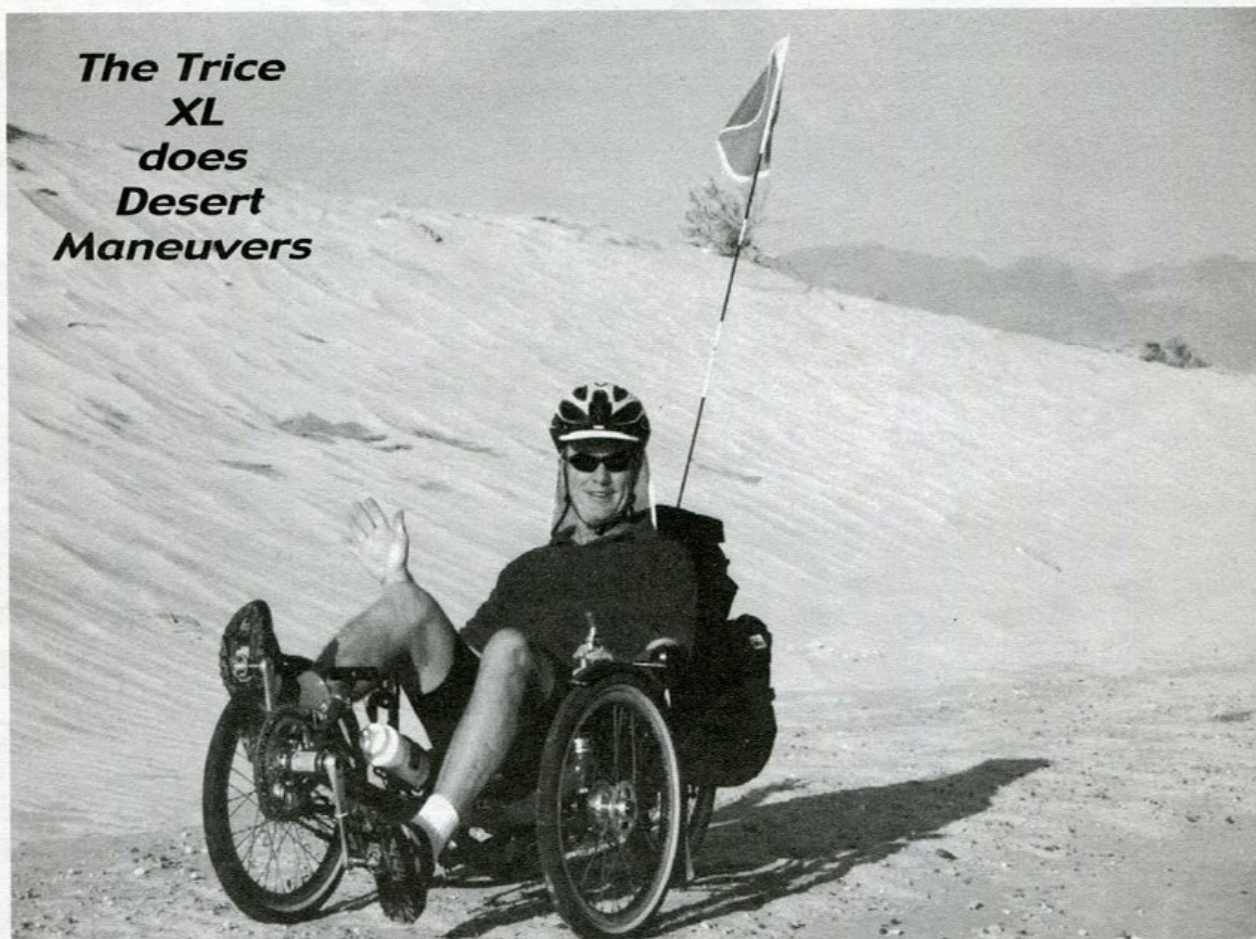


# RCM

RECUMBENT CYCLIST NEWS

Issue # 61  
Jan/Feb  
2001

*The Trice  
XL  
does  
Desert  
Maneuvers*




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**Schedule**

You should have your RCN issue by the end of the first calendar month of the issue in question. Our goal is to attempt to get you the issue before the calendar months of the issue (read: early).

**Fine Print**

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■ **On the Cover...**

Craig Johnsen's Trice

■ **In Our Last Issue...**

RCN#60 was mailed in mid-October. It has a green cover with a cover photo of Mark Colliton on his dual 24-inch wheeled V-Rex. This issue had the V2 and Burley Limbo tests, along with other cool articles. If you did not receive this issue (and should have), please email us.

■ **Our next issue...**

2001 Season Preview

# Editorial License

by Bob Bryant, [drrecumbnt@aol.com](mailto:drrecumbnt@aol.com)

Welcome to our 11th year of publishing Recumbent Cyclist News! We would like to take this time to *THANK* each and every one of our readers and advertisers who renewed for 2001 and a welcome to our new advertisers.

**ANNOUNCEMENTS**

**Calendar 2001**—Please send 2001 calendar listings us ASAP.

**RCN#62** will be our 2001 Season Preview/Resource Guide. Please contact us ASAP if you would like to participate.

**WANTED READER ROAD TESTS OF:**

We are looking for reader road tests of bikes that we do not have access to from the manufacturers: Any models from: Lightning (Phantom), Vision (Saber, R50 and tandem redesign), Rotator, Euro lowracers and other rare bikes. Email if you have any other road test ideas for bikes that you might have access too. Has anyone adapted electric

power to a recumbent?

See any recent RCN for our road test template and contact us for writer guidelines ([drrecumbnt@aol.com](mailto:drrecumbnt@aol.com)).

**RCN#60 CORRECTIONS & UPDATES**

**Big Wheel Cult Page 31:** The top photo is actually a limited production racing Kingcycle Wasp being ridden by Miles Kingsbury. Thanks to Rob English for bringing this to our attention. Rob rode this very bike to victory at the World's in Belgium last summer.

**HPM Roadster Update:** The Roadster now has updated handlebars and the seat will be modified (wider) as well. Human Powered Machines is part of the CAT nonprofit organization and so all bikes built by them are built by the nonprofit organization, not a for profit company.

Viva Recumbency!  
Bob Bryant ♦

## RCN INFO

**Back Issues**

We have the following issues in stock: RCN#59, 58, 52, 51, 48, 42, 41, 40. They are \$8 each or \$24 for three or \$40 for six. We will also reprint certain articles on request (email for availability & costs).

**When to Renew**

To continue receiving your RCN subscription without interruption, please consider renewing two issues prior to your expiration date/issue. The reason for this is that while you are reading this issue, the next issue and database information are at the printers.

On most RCN issues and renewal forms, you will have the following text on the top line of your label, "61 LAST ISSUE." This means that RCN#61 is your last issue. We will send you one renewal notice via first class mail when it is time to renew. We will not backdate subscriptions, so if you are late renewing, missed issues must be ordered as back issues.

**Change of Address**

If you move, don't forget to send in your new address! We actually need 60 days notice so you don't miss an issue. We have to pay the post office up to \$1 for your new address as well as the re-mailing of issues—which contributes directly to subscription costs.

**Missed Issues**

You should be receiving RCN every two months. If not, email us ASAP. DO NOT wait six months to let us know there is a problem. RCN is published six times per year. You should received your issue by the first day of the second calendar month of the issue. Check your address on your mailing label from previous issues to see if there is a problem. If not, assume that it is a US Postal Service error and drop us an email or send us a card and we'll send a replacement ([bob@recumbencyclistnews.com](mailto:bob@recumbencyclistnews.com)).

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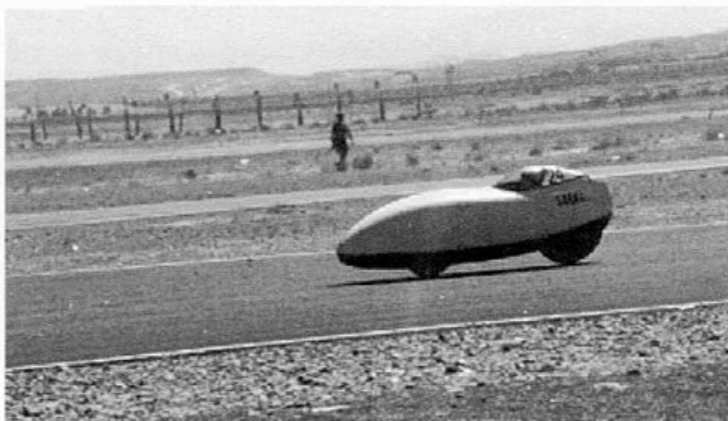
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# Recumbent News



George Georgiev's Varna —photo courtesy of Chet Kyle



The World Record Holding Varna at 49 mph —photo courtesy of Chet Kyle

## Announcing the \$25,000 Dempsey/MacCready Cycling Hour Record Prize

How far can an athlete pedal a bicycle on land in one hour using muscle power only, without help from gravity, water, wind, stored energy, or any other outside source? Actually much further than one might suspect. A new \$25,000 cash prize will be awarded to the first single rider pedal powered vehicle to equal or surpass 90 kilometers in one hour (55.924 mph). This is nearly freeway speed for a bicycle!

Sponsored by the Dempsey World Record Associates of Santa Ana, and the Human Powered Vehicle Association of San Luis Obispo, California, the prize will no doubt be won by a sleek completely streamlined bicycle that cyclists pedal in a layed back easy chair recumbent position.

Supplemental awards of \$2,000 are being offered to any competitor who breaks an official unlimited cycling hour record by 3%, during the five-year period of the Prize. In addition, \$500 will be given to the winner of the yearly hour race at the annual Human Powered speed Championships. The price is open to entries from any country and the attempt may take place in any country.

For more information, including the regulations, please contact: The Dempsey/MacCready Prize Committee, The HPVA C/O Chester R. Kyle, 9539 N. Old Stage Rd., Weed, CA 96094. Tel. 530-938-3127. Email: Kyle@snowcrest.net

### Hour Cycling Records

by Chester R. Kyle, Ph.D.  
Adjunct Professor of Mechanical Engineering  
California State University, Long Beach  
Co-Founder of the HPVA ([www.ihpva.org](http://www.ihpva.org))

The traditional Cycling World Hour Record is the most famous in bicycle racing, with records being kept as far back as 1876 when Frank Dodds of England pedaled 25.506 km (15.8 mph) on a high wheeler. In the past some of the best professional racing cyclists in the world have held the hour record including Marcel Berthet, Oscar Egg, Fausto Coppi, Eddy Merckx, Miguel Indurain, and Tony Rominger. The current hour record for traditional cycling is 56.137 km (34.882 mph), set by English professional Chris Boardman in 1996 on a conventional aero track racing bicycle.

However, streamlined HPV hour records are much faster than Boardman's, and they have always been set by amateur racing cyclists, not professionals. Using the sleek streamlined HPV "Varna," designed and built by George Georgiev of Canada, Canadian amateur Sam Wittingham holds the current unlimited HPV record of 79.136 kpm (49.173 mph), set in 1998.

It will probably take a combination of a national caliber racing cyclist,

riding a World class HPV, along with an excellent course and ideal conditions to claim the Dempsey/MacCready prize. It will be difficult, but it can be done. The required human power is formidable. Only top competitive cyclists can manage the estimated 350-400 watts necessary to cover 90 km in one hour (0.47-0.54 horsepower). Currently the leading contenders are rider Lars Teutenberg and designer Guido Martens from Germany, and Engineer Matt Weaver of Watsonville, California, who designed, built and rides his own HPV. His carbon, Kevlar, streamliner weighs only 15 kg (33 pounds). The "Virtual Edge" steers using a mini-TV camera in the nose.

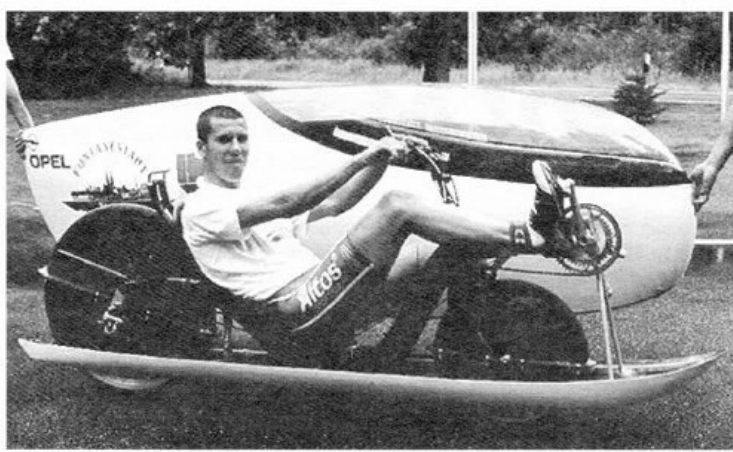
Briefly, the prize rules specify a single rider HPV on a circuit course closed to automobile traffic. The HPV can be no larger than 1.5 meters high, 1 meter wide and 3.1 meters long. The size limits are to neutralize help from the wind in the form of sailing. Any number of wheels are legal. There are no elevation, wind or grade restrictions.

The Dempsey/MacCready prize was created to inspire innovation in human powered vehicles and to promote ultra light, low energy consumption, human powered transportation. The prize will present a dramatic challenge to teams throughout the world. In previous HPVA challenge prizes, the attempts came from a wide variety of competitors from engineers, scientists and students, to artisans and garage shop inventors. Technology from past HPV competitions has found its way into low energy vehicles, from automobiles to aircraft.

The HPVA has offered three challenge prizes during the past 20 years, the \$3,000 Abbott Prize, the \$15,000 DuPont Speed Prize and the \$25,000 DuPont Water Prize. In 1977, Dr Allan Abbott created a prize for the first human powered vehicle that could break the national speed limit of 55 mph (88.5 kph) for 200 meters. It was won in 1979 at 55.85 mph (89.9 kph) by engineering students from the Northrup Institute with a vehicle called the "White Lightning." Two of the winning students are still involved in bicycle manufacture. Tim Brummer markets his own recumbent bicycle called the Lightning, and Don Guichard is in charge of advanced engineering design for GT Bicycles.

In 1983, the DuPont company donated the funds for a prize for the first HPV that could break 65 mph (104.6 kph) for 200 meters with a flying start. The prize lasted for three years before it was claimed. More than a dozen pedal-powered vehicles made attempts at the prize during that time. The prize was won in 1986 by Gardner Martin's "Gold Rush" at a speed of 65.54 mph (105.5 kph). Gardner Martin manufactures Easy Racers Recumbents in Watsonville, California.

In 1989, the DuPont Water Prize was organized, offering \$25,000 to the first human powered watercraft that could go 20 knots for 100 meters. After a time period of three years, in 1992, the prize was given to the fastest craft, a human powered hydrofoil built by Mark Drela of MIT.

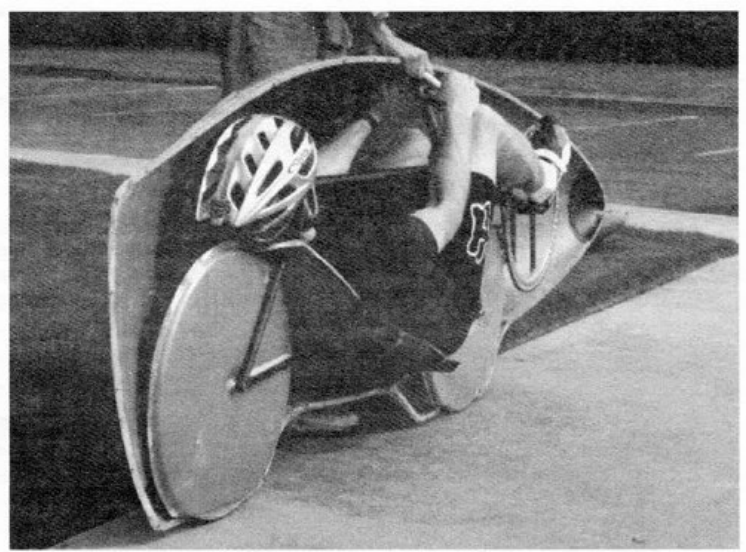


Lars Teutenberg and the Tomahawk —photo courtesy of Chet Kyle

It was powered by a pusher air propeller and achieved a speed of 18.5 knots (34.3 kph, 21.3 mph). Mark Drela is a Professor of Engineering at MIT and has organized an institute for the study of cycling.

**Sponsors of the Dempsey/MacCready Prize:**

Ed Dempsey, a successful businessman, winning race car driver and inventor, has provided over \$30,000 in prizes to be awarded during a five- year period. The prize is the outcome of conversations between Dempsey and his friend Dr. Paul MacCready, winner of the first Kremer Prizes for human powered flight. Dempsey, like MacCready, is fascinated by technology innovation, and likes to support events which push the envelope. He currently has designed and built a streamlined battery powered electric racer which has gone 237 mph (381 kph) at Bonneville. Dempsey hopes to break 300 mph (483 kph) with his car. ♦



Matt Weaver's "Virtual Edge" —photo courtesy of Chet Kyle

**Do You Have Stuff For Recumbent News?**

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Club News?*

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*Have you built a really cool new bike?*

*Do you have news from your recumbent shop?*

*Do you have news from your recumbent factory?*

*If so, please send info to: RCN, POB 2048*

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**Current Unlimited Cycling World Record**

2/39/98

Sam Whittingham/George Georgiev

Varna streamlined recumbent

Canada Blainville 79.136 km

**Current UCI Cycling World Hour Record**

9/06/96

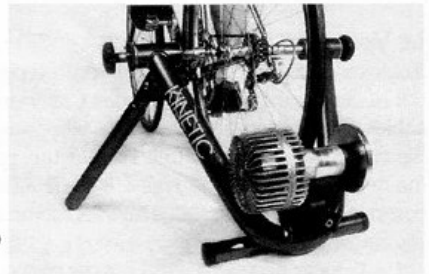
Chris Boardman

Superman Pos. ASB

England Manchester 56.375 km  
(upright bicycle/indoors)

**New Trainer**

A newly designed cycling trainer has been introduced by Kurt Manufacturing Company. With many unique benefits, the Kinetic Trainer converts any mountain, road, recumbent, or BMX bikes into an easy-to-use exercise machine and folds in half for easy storage.



Kurt's Kinetic Trainer makes it easy to ride any bike indoors simulating an outdoor ride. Typical conditions are easily replicated with the Kinetic Trainer's patented speed-sensitive fluid resistance unit which automatically adjusts its difficulty level to the rider's speed.

The heart of the Trainer is the sealed, leakproof fluid resistance unit. With a heavy duty design, this unit has a patented magnetic couple which links the wheel roller to the sealed fluid unit. It features the widest range of resistance levels, from 20 watt (5 mph) to 2500 watt (50 mph), to challenge pro riders as well as fitness and recreational riders. Contact: Kurt Kinetic 800-328-4014. Source: Press Release ♦

**Season Preview  
2001—RCN#62**

As you read this issue, we are hard at work on our 2001 Season Preview issue. If you are a manufacturer or agent and have not sent us new info/photos, please do so ASAP. The deadline is now!

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# Recumbent Mail

If you have something to say, a differing viewpoint or experience—we want to hear from you! **Please limit letters to 300 words.** No charity ride sponsorship request letters. RCN reserves the right to edit submissions for clarity, content and space limitations. bob@recumbencyclistnews.com or RCN, PO Box 2048, Port Townsend, WA 98368



## Le Velocar

Enclosed is a photo of me in my prototype Le Velocar. The body, made out of cardboard, is on a Rhoades Car frame. The 36-speed drive is achieved with two six-speed free-wheels and one 44-tooth sprocket on the crank. It has two chains. The shifting is friction with two levers for the two rear derailleurs. There is no front derailleur. Most of the components are Shimano. The brakes are drum type with lever on the steering column.

Le Velocar performs good for my purposes—which is riding on mostly gravel country roads. It has some bugs in it, but I'm working on them. I am driving it almost every day averaging close to 50-miles each week since taking delivery a few months ago.

Smith Williams, Jr  
Bedias, TX

## V2 Fairings

By the way, the V2 that I got from you has been fun except for the fairing mounts. Eugene from Rans has been very kind to back up his product with new "T-Brackets" that have broken. As you know the mounting hardware is no way comparable with the Tour Easy simple mounting system. Also, I have had a seat cover failure that Eugene is going to replace for me. Rans definitely stands behind their products!

