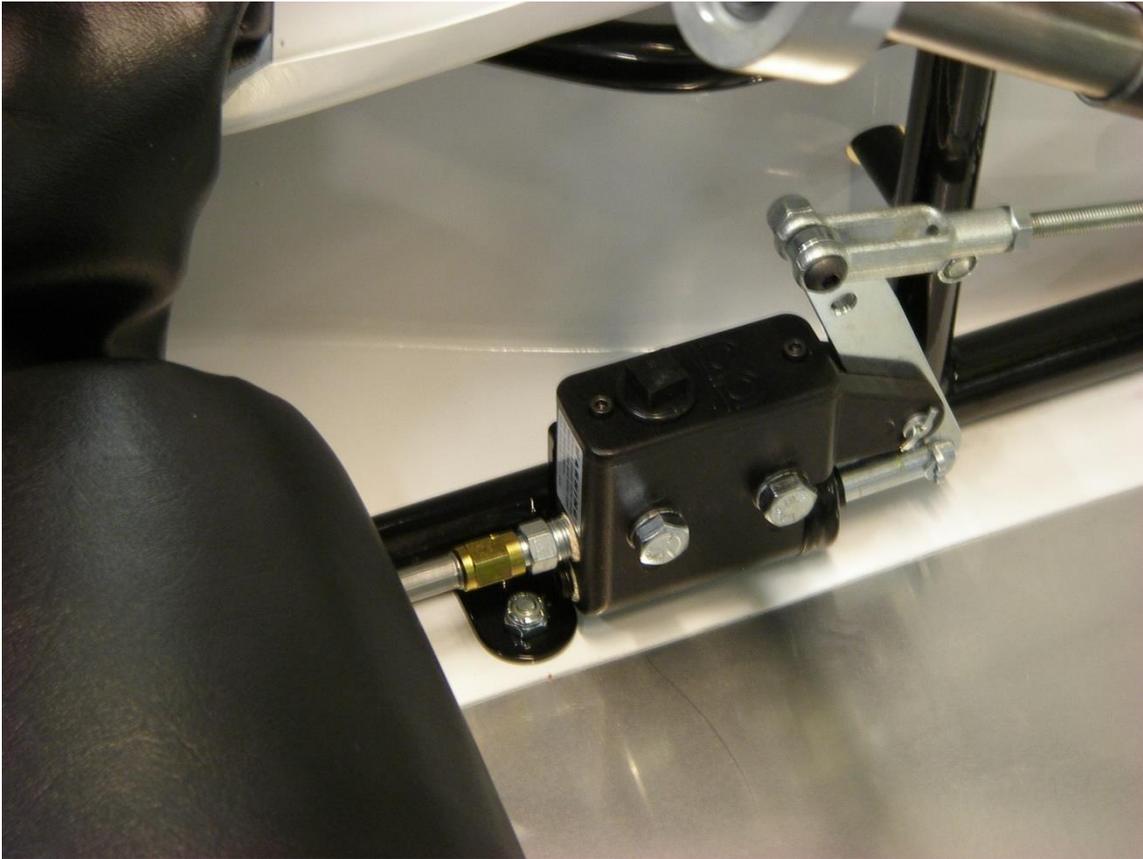
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In no event will we be liable for any loss or damage including without limitation, indirect or consequential loss or damage. Implied warranties of merchantability and fitness are expressly excluded, and buyer/user bears the risk as to quality, performance and use of products or information.

Racing is a hazardous sport, serious injury or even death can result. User assumes all risks associated with use.

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## **Brake Master Cylinder**

Mount the brake master cylinder as shown. There is one 5/16" bolt that is longer than the other; we use this bolt for the ground wire running to the ignition switch. The brake line can then be tightened to the master cylinder and using zip ties fasten the brake line to the bottom frame rails over to the right side of the car and towards the back where it will thread onto the rear brake caliper (4-5 zip ties is all that's needed).



