



2005 to 2008 #08 Metric Nova Chassis Set Up Sheet

Springs

Flat end of spring down on tubular lower a-arms.

Left Front 800lb.

Right Front 750lb.

Left Rear 200lb.

Right Rear 225lb. On Top of Tube Axle

Right Rear 200lb. On Birdcage

Shocks

Basic Shock Package

Clamped Up

Left Front Bilstein S7L 4-2 use 4-4 to tighten corner entry

Right Front Bilstein LCRF1 use 5555 for rough tracks

Left Rear Bilstein S9L 1.5-5M use 3-4 when rough & hooked up

Right Rear Bilstein S9L 3.5-1LP or S9Z5050 if rough

Spring Behind

Left Front Bilstein S7L 4-2 use S7L 4-4 to tighten entry

Right Front Bilstein LCRF1 or 5555 if rough

Left Rear Bilstein S9L 1.5-5M or S9L 1.5-7M

Right Rear Bilstein S9L 3.5-1LP or 5050 if rough

Caster

Left Front 2 to 3 degrees +

Right Front 4 to 5 degrees +

1 ½ to 2 degrees split between left and right

Camber

Left Front 2 degrees +

Right Front 7" A-Arm 3 to 3 ½ Neg.

9 ¾" A-Arm 4 ½ to 5 Neg.

Toe

3/8" out with left front wheel straight and pitman arm straight. More toe out will help car turn on slow tight corner tracks. Idler arm will point towards right rear wheel.

Bump Steer

0 Left Front Right Front 1/8" out total in 3" travel.

Use 5/8 spacer on RF tie rod with 7" a-arm and a 1 ¼" spacer with 9 ¾ RF a-arm no bump spacer is needed on the LF. Must check bump steer.

Ride Height

Left Front 3 ¾" to 4"

Right Front 4 ¼" with tubular a-arms.

Left Front 4 ½" to 4 ¾"

Right Front 5" with stock nova a-arms.

Ride height is measured from tabs welded on frame down to lower a-arm.

Rear Ride Height

Level lower bars in bottom holes on both sides.

Pinion Angle

Set pinion angle at 7 degrees Ford rear end and 5 degrees on Q.C. down by adjusting pull bar, after setting 4 Link bars and ride height.

Panhard Bar

Bottom hole on chassis and one hole above pinion on 9" or top hole on Quick Change. Use more angle to quicken traction and side bite on smooth tracks if needed. Too much panhard angle will top the LR out, and cause car to loose side bite and forward bite. Not all pinion brackets are the same, make sure that the pinion bracket you use can get the panhard bar 3" above center of pinion on quick change or 1 1/2" above pinion center on 9" ford rear-end.

J-Bar

Even with pinion on 9" 1 hole above pinion on quick change. Use on rough race tracks or spring behind setup.

Pull Bar

We recommend our biscuit pull bar or a 1200lb spring bar with one rubber brake bushing. (too soft of a pull bar will unhook your car and chew up your u-joints) pull bars should get 1 3/4 to 2" travel for best results. Set pull bar at 21 1/2" center to center to start, on 9" rear end. 22 3/4 quick change. Then adjust for pinion angle.

Weight Percentages

Scale car with 20 gallons of fuel and driver in car, after setting the ride heights, air pressures, stagger, front and rear end alignment.

Left Side 54% to 55%. Rear 57% to 60%. Left Rear Bite 0 start with rear wheels even on clamp. Left Rear 80lbs. on spring behind.

Rear End Alignment

All rear end alignment MUST be done with car at ride height. Adjust lower bars to 15" center to center. Adjust upper to 17" center to center. (This should square rear end but is best to string car if your brackets get bent.) Adjust panhard length by setting pinion center line at 22" from outside left rear 4 link bracket (plate closest to LR tire) to center of pinion.

Lead Placement

Most cars need lead to be legal. Put 40 to 50lbs. Centered on bar in front of fuel cell. If any more lead is needed it should be around the drive shaft loop area. Do not put lead on left side if left side percentage is over 55%. Lighter drivers can use lead on left side where heavier drivers cannot.

Rear Suspension Parts List

Use 60" centered GN style rear end assembly with upper link brackets installed in our fixture to assure that the pull bar and damper shock are in the correct location. Pull Bar should adjust to 21 1/2" center to center on 9" rear-end as a starting point. Lower 4 Link bars are 12" 5/8" tubes adjusted to 15" center to center. Upper bars are 14" 5/8" tubes adjusted to 17" center to center. Pinion mount is old style AFCO or ALLSTAR bracket. Pan hard bar is 10" 3/4" tube. The newer style bracket has lower holes and will change the setup. Birdcages are LIGHTNING birdcages. Spring and shock mounts are LIGHTNING 4 Link Clamp Brackets. Brake brackets must be the narrow type and bolted thru the tube or tack welded so as not to spin when braking hard. Drive Shaft length depends on type of transmission and type of rear-end yoke. A long front yoke is needed. Make sure you have at least 2" of yoke inside transmission seal, at ride height. **Make sure driveshaft will slip all the way into transmission without bottoming out.** Rear springs are 13" X 5".

