

RCN

RECUMBENT CYCLIST NEWS

Issue # 60
Nov/Dec
2000

**The Big
Wheel Cult:
Mark
Colliton's
24/24
V-Rex**

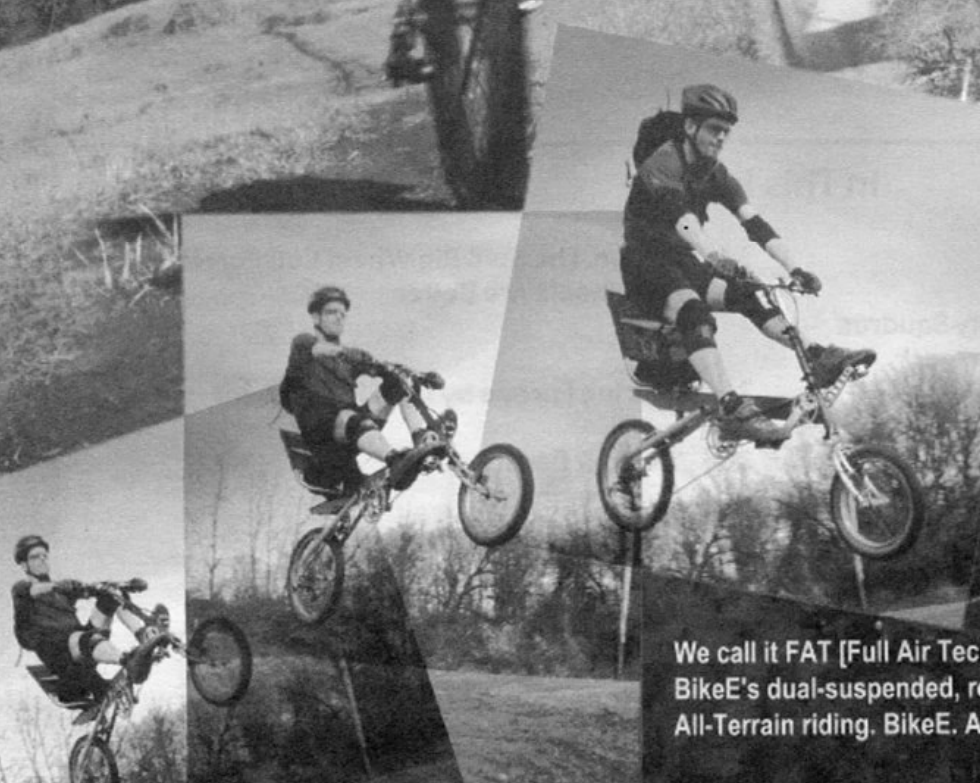


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RCN is edited and published by Bob & Marilyn Bryant in Port Townsend, Washington.

Special Thanks to our devoted volunteers and subcontractors:
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■ In Our Next Issues...

We plan to bring you coverage of the 2001 season, John Riley will be attending the Interbike tradeshow and offering a full report. We also have a Trice trike test, Bike Friday Sat R Day SWB test, and three touring articles: Amish country, Canyon country and Slumgullian, Colorado.

■ On the Cover...

Mark Colliton and his V-Rex 24x24. This is the original V-Rex prototype (Mark is co-designer of the V-Rex). All of Mark's V-Rexi have big wheelsets. Mark prefers the pre-'99 V-Rex geometry.

■ In Our Last Issue...

RCN#59 was mailed in mid-September and included road tests of the Angletech Altitude. There is also a primer on recumbent human powered boats and more.

Guest Editorial

Velorution

by Amy Babich

I live in the city of Austin in central Texas, home of the car culture. In addition, I live in the most wasteful, polluting country in the world. It's a time and a place in which people mostly sit indoors or in cars and push buttons. They run a lot of internal combustion engines and burn a lot of fuel. Outdoors, the air and water get dirty, and species vanish every day. All of this is rather depressing.

I ride a decorated Bike E and live in hope of the Velorution. That's how I get by.

You already know what the Velorution is, even if you haven't seen the word before. It's the peaceful revolution in which human-powered vehicles and public transit will replace two-ton private cars as the dominant means of transportation in industrialized countries, including the United States and central Texas.

The human-powered vehicles that will supersede the car won't just be ordinary bicycles, of course. They'll include the marvelous inventions I first saw in the British publication *Bike Culture Quarterly*. Two wheels, three wheels, four wheels. Human-powered trains. Bikes that carry barrels of beer. Side-by-side trikes. Such stuff is music to the bored, down-trodden late-20th-century human spirit. It's like magic.

Since August 1996, I've been riding a BikeE. (I don't drive a car, so I ride my bicycle a lot.) My BikeE is highly decorated, very visible, and very beautiful. Children love it. Even very small children ask quite specific questions about the bicycle, using big words and pronouncing them carefully. Usually they want to know where I bought it, how much it costs, and whether the price includes the glitter, flags, lights, and cargo boxes. I'm sorry that BikeE doesn't make a small children's recumbent yet. There's certainly a market for it.

I first became interested in recumbents in September 1995, when I fell off my mountain bike going downhill at night and injured myself badly, tearing my right shoulder out of the socket. This was a horrifying experience. I love riding bicycles, but I hate falling off. That's why I like the BikeE. It's extremely stable, extremely reliable, and extremely good at carrying cargo. It will also go up all the hills I run across in my day-to-day routine. There were a few hills that were difficult, so I changed the front chain ring for a smaller one. My BikeE is currently sporting custom cargo boxes made by my husband (Mike Librik) out of coroplast and covered in yellow and orange reflective tape. When a car headlight shines on my bicycle at night from the rear, the boxes light up.

This setup is not aerodynamic, as perhaps it ought to be. I'm not a fast rider and don't really need to go faster, but I do like bicycling to be as effortless as possible. I don't ride fast, but I ride a lot: an average of about 15 miles a day, with cargo. In spite of the traffic, I enjoy this very

much. I stay off big roads as much as possible, but I have to cross them to go anywhere outside my immediate neighborhood.

Someday, some city of reasonable size will become the first city of the Velorution, by moving all or most of its private cars out of town. New York City should have done this thirty years ago. No large city has done it yet. But several French cities had a car-free day last year on September 22, and this year more cities across Europe will join in the experiment. I like to think that maybe Austin, Texas will be the first city of the Velorution.

On the face of it, this is quite unlikely. Austin has only a rudimentary bus system. Considered as a Texas bus system, it's pretty good; as a real bus system, it's painfully inadequate. Cars are allowed to park in bicycle lanes in Austin. Most of our streets lack sidewalks. Most of the sidewalks that do exist lack curb cuts for wheelchairs and trikes.

At the moment, my main velorutionary project is an attempt to get our city government to build sidewalks, up to Americans with Disabilities Act standards, on both sides of the city's big streets (classified as arterial roadways, state highways, national highways, and farm-to-market roads). We sidewalk radicals (an oxy-moron of the motorcar age) believe that building these sidewalks quickly would have a perceptible effect on transportation habits in Austin. No one is openly against sidewalks, but they cost money to build, so there is certainly no guarantee that our proposal will succeed.

I'm a street rider in general, not a sidewalk rider. But on really dangerous streets I will ride the sidewalk if there is one, and if it is not occupied by pedestrians. Although I ride in the street myself, I see many other bicyclists on such sidewalks as we have. I see small children on trikes and people in wheelchairs in the streets with the SUV's. I know that hardly any children bicycle to school or play anymore. Most children are driven everywhere with their parents. They can't go exploring by themselves. I think that this is very bad for children, who need some personal power and personal space in the real, physical world. Cyberspace is not enough.

Another velorutionary project is our recumbent shop. In 1996, when my husband and I first bought ourselves BikeE's, the only recumbent shop in Austin decided to cease to exist. Our fascination with recumbents compelled us to fill the niche.

Selling recumbents more or less requires the sellers to buy several recumbents for their own use. You have to ride the bikes yourself to be able to tell the customers about them. Until we started our business, I never owned more than one bicycle at a time. Now we have several. I like owning many bicycles (and no car). It makes me feel very wealthy.

Our personal bicycles include two cargo-carrying decorated BikeE's (one for me and one for my husband), a guest BikeE, and the new

BikeE tandem. We used to have a Rans Screamer Traveler tandem, but sold it in favor of the BikeE version (known as the E2). The Rans Screamer is a good tandem, but it is really built with a tall captain in mind. My husband and I are both about 5 feet 8 inches tall, and many of our friends are even shorter.

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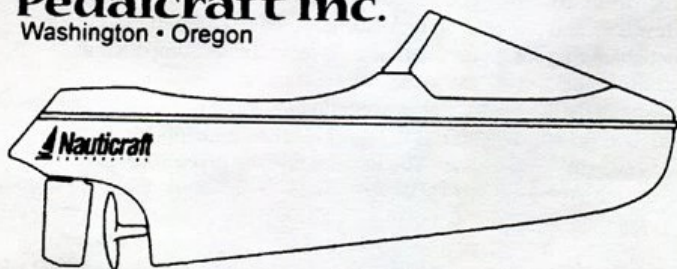
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The E2 is very easy to maneuver at low speeds, which is important for riding in the city. But this tandem really needs a kickstand. We'll be glad when BikeE makes a kickstand for it.

I like the E2 because I can persuade almost anyone to ride in its back seat. The Rans Screamer is larger and a little more intimidating. As a velorutionist, I'm always trying to turn non-bikers on to the joys of bicycling. The E2 is good for this. I think it would make a great vehicle for a tandem taxi business.

We also have a Comfort Cycle trike (a similar trike is now made by Penninger). This is a very good cargo-carrying trike for city riding. It's stable, comfortable, and climbs hills well. Its main disadvantage is one shared by nearly every existing trike: it's hard to move in and out of houses, because it's so wide.

We have a Tri-hauler from Human Powered Machines for bulky loads. We use it to carry refreshments for picnics and parades, to haul garden supplies and raw materials for building bicycle accessories, to carry our recyclable paper to the recycling depot, and sometimes to haul bikes around. It's heavy, but has low gears and performs well.

We recently acquired a Bike Friday Sat R Day folding recumbent. It's a very stable short wheelbase bike on which the rider can sit upright (my preferred position). In general, I find short wheelbase bicycles interesting and comfortable, but unstable in tricky circumstances. The riding position on the Sat R day is not very extreme (that is, the pedals are considerably lower than the seat), and it's easy for me to get my feet to the ground.

Many of our shop customers are sports riders, but the customers who interest me most are commuters and transportation bikers. Particularly interesting are the non-bikers who have decided to become bicycle commuters. One hot August we sold a BikeE Air Tech to Kathy, a non-biker with a bicycling husband who wanted to sell their car. Kathy immediately began commuting to work, nine miles each way, on the BikeE. Her lower back stopped hurting her, she lost weight, and men began making eyes at her. (She's happily married, but enjoyed the sudden attention.) Kathy and her husband sold their car, and have become heroes of the Velorution. Kathy has posted flyers around Austin in which she offers to show people how to ride a bike in traffic without getting scared or hurt. Occasionally we sell bikes to her converts.

I don't wish to imply that the BikeE is the only decent bike in the world. But it's definitely my personal favorite among the bikes I've ridden. Also, it's by far the easiest bike to sell to my favorite customers (middle-aged non-bikers who decide to change their way of life). Sometimes, these customers surprise me, and go off with a Rans V-Rex or an underseat-steering SWB instead. People have various tastes.

Austin, Texas is an odd place. We're part of Texas. We have few sidewalks. Cars are allowed to park in the bike lanes. Car drivers who kill pedestrians and cyclists usually aren't charged with anything. It's terribly hot in the summer, and many people really think they need their air-conditioned cars (which serve to heat up the outdoor air even more). If you don't drive a car, people think you're weird.

And yet many people here cheerfully eschew cars. Austin has a Yellow Bike Project, a collective that runs a bicycle library. Library membership costs \$20, and members can check out library bikes free of charge. The Yellow Bike people have many other velorutionary projects, and are great spreaders of sweetness and light. There are now two pedicab companies operating in Austin's downtown entertainment district in the evenings. Several local bicyclists have volunteered lately to serve on city boards and commissions. Since bicyclists (including myself) are often non-joiners and non-politicians by nature; this is progress. If we bikers can take over local government by peaceful means, we'll be able to lay the groundwork for the Velorution.

Some bicyclists dream of winning races. I like to dream of the Velorution. I look at a highway and imagine it without cars, but with all sorts of interesting human-powered vehicles. This is very entertaining, and helps keep me sane.

I find many features of our life-destroying culture discouraging. Sometimes I get to feeling rather depressed. At these times it's a good thing that I get around town on a decorated recumbent. I get on my bike, feeling lousy, and head for my destination. But since so many people, especially children, regard my bike as magical, it's hard to stay in a bad mood. It's fun to ride a magic bike and be an agent of the Velorution. I highly recommend it. □

"A real hoot!"
Bob Bryant, RCN



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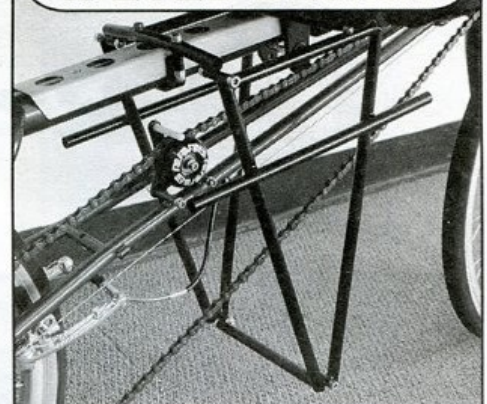
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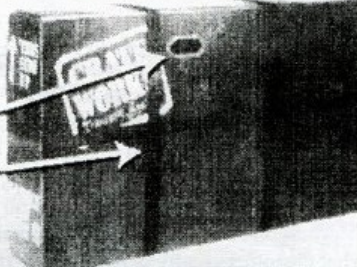
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Recumbent News



The Quest for the Perfect Trike

by Pop Camasmie
pop@catrike.com

I am Brazilian and a Mechanical Engineer. I always wanted to follow the steps of my biggest idol, Santos Dumont who made the first heavier-than-air powered flight. Since I have a kind of car-phobia, for several years I would often wake up at night to put on paper designs I had in my mind for new human friendly vehicles and transportation systems.

For my great surprise I found that such wish was shared by thousands of enthusiasts in the world today. When I saw the first trike realized I had found what I was looking for all my life. A human powered vehicle with a huge potential for development towards replacing a car.

From my business background in the boat and food industries I knew that in order to succeed I would have to establish a strategic alliance with a high reputation company that would provide us with product development, production and endorsement since we were completely unknown to the recumbent public.

I had contacts and interested parties all over the world but really wanted to have someone in the U.S. since that was my first priority as a market. Additionally I knew that was a gap to cover and Americans were getting their trikes from other continents. What sounded as an adventure for some enthusiasts, was in fact a big

hassle and not practical at all for most of the wannabe trikers.

After endless hours on the Internet I elected the key contacts and was ready for the field research. I chose California as the territory since I noticed a polarization on the contacts' locations. My trip started in Southern California where I visited several manufacturers, dealers and enthusiasts. They provided me all the crucial information about the market, competition and what customers really demand and expect from a trike.

At Easy Racers I saw professionally managed recumbent production from the raw material to components and assembly line. I went on my trip and drove to the Oakland museum. I believe destiny was in my favor and there was an exposition about the History of the Bicycle with real models showing from the early hobby-horses to the recumbents of today. Everything I have read in books was now right in front of my eyes. That gave a special magic touch to my mission.

Finally I went to my main target since the beginning, Rotator Recumbent Bikes in Santa Rosa. When I got there I found the shop fairly small but full of life and with World Record Bikes hanging all around the place, an unforgettable energy. Steve was very calm and down to earth. I was amazed how much knowledge he had, how much he had accomplished. Riding on a Rotator I knew I had found the perfect supplier. His love is for two-wheelers and that is his primary focus. However I did not have much trouble in convincing him to make our Trike

since he has this enthusiasm and is always ready and eager to work on a new recumbent project. So we hired Rotator for the product development and production while we focus on marketing, distribution, sales and customer support. This business model and lean structure enabled us to quickly deliver a high quality pedigree product at a very competitive price.

Design criteria were based on the conclusion of the field research. There was a gap in the market and a demand for a U.S. well-built, affordable and reliable tadpole trike with a higher seat, more visible and so safer, easier to get on and off and so more comfortable. Because of Steve's racing background and nature we decided to add on the top of the front mechanical disc brakes and a 48-speed mid-drive proving that comfort, handling and performance can coexist. The result is the Catrike C2000, which we are very proud of. The initial feedback from customers and dealers is above our expectations and we are now just making them as fast as we can."

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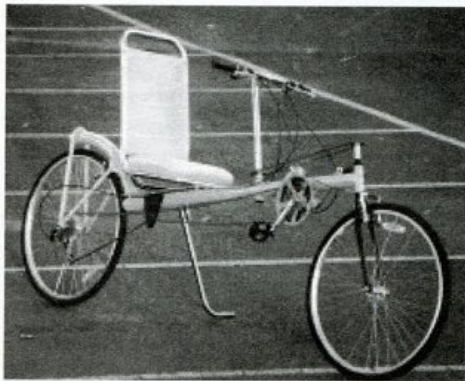
Components

48-speed/ Mid Drive 6x8 Shifting
Brakes Mechanical Disc Brakes Novatec
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New Stuff From Absolutely Recumbent



A Dual 26 LWB from Down Under

The Wilson Recumbent started life in 1997. After finding a junk kids (girls) frame, I built a SWB recumbent. My second prototype was a LWB which I have found it to be far easier to ride and is more comfortable. I also found that the average seat height was far too low to be seen and to be able to see. I found the pedals just below the seat line gave me more power and I didn't have to fight gravity. I wanted the top of the chain path to be unobstructed and not to have to go over any rollers as I found as soon as you do this, you lose power through friction.

I decided on a larger front wheel having a greater rolling radius giving you better feel and control with less friction and the ability to ride over large objects or gutters.

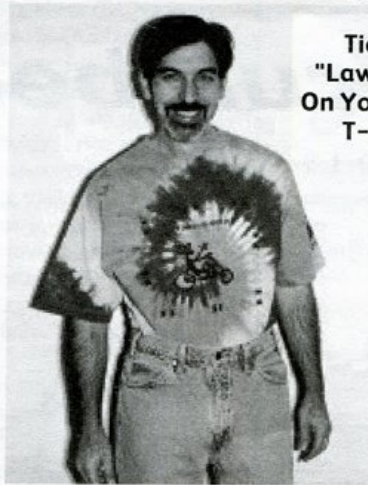
The seat is movable and accommodates riders of all sizes. The above-seat steering offers excellent control and quick access to the ground with your feet. The steering is a ratio chain mechanism.

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Fat Primo Comets introduced!

These new tires have the same tread and construction as the narrow 1.35" Comets but will be 100 psi rated 47-406mm (20x1.75") and 40-559 (26x1.5). The new Primo Comet 47-406 will probably have lower rolling resistance than the Comp Pool since all else being equal a wider tyre will have lower rolling resistance. The \$18 price is also considerably less than Comp Pools. I'm now taking orders for the wide Primo Comets. Zach Kaplan Cycles, Tel. 510-522-BENT (2368), Email: zakaplan@earthlink.net

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Graham Scardone and his Reynolds XLT Wishbone

Reynolds Road Trip

Enclosed is a photo of Graham Scardone and his Reynolds XLT Wishbone on which he just successfully completed a solo self contained ride across America. His average was 120 miles per day. Needless to say he is a very durable fellow. The day after completing his ride, I took him to the Climb to the Clouds Metric Century. I am also working on a Wishbone delta trike! Thanks for making RCN possible

George Reynolds
Reynolds Weld Lab

HP 20" tires - hidden danger

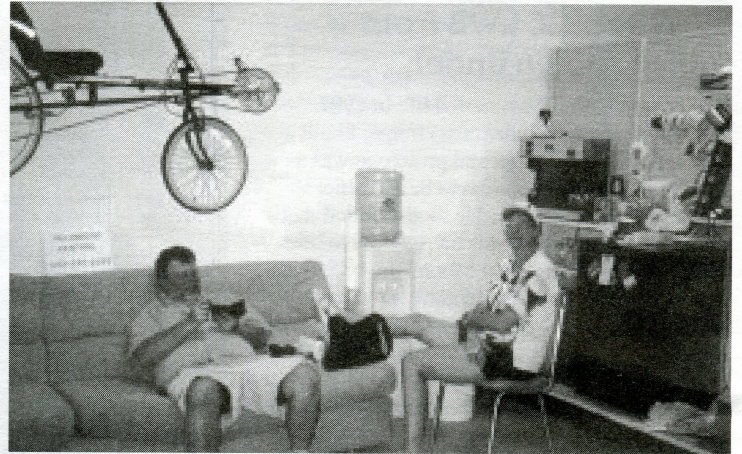
Fortunately I managed to jump to the side (away from traffic) and come to a sudden and very scary stop. After I stopped shaking and determining that I was (miraculously) not hurt I looked at the bike. The rear rim (Shimano) had blown wedging metal in my Maguras, destroying the tire, and bending the wheel. After trekking to a house, calling for help, and finally making it to Fairfield cycles (best bike shop on Vancouver Island), here's what they told me: It seems that those of us who ride a lot on HP 20-inch wheels should check our rims regularly. HP and small tire size make for a lot of rim stress. Wear can be rapid and potentially catastrophic (if I had been going my usual 60+ down that hill, I'd have been thrown directly into highway traffic). Change rims often if you ride a lot. Get BMX sport rims—very tough—thicker than stock rims and more wear resistant. I have never seen this mentioned, so perhaps a word of caution is in order?

Peter, peter000@home.com

RCN, Cheap 'bents, and the Radius C4

I particularly welcomed the test of the Radius C4. I've had the C4 in mind for a while as a possible next bike, thinking that it was probably a very nice machine, and your test confirmed this. I'm looking for a replacement for my Flevo Oke-Ja, which falls into the category of 'cheap bike' as in BJ Strass's article, though over here it does cost the equivalent of US\$700. What you can't have is something that's reliable and cheap and light, and the Oke-Ja is reliable, cheap, and heavy (and slow). It's served me well as a commuter bike for two years now with occasional forays into day rides, but with only four gears it's restricted in where it'll go, and with a load on the back it wants to do an unassisted wheelie. The C4 just might be the answer, or the Vision R32, but both of those cost a lot more than the Oke-Ja. Still, it is a lot less money than a car, and I don't have one of those.

Chris Amies
Chris.Amies@sff.net
London, England



Recumbent Central's couch!—Rich Belcastro

Shops with couches

It was funny after reading your comment in issue #56 of RCN regarding the fact that it would be nice to see a shop that has a couch, serves coffee, and provides a place to hang out and talk recumbents without worrying about a sale. Well, there is a shop in central Phoenix, AZ that has all these wonderful attributes and a few others like a bowl of bananas and a fridge as shown in the pictures. The other interesting fact about Recumbent Central is that they sell only recumbents and have the most variety in any one shop I have ever seen—I'm from Chicago and I ought to know. You can try the whole gamut of variations from ASS to USS, from SWB to LWB all in one visit. In fact I noticed they carry 9 out of the top 10 brands mentioned in this same issue of RCN. The pictures show Jim the proprietor doing some heavy duty calculations, Christine nursing her road-rash, Keith in the hat, a visitor from the east reading the latest issue of RCN, and Katie pouring some coffee.