### **Brake Pedal Assembly**

Same as the throttle pedal assembly pick the pedal pin position that fits the driver best for leg room. Grease the pin well and slide the pedal and washers onto the pin (one washer on each side of the pedal). The brake rod may need to be cut to a different length. Determine this length by bolting the rod to the master cylinder and hold the pedal in a position that is either straight up and down or slightly forward or slightly backward, whichever is desired. Then raise the rod up to the pedal with the female rod end and mark a cut line accordingly.



## **Throttle Pedal**

Choose which pedal pin position is best for the driver for leg position of the driver. Grease the pedal pin of choice and slide the pedal and washers onto the pin (one washer on each side of the pedal). Now when installing the throttle rod you may need to cut the rod at the pedal end for the proper length based on the pedal position. Refer to the brake pedal (Pg.5).



## **Throttle Pedal Linkage**

Once the throttle pedal is slid onto the mounting pin, the throttle rod can be installed as shown.

Not shown is our new throttle cable block; which takes replaces the large washer that is pictured. Once you have determined which pedal pin is going to be used; you will need to make sure the length of the rod is correct. To do this slide the rod through the hole towards the back of the car until the rod and nylock nut are pressed against the second linkage tab welded to the frame as shown. Now hold the pedal in a position that is either straight up and down or slightly forward or backward, whichever is desired. Then with the female rod end bolted to the pedal; mark a cut line accordingly (you want to have as much of the rod threaded in the female rod end as possible). Note that the rod may need slightly bent to achieve the proper length. After installing this rod make sure that when you push on the pedal the throttle rod slides through the frame bracket on a parallel plain with the main frame rail and without any bind. So in other words you do not want this rod running up hill or downhill as it passes through the hole. To do this you may need to slightly increase or decrease the bend in the rod.



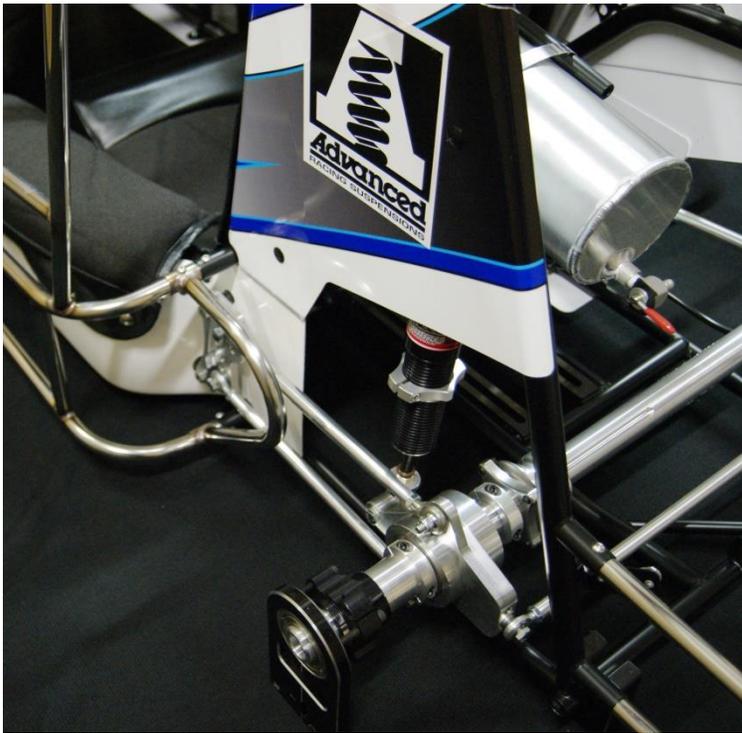
## **Steering Shaft Bracket**

Utilizing the provided hardware mount this bracket as shown. Keep in mind that the steering shaft is adjustable in length so once you slide the steering shaft through this bracket and bolt it into the front axle you may need to lengthen or shorten the shaft based on driver comfort. Also keep in mind that when the car is on the ground at ride height the steering shaft will move towards the driver because the front axle will be elevated up off the chassis.



