

**ROCKSHOX**

# Suspension Setup and Tuning Guide



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# Warranty and Trademark

Read the full warranty policy for your components at [www.sram.com/warranty](http://www.sram.com/warranty).

For information about trademarks used in this manual, visit [www.sram.com/website-terms-of-use](http://www.sram.com/website-terms-of-use).

# Introduction

To achieve maximum suspension performance, proper setup and tuning is essential. This guide will help you identify and understand the features and adjustments that may be included on your RockShox suspension, as well as guide you through spring setup, damper adjustments and tuning, and air spring bottom out tuning.

Tuning suggestions are starting points. It may take trying various adjustments to find the settings that work best for each individual rider, bicycle, and trail condition.

Try the **Quarq ShockWiz** suspension tuning device for more detailed ride data analysis and setting suggestions. Go to [www.quarq/shockwiz.com](http://www.quarq/shockwiz.com) for more information.

Go to [RockShox Trailhead](#) for suggested air spring pressure and rebound damper settings for your front suspension.

Go to [www.sram.com/service](http://www.sram.com/service) for additional product and technical information.

- Front suspension air spring pressure and coil spring tables are available in the *RockShox Front Suspension Oil, Air, Coil, Token, and Specification* documents.
- For a complete list of available front and rear suspension coil springs, and Bottomless Tokens and Rings, consult the *RockShox Spare Parts Catalog*.
- Consult the RockShox service manual for your suspension for complete disassembly and assembly, as well as Bottomless Token and coil spring removal and installation procedures.

Your product's appearance may differ from the images in this publication.

Setup procedures may picture the fork or rear shock only. Perform actual sag and tuning on a complete, assembled bicycle.

Performance examples illustrated are for conceptual purposes and may vary from actual performance.

# Front Suspension - Air Spring Pressure - DebonAir+

Optimal DebonAir+ air spring pressure results in small bump sensitivity, mid-stroke support, and the use of full travel. Setting DebonAir+ air spring pressure does not require the 'Set Sag' procedure.

After pressurizing a DebonAir+ fork to the recommended starting pressure, adjust the dampers:

- **All DebonAir+ fork models:** Adjust the rebound damper to the recommended setting ([RockShox Trailhead](#)).
- **DebonAir+ fork models with Charger 3 RC2:** Adjust compression dampers to the MIDDLE setting.
- **DebonAir+ fork models with Charger Flight Attendant, Charger RC, and Rush RC:** Adjust compression dampers to the OPEN setting.

Go for a test ride and make air pressure and damping adjustments as needed to achieve optimal performance.

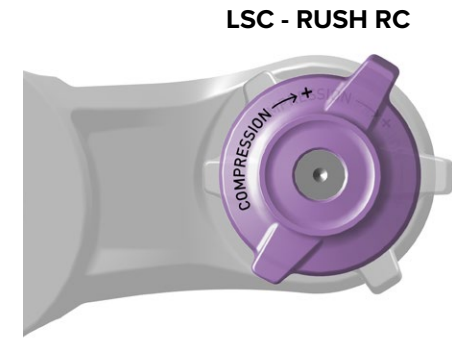
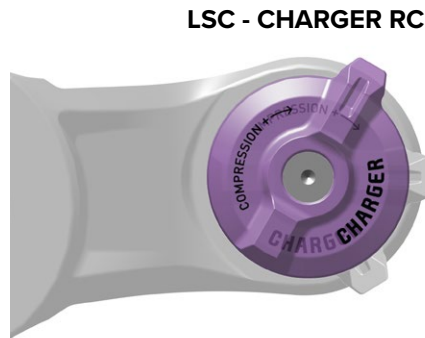
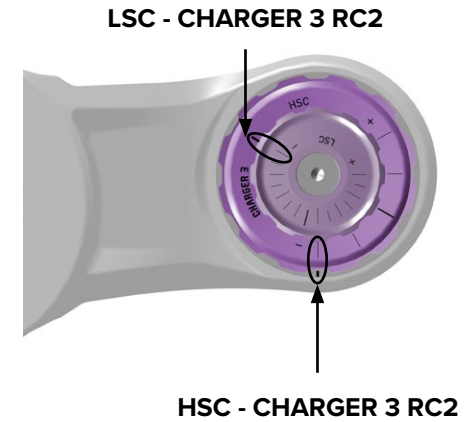
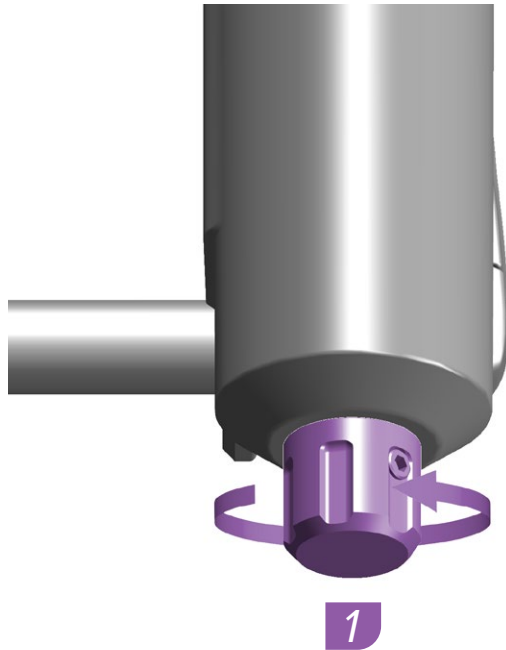
Bottomless Tokens can be added or removed to further fine tune spring feel. Refer to the service manual for your fork for Bottomless Token quantities, and installation and removal procedures.

## Getting started:

Front suspension air pressure recommendations listed on the back of your fork, and at [RockShox Trailhead](#), are suggestions for initial spring setup.



# Set Air Spring Pressure - DebonAir+



1. Adjust the rebound damper counterclockwise, to the full OPEN position.

2. Adjust the compression damper(s) to the full OPEN setting(s).

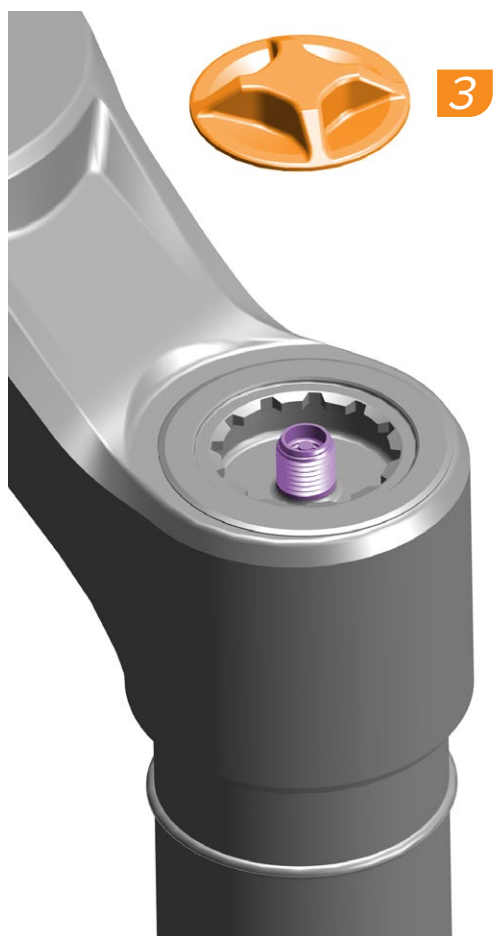
**Charger Flight Attendant\***: Low Speed

\*See the Flight Attendant User Manual for procedures.

**Charger 3 RC2**: Low Speed and High Speed

**Charger RC**: Low Speed

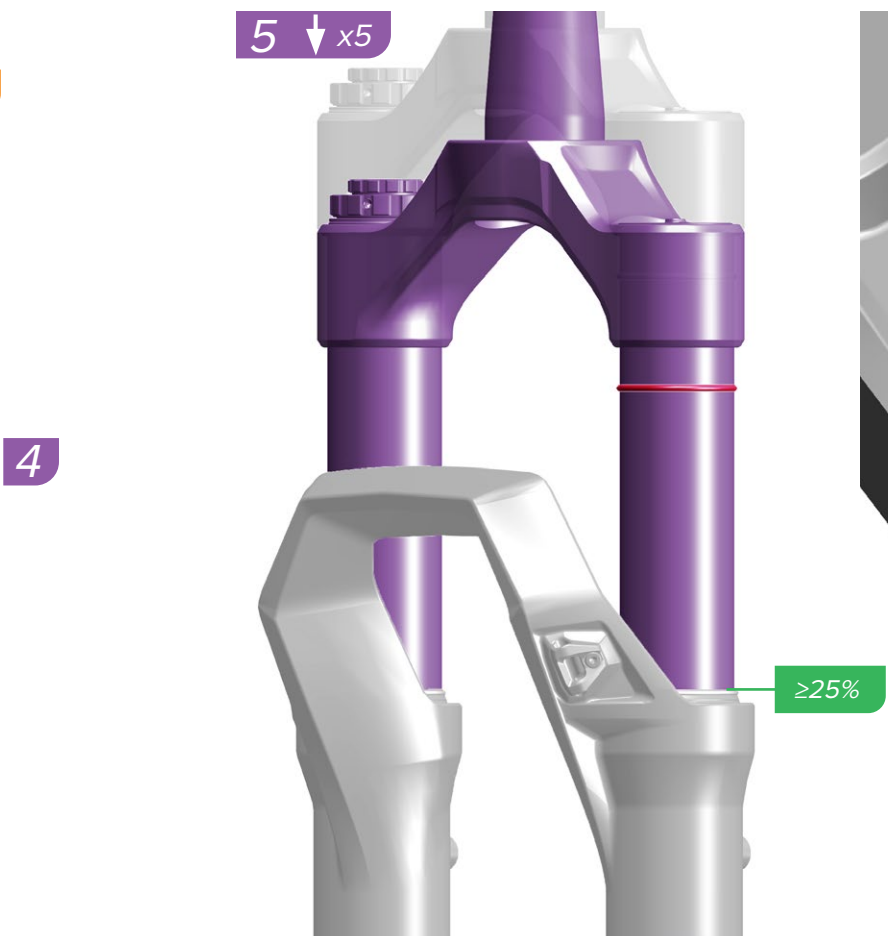
**Rush RC**: Low Speed



3. Remove the air valve cap.

4. Pressurize the DebonAir+ air spring to 50% of the recommended pressure on the fork air pressure decal or at [trailhead.rockshox.com](http://trailhead.rockshox.com).

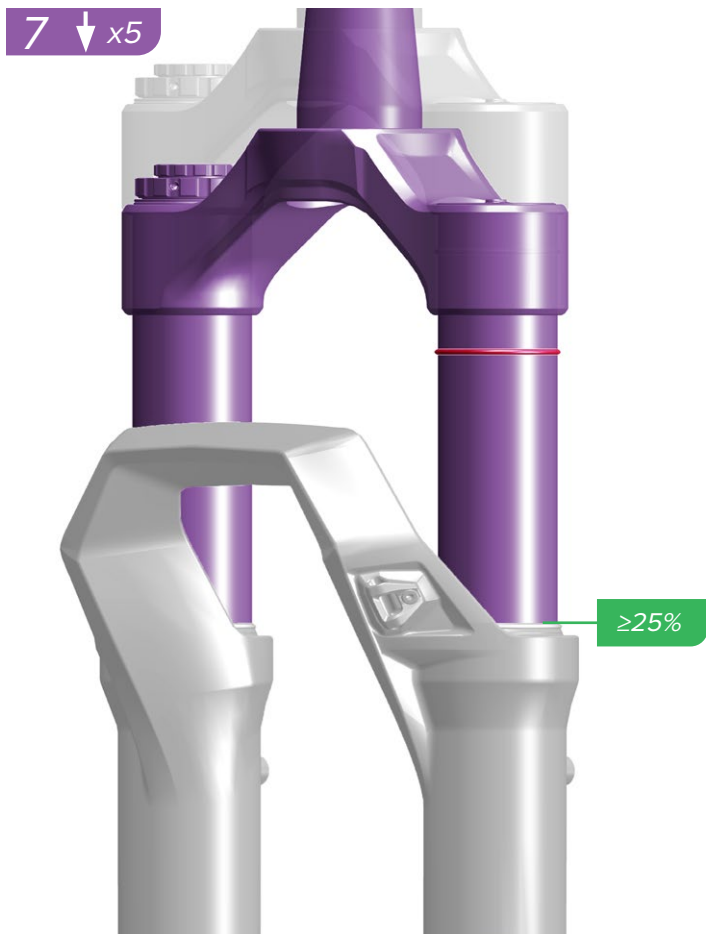
Remove the pump. Do not compress the suspension with the pump attached.



5. Slowly compress the fork (at least 3 seconds per compression) to 25% travel five times to equalize positive and negative air pressures. Air pressure equalization ensures the air spring is accurately pressurized.



6. Pressurize the DebonAir+ air spring to 100% of the recommended pressure on the fork air pressure decal or at [trailhead.rockshox.com](http://trailhead.rockshox.com). Remove the pump. Do not compress the suspension with the pump attached.



7. Slowly compress the fork (at least 3 seconds per compression) to 25% travel five times again to equalize positive and negative pressures.

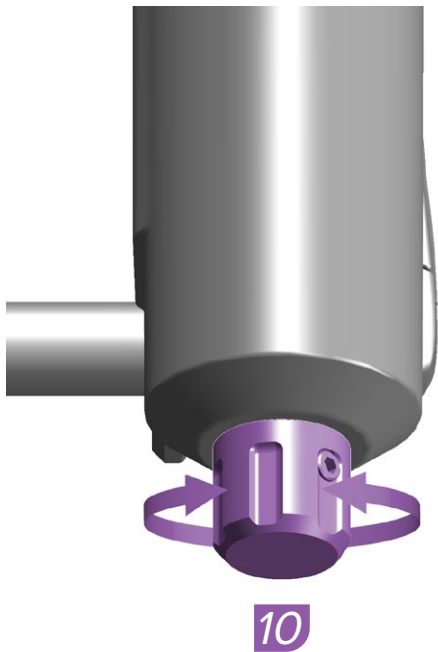


8. Pressurize the DebonAir+ air spring once more to 100% of the recommended pressure on the fork air pressure decal or at [trailhead.rockshox.com](http://trailhead.rockshox.com).

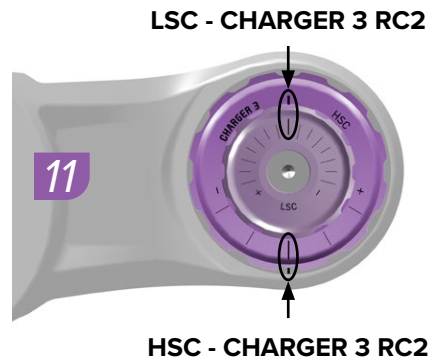


9. Install the air valve cap.





10. Adjust the rebound damper as recommended at [trailhead.rockshox.com](http://trailhead.rockshox.com).

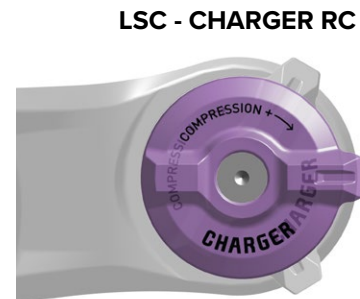


11. **Charger 3 RC2:** Adjust the Low speed (LSC) and High speed (HSC) compression damper adjusters to the MIDDLE settings to start.



11. **Charger Flight Attendant\***, **Charger RC**, **Rush RC:** Adjust the compression damper adjuster to the OPEN setting to start.

\*See the *Flight Attendant User Manual* for procedures.



12. Go for a ride to test your air spring and damping settings. The fork should achieve full travel at optimal air spring pressure.

Adjust air spring pressure and damper settings as preferred.

Bottomless Tokens can be removed or installed to fine tune spring feel.

# Suspension Sag - Solo Air, DebonAir, Dual Position Air, Dual Air, Coil, Dual Position Coil

Suspension sag is the percentage of full travel that the suspension compresses when the rider, including gear, is on the bicycle in a normal riding position. Setting the correct sag allows the suspension to perform effectively. Optimal suspension sag is the result of setting the proper suspension spring rate.

- **More sag** (20% - 30%) increases bump sensitivity and suspension movement. More bump sensitivity results in a smoother ride and is typically preferred on longer travel bicycles.
- **Less sag** (10% - 20%) decreases bump sensitivity and suspension movement. Less bump sensitivity results in a more firm, efficient ride and is typically preferred on shorter travel bicycles.
- **Too much sag** is an indicator that the spring rate should be increased by either increasing air spring pressure or changing the coil spring to a stiffer spring.

**Air spring suspension forks:** Air pressure, after sag is set, may differ from the recommended starting air spring pressure printed on your fork based on travel, bicycle geometry, and rider preference.

**Important** - Sag must be set before making any damping adjustments.

## Sag Gradients:

Many RockShox forks and rear shocks include sag percentage gradients and a sag o-ring on one upper tube, or the rear shock body or shaft. If a sag o-ring is not on your suspension, install a plastic cable tie around the upper tube, shock body or shock shaft, just tight enough so it does not move. Remove the cable tie before riding.

If your fork or rear shock does not have sag percentage gradients, to calculate target sag, multiply the target sag percentage by the total amount of suspension travel. Use a ruler to measure the length of exposed upper tube, damper body or shock shaft above the wiper seal to the sag o-ring.

If your suspension's travel is unknown, before sag is measured, fully compress the suspension to bottom out. Release and use a ruler to measure the length of exposed upper tube, damper body, or shock shaft below the sag o-ring or stopping point of the wiper seal.