Richard Belcastro

Kool Tips

Thought I would pass this tip on to you and fellow RCN readers . . . I recently purchased an EasyRacers Cool Back Seat for my beloved TE and it proved to be a good move. It is beautifully made and offers me much more comfort than the Cobra. Initially, I was relieved to see that EasyRacers went with a Kevlar cord tie rather than zip-ties because I considered the zip-tie treatment to be "fast and cheap". However, I'm a big guy, and have really strong legs. (30 years Martial Arts training). During rides I noticed the Cool Back seat back give quite a bit when I pushed into it for power. The Kevlar cord seemed to remain tight but I could feel the back mesh give way. This bothered me so I decided to try something. After ensuring that the Kevlar cord was as tight as it was going to get, I zip-tied the 10 holes on each side of the seat, right over the Kevlar cord, using thick, heavy-duty, black zip-ties, pulling them as tight as I could. My hunch proved correct . . . the seat is just as comfortable but the zip-tie reinforcement keeps the mesh back somewhat tauter than it was with just the Kevlar cord and I find I can push into the seat back as I used to with the Cobra, without it giving way as much as it did without the zip-ties. You had mentioned a slight performance penalty with the Cool Back and I believe this pretty much eliminates that issue. Try it and see if you don't agree. In retrospect, perhaps Gardner had the right idea and the original zip-ties were a better solution that just wasn't perceived by us consumers as a "quality" finish . . .

jzigurski@mediaone.net

Blackbent - Recumbent Barn

I recently read a paragraph in RCN regarding the Blackbent (RCN#56), and I would like to share my experience with this bike. In October of '98, I was riding my Cannondale wedgie to work in Seattle, and was taken out by a Metro bus. Apparently, as happens all too frequently with buses in Seattle, the driver just wasn't paying attention. Yes I will get on my soap box for a second. I don't jump curbs, don't run red lights; I ride as courteously as possible, not like some stupid bicycle messenger with no helmet who cuts through traffic, jumps from sidewalk to street, rides the wrong way on one-way streets, and just generally makes car drivers and bus drivers hate all bicyclists. After 6 months of a rather painful recovery (many thanks to my chiropractor, Jay Halen!), I was itching to get back in the saddle again. However, due to the nature of my injuries, it was difficult to sit on the bike seat, and I started looking for alternatives. I had seen a few funny looking bikes on the road, and started surfing the net for information on these odd things called recumbents. I didn't have a lot of money to spend, so I was looking for something inexpensive. The Recumbent Barn web site seemed to have a lot of good info, and Ray Simonds seemed to be quite knowledgeable, so I started corresponding with him via email. Ray was easy to deal with, very responsive and friendly, so I decided to buy a Blackbent from him. I figured I could get in a lot of riding during the 30-day money-back guarantee period, so what could I lose? While investigating bents, I did find RCN on the web and got a copy of it at a local bike shop, but did not see any info, good or bad, about the Blackbent (wish I would have called you). It took about a month to receive the Blackbent, and that was fine since I ordered it in early March, which isn't exactly good riding weather in Seattle, as you well know. I received the bike on Thursday, 4/15/99. When I assembled the bike, it was extremely difficult to put on the seat; the holes did not line up properly. When I finally did get the seat in place, the left handlebar would hit the side of the seat while the right handlebar would go cleanly underneath. I tried to put a few washers under the seat on the left side, but I would have needed a much longer bolt in order to make a difference. One word about the seat. UGLY. OK, a few more. UNCOMFORTABLE. Difficult to adjust or remove. There is a square cut out of the foam so you can fasten the bolts, then you have to (I guess) glue the square back in place, hoping you never have to adjust or remove the seat again. I emailed Ray asking about a cover for the seat, he said one was in the works. He said he didn't originally have one because of the extra weight it would add. I looked on his web site today, still could not find a seat cover. (He is now selling the Blackbent 3, with a mesh seat) I rode the bike for the first time a couple days later, for about an hour to get used to stopping and starting, in preparation to ride the bike to work the following day. With the exception of the left handlebar bumping into the seat on sharp turns, it seemed to be fine. Monday morning, I rode the bike a little over halfway to work, approximately 7 miles, when the chain broke. I pushed it the remaining 5 miles to work. A couple of days later, I purchased a chain tool and fixed the chain, and rode the bike home. On this ride, I was more comfortable with the balance and the overall handling of the bike, and therefore was able to notice other things that I hadn't previously perceived. For instance, there was a loud clicking sound coming from the chain idler. The bolt was so loose that it was almost ready to fall out. When I tightened the bolt, it was a very snug fit and required some effort to get it to turn. I realized that it could not have vibrated loose in that short of a period of time, it was never tight in the first place. Also, I noticed that every time my left leg pushed forward on the pedal, my leg would touch the left handlebar, reminding me that the seat did not fit properly.

A couple weeks later, I went on a short ride around Lake Sammamish with a few friends. After riding about 20 minutes, I heard a rattling sound while pedaling up a small hill. I stopped at the top of the hill and could not find the cause of the sound, so I continued on. On the downhill and flat part of the road, there was no more rattling, but every time I went up a hill, the noise would return. I had a friend ride behind me to see if he could figure out the sound, and he noticed it right away. The bolt that held the left seat-stay in place was missing, it must have vibrated loose. So every time I leaned against the seat while pushing on the pedals, the bar would be rattling in the spokes. Luckily we were right next to a hardware store and I was able to get a bolt and nut to fit the hole. At the end of the ride, I noticed that the lower left side of my back felt stiff, and I know it was because I was sitting at an angle due to the seat leaning to the left. I tried to adjust the seat when I got home, but it proved to be quite an endeavor. I gave up. Another thing I didn't like is that there is no place on the bike to put a water bottle. Sure, I could somehow fasten a bracket to the seat, but I



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didn't want to have to make any modifications. I spent a few days looking at other bents, found a good deal on a Vision, and decided to take Ray up on his 30-day money-back guarantee. I boxed up the Blackbent, and sent an email to Ray, describing everything I wrote above, and he had UPS come pick up the bike. I received my refund a couple weeks later. If anyone is considering the purchase of a Blackbent, take it for what it's worth: cheap, no-name components and a bad seat. For just a little more money you can get a lot more bike. I've put over 2,200 miles on my Vision since last May and have no major complaints. I have experienced minor circulation problems in my feet after long rides (Ed. Note: See "Numb Feet" RCN#58 page 44), but it is nothing I can't live with for now (trying to talk my girlfriend into a recumbent tandem).

Jeffrey A. Cunningham, JCunningham@activevoice.com

EZ1 Kudos

Tom Beuligmann sure hit the nail on the head with his article on the EZ1-SC. I previously had a TE but when I moved to an apartment I got tired of fighting the elevator and sold it. Bought a Tailwind which was OK but missed the TE-look, feel, and the low BB. When I got tired my feet kept falling out of the strapped pedals. Sold the Tailwind and ordered the EZ1-SC from Gardner. It's not a TE but it sure is one fine little bike. I'm very happy with it. It feels like a small TE. Viva Easy Racers.

RC Wild

Rcwildw6rcw@aol.com

Quick service

I received the magazines yesterday. Thank you for the quick turnaround. I've read 2 already and can see that you don't seem to hold back on opinions. Good for all of us! I have become so disillusioned by auto magazine reviews stating some new crap car is the car of the year. One just can't trust the review. I also appreciate your letter section railing you over the coals for some opinion. It's so refreshing reading both sides. Thanks for such an enlightening magazine.

Randy Olin

r_olin@email.msn.com

Australian RCN

I've been interested in recumbents since the early 80's when I read an article in "Arizona Highways" about a bloke touring on a recumbent. This

was in my chiropractor's waiting room here in Australia. Since then I have been following recumbents. I got an early brochure from Rans but due to circumstances I was unable to fulfill my dream of having a recumbent. Even without having ever ridden one. I moved to Canberra and started cycling again but still looking at the recumbents. Then I went to a couple of OZHPV challenges and rode some. That was it I had to work towards getting one. Just recently I subscribed to RCN so I could learn more before making a purchase, and I must say RCN is about the only recumbent magazine of its kind over here. I've just put a bike E AT on layby and cannot wait to start riding it to work. Why a BikeE? It seems to be the yardstick by which most recumbents are measured and after riding it I can see why. Your magazine gives the reader the warts and all of reviews that is refreshingly different from all the glossy mags crediting the reader with some amount of brains to make an intelligent decision as to the suitability of bents for that person. I look forward to further issues especially if there could be ones on technique, (pedaling, set-ups, cornering, and the like) that would make me an even more efficient cyclist. Keep up the great work and all the best to those who regularly contribute to RCN. It works for me.

Grant, gt@trendsetting.com.au

My butt has wheels

I thought you'd like this comment from a customer of ours: "Still, I really liked the Linear—it was the perfect size for me, and the underseat steering was so easy. As I said, if my butt had wheels, this is how it would ride!" Isn't that every designer's goal?

Peter Stull

peter@bicycleman.com

SWB Blues

There were tears of joy when I was able to get on and ride my beloved mountain bike the one mile down to our little town and back. A good bit of pain, too. But my knee does work.

As an aging cyclist with aches and pains I thought recumbents were a good idea, but being way out in the country, I had no way to try them out first, so this summer I bought a SWB USS recumbent over the phone. However, after a week and a half of very conservative testing and learning, as I was gently coasting down a street the thing threw me like it was an evil natured horse, and I sustained a terrific knee and leg injury.

Now that I understand some things about "the state of recumbency," I can tell you why it happened. But first I want to say that I now believe that ALL SWB recumbents may be unsafe. Hear me out, and then the rest of you more knowledgeable folks tell me if I'm wrong.

To begin with, the reason recumbents in general are harder to balance is that they are lower to the ground. Recumbents and uprights alike are both balanced the same way, if you detect a lean, you steer into it with the handlebars until it is corrected. You don't lean your weight around, this is a false impression some folks have. But on an upright, your weight is farther up. If you've ever tried to balance a stick vertically on the end of your finger, you'll understand what I mean. The longer the stick, the easier it is to do it. If the stick has a weight at the top, it's even easier. Being lower down makes the recumbents harder to balance. Also, when you're riding an upright, your eyes and inner ear balance mechanism are about 6' off the ground, exactly where they are when you're walking, you're balancing at the height God designed you for. Try balancing on one foot standing fully erect. No problem, huh? Now try the same thing squatting on one foot. Can't do it, can you?

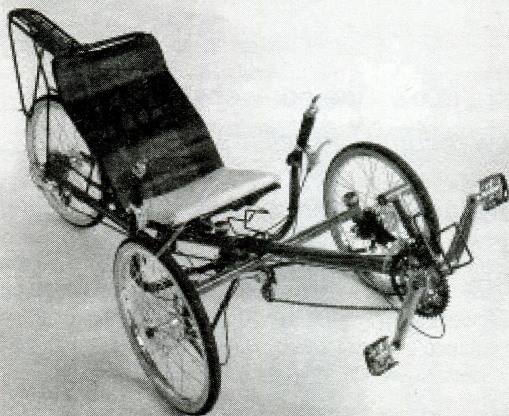
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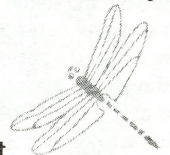


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And on an upright, the bike is firmly connected to your backside on the seat, and your feet on the pedals. You have leverage to control it so that your weight and the bike stay in the same plane. On the recumbent your backside is on the seat, but your feet are stuck out in front, and the only thing that keeps your weight in line with the bike is your back against the back of the seat. Do not change positions or lean forward under any circumstances or that bike is free to go where ever it wants without your input. Your backside on the seat then becomes a hinge.

And that's exactly what happened to me. As I was coasting down the street well under 10 mph, my back was sweaty, so I thought I'd just lean forward for a moment to let it cool. As soon as I did, that 16" front wheel started to shimmy and I couldn't control it, the bike was actually flopping back and forth under me. The front wheel caught, and I went over the front. It threw me hard into rough pavement I landed on my left hand and right knee. The bike flew over me and bounced a couple of times into the ditch. My hand was chewed up and my knee quickly started to look like a balloon.

Now that it's happened, there are a couple of things that I am sure glad I didn't have. One is above-seat steering. If there would have been some sort of handlebars in front of me, I'd have gotten tangled up with the bike, and it would have been much worse. Another is clipless pedals, there's no way you can get your feet off them quickly when things are out of control. Unlike in an automobile, if you're going to have an accident, you want to fly off the bike, not stay attached to it. You'll get hurt less that way.

The reason I went over the front is because of the short-wheelbase. That tiny little wheel is right under you in front. If you grab the brakes hard or hit something small in the road, you risk going over the front. What I am saying here is that LWB may be safer. I don't know, not having ridden one, but they look like they should be safer. Look at some pictures in the magazine. Some of those SWB recumbents have the rider's weight so high up and so far forward, that the manufacturer is looking for trouble (in my opinion).

My recumbent had very touchy handling. I know from reading RCN that most, if not all SWB are "quick." I think that you recumbent manufacturers need to watch out. I'd be afraid to ride one very fast, and I hope one of you doesn't have someone killed while riding one of your bikes on a fast descent.

There is a happy ending. My wife had been riding a recumbent too, but thankfully it happened to me and not her. My dealer proved to be an honest man and I was able to return my bike for a full refund. I can also walk again. And even ride my mountain bike. And it's taught me to appreciate small things like actually being healthy enough to ride a bike, even if my backside gets a little sore. Thank you for hearing me out.

Chris Foss

Performance

Some months ago I asked about the advantage of putting Continental Grand Prix tires on my 1999 Stratus, in hopes of making it faster. Well I'm finally getting back to you with the results.

The Continentals feel more responsive than the stock Primo's. The ride is firmer and the bike does seem to accelerate a bit faster. The average speed did increase by about .25 mph. I had expected more. My average speed is 14 mph. The terrain here is perfectly flat, so I couldn't do any coast down comparison's. The V-Rex is 1 mph, average speed, faster than the Stratus, 15 vs 14. The V-Rex has a home-built Lexan front fairing (designed by the Chicago rider group. I believe Warren Beaucamp). It has an Avocet Fast Grip City 1.5 on the rear, and an IRC Roadlite 451 on front. It has a Ballistic shock and 170mm cranks. This bike is HEAVY, but it is faster than the Stratus, which has far better equipment. I've sidelined the Stratus when I ride with my upright roadie friends, because it is too slow. I guess there is more to a fast bike than tires and components. I really don't know why the V-Rex should be faster than the Stratus. I'm considering selling both bikes in order to purchase something faster. What is your opinion of the overpriced P-38, which would give me the option of the F-40 fairing?

Thanks,

Steve Galovics, galovic@exis.net

Editor Comments: I have never ridden an F40, though Zach Kaplan tested one for RCN back in issue #24. We haven't had a P-38 test bike in years. The F40 is said to be very fast. You may also want to look into the lowracer scene if you feel comfortable riding such a low bike on the streets. We hope to have more lowracer coverage in 2001 (this is a call to readers who own lowracers to write about them).

Tour Training

My oldest son and I are seriously talking about doing a cross country trip during the summer of 2002. Having just done the Lancaster Covered Bridge Metric Century (an absolutely great ride) this past Sunday, I realized that I need to do a major overhaul of my leg strength. Everybody passed me—especially on the hills. I ride a Tour Easy.

I know your first answer to leg strength is just to ride, but, do any of your past issues address this problem? Are there specific leg training exercises that can be done in a gym? Any suggestions on this are greatly appreciated. Thanks for a great mag. You and adventure cycling are the only ones I read cover to cover.

Kurt Eisentraut, eistraut@erols.com

Editor Comments: I outlined my own tour training in early 1997 RCN issues and wrote about it in RCN#42 Slumgullian issue. This article is at our website, as well as a climbing article by Ron Bobb (Easy Racer rider). For me, I rode 200 miles per week, 1/2 on a recumbent stationary trainer doing interval training and the other 1/2 road miles rain or shine. I looked for steep hills to climb. The stationary recumbent training seemed to work best for my aerobic, hill climbing and endurance training needs. Also, at this level of riding, I had no weight problem.

I'll make a few Easy Racer-specific recommendations: If your bike has a 451mm skinny front wheel, change to a 406mm. If your bike has high/performance gearing, opt for the lower EX style gearing and make sure that your rear wheel has a strong fat tire. □

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The Rans Velocity Squared

Impressions of the new Rans LWB

by Todd Bettenhausen, tbhausen@home.com

Additional Commentary from Wally Kielher and Bob Bryant

The new RANS Velocity Squared (hereafter V2) has been a long time coming. After two years of rumors, trade show appearances, sale of prototypes to a few eager riders, and even a place in RANS' '99 catalog, the production version is finally here in spring of 2000. RANS' 2000 catalog pulls no punches about what this 'bent was designed to do, boldly proclaiming "Take a look at the fastest bike you may ever own." Does it measure up to the hype and anticipation? What follows is my personal opinion about this new and interesting machine, based upon my first two weeks' ownership and riding experience.

After being on my dealer's (Valley Bikes, Crawfordsville, IN) waiting list for over a year, I must admit to being a bit disappointed when I saw the final production spec on RANS' website. After wild rumors of aluminum, titanium, hydraulic disc brakes, interchangeable wheelsets, special seats for increased power transmission, carbon forks, etc.—and knowing that RANS' internal codename for the project was "Gold Rush Killer"—what ultimately emerged was a V-Rex/Stratus spec machine with a new frame and fairing/mounts.

Perhaps the recent departures of both John Schlitter and Howard Harmer put RANS a bit behind at the outset of this season. It's well known that they delayed their 2000 model updates until 2001. In light of this, we may be fortunate to have the V2 at all. It also seems sensible to spec the SRAM/Shimano 105 groupo mix common on the other RANS 26/20 models. In addition, the retail price dropped over \$700 from the vaporware catalog offering of '99 to the final production version—despite the addition of the fairing/mounts!

I. SYSTEMS

Frame/Fork

The V2 frame is fairly unique among production LWB 'bents. Built in Hays, KS from TIG-welded 4130 chrome moly, RANS seems to have employed the minimum amount of tubing required (unless one considers monotube designs such as the Rotator Pursuit...) in its construction. A 2" main tube connects the top of the headtube to the seatstays, and carries the bottom bracket shell and seatbase rail. The chainstays are actually longerons which connect the bottom of the headtube to the rear dropouts. A small laterally-oriented triangle of brace tubes stiffens the structure where the seat tube would normally be found on a wedge. The overall appearance is elegant and uncluttered, yet aggressive.

Anyone who has inspected a Kansas-built RANS frame of recent vintage will know exactly what to expect in terms of workmanship and finish quality here. Welds are artistic, and the Benz Silver paint is lustrous and attractive. RANS still chooses not to clearcoat over their decals—be careful with that workstand! A welcome change here is that the seatbase rail is now bolted, rather than riveted, in place (as on past models). This makes replacement/frame refinishing a bit more convenient. The rear dropouts carry the familiar laser-cut RANS "R"—a nice touch. Cable braze-ons are typically well-placed; the runs are very tidy. Note: I've heard that RANS will incorporate the 2" main tube on other selected models sometime in the future. They apparently can use a thinner-walled tube, increasing rigidity with no weight penalty.

The V2 fork appears to be identical to that found on the Stratus. It has plenty of clearance for a fender/wider tire, and dropout eyelets front and rear. It is also fitted with a rack boss on each leg. Although I believe it to be imported, quality is excellent—right on par with the frame itself. This has proven to be true of RANS' entirely imported framesets, as well.

Weight

RANS lists the V2 at 33 pounds with the fairing and mounts. I have yet to verify this for myself. It's certainly heavier than a similarly equipped Gold Rush (about 28 pounds). Keep in mind, however, that once a rider and typical gear are added, the percentage of weight difference decreases

dramatically (the bike itself is only about 1/8th of the total weight of the roadgoing package).

Bob Bryant Comments: *Our V2 was rather heavy. The RCN scale showed nearly 33 pounds without a fairing (adds about another two pounds).*

Drivetrain/Shifting

RANS equips the V2 with Shimano 105 components up front and SRAM Grip Shift ESP 9.0-9 out back. This package is tried-and-true, as it was spec'd on the '99 26/20 models. A pleasant surprise here is the new style SRAM rear derailleur—it employs a slick appendage to route the cable entry (a bit like an Avid Rollamajig without a roller). The 52/42/30 crankset and 11/32 cassette yield a range of 23-116 gear-inches. Some will proclaim it not low enough for their local terrain; others will spin out too easily. Thus, it will probably prove to be a decent compromise. A bit of a disappointment here, and my only real complaint with this otherwise excellent drivetrain, is the KMC Z9000 chain.

Keeping the normal nine-speed caveats in mind (yes, they are a bit trickier to adjust and maintain), the shifting performance is about as good as it gets. In particular, front shifting is quick and crisp. The front shifter has ratcheting detents which allow precise fine-tuning of the cage's position.

Another unique (for RANS) and perhaps undesirable feature of the driveline is the large top chainline idler. I read a post on alt.rec.bicycles.recumbent wherein a prospective buyer disqualified the V2 for this reason alone, claiming the deflection imparted by the idler (necessary to clear the seatbase at its extreme forward position) imparts too much inefficiency for a high-performance machine like this. This makes me wonder how most trikes and lowracers can perform so well. Indeed I notice a steady buzz (not too objectionable) while spinning along, but I can't claim to feel any loss of performance (more on this later).

Bob Bryant Comments: *Rans chain management is not as ideal as we'd like. Due to the frame design, most of their designs require an upper chain idler. The idea is to keep the chain off the stays and frame. On the V2, the angle is fairly extreme. A new larger diameter upper idler works well and quiets the chain down a bit. There is some drivetrain noise or vibration when in the inside cogs (gears 1 and 2 on inner and middle chainring).*

Wally Kielher Comments: *I personally have enjoyed the large chainline idlers. They look like they came from a high quality skateboard. They were much quieter than my plastic, non-bearing, idlers on my Lightning P-38.*

Component Quality

As stated earlier, this mix of SRAM and Shimano is tried-and-true. This is about the highest-end component set you'll find at this price point (short of a bikeE NX 5.0). Unlike the NX, most dealers will carry spares and be familiar with exactly how to adjust and maintain its conventional driveline and brakes (my NX has proven to be an excellent and reliable machine over my first season of ownership). Other than the KMC chain, I have no complaints whatsoever.

Wheels/Tires

The wheelset is nice but not exceptional. Shimano LX hubs are laced to Alex DA16 satin anodized rims shod with Primo tires. The front is a 406mm wheel and 20x1.35 Comet; the rear is a 559mm wheel and 26x1.25 Racer. The wheels have a fairly deep-vee aero cross section, and the spoke holes are alternately offset (which results in a nicer build wherein the spokes don't interfere with one another as much as some others I've seen with all the spoke holes on the rim centerline—especially on the 406's). There's plenty of room front and rear for wider wheels and tires. Many may opt to do this (Zach, I know you're out there).

Wally Kiehler comments: My V2 came with both carbon fiber fenders. The front 20" fender fits quite well. The rear 26" fender does not seem to have been curved properly to fit a 26" wheel. It looks like it may have been made for a larger wheel. This is a cosmetic problem and the fender works just fine.

Braking

The SRAM ESP 9.0 "composite" levers and matching V-brakes perform well. A panic grab on the rear lever produces a slight lockup or maximum-deceleration "on the verge of lockup" stop. I can feel a bit of flex at the stays during hard application of the rear brake—those desiring more power should consider a booster. The more lightly-loaded front wheel is easier to lock. This is pretty typical of LWB designs. These ESP brakes feature the notorious red quick-release attachment. I haven't broken one yet, but a friend of mine who owns a new V-Rex has...

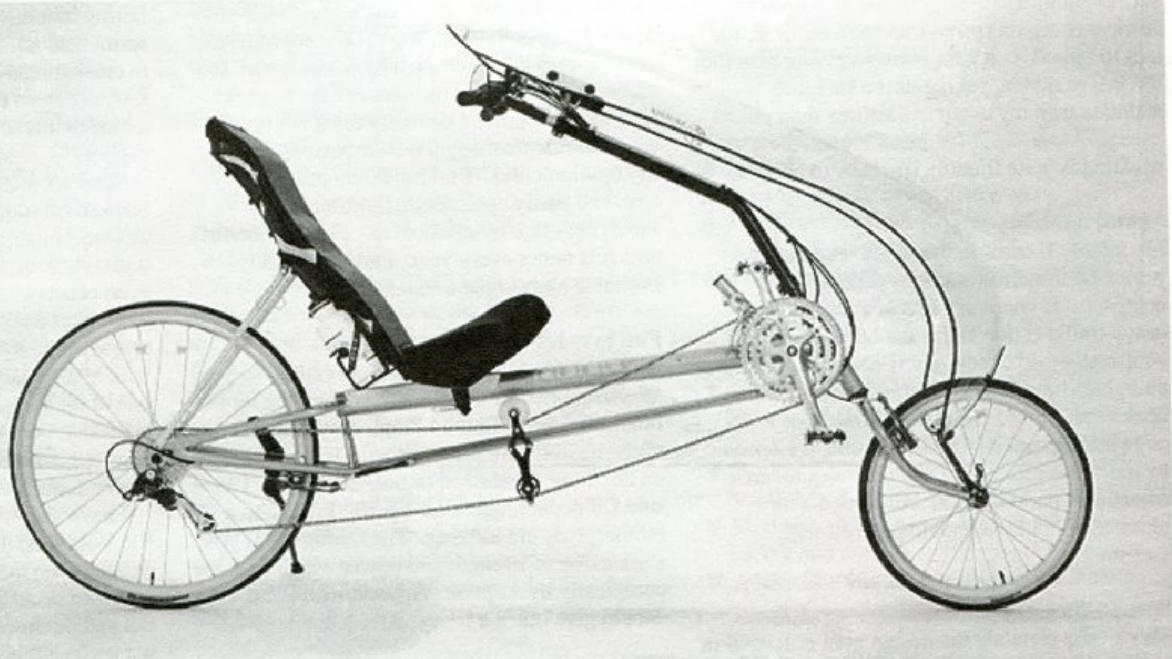
II. COMFORT/ERGONOMICS/FIT

Anyone who's been on a Rocket, V-Rex, or Vivo will feel instantly at home aboard the V2. The relationship between seat and bottom bracket is quite similar, although the controls are a bit more distant. The seat and BB are approximately four inches lower than their SWB brethren.

