1 Page Suspension Setup Guide

serious bicycle suspension
shockcraft

This simple setup guide is produced by Shockcraft to help everyone get their suspension sorted. It 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, strength 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.

First, pump up your tyres so you can better feel the suspension. You can soften them again after.

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. One hard end will overload the other.

Extra Air Valves?

Negative air (e.g. MRP Fulfill, RS Dual-Air): set at positive pressure. No tuning window here.

Second positive chamber (e.g. Manitou IRT, Ohlins): set both the same for initial frequency, then split and fine tune. Manitou 1.5x is minimum, 2x split works well, 3x more progressive.

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. Some coil shocks are weak.

Air Volume Adjustment

Volume changes the relationship between the air spring stiffness, (frequency) and ride height.

- Too much air volume needs more pressure to achieve a correct frequency, will ride too high in the travel, has less sag but bottoms out easily.
- Too little air volume (too many spacers/bands/tokens inside) means pressure is very low for correct frequency, sag is too much, ramp up is too much and you can't use full travel. This is common.
- Reducing air volume (more spacers) means lower air pressure for the same frequency, more sag and ramp.
- Increasing air volume (fewer spacers) means higher air pressure for the same frequency, less sag and ramp.

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Rebound Damping (LSR & HSR)

Low Speed Rebound (LSR) is the rebound dial most forks/shocks have. It adjusts the bypass around the HSR shimmed circuit (if the damper has one). High Speed Rebound (HSR) adjustments are found on Fox forks & Cane Creek forks/shocks. Sometimes called "end stroke rebound", HSR is co-dependent with LSR and makes setup time consuming.

Start with HSR in the middle (Fox & most Cane Creek) or closed (Cane Creek Kitsuma).

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.

- 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, bike will be unstable and will buck you after a landing. More spring rate requires more HSR.

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.
- Too much LSC will make the fork feel slow, dead and harsh over bumps.

LSC works with your damper 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 work in parallel with LSC. If HSC is preloaded then it won't open until the damper compresses fast enough to choke the LSC circuit and build enough pressure to open the shims/valves. HSC adjustments firm up the base-valve, usually by adding preload, which feels worse than having the right internal base-tune.

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

Faster and harder riders need and want more HSC to keep the bike responsive. More relaxed and floating riders run less HSC. It's also terrain specific. On choppier and rockier trails (e.g. Alexandra & Cardrona) you can't run a lot of HSC without the fork beating you up 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 land heavily.

Still not working:

If your suspension has the right spring rate, the right ride height, you're 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. Conversely, if you've got compression clickers closed and it's just getting harsh you need a firmer base tune with less preload to give support without harshness. We can help with that.

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