Wally Kiehler, Wkiehler@aol.com

## Crash

Since 1996, I've been an enthusiastic owner of a Vision R42 SWB with ASS. The bike has been the apple of my eye, tweaked and cared for to perfection. On November 9, while returning from a trip to the post office, I took a position in the gutter next to an 18-wheel tractor/trailer rig here in Escondido while waiting for a traffic light to turn green. The light changed and the big rig moved ahead into a right turn; I held my position and broke into nervous laughter as I watched the rear wheels of the truck take up every inch of the space that I would have occupied had I moved forward as the light changed. I wondered if the driver had any notion of my presence beside his truck. I made my right turn and at the end of the next block found myself again in the gutter next to this truck. This time, with much more clearance between gutter, bike and truck.

When he was clear to do so, the driver executed another right turn, going way across the street in the usual manner. This time, I scooted around the corner to a position apparently clear, though still in the gutter. What I didn't know was that his leading right rear wheel was right behind me. The very instant I stopped, I and the Vision seat were literally blasted off the bike and onto the adjacent sidewalk. Something wacked me in the small of the back and I landed face down drilling the concrete with my right elbow. Of course, a miracle had just happened: the truck did not roll over me, though it made a pretzel out of my beloved bike. A couple of points might be made here:

1. Getting out of clipless pedals requires a conscious movement of the foot...which wasn't needed in this case because of a clip and strap pedals and smooth-soled shoes.

2. The Vision seat is anchored by brackets with long slots (not holes) for adjustment. These made it possible for rider and seat to depart the bike in about a quarter of a nanosecond; in other words—NOW.

I was knocked senseless; and while wondering whether I was still whole, I heard someone scream, "I'll get him for you!" The truck had continued up the street, leaving behind me and my machine in a heap.

The big rig driver had made an illegal turn because of making no use of his right rearview mirrors to check his right side clearance before making the turn. The man who witnessed the event (a bike shop employee) rode the truck down in his car and told the driver that he had just run over a bicycle and very nearly its rider. The driver and his wife walked back to the scene. After a tight-lipped don't say too much exchange of the required data, the couple went on their way. I shouldered this disgusting looking object and and walked toward home.

Everyone told me that it would be a 'slam-dunk' to get that bike replaced; it was irreparable. The R42 rigid frame was no longer produced by Vision. The replacement bike would come to about \$2000 (an R44). The first lawyer I approached (his ad was in a prominent cycling mag), said, "Well, the only trouble here is that you were not hurt badly enough. All you want is to have your bike replaced. Go to your local small claims court; they'll help." The small claims advisor said, "I'm sorry Wells, but the US small claims system does not reach up into Canada. We cannot help." The big rig was from Canada. The next lawyer said, "Wells, I will see that you are reimbursed \$2000 for this accident. But I'll have to take 1/3 of that." She wrote an impressive and forceful letter. The big rig's insurance carrier flat refused to pay. They stated that my description of the accident was in total opposition with that of the driver. My lawyer said that we could sue, though it would cost. To start with, she'd need \$250.

Visualize this: a Canadian truck can come down to our highways and streets; do \$2000 worth of damage to an indigenous vehicle, go back to its country of origin...and GET THE HELL AWAY WITH IT!

Wells M. Goodhue

## Shipping Your Recumbent

After reading your "shipping" article in the #58 issue, I thought I would pass along my experience of yet another shipping alternative that I used when returning to Los Angeles from Dulles airport with my P-38.

My P-38 is an early model with the welded-on seat, so conventional boxing would not be possible. American Airlines assured me that they had a bag that the bike could be shipped in when it was time to return home. The thought of using a "bag" was not comforting, but at the end of a three month cross country trip this was not my biggest concern.

For \$50 plus \$10 for the heavy clear plastic bag the fully loaded bike arrived at LAX unharmed. The bag was literally big enough to wheel the fully loaded bike into. I turned the handlebars in line with the frame and removed the pedals and left all the panniers, etc. on the bike. Once inside the bag, I taped it up like a spider's next meal. Leaving the gear

provided ample cushioning for the frame, wheels, etc.

Given this unwieldy package it received special treatment as it was hauled to the plane. Even out of my sight, I suspect that it was given more care than the averaged boxed bike because it could not be "tossed around." Maybe I was just lucky.

Todd Collart, collart@west.net

### The Perfect Seat Angle

Could you give the pros and cons of upright vs laid-back seat angles for recumbents? My Sat-R-Day's seat is adjustable, but I'm not sure how to adjust it for the best riding position. A short piece in RCN would be greatly appreciated.

Ed Lukert

*Editor Comments: The riding position that works best for you will be readily apparent. Laid back seat angles take the weight off of your rear end. If you lay the seat back too far, you may have neck pain, or may have a hyperextension to the controls. A very upright seat position closes the pedal angle. This can make the riding position claustrophobic and/or lead to recumbent butt. If you are any heavier than average, your legs have the potential to come back and hit you in the gut. Laid back seat angles are great for aerodynamics and flat land performance, though do not always allow for optimum power output during climbs. I say start with a fairly upright seat angle and work it backward until you find optimum performance, comfort and climbing.*

### Touring With a Trailer

Piero Tassinari and I are preparing for our bike tour in Canada and the U.S. (Jasper, Alberta to Jackson, Wyoming), and we both read with interest Wayne Estes' article, (July/August 2000, RCN) Touring on a Speed Ross. In our Grand Canyon to Rocky Mountain National Park tour, (June/July 1996) and our last self contained tour of Venice to Rome in Italy (May/June 1999) Piero rode his Speed Ross, and we also had to solve the problems of packing the bike effectively.

On the Grand Canyon Tour Piero used large rear panniers, with quite a bit loaded above them (perhaps similar to using Madden packs, which extend above the rack). He found stability to be a problem on downhills, that the bike swayed from side to side, and that starting out was difficult because the weight is so far back. In Italy I helped Piero to design cross supports that allowed him to use a pair of my low-riders amidsthips, below his knees. This worked much better, but at a cost in wind resistance.

On both of these tours I used a BOB trailer with my Infinity LWB recumbent (I solved the luggage problem on the plane by flying with the BOB in a HUGE duffle bag along with bike seats and a lot of other stuff). I had fantastic luck with it, because 1) It was very easy to load, and I was always ready to roll in the morning before Piero was, 2) It seems to result in less wind resistance than a full load using low riders and front panniers, and 3) It was so stable—I never felt it on turns, and downhills were very stable and comfortable

affairs, even at speed.

It certainly didn't "flop around" as feared by Mr. Estes! Unlike others who have had problems with the BOB I did not overload it (capacity of 70 pounds), nor did I add part of my load on top of the trailer. Both of these actions can lead to instability. It does add a few pounds (the actual weight of the BOB is 13.5 pounds, not 11 pounds), but it takes weight off of your rear wheel and axle which is important in these long tours (it would be interesting to measure the amount of weight loaded on the rear wheel of Mr. Estes' Speed Ross when the bike is loaded).

This year Piero and I are both using BOB trailers, so we'll have another story to tell. There are changes in the BOB trailer that should make it a stronger product.

Chet Rideout & Piero Tassinari

### Traveling 'Bent

After riding a BikeE AT around Vermont for a year, I longed to be able to ride 'bent on spring break on Siesta Key in sunny and FLAT Florida. With this idea in mind I contacted Jan at Center for Appropriate Transport/Human Powered Machines and had him build me a folding SWB Phaser. Alas, delivery times were much longer than expected and the bike missed my April trip to Florida. When the bike did arrive however I was blown away. Phaser production # 0100 can be seen on the CAT/HPM web page. The Phaser rode great, much faster and with less effort than my BikeE. Fold-up was straight forward and the bike fit back into its travel bag just as shipped.

Florida may have been behind me but a planned trip with my son Henry, to the Stann Creek District of Belize was only weeks ahead. Nervous about shipping my new bike protected by a Cordura nylon bag, I read with much excitement the RCN article featuring the Crate Works transportation system. When I learned the crate was not only strong enough to protect my bike but met Airline specification I purchased one. The crate arrived at my door two days before departure to Belize. When the crate was fully assembled I was surprised by just how long the crates 60-inch length was in person. I quickly emailed my connection in Belize and requested ground transportation capable of handling this large package. They promised me a pickup truck. The Phaser, spare parts, tubes, and helmet all packed nicely into the crate. Sure it took a few tries to get the configuration down so even the seat could travel in the crate, but once done the package was tight and rattle-proof.

Upon arrival at the US Air ticket counter I met my first challenge. "Meets Airline Specs" does not mean exactly what I thought. To fly as luggage a package must measure 64 inches when adding length, width and height. The Crate Works box is 95 inches. I would have to pay a \$40 fee to transport my bike—a small price to pay. Forty bucks and we were on our way. In Houston we switched airlines and because we were now on an international flight, the fee jumped to \$100. I couldn't leave my Phaser in Houston so one hundred bucks bought it a first class seat in the cargo hold. When we off-loaded in Belize City I began to

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drip with sweat, not from the heat and humidity but from a look at our connecting flight to Dangriga, an eight seat, twin prop, mini-plane. "No way," I thought, would *that* crate fit into *that* airplane. Without blinking an eye two luggage handlers folded down the last two rows of seats, angled the crate sideways, shoved it into the passenger compartment and then back into the cargo hold in the tail section. They dropped a cargo net to separate passengers from bags. It all fit! At this point I should point out that traveling with a 'bent is not all about getting there. The destination deserves some consideration. Belize has two paved roads and one brand of beer. I don't drink alcohol and we were nowhere near the two paved roads. Skinny high pressure tries do not ride well on loosely packed stones, gravel, red sand and mud. One-hundred and forty dollars and piece of...(very bad)... roads be damned, I was going to ride. In Belize, I suppose like in other countries that have yet to be dragged into the modern world, the bicycle is basic transportation, not recreation. The locals laughed hysterically at the sight of my recumbent bouncing me down their dirt roads. Many shouted, "Hey Mister, I wanna ride" or "How much is that bike? I want to buy it." One older gentleman, probably more honest than most pointed and said, "Hey, Look at that

man, he is so lazy he will not even stand up to pedal." Bike and rider survived and it was time to go home. Back at the Dangriga airport I stared in dismay as my crated bike hung out of the belly of our return flight to Belize City. Though the plane was larger the cargo hold was only 54 inches wide and sectioned off into 4-foot compartments to keep packages in place. It was a no go and the pilot, wanting to keep his schedule was losing patience with my rant about arriving on a much smaller plane. Luckily the ticket agent overheard and offered that a smaller plane, just like the one she had seen carry my bike in, was due in half an hour. For a \$40 ticket she would see us on our way, load my bike and have it in Belize City in time for our flight to the USA. Saying good-bye to that Phaser #0100 in Belize was harder than leaving my wife Barbara, and other son Andy, back in Vermont. It was a trust thing and as we took off Henry looked at me and asked, "Dad, do you think you'll ever see your bike again?" I didn't answer. In the Belize City airport we waited out the time in the arriving luggage area only able to peek down the conveyer belt, as miniature airplanes deposited passengers and bags within our view. "There it is!" Henry shouted as the huge, black crate came toward us. With a sigh of relief in





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my voice and the smell of anxiety on my skin I recounted this tale to the ticket agent for our flight back to the USA. He looked at me, looked at all 95 total inches of crate and waived additional fees. We watched as my crated Phaser rolled by into the cavernous hold of our Boeing 737.

Norm Reuss

### Recumbent Seminars

After much research, I purchased a Rans Stratus in April. My two biggest impressions of 'bent riding are: 1. It is tough deciding when to head for home since nothing starts hurting to signal the halfway point like a road bike does. 2. Recumbents attract a freakish amount of attention. Whenever I stop for water or anything while riding SW Ohio's extensive rail-trail system I feel like some TV star walking into Floyd's in Mayberry. The most annoying aspect of owning a 'bent is that people seem to feel I OWE THEM A RECUMBENT SEMINAR! I didn't buy a recumbent to become an ambassador. Did I inadvertently join some goofy-grin cult by buying this bike? When will I learn the secret handshake? I feel I should be issued a pocket protector. And people ask me the stupidest questions...can I do wheelies...did I make it myself...that bike is really fast, isn't it...does that bike have brakes... HOW MUCH DID IT COST? The unnatural attention dictates where I go to ride and where I stop. I usually load and unload the bike as quickly as possible in order to avoid conducting A RECUMBENT SEMINAR. Once as I was preparing to load the bike into my van, a car passing the parking lot slammed to a stop and pulled into the space beside me. A big weird goofy guy jumped out of his car and proclaimed, "I'm a recumbent rider!" and proceeded to tell me painfully obvious facts concerning THE RECUMBENT I WAS LOADING INTO MY VEHICLE. Should he have shown me the secret handshake? And whenever another recumbent rider does talk about 'bents there is this macho superior brand rudeness much like teenagers and their cars or red-necks and NASCAR. I just bought a comfortable bike because I love cycling. I didn't know what I was getting into. Tell the High Commander I don't want to be in the cult... I just wanna ride my bike.

Gale Wills, gwills@cinci.rr.com

### Buyer Beware!

Before you buy your 'bent... NEVER send a cashier's check, money order, or dare I say cash, to any company you can not easily roll your 'bent up to, and deal with in person. Reserve these occasions for the laid-back credit card, even if it's an uphill transaction. By doing so, you have recourse and resource if something goes wrong.

I just completed a "cash" transaction and was shocked to find that there are shady dealers on the laid-back bike to front door road. You may find when moving forward in your quest for recumbency, that the dealer is prone to moving people backwards. I can't be more specific than that. Don't believe that it can't happen to you! Reference this note if you have to. Always insist on using your credit

card. You can dispute the charges if the dealer turns out to be in low gear on what seems to be flat ground.

Eric Ebner

### Rat's Cheap Long & Easy

You have a great magazine, and by varying the focus each issue, I think you address everyone's needs. I am a homebuilt enthusiast, for example.

Your spoof, "Recumbent Design, Rat's Long, Cheap & Easy" really touched a nerve. I loved it, even though I am retired and can afford the real thing. Homebuilts are just more fun to ride! I excitedly read that there was someone else who cut up commercial bikes and welded them to square steel tubing to make a recumbent. What a disappointment to find it was only a spoof.

Since I retired in 1998 as a mechanical engineer and patent agent, I have been building LWB recumbents in my basement shop. The first was made from a \$69 Wal-Mart 20" wheel mountain bike. My latest project has been a single LWB recumbent with USS steering intended to be made very cheaply from commonly available materials from local home store.

Like Rat, I am putting together a written design basis for my homebuilt recumbents. I expect to focus on developing kits for connecting and coordinating the steering of a variety of LWB style recumbents to help individuals and bike rental businesses solve the toppling stability problem (perhaps lowering their insurance costs). If you or your readers have interest in any of these designs, or networking suggestions, I would be happy to hear from you.

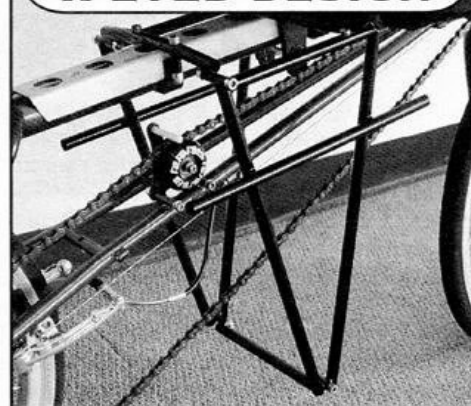
Ron Kock, rwkock@mindspring.com

### Human Powered Boats

Thank you for your coverage of some of the HPB manufacturers and of some of the benefits of this sport. I would encourage your readers to find a way to try the boats. If they are in Florida, they might like to visit my website for news about additions to my "fleet" of boats for demo and rent in St. Petersburg, FL (www.vinoybasinboatrentals.com). Other resources include: www.pedalpoweredboats.com and www.humanpoweredboats.com. As always, continued success for RCN.

Nancy Sanford, sunnysanford@earthlink.net

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John Schlitter

Mark Colliton



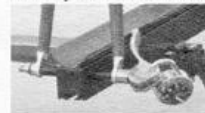
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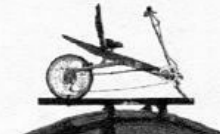
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## PT Racers

Some thoughts: I was reading your Editorial License page, falling in love with the idea of visiting the PT area for a week or so... then I turned the page and viewed the picture of your Easy Racer... I have been a LWB, USS Vision rider for quite a few years...first turned on to that bike by reports in RCN (more about that later) and have very serious plans to cross the country probably next summer by the Northern tier route, West to East...already bought the map set from Adventure Cycling.

The old Vision is wearing out...its Sun Tour components are no longer even produced; I would need an entire new drive set up from chain rings to freewheel... Why not order a new bike, say a lovely Tour Easy like yours and have it delivered out there where I would do a few shakedown rides and then begin the long journey home to Maine?

Finally, I don't really want to consider Vision, and in fact I don't recommend that manufacturer to other potential recumbent riders, because they apparently have chosen not to support RCN anymore. And surely it was RCN that put Vision on the recumbent map so to speak. To abandon RCN once they had a "name" really turns me off. Please correct me if I have my facts wrong. Keep up the fine job with RCN.

Chris Beeuwkes, beeuwkes@somtel.com

## PT Cruise

You really found my sore spot Bob, quite a few of them! I grew up near Long Beach, California. and always had an interest in sailboats. I bought my first Tour Easy in 1992 and have never worn anything but Levis and comfort shoes with stock pedals. In 1996 I moved into an apartment. I got tired of the elevator hassle and sold the Tour Easy and bought a Tailwind. It was OK but I missed the lower BB and "feel" of the Tour Easy. So when the EZ-1 SC came out I sold the Tailwind and bought an EZ-1. It's no Tour Easy but it's a fine little bike.

RC Wild, w6rcw@yahoo.com

**Note:** RC just wrote us to say that he's ordered a new Tour Easy EX.

**Editor Comments:** The Easy Racer LWB recumbents are unique in that they are offered in multiple frame sizes, which makes for optimum LWB weight distribution (65% rear/35% front). CLWB (compacts) are smaller, easier to transport and are dramatically more affordable. However, their smaller wheel combo makes for a noticeable decrease in performance. With 75%-80% of the riders weight on the rear wheel, the front wheel is lightly loaded. The lighter front end can be a concern at high speeds—especially when cornering. If you ride recreationally, the LWB may not be necessary—though be aware that there can be big differences in how these similar bikes handle, ride and perform. ♦



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### 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

# The ICE Trice XL

## Impressions

by Craig Johnsen, Craig@tftp.dis.net

In early 1999, Inspired Cycle Engineering (ICE) of Cornwall, England, took over the manufacturing of the Peter Ross—designed Trice. The principals of ICE, Chris Parker and Neil Selwood, made design and production improvements to the original 20/26 Trice and renamed it the "Classic." They also developed an all 20" (406) wheel version for touring (the "Explorer"), a new, lowered-CG single seat sports/touring trike (the "XL"), an XL-derived tandem trike (the "X2") and an "Explorer-derived tandem, the X2 Expedition. For 2001, ICE plans to produce a high-performance road racing model, the rear-suspended Micro.

I ordered a 2000 Trice XL through Ed Deaton of Fools Crow Cycles and collected it from the Delta Air Freight terminal in early March, 2000. My XL has so far proven to be well-built and quite handy. It has also added another huge bit of the "Fun Factor" to my cycling, whether used for commuting or for weekend touring.

### I. Systems

**Frame** – The Trice frame can be separated into three parts (front boom, mid-frame and rear frame triangle) for storage or transport, though the process does not recommend itself as an everyday event. The XL frame is offered in two wall thicknesses (1.5 mm is now standard and a lighter, 1.0 mm is available for those riders under 200 lbs.) of 45 mm and 50 mm cold-drawn (hard) steel main tubing. The balance of the tubing in the frame is Columbus CroMo. ICE has developed elegant, laser-cut brazing lugs for the mid-frame cross arm, forward seat mount and the handlebar pivot. These appear well-designed to spread stresses over large areas and the brazing looks to have been properly done with smooth, even fillets. Two water bottle mounts and a computer mount are standard with the Trice. I ordered optional braze-ons for a third water bottle, generator, rack and light mounts. All were nicely detailed.

The standard finish on the Trice consists of colored powdercoat overlaid with a clear lacquer topcoat. The boom and rear frame triangle are separated from the mid-frame by machined plastic sleeves to avoid scratching the paint. The quality of my XL's orange-red finish looks quite good, though it does not have the gloss of "wet look" paint.

**Steering** – The steering on a tadpole trike requires careful design to provide proper tracking, the correct amount of "road feel" and the avoidance of "bump steer" when road irregularities are encountered. Competition among the various manufacturers has ensured that nearly all of the quality trikes are designed to incorporate Ackerman geometry for this purpose when linking the wheels and the handlebars. The Trice's USS system incorporates Ackerman geometry to link the "U"-shaped handlebar to the kingpins via adjustable length connecting rods. Three headsets are utilized as the main pivots.

