

Measure for Measure

Keeping Your Measurements Accurate

By Steve Hogg
Pictures by Simon Hayes

Here's a true story from some years back. I fitted a pro to his training bike, the one that he keeps at his European base and takes with him to his home country at season's end. The race bikes are identical but always stay with the team. That way when he flies to a race, a well maintained identical bike is ready to go. A month or so later he tells me that he is happy with the result of the fitting session and some time after that he returns to Europe for the start of the next pro season.

Then I start getting emails to the effect that the race bikes don't feel nearly as good as the training bike and he is getting minor injuries from racing. He is surprised by this as there are no problems on the training bike and that he set up the race bikes "exactly the same". Because he is paranoid about his position he duplicated the set up on the race bikes rather than let anyone else touch them. I ask whether the seat, bars, pedals and crank length are the same and am told yes. In May with the season only 1/3 of the way through and frustrated with his lack of performance and constant niggling injuries, he flies back to Sydney so I can check out both race bikes. I find that the smallest difference between the position arrived at on the training bike and what has been 'duplicated' on the race bikes is almost 10mm.

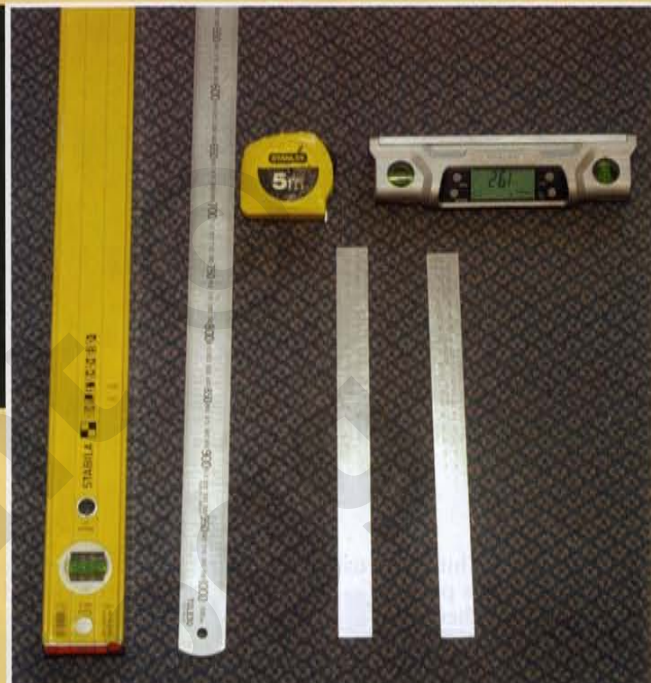
The method that follows is the result of that experience. It is not millimetrically accurate but with care, is repeatable within a millimetre or two. To get better repeatability than this, the equipment necessary is beyond what can be expected of a home mechanic. This method assumes that you either have been bike fitted in the past or that you are comfortable in your current position. You can then keep a record so that when you change bikes or go overseas and hire a bike, you'll still be able to ride comfortably. Once you have these measurements, record them somewhere useful and easily accessible, such as your phone.

ESSENTIALS

If you run more than one road bike you can eliminate variables by using the same seat, shape of bars, pedals, shoes and crank length. I've seen a lot of riders perform better on their training bikes than their race bikes because each is set up differently with different seats, bars shoes etc. This means that because they spend less time on the race bike, they are always trying to adapt to it, whereas the training bike, where the bulk of riding time is spent always feels 'right' because of greater familiarity.

You will need:

Indoor trainer
Measuring tape
Long carpenter's level
300mm steel rule
Digital level
One metre steel rule
Fine white correction pen
(not shown)



Level the Bike

Mount your bike in an indoor trainer and use a long carpenter's level held between the centre of the front and rear axles to ensure that the bike is dead level. You will need to use a phone book or some

other item to lift the front axle high enough to be level with the rear axle. This is important! If you don't level the bike properly, every measurement you take will be inaccurate.



Seat Height

Measure the length of the straight section of your seat rail and place a marker pen dot at the half way point of the straight section of the rail. This is the point through which the seat height will be measured.



