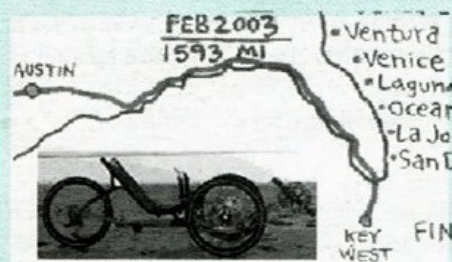


Recumbent Cyclist News

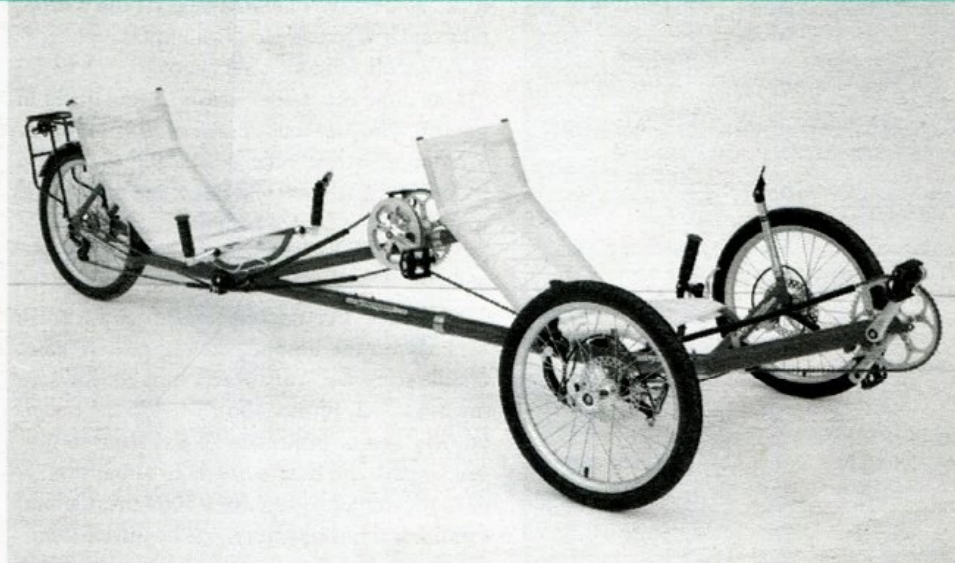
RCN 077 A Publication by and for Recumbent Enthusiasts Since 1990 August, 2003



Bruce Bruemmer interviews Leitra's Carl George Rasmussen. See page 21



Dan Price crosses rides a WizWheelz trike from Joseph, OR to Key West Florida. See page 13



RCN ROAD TEST The Greenspeed GTT Tandem

BY BOB BRYANT
bobl@recumbentcyclistnews.com

Greenspeed trikes are built in Australia by recumbent trike guru Ian Sims, family and employees. Ian is a master of high performance and touring recumbent trikes. While recumbent manufacturers come and go, Greenspeed continues to grow, expand and each trike we try is more refined than the last. This perfection in design is motivated by Ian's unmatched passion for low and laid back, tadpole — Greenspeed trikes.

The GTT is the a tandem, essentially, a double GTO — a long and low tadpole tandem recumbent tricycle. As we've come to expect from Greenspeed, this trike was joy to review. While some trikes twist, flex or just feel light duty, the Greenspeed's are designed for heavy duty touring, carrying heavy touring loads as well as racing.

We were lucky enough to have the GTT in the height of our summer season — good weather, festivals and even a parade. It was an incredible time on an incredible machine. Let me tell you more about this double trike.

Systems

Frame — The GTT frame is hand made in Australia of MIG welded CroMo tubing. The MIG welds are more industrial than the GTO's Taiwan TIG welds, but these frames have been built for years this way and Greenspeed's have a reputation for toughness (perhaps the toughest of all trikes). After all, they were designed to circumnavigate Australia.

The frames are custom built. Ours was a standard/small which fit me (6' tall) and Amy, my 14 year old daughter who is 5'4" tall. Our GTT came outfitted with two S & S couplers. These make shipping far more affordable, and the tandem comes in boxes much smaller than you'd expect. While many may not use the couplers again, some will. With this in mind, Greenspeed offers an optional five S & S coupler model that comes apart even farther. If that isn't enough, there is a similar model called the GTV which comes apart and becomes a single trike.

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Be sure to check out our new website at www.recumbentcyclistnews.com

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Recumbent Cyclist News

Subscription Information

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

Recumbent Cyclist News is published eight times per year. US subscription rates are:

\$32	1 year, 6 issues*
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\$60	2 years, 12 issues
\$80	3 years, 18 issues*
\$45	Canadian Airmail (US Funds)
\$60	International Airmail

We accept payment via cash, check money order (mailed) or PayPal (see our website).

* 3rd class mail is *NOT* forwarded by the USPS. If you move, there will be an additional charge to resend issues.

** Recommended for those who've had trouble with their mail, move often, or have two seasonal addresses.

Contact

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Web: www.recumbentcyclistnews.com
If you need a personal reply, please send a letter and SASE or write us an e-mail.

Schedule

RCN is published eight times per year. For the 2nd half of 2003, expect issues in July, August, Sept./Oct. and Nov/Dec/Jan.

When to Renew

Please renew 60 days in advance if you can. By the time you read this issue, the next issue and database have gone to the printer.

Your Mailing Label

"EXPIRES W/RCN 076" means that RCN 76 is the last issue of your current subscription.

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Editorial License

by Bob Bryant

bob@recumbentcyclistnews.com

Things have been crazy around my house. While walking my dog ("JR" the Jack Russell terrier) on the beach at Fort Worden, I was launched off of a small rock (ankle gave out: sideways). I did a drop, tuck and roll (crash ploy from my skateboarding days oh so many years ago).

I've done this same "crash" a few times in my life. The previous "crash of '98" involved a recumbent test bike where the drivetrain locked up at 10 mph and threw me down. The impact was so hard it bent the CroMo spindle of my clipless pedals — and screwed up my ankle.

This time, like the last time, after the crash — I lay on the ground, feeling intense pain, unable to move. This time I thought for sure my ankle was broken. So I went to the hospital. My health insurance sucks. Note to myself to give the boss some crap about this — or to remember to vote for a 2004 presidential candidate who has a universal health care concept that's worth a damn. Anyway, my \$700 trip the hospital took up several hours and resulted in no fracture. Good news? I don't know. The last time I did this my doc said I'd have been better off breaking it.

The guy in the next room was way worse off than I was. I cut the inattentive doc some slack. And the nurse helped me get the heck out of there when she realized the doc wasn't coming back.

I hobbled out of there with an airsplint, a pain-killer prescription and a big bill. The doc's final words were expect to be off for 4-6 weeks.

I settled for a 4 pack of Corona's and a Monster Garage DVD (Jesse James needs to build a chopper 'bent). Day 5, I walked downtown (mistake). Walking is weight bearing and not good. Day 8, I was determined to ride. Luckily, my current test bike is a LWB OSS low BB. I removed the Crank It Egg Beater clipless pedals I'd been testing (my first clipless pedals since '98 crash).

My riding pal John had given me some Nashbar BMX platforms that wouldn't work on his V-Rex (pedal/front wheel interference). I threaded them into my SCOR Kneesavers (love these), donned my lightweight hikers, airsplint and took off down the road.

I rode to the post office and then some other errands downtown. I then rode to the marina, beach and finally made it home after being out for two hours (feeling better today). The riding is non-weight bearing and good therapy. This means I'll have to ride daily through my recovery ; -).

Bob's Ankle Update

I'm six weeks into my rehabilitation. I'm riding about 100 miles per week. However, the ankle is still a bit weak. I haven't gone back to clipless pedals and don't plan too at this point.

Upgrade/Customization

We're actively seeking recumbent upgrade and customization articles. Do you have a better idea, have you found a neat aftermarket or non-recumbent part that works great on your bike? We need articles that are 750-2000 words with a few pictures (35 mm or jpegs — see website RCN business, writer guidelines for more info). A full article is worth a 1 year comp RCN sub if printed (less if just a small blurb).

Where's RCN 076!?

There's never a dull moment in the world of micro-publishing. Mistakes — there are many. So what did we do this time? Our last issue, RCN 076 July 2003 was mismarked as RCN 077 July 2003. The issue you're holding in your hands is the *actual* RCN 077, August 2003 issue. Sorry for the confusion.

Typo City

With our inability to find a proof reader who can work to our tight new production schedule and the move to 8x issues per year, RCN 076 had far too many typos. Please be patient, we're working finding somebody local.

Address Change Info

If you have a standard RCN subscription and do not inform us of your new address (or inform us without enough notice), there is a chance you'll miss an RCN mailing. Unfortunately, we must charge \$4 (or -1 issue on your subscription) to resend your missing issue. In the past we've done this automatically. In the future, we'll wait for your request for us to do it, or offer you the option on email inquiries.

recumbentcyclistnews.com

Check out our newly updated website at www.recumbentcyclistnews.com.

Viva Recumbency,
Bob Bryant ♦

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LaBent Introduces Trike Plans

by Bob Bryant

LaDue's DIY (Do It Yourself) recumbent plans are about as simple as you can find anywhere. The two wheel LWB OSS are the easiest recumbent building plans we've seen. The delta trike adds the complication of the rear wheels. LaBent plans are based upon the "recycle — donor bike" method of recumbent building (as compared to fabricating from scratch). Each LaBent planset also includes plans for the new full mesh seat.

Denny LaDue

The designer of the LaBent is Denny LaDue. Denny is a long time recumbent cyclist, tinkerer, builder and machinist. Denny is a down home kind of guy. He's even a part-time actor. Here is Denny's story, "I lived in Southern California in the early 1980s. I kept an old ten speed at my office to ride home for lunch. While riding back to work one day, bucking the Santa Ana winds, I started thinking — There must be an easier way. I began doing some research on recumbents. I didn't even know what they called at that time, but I had seen one in a movie called Brainstorm. Christopher Walken rode it in the movie and I thought it looked pretty cool. Eventually, I designed and built a bent like the one in this photo. It had to be simple enough to make with the limited amount of tools and space I had at the time. I borrowed a welder and did the work on my driveway and in an 8x10" metal shed (my shop). It also had to be cheap. My first recumbent cost less than \$50, including the rental price of an angle grinder. I still ride the original, it's the blue bike on our home page. Since then I've built several of them and started to think maybe some other people would like to build their own as well. So, I put some plans together and am offering them for sale."

The Trike

Several years ago Denny had built a trike for his wife to ride. A photo of the trike found its way to the website — and as a result brought many questions about the availability of trike plans. The LaBent trike plans are finally now available.

