



Recumbent Cyclist News

The Recumbent Enthusiasts' Newsletter — Since 1990 — #097 Nov/Dec 2006



Burley sold — new owner closes bike division — announcement comes the day after RCN 096 is mailed, see page 19



Port Townsend's Lee Doughty on his new Lightfoot Greenway trike, see page 10

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The Volae Tour

"You'll have a hard time finding a better performing, lighter weight, more comfortable recumbent in this price range. An outstanding value." — Volae

BIKE: Volae Tour
PRICE: \$1,400
CONTACT:
www.volaarecumbents.com

By Brian Daniels

Volae is the house brand of the Midwest recumbent dealer, the Hostel Shoppe. Since 2003 Volae has offered a variety of high racers and more traditional 26-20 SWB recumbents. The first bikes were built for the Hostel Shoppe by ATP Vision. With the demise of Vision, Volae production shifted to Waterford. For those who don't know, Waterford is an artisan bike builder of the highest order. The result is a line of sporty recumbents with the best imaginable degree of quality. While high racers get all the attention and glory, Volae's 26/20 Tour is a credible offering.

The Tour is my third recumbent and for the moment the only one I have. I wanted a simple durable bike that felt sporty upon which I could crank out metric and English centuries. I like the sleek look of stick bikes and prefer tweener bar ergonomics. The Volae Tour has quickly become my favorite bike.

USE: The Tour is a tweener bar stick-frame SWB in the fashion of highracer. It's a hand crafted and simple machine that is ideal for sport touring. You can load the Tour up with practical gear such as racks and fenders to your heart's content. The Hostel Shoppe offers rear racks, mid-ship racks, a variety of bags, and many tire options. Don't dismiss the Tour as a true touring bike (the Tour has a 250-pound rider/cargo capacity). The Tour's frame, while monotube, is stout. I'm reminded of the many RCN articles by Chet Rideout whose traveling com-

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Recumbent Cyclist News

Recumbent Cyclist News was published by Bob & Marilyn Bryant from 1990-2007, 101 issues. RCN was closed in December of 2007 when it became no longer financially feasible to publish a print newsletter. bryantrj@gmail.com

Editorial License Trikes, Trikes and More Trikes

by Bob Bryant, Publisher
bob@recumbentcyclistnews.com

Trikes, trikes and more trikes — the recumbent trike trend seems to be unstoppable. We love trikes and they get a lot of coverage in RCN. However, with all of these new models I can't help wondering:

1. Who is buying trikes?
2. Where are they being sold?
3. Where are they being ridden?

Who is buying trikes? Shortly after I started asking around — the answer hit me suddenly like a ton of bricks. Recumbent newbies are often scared to get on and ride two wheelers due to balance, control issues and the difficulty of starting out. One dealer recently told me that a high bottom bracket on a two wheeler scares away 9 out of 10 new customers. When you ride a trike, you basically sit down on the seat and pedal. There is almost no learning curve, balance issues and little chance of falling off. Interestingly, Greenspeed's Ian Sims told me this over a decade ago.

Where are the trikes being sold? There are a few dedicated recumbent shops across the USA that stock several trikes and do well with them. Yet one trike-stocking dealer told me that thinks of them as little more than "toys" being purchased by "less than serious" new riders who really don't know any better. Another dealer recently quit selling two wheeled recumbents and now sells only three wheelers.

One manufacturer who really knows his market is WizWheelz' Jack Wiswell, who told me, "The secret is knowing your market and who your customers are." WizWheelz sells mainly to baby boomers and have even advertised in AARP magazine.

Where are they being ridden? I have to believe, and sincerely hope, that most trike riders are either on bike trails, quiet country roads or on organized rides (like STP/Seattle to Portland) where cars actually yield to bicyclists. If you venture into traffic on a trike, please be very careful. You're low and roads are narrow. Get a flag, reflective jacket and perhaps a TerraCycle Tailsock or Angletech Aerotrunk for improved visibility.

BUYING TRIKES

Trike dealers are rare in some parts of the country. In western Washington there is not one dealer where you can see several brands in one place. In fact, I just don't know where to send folks (seems like an opportunity here for somebody). So buying a trike creates some unique problems that you'll want to carefully consider before you get out your wallet:

1. Dealers can be rare.
2. Trike shipping can be expensive.
3. Ask if your manufacturer/dealer offers a return policy?
4. Not all trikes are created equal. Some have been in production for a few months and others for several years.
5. Be realistic about how and where you will use your trike.
6. Know what tadpole "toe-in" is and how to set it on your trike.
7. Understand the design differences: aluminum vs. steel frame; triangulated vs. monotube; direct vs. linkage steering; discs vs. drums; 16" vs. 20" vs. 26" wheels.
8. Decide where you will ride your trike.
9. Set a budget and stick to it.

INTERNET "DEALS"

Another interesting trend is the Taiwan trikes. There are three or four relatively new companies marketing Chinese import trikes in the US. The specifications and some design attributes vary, but the trikes are similar. I have yet to even see one up close, and nobody is offering us test trikes (is this a red flag?). While a WizWheelz trike came almost completely assembled, these Taiwan trikes probably need a half day's assembly by somebody who knows what they are doing. Checking the wheel spoke tension at build and break-in is also important.

FINAL ADVICE

My best advice is to try to find a stocking dealer where you can ride some trikes in person. If you can't, but one from a respected mail-order dealer that does careful set-up, ships almost full assembled and offers a return policy. ♦

Recumbent News



Velogenesis Seat Strut Clamps

VELOGENESIS — NEW SEAT STRUT CLAMPS: Hitch or "Grenade" pins are commonly used with aluminum struts with a series of holes to make the recline of a recumbent seat back adjustable. This system has a number of problems. The pins can easily be lost. They rattle and if out of alignment, they can be difficult to remove or insert and if not marked your favorite setting can be lost.

The new Velogenesis seat strut clamp addresses all of these problems. It comes in two sizes and it works with your existing seat struts. It is a well-designed, precision component with an anodized finish that will look good on your expensive bike. It provides for precise adjustment. Hole alignment is no longer an issue. Noise is no longer an issue. When removing the seat, the clamps can be left attached to the smaller diameter tubes saving your setting and preventing loss of the clamp.

Our seat strut clamps are being marketed through recumbent bike dealers



The Scorpion FX has a slightly higher seat and a lower bottom bracket.

and in the future will be standard equipment on many manufacturers bikes. www.velogenesis.com

HP VELOTECHNIK — FOLDING TRIKE:

The Scorpion FX is HP Velo's first foldable recumbent tricycle and designed for long distance cyclists. Within 60 seconds and without tools, the new Scorpion FX folds down to 102x83x69 cm. Take 90 more seconds and an allen key for the removal of both front wheels and fenders, and the Scorpion FX gets so compact that you can put it in the trunk of a small car. The suspended rear rack and the lowrider rack allow for 50 kg luggage.

HP's adjustable BodyLink seat and plush suspension assure relaxing comfort. The frame's cross member is bent up and



The Scorpion FX fits into the hatch of a Smart Car.

forward to meet the sturdy wheels up front, giving a long wheelbase for safe braking, easy access to the seat and avoiding heel interference for smaller riders.



"Rotor Cranks are what may be the biggest performance enhancing add-on available on the market today." -Bryan Ball, BROL

"now that I've ridden with Rotors it's hard to imagine ever wanting to ride without them. The Rotor crank system is quite simply an extraordinary, revolutionary innovation in bicycle design" - Matt Schneps, RCN

"It has succeeded where others have miserably failed.... Rotor Cranks do what they promise!" - John Axen, Recumbent and Tandem Rider mag.

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Scorpion FX will be available from January 2007, price starts at US \$3,090. www.hpvelotechnik.com

CHALLENGE: This European recumbent maker has just introduced a tadpole trike. www.challengebikes.com

TERRACYCLE DEVELOPS RECUMBENT LIGHT/COMPUTER MOUNT:

TerraCycle announces a light and computer mount specifically for Recumbent bikes and trikes. The mount attaches to the front or the back of the derailleur post and keeps things centered on the vehicle. This enables the use of large/wide lights and keeps shoelaces and pant legs from snagging. The mount positions your light forward and below the top of the derailleur post, where it doesn't obstruct your view. This position is more aerodynamic and reduces pedal flash.

