



**CHASSIS #1 TO #346  
97 TO 2004 SET UP SHEET FOR NOVA LOWERS**

**Ride Height**

Stock Nova Lowers	LF 4 1/2" to 4 3/4"	RF 5 1/4"
Tubular Nova Lowers	LR 3 3/4" to 4"	RF 4 1/2"

Front ride height is measured from the bottom of tab welded on frame down to lower a-frame in front of spring pocket. Rear ride height is measured from bottom of 2 x 2 frame rail to top of axle tube. (Not Birdcage)

**Do Not** measure ride height from ground because this measurement will differ with tire sizes and air pressures.

**Do Not** run ride heights low or you will limit your suspension travel and mess up front end geometry.

**Front Springs**

Swing Arm	LF 800	RF 900
4 Link & 3 Link	LF 750	RF 700

These spring rates are a good starting point, some tracks call for a little less and some for a more. Don't listen to your buddies on spring rates because different front clips have different leverage ratios on springs. Example (68-72 Chevelle clip with a 750 lb. spring actually has the same spring rate at the wheel as a metric car with an 1100 lb. spring due to where the spring sits on the a-frame).

**Rear Springs**

**Swing Arm or 3 Link with Springs on Swing Arm**

LR 325 to 375 (325 starting point)  
RR 300 to 400 (350 starting point on average track, 400 on high bank tracks 20 degree or more banking and as soft as 300 on slow slick tracks). Rear springs should be within 25lbs. side to side for most tracks. Look for 3 1/2" shock travel on

RR.

**4 Link LR and Swing Arm RR**

LR 200	Spring clamped if front (recommended)
RR 225 to 250	Spring on axle tube
RR 350 to 400	Spring on swing arm

## **Bar Adjustments**

### **Swing Arm**

Front swing arm bars in third hole up and top hole or level on rear (starting point) more angle down on rear puts more traction on that wheel but causes more rear steer. Keep in mind that bite created by bar angle is only temporary and will cause that wheel to become unloaded faster. It is better to hook your car up with weight transfer than hook it up with extreme bar angles because it will be more consistent. The pan hard bar on a swing arm car seems to be best at 10 1/2" to 12" down on frame (measured from bottom of frame rail) and top or second hole on pinion using the straight pan hard bar to left side of pinion. (2" to 5" of rake, ground to hiems) Too much angle on swing arm cars will hold the car up off the LR spring and hurt forward bite.

### **4 Link LR**

Lower 17" center to center, in bottom hole, or 14" center to center if using extension brackets (middle hole on extension brackets) Top bar should be 15 3/4" center to center and ran in top hole on chassis (20 degrees)  
Set pan hard bar 9 1/2" down on frame 2nd hole from top of pinion.

### **3 Link**

Run bottom bars in bottom hole on frame (level at ride height) raising LR will increase bite but also increase rear steer.

### **Pull Bar**

On Lightning polyurethane bushing pull bar, the preload is 1/4" from when the washers and rubbers just touch. These pull bars are more progressive than the spring type, and work well on any track condition. They need taken apart inspected and the preload reset about once a month. The bushings need replaced usually in twenty to twenty-five nights, or if the bushings look cut or deformed.

Use short pull bar for 4 link rear suspension (spud in bar behind seat on 03 and 04 chassis. Earlier model chassis doesn't have this provision and must be ran on the drive shaft loop)

### **Shocks**

Shock technology changes as much as the weather, and it is good to have a basic understanding of them in order to run good. Our basic starting point for Bilstein

LF S7M4545 RF S7M4545

LR S9Z4040 RR S9Z4040

LR S9Z3050 or 2060 Slick 4 Link RR Slick 4040

### **Clamped 4 Link**

Left rear shock should be behind the rear-end to keep car from slamming down too hard. Using the LR coil over shock through the spring will increase traction, but will make car erratic and should only be used if track is smooth and slick and you don't have to brake on corner entry.

## **Spring Behind 4 Link LR**

The shock should be on the front of the birdcage with the spring behind. Make sure the spring and shock mount is on the birdcage and not clamped if spring behind.

## **Front End Settings**

### **Camber**

LF 1 degree to 2 degree positive

RF 2 1/2 degree to 3 degree negative Short 7" A-Arm

RF 4 degree to 5 degree negative Long 9" A-Arm

### **Caster**

LF 3 degree positive

RF 5 degree positive

4 Link LR cars need more negative RF camber to keep RF tire more level on the race track due to excess body roll created by the LR bars.

