
MOUNTAIN BIKE ACTION
CANNONDALE
CREASTON

DAGGER MacPHERSON STRUT

A small builder's solution to full suspension

Dagger dancing: Lofting the feathery-feeling Dagger was a snap. It was steep, short and felt well-balanced. All the ex-BMX racers on the MBA test crew loved it. Stopping on the Mac strut was enhanced by Magura hydraulic calipers . . . a step up from the cantilever crowd.

Before mountain bike builders began to experiment with miracle materials like beryllium, titanium, Aermet steel or composite . . . before the full-suspension revolution took hold . . . before mountain biking became technocratic, small mountain bike framebuilders could simply order pre-made, butted chromoly tubing from one of four suppliers. All they had to do was cut the tubes to length and braze, TIG or glue the ensemble into a frame. Engineering had been refined 40 years before and manufacturing was relatively simple. In those halcyon days, anyone with a willingness to work and a love for the sport could set up a frame shop in a garage—life was good.

Those were the days . . . and they are gone now! Times couldn't have changed more since those nostalgic beginnings. The garage frame shop is as much of an anachronism as a rigid, fillet-brazed, steel mountain bike. A modern frame builder can no longer get by on his welding skill; he must have a working knowledge of suspension dynamics, the varied pallet of frame materials and the subtleties of every aspect of the sport (downhill, cross-country, dual-slalom, trekking and woods riding). No more simple tools! The early artisans have been eclipsed by computerized machining centers, finite element analysis and a complicated subcontracting network.

It sounds bad for the garage builder, doesn't it? Nothing could be further from the truth.

DIVIDING UP THE DAGGER

Dan Glimn, Dagger's head honcho, is one of the latest entrants into the ranks of mountain bike micro manufacturing. To ensure a measure of full-suspension success, this Southern California brand has sidetracked the major engineering hurdles most monkey-motion makers face by simply taking the most famous rear-suspension system—AMP Research's B-3 MacPherson Strut system—and joining it to Dagger's TIG-welded, Easton Elite, 7005 alloy front sections. This isn't a new concept; it's an arrangement that Rocky Mountain, Fat Chance, Litespeed, Mongoose, Dean, Woejik and others have also profited from. With the suspension chores handled by AMP, Dan could focus on dialing in his geometry and outfitting his frame with a host of goodies. The AMP B-3 MacPherson strut suspension is a proven design and, arguably, the lightest active rear end made. Easton Elite Pro-Gram tubing is the best alloy pipe in the bicycle world. By joining forces with Easton and AMP, Dagger was able to jump to the top of the class.

GETTING TO THE POINT

Daggers are only available as a frameset. *MBA*'s test Dagger was equipped with a top-drawer component selection, mostly from American cottage industrialists. To make the component choice even sweeter, the Dagger was tested with two different rear shocks: an AMP thru-shaft shock with a titanium coil spring and an air/oil Risse Racing Elroy with adjustable compression. Both shocks weighed within a few grams of each other.

The frame's Easton-tube front triangle is as straightforward as they come: a sloping top tube, oversized alloy unit, devoid of gussets, punctuated with a single bottle mount on the down tube and a small shock mount under the top tube. Its AMP rear suspension was also a straight arrow Mac Strut: polished aluminum, TIG-welded and outfitted with an AMP anti-flex brace. To up the ante, the AMP rear dropout comes stock with two holes to allow the rider to upgrade to the AMP D-1 rear disc brake.

Front suspension was handled by a Rock Shox Judy SL, and the bike was color-matched with a yellow and red fade paint scheme.

RIDING THE DAGGER

The overall setup of the bike reflected the maker's desire for a no-nonsense, reliable performer. Although each component carried a high-buck brand name, none were of the useless genre that compromise durability for dubious weight savings. In fact, some of the Dagger's feather-light features (Easton tubing, Union titanium spokes and ti shock spring) were offset by the heavier Magura hydraulic brakes and steel brake boosters. Weight watchers need not fret, however; the Dagger hits the scales at a minimal 24 pounds—ready to roll.