## Getting started:

Front suspension air pressure recommendations listed on the back of your fork, and at [RockShox Trailhead](#), are suggestions for initial spring setup. Front suspension coil springs are available in a number of spring rates ranging from soft to extra firm. Refer to the *Front Suspension Oil, Air, Coil, Token and Specifications* document for coil spring recommendations based on rider weight.

Rear shocks are available with an air spring or coil spring. Due to the specificity of frame designs, it is best to follow the [Set Rear Suspension Sag](#) procedure to determine the correct spring rate. Rear shock coil springs are available in a number of spring rates based on the eye-to-eye shock length and compression stroke dimensions of your shock. Refer to the *RockShox Spare Parts Catalog* for available springs.



# Set Front Suspension Sag

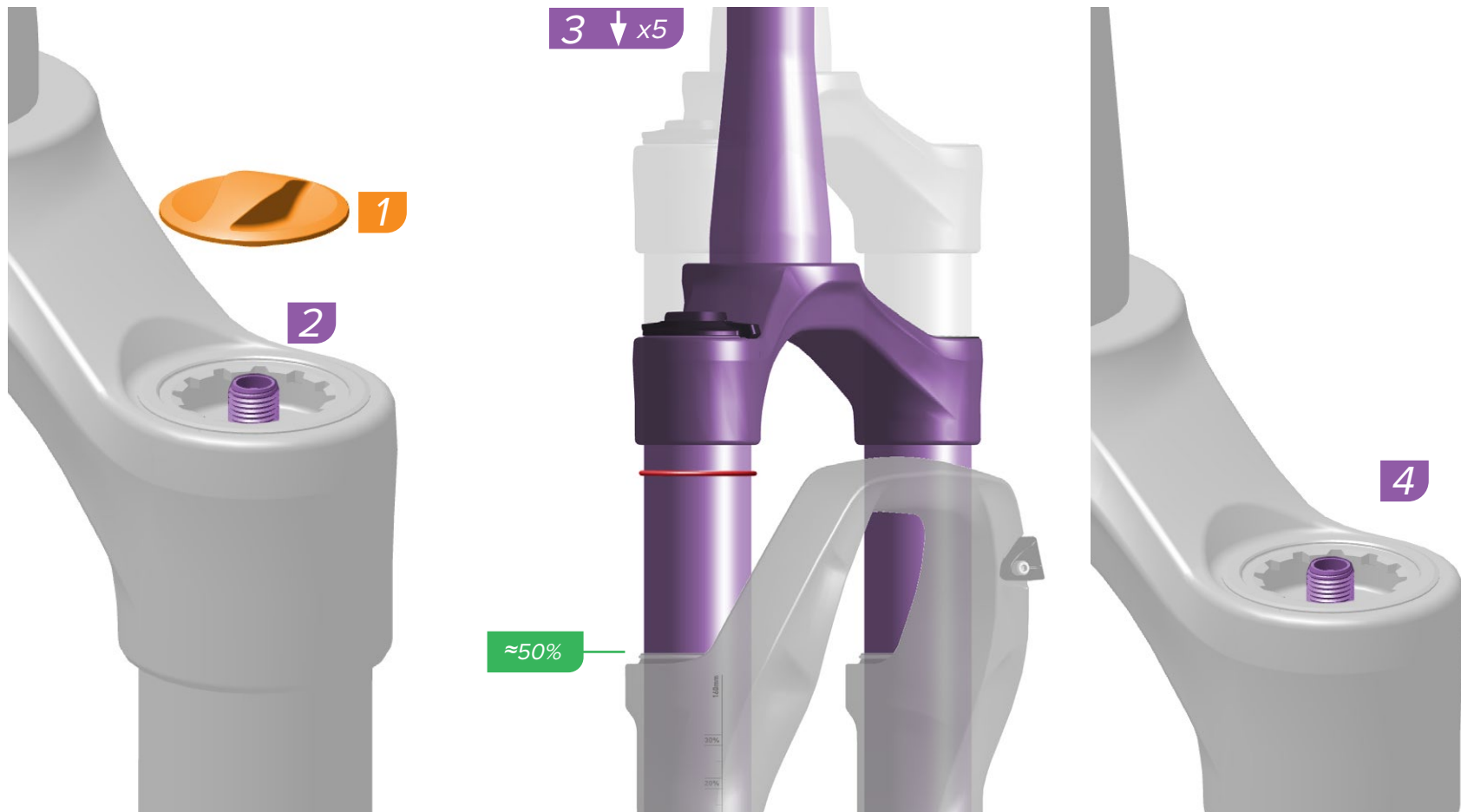
## Open Dampers



1-2. Before setting sag, set the dampers to the full open positions. Rotate the adjusters counterclockwise until they stop.

**Remote:** Set the compression damper to the open position.

# Air Spring - Solo Air, DebonAir, Dual Position Air



1. Pressurize the air spring to the recommended starting air pressure.

2. Remove the pump. Do not compress the suspension with the pump attached.

**Dual Position Air only:** Pressurize the fork in the full travel position. Proceed to [step 6](#).

3. **Solo Air and DebonAir only:** Compress the fork through at least 50% of its travel five times to equalize positive and negative air pressures.

Air pressure equalization ensures the positive air spring is accurately pressurized.

4. Pressurize the air spring to the recommended starting pressure once more.

Remove the pump. **Do not compress the suspension with the pump attached.**



5. **Solo Air and DebonAir only:** Compress the fork through at least 50% of its travel five more times to equalize positive and negative air pressures.



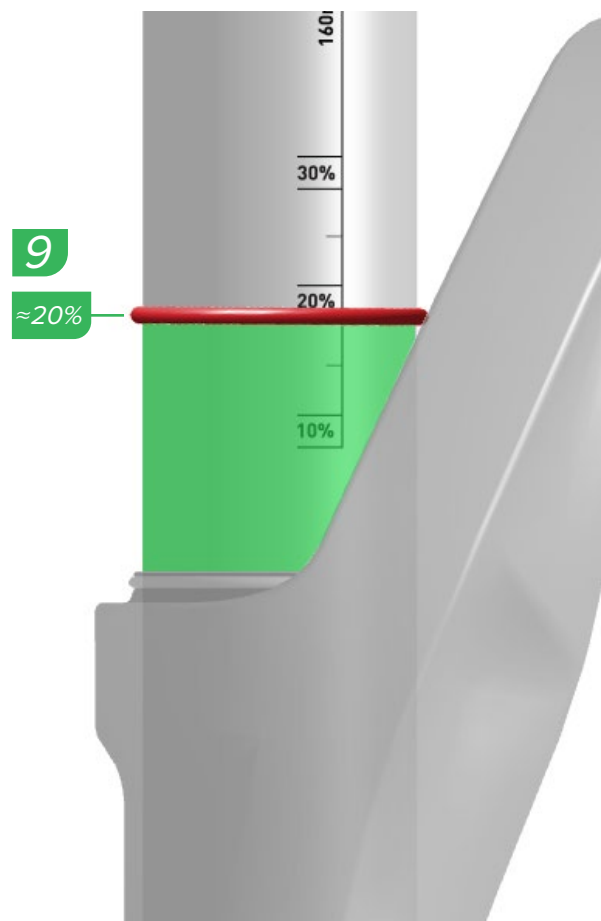
6. With riding gear on, and an assistant holding the bike, stand on the pedals, and compress the fork three times. Then sit or stand in your normal riding position.



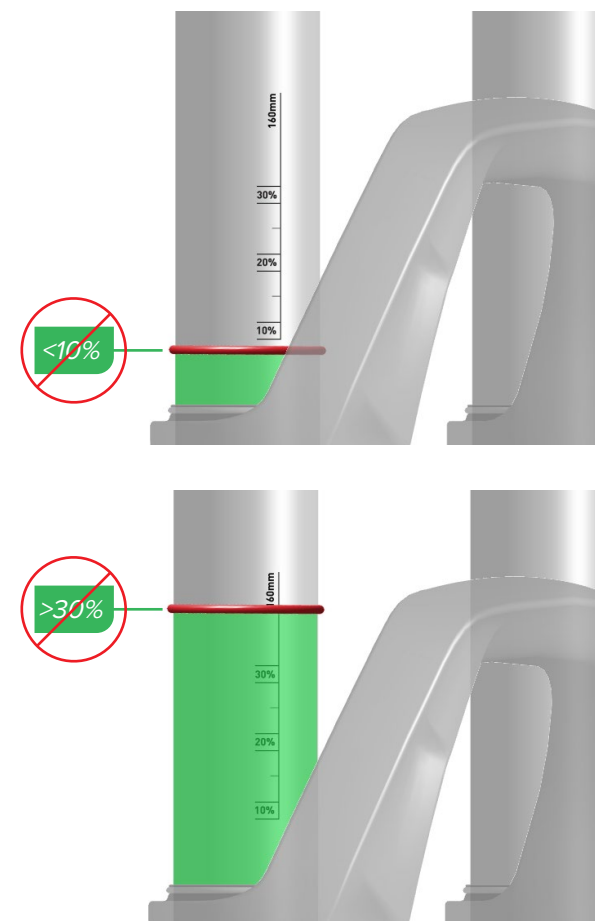
7. Have your assistant slide the sag o-ring down to the top of the dust wiper seal.



8. Gently step off the bicycle without compressing the fork any further.



9. Note the sag percentage where the o-ring stopped.



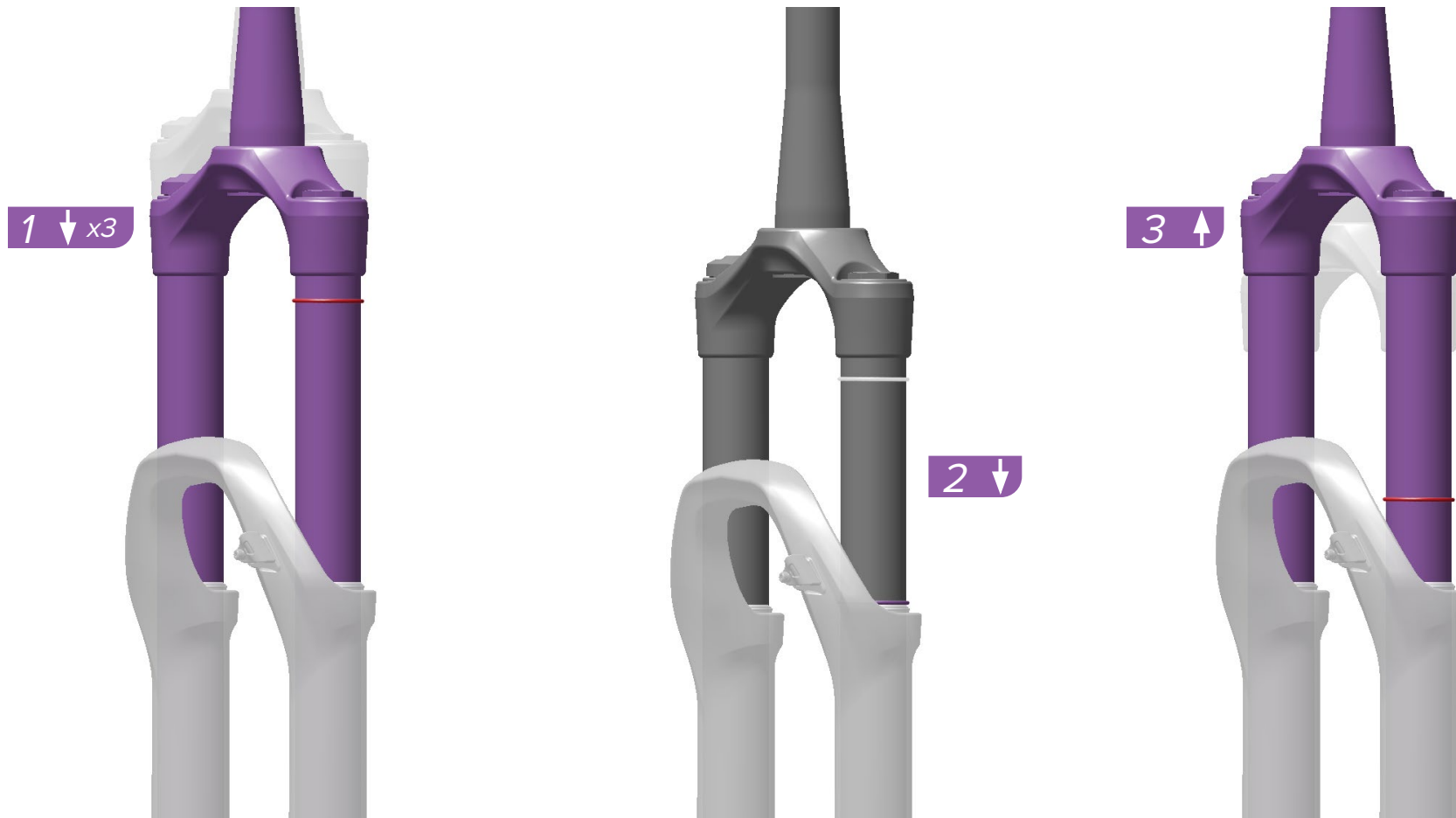
If your [target sag](#) percentage is not achieved, air pressure must be adjusted.

**Increase** air pressure to **decrease** sag.

**Decrease** air pressure to **increase** sag.

Repeat the sag process until your target sag percentage is achieved.

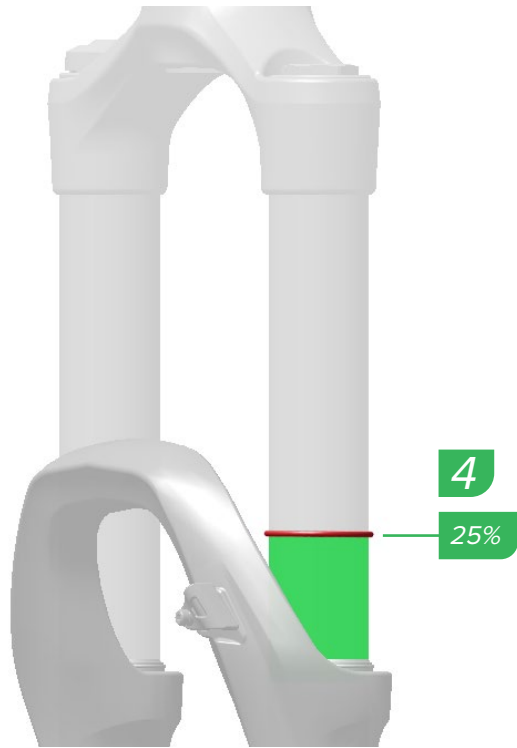
# Coil Spring - Preload Spacers



1. With riding gear on, and an assistant holding the bike, stand on the pedals, and compress the fork three times. Then sit or stand in your normal riding position.

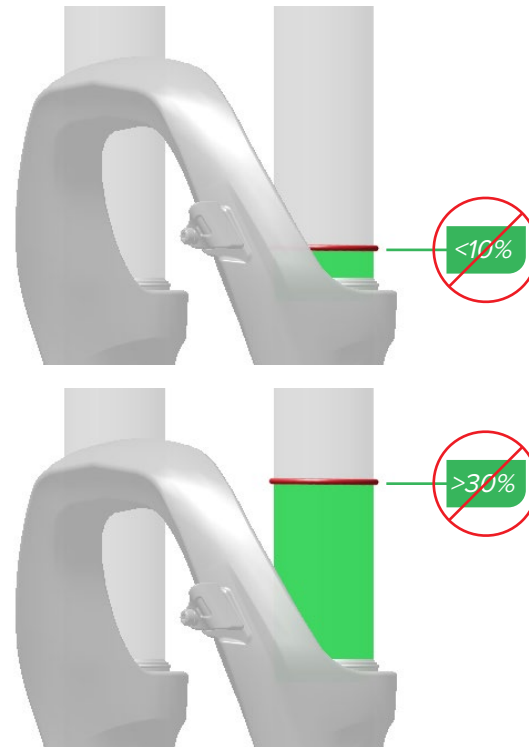
2. Have your assistant slide the sag o-ring down to the top of the dust seal.

3. Gently step off the bicycle without compressing the fork any further.



4. Note the sag percentage where the o-ring stopped.

If your [target sag](#) percentage is not achieved, spring preload adjustment and/or coil spring replacement must be performed.

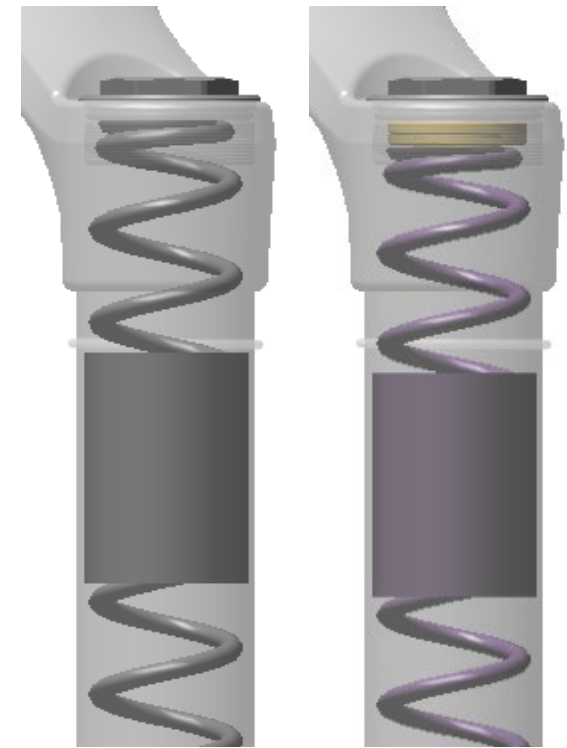


Preload spacers compress or decompress the spring without initiating travel.