"Building a Trike is a little more involved. Almost all of the frame is fabricated. Several parts can be purchased. Several items, rear wheels, disc brake, front fork and front wheel, have to be purchased," says LaDue. The trike plans include 21 CAD drawings and instructions, web/sling mesh seat plans and decals.

While the "recycle — donor bike" plans are the epitome of what I believe building plans should be, they aren't perfect — and we do have some constructive criticisms. We'd like to see the plan book printed on 3 ring holed paper so it can lay flat on the workbench. As the plans now come, they loose 8.5"x11" sheets are in a very basic clamp-in binder. Since the pages are not numbered, it's easy for them to fall out and scatter. You'd have a difficult time getting the (approx.) 60 pages back into order. The photo reproduction isn't very good and could use improvement and we'd like more anecdotal material about LWB OSS recumbents, chopper bikes, etc.

Available LaBent Products

LaBent offers delta trike plans (\$40.50); LWB OSS plans (\$26.75); sling/mesh seat plans (conduit aluminum frame) (\$17).

Kits are available. The kit contains everything you need to construct a LaBent that can't be salvaged from the "donor" bikes, isn't readily available in a bike shop or can't easily be made (\$120). The kit includes: main cross member, seat brace, handle bar assembly, chain

idler parts, heavy rider brace (as needed), decals and a set of plans. What you'll need: two donor bikes, a 20-inch wheel and tire, extra long brake cable and seat materials.

Bare Frames are just as the name implies, a frame, a front fork and set of handlebars and no other components. Frames are available powdercoat painted (\$430 shipped) or no paint (\$380 shipped). The painted frames are actually powder coated. Powder coating is a painting process that is very tough and durable. It's available in all the basic colors.

Verdict


Denny LaDue and LaBent could be a model for where most LWB OSS builders and recumbent enthusiasts actually began. We love it. After more than 15 years of fantasizing about recumbents, I still do it. My kids are now 11 and 14. We plan to build some homebuilt recumbents as a shop project this fall.

If I had one concern about the design, it'd be the rearward placement of the rider. I asked designer LaDue about this, and the possibility of nose wheelies when climbing steep hills. He said he'd never experienced it, but added that, "this is flat-land Nebraska."

We can't think of any other available delta trike plan — let alone a recycler-type project. I guess the question is are these plans worth it. The answer is unequivocal YES. If you get one ounce of inspiration from them — if you get one single idea of how to do something better or easier — or build a LaBent sling/mesh seat for your own homebuilt — they're worth the price many times over.

Contact: LaBent by LaDue, 1607 S. 84th St., Lincoln, NE 68506.


Check out the LaBent website: (<http://www.radiks.net/~ladue/>). ♦



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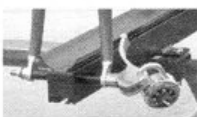
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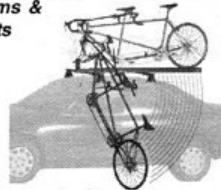
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LaDue Plans Note: LaDue liked our idea about a 3-ring binder for the plans. Lets hope that gets integrated soon. He's also getting a better digital camera, which should improve photo quality.

RCN Calendar

August 1-3, 2003

10th Annual Midwest Recumbent Rally

Stevens Point, WI

Contact: 1-800-233-4340

www.hostelshoppe.com/recumbent_rally.php

August 15, 16, 17, 2003

2003 Recumbent Retreat

Fort Stevens State Park

Warrenton, Oregon

Contact: jjoyful1@aol.com and www.ohpv.org

September 6, 2003

Michigan Recumbent Rally West

Kalamazoo area. Recumbent displays, socializing.

Numerous ride options. 10a.m. - 3p.m.

Contact: www.LMB.org/wolbents, Paul.Pancella

@wmich.edu or tel. 616-353-0125

October 10-14, 2003

Interbike and Dirt Demo

Bicycle Industry Trade Show

Las Vegas, NV

Contact: <http://www.interbike.com>

September 20, 2003

Fall Recumbent Rendezvous

Northern Detroit area. Recumbent test rides,

group rides, displays. 9am - 3pm. Stony Creek

Metropark Eastwood Beach shelter.

Contact: www.LMB.org/wolbents, wolverbob@

cs.com or tel. 734-487-9058.

September 29, 2003

Worlds HP Speed Champs/.decimach 2003

Battle Mountain, Nevada

World Human Powered Speed Championships

and .decimach Challenge. Racing occurs daily 9/

29 -> 10/4. HPRA racing the last two days. Will

somebody break 82 mph and win \$24,000!?

October 1, 2003

Ohio HPRA HPV races

Columbus, Ohio

Two days of HPV racing, probably at the

Columbus Motor Speedway.

For the most recent updates on HPRA races, see:

www.wisil.recumbents.com/wisil/events.htm and

www.ihpva.org.



The new LaBent delta trike



Above: The LaBent LWB OSS available as plans, kit or frame

Below/right: The LaBent seat



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Recumbent News

Reynolds — With the idea of improving production efficiency — George Reynolds is now building only his titanium 700c/20 USS T-Bones.

Cannondale — As the company emerges from bankruptcy, some 450 production employees have returned to work. The recumbent is still in the line, and the new Cannondale will honor warranties on all original owner recumbent models.

RANS A.P.E. — We hear rumors that the Flip It's days may be numbered on RANS SWB, and we may see a fixed riser, forward facing stem and "tweaner" style bars for 2004.

We're also hearing rumors of a low delta trike. Something new, maybe not. RANS built recumbent Sail Trikes years ago.

Penninger — Has a new "built in the USA" tadpole trike. The "T31" weighs 40 pounds, comes in red, yellow and blue and fits riders with an x-seam of 38-48 inches. The seat height will be 8.5-10-inches. The front hubs are Phil Wood, and rear is Shimano. The trike has an Schlumpf Speed Drive + a 9-speed cassette to make for 18 gears. Components are Shimano Deore LX/105 and Schlumpf. The price is slated to be \$3495.

High-Tech E-Trike — For those of you who asked about contact information after we ran a photo of the Velocity trike back in RCN 074, here it is: Velocity Human Transport Solutions, www.velocityvehicles.com.

BikeE Parts — The entire remaining closed out inventory of BikeE seat sliders has been purchased by one vendor. This company also offers an aftermarket accessory bracket (<http://members.aol.com/whytoole/WHYTOOLE.html>).

BikeE Parts II — The best source for BikeE parts that we've found is Easy Street Recumbents in Austin, TX. Here is their BikeE info web page: (www.easystreetrecumbents.com/bikeeparts.html#drivetrain).

Easy Street/Sun EZ1 Deluxe — Easy Street Recumbents in Austin, Texas, is now offering steel EZ-1s with upgraded aluminum seats and handlebars (not steel as on stock EZ-1's), and the SRAM DualDrive drivetrain (components pulled from new 2002 BikeE CT's). These upgraded Easy Street EZ-1's are a bargain at \$695. They are built up from the frames at Easy Street and receive more attention to detail and quality than one gets on the usual EZ-series model. Easy Street Recumbents, Tel. 512-453-0438, www.easystreetrecumbents.com

EZ-Series Newsgroup — There's a new internet mailing list for EZ-series owners, where people have gotten detailed technical advice and a wide range of views and opin-



Aimee Lingman and the Penninger trikes that are circumnavigating Australia

ions about parts and option. The email address is ez-series@topica.com, and can be subscribed to through topica's website.

Recumbent Buying Scam!? — RCN reader, Bruce H. Bruemmer, has reported to us what he thinks is a recumbent buying scam, "I received within a few days after posting an ad with the NBG classifieds. Since it was received after I innocently declined an offer to buy from someone in "West Africa," it's pretty clear that it's a scam. If you have received any one of the millions of "Nigerian scam" emails, this one will look familiar. They want to get you to send them money, in this case the difference between my asking price and an outstanding check that they would send me. Needless to say, I haven't responded." Here's the email: "Greetings, I am happy to notify you that I'm interested in buying/acquiring your recumbent and I am offering US \$2800. Please, if this offer is acceptable to you, get back to me with the necessary details, kindly let me know the condition. As a matter of fact, one of my clients based in U.S.A is owing me some money and the amount is \$7,000 and on my request he shall forward a cashier check / amount to you. After deducting the cost, can I trust you to send the rest of the amount (i.e the excess fund) to me via western union money transfer. If you are ok with doing this favour



The new Penninger tadpole trike

for me, get me the information needed to send the cashier check to you. Thank you for your cooperation while anticipating your earliest response."

American Penningers trikes to circumnavigate Australia (From Penninger's website) — A few months back we sent a couple of Voyagers to a young Canadian couple, Aimee Lingman and Kevin Beimers, that were looking for a sponsor to help them with a dream. They wanted to circumnavigate Australia on tandem trikes — 10 months and 14,000 km. For more on the story: (<http://bikeabout.beimers.com/>).

Source: Penninger Recumbents. ♦

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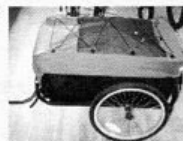
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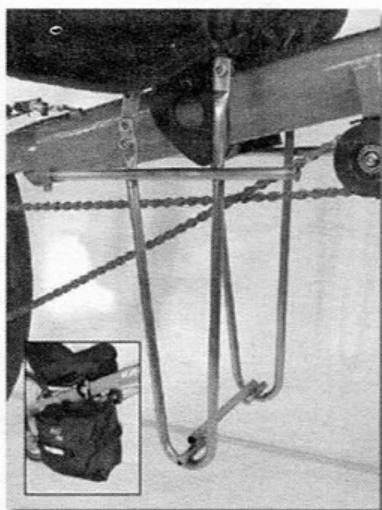
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Recumbent News

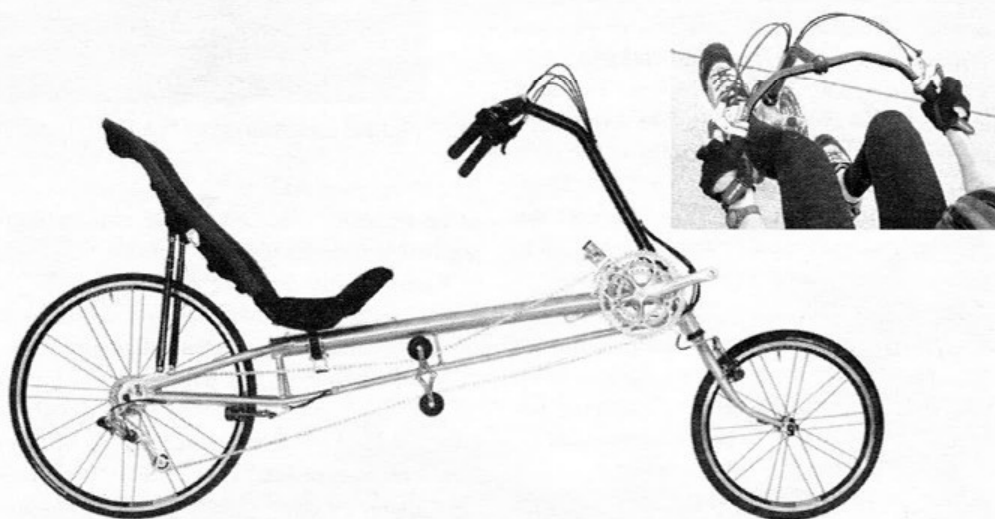


Bacchetta Racks — The best racks are made from tubular steel. Our Mid-Ship SS is made of tubular Stainless Steel, comes with stainless attachment hardware and should last you a lifetime. The design allows you to move your panniers forward and down for better weight distribution, which is ideal for commuting or hard-core touring. It fits any Bacchetta bike with our Recurve mesh back seat and works with most standard panniers. The Mid-Ship SS is also very modular so it can ship flat and, if you happen to mangle it, broken pieces can be replaced without having to buy a whole new rack. A matching rear rack is in the works so watch our website for updates.