The seat reclines past 45 degrees—"recumbent butt" will rear its ugly head (rear?) for few, if any, riders of this machine. RANS has again refined the seat for 2000. The foam base is a bit more "cupped" and is perforated with ventilation holes. The base cover is thicker and grippier. The top corners of the mesh back have been reinforced with fabric gussets at these high-wear areas. The angle between the backrest and base has been closed-up about 10 degrees (by my eye). This provides a "cradling" sensation—one of actually sitting in, rather than on, the V2. RANS' online spec initially promised a "new mounting system"—this failed to materialize on my bike (production #46). I've had no slippage or other problems with the "old" setup. The one-piece aluminum frame is a very slick bit of engineering.

The OSS controls reside on a T-bar similar to other RANS LWB/MWB. The usual amount of flex is present, but one quickly gets used to it and it becomes a non-issue. The offset riser imparts the "tiller effect" seen on the Wave/Tailwind/Gliss. Swinging those bars about to maintain low-speed balance requires a slight adjustment period, but again becomes second-nature. Ergonomic fine-tuning takes patience; more on this later as well.

Finally, we come to the most notable and perhaps controversial ergonomic characteristic of this bike—the bottom bracket location. Relative to the seat, it's not extremely high (similar to the Rocket, V-Rex, or Vivo). Relative to the pavement, it's much lower than these three machines. The elimination of heel strike is a bonus. But, compared to an Easy Racer or



Stratus, it may indeed become an issue for some riders. I've read several newsgroup reports of foot or toe numbness on these "not so extreme" machines—this is something each rider will have to learn for him or herself (hopefully, not the hard way, after plunking down a wad of cash...). "Ride as much as possible before you buy" is the watchword here.

I was initially concerned about the lack of suspension on this "bent (my previous two bikes both had rear suspension). On the road, the long frame and 26" rear wheel, along with that excellent seatbase, seem to do a great job absorbing road shocks (anything short of a pothole, anyhow). The lightly-loaded front, combined with the dampening of the T-bars, seems to get the job done up there, as well. I feel no vibration or shock-induced fatigue aboard this bike—a pleasant discovery!

Fit of this frame is a bit peculiar. The V2 comes in two sizes only, 35" and 40" I am 5'10" with a 43" x-seam (measured with a 10 degree inclined backrest). I own the smaller of the two sizes. My seat has approximately three inches of rearward travel remaining now that I've dialed it in. This would seem to place riders in the 6'-6'2" range "between" sizes. Riders taller than I or with longer x-seams should select their frame size very carefully; some may need to shorten the sprint braces to get adequate recline on the 35" frame (be careful of rearward weight bias, though). My braces are adjusted to the second position short of the maximum recline available in stock form.

Bob Bryant Comments: *The V2 comes in just two sizes. Regular and large. The problem is that with the regular size frame, my seat was nearly all of the way back (one inch from the rear wheel), yet I could ride it. However, I would prefer a bike that 'fit' my six-foot-tall (44.5" x-seam) bod better. RANS sizing seems to punish 6' +/- riders.*

Wally Kiehler comments: *I love the Rans seat. It is everything that I have read and heard about. It is much more comfortable than my P-38 mesh seat. The seat can be easily adjusted forward and backward several inches (no sliding boom to*

deal with) and it can be tilted to 10 different positions.

The Rans "T-Bar" took some getting used to for me. The T-Bar is longer and more flexible than my P-38. I am not able to "pull" on the T-Bar at all. I also rode tested a Tour Easy and noticed a more desirable stiffer handle bar system.

I enjoy the higher bottom bracket on the V2. It was one of the main reasons for purchasing the bike. I rode the National 24-Hour Marathon here in Michigan and never experienced any foot numbness.

The V2 was advertised as having a "stiff" frame. However, I found it to have a softer ride than my SWB P-38. The wheel base is 20 inches longer and the Rans seat provides more cushioning.

III. RIDE/HANDLING

Stability

Most LWB are inherently stable, and the V2 is no exception. The T-bar effectively slows the steering down near center, making fine corrections fluid and precise while travelling at high speed. In fact, I was quite astonished to note a speed of 44.2mph on my very carefully calibrated computer during a long but gradual descent on my first ride. The ride was so quiet and stable (I was by then coasting) that I felt more like I was on a sportbike than a bicycle!

Low-speed stability is a bit of another story. Though not difficult, the V2 is markedly less stable (especially during climbing) than the two compacts I've previously owned. A lot of "chasing" (T-bar swinging noted earlier) is required to maintain balance. I've nearly gotten into trouble climbing beside other riders on a couple of occasions, though I'm improving.

Wally Kiehler comments: *I enjoy the more stable ride of a LWB, especially on fast downhill. The 20" front wheel also makes me feel much more secure than when riding the P-38 with only a 16" front wheel.*

Tracking

I'm not ready to try the V2 hands-off anytime soon. I can't hold a tight line one-handed quite

yet. In summary, the faster you go, the more stable this bike becomes (but the more it would hurt to fall off!). It's far more forgiving than the SWB I've ridden, yet requires a bit more attention than my compacts at "less than gonzo speeds." As a "built for speed" 'bent, the handling is quite friendly and easy to adapt to.

Maneuverability

My initial "U-turns in the street" experiments were a bit disconcerting after owning two compacts. If you don't ride or commute in heavy traffic (I don't) this isn't a huge issue in your real-world conditions. Whether commuting on lightly-travelled urban streets or out on the open road, I find I can now put this bike anywhere I point it. The lateral distance covered by the "tiller-effected" T-bar does require an adjustment period. Those concerned with ultimate nimbleness should proceed with caution.

Speed/Efficiency

This area is certainly the design goal of RANS in building the V2. Top idler deflection aside, I am simply blown away by the increase in performance I've realized since buying this bike. My first club ride (Flyin' Joes at Valley Bikes in Crawfordsville, IN) covered 36 miles of varied terrain and found me a solid third-fastest of the 14 riders present. I'll admit I'm not in great cycling condition—I'm carrying that extra 15 pounds and didn't do much over the winter. Plus, my longest ride of the season up to that point had been a mere seven miles. The ones who outran me (a beast of a mountain bike racer on a V-Rex XL, and a very strong rider on a Linear USS LWB tricked-out with fairing and Aerospoke wheels) dropped me fairly easily (not a surprise to me at all). What did surprise me was watching the other 11 fading in my mirror. I didn't work all that hard (a bit relaxed, even...) and could easily maintain 22mph cruising on the flats.

The Mueller Windwrap fairing is superbly finished and has a great, futuristic shape. It provides excellent coverage of the feet, as it extends quite low and "wraps" around the bottom bracket center (as viewed from the side). RANS' mounts are clean and simple—more on setting them up later.

Being my first experience with a fairing, I was thrilled with how it neutralized a headwind so effectively. When one of my buddies growled "headwinds suck!" I had to suppress a smile. Keeping tabs on nearing road hazards through the inherent distortions of the fairing was a bit unnerving at first (they pass behind the fairing perimeter a couple hundred feet out ahead)—like all unique aspects of this bicycle, I'm getting used to that. It's even helped to make me a more heads-up (looking ahead) cyclist. Now, if my brother will just quit calling me "the boy in the plastic bubble"...

Wally Kiehler comments: I have ridden both the P-38 and the V2 at our annual Michigan Human Powered Association competitions. The V2 with front fairing is about 10% slower than my P-38 with front fairing in the 200 foot sprints. The "hill climbing" was also slower on the V2 probably due to the increased vehicle weight (the P-38 weighs 25# stripped down).

User Friendliness

The V2 was built to go fast. The compromises noted earlier were accepted by its designers, to that end. This is an easy bike to ride, but not as easy as a compact. I certainly think it's worlds easier to ride than any SWB (especially USS—my opinion only). Braking is smooth, squeal-free, and easily controlled. Shifting is a satisfying click-by-click affair. That wonderful seat gets better every year. Parts are readily available and simple to maintain.

Fun to ride?

Oh yes—if you like to go fast, this could be your affordable Ferrari. The faster you go, the more fun it becomes. That 44.2mph downhill was one of the most exhilarating sensations I've ever felt on anything, motorized or not. Next time, I'm sure I'll pedal longer and top 50. It felt like a motorcycle—no kidding. The fairing gives you a sensation of strength and power which took me completely by surprise. Anyone with LWB should give one a try.

IV. OWNING/PURCHASING

Versatility

No, it isn't the best commuter and it isn't as fast as a lowracer (wish I had a Gold Rush to compare it to). What it does do well is go fast, with a very minimal learning curve. I do commute on it with no reservations whatsoever, but I don't maneuver in heavy traffic. Luckily, I don't race lowracers, (or anyone else, for that matter) either. If you want a bike that will give you a great boost in performance but be versatile enough for nearly every purpose, I can wholly recommend the V2. The tires aren't suitable for gnarly roads, but are a decent choice considering the V2's mission. I plan to try Schwalbe's new Marathons as a tradeoff between performance and durability.

Shipping/Assembly

RANS requires their bikes be professionally (dealer) assembled to validate their warranty. I requested my dealer leave the fairing setup up to me. I would recommend any prospective buyer who has that opportunity do so, as well. The upper fairing mount has two T-mounts which can be adjusted (telescoped) to your desired width. Once set, a hole must be drilled and tapped to secure them. If these mounts should be set too narrow, the middle of the fairing will bulge up into your line of sight (taller riders will want them narrower). If set too wide, the fairing could be damaged by the upper mount pads. Take plenty of time dialing-in your ergonomics before mounting that fairing—I feel this is the best way to get things just right. I had to set these mounts nearly as wide as possible—riders shorter than I am could have a problem getting the fairing low enough). Somehow, I can't seem to keep these mounts from rattling (very annoying), despite the use of Loctite on the screws. I may eventually rosette-weld them together at the screw hole. I have received a report (thank you to Ric Williams) that RANS suggests silicone sealant be applied to the T-mounts (inner tubes) prior to assembly, and that cured the rattles in his experience.

The threaded dropout eyelets for the lower fairing mounts, fenders, and sprint braces were loaded with paint on my V2. I had to carefully tap (M5) these areas prior to installing the lower

fairing mounts (my dealer did fine with the sprint braces). Use caution here; it could be easy to cross-thread a fastener if you get impatient. I've also been told the waterbottle screws can be a bear to thread into the seat frame—again, be patient.

Another nitpick is that RANS seems to have masked off too much of their T-bar and fairing T-mounts before painting. Most will expose unfinished aluminum on these parts after setup (I even observed this in a promotional photo). I work next door to a powdercoater, and thus had an easy remedy. My bike came out of its carton with a fairly large gouge (bare metal exposed) in one of the longerons—not such a big deal, as bikes that get ridden get scratched (and this one begs to be ridden). Well-matched touch-up paint can be found at any auto parts store.

I have also received a report (again thanks to Ric Williams) that the chain may interfere slightly with the seat mounting bracket. This seems to occur when the seat is well back on its rail and the lowest two gears are utilized. I had not noticed this, but Ric reports that RANS is looking at the issue.

Bob Bryant Comments: The Mueller fairing is longer, taller, deeper and has a more bulbous look than the Zip Super Zipper (designed specifically for the Easy Racer Tour Easy). The Mueller bubble was adapted to fit the V2. The mounts require drilling to fit (come with a drill bit) and is more complex than other similar fairings. Wally Kiehler has reported some problems with the mounts that he and Rans are working through.

Transportability/Storage

All the LWB headaches apply here. You will need long (tandem) rails if you cartop your bike. It's a bit long for carrying on a rear (trunk-mount) rack. It's too long to go in anything but a van; even a shortbed pickup may not be enough. We ended up converting an aluminum Triton ATV trailer to carry four bents (by adding fork mounts and Yakima wheel trays to its plywood bed). I carry my bike up/down a long flight of stairs at my office—it's a lot tougher than my compacts were. I'm still paranoid about bashing that nice fairing into things (getting through the entryway at my office requires deliberate maneuvering). I had to clear out a bigger place in my garage (catch-all?) for it. This has all been said before...

Quality/Durability

RANS seems to have a great reputation in both of these areas. This bike seems pretty bullet-proof to me. I've heard plenty of stories about how RANS stands behind its products (frames). A couple of the first Vivo's had rear shock mounts which were cracking; RANS replaced their owners' frames with the updated design. I don't have any reservations about this being the first year for a new model because prototypes have been in the field for a couple of seasons now. Finish and preassembly quality are equal or superior to any production 'bent I've seen firsthand.

Cost/Depreciation

The laws of supply and demand conspire to protect V2 owners, at least in the short term. Frankly, domestic RANS models have been hard

come by the last few seasons. If RANS should choose to update (aluminum, titanium, hydraulic brakes, and the other rumors mentioned earlier), or move production overseas and find a way to lower the price (or a combination of both), that situation could change. The best summary I can provide is that I feel I got more than my money's worth.

V. MY ANALYSIS

Value

I feel the V2 represents a sweetspot in high-performance recumbency. Where else can you get a bike with this great component spec and fairing/mounts for under \$2K? The V2 is only about \$200 more than a Stratus with fairing and mounts added. The buyer may save \$150 by deleting the fairing and mounts (why anyone would even consider this is beyond me), which makes the fairing a great bargain. Many bikes with inferior component spec and no fairing cost as much or more than the V2.

Market Competition

I often see the V2 compared to the Gold Rush. This isn't quite apples-to-apples (cost wise). I feel it would be more appropriate to compare the V2 to the Tour Easy (the TE is about \$100 more than the V2 when equipped with a fairing). I have no direct experience with any of Easy Racers' highly-regarded products. The Longbikes Slipstream and Rotator Pursuit are similarly configured—I have no experience with these, either. I'm certain there are others.

Additional Notes

Ergonomic dial-in takes patience. The T-bars tend to swing downwards during sharp cornering. You will have to adjust carefully to avoid knee-to-thumb contact at low speeds. This resulted in my bars being a bit higher than I would have liked otherwise.

After my first 25 continuous miles in the saddle, I did experience very minor numbness in the smallest two toes of my left foot. A five minute walk and a bottle of Gatorade completely eliminated these symptoms for the remaining 11 miles of that ride (I was wearing stiff cycling shoes, but not clipped-in most of the ride—I have dual sided pedals). I don't find this discouraging as this was my first long ride on the V2. I felt no tendency for my feet to fall off the pedals due to the higher BB placement. The multiple segments of the T-bar system can be tricky to align. I've found that by putting the bike on a rack (fork mount and wheel tray), then working from the bottom up, this can be done much more easily and accurately.

Verdict

I like this bike—I like it a lot! I'll stop short of saying it's made a hero out of me performance-wise. What I will say is that it's placed me much closer to the front of the pack—even when not pushing it. I honestly had no idea that a bike could make such a difference. Before the V2, I would have told you the performance equation was 15% bike, 85% rider. I've rethought that. Now I'd estimate 35% bike, 65% rider. No, the V2 isn't the only 'bent that will tip the scales in your favor in this manner—it's just the only such 'bent I've ever been on. And I've found it to be a revelation.

Bob Bryant Comments: *The V2 is the newest LWB ASS performance machine in the recumbent world. The V2 is a great addition to the performance LWB market. The V2 will appeal to those who've wanted to try the stability, performance and high speed handling that a LWB can offer, but do not want the erect upright seating position or low bottom bracket. With its V-Rex-like riding position, it could be dubbed "a SWB riders LWB."*

Is it a Gold Rush Killer? I think not (at least in this incarnation). Think of the V2 as competition for the Tour Easy SS. It is heavier than a Gold Rush, though it is a bargain in contrast (\$1000+ less expensive). It would be next to impossible to achieve the Easy Racer refinement in the handling/finesse department with a new product, though the V2 is no slouch. Think of the V2 as a high performance LWB OSS bike with a more laid back configuration. If and when Rans comes out with their rumored aluminum-framed, super-spec'ed model, we'll take another look-see at this Gold Rush Killer.

Wally Kiehler comments: *I had waited 2 years to get the chance to try the V2. It is a well built bike that is very comfortable to ride. It is not as fast as my P-38—but costs \$700 less. Rans is a very good company to deal with. My V2 was not set up by a dealer and I am not a mechanic. I put it together myself easily. Rans has been quick to send me missing or damaged parts that I have requested. Dealing with them has been a pleasure.*

About the Author

Todd Bettenhausen (tbhausen@home.com) resides in Indianapolis, Indiana. He is self-employed as a CAD professional specializing in the design of cases and trays used to organize, store, and sterilize medical and dental equipment such as instrument and implant sets. He is single, and enjoys photo and videography, sailing, and guitar. He and his brother, Cary, are building a four-passenger composite aircraft. His grandfather Tony, uncles Tony and Merle, and father Gary all competed in the Indianapolis 500 and many other major auto races between the late-forties and mid-nineties. He rides with the Flyin' Joes, a growing enthusiast group formed by David and Teresa Doty of Valley Bikes (Crawfordsville, IN). More information about Valley Bikes and the Flyin' Joes can be found at www.valleybikes.com

Wally Kiehler (WKiehler@Aol.Com) calls himself a "recreational" cyclist who enjoys speed and long distance touring. He is the current president of the MHPVA (Michigan Human Powered Vehicle Association) and has been riding recumbents since 1992.

VI. RATING/SUMMARY

Todd's Rating

Comfort: B+ (high BB may bother some)
Design/Style: A
Drivetrain: A
Chain Management (Idlers/Noise/Vibration): B (large top idler with lots of deflection)
Brakes/Braking: A-
Finish Quality: A
Todd's overall V2 Rating A-

Wally & Bob's V2 Rating

Wally's V2 Rating: A-
Bob's (RCN) V2 Rating: B+

PROS

- ▲ Great value for component spec/fairing
- ▲ Speed/Performance
- ▲ Improved Seat (better than ever)
- ▲ Many options from RANS (seat bags, fenders, racks)
- ▲ You might be the only kid on your block to have one this season

CONS

- ▼ Higher Bottom Bracket than TE/GRR/STRATUS (will it cause you problems?)
- ▼ Steering "tiller effect" requires adjustment
- ▼ Typical LWB storage and transportation headaches
- ▼ Moderate driveline noise and rattles from fairing and mounts
- ▼ A bike like this deserves SRAM chain

Access

RANS Recumbents USA
4600 Highway 183 Alternate
Hays, KS 67601
Tel. 785-625-6346
Fax: 785-625-2795
Email: rans@media-net.net
<http://www.rans.com>

Info

Rans Velocity² LWB ASS

Price: \$1795 (\$1945 with Mueller fairing)
Wheelbase=43.75"; Seat height=21";
BB height=22.5"; Weight=#33 + fairing;
Frame—TIG CroMo.; Fork—CroMo

Components

Crank—Shimano 105 170mm; BB—Shimano;
Headset—Ritchey; Derailleurs—SRAM ESP 9.0/Shimano 105 (front); GEARS—9/27-spd.;
Chain—KMC; Gear Inch Range—NA;
Pedals—Wellgo platform; Wheels—559mm 26" (rear)/406mm 20" (front); Rims—Alex AL DM18 aero; Tires—Primo 'Racer' (looks like a Comet to me) 1.25" 100 psi; Hubs—Shimano LX; Brakes—SRAM ESP 9.0 V-brakes levers;
Warranty—Lifetime on frame; 1 year on seat;
Colors—Silver.

Road Test Note

We are defining a new RCN. This road test, superbly written by Indiana recumbent enthusiast Todd Bettenhausen is the future of RCN. Todd worked from a road test template that has been refined by myself and RCN contributors over the past ten years. Todd actually has improved upon the template we provided him. Since I also spent time with a V2 during the same time period that Todd did, I chose to interject my comments where appropriate. I was so pleased with this review, there is no way that I could have written it better myself. We look forward to more reviews by Todd in the future, and offer an open invitation to any RCN readers who would like to participate in the most proactive bicycle reviewing process there is. If you would like to offer any feedback on our road test template, please do. However, be prepared to write a review yourself. □



Wally Kiehler on his V2 at HPRA Waterford 2000 race in Michigan
Photo by Mike Eliasohn



Todd Bettenhausen on his V2

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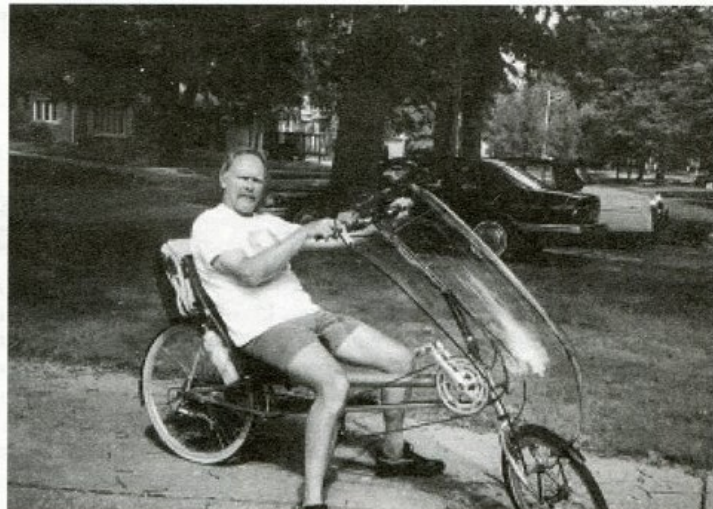
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- * What next? *

Dave's Historical Fantasy (some of this stuff may be mildly fictionalized)

My ancestors invented recumbents. Edward Doty, from whom's lineage I have descended, brought the first recumbent to America on the Mayflower. My Uncle Phil also invented the wheel, but, being embarrassingly shy, he never took credit for it. He wasn't very photogenic and didn't want a lot of fuss in the papers. That's why, to this day, no body, but me and Uncle Phil, knows who invented the wheel. Fortunately, now you all know how the recumbent came to the shores of this great nation. Actually, Ed was glad to get here because everybody kept wanting to ride his recumbent around the deck of the ship. - Dave

A New Rans V²

by Terry Parker

To understand a bike review, you've got to know about the rider. I'm 53 years old and weigh 190 lbs. I am 5'11" tall. I commute to work every day which is about a ten mile round trip. On most weekends I ride a plus 30 ride. In the summers I do organized weekend rides and several long distance supported rides. I train regularly on the hilly roads we've got here in the Puget Sound region of Washington State. My daily summer training miles are usually 30 to 40 miles six days a week. I ride at a moderate pace averaging 15-16 MPH in mixed terrain. I'm not a fast hill climber, but I've never had to get off and walk up one although I've been known to flirt with the stall speed on my recumbent bike.

My bike has for six years been my trusty Vision R-42 set up in a LWB OSS configuration. I ride it fared almost always. I've done close to eight thousand miles on it. It served me well across the Cascades numerous times and all over this state and Oregon. My wife owns a Rans Gliss, so I have experience with the Rans T-Bar, the seat, and the more open configuration of the Rans LWB bikes. I am not a bicycle technician, and can do only a few rudimentary repairs and adjustments on my bikes.

Recently I sold a van and moved back to having just one gas guzzler in my garage. From the sale, I ended up with a bit of cash, a dangerous thing for a smitten recumbent cyclist who visits recumbent bicycle shops all too regularly to ogle and try any new models that might have appeared. I get to Portland, Oregon, regularly and most always drop by Coventry Cycles. Several weeks ago, I walked in and saw a Rans Velocity Squared sitting on the showroom floor. I'd heard the stories and was waiting to see its final incarnation. It was a large frame model in Cosmic Black with a Mueller Windwrap fairing. Aesthetically, it looked wonderful. I sat in it, then sat in a Tour Easy and Gold Rush with Kool Back seats that were on display as well. The Rans clearly felt better to me. It may have been the fact that the Rans was very close to being dialed in for me while the others were not. I drove home to Washington State, but called Coventry the next day and said

I'd buy it. I picked it up four days later.

Systems

The shifting on the SRAM 9.0 was crisp and quiet. The idlers did buzz at bit in certain gears, but not to the point that I was bothered by it. The braking was solid and predictable. The fairing and seat were easy to put on and take off when I transported the bike on my car. My roof rack fit the V2. A bike that is inconvenient is one that I'll eventually not use as much, and this one presented few problems. I told you I wasn't a technical person, but I can tell you the bike operated flawlessly mechanically.

Comfort

Because of my experience with my wife's Gliss, I knew what to expect with the Rans seat and the T-Bar steering. The steering is more responsive than on my Vision and even twitchy at slow speeds. After a few days of riding, my body and brain began co-operating, and the feel of the V2 became familiar. My adjustment period was over. The bottom bracket is higher than my Vision and my legs fatigued more quickly at first. My legs told me emphatically that I was on a different recumbent. That lasted three days and I was fine. I fiddled around with seat adjustment and recline until things seemed right. Being able to ride everyday speeded up my transition.

