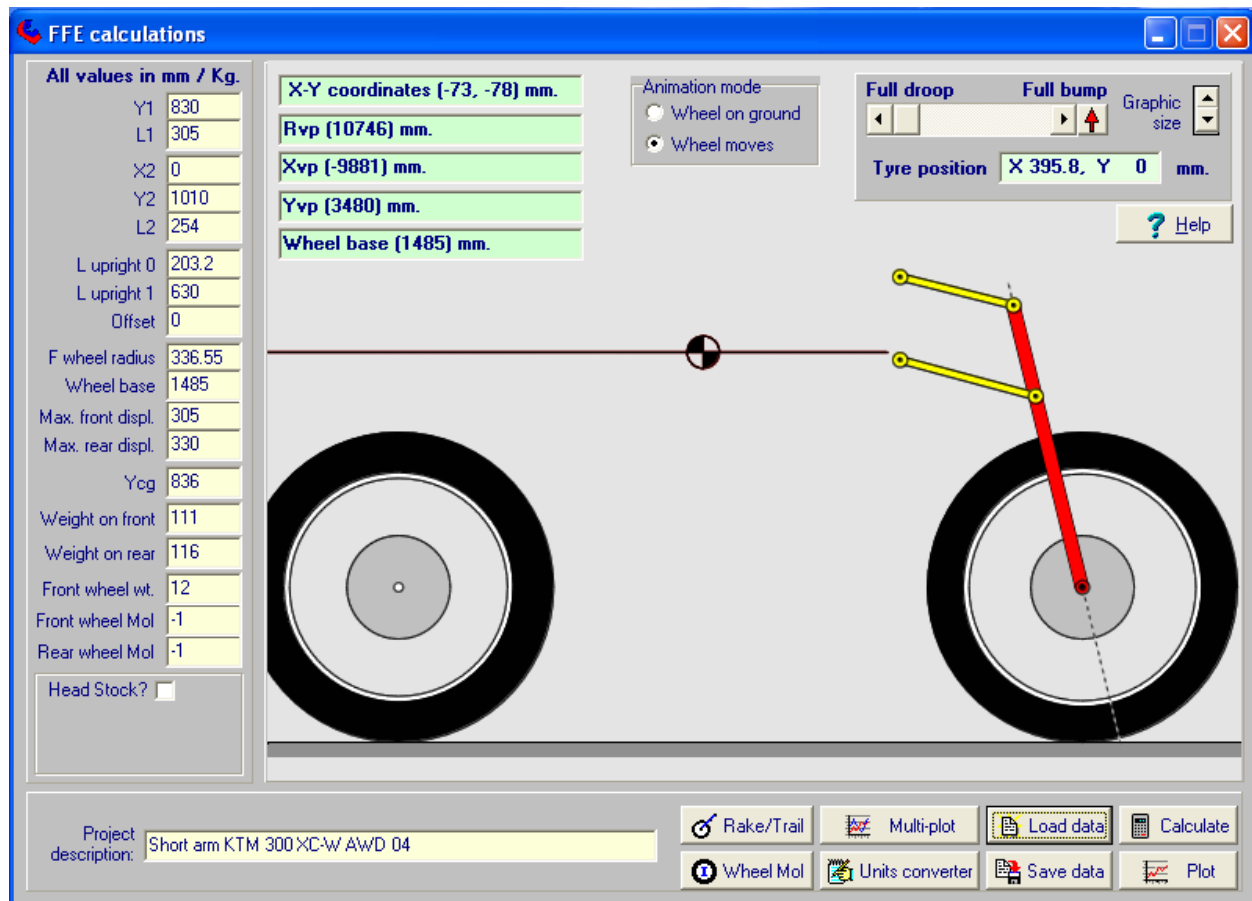
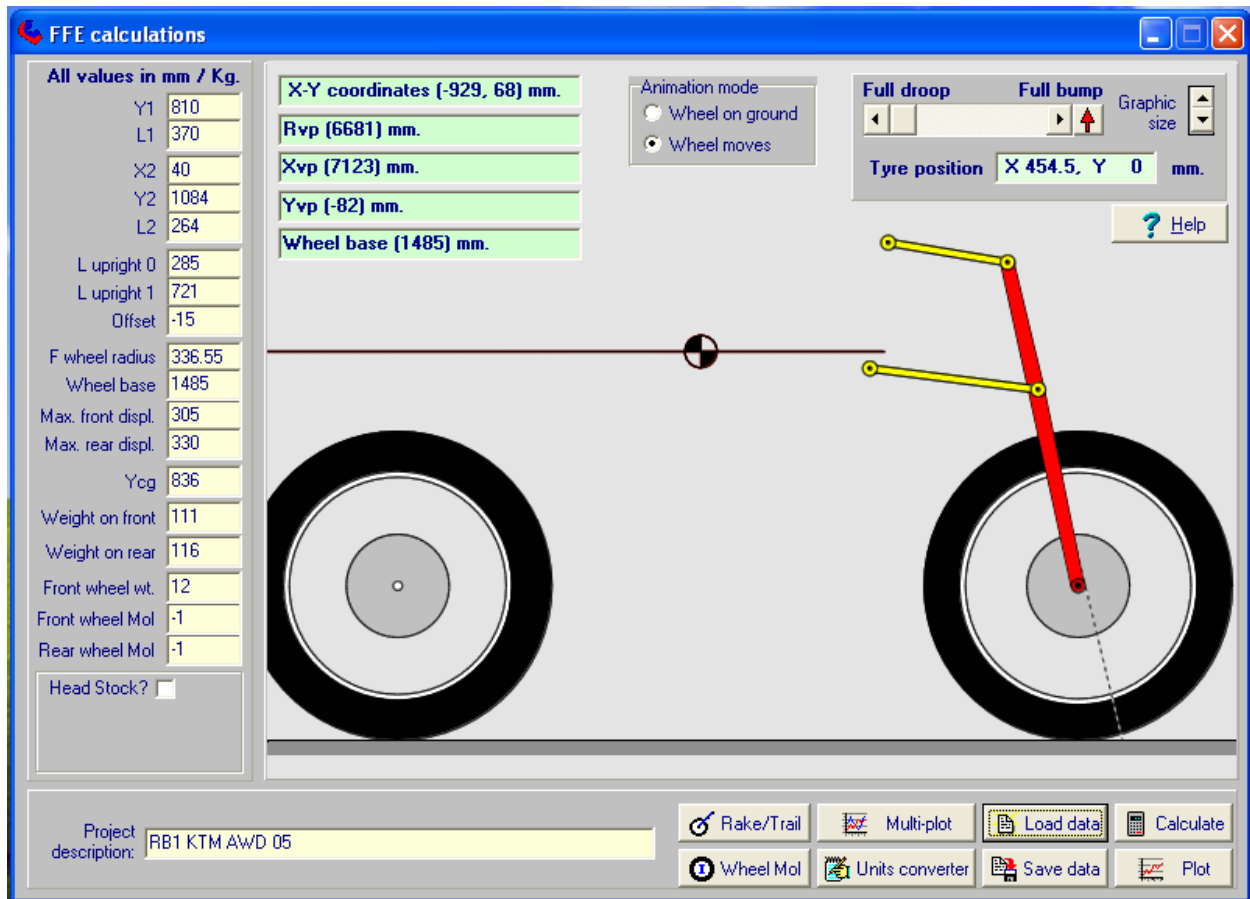
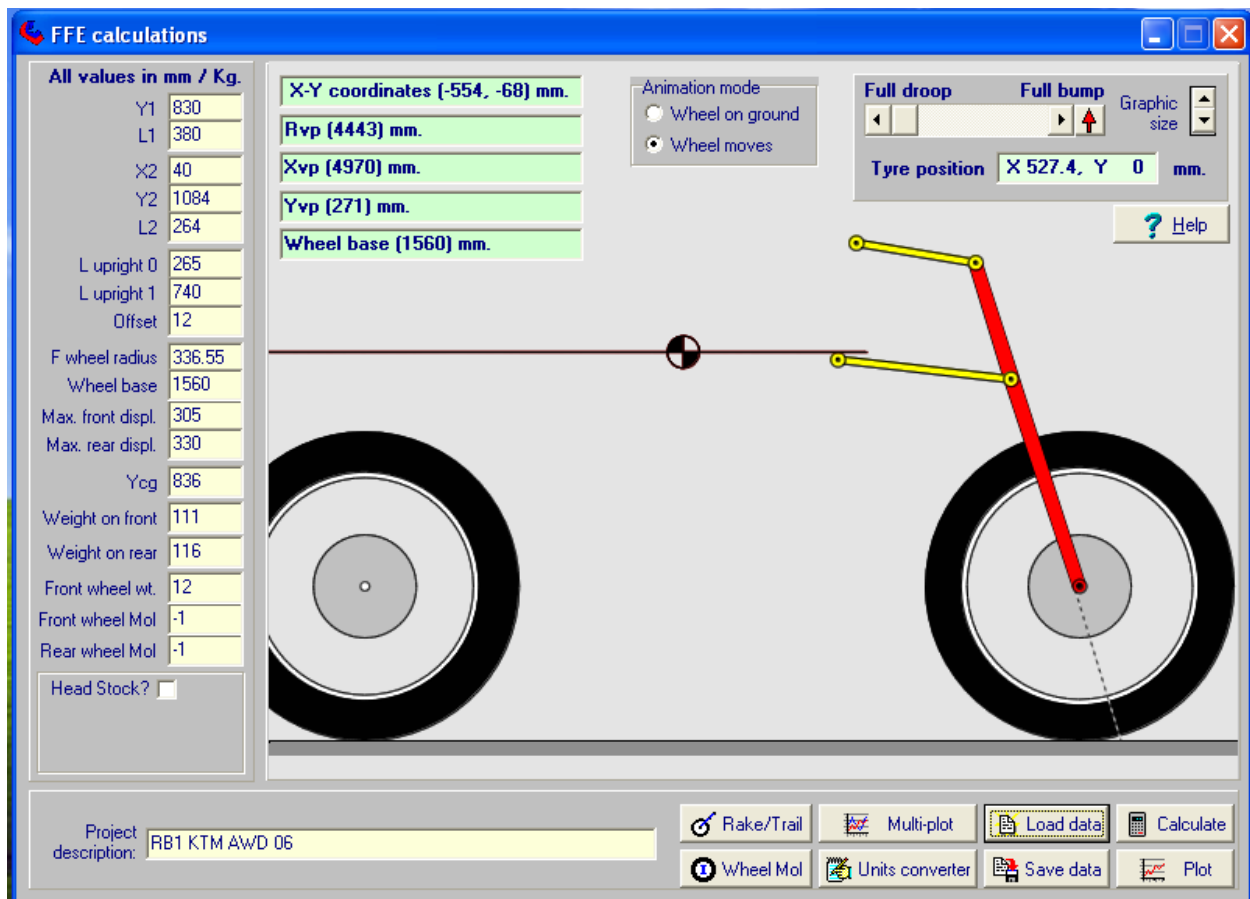




This is the geometry the current prototype uses.

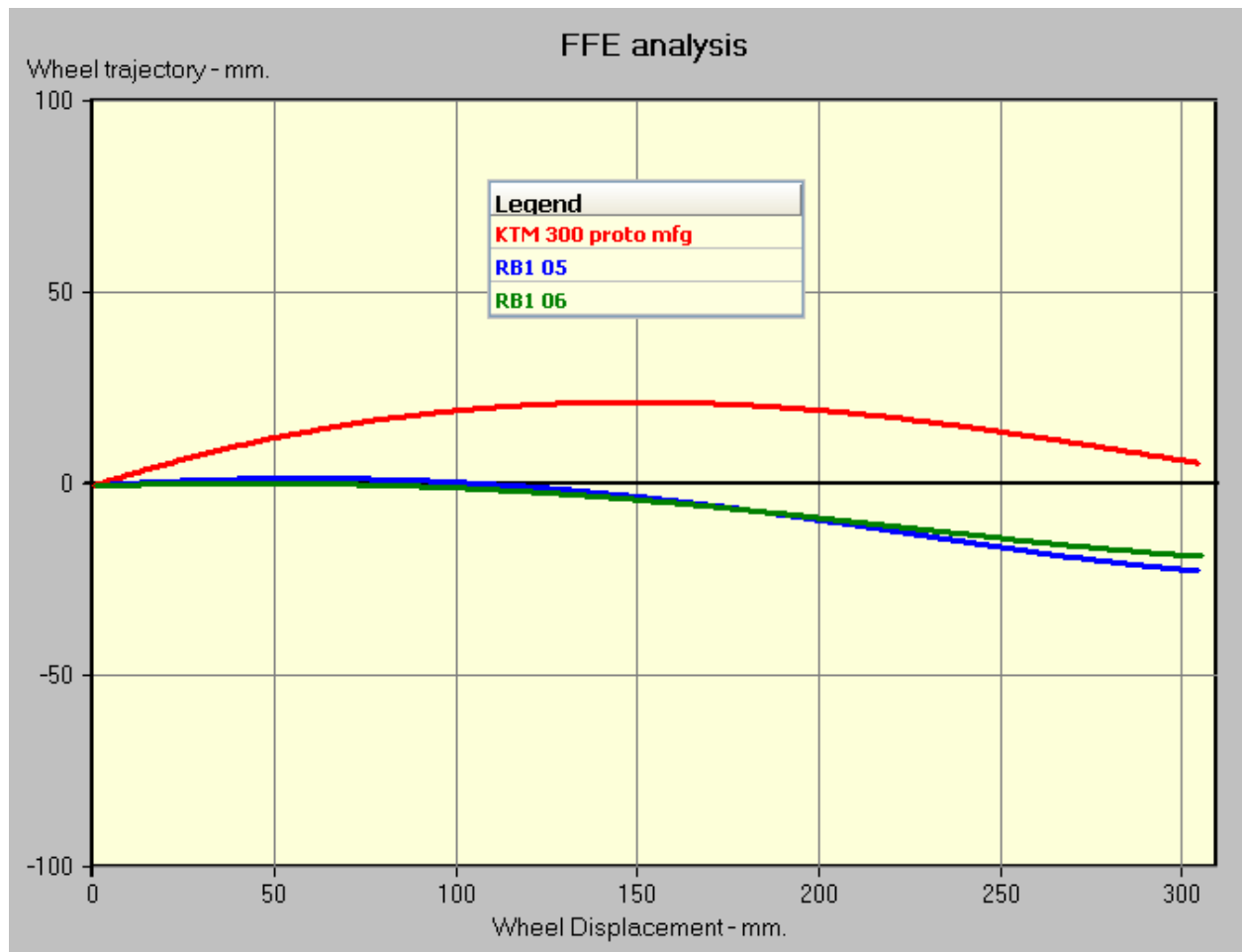


This is my "RB1 05" geometry. Retains the stock wheel base but only has 3 inches between the tire and the suspension arm centerline.