Source: Bacchetta

Bacchetta Seat Bag — Designing bags is hard and it only gets harder when you want one that works on a variety of bikes. Fortunately we found a bag that came close to doing everything we wanted and asked the manufacturer to make it our way. The result is the One For All bag. What's up with that name? Well, we initially only wanted a bag that worked with the M5 seat, and while the OFA bag does that in spades, we came to see its potential for all our bikes and we're now working with the maker to adapt it to other seats (more info on that later). In the mean time, if you're looking for a bag to put on your M5 seat, look no further. The OFA slides on and off in seconds, has an insulated bladder holder and plenty of room for all the necessities of every day riding.

Source: Bacchetta



The new RANS V2 Formula has an aluminum frame, lighter seat (with a different seat base) and weighs in at 28.5 pounds. Note new bars, stem and handlebar ergonomics. Be sure to tell RANS you read about the V2 Formula in RCN.



New Models for 2004?

The above SWB is rumored to be made by Sun for introduction in perhaps 2004. Right is rumored to be a new Sun CLWB dual 20 model with rear suspension. The Sun EZ3 aluminum has been delayed, but should be out this fall.

WHAT DO YOU DO ON A FRIDAY?

Gaylynn Hanavancoon, Queen Voice of Bike Friday, rides her custom DoubleDay with son Elliott. "It's the most adjustable bike we've owned. The whole family can ride it in some combination or other. We like to take it in the van, because we can pop off the seats and fold it in a couple of minutes." Although Gaylynn is one of our busiest people at

Bike Friday she'll not hesitate to give you a few words on EXACTLY what she thinks of her custom DoubleDay:

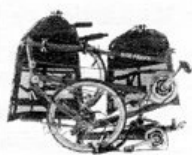
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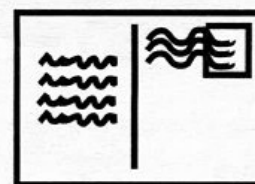
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Letters To RCN

Write RCN . . . Write Soon . . . Write Often . . .
bob@recumbentcyclistnews.com



The JTB side-by-side Quad

Side-by-side Recumbent

As I read in RCN 075 the article by Carl Rasmussen about the many advantages of the 2-passenger side-by-side recumbent, I recalled that those are the same reasons why Just Two Bikes, Inc. owner Jim Muellner designed the JTB Dual recumbent cycle.

The JTB Dual offers the same features that Carl likes on the "Lizzy" such as the 'sociable' seating, the two independent drive trains, and the cargo area between the rear wheels, plus the JTB Dual weighs less and has four wheels for greater stability and braking. Also the JTB Dual provides brake controls for both riders and can be set up with steering control for both riders. The JTB Dual is also designed so it can be easily separated and ridden as two single 2-wheel recumbents.

Paul Stephan
Just Two Bikes, Inc.

Editor Comments — For more information on Just Two Bikes side-by-side sociable recumbent, contact: 1-800-499-1548 or (www.justtwobikes.com).

V-Rex vs Bacchetta Seat Height Debate

I felt a sense of pride to know that Randy Schlitter himself read my Giro review in RCN 073. I'm glad that he felt compelled to respond to my seat height assertion in a letter to the editor in RCN 075, as I enjoy promoting discourse and debate. Bacchetta's Rich Pinto wrote in a rebuttal, "We can't comment on how Shari Bernhard got her seat height measurements in her Giro review." Well, I can. I got the numbers from Bacchetta's and RANS's respective web sites.

Randy said in his letter, "If measured from the ground to the seat bottom, the V-Rex seat height ranges from 22.5" to 23.75". I assume the 23.5" listed in the website is an approximate average, as is the Giro's 22.5" measurement noted on the Bacchetta website. However, in my opinion, measuring to the seat BOTTOM is not accurate in any event.

To measure the true seat height from a rider's point of view, one should measure from the ground to the TOP of the seat cushion. After all, that's what the rider is sitting on, not the seat pan. I took my trusty tape measure out to my garage where I have my Giro and V-Rex side by side. Both are set up for me so I'm measuring the actual discrete height as it affects me. Measuring from the floor to the highest point of the cushion, the V-Rex seat height is 26.25". Measuring the Giro in the same manner, the seat height is 25".

One and a quarter inches isn't a big deal unless you're on tippy-toes on the Giro. In that case, the V-Rex would be too high. For me, I'm comfortable on both bikes, foot-down-wise.

I hope Randy didn't get the impression that I don't love my V-Rex; I do, a lot, which is why I'm keeping it. It's a wonderful bike that I highly recommend to many people. I also love my Giro. And my Greenspeed GTO. Any my RANS Screamer. I'm a happy person.

Keep up the good work.

Shari Bernhard
sbernhard@attbi.com

A Dangerous Commute

I've been reading the comments about bicycle commuting with much interest. I have never used a bicycle to commute to work since I moved to the Chicago area, for one very important reason; I believe it would have been far too dangerous in my situation. I have lived in the Chicago area for over 40 years, and have had many different jobs. During that time I had wanted to ride my bike to work but didn't because of the danger.

Let me explain. I live in the middle/outer suburban ring. All of my jobs have been in the suburbs or Chicago, and all required a trip of 15 to 50 miles one way. Chicago has many bridges and elevated roadways which cross railroads, rivers, canals, and other roads. In the suburban ring, these bridges are typically two or four lane with no shoulder, and no sidewalks. Some of these bridges are about a mile long! During rush hour they have bumper to

bumper traffic traveling at from 15 to 55 mph. In addition the local roads that I would have to take near my home are two lanes, no shoulder, and no sidewalk, with 45 mph speed limits. The situation is better for people who would travel a short distance in the city, or an inner suburb with the typical city side streets, but probably about half of the workers in the Chicago metro area would have the same problem I did.

I have a Honda Odyssey van which will accommodate two Easy Racers Tour Easy Expeditions inside the van and still have room for three passengers and luggage. The third row seat folds into the floor. We bought the van partly because it would carry the bikes. I keep the bikes upright with a couple of bungee cords. Loading and unloading is very simple and fast.

In a past issue someone, criticized people who put their bikes in their gas guzzler, and take them to a bike trail. Well, that's exactly what my wife and I do with our Tour Easy(s). Fortunately the Chicago area has an excellent trail system.

George Zurbuchen
K9CC@msn.com

Editor Comments: We received an overwhelming number of letters from our car-free article in RCN 072. The majority of the letters were supportive. However, we've decided to scale back car-free attitude a bit. We're more than willing to write about bicycles and bicycles as transportation, but we'll try to quiet the anti-car banter and write more about recumbents.

Praise for Free Form Fashions

I want to share with you and RCN readers how impressed I am with the kind, professional, generous and speedy service that I received from Melanie of Free Form Fashions. This is the company that makes the *body stockings* or what Melanie calls *skins* for the Easy Racers and other recumbents.

A short while ago took a spill on my Gold Rush at a nasty oblique railroad track crossing in St. Helena, California, and managed to shred parts of my body stocking in several places. I called Melanie at Free Form Fashions, and asked her to make up a spare "skin" for me, so I'd have one next time I ripped up my main one. I also asked her to repair the original skin. Additionally, I asked for a few minor custom features to be included in the new skin (a special zipper I'd supply, some different dimensions to reflect my more laid

back seat position, and some added tabs to assist putting the skin on and off the bike).

She quoted me a very reasonable price for the new skin, and said she'd get back to me regarding the repairs. She said the new and repaired skin should be ready in about 2-3 weeks. I was stunned when, both arrived at my door about a week later. The new one perfectly met my specifications. The old one was very thoroughly and properly repaired. And her charge for the repair was about a third of what I'd expected it to be.

I want all recumbent owners to know what outstanding quality and service that Melanie and Free Form Fashions provide.

Martin H. Goodman MD
martygoodman@worldnet.att.net

Editor Comments: *Freeform can be reached at fffashions@hotmail.com, tel. 831-429-5044 or www.bikeroute.com/FreeFormFashions/*

Alert Shirt

I think that I've found the perfect shirt to wear when I ride my bent after dark. It has reflective stripes on the front and back of the sleeves. Just go to www.alertshirt.com then to shirts and look for the guy on the bent. It works for me. 3M Scotchlite Reflective material printed, Front and Back, on our 50% Cotton/50% Poly Crewneck Sweatshirt. Increase your visibility and safety while working on the roads, running, bicycling, hunting, hiking, rollerblading, working out and fitness training.

Hugh Butler

Big Slick Bike Mag

A few years ago I stop subscribing to one of those big slick bike magazines. All the articles were about going fast, shaving grams from the bike and being like Lance (not that I have anything against Lance — I think he's great). I think with a membership in some advocacy group I belong to I get a "free" subscription to the above-mentioned mag. Once again I find it attuned to 12-year olds who want to go fast, climb like a pro, be like Lance and have better sex! The format changed a little but the articles are the same.

Thank you for RCN and Adventure Cycling Association for *Adventure Cyclist*. I can't afford every great bent in RCN nor do I want to cycle Bolivia or Outer Mongolia but I do get great information from both mags.

On a completely different note, I just finished a 25 mile Bike New Orleans and there were a lot of 'bents there. There were Easy Racer/Sun trikes, a Screamer, Tailwind, Tour Easy, EZ Sport, HPVelo Spirit, and a GRR with a modified steering system to accommodate a rigid fairing ridden by a 78 year old! He didn't have the fairing on as the speed was limited in this city ride. There was also a three-rider centipede trike. Naturally, being New Orleans we had a party with beer, red beans and rice, other food and a DJ after the ride.

Where else can you drink beer on a lovely Sunday morning and not be called a drunk!