When used as a computer mount, it is positioned behind the derailleur post, in tucking the computer in close where it's easier to read. The system is so versatile it's possible to use two at the same time—one in front, for a light mount, and one in back, for a computer mount.

The curved and thinned arms are CNC machined in the USA from 6061-T6 aluminum, and the bolts are stainless. Weight, including the Cateye derailleur post mounts, is just 53g. The suggested retail price is \$29. www.terracycle.com.

PLEASE SUPPORT RCN: We are still the world's only dedicated recumbent specific print publication. We are facing increased printing and mailing costs for 2007 AND we have lost an advertiser or two this past year. We are NOT planning to increase subscription rates for 2007, but we hope that you will consider renewing your subscription, ordering a gift subscription and/or some back issues (see classified section for sale prices). Thank you! ♦



Challenge's new direct steering trike is a new 2007 model and the first trike from Dutch maker.



The TerraCycle computer mount on a Volae

The TerraCycle accessory mount sells for \$29.



Two TerraCycle mounts are used on this WizWheelz trike. One is facing rearward for a computer and the other facing forward for a light.

Product Reviews



ANGLETECH AEROTRUNK: This is the coolest bag made for recumbents. The big pie shaped wedge bag hangs off the back of most mesh seats (and others, see website) and attaches with ONE clasp. The bag has a fancy YKK double pull zipper, and is made of slick urethane coated pack cloth (420 denier on the sides and 1000 denier bottom and front). The sides cloth is stiffened by ABS/HDPE (like plastic cardboard). There is a 4" x 14" mesh pocket inside, "D" rings for a carry strap, rear loop for an LED flasher and reflective tape lining on the perimeter for safety.

The Aerotrunk can be on or off your bike in five seconds. Inside the bag is HUGE (2850 cubic inches). The bag weighs 3 lbs. I throw in my extra coat, cable lock and backpack with tools and it barely makes a dent. Aerotrunks come in black, yellow, red and custom colors). A carrying strap is included, but you'll look like a dork walking around town with this huge bag that looks like a wedge of cheese. Inside there is a laptop pocket (across the front) and another space for computer type incidentals. On the outside of the laptop section are a zippered pocket and a velcro pocket. There is a netted pocket across the bottom.

My only criticisms are that sometimes when both zippers are forward (towards the front/flat end), they tend to get jammed into the corners and the bag is held on but just one strap and clamp (though mine has never fallen off the bike).

Angletech states that the Aerotrunk offers a 2-3 mph performance benefit. I did notice a small boost in performance, but more importantly this bag is of excellent quality, has an excellent cargo capacity and looks great.

SPECS: Capacity: 2850 cu. In. Slick urethane coated 420 denier polyester pack cloth on top and perimeter, ABS and HDPE internal stiffeners, 1000 denier polyester bottom & front panel (at seat end), mesh mounting pocket with Nexus buckle. Zippers: Double pull YKK zipper covered with silent rubber tabs to eliminate clatter. Safety: Retroreflective reflective tape on perimeter top edge of trunk. Loop for flashing LED light at top rear. Quick convenience: 4" x 14" transverse mesh pocket at bottom of front panel. Shoulder strap that fastens to 2 "D" rings, and an easy on the hands rubber grab handle. Weight: 3 pounds. Fully lined in grey nylon. Bladder Pocket at front end of bag with exit slot at bottom for hose. 14 x 12 x 4" compartment that Velcro closes at the top if you wish. Laptop computer compatible. Built in wallet with additional YKK zippered mesh pocket, and a snap fitting for



SYKES WOOD FENDERS: Angletech offers custom fit Sykes wood fenders that are made in Portland, Oregon. These fenders are petite, lightweight and probably the best looking most expensive fenders you will find and the wood is stronger than it looks. The fenders are flat with no edge lips. so I did get mud thrown off the sides of the tires when riding on trails, and there was interference with the 170mm crank arm and the front fender (RANS Stratus XP). I hate to say this, but these fenders are really best for those with fancy bikes who want the woody look — and probably not for serious commuters who ride their bikes in the rain a lot.

Angletech also offers custom fit Planet Bike fenders. They custom modified "rear" fender for use on the front of some LWB models, such as the RANS Stratus XP. The benefit to this is much more front wheel coverage. Which ever way you go, Angletech offers some of the best fender options in the recumbent world.

CONTACT: www.angletechcycles.com.

NOTE Terracycles also sells the Sykes fenders: www.terracycle.com



your keys. Blue mesh cargo floor net with 2 Nexus buckled straps to anchor your gear. Bike fits: All types of recumbent mesh seats. M5 carbon seat option.

COLORS: Black, Red, Yellow. Custom colors on request.

PRICE: \$184.99

Letters

Please write us. Letter limit is 300 words (or write an article).
We edit for clarity, content and space limitations. bob@recumbencyclistnews.com



BE SURE TO LUBE YOUR CHAIN

After riding about 30 miles into a 50-mile ride with some of my “wedgie”-riding buddies, it started to pour down rain. I returned home thoroughly soaked with my equally wet recumbent. On the way home, someone said something about “don’t forget to lube your chain.” So, to the bike store I drove and got some dry Teflon lube. I applied it to the chain of my V-Rex, being sure to get the rubbing parts. I wiped off the excess, re-lubed, and let it sit overnight. The next day, I wiped off the chain again and it was smooth sailing from then on. The chain no longer made that groaning sound I had grown accustomed to and I was able to add a couple miles per hour to my speed. Who knew?

Well, my grandmother always said “Everything is better with a little schmaltz (chicken fat).” She was right — even when it comes to recumbents! Please pass the word on.

Ken Sonnenschein

Editor’s Comment: My bike chains take abuse because I ride in the rain. ProLink is my chain lube of choice (<http://www.progoldmfr.com/products/prolink.html>). I clean my chain about once a month and replace my chain every 1-2 seasons (depending if it’s a rain bike or not).

NUMB FEET

I’ve read many of your reviews and I know that, like me, you suffer from hot feet / numb feet or whatever you want to call it. I ride a Trek R200 and I have a Stratus XP on order. Setting aside the issue of bottom bracket height, is there anything else that can be done to minimize this? I rode for 2-3 hours today on my R200 and was frustrated by having to stop every 20-30 minutes to let my feet recover.

Aaron Heilbrun

Editor’s Comment: The best answer I can give you is: Pay careful attention to the shoes and pedals you choose. I am completely sold on pinned downhill mountain

bike platform pedals and that is all I will ride. The beauty of an unclipped ride is that you can vary your foot position on whim. I use my old Shimano MTB shoes, and have removed the cleat and patched the hole. I think there is a quiet movement in this direction by many recreational riders, both recumbent and upright.

Harry Wozniak of Wheel & Sprocket is always telling me about new products, and he now stocks a BMX cycling shoe called the “Station,” manufactured by Lake Cycling Shoes. These shoes work well with these pedals.

As for “level” bottom bracket recumbents like the R200, they are excellent bikes, but I really can’t ride one for more than 90 minutes without numbness. So I ride for an hour, get off, walk around and then ride another hour. Changing pedals may or may not help. Some riders just need a lower bottom bracket. However, I have heard of people suffering from numb toes/hot feet on Easy Racers bikes as well.

I expected lots of feedback from that editorial (RCN 095), especially from manufacturers of ‘bents with high bottom brackets. Surprisingly not a single one responded to argue our findings. This tells me that there is a lot of truth to it, perhaps more than we originally thought. If you like the extreme bikes with the high pedals be sure that your body can handle the position.

NUMB FEET II

Here is my experience with “numb foot syndrome.” I have a RANS V-Rex and a Tour Easy. I had a lot of problems with my left foot using toe clips and straps on the Tour Easy. It would tingle, become painful and then go numb after about an hour. When I switched to Shimano clipless pedals the pain disappeared and, for the most part, has not returned. I now ride the V-Rex almost exclusively with its higher bottom bracket using the clipless pedals. No pain.

With the clips I was cranking down on the strap quite hard so my foot wouldn’t slide out. I think this was squeezing my foot and cutting off circulation or pinch-

ing a nerve or some thing. There may be other factors at work too since I have other problems with my left leg. Maybe I’ll get a new one! Anyway, clipless pedals definitely helped me out.

David Tuttle

Editor’s Comment: My experience is the opposite of yours. In fact, I have advised readers to remove their clipless pedals. However, I admit that what works for me may not work for you.