This is the “RB1 06” geometry. You can clearly see the longer wheelbase and greater clearance between the wheel and lower suspension arm. Combined with my plans for a narrower lower suspension arm, this will allow the shock to stick several inches through the lower suspension arm. It also means I have space to add a front shock linkage in the future if I want.

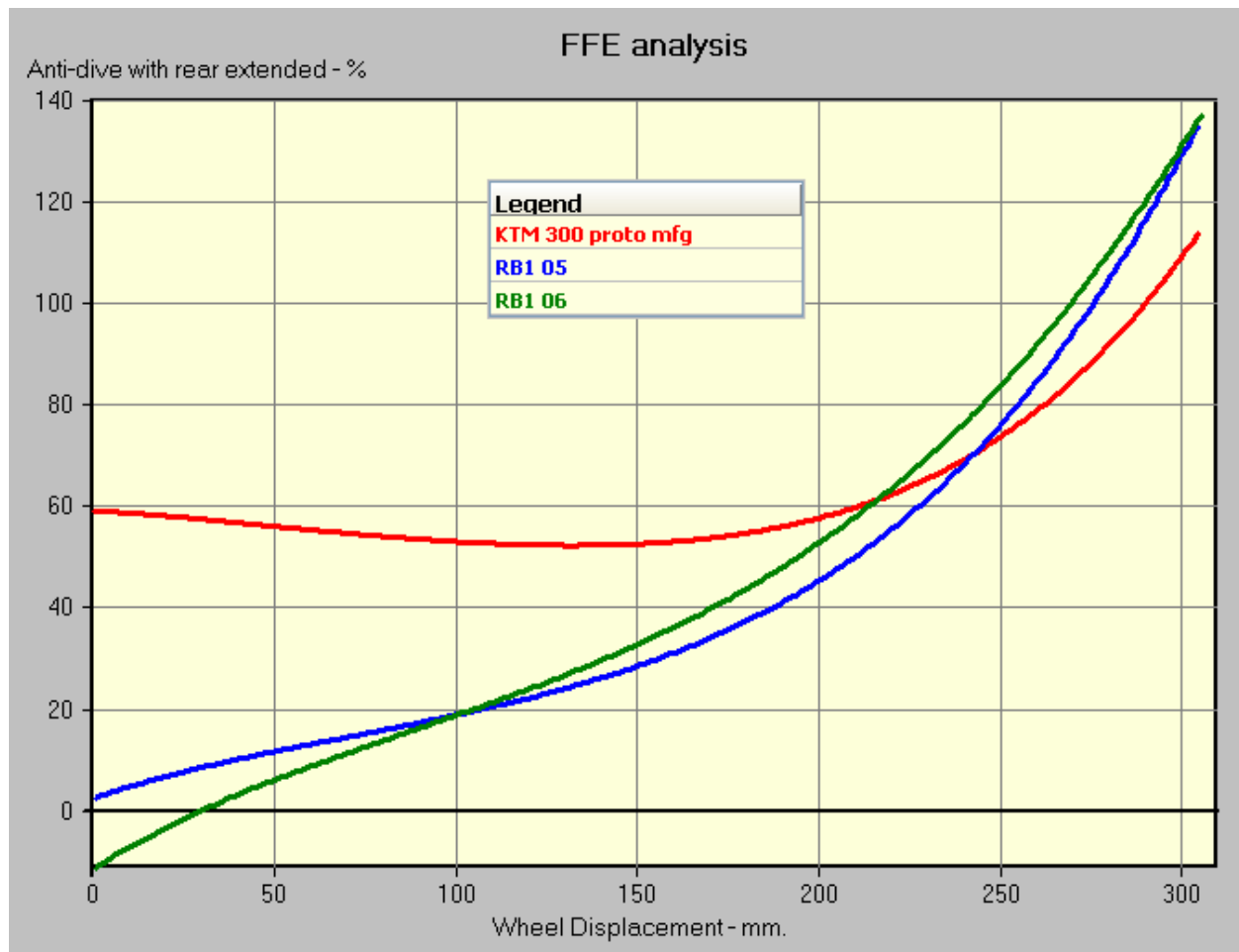
