

# Recumbent Cyclist News

RCN 085 A Publication by and for Recumbent Enthusiasts Since 1990 Nov./Dec. 2004



RCN reviews the HP Velo GrassHopper on page 14



See our Recumbent Gift Giving Guide on page 8 and our special Holiday Sale order form on page 27



Amy Bryant rides the Quad with 4 x 24" wheels

## The Crank-It Mountain Quad

By Bob Bryant

*The Crank-It Mountain Quad is the ultimate off-road HPV (human powered vehicle). For the first time you can actually have both — true off-road capability AND a comfortable ride — in one machine. Whether bombing down fire roads at 30+ mph or cruising on the local bike path, the Mountain Quad will meet the expectations of the most demanding rider.*

*The Mountain Quad is a four-wheel pedal-powered ATV/sand-rail off-road recumbent. It's a very refined, high performance and high-end unit that will absolutely bring new dimensions to your recumbent riding fun. If you've ever been concerned about your safety riding in traffic or the lack of adequate places to ride, it may be time for a paradigm shift. There is a new little known niche in the recumbent world — recumbent off-road. The Mountain Quad is THE vehicle for such endeavors.*

*The Mountain Quad is loaded with features such as 4-wheel full suspension, hydraulic disc brakes, completely sealed 14-speed Rohloff transmission, carbon fiber seat and heat-treated aluminum frame. The Mountain Quad represents the latest in available technology. If you want the ultimate off-road machine the Mountain Quad is your answer. Period. — Crank-It*

**T**he Mountain Tamer Quad is a four wheeled pedal powered ATV/sand-rail off-road recumbent. It's a very refined, high performance and high-end unit that will absolutely bring new dimensions to your recumbent riding fun. If you've ever been concerned about your safety riding in traffic, lack of adequate places to ride it may be time for a paradigm shift. There is a new little known niche in the recumbent world recumbent off-road. The Mountain Tamer Quad is THE vehicle for such endeavors.

### SYSTEMS

**Frame:** The TIG welded aircraft aluminum frame is built for Crank-It by Steve Delaire of Rotator Bicycles. The tubes are 2" on the mainframe and 2.5" on the boom. The workmanship and quality is very good. The weld beads were not nearly as even and flowing as those on our HP Velo Grasshopper (here at the same time).

The front suspension is custom made for Crank-It by Action-Tec. The front wheel

## What's Inside

- Road Test: Crank-It Mountain Quad .....Cover and 10
- Editorial License: RCN in 2004.....02
- Recumbent News & Rumors.....03
- Calendar.....03
- Letters.....06
- RCN Gift Guide.....08
- RCN Road Test:
  - HP Velo GrassHopper SWB..... 14
- Fast 'Bents, Big Power And A Whole New Kind of Pain..... 18
- Recumbent History:
  - The Moller Auto Cycle.....24

Check out our updated website at:  
[www.recumbencyclistnews.com](http://www.recumbencyclistnews.com)

attachments are essentially one-sided suspension forks fitted into head tubes with Ritchey headsets. Each one has an oil-dampened coil spring and offers 2.5" of suspension travel on each side. It's an extremely good system that feels smooth and refined. Two tie-rods connect the "U" handlebars up to the top of the fork/kingpin.

The rear suspension is a NicholsLink rear swing arm suspended with two oil-dampened Fox Air Shocks with 3" of travel. This shock offers an adjustable rebound. While I'm no mountain bike expert, the smoothness, adequate dampening and zero bounce make this suspension feel as refined as I've ever experienced.

**Steering:** The Crank-It has a custom under seat-steering system. The long and wide "U" bars rotate fore-and-aft with a quick release lever. Teflon/Kevlar impregnated rod ends connect the USS bars to the front wheel kingpins.

**Weight:** The Quad is not lightweight, but then again gram counting is probably not the best idea for an all terrain bike such as this. Our test unit weighed in at 65 pounds. The 24" wheels and Schwalbe puncture-resistant tires add two pounds. The rack (which ours did not have) adds another two and one-half pounds. Clipless pedals, Schlumpf drive and computer mount can add five or six more pounds.