Francis Celino

New 451 mm Tire

I wanted to tell you of new tire that I've been using for about 3 months now. It's a 451 that I've been using on my RoadE. It's made by Drive Technologies. It's a BMX tire, 20 x 1-1/8. It has a very tough rubber compound similar to the Maxxis. The tread pattern consists of tiny suction cups which go from bead to bead and has a 110 psi. It rolls freely and smoothly. I suspect that the IRC and Stelvio are better performers but not by much. This is a heavy tire and seems nearly indestructible. It would even handle light off road riding. Most BMX 451's are either knobbies or semi-knobbies but I like this tire. It does have a lot of gaudy advertisements on the sidewall.

Thank you for your inspiring car free article in RCN 072. I've wanted to do this for some time now. Every time I tell someone about it, the stock answer is "you can't do without a car." Isn't it amazing that everyone always know what's best for you? Living in Tucson makes it very difficult although doable. Tucson is large and spread out. The most difficult thing would be getting to the bike shop. There is no safe way to get there by bike.

Harvey Stackpole
harveystackpole722@hotmail.com

Trike Storage

When I ordered my Greenspeed, I had no idea where I'd keep it. Bikes were hanging in the garage everywhere people didn't walk (I have to move a car to get to them) and more were out back in the garden shed. The trike ended up hanging from hooks on the ceiling above my work space at the back of the garage. I'm 6' tall. With the 9' ceiling, I don't even feel like ducking under it.

While my 64 year old back isn't enthusiastic about lifting, I can stand astride the boom and bracing my elbows on my thighs, grab the seat rails and flip the trike onto my head. A tip and a lift hooks the back wheel. With that bearing the load, I walk the bottom bracket forward to hook the fronts. The trike's storage turned out to be the least obtrusive and most convenient of all my cycles, and I never have to move a car.

John Kaplan

MonsterBike Update

I now have better than 400 miles on the monster bike so far (see RCN 072 letters, pg.7).

So far, no broken spokes and only three dumps so far (at slow speed). The 42-speed drivetrain works well. Going up steep hills isn't a problem as long as I don't get in a hurry and can keep my speed down around three mph. That bike needs outriggers to go that slow (my next addition to the bike).

The push-stick steering mechanism is working quite nicely. That thing accelerates real fast going downhill and was quite stable all the while. I hit 37 mph coasting down a hill last month. I've been doing some next generation preliminary design work to see what I can do to get the weight down under 100 pounds. At that rate I could ride the thing every day and not need a day to recover from a 25 mile ride.

Paul

Roof Rack Safety Concern

I again recently witnessed a car on the highway with a recumbent on mounted on a roof rack. The owner had left the seat on the recumbent. The large amount of wind resistance and turbulence created by pushing several square feet of seat through the atmosphere at 70+ mph was whipping the recumbent back and forth. The contrast between the motion of the recumbent and the conventional bike on the same rack was large. The owners, seated in the car, were oblivious to the oscillations and beating that the recumbent and roof rack were taking, not to mention a significant penalty in fuel use. I wondered how much of this the bike/rack system could take before something flew off.

I wanted to bring readers attention to this potential hazard. Cannondale warns about this in our Recumbent Owners Manual Supplement. Take off your seat assembly (and any bags, panniers, or fairings) before putting your recumbent on a roof rack where it will see what is literally hurricane force wind.

David Campbell
Director of Technical Services
Cannondale Bicycle Corporation

Editor Comments: *I very much agree that recumbent riders carrying their bikes on roof racks need to be careful. Years ago I was driving to Portland on I-5 with two Easy Racers with Super Zippers on my roof rack. I was going over 60 mph. A Porsche came up along side me and the driver pointed up at my roof rack. I immediately pulled over. The rack*

... Letters continued on page 26

Send Letters to the Editor of RCN

If you have something to say, a differing viewpoint or experience—we want to hear from you! **Please limit letters to 300 words.** RCN reserves the right to edit submissions for clarity, content, and space limitations. Please send to bob@recumbentcyclistnews.com or RCN, PO Box 2048, Port Townsend, WA 98368



RCN ROAD TEST

The Scooterbike Deluxe

BY BOB BRYANT

bob@recumbentcyclistnews.com

After years of showings at the bicycle industry trade show (Interbike), the Scooterbike has finally made it to North American shores. A new company — Velvet Systems USA is the distributor.

The Scooterbike is a CLWB with a European style. It was designed by Klaus Schroder, who runs a recumbent bike shop in Gladbach, Germany. He's also the production manager for Scooterbike in Europe.

Systems

Frame — The Scooterbike frame has an oversized diameter CroMo frame and fork. The main tube is curved downward to allow for easy step through — this is a big plus for many riders. The fabrication quality on the Scooterbike is, for the most part, okay, though we did experience several problems.

Steering — The Scooterbike has a simple OSS with a stem, riser and a unique Zoom stem that allows for a few inches of adjustment in several directions by just releasing a few allen bolts. It's a slick and simple system, though not the best I've tried. The tourist-style handlebars are ideal for this CLWB.

Suspension — The scooterbike suspension is unique and works well. The Ballistic XL-AR coil/oil shock has a neat feature that allows you to dial-out the suspension (and potential pogo) if there were to be any, if you're carrying a load, or just a big rider. For such a simple system, I was impressed. Our

Scooterbike Deluxe didn't have a front suspension. However, the upgraded "Pro" model comes with an "Aprebic Head 16" suspension fork (which we'd never heard of).

Weight — CLWB recumbents of this type are generally heavy, and the Scooterbike is no exception. With a kickstand, rack and fenders, ours weighed in at 44 pounds.

Drivetrain

Components — The Deluxe has a mixed bag of componentry centering around a generally user-friendly and reliable SRAM DualDrive. The crank is a Tracer with a 46-T chainring. While this is not the best crankset, it's well proven and reasonably trouble-free.

The SRAM DualDrive is generally the way to go for a recreational/urban 20/16 CLWB recumbent. The drivetrain generally works well and new riders learn quickly how to use their 8-speed drivetrain with the low (-27% reduction), medium (1:1) and high (136% overdrive) ranges. The achieved gear range is near recumbent perfection — with a 20-gear inch low gear and a 108 high gear. We'd have liked a bit lower gearing for our hilly locale.

Chain management — The Scooterbike doesn't have a complicated drivetrain or idlers. Instead, the bike has dual long chain tubes. Chain tubes serve their intended purpose by keeping the grease off your calves or jeans. They also make chain management easier for the designers. Chain tubes have their own

unique muffled shuddering sound as the chain passes through.

Braking — The Radius 975DK aluminum V-brakes (which we'd never heard of) are mediocre at best. The brakes definitely could use an upgrade. When the bike arrived, the 4 pads, spacers and bolts were scattered in the bottom of the box, having fallen out of the "small parts" container within the shipping box. Unbelievably, the parts were all there — and we got the bike together.

Wheels & tires — The rear hub is the SRAM DualDrive. The front is another componentry low-point — a Keyin (brand) alloy bolt-on hub — another part that has no business on a bike of this price level.

The Schwalbe City Jet 1.75" Kevlar 70 psi tires were excellent and the perfect choice for an urban recumbent.

Seat/Comfort

The Scooterbike has a mesh back and a foam covered shell base. The seat has a serious lumbar bend and there is no seat recline adjustment.

The seat mounts were problematic. The seat didn't fit right, and placing it on the track was not easy or quick. There was no owners manual or documentation to help us out.

Seat Back — I didn't find the seat back comfortable. The seat back mesh is sewn onto the frame. There are no adjustment straps, zip ties or anything else to adjust the seat back's tension. The seat has a dramatic lumbar curve which riders will either like — or not. In most cases like this one, the seats have tension adjustment straps. By loosening or tightening to suit your needs, most can get a good fit and often tune-out the pronounced lumbar. Not so with the Scooterbike seat.

We also found out later that 2003 USA models were missing a foam piece that goes on the seat back's top cross bar. Perhaps this would've made the seat more comfy.

Scooterbike is also planning to redesign their seat, "We do admit that our seats fit some people better than other people. The lumbar bend and top bar make the seat uncomfortable for some riders. We're working on a seat design for 2004 that has less severe lumbar bend and an open top," said Velvet System's Aubrey Lyon.

I did see a Scooterbike from a rental fleet where the mesh had stretched out, which helps flatten the lumbar curve. This may not be a plus if the seat mesh stretches out and you can't tighten it back up.

Seat Base — The seat base is like an oversized cruiser bike saddle, with a wood base with the nylon cover stapled on. It's independently adjustable from the seat back. I was told that this differs from the German model.

Ergonomics — The riding position is user-friendly and suitable for nearly anyone. The

clinchers will be whether you adapt to the seat. **User friendliness** — A CLWB is essentially a LWB OSS recumbent with the riding position raised and moved rearward, combined with a micro wheel set to keep the bike “compact.” This style of step-through frame, low bottom bracket (BB) CLWB are about as user-friendly as you can get.

Ride and handling

The Scooterbike Deluxe rode easily, stable at low to moderate speed. However, the 16-inch front wheel gets a bit quick handling at speed. The rear suspended ride is cushy without pogo and a good selling point for the bike.

Maneuverability — The Scooterbike is very maneuverable and turns on a dime. However, the bike had some tiller-feel in the steering and handling was a bit unrefined compared with other CLWBs.

Performance — The Scooterbike is a rather heavy CLWB. The performance was not a strong point of this bike.

Owning

The Scooterbike seems like it could be the perfect urban recumbent. It has cargo capabilities, fenders, chain tubes and the easy shifting and urban friendly DualDrive.

Options & accessories — The Scooterbike is well equipped with standard features that include: a kickstand, fenders and rear rack. There will be optional under-seat pannier rack, Ortlieb panniers, a backpack bag, fiberglass seat trunk and front fairing coming.

Market competition

Comparison — The CLWB market is currently in transition. While the high-end CLWB market is a bit crowded with the likes of the Cannondale, HP Velo Spirit, and Maxarya. However, there are few entry level CLWB models to take the place of the BikeE CT and compete against the Sun EZ1. This is a disappointment to many.

The closest competition for our Scooterbike Deluxe is made by Maxarya, a Canadian company importing their new CLWB. It's much like the former BikeE RX, though is reported to weigh under 30-pounds and has rear suspension. Maxarya will offer an optional 20-inch front wheel. Our test bike is due here soon.

Scooterbike also has a Pro model, a made in Germany 7.0 model and a delta trike. We're not sure what availability is like on these.

Value — While our Scooterbike Deluxe seems a tad overpriced at \$1199, their “Sporty” model has 9-speeds (27-83 gear inches) and sells for just \$799.