The coil spring can be preloaded with the maximum number of preload spacers specified for the fork model. Refer to the Service Manual for your fork for more information.

**Remove** preload spacers to **decrease** preload and **increase** sag.

**Install** preload spacers to **increase** preload and **decrease** sag.



Spring preload can be used to fine tune sag, but preload does not change coil spring rate and is not a substitute for the proper coil spring.

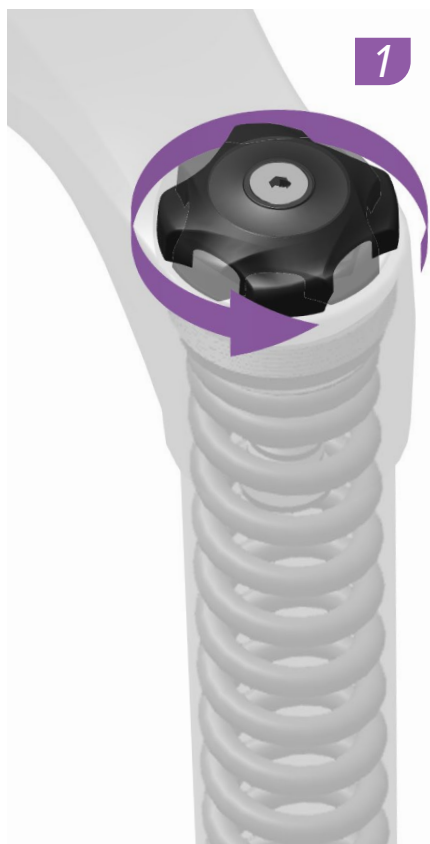
If your [target sag](#) cannot be achieved with the maximum number of preload spacers, replace the coil spring with a firmer spring.

If your target sag cannot be achieved with zero preload spacers, replace the coil spring with a softer spring.

Repeat the sag process until your target sag percentage is achieved.



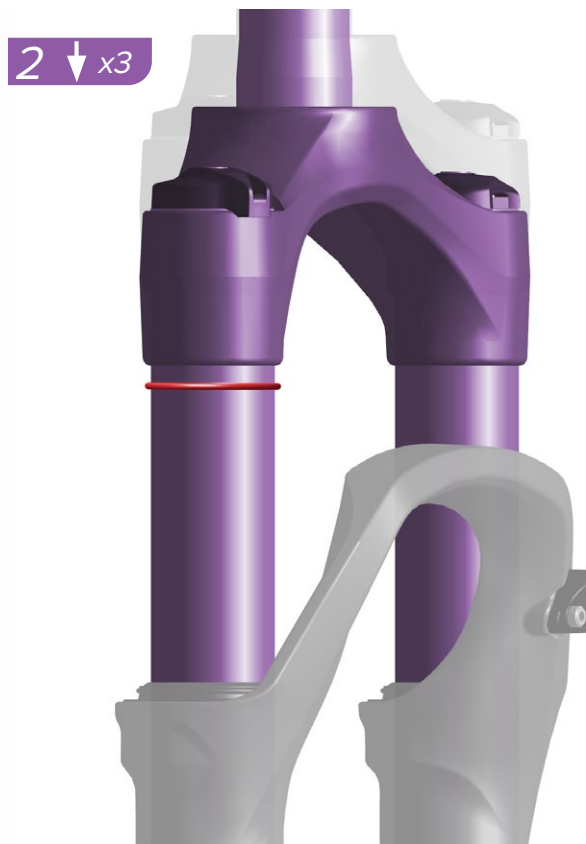
# Coil Spring - External Preload Adjuster Knob and Dual Position Coil



1. Turn the preload adjuster knob counter-clockwise until it stops.

This is the least amount of spring preload, or the softest setting.

**Dual Position Coil:** Does not include a pre-load adjuster. Set the spring to full travel. Refer to the *RockShox Front Suspension Single Crown User Manual* for procedures.



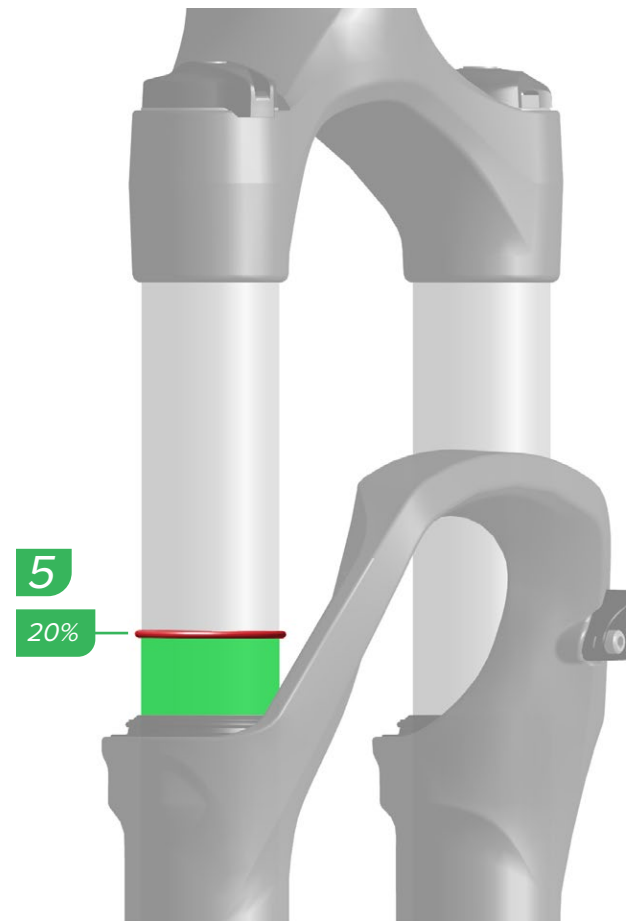
2. With riding gear on, and an assistant holding the bike, stand on the pedals, and compress the fork three times. Then sit or stand in your normal riding position.



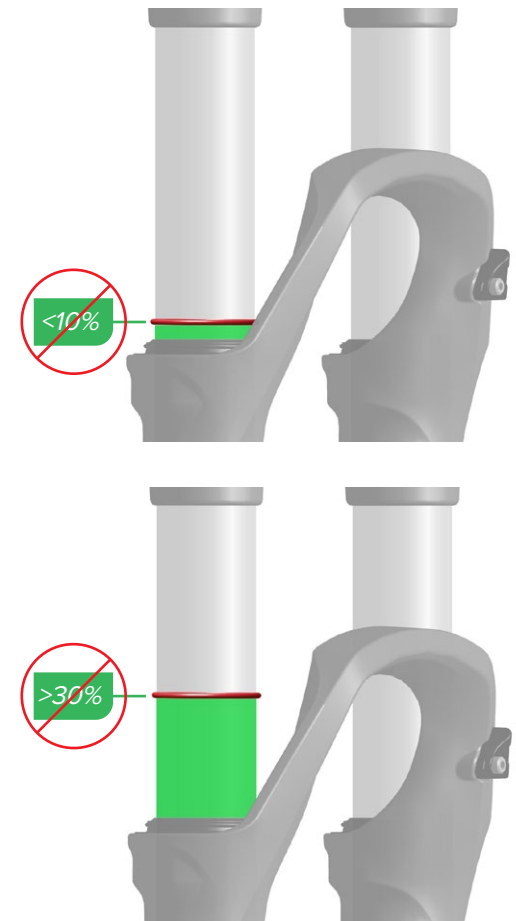
3. Have your assistant slide the sag o-ring down to the top of the dust seal.



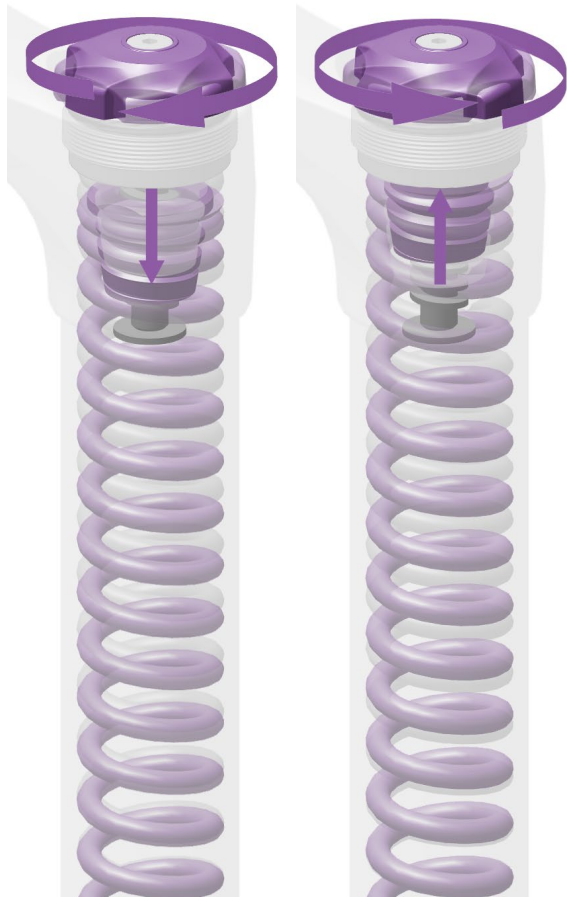
4. Gently step off the bicycle without compressing the fork any further.



5. Note the sag percentage where the o-ring stopped.



If your [target sag](#) percentage is not achieved, spring preload adjustment and/or coil spring replacement must be performed.



External spring preload adjustment compresses or decompresses the spring without initiating travel.

Turn the preload adjuster knob **clockwise** to **increase** spring preload and **decrease** sag.

Turn the preload adjuster knob **counterclockwise** to **decrease** spring preload and **increase** sag.



Spring preload adjustment can be used to fine tune sag, but preload does not change spring rate and is not a substitute for the proper coil spring weight.

If the proper sag cannot be achieved after external preload adjustment, the coil spring assembly must be replaced with a softer or firmer spring.

To **increase** sag, install a **softer** coil spring assembly.

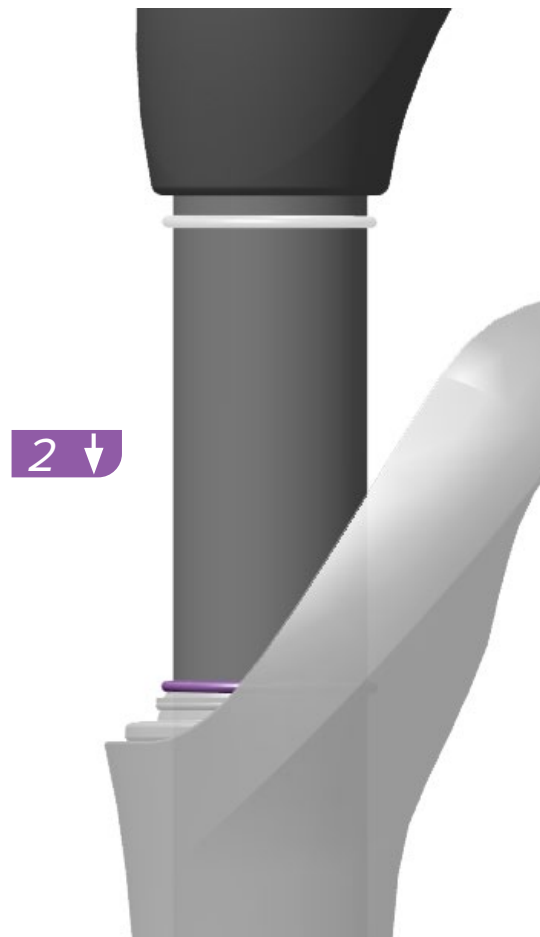
To **decrease** sag, install a **firmer** coil spring assembly.

Repeat the sag process until your target sag percentage is achieved.

# Coil Spring - Paragon Silver



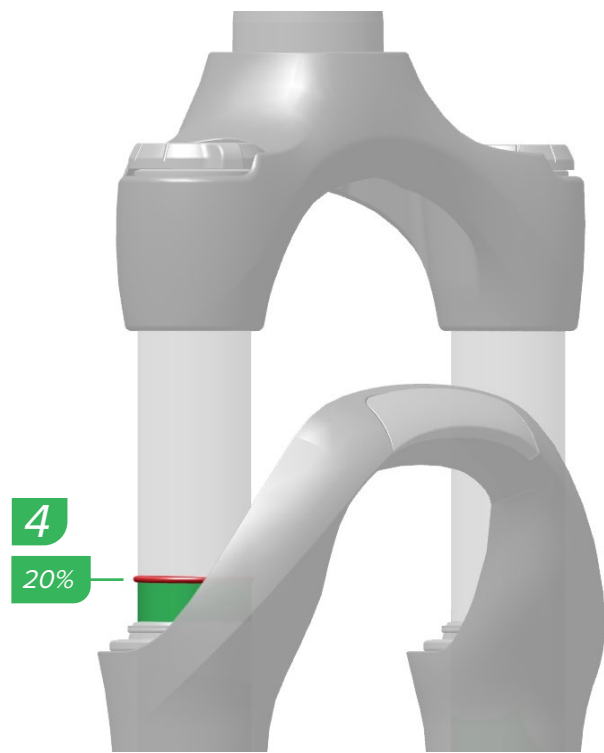
1. With riding gear on, and an assistant holding the bike, stand on the pedals, and compress the fork three times. Then sit or stand in your normal riding position.



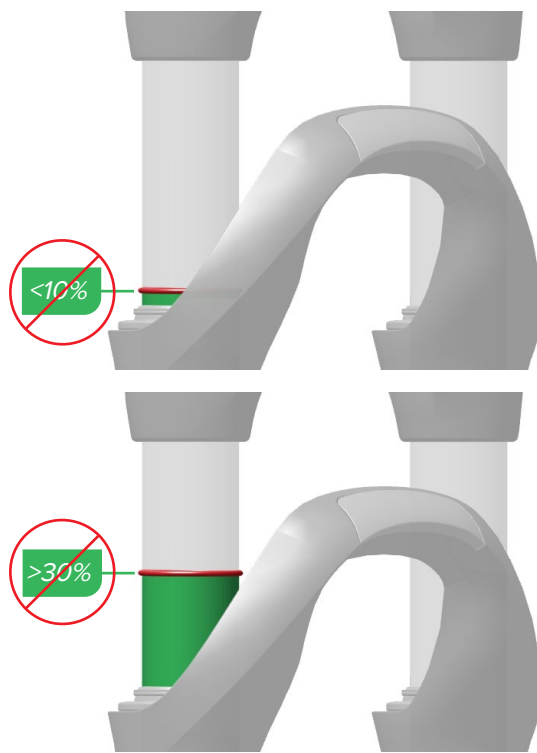
2. Have your assistant slide the sag o-ring down to the top of the dust seal.



3. Gently step off the bicycle without compressing the fork any further.



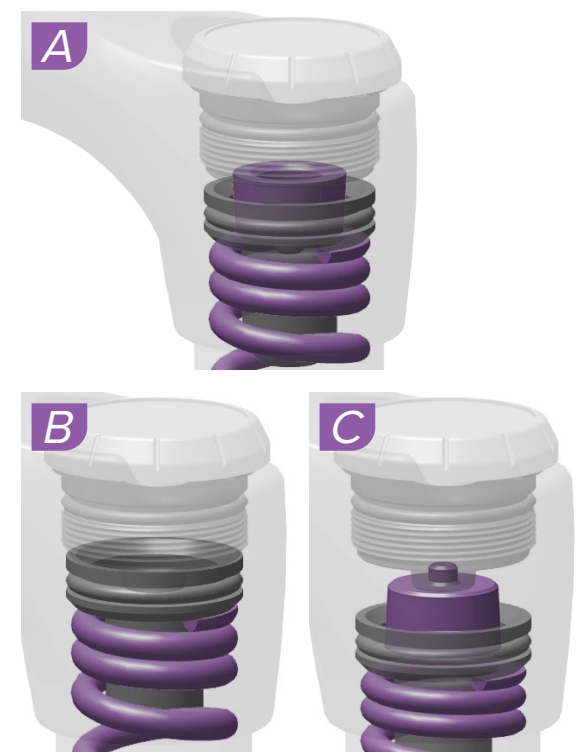
4. Note the sag percentage where the o-ring stopped.



If your [target sag](#) percentage is **not** achieved, spring preload adjustment must be performed.

Coil spring preload in RockShox Paragon is an internal adjustment that compresses or decompresses the spring without initiating travel.

The coil spring can be preloaded 5 mm or 10 mm with the internal preload spacer.



Remove the top cap to remove or re-orient the internal preload spacer.

A) Standard 5 mm (factory installed) preload spacer orientation.

B) To **decrease** preload and **increase** sag, **remove** the preload spacer.

C) To **increase** preload and **decrease** sag, **reorient** the preload spacer to the 10 mm preload position.

Repeat the sag process until your target sag percentage is achieved.

# Set Rear Suspension Sag

Optimal rear suspension sag results in small bump sensitivity, mid-stroke support, and the use of full travel.