ROCKET REDUX

I live in Washington, DC and commute to work (13 miles round trip) a couple of days a week when the weather isn’t dreadful (as it seems to be these days). The short wheelbase RANS Rocket is very responsive in urban traffic, although it does get a bit wobbly when I’m zooming (well, sort of) on the downhill part of the route to the office (going home is almost all uphill). I’ve learned to live with the problem of occasional heel-touch, as well as the need to quickly clip in or out of the pedals at a moment’s notice. I carry whatever I want to and from the office with a rack on the back. I don’t think the ride is particularly rough, although I’ve not tried any other bike for comparison. In the end, I love my Rocket.

Eric Rosenberg

BIG WHEEL TRIKE?

I really like the big-wheeled recumbents from RANS. I would like to see someone come out with a high quality big-wheeled tadpole trike. I envision it being a fast and fun ride — and also a good alternative to motor vehicles.

Randy Phillips

Editor’s Comment: Perhaps you could alter a trike like the Hediger “Big Wheel” tadpole to three 24” or 26” wheels (this model comes with a 26” rear wheel). I’d like to see a big wheeled quad using 26” wheels.

THE PROUD 1/2 % I

I’m one of those .5% Recumbent Only

Bike Dealers that are hard to find. I spend hours, days and sometimes weeks working with people getting them to ride effectively, efficiently and as comfortable as they can possibly be.

I'm able to work with some of the local *full service* bike shops because I don't compete with them, I try and work "with" them.

With the exception of a couple of parts and accessories wholesalers most have so many restrictions they will not supply to us. The reality is that it impossible to make a *recumbent-only* business work if you have to follow all of their requirements.

So I have to resort to getting very small discounts from the local bike shops for the parts and accessories I need.

There is no way you can run a *recumbent-only* shop that is open from say 8 to 5 and keep leaving to train riders without having hired help and there just isn't the sales volume to do that.

I do very well with sales, but I operate from a cell phone and like many other businesses in the world, by appointments only. I can be on a training ride and still service customers via the cell phone, but some of the accessory wholesalers won't work with me because of not having set hours and using a cell phone. Most business that offer personal service are by appointment only so why should we be any different.

The suppliers are hurting everyone including themselves. They seem to be afraid to venture into a new field that isn't very new at all. It's marketing strategy just goes back to 1950's. You know when people were very helpful and honest with each other. A sale is great but customer service takes a front seat to everything else.

Gary Dagastine
www.NWRcumbentCycles.com

THE PROUD 1/2% II

I just finished RCN #096 and was very interested in your Editorial License. I have a few questions:

1. Are you sure 15 million bikes are sold each year in the US? For a population of less than 300 million people?

2. How do you know 20,000 recumbents are sold each year? That seems very high to me. How many manufacturers do you think sell more than 1,000 recumbents? I can't think of any off hand. Maybe Sun does. Bike E probably used to. But I doubt the big names like Rans or Easy Racers or Bacchetta, etc. do. I think that there are a lot of smaller manufacturers like Light-

ning, Burley, Barcroft, etc. that only sell a few hundred each per year.

3. You said that 5,000 recumbents were sold in the early 1990's. But 4 times as many (20,000) are sold now?

I have often heard that recumbents make up less than 1% of the bicycle sales each year. I can believe this. And of that 1% maybe 1% are interested in competition (like me and my racing buddies).

If your 1% of 20,000 (200 total) each year are new to recumbent racing, after five years our HPRA racing series would have 1,000 recumbent competitors! Of course some of these sales are from some racers purchasing another racing recumbent.

Note that our Michigan HPVA annual Waterford competition has only had a maximum of 40 competitors (each event) during our 20+ years of events.

Wally Kiehler / F40

Editor's Comments: The mainstream industry numbers came from the NBDA (National Bicycle Dealer Association). The percentage of bicycles sold in bicycle shops was research I did myself. 20,000 is a guesstimate, and is also similar to what Bentrider's Bryan Ball was quoted on in a recent Bicycling Magazine. My latest guesstimate has the number more like 10,000+ Sun recumbents, not including crank-forward bikes. The total of recumbent sales is probably less — but if it is, do you really want to know (< 1/2%). I think this is the real point. After 30 years of selling bents, we're not making much headway. The recumbent market is FLAT, and this was very clear at the recent Interbike tradeshow.

I believe 3-4x are sold now as in the early 90s. Keep in mind that Sun sells a lot of recumbents, they are the wild card numbers-wise.

The 1% racing comment is NOT my number, it came from an HPV racer as a quote published in Bicycling Magazine. ♦

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panion Piero Tassinari has completed many loaded tours on a similarly constructed Speed Ross.

SEAT & COMFORT: Hostel Shoppe asks for a lot of measurements. The catalogue and website carefully illustrate how to take measurements and they are carefully reviewed with a salesperson when placing the order. As a result, the bike arrives set up perfectly. One needs only to set the handlebar height. Because of this careful setup I find the Tour to be ergonomic bliss. I appreciated that there was no trial and error period to find the correct setup. The Tour frame is available in four sizes.

For \$57 more I couldn't resist opting for the fiberglass hard shell seat. A carbon fiber seat can also be specified but seemed overkill for a touring bike. Volae's hard shell seat is like an M5 only better. The seat is available in three sizes and seat is cupped more than an M5 to eliminate recumbent butt. The seat has a two-stage pad comprised of camping mat material and open cell foam. If you get along with hard shell seats you'll love this one. If you don't, the Volae comes standard with a version of the old Vision recumbent seat. I've never ridden that seat but it's generally considered very comfortable. Being sling mesh it's also very light.

The hard shell seat places the bottom bracket above the seat. The mesh seat places the bottom bracket slightly below the seat. Which setup works best is a matter of personal preference. At 26.5 inches the bottom bracket is higher than some competing bikes such as Burley's SWB bikes or the RANS V-Rex. The high bottom bracket eliminates most heel strike and contributes mightily to the sporty feel of this bike. It's far lower than a high racer bottom bracket and I find it easy to get my feet to the ground.

The Volae has a unique seat mount that offers an extremely wide range of adjustment. More importantly it allows the seat to be removed and reinstalled without having to worry about getting it back in the correct spot. The quick releases that fasten the seat to the seat mount are works of art. I've not seen a slicker looking or functioning system.

The Volae has two very stout and stiff seat struts. When combined with the hard shell seat the ride can be a bit rough. I only

notice it on very bad roads but it is one of this bikes trade-offs. The beefy struts lose less power through flex but at slight cost to the ride.

RIDE: The Tour is billed as a recreational and touring bike, a role it fills very well. While lacking the ultimate speed of a flyweight high racer or faired Easy Racer, it's in the same league as a 26/20 Giro or V-Rex. Depending on the frame size the Tour's wheelbase ranges from 46-48 inches. As a result the Volae is a very secure-feeling bike, equally adept at snail-like climbing speeds and bombing down the other side of the mountain.

The Tour is an OK climber. The terrain where I live is very hilly. I ride regularly through the Berkshire and Taconic mountains. While these hills don't reach the majestic heights of the mountain ranges out west they make up for it in steepness. I have no trouble finding long stretches of double digit grades to winch my way up. A Lightning or a light dual 650 bike would easily out climb the Tour over steep terrain. If you maintain momentum, the Tour is as good as any recumbent over rolling hills. On flat ground it rolls along almost effortlessly.

FRAME: Volae frames are built from 4130 Chromoly by Waterford Precision Bicycles right here in the U.S.A. Waterford-built bicycles are works of art, and the Volae is no exception. The rear drop outs are artfully shaped and have beautifully rounded cutouts. The welds are neat and the powdercoat paint has a perfectly even gloss and seems durable. The decals are not clear coated but neither have they flaked off. The rack and fender braze-ons were clogged with paint and needed to have their threads cleaned with a tap. The fork is Chromoly and has braze-ons for fenders.

The stock Tour weighs 30 pounds. My Tour weighs 31 with the fiberglass hard shell seat and without pedals on my home scale.

STEERING: Like all Volaes, the Tour has a fixed over-seat steering riser. A threadless mountain bike stem attached to the riser holds the handlebars. I prefer the solid feel of a fixed riser over a gliding system. Mounting the Volae is easy and I don't think a glide stem is needed on this bike. Volae's take on the tweener bar certainly is unique looking. The flat portions of the bar extend beyond the curved section to accept an optional B&M Cyclestar mirror. I've read criticisms of the aesthetics; however,

it looks fine to me. There's no doubting the functionality, which places the high quality Cyclestar mirror in a perfect position.