## **Radius Rods**

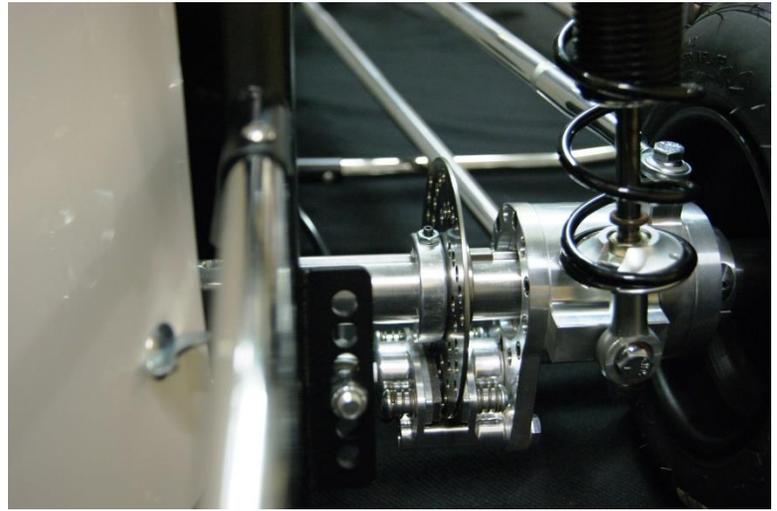
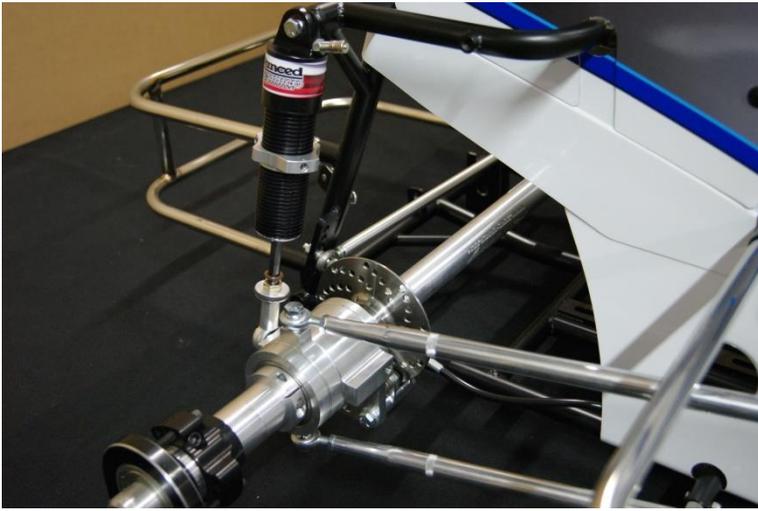
There is 11 rods total for the chassis. 9 of those rods bolt directly to the frame and 2 are steering rods that bolt to the steering shaft and spindles. Measure and bolt on accordingly. Refer to the Spec Sheet for these specifications (picture above is the left rear radius rods).



## **Left Rear Axle Assembly**

Slide the rear axle into the back of the car. Utilizing the provided hardware; bolt the radius rods to the birdcage as shown.

