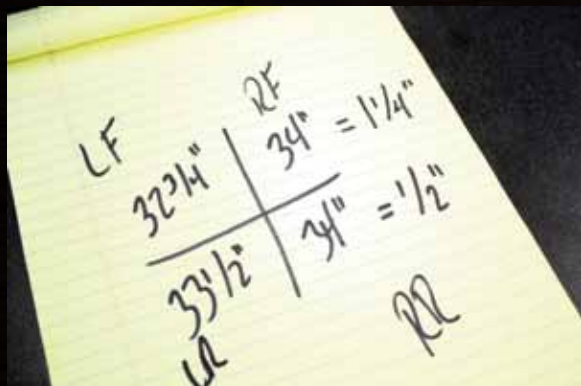




SPEED SHOP SCHOLAR

Welcome to another edition of the "Speed Shop Scholar." This month we are going to revisit the link between the chassis and the track. Tires!

Anyone that has been around karting for even a short while has heard over and over, "Tires, Tires, Tires."



Truer words have never been spoken at the kart track. While the compound is of extreme importance, the rollout, or stagger is very important as well. This month we will discuss stagger. We will also devote time to setting correct tire sizing and maintaining it.

Many times when discussing why the kart is handling in an improper manner, stagger is often



times an item that gets a "deer in the headlights" response. Improper stagger, or varying stagger between sets of tires can create an adverse handling situation.

Stagger is the difference in circumference between the tires on the same axle. If your left rear measures 33" and your right rear measures 34", you have 1" of rear stag-



ger. Thought you would never need that lesson from math class, huh? It certainly comes in handy preparing tires!

Stagger in the rear of the kart will allow the chassis to turn much easier in the corner. For a visual explanation, roll a tapered solo cup. With the top of the cup at a larger diameter than the bottom, the cup rolls in a circle. A can or



cylindrical object rolls better in a straight line, but resists turning. The same thing applies with your chassis.

Correct settings are based upon the recommendations of the chassis manufacturer. Each has a baseline setting that gets you into the game. These numbers are then



tweaked depending on the track you are racing at. Rule of thumb, smaller, tighter racetracks typically require more rear stagger, while at longer, more sweeping tracks, lower rear stagger is usually faster. Like many other chassis settings, trial and error will yield your best overall results.

Sizing of tires is easiest performed on a tire stand. A few pieces of square tubing with 5/8" bolts for axles allows you to slide on front hubs to work on your tires. This makes it very easy to measure and size your tires. The rear axle of the kart will also suffice, you are just limited to two tires at a time.

The first thing to do with any set of tires is to see where you are. Inflate each tire to a common pressure in the range you use at the track. With a narrow tape measure, take a reading on the full set and record the numbers according to position on the kart. If the numbers are not the ones you wish to have, here is the meat and potatoes of today's lesson.



For the sake of discussion, let's say we have a rear stagger of 1/2" and a front stagger of 1 3/4". The setting we want is 3/4" in the rear and 1 1/2" in the front. The best way to achieve our setting is by shrinking the left rear, and by growing the left front. This should allow our right side tires to remain the same size.

Let's begin by shrinking the left rear. This will require heating the tire without the valve core. This will draw the tire up and reduce its size. Here is another issue. The

heat source you use is your choice, but my suggestion is to avoid any open flames, especially if you size the tires on the kart with the engine on. The safest method is with tire warmers, or some other heat source, like a quality heat gun. To get to where we want, we need to reduce the circumference by 1/4". Remove the valve core and measure the tire without any air. With that number in hand, apply heat until the tire draws up the 1/4" you need to change. At that point, remove the heat and cool the tire down immediately. Allow to come to room temperature, and inflate to racing pressure. Your tire should be at the desired size.

Growing the left front will be accomplished in a similar fashion. This time, however we will over inflate the tire by the 1/4" we need to grow it. Then, we will apply the



heat until the tire stretches an additional 1/4." Then, just like before, we will remove the heat, cool the tire, and allow to completely cool. Reduce the air pressure, and give the tire a few minutes to stabilize, and voila, we should have a properly sized set of tires.

Keep in mind, some tires are more stubborn than others, and may require a couple attempts to reach the sizes you desire. Once you get them on size, keep an eye on them, they will change, and with it so will your setup. Remember, just because you once had the correct stagger is not a guarantee you will keep it.

Don't forget to recheck repeatedly at trackside, sometimes they will change size while on the track, and cause you to chase you tail around trying to run down the problem. Trying to keep a tire on size or to stretch a bit is why you see tires on the roofs of trailers throughout the pits. Racers are using the heat from the sun and the roof to maintain proper stagger.

Just as always, use good judgement, be safe, and ask questions before causing damage to your equipment. It is a lot easier to get where you need to be when you know where you are. Happy Good luck, see you next month!

