Topaz

This is the **Tuning** page for the Topaz T3Air.

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Topaz Tuning

Topaz Features

Below is a quick list of features on the Topaz. Every one of these features can aid in your tuning experience. Familiarize yourself with these features as we will be breaking them down and teaching you about each one.

-Air Pressure/Spring

-9 Clicks of Dynamic Rebound via Piston & Shims (internally tunable if needed)

-3 Position Dynamic Compression via easy access lever

-Bladder pressure can be adjusted from 170psi (lighter rider) to 200psi (heavier rider)

-Air Canister volume reducers can be used to reduce internal air volume. Optional Air Canisters will be available to offer further fine tuning of the air spring.

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Air Volume Tuning

WHAT IS AIR VOLUME TUNING?

In air shocks, the air takes the place of traditional coil springs. It works the same way by compressing the air to create a spring. Air volume is the amount of space available to fill with air and therefore determines the type of spring curve. Air volume tuning is changing the amount of volume to make the shock more progressive or linear.

WHAT'S THE DIFFERENCE BETWEEN PROGRESSIVE AND LINEAR?

These two terms are thrown around in mtb suspension lingo often but many people don't truly understand the difference. Knowing and understanding the difference can drastically improve your feel of suspension and aid in tuning to fit your personal riding style.

Spring curves refer to the amount of force it takes to compress the spring at a given point in the travel. The amount of force it takes to continue to compress the spring determines if it is a linear or progressive spring curve.

Progressive spring curves take a variable amount of force to compress a shock throughout the entire stroke. That means it takes more force to compress the spring at the end of the travel than at the beginning. Progressive spring rates take very little force to initiate suspension movement then a high amount of force to fully compress or bottom out. This type of spring curve gives the rider great small bump compliancy and excellent bottom out resistance.

Linear spring curves take a very consistent amount of force to compress a shock throughout the entire stroke. For example, if we have a 300lb spring that is 12 inches long, it takes 300lbs to compress the spring 1 inch. The next inch of spring compression will take another 300lbs and so on until the spring becomes solid.

HOW DO I TUNE THE AIR VOLUME?

The DVO Topaz allows you to tune the volume in both the positive and negative side of the air canister. This is done with the provided air volume bands that come with your DVO Topaz. The tuning bands can be installed in the air shock in a matter of minutes without having to remove the shock from the bike. Watch the tutorial below to insure you tune your volume properly.

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Understanding the Bladder

The next step in the setup of your Topaz Air shock is understanding the bladder. We have implicated the use of a bladder in all of our rear shocks for increased performance in many aspects. Bladders have been widely used in motocross shocks for years but haven't been seen too often in mtb shocks. Why is that? Bladders can be costly on the production side and take skilled technicians to properly bleed and install. On mass-produced suspension products that isn't something they're willing to invest in. At DVO we take pride in making high performance products and cutting corners in production at the cost of performance isn't what we're about.

WHY USE A BLADDER?

Bladders are located in the reservoir of the rear shock and take the place of a traditional IFP or internal floating piston. They both have the same purpose but completely different ways of executing it. That purpose is to seperate the air from the oil. A bladder is basically a ballon which is filled with air and seated to the end cap. The bladder is filled with a high PSI to push back against the oil which creates pressure in the system. As the shock is compressed, oil flows through the the system and starts to compress the bladder.

When the shock goes to extend again, the bladder pushes the oil back in the opposite direction. This decreases the chances of what's called cavitation. Cavitation is when there is a gap in the oil caused from air bubbles and creates a temporary loss of damping. Here's an example of cavitation. Picture turning on a hose, what happens as the water is pushing the air out of the line? Water intermittently shoots out in between gaps of air. This same situation happens in suspension causing a loss of damping.

The real benefit of using a bladder over an IFP is when the shock is working dynamically or in "riding situations". As the shock is compressing and rebounding at a high velocity, it can sometimes have a difficult time changing directions. An IFP usually has a moment of hesitation in that situation due to stiction between the outer O-ring and the inside surface of the reservoir. With a bladder that can't happen and you get unmatched small bump sensitivity with a seamless transition from compression to rebound.

CAN I ADJUST THE PRESSURE OF THE BLADDER ON MY SHOCK?

Absolutely. Changing the bladder pressure is easy and something you should check consistently. Just unscrew the air cap at the end of the reservoir and use a shock pump to adjust or check the pressure. When checking the pressure, the initial reading from the pump will be low. This is because air needs to fill the hose of the pump before the PSI can be determined.

HOW WILL THE PRESSURE AFFECT THE PERFORMANCE?

The pressure within the bladder will have a drastic affect on performance. As we talked about before, the higher the pressure the less chance you have of cavitation. The pressure range of the bladder is 170-200PSI. The bladder pressure also has an effect on the entire stroke of the shock. The higher the bladder pressure the firmer the shock will be. The lower the pressure, the softer. Lighter riders can run a lower bladder pressure and heavier riders should ride a higher pressure.

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SAG as a Tuning Feature

SAG can actually be a key tuning feature that's crucial to the handling of your bike and the position of your body while riding. Having a good understanding of SAG is extremely important. It will be the first thing you check after evey adjustment you make.

WHAT IS SAG?

SAG is the amount the shock compresses under your own body weight. Make sure you check your SAG with all your riding gear on (riding shoes, hydration pack, etc). The ideal amount of SAG is best determined by your bike manufacturer, there are many linkage designs & each design works best according their design.

WHY IS IT SO IMPORTANT?

Insuring that your shock has the correct amount of SAG is crucial to the set up and performance of your air shock. This is the easiest and best way to determine your shock is working in the most effective range for your rider weight.

HOW DOES THE SAG AFFECT PERFORMANCE?

Since SAG is the amount the shock compresses under your body weight, it allows the shock to be pre-compressed while riding. When riding on a flat surface and a hole is encountered, it allows the shock to fall into the hole and absorb the up-face with the entire stroke of the shock. Having the correct amount of SAG allows the bike to track the ground and keep the feedback to the rider at a minimum.

CAN SAG AFFECT PEDALING?

SAG will determine the amount of squat your bike has. The less SAG you have, the pedal bob will be reduced but small bump compliancy will be negatively affected. The more SAG you have, the small bump compliancy will be increased but pedaling efficiency will decrease. It's beneficial to run less sag on hard packed pedaling trails since carrying momentum and pedaling is the priority. On rougher trails, more SAG actually carries more momentum by allowing the wheel to move over bumps rather than be hung up by them.

HOW DOES SAG EFFECT THE HANDLING OF MY BIKE?

It is very beneficial to test different SAG settings for various riding conditions. Increasing the amount of SAG on your bike drastically increases high speed stability but decreases front end traction and cornering ability. Increase your SAG on high speed or sandy tracks to improve stability. Too much SAG will cause your front end to be too light and deflect over bumps.

DOES SAG EFFECT MY BODY POSITION ON THE BIKE?

SAG definitely has a big affect on your body position. The more SAG you have the more your bike will squat while riding. This positions your center of gravity behind the seat which improves high speed stability but decreases front end traction. Riders can then compensate for this by moving their body weight forward while cornerning. This set up is great for steep/rough trails where pedaling isn't as much of a priority.

Reducing SAG will create a "stink bug" effect and bring your body weight forward. This drastically improves cornering ability but decreases high speed stability. Riders can compensate for that by moving their body weight back in high speed sections of trail. This set up is great for hard-packed single track or trails with tight turns and pedaling.

Click HERE to learn how to set you SAG.

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