Verdict

This bike had some problems that I couldn't work out. I'm not sure that this was an isolated case, or par for the course. Finding dealers that stock this bike so far is difficult. I was



Scooterbike rear end: note extreme lumbar in seat, cool rack and rear fender mounting — RCN photo

surprised to find out one was local to me (not a known recumbent dealer). They were using The bikes for rentals. The indexed shifting and overall drivetrain performance was mediocre at best. I'd guess that many of the drivetrain woes could be smoothed over by somebody with better wrenching capabilities than I — or by a distributor who would've bench tested the bike prior to shipping it to us. Or perhaps even opened the box to inspect it before shipping.

Like many imported recumbents, the bike was poorly packed and there were parts were all over the bottom of the box. It wasn't an enjoyable experience. I was unimpressed by the condition the bike arrived in, the components and their performance.

As for the seat, the lumbar curve and non-adjustable seat-back mesh may be a deal-breaker for some. I didn't find it very comfortable — and the distributor's response was that a new seat is coming for 2004.

While there really is no better recumbent design for urban riding than the CLWB, the design does have some shortcomings: a rather heavily loaded rear end; small wheel set; marginal performance; a rather high center-of-gravity; CLWB can be heavy; and 16-inch



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INFO AT A GLANCE

Specifications

Model — Velvet Systems Scooterbike
Type — CLWB
Steering — OSS
Wheelbase—50" (medium) or 58" (large)
Seat height — 26" (range of 23"-26")
Bottom bracket height — 17"
Frame sizes — Fits 5'-5'6" (medium); fits 5'6"-6'4" (large)
Weight — 44 pounds (w/kickstand, rack & fenders)
Weight limit — #275

Frame — Scooterbike custom CroMo
Fork — 16" CroMo
Stem — Alum.
Riser — Adjustable fore-aft, high, low
Handlebar — Alum.
Suspension — Ballistic XL-AR (rear swing arm)
Seat frame — CroMo
Seat material — Mesh foam covered base

Components

Crank — Tracer single (black)
Bottom bracket — NA
Headset — Cane Creek
Derailleur (rear) — SRAM DualDrive 24-speed
Shifters — SRAM DualDrive (single side)
Cassette — SRAM 11-32 8-speed
Chain — KMC
Gear inch range — 20-108 (19" wheel dia.)
Wheels — 406 mm 20"/205 mm 16"
Hub (rear) — SRAM DualDrive
Hub (front) — Keyin alloy bolt-on
Rims — Alex X-101 black ano.
Tires — Schwalbe City Jet 1.75" Kevlar 70 psi
Brakes — generic V-style
Brake lever — Alloy black
Pedals — VP alum. MTB

Incidentals

Priced from — \$1199 (other models \$799-\$1499)
Warranty (frame & fork) — 5 years
Colors — Stealth (black) or Patriot (red, white, blue)

Pro

A decent value
Rack, fenders and kickstand are included!
Great tires
Great neighborhood cruiser

Con

Mediocre seat
Poor seat mount & adjustment
Handling lacks refinement
Test bike had chain noise & shifting woes
Very small dealer network
Marginal manufacturer support
Design lacks passion (seems like a “marketed” Taiwan recumbent)

Contact

Velvet Systems/BYUS America
Tel. 503-675-1702
www.velvetSystemsUSA.com

front wheels can be rather quick handling and lack the gyroscopic feel of larger wheels.

I really liked the “step through” Scooterbike frame design and rear suspension. The design shows promise. While the bike rode and handled fine, it lacks refinement that we've found with most other CLWB models. Perhaps a good dealer can overcome some of the problems. We'll look forward to trying out the new 2004 seat. ♦



5'4" tall Amy Bryant tries out the Scooterbike

Have CLWB Sales Softened?

The market for CLWB recumbents seems to have slowed a bit with the demise of BikeE. We've been trying to figure out what's going on. Here are some possible theories:

1. Dealers still have 2002 BikeE's in stock. *New old stock BikeE should be gone the end of this season. RX's were mostly blown out. CT's and some RX's are being parted out by dealers (a good move — more replacement parts).*
2. With the introduction of Sun's new EZ

Sport/Ltd. are newbies buying LWB recumbents instead?

Affordable LWB has to be playing a part in this. The EZ Sport/Ltd. are wonderful bikes that are selling well.

3. Could the CLWB market be saturated?

I don't think so, but I'm not sure customers are willing to pay \$1600- \$2300 for a suspension CLWB in any great numbers. CLWB were originally designed as affordable bikes. That's why the Sun EZ series sells so well. However, we hear that Cannondale recumbent sales are doing well.

4. The soft economy could be hurting the recumbent entry level.

We do know that the economy is hurting sales. Hopefully, this will be short-lived.

5. Could the 20/16 CLWB design be due for a revamp?

One possible trend for CLWB is the move away from 16-inch front wheels — if not for all CLWB, at least for the higher-end models. 20-inch wheels are more reliable, offer better braking, better quality wheels, a better tire selection, better tire durability and better performance. A former BikeE designer told me that 2003 BikeE RX (that was never built because they went out of business) was to be dual 20-inch. We've also heard rumors that at least one other maker could be headed in this direction.

One dealer, Mike Librik (Easy Street Recumbents in Austin, TX) had this to say, *"I'm not happy with the direction of CLWB development. It's gone heavily toward suspension — which I consider somewhat gimmicky, heavy, pricey, and prone to troubles. The demise of BikeE has me worried about lots of manufacturer specific plastic doo-dads (integrated electronics) that won't be replaceable when they go bust. I tend to look for simplicity and low price in CLWB bikes. BikeE's demise hasn't changed my opinions about CLWBs and their viability in the marketplace. The low-dollar approach was sensible, too. BikeE didn't go under due to bad product, but bad management, so far as I can see."* ♦



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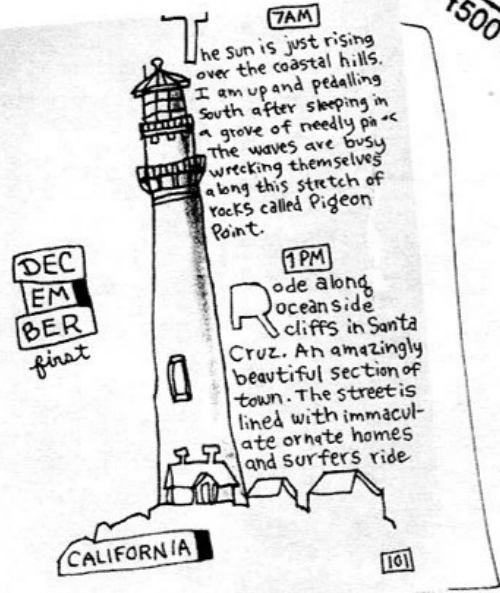
□ In early November 2002, Oregon resident Dan Price assembled a Wiz Wheelz Terra Trike, hooked on a Bob trailer and began a 4500 mile ride that would take him west to Portland, south to San Diego, then east to Key West, FL.



THE GREAT AMERICAN TRIKE TOUR
 Author/illustrator Dan Price is riding a Terra Trike around the U.S. to promote human powered transportation. The trip is being documented in his illustrated journal **MOONLIGHT CHRONICLES** and on the **WIZWHEELZ.COM** website. To order the latest **CHRONICLE** and help support the ride send \$5 to Box 109, Joseph, OR 97846.
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EQUIPMENT LIST

- Yes! finally got a helmet. Everyone kept saying i was nuts to not have one.
 - Filter water bottle. I never have to buy water!
 - Tools: patch kit, crescent wrench, allen head wrenches, tire pump, nylon string, screwdriver.
 - 3lb Light Year CD tent by Sierra Designs. Very cozy.
 - Down sleeping bag smushed down in to small stuff sack.
 - 1/4 size inflatable sleep pad
 - state maps that are laminated and way more compact.
 - LED headlamp. YOWSA!
 - Lightweight raingear.
 - Huge two-gallon zip lock bags for food: Peanut butter, sourdough bread, lettuce, carrots (small kind) dried fruit, candy, energy bars, nuts, dry milk, cold cereal and vitamins.
 - Original Chronicles sketch book/journals and some Micron pens.
 - White out, glue stick and one change of clothes.
- NOV 30**



**DEC
EM
BER**
first

7AM
 The sun is just rising over the coastal hills. I am up and pedalling south after sleeping in a grove of needle pine. The waves are busy wrecking themselves along this stretch of rocks called Pigeon Point.

1PM
 Rode along oceanside cliffs in Santa Cruz. An amazingly beautiful section of town. The street is lined with immaculate ornate homes and surfers ride.

Price created 3 issues of his illustrated travel journal moonlight chronicles on the ride.



pedaling into ^{the} central coast of California was a pleasure with its warmer weather, abundant state Park showers and coast line vistas.



The first 1000 miles & price pulled a Bob trailer before switching to waterproof VauDe panniers in San Luis Obispo. At left bikepaths were few and far between on the ride. Ran across a rails to trails in Florida that continued on for 35 miles, pure bliss!

New Mexico

Date of Statehood: January 6, 1912
 Sante Fe Elev.: 6,989 ft.
 Dimensions: N-S 390 mi., E-W 350 mi.
 Highest Point: Wheeler Peak, 13,161 ft.
 Lowest Point: Red Bluff Reservoir, 2, 817 ft.

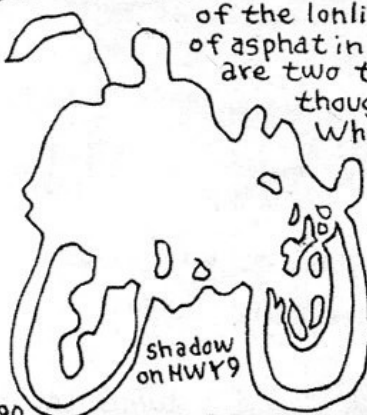


Know there's a majorly desolate one in Utah, but surely Hwy 9 here in Southern New Mexico has to also be one

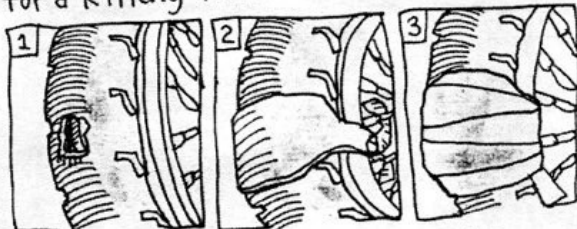


JANUARY 1, 2003

of the lonliest stretches of asphat in the U.S. There are two tiny junctions though, thank God. When i was cleaning the stickers off Tera's tires this a.m. i discovered a good sized hole in one! Having for



Some crazy reason left the roll of electrical tape back at Davids in Santa Barbara, i had no other choice but to limp along in the morning chill looking for a kindly rancher to help me out.