Speed and Efficiency

The bike is fast. For me that means 2 MPH faster on hills, 4 MPH on flats and as much as 5-6 MPH faster on descents. At higher speeds the bike feels stable. After just a few miles, my slower ascents in the climbing mode no longer resembled a salmon swimming upstream. In fact, I now feel very steady on the bike overall. I didn't purchase the bike to go out and smoke a few GRR's, but I will on occasion. On occasion they will fly by me. For me, it depends on my whim and whether my body at given moments chooses to respond to the whim. Right now I am capable of good speed and have the endurance to put in a hundred miles in a day.

Accessories

Rans is offering a new seat bag, and, after much searching, I found one. This is a bright yellow seat bag. It is a wonder. It is a little like a soft brief-case. It certainly meets my storage needs. I'm very happy with it. Rans also has some Rans specific racks. I bought one and had Coventry Cycles install it. They quickly realized that the rack attachment would have to be modified because of the nature of the rear triangle and the seat struts. They installed the rack, but the modified attachment system puts a limit on the amount of recline you can get on the seat back. This hasn't proven to be a problem for me, but might for some people who steer by the stars or something. Rans also has fender sets available and I availed myself. I installed them myself.... partially. The rear fender went on perfectly. I, however, defy anybody to put the front one on with the fairing. The fairing interferes not only with the top of the fender but with the front fender struts. In the Pacific Northwest, I need good fenders and the fairing is especially nice in the colder season. Again, I'm not exceptionally gifted mechanically, but there's something a little screwy here.

The fairing does produce a little noise. It comes from where the upper fairing braces slide in to the sleeve in the mounts on the upper steering column. Two small set screws hold the mounts in the sleeves. I solved the noise problem with a few winds of black electrical tape around those sleeves. Voila! Noise gone. No amount of tightening of the set screws seemed to dampen the noise sufficiently, however. I'll report all of this to my dealer to get their knowledgeable take on it. Again, my knowledge and skill are frustratingly finite in these matters.

Overview

Aside from the accessory problems, I am thrilled with the bike. The bike looks cool and sleek. It goes as fast as I can pedal it. My experience with Tour Easy's and GRR's is limited to a few rides but nothing sustained. I'm not able to comment on the inevitable comparisons that people will want to know about. I'm doing the Seattle-to-Portland ride this week and that could give me a better idea relative to my capabilities on this bike in comparison to Easy Racers and those rider's capabilities on theirs. If I only had a body sock.

My V2 Rating: A

Pros

- ▲ A very nice price for the quality you get
- ▲ The speed and performance
- ▲ Darn fine looking

Cons

- ▼ The front fender/fairing problem
- ▼ Rack can inhibit full recline
- ▼ Fairing mount noise
- ▼ Chain idler buzz in some gears

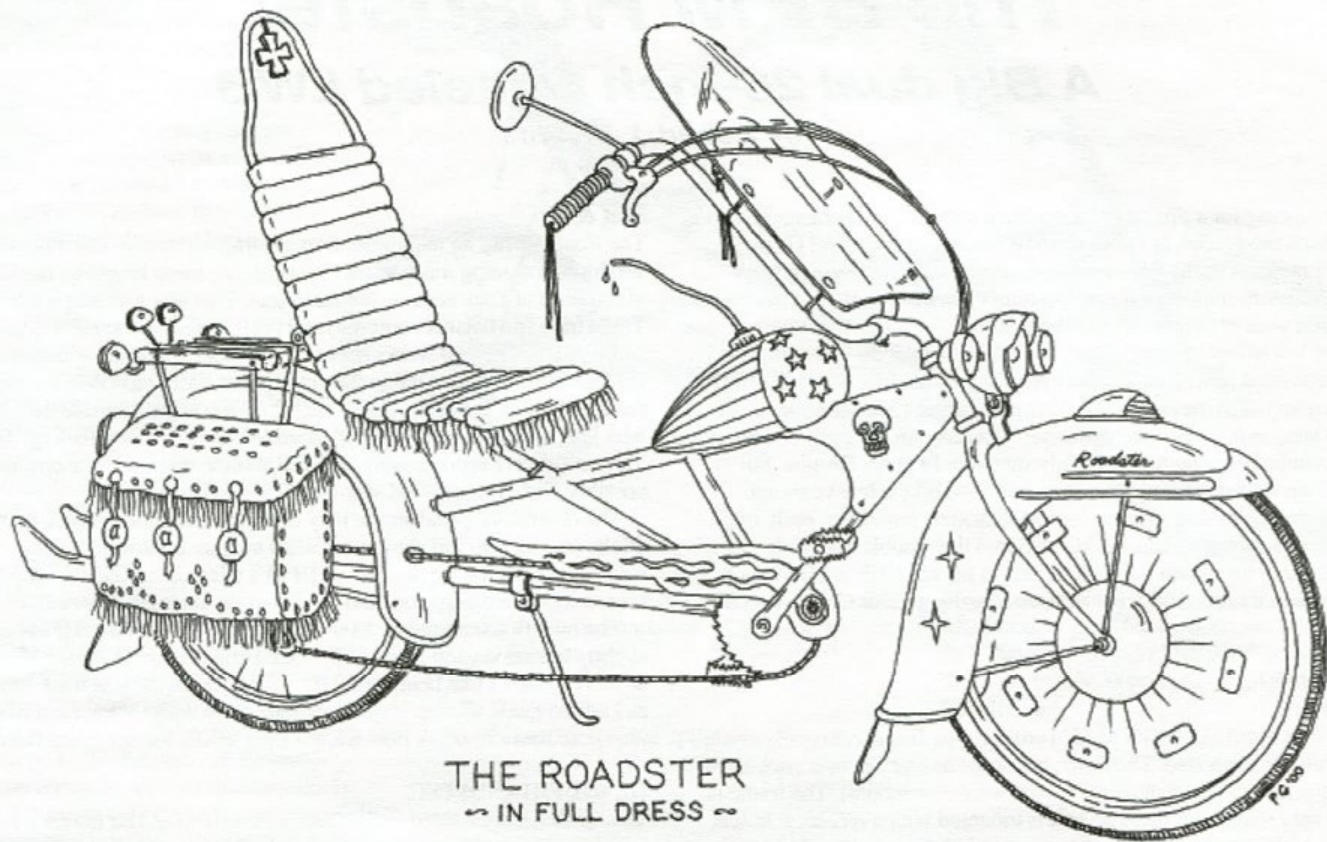
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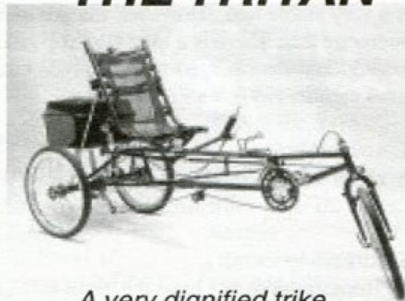


THE ROADSTER
~ IN FULL DRESS ~

by Pippa Garner



THE TRITAN



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The HPM Roadster

A Big dual 26-inch wheeled LWB

by Robert J. Bryant

Are you looking for a distinctive recumbent with lots of character? Do you like limited production or rather obscure recumbent bicycles? Or maybe you are a member of the BIG-wheel recumbent cult. Have you always wanted a custom-built recumbent, but didn't want to pay the big prices? Or maybe you wanted to own a recumbent with some serious attitude! If you answered yes to any of these questions, the LWB dual 26-inch wheeled Human Powered Machines Roadster may just be the bike for you.

So maybe you've never heard of this bike before? The Roadster is an updated version of Gary Hale's 'Runner' designed in the early 1980's. A limited number were built and mainly stayed in Eugene, Oregon. Jan Vander Tuin started offering to custom build the bike a few years ago. Vander Tuin thinks that as many as 100 Roadsters have been built over the years, of which ours was #3. He also said that double and triple Roadsters have been built—including one in the CAT/EBW/HPM shop. We have been intrigued with the bike, and finally got our chance to ride one.

I. SYSTEMS

Frame/Fork

The powdercoated black TIG welded cruiser-type frame is expertly crafted and diagonally supported. The frame has some unique features such as twin parallel top tubes and a real seat tube (forward seat mount). The frame is stiff and very tough looking. The seat is mounted with a real bicycle seat post, along with the HPM support braces behind the seat. The 26" MTB style unicrown fork is chrome-plated and the steer tube is of the old fashioned 1" road variety.

The aluminum handlebars are of the extra large 'ape hanger' variety—the likes of these have not been seen since the old Linear or Rans B-bar ASS. They are tall and have no cross support—which allows them to flex 2 inches or more. They are hand-built by HPM for this bike, though could use some help. In a late test update, builder Vander Tuin said that his next production run will include bars of thicker tubing and a cross support.

Our XL framed Roadster (for 6' rider) is heavy—37 pounds. The standard size frame is reported to weight just 32-pounds (5" shorter wheelbase).

Drivetrain/Shifting

The drivetrain is a typical SRAM 3x7 drivetrain. The twist shifters are rather noisy and pedestrian, though work just fine. The Neos rear derailleur leaves a lot to be desired. It is plastic and very cheap looking. I'd suggest ANY derailleur upgrade. The bike is also available with a Sugino triple crank in lieu of the 3x7.

This bike has no idlers, and doesn't really need them. One might think that the chain would be thrown by the single chainring (with 3x7), though it did not happen. However, we did manage to jam the chain between the cassette and seat strut bolt once (tight fit).

Wheels/Tires

The wheels are big and tough. The Weinmann rims, Shimano and SRAM hubs and build quality were problem free. The bike comes with matching raised white letter (for cruising) Schwalbe City Marathons. They are BIG, wide and bulky do-everything go-anywhere tires. They rode nicely and look as though they were designed for a motorcycle.

Brakes

The ESP V-brakes and Shimano V-levers stop the Roadster just fine. The bike does have a heavily loaded tail end, so be careful.

II. COMFORT

Riding Position/Ergonomics

This is a gigantic bike. The ergonomics should be user-friendly given the nature of the design, however, they are not as user-friendly as you might think. Our concerns are the seat height; handlebar width (VERY wide); 92 inch overall length; and most of all, the seat design.

Seat & Fit

The Roadster has an aluminum framed sling/mesh seat. It is a hornless version (protruding mechanism that holds the mesh taught on the forward of the seat) of Dick Ryan's Vanguard seat. This seat was adapted from the Tritan trike (no balance required) and is also used on the HPM SWB (high pedals/BB). The seat works better on the other applications than it does on the Roadster. The aluminum seat frame (seat-base) rails flare outward at the forward base of the seat. They make it so you must sit inside the tubes with legs tucked in and facing forward—which is an odd feeling. Designer Vander Tuin is experimenting with a Roadster-specific version of this seat, possibly with reconfigured seat-base frame rails.

The downward pedal stroke may chafe the backside of some riders' thighs (this is why full sling/mesh seats are rare on low pedal/BB recumbents). What we do like are HPM's telescoping rear seat support braces. These are very cool and are found on other HPM models.

The bike fit me perfectly. At 6' tall with a 44.5" x-seam, HPM builds a slightly longer version than stock (XL). I could fit the standard size bike, however, I don't like being all of the way back on the seat track adjustment as I am on the stock size Rans Tailwind, Stratus and V2. Center of gravity (c.g.) can make or break how a LWB bike works for any given rider.

III. RIDE/HANDLING

This is a character-filled cruiser recumbent. It would be fun for those who love lots of attention. It would be great for parades. Unless you are in Eugene, Oregon, the odds are that it will be the only one in your rider group.

A reader brought to my attention that the Roadster has the highest seat and lowest pedals/BB of any recumbent available—and you'll know it once you have ridden it down the street. The LWB and big wheels make for a very stable ride. However, the flexible handlebars somewhat counteract this. There is a little flip/flop going on with the front end steering. The steering geometry is predictable, though lacks the refinement found with its LWB ASS competitors.

Maneuverability

This bike is long and large and you know it. However, the clod-hopping gigantic 26" Schwalbe tires can roll over nearly anything.

Speed/Efficiency

The Roadster does not have the most efficient riding position. It offers only mediocre performance. The high sling/mesh seat (and c.g.), matched with the low pedals/BB, combined with the flexible handlebars makes it difficult to generate power. The heavy weight of the bike adds to the concern. However, once in motion, these tall 26" wheels just love to roll. Many who've tried dual big wheel recumbents are sold on their superiority. RCN's Mark Colliton was just telling me about the faster acceleration of his big wheel V-Rex. His thoughts are that the small wheels accelerate faster, they don't hold their speed, therefore decelerate faster. In an impromptu coast down between a stock V-Rex and one of his big wheel bikes, the big wheel bike accelerated away from the stock bike as the bikes coasted toward flat pavement. We have heard this many times over, primarily from those who have dual big wheel bikes.

IV. OWNING/PURCHASING

Versatility

The Roadster should be as versatile as your imagination allows. It is off-road, on-road and tour capable. Jan Vander Tuin says the Roadsters are used for general all around use, touring, off-road touring and even fast fire-road descents. The dual 26 is said to really shine at this.

Shipping/Assembly

The Roadster does ship UPS in two boxes much like an Easy Racer. It was rideable within 15 minutes out of the box. Though there was no documentation, the bike had been bench/road tested prior to shipment to RCN.

Transportability/Storage

This big and tall bike will not be the easiest to stow or haul around in or on a car. You will need to be prepared.

Quality/Durability

HPM's build quality and materials are excellent. The weld quality, steel frame, paint, and seat mesh are all excellent. With the stiffer handlebars, this should be a very durable recumbent bicycle.

Options/Accessories

Racks and fenders are available from HPM for the Roadster. You'll need a rear fender or plan to get very wet when riding in the rain (mesh-back seat). With the dual 26" wheels, there is no end to the options and accessories that you can add to the bike. Even a front touring rack can be outfitted.

V. RCN ANALYSIS

Value/Depreciation

Even though this bike is a good value for what you get, there have been few built. When we tried to sell the road test bike, we received only three calls—but the first person bought it. The note that came with the bike stated that it was the third built by HPM. Because of the low production numbers and fact that the bike is unknown, I would expect the Roadster's resale to be worse than average—though it is bargain priced for basically a custom built recumbent.

Market Competition

Theoretically, the Roadster is competition for the Easy Racer Tour Easy and Rans Stratus. Realistically, this bike has no competition. If you want a giant dual 26" LWB, there is only one to consider.

Verdict

Human Powered Machines is the for-profit wing of a non-profit organization Eugene Bicycle Works (EBW) a bicycle co-op, and the Center for Appropriate Transport (CAT). The fleet of recumbents and workbikes is vast. Many are available for rent, you can work on your bike, have it worked on or even learn to build a bike. EBW has obtained grant money to teach area youth all about cycling. Oregon Cycling (newspaper) and PedEx (cargo bike messenger service) are also located in Eugene at EBW/CAT. HPM does nice work. HPM's Jan Vander Tuin runs a neat outfit in the Center for Appropriate Transport and its profit-making bike manufacturing wing, HPM. Jan trains youth in the Eugene area in all things bike. His mission is important and reaches far beyond building bicycles.

Buying an HPM recumbent takes more commitment than most. Jan has many irons in the fire, and has not marketed his recumbents as aggressively as he could. Getting questions answered, ordering and delivery takes time.

The Roadster is eccentric, and opinions of it will vary widely. Since so few have been built, the refinement level is lacking in some areas (see above). This bike has lots of potential, and we'd like to see more built and ridden and more feedback supplied to the builder. We purposely bartered for and sold this bike to an RCN reader Pippa Garner for long-term testing. The build



quality is high and the bike is a very good value in today's recumbent market. Get set for a unique experience.

BOB Rating: C+
(B with new bars + seat update)

Pros

- ▲ A good value
- ▲ Easy to ride
- ▲ Traditional cruiser-like frame
- ▲ Very nice craftsmanship
- ▲ Full sling/mesh seat with telescoping seat stays and unique seat adjustment system

Cons

- ▼ Tall seat height
- ▼ Flaired seat base tubes make it feel even taller
- ▼ VERY flexible handlebars
- ▼ Not the most efficient riding position
- ▼ Requires special rack & fenders
- ▼ This bike is heavy

Access

Human Powered Machines
455 West First St.
Eugene, Oregon 97401
Tel. 800-343-5568
Email: cat@efn.org
<http://www.efn.org/~cat/html>

Info

Roadster LWB ASS
Price \$1200
Wheelbase=61" (66"); Seat height=27.5";
BB height=12.75" Weight=#32 (#37);
Frame—TIG CroMo.; Fork—chromed CroMo
(handlebar width 27.5");
Seat frame—aluminum (powdercoated);
Seat adjustment—telescoping CroMo stays
(rear) and seat post front

Components

Crank—Dotec Pro 170mm with QBP 44-T;
Bottom Bracket—Shimano; Headset—
Shimano STX; Derailleur—SRAM Neos
3x7=21-spd; Chain—SRAM; Gear Inch
Range—NA; Pedals—Wellgo platform;
Wheels—559mm 26" x 1.5"; Rims—

Weinmann Zac 4019; **Tires—Schwalbe City**
Marathon 55 psi; Hubs—Shimano LX/SRAM
3x7; Brakes—SRAM ESP 9.0 V brakes with
Shimano levers; Warranty—N/A; Colors—
Powdercoat.

Below: Human Powered Machines folding SWB recumbent based on their "Swift" upright folder (fits into the same bag).

The "Phaser" - brings folding capabilities to a 20" rear, 16" front, short wheelbase, under or above the seat steering machine.

Specifications:

100 psi Primo tires
SRAM or Shimano V-brakes
SRAM/SACHS 3X7 hub or SRAM/Sachs Torpedo 7-speed internal hub w/rotational shifter

Options:

Sachs 3x7 or Shimano Nexus 7 speed hub with roller brake
Fenders, rack

Price
\$1100



The Burley Limbo

by Bob Bryant

Imagine a recumbent bicycle that has smooth effortless handling that newbies and seasoned enthusiasts alike could enjoy—a bike that is easy handling, user-friendly and excellent build and finish quality. To top it all off, the bike is an excellent value in its class. If this sounds like what you're looking for—then Burley has a recumbent for you.

The Limbo frame, custom fork and suspension swing arm are expertly TIG welded of aircraft grade 4130 CroMo in Burley's Eugene, Oregon factory. The Limbo is powdercoated in dark blue and black with Burley logo graphics on the main tube. We were very impressed with the build, finish and materials quality across the board.

Due to an early season production delay, our test bike was outfitted with a Trek R200 steering mast—which we liked. Burley's own stem/riser is now standard. The main difference is that Trek's stem is CNC aluminum and Burley's is forged. We had a difficult time extending the recline adjustment bolt enough to keep the steering upright enough to suit our tastes. The Burley mast (which we have not tried yet) has less rise and should address this concern.

Limbo Suspension

The Limbo has a very active rear suspension with 3.75" inches of travel. All of the parts are first class. The swing arm pivots on bearings, the shock is Rockshox coil/oil model which is very active (it takes less of a bump to get a coil/oil shock to activate). Our test Limbo suspension would pogo noticeably (pedal induced suspension movement) in acceleration and climbing (riders of average to heavier weights). We heard this comment from several other testers as well. On the upside, this active suspension makes for a comfy ride. On the downside, this trait will negatively affect the bike's performance (hill climbing and acceleration). Burley's design does put a lot of leverage on the shock.

Burley emphasized to us that just about any recumbent suspension design will pogo if your goal is to make it do so and that the bike's suspension needs to be adjusted specifically for the owner. The pre-load (sag-rate) of the spring is adjustable and is discussed in Limbo's owner's manual. If a rider understands that the bike can pogo they can learn to pedal more evenly (spin circles) instead of mashing tall gears.

Components

The Shimano Sora/ESP 5.0 drivetrain shifted flawlessly. The bike also comes from the factory with a SRAM/Sachs PC38 chain (superior recumbent chain). The only marginally weak link is the new ESP 5.0 derailleur, though it worked fine on our test bike. This drivetrain operates better than many of its price competitors. The chain-line and chain management is smooth and quiet. We rode the bike with the chain on its 'X' path over and under the idler, as well as letting the lower chain flop loose. Both worked fine. The LWB drivetrain is noticeably smoother than most SWB and trike recumbents.

We experienced no squeal and plenty of power from the Shimano M420 V-brakes and matching levers. You can nail the brakes full-on without retribution on the Burley.

The wheels are beautiful. The Weinmann black face (machined rim surfaces) rims matched with black spokes go together smartly with the black and blue paint job.

Like many recumbent builders, Burley has outfitted the Limbo with Primo Comet/Racer tires. These are a fine quality skinny road tires that may be too light duty for the demanding tourist or commuter. Since this isn't an all out performance bike, the new fat Comet would be a better choice. Many seasoned recumbent riders believe fat tires are necessary on recumbents—especially if the bike has a more forward or rearward weight distribution bias. On the rear, because you can't dewater the rear end of a recumbent. On the front, because if you have a forward weight bias, a bigger contact patch (more rubber on the road) aids in handling, stability and helping to avoid pinch flats. Most recumbent manufacturers don't want to explain this, so they just spec skinny tires.

Comfort

Burley has chosen a riding position that offers the best of the SWB design style, with the ergonomic perfection and supreme comfort of a lower pedal/bottom-bracket height. The position is sheer ergonomic bliss and about as user-friendly as they come—especially for a bike with such a high seat height.

The Burley seat is very comfy and well designed. The seat back is mesh wrapped around a CroMo frame. The mesh is taught and holds its shape and appears to be high quality and durable. There is a slight ergonomic lumbar bend in the seat back. The seat base adjusts separately from the back (move it farther away or closer to the rider) and pivots up or down. The seat base is an ergonomic farm tractor-style bucket (a million farmers can't be wrong, eh?). The seat base is a good design—though the foam may not be cushy enough for some riders. The leather covered seat base is fabricated by Corbin in California (famous for motorcycle seats).

The Limbo seat slides on a track similar to BikeE, Trek or Vision (R32). The seat appears to have no adjustment, though it adjusts to a wider usable range than most popular seats. The mounting system is an improvement over other similar systems. Two quick-releases allow an easy adjustment to fit riders 5'3" to over 6' tall.

The front-end and rear-end seat slider blocks have multiple adjustment holes to raise the back, and lower the front and vice versa. We especially liked the quick adjustments. The downside is that the seat has internal seat braces, and nothing to stabilize the seat between the back and bike's frame. A big or strong rider can get the seat back to twist and flex more than we'd like. This type of recumbent seat attachment has the potential to slip on the track with a strong rider, though we did not experience this with the Limbo.

Ride & Handling

The Burley Limbo has among the smoothest rides you are likely to find in a long wheelbase (LWB) recumbent. If you have been dismayed by the overly quick handling traits of other recumbent bicycles—the Burley Limbo is a welcome change.

The Limbo is a tall bike, with a relatively long wheelbase. The bike has refined, stable and predictable handling. The Limbo's tracking is spot-on, and hands-free balance is possible (although we don't recommend that you do it). The traditional LWB ASS wheel flop/self centering handling is not a part of the Limbo's design. The bike has a refined neutral steering much like underseat-steered (USS) LWB recumbents.

The Limbo can be ridden most anywhere. With the proper outfitting (and accessories) this bike behaved well on all of our test track road surfaces. The height of the bike may make low speed maneuvering on unstable ground a chore. Carrying a load is always more difficult with a suspension bike—as is trailer towing, though I'll bet a Burley trailer mates perfectly to the Limbo.

Living with the Limbo

Burley shipped our Limbo 5 minutes from being road ready (in a tandem box). We returned the bike in an EZ1 SuperCruiser box. The bike packs up and ships better than most LWB models and rivals some SWB models. The Limbo also comes with a professionally done owner's manual, which is always a bonus for a recumbent rider. Many manufacturers still don't have them yet.

When assembled, the Burley Limbo gives one the impression of a large bicycle—as any LWB might. You will need to plan carefully to own, store and haul a Limbo.

Options & Accessories

There is a workstand adapter (enables use of Park-type repair stands); a kickstand adapter (for easy rear dropout mounting of Greenfield type kickstands); and rack stays (for use with Blackburn-type rear racks). Burley is currently considering or prototyping recumbent bags, rain gear, and a 26/20 fender set.

Market Competition

The Limbo fits very nicely into the LWB market. It is a different style of bike than a long and low Stratus or Tour Easy (Limbo is a better buy and more comfortable ride). The Limbo is more of an open road sport-tourer than the BikeE AT (Limbo is not as compact). I would guess the Limbo to be a better performer than the BikeE, and not as good as the Tour Easy/Stratus. The real comparisons are the Radius C4 and Vision R32. The Limbo offers better build quality and value than either of these bikes. It also offers vastly superior user-friendliness. The C4 and R32 have more extreme riding positions. The C4 with its high pedals/BB and the R32 with its odd very closed riding position, upright seat back and very high (for what appears to be an entry level bike) pedals/bottom bracket.