Front End and Steering

Use 79-88 metric Monte Carlo spindles. Spindles must be reamed on top with a 1 1/2 inch per foot taper, the bottom ball joint boss and steering arm needs drilled with a 5/8" drill bit. We can ream and drill your spindle for you for \$20 per spindle. Use LIGHTNING upper a-arms. Use 68-72 Nova lower control arms or LIGHTNING Tubular lowers. Use small screw in Chrysler upper ball joints and 73-81 CHEVY 1/2 ton pickup lower ball joints. The idler arm, steering box, pitman arm and inner tie rods are 79-88 metric Monte Carlo. Use 2 to 1 steering quickner. This will give you 1 1/2 turns lock to lock. Use metric rotors redrilled to 5 X 5 bolt pattern. Use drag link for 82 to 92 Camaro DS1049. Use stock metric inner tie rods with a 10" 5/8" tube on left side and 8" 5/8" tube on right front. Front shocks are 7". Springs are 5" diameter. Flat ground on both ends is recommended, with tubular lowers, but standard springs can be ran with flat end down if they are closed end design.

Lightning Brake Parts

Use small metric calipers on all four wheels. Use new calipers and master cylinders each year, because they can stick and go bad sitting over the winter. Use 7/8 master cylinders front and rear. Use crank type balance bar adjuster. The knob type adjusters are pretty but they don't allow you to adjust the brakes quickly enough. Use good racing pads that have a high temperature rating but will stop cold. Such as the WILWOOD polymatrix D or E compound pads. Street style pads will usually glaze over during heavy braking situations. Use racing fluid and change fluid often to keep moisture out of system. Use 26" steel braided lines with a 90 on the caliper end on rear, and 18" with 90 on the caliper end on front. Use straight fitting in the calipers. We recommend steel lines with no shut off valve.

Gears

Most racers run too high of a gear ratio. Just because your motor turns 7500 with a 5:14 gear doesn't mean that is the right gear. A motor that is spinning will turn what it wants to turn. It might also turn 7500 with a 6:00 gear, but would most likely be faster. Gear car so that the gear will slow you down entering so you don't have to use much brake. A car that is geared too high will be darty and jerky, will spin the wheels farther and faster than a car with gear. You will have to use too much brake to slow down and cause the car to slide entering the corner then you will have to use too much throttle to keep from bogging and pushing. Don't try to kill wheel spin by putting in a higher gear for a slick track. Why would you put in a faster gear for a slower slick track? A tachometer tells you what the highest RPM you turn at one time during the race. You might have been air born or ran thru water. The tach will usually show 400 or 500 RPM more than what you are actually racing at. Talk to the faster drivers that you trust about their gear. If you are off you will need to change. A lower gear is usually faster and smoother. You should gear your motor to turn 1000 RPM more than peak power to keep it in its power band. Use a chip to control maximum RPM, and use gear to get into the corner. Sandy, loose dirt generally needs higher gears than a hooked up or rubbered down race track the same size, because there is more wheel spin on loose dirt. Rubbered up racetracks that are like asphalt needs lower gears because they have virtually no wheel spin. A replay tach (not a recall tach) the only truly accurate way to see your RPM'

Spring and Shock Adjustments

The right front spring should be soft enough to nearly bottom out (with 4-Link LR) for best performance. Stiffening the RF shock compression can help control RF wheel travel on fast and rough race tracks. Use of a bump rubber on RF shock on really rough tracks will help keep car from bottoming out without stiffening RF spring. Too stiff of a RF spring will not give the side bite needed and not let the LR bars start lifting the chassis quick enough. The slicker the race track and the slower the corner speed, the softer the RF has to be. Generally a stiffer RR spring will give more side bite than a soft spring. Remember side bite causes body roll, but body roll doesn't cause side bite. There has to be a stiff enough right rear spring to push the right rear into the track, but not so stiff that the car doesn't move enough. Springs should be between 175lb and 225lb for nearly all conditions. A softer compression RR shock can help speed up RR weight transfer and add side bite for slick tracks. Softening LR spring will help side bite and tighten car up on slick tracks. Using a softer rebound LF shock will help tighten mid corner and stiffer rebound LF will help loosen car on tacky tracks. The LR spring shouldn't need changed but the LR shock can significantly change the handling characteristics. An easy up stiff compression LR shock will help LR lift quicker and hold it up longer to smooth out corner entry.

Tires

Tire Stagger

Hoosier Ump 1" front 2" to 3" rear average track 1" to 1 1/2" rear slick tracks. IMCA G60 front 1" rear 2" to 3" tacky and rear 1" to 1 1/2" slick. These are baseline stagger recommendations that should work on most 1/4 to 3/8 tracks, but don't be afraid to try something else if the driver feels it is needed.

Wheel Offsets

Use 2" wheels on all 4 corners. Don't pull the RR under the car to gain side bite (unless using a J-Bar) unless it is extremely dry and dusty slick because it will usually bind the car up in the corner and kill your momentum. There are better ways to gain side bite such as raising weight up in car, softening RF spring, moving weight to the right.

Air Pressure

UMP Hoosier LF 10lb. RF 14lb. LR 9lb. RR 13lb

American Racer 82, 84 and 86 LF 12lb RF 15 LR 12lb RR

IMCA G60 LF 10lb RF 13lb LR 9lb RR 12lb

Add air for rubbered up or extremely rough tracks.

Left Rear Wheel Travel

VERY IMPORTANT

The left rear should have a limit chain from the frame rail to the top of the axle tube to limit how far the left rear 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 left rear 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 4" of left rear drop on the clamp, and we use more on spring behind (adjust chain to where the spring doesn't get loose on the coil over eliminator) Usually between 4" and 4 ¾". This is very critical to keep a consistent handling car and keep the driveshaft from bottoming out in the transmission.