

SPECIALIZED *EPIC* BICYCLES 2003  
**IT KNOWS.**

FSR SUSPENSION + BRAIN TECHNOLOGY = EPIC BIKES



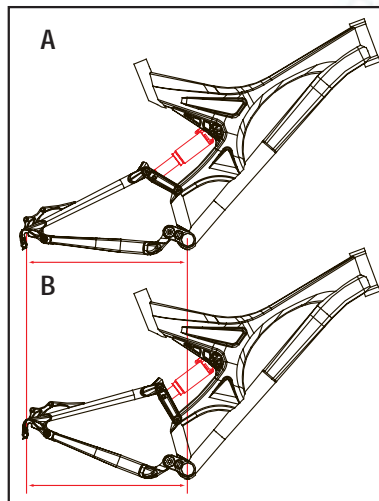
# FSR: THE NEXT GENERATION.

It's been more than a decade since Specialized engineers began working with suspension guru Horst Leitner to create the technological breakthrough that became the patented FSR four-bar linkage suspension system.

Since that time, FSR has become the most successful system in bicycle suspension history...so much so that more than a dozen of our competitors now license it for use on their own bikes. And with good reason. All our FSR designs (we're not sure about some of the imitations) share the same critical performance benefits in a way no other suspension system can match.

## Fully independent

FSR suspension works all by itself. This benefit has two parts. First, chain loads have virtually no effect on the system. Even under heavy pedaling, the suspension's action is virtually unaffected by chain force. Second, the suspension's uninhibited movement has virtually no effect on pedal stroke. This means there's no suspension-induced "kick-back" or "drop-away" (as with other suspension systems) when the FSR suspension absorbs bumps or dips. By dialing in the pivot placement within the four-bar linkage system, FSR design is almost completely neutral. FSR is also independent of pedaling and braking forces.



## Fully Active

The FSR linkage is always working for you, never against you. To provide maximum benefit, suspension has to be free to compress and rebound whenever it's needed—which is to say, whenever the terrain is bumpy. Whether you're pedaling or not, standing or seated, braking or coasting, FSR responds fully to bumps and dips.

## Now Fully Complete

About the only disadvantage to FSR was that the system sometimes responded when you didn't want it to...specifically when pedaling out of the saddle on smooth surfaces. That's where Brain technology comes in. On smooth terrain, Brain locks the suspension out so it's unaffected by rider input. But the same system instantly becomes fully active/fully independent in response to bumps and dips, delivering the full benefits of FSR suspension.

*A near-perfect vertical axle path from full extension (fig. A) to full compression (fig. B) insures the patented FSR suspension is virtually unaffected by the bike's drivetrain...and vice-versa. This is equally true for FSR systems with Brain technology.*

## In Search of the Holy Grail.

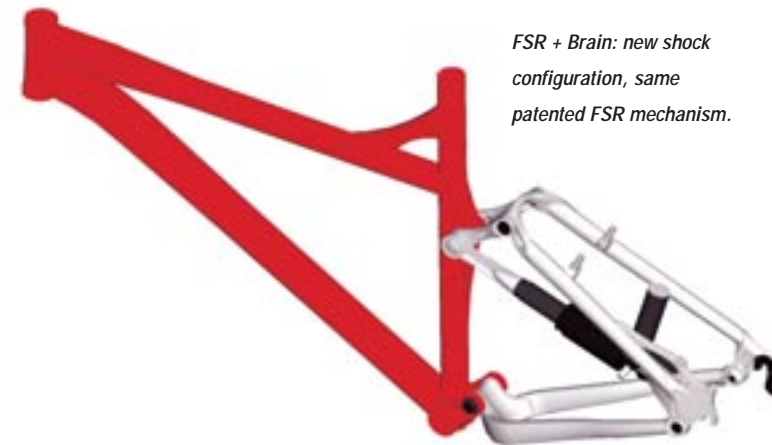
Back in 1998, it seemed so simple. Deliver all the benefits of FSR technology. And keep everything hardtail-solid until the rider needs those benefits. And while we're at it, do the whole thing without a weight penalty. Other companies would call this sort of thing impossible. We called it The Holy Grail. Sure, our engineers told us. We've got this idea involving an inertia valve. Couple months, tops.

We knew The Holy Grail was no ordinary project. So to produce it, we went looking for a partner with the best mind in suspension. Bob Fox, just a few minutes up the road at Fox Racing Shox.

Sure, he told us. It'll take some special valving, but this thing'll work. Couple months, tops. A year later, we were still waiting. "I think I've almost got it", Bob told us one cold December day. He didn't.

Two years passed. Three. Bob kept telling us he almost had it. And together, we kept searching for the Holy Grail. But sometime in the fourth year, we rode the umpteenth prototype. And we knew. Six months later the Epic was ready for market.

Worth the wait? You decide. But it's like they say. Sometimes the impossible just takes a little longer.