**Weight** – My XL, complete with the optional alloy rear carrier (rack), braze-ons, water bottle cages, computer, mudguards (fenders), Tioga Comp Pools on Odyssey Rims and dual mirrors weighs 46pounds. ICE's website lists the bare trike weight of an XL as 39 pounds.

**Drivetrain** – At my request, Ed Deaton configured the XL with a Shimano 105 (9 speed) crankset (28-42-52) driving a Shimano Deore LX 11-34 cassette with SRAM PC-59 9-speed chain. I opted to avoid the added complication and additional weight of the optional SRAM 3 x 7 rear hub. The standard Dura-Ace 9-speed bar cons smoothly control both the Shimano 105 front and the long-cage Deore LX rear derailleur. The chain is routed through black plastic chain tubes and passes around a 1/2" x 2-3/8" idler just aft (and below) the main cross-tube. The return from the chain rings passes through a longish chain tube on its way to the rear mech—primarily I suspect, to keep the low-riding chain out of the road muck. While the chain tubes must cause a minor amount of increased drag due to friction, I have not found that is noticeable in

everyday riding conditions.

After a few months of riding the XL, with its 20" (406 ERT) drive wheel, I was rather consistently "topping out" the gears along my generally-flat commute route. Following the advice of ICE's Neil Selwood, I "upped" the chain rings to a 30-46-56 combination and I have found this chainset better suited to my riding style/conditions. The length of the chain was also adjusted to permit the use of all 9 gears with each of the larger chain rings while still permitting the use of the lowest 5 gears available when shifted to the 30 tooth "granny" ring.

**Braking** – The Trice comes standard with the reliable Sturmey Archer Elite hub brakes. They brake the XL well and I have not found any noticeable fade during my riding. HOPE Sport front discs are a \$500+ option for the XL and these disc brakes might be recommended for heavier riders and/or those who ride in hilly or mountainous terrain with long/steep downhills. Trikes tend to wander off alone if one forgets to set a parking brake, so ICE installs for this purpose a ratchet-operated V-brake which grips the rear rim.

**Wheels and Tires** – Ed Deaton arranged to have a trio of red-flamed Odyssey T-1000 double-wall rims laced up for my XL and these were fitted with 1.75" Tioga Comp Pools. This sturdy wheelset, once properly tensioned, has withstood all of my (occasional) "hot-dogging" as well as the normal strains loaded onto trike wheels when cornering. After 800 miles of riding, the front tires have "scrubbed off" an inch-wide wear pattern along their centerlines while the rear remains semicircular in section. (Note: Riding habits will make large differences in tire wear, assuming the proper alignment of the wheels is maintained.)

### II. Comfort

The Trice seat is a black powdercoated, welded tubular aluminum frame covered with a smooth, laced-on black mesh fabric. (ICE seats are now tensioned by 14 individually-tensioned 3/4" wide straps). The seat frame shape provides a comfortable, moderate lumbar support and the tension of portions of the seat lacing (straps) can be varied to permit preferential fine-tuning for individual riders. The angle of recline may be adjusted over a 14-degree range from somewhat upright (51 degrees) to moderately laid-back (37 degrees). I happen to prefer riding with my seat fully reclined and have found that the introduction of a 1" thick foam seat pad eliminated minor thigh pressure points from the lower horns of the seat (apparent on longer rides). New Trices have a 2" thick very open cell foam pad inserted between the seat and the straps for this purpose.

The USS handlebars are adjustable for rake and width. I shortened the length of the rubber grips installed by Ed Deaton and raised the brake levers to bring the controls more comfortably to hand when my thumbs rested on the shifters. The horizontal portion of ICE's mirror supports happen to provide convenient hand rests while riding.

Quite a range of rider X-seam measurements can be accommodated on the XL due to length of the Trice sliding front boom and the adjustable seat rake. ( Note: adjusting the seat rake requires the rear triangle to be slipped forward or aft slightly and, as when adjusting the boom length, derailleur cables and chain length may need to be reset. )

### III. Ride/Handling

**Stability** – One of the reasons to ride a tadpole trike is for the enjoyment of the sense of increased stability which comes from riding on three wheels. Lower CG's provide noticeably increased stability and thus, handling safety in the event of a sudden swerve. The XL, with its 8" seat height, is very safe in my opinion (and oh, so quick!) with a bit of a lean to the inside (and a gleeful, ear-to-ear grin.)

**Tracking** – The Trice XL tracks predictably, and when properly adjusted, can be ridden hands-free on an uncrowned surface, should the

mood strike. However, as most roads around my area are crowned to provide runoff, if I am riding along the shoulder, I find it necessary to provide a light touch to counteract the trike's crown-induced tendency to angle off the road. Control input seems to remain light at speed, though my maximum to date has only been 46 mph. I did not experience any twitchiness winding down a nearby mountain road. I never felt as if braking was required to control the handling.

**Maneuverability** – With a wheelbase of 39"-40", the XL maneuvers easily, though its turning radius is slightly larger than some other trikes. When, for example, I need to get into arm range of a street-crossing button, I find that a combination of backing and filling may be necessary should a very tight turn be required.

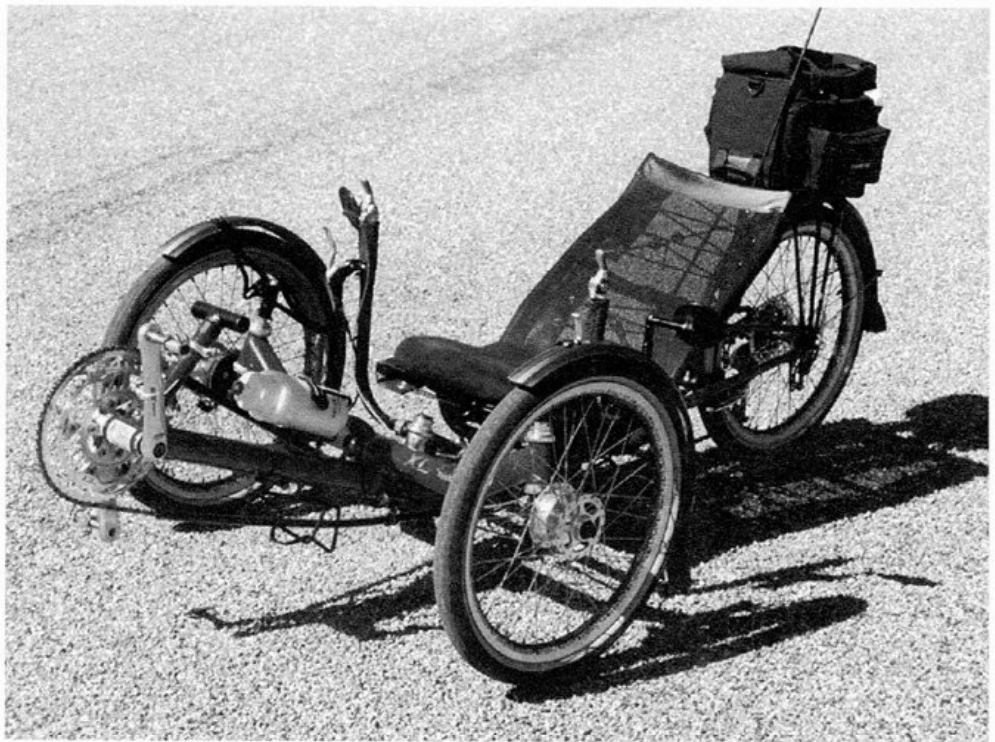
**Speed/ Efficiency** – Initially, I experienced a 15-18% drop in my commute speed when I changed from my Rans Stratus to the heavier Trice XL. However, after three months of riding the XL (and after swapping the chain rings), my average has returned to my Stratus level. I find that I am still slower climbing a steep hill, though I can "twiddle" along in granny low at 3-4 mph without needing to stop for a breather for a far longer distance. Once at the top, the XL will happily go downhill, "like a brick thrown off a cliff," to quote PBP veteran Peter Marshall, who reportedly often passed tandems on downhills when randonneuring aboard a '99 Trice XL.

**User-friendliness** – On the XL, the reclined seat combines with a bottom bracket located 5" above the seat bottom to create an "open" riding position. Steering seems nearly "instinctive" and the USS handlebars are comfortably positioned. The mirror mounts (I use one on each side) position the mirrors outboard of the handlebars and behind each of the front wheels. I find that a quick glance down to either side is easy to accomplish without losing my road sense.

Required control inputs are generally light, though I am aware of one Trice rider who initially opted for hydraulic disc brakes to minimize strains on her arthritic hands. The lowness of the XL's seat might make climbing on and off a bit of a chore for someone with knee or hip flexure problems. The Explorer, with its 12.5" seat height would probably help in such a situation. Use of the parking brake should help to prevent the trike from moving "out from under" at an inopportune moment.

Clipless pedals come standard on the ICE Trices and I would certainly recommend their use. If one were unfortunate enough to have a foot slip off a pedal when at speed, the chance for a painful "leg suck" would be very real.

The excellent ICE fenders go a long way toward making the ride more pleasant when riding through the wet or over perhaps... questionable...road surfaces. Nevertheless, when the bottom of the open-mesh seat is a mere 8" above it all, the spray from the sides of the Comp Pools will quickly provide the rider without a foam pad a damp seat.



*The Trice XL*

**The Ride** – Riding an XL puts one in a position where views of the passing scenery, wildlife or pedestrians are definitely "from the ground up." With the comfortable seat, ergonomically-placed controls, and the lack of need to balance, the XL leaves me free to enjoy my surroundings. This trike is very quiet to ride, perhaps because the chain tubes seem to absorb much of the mechanical noise and the smooth Comp Pools contribute little road noise. The ride, however, is "short wheelbase firm" and was initially a marked contrast from that of my LWB Rans Stratus. The XL's mesh seat and the Comp Pools provide some shock dampening for the stiff, large diameter tubing of the frame, but a rough road will still make itself felt. While over time I have grown accustomed to the firm ride and no longer find it a discomfort, I urge anyone contemplating the financial investment that a trike represents to make the effort to test or rent one for a long, careful trial.

**Fun Factor** – I am frequently asked the question, "Why ride a trike?" For me, the primary answer is: "Riding a trike, and especially the XL, is great FUN!!" The fine handling and extra stability of the XL allow me the freedom to really zip about, cornering sharply, with little fear of crashing. Rain- or sprinkler- slicked paths no longer require extreme caution to transit. The sensation of speed is heightened when riding close to the ground and it is not hard to imagine oneself aboard a low-flying craft of some sort, skimming low over a mysterious planet. I'll have to be honest and add that another part of the fun is: a Trice XL is a real "showstopper." Kids love it and I was once stopped by a sprightly, retired lady who wistfully asked to try it. I was in no hurry and so, in no time at all, she was wheeling about in a rapid figure-eight, wearing a delighted grin.

#### **IV. Owning/Purchasing**

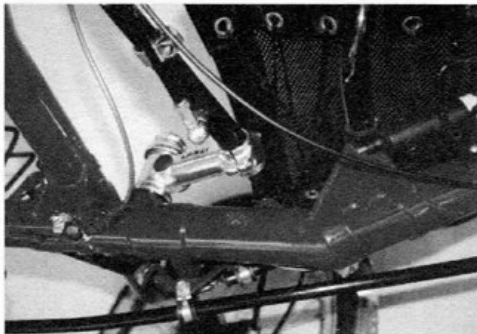
**Versatility** – The XL has worked well for me as a commuter and as a weekend road touring machine. The welded alloy rack is sturdily mounted and permits carrying a rack bag and two medium-sized panniers. Our Burley trailer has also been pressed into service for bulkier cargos. The trike's low ground clearance and wide stance would, however, make off-road riding questionable. The wide gearing options available permit configuring an XL for light, faster conditions as well as for hauling loads or crawling up steep hills.

**Shipping/Assembly** – RCN's Bob Bryant feels strongly that a first-time trike buyer would be wise to have a knowledgeable dealer assemble a tadpole trike and I would heartily second that opinion. The handling, tire wear and component durability of an XL will greatly benefit if initially set up by an experienced mechanic. Dialing-in the XL to your preferences and adjusting it after the first few hundred miles will require a bit of patience, basic bike tools and careful attention to details, but is easily within the capabilities of most tinkerers.

My Trice was delivered to Florida as a frameset and when Ed Deaton finished the assembly, it was placed just inside the baggage compartment of one of Delta's flights to California. The XL arrived undamaged and required only minor adjusting to ride.

The Trice will disassemble and can be compacted for shipping. I would estimate that it might take about 20-30 minutes to "compact." And, perhaps twice that long to reassemble and tune the trike, provided the proper assembled positions were pre-marked and if derailleur cable disconnects are utilized.

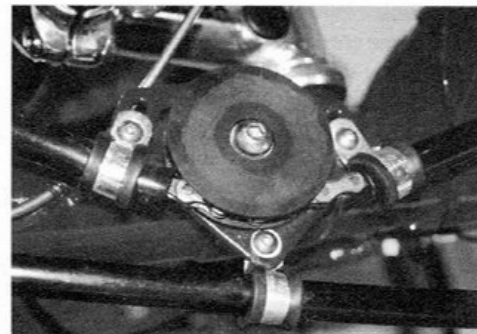
**Quality/Durability** – After contacting dealers and several owners, I learned that the improved, ICE-built Trices are developing a good reputation for durability and reliability. Though



Cross member, seat and steering assembly



Rear frame section underside



Chain idler and tubes

these Trices have not yet been seasoned through years of riding experiences, the workmanship and attention to detail is evident and suggests that it should remain a low-maintenance, high-pleasure machine.

**Cost/Depreciation** – Riding on three good wheels is expensive. My 2000 Trice XL, with all of its options was delivered (California, USA) for \$3673. While I feel that the price was fair, given the quality of the machine and its components, such a cost level will serve to ensure that a Trice XL will not be common to every street corner. Only time will tell what the cost of ownership per hour of riding will be, however the reliability of the XL so far has provided excellent cost-efficient transport.

**Options & Accessories** – ICE options include gearing options, color choices, two track widths and tubing thicknesses, Hope disc brakes, a variety of extra braze-ons, fenders, a pannier rack, mirror mounts, pedal choices and even a front fairing. Available in late 2000 is an air-shock suspended rear triangle which can be retrofitted to ICE's XL's and Explorers.

#### My Analysis

**Value/Depreciation** – The market for quality trikes is small, yet competitive. It also suffers from the bane of recumbency – long delivery times. While awaiting the delivery of a new trike teaches patience, I suppose, typical delivery times of 8-12+ weeks have had the side effect of helping to maintain the value of good condition, desirable model trikes on the used market. "Pre-owned" XL's have been extremely rare.

**Market Competition** – The sports/touring Trice XL is competitively priced against both of the excellent, fixed-seat, Greenspeed GTS and GTC models as well as EarthCycle's very nicely-finished, adjustable seat, Dragonflyer. The XL's blend of a low center of gravity,

adjustable seat recline, fine workmanship and its ability to be "compacted" for travel or storage best met my desires for a trike. If you are in the market for a tadpole trike, give this one a close study and/or lengthy test ride.

**Additional Notes** – An important question for any prospective trike purchaser to answer is: "How low to the ground are you comfortable riding when in traffic?" Some riders (or their SO's) may not feel sufficiently visible on a low trike such as the XL without large flags, bright colors, reflective strips, lights and/or a loud horn. My observation has been that the XL (and, perhaps, any trike) is so different from the norm and appears to be so wide, that motorists who are paying attention tend to notice me right away and provide greater than normal clearances when passing. On the other hand, riding behind any of the current crop of SUV's is a risky business and will demand particular care on the part of a trike rider.

**Verdict** – The Trice XL provides a fine blend of quality, comfort, user-friendliness and fun for the money. It compares very well with the competition and is gaining a loyal riders base as these new trikes spread into the marketplace. It also appears that the problems which had occurred with some of the earlier Crystal Trices have been successfully overcome with the changes ICE made to the basic design.

Competition among the manufacturers has spurred the production of a healthy group of high-quality tadpole trikes for the enthusiast. After riding various models offered by five manufacturers, I observed that even though all of the trikes had dimensions and weights within small percentages of each other, the rides and "feel" were often dramatically different. As is often recommended in these pages, do yourself a service — before you buy — travel as far as may be required, but give the model trike you are interested in a good trial ride. And be prepared to ride with a grin....

#### Rating/Summary

**Comfort** — B+  
**Design/Style** — A  
**Drivetrain** — A  
**Chain Management** — A  
**Brakes/Braking** — A  
**Finish Quality** — A

#### Pros

- ▲ Excellent stability from low CG
- ▲ Comfortable, adjustable mesh seat
- ▲ Light control inputs required
- ▲ Refined handling and design options
- ▲ Can be compacted for transport/stowage
- ▲ Quiet (chain tubes help)

#### Cons

- ▼ Long-ish delivery times
- ▼ Stiff ride initially
- ▼ Rare/expensive
- ▼ Somewhat heavy and can be slow up a hills
- ▼ Some riders may feel too low to the ground

#### ACCESS—USA

Fools Crow Cycles (FL): Tel. 850-224-4767  
The Bike Rack (IL): Tel. 630-584-6588  
Calhoun Cycle (MN) Tel. 612-827-8000  
ICE in the UK: <http://www.ice.hpv.co.uk>

#### Specifications:

**Model**—Trice XL  
**Type**—Tadpole trike  
**Steering**—USS (Ackerman geometry)  
**Wheelbase**—39.4", **Width**—35"; **Seat height**—8", **BB height**—13", **Weight**—39/46 pounds; **Frame**—Brazeed steel/CroMo

#### Components:

Note: ICE offers four options and US dealers often will build-up framesets to suit. My Trice XL was set up with:

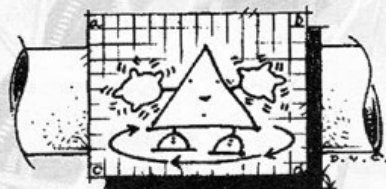
**Crank**—Shimano 105; **Bottom bracket**—Shimano; **Headset** (3)-NA; **Derailleur(s)**—Shimano 105 (f), Deore Mega 9 (r); **Cassette**—Shimano 11-34 9-spd.; **Chain**—SRAM PC-59; **Gear inch range**—20"-104"; **Pedals**—Shimano; **Wheels**—(3) 406mm 20"; **Rims**—Odyssey T-1000; **Tires**—1.75" Tioga Comp Pools; **Hubs**—drum brake (f) & Shimano XT (r); **Brakes**—Drum brakes (f) & V-brake (r); **Colors**—8 choices. ♦

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# The Sat R Day

## A Recumbent That Fits Into A Suitcase

by Bob Bryant

So this company says, "We've got a recumbent that folds into a bag in a minute or two..." and "...it will also fold into a suitcase...one suitcase." I said, "Are you dreaming?" "Could this be possible?" A few years ago, I'd have never believed it. Now, a suitcase-able recumbent is a reality. If you have prejudged this bike, you've made a mistake. The Sat R Day is about as James Bond or Inspector Gadget as you can get—and it rides wonderfully. The engineered compactness is nothing short of spectacular for us recumbenters who previously have been forced into humongous bikes that are unreasonable to store, pack or ship. EVERY RCN reader could use one of these bikes at some point in time.

### I. SYSTEMS

#### Frame Assembly

The Sat R Day frame is custom built of several diameters of CroMo tubing. The result is a fairly robust and stiff, yet very petite frame. There is a short-ravel seat suspension. The seat pivots on its forward mount and the rear solo mount has an elastomer inside the tube. The Bike Friday fork is also stiff and petite. The boom is spring-loaded. It raises with one hand, yet is locked in place while pedaling.

The test bike was an above-seat-steering unit. Greengear manufactures their own steering unit and it worked fine, allowing enough recline adjustment (adjuster bolt) to fit this XL-sized test rider on this small bike.

Our Sat R Day weighed 32.5 pounds—which is heavier than it seemed.

#### Drivetrain/Shifting

The Sat R Day has two chains. The primary chain goes from a midship mounted idler back to the rear wheel, derailleur and 3x7 hub. The step down geared mid-drive is a modified Shimano HG-70 cassette with chain guide plates to keep the chain on. We did not experience any chain or drivetrain problems. For 2001 Sat R Day's have an eccentric cam bottom bracket to do fine adjustments to the primary chain tension.

Our test bike drivetrain shifted smoothly, quietly and the light action Shimano Rapid Fire shifters combined with the short Sat R Day dual chains made for a very nice drivetrain. The low gear did not seem low enough.