After setting rear suspension sag, adjust the damper settings to an initial setting, and adjust as preferred after a test ride:

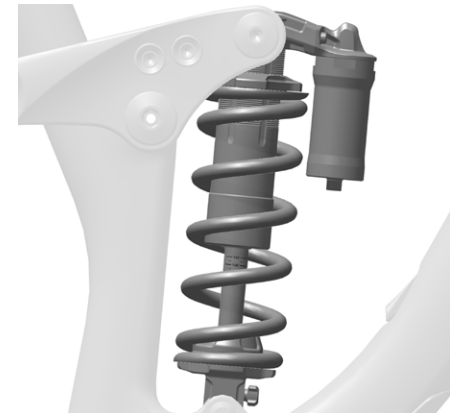
- **All rear suspension models:** Adjust the rebound damper to the middle setting and adjust as needed after a test ride.
- **Vivid C1 with adjustable Low Speed Compression and High Speed Compression:** Adjust the Low Speed Compression and High Speed Compression dampers to the MIDDLE setting and adjust as needed after a test ride.
- **All other rear suspension with adjustable Low Speed Compression and High Speed Compression:** If equipped, adjust the Low Speed Compression and High Speed Compression dampers to the MIDDLE setting and adjust as needed after a test ride.
- **All rear suspension models:** If equipped, adjust the Threshold/Pedal or Lock Out lever to the Open/Unlocked position before making air pressure, rebound, and compression damping adjustments.

Go for a test ride, then make air pressure, coil spring, and damping adjustments as needed to achieve optimal performance.

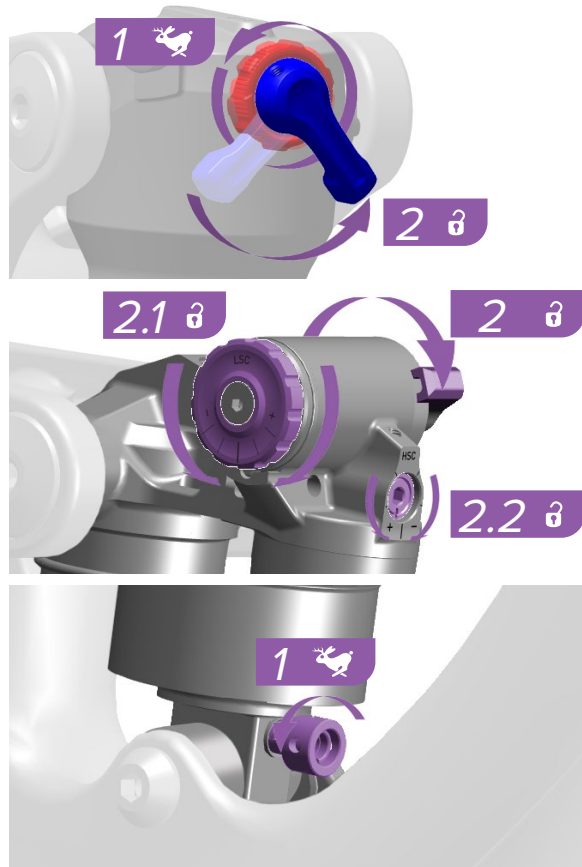
On most air spring rear shocks, Bottomless Tokens, or Bottomless rings, can be added or removed to further fine tune spring feel. Refer to the service manual for your rear shock for Bottomless Token, or Bottomless ring, quantities, and installation and removal procedures.

## Getting started:

Follow the Set Sag procedures, then make damping adjustments as needed after a test ride based on the examples given in Rear Suspension Rebound Damping, Low Speed Compression Damping, and High Speed Compression sections in this manual.



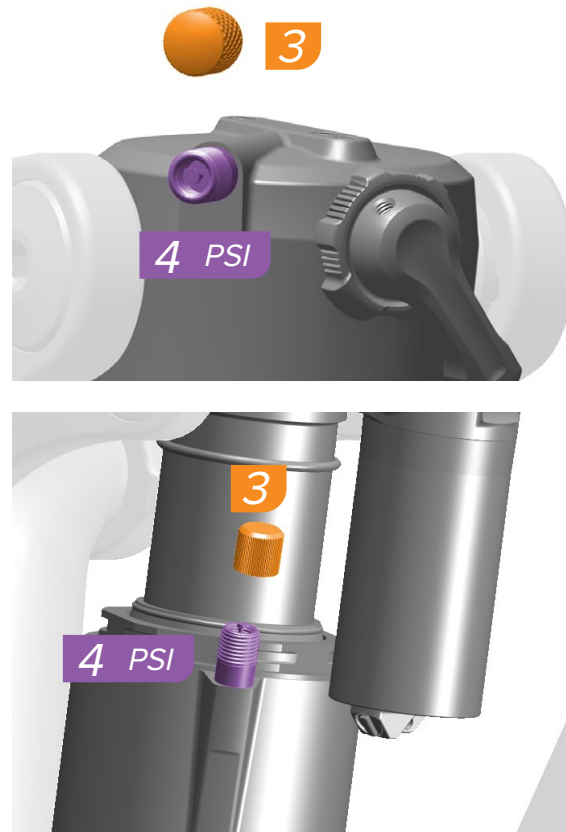
# Air Spring - Solo Air, DebonAir, DebonAir+



1-2. Before setting sag, set the adjusters to the unlocked or full open positions. Rotate the adjusters counterclockwise until they stop, to the unlocked or full open setting.

**Vivid C1:** Before setting sag, rotate the Low Speed Compression (2.1) and High Speed Compression (2.2) adjusters to the middle setting.

**Remote:** Set the shock to the open position.



3-4. Beginning with the shock fully deflated, pressurize the air spring chamber to 100 psi.

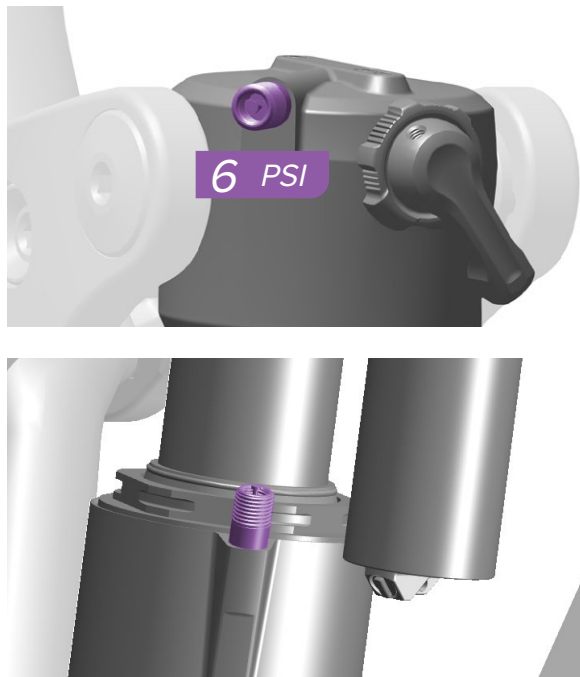
**Vivid C1:** Beginning with the shock fully deflated, pressurize the air spring chamber to 50 psi.

Remove the pump. **Do not compress the suspension with the pump attached.**



5. Fully compress the shock five times to equalize the positive and negative air springs.

Air pressure equalization ensures the air spring is accurately pressurized.

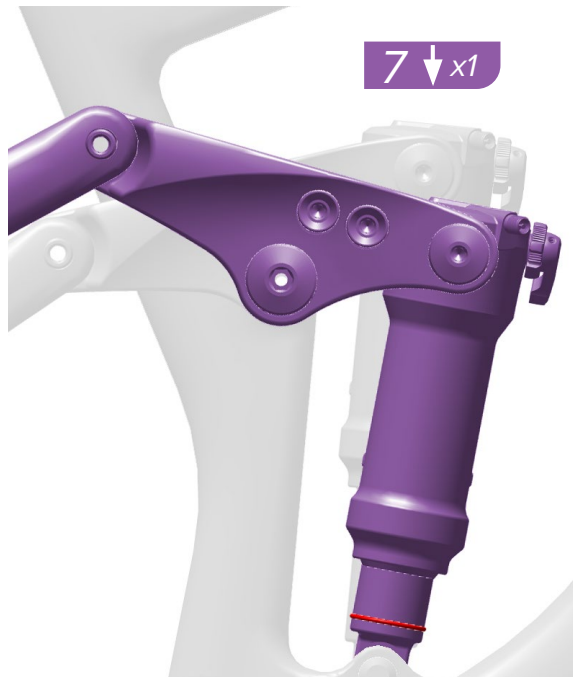


6. Pressurize the shock (PSI) to the equivalent of the rider's total weight (lbs), including riding gear.

Example: 160 lbs = 160 PSI

**Vivid C1:** Repeat steps 4 and 5 in 50 PSI increments up to the rider's total weight (lbs), including riding gear.

Remove the pump. **Do not compress the suspension with the pump attached.**



7. Compress the shock once more to equalize air pressure.



8. With riding gear on, and an assistant holding the bike, step onto the bicycle and lightly cycle the shock two to three times while in the standing position on the pedals.

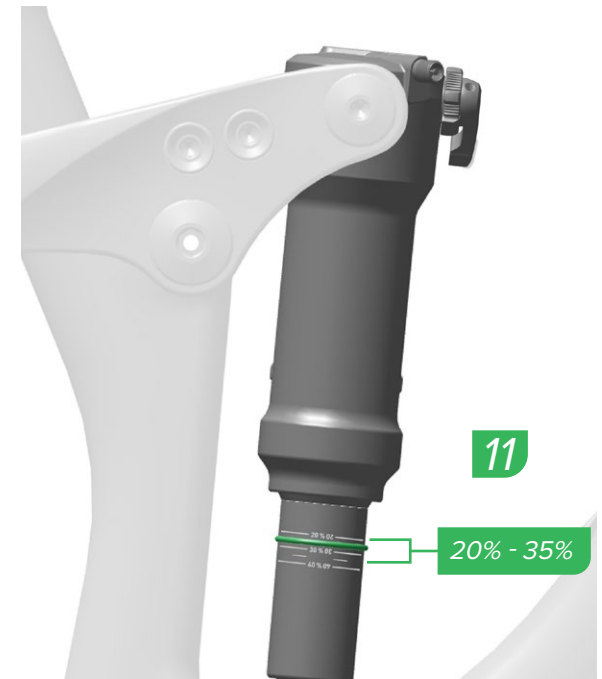




9. While seated on the bicycle, have an assistant slide the sag o-ring against the wiper seal.



10. Gently step off the bicycle without compressing the shock.



11. Note the sag percentage where the o-ring stopped.

Correct sag percentage for Solo Air shocks is  $\approx 25\%$ . Correct sag percentage for DebonAir/DebonAir+ shocks is  $\approx 30\%$ .

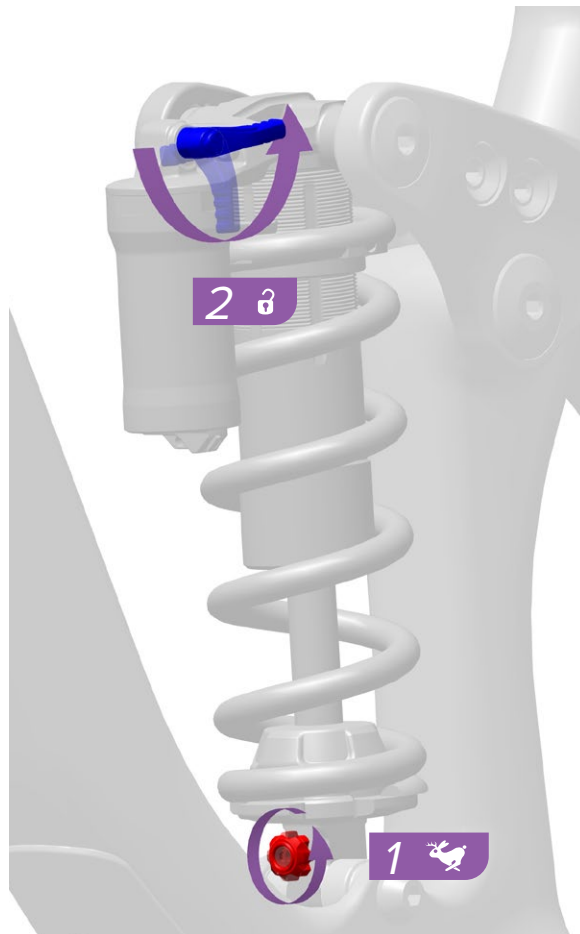
Sag can be set  $\pm 5\%$  as preferred. Adjust pressure and retest sag as needed.

If your [target sag](#) percentage is **not** achieved, air pressure must be adjusted.

**Increase** air pressure to **decrease** sag.

**Decrease** air pressure to **increase** sag.

# Coil Spring



1-2. Before setting sag, set the dampers to the full open positions. Rotate the adjusters counterclockwise until they stop.

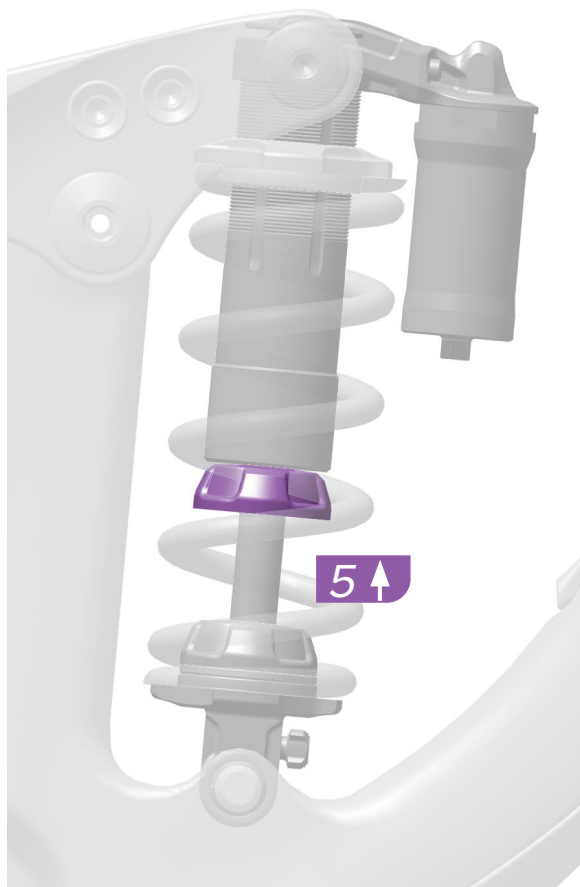
**Remote:** Set the shock to the open position.



3. Turn the spring preload adjuster counterclockwise until there is no resistance.



4. Turn the spring preload adjuster clockwise two full turns.



5. Slide the bottom out bumper to the shock body.

**⚠ CAUTION**

To avoid injury, use a non-metallic tool to slide the bumper. **Do not use your finger.**



6. With riding gear on, and an assistant holding the bike, step onto the bicycle and lightly cycle the shock two to three times while in the standing position on the pedals.



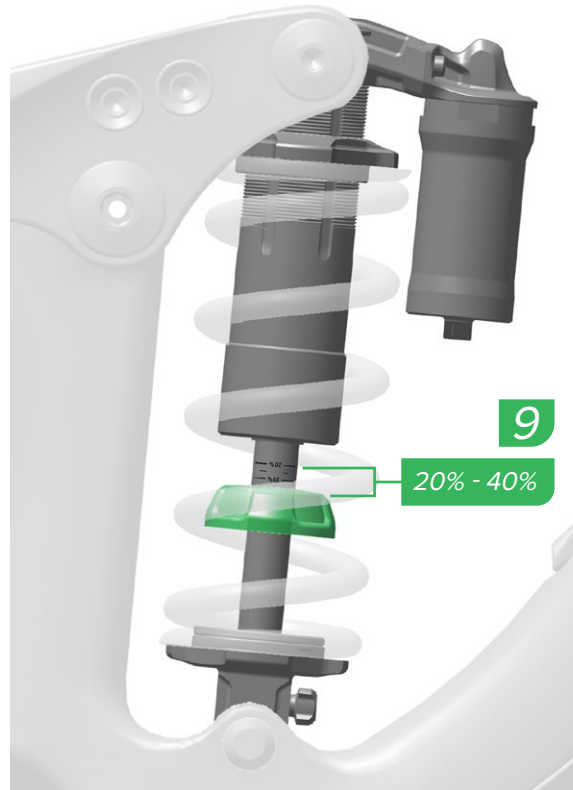
7. While seated on the bicycle, have an assistant slide the bottom out bumper against the wiper seal.

**⚠ CAUTION**

To avoid injury, use a non-metallic tool to slide the bumper. **Do not use your finger.**



8. Gently step off of the bicycle without compressing the rear shock.



9. Check the top of the bottom out bumper position on the shock shaft and note the sag percentage.

If the shaft does not include sag gradients, measure the shaft length with a ruler.

Sag should be between 20% and 40%.



10. If your [target sag](#) percentage is **not** achieved, turn the preload adjuster ring and repeat the measuring process until the desired sag value is achieved.

If the sag value is not at the desired level after **five** full clockwise turns, a heavier spring must be installed, and the sag setting procedure must be repeated.

#### NOTICE

Do not exceed five full turns of preload adjustment.

# Front Suspension Rebound Damping

Rebound damping controls suspension fork extension/return speed which affects traction and control.

Optimal rebound damping allows the fork to extend at a controlled speed and maintain traction and control.

Rebound that is too fast allows the fork to extend too quickly which causes the wheel to bounce off of objects and the ground resulting in a 'pogo' effect.

Rebound that is too slow prevents the fork from extending quickly enough to regain contact with the ground or prepare for the next impact.