Weight only seemed to be an issue in low speed climbing on loose terrain (dirt, mud, gravel). The weight distribution is 48% front/52% rear.

## DRIVETRAIN

The standard drivetrain is a Rohloff 14-speed internal hub gear. The hub is mounted under the seat. A forward chain is routed through chain tubes and one large chain idler wheel (top chain) to the front crankset. The crankset can be an optional Schlumpf Speed Drive. This is an amazing two-speed bottom bracket internal gear that increases the standard gearing of the Quad by a factor of 1.65. Shifting is done by the click of a heel button (button is the crank dust cap). This is really the ultimate setup for any small wheel bike. Adapting them can be expensive and requires someone who knows what he's doing.

A rear chain runs from the Rohloff hub (under the seat) back to the NicholsLink swing arm rear end and posi-traction (both wheels driven) differential. The current differential is made by Crank-It for the Mountain Quad. The unit houses two heavy duty ACS Claws BMX freewheels. They have been tested to withstand 350 lb.-ft. of torque into the housing and axles. A Razor Rock differential is available for customers who



*The Quad with 4 x 20" wheels*

have extreme duty requirements.

The Rohloff 500/14-speed hub is the finest internal gear hub made, and is quite expensive. It's also the most efficient internal hub. I've seen reviews stating that the hub is as efficient as a derailleur system (Bernard Rohloff and Peter Greb; Human Power Winter 03/4),

to 2% less efficient (Human Power, same issue, Chester Kyle, [www.ihpva.org](http://www.ihpva.org)). The Schlumpf drive loses approximately 3% efficiency over a derailleur system according to Florian Schlumpf.

**Gearing:** The gear range is super-wide. Stock gearing on our 24" Quad is 16.5-87

### For

1. Unbelievable fun
2. Excellent build quality
3. A recumbent rock crawler
4. Refined design
5. Choice of wheel sizes (20 or 24")

### Against

1. Fixed seat recline (very laid back)
2. Very expensive
3. Wide
4. Heavy
5. Ergonomic issues for some

### Why Buy This Bike

If you want to ride the world's most technologically advanced recumbent off-road HPV (human powered vehicle).

### Contact

Crank-It  
Web: [www.crank-it.com/](http://www.crank-it.com/)

### Specifications

**Model:** Crank-It Quad  
**Type:** 4-wheel, full suspension off-road quad  
**Size:** One size fits most  
**Wheelbase:** 43"  
**Suspension:** Full suspension  
**Seat height:** 12.5"(20")/14.5" (24")  
**Pedal height:** 17"(20")/18.5" (24")  
**Weight:** 65 pounds (RCN)  
**Frame:** TIG welded heat treated aluminum (frame built by Rotator)  
**Price:** See website for current price

### Seat

**Back/Base:** Quick mount Carbon fiber bucket with reversible cushion.

### Components

**Crank:** Schlumpf (option)  
**Bottom bracket:** Schlumpf (option)  
**Drivetrain:** Rohloff/Schlumpf (option)  
**Shifters:** Rohloff twist grip/Schlumpf heel  
**Chain —** Sachs (SRAM)  
**Gear inch range:** 14-73 (20")/16.5-87 (24") w/Schlumpf: 12.5-108 (20")/15-130 (24")  
**Pedals:** Shimano PD-M424  
**Wheels:** 20" or 24"  
**Tires:** Ritchey Speedmax or FourPack  
**Brakes:** 4-Wheel Magura BIG hydraulic disc  
**Colors:** Red, yellow, blue or custom

gear inches. With the optional Schlumpf, 15-129 or 16.5-143.5 are available. While you're spending this much dough, you may as well opt for the Schlumpf, too. I used it often and utilized even the lowest gears. In fact, the Quad could use even lower gears, certainly more than it would ever need a 129 or 143 high gear.

**Chain management:** The chain management is complicated with several proprietary and custom parts. It is reasonably quiet. The drivetrain noise comes from the Rohloff itself when coasting. The Quad drivetrain isn't quiet, but it's refined and worked smoothly. I've become a fan of both the Rohloff and Schlumpf drives — if you can afford them, they're wonderful options.

