
KOOKA

FOES FAB WEASEL

To find the affordable Foes

Remember the original Foes Fab? It was a screaming red, aluminum monocoque, full-suspension bike with six inches of rear wheel travel, a Fox air shock and a cantilever beam swingarm. It was exciting to look at, plush over the rough stuff, very bombproof and expensive. Brent Foes, the man behind the bike, was a believer in the integrity of monocoque construction and saw mountain bikes as the perfect application for the technology. When the first Foes Fab surfaced, monocoques were not a new phenomenon in mountain biking. The Mantis Flying Vee and Mountain Cycle San Andreas were the best-known sheet-aluminum structures, but the concept of formed sheet metal box section frames was neither well understood nor accepted by the average mountain biker. Brent Foes' background in constructing off-road racing trucks introduced him to the technology, but it was only after developing his original Foes Fab design that he realized monocoque construction was not a process which lent itself readily to mass production—at least not as readily as tube construction. To this end, Foes decided to develop a tubular design with the same geometry and performance as his beautiful, wedge-shaped, box-section flagship.

MEET THE WEASEL

The result of his effort was an outlandish-looking frame he dubbed the Weasel. The front section of the Foes Weasel actually has some advantages over the monocoque: (1) Its top tube is bent to meet the center-mounted shock. (2) Stand-over clearance is increased. (3) The tubular space frame has room for a down tube-mounted water bottle. (4) The Weasel's price tag is significantly lower ($1395 for the frame, compared to $1795 for the original Foes Fab LT).

◄ Off-road spoken here: Brent Foes has made a career of building vehicles capable of covering rough terrain in a hurry. The tubular-framed Weasel sees his tradition and raises it—a couple of feet. The Foes was a secure platform for executing bold maneuvers.

Not unlike the Cannondale Super-V, but for different reasons, the Weasel's front section is triangulated with a short strut between the top tube at the shock mount and the down tube. This spreads the shock forces throughout the frame. The classic Foes box-section swingarm is unchanged, but the shock has been upgraded to the new, rebound-adjustable Fox ALPS-4 unit. The Fox damper should be a good match for the Foes' cantilever-beam suspension (almost all cantilever-beam designs depend on air shocks).

The Weasel's overall design is most noteworthy for what it lacks. There is a minimalist look to the Foes, which hasn't always been the case for the SoCal builder. This is most noticeable in the brakes. The first Foes Fab had rear brake routing that could not be described in 1000 words. It required two pulleys, a pair of straddle wires, a horseshoe and a collection of frame-mounted pivots to operate a simple cantilever brake. The Weasel's swingarm has no cable routing at all. Foes designed it around a Paul's Crosstop side-pull linkage brake. There is no provision for a standard cantilever setup (it would be impossible, anyway, because a cantilever brake would run smack into the back of the seat tube). The bike's monocoque swingarm requires only one pivot point: a large-diameter, Teflon-coated alloy tube that runs on Kevlar bearings. No fussy linkage here. All the cables are routed on the left side of the down tube, enhancing the bike's already clean appearance. Overall, the Weasel gives the viewer a feeling that this bike has been thoroughly engineered and tested—just like an off-road race car.

ABOUT THAT SUSPENSION

Foes, drawing from motorized dirt driving experience, feels that the rear end of an off-road vehicle receives the most punishment and shoulders the lion's share of the suspension duties. Therefore, his designs have a whopping six inches of rear wheel travel (extracted from a two-inch-stroke Fox shock). Two decades ago, the best off-road motorcycles had only six inches of rear wheel travel. Every *MBA* test rider wondered how a long-travel rear suspension could be balanced with a short-travel front end (there are no six-inch-travel forks available). Brent explained that equal amounts of wheel travel on each end of the bike was far less important than providing the correct amount of wheel travel that each end of the bike demands. We don't agree, but the proof's in the pudding.

To *MBA*'s test riders, the fact that the bike had twice as much rear wheel travel as front travel intimated that the Weasel would require a different riding approach. The Weasel was equipped with one of *MBA*'s top-rated forks, the three-inch-travel Rock Shox Judy DH. In fact, the Weasel was painted Judy-Red to match. An additional concern for the test riders was that there are serious balancing hassles when you mix an air-sprung rear shock with a microcellular-sprung front fork.