#### Wheels & Tires

The 349mm actual diameter of wheel/tire is 16.75 inches. This wheel size isn't used much anymore outside of old Visions and the Sat R Day. It is a fine size that has been around for years. It is a real design blessing for those builders who want to keep the seats and front ends low for shorter riders.

The tires are the best and only decent tire made for this size: The Primo Comet. You've heard my Comet rants before. It is a wimpy, yet high quality little performance tire that has no reason to be on a serious touring bike—except for the fact that it's the only decent tire available in this size. We'll discuss this more later (Verdict).

It is seriously advisable to keep a cache of spares in close proximity (or a roll of duct tape with Greengear's 1-800 number written on it).

A dual 20-inch version of this bike would be nice, but would make it larger and not as foldable (or suitcaseable). Fat tire fans may want to explore the possibility of the small 305mm wheels—which have some fatter tire options and would lower the bike a bit.

#### Braking

The Sat R Day has Tektro V-brakes that work very well. There is a problem with the front brake cable routing. Our V-brake cable needed a firm tug upward each time we rode it, or the cable would drag on the front tire. A fender or zip-tie would help this.

My only Sat R Day braking concern is how the 349mm wheels and V-brakes would react when combined with a touring load and a steep

mountain pass. Little wheels rotate more, and their rims heat up faster.

### COMFORT

The seat height, riding position, rider ergonomics and user-friendliness were all exceptional and perfectly suited to the Sat R Day's design intention. The moderate pedal/BB height, seat recline angle and adjustable above-seat steering bars integrate well.

The seat frame is aluminum. The seat base is an aluminum plate that is formed to match the human butt (and a smaller one than mine....). The base has a thin Temperfoam cushion. The seat back is a relatively low height mesh back.

This seat needed to be small to fit into the suitcase for travel. It is fairly comfortable given that design criterion. However, when compared to other (much larger) commercially built seats, the Sat R Day's seat comfort appears to need some more development.

Again, the bike has a minimal travel seat suspension, which helps take the edge off those stiff little wheels and minimal recumbent seat.

Our large size frame fit me perfectly—another pleasant surprise for this very petite SWB. With my 44.5-inch x-seam, the seat would go back another two inches, and forward nearly five inches. There are three total sizes, small, medium and large that fit riders 5' - 6'2".

### III. RIDE & HANDLING

#### The Ride

"The Sat R Day is a zippy and responsive recumbent," says Greengear. And they are absolutely right. Zippy! At first the bike feels VERY quick, but I found it very suitable to ride just about anywhere.

I was pleasantly surprised at the stability and tracking ability of this SWB. Granted, the little 349mm wheels do make the bike quicker handling, but that steering geometry and tracking ability are about as good as they can be given these design parameters. In contrast to other SWB models, the small wheels are a slight performance detractor.

The Sat R Day is not a fast bike. It should be average or just below. Again, this is primarily due to the 349mm wheels. I took the bike for a 40 mile ride one day and found that the bike accelerates nicely, but doesn't hold its speed as well as other recumbents (with larger wheel combos). I would guess that performance will be improved for small-medium sized lighter weight riders.

With the 349mm wheels, a sliding seat and no detectable heel interference (with the front wheel) for this test rider, maneuverability is about as good as it can get on a recumbent. The Sat R Day was an enjoyable urban recumbent due to its relatively low stance and pedals/BB at just below seat height.

### IV. PURCHASING

#### Versatility

The Sat R Day is a very versatile machine because it travels and stores easier than any recumbent we've seen. The limitations are probably more due to the 16-inch 349mm wheels and tires (which is a judgement you'll have to make for yourself).

#### Shipping & Assembly

Greengear/Bike Friday is a specialist in the direct to customer sale. The Sat R Day comes in a small box and goes together surprisingly quickly. There is an excellent owner's manual and documentation as well as a video. We're not sure if the recumbent has been added to the video.

#### Quality & Durability

The Sat R Day was of good quality, though not as refined as our previous upright New World Tourist. Our Sat R Day arrived with a severely bent spoke on the rear wheel and some scratches in the paint. We have had occasion to work with Greengear on minor problems and they are among the best for handling these types of problems.



## Options & Accessories

There are multiple spec levels of this bike (see pricing). It is also available with above or underseat steering. We preferred the ASS (though we always do). The last time I tried the USS version was with the prototype in 1998. We had a rear rack that bolts right on the bike. There are one-bolt Bike Friday fenders that fit the Sat R Day and remove in a minute or two. There is no seat bag yet, but there is a transit bag, and travel case that turns into a trailer.

## Travel Notes From Greengear:

"With the optional suitcase and packing materials, you can take your recumbent on any common carrier, for no extra charge. Packing and unpacking takes 20 to 30 minutes. Your Sat R Day will also quick-fold into a small bundle in less than a minute for easy storage or transport. Learn more about or order a TravelCase."

## How to pack your Sat R Day recumbent for TravelCase transport:

Remove the seat and detach the webbing. Separate the seat from its back. Remove the front wheel, handle bars, pedals, etc. We provide a packing manual, video and some protective casings. The Sat R Day case is \$217 and the bag is \$79.

## How to Quick fold your Sat R Day:

Loosen the quick-release under the seat. Fold the seat over the frame and rotate the pedaling boom until it lies snug with the main frame. Lift the bike and roll the rear wheel under the main frame."

## RCN ANALYSIS

### Value & Depreciation

Better than many, though not as good as the classic recumbents. Bike Friday guarantees trade-in value which keeps used bike prices up. The marketability of this bike depends highly on the manufacturer's support of it.

### Market Competition

No other folding or travel bike can hold a candle to the Sat R Day. If I were a traveller, I'd buy this over ANYTHING short of a Brompton wedge.

### Rants

- ✓ The black powdercoated handlebars scratch easily.
- ✓ The decal on the chainstays was coming off on day #1.
- ✓ The rear wheel had a severely bent spoke.
- ✓ No Bike Friday tool (fits every bolt on the bike).
- ✓ No seat bag (apparently one is being prototyped).
- ✓ Seat slipped once (slightly to one side off of its horizontal plane. This happened during my longest test ride about 30 miles into a 40 mile ride. The problem was corrected by resetting the quick-releases.

### Verdict

The Sat R Day is a great little travel recumbent. I did enjoy it much more than I thought I would. Greengear has done a wonderful job



of making a little bike feel big.

## Recommended Upgrades:

- ✓ **Chain:** Any non-KMC chain will do. Ours was updated by the factory.
- ✓ **Pedals:** You'll need clipless pedals on this (or any) SWB. This is a statement more about the SWB design than the Sat R Day.
- ✓ **Front hub:** Pay to get a name brand hub; rear is fine, a SRAM 3x7.
- ✓ **Rear derailleur:** Ours was updated from the factory.

## BOB Rating: B

### Pros

- ▲ An excellent value.
- ▲ A Zippy & fun bike to ride.
- ▲ User-friendly SWB ergonomics.
- ▲ Very well engineered.
- ▲ The best recumbent travel bike made.
- ▲ Custom build quality (tube set, fork, etc.).
- ▲ Bike Friday is a great company. They are nice, friendly and if they do make a mistake, they fix it ASAP. The phone support for replacement parts is the best in the industry.

### Cons

- ▼ Racer type riders need not apply.
- ▼ Kinda geeky looking.
- ▼ Dual 16-inch wheels (is this a negative?)
- ▼ Quick fold could be faster (they should hire Inspector Gadget or James Bond's "Q").
- ▼ Bike heavy for a petite SWB.
- ▼ Seat is not the world's most comfortable, because it needs to be compact.
- ▼ This one is better than all previous versions.
- ▼ I hated the STI Rapid Fire brake lever shifters on the USS version I tried last year.

### Access

Bike Friday  
3364 W 11th Ave.  
Eugene, OR 97402

Tel. 800-777-0258  
<http://www.bikefriday.com>

## Pricing

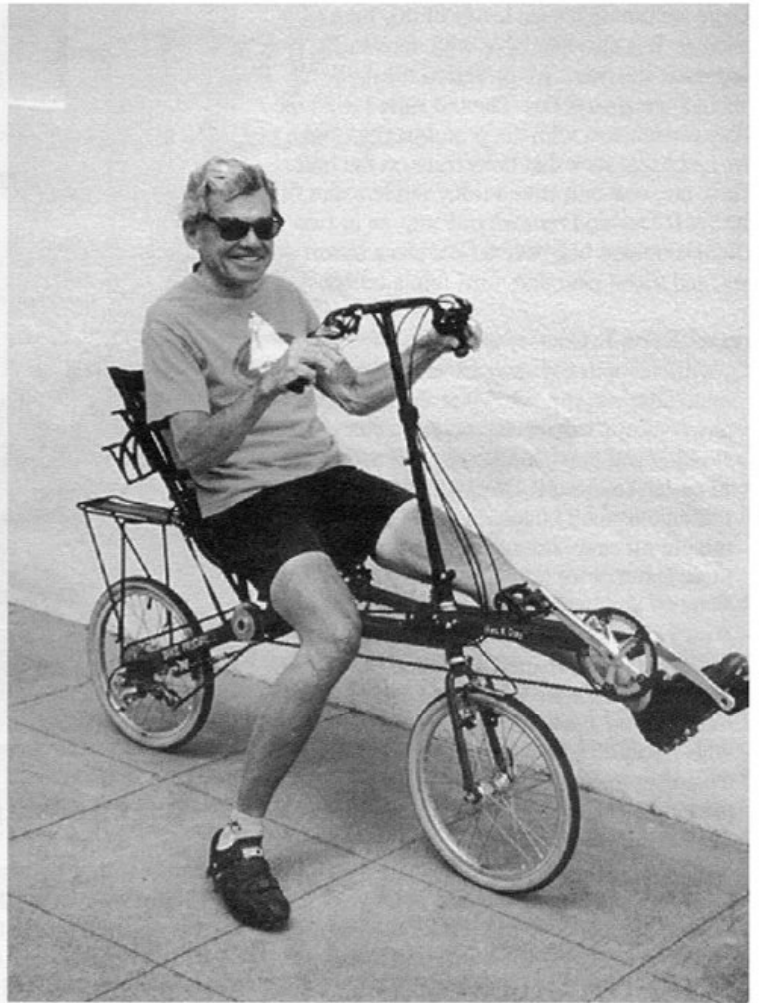
BF Select (stock), ASS, 3x7, twist, \$1795 (our test bike)  
BF Select, ASS, 3x7, Revo twist, \$1850  
BF Select, USS, 3x7, twist controls \$1950  
BF Select, ASS, 3x8, RapidFire \$1995  
Shimano LX, ASS, 3x8, RapidFire \$2095  
Shimano X/105, USS, 3x8, RapidFire \$2225  
Shimano XT/Ult., ASS, 3x8, RapidFire, \$2325  
Shimano XT/Ult., USS, 3x8, RapidFire \$2475

## Bike Info

**Bike Friday Sat R Day** (BF Select ASS)  
SWB ASS (tilt forward)  
**Wheelbase**—39.5-in.; **Seat height**—24.5-in.;  
**Bottom bracket**—23-3/8-in.; **Weight**—32.5  
pounds; **Frame**—TIG Custom sizes of 4130  
CroMo with cantilevered stays; **Fork**—  
Custom Bike Friday CroMo; **Suspension**—  
elastomer seat susp.

## Components (BF Select ASS)

**Crank**—Bike Friday alloy single with red  
chain guard 170 mm 39-T. 130 bolt pattern;  
**Bottom Bracket**—NA; **Headset**—NA;  
**Derailleur**—Shimano Acera X (ours was a  
SORA); **Shifters**—Shimano Revo 7x3;  
**Gears**—12-28 + mid-drive crossover;  
**Chain**—KMC Z (upgraded to Shimano  
(normal length); **Gear Inch Range**—  
23.5=103; **Pedals**—Wellgo MTB platform;  
**Wheels**—349 mm 16-inch; **RIMS**—Sun AT18  
349 mm 16-in. 36-hole;  
**Spokes**—14 G. SS; **Tires**—Primo Comet 1.35;  
**Hubs**—SRAM 3x7 (rear)/Joytech front;  
**Brakes**—Tektro V/Mini-V (front) & Tektro  
levers; **Warranty**—limited lifetime warranty  
(orig. owner); **Color(s)**—Red powdercoat  
(decal over the top; no clearcoat) ◆



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# Recumbent Revolution

## And My Way of Dealing With It (The Recumbent Diary of a Mad Man)

Story & photos by Rich Belcastro

Well here I am again. I'm Rich, the recumbent rider that wrote a story way back in 1995 entitled "I Am Looking For a Title."

The spirit of the article was to chronicle my experience with several different recumbents (manufacturers and styles) in order to find the optimum specifications and configuration.

The problem I had was that early in my recumbent riding career, I acquired a Counterpoint Presto which (for me) provided a standard of reference in terms of:

- ✓ Proper amount of body shock absorption
- ✓ Steering stability (I hate twitchy front ends)
- ✓ Good climbing ability
- ✓ ...And of course, the all important comfortable seat.

As a resident of Chicago, my general requirement was to have two recumbent bikes, one for summer riding and one for winter riding. For the most part this is more than likely a rationalization that I am making to justify having 2 bikes. So allow me to proceed with this requirement as a given.

At this point let me remind you that my experience included an early BikeE, Rans Nimbus, Rans Rocket, Vision R40 (with above the seat steering). After riding and critically evaluating these bikes against my specifications, I realized how much I preferred the overall characteristics of the SWB (Presto) in meeting all my criteria. I decided to get a second Presto which I purchased from Kelvin out at Angletech in Woodland Park, Colorado (after of course selling the others).

### The acquisition and resale history is shown below:

1. Rans Nimbus — July '92 to July '93
2. BikeE — August '93 to August '94
3. Presto #1 — November '94 to Forever
4. Vision R40 — Sept '94 to May '95
5. Rans Rocket — June '95 to August '95
6. Presto #2 — October '95 to Feb '98
7. Vision Metro - March '98 to Nov '98
8. Vision R32 - March '99 to January '00
9. Presto #2 .....

I must point out at this time that these buying and selling transactions of mine in no way represent negative criticism toward the manufacturer or the products themselves. In fact, I found all contact that I had with the manufacturers to be very professional, courteous and friendly. Also, all products, without exception were of the highest quality. The sense of my analysis is to weigh the performance of these products against my personal criteria. A good example of what I am trying to say is that I hate pickled beets, cinnamon, and coconut with a passion, and yet, some people really like those things.

So anyway, with the second Presto, I was happy... for a while.

### Phoenix, Arizona and the Metro

Then in December of 1997, I moved to Phoenix where it is summer all the time. There is no winter. The winds and monsoon season did have a few surprises for me, however. So now, since there is only one season, my restless personality wanted my second recumbent to offer more variety in terms of format and feeling but still meet the previously mentioned specifications regarding shock absorption, steering, seat, and climb-ability.

So I sold one of my Prestos and bought a Vision Metro.

I have to bring up a side point here in terms of the parties that have purchased my secondhand bicycles. It was kind of interesting that when I was in the Chicago area, they were all purchased by folks outside the Chicago area requiring shipping and handling. When I sold the Metro

from Phoenix, believe it or not, the purchaser lived in the Chicago area. This however, has nothing to do with the rest of my story.

After riding the Metro for six months or so, my restlessness wandered to preferring more stability in steering and higher performance in general. I seem to have a hard time staying inside the 3-foot bike lanes in the Phoenix metropolitan area while pedaling.

### Steering and The Flop Factor

It is important at this point to discuss my concept of "steering stability." Using the parameter "steering stability" is too subjective and possibly unfair to the manufacturers. As Lauren and Jim from our local BRAG group, (Bent Riders of Arizona Group), constantly remind me, "One man's twitchy steering is another's responsiveness." So let me remove this subjectivity from the equation in an attempt to create a benchmark that might be more of a standard for comparison, and that I may use in discussing my preference.

I would like to define at this point a parameter called the "Flop Factor." The Flop Factor is the level of effort required to keep the bike in a straight line when pushing the bike from the seat back. Defining the Flop Factor in this manner also attempts to remove the variable of the bike rider's weight and shape. This Flop Factor also relates, to some extent, to the amount of energy (and associated response time) applied to the handlebars in response to the reaction of pedaling (which clearly is a function of several other parameters such as weight distribution, current gear, etc.).

Now that this has been defined, I personally prefer a very low Flop Factor. Having heard so much about the specifications of the Metro upgrade (R 32), I looked forward to a trial ride. The new bike contains the following important items:

- ✓ Higher bottom bracket — better for climbing (in my opinion)
- ✓ Equal weight distribution, a straight fork, neutral steering — better for stability,
- ✓ Gas shock—offering the shock absorption.

### The R32

So in good faith, I sold my Metro and in October of 1998, ordered a new R32. Now came the wait. The estimate for delivery was sometime in February of 1999. Finally the bike came in the first week of March.

Then the excitement combined with apprehension began. I had to wait for the following Saturday to test ride the new R32. The initial inspection was positive. I generally dislike 16-inch front wheels, but the R32 comes with the performance larger diameter version and both tires are the high-pressure variety. I prefer this combination since I like the slick road bike feel. In fact, you can see from the photos, both wheels appear to be almost the same size. (Ed. Note: Vision has since outdated the 16-inch version in favor of a new 20-inch version.)

The first ride seemed good at first in terms of the front-end flop factor and shock absorption requirements. The steering was reasonable and the shock was pumped up enough providing a nice firm ride. My initial conclusions were positive.

As I further analyzed the ride, I began to search for nuances of perfection. Now I was focused on the seat, its position and configuration. The seat was not quite reclined enough since (in my opinion) high-bottom bracket bikes need some reclining factor, otherwise your thighs are banging into your lower abdomen (for some of us who do not have a perfect figure). So I tried loosening the upper seat back bands using the Velcro fasteners. This helped.

The next nuance factor that popped up in the hierarchy was the seat bottom. It is a little short (front to back) causing the horn to poke a little. I added about two inches of foam to the current seat bottom and that did the trick. The horn stopped poking and it raised the seat bottom just a bit



Rich Belcastro on his Rans Vivo

to deal a little better with the high bottom bracket.

I was using the maximum extension between the stem and the handlebars, but that still wasn't enough to bring the position to where I preferred. My friend Ron cut a part for me to allow this extension. I can now position the handlebars much closer to my chest, which I prefer for long rides. All in all, the R32 is a reasonably priced quality recumbent.

As time went on, however I noticed that I was favoring the SWB on most rides and still fidgeted for perfection on the R32. I changed several handlebar configurations and modified the stem extension in an attempt to achieve the preferred relaxed position with my hands

closer to my chest. These modifications still left something to be desired.

Then one day, Ron from the bike club was riding a beautiful little SWB, ASS, high bottom bracket Recumbent that caught my eye. Both wheels are the same size—20 inches. It was the RANS fully suspended Vivo. Donna also rode the Vivo quite often; and as I watched the riders from the rear, the path was very straight even at low speeds. Mmmmm.... Another short wheel base—crazy things are going through my mind.

#### The Vivo

Recumbent Central had one on the floor. I took it on one of the BRAG rides and I was

sold. I tried the bike and was very impressed with the suspension and overall handling.

So, in January I sold my R32 and purchased a Vivo. I am having a great time with the variations in suspension, seat back angle, handle bar positions, etc. The bike is quite fast and climbs very efficiently. The bottom bracket is in a very comfortable position with respect to the seat. After several days I was so comfortable with the Vivo, I even purchased a pair of Speedplay X3 clipless pedals and I am totally enjoying the additional horsepower provided by the ability to spin. I think for the moment, I am quite satisfied. Now I hardly ride the Presto.

I guess I am just a SWB kind of guy.... Although I was in the shop the other day and saw a neat LWB. The low bottom bracket looks like it would offer a stimulating change from the SWB high bracket format I love so much.

I have got some test riding to do.

So now, I am riding the RANS Vivo regularly with an eye toward a possible replacement for Presto #2. More on this later.

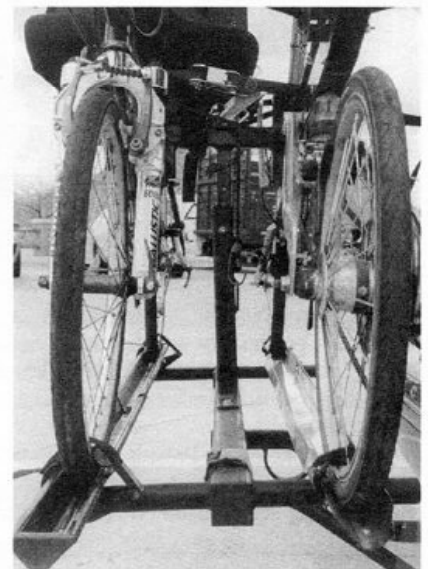
I guess you can teach an OLE dog new tricks.