Climbing: It was apparent on the first long ride that the Dagger was a technical rider's mount. The bike could climb incredibly steep walls if it could find enough traction. Thanks to its steep 74-degree seat angle, the Dagger put the rider in an excellent position to keep the bike hooked up over the steepest ascents. The steep seat angle facilitated instant transitions from seated to out-of-the-saddle efforts. This attribute made negotiating tricky singletrack second nature astride the Dagger. While most quick-handling dirt bicycles have a short wheelbase, the Dagger has a relatively long, 42-inch axle-to-axle distance. This mix of quick angles and a long wheelbase gives the Dagger more security while negotiating steep downhill sections (without hindering its nimble steering qualities).

At speed: Unfortunately, the strength of the Dagger's handling on technical singletrack eroded its high-speed stability somewhat. For the group of test riders that lean toward quick-handling bicycles, the skittishness was not a big problem, but the red and yellow bike took extra attention to keep it in line on fast fire road descents. Leaning the Dagger into a bend caused both the front and rear tires to search independently for traction, a trait that constantly frustrated finesse-style riders. The best method for carving a clean corner was to lean the bike into the curve with your hips and steer as little as possible. Once each rider spent some

time in the saddle, the Dagger became much more trustworthy at speed. It should be mentioned that the Dagger was very neutral-handling in a slide. Its long-ish rear end and steep seat angle kept the rider well centered between the wheels—a key factor for any good downhill chassis.

Under braking: Magura has really made inroads into the mountain bike market since rear suspension and downhill racing have taken hold. The reasons are clear: (1) Hydraulic Maguras can be readily adapted to existing cantilever bosses. (2) They flex less than cantilevers in the same applications. (3) They don't fold under the rim as the pads wear (a dangerous cantilever trait). (4) The pads can be popped out with a screwdriver and replaced in seconds without readjustments. Anyone with a conventional MacPherson Strut rear end would benefit from a Magura rear stopper.

Dagger employed Maguras front and rear, along with Sun Metal's latest CR17A rims, to ensure enough stopping power for any situation. The combination was right on. The carbide-embedded braking surfaces on the Sun rims enhanced the solid feel and powerful braking of the hydraulically driven pads, while their ultra-rigid steel braces gave the binders a solid feel at the lever. As a bonus, there was nary a squeal from either end of the Dagger's brake pads—even after months of water crossings and sloppy chain oiling sessions. Two thumbs up for Magura!

If there was any doubt remaining as to the Dagger's superior stopping, the fact that its AMP rear suspension remained active under braking put it to rest. With a light enough touch at the lever, the Dagger could be stopped, skid-free, in all but the most technical situations (a major bonus when riding on sensitive trails).

◄ It's what's up front: Dagger proudly displayed the sticker of choice for lightweight alloy mountain bikes— Easton. Using Easton's Taperwall butted front section gave the Dagger-built, AMP Research-suspended hybrid the lively feel that MBA has come to expect.

DAGGER

SUSPENSION NOTES

Bicycle designers are split over whether coil spring shocks or air/oil shocks will dominate. The *MBA* test crew is not so

DAGGER

Frame type: MacPherson strut full suspension; TIG-welded Easton Elite ProGram front section; AMP 6061 T-6 alloy rear suspension; one H_20 mount on down tube.

Suspension type: Full-active AMP MacPherson strut.

Frame geometry: Size tested—18" (center-to-top); Top tube—23"; Wheelbase—42"; Chainstays—16.75"; Bottom-bracket height—12.75"; Head angle—71°; Seat angle—74°.

Fork: Rock Shox Judy SL; microcellular urethane spring; oil damped.

Shock: AMP thru-shaft; titanium coil spring/oil damped or Risse Racing Elroy; air spring/oil damped; adjustable compression damping.