Technically, the Foe's rear suspension is a first-generation, high/forward-pivot, cantilever-beam suspension design. When you position the pivot higher than the chainrings and forward of the bottom bracket, the rear suspension can be canceled out by chain torque when the rider pedals in the middle and granny gears. This non-active suspension design makes the bike feel like a hardtail under power and frees up the rear suspension when the rider is coasting, hitting bumps that can override pedal force, or hammering at speed in the big ring. Another negative of cantilever beam configurations is that the rear suspension will stiffen as the brakes are applied (because the brakes are attached to the swingarm). Foes defends the design's limitations by claiming that some braking-induced lockout is worth trading off for simplicity, reliability and a laterally rigid swingarm.

The Foes' manual directs the rider to run at least 0.25" of sag (measured at the shock). This works out to approximately one inch of negative travel at the rear wheel. In fact, the Foes frame geometry is

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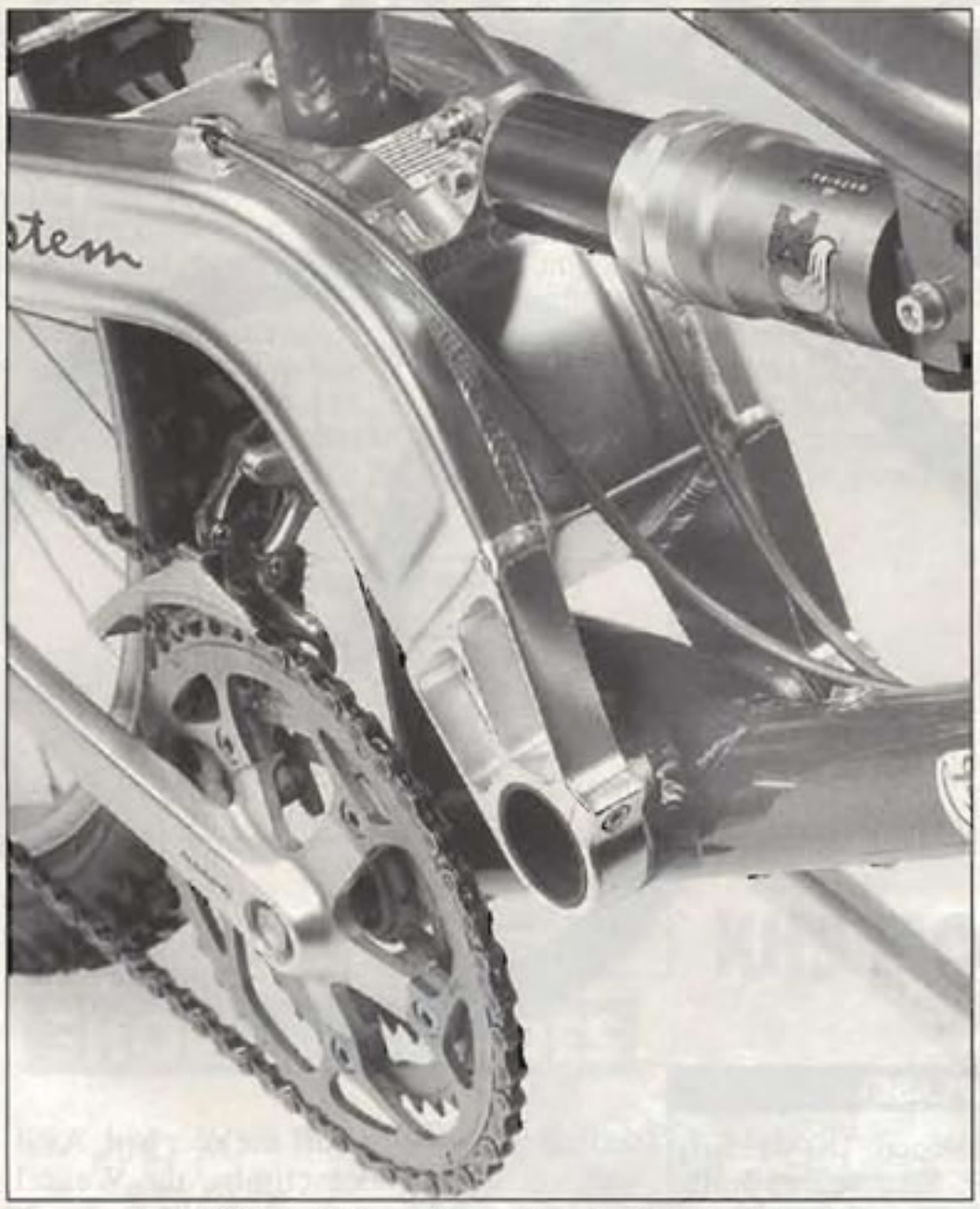

Power-play: While building off-road racing trucks, Brent Foes learned the value of stiff rear suspension and reliable components. The Fox ALPS air/oil damper is the top air shock on the market and uncontested in durability.