Perhaps the most impressive thing about the Epic bike is this: having the most sophisticated high-performance bicycle suspension system in history is only a piece of the story. Here's a modest sampling of the nonsuspension benefits Epic riders can expect:

- **Weight comparable** to our '02 FSR models...already the lightest in their class.
- **Open-front triangle** for easy portage, stiffer front end, and four bottle mounts.
- **All-new seatstay and chainstay yoke forgings** and shock link deliver our stiffest XC rear triangle/BB to date.
- **Shock floats on spherical bearings** (ball joints) for up/down and side-to-side movement. Full cartridge bearing pivots.
- **Low standover height** (our lowest in an FSR ever). True size Small available, plus two Women's sizes.
- **Lower center of gravity** for improved handling.
- **New frame geometry** with longer top tube and slightly higher BB.
- **Clean downtube derailleur cable routing.**



# *S-Works FSR*

With Brain Technology

The limited-production S-Works FSR shown here features our M5 ORE tubeset, top-of-the-line titanium goodies, and full XTR package. The six members of the Epic family feature an M4 ORE tubeset and race-ready components comparable to our Stumpjumper bikes. See your Specialized Dealer for details, or learn more at [www.specialized.com](http://www.specialized.com)

# A LOOK INSIDE THE BRAIN.

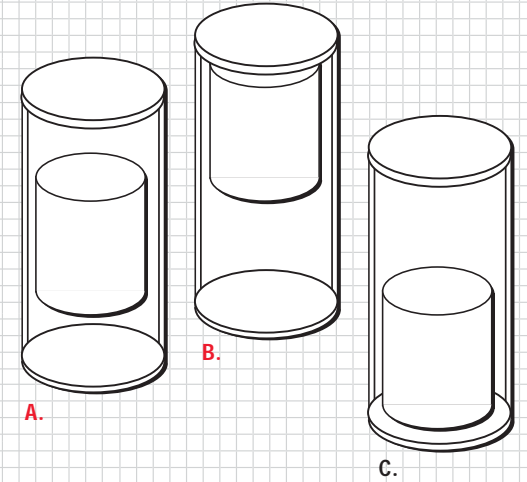
## Rider Forces

### A. The Brain's rear-axle location

means rider input can't engage the inertia valve inside.  
The system remains locked out and fully rigid on smooth surfaces.



Position of inertia valve



## Wheel Forces

### B. Negative Input (dips)

FSR suspension moves with the input; wheel tracks with terrain.



### C. Positive Input (bumps)

Brain senses the input, allows inertia valve to open and engage FSR suspension; wheel tracks with terrain.



Brain technology consists of an inertia valve mounted inside a near-vertical cylinder near the Epic's rear axle. The inertia valve controls the shock's ability to compress; the resulting system is responsive to terrain input (bumps and dips), but not to rider input (you, pedaling the bike) until the going gets bumpy.

The technology works because forces from the ground activate the inertia valve inside the Brain, which opens and allows the shock to compress in response to the bump. The rebound circuit is left open. With purely negative input (a dip without an accompanying bump, like a pothole in an otherwise smooth road), the shock moves in response to gravity, taking up sag initially put into the system by the rider's weight and allowing the rear wheel to

track with the dip. Brain technology literally ignores rider input but detects bumps, allowing the suspension to engage whenever it's needed.

All of which means that Epic bikes have a suspension system that's completely locked out until bump forces are detected, but so sensitive they can "read" less than 1G of input. Then the shock responds instantly. Once activated, the Epic's FSR suspension is fully active and independent...and remains that way until the terrain becomes smooth, the inertia valve closes, and the shock is locked out again.



The Brain's rear-axle location also allows the inertia valve to activate instantly in response to bump forces, delivering the fully active/fully compliant benefits of FSR suspension whenever the situation demands it.

# Let's Get Engaged.

## Epic Bikes, FSR Suspension, Brain Technology

### What the Press says.

So, are the promised Epic performance benefits for real? To find out, we invited members of the cycling press—including some of our own sharpest critics—to test ride the Epic prototype. Here's a typical response:

*"There was a sense among those present that...we were experiencing a very big moment in the history of the mountain bike.*

*"The cards say that Specialized's collaboration with Fox will be a raging success...a lot of bike makers will be left scrambling for a response."*

— Richard Cunningham  
Editor, *Mountain Bike Action*

*"Specialized finds the Holy Grail."*

— *Mountain Bike*

### What the Inventors say.

*"Of all the things we've ever done as a company—from the first Stumpjumper mountain bike to FSR suspension and Body Geometry medical technology, this is the technological achievement I'm most proud of...and the one that delivers the most benefit to us as riders."*

— Mike Sinyard, Founder and President,  
*Specialized Bicycles*

*"When Specialized first came to us with this project, we immediately recognized—and were excited by—the promised rider benefits. What we did not realize was how difficult the engineering challenges would be. Although basic inertia valve concepts have been around for over 80 years, it took the Fox engineering team more than 3 years to invent and perfect the revolutionary technology that makes this shock work so well on the new Epic. There is no other accomplishment in Fox's 27-year history that I am more proud of."*

— Bob Fox, President, *Fox Racing Shox*

### What the Experts say.

*I have been riding and racing full suspension bikes for ten years, and the Epic takes a giant leap in cross-country full-suspension performance. Simply put, it's rigid when the terrain is smooth...and fully active when the terrain is rough. No compromises necessary."*

— Ned Overend  
World XC Mountain Bike Champion  
Xterra World Champion  
6-Time NORBA National Champion

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