First i found an old piece of inner-tube, so stuck a patch on the hole and wrapped the tube around the tire and rim. But the tube kept slipping down off the patched area. Then in the first sleepy town i flagged down a electrical tape carrying cowboy, complete with muddy truck, rifle in the seat, long scraggly moustache and old sweaty cowboy hat. So the tape held pretty good, but every 10 miles I'd have to hop off and add more....

FEBRUARY 1ST 2003

NAVARRE BEACH

Biggest mileage day yet. Went 100 miles along the gulf on Florida's panhandle. A sunny but cool temperature day. There's way too many cars here in this state. Tourists from up north come by the thousands wishing to escape shoveling snow and icy roads. Have been having interesting talks



OUTDOOR SHOWERS IN PANAMA CITY BEACH FLORIDA

with many folks who approach to ask about the trike. Many can't believe that; have ridden it 3500 miles. I thought more people realized that lots of riders have crossed the country and that it's not that uncommon. And in fact, before cars, back in the old days, many people actually WALKED across the country. No kidding. So I'm not overly impressed with myself.



For more info on the trip visit WWW.WIZWHEELZ.COM. See WWW.MOONLIGHT-CHRONICLES.COM (2) for a full account of the trip.

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d. price's Books

also has two books out that his fans will really enjoy.

1. Moonlight Chronicles: A Wandering Artist's Journal
2. How To Make a Journal of Your Life

Everyone in our home has read these books. Both can be ordered from your local or internet bookstore.

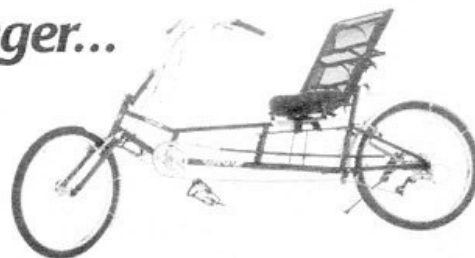
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The GTT hauling pipe — a long trike

Steering — Greenspeed is known for their perfected ackermann tricycle steering. It is truly the set up by which all others are judged. Trike design took a different route when the GTR's became popular in the mid 90s. Most trikes now look like a Greenspeed, though there is a new trend towards even smaller wheels and more narrow tracks (Greenspeed has the GTC which has three x 349 mm 16" wheels).

The steering linkage and handlebar set up is also time proven, refined and reliable. The bars are adjustable (fore and aft) so you're not stuck with just one position.

Weight — The GTT weighed in at 66 pounds (we're taking Greenspeed's word on this one as we couldn't find a way to weigh this trike). If you're winding down a mountain pass, you'll be glad it's as stiff as it is.

Drivetrain

Chain management — Greenspeed's chain management is about as good as it can be. It's time proven and works well — just as good today as it did on our first GTR single trike test years ago.

The forward chain goes down under the frame cross member and under a double chain idler, and back up to the stoker crankset. The rear tandem crankset routes the chain back under the stoker seat via chain tubes to the rear wheel. Despite it's complexity, the system works very well.

The GTT drivetrain has 72 speeds. It utilizes oversize chainrings with a triple crank at the stoker crankset (shifted by the stoker), a 9-speed rear cassette with a SRAM 3x9 DualDrive rear hub. The system shifts well, though takes a few minutes to get accustomed too. One item of note, the SRAM DualDrive 3x8/9 wasn't designed to be used under a tandem load. Greenspeed has been using them this way for years. Though there have been a few fail, Greenspeed covers the warranty on the hub themselves, so owners are covered (at least through the warranty period).

The optional Schlumpf (2 speed bottom bracket) is \$330 USD. The optional Rohloff 14-speed internal hub is \$728 USD.

Braking — The GS GTT has brakes on only the front two wheels. Hope hydraulic discs have to be the finest bicycle brakes made. The stopping power is exceptional. However, coming down a big, steep hill, at a relatively slow speed, I was able to make the Hope's sizzle and smell. This happened only once.

Ian says, "The hydraulic disc brakes exceed the German standard for bicycle brakes by 2.5 times, and we had TWO on the front of the tandem. Plus we had them in 20" wheels instead of 26" wheels, thus in addition to the FIVE times you had a extra 30% leverage!"

Another concern with the Hopes is servicing the hydraulic system. While I can work on cable actuated discs just as easily (if not easier) than V-brakes, hydraulics and I don't get along (a phobia dating back to my old MGB in the 70s). So be sure that you're capable of working on them yourself, or you've got a good mechanic or shop nearby.

A parking brake of some kind would have been nice. In the old days, tandem drag drum brakes were used on the rear wheel. However, with the SRAM DualDrive this isn't possible. Though any kind of caliper brake could be connected to thumbshifter or something to keep the trike from rolling, and/or help out to control braking on mountain passes.

Wheels & tires — The GTT uses three 20" 406 mm wheels. These must be very robust to handle the loads generated from a tricycle, let alone a tandem trike. Our GTT was on a media tour in the U.S.A. We had no problems with the wheels, nor were any reported to us by anyone else.

Comfort

The Greenspeed seat is an acquired taste. People either like it or they don't. I think far more actually like it than don't as Greenspeed's are quite popular. Like other Greenspeed models, the seat frames of the GTT are integral parts of the frame structure which makes the tandem stiff, especially from the torsional stress loads that trikes must endure (as compared to two wheelers that don't experience this).

The Greenspeed seat is designed with three

INFO AT A GLANCE

Specifications

Model — Greenspeed GTT
Type — Tandem tadpole trike
Steering — USS
Wheelbase — 90"
Wheel sizes — 20"x 1.75" 406 mm
Seat height — 10"
Bottom bracket height — 15"/15.5"
Width — 39"
Weight — 29 kg.

Frame — 4130 MIG CroMo
Seat frame — 4130 MIT CroMo
Seat material — Nylon mesh
Seat cushion — none
Seat recline angle — 35 or 40 degrees

Components

Crank — Sugino RD 7000 30/42/52
Bottom bracket — Shimano sealed
Derailluers (f/r) — Shimano
Shifters — Shimano
Gears — Shimano 72 speed 3x8 + triple
Cassette — SRAM 11-32 9-spd.
Chain — SRAM
Gear inch range — 13-125
Pedals — Platform
Wheels (f/r) — 406 mm 20"/559 mm 26"
Rims — Sun CR18
Tires (f/r) — Tioga Comp Pool 90 psi
20" x 1.75
Hubs (f/r) — Greenspeed/SRAM
Brakes — Twin Hope hydraulic disc

Incidentals

Price—\$See article
S & S couplers approx. \$600 USD.
Warranty (frame)—10 years
Colors—Red or several other colors
Accessories included — Rear fender, rack and safety flag.

Pros

Refined and time proven
Rock solid
Excellent company and reputation
Handles like its on rails
The most fun a tandem pair can have

Cons

Rider adjustments/set-up is time consuming
Low
Heavy
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3x8/9 hub could be a concern
Fairly extreme riding position (high BB)

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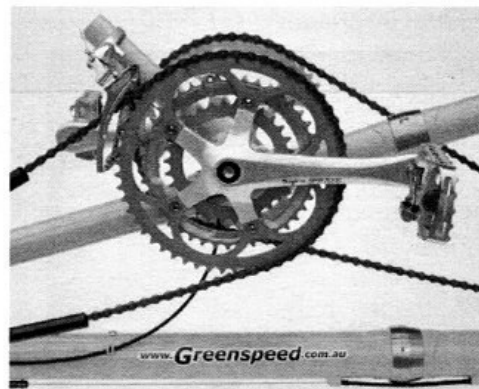
sections, a base, mid-back and upper back. They're also quite laid back. (35 or 45 degrees; our seats were 40) and non-adjustable. Some have criticized Greenspeed's lack of a lumbar support curve in the seat back, and the roughness of the mesh. While at Interbike, I saw a prototype 2003 seat with a curved lumbar support. Even for my difficult to please long torso, I immediately found the seat an improvement. The Greenspeed seats are durable and you'll never have them slip on you.

Ergonomics

Ian Sims likes this laid back, high bottom bracket riding position. The GTT has the 35 degree seat angle (a la our first Greenspeed test trike, the GTR). Our last GTO had the more upright 45 degree seat angle which works better for me. Despite the amount of fun I had riding and testing this trike, I experienced some neck pain and toe numbness after about 90 minutes on the trike. This was no surprise. I'm aware of my own limitations for riding/testing of laid back recumbents. It would be wise to figure out if you can handle such ergonomics before you buy a GTT.

The GTT does have a rather extreme riding position, but it is easier to take with three wheels (no balancing required). Though those riders who are susceptible to neck pain and toe numbness are likely to experience it on the GTT.

One ergonomic concern that we had relates



GTT mid crankset

to the double chains and sliding booms. Adjusting this trike for size is a time consuming process, not for the faint of heart. First you adjust the captain's boom, and then the stoker's boom, and then set the front chain. Since there is no spring loaded chain idler, the system's adjustment is limited to chain link size increments, or else the captain or stoker must give a little bit in a compromise. Once the trike was set up, I didn't offer to resize for friends on a whim. This is a trike that needs to be carefully set up for it's owners and left alone.

Ride and handling

Stability — The handling of the Greenspeed GTT is rock solid stable. However, GTT owner Ted Freemire gave this warning, "I've raised the inside tire a couple inches on turns at high speeds. Riders must remember to lean into the

turns at higher speeds. This wasn't a problem at normal speeds."

I found the GTT more stable than single trikes of tadpole or delta form. Some may be concerned by the ultra low stature of this trike. It's very low, but with the kingpin mounted mirror posts, a stoker rearview mirror, just add a safety flag and a loud air horn and you are set. We rode the trike in Summer festival traffic all over Port Townsend, and even did dumb things like pull a U-turn in Friday afternoon traffic on Water Street (downtown Port Townsend).

Maneuverability — Despite its nearly 12-foot length, the GTT has the trademark (perfection) Greenspeed centre-point steering. We live on a narrow street and pulling a u-turn was possible. Where not possible, you use the Flinstone-style reverse gear (feet on the pavement). It's all very easy to get accustomed too, and maneuvering around town will bring some looks of amazement on passerby's faces.

Performance — Most trikes are not as fast as their similarly equipped two wheel recumbent counterparts. The GTT is no exception, though the differences are more dramatic than most comparisons we make. The GTT will be sloooooo going up hills (for most riders). Like any tandem, you gear down and spin. The difference is that you have three wheels, so balance isn't a concern. You have 81-gears, so you have a low enough gear to spin up mountain passes all day long. On the flats and down-

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hills, this trike can be very fast, and flying under the radar as it does, you'll be hard pressed to find a (non-racing) recumbent that can catch it.

