Suspension Resources

There may be times when you want to fine tune the handling of your bike. The following suspension resources are meant to give you a basic idea of what certain adjustments can do. Suspension is incredibly personalized and subjective. Moreover, two riders may be the same weight, skill and speed, but will have different preferences when it comes to handling. This means that there is no perfect set up across the board. It's where fine tuning using the external clickers, sag, etc. can make a big difference for your personal comfort and speed.

When it comes to testing adjustments, we recommend trying one adjustment at a time. This way you'll know exactly what each change resulted in. When you make an adjustment, ease back up to speed as you notice what kind of change it made to the handling. And sometimes—if not most of the time—the best method will be "guess-and-check". Make a change and see what kind of impact it had. If it was positive, keep it, or go farther to see what the limit is. However, if it was negative, make sure to go back to the original setting, or go the other way.

Should you plan to make adjustments, we recommend keeping a record of the changes you've made. Likewise, it's a good practice to add notes of the result of each adjustment. It can be easy to make a few minor changes here and there and lose track over the course of time. All of the sudden the suspension feels way off and it can be because the clickers are quite far from their ideal position. Maintaining a record will help keep you from going too far and losing track of any external adjustments.

Rear Sag

Properly setting the sag can make a big difference in the bike's handling characteristic. Having the sag too low will make the bike feel squatty and hurt the cornering character of the front end. Conversely, a sag that is tall can lead to an active shock that may be more likely to kick, and a "twitchier" front end.

The first thing to understand is that every rider's preferred sag setting can differ. There are general guidelines for the sag measurement, but each rider may vary either side of this range depending on their riding style.

Generally speaking, most modern bikes tend to like a sag measurement from 100-108mm. We've found that for closed course conditions—motocross, grand prix—riders typically like to be on the lower end of that range—105-106mm. In contrast, desert conditions will sometimes require a slightly taller sag—102-104mm. This can help get a longer travel feel for the faster conditions.

Characteristics of sag that's too high:

- The bike knifes in corners.
- Shock is overly active, or kicks.
- Fishtailing under acceleration.

- Kicking under braking.
- Bike feels stink-bugged.

Characteristics of sag that's too low:

- The front end feels tall and harsh.
- Front end pushes in corners.
- Rear end feels low and harsh in whoops.
- Front end deflects, or it's difficult to hold a line.
- Bike feels choppered.

Setting Your Rider Sag

To set your sag, you'll need a sag measuring tool (recommended), or a tape measurer. A felt pen and a friend are needed as well. Additionally, a hammer and punch will be needed, should an adjustment be required.

Take the Initial Measurement

The first measurement is made with the bike on a stand and the rear wheel hanging, off the ground. Measure from the rear axle straight up to a point on the rear fender. Set the sag tool to zero and mark that spot on the rear fender with the pen. Alternatively, if you're using a tape measurer, measure the distance to the marked point on the rear fender. Make sure to write that number down.

Sit on the Bike and Measure Again

Next, take the bike off the stand and make sure the ground is very level. To emphasize, measuring the sag on a hill will change the measurement one way or the other, causing it to be inaccurate. Bounce on the seat a couple of times to make sure there's no stiction in the shock to hinder the measurement. Now, sit on the bike towards the front of the seat, where the slope of the seat stops you. Balance yourself as best you can on your toes, with your hands on the handlebars, and all of your weight on the bike.

If you're using a sag tool, have your friend look at the measurement at the dot that you marked on the rear fender. So long as you zero'd the sag tool initially, the number at the dot on the fender is your sag measurement. If you're using a tape measurer, write down the measurement to the dot with you sitting on the bike. The difference between this and the initial measurements is your sag.

Adjust Sag, if Necessary

Should you need to adjust the sag, you'll use the hammer and punch to loosen the lock spanner nut. Alternatively, if the shock has a locking collar with a bolt, you'll simply loosen the collar

bolt. If your sag measurement was low, twist the spanner nut—or locking collar—clockwise to put more tension on the spring. Alternatively, if your sag was high, twist counter-clockwise. Measure your sag again. Once your sag reached the measurement you're after, lock down the spanner and go ride.

Measuring the Static Sag

Once your sag is properly set, you can check your static sag. This will help determine if your shock spring is the correct rate for your weight.

Take the same measurement as you did for rider sag, with the bike on the stand and rear wheel off the ground. Take the bike off the stand on level ground. Bounce up and down on the seat a couple times with your hands or arms so the shock settles in. Now, without a rider on the bike, measure the sag once more.

If the measurement is more than 45mm, your shock spring may be too stiff. A measurement of 30mm or less may mean that your shock spring is too soft. Check with your suspension tuner for their recommendations.

Fork Height in Triple Clamps

The main characteristics affected by the fork height are the cornering and stability. Sliding the forks up in the triple clamps can impact numerous characteristics. Most notably, it lowers the front of the bike and steepens the steering rake slightly. Additionally, it puts more weight on the front end. In action, this will usually help the bike corner sharper and take some weight off the rear end. Conversely, it can make the front end feel a little "twitchier", especially at speed.