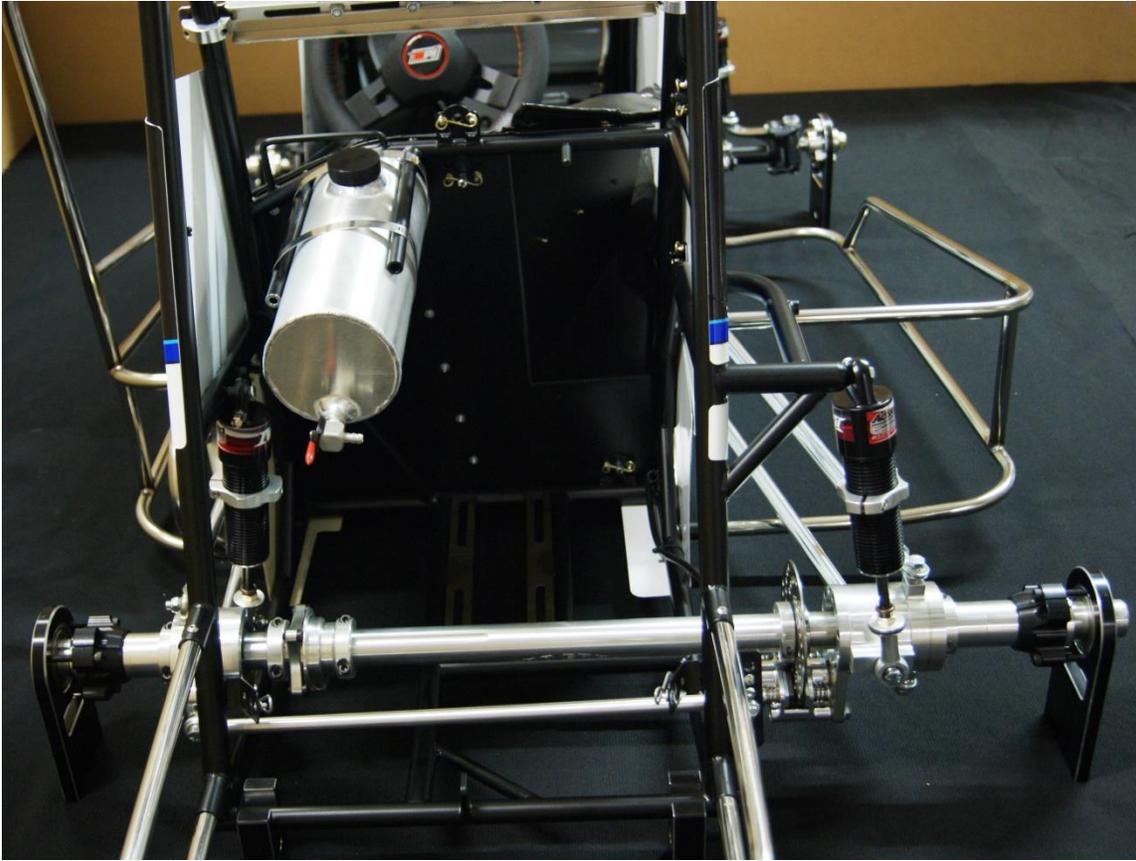
If you did not purchase the LR radius bracket you will be able to bolt the top and bottom left rear radius rods directly to the left rear frame spuds. If you did purchase the radius bracket pictured above refer to NC Chassis for the pre-set radius rod length of the left rear radius rods before squaring the rear axle.



## **Right Rear Axle Assembly**

Utilizing the provided hardware; bolt the rods to the birdcage as shown. Once the birdcage is securely bolted you can tightened the brake line to the brake caliper.

At this time once the brake line is tight you can bleed the brakes. It is sometimes easier to disconnect the brake caliper from the birdcage to bleed out all the air.



## **Gas Tank Position**

The gas tank can be mounted to the left or right of the chassis depending on the diameter of the tank. Thread the aluminum rod onto the desired threaded spud and mount the tank securely as shown. Typically the gas tank is best on the left for Briggs engines. When using a 4" diameter tank; the left mounting position is used.