COMPONENTS: My 2005 Tour came with a Shimano front derailleur along with SRAM 4.0 shifters and a SRAM 5.0 rear derailleur. Truly these are "the shifters of perpetual sorrow." I've found that the 4.0 shifters need constant and infuriating amounts of adjustment. The bike would shift fine on the work stand but auto shift out on the road. I'd have the shifting dialed in for a couple of hundred miles only to have the shifting go south 50 miles into a century. Finally the rear cable stretched and shifting became more reliable.

My original plan was to upgrade the drivetrain to a Shimano rear derailleur and bar end shifters, which I did during the process of editing this road test. The Volae's handlebars readily adapt to bar end shifters and the conversion was easily accomplished as a do-it-yourself project. The combination of Dura Ace bar end shifters and Deore derailleur transformed the bike and has greatly increased how much I enjoy it. The X7 components on the 2006 model should be far less finicky than 4.0 and many will prefer GripShift ergonomics on a recumbent.

GEARING: The crankset has 30/42/52 road triple crankset and an 11-32 9-speed cassette. Gear-inches range from 24 to 119. I find the bike to be over-geared for the hilly terrain where I live and may bump the mid ring down to a 39 when I switch over to the bar end shifters.

CHAIN MANAGEMENT: The Volae has a clean chain line with little to no noticeable friction. The upper chain rolls over a modified Greenspeed geared idler while the bottom chain rolls over a small roller idler. The parts appear to be of very high quality and after 2,600 miles display no noticeable wear. Volae's chain management system is one of the noisier ones on the market but I seldom notice it when riding. My Bacchetta Giro riding buddy did comment on it so perhaps companions get the worst of it. My bike has the optional hard shell seat which amplifies the noise. I've read that the bike is much quieter with the standard mesh seat. The chain management system is the only thing that could really be improved on the bike.

BRAKES: My Tour has Avid SD5 V-brakes which offer decent braking power. There are no fittings for disc brakes.

I followed your advice in the Sept/Oct 05 RCN issue and swapped out the noisy

Aztec v-brake pads for a set of KoolStop pads. It's nice not to sound like a wailing banshee every time I stop.

WHEELS: The Tour's hand-built wheels are one of its highlights. At this price point it's not uncommon to find generic hubs laced to machine-built wheels. My Tour came out of the box with Shimano Deore hubs, stainless steel DT spokes and Alex DA 16 rims all beautifully assembled by the Hostel Shoppe. They have never gone the slightest bit out of true. Over the years I've had several pairs of hand-built wheels. I've seen the good, the very good, and the ugly of hand-built wheels. The Tour's wheels are as good as it gets. I'll weep when they eventually wear out.

The Hostel Shoppe offers upgrades in the form of Aerospoke, Velocity Thracian, and Velocity Uriel wheels. Recreational riders and tourists will be well served by the stock wheels. Those seeking ultimate speed and aerodynamics may want to try one of the optional offerings.

TIRES: The Tour came with narrow Primo Comet tires. The Racers are fast rolling tires and I didn't experience a single flat though they wore out fairly quickly. After 2,000 miles the rear was pretty well shot. I replaced them with a wider set of Primo Comets. After 600 miles on the Primo Comets it's obvious they will endure far longer than the Racers did.

UPGRADES/ACCESSORIES: Volae/Vision Seat Day Bag, 800 cubic inch (\$70). Blackburn Mountain Rack (\$40), custom Volae 26"/20" fenders (\$50). T-Bar head-tube mounted light bracket (\$25). B&M Cyclestar mirror (\$22). Kickstand and mount (\$7 + \$30).

VALUE/RESALE: "The Volae Tour is the best buy SWB in the US market. The Waterford/Volae-built frame is exceptional and worthy of a bike costing twice as much. Volae sells direct and passes on added value to their customers." — Bob Bryant

COMPARABLES: There are a number of comparable bikes on the market. At the low end are various ActionBent models. The Bacchetta Giro (\$1,550) is the most obvious competitor. Lightning, the RANS V-Rex, and Volae's own Century model are available at a higher price point. For 2006 Volae has upgraded the Tour's components to SRAM 7.0 and slightly increased prices.

Volae's are most compared to Bacchettas. The Volae has a round main tube in contrast to Bacchetta's ovalized tube. I think the

Volae is a little more flexy than the Bacchetta. It seems more "alive" to me, sort of like a 1970s Italian road bike. I like the Giro but am glad I bought the Volae.

DIRECT PURCHASE: Volae bikes are available exclusively at the Hostel Shoppe retail location or via mail order. While most customers will have no chance to test ride a Volae, the process is fairly risk free. The Hostel Shoppe offers a two-week no-questions-asked return period for a 5% restocking fee. (This refund also includes shipping charges both ways!) The bike arrives via BAX Global fully assembled and adjusted to your measurements. You simply need to install the front wheel, tighten the handlebars, and ride. RCN's Bob Bryant had this to say about Volae's program, "Volae sets the industry standard for direct selling of two-wheeled recumbents. Set up is easy, the box and packing are exceptional and the bike goes together easily."

When I ordered the bike I neither requested or expected special treatment. I thought I would simply call in the order with my measurements. I found that every customer gets special treatment. Hostel Shoppe carefully reviews your measurements to ensure you've made them correctly. I was interviewed as to the type of riding I do in order to make sure I was going to be happy with the model I was ordering. A tracking number was sent to me by e-mail when the bike shipped. The carefully packaged bike arrived in perfect condition even though the box had been somewhat damaged.

RECOMMENDATION: I went with the Tour because I'm a retro-grouch and wanted the steel fork. I'm tall enough to ride a high racer but I don't like having my legs up that high and the feeling of falling over backwards when climbing. Mostly because with the 20" front wheel the bike looks like a Speed Ross or KingCycle, two of my all time "I-want-to-own-one-someday" bikes.

The combination of Hostel Shoppe and the legendary Waterford company has resulted in a stunning line of bikes. My criticisms of the drivetrain have been addressed in the '06 model. I purchased the Volae knowing I would likely upgrade the shifting but knowing the American-made frame was worthy of upgrading. This bike is a work of art.

If you are on a quest for speed Volae has an excellent range of highracers. The Century has 26/20 wheels but features a lighter aluminum fork, 9.0 components,

a balance of practicality and performance

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Volae Tour with the stock mesh back, slung foam base. The seat is the former Vision seat adapted to fit the Volae bikes. The Volae seat slide mechanism is one of the finest built today and really holds the seat on tight.



The author's Volae Tour with the optional Volae shell seat. This Waterford-built SWB is an excellent buy at under \$1300. The bike is shipped in a huge box and is a few mintues from being rideable. Volae offers an excellent money/back return policy (see website for specifics).



Velocity wheels, and disk brakes.

Over fifteen years as an adult recreational cyclist I've owned more bikes than I care to admit. I've dabbled in racing, participated in fast club riding, toured, and ridden for plain old fun and fitness. I've had some fancy racing bikes and some high-end mountain bikes. The Volae is my third recumbent. I wanted a simple recumbent with a sporty feel for recreational and fitness riding. The Volae is everything I wanted. It's my favorite of all the bikes I've ever owned of any type.

FOR: Excellent quality, made in the USA, great company, custom fit

AGAINST: No disc brake mounts, noisy chain management, some may not like the Volae/Vision mesh seat (but there are options)

NUMBERS: Wheelbase: 46-48" (4-sizes). Seat height: 24". Bottom bracket height: 26.5. Weight: 30 lbs. Weight limit (rider & cargo): 250.

FIT: Four sizes available, small, medium, large and extra large.

FRAME & SEAT DETAILS: Frame & fork: Reynolds 4130 Chromoly. Chain idler: Power and return side. Headset: Token cartridge. Seat Back: Mesh/aluminum frame. Seat Base: Mesh/foam. Handlebar: Volae Aerotomic. Stem: Kalloy. Color: Ultramarine Blue.