Convertible LWB or SWB

The Limbo can be ridden as a SWB as well. You must remove the steering linkage and reposition the fork into the false head tube where the ASS stem/riser and linkage attach. The switch-over will take 30-45 minutes—and you'll need to know what you are doing. The Limbo rides better as a LWB, the original intent of the design.

Verdict

My kids were raised being towed in a Burley DeLite trailer. It was of excellent quality and nearly indestructible. Burley is a special company as the employees seem to have a deeper sense of caring about the products that roll out the door. Burley is a Coop (employees own the company)—which sets them apart from other recumbent manufacturers. The Burley has the look of a more expensive recumbent. The finish quality of this bike surpasses much of what we see.

The Limbo's weak point will be in climbing and acceleration due to the 38-pound weight and suspension pogo (pedal induced suspension movement). This means that the bike will not offer the quite the level of performance of more enthusiast oriented and classic LWB above-the-seat steering recumbent designs. What owners will get is a high quality comfort-based recreational recumbent. The bike is best suited for the new recumbent enthusiast looking for a very comfortable, capable handling, smooth riding recumbent.

RCN Rating: B

Late Update: Burley will be introducing two new lighter weight "SWB models—the 'Hepcat' and 'Django' for the 2001 season. Mark Ariens (20/20 Vision from RCN#58) has successfully converted a Limbo to 20/20. Harry at Wheel & Sprocket can help you with this.

RCN Note: This road test is the most recent written for RCN. The streamlined template is due to a re-edit for Interbike distribution. It is our goal to offer readers as much information, without redundancy as possible. Succeeding at this will be an ongoing process.



The Limbo at Burley's factory in Eugene, Oregon

Components

Crank—Shimano Sora 30/42/52; **BB**—Shimano UN40 sealed; **Headset**—Aheadset; **Derailleur**—SRAM ESP 5.0; **Gears**—11-32 8/24-spd.; **Chain**—Sachs PC38; **Gear-Inch Range**—23-116 (24.5" wheel dia.); **Pedals**—Wellgo platform; **Wheels**—559mm 26"/406mm 20"; **Rims**—Weinmann ZAC19 black face with machined rim surface; **Tires**—Primo Comet 1.35 front/Primo Racer 1.25 (matching set) rear; **Hubs**—Shimano Deore; **Brakes**—Shimano M420 V-brakes & levers; **Warranty**—Lifetime on frame and fork (orig. owner); 6 months on orig. equip. parts; **Colors**—Blue/black accents

Pros

- ▲ An excellent value
- ▲ Very nice ergonomics: adjustable seat recline, lower pedals/BB, acceptable control reach (ours had Trek ASS unit)
- ▲ Very comfortable seat
- ▲ Stable confidence-inspiring handling
- ▲ Silky smooth ride with rear coil/oil susp.
- ▲ Exceptionally fine quality and workmanship

Cons

- ▼ Complexity of indirect steering
- ▼ No front suspension
- ▼ This bike will POGO for larger/heavier riders (pedal induced suspension movement)
- ▼ Not the best climber—a heavy bike
- ▼ Kinda geeky looking, not your average Harley-'bent-wannabe

Access

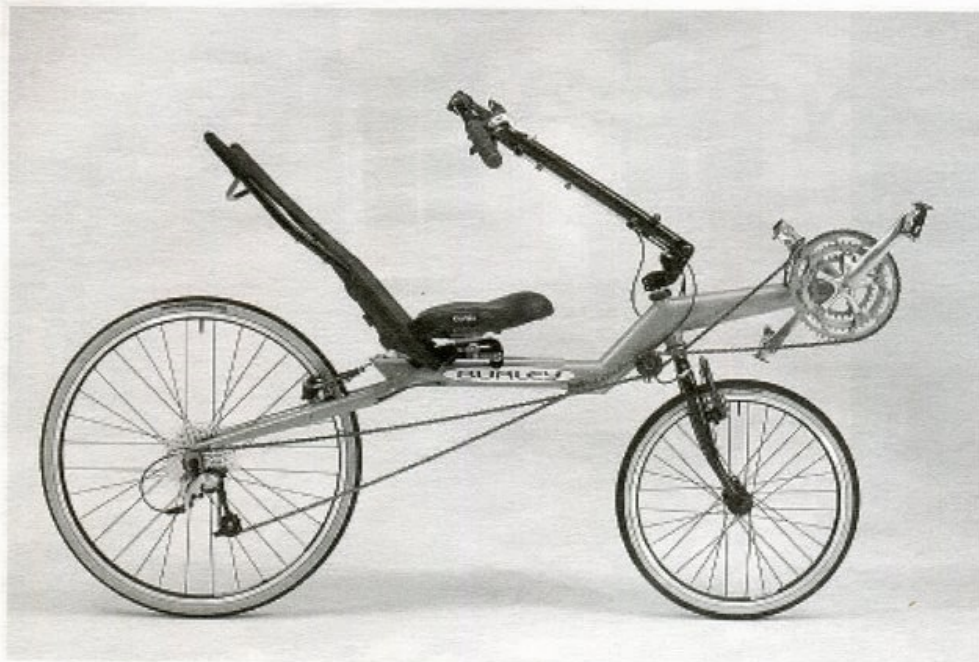
Burley Design Coop
4020 Stewart Rd
Eugene, OR 97402
Tel. 541-687-1644 or 800-311-5294
<http://www.burley.com>

Info

Burley Limbo LWB/SWB

Price \$1295

Steering—indirect linkage ASS (rotates on second headset); **Wheelbase**—58"; **Seat height**—26-29"; **BB height**—23.5"; **Weight**—#38; **Frame**—TIG Custom drawn 56mm 4130 CroMo; **Fork**—CroMo made by Burley; **Swing arm**—CroMo; **Suspension/rear**—RockShox Coil/Oil shock 3.75" travel; **Suspension/front**—None



The 2001 Burley Hepcat (Ultegra/XT \$1799) & Django (SRAM/Shimano Sora \$1499) SWB ASS



The LWB Limbo



The SWB Limbo
(same model with some adjustments)



Burley Credo

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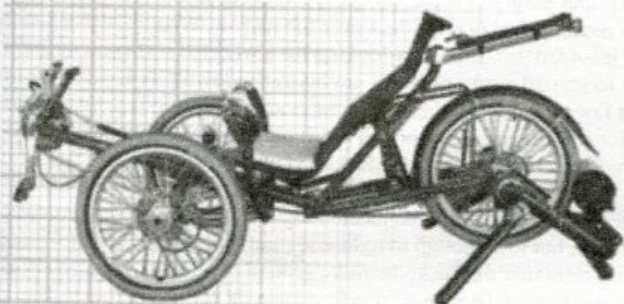


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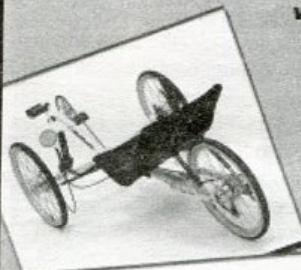
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Everything You Ever Wanted To Know About

Kick Scooters

by Bob Bryant

Are you interested in a great workout or a way to build your muscles cross training? Maybe you just like human powered transportation. Or maybe an extremely simple lightweight vehicle that can fit into your back pack or the trunk of your car. Well, the high-tech scooter may be for you.

Like many of us desk jockeys, I stare at my computer far too many hours. One of the problems we recumbent riders face is that if we sit at work, we then sit on our recumbent seats. We sit too much. The stand, kick and coast—low impact jogging motion of kick scooters seemed like a natural cross training mode to try out.

I have been intrigued by all forms human powered transportation for as long as I can remember. This most recent fascination started after a recent conversation with RCN subscriber Pippa Garner. Pippa had inquired about, and then purchased our HPM Roadster recumbent. Somehow the topic came around to kick scooters. As it turns out, Pippa has tried nearly every kicking vehicle in North America and had lots of advice and insight into them. She currently owns a Rollerbyke, Dashboard, BlauWerk Micro and a fully decked out commuter Kickbike. I was intrigued. Pippa then shipped us a red Kickbike to try and the hook was set.

Scooters are the simplest form of wheeled transportation. Scooters were popular in the 1930's and every generation since seems to have a scooter memory. They were actually invented in Germany in 1816, according to Annette Thompson, curator at the Bicycle Museum of America in New Bremen, Ohio. Scooters consist of usually two wheels, the front wheel is steered via a small fork and some sort of telescoping handlebar arrangement and a deck on which to place your feet.

We had intended to cover all types of scooters—however there was oversight we were not expecting—the ability to STOP. We found this to be a problem with all of the rollerblade-type scooters that we tried. All use a variety of a friction brake (rub-on-the-back-wheel). On our urban Port Townsend test course, we rode on city streets connecting downtown to uptown. After trying some of these scooters, we altered our criteria to require the ability to stop on command for a stop sign, road hazard or at the bottom of the hill. If this is important to you—only consider scooters with at least one bicycle-type brake.

How to Scooter

Scootering is easy—anyone can do it. Grab onto the handlebars. Place one foot on the deck. In a walking or jogging motion, reach the other foot forward of the deck, drop to the ground and pull back. With this motion, the scooter will propel forward. The best performance on the flats can be had by taking long graceful kicks. Most scooterists alternate their kick-foot every 5-10 kicks. Downhill runs are a real thrill and gravity does the work. Uphill is far more difficult than cycling and requires frequent short kicks and aerobic conditioning. Walking can also be utilized for hill climbing—and for all but the most fit scooterists, this is probably the best choice. That said, in Europe, Timo Salin completed a 2500 mile trip from Helsinki to Gibraltar in 27 days on a Kickbike. A BlauWerk sidewalker team crossed the Ural mountains. Note: If you feel recumbent cycling is easy, 8 miles on a scooter will whip your lazy butt into shape.



The Sidewalker City from BlauWerk (Kickstart Scooters) in Toronto, Ontario, Canada—Photo courtesy of Kickstart Scooters

"My wife and I go on trips of 3-15 miles at a time. My top speed on a flat is 19 mph and on a typical 15 mile excursion my average speed is 12 mph," says Sidewalker distributor Gideon Tomaschoff

The Workout

Scooter rides are generally shorter than bike rides. More than 5 miles would be considered a long scoot (5 blocks for a rollerblade-type scooter). I rode the Kickbike as far as 10 miles on one 'scoot' and my kids and I regularly take them out for 4 mile scoots. On an 8 mile scoot, it took me 50% longer in time, and was easily twice the workout of a bicycle. One study has shown that scootering offers better aerobic benefits and uses muscles more intensely than does bicycling. Scooter riders' hearts beat 10 beats per minute more and scooter riders heart-rate responses were 85%-90% of max heart rate, whereas bicycle riders were at 70%-80%. Athletic and distance scooter riding provides a greater overall workout using more muscles.

Scooter Design Considerations

Scooters take many shapes: There are the entry level rollerblade style 'Razor' and clones. These are fun for kids and relatively inexpensive. The Xootr, Know-Ped and Micro are compact and small, yet have faster rolling wheels and better brakes (except the Xootr). Finally, the bicycle-like scooters: Micro, Sidewalker City and Kickbike, are the fastest, most stable and, with the exception of the Xootr, are the most expensive of the scooters. Here are specifics about what you need to know about scooter selection:

Deck: This is where you place your feet. Some are a tight fit for two feet, others offer plenty of room. Decks are made of wood, aluminum, or plastic. Most newbies feel that the decks are too narrow. What is best depends on your intended use. If you are looking for a wheeled surf/snow-board, a wide footboard works great for gravity runs (downhill). If you want to scoot fast on the flats, the athletic motion of a bicycle-type scooter does call for a narrower deck (though we think that both Kickbike and Sidewalker could use a wider decks (XL sized tester with big feet).

Deck Height: Decks are engineered high enough for adequate ground clearance, but low enough to reduce leg fatigue. This is a major design issue. The higher the deck, the more ground clearance, though also the more you have to bend your standing knee for the ground-kick. The Kickbike has a low deck height for performance. The City's is a bit higher, though within reason, which allows it more ground clearance. The Micro's deck height is too tall. Certainly the 'squat-like' action from a high deck will be good for your body, but it seems to fatigue you more. There is no deck height concern with the Xootr, Know-Ped or rollerblade-like scooters.

Weight: The range is 14-22 pounds. The Kickbike and Micro are both lightweight at 14 pounds. The reason light weight is important is because you'll end up carrying your scooter at times. I carry or roll my Kickbike every day. I would not want to carry anything over 14-pounds very far.

Length: Overall length goes hand-in-hand with scooter weight and deck size. The longer the wheelbase, the more stable it will be at speed (though wheel diameter plays a big part in this as well).

Wheel size: Wheel size is very important. The larger wheeled bicycle-like

scooters roll faster and to cover more ground quickly. The larger diameter the wheels (especially the front on a bike-type scooter), the more stable the scooter will be. Scooter wheel sizes range from 6, 7, 8, 12, 20, 26-inch and 700c. The rollerblade wheels can be a limiting factor—they are best for smooth pavement, lightweight/ shorter riders and/or casual use. The little blade wheels have a tendency to stop and skid if you hit even a small rock. Pippa likens this experience to that of a humancannonball.

Brake quality: All of the bicycle-based scooters we tested had at least one bicycle-type brake. The Micro has one V-brake. The Kickbike has two dual pivot (non-QR) sidepulls. Riding down steep hills on scooters with one brake can be a bit of a challenge (especially for adults). We had our rims heat up on the Micro with its one front V-brake. This will limit downhill performance. The Sidewalker City had very strong V-brakes that were definitely overkill. Both the Kickbike and City had minor rear brake cable routing problems that we had to deal with. The rear V-brake noodle, cable and internal frame cable routing on the City has a tight fit that doesn't allow the brake to spring back as well. A good mechanic can solve this, or just zip-tie the cable to the outside of the frame.

Stability: It is our experience that the larger the front wheel diameter—the more stable the scooter is. Stability decreases as the c.g. (center of gravity) height increases. The big wheel scooters (Kickbike and City) wins hands down over for handling stability.

Maneuverability: All scooters are very maneuverable, in fact, the little ones are too much so. The dual 26-inch scooters might be too long for sidewalk use in some urban settings, and they are that much more difficult to carry. Also, higher deck heights seem to decrease maneuverability from a user-friendliness standpoint.

The Scooters

Here is a listing of the scooters that we tested:

Sidewalker City—As bicycle-like scooter manufacturers go, Sidewalker has by far the best product line, finish quality and presentation. They make kids scooters, dual 12, dual 20 and dual 26-inch wheeled scooters. The City was the fastest in our coast down test. It is the most stable and smoothest riding. It wasn't the easiest to kick due to its length, weight and higher deck. The riding position is not as aerodynamic as a Kickbike, but it is not a racer (though bar-ends would do wonders for it).

Sidewalker City Specs

Frame: welded CroMo tubing

Deck: plastic

Weight: 22 pounds

Brake: V-brakes

Length: 73 inches

Deck height: 5.25-5.5 inches

Deck size: 14 x 5 inches

Wheel size: dual 26-inch wheels

Cost: \$299-\$349 + S/H

Contact: www.sidewalker.at;

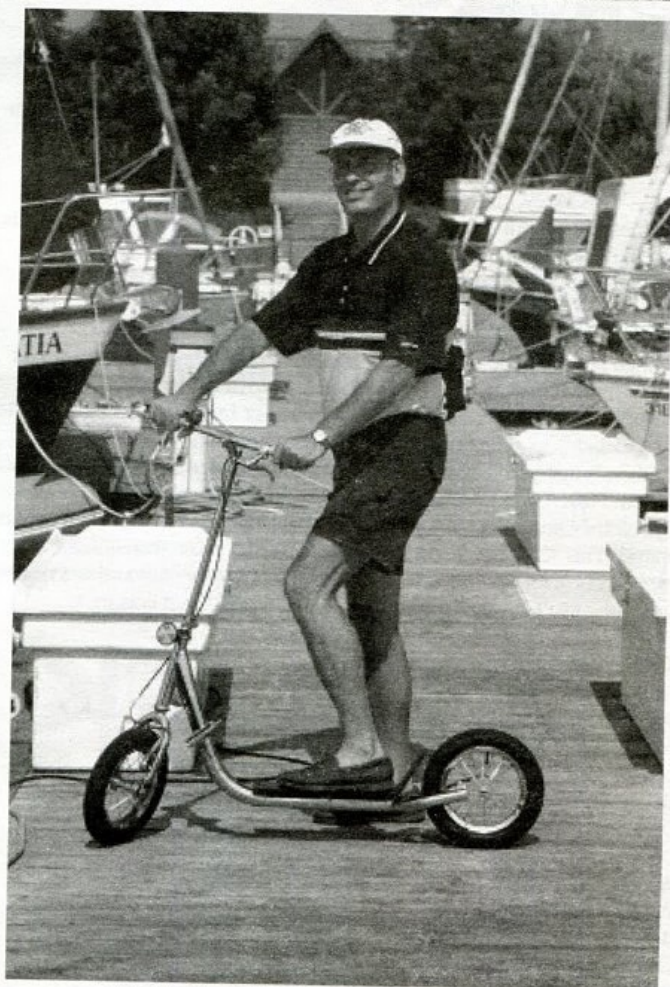
kickstartscoters@bigfoot.com or 416-702-3636

Verdict: If stability, versatility and a more robust design for urban and countryscooting is what you have in mind, the Sidewalker line cannot be beat. We were very satisfied with the quality of both of our scooters.

Kickbike—We have two 2000 Kickbikes with 700/18-inch wheel combo. The rear 18-inch wheel proved problematic. Our wheels needed to be trued a few times, and we were never satisfied with the tire's seating on the rim. We also had a severe blowout with one of the Birdy (folder) 18-inch tires. This is a loser wheel size and needs attention. The distributor said that they had no other complaints, but we heard some wheel complaints on the Internet hpv list, and the new 2001 Kickbike will have a 20-inch rear wheel. The Kickbike was a favorite because of its light weight and speed. The low deck height made it the easiest to propel by a long shot. However, the City was faster in the coast down and more stable. Pippa converted her Kickbike to a 700c/16-inch 349mm with parts purchased from Zach Kaplan (who can rebuild your wheel and sell you a Primo Comet tire). Pippa has completely tricked hers out with custom knee pad, front and rear racks and a larger deck.



Above: The BlauWerk Sidewalker "City"—Kickstart Scooters
Below: The 2000 Kickbike (now out of production)



The BlauWerk Sidewalker Micro—Kickstart Scooters

Kickbike Specs (2000 model)

Frame: welded CroMo tubing
Deck: sheet metal
Weight: 14 pounds (I weighed it!)
Brake: front & rear dual pivot BMX sidepull.
Length: 64 inches
Deck height: 4.75 inches (low)
Deck size: 4 x 11 inches
Wheel size: 700c/355mm 18-inch wheels
Cost: \$349+ (*00 price)
Contact: www.kickbike.com or 1-888-KICKBIKE

Number Built: 15,000 per year worldwide

Verdict: If fast, athletic scoots is your goal—the Kickbike is hard to beat. It is the hands-down performance winner. The new model is not yet available and we were unable to even see it to write this article. Production is being moved from Taiwan to Germany. We detected some serious arrogance from this company in regards to their competitors. This is definitely unfounded, as Kickbike could learn a few things from their competitors.

Micro—The Micro is a very cool little scooter. The frame is chrome-plated, the tiny dual 12-inch wheels are compact and the frame folds quickly. It was the slowest and least stable of the bike-type scooters. It also had the highest deck which really wore on our testers. No Micro rider could keep up with the City or Kickbike for very long. Where this scooter excels is that it is a good cross-over between the bike and blade scooters. The solo V-brake does heat up on steep hills.

Sidewalker Micro Specs

Frame: welded CroMo tubing
Deck: plastic
Weight: 15 pounds
Length: 48 inches
Deck height: 6 inches (highest)
Deck size: 14 x 5 inches
Wheel size: 12.5 x 2.25 in. 30 psi tires pneumatic (we overinflated)
Brake: front V-brake
Cost: \$259 + shipping
Contact: www.sidewalker.at; kickstartscoters@bigfoot.com or 416-702-3636
Verdict: A compactible bicycle-like scooter best suited for short runs due to the high deck.

Xootr—This fancy, enthusiast built in the USA, CNC-machined aluminum scooter is a work of art. It has fast rolling 180-mm proprietary wheels that are patented (you replace wheels/tires together when they wear out). The scooter has a telescoping handlebar, a reverse fork (for stability) and your choice of wood, aluminum or carbon fiber decks. As much as I like wood, the aluminum deck worked much better. The decks are large and the design is sleek. The ride is 'hard' and the Xootr vibrates noisily if you walk it—though is nearly silent when riding. Nova Cruz expects to sell 50,000 units this year. We expected this to be our favorite scooter. It was in every way but one—the brakes are NOT strong and the owner's manual recommends that you stay away from hills. This ended our love affair with the Xootr. Nova Cruz said that they were working on an upgraded brake and graciously accepted our two scooters back and gave us a refund (minus shipping). This scooter is highly recommended for flats, warehouses, bike paths, etc. The cable-actuated friction brake looks very cool and is a neat design, but wasn't strong enough for our real world scoot commute.

Xootr Specs

Frame: aluminum
Deck: wood (Cruz), aluminum (Street) or carbon fiber (Comp)
Weight: three models weigh from 10 to 11 pounds
Length: all are 31 inches
Height: N/A
Deck height: N/A
Deck size: 35.4 x 7.9-inches
Weight Limit: #250
Wheel size: 180 mm
Brake: rear wheel friction (lever activated)
Cost: \$269—Cruise; \$389—Street; and \$489—Comp + S/H
Contact: www.xootr.com

Verdict: The Xootr is kinetic art, a technoweeenie's dream scooter, though it has marginal brakes and steep hills are a no-no. When they get the brake updated, I'll order another (though no wood decks).

LATE UPDATE: We have just received word that Xootr has done away with the rear brake in favor of a lever-actuated front wheel brake. We have not tried it yet, but are told that it vastly improves braking and is retrofittable.

Rollerblade-type Scooters—These compact scooters with rollerblade wheels started the scooter craze this time around. The most popular are the rollerblade-style scooters (by a long shot). Most have a narrow and rather short deck, a folding handlebar and stem and very small rollerblade wheels (100 mm-110 mm). These are known by names such as Razor, Racer, Zappy Kick, K2 Kickboard (3 wheels) and others. These are the faddish and trendy scooters that are currently being covered by the mainstream media—the market for these will be well over one million units. 200,000 Razors have been sold in the USA in less than one year. 6,000 per day are built in the factory in China. The rollerblade scooters use 100-180 mm rollerblade wheels and friction brakes. The *Seattle Post Intelligencer* called scooters, "part novelty act and hip fad, this millennial cruiser rolls the elements of skate-boarding and in-line skating into one....people are using them on college campuses, in airport terminals, on factory floors, to perform tricks, in homes, to run errands, commute and more."

It is best to decide how you plan to use your scooter. The Razor type is best if you are looking for a compact and inexpensive scooter to skate down the street, cut a few minutes off of your mass-transit commute or roll around on sidewalks, campuses, parking garages, and short impromptu rides. These types of scooters are the rage amongst kids these days. They represent well over 90% of the market.

The rollerblade-type scooters are best suited for kids, lightweight adults or less serious scooterists. Compared to the more serious scooters, they roll slower and are skittish and borderline unstable once you've ridden a Xootr, Kickbike or City. The rollerblade-scooter models that we rode or saw looked to be of decent quality. They weigh from 6-11 pounds and many have rider weight limitations. One added bonus is that they all had solid wheels so you won't have to deal with flat tires.

Razor & Clone Generic Spec

Frame: aluminum or steel
Deck: aluminum
Weight: 6-11 pounds
Length: 26 +/-inches
Deck height: 3.5 inches
Deck size: 13 x 4 inches
Wheel size: 100-120 mm solid
Brake: rear fender brake
Weight limit: #150-#200
Cost: \$100 to \$130

Verdict: My kids love their Razor-clone "Racer" (from Kickstart scooters). However, I can barely ride it. It is too short, too small and coasts too slow. These are fun toys for the neighborhood, skatepark or smooth sidewalks. They are best suited for kids and small adults, or those who need to ride short distances only.