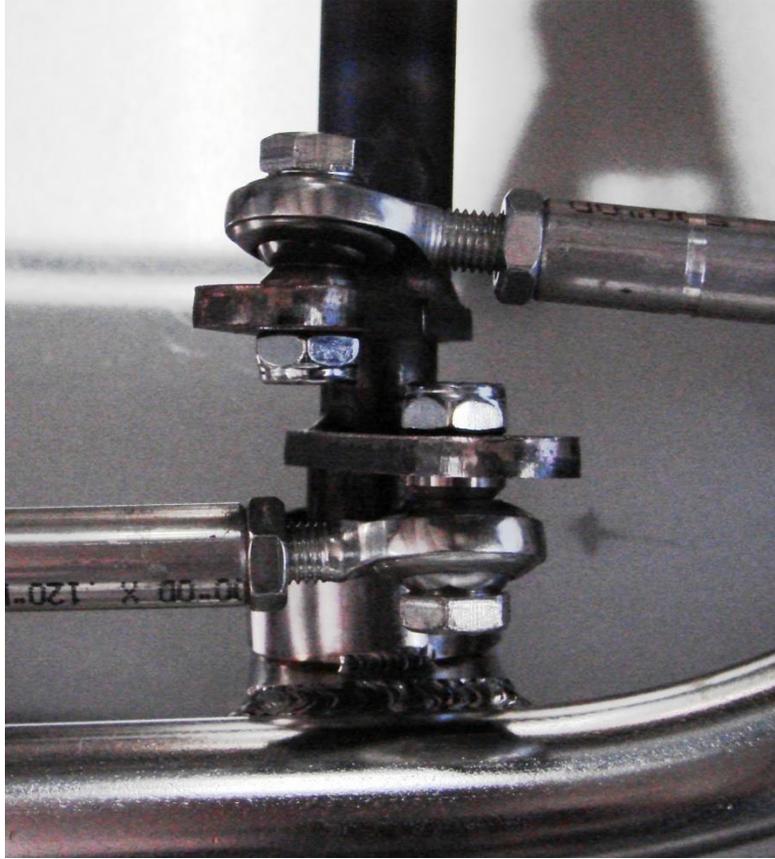
## **Left Front Axle Assembly**

Slide the front axle into the chassis. Bolt the left front radius rods to the axle as shown. There should be a beveled washer on the shock bolt. Be sure to have the beveled washer between the lower shock rod end and the axle bracket. Otherwise the shock may be bound-up against the axle bracket. When the shock bolt is tight you should be able to easily pivot the shock on the ball of the rod end. No different than the radius rods.



### **Right Front Axle Assembly**

Bolt the right front radius rods to the right side of the axle as shown. When bolting the shock to the axle bracket make sure to keep the beveled washer between the lower shock rod end and the axle bracket. When the shock bolt is tight you should be able to easily pivot the shock on the ball of the rod end. No different than the radius rods.



### **Front Axle to Steering Shaft**

Remove the bolt threaded into the bottom of the steering shaft. Leave the steel spacer on the shaft and slide the bottom of the shaft into the front axle bearing. At this point the steel spacer should be between the steering shaft lower ear and the top of the front axle bearing. Lifting the front axle; thread the steering shaft bolt back into the shaft with the provided washers still on the bolt. These washers help keep the bolt tight but they also help to provide the correct amount of up and down movement in the steering shaft. This is necessary for the steering shaft to not bind under load. Connect the right steering rod to the lower steering shaft ear as shown. Then bolt the left steering rod to the upper steering shaft ear as shown. **IMPORTANT:** There are two holes in the steering shaft ears. Use the lower holes for pavement and the top holes for dirt. Refer to the Alignment Block Manual for the proper timing of the steering shaft ears.