Owning

Let's face it, you have to be very dedicated to tandem recumbency to shell out this many clams for a trike like this. You'll need to carefully think through how you'll haul it, and where you'll park it. It's almost as long as a small car. Transporting a GTT may require a cargo van or pickup. I wouldn't want to lift it onto a roof rack. A custom cargo, bicycle or canoe/kayak trailer might be the ticket on this one. Perhaps readers can let us know how they transport their tandem trikes.

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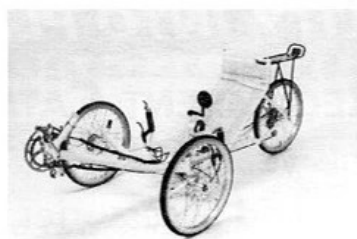
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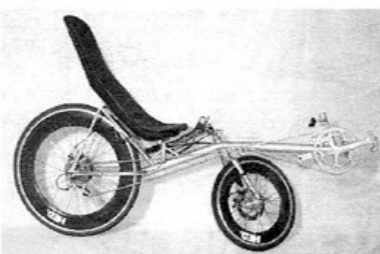
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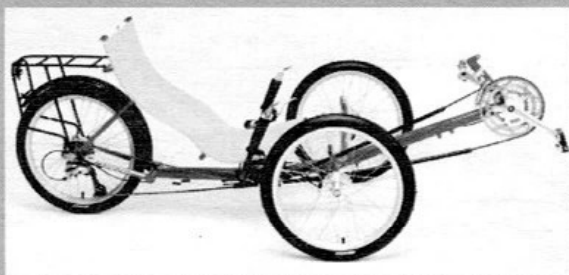
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Research indicated that even with our centrepoint steering, there was some toe-out under heavy braking with the optional hydraulic disc brakes. Thus the steering has been re-designed to give a small amount of stabilising toe-in under braking. The difference in single wheel braking from high speed is quite marked. To line up better with the new kingpins, the handlebars have been moved to the top of the main tube, giving better ground clearance, and shorter bars. Plus they have been given more rake, so that they fit the hands better, yet are still in line with the pivot, eliminating any tiller effect.

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Options & accessories

At Interbike we were able to check out a slick new Mueller Windwrap fairing that has a push away mount. This makes getting in and out of the low seat easy. The fairing fits most Greenspeed models.

Greenspeed offers heavy duty CroMo racks rated at 40 kg. capacity. They have universal, detachable light/reflector mounts, which fit a wide range of lights and reflectors.

Pricing

Ordering a Greenspeed is somewhat complicated. Greenspeed knows this and they're working on ways to simplify the process. Here is how this tandem is priced:

Base price:	\$8,900. AUD
Options: 2 couplers	\$500.
Shipping	\$800.
Duty	\$350.
Total:	\$10,550. AUD

Now, go to the internet or your local newspaper and find out what the Austrian dollar is worth. At the time of our review, it was .669 which makes the price of this trike \$7058.

Other options: Schlumpf Mountain Drive \$505; Rohloff 14-speed \$1,110; Carradice Panniers \$303; Lighting set \$253; Rear disc brake \$505; Sigma computer \$76; upgrade to five S & S couplers add \$1,555. Keep in mind that Greenspeed prices fluctuate with the currency.

Market competition

Tandem recumbent trikes are rare and difficult to find to test ride. The Greenspeed GTT was the first recumbent tandem. ICE now makes a tandem Trice (\$6,800) and WizWheelz will soon have a tandem. Another available option is are the delta trailer hitch tandems. Both Hase Spezialraeder and Penninger offer trailer hitch options. You then connect a second trike by removing the front wheel and clamping in the fork of the second trike to the

trailer hitch on the first. I suppose you could link several in train style. Hase makes a pedaling kid trailer option.

Verdict

As I've said previously, I've NEVER, in my 15 years of recumbent reviewing had so many positive responses, smiles, waves, politeness and extra room on the road as I did riding the GTT. The other day while discussing this with a neighbor who's an active cyclist, she told me that she'd always just assumed that three wheelers were for those with special needs. Perhaps this is why trike riders are treated so well. Trikes are great and we love to review them!

All Greenspeeds are built with care by Ians Sims and family in Ferntree Gully, Australia. Despite their being half a world away from us here in North America, they're among the nicest recumbent folks and a pleasure to do business with. ♦



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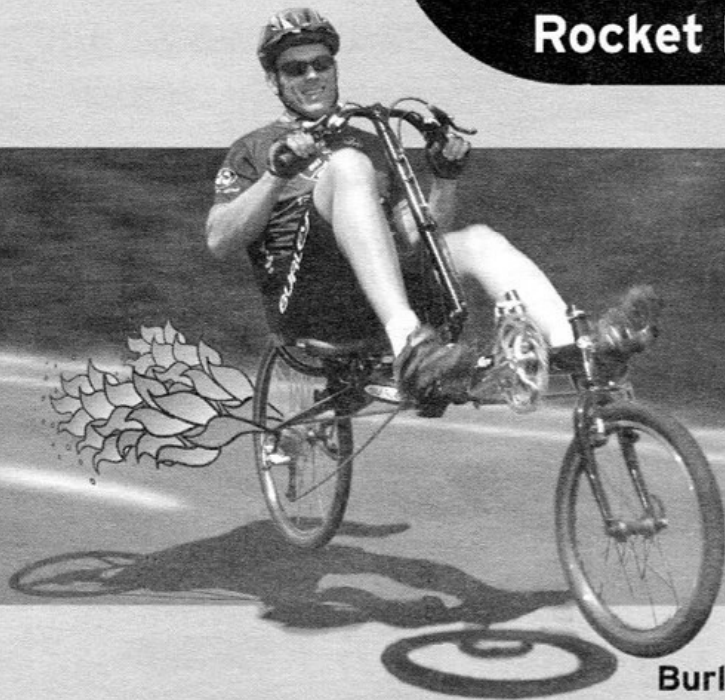
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Breakfast With Carl Georg Rasmussen

by Bruce Bruemmer

During a business trip to Europe, Bruce Bruemmer took a side trip to Copenhagen to visit Carl Georg Rasmussen, designer and producer of the Leitra, and to test ride this classic velomobile. During a tasty Danish breakfast in the Leitra factory, Bruce interviewed Carl Georg for RCN.

Bruce: Tell me what you were doing before you started making tricycles?

Carl Georg: Of course, I've had a bicycle since I was three years old. As all young people I had been using a racing bike for many years, but I had problems with my neck and wrists. When I was on tours, the vibration from the road was not good for me so I had to look for another solution. So I built a recumbent.

Bruce: When was that?

Carl Georg: It was a Swedish design right after the second World War. I used it for a couple of years, but then I got involved in other things. I bought a Volvo and I was working with industry and had no time to go bicycling anymore. I was also interested in flying, and it took more and more of my time in the 1950's and 60's. I'd been building aircraft, mainly gliders, for some years and when the 1973 oil crises hit. I thought it would be possible to build a bike where you had the same comfort and protection as in a car and better aerodynamics. When you can send a man to the moon, why can't you make this vehicle? I knew about materials for aircraft construction in order to achieve low weight and strength necessary in a bicycle (or tricycle).

Bruce: What design principles led you to the Leitra?

Carl Georg: Well, it was really the same basic structure as the one I built as a teenager. The first one was wood throughout, but it was too heavy. There were new materials, now: epoxy, glass fibre, and carbon fibre was just coming up. Instead of using the Swedish design, I made

it so you could take the fairing off. You could ride it as an open, three wheeler, but then you could also put on fairings for different purposes. I started to build the prototype in 1979 after the second oil crisis.

Bruce: Was it your intent to sell bikes, or did you just build it for personal use?

Carl Georg: It was for my personal use. First you have to gain some experience, and the best way to do that is to participate in a rallies and competitions so you can compare directly with racing bicycles. The experience with the first tours was positive, so why shouldn't I continue the development? So, I started in 1983 with the first series of twelve Leitras.

Bruce: You have to tell me how people reacted to Leitra number one?

Carl Georg: They found it a little peculiar. My first experience with the police was in Copenhagen in the winter time. I was riding along the lakes — I had no coat because you don't need a coat when you ride a Leitra — and I noticed in my back mirror that a police car was following me for a while. I thought to myself, "Well, okay, they are just a little curious." But then they stopped me and asked me, "What is this?" I explained that it was a bicycle, but they looked disturbed and didn't believe that it was just a bicycle. When they reported back about something that looked like a UFO, they confiscated it. I had to take the train home without a coat in February! I complained to the Ministry of Transport and told them that while the Leitra was unusual, it wasn't illegal. After three days, two policemen came to return my small Leitra on big truck with a crane; I mean one man could have lifted it!

After a week I found an inspector who would try out the bicycle. It's the first bicycle in Denmark to be tested by the authorities. They made a report, and I got approval in 1982 from the ministry that it was okay to use the Leitra in normal traffic.

Bruce: Is that when they insisted on the soft sides to permit hand signaling?

Carl Georg: Yes, and a back mirror. I already had a back mirror, but I suggested that we put the back mirror on top of the bike because then you could have a wider view (it was closer to your eyes). Since then I have not been stopped by the police.

Bruce: Did you initially call it a Leitra?

Carl Georg: When I started the company I gave it that name, which was short for *Light Individual Transportation*.

Bruce: And the logo came from?

Carl Georg: That's my daughter's design.

Bruce: So, it's 1983. You are gearing up for production. Did you have orders in hand?

Carl Georg: When I formed the company, I needed some money. First, I formed a limited partnership with ten investors, mostly friends and early customers. Second, I got some advance money from early customers who didn't want to risk their money investing in the company. So, I started with an initial run of twelve bikes

Bruce: Tell me about your initial problems with that first production?

Carl Georg: There are many details in manufacturing before you learn to do it right. I wanted the best materials. The lacquer for the fairing is polyurethane, used in the most severe conditions. It's very flexible, and can resist almost any chemical. It wasn't easy to integrate these materials. For instance, if you use gel coat to finish the fairing, it's not flexible. You cannot apply a thin layer, and the fairing would have small cracks and would be too heavy. Also, I had to develop a special technique to obtain sufficient bond between the glass fibre laminate

and the lacquer (so the fairing would not stay in the mold).

Bruce: And your first mold stuck?

Carl Georg: Yes, on my first fairing.

Bruce: And for the record, I saw you remove a fairing from its mold, and it looked almost easy. The seat presently is carbon fibre, but you weren't making these in 1983.

Carl Georg: No, and the very first one had no suspension at all. I tested that one in Norway from Trondheim to Oslo (560 km), and the fairing is still in use today.

Bruce: When did you start to consider the carbon fibre for the suspension?