COMPONENTS: Rear derailleur: SRAM X.7. Front derailleur: Microshift. Shifters: SRAM X.7. Crank: Truvativ Touro 30/42/52. Bottom bracket: Truvativ XR. Cassette: 11-32 9-speed. Chain: SRAM. Brakes: Avid SD5. Brake levers: Tektro TS392A. Hubs: Shimano Deore. Rear rim: Alex DA16 559mm 26". Front Rim: Alex DA 16 406mm 20". Rear tires: Primo Racer 26" x 1.25". Front tire: Primo Comet 20" x 1.35".

About the Author: Brian Daniels is a long time RCN reader and recent subscriber. I've owned a 2005 Volae Tour since June of last year. I've ridden it 2,700 miles as of today. I'm 38, a lifetime cyclist, and President of the Mohawk Hudson Cycling Club based in Albany, NY. I've been published twice in Adirondack Sports and Fitness magazine.

BELOW: The author, Brian Daniels, and his customized Volae Tour



ROAD TEST: Lightfoot Greenway Delta

TRIKE: Lightfoot Greenway

PRICE: \$2,980 + freight

CONTACT: www.lightfootcycles.com

By Bob Bryant

"The Greenway is an all-around road cycle for recreation, commuting and touring. It is about as fast as a mountain bike, has all-season stability, very wide range gears for climbing almost anything, and a good amount of built-in cargo capacity. The Greenway is stable and easy to steer. There is no wobbling as with a bike when traveling at slow speeds up hills or when starting up from a stop; it tracks straight, even when you are gawking at the scenery." — Lightfoot Cycles

ABOUT THIS REVIEW: This is a unique review because the test trike was purchased by Lee Doughty, an RCN reader and a local (Port Townsend, WA) recumbent rider. Lee rides a RANS Vivo SWB and has previously owned a LWB and a tadpole trike. Lightfoot's Rod Miner knows that RCN is in Port Townsend, and that I've wanted to test a Lightfoot trike since my first Lightfoot Ranger review several years ago. So I'd like to offer a special thank you to Lee and Rod for making this review happen.

Lightfoot Cycles builds rugged utility, touring and back roads-capable recumbents in Darby, Montana. The company also builds performance recumbents, has fully faired options, gas or electric power and whatever other custom feature you might like on your new bike. If there is one type of recumbent that Lightfoot is well known for, it's their delta trikes.

USE: Lightfoot delta trikes are all-around trikes that can be adapted for any use. Think of this in the broadest sense of the description. You can outfit one for performance (though they are not super fast), and the heavy duty Courier can be adapted for commercial hauling.

The line includes three basic models: the Greenway, the Roadrunner and the Courier. The Greenway is Lightfoot's most compact trike, and is 10" narrower than the other models. The Greenway and Roadrunner share the same wheelbase. The Courier is the heavy duty truckster of the group, with wider width as well as 12" of additional length.



Lee's Lightfoot Greenway in my driveway.

SEAT & COMFORT: The Lightfoot seat back is a simple low back mesh seat. There are strap tension and telescoping seat recline adjustments, and the seat slides on the frame to fit riders of different heights. Though there is no lumbar support, the low seat back is very comfortable and ideal for this trike.

The seat base includes a foam pad resting on slung material, much like the old Vision seat. The Lightfoot version seems a bit roomier and more comfortable. (I don't feel the seat horn as much; the horn holds the material out in front of the seat base). Lee and I both found the seat foam a bit too spongy, so he added a piece of closed cell foam over the top of the open cell foam. This was easy to do because of zippered access to the Velcro-attached seat cover.

Rod reports that he has set up Lightfoot trikes with RANS seats in the past, and they have built Lightfoot seats for other brands of recumbent bikes.

RIDE: The Greenway is unique. It's tall, narrow and will go up on two wheels. "I have raised a wheel several times, but it's easy to bring back down," writes Lee. The style is casual and laid back. If you're concerned about performance on this trike,

get the gas motor assist, or buy a more performance-oriented recumbent.

As with all deltas, you have to lean into the turns and you can feel the one-wheel drive and twisting of the frame working as opposing forces. That said, the ride is casual and comfortable. I got more respect on the road with this trike, and I know Lee noticed this as well.

The steering is also unique. It's possible to over-steer or under-steer the trike around corners, so you don't want to push it very hard (as you might with a performance machine).

On loose or slick surfaces, the front wheel has a tendency to rise (not off the ground, just unweight) and pull right. I have found this on many delta trikes. Lightfoot can solve this with their optional two-wheel drive. Rod told me that the Courier model is THE choice for unpaved roads.

When I climbed off the trike after my initial ride, my bare calf rubbed up against the jack shaft (and rear chain) and got my leg all greasy. This trait is unique to this trike. Lee has not had this problem, as the seat is more forward when set up for his leg length.

PERFORMANCE: Lee writes, "I'm



Lightfoot in the crate. Assembly was fairly easy.

about 10% slower up very steep climbs, as compared to my RANS SWB. However, I have a different attitude — I don't concern myself with how fast I am going. I don't wobble or have any problems, so I just set a comfortable cadence and change gears to stay there. I get home feeling fresher and I can ride farther in a day. I could push myself to increase my speed a bit more. On the level I am only a bit slower than with the SWB, and downhill only my nerves limit my speeds. I come down steep hills 2-3 mph slower than with my SWB. It's difficult to explain but it's just more comfortable to ride. I've more than doubled my daily riding distance. It is especially good for someone who is a weak rider and needs to start at a low level of effort and work up to speed and distance at a very slow, careful pace."

I thought the Greenway was 10-20% slower than a recreational two-wheeled recumbent. For a performance rider, it could be even slower. Performance isn't the Greenway's forte. I didn't notice the climbing weight as much as I thought, as you can gear down to 9-gear inches (walking speed).

FRAME: The Greenway frame and fork are MIG-welded Chromoly steel built in Montana. The look is a bit industrial, but the build quality seems fine to me. The frame is powdercoat painted. Lee's trike is a light metallic blue.

Lightfoot is in the process of changing their tooling to TIG weld their trikes of round Chromoly tubing (instead of the current mix of round and square that is MIG welded). This could lighten the trikes by as much as four pounds.

Upon inspection you may notice the "brushed" appearance of the Lightfoot handlebars and seat braces. They are not as "polished" looking as other brands. Lightfoot is in the process of outsourcing and changing to anodized parts. While I'd prefer the more polished look, I will always choose natural aluminum color over black, as black eventually either fades or scratches.

WEIGHT: Perhaps heavy to some, but the Lightfoot trikes weigh about the same as a medium weight two-wheeler and cargo trailer combined. The Greenway weighs from 50 pounds and up. Rod thought ours weighed about 53 pounds. I was unable to weigh it on my scale.

STEERING: Our test trike had the standard Tiller Steering, but there are three other options. A new Swept-Bar Tiller Steering is very narrow and is best suited for performance models. The Linkage Steering option adds a handlebar/stem/riser mounted back toward the rider, with linkage connecting the bar to the fork. Rod says this is "Zero-Tiller steering." He has also been prototyping an under-seat side-stick steering option. "The tiller steering is very nice at slow speeds-can almost turn in its own length. My arms never get tired with these handlebars," says Lee.

COMPONENTS: The Greenway's specs are decent, with one exception, and that is the SRAM 3.0 twist shifters. These work fine, but they are a bit too pedestrian for me. I suggest upgrading for ultimate durability. Rod Miner has equipped trikes with Paul Thumbies as well (upgrade), and I even like the Sunrace friction thumbshifter (rear derailleur). The Truvativ Blaze crank is just okay. I detected a bit of wobble in the outer chainring which ticks the front derailleur in the large chainring. I do think the trike is geared just right for most riders and the suggested use of this trike.

GEARING: The Greenway has very wide range gearing, with a low gear of 9- and a high of 120-gear inches. The trike comes stock with 192-speeds! This large array of gear combinations is basically a triple crank up front, with a mid-ship mounted cassette and rear derailleur, making for 24-speeds. Both are shifted by the SRAM twist grips. The mid-ship cassette is attached to a jack shaft which drives a second chain back to the left rear wheel. Here there is another 8-speed cassette shifted by a Sunrace friction (no indexed click shifting) making for eight different ranges for your 24-speed drivetrain, or 192 gears.