**Braking:** The Quad comes with Magura "BIG" hydraulic disc brakes on each wheel. The front brakes are controlled by the right lever and the rears by the left lever. A Velcro strap has the left side lever doubling as a parking brake. While the Maguras aren't the strongest brakes I've used, they are perfectly adequate. The system uses sealed lines filled with mineral oil. Pulling a line by accident while out riding would really put an end to your fun (and may require a trip to a shop that can work on hydraulic brakes).

**Wheels and Tires:** The Quad comes with your choice of 20" or 24" wheels. The rims are Velocity Aero Heat 24x1". The hubs are custom Hope one-side mount. Each wheel is mounted to the frame via one quick release lever — removal is very quick. Since the vehicle has four wheels, it serves as its own repair stand.

The tires are BMX 20" or 24". The 20" are Ritchey Alpha/Omega SpeedMax rated at 40 psi/35psi. Optional FourPacks can run to 110 psi. The 24" SpeedMax tires run at 60 psi. Which size you choose depends on your home terrain.

The 24" size tires are a bit rarer. These taller wheels will climb over higher obstacles with more ground clearance and will be better on loose terrain. I found the 24's to be faster and moved better over the trails in my neighborhood. The 20's make the Quad slightly lower and shorter and gave it a livelier ride. I enjoyed this for squirreling around, but I preferred the larger 24's overall. Another downside of the 24's is tire scrub. In sharp turns, the tires will hit the inside of the frame. Also, in aggressive riding, I did scrub my elbow on the rear tire.

## COMFORT

While the seat is fairly reclined, the pedal height is moderate. The proprietary Crank-It carbon fiber "bucket" seat is comfortable. The seat rides on rubber doughnuts and mounts to the frame with four tethered quick-nuts. The reversible seat pad snaps into the bucket. There is also a movable Velcro-mounted lumbar support. A rib in the seat base helps to eliminate tailbone pressure.

For short rides of 15-30 minutes, comfort is great. On my afternoon rides of an hour or more I started feeling the firm shell of the seat, and the laid back aspect of the seat and the lack of neck support became issues for me. There was 3-4" between the back of my neck and the seat. The Quad's seat can only adjust +/- 1 degree — which didn't help me. I believe that I could develop a head or neck rest that would work, but I'd prefer a more upright seat. This is a personal call. I tend to like more upright ergonomics, and I absolutely require neck support. When I did lean my head back into the seat, I was staring at the tops of the trees, so as-is, the seat's head rest doesn't do much. Modified seat mounts, spacers and shims can be included on request.



*The Quad at Moab (this wasn't me . . .)*

## FIT

The one-size frame fits riders from 5' to 6'6" with a sliding boom (39"-49" x-seam).

## RIDE

The Quad was quite busy while here at RCN. My kids rode it daily and created a track around our house. We are lucky enough to live a block away from Cappy's Trails, which is awesome mountain bike terrain. I had never been on many of these trails before. I spent several afternoons exploring all of the trails — which go for miles. The Quad was the perfect vehicle for this job.

**Stability:** The Mountain Quad is THE most stable recumbent I've ever reviewed. The four wheels, refined suspension, design and well thought-out systems all help achieve this high standing. Riding the Quad makes me wonder why there aren't more models, perhaps a road Quad.

**Performance:** The Mountain Quad is pretty slow on- or off-road. The culprits are the knobby tires and the heavy weight. A slight downhill will change everything, and the Quad will come alive. With the suspension and precise light touch steering, you can track the Quad in on a reasonably high-speed course, missing the road hazards that you don't want to bounce through.

**Climbing:** The Quad has 5.25" (20" wheels)/ 7.25" (24" wheels) of ground clearance. Climbing off-road can be slow going, but that's okay, you have a low gear of 14 gear inches and no roadies to impress. Gear down and spin up just about any hill (and many obstacles). I found the Quad climbed well as long as you had the wind power to make it where you were going. The Quad needs lower gears than most any other recumbent. Having the posi-traction rear end also helped to in-and-out of the slick stuff and when climbing on loose terrain. I never had to dismount the Quad due to loss of traction.