Lowering the forks in the clamps will raise the front end, lessen the rake, and transfer more weight onto the rear of the bike. This can make the bike more stable at speed. Conversely, it can also make the steering a little less precise, with the front end more likely to push.

As an example, you'd be more likely to drop the forks in the clamps—raising the front end—for deep sand. This will make the bike more stable and less likely to knife.

Characteristics of a front end that's too low:

- Stink bug feel; the back end feels tall.
- The front end is harsh under braking; there may be too much weight on the front.
- Knifing, or tucking, when cornering.
- Unstable or "twitchy" at speed

Characteristics of a front end that's too tall:

- A "choppered" feel; the back end feels low.
- The front end feels too light and dances or deflects under acceleration.
- Front end pushes in corners

Fork Compression

The fork compression adjustment will have an effect on how the forks compress on impacts. It's primary effect has to do with the low-speed action. Specifically, this has to do with larger, slower impacts like heavy braking and jump landings. The external adjuster will have minimal effect on high-speed square edges and sharp hits.

Turning the adjuster clockwise will stiffen the compression. Alternatively, turning the clicker counter-clockwise softens the compression. We recommend increments of 1-3 clicks at a time when making adjustments.

Characteristics that may require stiffening fork comp.:

- The forks bottom on impacts.
- Front end dives too low under braking or in corners.
- Forks are harsh under braking from riding too low in the stroke.

Characteristics that may require softening fork comp.:

- The front-end rides high and deflects.
- Forks don't dive enough when cornering; need to track better.

Fork Rebound

The fork rebound adjustment will have an effect on how the forks recover from impacts. Adjusting the rebound can help the forks stay up and recover faster over sharp chop. Likewise, it can keep the forks from bouncing up too quickly after absorbing an impact.

Turning the adjuster clockwise will stiffen the rebound, slowing it down. Alternatively, turning the clicker counter-clockwise softens, or speeds up the rebound. We recommend increments of 1-3 clicks at a time when making adjustments.

Characteristics that may require stiffening (slowing) fork rebound:

- The forks dance under acceleration.
- Front end bounces up after jump impact.

- The forks bounce up out of ruts.

Characteristics that may require softening (speeding up) fork rebound:

- Forks pack under braking; ride too low.
- The front end feels dead.
- The forks are harsh when braking over bumps.
- Front end is harsh at high speeds.

Shock High-speed Compression

The high-speed compression adjuster affects how the shock absorbs quick hits and sharp-edged bumps. For example, if the shock needs to better absorb acceleration chop, it can help to soften the high-speed. Additionally, it can have a slight impact on the ride-height of the rear end. For instance, it can be adjusted if the rear end of the bike needs to ride slightly taller or squat a bit more when cornering.

Turning the adjuster clockwise will stiffen the high-speed compression. Alternatively, turning the clicker counter-clockwise softens the high-speed. We recommend turning in 1/4-1/2 turn increments when adjusting.

Characteristics that may require stiffening high-speed comp.:

- Rear end feels low, especially under acceleration or cornering.
- Shock bottoms on flat landings.
- Shock wallows or feels vague when cornering.
- The shock has a "short-travel" feel.

Characteristics that may require softening high-speed comp.:

- Rear end rides high; feels stink-bugged.
- Shock feels harsh over acceleration chop.
- Rear end needs to squat and track better when cornering.

Shock Low-speed Compression

The low-speed compression adjuster influences how the shock absorbs longer-duration hits and rolling bumps. In particular, it can make a difference if your shock wallows or feels soft over slower, rolling whoops.

Turning the adjuster clockwise will stiffen the low-speed compression. Alternatively, turning the clicker counter-clockwise softens the low-speed. We recommend increments of 1-3 clicks at a time when making adjustments.

Characteristics that may require stiffening low-speed comp.:

- Shock wallows under acceleration.
- Rear end feels loose and soft.
- Shock bottoms in g-outs or rolling jump faces.

Characteristics that may require softening low-speed comp.:

- Shock doesn't absorb rolling bumps or whoops.
- Rear end won't settle, feels stiff on jump faces.

Shock Rebound

The rebound adjuster on the shock affects how quickly the shock recovers after an impact. With this in mind, the goal with the rebound adjuster is to have the shock come up fast enough to recover after each compression. However, it shouldn't be so fast that it has a rebound kick after absorbing a bump.

Turning the adjuster clockwise will stiffen the rebound, slowing it down. Alternatively, turning the clicker counter-clockwise softens, or speeds up the rebound. We recommend increments of 1-3 clicks at a time when making adjustments.

Characteristics that may require stiffening (slowing) shock rebound:

- The shock is too active and dances in successive bumps.
- Shock lifts and dances under braking.
- Rear end kicks up after the shock hits and absorbs a bump.

Characteristics that may require softening (speeding up) shock rebound:

- The shock packs down under acceleration.
- Rear end feels harsh under acceleration.
- The rear end swaps in successive whoops.