

TECH: THE DRIVER

THE MOST IMPORTANT PART OF A KART

I know I've said earlier that the most important part of a go-kart is the seat position, but in reality, there's one more thing which is more important again – the lump of meat positioned by the seat!

Race karts are highly tuned machines that respond to setup changes in extremely small increments. Change the caster-angle of the kingpin by a single degree and the kart will respond. Change the rear track by 5mm, the kart will respond. Consider that for a moment – you're changing the total track width by 0.35% (a third of one percent), and the change is noticeable, visible, and measurable on the stop-watch!

A machine that has such fine adjustments demands finesse, timing, and consistency from the driver.

At Phoenix we are lucky, because working with drivers like the Lindstroms, Matt Hayes and Kyle Clews makes the job of diagnosing the set-up of a go-kart vastly easier for the guy on the other side of the fence, and not just because of the feedback offered verbally once the driver is back in the pits.

On the track, the behaviour of the kart is defined by two things – the input from the driver, and the subsequent response from the kart – in that order. If the driver's input is incorrect, or inconsistent, the response from the kart will reflect that. It's the driver's job to determine the fastest route through each section of the track, and replicate it – lap after lap after lap!

If the driver attacks each corner differently each lap, it's almost impossible for either him/her or his pit crew to decipher what the kart is doing.

WHAT'S FAST?

So, what changes can a driver make to his style to find the fastest route through each section of the track? There are obviously hundreds of little nuances that we could discuss for the next twenty pages, but I'll concentrate on just a couple.

The most important phase of the corner is initial turn-in. As we all know, karts must unload the inside rear tyre to effectively negotiate a corner,

and this unloading begins as soon as the driver begins to turn the wheel. The caster of the front end causes the inside front tyre to load up, and begin to transfer weight to the outside tyres. The rate of this transfer defines the behaviour of the kart through the rest of the corner.

As a result, karts often require a little "flick" at corner entry to begin the unloading of the inside rear. However – and this is a big "however" – probably the most common mistake inexperienced drivers make is to be TOO aggressive on the steering wheel at corner entry. This trait is partly learned because on slippery, club-day tracks, aggressive input followed by graceful powerslide is often a fast way to drive. Take that style to a track that has picked up a lot of rubber, however, and soon the driver must learn that it's hard to powerslide with 16 horsepower on chewing gum.

The most common result of an over-aggressive input is a tail-slide, followed by the bane of kart-dynamics – the countersteer! Countersteering (applying opposite lock) to a kart is the single worst thing a driver can do. A kart with countersteering applied loads up the OUTSIDE front tyre, immediately sending the inside rear tyre back into the asphalt at a rapid rate. A kart being countersteered is a kart with two rear wheels on the track, and a kart with two rear wheels on the track is slow... particularly if the track is grippy.

When a driver notices he is countersteering through the turns, and being blown away on corner exit, he should adjust his style accordingly and apply a slower, smoother input to the steering wheel on corner entry. If the rear-end slide is still uncontrollable, THEN the driver and pit crew know that it's time to remove front-steer from the kart, by reducing scrub-radius, caster, etc.

Attempting to correct a handling ailment like rear-end slide by adjusting the set-up of the go-kart is useless if the driver is not providing the correct input. The set-up adjustments on racing karts are FINE adjustments, and cannot always compensate for poor driving, particularly at a big meeting where there are plenty of drivers that ARE adjusting their style to suit the kart and the track!