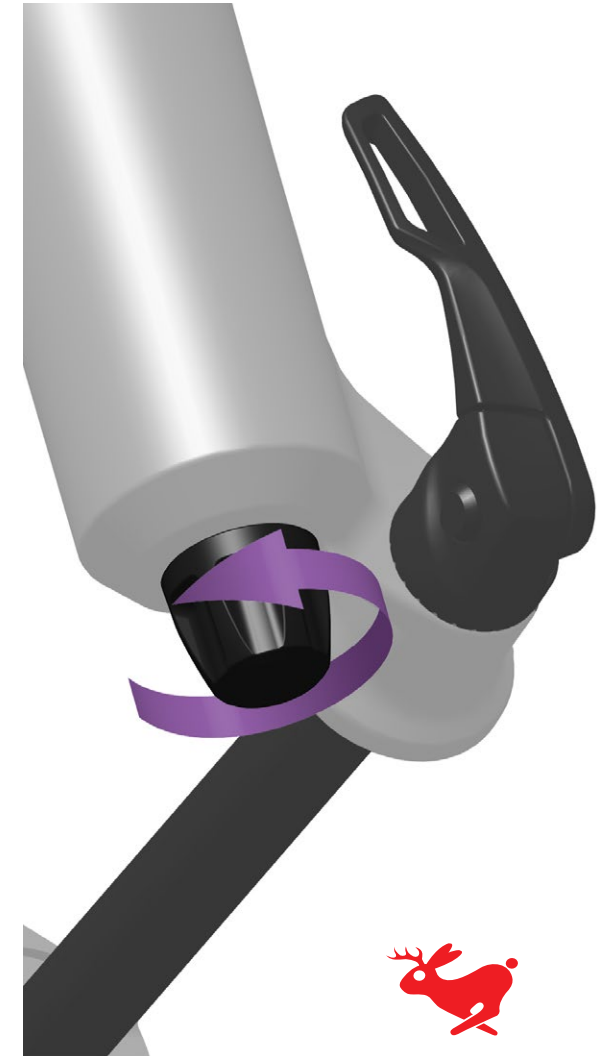
Rebound damping can be tuned to rider weight, spring rate and travel, as well as for terrain and rider preference.

As air pressure or spring rate increases, extension/return speed increases. To achieve the optimal setting, rebound damping may need to be increased when air pressure or spring rate increases.

For recommended rebound settings refer to [RockShox Trailhead](#). After setting air pressure (DebonAir+) or sag, adjust the rebound damper, go for a test ride, and adjust again as preferred.



To **decrease** rebound speed (slower return), turn the rebound adjuster **clockwise**.



To **increase** rebound speed (faster return), turn the rebound adjuster **counterclockwise**.

# Optimal

- A** The fork rebounds at a controlled speed and the wheel maintains contact with the ground.
- B** The fork crown, handlebars, and rider are more level with the ground over each bump. Suspension movement is predictable and controlled.

## Adjustment:

No adjustment is needed.

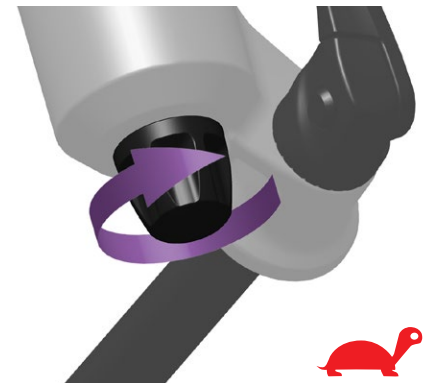


# Too Fast

- A** The fork rebounds too quickly causing a 'pogo' effect where the wheel bounces off of the terrain unpredictably. Traction and control are decreased.
- B** The fork crown and handlebars are forced upward after the wheel bounces off of the ground. Rider weight may shift upward and back uncontrollably.

## Adjustment:

Turn the rebound adjuster **clockwise** to **decrease** rebound speed, and increase traction and control.

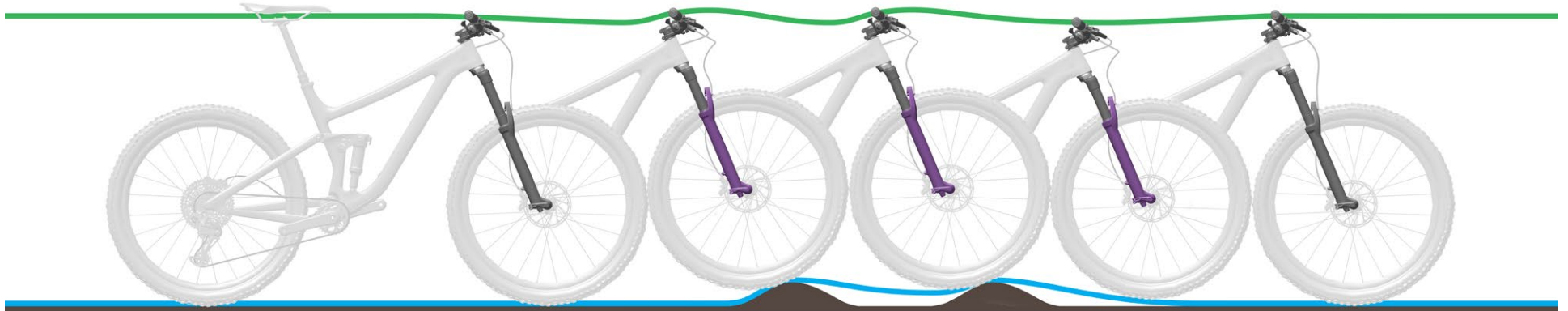


# Too Slow

- A** The fork does not extend quickly enough after absorbing a bump. The fork stays compressed through successive bumps, reducing travel and increasing impact firmness. Available travel, traction and control are decreased.
- B** The fork stays in a compressed state which puts the crown and handlebars in a lowered position. Rider weight may shift forward at impact.

## Adjustment:

Turn the rebound adjuster knob **counterclockwise** to **increase** rebound speed and improve bump performance.





# Front Suspension Low Speed Compression Damping

Low speed compression (LSC) damping adjustment controls compression stroke speed, or the rate at which the fork compresses, during slow compression stroke scenarios. LSC affects bump absorption and efficiency during rider weight shifts, transitions, cornering, more gradual bump impacts, and braking.

## Increased LSC damping:

- Keeps the suspension fork riding higher in its travel. This may help the rider improve efficiency and maintain momentum over gradual, rolling terrain and through corners.
- Suspension compression may feel more firm on bumpier terrain.

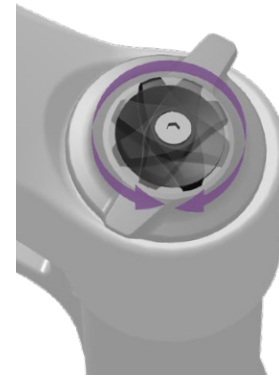
## Decreased LSC damping:

- Allows the fork to compress quickly and easily. This may help the rider maintain momentum and speed on bumpier terrain.
- Suspension compression may feel less firm on bumpier terrain.

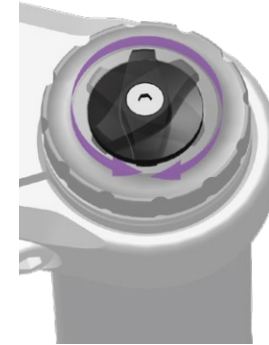
LSC damping adjustments have less effect during high speed compression stroke scenarios. Drops and large bump impacts can exceed the LSC damper's effective range of control and will cause the suspension fork to compress suddenly and quickly, regardless of the LSC damper setting.

Increase LSC damping to reduce compression stroke speed and increase efficiency on rolling or smoother terrain, and when frequently climbing out of the saddle.

**DebonAir+ Charger 3 RC2:** For more detailed information regarding Low Speed Compression (LSC) and High Speed Compression (HSC) damper adjuster function, refer to the User Manual for your suspension fork.

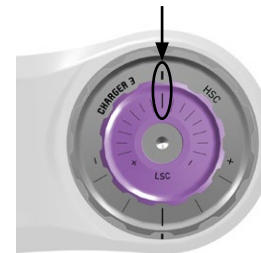


RLC / RCT3



RC2 (CHARGER 2 and 2.1)

## LSC - MIDDLE



RC2 (CHARGER 3)



RC

To **increase (+)** low speed compression damping (firm), turn the compression adjuster knob **clockwise**.

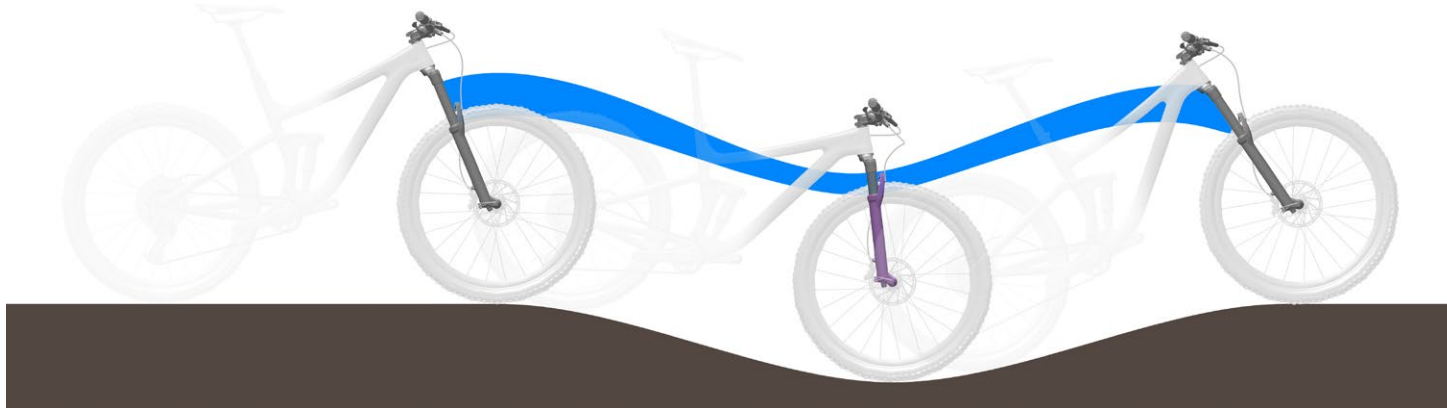
To **decrease (-)** low speed compression damping (soft), turn the compression adjuster knob **counterclockwise**.

**DebonAir+ Charger 3 RC2:** Start with the MIDDLE LSC setting and adjust as preferred.

# Rolling Terrain

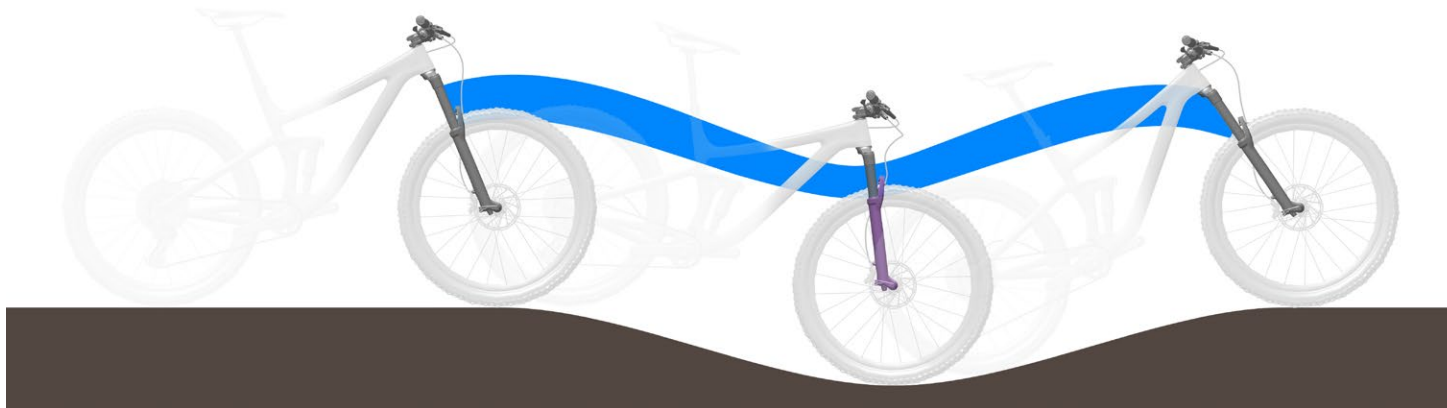
## Low Speed Compression Damping - Open / Too Soft

The fork compresses at the low point of the terrain. Suspension travel is used quickly, the rider's weight may shift forward, and bicycle momentum may be reduced.



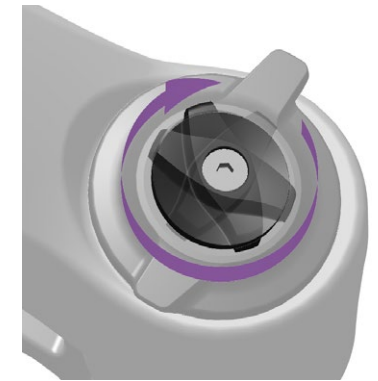
## Low Speed Compression Damping - Mid to Firm

The fork resists compressing, remains higher in its travel, and helps the rider maintain speed into and through the rolling section of terrain.



## Adjustment:

To improve efficiency on rolling and smoother terrain, rotate the LSC or compression adjuster knob **clockwise** to **increase** compression damping and firmness, and **decrease** compression stroke speed.



# Bumps

## Low Speed Compression Damping - Soft to Mid

- A** At bump impact, the fork compresses quickly and freely, and the bump is absorbed. Traction is maintained.
- B** The fork reacts quickly to the impact. The crown and handlebar rise slightly as the bump is absorbed.



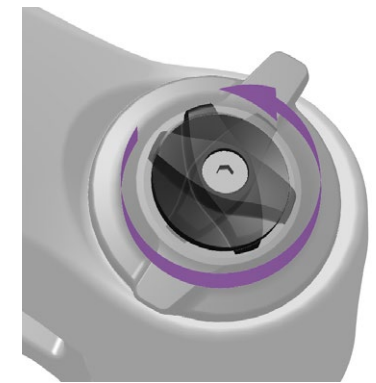
## Low Speed Compression Damping - Too Firm

- A** At bump impact, the fork compresses too slowly and the wheel deflects off of the bump. Traction is decreased as the wheel leaves the ground.
- B** The crown and handlebar are forced upward significantly, which can decrease control.



## Adjustment:

To **increase** small bump sensitivity rotate the LSC or compression adjuster knob **counterclockwise** to **decrease** compression damping and firmness, and **increase** compression stroke speed.



# Front Suspension High Speed Compression Damping

High Speed Compression (HSC) damping adjustment controls compression stroke speed, or the rate at which the fork compresses, during quick compression scenarios. HSC affects bump impact absorption and efficiency over large and square edge bumps, and down drops.

Bump size and shape, as well as riding speed, can affect compression stroke speed. Large or square edge/sharp bumps will cause the fork to compress suddenly and quickly. Impacts of any size and shape will compress quicker when impacted at increased riding speed.

## Increased HSC damping:

- Suspension travel used on bumpier terrain may be limited and may vary depending on bump or drop size. This can prevent premature bottom out when riding over and through larger impacts.
- Suspension compression may feel more firm on bumpier terrain.

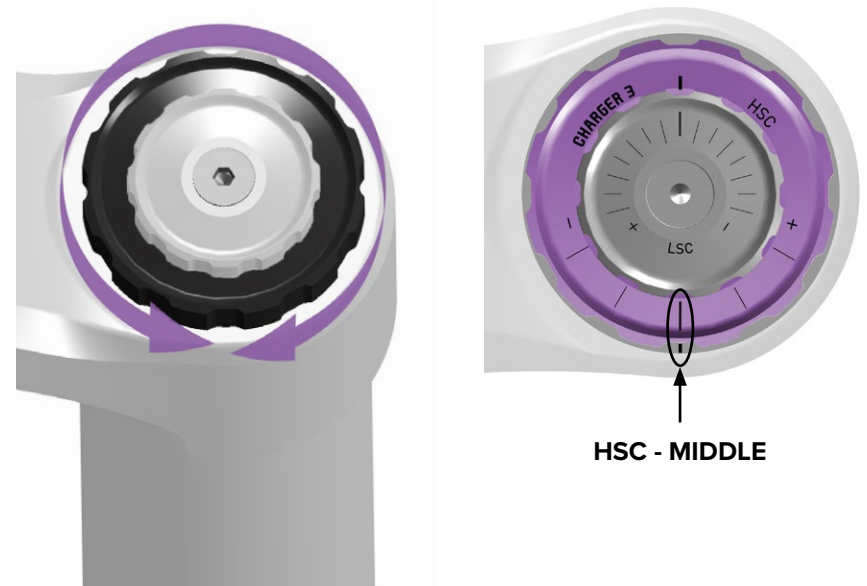
## Decreased HSC damping:

- Allows the suspension to compress easily at higher compression stroke speeds. This may help the rider maintain speed and momentum on moderately bumpy terrain.
- May allow quick bottom out when riding quickly over and through larger bumps and drops.
- Suspension compression may feel less firm on bumpier terrain.

HSC damping adjustments have less effect during low speed compression stroke scenarios. Rider weight shifts, transitions, cornering, more gradual impacts, and braking do not create enough force to enter the HSC damper's effective range of control.

Increase HSC damping to reduce high speed compression stroke speed on moderate to larger impacts and very aggressive terrain.

**DebonAir+ Charger 3 RC2:** For more detailed information regarding Low Speed Compression (LSC) and High Speed Compression (HSC) damper adjuster function, refer to the User Manual for your suspension fork.



RC2 (CHARGER 2 and 2.1)

RC2 (CHARGER 3)

To **increase** (+) high speed compression damping (firm), turn the HSC adjuster knob **clockwise**.