“RB1 06” is my favored geometry, it has 5 inches of space between the tire and the suspension arm centerline and has a better wheel track, but extends the wheelbase 2.8 inches. (a 4.8% change)



Comparison of wheel track for three suspension geometries. "KTM 300 proto mfg" is the geometry of the current prototype.

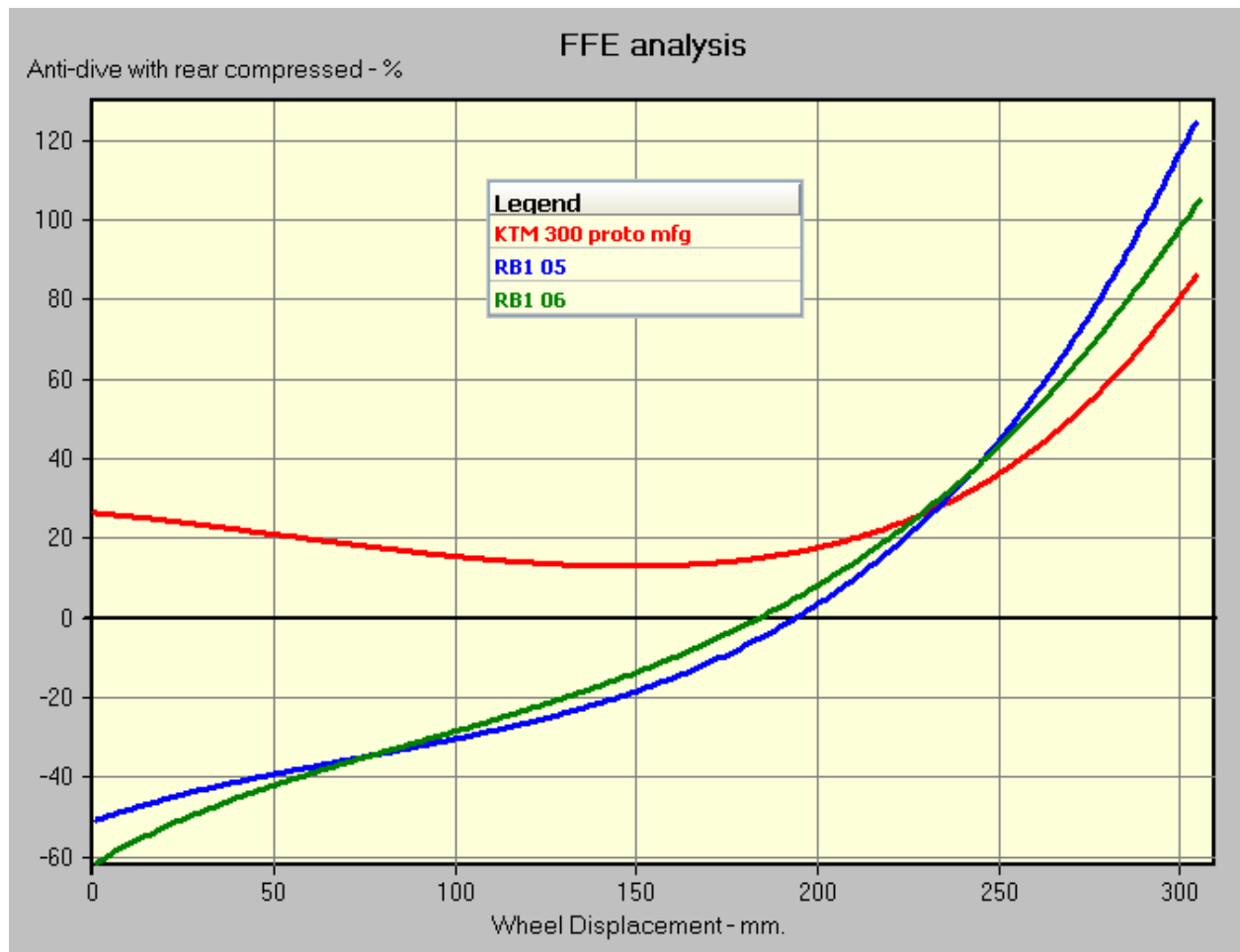
