

TECH: WET WEATHER SETUP

INTRODUCTION

Well, here we are running into winter, and predictably setup talk turns to the WET. The wet is where drivers get to show off their true ability, with chassis and engine performance greatly muted by the lack of traction. That said, there are definitely good and bad choices when it comes to setting up a kart for the wet.

So what are we trying to achieve in the wet?

THE BASICS

Firstly, it's vitally important to get the kart to turn. The huge drop in available traction means we must rely far more heavily on mechanical jacking to unload the inside rear tyre than we do in the dry. So, we must increase in almost all areas the adjustments that effect mechanical jacking. First and most important is scrub radius (front width). A good starting point is simply to go as wide as you can! Second is caster, you will ALWAYS gain more steer into the corner on a wet track by dialing in as much caster as you can.

If the front of the kart is too soft, much of the mechanical jacking effort can be lost in unwanted front-end chassis flex. Now is the time to check the tightness of your front crash bar, floortray, or front torsion bar if you have one.

Bolt-on front hubs also increase the jacking effort created by running a wide scrub radius, by reducing the amount of flex in the shaft of the stub.

Once the kart is turning, we can now turn our attention to mid-corner and exit speed. It remains as important to lift a wheel in the wet as it is in the dry. Whenever both rear wheels are on the tarmac mid-corner, they conflict with each other and cause understeer, oversteer, or both in quick succession! The greatly reduced traction means that the lateral G-forces generated mid-corner are much lower, so the torque the driver's body-weight usually applies to the chassis is reduced accordingly. This causes the kart to sit flat.

To generate enough torque to lift a wheel with lower cornering speeds, you need to raise the

centre of gravity – ie, lift the seat. This is obviously a somewhat more involved process than going to a wide front track, so often crews won't bother for a single wet race in the course of a day, but if the meeting is forecast to remain wet, it's well worth the effort. You've probably noticed fast guys in the wet throw themselves around in the kart to help the kart lift a wheel – if you raise the seat, the driver can concentrate more on DRIVING, rather than manual weight transfer.

Finally, we come to the corner-exit, and the name of the game here is getting power to the ground. You'll almost certainly need to run more teeth on the axle sprocket (a shorter gear ratio) than you do in the dry, because the kart will be going a lot slower as it exits the corner. There are also benefits to be found in the track width of the rear end. To start with, by changing from 8" (205mm) wheels to 6" (150mm) wheels for the wet tyres, your rear track will be reduced by around 100-110mm. In the humble opinion of this scribe, that's about where you should start. There may be further benefits in coming another 10-20mm narrower than that, though if you feel you need to go narrower still, you probably need to raise the centre of gravity. Karts are designed with certain boundary conditions, and usually don't respond well to excessively narrow rear track. In order to promote weight transfer onto the rear tyres, the rear of the kart should be softened up somewhat. A loose third bearing is a must.