### **Toe 1/4 out**

Make sure LF wheel is straight with the steering box centered. Set toe out with RF tie rod. The LF tie rod should bolt directly to the spindle and the RF should have 5/8" spacer if using the short upper a-arm and a 1 1/4" spacer with the long RF upper a-arm.

### **Bump Steer**

Set bump steer 0 LF and 1/8 to 3/16 out RF total in 3" of travel

### **Scale Weight**

#### **4 Link**

4 Link LR needs 54% to 55% Left side with rear wheels even with driver with clamped LR spring in front, and 80lbs LR bite with spring behind on birdcage.

If running spring behind, start with 80 lbs LR bite.

Rear percentage should be 57% to 60%.

### **Swing Arm**

Swing arm needs 52 1/2% to 53% left side with driver (less than 53% recommended.) Heavier drivers may benefit from battery and/or lead weight, on right side. Start with front wheels even with driver in car. Scale with 20 gallons fuel with driver. Keep rear weight percentage between 57 and 59 with driver and full fuel load. Some cars may need lead to get this depending on motor and transmission weight.

### **Brakes**

Use a pair of 7/8 master cylinders with the metric GM calipers. Make sure your balance bar is parallel with the firewall with the pedal depressed and the brake adjuster set in the middle of its adjustment.

## **Gas Pedal**

Very important that you have a minimum of 4" from idle to wide open throttle.

Measure this don't guess, it will only take a few seconds to check. Lowering the linkage on the pedal will give you more pedal travel. Use the big hole on the carburetor and two return springs hooked at different points on intake. Make sure that top of pedal is leaned slightly forward at top. Putting roller bushings on pedal can help on dry slick racetracks.

## **Wheel Offsets**

LF 2"                  RF 2"

LR 2"                  RR 2"

Swing arm cars need 60" with pinion 2" to right rear-end 4 Link, Leaf and 3 Link need 60" centered rear-end. It is important to line left side wheels up on 4 Link and Leaf cars, but Swing Arm cars like the LR wheel 2" inside of the LF for side bite. If using a Swing Arm rear housing on 4 link, you must space RR out 2" and run LR with a 4" offset to square wheels.

## **Air Pressure**

LF 10 lb. RF 14 lb. Hoosier UMP Average Track

LR 9 lb. RR 11 lb.

Use more air pressure on right side on extreme high bank tracks or real rough tracks if you are running too much on the sidewalls. You can't get traction running on the sidewalls you need to keep the tread on the track. If you are having problems with air pressure buildup make sure your air compressor is drained and you don't have moisture in the air. Nitrogen will help keep air pressure from building up.

## **Rear End Tracking**

On all 97 and up Lightning Chassis the center of pinion should be 22 3/4 from the inside of the LR frame rail.

## **Rear End Squareness**

All 97 and up chassis have the trail arm, swing arm, or leaf brackets 3/16" forward on RR. You must run the right side 3/16" longer than the left to get rear end square. Measured from trail arm brackets or 2 X 2 square rails. It is best to string the car to square the rear-end properly, especially on a car that has been raced a lot. You cannot square the rear-end off of the front wheels accurately.

## **Pinion Angle**

With pull bar 7 1/2 degree down (1 5/8 to 1 3/4 pull bar travel equals 8 degrees pinion movement. More pull bar travel will unhook the car, spring type pull bars usually have too much travel and don't work as good). Leaf springs 4 degree to 6 degree with weight of car on springs. (Make sure both leaves are neutral and not twisted against the other)

If the car is setup like this sheet, you have the right gear ratio for the track, nothing is bound up, the brakes aren't dragging, and you have good tires, the car should handle.

The rest is depending on your driving skills, experience and adjustments for different track conditions as to whether it will win. The best car at the track will not win with no maintenance or if it is not setup properly. We can point you in the right direction but it is up to you to go that way.

### **Left Rear Wheel Travel**

#### **VERY IMPORTANT**

The LR should have a limit chain from the frame rail to the top of the axle tube to limit how far the LR wheel can hike up. The best way to measure this is with the car sitting at ride height, measure from the axle tube between the LR caliper bracket and the birdcage up to the deck. Then jack the car up under the seat until the measurement is what you want. We like to use 4" of LR drop on the clamp, and we use more on the spring behind (adjust chain to where the spring doesn't get loose on the coil over eliminator) This is very critical to keep a consistent handling car and keep the driveshaft from bottoming out in the transmission.