

Lightning Sprint Squaring Guide

Front Axle

Only use a Diablo front axle with your chassis to ensure proper offset & shock placement. Front axle specifications are especially important to the handling of your chassis.

Start by leveling car on stands in all directions. With the fully assembled front end in the car, start by placing axle on 4" blocks & bottoming out jam nuts/heims on the panhard bar, then bolt to the panhard clamp. Now, install all other radius rods with jam nuts loose. With a straight edge clamped to the front side of the motorplate uprights, measure from the backside of the straight edge to the back side of the front axle, this measurement should be 38.125" on the right side & 37.875" on the left. With desired measurements achieved & rods adjusted, place an angle finder on the RF steering arm to set the caster. Adjust the top & bottom right side radius rods evenly to achieve 11 degrees, once set, double check measurements from the motorplate uprights. Now that the axle is square & caster is set, set the panhard bar clamp so that center of heim is 1/4" above centerline of the axle. Double check all measurements & tighten all jam nuts/hardware.

Rear Axle

With car level on stands in all directions. Place fully assembled rear end in chassis, use wheel spacers & wheel nuts to ensure bearing carriers & components are tight. Place axle on 5" blocks at big O.D. of axle tube. Install rear radius rods with jam nuts/heims loose, bolt to bearing carriers & bottom hole of chassis. With a straight edge clamped to the front side of the motorplate uprights, measure 32" from backside of straight edge to leading edge of the big O.D. of the rear axle on both sides. With desired measurement achieved, place a level on machined flat portion of Diablo bearing carrier & adjust radius rod to time carrier at 0 degrees. With both sides level you can now hook up the rear arms, adjust heim so that hanger bolt slides through freely & threads in by hand. Ensuring that torsion arms are centered in the bearing carrier hangers, you can now hook up the ladder, adjust heim so the pin slides through freely. Finally, bolt the brake rod to the chassis & brake carrier, using a 10" rod, bottom out jam nuts/heims. Double check all measurements & tighten jam nuts/hardware.

Notes

Chassis

Intersection point of ladder straps i.e. roll center – lower intersection point makes car tighter, higher intersection point makes car free.

Tighter birdcage ratio = less difference in indexing through suspension travel, making arm & radius rod angles less drastic.

6 lbs= 1 horsepower, Rotating weight to dead weight 1 - 10

Tires: Loose, dirty surface = groove tire

Clean, slick & smooth = sipe tire

Shocks

With monotube shocks, reduce gas pressure when slick – typically minimum settings on sheets. Want shock to react slower when slick to increase traction, especially in rear. Dyno sheets – positive number on force is compression, negative number is rebound. Compression number is pounds @ 3" per second. CA = Compression Average, RA = Rebound Average. 1" rebound on LR very important. Most dyno sheets are Continuous Velocity Plot, have smooth arch.

Low speed dyno numbers are important for driver feel, high speed numbers are what mechanic sees on track. Clamp force = zero point @ rebound is amount of force required to transition compression to rebound & vice versa.

Radius Rod Lengths

Fronts : 17" Panhard : 23" Tierod : 41" Draglink : 36.5"

LR : 12" /29.5" RR : 14" /30.5" Brake Rod : 10"

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