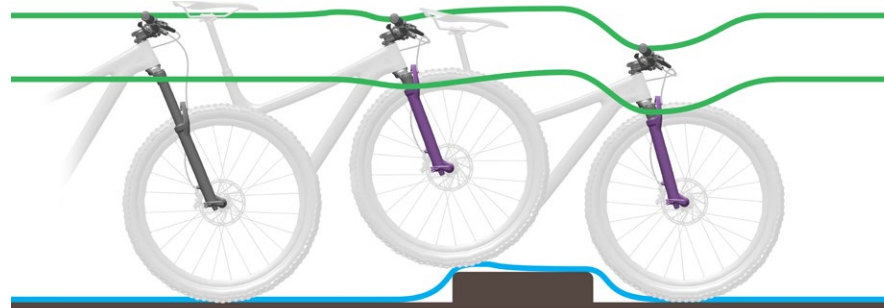
To **decrease** (-) high speed compression damping (soft), turn the HSC adjuster knob **counterclockwise**.

**DebonAir+ Charger 3 RC2:** Start with the MIDDLE HSC setting and adjust as preferred.

# Square Bumps and Drops

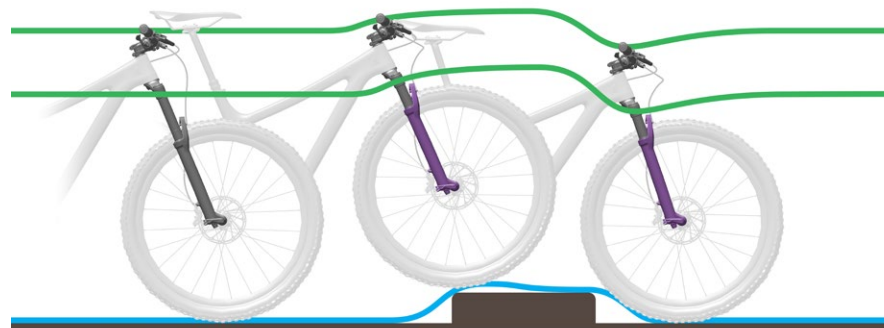
## HSC Damping - Soft

- A** The fork compresses through full travel quickly and freely. The fork can use most of its travel as impacts are fully absorbed.
- B** The fork crown and handlebar drop quickly at full compression, or fork bottom out.



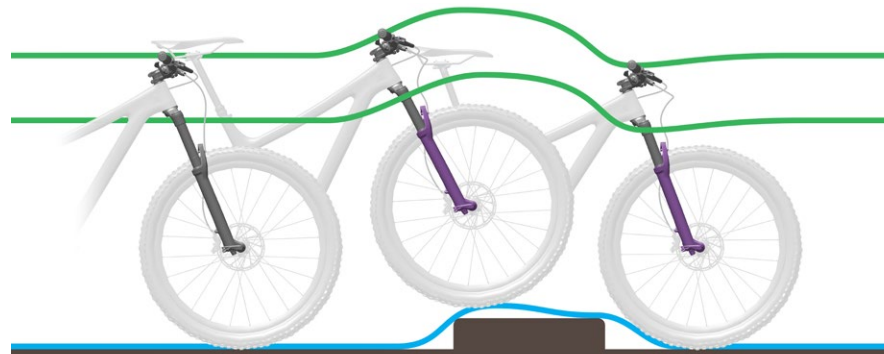
## HSC Damping - Mid

- A** The fork can compress through its effective travel, absorbing the impact in a controlled manner. Use of full travel may depend on rider speed and bump size.
- B** The fork crown and handlebar rise moderately at bump impact, and drop moderately after the drop.



## HSC Damping - Firm

- A** The fork can resist compressing and impact force may be transmitted to the rider. The fork compresses partially and does not bottom out. Use of full travel depends on rider speed and bump size.
- B** The fork crown and handlebar are suddenly forced up at bump impact, and drop minimally after the drop as the fork resists compressing.



## Adjustment:

Rotate the HSC adjuster knob **counterclockwise** to **decrease** compression damping and **increase** stroke speed.

Rotate the HSC adjuster knob **clockwise** to **increase** compression damping and **decrease** stroke speed.

Start with a **mid** setting and adjust as desired. Larger bumps and drops, and increased riding speed will typically allow for a firmer HSC setting.



# Front Suspension Threshold

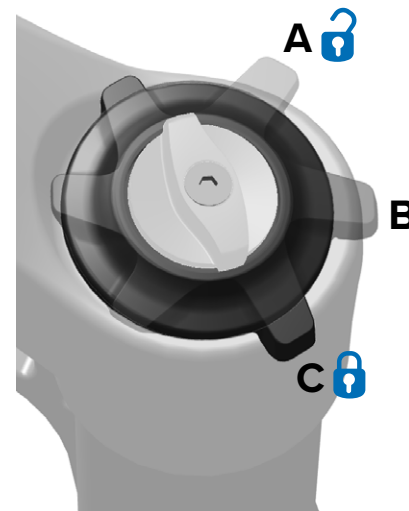
Threshold (T) mode prevents the suspension fork from compressing until moderate bump impact or downward force occurs. Threshold mode increases efficiency on smoother terrain.

Use the Threshold setting to increase pedaling efficiency on flat, rolling, smooth, or moderately bumpy terrain. When in Threshold mode, increased bicycle speed will increase bump impact force causing the fork to compress and absorb the bump.

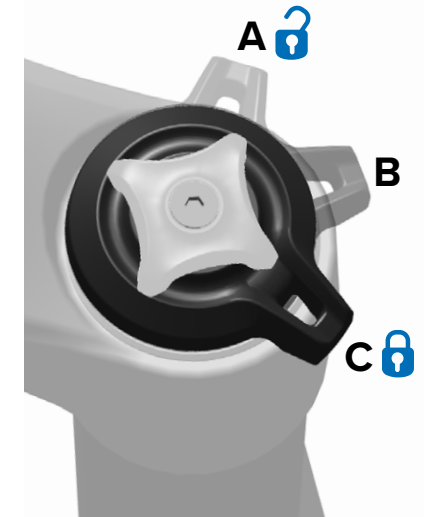
- When the adjuster knob is in the (A) Open position (full counterclockwise) the suspension fork will compress quickly and freely through its full range of travel when bump impact or downward force occurs.
- When the adjuster knob is in the (B) Threshold position the suspension fork will resist compressing until **moderate** bump impact or downward force occurs.
- When the adjuster knob is in the (C) Lock position (full clockwise) position the suspension fork will resist compressing into its travel until **significant** bump impact or downward force occurs.

To activate Threshold, rotate the knob to the Threshold position.

Threshold on forks equipped with a remote can be actuated with the handlebar mounted remote at any time during use. Refer to the appropriate remote user manual at [www.sram.com/en/rockshox/products/remotes](http://www.sram.com/en/rockshox/products/remotes) for more information.



RCT3 - CHARGER



RCT3 - MOTION CONTROL



CHARGER RACE DAY 2 3P

# Front Suspension Lockout

**Lockout (L)** mode prevents the suspension fork from compressing. Use Lockout mode for maximum pedaling efficiency on smoother terrain.

- When the Lockout adjuster is in the (A) **Open** position (full counterclockwise) the suspension fork is able to compress quickly and freely through its full range of travel.
- When the Lockout adjuster is in the (B or C) **Lock** position (full clockwise) position the suspension fork will resist compressing into its travel until significant bump impact or downward force occurs.

To activate Lockout mode, rotate the adjuster clockwise until it stops.

To deactivate Lockout mode, rotate the adjuster counterclockwise.

Lockout on forks equipped with a remote can be actuated with the handlebar mounted remote at any time during use. Refer to the appropriate remote user manual at [www.sram.com/en/rockshox/products/remotes](http://www.sram.com/en/rockshox/products/remotes) for more information.



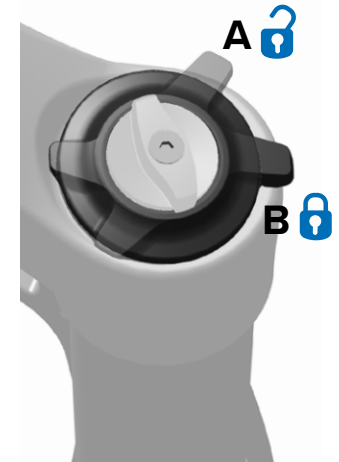
CHARGER RACE DAY



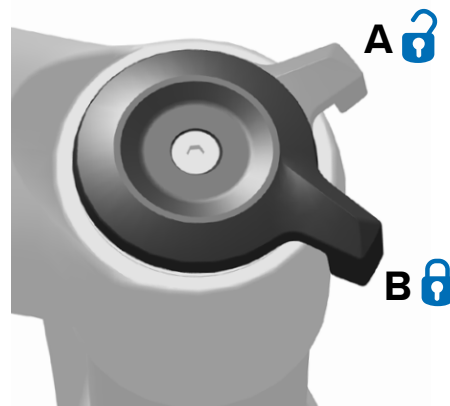
CHARGER RACE DAY 2 2P



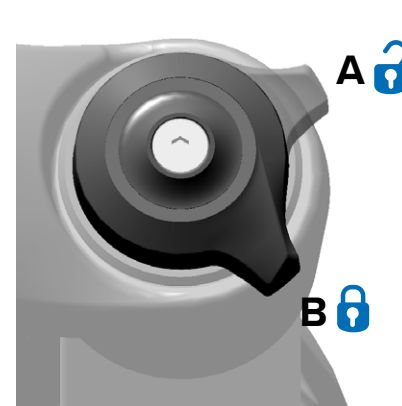
CHARGER RACE DAY 2 3P



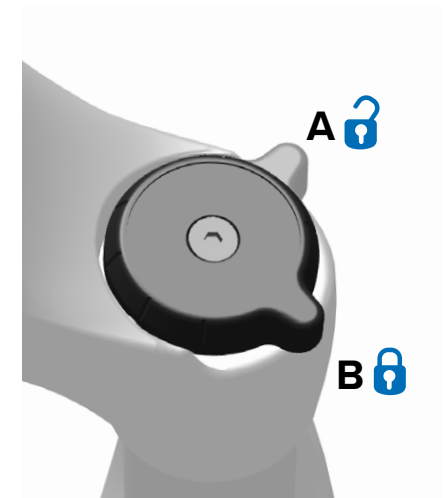
RLC



RL



RL / TK



RL / TK - PARAGON

# Fork Lockout Compliance and Blow-Off

Lockout mode features key rider benefits when activated - **Compliance** and **Blow-Off**.

## Motion Control and Turnkey:

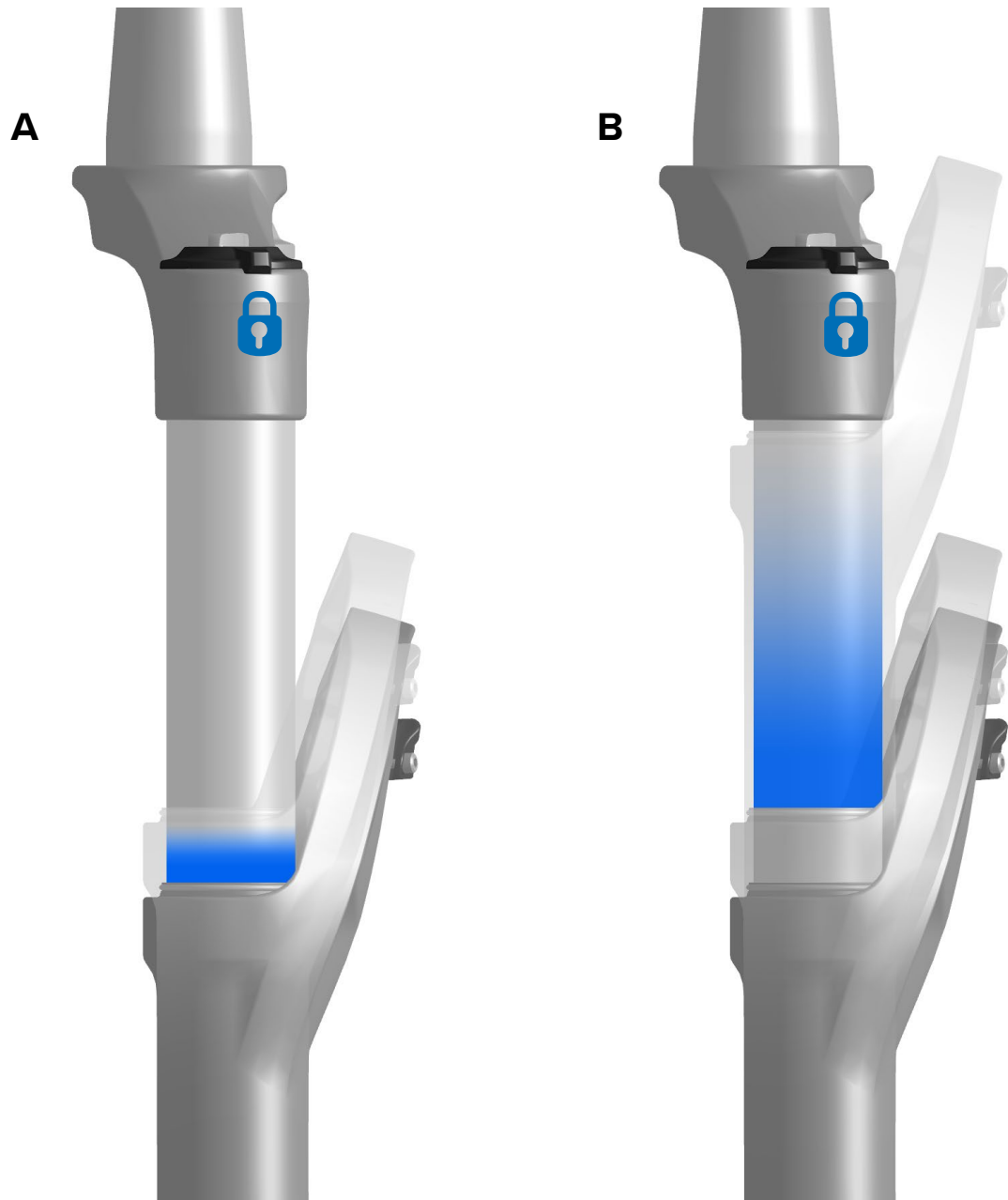
**(A) Compliance** - A fixed amount of suspension fork movement that improves traction and control over small bumps while in the **Lock** position.

When locked out, a small amount of compliance prevents the wheel from bouncing off of impacts which helps maintain traction.

**Charger Race Day, Charger Race Day 2, Charger, Charger 2, Charger 2.1, Rush, Motion Control, and Turnkey:**

**(B) Blow-Off** - A valve in the compression damper that allows the suspension fork to safely compress if an impact greater than the valve's lockout force is encountered, such as a drop or large bump.

The Blow-Off valve allows the suspension fork to compress without causing internal damage to the damper.





# Rear Suspension Rebound Damping

Rebound damping controls rear shock extension/return speed which affects traction and control.

- **Optimal** rebound damping allows the shock to extend at a controlled speed, support the rider's weight through and after the bump, and maintain traction and control.
- Rebound that is **too fast** causes the shock to extend too quickly after the shock compresses which can cause the bicycle and rider to bounce or pitch forward. This can result in loss of control and stability.
- Rebound that is **too slow** prevents the shock from extending quickly enough to regain contact with the ground or prepare for the next impact. The shock remains in a more compressed state into the next bump which reduces available suspension travel and bump absorption.

Rebound damping can be tuned to rider weight, spring rate, and travel, as well as for terrain and rider preference.

As air pressure or spring rate increases, extension/return speed increases. To achieve the optimal setting, rebound damping may need to be increased when air pressure or spring rate increases.

After setting [sag](#), adjust the rebound damper, go for a ride, and adjust again as preferred.



To **decrease** rebound speed (slower return), turn the rebound adjuster **clockwise**.



To **increase** rebound speed (faster return), turn the rebound adjuster **counterclockwise**.

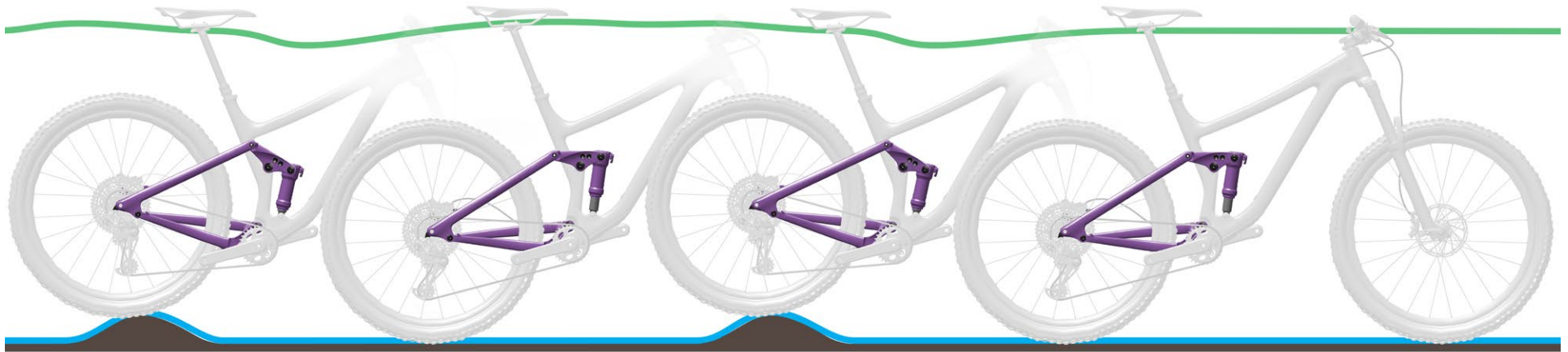
# Optimal

**A** The shock rebounds at a controlled speed. The rear wheel does not bounce off the bump or ground and maintains contact with the ground.

