

Santa Cruz Blur



Like most other high end suspension bike manufacturers, Santa Cruz is trying to strike a balance. Mountain bike riders want a suspension system that absorbs bumps without sacrificing pedalling efficiency. In an effort to achieve this balance between pedalling and suspension Santa Cruz went out and bought the patent for the 'Virtual Pivot Point' (VPP) from a company called Outland. Since then they have applied this design to their V10 downhill bike and more recently the Blur. The Blur is designed for trail riding and cross country racing and has 114mm (4.5inches) of wheel travel.

Tricky Links

The VPP has a triangulated rear swing arm that is attached to the main frame via two swinging linkages—one at the bottom bracket and one on the seat tube where the shock is mounted. These linkages control the path that the rear axle travels. This axle path is the key to the VPP design. As the axle moves up through the first quarter of its travel, it arcs in towards the main frame of the bike. Deeper into the travel the axle path curves back away from the main frame and continues to follow a relatively linear upward path. Overall this movement on the axle path is quite subtle, but seems to be enough to achieve the desired result.

The correct suspension set up is critical to the function of the VPP. Under the weight of the rider the suspension should sag into the first quarter of its travel. This places the wheel in the middle of the inward curve on the VPP's axle path. When the axle sits in this 'sweet spot', high pedalling torque applied through the chain will try and hold the suspension still. This aims to stop the suspension from bobbing under high pedalling loads—like when you are out of the saddle sprinting uphill.

It looks and sounds complicated and initially I was sceptical. I felt that this could be yet another design claiming to sprint like a hard tail and descend like a downhill bike. After two months of riding I have come away very impressed.

High Activity

On the trail the Blur feels like a very supple fully active suspension bike. When pedalling along in a relaxed manner, the rear Fox air shock is constantly working and absorbing the smallest of bumps. It does this regardless of your gear selection—in the saddle or out.

The tricky bit comes when you climb or sprint out of the saddle. When you sprint hard the suspension doesn't mush up and down anywhere as much as you would expect. The VPP stiffens under high pedalling loads—the harder you pedal, the stiffer it gets. On a super steep climb with good traction you can hammer on the pedals and almost believe you are on a hardtail.

This stiffening under high pedalling loads is very subtle and the suspension never locks out completely. Any significant bump will override the stiffening effect that hard pedalling has. The balance that has been achieved with the VPP is impressive. Where some other 'anti-bob' systems feel like a hardtail until you hit a bump,



the VPP feels like a long travel dually that happens to pedal efficiently. On a super steep uphill the VPP may lose a small amount of suppleness, but any resulting loss in wheel traction was minor.

There are other mountain bike designs that exhibit a degree of suspension stiffening under high chain torque. The most obvious example can be seen in single pivot suspension bikes with a high pivot placement. However, most of these systems have to be run with minimal suspension sag. The lack of sag tends to result in a less supple ride. They also tend to give a certain amount of suspension 'feedback'—you can feel the chain being tugged by the swing arm as you pedal over bumps. The VPP offered none of these negative traits.

Fault Free Efficiency

If there are any negatives at all, I didn't find them. I would say that the additional pivot points that the VPP requires could be a negative in the long term. There are more pivots to develop wear and slop. This is more of a long term maintenance issue as the Blur showed no signs of frame or pivot flex during the test. The bike tracked perfectly whilst the suspension did its thing. Santa Cruz also makes single pivot bikes like the Superlight, but they can't match the suspension action found on the Blur. When compared to the single pivot Superlight the Blur suffers a 200g or 300g weight penalty—once again due to pivots and complexity. The other negative is price but bikes this nice always seem to cost a fortune. The frame will set you back around \$3,250 with a powder coated finish and \$3,450 for an anodised finish. With all of the cool gear our test bike would retail for around \$9,000.

Fast trails and downhills were a blast with four and a half inches of rear wheel travel constantly working to smooth out the trail so you could just pedal. The suspension itself worked beautifully, it was supple and linear using all of the available travel. Our test bike came with Fox Talas RLC forks. These adjustable 85 to 125mm (3.5-5inch) travel air/oil forks matched the feel of the back end perfectly. It made a very balanced and functional suspension package.

Our Blur test machine came with all the gear. It had 2003 Shimano running gear throughout. This included the new Dual Control gear and brake levers. It was my first long term stint on the Dual Control levers. Through two months of riding I became very familiar with the new shifting system. I still fail to see why Dual Control is functionally any better than their STI trigger shifting system. Whilst they both work very well I don't think that one is better than the other—it must be a personal preference thing.

My main dislike of the new generation Shimano was the Rapid Rise spring mechanism on the rear derailleur. I went to the trouble of swapping back to a standard Shimano XT derailleur. The type that pulls the chain into the smallest cogs on the back when the cable tension is released. I just wanted to see how it would go. With the old derailleur fitted I could brake and shift into lower gears at the same time—something that I found awkward or impossible with the Rapid Rise derailleur. I also felt that it was easier to force the gearshifts once the cables became stuck with mud.

With all of this trick gear the Blur weighed 10.9kg (24lbs). Considering most of the components are durable and trail worthy this is a very respectable weight. Combined with the solid pedalling platform provided by the VPP system, the Blur was a rocket ship. It sprinted uphill and floated down. For general trail riding I feel that the VPP offers the best compromise between suspension and pedalling. The Blur never rides like a hardtail it is a real suspension bike—supple and active, it just happens to be very efficient as well. 

Article and photography by John Hardwick

Specifications

Frame	Santa Cruz Blur
Fork	Fox Talas Float RLC 85-125mm
Head Set	Chris King
Stem	Easton EA50
Handlebars	LP Carbon Riser
Brakes	Shimano XTR
Shifters	Shimano XTR Dual Control
Front Derailleur	Shimano XTR
Rear Derailleur	Shimano XTR
Cassette	Shimano XTR
Chain	Shimano XTR
Crank	Shimano XTR
Bottom Bracket	Shimano XTR
Rims	Mavic 317 Disc
Hubs	Shimano XTR
Spokes	DT Butted
Tyres	Hutchinson Python 2.0
Saddle	WTB Rocket V
Seatpost	LP Carbon
Price	Frame only \$3,450 (Complete as tested \$9,000)

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