1 Page Suspension Setup Guide

serious bicycle suspension
shockcraft

This is a basic setup guide produced by Shockcraft to help our customers get their suspension sorted. This guide is for initial setup that can be easily and quickly done in a carpark, at a trail-head or at home. Expect to fine-tune your settings more on the first few rides.

Tuning is not only rider size dependent, but terrain and aggression dependent. More aggressive riders need more spring rate and more damping. Choppier and rockier terrain can need less damping to let suspension move faster but not higher spring rate. Faster riders need more spring rate (higher frequency) for both support and rebound speed. Some people are happy to let suspension do it's thing as unhindered as possible, others want it wound down tight.

Air Pressure & Spring Rates

Springs (air or coil) hold you up and provide rebound force based on compression.

Wind all the adjusters on your fork and shocks open (fast). Then go bounce around on the bike on a flat bit of ground (lawn, driveway etc). Feel how fast the suspension pushes back at you.

Spring too firm (coil too stiff or air pressure too high), then it'll push back too quickly and will feel harsh and jiggly. Frequency is too fast, spring needs softened.

Spring too soft (coil too weak or air pressure too low), then it'll push back too slowly and will feel soggy and wallowy. Frequency is too slow, spring needs stiffened.

Keep adjusting until it feels about right. More aggressive riders will naturally want a firmer feel and more relaxed riders will want a softer feel. So it does balance out.

If you have rear suspension then it *must* balance with the front. Adjust the springs or air pressure until when bouncing on the bike level the rear and front compress & rebound evenly.

Extra Air Valves?

Negative air (e.g. MRP Fulfill) set it at positive pressure. Your tuning window is small.

Second positive chamber (e.g. Manitou IRT, Ohlins or SD-DVC): set both the same for initial frequency, then split and fine tune. Manitou & SD 1.5-2x multiplier works well. Ohlins can be higher.

Coil Preload

This adds static compression to the spring to set ride height. Use it after spring rate has been confirmed by frequency above. Zero point is about 1 turn to stop the spring rattling.
Not enough preload and you can sag too far, geometry is compromised.
Too much preload and you can damage the shock and spring.

Air Volume Adjustment

Volume changes the relationship between the air spring stiffness, (frequency) and ride height.
Too much volume needs more pressure to achieve a correct frequency and will ride too high in the travel, will not have enough sag to deal with dips in the trail and it will feel harsh.
Too little volume (too many spacers/bands/tokens inside) and pressure is too low for correct frequency, sag is too much, ramp up is too big and mid-stroke gets too short. This is a common problem.
Reducing volume at the same frequency means lower air pressure, more sag and more ramp.
Increasing volume at the same frequency means higher air pressure, less sag and less ramp.

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Rebound Damping (LSR & HSR)

Low Speed Rebound (LSR) is the rebound dial most forks or shocks have. It adjusts the bypass around the HSR damper circuit (if the damper has one). High Speed Rebound (HSR) adjustments are not common but do exist; these are sometimes called "end stroke rebound".

Fork LSR: Ride around on the flat and pump the fork with your weight over the front.
Too much LSR makes the fork dead and doesn't help you lift it. Open adjuster & repeat.
Too little LSR makes the fork porpoise (continues to cycle up & down) after a bump. Close adjuster & repeat.

Shock LSR: Slam your rear down on the seat and see how the rear shock responds. If it kicks you fast enough up that you feel yourself losing contact with the seat, then more LSR damping is needed. If it feels dead and offers no kick then less LSR damping is needed.

HSR is for controlling deep stroke return unweighted once the LSR circuit has choked. More spring rate requires more HSR.

Too much HSR makes the wheels unable to follow rough ground at speed and relies on LSR being too far open.
Too little HSR makes the LSR adjustment lose range. LSR will be too far closed for fine-tuning.

Low Speed Compression (LSC)

LSC is adjusting the bypass around the HSC circuits. It is often the only compression adjustment.

LSC gives you support, resists brake dive and body/chassis movements. It also provides traction.
Too little LSC and the fork will rapidly dive and offer no support or traction on small bumps. The rear will wallow.
Too much LSC will make the suspension feel slow, dead and harsh over bumps.

LSC is limited by your damper's base-tune inside. If your fork/shock is harsh with no LSC then you need a revalve to a softer base-tune. If you run full LSC and it's not enough support then you need a revalve to a firmer base-tune.

High Speed Compression (HSC)

HSC circuits are active once the damper compresses fast enough to choke the LSC circuit and then build enough pressure to activate the base-valve. HSC adjustment firms up the base-valve.

Not enough HSC and you'll blow through the travel too fast on sharp hits.
Too much HSC and your suspension will run rough and not use enough travel to absorb each bump.

The faster and harder you ride the more HSC you will want to (and need to) run. The more relaxed and floating you ride the less HSC you will want to run. It's also terrain specific. On choppier and rockier trails (i.e. Alexandra & Cardrona) you can't run a lot of HSC without the suspension spiking on sharp hits that aren't big enough to threaten full travel but generate high shaft speeds. On smoother and more groomed trails you can run a lot more HSC without spiking. This works great on jump tracks where you need bottom out resistance, especially if you suck at landing like me.

Still not working:

If your suspension has the right spring rate, the right ride height, you're already running LSC wide open, HSC wide open and it's still harsh and kicks then your base tune is too firm. Your fork or shock needs a revalve to provide a softer base tune so it can be tuned correctly.

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