Suspension travel: Front—2.5"; Rear—2" (AMP) or 1.75" (Risse Racing).

Weight: 24 lb.; Frame only—4.3 lb.

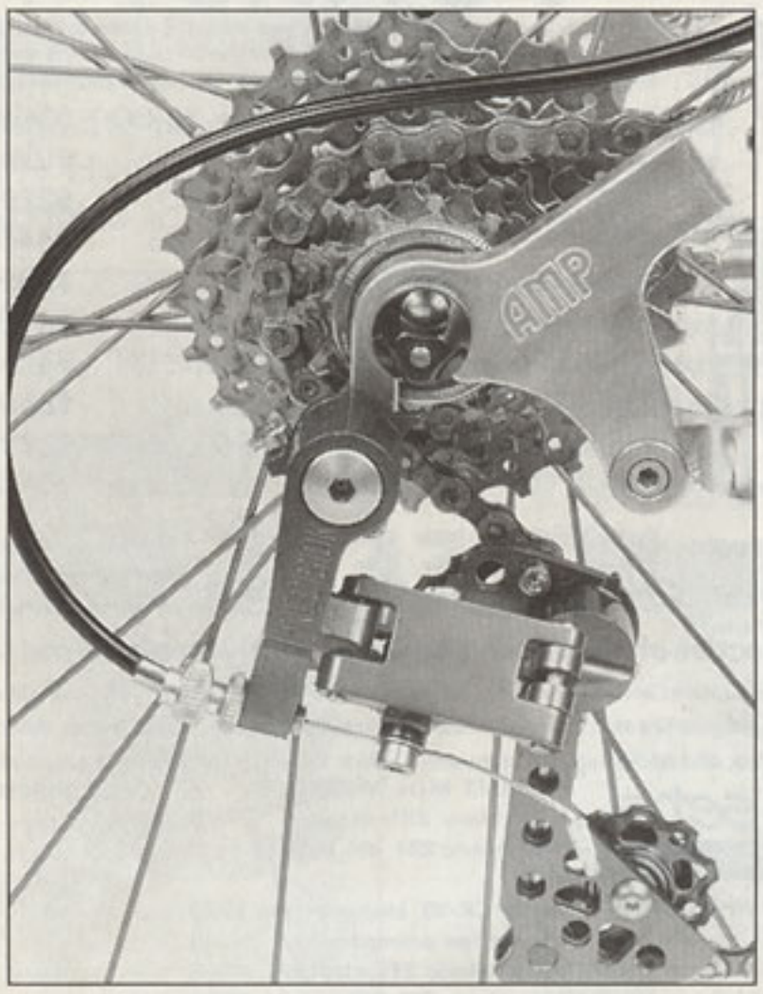
Sizes available: 14", 16", 18", 20"

Components: Front derailleur—Shimano XTR; Rear derailleur—Gorilla Precision CNC-machined; Shift controls—GripShift X-Ray; Brake levers—Magura hydraulic; Brakes—Magura Race-Lite hydraulic; Crankset—Cook Brothers Racing CNC-machined alloy (46/36/22); Hubs—Machine Tech freehub, 32-hole (rear), King, 32-hole (front); Cogs—Shimano XTR 12x28—eight-speed; Wheels—Sun CR17A rims with tungsten-cobalt impregnated braking surfaces, Union USA 14-gauge titanium spokes (rear), 15-gauge stainless steel straight-gauge spokes with chicken-wire lacing pattern (front), alloy nipples, Ritchey 2.1" Severe Condition front tire and 2.1" Omega Bite rear tire; Stem—Kore 135mm extension, zero-rise TIG welded alloy; Saddle—SDG Comp, Ti-rail; Seatpost—Kore Elite, Easton Alloy (26.8); Goodies—DKG external seatpost clamp; King sealed No-Thread Set (headset); Control Tech bar ends and alloy handlebar, matching fade paint job.

Price: $1225 (frame only).