#### The Bike Rack

In the meantime, my next project was to simplify the hauling of two bikes securely at high speeds. The exhibits show modifications made to the Hollywood (hitch) bike rack to support two recumbents without having to remove the front wheel—a heavenly goal. I purchased two channel irons from my local hardware store long enough to accommodate the wheel base of Christine's BikeE. I set it up to accommodate the longer wheelbase in both bike positions.

Then Frank, another BRAG member, welded a T-bar onto the center brace of the bike rack. The T-bar has an adjustable height so that it can easily accommodate several varieties of recumbents. I then use the ratchet type tie-downs, which appear to hold the bikes in place quite effectively.

If anyone is interested in discussing these rack modifications, please do not hesitate to email me at [rbelcast@aol.com](mailto:rbelcast@aol.com). ♦



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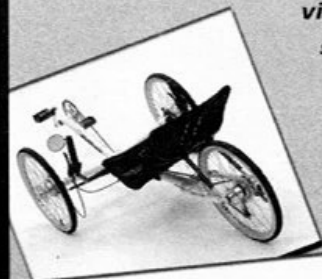
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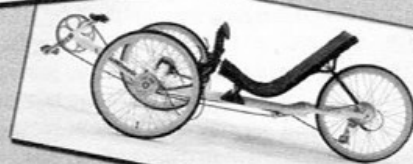
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# ***A Recumbent Tour through the Amish Countryside***

by Michael B. Stern, [cyclists@aol.com](mailto:cyclists@aol.com)

East central Illinois is farm country. Flat, open, with dark rich soil, one comprehends the allure which drew the pioneer farmer westward. To this area, now Douglas County, in 1865, arrive four Amish immigrants, seeking to cultivate not only crops but their personal religious beliefs. From those first settlers has grown an Amish community of some 4200 souls. This is not an area entirely Amish, for interspersed amongst the Amish homesteads are farmers of other backgrounds and beliefs. The result is a largely tolerant, gentle and quiet farming community steeped with traditional rural values. People stop to talk, take supper together, and acknowledge you as you pass. The two main Amish cities are Arcola, with a population of 2700, at the junction of Illinois Route 133 and Interstate 57 and Arthur, nine miles to the west, the center of the community, with a population of 2100. Springfield, the Illinois state capitol, is 70 miles to the west, the Indiana border 50 miles to the east. The University of Illinois is 42 miles to the north and Effingham, at the confluence of Interstates 70 and 57, some 50 miles to the south.

To this area come thousands of visitors each year, to view the Amish as they drive their horse-drawn buggies on the rural roads, to shop the area craftsmen and to visit the region's number one tourist attraction, Rockome Gardens (a simple garden and amusement park). My wife and I have visited the area the last five years. This year we decided to extend our stay and take our bicycles. We are glad we did.

I am 54 and returned to cycling four years ago after a recess of some forty years. My first bike was a hybrid, then a mountain bike, and two years ago I was ready to move up to a road bike. It was not to be. Recurrent low back problems, exacerbated by the required wedge riding position, had taken their toll. I was faced with giving up cycling, undergoing an uncertain operation, taking frequent epidural injections, or enduring the pain. An alternative not offered me, but which I discovered by happenstance, was to ride a recumbent. Today, recumbent cycling is an integral part of my life. The change to bicycles, coupled with the taking of mineral supplements, and making sensible decisions, has virtually eliminated the discomfort which accompanied my rides (and my life). I am riding more often, going longer distances, at greater speeds, over more varied terrain and without pain and discomfort, something that I never dreamed would happen. My first recumbent was a BikeE. This year I switched to a SWB Rans V-Rex. It was the Rans that I took to ride the Amish roads. It has the standard equipment. I only added a cyclometer, Rans bag and clipless pedals.

My wife, Joan, rides an upright. Her Bianchi road bike was built to her specifications. She is younger than I (for obvious diplomatic reasons I will not disclose her age other than to say she looks years younger than her years). It was her desire to visit a cross-stitch exhibition at Rockome Gardens that brought us to Arthur for the Memorial Day Weekend. It was our mutual desire to see the area by bike for the first time.

The best part of riding this area is you make up your own itinerary as you go since it is virtually impossible to get lost. The area is divided into grids, approximately one mile square. Route 133 is the main east-west artery. Interstate 57 is to the east and runs north-south. If you ride south of 133 you know you need only reverse direction and eventually you will recross it and can then turn east or west which will lead you to Arthur or Arcola (133 is the most heavily traveled road, however so it is better to parallel it on roads to its immediate north or south). The roads are also designated in a way which lets you know approximately where you are. Only in the towns are there street names. The roads are mostly rural routes designated as 300 east, 800 south, 200 west, etc. You know what direction you are headed by whether the numbers of the routes you cross increase or decrease. Both Arthur and Arcola have water towers which can be seen from great distances. If all else fails, look for a water tower and head for it.

You will end up in one town or the other. Of course, you can always stop at a farmhouse and ask, but I'm too macho to do that! But remember, these are not city blocks, they are farming grids. The distance between homesteads can be miles.

The Amish do not operate motor vehicles. The farm roads in their community are virtually motor vehicle free. The main conveyances encountered are horse drawn buggies, wagons or bicycles. The Amish bicycle is an upright cruiser or hybrid, often with metal pannier racks on the back wheels. They are pedaled at a leisurely pace. The buggies are high, black and enclosed, with glass panes in front and sides. They are pulled by one horse, much smaller than the plow horses one sees on the farms. I have ridden in the middle of a well-paved blacktop road for miles without encountering a motorized vehicle. Of course, with the horse drawn buggies, dodging potholes (which are few) isn't as important as dodging piles of horse manure. But that adds to the charm and uniqueness of the ride.

The starting place for us was the Arthur Information Center, located at the north end of the city's five block downtown. The downtown is a unique blend of craft and souvenir shops alongside local business services. You can walk from the Calico Workshop which sells quilts and collectibles next door to the insurance office or bank. On the east side of the main street is a long covered sidewalk and under that cover are wooden benches spaced evenly every fifteen or so yards.

The Information Center is down the street from the town's IGA market and its stalls for horses and buggies. We were immediately greeted by the volunteer, who couldn't have been more helpful. She shared a wealth of information about the area, its people and traditions. There we received an area map showing the Arthur area businesses. Amish homesteads were identified by dots on the map. Brochures on area businesses and attractions are there for the taking. Then, it was choose the route and pedal on.

We went north from Arthur under cloudy skies in high 60-degree temperatures, choosing to turn to the east at one of the intersecting roadways. We pedaled by orderly farms with evenly plowed fields containing tender shoots of wheat, corn, and oats. Each farm had its own vegetable plot laid out with precision. The farm buildings were, for the most part, in excellent repair, lawns mowed, clean white farmhouses, well kept barns, corrals filled with large plow horses and the most slender and nimble buggy ponies. Small herds of cows clustered together in fields eating the bright green grass. And in front of many of the farms were signs proclaiming the products to be bought therein. Most Amish men farm, and some of the wives run small businesses in their spare time. Other Amish engage in such diverse occupations as woodworking (fine wooden furniture), harness making, horse-shoeing, quilt making and the production of homegrown products such as cheeses, preserves and apple butter. The way we learned to tell an Amish from a non-Amish homestead was to look for the absence of power lines running to the home. The Amish use natural gas products, but not electricity, and many do not use telephones. Thus, the absence of the lines suggests an Amish residence. Then there is the obvious. If you spot a farm with an unhitched buggy in the front, that's a pretty good clue as to who resides there!

We encountered the enclosed Amish buggies with family members sitting back in the recesses of the carriage and as each passed we raised our hand in greeting, receiving a responsive wave. We observed buckboards with three or four children in Amish dress sitting side by side waving shyly as we passed, little stepping stones in traditional dress. Of course, the recumbent was a remarkable attraction, as it is wherever I ride it—but it was more than that. It was the method of traveling which placed us on par with those who also travel at a more leisurely pace, unencumbered by the confines of a two-ton steel and chrome machine.

We changed routes as our fancy dictated, enjoying the views, the openness, the freedom of an uncrowded road, traveling at a slower pace,

with time passing by a different clock. An Amish cyclist would pass and wave, smiling or nodding, admiring the Rans. Small girls tending the vegetable gardens would straighten up, rub their hands on their aprons, coyly watch and return our greeting. Groups of men would suspend their roadside discussions and raise their hand as we rolled by. We passed the farms and businesses with the signs which add much to the flavor of the area: Yoder's Gazebos, Plank's Apple Butter, Beachy's Produce. And, of course, riding reclined with the world in front of me, I was able to see it all.

It rained that first day. Fortunately, we were just completing our first loop of the area and found ourselves back in Arthur. We took our bikes to one of the benches on the covered sidewalk and watched the town's main street activity for the twenty minutes it took for the rain to stop. As in any town, the only ones oblivious to the rain were the kids, who ride their bikes through the spring shower impervious to the damp. People walked by and nodded a hello. Pickups drove slowly past. It was quaint to watch a driver wave at a pedestrian to cross the street while at the same time the pedestrian waved to the driver to pass through. For some reason the horse buggies were not driven on main street but used the side streets to the market or other businesses. On those side streets could be found the covered stalls where the horses and buggies were parked. The rain stopped and we resumed our ride, heading off in a different direction.

Rockome Gardens is the big attraction but unlike any amusement parks we have been to. Rides are few and unsophisticated. The amusement comes from its simplicity. It is more like visiting an old-time country fair. One almost expects Professor Harold Hill and his 76 trombones to run the corner in full dress. The main attractions are the flowing gardens and unique rock walls which have country sayings interspersed among them ("I took my wife for better and for worse, when does the better start?"). They have a small exhibition hall which stages shows all season, from dolls to quilts to cross-stitch. The park hosts gospel and country music concerts, cloggers and even Native American powwows. I am no fancier of gardens by any means, but it is worth at least one trip. Admission is half price on Sundays.

Several memories of the trip stand out: We were riding down one of the rural roads, with my wife in front, when an Amish cyclist on a Cannondale touring bike came alongside (the only drop bar bike I saw). He was clean-shaven, so I knew he was unmarried (when Amish men marry they stop shaving their beards, although no Amish man is allowed a moustache). He appeared to be in his mid-20s, dressed in the traditional outfit of dark pants with suspenders, a light blue shirt and straw hat. We exchanged greetings. He asked about the Rans. I asked about his bike (more out of courtesy than curiosity). We talked about bicycle trips we had taken. He was employed at one of the area furniture stores and was on his way to visit a friend at another store. He rides to and from work (averages up to 20 miles per day and 4000 miles per year) and the bicycle is his main form of transportation. We



*Two generations of travel*

discussed cycling in general, the country we passed through, the weather and countless other topics. Fifteen minutes later, we waved a parting and he went off to pay his visit. Two totally different people, from different backgrounds and occupations, on different types of bicycles, exchanging conversations as they enjoyed cycling through the countryside.

Effingham, Illinois has a population of 35,000. We sometimes stay there the night before visiting the Arcola/Arthur area because of the variety of accommodations. There are no bicycle shops advertised in their yellow pages directory, nor could I find one in the white pages. As we rode down one of the roads north and east of Arthur we passed a sign announcing, "Schla-bach's Harness and Bike Shop." Outside were old Schwinn's and a tandem. Of course we had to stop. Upon entering we encountered that distinct and wonderful smell commonplace in any bike shop. But this smell also carried the scent of leather. There were racks of bikes. There were shelves of harnesses. We were met by Willard Schlabach, the Amish proprietor. Dressed plainly, with a long beard, he was a man who could have been in his 60s but had the energy and vitality of a man 20 years younger. His eyes twinkled as he smiled in greeting. He had noticed the Rans as I had ridden up. He took me to a corner of his shop. There, in the rack, next to the Fuji hybrids, was a Vision R40 SWB and one LWB. I couldn't believe it. Here in virtually the middle of nowhere, was not just a bicycle shop, but one which sold recumbents. We talked about the advantages of a recumbent, compared my Rans to his Vision, and fell into a quiet conversation punctuated by Willard's laughter. We shared the love of cycling and the beauty of the region. The interior of the shop was lit by sunlight (the Amish do not use electricity so they do not use electric lights) and I stood there in this most unobtrusive shop, breathing the smells of cycling, talking to this kind and happy gentleman. He tried to sell us nothing. He was attentive and thoughtful. If in the area, I highly recommend a visit to his

shop. It was a treasure.

I was nearing the end of one of my rides when I passed a sign that brought me to a stop. It simply said, "Bike Shop." I was surprised. Two bicycle shops in the same community of 2100 people? I had to enter walking past the parked horse and buggy. There were no recumbents for sale here but the lady who ran the business while her husband worked the farm mentioned that they were thinking about selling Rans. Again my jaw dropped. Two recumbent shops in the same area. We are from St. Louis (metropolitan area about 2.5 million people) and have no more than five stores in the whole area which sell recumbents, then only Vision and BikeE. I had to drive to Crawfordsville, Indiana to buy my Rans (Valley Bicycles is run by the Dotys. They are knowledgeable and helpful with a large selection of recumbents. It was worth my four-hour drive to do business with them). Yet here in this small community there are two bicycle shops, both of which sell recumbents.

I learned a lesson that weekend. I believe that most of us ride for recreation (at least I do). I ride when I can and usually use my ride as an opportunity for a physical workout. I want to ride faster for longer distances to test my endurance and to get into reasonably good shape (although age, a sedentary occupation, and an affinity for food not totally healthy makes that task tougher than it used to be). I love to cycle but tend to get lost in my own blueprint of the job at hand (to do those fifteen miles in under an hour). The assignment sometimes replaces the enjoyment of what I do so I become oblivious to what is passing around me. But the Amish cycle to a clock gauged more by sunrises and sunsets than minutes and seconds. They cycle not for recreation but for transportation, not as the object of the task but as an aid to accomplish the purpose of the journey. Their ride is not an athletic event but a necessary part of their life, as important to them as a commute by car is to me. I had to wonder why when I ride I am preoccupied with speed. When I allow the



Greeting the customers on market day



Waiting out the rain in downtown Arthur



The Bianchi babe waits for the rain to stop

journey to be the end in itself, and the bicycle the means to that end, as I did on this trip, I paid more attention to what was going on around me. It allowed me to return to why I love to cycle, so that I can be part of the surroundings which I am passing through. And of course, on my Rans, with the world

displayed in front of me, comfortably seated in my high-back seat, I could see it all.

We who have chosen to use recumbents are fortunate. We ride a bicycle which, by its very nature, invites looks, brings smiles to the faces of those we pass, and encourages the curious to ask about this "odd contraption." And, of course, as part of this select community, we love to talk about what we ride, so we answer freely and openly about our experiences. A wedgie may climb hills better or may corner more effectively (I know there are those who will disagree), but it is still a wedgie. A recumbent is more than just a bicycle, it is a conversation piece, it is a piece of equipment that lightens the heart and gives wings to the imagination. I thought two years ago that I was cursed with a physical condition and would have to settle for an alternative bike of a lesser stature, one ridden by old people who couldn't ride anything else. I find today my condition was not a curse but a gift, for I became a

member of that special group of cyclists with riding advantages unknown to me at the time. After a ride my bottom does not hurt, my hands are not numb, my body does not ache, my back is in good shape and I have seen more smiles and received more waves than ever before. I view the world I ride through in a reclined position, unfettered by riding stance, with the entire panorama before me. All I need to do is turn my head.

For five years we have visited the Amish but always felt like observers, encased in a metal and glass conveyance, as we viewed them from afar. This time, I rode the roads with them, smelled the smells, smiled the smiles and talked with them at will. New experiences await us. My wife and I will ride the Amish country again, she with her wedgie and me with my recumbent. We plan to return. And often. ♦

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# My Favorite Recumbent

## —A Trick Tiger

by Bob Bock

Would you like to have a recumbent that could jam up the long hills and sprint over the short ones and kick sand all over the "Roadies," Well hang on because I have one. It's a Rotator Tiger, and it's all "hopped-up" now.

Well lets go back a few years, when the "Tiger" first began living at my place. It was early '97 when the "Tiger" followed me home one day, I was pretty excited, owning a radical thing like that, but my emotions were mixed. It was "neat" and fun to ride, but it just didn't want to go much over 12 mph. So after a couple of weeks I took off the "Schwalbe" tires and slipped on a pair of "Primo Comets" and we were looking at 15 mph. A few months later, I was hanging out over at Gardner Martin's "Easy Racers" chicken house and he starts bringing out some wheels and we ended up with a 451 mm in back and a 349 mm in front. Right away it starts feeling better and going faster, the nose dropped a couple of inches and we picked up another 2 mph, but I still had to pedal up the hills with all of the chains buzzing away. When the back tire was finally worn out, I put the 406 wheel back on with an old Comp Pool tire from the closet. I liked that, it looked more like a dragster and I didn't have to sweat the potholes anymore. A few more k's rolled by and I was in the bike shop up here in Port Townsend just kicking back one day. I had the bike up in the repair stand and was putting in a new gear cable and noticed that there seemed to be a lot of drag in the gear train with everything running free. I removed the center drive derailleur and the gear cluster and hooked both chains together. That took off almost three pounds of iron and it looked a lot better. It ran wild when I rode it—just like a track bike—very solid and direct. It was super in the hills. Now I could jam the long hills and sprint the short ones. So I went home and sawed off the center drive bracket and never looked back. Well not too much anyway.

Gearing was a little bit of a problem, went from 35 speeds to about 10! Then about a month ago I got into my parts box and pulled out my old favorite 68-54-43 chain set and stuck it on, now it's really come alive. This little "Tiger" will do anything, it just likes to jam, in fact it's as fast as my aluminum criterium bike up hill, down hill or anywhere else. I've ended up with a "champion" bike, and what's better than that?

So let's take a closer look at this little bomb. It's short and close to the ground and likes to roll over in the soft stuff unless it has knobbies on it. In fact I put on BMX tires and took it up to the "Laguna Seca Mountain Bike Races" one day, just riding around in the hills. It was great, except in the sand where it did it's thing.

It's a short wheelbase, solid, comfortable little bike, with ASS steering. Mine has the short "Pursuit" bars with Sachs twist shifters and brake levers all of which feel just perfect. The boom is fixed so the seat is adjusted to fit the rider. Some object to the use of hose clamps to fasten the seat down, but it's a clever method when one considers that it



Bob Bock and his trick Rotator Tiger

allows for unlimited adjustability and that stainless hose clamps are six times lighter than aluminum brackets and very quick and easy to use. The seat itself is of medium height and nicely curved to fit the back and with a bungee bottom, it has been very cushy, even on long century rides. With the seat tilted back about 50 degrees the bike has a very relaxed position, as the pedals are 7" higher than the seat. The wheels with Shimano Exage hubs and Weinman rims have been trouble free as have been the brakes, "Avid" cantilever calipers. Currently I have a new Campagnolo Triple Three rear derailleur which handles the 12-28 cluster and the wide ratio chain-rings just fine. Up front the bike has a Campy Record derailleur with an extra long cage. Incidentally the cranks [175 mm] and rings are T-A's my favorites. Look mountain bike clipless pedals and cleats round off the hardware to make it a very pleasant little bike. And it is indeed small, the seat is only 15.6" from the ground and with a wheelbase of 41"—most other 'bents tower over it.

Even though it has a brazed steel 4130 CroMo frame, it's pretty comfy and reasonably smooth for a bike without suspenders. I use it for everything from centuries to grocery runs (with two big canvas bags slung

over the seat rails). It does it all with style and speed. The same can be said for Rotator. Steve Delaire has been great to deal with no matter what I requested. He heads up a really neat operation there in Santa Rosa, California.

The one thing that has always bothered me about the bike has been the color. I don't like black bikes—as black is not a fun color—even though it has a lustrous powdercoat finish.

Good fortune was smiling on me when I first began this odyssey three years ago. Mark Bunton's shop (A Bent For Rent, now closed) in Monterey, California had over 24 different new bikes on the floor for sale, to rent or for test rides. I rode nearly everything and rented half of those over the next six months. I bought a V-Rex but didn't like sitting up high (and finally sold it). Of course the Tiger had always fascinated me, so it found a new home. Now it may not be the perfect bike, but I really like the little rascal. It's been a terrific bike, nothing but fun.

This one is a solid 4+. What more can be said. ♦

**Editor Comments:** Bob Bock lives in Port Townsend and rides his custom Tiger everywhere. He, or at least his bike, is well known in and around town as, "that guy on the low bike."

Bob's Tiger is one of the most simple and elegant recumbent bicycles around. Bob has made the following changes: replacement of the mid-drive with an idler, a new 16-inch wheel and fork (from an EZ1), and flat MTB style bars instead of the "U" bars.