Note, a set of telescoping forks with 30 degrees of rake from vertical, would have a wheel track that passes through 0,0 and 100,-58mm. I eventually plan to add the stock fork to these plots. It looks like I'll have to model them myself so that may take a while to happen.

As I've iterated the new geometry I've found that the current frame nearly fixes the location of the pivots. This is a big pain in the rear, and the reason I have the two "RB1" designs to examine the tradeoffs this forces.

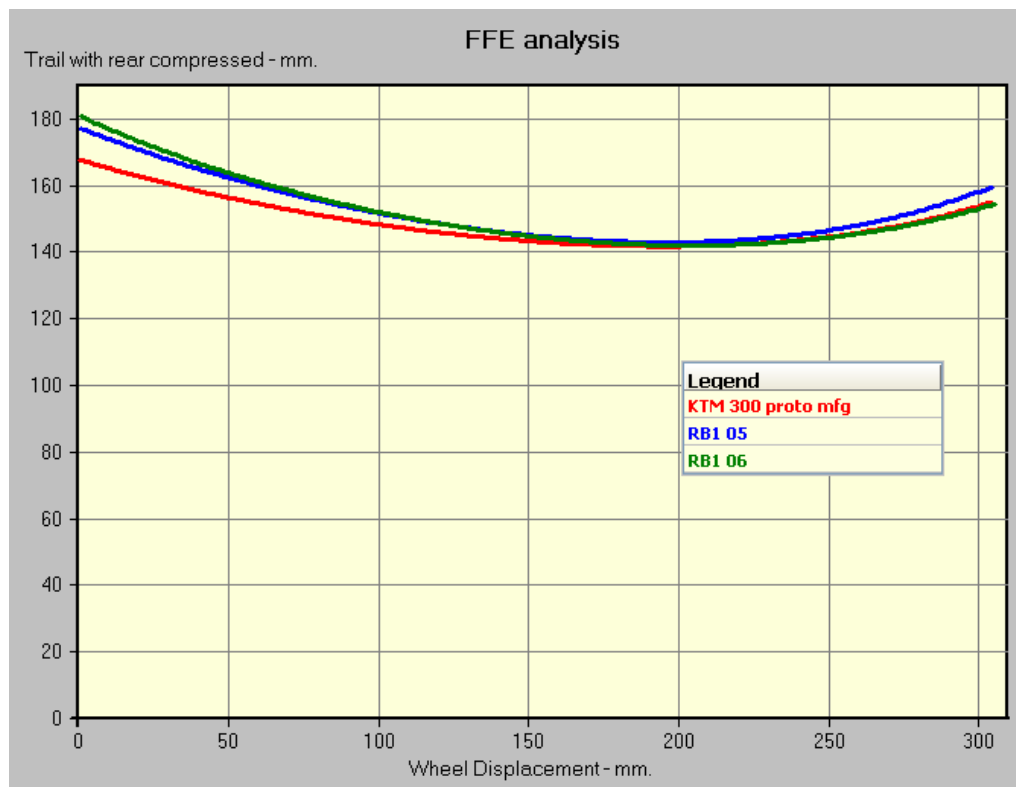
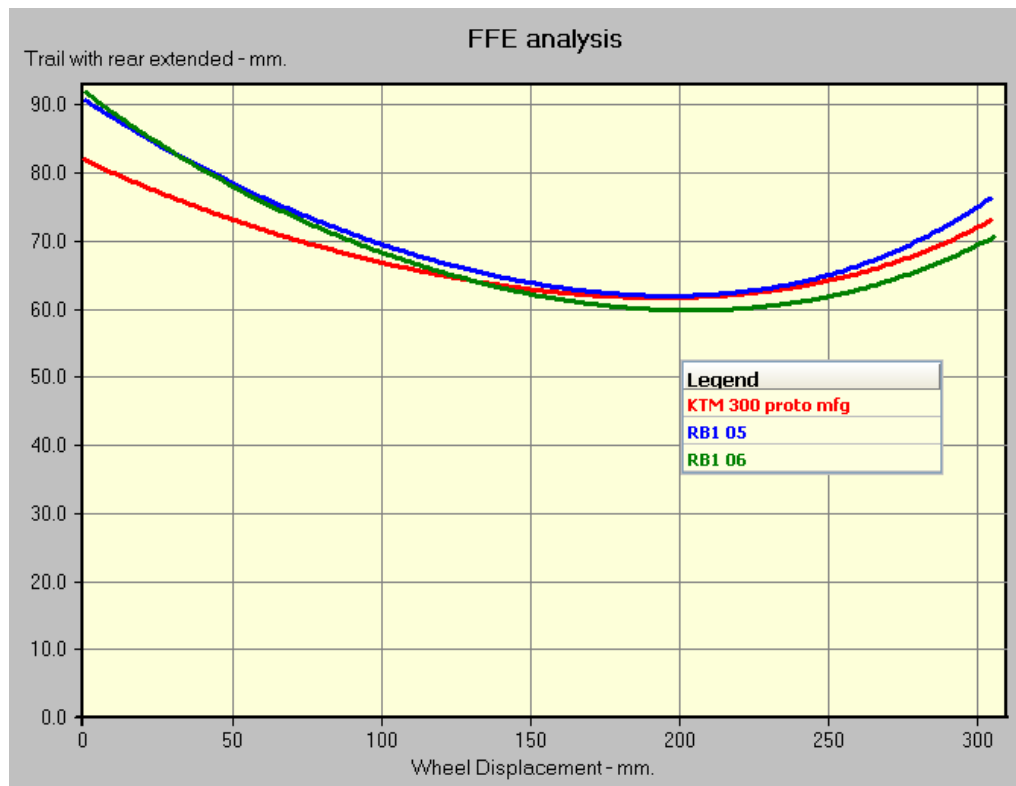


Anti-dive progression of the three designs with the rear wheel fully extended. It's clearly seen here that the forward curving wheel track of the current prototype buys considerable anti-dive in the first half of