Seat



Lay a 300mm steel rule along the top of your seat. If your seat has a perineal depression or cutout, lay the rule as shown so that it runs from the high point at the rear of the seat to the high point near or at the nose of the seat. Take care that the rule is not tilted to either side along the axis.

Seat Angle



Use the tape measure or metre rule to measure from centre of bottom bracket to the underside of the steel rule ensuring that the measuring edge of the tape or metre rule passes through the dot you have placed in the middle of the flat section of the seat rail. Record the measurement as Seat Height.



Seat Angle Relative to Horizontal

Place a dial protractor (available at any hardware store) or digital level on top of your seat and read off the angle and record it. Plus degrees equals nose up and Minus degrees equals nose down. Record the number as Seat Angle. If your seat has a groove or perineal cut out through the middle of it, ensure that the

steel rule is laid along the edge of the seat so you are measuring from the high point at the rear of the seat to the high point at the front of the seat. In the pic above I am using a machined aluminium fitting to ensure that I don't have to do that. If you can access something similar, great.

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Seat Setback

Hold the long carpenter's level vertically with the edge passing through the centre of the bottom bracket. While ensuring that the bubble of the level is centred, hold a steel rule against the edge of the level and measure the distance to the nose of the seat. Record this as Seat Setback.

The rule you are reading the seat setback from is several centimetres from the seat itself and measuring seat setback repeatedly requires an 'eye' which is a learnt skill. Until you develop an eye for this, it is an idea to repeat the process three times and average the result. Ideally you should be able to perform this measurement repeatedly with a plus or minus 1mm error factor. Why not use a plumb line?

Because the plumb line drops from the nose of the seat and is forced outward and forward by the chainstay meaning that using a plumb line to measure seat setback is rarely even close to accurate.

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Seat Nose to Handlebar Distance

Ensure that the front wheel is pointing straight ahead. Measure from the nose of the seat to the centre of the handlebar adjacent to where the bar is clamped by the stem. If you want real repeatability here, use the slot at the top of the stem where the bar is clamped as your reference point. You need to be aware though, that this measurement is only valid for this brand and model of stem, set at this height and angle.

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Seat to Handlebar Drop

Hold the level horizontally so that one end of the level is on the seat directly above the dot on the seat rail. Use the bubble in the level to ensure that the level is horizontal. Use a steel rule to measure from the bottom edge of the level to the top of the handlebar adjacent to the stem bar clamp. Record this as Seat/B Drop.

Drop



Bar Angle

Remove your bar tape and hold the dial protractor against the underside of the rearmost section of your bar drops. Record this as Bar Angle. A plus angle means that this part of the bar runs up towards the front. A minus angle means that it runs down towards the front. Be sure that your front wheel is pointing directly ahead because if it is not, your measurement will not be an accurate one.

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Height

Brake Lever Height

With bar tape removed, hold a steel rule firmly against the underside of the rear most section of your drop or bullhorn bar. Use a second steel rule to measure from the first steel rule to the bottom of the brake lever. You will always have a gap or an overlap. A gap is a 'plus' measurement (bottom of brake lever is higher than

bottom of handle bar) and an overlap (bottom of brake lever is below bottom of handlebar) is a 'minus' measurement. For an accurate result remove your handlebar tape and hold the rule against the handlebar right at the rearmost edge of the bar ensuring that the rule isn't tilted to either side along its long axis.

So there you have it. With practice, this method works well. Two final comments; I strongly suggest that once you have a bike position that you are happy with, mark it. A correction fluid pen is ideal. Place a mark on your seat post immediately where it appears from within the seat tube. Place marks at the front and rear of the seat rail clamp so that if the seat slips forward or backward you have a visual reference to fix it immediately. Place a mark on your bar in the slot of the stem where the bar is clamped and a mark on the bar at the top of the clamp where your brake / gear lever attaches to the bar. A metre long steel rule is always a better way to measure your position than a measuring tape because it doesn't bend and the point at each corner can be used as a reference point and so on. However, it is not as transportable as a measuring tape so practice using both. *96*



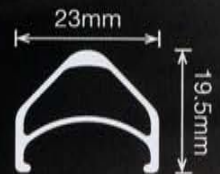
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