Despite the huge number of gears, most of the time I rode the Greenway using the 3x8 standard 24-speed drivetrain, and used the rear derailleur as a range selector. Lee gave me the heads-up on this. He places the shifter in gear #4 and shifts to gear #1 on steep climbs. After a few minutes I became accustomed to riding with 192 gears (3x8 standard gears x 8 different ranges). While initially complicated, you'll eventually figure it out.

The Greenway has one-wheel drive. Two wheel drive is optional, and suggested if you ride in snow, gravel or need a traction boost.

CHAIN MANAGEMENT: The rather complicated drive system is very quiet, as there are no idlers on this trike. The

Easy Racers designed EZ-Series recumbents are a pleasure to ride. You sit slightly reclined, back fully-supported, arms relaxed, neck straight, in a normal sitting position. Compare this with the conformed riding position on a diamond-frame bike. Even after a long day of touring, you're still riding in comfort. No more stiff neck, aching back, numb hands or crotch. No straining either. From cross-country touring to daily commuting to world speed records, Easy Racers has been the leader in recumbent design for over 22 years. And now with the EZ-Series line of recumbents, designed by Gardner Martin, the doors have opened up for entry level riders.

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jackshaft is just under the seat, and with me riding, slightly forward. As above, if you're around 6' tall, you may get chain/gear grease on the back of your leg like both Lee and I experienced. Lee is currently fabricating a fender to go over the jackshaft rear drive gear.

BRAKES: The trike has triple Avid mechanical disc brakes. The two rear brakes are connected to one cable/handle, and the front brake is connected to the other handle. There is a parking brake set by a pin in the brake handle.

WHEELS: The wheels are of decent quality, and they never came out of true during our test. The Deore hubs are okay. I think one step up, the XT's are great.

TIRES: The Greenway's specs call for Kenda Kwest high pressure tires, with which I've had excellent luck. However, they are not the softest riding tire when pumped up to 100 psi. Lee's trike came outfitted with fat Kenda Kontakt 1.95" 65 psi tires that are very soft and cushy riding — they seem like a good fit. Lightfoot also offers optional Schwalbe Marathon Plus flat-resistant tires.

UPGRADES/ACCESSORIES: The options, upgrades and custom possibilities for Lightfoot trikes are endless. The main ones are: Fenders (\$66), fender installation (\$30), fairings (\$320+), linkage

steering (\$290), two-wheel drive (\$350), gas motor power assist (\$975), and electric power assist (from \$1,000 with installed kit, batteries and charger).

Lee's test trike came with the included soft pack Cargo Pod which rests in the frame between the rear wheels and up to the seat back. There is nothing to hold its shape, other than the junk you stuff into it. "This is very useful. I often pick up groceries, hardware, etc. while on the trike," says Lee. A rear receiver hitch plate can be added so you can tow virtually any kind of trailer. And an optional eight-gallon Rubbermaid ActionPacker tote is also optional.

OTHER POSSIBILITIES: A 3x20" wheel model is coming, which will be more suited to connecting two trikes in tandem (a five-wheeled tandem). Lightfoot will also install an electric power assist or a 1.5 hp gas power assist. A Trailer-Trike, a trailer where the passenger can pedal, is also available. Lastly, several cargo carrying options are available for the Lightfoot trikes. See the website for more information.

VALUE/RESALE: Resale is difficult on these trikes unless you can find a local buyer. Shipping is extremely expensive, about \$350 each way from Montana to Port Townsend.

COMPARABLES: Aside from the Sun models, delta trikes are rare. Sun builds the very popular USX under-seat steering trike, which is smooth riding and very stable, but heavy. Hase of Germany makes similar high-end models, even a folding delta. They are mainly known for their performance Kettwiesel delta trike. The Penninger is another choice, but we're not sure what the story is on them. Rumor has it that Greenspeed is working on a sporty delta trike.

PURCHASING: Lightfoot trikes are sold customer direct. From the time of order, expect a 3-8 week wait for your new Lightfoot. If highly customized, expect 10-12 weeks.

Lee's Greenway came by semi-truck in a huge crate (shipping can be \$250-\$350 and crating is \$100). I went over to his house the day it arrived. We used electric screwdrivers to remove the top of the box, and then a wrench to unbolt the fork. We then lifted the trike out, replaced the top on the box, and used the box for a work bench (sweet!). Lee opted to install his own fenders (saving \$30), so we did that. We then installed the seat, handlebars/stem/riser and front wheel, and we were about done.

RECOMMENDATION: We've wanted to test a Lightfoot trike since our Ranger





The Lightfoot's cargo platform/bag



Jack-shaft and rear drive



Twenty minutes after it came out of the box Lee rode his new Lightfoot trike down the street.

review several years ago, and thanks to Lee and Rod working out a cool deal, they made it happen (thanks guys). The downside is that our test trike is an in-between model year trike. Lightfoot is in the process of making some minor seat changes, upgrading the specifications (getting rid of the SRAM 3.0 shifters — YES!) and a big change, moving from MIG welding to TIG welding, which also means round tubes in the rear section and a lighter weight trike (up to 4 pounds lighter). It's too bad we couldn't get the next evolution of the Greenway, but this one was very enjoyable, so it can only get better.

Lee seemed to like his trike very much. I hated to take it from him for a few days. Here is what he says about it: "I think comfortable riding, convenience, hauling capabilities, and little extras like taking my hand off the bars to wave or unbutton a warm jacket while riding and odd things like that are what make the trike so appealing. Also, I like not being 'buzzed' by vehicles."

I love Lightfoot bikes and trikes. Rod Miner and company's mission of bikes for utility is rare and just my thing. While these custom recumbents may not have the refined finish details of a RANS or a Volae, they are custom work bikes to serve a purpose, and they can be highly customized for their owners. The MIG welds are industrial looking, but tough enough, definitely not bikes-as-art. The paint was fine, but I didn't care for the light metallic blue.

The Ranger and Courier are my favorite, but the Greenway was appealing to me because it fits between the posts at bike trail entrances (I would have had to lift the Courier over some of these).

FOR: Lightfoots are the toughest delta trikes made. The narrower trike is better in city traffic and roads without shouldlers. There are lots of custom features,


AGAINST: Heavy. Lack of frame build refinement details. Trike draws a crowd everywhere. Several upgrades happened within a few months of this trikes delivery. Jack shaft gets grease on your left thigh (taller riders).

NUMBERS: Wheelbase: 57". Seat height: 22.5". Total length: 82" (Courier is 12" longer). Total width: 32.4" (Roadrunner is 10" wider). Track: 27". Bottom bracket height: 14". Ground clearance: 10.5". Weight: 53 lbs. (according to Lightfoot). Weight limit (rider & cargo): Suggested 250 pounds; maximum 300 pounds, or custom.

FIT: Riders 4'10" to 6'4", custom sizes for others.

FRAME & SEAT DETAILS: Frame: ChroMoly. Fork: ChroMoly. Idler: Cassette and rear derailleur mid-drive. Headset: Cane Creek. Seat Back: Mesh. Seat Base: Nylon covered foam. Handlebar: Lightfoot. Stem/riser: Lightfoot. Color: Blue.


COMPONENTS: Rear derailleur: SRAM 7.0. Front derailleur: SRAM 7.0. Shifters: SRAM 3.0 twist. Crank: Truvativ Blaze 22/32/44 170mm. Bottom bracket: Truvativ ISIS. Cassette: 11-32 8-speed. Chain: NA. Brakes: Avid mechanical disc (3). Brake levers: Avid FR5. Hubs: Shimano Deore disc. Rims: Alex DM-24. Wheel build: NA. Tires: Kenda Kwest 26" & 20" x 1.5" 100 psi (our test trike came with Kenda Kontact 1.95" 60 psi tires). Pedals: Wellgo platform (not plastic). ♦



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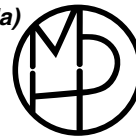
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Homebuilt Tandem at 6,000 Miles

By Gary Dinsmore

In 2000, I designed and built a tandem recumbent. The design had some serious handling difficulties, and I worked on redesigning and rebuilding the bike off and on during 2001. My wife, Judy, and I took our first ride on the new improved tandem in February 2002. We had waited several weeks for a perfectly dry sunny day in Scappoose, OR. I wanted to ride the naked frame before committing it to the painter. At last we were satisfied that the design was well behaved. I completely disassembled the frame and had the frame painted in a commercial shop.

The bike was finished in April 2002, and we parked our upright tandem and began riding the new recumbent. The bike is now just over four years old with 6,000 miles on it. I thought it would be a good time to give the readers of RCN the benefit of my experiences.