travel. Both "RB1" designs are similar but "RB1 06" should give a more "linear" anti-dive response. The anti-dive curves of both "RB1" designs slope upwards, this will feel like brake force makes the front spring stiffer. The current prototype only shows a significant slope past 200mm travel. Below 200mm travel, applying the front brake will have no effect on the suspension feel. (other than hardly diving)

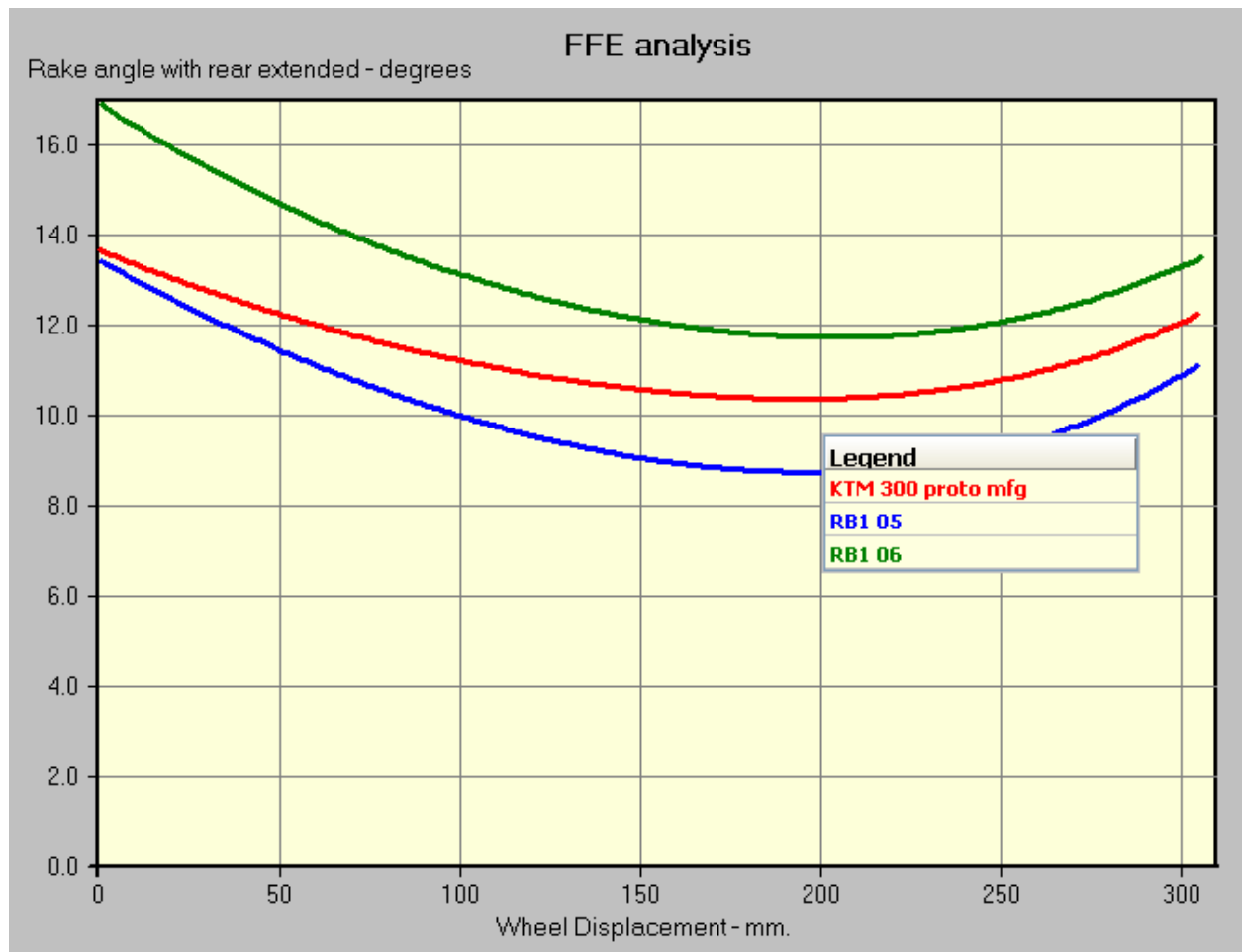
Note: telecoping forks with 30 degrees rake from vertical have a fairly flat anti-dive percentage of -40% to -50% where 0% anti-dive is only dive due to weight transfer, and 100% anti-dive is no suspension movement due to braking.



Anti-dive plotted with the rear tire extended. Basically, everything is just lower.



Trail change, the “RB1” designs vary a bit more than the current prototype and are set for 96mm of trail at ride height. (100mm wheel displacement)



The rake angle (and fork offset) is the key difference between the “RB1” designs that results in the 2.8 inch wheelbase difference. The rake of the “RB1 06” case is closer to stock, so it should have a closer steering feel.