Bob has also been seen running around town on a Zox 20, Zox 26 and a Challenge Hurricane that belong to his pal Jim Giles.

# BikeE Does Canyon Country

by Bill Conklin



Spring had sprung and it was time to get the AirTech strapped to the car and take off for another BikeE adventure. This past May I decided to go to the canyon area around Grand Junction, Colorado to give the BikeE a workout in canyon country.

My first problem was to decide how to transport two recumbents across the state from Denver. After a little research, I chose the top-of-the-car approach with a Yakima Rack system and two trays for the BikeE by ATOC (see ad this issue or [www.atoc.com](http://www.atoc.com)). In order to make my aerodynamic setup, I removed the seats from the pair of BikeE's (much quicker than other recumbents). The bikes looked very aerodynamic and cool on top of my Subaru station wagon. It was nice to have them on the roof and full access to the rear door. After a beautiful five hour drive from Denver over Vail Pass, we arrived in Grand Junction and checked into a really nice Bed & Breakfast. Of course the BikeE's became a topic of conversation immediately.

The next morning, after a big breakfast of buffalo sausage and eggs, we headed to the visitors center at Colorado National Monument. The ranger recommended a popular route known locally as Mary's Loop. We followed the map she gave us and soon we arrived at the parking area for Mary's Loop, which is part of the Kokopelli's Trail from Fruita, Colorado to Moab, Utah. As I drove into the parking area, I noticed that a lot of heads turned to look at the bikes. One of the really fun aspects of showing up with BikeE's is the look of dismay on the eyes of the other bikers: especially when arriving at the

beginning of a single-track trail. The comments range from exclamations of disbelief to expressions about the coolness of the bikes. One lady wanted to know how we sit on the bikes and was quite impressed when I took the bike off the roof and quickly snapped the seat and the front wheel on the bike.

After a brief preparation, Mary Ann, my riding companion, and I started up the trail. We carried bike tools, rain gear, lunch and a cell phone in the BikeE bags attached to the seat backs.

Both bikes were equipped with 38-tooth front chainrings which is considerably more practical than the standard chain wheel. We could really climb. The first part of the hill was quite steep and I noticed that the majority of the riders on conventional mountain bikes had to stand up on their bikes. The one place that a recumbent does not outshine a regular wedgie is on a hill that is so steep that the rider must stand. Of course, when a rider stands, he is riding really slow and I find that I can walk or push the bike almost as fast.

Mary Ann had never ridden such a technical trail on a conventional bike and here she was riding single track on a BikeE. By the way, I am 54 years old and Mary Ann is 52 (am I supposed to tell?). I was at least 15 years older than anyone else that I saw on this trip.

Mary's Trail is rated "More difficult with most difficult sections." One guy told me on the way up that the trail was quite technical as he looked at our BikeE's with dismay. We alternatively rode and walked from time to time until we reached the top of the mesa. The view was worth the trouble. In every direction,

I could see a bright blue sky and the canyon walls in the distance stood like giant sentinels above the green valley floor.

The trail leveled out and we had a lot of fun sitting back and enjoying the ride. After several miles of scenic riding on the mesa, we came to a very steep and narrow climb. The exposure was so great that I was too scared to ride, so I walked the bike through the dangerous part. I would also have walked had I been riding a conventional mountain bike. I noticed that some of the other riders walked the same section.

The trail wound down and around a bend and then started up another mesa. A little more walking up us on the top and we had several more miles of great riding. Coming off the mesa back a jeep road/trail leads back to the trail head parking lot. At the beginning of the day, many looked at us with disbelief that we could ride the trail. After the technical stuff, we received admiration from our fellow riders. Many who had never seen a recumbent out here before.

The trip was about 14 miles and we spent about 2.5 hours riding. We rode 90% of the terrain and walked about 10%.

I think that most of the riders on conventional bikes did some walking. Our goal was accomplished. Two riders over age 50 did a 14 mile route described as "very technical" by one of the veteran skeptics who passed us. Never say that it can't be done. ♦

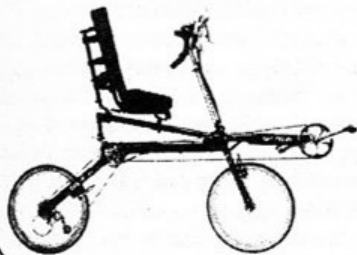
*Pictures are of Mary Ann Tavery and Bill Conklin on Mary's Trail in canyon country near the western border of Colorado near the town of Fruita (just outside of Grand Junction). Grand Junction is served by Amtrak and has an airport, or is about 5 hours drive from Denver across the Rockies.*





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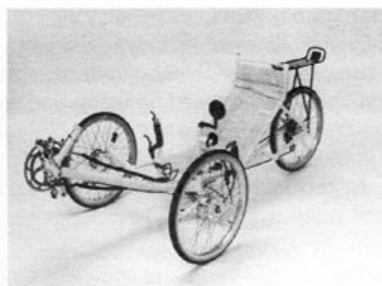
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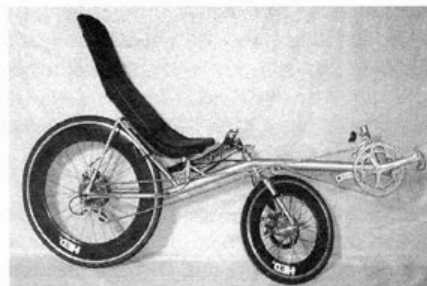


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# A Flatlander Looks At Slumgullion

By Shari Bernhard

**PROLOGUE:** Getting There Isn't NEARLY Half The Fun.

Ever since reading Bob Bryant's account of the Slumgullion Tour in RCN #42 (Nov/Dec '97), I considered it one of the tours I had to do someday. The opportunity presented itself and I made arrangements with tour organizer Kelvin Clark of Angletech Cycles in Woodland Park, CO, for my husband Jeff and me to participate in Slumgullion 2000, a 250-mile loop in western Colorado.

Jeff and I suffered some injuries in a car wreck in February '99. We both seemed to recover but suffered relapses later in the year. The most acute phase of my problem subsided in February 2000, and I started riding again in earnest, doing 5 centuries and the 170 mile Cross Florida Ride between March and May. As long as I was riding my bike, a Vision R44 SWB/OSS, I was virtually pain-free. By June, I was as ready as a flatlander would ever be for this challenge.

Lingering pain while riding kept Jeff off the bike more than on over the last year, so he decided to bow out about 3 weeks before the trip. He insisted I go because he knew how much I wanted to do this, and how disappointed (read: bitchy) I'd be if I didn't.

On Thursday, June 22, I arrived at Angletech. After getting some last minute stuff done, Kelvin, Brian (a young ER doc who lives in Woodland Park), and I set off for Gunnison in the van. We got there just in time for a great dinner at Garlic Mike's with all the other Slummers. Great food and great company portended a great time over the next 4 days.

## Day 1: Gunnison to Saguache

I awoke the next morning to a bright and beautiful day. There was much scurrying about and getting acquainted both before and after breakfast at the Giant Pancake Restaurant (the pancakes are the size of a medium pizza!). Finally, with vehicles and riders gathered at the parking lot of a local college, we headed out at 9 am toward Saguache (pronounced *Sowatch*).

The altitude, around 8,000 ft, isn't really high, but as a sea level dweller, it wasn't long before it got to me. After 3 miles at 16 mph, I was winded, so I settled into a blistering 14 mph pace, riding alone most of the way thereafter.

I encountered headwinds and hills on the push southeast as I approached a canyon. The climbs were shallow but constant. Eventually I was concentrating on keeping my speed at least to double digits, but finally abandoned even that hope as the miles went by.

Alone with my thoughts and the surrounding beauty, I became enthralled with the breathtaking vistas all around me. Do the locals ever get accustomed to it? As I rode between two towering mountains, I was struck by how ponderous and soaring, regal and proud they were, like sentinels to the valley. I was moved to tears.

I was amazed at the continuously changing landscape and terrain: on one side, pale green scrub blanketed a mountainside, on the other, velvety green grass carpeted a wide open field, and just beyond that rose a slope forested in tall, stately evergreens. The juxtaposition of the pine trees, scrub, grass, and rocky hillsides enhanced the diversity.

The sounds of nature drew me in—the wind rustling through the dry grass, grasshoppers clicking and chirping, the cacophony from a nest of baby birds chattering for their breakfast. As desolate as it seemed, this place was full of life.

By 30 miles, I was starting to feel really bad. The altitude, with its attendant lack of oxygen, a throbbing toe (I jammed it during a bathroom run in the middle of the night), and constant climbing, were taking their toll. It took all my mental energy, in scarce supply at that moment, to keep my eyes open and the bike on the road. I felt nauseated.

I just passed the sign indicating 2 miles to the top of Cochetopa Pass (AKA North Pass) when Christy, our support and gear (SAG) driver for

the day, stopped to ask if I wanted a ride to the top, bypassing the toughest 2 miles. I had 2 choices: I could be a quitter, or I could be stupid. Since the latter included the possibility of ending up dead, I chose the former and got in the van.

After rest, Gatorade and food, I felt a lot better and looked forward to the descent. Talk about exhilarating! I looked down at my wireless computer to see how fast I was going, but I had bumped it out of alignment and it wasn't registering. Based on how far up into my throat my stomach was, I estimate I was doing in the low-mid 40s.

The remainder of the way was pretty much downhill, and I was able to outrun the rain that blew in behind me, arriving at the hotel at 3:15 pm after 73 miles. Following dinner and hanging out chatting in front of the lodge, we all turned in for the night, ready for the next leg.

## Day 2: Saguache to Creede

The morning was cloudless and cool, and the route was blessedly flat. I rode with John (Altitude) and Dave (Tour Easy), and with a favorable wind we held a nice 17-18 mph pace. For miles on both sides was farmland, with tall, majestic mountains in the distance. Today was a good day to get acclimated. There weren't many hills, so more people stuck together. We enjoyed a big group breakfast 30 miles out in Del Norte.

Continuing northwest out of South Fork, Dave, John and I stopped to soak our feet in the Rio Grande, somewhat of a tradition I'm told.

The last 15 miles of this ride offered spectacular views, with the river to our left, and a towering rock cliff on our right. Around each bend was an even more awesome vista and I was soaking it up from both sides, grinning ear to ear.

We caught up with Ray (R45) at such a beautiful spot that we stopped for a photo op. Then, with 6 miles to go, this fast ride became a slow trudge into a headwind and up a slight incline all the way into Creede.

Creede is a wonderful little town, very "Old West," with one main avenue of stores surrounded by residential streets. Some riders showered and went shopping, others napped or hung out at the lodge, but we all met for dinner at the Creede Hotel for great grub (cowboy-speak for "food").

After dinner, it was back to Jim's room for pie (thanks, Jim!) and raucous conversation, followed by bike tryouts in the parking lot, another tradition. Some local kids were intrigued by our bikes, and a couple of them took Rhonda's Tailwind out for some test rides. One boy was a complete natural. As night fell, we headed to our rooms. I was tired after 72 miles, and tomorrow a challenge awaited.

## Day 3: Creede to Lake City Via Slumgullion Pass

I awoke this morning with a gnawing feeling of trepidation. I had tried to psych myself up, but not out, thinking about the impending climb to the Slumgullion summit at over 11,000 ft.

I decided to use the same strategy as I did on the Assault on Mt. Mitchell: start out slow and then back off. This was an easy goal to attain. For several miles out of Creede, the road surface was marred by frost cracks every 5-10 ft. The constant *thump-thump-thump* was taxing on our bodies, but as we climbed, the valley opened up below and the panorama was sensational.

I leapfrogged with John, Dave and Jacinto (upright), as we each in turn stopped along the road for, er, personal hygiene needs. At a country store, we stopped and replenished supplies (food), and headed out toward the first (false) summit.

I rode alone for a while, drinking in the surrounding beauty. I wasn't sure about taking pictures because film couldn't do this place justice. One by one, people came into view as I reached the summit overlook. The support van was there so I filled up my Camelbak, ate a snack, and decided to lighten my load a little, putting my warm and wet weather

gear in the van. This turned out to be a costly error in judgment, owing to my inexperience with the changeable Colorado weather.

From the overlook, the valley below was so incredible, I had to break out the camera before continuing on toward Slumgullion Pass, still several miles away.

We were on the scenic byway called the Silver Thread and I can't imagine the experience being as fulfilling in a car. Easier, yes, but in a car, how would one get the full effect of a bright blue sky extending up to the heavens, the puffy white clouds drifting along just over the tops of grand, lofty mountains? I wished I were a giant eye that could see 360 degrees (all at once).

I teamed up with Lynn (V-Rex) for the climb. She was such an excellent riding partner that it enhanced the experience considerably. We had a thrilling downhill stretch which we knew wouldn't last, and then we hit ...THE CLIMB.

It was a relentless ascent, with a series of switchbacks that seemed to go on forever. Time went by as slowly as the miles. Lynn and I sang songs to pass the time. Well, Lynn sang. I mostly gasped for breath. In the sage words of John Cunningham (V-Rex), "There's no air in this air!"

About a half hour past eternity, we saw the sign: 4 miles to Summit. At the rate I was going, I figured I'd get there by Tuesday.

Two miles later, Lynn and I both stopped to get the blood back into our legs. I was ready to go in short order; she told me to continue on without her—she needed to walk it off a little while longer.

So on I went, alone again, trying not to think of anything but breathing. I don't remember it taking that long, but as I rounded yet another curve, there it was: the sign for the Summit, Elevation 11,530 ft. I made it!

I waited a while for Lynn to arrive, and as she came over the ridge with Rhonda in hot pursuit (how hot could it be at 4 mph?), I cheered them both on and we hugged in triumph under the sign. Then John and Dave arrived, followed shortly thereafter by Kelvin. I had been there for about 25 minutes and was ready to press on, knowing I had a fantastic 12 mile twisty descent ahead.

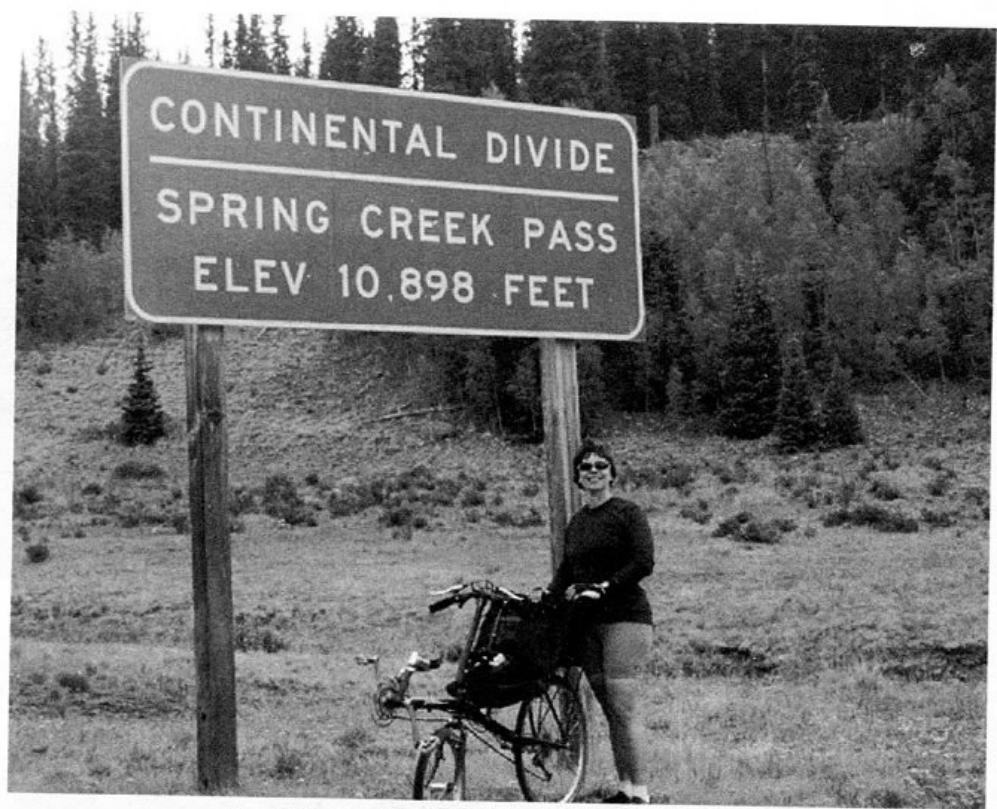
A little cloud drifted overhead, so before continuing, I pulled on my windbreaker as the temperature dropped and the breeze picked up a bit.

I started down, the wind whistling in my ears as I descended, faster and faster, picking up speed as I approached the first of many tight turns. I felt like a kid on a go-kart, my mouth smiling so wide I thought the top of my head might blow off.

As the turns got tighter, I started to get a little edgy, and braked a bit to bleed off some speed. Above me, that one cloud was joined by a bunch of his little cloud friends and before long, they started to party. Rain.

That wouldn't have been so bad, but the temperature began to plummet as I hurtled downhill at over 35 mph. The rain started to hurt. Then my handlebar bell began to ring. It was *hailing!*

I stopped to take shelter from the hail (note



Shari at the top of the Spring Creek Pass, day 1 Slumgullion

for future reference: aspen trees don't provide much cover) and to try to warm up. I had to stop using the Fred Flintstone method (dragging my feet on the road) because my brakes weren't functioning. So now I was freezing and scared *witless*.

I was losing feeling in my fingers, but as cold and frightened as I was, I had to try to get down off this mountain. I continued on for what seemed like infinity when I finally saw Christy in the van. I pounded on the top of my helmet (our sign for stop), screaming "Help me! Help me!" I was 3 miles from the hotel at that point, but I needed to get warm *NOW*.

Christy put my bike on the rack while I pulled off my wet windbreaker and shirt, and put on the fleece pullover, ear band and leg warmers I left in the van earlier in the day. I continued to shiver uncontrollably as we headed uphill to rescue anyone else who might be in trouble.

(It seems a bit comical now that I'm sitting in front of a nice, toasty computer on level ground, but at the time, I was approaching hysteria.)

A couple miles up, we picked up Kelvin and Lynn, but Betty Lynn was dressed warmly and her Stratus was handling the wet roads with aplomb. She gave us the thumbs up—she was riding on.

At the summit, John and Dave were waiting in their rain gear for the storm to pass. John got his helmet cam from the van so he could take some action shots of their descent.

The storm passed and by the time we arrived at the hotel in Lake City, the roads were practically dry. All I could think of was a hot shower.

Later that night after dinner, we watched the video John took of his water bottle, and occasionally of Dave, on their way down, with

Lynn providing the musical accompaniment on the piano.

There were other stories of the day: Screamer team George and Marti were nearly attacked by a dog that jumped out of a truck at them. Luckily for them, the impact with the road left the dog a bit dazed and confused. Ed and Pat, another Screamer team, shredded a tire. John, Dave, Ray and Kelvin encountered a cattle drive on the descent after the false summit. The cows were being herded by a real, live Marlboro Man on horseback, complete with cigarette hanging out of his mouth. He grumbled about his dogs not doing their job while he moved the herd off the road so the guys could get by.

All in all, it was a great day, even for me, the high point being the High Point—making it to the Slumgullion Summit. I put in 49 miles of a 52 mile day and that would do just fine.

#### Day 4: Lake City to Gunnison

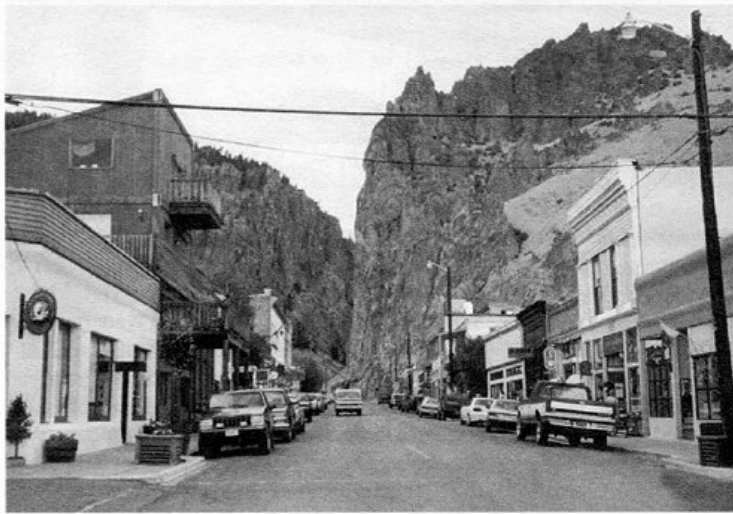
The last day included 2 major climbs that should have been called passes but weren't. Again I mostly rode on my own, and knowing that it would all be over in just 55 miles, I took my time. Again, around every curve was a picture postcard scene. I was especially fascinated by the river hundreds of feet down on my right, flowing through the gorge for 5 miles out of Lake City.