Could I, would I, should I?

First of all you must enjoy tinkering with bicycles and have huge reserves of patience. It is one thing to hack up some old bikes and zap the pieces together into something that you can ride around the neighborhood. It is totally different to start with new stock and quality components and build a bike that looks good, rides well and will last for thousands of miles. You must have, or will need to develop, some good fabrication skills and have the ability to work with meticulous care. Unless you are copying a proven design you will probably have to go back and rework your design several times, and that can be quite disheartening.

Mistakes in design and fabrication will come back and bite you. I have had to redesign and rebuild one critical joint in the forward frame twice in 6,000 miles. The first redesign improved the triangulation to make that part of the frame stronger. The second redesign changed the fillet brazed joints to a lugged design to increase the strength of the joint itself.

Can I save money?

If you hack up some old garage sale bicycles and zap them together, of course you can have a functioning recumbent for practically nothing. I have discovered an



Our tandem parked in front of our home (a 34' Alpine motor home)

interesting phenomenon: you can buy a decent mass produced "wedgie" bicycle, strip off the components and toss the frame for just about the same price as going online and buying new components. To put it another way: No, you cannot save money if you want those quality new components.

What's the point of building?

For me, it is the sense of accomplishment; the pride of having something totally unique; and the knowledge that I can fix it, no matter what goes wrong.

Here are some of the details

I claim Dr. Bill Patterson, now a retired professor at Cal. Poly in San Luis Obispo, as my mentor. I developed a design along the lines of a tandem Bill calls the WYMS (With Your Main Squeeze). The wheelbase is a fairly short (50") and the two RANS seats are rather upright. The captain's position is a swinging-feet style front wheel drive. The stoker powers the rear wheel and each person has a full set of derailleurs and completely independent cadence. Both wheels are suspended using Fox RX Vanilla coil spring and oil-damped suspensions. The wheels are 20" 406 Veluta Airline wheels with 1.5" semi-slicks running 100 psi. The brakes are Magura hydraulic. They have been exceptionally durable. The drive train is a mix of Shimano RSX road components with large chain rings coupled to Nexave Megarange mountain bike rear derailleurs and cassettes on Shimano free hubs. I started out with "Rapid Fire" shift-

ers. When they broke I went retro with bar end shifters in friction mode. Construction is fillet brazed 4031 chromoly aircraft tubing. Some of the critical joints are lugged. It tips the scales at a hefty 67 pounds.

The design is not particularly aerodynamically efficient and the power plant has seen better days; however, the low bottom brackets and cushy seats make this a very comfortable bike to ride.

About Us

Judy and I retired in 2004 and sold our home. We are now full time travelers (see above photo). My shop is in an 18' trailer, and it has all of the tools I need to build and maintain our bike. The tandem is our only mode of transportation once we have parked our home. For those heavy shopping trips or laundry day we tow a two-wheeled trailer. I guess you could call this the SUV of the bicycle world, but we also use it for sightseeing and exercise. We can handle hills with grades up to 10% if they are paved and have a good shoulder bikeway. The only time we really get intimidated is when the campground is on a high-speed highway with no shoulders. You can follow our adventures by checking out our blog a (see below).

CONTACT

Our blog: www.dinsmore-enterprises.com/Travel_home.html.

Bill "WYMS" Patterson's (WYMS) site: <http://home.earthlink.net/~wm.patterson/>

Review: Bebop Pedals



By Eric Rosenberg

"Bebop pedals are the only true dual-purpose pedals out there. Tough enough to have won multiple NORBA masters cross-country championships. Light and knee-friendly enough to have won multiple national triathlon championships."
— *Bebop*

Recumbent riders are nothing if not passionate. The discussions on the various e-mail lists and in RCN bear this out. So when I asked about pedals, the responses were hot and heavy!

I'm new to recumbents, having purchased my first one (a used RANS Rocket) in the autumn of 2005. That summer, I began commuting to work, a 6-1/2-mile round trip in Washington, D.C. traffic. Commuting poses some special problems, not the least of which are the need to quickly clip in and out of the pedals and ride without clipping in one or both feet at all.

PEDAL SEARCH

The Wellgo 981 SPDs on the bike were okay, but just that. It was hard to adjust the cleat placement and, in the end, I felt that there wasn't enough lateral give ("wiggle room") in foot placement. Worse, clipping in was never easy or consistent.

I asked for suggestions on the RANS owners group e-mail list, and what came back were the following suggestions: "Go cleatless," "Use road pedals," "use BMX pedals," "use Eggbeaters" and "use Bebops." I ruled out the first one, as to my mind the Rocket really requires that your feet be attached. Road, mountain and BMX pedals were too much of an unknown and there didn't appear to be



enough surface area on the Eggbeaters to allow for non-clipped in riding.

That left me with Bebops, an equally unknown possibility. Other than one very negative e-mail review, those suggesting Bebops felt *very* strongly about them. Not relying on blind faith alone, and not being able to find them locally, I sought out those who might know more about them. So I spoke with Zach Kaplan, Kelvin Clark (Angletech) and John Cunningham (Recumbent Brothers Cycles), each of whom understood my predicament and requirements, passed along great insights, and answered all of my many questions. I ended up purchasing them from John Cunningham, who helped me along the way as I mounted the cleats and got used to the pedals. His help was, and continues to be, invaluable.

BEBOP INTRO

While Bebops may look like other "lollipop" pedals, they are quite different. In most, if not all, cleat-to-pedal scenarios, the

cleat has a front and back, and is clamped inside a receiver on the pedal. Your foot then rests on top of the pedal and swivels across it, with the fixed position of the cleat and receiver dictating the amount of "foot wiggle" (also known as float).

With the Bebops, the paradigm is reversed. The cleat is the receiver, is circular, and has no front, back, left or right; analogous to a ball-and-socket, where the pedal is the ball and the cleat is the socket. As a result, the float is far greater and, to a degree, more controllable. This makes clipping in very easy: you don't have to aim for anything. You're either clipped in or not! In the Bebop paradigm, cleat is mounted as far back towards the heel of the shoe as possible. This not only gives you feet greater ability to dynamically find their own place as you spin, but also gives you the ability to pedal with the ball of your foot when you're not clipped in, as I often must in my urban commute. Neat! The drawback is that it is actually harder to unclip, as the float is so great. I find that after a couple of weeks I still have to think about it!

An interesting outgrowth of this scenario is that if you mount the cleat correctly (with more than enough clearance from the sole of the shoe), alignment becomes far less critical. For reasons I cannot determine, one of the cleat screws came out. I didn't realize this until some time later when I picked up the shoe and saw that it was gone! The cleat had moved itself to a position that, if it were an SPD, would have forced me to clip in at a very awkward angle. With the Bebop, I didn't notice. The screws now have Loctite 242 (Medium Strength Threadlocker) added to hold them in.

All Bebop pedals feature forged and CNC-machined cromoly rings, needle and ball cartridge bearings, 20 degrees of biomechanically correct float and true step-down entry. Bebop pedals come in three flavors, described by Bebop as follows:

Bebop (\$149.99): These weigh in at 210 grams per pair, and come with forged and CNC-machined cromoly steel rings, extruded and CNC-machined 6061 pedal bodies and needle and ball cartridge bearings -- no plain bushings here. All dressed up in an attractive and durable low-gloss black finish.

Bebop SL (\$N.A.): All of the advantages of the regular Bebops, plus a semi-hollow spindle CNC-machined from the finest 17-4PH stainless steel. 195 grams per pair.

Bebop Deluxe: These are the lightest (175 grams per pair) and strongest pedals around. Everybody else uses titanium spindles on their high zoot models, then tells you not to ride 'em hard or gives you weight limits. We found a better way: our exclusive Aero-S steel. Aero-S is steel on steroids. Twice as strong as cromoly, twice as stiff as titanium, it allows us to actually make the spindle completely hollow. Our Aero-S spindles are 35 grams per pair lighter than our cromoly spindles and at least twice as stiff as any titanium spindle.