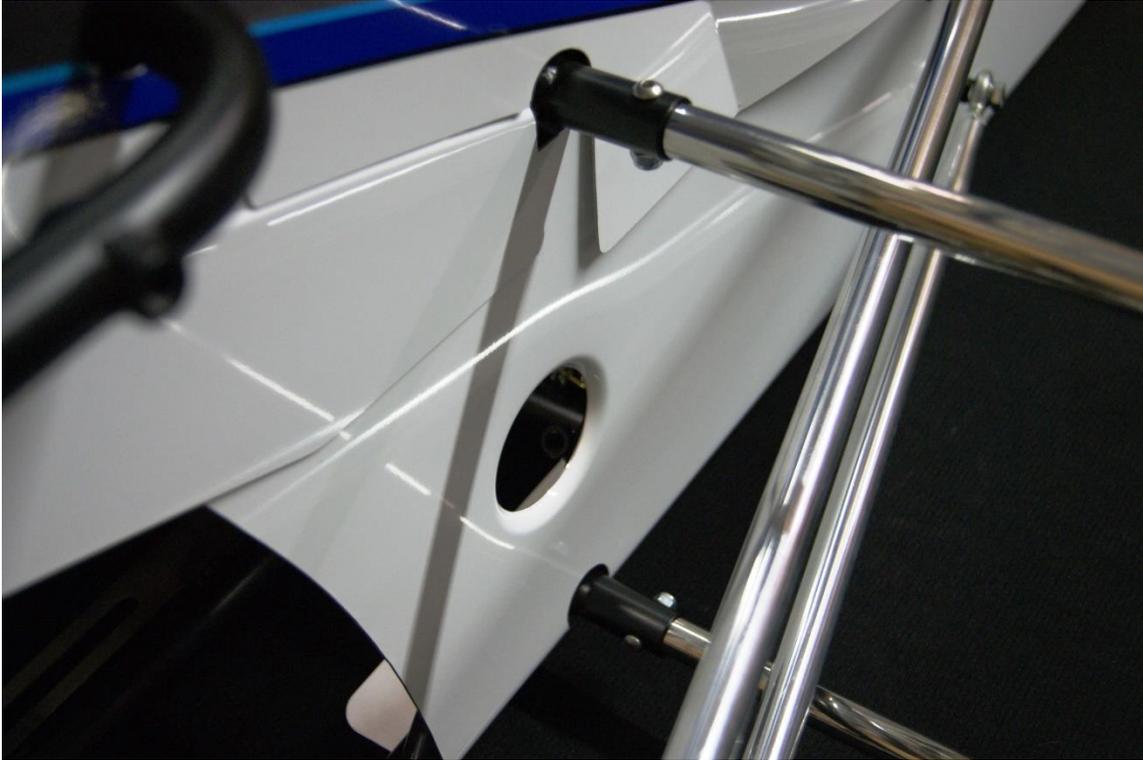
### **Front and Rear Panhard**

The front pan hard can now be connected to the front axle as shown. Make sure the front pan hard is mounted on the back side of the mounting bracket on the frame as pictured. The rear pan hard is the opposite it mounts on the front side of frame mounting bracket. Check the spec sheet for the standard pan hard bar hole location.



## Steering Wheel

When the steering shaft has been timed and is stationary within the alignment blocks; slide the steering wheel and hub on to the shaft in the position you desire. Pictured above are a couple different style steering hubs and wheels to reference from for installing the style purchased with your car.



## **Nerfs and Bumpers**

The bumpers and nerfs can be slid into the car and drilled for a 10/32 bolt. We normally do not drill the bottom two spuds of the front and rear bumper; but we do drill all three spuds for the nerf bars.

# Grizz 17 Spec Sheet

**Front Pan hard Bar:** The 3<sup>rd</sup> hole up is the standard location for this radius rod. Once that is done we can direct our attention to the left and right position of the front axle; also known as the front off-set. For a Grizz we remove the outer hood and stand at the front of the car. Then using a stagger tape measure from the inside of the RF steel flange; just above the weld across to the inside edge of the side panel. The starting measurement for the Grizz is 8-5/8". Less would be like spacing the RF tire in to improve grip; more would make the front of the car have less grip.

**Rear Pan hard Bar:** For a Grizz we normally start in the bottom hole of the left birdcage and 3rd hole from the bottom on the right rear bracket. With the pan hard in the preferred starting position we can adjust the rear axle off-set in the car. Off-set is the left to right position of the axle within the chassis; which is adjusted by rotating the rear pan hard bar. For the rear of the car we normally start by shifting the axle so the head of the left rear pan hard bolt is just outside the frame. Another reference point is the left rear radius rods. When the rear off-set is at the standard position the left rear rods will appear fairly parallel with the outside of the car. The further left you position the rear axle the tighter the car will be. The further right the rear axle is positioned the looser the car will be.