About 3/4 of the way up the first climb, the sky started to cloud over and I felt a few raindrops as the wind kicked up. HA! After yesterday's freeze fest, I was prepared. With a smug grin, I whipped out my windbreaker and rain pants. Just as I Velcroed up the pants legs, the sun reappeared. I looked up, raised my arms skyward and shouted, "WHAT??!!!"

Just to make absolutely sure it wouldn't rain, I kept my gear on until I finished the climb.



Most of the 2000 Slumgullion group



Main Street, Creede, Colorado

Yes, I was baking under the sun in those black rain pants, but I wasn't taking chances.

Finally, over the crest, I sailed down on freshly paved asphalt. So freshly paved, in fact, that it accumulated on my tires. Halfway down, a worker was holding a stop sign up—one lane ahead while repaving was going on. I took this opportunity to peel off my rain gear, scrape the tar from my tires, and chat with the road crew until it was my turn to go.

I filed in behind the pilot vehicle and 3 waiting cars. About a mile later, I passed the construction and headed uphill. The flag handler told me I had a long climb ahead, but I figured if I could do Slumgullion

Pass, I could do Not-Really-A Pass.

It was only 3 miles, but it felt much longer. There were 7% grades and no apparent end in sight. Still, the impressive scenery was not to be missed, and I stopped to take pictures along the way.

I was running out of water, so I chewed on Twizzlers and sucked on Tic-Tacs to keep my mouth moist. I finally reached the apex and was heading down when Rhonda in the support van came into view.

I flagged her down to fill up with water, grabbed one of John's ample stash of energy bars, and received news of Screamer Team Kay and Paul's disaster. No injuries, but their front rim shredded. Not the tire, the RIM! Luckily, they were almost stopped because of the eerie noise it was making before it blew. The rim was so mangled that we took pictures of it.

Rhonda took off quickly up the hill to check on everyone behind me, while I enjoyed a gentle nine-mile descent down the straight road. I stopped to take a few pictures, and as I approached the reservoir—a gorgeous view—I had 10 miles to go. I made the right turn toward Gunnison.

The traffic was heavier along this road, but it had a wide, clean shoulder the whole way into town.

I rode through, turned left toward the college where we were parked, and was greeted by the gang who preceded me and stuck around. We cheered as each rider finished. After the gear was stowed and bikes put up on racks, we headed over to Mario's Restaurant for a well-deserved dinner.

After that, it was time to go. Hugs and handshakes all around, saying goodbye to new friends—this is the bittersweet part.

On the way back to Woodland Park, I reflected on the wonderful time, the fine group of people, the camaraderie and the unsurpassed riding. ♦

**Special thanks** to Christy and Rhonda for doing such an excellent and difficult job as support drivers. To "Muscle Man" John, AKA The Tool Man, Lunch Bucket, Medicine Man and McGuyver, for providing food, ibuprofen, tools, tape and other accoutrements as the situation required. And finally, to Kelvin, for making the whole experience possible, as well as very special.

**RCN Note:** The Slumgullion Tour has been written about twice before in RCN. The most recent was RCN#42. We have a few original copies left. Drop us a \$5 bill to reserve yours.



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Contact: bob@recumbentcyclistnews.com

# 5-Boro's on a 'Bent

David Rubin dsr01@hotmail.com

There are many reasons to ride a recumbent and one of them has to be the attention it draws. I doubt there is a better place to draw attention than a large, a very large, group ride. How large? How about 40,000 + cyclists.

The annual "Great Five Boro Bike Tour" is a ride around New York City. For the past 23 years, on the first Sunday in May, roads have been closed to automobiles and thousands of cyclists gathered to pedal through all five boroughs of the City. The riders come from around the world and bring every conceivable type of human powered road machine.

I have ridden The Tour many times before on single or tandem "standard" bikes, but this year my wife, and stoker, couldn't make the trip so I decided to take a 'bent. I ride a Vision R-40 USS-SW. It is pretty stock. I changed the pedals to Speed-Play Frogs, added a rack and strapped an old handlebar bag to the seat back.

This is my third year riding a recumbent but I still felt nervous taking it out in a real crowd. When you think about the 5-Boro, you have to think crowds. By the time the 8 am start rolls around, tens of thousands of cyclists are crammed into a few city blocks by Battery Park on the south end of Manhattan. Experienced cyclists arrive early to be near the front and I arrived at about 6:15 so was in the first few hundred.

With two hours to spend, you talk with other cyclists, admire bikes, ask questions, find out where the other riders come from, stretch out and discuss the weather. The weather for this May 7th was predicted to be hot and it was. It hit 92 degrees in Central Park and was hotter on some of the city streets, so cyclists hydrated like mad and then wondered where the first stand of portable toilets was. We also batted about the two beach balls that made their way up and down the crowd in an impromptu 20,000 person per side, no rules game of volleyball.

The start of a ride like this is scary unless you are in the first line of riders. At 8:00 a local DJ (Cousin Bruce Morrow of Oldies fame) counts down the final seconds and says "Ride." For a while nothing happens, then slowly the crowd starts to move forward. At first the riders have to walk their bikes. Recumbent riders sit and paddle with their feet. I saw one Dragonflyer trike later and thought "he had an easy start."

After a minute or so the pace picks up. First you move at four mph, then five, and then you're cycling at a leisurely speed. This isn't a race and front riders make sure that nobody goes too fast. But the riding is shoulder to shoulder and wheel to wheel so constant attention is needed for the first four or five miles until you reach Central Park in Manhattan and can relax and look at the various machines around you. There are tandems, one-speed cruisers, tricked out dual-shock mountain bikes, sleek racing machines, and, of



course, recumbents. I have no way of estimating how many recumbents were on the ride. I lost count somewhere after two dozen. I saw BikeEs (the most common), a couple of Tour Easys, a Wishbone, what appeared to be one of the first Ryan Van-guards, another Vision R-40, an Avatar and a few that had to be homemade. MARS (Metro Area Recumbent Society) was out in force and the Wishbone rider (from Pennsylvania) told me that about 30 MARS members had made it to the ride.

The tour travels along streets normally clogged with automobiles. There are six rest stops, including a fair at the end, and sag service. A constant police/EMS presence, as well as seemingly hundreds of yellow-vested marshals, keep the ride in order. They are there to promote safety, help with repairs (bring your own tubes), give aid to the overheated, and when a rider crashes (in this size crowd it's inevitable) aid appears almost immediately.

The tour travels north up the center of Manhattan, through Central Park and then crosses briefly into the Bronx, before it returns to Manhattan to travel down the East River Drive. The southbound lanes of the highway are normally full of cars and it's a real thrill to cruise along the three lanes knowing that, at least for one day, bikes rule.

After traveling south the ride crosses in to Queens traveling the length of Queens and Brooklyn. You ride through different neighbor-

hoods cheered on by the people there in many languages. The ride then travels along the harbor for a while, before reaching the Verrazano Bridge. The Verrazano is the only real hill in the ride. It's a steady one-mile climb to the center of the span but it is in the shade with a cool harbor breeze. Then it's an easy glide down into Staten Island, the last of the boroughs, and the fair.

The fair is a mixture of sponsors' tents, giveaways, food, free massages and tired riders. After resting for a while, enjoying the scene and eating a guilt-free ice cream, all that remains is an easy two-mile ride to the Staten Island Ferry, where boats reserved for cyclists take you back to Battery Park and the Island of Manhattan.

It's a great way to spend a Sunday in May. You ride with other 'bent riders, answer silly questions ("Yes I plan to ride this all the way"), notice the admiring glances and overhear the remarks ("Wow, that's one of those recombinant bikes). If you want to ride next year get in touch with Bike New York ([www.bikenewyork.org](http://www.bikenewyork.org)) at 891 Amsterdam Ave., New York, NY 10025.

The crowning touch was when cycling along the Brooklyn shoreline I looked up, a lot easier on my recumbent than on the tandem, and saw an osprey soaring overhead. "Osprey," hmmm, that would be a good name for a recumbent bicycle. See you next May.

# Thoughts on Recumbent Design

by David Gordon Wilson, dgwilson@mediaone.net

## Preamble

It is difficult to write in an unbiased way about the present state of recumbent-bicycle development at a time, just after the turn of the millennium, when most bicyclists in any region of the world have not seen one of these machines. Yet there is vigorous innovation in the design of recumbents ongoing in several, mainly "Western," countries.

There will be some who question the word "innovation." Bicycles and bicycling have a rich history, and it sometimes seems that a precedent can be found for every "new" development. My own involvement in recumbents started with my organization (1967-69) of an international design competition in which I encouraged recumbency, entirely unaware (unbelievable but true) of the existence of earlier recumbents. Subsequently friends made five of my designs, and each one could now be said to bear at least some resemblance to earlier machines.

There is today, however, a fundamental difference with earlier periods of enthusiasm for recumbents: we have technical publications and symposiums and the broadcast of information on the Internet, among other routes for disseminating information. These should ensure that future innovators will spend less time repeating earlier developments and more time "standing on the shoulders of giants" to make advances. (This phrase was used by Isaac Newton and it may not have been original with him to describe the way progress is made in other technologies and sciences.)

## Quantitative measures of performance

The word "advances" must also be considered. In my professional field, advances in the performance of compressors and turbines and of turbine engines can be measured precisely to a fraction of a percent. In some respects performance in races and in record-setting advances in recumbent bicycles can also be measured, at least relatively. This is the same way in which most sporting equipment, from "regular" bicycles to tennis racquets, has been measured from the beginning of their sports. It has a significant disadvantage: athletic performance is mostly that of the athlete, and only secondarily that of the equipment. This disadvantage is compounded for recumbent bicycles, because top-category racers do not want to compromise their muscle training by pedaling in a new position. It must be assumed that a proportion of new designs of recumbent bicycles have been eliminated from serious consideration because they have been seen to behave poorly in a race. Yet the reason may lie entirely in the low level of either skill or power or both of the rider, who is often the developer her- or himself. Thus we honor racers Francis Faure, who rode Velocars in the 1930s to their place in history, and "Fast Freddy" Markham, who has won many races and set many records for the Easy Racers company since the 1980s.

It is also possible nowadays to make quite accurate measurements of human power output in various positions, and of the energy losses in power transmissions, in aerodynamic drag, and in tire rolling friction, so that one could (in the best of all possible worlds) quote quantitative data on new recumbent bikes. Yet there is a great deal about the characteristics of recumbent bicycles that is subjective. The machine may feel stiff or flexible, steady or "squirrelly" on the road, it may be very sensitive to side-wind gusts or may seem to ignore them, it may feel "steady as a rock" on high-speed descents or may suddenly degrade into "shimmy" in the steering, and so forth. Sometimes we lump these subjective characteristics together under the term "feel." We rely on one person, Bob Bryant of *Recumbent Cyclist News*, to bring as much objectivity as possible to these subjective topics.

His task, and mine for this essay, is made a little more complicated because there are many recumbent markets. Three in different parts of the spectrum are: that for the rider who wants to break records and to win races; that for the recreational rider who likes to go on rides with her/his club or family in the evenings or weekends, and who wants to keep up with, or preferably go faster than, fellow riders and at the same

time to feel comfortable and safe; and that for the commuter, who often needs to take a heavy briefcase or bag, with lunch, rain gear, office clothes, etc. and who wants a comfortable and safe ride with the minimum of breakdowns, flat tires, etc. Whereas in diamond-frame (DF) bicycles these three markets are supplied with very different machines, the recumbent is remarkable because it is possible for someone to use a race-winning Gold Rush or Lightning on which to go to work without too many compromises. However, normally a commuter would not be willing to spend a great deal more for a bike that had lightweight disk wheels and thin-section lightweight tires, for instances, that would give only a marginal reduction in traveling time but a strong likelihood of sensitivity to side winds and to a propensity for more-frequent flats (punctures). Hence there is some differentiation in recumbent bicycles as with DF types. Only the first category is served by race and record results in respect of the indication of advances. For guidance on recumbents for recreational riders or for commuters we must rely more strongly on Bob Bryant and his co-writers.

## Biographical confessions

With this preamble, I feel almost prepared to state my subjective views on trends in recumbent design. However, I feel that I should nail my colors to the mast by reciting a little biography to indicate just how subjective my views are. I became interested in the possibility of pedaling feet first instead of head first in around 1967, without consciously being aware that recumbent bicycles had been made on and off since 1840. For interesting but irrelevant reasons I organized, with the help of others, an international HPV-design contest in 1967-69, and gave some emphasis to recumbency. Subsequently, friends made five recumbents to my design drawings or sketches. The first two were made by Fred Willkie in Berkeley, CA, and he later offered them to me for purchase. I wish that I had bought both, but I felt poor at the time and bought only the second. After much modification in my basement (so that the bike was renamed the Wilson-Willkie) I put it on the road, and instantly fell in love with it and with recumbent bicycling in general. I rode it everywhere, garnered a lot of positive publicity and happily donned the mantle of a guru. The bike had a very short wheelbase (SWB) with underseat steering (USS). I began to draw another SWB USS that I thought would be an improvement, moving the front wheel as far forward as possible even though there was potential heel-wheel interference at slow speeds. Richie Forrestall made this for me (we called it, later, the Avatar 1000), and I fell in love again, abandoning my old sweetie. He and his business partner and I tried over the next months to come up with a pedaling mechanism that would enable the pedals to be over the front wheel without foot interference, thus giving a longitudinal stability that we thought to be necessary to sell recumbents to the general public. Richie avoided Wilson-induced bankruptcy by going to a long-wheelbase version of my design, and called it the Avatar 2000. I used to ride it to show the flag at appropriate functions, but I still preferred the SWB model for my commuting and recreation. And then suddenly it happened again: I fell in love with the LWB Avatar 2000. Richie and Co (FOMAC) made and sold about 140; it was very successful in racing and record-setting, particularly in Europe, and it was widely copied. Consequently Fomac went out of business. I used my Avatar 2000 happily for eighteen years, until she began to show her years (as I did mine.) I began hankering again for pedals over the front wheels along Velocar lines, but this time incorporating two 20" suspended wheels and USS. The nearest to this arrangement that I could find was a Senkel "Viento," and Thomas Senkel agreed to modify the normal Viento considerably to match my specifications.

When it arrived it looked beautiful but I found using it to be painful, particularly to my neck, my back and my pride. I kept making changes, and my old joints gradually became more lissom, and then, quite suddenly, it happened again: I fell in love with my Viento. My beautiful old Avatar began to feel strange to pedal, and the Viento felt





David Gordon Wilson on his Avatar—photo courtesy of Richard Howard

“right.” That brings us up to the present.

I have recited this piece of recent personal history not to have readers grumble “Why should I pay attention to this guy, who falls in love with every latest bike he rides?” But to emphasize just how subjective is the judging of recumbents. A short ride will, moreover, not be enough for an average person to determine whether or not some new recumbent is her/his future dream bike. But if she/he demands to try out the different machines on rides long enough to determine their characteristics and how they match his/her body type, anyone who has the courage to sell a range of recumbents would be put out of business fast. A multiday rental arrangement seems almost mandatory for recumbent stores.

#### Recent trends in recumbent design

There were recumbents around long before my interest in them grew, but because of the hypnotic power of TV, it seemed that our designs had most influence over the new recumbent movement that started in the 1970s, along with the “bicycle boom.” The Wilson-Willkie was regularly seen in oil-company advertisements (emerging from sloshing oil in the ‘o’ in Mobil) in a series called “Search for solutions” on CBS, and it consequently attracted imitators. Later there were some near-copies of the Avatar 1000. But the Avatar 2000 received the most publicity, partly because it was used to produce two short-lived bicycle speed records in the IHPVA Speed Championships, and partly because I took one to a bicycling congress in Bremen. And appeared with it on European TV and in bicycling magazines. Soon thereafter small companies making almost exact reproductions of the Avatar 2000 began appearing in western Europe (we couldn’t afford world wide patents). Publicity in the US was little short of amazing, given that we had no one doing any promotion: for instance, in one month the bicycle appeared in both the Christian Science Monitor and in Playboy. For several years in the 1980s, therefore, the predominant type of recumbent in Europe and the USA was LWB USS, with a 26” or 27” wheel in the rear and a 16” or 20” wheel in front, both unsuspended, and with a mesh seat on an aluminum frame. So that is our starting point. The Easy Riders and Easy Racers, first made from two DF bicycle frames brazed together, were an early exception, being LWB with above-seat steering, ASS. The

Lightnings had a wheel configuration similar to the Avatar 1000, but always had ASS.

#### Trend towards above-seat steering

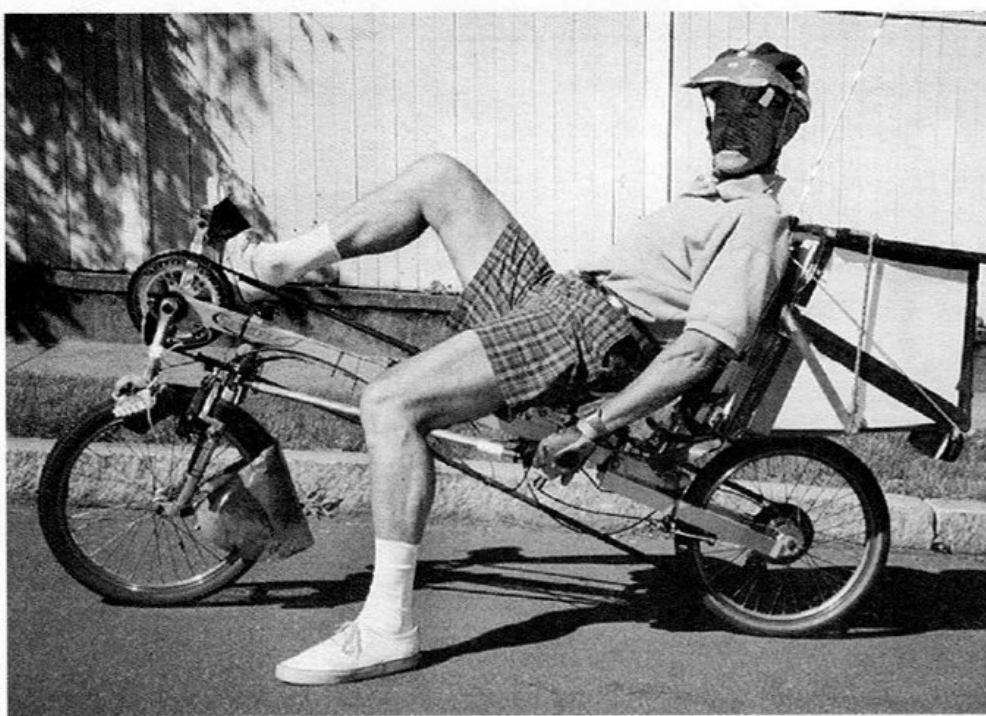
Although I’m still a keen advocate and user of USS, I believe that ASS is gaining ground. Some reasons for its increasing popularity are that it makes for an easier transition from a DF, “regular” bicycle to a recumbent if there is at least a handlebar in front of a new ‘bent rider. It also makes seat adjustment easier when the steering rod or cables don’t have to be adjusted also. ASS handlebars are convenient for mounting the cycle computer and mirrors (although I like helmet mirrors). The bars and the usually long stem form a good support for a front fairing.

Some bikes with ASS have a pronounced “tiller” effect: the handlebar must be swung way over to one side to give low-speed stability and control. I believe that there is a trend towards using the 1930s Velocar system of a universal joint and a fixed handlebar axis. It has a great deal to recommend it.

I still have reservations about ASS for two reasons. One is that in a frontal crash, there is the possibility of the bars and other hardware giving facial injuries. The other is that in a really bad frontal impact when one travels forward over the bike, one’s automatic reactions might impel one to grip the handlebars instead of putting the hands out to safeguard one’s head and spine in the fall. I have no real data to substantiate these fears. However, I have had two front-wheel-locking accidents on my USS SWB bikes and each time I have automatically put my hands and arms out and cushioned my fall, which could otherwise have been extremely serious. (My evidence was the similar pattern of injuries to my hands and ribs. I have little recollection of the accidents themselves: they happened too fast for conscious decisions to be made and remembered.)

#### Cowhorn USS

Many USS bikes are now coming with handlebar ends that turn upward by one’s thighs, sometimes going to extraordinary heights. When one is in place in the seat, these make one feel as if one is in the cockpit of something powerful. However, I had to remove them from my latest



David Gordon Wilson on his custom Senkel "Viento"—photo by Ellen Wilson

bike. They made getting on and off the bike awkward; they increased the width of the bike; they limited the angle of movement of the handlebars; and they could increase hand injuries in a sliding fall.

