with front wheel drive depends on several factors, so track testing is the only way to find out.

RESHAPING THE FRICTION CIRCLE

A tire will generate its maximum braking, cornering, and accelerating forces at 3 different tire pressures. The only good reason to change a tire pressure to anything other than the setting for optimum cornering grip is to lower it for improved acceleration and braking. This is a critical compromise at some tracks, particularly for front wheel drive cars. It is very track-specific because some tracks have a very important slow corner leading to a long straight, so forward acceleration is more important than drive axle cornering grip. Autocross course design also affects the optimum tire pressures.

The most extreme case of reshaping the friction circle I have seen was at the Denver Indycar street circuit race in 1991. Aside from horrific overheating problems due to the altitude, everyone had major problems with exit wheelspin. It was so bad that turning the boost all the way down made the car faster! Lowering the rear tire pressure made the car faster every time we tried it, so for qualifying it was dropped to 9 psi. That's less than half the usual pressure! The tires slipped 90° on the wheels in 3 laps, so there was no hope of running the race like that. It took 12 psi to keep the tires from slipping, which worked out well during the race. Despite having to replace the nose and front wing, we finished 7th.

Reducing static negative camber is another way to improve longitudinal grip at the expense of lateral grip. If exit wheelspin and low speed understeer are major issues, zero or positive static camber on the drive axle is one way to improve the car. The longitudinal grip of bias ply tires is much more sensitive to camber than radial tires, so there is more of a compromise required with bias ply tires. If braking performance and understeer are both problems, it might be worth reducing static negative camber and increasing caster in order to increase the steer-camber interaction and keep the camber closer to zero for better braking. Just keep in mind that it's easy to over-do that with bias ply tires.

CORNERING BALANCE COMPROMISE

Corner exit acceleration is so important that it's common to compromise power-off cornering balance in order to improve exit acceleration. It's typical for high powered rear wheel drive race cars to be intentionally set up to understeer rather severely until the loud pedal goes down. That's not at all preferable, and it makes the car a lot harder to drive, but it's often the compromise that produces the best lap times. On street circuits, it was common for Champ cars to use front spring rates that were around 2,000 lb/in and rear spring rates that were around 500 lb/in, just to improve corner exit acceleration!