**B** The saddle rises slightly as the bump is absorbed, and drops slightly as the suspension compresses when the wheel contacts the ground after the bump. The shock rebounds in a controlled manner keeping the rider level with the ground as the next bump is absorbed. Suspension movement is predictable and controlled and the rider is not pitched upward or forward.

## Adjustment:

No adjustment is needed.



# Too Fast

**A** The shock rebounds too quickly causing a 'pogo' or bounce effect after the wheel hits a bump and lands back on the ground. Traction and control are decreased due to the uncontrolled speed with which the shock extends after compression.

**B** The saddle and rider are forced upward after the wheel bounces off of a bump or the ground. Rider weight may shift upward and forward as the shock returns to full extension too quickly.

## Adjustment:

Turn the rebound adjuster **clockwise** to **decrease** rebound speed, and **increase** traction and control.



# Too Slow

**A** The shock does not extend quickly enough after absorbing a bump to reset for the next bump. The shock stays compressed through successive bumps, which reduces travel and contact with the ground, and increases firmness at the next impact. The rear wheel bounces off of the second bump because the shock does not extend quickly enough to regain contact with the ground and reset. Available travel and traction are decreased.

**B** The shock stays in a compressed state after contacting the first bump. When the rear wheel contacts the second bump the saddle follows the path of the rear wheel rather than remaining level with the ground. Available travel and bump absorption are reduced causing instability and control through successive bumps.

## Adjustment:

Turn the rebound adjuster knob **counterclockwise** to **increase** rebound speed and improve bump performance.



# Rear Suspension Low Speed Compression Damping

Low speed compression (LSC) damping adjustment controls compression **stroke speed**, or the rate at which the shock compresses, during slow compression stroke scenarios. LSC affects bump absorption and efficiency during rider weight shifts, transitions, cornering, more gradual bump impacts, and braking.

## Increased LSC damping:

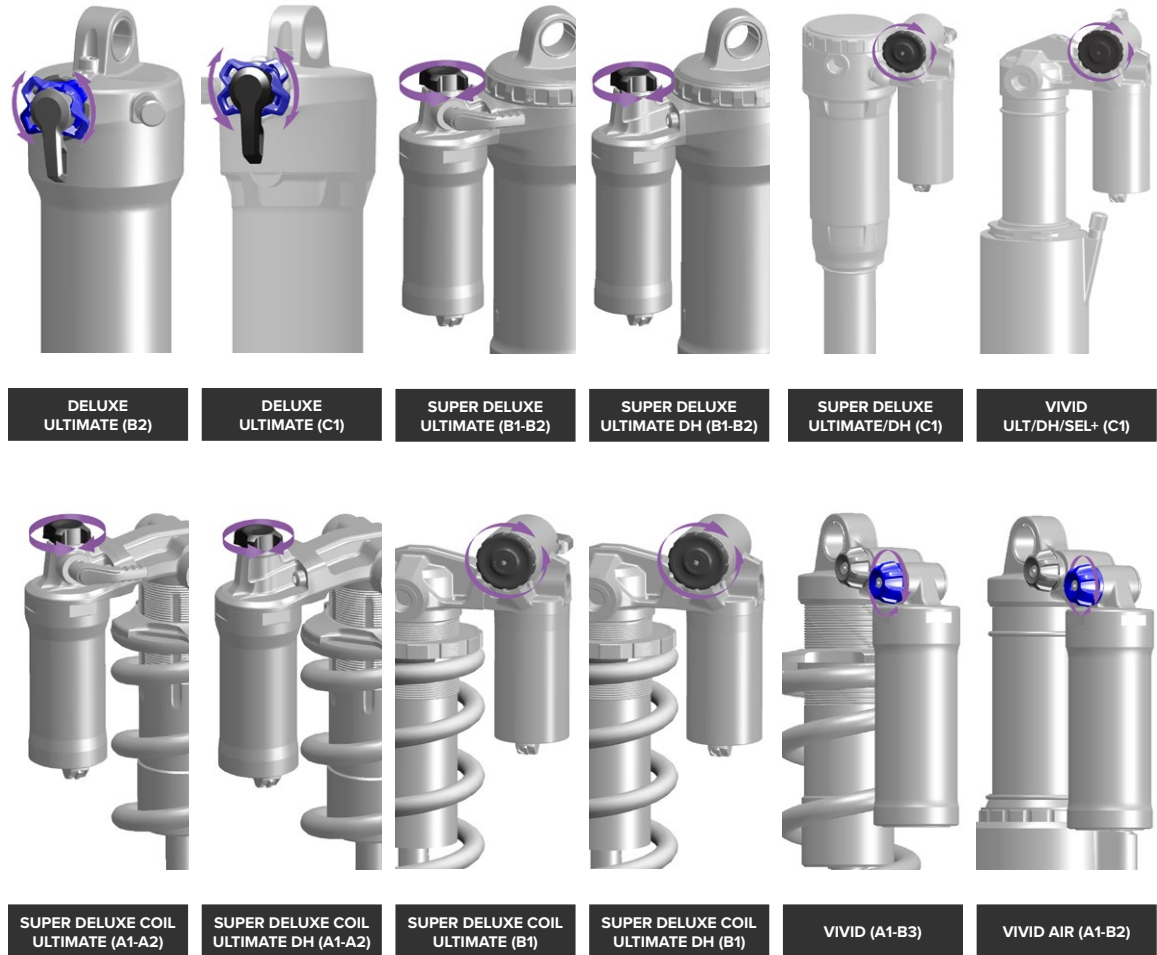
- Keeps the shock riding higher in its travel. This may help the rider improve efficiency and maintain momentum over gradual, rolling terrain, through corners and while pedaling.
- Suspension compression may feel more firm on bumpy terrain.

## Decreased LSC damping:

- Allows the shock to compress quickly and easily. This may help the rider maintain momentum and speed on bumpy terrain.
- Suspension compression may feel less firm on bumpy terrain.

LSC damping adjustments have less effect during high speed compression stroke scenarios. Drops and large bump impacts can exceed the compression damper's effective range of control and will cause the shock to compress suddenly and quickly, regardless of the LSC damper setting.

Increase LSC damping to reduce compression stroke speed and increase efficiency on rolling or smoother terrain, and while pedaling.



To **increase (+)** Low Speed Compression damping (**firm**), turn the compression adjuster **clockwise**.

To **decrease (-)** Low Speed Compression damping (**soft**), turn the compression adjuster **counterclockwise**.

# Rolling Terrain

## Low Speed Compression Damping - Open / Too Soft

The shock compresses low into the compression stroke through the low point of the terrain. Suspension travel is used quickly, the rider's weight may shift downward, and bicycle momentum may be reduced.



## Low Speed Compression Damping - Mid to Firm

The shock resists compressing, remains higher in its travel, and helps the rider maintain speed into and through the rolling section of terrain.



## Adjustment:

To improve efficiency on rolling and smoother terrain, rotate the compression adjuster **clockwise** to **increase** compression damping and firmness, and **decrease** compression stroke speed.



# Bumps

## Low Speed Compression Damping - Soft to Mid

- A** At bump impact, the shock compresses quickly and freely, and the bump is absorbed. Traction is maintained.
- B** The saddle rises slightly as the bump is absorbed.



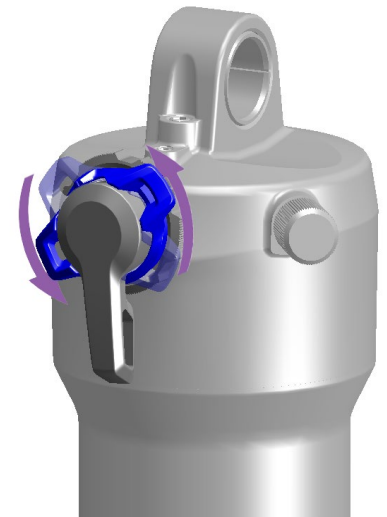
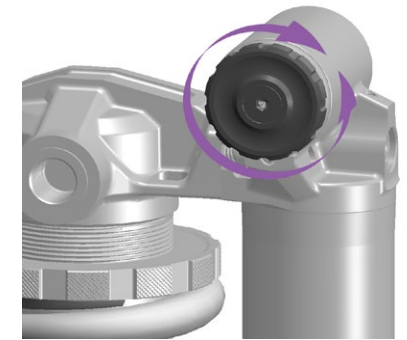
## Low Speed Compression Damping - Too Firm

- A** At bump impact, the shock compresses too slowly and the rear wheel deflects off of the bump. Traction is decreased.
- B** The saddle and rider are forced upward and forward, the rear wheel loses contact with the ground, and control is decreased.



## Adjustment:

To **increase** small bump sensitivity, rotate the LSC or compression adjuster **counterclockwise** to **decrease** compression damping and firmness, and **increase** compression stroke speed.



# Rear Suspension High Speed Compression Damping

High Speed Compression (HSC) damping adjustment controls compression stroke speed, or the rate at which the rear shock compresses, during quick compression scenarios. HSC affects bump impact absorption and efficiency over large and square edge bumps, and down drops.

Bump size and shape, as well as riding speed, can affect compression stroke speed. Large or square edge/sharp bumps will cause the rear shock to compress suddenly and quickly. Impacts of any size and shape will compress quicker when impacted at increased riding speed.

## Increased HSC damping:

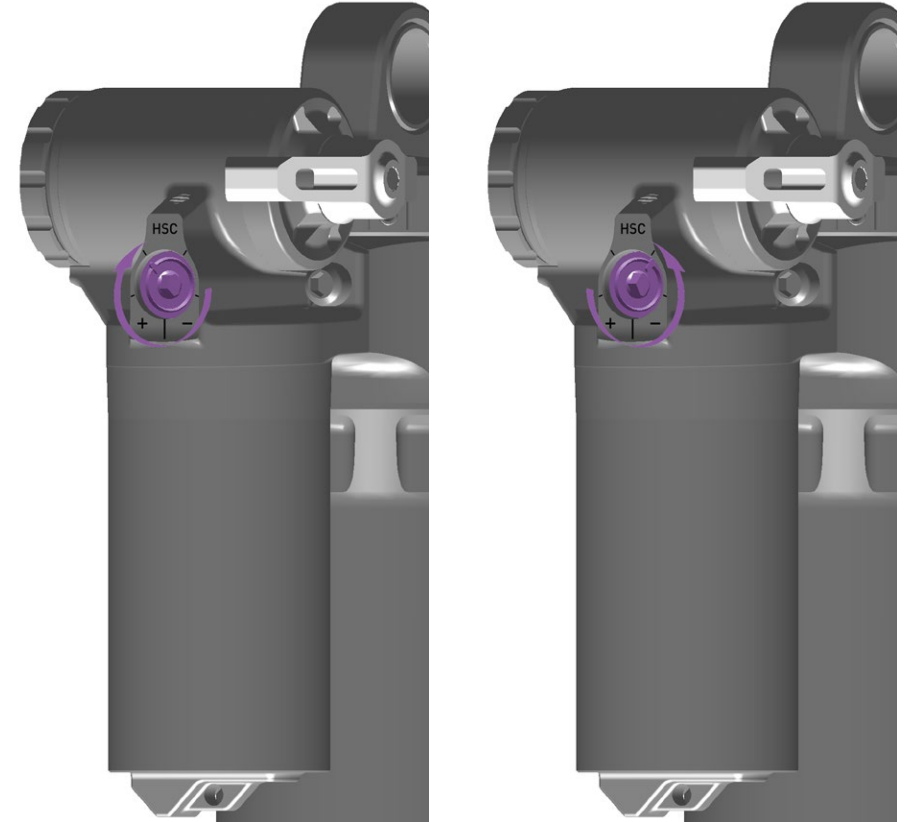
- Suspension travel used on bumpier terrain may be limited and may vary depending on bump or drop size. This can prevent premature bottom out when riding over and through larger impacts.
- Suspension compression may feel more firm on bumpier terrain.

## Decreased HSC damping:

- Allows the suspension to compress easily at higher compression stroke speeds. This may help the rider maintain speed and momentum on moderately bumpy terrain.
- May allow quick bottom out when riding quickly over and through larger bumps and drops.
- Suspension compression may feel less firm on bumpier terrain.

HSC damping adjustments have less effect during low speed compression stroke scenarios. Rider weight shifts, transitions, cornering, more gradual impacts, and braking do not create enough force to enter the HSC damper's effective range of control.

Increase HSC damping to reduce high speed compression stroke speed on moderate to larger impacts and very aggressive terrain.



To **increase (+)** high speed compression damping (firm), turn the HSC adjuster knob **clockwise**.

To **decrease (-)** high speed compression damping (soft), turn the HSC adjuster knob **counterclockwise**.



# Square Bumps and Drops

## HSC Damping - Soft

**A** The shock compresses through full travel quickly and freely. The shock can use most of its travel as impacts are fully absorbed at most rider speeds.

**B** The shock bottoms out quickly and the rear wheel rises quickly at impact and drop.



## HSC Damping - Mid

**A** The shock can compress through its effective travel, absorbing the impact in a controlled manner. Use of full travel may depend on rider speed and bump size.

**B** The shock compresses and absorbs the impact and drop in a controlled manner, with mid-stroke support.



## HSC Damping - Firm

**A** The shock can resist compressing and impact force may be transmitted to the rider. The fork compresses partially and does not bottom out. Use of full travel depends on rider speed and bump size.

**B** The shock resists compressing at impact and drop, and the rear wheel deflects upward and lands harshly.



## Adjustment:

Rotate the HSC adjuster **counterclockwise (-)** to **decrease** high speed compression damping and **increase** stroke speed.

Rotate the HSC adjuster **clockwise (+)** to **increase** high speed compression damping and **decrease** stroke speed.

Start with a **mid** setting and adjust as desired. Larger bumps and drops, and increased riding speed will typically allow for a firmer HSC setting.



# Rear Suspension Threshold

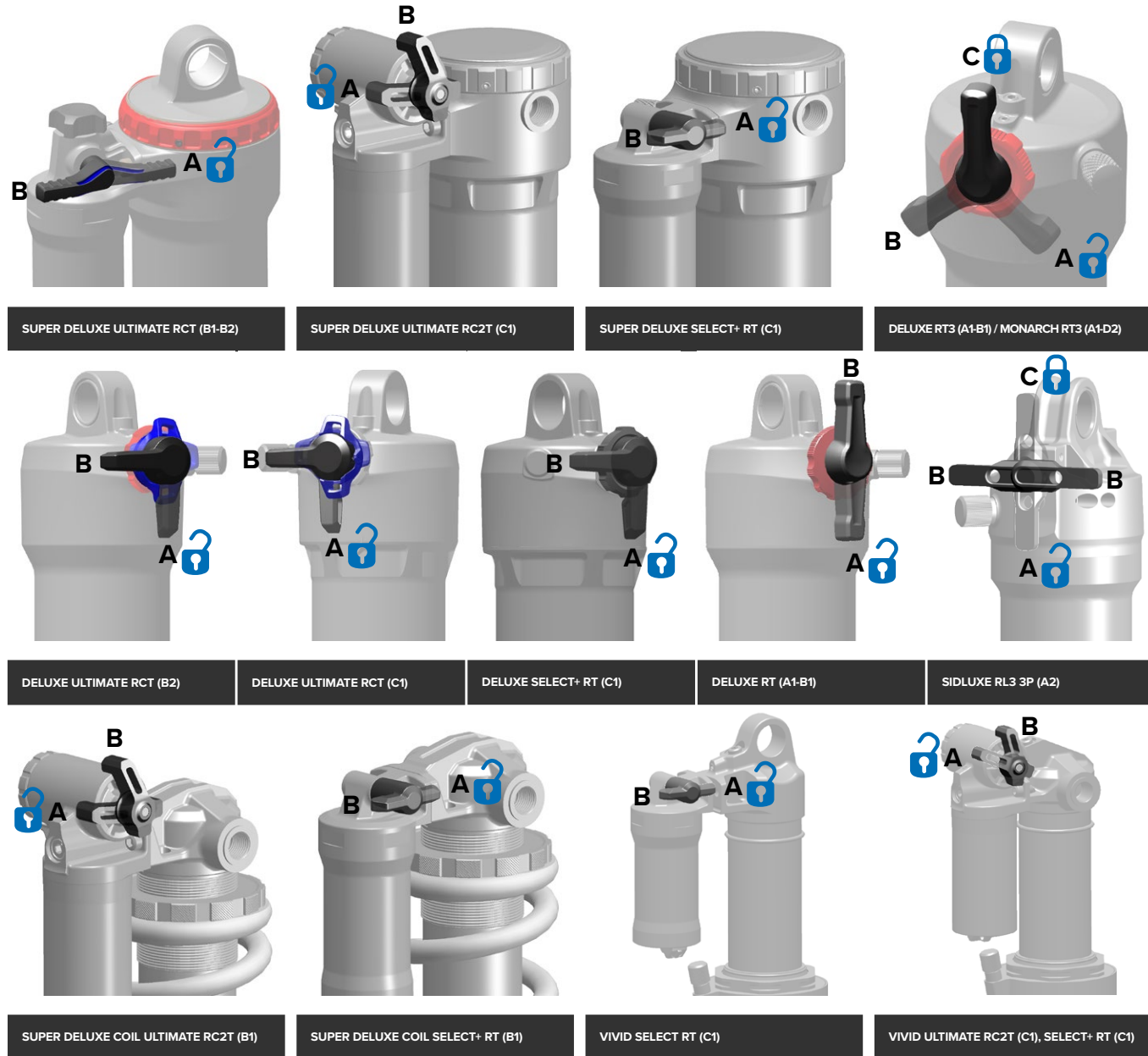
Threshold (T) mode prevents the rear shock from compressing until moderate to significant bump impact or downward force occurs. Threshold mode increases efficiency on smoother terrain.

