

Why “toe out” the front?

First, you need to know about Ackerman. In the drawing below, you can see the RED lines. This shows both tires parallel to each other, and perpendicular to the OUTSIDE tires radius. Since the outside tire is doing 70% of the work, we will consider it the baseline.

As you can see in the drawing, the INSIDE tire is AHEAD of the outside tire, relative to the apex of the corner. Because of this, the inside tire is NOT perpendicular to its' radius. Therefore, the inside tire is actually FIGHTING the outside tire. In other words. The inside tire isn't turning as tightly as the outside tire.

ACKERMAN is a term that describes the line that I've colored BLUE. This is the true perpendicular to the inside tires' radius, and the THEORETICAL direction the inside tire should be turning.

In a perfect world, the inside tire would turn more than the outside tire, BUT be parallel to each other when going straight. Except for some of the new products on the market (BMW's active steering, for instance), this just isn't possible.

By running a little TOE OUT, you cheat. In other words, you may increase a bit of drag on the straight, but when you start your turn, the inside tire is able to do more of the work. Especially at initial turn in (before all of the load shifts to the outside tire), this gives both tires more initial bite

TOE OUT is a way to give yourself a bit of quasi-Ackerman in the corners, although it does cause a bit of straight line drag. Since most of you reading this like big HP V8's, that drag is small compared to the increase in grip.

I like about 1/8” of Toe Out MAX, more like 1/16” in most cases.