The One That Got Away—Know-Ped

This is one scooter that we were unable to try, but very intrigued with—especially after finding our Xootr brakes inadequate. This is the kids' push version of the famous (or infamous) gas-powered scooter Go-Ped. The Push Ped (or Know-Ped) has 6-inch steel wheels with solid rubber tires, a low and wide wood deck, a folding handlebar/stem and an optional bag to store it in. It has a rear fender/friction brake activated by your foot as well as a front brake that is an alloy caliper with no brake pads. The Know-Ped is low-tech and tough. It will hold 400 pounds of rider. It is very compact and weighs twelve pounds. It is a capable little commuter and the only real scooter of the compact type. Go-Ped markets the Know-Ped as a kids' scooter—an easy entry for budding weed-wacker powered scooter pilots. The Push-Ped sells for about \$150, though we saw prices as low as \$130 on the Internet.

Final Words

No scooter was perfect for this scooterist. The Xootr with a brake would be the closest, but they are too costly to buy several for the family. The low-tech Push-Ped is really the next best choice. As an XL-sized adult, I could

not even ride the Razor clones—especially after trying all of the others. The Micro's deck was a bit high for me, though it is a fantastic scooter. The only other downside is contending with the rare 12-inch wheels, tire replacement and vulnerability to flat tires. The Kickbikes would be better suited with a 26/16-inch wheelset. Kickbike enthusiasts who ride a lot should consider a 349mm 16-inch rear wheel conversion (see Zach Kaplan). Kickbike USA also seems to be under some kind of reorganization. We never did receive any photos (old or new Kickbikes), and our last few emails went unanswered. Sidewalker has a great line of scooters which are really the best choice at this time. Sidewalkers' cheap plastic deck could be improved, and most scooterists seemed to agree all bicycle-type scooter decks are too small.

After nearly a season of scooting, the novelty of workout scoots eventually wore off and I went back to bike riding for anything over two or so miles. I now prefer the simple gravity-scoots of my commute on a simple, lightweight folding scooter.

Powered Scooters

We're only concerned about human powered scooters, however, the gas powered Go-Peds and electric Zappy's are quite the rage—each having their own loyal followings and Internet newsgroups. There are lots of aftermarket add-ons and speed goodies available.

Late Updates

Xootr's and Razors are now sold in the Sharper Image Catalog. As of this writing you can buy a Sharper Image Razor for \$100 or so. The scooters also come with your choice of orange, red, blue or green wheels. A new Razor Extreme has a miniature front suspension fork and a wheelie bar off the back of the scooter—all for \$129 or so. Zap, the electric bike folks have their own new kick scooter, the Zappy Kick. Sidewalkers are still very rare in the USA, though Kickstart, the friendly dealer in Toronto will be happy to ship to you in the states. I am dreaming of a dual 305mm (BikeE size) folding aluminum scooter with mini-V-brakes and a nice wide and low Xootr-like deck.

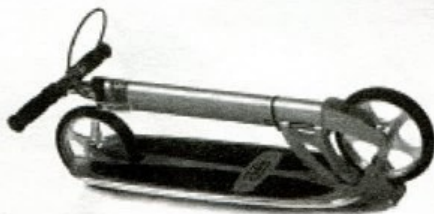
Keeping one foot on the ground By Pippa Garner

A scooter is a hybrid vehicle. It splits the difference between running, walking and cycling, but should not be compared directly with either of these activities. When you propel a scooter you are essentially rowing with your legs—a 100% organic drivetrain! The concept is wonderfully minimalist, but as in most things, deceptively simple requires careful design.

The posture of the rider is absolutely critical to efficient performance on a scooter. If he is too vertical, power is lost and the supporting knee is overloaded (inviting tendonitis). The handlebars must be far enough ahead of the footboard to allow the body to lean forward so that the power leg can really reach and then drive the scooter ahead. This body geometry must be maintained regardless of terrain, so bar-ends are necessary for climbing. Also, the side of the scooter must be free of any obstructions (sharp edges, nuts, brake noodles, etc.) that could cause injury.

It is important that the footboard be as low as possible in order to keep the driving foot on the ground for a long stroke. Five inches is the absolute maximum height and even a quarter of an inch in reduction is noticeable. The position of the rider gives the scooter a forward weight bias and a higher center of gravity. So, for safety, efficiency and control, the front wheel should be large. The back wheel is primarily a stabilizer and can be much smaller to permit a compact, stiff frame, but a large back wheel (and longer wheelbase) will track better at speed.

The scooter and recumbent bicycle represent the opposite extremes of the cycling industry and, as such, they are highly compatible. Alternate between the two and you will experience the utmost variety in the world of human power.



Special Thanks to:
RCN Reader Pippa Garner—Kickbike & Micro owner
Gideon Tomaschoff—Kick Start Scooters in Toronto

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DESIGN: The Big Wheel SWB Cult

Chapter 1. Big Wheels vs. Small Wheels and Speed

by Rich Pinto, rcpinto@aol.com



*Rich Pinto's AeroCycle built under contract by George Reynolds.
The bikes are available on a limited production basis*

Recumbents today come with a wide variety of wheel diameters, from 16-inch to 27-inch. Tire width can vary from 18mm to 50mm or more. All these tire sizes have strengths and weaknesses, and the best tire for a commuter may not be the best for the speed crazed rider.

Design considerations have put smaller wheels on the front of most bents. My own SWB OSS designs started with the familiar 700c rear, 20-inch front, went to a dual 24-inch, and finally dual 650c, or triathlon 26-inch. The availability of the fastest upright tires, front wheels, and forks for 650c triathlon and time trial bikes made it appealing to make these wheels work on my existing design. The following will discuss the some of the characteristics of these different wheel and tire sizes. I have given more weight to those rolling resistance studies done with full size rollers (~6 foot diameter), or very low speed rollout tests. These low speed tests recreate the actual shape of the contact patch of the tire with the road exactly, and the larger rollers come very close. A well known bicycle science/tire guru I spoke to had reservations about smaller rollers having an "unnatural contact patch" which did not resemble the actual on road tire patch. However, Ian Simms of Greenspeed has done some tests with a 4.5-inch roller, and has said the results were close to his on road results.

Also of interest—among the "highest end" 700c (some available as 650c) clincher road tires tested by *Bicycling* in November of 1998 by the Japan Tire testing institute, rolling resistance varied by over 200%! This would mean ~12% more power necessary at 20mph from an average racing posture upright from changing tires from the fastest to the slowest. This assumes a typical 70% aero drag, 25% rolling resistance, 5% transmission and bearing losses. As you go faster the power to overcome aero drag goes up as a cube—to go twice as fast requires 8 times the power. Rolling resistance is approximately linear with speed—twice as fast requires twice the power. By the time that upright racer (and faster unfaired bents) hits 25mph, the aero drag can approach 90% of the total drag and other factors start to become less important.

Wheel Diameter

With an identical tire construction and width larger diameter wheels roll more easily, in theory half as much rolling resistance drag if twice as large. The only tests of identically constructed tires in different diameters I could find were done by HPV pioneer Chet Kyle for the US cycling team, GM, and others. These had 19mm track tubulars in a ~18.5-inch diameter (20")

and a ~27-inch diameter; the smaller wheel had 181% more rolling resistance, somewhat more than theory would have predicted.

Larger diameter wheels are also heavier for a given wheel strength. The bracing angle of the spokes is shallower for less lateral strength, spokes are longer and farther apart with the same spoke count. Also, if the same width tires are used, the larger wheel should have slightly higher aerodynamic drag.

Tire Width

One study done for Avocet uses identically constructed tires, at the same pressure, in varying widths, and shows some manufacturers' tires have a slightly decreasing rolling resistance in wider widths, and other manufacturers with about the same or less as the width decreases. The previously cited tests done by Chet Kyle also included a couple of tires we sometimes see on 'bents today.

The Avocet Fasgrip (20 x 1.75-inch) had 231% of the rolling resistance of the 27-inch by 19mm wide tubular at the same pressure. The Moulton 17 x 1-1/4-inch had 187% of the rolling resistance as the 27-inch tubular, just a little more than the 20-inch 19mm (18.5-inch actual diameter). The 27-inch

19mm Specialized Turbo S road clincher (late 80's version) with a butyl tube had 175% more RR than the reference 27-inch tubular, but only 144% as much with a latex tube, an improvement of 18%.

The wider tires have more casing stress (at a given pressure) from their increased cross section, and are generally made heavier and thicker than the narrower tires. This thickness makes them less prone to puncture flats, and also pinch flats—a compression failure of the tube material as it gets squashed between the rim, the tire, and the road or pothole. The wider tires also have the ability to run at a lower pressure and still protect the rim sufficiently, while transmitting less vibration to the rider.

Wider tires also have much higher aero drag than narrow tires which are the same width as the rim. The wider tires frontal area goes up, and also the air separates more easily at the shoulder of the tire, increasing Cd, the coefficient of aerodynamics. The overall drag of any object will be the product of Cd times the frontal area which results in the "effective frontal area." In tests done by Chet Kyle, an 18mm tire (the standard width in most Aero comparisons) had 41 grams less drag than a 24mm tire per wheel at 30MPH using the same wheel. Each 2 grams of extra drag slows you about a foot per mile at 30MPH. In this case, on an upright bicycle, the switch from 18 to 24mm tires could cost as much as 40 feet per mile. Of course not many 'bents use 18mm tires, but it gives you an idea of the aero penalty incurred with wider tires. All of this can get complicated by recumbent fairings which can partially shield the tire, and also gets shielded by the rider's body and bike on some bikes, so your mileage will vary.

Tire Air Pressure

Tire pressures for the road tires used for recumbents can range from less than 50 pounds to about 160 to 170 pounds for some narrow high pressure clinchers and tubulars. Higher pressure tires have lower rolling resistance because there is less of the tire deformation which is the cause of RR. The tires narrower cross section allows a thinner, more supple casing which rolls more easily and allows higher tire pressures. This combination of factors makes these tires the fastest, but not the most practical for most bents for the reasons outlined above. As many have pointed out, a flat tire is the slowest—0 MPH.

Aerodynamic Wheels

These can affect upright hour long time trials 1 to 2 minutes just by

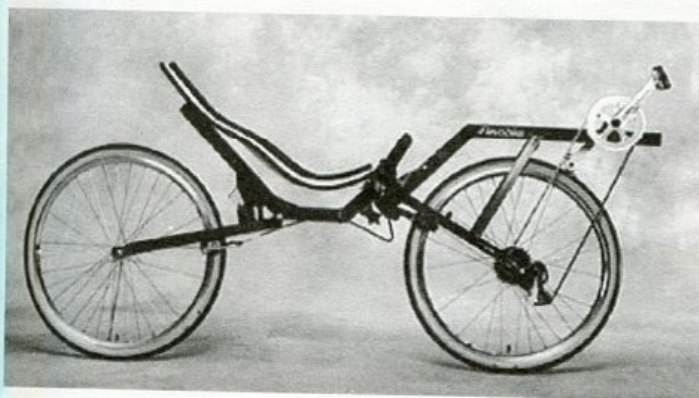
switching from standard round spoke wheels to aero deep section rim wheels or discs. Unfairly recumbents probably see similar speed increases. Tom Compton's excellent site www.analyticcycling.com is probably the highest tech web site related to cycling. It allows you to make the comparison between a lighter, less aero wheel, and a heavier, more aero wheel. The heavier aero wheels win almost all speed comparisons, including large, high power accelerations and moderately steep hill climbs. This site also allows you to change the rolling resistance and frontal area of your proposed wheels and see what the effect would be.

Also, the rim deflections in any normal wheel (less than slack spokes when loaded) are dwarfed by the deflections of the tires and saddle/seat and some recumbent frames. So the oft repeated statement that one wheel design is "more comfortable" than another has been discredited by those who have measured it. This criticism of comfort is often made of deep section rims and discs.

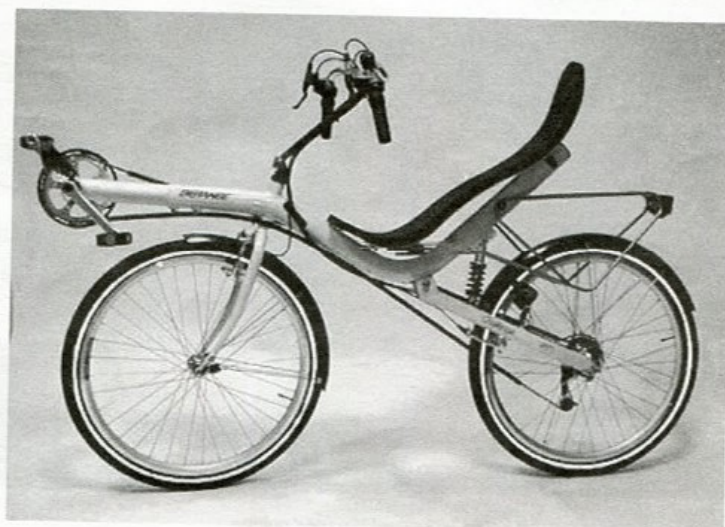
For a much more coherent and complete explanation than I have given I would highly recommend "Bicycle Science" by Whitt and Wilson, "Human Powered Vehicles" by Abbott and Wilson, and "High-Tech Cycling" by Edward Burke. These have been the sources for much of this article and great sources of information for those curious—or just trying to go faster! □



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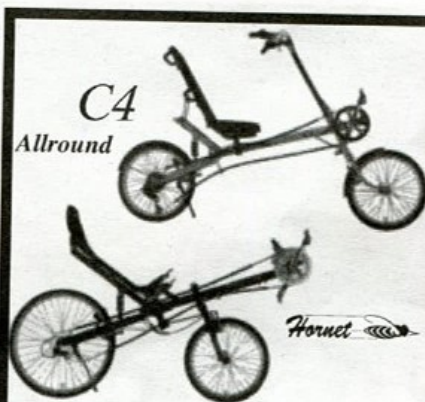
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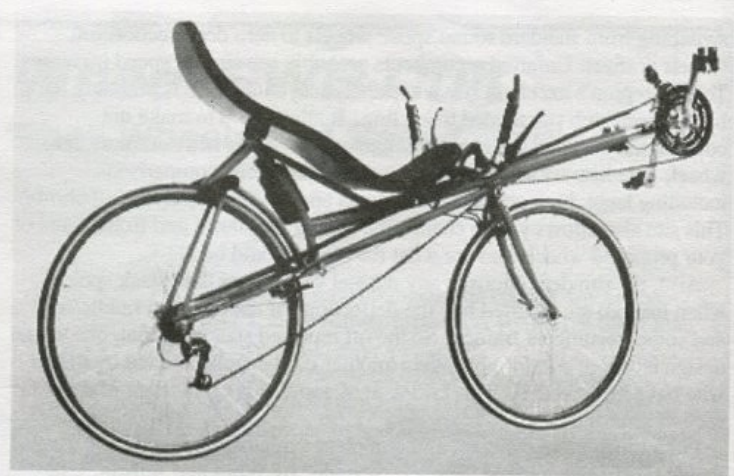
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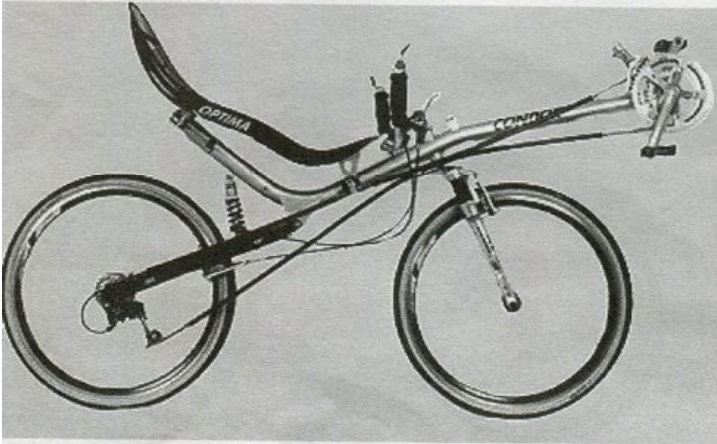
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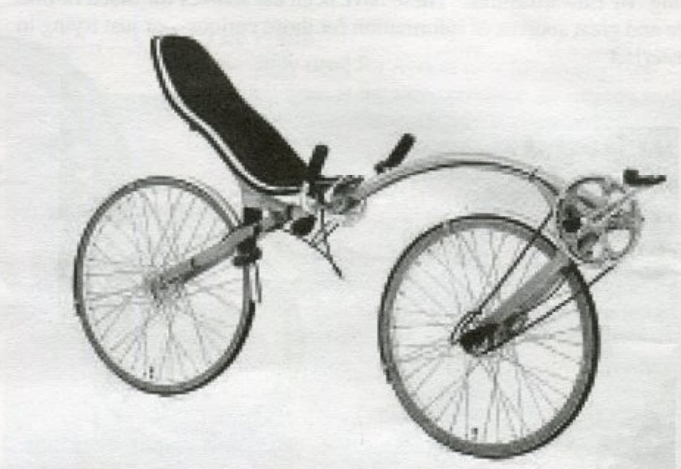
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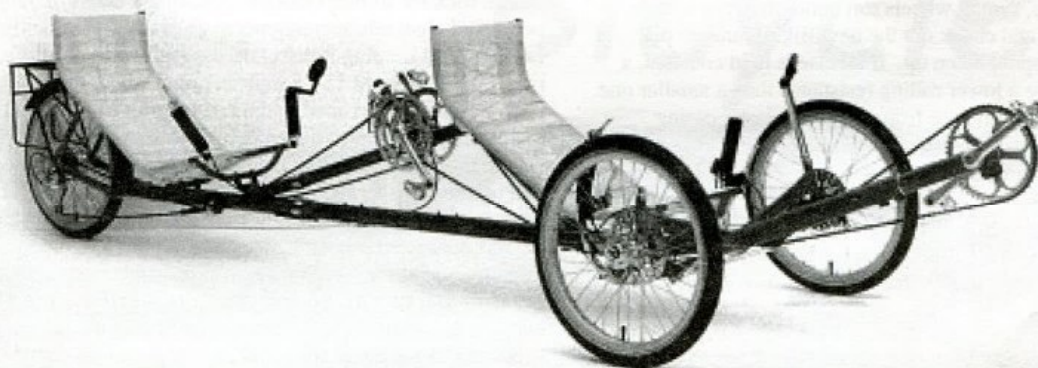
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DESIGN: The Big Wheel SWB Cult

Chapter 2. Big Wheels Are Better

by Warren Berger



Warren Berger's big wheel V-Rex

For many of us, recumbents are a religion. As with all religions, there must be articles of faith, which distinguish members from the rest of humanity. For ecumbentists, the first is, "small wheels roll better than big wheels." If this is you, skip this stuff and check out the new BikeE tandem pix.

However, if you are a skeptic, listen up. If all else is held constant, a larger diameter tire will have a lower rolling resistance than a smaller one. This means, if you make your little tire from the most elastic casing materials possible, a larger tire of the same material, construction, width and pressure will still have a lower rolling resistance. Period. Don't take my word for it. Start by reading the following:

Bicycles and Tricycles by Archibald Sharp, 1896, chapter 29. This book was reprinted, by MIT Press, in 1977 and I have seen it in Barnes and Noble. Fortunately, the laws of physics (for things the size and speed of bikes) haven't changed since then.



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Bicycling Science by David Gordon Wilson and Frank Rowland Whitt, 1982, MIT Press, chapter 5. I have seen this one at B&N as well.

Proceedings of the Second International Human Powered Vehicle Scientific Symposium, all of it. But, in particular, read the article by Chet Kyle, the section on rolling resistance. Read New Aero Wheel Tests by Chet Kyle in the March 1991 Cycling Science.

Charles Brown's Rolling Resistance Tests of Small Wheels in the Fall-Winter 1992-93 Human Power Journal Cyclo-Pedia Catalog: 1992, 1994 and 1995 by Gaylord Hill (if you can find them).

All of these people have done serious research (some for the Olympics) and/or reference serious research in their books and articles. Many are small wheel fans. None of them, not even Alex Moulton himself, claims that a small wheel rolls better than an identical large wheel. There are many reasons to use small wheels on a bike. However, lower rolling resistance is not one of them.

Bob Bryant asked me if the the improvement in big wheel rolling resistance overcomes the aerodynamics advantage of lowracers. A perfect example is the German ZOX recumbent. The ZOX 20/20 is laid out exactly like the ZOX 26/26. The frontal areas are exactly the same, except for the small additional area of the bottom 6" of wheel. This tiny increase in area is more than offset by the reduced rolling resistance. The rougher the road surface, the greater the advantage. Some years back, I believe it was Chet Kyle, did some studies for Olympic time trial bikes and figured that the reduction in aero drag of a 24" front wheel might just offset the extra rolling resistance. For smaller sizes the increased rolling resistance overpowered the aero advantage.

A real case can be made for a smaller front wheel (with a proportionately smaller loading, not the larger loading of a long boom SWB design). For example, a V-Rex or P-38 carrying 40% of the weight on a 20-inch 406mm or 451mm front and 60% on a 559mm or 622mm rear, will not be held back by the small increase in rolling resistance at speeds of 20 mph and more. If you average 20 mph unfaired, don't worry, the decrease in aero drag at the front will compensate.

The trick for us mere mortals is getting a bike to 20 mph (notice most people who get into recumbents to go really fast, quickly move to full hard fairings) and keeping it there! In the real world of hills and rough roads, I ride 75-100 miles at 15-18 mph average, where things like light weight, no power side idlers, properly adjusted bearings, high pressure tires and large, low rolling resistance wheels pay real dividends.

The other question that people don't get is "for identical construction and pressure, wider tires have less rolling resistance." True enough, but as Sharp explained the physics in the 1800's and Sheldon Brown mentions in his recent article on tires, if you have two tires of the same construction and pressure, either the wide one is over inflated or the narrow one is under inflated! Because the volume goes up faster than the surface area, the cords in the wide tire will be under more tension. If you adjust the pressures so the cords are under the same tension (same safety factor) the narrow tire will have lower rolling resistance.

Oddly enough, when you get really fast, super clean (not coroplast and duct tape), hard fairing bikes, capable of 50 mph and up, rolling resistance comes back to haunt you. With these super low aero drag bikes, rolling resistance can represent almost 25% of power consumption (see Doug Malewicki, Human Power, Spring-Summer 1994).

Have you noticed that Georgi Georgiev went from 17-inch Moultons on the first Varna, to 20-inch 451mm wheels on the second, to 24-inch wheels on the latest record bike? Brahm Moens runs 650 front and 700 rear wheels on his record setting streamliner.

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Touring Europe by LWB Recumbent

by Charles De Wulf

Like most recumbent riders, coming from a history of 'upright torture,' I looked forward to my second European cycling trip with glee, even though it would be twice as long and venturing into sketchy territory (eastern Europe) and I'd be twice as old (age 61).

In the time since my last tour, I had discovered recumbent bicycles. I have been riding a Linear for two years, and done a 3000 mile trip up the west coast and back pulling a home-built bike trailer. I was finally ready for what would be a 4500 mile, six month odyssey from Ireland to Turkey.

The ticket to Europe was a one way Icelandic Air from Baltimore to Luxembourg. With everything into a tandem size bicycle box and an expedition size backpack (traveling solo and camping out), I was slightly overweight. The extra fee of \$195 (stand by) was still a bargain. I had carried my fiddle and banjo. Being an amateur musician, I pack my taxes everywhere I go—which is the main reason for the trailer.

When the jet touched down at high noon, the weather looked perfect. I set about assembling the recumbent and trailer on the front lawn of a small facility. In a few hours, I was on my way, heading for Calais, France where I'd board a ferry for Dover, England.

It was early May and the weather felt like winter back home (SW Sonoran Desert). My accoutrement was much more sophisticated this trip than the first. Back in the sixties, the army/navy surplus store was practically the sole source for camping and outdoor gear—\$150 to get me on the road including a new Schwinn 15-speed 'Sierra.' I now needed a thousand bucks worth of gear, not including my recumbent. But I wanted to be reasonably warm and dry—knowing how miserable it can get (old age). The first trip took a more southerly route going from Lisbon to Crete, mostly following the northern Mediterranean coastline. It was relatively dry and warm compared to England and Ireland where I was heading now.

It took a few days to get used to the narrow two lane highways and fast traffic. Camping spots were fairly easy to find (I was determined not to camp in commercial grounds) and refuge from rainy spells could be had in animal shelters, barns and WWII bunkers. In ten days, I was pedaling through Dover hugging the English coast towards Portsmouth then angling up to Bristol, Newport and Fishguard where the ferry would take me to Rosslare.