Semi-active: Foes' monocoque swingarm was torque-sensitive under power. Climbing short, steep sections out of the saddle delivered a ride very similar to that of a hard tail. The Foes' rear section was as laterally rigid as any full-suspension bike made.

◄Rolling boxcars: The Foes Weasel has the signature box-section swingarm and high-forward pivot location. Construction on the Foes is very sano. The factory recommends that Foes Weasel riders spec a Paul's Crosstop brake.

configured to allow the rear end to settle at least that much. Sag allows the suspension to return to its normal ride height without fully extending the shock. Not surprisingly, this race sag feature may be the most important dynamic of the Foes system. Without negative travel (which most air-shock bikes lack), the suspension would remain rigid until the bump force became great enough to overcome the high stiction of the air shock (not an easy task, as anyone who has ridden an air shock bike will tell you). With sag, however, the Foes suspension is capable of floating on the air spring. This negative travel setup makes the Foes rear shock capable of reacting to almost any bump. Additionally, the rear wheel has some downward travel remaining, so the tire can follow depressions in the trail in addition to bumps—that's why sag is often called: "negative travel."

There is a tendency to paint all suspension bikes with a downhill-specific label, especially a bright red, long-travel model like the Weasel. Although both of the Foes designs have been successful on the downhill circuit, they were intended to be comfortable, all-purpose, cross-country mountain bikes. Yes, the Weasel is a good downhill mount, but to pigeonhole it would only be giving it half a chance. The bike's designer maintains that his bikes were penned to be mountain bikes—not downhill bikes. All Brent wanted was to produce a mountain bike that was more comfortable and more pleasurable to ride off-road. That said, *MBA* recognizes that the NORBA National and Grundig World Cup downhill results are peppered with

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long-travel cantilever beam designs very similar to the Weasel.

RIDING THE WEASEL

Throw a leg over the Weasel and two aspects jump right out: (1) The Foes feels much lighter than the scale read, and (2) this bike likes to go fast. Thanks to fat and aggressive tires, sharp steering, crisp braking and an absorbent feel, this is a fun bike to ride. Setting up the air pressure right is the key to success. Do it wrong, even by five pounds, and you will be hating life. Get it right (0.25" of sag) and the Foes will click off miles without a single mechanical glitch.

Biopacing: Under power, the Weasel felt smooth and rigid. If its semi-active swingarm bobbed or biopaced, the sensation was soaked up in the abundant rear travel. It floated more than biopaced.

Climbing: In the saddle, the Weasel climbed very well. The rear end wasn't mushy, yet the rider could sense that the suspension was working. Out-of-the-saddle efforts were diminished somewhat by a tallish stem and a lack of bar ends. These factors, and a few others, gave the Weasel a split personality as an ascender. The Foes was very well balanced while seated, which provided ample traction and an efficient cycling position. However, when standing, the rider's position would move decidedly forward, unweighting the rear end and bunching the rider's upper body over the handlebar. Not good. We could alleviate some of the out-of-the-saddle hesitancy by mounting a lower stem (bar ends also allowed the rider more room in the cockpit), but these fix-it mods shifted more weight off the rear tire. As it was, on steep, loose climbs, the Weasel required a fair amount of body english over the back tire to keep it biting.

Cornering: The longish, 17-inch chainstays contributed mightily to the Foes' out-of-the-saddle slip. On the other end of the spectrum, the same factor played a key role in the Weasel's outstanding cornering performance on fire roads. The long rear end weighted the front tire, which kept it tracking on almost any surface. In a slide, the Foes remained in control with the rear wheel breaking loose an instant before the front (a very secure feeling).

Singletrack: Oddly, the Foe's stability at speed didn't seem to hamper its singletrack performance. The Weasel was accu-

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Frame type: Full suspension; TIG-welded straight-gauge 6061 T-6 alloy tubing with gusset reinforcements; H_2O mounts on upper and lower side of down tube; monocoque alloy swingarm, CNC-machined pivot bosses and dropouts.