### Twenty-twenty and suspension

I designed my first recumbents with 27" (700) rear wheels and 16" front wheels. I went through many front-wheel rims either because of pothole damage or through the brakes wearing through the rims. I applauded the move toward 20" (406 or 451 mm) front wheels with room in the forks to fit large tires (e.g., 39 or 45 mm). Putting the same-size wheel and tire on the rear has two disadvantages: it is difficult to produce a top gear that is high enough; and, with most of the weight normally on the rear wheel, bumps become more noticeable.

The SRAM/Sachs combination of a three-speed hub and a seven-speed derailleur (the "3x7") is a neat solution to the gear problem. Another is, like those on the Rotator and the Ostrads, for examples, to use a countershaft or "mid drive." Recent data show that the use of a countershaft might actually produce a higher transmission efficiency than the use of a very large chainwheel and a small rear sprocket (Spicer et al, in Human Power no. 50, spring-summer 2000). A large rear tire is then an acceptable solution for a "hard-tail" design. I have joined the "softies" with front and rear suspension on my 20-20, and it is luxurious. (I like to use the excuse that I must protect my laptop, but I'm really protecting my butt.)

My 20" wheels appear to need no maintenance as regards re-truing the rims periodically, and I have never had a spoke break in several years of heavy use. This is in marked contrast to my experience with 700 C wheels.

### Compact long wheelbase

While most recumbents still come in SWB or LWB versions, an increasing number of

manufacturers are offering what is sometimes called "CLWB," for "compact long wheelbase." I like it. I have found that having the bottom bracket over the front wheel is not awkward even for one of my advanced age (72). There is a little pedal-wheel interference that can occur only at very low speed. The bike is about as short as it can be, and the weight distribution is such that I can use maximum braking on both wheels without danger (obviously not on icy or greasy roads). On one of my SWB bikes I remember having a taxi driver suddenly open his door in front of me and leap out: my enthusiastic operation of my front brake caused the bike to become vertical, and I was (luckily) standing in front of it facing the startled driver. One couldn't cartwheel like this on a CLWB.

### Lowracers

There is an increasing trend toward low seat heights and high bottom brackets, illustrated well by an article in HPV Nieuws (The Netherlands) reproduced and translated in Human Power no. 50. Bram Moens from the Netherlands should, I believe, be credited with leading the movement. In unfaired machines, it helps a great deal aerodynamically to have the whirling legs in the forward "stagnation region" of the air-stream around the rider's body. For faired machines the frontal area is minimized. These vehicles are winning races.

Are they too low for safety in highway use? I have always disliked the drearily repeated comment by the great unwashed that recumbents in general are too low. I like the response of someone that drivers are required to see paint stripes on the road, and even low racers are a great deal higher than paint stripes.

I have a different concern about any highly laid-back position, and it applies even to my present Viento: it is very difficult to see behind my right shoulder. On a couple of places on my commute I have to merge with heavy traffic coming in at a shallow angle from the

right, and although the drivers are supposed to give way, they tend to do so for eighteen-wheelers and not too much else. I love my helmet mirror on my left side, and I have tried fitting the right-hand mirror I made for biking in New Zealand, but I felt that it was blocking more view than it was revealing. What I think is needed for low racers and similar bikes is a version of Georg Rasmussen's rear mirror for his Leitra enclosed tricycles: he has a central periscope rear-view mirror, so that one sees the whole road over one's head. Would someone please make a similar device to fit our helmets

### Partial fairings

Fairings that can reduce aerodynamic drag somewhat (obviously less than for a total-enclosure full fairing); that do not render the bicycle dangerous in side winds; that protect the rider from rain and snow; and yet that are easy to get into and out of, have been developed (some Lightnings, Easy Racers, John Tetz's machines, to give some U.S. examples). I've seen some beautiful European partial fairings. People write about their experiences using these partial fairings with something approaching rapture. If the recumbent movement maintains its present momentum, most manufacturers will offer partial fairings. There is also a market for independent suppliers, such as that for front fairings. I would like to be able to buy a fairing built using umbrella technology, so that I could deploy it for longer trips and leave it stowed for shorter journeys.

### Disk brakes

People have shown signs of weariness over my constant complaints about rim brakes: particularly that they don't always brake well but they are very good at machining aluminum-alloy rims to the point where they can explode. Disk brakes apply their braking torque through the spokes, and can add a considerable stress to larger wheels. They appear to be ideally matched to 20" wheels, and will, I hope, become much more widely, and more inexpensively, available, preferably with hydraulic actuation. Cables with many bends produce a large and often unknown degree of attenuation in the braking force at the wheels, different for each wheel and for each pattern of recumbent. Hydraulic action gives equal braking force regardless of distance or the tortuous nature of the connecting line's path.

### No exposed chains

Many people are working to eliminate the exposed, oily, dirty, long chains on recumbent: and I wish them every success. Thomas Kretschmer in Germany is integrating through the-hub pedal drive to a multispeed hub in a configuration that has a lot in common with the early Michaux-Lallement machines of the 1860s.

Clemens Bucher, also of Germany, is working with Flevobike (Netherlands) to extend his development of a recumbent with a totally enclosed chain transmission.

Thijs Industrial Design (in the Netherlands) produces Rowbikes in which the drive is a

simple steel stranded cable passing around an aluminum spiral cone (a "fusee") needing no lubrication. (Derk Thijs and his brother have patented a multispeed derailleur shifting mechanism for the cable on the fusee, and several records have been set and races won on their Rowbikes.)

I believe that the standard practice in Europe of having the chain pass through PVC tubes in the long stretches between the chainwheel and the rear sprockets will spread. On my (German) Viento the tubes have made unnecessary, after two years, the normal yearly or twice-yearly fitting of new chain and sprockets, and my pants have remained unmarked by oil. (That's not quite true. I always have oil on everything, but it doesn't come from the Viento chain.)

#### Monoblade forks

Mike Burrows (UK), probably the most-renowned bicycle designer on the planet today, and the creator of the Windcheetahs and many other highly original and fast bicycles and tricycles, has also pioneered monoblade forks and, therefore, cantilevered wheels. These could bring all the advantages of automotive wheel-changing to bicycles: the transmission and brakes and hub could stay in place, and dealing with a flat could be just a question of changing the lightweight rim with its tire. I believe that this is a trend, although it has hardly gotten moving yet. The advantages are so great that it has to come.

You have, then, my biases and my ideas on the trends in recumbent design. I hope that they all come to pass, because I'm looking forward to experiencing them. ♦

*Dave Wilson is a semi-retired MIT professor, co-author of *Bicycling Science* and co-editor of *Human Powered Vehicles*, both excellent books for the hpv enthusiast. Dave has been the editor of the IHPVA's technical journal, *Human Power* ([www.ihpva.org](http://www.ihpva.org)) for years. *Human Power* recently celebrated its 50th issue. Dave has been a friend of RCN and recumbency for years. He is considered by many as the father of modern recumbency (and doesn't get near enough credit). We will be publishing another of Dave's articles that deals with the design history of the Avatar and the early days of modern recumbents.*

*Photo-right: David Gordon Wilson with wife Ellen and daughter Susan*



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# Thoughts on Folding Recumbents and a folding Rans Wave

by John Riley

The comfort afforded by recumbents makes them naturals for touring. This means that sooner or later, many recumbent riders are going to want to transport their bike. For local rides and tours, most people manage with a large vehicle or a bike rack. (An article about racks can be found in RCN # 51.) In my own case, having only one car in the family, I sometimes need to use a rental car to get to club rides. Because of the variety of car shapes, this makes using a rack impractical. My personal preference is to have the bike stowed securely inside the vehicle anyway.

For air travel, things are more complicated. An article in RCN # 58 discussed the options for crates and boxes. These generally incur surcharges, which can add up over time.

Wishing to be able to easily transport a recumbent by car and by air, I have investigated various travel recumbent options.

I first purchased a locally made folding recumbent, the Doppler. (This bike was reviewed in RCN#42. Two other one-off folding recumbents are described in RC #47, the sold out Homebuilders Special Edition.) This bike was alright, but it was heavy, had limited gearing, and I did not care for the riding position. In any case, it is no longer made.

A recumbent conversion is available for the excellent upright folder, the Brompton. (This conversion was reviewed in RCN # 50.) I had a brief test ride on one. It happened to be in a high gear when I tried to pedal it out of the owner's driveway and the belt drive slipped. Gearing was limited, and I was uncertain about the comfort of the seat. The fold was complex, but with practice, I think it could be done fairly quickly. The folded package is probably by far the most compact of all the travel recumbents. If one had to travel by commuter train and did not have too demanding of a ride on either end, this bike would be worth a look.

The Bike Friday Sat R Day folding recumbent has a growing number of enthusiastic fans. (There is a review of the beta version in RCN # 49.) This bike has 16-inch wheels, a suspended seat (very effective, according to reviewers), and the maker offers several options with regard to steering, gearing and other components. The amazing thing about this bike is that it will fit into a large suitcase.

I had a brief test ride on one of these. The bike rode well, but it felt like the seat back was too low for my personal taste, and I had doubts about the long term comfort of the seat base as well. The bike does go into a suitcase, but the disassembly is quite involved. In general, the bike seemed very mechanically complex, but it



M5 Compact—note hinge just ahead of seat

seemed to work as advertised.

The M5 CMPCT is a Dutch folding CLWB recumbent that unfortunately is apparently not available in North America at this time. This bike does not get as small as either the Brompton or the Sat R Day, but folds quickly, with a hinge on the handlebars and a single main hinge on the monotube frame. The bike also has a rubber spring rear suspension.

A brief test ride again raised concerns about the long term comfort of the seat, in this case a narrow European style solid seat. As is also common for European recumbents, the seat was more reclined than is typical for North American recumbents. The crank arms can contact the front wheel if it is turned sharply, but in my short test this did not seem to be a problem.

One person who ordered this bike directly from the Netherlands wrote about her experiences on the Internet. It was not a smooth process. There were many charges beyond the shipping charges. In this case, the bike languished in the hands of a customs broker until the buyer took some effort to track it down. Be aware that there may be problems if you try to order a bike directly from Europe.

There are a few other folding recumbents that I was not able to try. These include one from Human Powered Machines in Eugene, Oregon. This bike, called the Phaser, has been upgraded and looks promising.

I concluded from my research that having the bike get as small as possible was not my primary goal. It was important to me that the function of the bike not be compromised much, especially the seat comfort, which after all was the main attraction of a recumbent for me in the first place. I assumed that in the case of air travel, I would not be travelling with just one bag, so I also gave up the idea of having the bike fit all in one bag. I assumed one or both of the bags that contained the bike would also

have room for other things.

I considered the option of installing S & S couplers in a commercially available recumbent. These are beautifully made threaded joints that can be installed in many recumbents—monotube designs excluded. Some tandem recumbents and a few single recumbents are available with these as a factory option. These can be installed in other recumbents by approved framebuilders. They are expensive, and it is not as easy to disassemble a coupled bike as it is to fold a folder, but they should be considered by anyone not wanting to accept any compromises in the performance of their travel bike.

In the end, I found a local machinist, Jim Best, who would work with me to convert an existing bike.

We looked at the RANS Rocket and it appeared that it would get small enough for airline travel with just one joint. But I discovered that I did not much care for the ride.

I found that the RANS Wave was much more to my liking. The fairly upright riding position and the low bottom bracket put me at ease in traffic and unfamiliar situations. The upright seating position compromises comfort somewhat, but in other respects; gearing, braking and handling, for my purposes and tastes, this is a real bike.

Drawings revealed that the bike, less the seat, could be squeezed into a 32" suitcase. This is technically oversized, but these cases seem to be generally accepted without additional charges.

The dimensions of the case dictated the angle and nature of the fold. Jim designed and installed a hinge. It might have been nice to have a hinge that could be locked and unlocked without tools. These are found on many folding bikes, but unlike the S & S couplers, they are not available to framebuilders.

The hinge is secured with four bolts. So far this has seemed to be very secure, there is no sign of movement or flex about the hinge, and the bolts stay tight.

Cables to the rear of the bike were rerouted along the left side of the frame so that they would pass closely to the pivot point of the hinge. Chain flex allows the chain to twist and bend at the hinge when the bike is folded.

For car travel, the seat is removed, the frame is folded and the bike is placed in the trunk of the car. The handlebars are removed and placed on top of the bike. This process only takes a few minutes.

For travel in the suitcase, the seat, wheels, pedals and chain are removed. The bike is folded and placed in the suitcase. The rear derailleur is removed but left attached to the

able. The handlebars are removed and placed on top of the folded frame. Cables are left connected. The wheels are then placed in the case. The parts are padded with bubble wrap as they go in. This procedure is obviously involved, but not necessarily more so than the procedure for the Sat R Day, as I understand it.

The stock RANS seat goes into a duffel bag that has room left over for clothes.

I have not actually flown with the bike as of yet, but I have carried it in the trunk of the car on several occasions and it has worked well in this mode. Hopefully this Winter I will have the opportunity to fly with it to some place warm and do some riding.

**RANS Seat Note:** Some people have trouble with the seat sliding back on the frame rail. Some people never have a problem. I turned out to be one of the former. There was some discussion of this problem on the Internet. If your seat slides, try the following things: Check the tolerances. If the seat goes on the frame rail easily, if it is a loose fit, the two "L" brackets on the bottom of the seat may be spaced too far apart. Try shimming it so the fit is more snug.

If the fit is snug, but the seat still slips, try cleaning the surfaces with something that will remove any trace of oil or grease, like rubbing alcohol.

If it still slips, try increasing the friction by roughening up the surfaces with a bit of sand paper. If the problem continues, you might try something to make the surfaces gritty. You are on your own here, but you could try mixing toothpaste with fine sand. Coat the surfaces lightly with this and let it dry. I don't know if this will hold up if it gets wet.

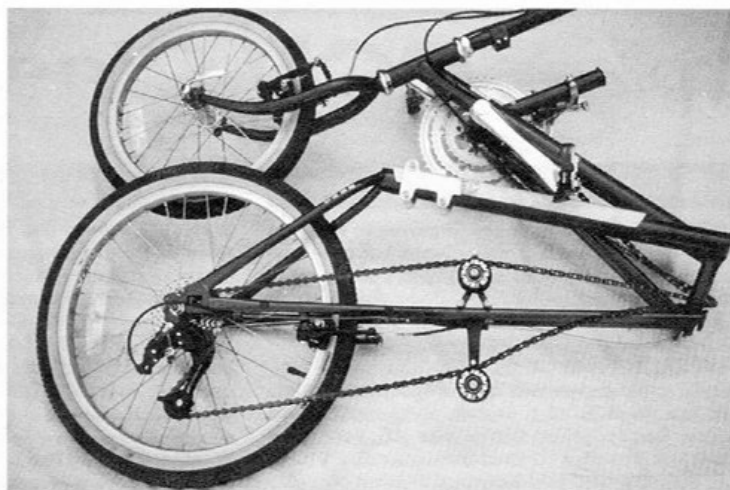
I came up with another solution so I do not know for sure if any of these approaches will work. These approaches may or may not work with other recumbent seats that might slip.

Not only did I not want the seat to slip, I wanted it to be easy to remove and attach. I did not want to have to put a lot of effort into tightening down the quick release every time I installed the seat. I had Jim Best make a small clamp that goes on the frame rail. The seat brackets butt up against this. The clamp comprises two flat pieces, one on each side of the frame rail, that are held against the frame rail by three bolts. This seems to work well. ♦

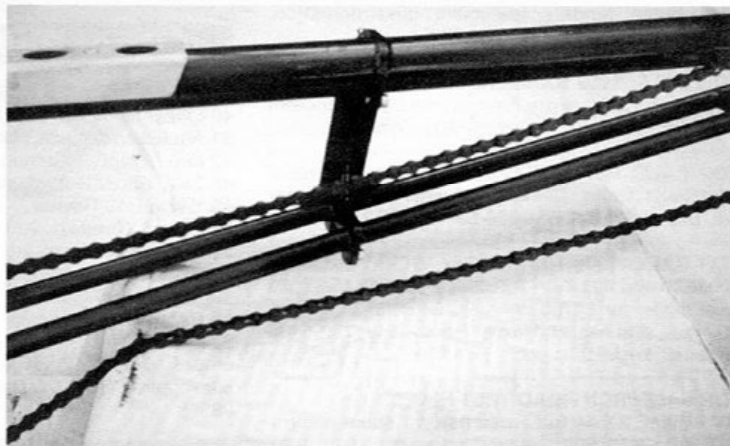
**Editors Note:** The 2001 Rans Wave is now a 20/20 which will make it more cumbersome and difficult to fold. Rans does have stock of 20/16 bikes the last time we checked.



M5 Compact folding hinge



Tailwind almost folded



John Riley's custom 20/16 folding Tailwind custom hinge plate

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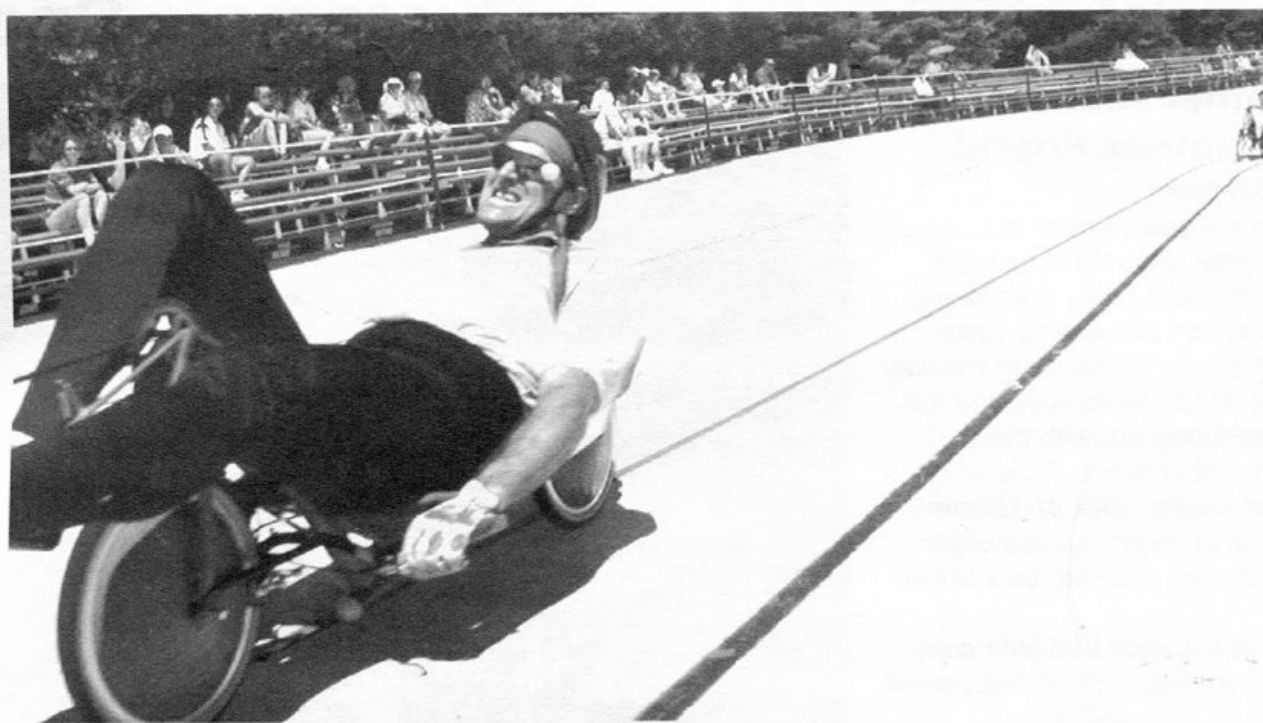
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# Easy Racers: Our Customers Speak

## Another Testimonial, Another Friend

Dear Gardner,

Over the years I have purchased many items, as most of us have. In that process some companies, products, and persons do better than others in reference to the way they treat their customers and the way they follow up with their product and services. One of the greatest assets, gifts, or talents I believe is making your customer feel as though they are part of the family.

You as a person and your company as an extension of that person excel.

How would I rate:

- |                      |           |
|----------------------|-----------|
| 1. Customer service  | Excellent |
| 2. Product quality   | Excellent |
| 3. Follow up         | Excellent |
| 4. Product knowledge | Excellent |

When it comes to all of the above you are probably the biggest company on customer satisfaction I have had the pleasure of dealing with.

Thank you for making me part of the Easy Racer family.

John Pezza



*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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