CLEAT INSTALLATION

Read the Bebop instructions, which are available on-line. Understand however that, as any manufacturer would, they lean to the overly cautious and dramatic; leading you to believe that major, destructive surgery will be required to install the cleats on mountain bike type shoes, like my Shimano M-34s. True, you will need to cut away some of the sole to fit the cleat and clear the spindle, but with the help and encouragement of John Cunningham, this was far easier than I thought. I used a box cutter and my neighbor's Dremel-type tool. As the cleats are identical, I tried to make the end results look the same, so I spent some extra time cleaning things up.

There are two potential problem areas. The spindle needs to be clear of the sole in order to move – giving you all that float. This is done by cutting a wide and deep groove in the sole. The space between the cleat and the sole also impacts the float. Make

certain there is enough room around the cleat for the pedal to rotate. I made both measurements by attaching the pedal to the cleat during the “surgical procedure.”

Take heed of the instructions about over-tightening the cleat to the shoe. There is a tendency to tighten down the cleat, as it does slightly protrude from the sole of the shoe. I hadn't realized I'd done this on one shoe — it isn't apparent to the naked eye — until John Cunningham suggested I loosen the cleat. John's suggestion was right on the mark. What I did see afterwards was the impression of the cleat screws on the inside spindle of the pedal.

The cleat does slightly protrude below the shoe's sole, causing concern about the wear and tear and potential damage caused by walking on pavement, or just stopping in the street. The cleats are made of stainless steel and appear to take the wear. With the pedal locking to the inside of the cleat (remember the ball-and-socket analogy), unless you were to really crush the cleat, I don't think you can damage it. I recently had to walk my bike two long city blocks as the police closed the road and made us all go on the sidewalk. The cleats were unaffected. In any event, a dry lube on the cleat's spring mechanism (another John Cunningham recommendation) can help keeping things moving.

RIDING WITH BEBOPS

While I wouldn't go as far as the instructions say about starting up the first time, riding with Bebops is very different than riding with the Wellgo SPDs. First, I ended up moving my seat up an inch or two to accommodate for the lower cleat position on my shoe. Clipping in is very easy, with little hunting around to find “the spot”. It's once you're clipped in that everything changes. In my case, my feet don't stay in a fixed position when pedaling. Instead they move (wiggle) as I spin. It's an interesting and certainly different experience, especially heightened as each foot acts and reacts differently. The sensation takes some time to get used to.

Unclipping turned out to be more of a conscious effort than I had expected. With the float as great as it is, I found myself really thinking about unclipping. It didn't take much movement (twist) of my heel to get out of the SPDs. It takes a lot more - although you can twist in or out -- to get out of Bebops. As a result, I probably clip in less in the heavier trafficked part of my commute than I might have otherwise.

FINAL THOUGHTS

I like 'em. While there is no single solution to every problem, they do help relieve knee strain, and feel much more solid as I wend my way through the maze of urban traffic and varying road conditions. They allow me to ride as naturally and safely unclipped as clipped in. ♦

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Burley Closes Bike Division

By Bob Bryant

On September 9, 2006, the *Eugene, OR Register-Guard* reported that Burley Design Cooperative had been sold, that 104 employees were laid off, that the company would no longer build bicycles (including recumbents) and would limit future production to only bicycle trailers. Of the 104 employees of Burley laid off, 65 employees are being rehired by the new company, and 39 positions have been eliminated.

The new owner of Burley is Michael Coughlin. He is the former CEO and president of Percon Inc., a Eugene, OR manufacturer of barcode scanners.

The new company paid off all of Burley Design's liabilities and debts. Former cooperative members and shareholders received stock in the new company, now called Burley Design LLC. The focus of the new company will be bicycle trailers. Burley sold 27,000 of them last year and has orders for approximately 3,000-4,000 at this time.

RECENT HISTORY

From all appearances, Burley Design was a healthy company and was highly respected in the bicycle world; yet their recumbent designs were under-appreciated. Burley was a unique company. I always enjoyed dealing with them, from their friendly Oregon style to their US-built fabrication and high quality standards. Employees said working at Burley would spoil you from working anywhere else. Aside from recumbents, Burley also built tandems, commuter bikes, touring and road bicycles and bicycle trailers. Over the years I have owned three Burley trailers, including a DeLite, in which I towed both my kids when they were small, and more recently a pair of Nomad trailers. I have also owned two Burley bicycles, including one upright and one recumbent.

Burley was a healthy company through 2002. In 2003 the company posted its first-ever loss, followed by losses in 2004 and 2005. Why did this happen? Nobody knows for sure. It could have been imported trailers, more competition or debt and higher costs. Bicycling saw unique booms in the 70's and 90's, and even our tiny recumbent niche cooled off after the dot.com bust (which coincided with the drop-off



The 2006 Burley Koosah

in Burley's sales). In fact, the recumbent industry has never really recovered from the end of the dot.com boom. Another factor is that the "Generation X" is about half the size of the baby-boom generation and "Generation Y" is still too young to buy Burley products.

In August 2006 Burley announced that it would end its 28-year run as a worker-owned cooperative and join the ranks of corporate America. Rumor was that it was a last ditch attempt to save Burley. Many of the problems and details of this were reported in *The Register-Guard*.

THE BEGINNING

Burley was founded in 1969 by Alan Scholtz and run as a sideline to his Nomad Bike Shop. Alan now works at Bike Friday with his brother, Hanz, Bike Friday's founder. The company was founded in Fargo, ND, and consisted of four people making bike bags from their homes. The company was named for "Burley Bev" Anderson, a company co-founder and local bicycle racer.

In 1972, Burley started distributing bike bags to other bike shops. In 1974 the company moved to Cottage Grove, OR and the product line was expanded to include backpacks, bicycle shorts, jerseys, rainwear and skiwear. Uncomfortable with being bosses, Alan and Bev talked to the employees about becoming a cooperative. In 1978 Burley became a worker owned co-op.

Most of the Burley bags were sold at the Eugene Saturday Market. Alan and Bev needed a way to haul more products on their bicycles, so they designed the first

Burley trailer from parts of an old swing set and a hitch made of wood blocks. Soon Burley was making trailers to sell at the market and at Collins Cycle in Eugene. The early 1980's were a difficult time to be in the bike business. Sales declined and Alan and Bev left the cooperative. In 1983 the co-op found new financing and moved to Eugene.

In 1988, Burley's previously departed founder, Alan Scholtz, approached Burley about a joint venture between his new company and Burley to build and market tandem frames. This was the start of Burley's bicycle manufacturing. The joint venture was successful, but ended in 1992. Burley continued building tandems on its own. The 1990's saw more expansion, new business plans and increased difficulty in the bike business, management and remaining a cooperative.

Dick Ryan, of Ryan Recumbents, was an early recumbent connection to Burley. Dick moved his business from Malden, MA to Oregon to have Hanz Scholtz's (brother of Alan) Bike Friday build his recumbent frames. Ryan was located across the parking lot from Bike Friday. Dick had been planting *recumbent seeds* with Burley for years.

By the mid-1990's Burley sales were strong but the co-op model was changing, and was not working as well. Burley was becoming a larger company. Making the cooperative model work in conjunction with having a real business management team proved to be difficult. The 1990's were Burley's heyday. In the mid-1990s an R&D team was formed to look for new markets and products. It was this that

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eventually led to the first recumbent model.

RECUMBENTS

The first recumbent model was introduced in 2000. The Burley Limbo was a mono-tube rear suspension LWB with a moderate bottom bracket height. Burley's recumbent success came a few years later with the unveiling of the 2004 Koosah and Jett Creek, LWB models featuring simple step-through frames.

Through this time of change at Burley the recumbent division was actively preparing for the 2007 season. We had a 2006 Koosah model with an updated 2007 seat and were told that a new seat back frame and mount was coming. In retrospect, it seems that they might have had a sense that a 2007 bike line wasn't going to come.

It's sad to see the recumbent department closed. The Koosah design truly borders on greatness; it just needed a bit more refinement. Sadly, the bike was getting that refinement for the 2007 model year. Cost aside, the Koosah is one of the best LWB designs out there. Hopefully Burley can come back and perhaps even bring back the recumbent line or sell it to another company.

As you may have figured out, we got the news about Burley's bike division closing one day after mailing RCN 096 Sept/Oct 2006. This was incredibly bad timing for us, and couldn't come at a worse time. With this dated issue in the mail and on the stands, RCN's September sales were the worst we've had in years and we're still trying to recover.

You can find the links to the original story at the RCN blog: <http://recumbencyclist.blogspot.com> (September 2006 archive).



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