Suspension type: Cantilever beam, high-forward pivot location.

Frame geometry: Size tested—medium (17" center to top); Top tube—23"; Wheelbase—42"; Chainstays—17"; Bottom-bracket height—13"; Head angle—71°; Seat angle—71.5°.

Fork: Rock Shox Judy DH; Micro-cell spring/oil damped.

Shock: Fox ALPS-4; Air spring/oil damped; adjustable rebound.

Suspension travel: Front—3"; Rear—6".

Weight: 26 lb. (6.5 lb. for frame with shock).

Sizes available: Small, medium and large.

Components: Front derailleur—Shimano XTR (bottom pull); Rear derailleur—XTR; Shift/brake controls—XTR. Crankset—Deore XT, 180mm arms with XTR chainrings (28/36/46); Hubs—XTR (32-hole); Cogs—XTR (12x28, eight-speed); Wheels—Weinmann/Bontrager BCX rims, 14/15-gauge spokes, alloy nipples; Tires—IRC Claw Comp 2.1" (front and rear); Stem—Control Tech, TIG-welded, 120mm x10° rise; Handlebar—Control Tech alloy; Brakes—Paul's cantilever (front) and Crosstop (rear); Saddle—Trico Sports Kevlar/Titanium; Seatpost—Control Tech alloy (26.8mm); Goodies—Control Tech, Ti-Rod skewers, Dia-Compe sealed Aheadset, 180mm crank arms.

Price: Frame only—$1395 (Foes offers the Weasel frameset with two component starter kits with essential items for $1745 to $2350).

Contact: Foes Fab, 2660 Deodar Cir., Pasadena, CA 91107; (818) 683-8368.

Great gusset: Half-tube gussets on the top and down tubes buttress the head tube area. A cantilever-style tubular reinforcement distributes the suspension loads throughout the front section of the frame. Linear flex is not a problem on the Foes.

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Long and strong: With 6" of rear-wheel travel, the Weasel's "long-travel" Judy DH fork comes up 3" short of a match. As far as the MBA test riders are concerned, there is no philosophical argument over the merits of suspension balance.

rate and easy to maneuver. Most of the time, the rider remained centered over the bike and simply pointed it where he wanted to go. It's a good idea to shift one's weight to the rear when negotiating large rock fields or roots when out of the saddle. All things considered, this was a worthy trail bike.

Downhill: We couldn't forget the Weasel's downhill performance! If you love fire roads, this is a cool ride. No need to monkey around on the Foes to find its sweet spot! Brent has figured out the weight distribution for you. If you have the courage to lay it over in a sweeper, the Weasel will take you around the bend as fast as any pro would care to go (the IRC PiranhaPro tires helped).

Braking: Stopping power was akin to any top-performing cantilever.

Suspension: On the steepest descents, we encountered an unusual phenomenon. It seemed that, under braking, the rear suspension would unload, extending to its full-open position while the fork was being depressed to within an inch of its total travel. This increased the Foes' effective head angle a couple of degrees. Negotiating steep, tricky sections was very testy—and so were the test riders who had to ride an ultra-steep head angle down a difficult chute. The front and rear are not always in balance which comes to light at the least opportune times. To help compensate for

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the soft microcellular front and air-rammed rear end, we cranked Judy's preload settings to full max. This helped keep the front of the Foes riding higher on the downhills, but not as much as a fork with more travel and compatible air springs.

The battle over balance is one that can't be overstated, but, on the plus side of the suspension scale, the Foes had the most dialed-in air/oil rear suspension we have ridden. By following Brent Foes' setup instructions, we were rewarded with surprising low-speed suppleness as well as high-speed impact resistance. Did we like the extra rear wheel travel? We used all of it at some point, but don't know that three, four or five inches wouldn't have felt just as good.

***MBA* RATES THE FOES WEASEL**

To be an optimal cross-country racer, the Weasel needs to lose a half-pound in the frame and a half-inch in the chainstay. Even without the diet and length adjustment, the latest Foes Fab suspension bike is still a very impressive trail bike right out of the crate. It is versatile. We would recommend the bike to anyone looking for a do-anything, trouble-free, full-suspension mountain bike. Downhill racing? We already know the Weasel can duke it out with the best. ❑