Once in Ireland, besides the sight-seeing, I planned to hang out with some musicians and do some jamming. I would soon find out cycling in Ireland was top-notch. In spite of the dynamic weather and narrow roads—it couldn't be much better. Traffic was sparse while camping could be had in practically any pasture. No trespassing or keep out signs were rarely seen. Three glorious weeks were spent criss-crossing the southern half of the country, playing music and drinking Guinness. The terrain is mostly rolling hills and definitely green. I left Ireland at Dublin and from Holyhead, Wales headed east through Llangollen and some super nice mountain scenery. And of course, I had to go through legendary Nottingham (where's that forest?). I was taking a direct route to Norwich where I wanted to visit the Windcheetah factory and hopefully take a ride on it—which I did, and yes it is fast! Eastward from Norwich to Great Yarmouth then south to Felixstowe where the last ferry ride will drop me at Zeebrugge, Belgium. The terrain in England along my route was rolling hills. I was surprised to see no bike paths, while the traffic congestion was bad. Ferry fees averaged eight dollars with no extra charge for the trailer.

Back on the mainland, I was anxious to see Holland and Germany and experience their legendary bike paths. It was July, the weather was perfect, so why not head north along the coast, take a nice swim every day and when I arrive at Haarlem, turn inland to Amsterdam. As I start putting this plan into action, I'm soon overwhelmed with what seemed like 'millions' of bicyclists coming and going on special paths built off the auto road. Yahoo! What a treat it is to relax while riding! Then, all of the sudden it dawns on me that the safer it is to ride, the more people ride!

In Holland, it's against the law, of course, to camp anywhere but camp grounds. When I saw how crowded they were, I thought, 'no way'! I'll bend the law—take a chance (for my own sanity) and being environmentally conscious will leave no trace of my presence. I carried an MSR

cookstove (white gas/kerosene), an ongoing supply of bread, pasta, cereal, wine, canned milk, onions, canned fish, garlic, carrots, half gallon of water (Katadyn water filter which I never had to use). I cooked most of the time except when local specialties were hard to beat like fish and chips throughout England or bratwurst in Germany.

After checking the American Express for mail and changing money, I tried a little busking at the train station in Amsterdam. In a couple of hours, I'd made enough for lunch, a couple of beers and checking out one of those notorious coffee houses—and yes, they offer you more than coffee! It was fun, but the diversions had to be cut short. The sun was sinking and a few kilometers had to be pedaled to make it out of this big city in time to find a camping spot.

The most direct route to the Rhein was through Utrecht and once on the big river cycling was sublime! Tourists were everywhere so busking became a part-time occupation—given good weather. And once when I had to turn up the Main river to Frankfurt for passport renewal, my arrival coincided with a traditional river carnival. Needless to say, the three days spent playing old time music was not only lucrative, but fun!

My rig was holding up okay. Except the rear wheel rim would have to be replaced soon (the original one had taken a pounding over the last four thousand miles of touring). So in Worms, where I would leave the Rhein heading east toward Austria, I bought a new rim, spokes, tire/tube (changing sizes from 27-1/4" to 700c because of tire availability). I would lace it up at the right time and place on the upcoming Altmühl river—which turned out to be Beilingries.

As on the Rhein, the Altmühl is lined with well used bike paths. Quite often one can see whole families traveling on vacation. Since traveling in Holland and Germany I've seen a few recumbents of all shapes. One home-made in particular was built of stainless steel tubing (heavy). I even ran into another Linear ridden by a young man who commuted on it every day rain or shine!

At Regensburg, the Altmühl joins the Donau (Danube) which will take me through Austria and into Slovenska Rep. Before leaving Germany I stock up on spare tires as they won't be readily available in eastern Europe, especially the front tire (20" x 1-3/8").

As I leave Vienna and Austria behind, there's fewer and fewer cyclists and when I pass through Bratislava the path becomes a dirt road which I have all to myself. Throughout my travels in eastern Europe, mainly confined to Slovenska Rep., Hungary, Romania and Bulgaria, bicycles are used mainly for commuting back and forth to work. The highways are rough and narrow while traffic consists mostly of trucks, busses and horsedrawn carts/wagons. Before entering the east, I'd heard a few horror stories and warnings to stay away. But I thought I'd try it and if it got unbearable, I could always leave on a train.

As it was August/September, the grapes and vegetables were ripening—the grapes in Hungary (especially the dark ones) had to be the best I'd ever tasted. My panniers were constantly full of vine ripened veggies that were given to me. And there always seemed to be fresh potable water available—quite often from pumps by the side of the highway. Food stores were sparse and sometimes difficult to locate. Then, when located, they might not be open. As with the banks, the food stores were only open a few hours daily—usually the mornings and afternoons. But if you hit it just right—the bread shelves would be full of hot incredibly delicious bread!

In spite of the language barriers in most of the countries I toured (except for England and Ireland) I could always make myself understood. It seemed a combination of mime, sign language, gesturing and pigeon English did the trick. Plus, generally people were friendly and helpful, especially in the countryside. On one occasion in Romania I was invited into a very modest family home in a small village for two days of incredible hospitality!

I left Danube at Komarno, Slovenska Rep., and angled south to get highway 75/60 then to Kiskunhalas. The terrain in Hungary is flat very much like Holland—easy cycling and sparse traffic. From Kiskunhalas I

connected with Szeged on a smaller road. From there onto highway 68 which follows the Maros river and at Nadlac crosses into Romania. At this border crossing, I met three cyclists going my way; a man and woman on a tandem from Scotland heading for China and a fellow gringo from Oregon heading for India! In Arad I turn south to Timisoara where I connect with highway 70 and the Timis River. The highway starts climbing up and over a pass in the Carpathian Mountains then back to the Danube at Orsova. But not for long because at Turnu Severin, the road separates from the river for a short distance then rejoins at Cetate. In just a few kilometers, the road crosses the river and border at Calafat into Bulgaria. From here on through, the remainder of Bulgaria the mountainous scenery is spectacular—beginning with the Balkans! One scary highlight was passing through three smoke filled, dimly lit tunnels!

It's early October when I pick up mail, call home and load up on food in Sofia. From there, I take highway 79 past a magnificent range of 10,000 foot snow covered peaks! Then it's straight south to Greece and Thessaloniki. It's here in Salonika where I decide to take a break, set up camp for a week on the outskirts with a friendly sheepherding family (no charge) and check out the local culture. My camp is a short distance from the local yacht club where I'm permitted to use the facilities, shower, etc. It's been four months of steady travelling since leaving Ireland. It feels good to unload everything, just relax, and leisurely pedal around this historically cultured city.

As I'm breaking camp and preparing for the last stretch of this trip, I find it difficult not to compare the Greece of now, with what I remember from thirty years ago. And even though I'm travelling in different parts, I can't help but believe the changes that have occurred throughout the country. The most blatant change seems to be a mega expansion of the tourist industry. Certain aspects of this growth appear to be in conflict with environmental concerns—an obvious case in point would be the constant flow of raw sewage into Salanika bay.

The plan is to travel the coast road around Halkidiki Penninsular and swim as often as possible. The first two days back on the road are perfect including ample swimming time.

Then the first big breakdown occurs when the crank bearing fails (and I didn't bring a spare). So, the only thing to do is stash everything at a local (and very helpful) fisherman's house, grab the sleeping bag, tent and back-pack and hunt down some new crank bearings. It takes four days hitchhiking from town until a bike shop is found with the right parts. Then back for the repair—and as I'm finishing up the thought occurs to me—what if this happened in the middle of Romania? I guess it could have been worse.

Back on the road at last, past the penninsula of



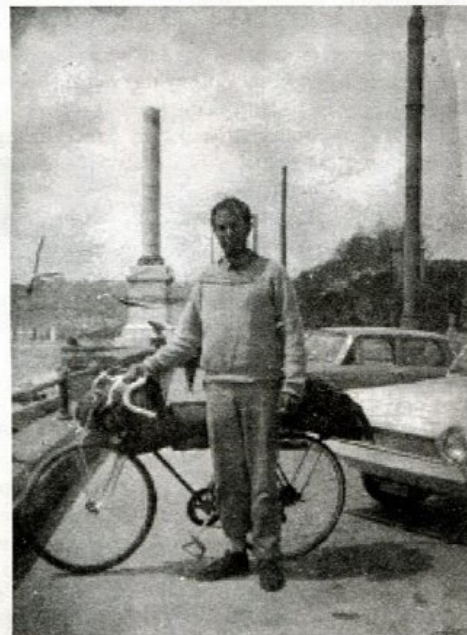
ABOVE: Author Charles De Wulf in southern Ireland 1996

BELOW RIGHT: 1965 Napoli, Italy. The author rides for Bridisi, and then eventually on to Crete.

Athos which all the monasteries and on to the Kavala, Xanth, and Komotini. At the next town, Ardani, the border into Turkey is crossed and from the amount of armed guards, fences, and gates, it's obvious that these two countries have been at odds for a long time! The last 250 kilometers to Istanbul consist of narrow, long, long hills crowded with huge overloaded trucks and 'millions' of speeding tour busses. Agriculture is the main activity along this stretch so it's either dusty or muddy depending on the weather. What is lacking is the scenery. This was more than made up for the by the friendly people who were constantly whistling you over for a glass of hot tea.

The final day of pedaling is met with a rain storm off the Black Sea. And by the time I wind my way into the center of this city of ten million and find a cheap (\$2.50 per night) hostel to settle into it's turning dark. The hostel (one of dozens) is located in the old part of Istanbul and is full of cyclists/travelers from around the world. I'll spend a week exploring this ancient city, swapping stories with other cyclists before returning home.

Post Script: More than likely, I could have made this trip on my old wedgie like my previous trip—thirty years ago, though money would have been spent on pain killers instead of on more enjoyable stuff like food, wine and beer! And time spent playing the fiddle and banjo



would have been negligible given the numb and sore hands, wrists and arms not to mention the rest of my anatomy!

On the average, the total weight was 150 pounds. The crank sprockets were 24/38/52, while the freewheel is a 13-32 7-speed, giving a spread of gear-inches from 20 to 108. □

'Bents & Beasts

By Deb Rogers
PanWoman24@aol.com

I have a feeling that this is going to be a great day to take the bike out for a spin! Last weekend it was virtually a 'bent bar-b-que out there with the sun broiling hot, but today the Central Valley of California is predicted to be perfect. Just warm enough so there's no doubt that it's still summer, but not so hot that you have to worry about being able to melt a Power Bar in your pocket, or fear that you'll be running out of water in the first 15 minutes. I can't wait to get out there for a whole day of exploration and fun!

A little earlier this morning, just after the birds of early dawn had gotten a good start on their harmonic melodies, I had pulled out the map and plotted my intended course for the day. It looks like the ride will be full of variety, including some quiet countryside vistas, rolling hills of tan colored grass, and farm lands complete with cows, horses, sheep and maybe some goats. I'll probably go past a few orchards and circle back through a couple of laid-back cowboy towns. Yeah, that sounds great! So, I throw my lunch and a few snacks into the bike's trunk with a couple of frozen water bottles. Then filling up my water pouch and securing it inside its usual home in the backrest bag, I go through the traditional checklist, and I'm all set to zip out of here.

The adventure begins around 8:00 AM in the quiet countryside with only a few ranches sprinkled here and there. Since I hadn't had much opportunity to ride for the past few days, this is the kind of outing I was craving. So after the first 10 or 12 miles of rolling hills with barely a car or farmhouse in sight, I'm thinking to myself, "It looks like I'm going to have one of the most relaxing rides I've had for awhile. I am truly loving this!" Of course, that's because I had no hint that there would be a plethora of excitement waiting for me just a few miles further down the road. I innocently press on.

As I roll up the crest of one gentle hill and then another, I begin to notice a pungent barnyard scent. It seems to grow increasingly stronger. Then comes the truly spectacular view. Whaaaa!!! There before me, and then instantly on either side of the street, I am startled to see a huge herd of probably a "billion" cows of various colors and shapes. I wonder, "Is there a chance that they could be feeling aggressive today?" Hum. Luckily there is an ever-so-delicate barbed wire fence between myself and all of their enormously hooved and horned bodies. At this moment, I am feeling the insignificance of my tiny plastic helmet. Then I begin to wonder about the ability of my legs. Is it possible for these quads to push the cranks hard enough to make my Avocet change its reading from 15 mph to 50 mph in a matter of 1 second, IF it turned out that I needed to outrun a stampede?

Of course these beasts hardly ever see any traffic on isolated roads like this, so they notice me right away. With miraculous synchronization, the entire group of bovines raise their heads, with some of them vocalizing something that resembles a deep and rumbling "huuh?" All of those eyes looking right at me! Whoa! It kinda gives me chills! These cows are smart though, I can tell. They aren't wasting any time on trying to work out too many details. So, in the split second that I am seeing them and they are seeing me, an amazing thing happens. Going from pure instinct, each of the probably "two billion" cows sling their heads around and begin a mass gallop in the opposite direction from the narrow road, where I am now pedaling feverishly. They must be assuming that I am another one of those aliens beaming down again from far away planets in search of life-samples from earth. What else could I be with my brightly colored outfit, my shiny multi-vented head, and a vehicle that looks like nothing they have ever seen? With heart pounding relief, the seas were parting for me, and I was oh-so-grateful that they didn't end up thinking that I was the hay truck bringing their mid-morning snacks!

After having a few moments of distance on the event, I started realizing what a blast that experience had been. So now I'm pedaling with a big grin on my face, thinking about "the great wildlife adventure" I've just had, and feeling excited to tell some of my friends about what would most certainly be the highlight of this ride almost becoming the centerpiece at a cow luncheon! With only one-fourth of the ride completed, there was so much more adventure still waiting to unfold. So on I go.

The scenery begins to shift at about mile 24 and I stop for an early lunch under a tree in the sweet smelling orchards of pears and apples. Rows and rows of countless green trees stand in moist brown soil, fresh from the recent flood irrigation that they do out here. They kind of remind me a little of Christmas trees with the way their orbs of colorful fruit hang from the branches. Well, except for the occasional buzzing of a bee in search of nectar tidbits. The sun is starting to warm up pretty good, so I'm happy to sit in the shade for a few minutes while I enjoy a mental review of the ride as I munch. There had been colorful wildflowers along the roadside and the morning birds singing and swooping nearby to check me out. Then there was the little historic bridge I crossed with a plaque saying it had been built over 100 years ago, and of course the cows! Who could forget the cows!

With a quick check of the map, I'm ready for more scenery. Back on the 'bent and full of renewed energy from my lunch break, I roll out of orchard country and gradually ease into cowboy country, where horses and pickup trucks rule. Traffic of any sort is still rather rare and I'm again settling into a nice rhythmic cadence through the countryside. Again feeling quite peaceful and content. Bring on the beautiful vistas!

About 4 miles further down the road, I hear a couple of odd sounds. "Pop, pop-pop." Hmm.... what is that? Is that my tube blowing out? I stop to briefly check my air pressure. Nope, both tires are still inflated. Good. Two more pops ring through the air. I focus my hearing in attempts to locate the direction of the sound. "Pop!" Wait, I hope I'm wrong, but I think those might be gunshots that I'm hearing! "Pop," they ARE gunshots! Adrenaline rushes up to visit me once again. Geez, I hope that whoever is shooting isn't pointing in the direction of the street. Still, I can't really seem to figure out where the shots are coming from. Then, my heart skips a beat as my attention turns to focus on an old blue pickup truck that's coming out of nowhere. It's zooming over the horizon in front of me. I can immediately see that the 3 guys inside are having a whopping good time.

They are laughing and flinging their arms around as they unexpectedly screech across my path in order to turn down a gravel road off to my right. I did have to squeeze the brakes a bit, but all is well (that is, after I start breathing again). Through all of the excitement, I manage to notice a small sign at the turn saying something about a gun club. So that's where the shots were coming from. Well, I guess that's better than thinking that those maniacs in the truck were firing randomly out of the windows! Still I'm thinking, I'll just pick up the pace a "little bit" and move on down the road. Quick!

The ride is about 40 miles long by now and the occasional ranch house is becoming more frequent. I find myself trying to imagine what it might be like to live out here. Now that the excitement near the gun club is fading into the distance, it looks quite peaceful out here. Apparently a much simpler life than in the crowded and fast paced city. With ducks or chickens wandering around in many of the yards, the ranchers seem relaxed and friendly, waving as I cycle by. More colorful than the brown grasses of the hills, and the orchards with their rows of green; the ranches have flowers and trees in bloom. Breathing deeply, I can even pick up the delicate fragrance of roses planted near the street. Nice! I notice that some of the ranches have split log fences, some have unattractive yet functional chain-link fences, and some have no fence at all. My mind kind of wanders casually from thought to thought, with no real direction. Just as I like it. Quite a contrast to the production oriented pace most frequently seen back at the office.

Then my pleasant trance begins to dissolve, as I become aware of a distant galloping sound, and then a deep-pitched bark off to the left. Ooh must be a big one! My fight-or-flight system immediately cranks up as my heart increases its tempo, my breathing becomes shallow and rapid, and my hearing sharpens to assess the situation. It sounds like a horse galloping in my direction, but no, it's an enormous black dog racing toward me at, must be, no less than 80 mph! Smashing wildly against the chain-link fence, it displays its razor sharp incisors as I tensely ride by. I don't care if there IS a fence, my heart is in my throat and my eyes are as big as saucers! I'm

not sure I can stand much of this "beastly" excitement today! Whew! That was a close one!

As I push on, I tensely notice that more and more of these ranches have dogs. Sometimes several dogs! Each time my adrenaline increases a notch as I strain to see if the vicious carnivore is behind a fence or firmly chained to a tree, or to the house, or to something, please! At one point it seems as though a dog from one house is telegraphing messages of alert down to the next closest dog until it becomes an amazing choral cascading effect of barking, racing, snarling and jumping. I sure wish I were wearing a helmet cam so others could see what this is like. Better yet, I wish that I were watching a video from the helmet cam of some OTHER 'bent rider having this thrilling experience!

Whatever happened to that peaceful country ride I was having? Thank goodness I did get a little breather before what was to be the actual peak experience of this day's ride. I gulp down several mouthfuls of water in attempts to rehydrate my dry, dry mouth from all of that "survival" breathing and sweating. I start to relax a bit as I realize that most of the dogs have been behind a fence or heavily chained to something, and I am hoping that I can rely on this until I get through the remaining ranches and back to town. What was it that I was saying earlier about not looking forward to being in town? Never mind, it's only a couple of miles further. I can do this! I'm sure I'll make it out alive after all! Won't I? OK, there it is again the piercing sounds of an excited canine! I feel like I'm ready (kind of) when I hear this next dog announce its alarm. I quickly look to the right and see that it's a huge German Shepherd. Oooh, "Keep breathing," I tell myself. Hum, there IS a fence, thank goodness! The dog flings himself energetically against the shoulder-height barrier several times. With each crashing jump, my body reacts with a flinching jolt, bracing in response to the frightening sounds of a "very determined" animal. Then with one last jump, the beast effortlessly clears the top bar, as if he had been training for the Olympics! "Oh help me, I'm dead now for sure! Come on legs, pump, PUMP!" Why, oh why, did I put off that sprint work I was promising myself to do?

My mind speeds to an incredible rate in attempts to come up with something I can do. Let's see, am I supposed to lay down and play dead? No, I think that's the last resort for bear attacks. OK, I think I'm supposed to stun him with whack on the nose? Wait, maybe that's when sharks start swimming too close. I know I'm supposed to look him directly in the eyes. No, no, no that's how to challenge a dog to do battle, and he's way too big for that! Ohhhh! It's too late now, the ravenous dog is within inches of my lightly gloved right hand. I have assumed a death grip on my USS handlebars and my knuckles have turned a pasty pale. Well, at least I probably won't bleed to death if he does bite me all of the blood has fled from my extremities toward more crucial organs.

From the corner of my eye, I can see his bared canines gleaming, as he makes the most fierce and bone chilling sounds I have ever heard. My legs, aching from the approach of exhaustion, continue to strain, as I summon up my most

authoritative deep voice and repeat several commands for the dog to "GET OUT OF HERE!" I think to myself, "Oh why haven't they invented a functioning transporter-unit that could beam me out of here right now!"

Well, I'm all out of ideas and I'm almost all out of energy. It looks like adrenaline is the only thing I've got left and there's still plenty of that! It's just what to do with it! I'm so tired and I'm so stressed out I can hardly hang on. I just have to keep yelling, and I HAVE to keep pushing those pedals. It was probably only a matter of seconds, but emergencies have a way of throwing everything into a time warp, so who knows how long it actually lasted. It seemed like the dog was snapping at my hand for days! OK, I have done everything I can imagine and I'm thinking there's no chance whatsoever of stopping this attack. Hope and energy are dwindling. I'll be forced to slow down soon and I shutter to think of the gruesome consequences.

Within seconds of those last thoughts, I glance down toward my right hand, where the dog has been nipping. What? I am startled to see that the dog is screeching to a stop as if there is an invisible wall. What the heck? Not that I'm ungrateful or anything! It takes me a few seconds to regroup my speeding thoughts, but after I realize that he is truly not trying to devour me any longer, all I can imagine is that I must have finally crossed the owner's property line and he has completed his job of defending it. Could that be it? I have never been so relieved in my life! Can you believe it?

A multitude of deep breaths follow, as I begin to slow down to a more reasonable and relaxed pace. I continue with the last 6 miles of my adventurous country ride, the rest of which is rather uneventful and relaxing at least compared to that last bit! Which is just fine with me. Well, I guess that's what I like about cycling, you end up feeling "fully alive" as you interact with your surroundings. Sometimes I could do with a little less interacting when it ends up feeling like a near-death experience! But because it all turned out where I'm alive and well, with no new scars on my body, and all of my fingers still attached, I am quite happy to have been on this terrific and exciting backcountry ride. What a day! I don't think I'll be forgetting this one any time soon!

Views from the Vet

Now that I'm back in the safety of my home, I find myself thinking quite a bit about the dog element of my ride, (since that was definitely the most exciting part of the trip). I wonder what other things I could incorporate in my outings to keep myself safe, should this happen again.

Lets see if I could muster enough balance while I'm in the midst of a panic, I might try hitting the dog on the nose with my bike pump or water bottle. But with that USS, I'm not too sure I could pull it off without having a wreck. Some of the bike shops carry a battery powered horn that puts out a high pitched sound, rather like a loud whistle. It has a push button wired to the unit that can easily be mounted to your handlebars. That might help.

Then one day I discovered an extremely loud whistle at one of the larger boating supply stores. I totally believe their ad when they describe it as the "loudest whistle in the world."



Central Valley, California



German Shepards at the fence



The pursuit begins...keep breathing!



Nipping at my pasty pale knuckles



The pounding heart & rapid breathing of survival



Get out of here!! Go Back!!

They intend it to be a survival tool and they really mean it when they say you can hear it from a great distance. It even works under water, not that I've figured out how to ride my 'bent on the sea floor yet! But I'm sure I would if I could! Anyway, my local veterinarian agrees that this whistle would probably deter all but the most vicious dogs that seem "possessed" and likely to stop at nothing. So I've added it to my survival kit and I keep it on a lanyard near my hand. The other end is attached to my backrest bag so I don't have to worry about dropping it. It works great in traffic situations as well and it's much louder than the battery operated horn or yelling. A small air horn could be used as well.

She adds that one should be prepared for the worst and carry pepper spray, mace or an electric stun-gun, which should do no permanent damage to the animal, but would buy some time for riders to sprint away to safety. Or a rider could carry a spray bottle of vinegar or apple bitter, which is used by dog trainers. It's not as harsh, so it would work on minor attacks, but probably wouldn't be enough for a dog that is really determined to bite you. An electronic bark controller works in training dogs to stop barking by using a high pitched sound that they run from, but I'm not sure how portable it would be for a bicycle since I haven't actually seen one before.

There apparently seems to be no general rule one can use on ALL dogs. It depends more on the animal's individual personality, which we don't tend to have time to figure out as we roll by. Also, a dog is more likely to bite you if they

have bitten others in the past, or if there are other dogs around that might join them in the frenzy of a "pack mentality." The vet advises against stopping the bike to confront a dog. At that point, they have already started their adrenaline going and you never know if he might be one of those animals that will "stop at nothing." There's always turning around and going the other direction if you see them before they see you, which doesn't happen that often for me. And if the dog is frequently running loose in an area in which you are riding (like when you're trying to go back and forth to work) you can report them to the local animal control. The fines can get pretty expensive which might get the owners to keep track of their pets a little better. That would be much nicer for us cyclists! So, what do YOU think? If you've got some good ideas, pass them along. I would love to hear about them too! ☐

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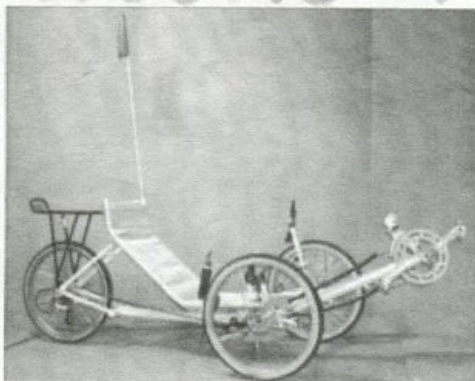
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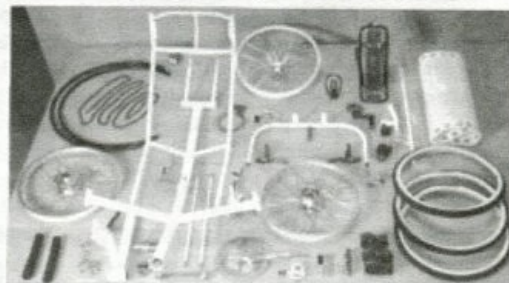
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The Evolution of "Eddy"

by Peter Lewis
plewis@execpc.com



"Eddy" is a 'bent—a special 28 pound TerraCycle's Terra-Za, to be exact. It's named for Eddy Merckx, the finest bicycle racer of the 20th century. Eddy Merckx was a disciplined, exacting, consummate professional racer. Pat Franz exhibits those same qualities as a designer and builder of recumbents. "Eddy" is dedicated to both of these "pros."