**The Ride:** The ride is as smooth and plush as you can imagine. The steering is ultra precise and effortless, and reflects a very refined steering geometry. The turning diameter is 15'. The Quad is a lot of fun on any off-road courses that are slightly downhill. Maneuvering is easy and it can handle all the last-minute direction changes you can throw at it.

Riding on the streets proved to be slow and tiring. I veered off-road every chance I got. I never took the Quad more than five blocks from home playing on the wooded trails. The Quad is ideal for riding on the walking trails in and around my neighborhood (they go for miles through the woods). This and fire-roads are absolutely ideal for the Quad. When riding on single track narrow walking trails or Jeep trails where you ride in one track — the Quad's wide track became a detriment. Having ridden two-wheeled recumbents on these trails, you really need to decide whether a two-wheeler or a four-wheeler is best suited for your local terrain. If you ride in the snow, there's no contest: the Mountain Quad is the best.

**Obstacles:** I rode over and through large ruts, rocks, mud holes, landscape timbers, my son's skateboard ramps and just about any place I could think to take the Quad. I never once high centered or hit the boom on anything. The Quad is quite wide (35"),

I did hook the inside rear wheel a time or two and clinked the rim or wheel quick release when going through a narrow passage. One problem with riding a Quad is that many trails have narrow entrances to keep motor vehicles out. Most are barely wide enough for the Quad. I had to come in at an angle with my outside wheels off the path several times, or make my own path to gain trail access.



*The Crank-It Mountain Quad suspension — Crank-It!*



*Our test Quad with the optional rear rack and 4 x 20" wheels*



*Our test Quad with 4 x 24" wheels*

## OWNING

**Purchase Details:** Orders must be accompanied by a 10% deposit upon order. A second deposit of 40% is due at mid-production, and the remaining 50% is due upon completion. The standard delivery time is four to six weeks.

**Accessories:** The Quad is well equipped with a Park tool kit, Fox air pump, rearview mirror, a two-piece safety flag, and Shimano SPD pedals. Three water bottles are fitted on the bike. One is mounted on the boom along with the Park tool kit. Two more are on the frame rails alongside and under the seat.

**Options & Accessories:** There are several gearing options. The most notable is the Schlumpf 2-speed bottom bracket Speed Drive.

Other upgrades include a luggage rack that mounts to the rear of the Quad (via BOB Nutz).

## MARKET

There is no competition. Crank-It offers a beautiful machine for those serious enough to want to recumbent off-road. The only other off-road recumbent worth considering are the Lightfoot Ranger and Sun EZ Rider. While the Ranger is more versatile, it can't go where the Quad can. Also, the Quad can be ridden in the snow. What a blast that would be. The EZ Rider is vastly more affordable than the competition, and has dual 20" wheels.

## VERDICT

My only real criticism is the seat and neck support. I'll readily admit that I'm more temperamental than most riders when it comes to this. No one else at RCN who rode it even noticed.

Once in a while we get to review a recumbent where no expense has been spared to make the machine the best it's designed to be. This is one of those occasions. The Crank-It Mountain Quad is about as good as it gets. Granted, it's a limited market, for a rider who is serious about recumbent off-road fun. I'm certain you'll be the only one in the neighborhood with such a vehicle. Your neighbors will say, "What is that thing?" as you ride by. While I wouldn't want to commute on the Quad every day, it's the most fun I've had testing a recumbent in quite some time.

The Quad concept is an interesting one. I could imagine two-seaters, small pedal trucks and enthusiast road quads. A Quad is the most stable recumbent design there is. I just don't understand why more designers don't product them. Don't discount the four-wheeler — especially if you're riding off-road. The Crank-It Mountain Quad is definitely on my Top Ten Favorite Recumbents list. ♦

Note: For more information on recumbent quads, see Pippa Garner's "Project H.P.U.V. article in RCN 080.

