Indycar Racing 2 setup guide

This indycar setup guide was in 1996 written by Terje Wold Johansen for Sim Racing News.

1. Anti-roll bars (ARB)

What happens when you adjust the ARBs?

Increasing the front ARB stiffens the front end of the car and increasing the rear ARB stiffens the back. Decreasing them makes each respective end softer. What does softer or stiffer imply?

When a car is said to be soft it has relatively much roll. Roll is experimented when you turn the steering wheel or brake. When turning it depends on the stiffness of the car and the actual weight being transfered (speed, turning radius). Under braking it depends on the speed, stiffness and the brake balance.

A soft car will respond slowly to weight transfer while a stiff car will respond quickly. This response time decides how your car handles. Because roll is equal to response more roll equals higher response time and too much roll means that the car will feel sluggish. The opposite of sluggish is too pitch sensitive which often means that the car has been set up too stiff.

Apart from the ARBs the shocks play an important part in the stiffness of the car. In ICR2 shocks equal shocks and springs in the real IndyCars.

When do I adjust ARB?

Usually you would like to decrease the front ARB if you experiment push in a turn, but you would like to increase the rear ARB if you experiment push when entering a turn. If you have oversteer in a turn soften rear ARB and/or stiffen front ARB.

If you have oversteer when entering a turn soften rear ARB and/or stiffen front ARB.
If you have oversteer when exiting a turn increase front ARB and/or soften rear ARB.

Usually it is pretty easy to find the optimum settings as the car doesn't push into a turn and oversteer while in it and finally understeer when exiting. Usually it is only understeer or oversteer. If you experiment both it is something fundamentally wrong with your set-up and/or your driving.

2. Brake balance

The brake balance affects the weight transfer under braking. By moving the balance forward the front brakes will do more of the braking than the rear and hence more weight will be distributed forward than if you didn't. Too little weight transfer to the front may cause the car to swap ends as the rear becomes too heavy. Too much weight transfer forward will make steering difficult because the front tyres loose grip. On tight tracks like Detroit the balance is often moved backwards in order to make the car turn in more under braking. The brake balance is heavily influenced by driving style.

3. Camber

Why is it that the temperatures become unequal across a tyre? The unequal temperatures are a function of the weight distribution that takes place when driving through a turn and the general downforce of the car. Changing the camber of a tyre means that we can adjust how much of the tyre we would like to touch the track surface. Camber is essential to how fast you can drive through a turn. Lessening (–) the camber tilts the top of the tyre against the car which is exactly the opposite of what happens when you increase (+) the camber. The pressure of the tyre is important when adjusting the camber.

If the tyre temperature on the inside is equal to the outside but not equal to the middle you must change the tyre pressure.

Camber heavily affects the braking so the brake balance may have to be adjusted after you have made changes to the camber.

4. Stagger

You can think of stagger as a compensating factor applied on the right tyres that makes them revolve around at equal speed to the left ones on a banked surface. Adjusting stagger means that you adjust the circumference of the right tyres. More stagger bigger circumference and vice versa.

5. Shocks

Shocks decide the stiffness of the car. Softening shocks equal more roll The car's ability to pick up weight transfer decreases and hence the car will become more sluggish and unresponsive. Too soft front shocks cause oversteer. Too soft rear shocks cause understeer.

Stiffening shocks equal less roll. The car's ability to pick up weight transfer increases and hence the car will become more responsive. Too stiff front shocks cause understeer. Too stiff rear shocks cause oversteer.