It started when Bob Bryant reviewed the Terra-Za. I confess that I was not particularly enamored with the look of the bike. But I respect Bob's knowledge and having him do a positive review on a SWB meant this bike had to be special; and I was immediately intrigued at the thought of working with a builder with a real attention to detail that seems to have all but disappeared. I wrote to the HPV list asking if anyone had feedback on the bike. I quickly got glowing reviews from a couple of folks in the Portland, OR area who had ridden it. So I wrote to Pat asking if he could supply just a frameset that I would build up. (My hobby is building up exotic bikes from framesets). After a couple of weeks of exchanging emails, we agreed on a plan where Pat would build the frame and I would supply most all the parts. Hopefully we could jointly build the bike. November 1999 marked the beginning of my friendship with Pat Franz and the start of "our project" as we referred to the Terra-Za until he had a name.

I had decided that I definitely wanted to use the (14 speed) internally geared Rohloff Speedhub. Over the next couple of weeks we talked about how to design the frame to accommodate the hub without a torque arm or chain tensioner; and we talked about what color to paint it. Pat is a master on a CNC machine and a lathe—if you can imagine it, he can build it. So, after several conversations with Rohloff USA, Pat had designed special dropouts for the hub that eliminated the need for a torque arm. On my end, I simply could not decide on a color. So I let things go for the time being.

As we moved into 2000 I was grateful to have Pat in my life in a new way—as a friend and mentor. I was about to be laid off from my computer programming job and wanted to take the risk of going full-time into the bike business. But it would mean a much lower salary and longer hours. Pat had had a very successful career as a computer hardware engineer and had left it for his love of machining and for his family, so he was a great encourager. Several long conversations later I accepted a position selling recumbents full-time.

Back to the bike—during January and February Pat was busy figuring

out all the special parts needed to build "Eddy" to accommodate the Rohloff hub. We needed to allow for dual cable stops/adjusters for the hub, and Pat machined special stainless steel rear dropouts that accommodated the OEM Rohloff hub to avoid the torque arm. Then came the issues of how to route the chain. No easy solutions. Pat had to change his normal design and decided to use machined idlers rather than skateboard wheels to "dress up" the look. As an experienced bike mechanic, the average consumer has no idea of how much time can be spent over seemingly small details. Pat, being a perfectionist, wouldn't quit until he was satisfied with both the functionality and aesthetics of every part.

For my part, I accidentally stumbled on a photo of Eddy Merckx riding for the Molteni Team in 1973. The bike immediately appealed to me. It was orange with yellow and blue panels. It represented the return to the simple grace and elegance of a bygone era in cycling. I let Pat know that I had found a color scheme. Soon afterward Pat was

wandering in a local shop in Portland and saw a replica of the exact bike hanging on the wall. So he pulled out paper and pen and sat making notes on decals and frame details while the staff wondered what had come over him. Soon after that Pat found a local custom painter who immediately accepted the challenge of painting "Eddy." "Our project" now officially became "Eddy."

In February I received a package from Pat containing a handlebar measuring tool for determining my body's preferences for hand position while riding. From the readings I did, Pat determined the height of the stem, the distance from my body, the width of the bars and the angle of the bend in the bars to fit my natural hand resting position perfectly. I was even more amazed and excited.

On March 5th, Pat's second child, Rowan, was born, so the whole process slowed to half speed. Pat wasn't getting much sleep and his schedule was topsy-turvy. But by the early part of April we had resolved the last issues that remained—how to keep tension on the chain; and what brakes to use. We decided to use a tandem eccentric bottom bracket for chain tensioning (since we were eliminating the spring tensioner supplied by Rohloff). We found an elegant Bushnell eccentric that internally expands thus keeping our design very clean. Brakes were a tough issue. I really wanted to use disc brakes, but the timing wasn't good. The mechanical discs weren't yet on the market, and Rohloff's adapters were late coming. So eventually I decided on Avid Arch Supreme V brakes. Oh well—they work fine and look great.

Pat spent much of April and early May building "Eddy" from all the specs we had developed. The custom painter did a fabulous job, and "Eddy" was in Pat's shop waiting to be built up on May 16th. I had decided that we should assemble "Eddy" together since the project was totally a joint one. On the weekend of May 20th I flew out and stayed with Pat's gracious family. We worked night and day until we got "Eddy" ready for his coming-out party on Sunday afternoon. Watching Pat work was a real treat—he's a magician with his machinery. If a part or a tool was needed, Pat would create it in his mind, then program the CNC machine, then watch the part become reality. It blew my mind.

On Sunday Pat threw a party for the Portland recumbenteers. We were still making "Eddy" roadworthy until the party was well underway. Then we proudly brought him out for a photo shoot and test rides. It was a blast!



We did find a couple of items that needed to be updated (chain retention on the idlers) so I left the bike with Pat to let him complete the project and have time to really feel comfortable with the final product. On June 1, "Eddy" arrived safe and sound at my front door. He's a beauty—but he's not just a 'bent. He formed a friendship that I value greatly. And that's what life is all about.

Last Chance

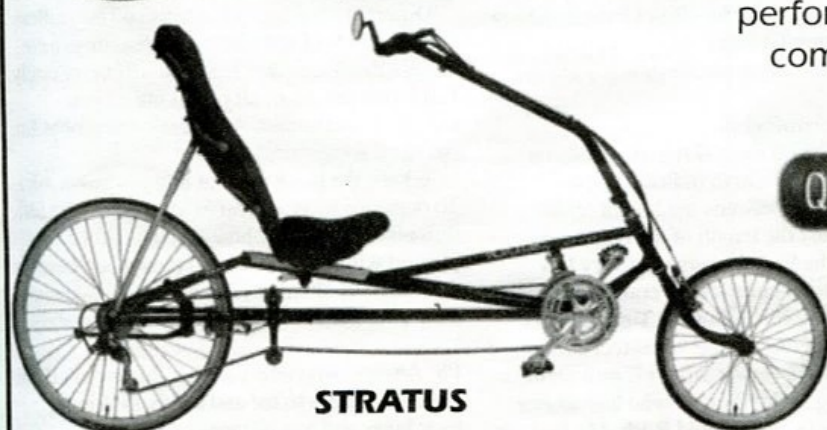
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Pat Franz (left), Peter Lewis (right) & 'Eddy'



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Reflections of Long Cranks & Big Gears

By Bob Bock

I have been a road cyclist for my entire life. Along my journey, I have always looked for ways to improve my performance. In my riding and experiences over the years, I have given this a lot of thought. Here are some of my anecdotes, rants and rules about big cranks and gears.

When I began riding with ultra long cranks in the early 1960's, training began in the Fall for the next seasons track racing in the Spring. The following observations and conclusions were not scientifically derived, but based on the result of many miles of road riding and countless laps on the Encino Velodrome in the San Fernando Valley in California with all of my friends, but especially with those golden few for whom God reached down from the heavens and blessed with blazing speed and power. At that time all of my thoughts and energies were concentrated on going faster, and it became very frustrating to be running flat out and to have one of the fast guys motor right on by.

RULE #1 If you don't have the horsepower, it ain't going to happen.

In the beginning this wasn't apparent to me. I naively reasoned that since the really top sprinters were 5'3" to 5'6" stumps with glorious coordination who could spin a zillion RPM's and at top speed on 165mm cranks, then myself at 5'10" with long legs and average ability could go fast too if the pedals could be slowed down. WRONG! However it takes time to work things out. I was riding with the San Diego Bike Club, a small racing club, comprised of eight or nine highly motivated and talented riders who trained deep in the red zone every day. After riding two seasons with 180mm cranks and doing better, I reasoned that proportionally longer ones to match my leg length would allow me to use higher gears, thus slowing my pedal speed to offset my lesser coordination and would enable me to hang with the Guns.

So, 200 big ones (mm). An old wizard toolmaker machined me a set of 200mm crank arms out of 6061 alloy patterned after a TA Criterium crankset. They were beautiful. I knew right then that these were the magic answer.

"Man.....were those babies tough to ride!" each crank arm felt as though it was two feet long, but after four or five months they sort of felt okay, not good, but okay. A maxed out spin was about 85 rpm, pretty strange. But they were DYNAMITE off the line. They would almost rip up the pavement. Things were looking good.

By then the gear on my track bike was up around 100-104 gear inches. My friends were all riding 165mm cranks (with 88-92 gear inches), and as usual, I wasn't content for long with the same old stuff. So gearing came under scrutiny and as a result, the diameters grew larger and the bike went faster. I wasn't concerned with

chainring size, but rather the diameters of the rear sprockets, same ratios, just larger diameters front and rear. So we went back to a 56-15 and the bike ran pretty good all season.

That winter I heard of a shop up in Westwood, near UCLA that had some really big chainrings. It turned out to be Ed Lynch's Westwood Cyclery. He had a set of TA rings off of a French road tandem that were 45/54/68...KILLER! Last I heard Ed was selling Bibles door to door and if I were a suspicious kind of guy, it might have caused a little wonder. Though probably a lot of ex-bike shop owners are selling Bibles. With the 68 on my track bike, I felt like "THOR" himself. With that big ring up front and an 18 or 19 on the rear, the bike turned into a real fire breather. It would blast off the line like a Viking Rocket. Sort of like a blunt nosed rocket, though the top end was only a little faster (than with the previous gearing).

Rule #2: Big Gears Happen!

I wasn't that fast, but that bike with its 200mm cranks and 68-tooth chainring was almost unbeatable in a standing start races from 100-1000 meters, and especially in the first 400 meters it just went berserk. It won nearly every time trial and handicap race entered for years (Encino had a handicap every Sunday through the season) and I loaned the cranks to a friend, ole Ed, who put 'em on his bike and won a 500 meter hill climb just like that. But in the 5-mile race at Encino it was difficult spinning those long arms and I don't recall ever finishing a ten mile race. My legs were tired and the road beckoned.

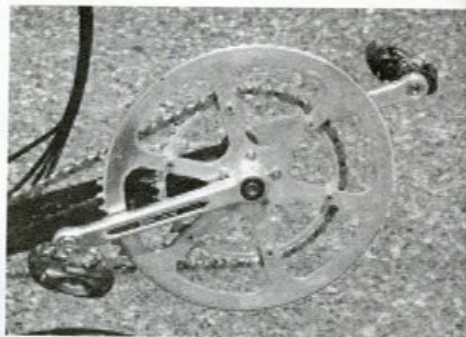
Especially interesting was an annual LA Wheelmen's club ride called appropriately, The Hilly Dilly. And it was 75 miles of nearly every hill in LA. Just the ride for some 'big ones! I welded up a set of 190mm steel cranks and was gonna smoke the field. WRONG AGAIN, I got destroyed, completely trashed.....so.....

Rule #3: Long Cranks for Short Events, Short Cranks for Long Events

Paint this on the wall in blood!

Onward to Recumbents

Playing around with some different cranks on recumbents would seem to indicate that an inverse correlation between the height of the crank spindle and the length of the crank arms. Bikes such as the Easy Racers with very low spindles seem to tolerate longer crank arms more gracefully. On my SWB Rotator Tiger with its very high BB, 180mm crank arms feel a little long. With a V-Rex (lower BB), 175mm seem great. My riding buddy Wayne who has shorter legs is using 180's on his Gold Rush. My best set too. I let him try 'em and he wanted 'em so we



swapped. But I still think about 'em. Wayne takes killer rides of 120-150 miles a day. He rode from New York to Monterey, CA (4000 miles) in 28 days, alone and unsupported.

Bob Bryant is about 6' tall and rides with 175mm cranks. He says that 165 & 170mm cranks feel to short for him (on any bike). For a few years he rode 180mm cranks on a Gold Rush test bike and he found that they behaved similarly.

Something else gets me wondering, too. Streamliners. There's nothing like running flat out on a high bank track and being passed by a big liner rumbling by going twice as fast. It makes you want to get off and go buy a Harley. But boy, do they have some neat chainrings...80-90 tooth rings. It gets you all glassy eyed and sweaty just thinking about them. But unfortunately there is a downside to this scene. The Streamliners are using 11-12 tooth rear sprockets. Most people aren't aware of it, but these tiny cogs are part of a dark conspiracy to boost chain (and replacement cog) sales, they EAT chains. And with 9/27 speed drivetrains, chains aren't so cheap anymore either. A recumbent Shimano chain could set you back around \$100. Besides eating chainrings (wear and breakage) and horsepower (too short of a moment arm). Ever try to sprint hard on an 11 or 12 tooth cog? For an experiment try sprinting from a slow roll on a 33x11 gear, then try it again on a 54x18 or better yet a 60x20 and tell me you don't feel the difference. Try it from one telephone pole to the next. What works best at low speed works at high speed, it just isn't as obvious.

And for those fortunate enough to own or ride a Rotator Coyote (or other exotic streamliner) big rings can be a real pain to set up and don't shift nice like those little 22/32/42 microdrive style mountain triples. You also have to build your own extra long front shifter cages, but man is it worth it, they will accelerate like crazy.

Different variations of cranks and the endless combinations of sprockets and chainrings have always fascinated me. And you will never really know for sure about all of this unless you explore the extremes. And besides, it's lot of fun out there sometimes.

What's the point to all of this you might ask? To persuade more of you to try something a little different on your machines. You might be very pleased with the results. Just remember however that nine out of ten hot ideas die an ignominious death, but the one or two that work are ecstasy.

PS: Anyone who tells you that 'bents can't climb hills, refer them to me and tell them to bring their bikes and lots of money. □

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- ▲AZ Tucson Area: Bruce Tucker ☎ 520-299-7146 BentOne@aol.com.
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- ▲ME Portland area call Michael 781-637 races this fall sprints and time trial.
- ▲MI MHPVA: Wally Kiehler 1027 Hawthorne, Grosse Pt. Woods, MI 48236 or Kiehler@Juno.com, www.lmb.org/mhpva
- ▲MI SE: Wolverbents 2nd Sat @ 9am—Willow Metropark Pool shelter, @ 9am (Mar-Nov). Bob Krzewinski ☎ 734/487-9058, BobMich@compuserve.com
- ▲MN Minneapolis: MnHPV Minnesota HPV Assoc. 2nd Wed @ 7pm Lk. Nokomis Com. Ctr. Ride 6pm -Mar.-Oct. Mark Stonich ☎ 612-824-2372.
- ▲MO St Louis: SLABS St. Louis Area R'bent Society, John Werner ☎ 618-931-0557 or bentrus@usa.net
- ▲NC North Carolina R'Bent Riders Assoc. getbent@jahoop.com
- ▲NJ NY/NJ/PA/CONN ares MARS Metro Area R'bent Society: John Tetz ☎ 973-584-6481 or jgtetz@att.net
- ▲NY Hudson Valley: looking to start a rider group. Contact Justin Horowitz ☎ 914-658-3401 or dandjhorowitz@cs.com
- ▲NY Long Island: Looking to start rider group. Contact Artie Johnsen ☎ 516-325-3516
- ▲NY Rochester: R.A.R.E. Weekly rides. Hank Walck ☎ 716-217-9450/Michael Berisson ☎ 716/461-5084/Dave Larson ☎ 716-235-4116 /Brian Managan ☎ 716-872-1751.
- ▲NY Western: www.bluemoon.net/~padelbra/the_recumbenteers.htm or Paul Bigelow ☎ 716-896-1626; Ed Weiss ☎ 716-634-9660.
- ▲OR Portland/Vancouver (WA): Oregon Human Powered Vehicles, ☎ 503-617-1759 Rides: Jeff Wills ☎ 360-254-3736 or jwills@pacifier.com
- ▲PA Philadelphia Area: Contact: ☎ 1-888-998-7010.
- ▲TX North: 4th Sat/Mo www.rbent.org
- ▲TX Houston: 2nd Sun. @ Katy HS. Pat ☎ 281-347-3627 (D)
- ▲TX Refugio (South): R-BEST R'bent Bicycle Enthusiasts of South Texas. Bob Dillard ☎ 361-526-2977, wildlife@write.com, http://pages.prodigy.net/bobexotic
- ▲WA Snoho Co. AARC: (All R'bent Riders Club) 3rd Sat/Mo Harvey Field in Snoho Cty. ☎ 206/632-6955 or bradrick@serv.net ☎ 206-632-6955.
- ▲WA SE: WRTW: Two Wheeled, Recumbent Riding Trombone Teachers of Walla Walla. Bill Gilbert VonBruno@bmi.net
- ▲WI Milwaukee: SE Wisconsin Recumbenteers www.recumbenteers.com Tony Hunter ☎ 414-475-9081 Rides generally start in the suburban Milwaukee area.
- ▲USA Human Powered Vehicle Association: Contact: www.ihpva.org mail to: president@ihpva.org ☎ 877-333-1029 (toll free)
- ▲CAN CANADA—Calgary R'Bent Rider Group: Sol Candel ☎ 403-250-7588 or mail@moviepostershop.com
- ▲CAN CANADA—Toronto: HPVs of So. Ontario (HPVSO) www.hpv.on.ca, Bruce Buttimore, bruceb@inforamp.net ☎ 416-449-6731 Ext. 289 6pm to 8am EST.

▲Recumbent Shop Rider Groups

Several recumbent shops support rider groups. Check with your RCN advertising local recumbent specialist to help you find your local recumbent riders.

▲Rider Group Listings

Do you have a rider group or are you scheduling a recumbent event? Non-commercial listings are free of charge—please send to: bob@recumbencyclistnews.com.

If you find mistakes or incorrect info, or a group is no longer active, please let us know.

R C N S U B M I S S I O N S

RCN is written by and for recumbent enthusiasts. We would love to have you write for RCN—and it's easy! Write an intro and an end, and fill it with Who, What, Where, When, Why and How. Here are more specifics....

■ NEWS, F.Y.I., CALENDAR and LETTERS...

This can be as short as one line or as long as a few paragraphs. This is your forum to comment or react to RCN editorials, articles, policies, or road tests. If you agree, disagree or whatever—we want to hear about it. If you have an announcement for a new product, ride, or tour—let us know. Please keep letters under 300 words (if you need more space—write an article). The easiest way to send this type of material is by email to: bob@recumbencyclistnews.com. The above submissions are *not* considered "articles."

■ ARTICLE SUBMISSIONS

Road tests, reviews, comparisons, tours, event reports or home-builder stories. We recommend 1000-2000 words with 2-3 photos or drawings. For road tests, feel free to use our template which can be taken from any recent road test (Please *do not* use this for any other purpose besides RCN).

We do not accept article inquiries, queries or sample pages. If you would like to submit an article to RCN—please just do it!

Here is how:

1. Write your article and print out a copy.
2. Take 2-4 photos of your bike, subject or tour. Please select the best photos, don't send us any more than 6 photos. We require photo prints (b/w or color), slides or tiff files on a CD or zip disk.
3. Save the file as email, text, simpletext, ascii text or any other basic text (no MS Word, PLEASE!). Place text file on CD or zip disk and/or email to file to bob@recumbencyclistnews.com
4. Send package to RCN within 1 week of emailing text.
5. Include SASE envelope if you would like your package returned.

■ CONSIDERATIONS

We do our best to return things to you (if you ask), however, we cannot guarantee it, so please do not send originals.

Articles submitted are *NOT* guaranteed to get published.

We prefer *NOT* to run articles that have been on the Internet

If timing is a concern, we request that writers offer us a 12 month right of refusal on all article submissions. At this time, we are 8 months or 3 issues out on placing articles in issues. We are hoping to speed this process up in 2001.

■ MANUFACTURERS/DEALERS

We accept design stories, articles of interest, press releases, product announcements, etc. We can often place press release info much faster.

■ COMPENSATION

RCN currently pays readers the equivalent of a ONE YEAR RCN subscription/renewal valued at \$40 per article that arrives complete, with a useable computer file, on disc or via email and has pictures and/or drawings. We credit the subscription *AFTER* the article has run.

■ GETTING IN TOUCH WITH RCN

Your best bet to get ahold of us is via email. RCN is still a two person business and we cannot get to all of our phone calls (or nothing would get done). By letter send an SASE for reply.

Mail to:

RCN, Bob Bryant
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Port Townsend, WA 98368
Email: bob@recumbencyclistnews.com ☐

RCN Classified Ads

Recumbents For Sale

FOR SALE: 1998 RANS V-REX, very low miles, custom paint job, 24-speed, wireless computer, camelback behind seat water system, absolutely like new, also other bike stuff \$1400. Tel. 423-593-1020 or email - rfoxab4pj@aol.com (TN/60)

FOR SALE: Y2K TREK R200, 40 speed mid-drive, Rans seat, upgraded tires, Magura brakes, CatEye computer; strong, beautiful frame. Sale due to frequent travel. Excellent condition. Paid \$1750, asking \$1000. Aaron at (248-647-0920) or jugodemanzana@yahoo.com (60)

FOR SALE: RED LIGHTNING P38, factory refurbished, new paint, 200 mi. Custom XL frame (xtra stiff, shorter boom) with large seat. high quality used components include Chris King, Shimano XTR and Campy \$2100. Nick Fessler at SparklingNotes@yahoo.com (60)

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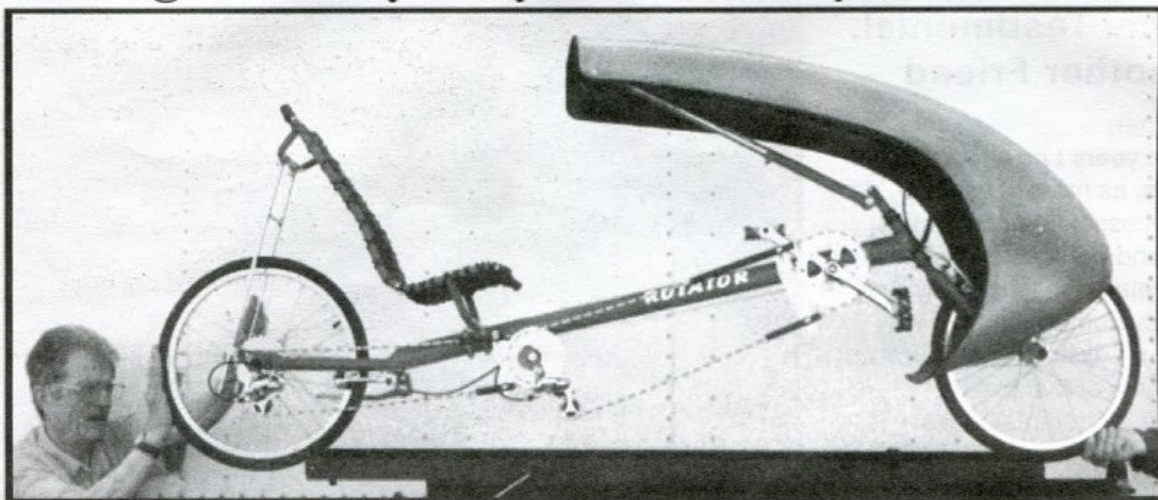


Photo courtesy of JPK wireservices

In response to what some are calling the "Hales Corners incident" unnamed government sources have finally revealed that the mysterious sightings of strange and unusual craft observed in various locations around the Hales Corners region are not a hoax. Amid speculation of a possible high-level government cover-up and rumors that officials have been turning a blind eye on these sightings for years, the facts have now been laid bare! In a recent press conference called by noted SETI researcher and astrophysicist Dr. Harold Wozniak, he dispelled any notions that these bizarre vehicles were extra-terrestrial in origin and produced dramatic evidence (see photo) to support his position. "Although these things may be extra-terrestrial in terms of comfort," says Wozniak, "you can find them at down-to-earth prices at Wheel & Sprocket, at least that's where I got this one."

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Laurie Smith on her Tour Easy. Laurie was not an avid cyclist until she bought a Tour Easy in June of 1999. By September, 1999, she had blown the doors off the long standing Vancouver (Washington) Bike Club Women's Recumbent 10 Mile Time Trial Record. Previous record 30:57.

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