



# #TechTipTuesday

## Crossweight

Crossweight, or simply "cross" - What is it? How should you adjust it? Let's start by explaining what cross actually is. Cross is simply the preloaded weight of the left rear and right front corners of your kart sitting on the scales. It is calculated to a percentage based on the total weight of the LR and RF divided by the total weight of the kart. You will typically see the cross for most of our karts in the 60-70% range.

There are many factors that achieve your kart's cross. However, the most notable factor is ride height(s). This is why your Phantom kart is designed with washers on your kingpin bolt, and adjustable height axle cassettes - to adjust your crossweight (and ride height). When washers from either side are moved from top to bottom/bottom to top, or your cassettes are individually moved up or down - your cross will change.

If you lower the RF spindle (washers move from bottom to top), or raise the LF spindle (washers move from top to bottom), then you're adding cross to your kart. If you raise the RF spindle, or lower the LF spindle, you are then decreasing cross. On average, each 0.060" washer will change your cross 1-2% depending on the total weight. So, now let's dive into what cross will do to your kart, and how adjustments can improve your handling... The most common effects of adding crossweight include adding "grip" to the RF to help the kart turn in to the corners better, and at the same time help the LR bite better to help the RR centeroff. Again, this is because there will be more pre-loaded weight on the LR and RF tires. Also, increased cross can be used to help the rear end of the kart make more "bite" to fix a loose out condition (by allowing the LR to work more). On the opposite end of the spectrum, reducing cross will have reverse effects. So, if you are too free on corner entry, you can reduce cross to take away some of the bite in the RF - essentially "calming" the kart down on entry. The same can be said in regards to corner exit - if you have a slight push (due to the LR over-working) you can reduce cross weight to let the LR work less.

Now that I've explained cross and the adjustments you can make with your washers, let's flip to the rear of the kart and talk about your ride heights there... to raise cross using the LR - lower the cassette into the frame (raising ride height), and to lower cross raise the cassette. You will do the opposite on the RR to raise and lower cross.

However, keep in mind these adjustments in the rear will change your chassis' "rake" which is the ride height difference between the left and right side frame rails. Since you have a solid axle, and more of your weight is on the rear of the kart, your rake is just as important (if not more important) than the actual cross number. More rake (lower left side) can help "free" the kart up by allowing your kart to use the left side tires more. Reducing or running reverse rake will allow the kart to "dump" more weight over to the right sides - allowing the kart to bite much harder, but this can make your kart become very tight (especially longer into a run). Most newer Phantom chassis (with pin style cassettes) do not need rake. We typically run the cassettes in the stock location (indicated by arrows), and do not move them.

After all of this, your kart's cross will generally have a "sweet spot" for your driving style, track layout, bite level, etc. Most of the time once you find a cross setting you like - leave the washer stacks and axle cassettes alone, and adjust to the track with your tire program.