# Recumbent Cyclist News

"A newsletter by and for recumbent bicycle enthusiasts, since 1990."

## Subscription Information

Recumbent Cyclist News is published six times per year, every other month. See below for subscription rates.

## Contact

RCN, PO Box 2048, Port Townsend, WA 98368  
Tel. 360-379-5607  
E-mail: bob@recumbencyclistnews.com  
Web: www.recumbencyclistnews.com

## Mailing Info

Mailing Label: "EXPIRES 086" means that RCN 086 is the last issue of your current subscription. Address Changes: Please allow 6-8 weeks notice for address changes. Standard mail: RCN is mailed USPS 3rd class — which is NOT forwardable. If you move often, have multiple addresses or file address forwarding requests with the USPS, please use our first class mail subscription option.

## Fine Print

© 2004 by Planet PT, Inc. in Port Townsend, WA. Contents may not be reproduced in whole or part unless expressly authorized in writing. ♦

## Subscribe To Recumbent Cyclist News Today!

- Read all about it!
- Road Tests
- News & Rumors
- Critical Analysis
- Adventure Stories
- Technical articles

RCN is published SIX times per year, every other month

- \$40 One Year USA First Class Mail in env.
- \$29 One Year USA/6-issue 3rd class mail
- \$60 Two Year USA/12-issue 3rd class mail
- \$42 Canadian Airmail (USA Funds only)
- \$60 Worldwide Airmail in envelope
- \$16 Three back issues (USA)
- \$6 One back issue or 2004 Buyers' Guide (See web or classifieds for issue list) (USA)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State/Zip: \_\_\_\_\_

Email/Tel: \_\_\_\_\_

Mail To:

RCN, PO Box 2048  
Port Townsend, WA 98368

For faster service, visit our website and order via PayPal:  
www.recumbencyclistnews.com

## Recumbent Cyclist News Back Issues For Sale

We have a limited number of each of these back issues for sale. The rate is \$5 each postpaid USA/\$6 Canada/\$8 Everywhere else. Buy 5, get one free.

- RCN 086:** 2005 Season Preview: What's New in Recumbents; plus our Recumbent Component over-view, a must read; Tribute to Gardner Martin.
- RCN 085:** Crank It quad & HP Velo Grasshopper
- RCN 084:** GS GT-3, Actionbent, Giro, Rotor crank
- RCN 083:** HP Velo Street Machine & 'Bent GPS
- RCN 082:** Bacchetta Corsa
- RCN 081:** 2004 Season Preview/Buyers' Guide.
- RCN 082:** Bacchetta Corsa; Sun EZ tande.
- RCN 080:** BiGHA; Cycle Genius CGX; RANS Screamer tandem; Windcheetah Kit.
- RCN 079:** Easy Racer Tour Easy; RANS Stratus; RANS V2; Euro Seat SWB Instalation.
- RCN 078:** Catrike Speed; Hase Kettwiesel; Velomobiles.
- RCN 077:** Greenspeed GTT; Bacchetta Aero 1000 Mile.
- RCN 076\*:** ICE Trice trike; Volae Intro; CG ALX20.
- RCN 075:** HP Velo Spirit; Barcroft Columbia tandem; WizWheelz trike.
- RCN 073:** Bacchetta Giro; Bacchetta Strada & Aero.
- RCN 072:** Sun EZ Sport; Why We Sold Our Car.
- RCN 071:** Penninger Trike; Burley Hepca; Burley Canto and Burley Nomad trailer.
- RCN 070:** Lightfoot Ranger
- RCN 071:** Rotator Pursuit; Cycle Genius STX (CLWB version); Pantour suspension nub)
- RCN 069:** Cannondale; Trimuter Trike; GS GTO.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State/Zip: \_\_\_\_\_

Email/Tel: \_\_\_\_\_

Mail To:

RCN, PO Box 2048  
Port Townsend, WA 98368

For faster service, visit our website and order via PayPal:  
www.recumbencyclistnews.com

To learn more about Recumbent Cyclist News, visit our website at: [www.recumbencyclistnews.com](http://www.recumbencyclistnews.com)