



Prodding by Mike Emery - Photos by Dave Weaver

The Not so Fine Art of Suspension

It seems the latest strain of high performance street bikes sometimes has too many knobs. Sometimes too many knobs ride high performance streetbikes. I have seen many a good sportbike under-appreciated by individuals that miss the set-up and then complain of nasty handling traits. They then proceed to spend many hundreds of dollars in suspension tuning, steering dampers and sometimes different tire brands.

Do you really want to go through life with perfect strangers on the street laughing and pointing in your direction as you ride by looking like that racetrack refugee.

Don't worry there is a cure, its called basic set up. It's not as hard or indeed as complicated as one would think. For this test we used the Yamaha R1. Unfair really because it has a number of unique suspension quirks not found on other bikes. Firstly the longish swingarm and long stroke front fork conveys a seesaw effect that can sometimes mislead the owner to think he or she may have missed the set-up. To set the standard we must convey a couple of things that may need to be addressed before you get your C-wrenches out.

Firstly, if you go charging into a corner on any make and model and grab a fistful of brakes you're going to unbalance the bike anyway. If you coast around that same corner on zero throttle it's going to feel vague too. Try and squeeze your brakes progressively, easy at first then pile on the pressure. Try and get onto the throttle as early as possible afterwards as all bikes handle better under drive. Two rules only? Well, this is not a riding lesson, it's a basic suspension lesson.

First off, get ya' bike out and go grab at least three friends. My suggestion here is to forget about riding for a night and all adjust your bikes together. You'll need a basic tool kit, some beverages of your choice and a big pepperoni pizza. If you're Johnny No-mates you'll need to grab a herd of neighbors. You're going to impress them with your knowledge so be prepared for an elevation of social standing within your subdivision.

Now the R1 has a reputation for being a tad slappy. This, I assure you, is due to improper set-up and can be cured without the need of an expensive steering damper. Let's set the tire pressure first. Incorrect settings too can lead to abnormalities and we want to keep this how-to directed to suspension. I personally use 35psi rear and 33 front. I like a little tire flex as it helps warm the tire up quicker (at expense of wear longevity) but you can go as high as 39/35 (R/FR) for normal day to day riding.

We also need to put tie wraps or zip ties on each of the fork stanchions and a piece of tape as a reference point on the side of the seat. This will facilitate us with the initial sag set up.

Setting static sag.

Quite simply, this is the amount of suspension travel taken up by the bike sitting there with a silly grin on its face and you perched on it. You'll need to set this sag in full riding gear. A set of leathers, boots, gloves and helmet can weigh upwards of 20lbs. A significant amount and enough to upset all of your good set-up if you don't bother. With two people holding the front and rear of your bike bounce up and down on the footpegs and then position yourself on the bike as if riding it. Extra points are awarded for appropriate brmmm brmmm noises.



You Need to Push the Zip Tie Against the Fork Seal with the Rider Sitting On the Bike in Full Riding Kit



This Shows the Difference between the Sag with a Rider on Board and Then With Suspension Pulled Up, it Should be 30mm

Front Sag

Now, slide the aforementioned zip ties to the top of the fork shaft and against the bottom of each fork seal. Then get one or two of Santa's helpers to pull up on the

bars and measure the distance between the topped out fork seal and the zip tie itself. This amount should (depending on bike) be about 30mm.



If it's too little, wind up the preload (clockwise) one line at a time till its right (Put a piece of cloth over the blue alloy to stop it being chewed up). You'll notice as you screw in this blue 14mm preload adjuster the suspension will lift up. If the sag is too little adjust the preload by turning it anti-clockwise.



This Shows Rear Sag At 53.5mm Compressed. (Rider on board Wearing Full Riding Kit)



This Shows the Suspension Topped Out (Pulled Up) As you can see, it's exactly 30mm Difference

Rear Sag

Do the same thing to the rear but this time take your measurement from a reference point on the swingarm to a point on the seat unit directly above it. Measure, pull up and measure again. I settled for 30mm and I had to adjust the ramp style preload adjuster to get this setting. Some Ricky Racers like to use max preload on the rear. Like the front preload this will also raise the ride height. Steering is a little more precise, but you may get a little headshake as a result. Street riding won't necessitate this. Track days might. You choose. Again this action of adjusting preload also adjusts the ride height, too much on the front will also slow steering. Too much on the rear may induce instability, you'll need to find that balance that suits your riding style.



Adjust Ramp Preload to Get That 30mm difference

The front and rear sag you have just set is responsible for allowing the bike to work in its ideal stroke for smooth and efficient handling.



Setting Compression and Rebound Damping.

This is a subjective setting depending how you personally ride. Soft and chewy: for general hooning around. Or gobstopper hard: for wacky racing.



Fork Compression Adjuster



This Shows the Rear Compression Adjuster (Circled by the Blue Alloy)

Setting Compression

The compression adjustment is usually a small screw on the bottom of each fork leg and on the top of the rear spring near the oil reservoir). It controls the downward movement of the suspension stroke, you'll need to set this up to handle the small bumps but not so hard that you feel these bumps and lumps through the handle bar. I set mine at a midway point, which was 6 clicks out from full in on the front and 2 out from full in on the rear to stop the bike from squatting

too much accelerating out of turns.



Setting rebound

OK, you've just set the way a bike behaves when it hits a bump. Next you need to control the speed at which the shocks recover from those same bumps. This is done with the rebound screw set atop the blue preload adjuster on top of the front fork and on the bottom of the rear shock. If you use too little rebound the bike will bounce up and down and pogo you off of your line and possibly off the road. Adding rebound slows that same bounce back down. Adding too much will induce packing down of the suspension though. This means that for every downward stroke on a bump or whilst entering a corner, the fork won't rebound in preparation for the next bump. Consequently you'll get less and less suspension movement until the front starts to "push" or slide because the tire will start trying to do the work of the suspension. Again this is a subjective setting. What feels good for you? I felt happy at 4 clicks out on the front and 5 on the rear.



Top of Fork Leg Showing the Blue Preload Adjuster and the Rebound Screw on Top in the Middle



Rear Rebound Adjuster Hint: Look Under the Chain Side of the Rear Shock

The front and rear compression and rebound settings are responsible for allowing the bike to adjust to small road irregularities and not bump you out of the seat over the occasional pothole.

Conclusion.

Most handling irregularities of the R1 and indeed, most sportbikes, can be ironed out by just setting the sag. This ensures that the bike is operating in its optimum suspension stroke. All sorts of problems can occur if your fat arse is using a third of the suspension travel just to support you in your riding kit. Take your head out of the sand and start being a smart cookie, take some time out and adjust the suspension to suit you, your weight and your riding style. Most people will notice an obvious difference. Always, always take notes on what the stock settings are and what you end up at. If you feel you've gone the wrong direction you can put it

back the way you found it and go hang your head in shame. Newer sportbikes are infinitely adjustable, so do this basic setup every time you take delivery of a new bike and I guarantee you'll ride better, just knowing you're in the right ballpark.

People still pointing at you as you ride past?

It's because your helmet doesn't match your leathers!

MikeE