Use the Threshold setting to increase pedaling efficiency on flat, rolling, smooth, or moderately bumpy terrain. When in Threshold mode, increased bicycle speed will increase bump impact force causing the shock to compress and absorb the bump.

- When the adjuster is in the (A) Open position the shock will compress quickly and freely through its full range of travel.
- When the adjuster is in the (B) Threshold position the shock will resist compressing until moderate bump impact or downward force occurs.
- When the adjuster is in the (C) Lock position the shock will resist compressing into its travel until significant bump impact or downward force occurs.

To activate Threshold, rotate the adjuster lever to the Threshold position.

Threshold on remote-equipped shocks can be actuated with the handlebar mounted remote at any time during use. Refer to the appropriate remote user manual at [www.sram.com/en/rockshox/products/remotes](http://www.sram.com/en/rockshox/products/remotes) for more information.



# Rear Suspension Lockout

Lockout (L) mode prevents the rear shock from compressing. Use lockout mode for maximum pedaling efficiency on smoother terrain.

- When the lockout adjuster lever is in the (A) Open position the shock is able to compress quickly and freely through its full range of travel.
- When the lockout adjuster lever is in the (B) Lock position the shock will resist compressing into its travel until significant bump impact or downward force occurs.

To activate lockout mode, rotate the adjuster lever to the Lock position.

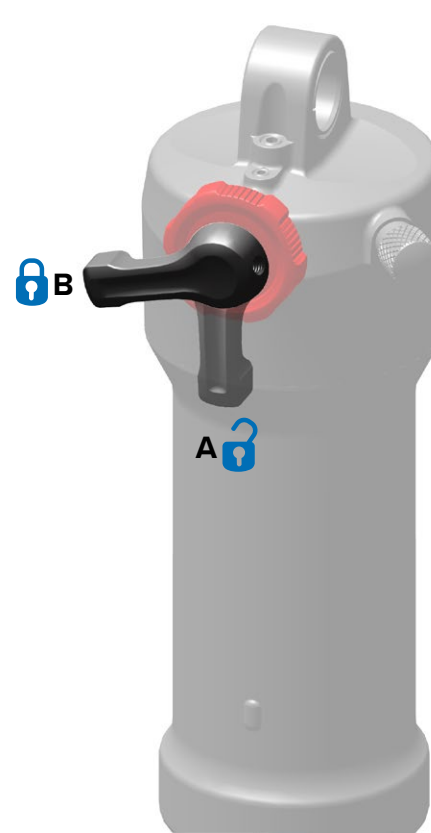
To deactivate lockout mode, rotate the adjuster lever to the Open position.

Lockout on remote-equipped shocks can be actuated with the handlebar mounted remote at any time during use. Refer to the appropriate remote user manual at [www.sram.com/en/rockshox/products/remotes](http://www.sram.com/en/rockshox/products/remotes) for more information.

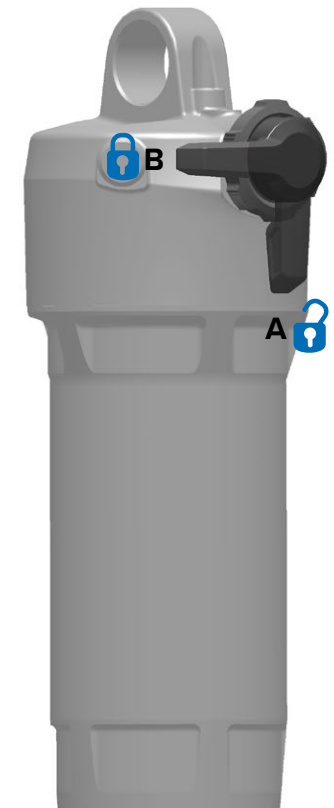


SIDLUXE RL (A1)

SIDLUXE RL 2P / RL3 3P (A2)



DELUXE RL (A1-B1) / MONARCH RL (A1-C1)



DELUXE SELECT+ RL (C1)

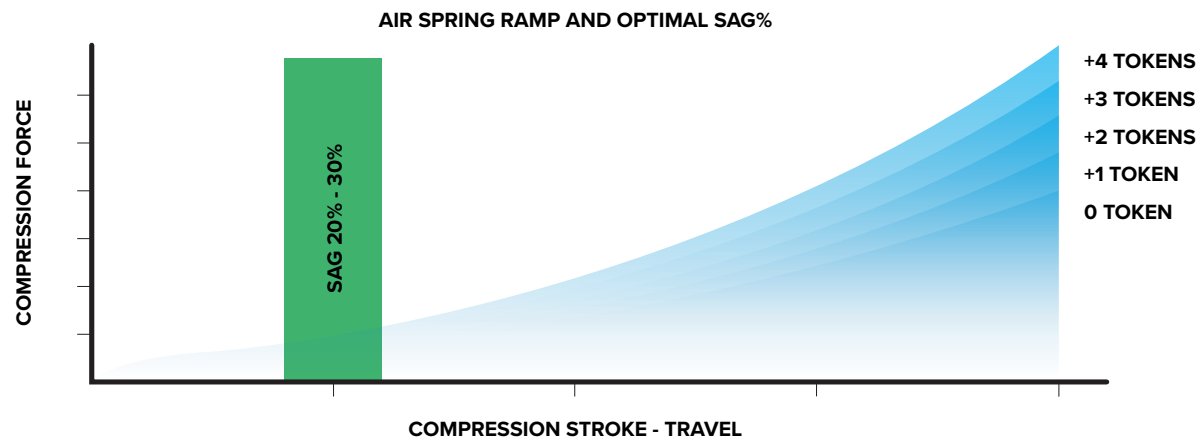
# Air Spring Bottom Out Tuning

Ending stroke air spring ramp, or bottom out resistance, can be tuned on select RockShox air spring forks compatible with air spring volume reducing Bottomless Tokens, as well as select RockShox air spring rear shocks compatible with air spring volume reducer Bottomless Tokens and Rings.

Bottomless Tokens and Rings reduce air spring volume and increase bottom out resistance. Reduced volume, with the correct sag set, increases mid to ending stroke spring ramp without significantly affecting sag and small to medium bump sensitivity. Increased spring ramp at bottom out can be beneficial on larger drops or fast bumpy trails where the fork uses most of its travel.

If sag is set correctly and the suspension bottoms out quickly and often, try adding compatible Bottomless Tokens, or Rings, until you find the preferred bottom out feel.

It is recommended that you repeat the [Sag](#) process and make damping adjustments after volume reducers have been installed or removed. Adding volume reducers may cause the suspension to rebound quicker. Rebound damping may need to be increased to compensate.



# Bottomless Tokens and Rings

To avoid damaging the fork or rear shock, the maximum number of Bottomless Tokens or Rings installed should **not** be exceeded.

For suspension forks, refer to the appropriate model year *RockShox Front Suspension Oil, Air, Coil, Token, and Specification* document for the maximum number of Bottomless Tokens compatible with your fork.

For rear shocks, refer to the *Rear Suspension User Manual*, or the Service Manual for your rear shock, for the maximum number of Bottomless Tokens and Rings.

For a complete list of available Bottomless Tokens and Rings consult the *RockShox Spare Parts Catalog*.

For volume reducer installation and removal procedures, consult the service manual for your fork or rear shock.

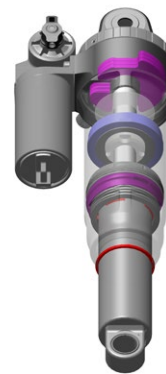
All related technical documents can be found at [www.sram.com/service](http://www.sram.com/service).



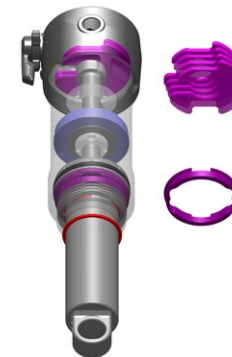
Dual Position Air



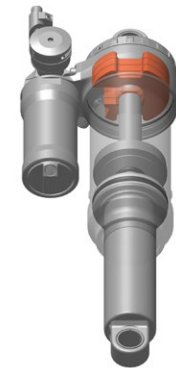
Solo Air, DebonAir, DebonAir+



Super Deluxe C1



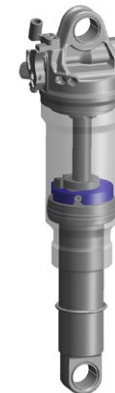
Deluxe C1



Deluxe / Super Deluxe A1-B2



Monarch / Monarch Plus



SIDLuxe A1



SIDLuxe A2



Vivid C1

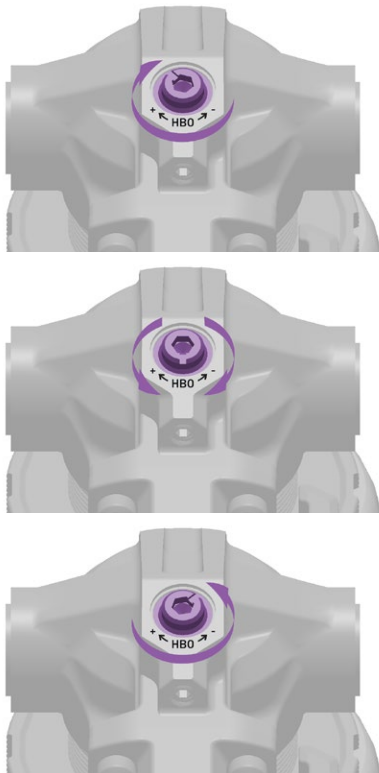
# Hydraulic Bottom Out Tuning - Rear Suspension

Select RockShox rear shocks feature externally adjustable Hydraulic Bottom Out (HBO) which reduces harshness at bottom out. Adjustable Hydraulic Bottom Out (HBO) features 5 settings which restrict oil flow in the compression circuit within the final 20% of shock travel.

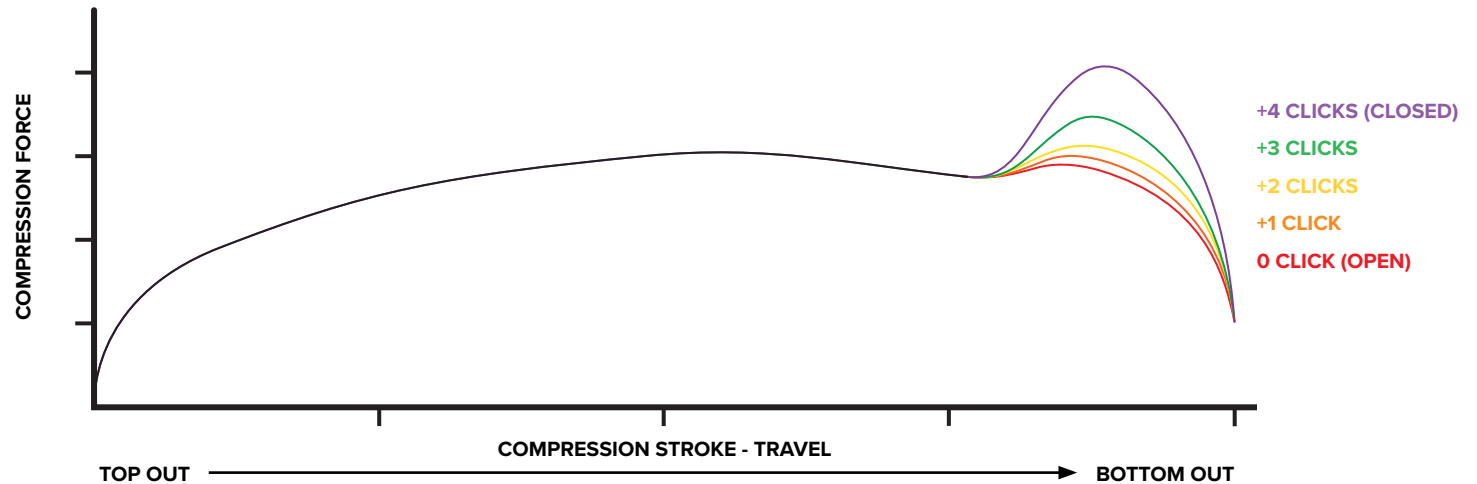
Increased hydraulic resistance (adjust HBO toward +) adds a hydraulic cushion that reduces harshness at bottom out which can be beneficial on larger drops and jumps. Increase Hydraulic Bottom Out damping to fine-tune bottom out control depending on the terrain.

Spring, rebound damper, low speed compression damper, and high speed compression damper settings may also need to be adjusted when Hydraulic Bottom Out adjustment is increased. Adjust each shock setting as needed for optimal settings and performance as riding speed and terrain require.

Refer to [www.sram.com/rockshox](http://www.sram.com/rockshox) for more product details.



HYDRAULIC BOTTOM OUT (HBO) - EFFECT OF ADJUSTMENT  
TOP OUT TO FULL TRAVEL / BOTTOM OUT



# Damper Adjustments - Front Suspension

Model	Damper	Damper Adjustments						
		Rebound	Low Speed Compression	High Speed Compression	Threshold	Lockout	Remote	AXS Controller
Ultimate RC2	Charger 3	✓	✓	✓	-	-	-	-
Select+ RC2	Charger 3	✓	✓	✓	-	-	-	-
Ultimate Flight Attendant	Charger Flight Attendant (2.1)	✓	✓	-	✓	✓	-	✓
Ultimate / RC2	Charger 2, Charger 2.1	✓	✓	✓	-	-	-	-
Ultimate / RCT3	Charger 2, Charger 2.1	✓	✓	-	✓	-	-	-
Select+ / RC	Charger 2, Charger 2.1	✓	✓	-	-	-	-	-
RCT R	Charger 2	✓	-	-	✓	-	✓	-
Ultimate / RLC	Charger 2	✓	✓	-	-	✓	✓	-
RC R	Charger 2	✓	-	-	-	-	✓	-
Ultimate / Select+ / RL	Charger Race Day, Charger Race Day 2 2P, Charger 2	✓	-	-	-	✓	✓	-
Ultimate / Select+ / RL3	Charger Race Day 2 3P	✓	-	-	✓	✓	✓	-
Select / RC	Charger RC	✓	✓	-	-	-	-	-
Select RL	Charger / Charger 2P	✓	-	-	-	✓	✓	-
Select RL	Charger 3P	✓	-	-	✓	✓	✓	-
Base / R	Charger R	✓	-	-	-	-	-	-
Base / RC	Rush	✓	✓	-	-	-	-	-
Base / RL	Rush / Rush 2P	✓	-	-	-	✓	✓	-
Base / RL	Rush 3P	✓	-	-	✓	✓	✓	-
XX	Motion Control	✓	-	-	-	✓	✓	-
RL	Motion Control	✓	✓	-	-	✓	✓	-
RC	Motion Control	✓	✓	-	-	-	✓	-
TK	TurnKey	-	-	-	-	✓	✓	-
R	Rebound	✓	-	-	-	-	-	-

Visit [www.sram.com/service](http://www.sram.com/service) to enter your fork's serial number in the 'Search by Model Name or Serial Number' field, or reference the *RockShox Front Suspension Oil, Air, Coil, Bottomless Token, and Specifications* document, for more details about your fork's damper specifications.

# Damper Adjustments - Rear Suspension

Model	Damper Adjustments									
	Low Speed Rebound	High Speed Rebound	Low Speed Compression	High Speed Compression	Hydraulic Bottom Out (HBO) Adjustable	Hydraulic Bottom Out Non-Adjustable	Threshold	Lockout	Remote	AXS Controller
Ultimate Flight Attendant RC3	✓	-	✓	-	-	✓ (Super Deluxe C1)	✓	✓	-	✓
Ultimate / Select+ / RL3 / RLR	✓	-	-	-	-	-	✓	✓	✓	-
Ultimate RC2T	✓	-	✓	✓	✓ (Super Deluxe Coil B1) ✓ (Vivid C1)	✓ (Super Deluxe C1)	✓	-	-	-
Ultimate / RT3	✓	-	-	-	-	-	✓	✓	-	-
Ultimate / RCT	✓	-	✓	-	-	-	✓	-	-	-
Ultimate Remote / RTR	✓	-	-	-	-	-	✓	-	✓	-
Ultimate DH / RC2	✓	-	✓	✓	✓ (Super Deluxe Coil B1) ✓ (Vivid C1)	✓ (Super Deluxe C1)	-	-	-	-
Ultimate DH / RC	✓	-	✓	-	-	-	-	-	-	-
Ultimate / RL	✓	-	-	✓	-	-	-	✓	-	-
Ultimate / RLR	✓	-	-	-	-	-	-	✓	✓	-
XX	✓	-	-	-	-	-	-	✓	✓	-
Select+ / RCT	✓	-	-	-	✓ (Vivid C1)	-	✓	-	-	-
Select+ / RC3	✓	-	✓	-	-	-	✓	✓	-	-
Select+ / RLR	✓	-	-	-	-	-	-	✓	✓	-
Select+ / RL	✓	-	-	-	-	-	-	✓	-	-
Select+ / RT	✓	-	-	-	✓ (Super Deluxe Coil B1)	✓ (Super Deluxe C1)	✓	-	-	-
Select / RT	✓	-	-	-	✓ (Vivid C1)	-	✓ (Vivid C1)	-	-	-
Select / R	✓	-	-	-	✓ (Super Deluxe Coil B1)	✓ (Super Deluxe C1)	-	-	-	-
R2C	✓	✓	✓	✓	-	-	-	-	-	-
Base / R	✓	-	-	-	✓ (Vivid C1)	-	-	-	-	-

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