**Square Rear Axle:** Refer to the Axle Alignment Block Kit manual for this procedure. If the kit and manual are not available, measure from the back of the rear axle to the back of the tubular cross frame rail at the rear of the chassis. Set both sides of the rear axle to 5-1/4" keeping the birdcages straight up and down when the measurement is taken.

**Right Side Wheelbase:** Refer to the Axle Alignment Block Kit manual for this procedure. If it is not available use the following measurements. These measurements should be taken from the center of the of the rear axle to the center of the front axle.

33" chassis – 47 1/4"      35" chassis – 48 1/4"      37" chassis – 49 1/4"

**Left Side Wheelbase:** 33" chassis- 46 3/4" / 35" chassis- 47 3/4" / 37" chassis- 48 3/4"

**Ride Height:** This should be set **with the driver in the car**. Some tracks or spring set-ups may require less or more ride height than suggested below. Take these measurements under the side panel; near the nerf bar spuds. Always recheck each corner of the car after the last corner has been set.

Jr. Honda-Animal / Sr. Honda / Sr. Animal / Lt.160 / Lt.WF / Alcohol WF

LF. 7/8"                  RF. 1-1/8"  
LR. 7/8"                  RR. 1-1/4"

Hvy. Honda / Hvy.160 / Unrest. Animal / Hvy.WF

LF. 5/8"                  RF. 1-3/16"  
LR. 3/4"                  RR. 1-3/8"

**Radius Rods:** All cars 33" / 35" / 37"

Frnt. Panhard	11-3/4"	LR. Top	9-1/2" Swedged
Lf. Steering	8"	LR. Bottom	10-1/4" Swedged
Rt. Steering	14"	RR. (2)	22-1/4" (5/8)
Lf. Outer	7"	Rear Panhard	15-1/2"
Rt. Outer (2)	14-1/2" (5/8)		

## Grizz 17 Spec Sheet

**LR Shock Adjustment:** There are two spud locations for the left rear shock on a G17. The default location is the rear location. For improved grip in the center and exit of the corner the forward spud location can be used.

**RR Shock Adjustment:** There are two locations available for the right rear shock on a G17. The default location for the right rear shock is the rear birdcage position. If improved grip is desired for corner entry; then move the shock and spring forward of the birdcage.

**RR 5<sup>th</sup> Shock Option:** At the handlers discretion there is a third option. The option to use a second right rear shock. In factory testing NC has found that using a second right rear shock w/o a spring can make the car drive thru the corner with greater ease. It has been proven by most drivers to give the car a greater sense of driver forgiveness. This option can be tested using a variety of different shock combinations and can also be placed in either front or rear locations of the right rear birdcage.

**RR Tire and Wheel Spacing:** The G17 right rear birdcage design gives the RR tire and wheel a larger range of spacing capability. For the standard RR wheel position of the drive hub; there should be **2"** of rear axle spacers between the drive hub and the split collar that holds the birdcage in position. We suggest starting in this location and moving the hub in 1/8" or 1/4" increments for handling improvement. Space the hub **in to tighten** the car and **out to loosen** the car.

**Cross Weight:** Weight percentage between the left rear and right front corners of the car is called Cross Weight. The cross weight that we most commonly start with is 55%. If a track or car set-up has low grip the cross weight can be increased to help tighten the car. If a track or car set-up has high grip the cross weight can be reduced to help loosen the car. For most high grip conditions we set the cross around 51%. These percentages are determined with the use of car scales that can be purchased thru NC.

**Conclusion:** All points discussed on this spec sheet are starting points. Many factors must be considered to determine the final adjustment settings to get the best results in car handling. Track conditions, driver weight, class, car size, tire specs, brand of shock, and springs are all contributing factors to making the correct adjustments. At NC we recommend that the handler contacts us directly to get technical assistance on chassis set-up.