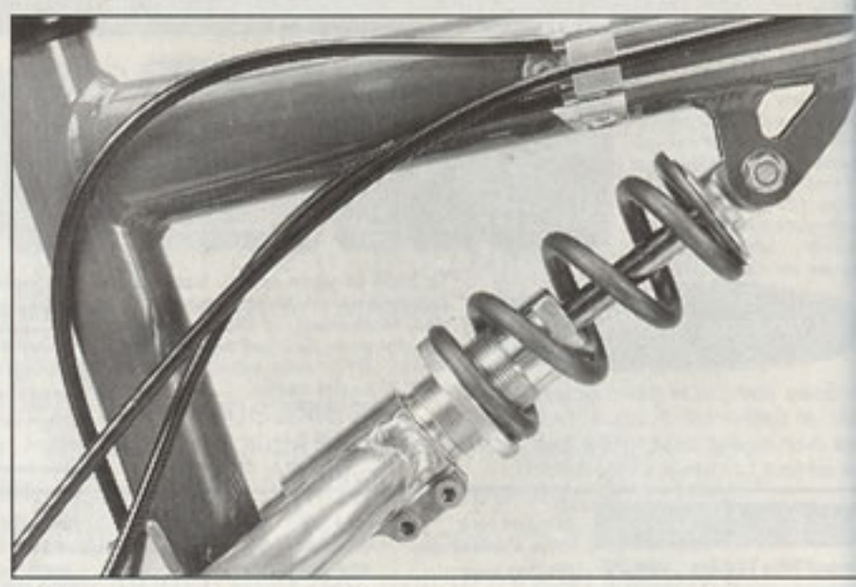
Contact: Dagger, Inc., 1035 N, Armando #Q, Anaheim, CA 92806; (714) 630-6672.

torn—we know that coil spring shocks will win in the end. On the Dagger both the Risse air shock and AMP thru-shaft shock had stiff low-speed compression damping. Additionally, both were exceptionally light. Test riders who favored the Risse touted its superior absorption of big hits and high-amplitude bumps. On the other hand, every test rider agreed that the AMP coil spring shock outperformed the Risse in the midrange. The final vote leaned towards the AMP unit. The Risse Racing Elroy never gave an acceptable amount of low-speed suppleness without compromising its mid- and high-speed performance. The AMP damper edged it out, affording an extra bit of wheel travel and slightly superior low-end and mid-range suppleness that better matched the Dagger's technical prowess. Both shocks, however, suffered from *AMPphysema*: a pronounced gurgling hiss on the rebound stroke caused by air bubbles in the hydraulic fluid.



Name dropping: AMP's B-3 rear suspension, Easton ProGram tubes and a Precision Billet rear derailleur are all part of the new generation of bike parts. Small builders like Dagger prefer to align themselves with other influential revolutionaries. The Dagger, however, is a fairly conservative design.

The Risse's adjustable compression clicker was very handy. The small brass thumbscrew was a snap to manipulate and very effective. After some tuning, we all felt that more performance was available from the Risse unit if the compression was carefully balanced with the proper air pressure. For fussy, high-speed, hammerhead suspensionites, the Risse Racing Elroy might prove to be better. For the fire-and-forget types, the AMP damper is still a better overall choice.



Titanium at work: The Dagger came with a choice of a Risse air shock or an AMP thru-shaft damper. Surprisingly, both shocks suffered AMPphysema—the hissing noise that occurs on the rebound stroke. Most of the test riders preferred the AMP shock for its longer travel and lightweight titanium spring.

RATING THE DAGGER

This custom-shop, Easton/AMP combo lived up to our expectations. It was light, very rigid under power and a gas to ride. As a downhill flyer, the Dagger is too nervous in the hands of all but the most skilled. On singletrack, the bike is a dream. One of the best attributes of the Dagger is its no-nonsense design—not the show-stopping type, but the kind of geometry and construction real off-road cyclists need to enjoy the back country. A trouble-free performer. ❑