Carl Georg: The combination of a trike and a fairing that you could remove can be noisy. So I found it necessary to put some suspension on the trike to avoid noise. I'd experience from building aircraft for towing gliders, and with such aircraft you have to make many landings and take offs in one day. I made the landing gear of glass fibre and epoxy, and it worked so well that I copied it for the Leitra.

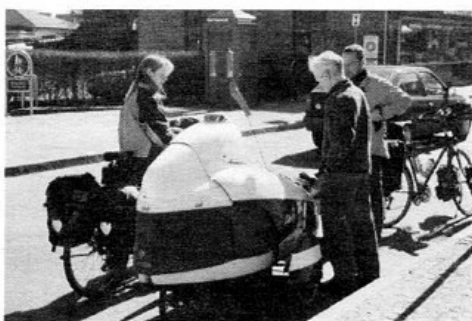
Bruce: And the seat was developed at the same time?

Carl Georg: Yes. Before that I used glass fibre, but it was heavier. Today the seat weighs 650 grams.

Bruce: What did you use for components?

Carl Georg: Just common bicycle derailleur gears — a 5-speed Shimano cassette. The real problem was the brakes. I couldn't get hubs with front brakes for the front wheels. I did many of my first rallies without front brakes — even in hilly Norway I only had one rim brake on the rear wheel. I could smell it when I went down the long hills.

Bruce: When did you start using the hub brakes?



Carl Georg explaining the Leitra to some passing upright tourists. The guy later got off his bike and zipped around in the Leitra up and down the main street.



Carl George and a Leitra



In the Leitra shop, Carl Georg is removing a fairing from its mold.

Carl Georg: I came across a Japanese producer of hubs with drum brakes, the *Primus*, and I still have these on my own Leitra, but they're not as strong as modern brakes. Today I'm using Sturmey Archer drum brakes — they have 50% wider pads — or I use disc brakes like the Hope hydraulics, but they're very expensive. So I'm looking for something less expensive.

Bruce: Has the availability of internal gearing has given more options for the gearing?

Carl Georg: Yes, but these were really not my own idea because it was the customers who knew about these hubs when they came on the market. They wanted those hubs, so I had to respond and build them in. They seem to work very fine. I've had few problems with the Rohloff.

Bruce: You also use the SRAM DualDrive?

Carl Georg: The first one (which is still in my Leitra today) was a 2x7. It's lasted a long time. I feel sad about throwing good components away just because you can get something new. So on my own bike, I'm still using the original parts, but customers want the newest and best parts every time. Sometimes you have to modify the frame or something to adapt it to the new components. For example, I had to make new frame fixtures to use the Hope brakes. And you end up with a large stock of used components that are absolutely okay.

Bruce: How did you come up with the idea of the ventilation in the Leitra?

Carl Georg: The ventilation was in the design from the beginning simply because when you make such an enclosure, you must cool the rider. The air inlets on the two sides and the air duct in the fairing were there from the beginning. It seems to function well. The only recent addition that I'm working on is a small electric fan in the air duct so you can force ventilation. It's powered by a solar cell.

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Bruce: Although I didn't get to test it in the rain and snow, the Leitra works well in these conditions?

Carl Georg: The rolling resistance is naturally higher in snow with three wheels than with two. But you can ride on ice without falling, and I've only been prevented from riding in winter one or two times when the snow was too deep. I've experienced cases when the street is like a mirror from freezing rain, and the cars couldn't get uphill because of the lack of traction. But I could climb the hills with a Leitra! I found that a trailer was useful going downhill in such conditions because it acted like a steering stabilizer.

Bruce: I've seen a Leitra with a luggage compartment, another with holes drilled out so it could hold a child, and another with a special compartment for a dog. Are there any more variations?

Carl Georg: You can remove the rear fairing. I have a picture of my wife after she bought a big potted plant, and she carried the plant on the Leitra with the rear fairing off.

Bruce: The Leitra has an enviable safety record, correct?

Carl Georg: I've never heard of a case where a Leitra owner has been hurt to an extent that they had to be treated by medical professionals. Maybe small injuries, but that's all. I know of several German customers who have been riding more than 70,000 km. I've ridden more than 250,000 km, so if you count all of the approximately 260 Leitras together, we have been riding more than 5 million kilometers without a major accident.

There have been several cases where cars have collided with Leitras, but in all of them that I'm aware of, the repairs have been paid by the car insurer. An owner in Iowa was riding quietly along a street when a lady came and hit him from behind. She didn't look in the direction she was riding (the children distracted her), and when she hit the bike her tire was punctured by the Leitra!

Bruce: As you see other velomobiles being constructed, what advice would you give to designers?

Carl Georg: I can talk forever on this subject. I've seen fairings made of carbon fibre. I'd never make a carbon fibre fairing because it is dangerous. If you make it with Kevlar, it might be safe enough, but pure carbon fibre is like a knife edge if it cracks. It would cut right through you in an accident. When glass fibre breaks, it usually doesn't break completely, so it is safe. Even aircraft designs have failed because of a reliance on carbon fibre, largely because there is no noise dampening with carbon fibre.

Bruce: And you were telling me about the advantage of being able to easily get in and out of a faired bike.

Carl Georg: Yes, I've seen so many faired recumbents build for competition where you need helpers to get in and out of the bike. Those are simply not practical if you want to use a bike for a daily means of transport. That's why I made the Leitra with a snap-off front fairing that you can remove very quickly. For instance, did you notice this morning that the Leitras outside were covered with frost? I just snapped off the fairing, put it inside for two minutes, and let the frost melt. So you do not see me like the car owners, standing there scrapping the ice off.

Bruce: The height seems optimal. When I rode, I was comfortable about the cars being able to see me.

Carl Georg: Of course, you're more visible when you are sitting in a fairing. Usually I recommend two colors for the fairing, a light color (white or yellow) for most of the fairing, and then a darker color for the sides (red, blue, green). That way you get good contrast.

Bruce: Do you have hopes for increasing production of the Leitra in the future?

Carl Georg: It's up to the customers. If there's a demand, I'm ready to help and organize production. But as it is now, it's difficult to mass produce like a car. You don't fit each car to a person, but a bike fairing needs to fit exactly, and that is difficult. It doesn't matter if a car weighs 100 kilos more or less. But a 100 kilos is the weight of maybe three Leitras! And I count every gram.

Bruce: What was the last automobile that you owned?

Carl Georg: A Volvo. But I gave it up; I don't need it. Sometimes I have luggage that I can't carry in the fairing, so I have a trailer.

Bruce: What's the oldest person riding a Leitra today?

Carl Georg: He's more than eighty. He bought it when he was 76 as a birthday gift to himself.

Bruce: So there's hope for the rest of us?

Carl Georg: Oh, yes! The Leitra is a good way to keep fit, instead of sitting in a chair, drinking beer, and watching TV.

Bruce: But it's okay if you are sitting in the Leitra's seat! ♦

Article Update: Bruce has ordered a Leitra. We'll here more about that in the next issue of RCN.

Contact: For more information on Leitra Velomobiles: (<http://www.leitra.dk/>). For more information on Velomobiles in North America, see: (<http://www.velomobiles.net/>).

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The 2003 Bacchetta Aero will include an improved design for the bars and the seat/idler mount over those pictured, and will ship with bladed Velocity Pro wheels resembling the rear wheel shown. The frame will also be available in two sizes, to accommodate taller riders. (Photo Copyright © 2003 Randy H. Goodman).

Bacchetta Aero

1000 Mile Update

by Dr. Matthew H. Schneps
MSchneps@CfA.Harvard.edu

RCN readers may be interested to hear how the Aero has held up after 1000 plus miles since my review in RCN 073, and to hear about what is in store for the 2003 model.

I'm still in awe of this machine. It's difficult to describe how different the riding qualities of this bike are from any 'bent I've ridden. My very fastest speeds probably improved by modest amounts compared to other road 'bents I've ridden, but my low-end speed, my ability to accelerate from stops or climb hills — has improved by many factors. The bike blasts out of the starting blocks and zips to 20 mph with virtually no effort at all. So, for the first time since I've started riding 'bents I feel like I'm on a performance racing bike, able to take on any comers, 'bent or upright. I've been able to sprint a moderately hilly 20 mile course in an hour, going head-to-head against my hammer-head upright buddies and leave them gasping. The result is that my riding habits have changed. It's now much easier for me to pack in an intense lunch time ride on the Aero, since I can cover some serious miles on this bike in a relatively short period of time.

One surprise that I'd somehow gotten it into my head that because the Aero is a *performance* bike — I'd be sacrificing comfort for speed. After riding for 1000 miles I realized I

had figured this all wrong. I found that the Aero not only allows me to ride faster, but does so with less wear and tear on the body. Things like accelerating from a stop, often a source of knee and wrist pain on 'bents — just didn't show up as much of an issue with the Aero. I was surprised how little I had to do to get the bike to accommodate my body. Even the pre-drilled seat stops, which I wrote up previously as a shortcoming, proved adequately spaced for the job. I also expected that the *extreme* bars (my description), would be especially bothersome. After 1000 miles, I've come 180 degrees on this issue. I can't imagine a more comfortable set-up. The *superman pose* isn't only aero-efficient, but one of the most relaxed riding positions I've experienced. I'm now accustomed to the high bottom bracket. Anything lower would feel wrong.

Another worry I had about the Aero was whether the high pressure tires would lead to fatigue and pain. I usually ride a fully suspended 'bent and so I thought riding 145 psi tires would make for an intolerably rough ride. I was delighted to find that this wasn't really a problem: the titanium frame is horizontally stiff but vertically springy, and the ride is surprisingly comfortable. The springiness of the frame works well to smooth the bumps on typical roads. But, everything's a trade-off, and

since a frame's passive suspension can be slow to damp vibrations, the springy frame tends to cause the bike to bounce around if the roads are very choppy, making the bike more difficult to control. So, if you're a bike messenger cruising pot-holed city streets, I'd recommend a different bike.

New for 2003

The Aero has proved so popular that last year's production run sold out even before dealers could get a hold of the bikes and many buyers were left disappointed at not being able to get their hands on a frame. Production will increase for this year, and hopefully keep pace with demand. Availability is good so far. But the Aero is sure to remain a hot-seller. Frames will be available in two sizes, one that is about 2.5 inches longer — a boon for larger riders. The wheels have been upgraded to the cool-looking Velocity Spartacus Pro line. These are all black and sport bladed spokes and a polished braking surface. According to Bacchetta's Mark Colliton, "A new extruded seat plate and idler post give the bike a cleaner, more finished, look." The new bikes will also ship with a narrower high-performance set of bars.

What's on my wish list for future improvements? I'd love to say goodbye to the RANS-style seat stays. They look out of place on this bike, and contribute to a loose feel of the seat support. I dream of some classy Carbon/Ti stays that would absorb some road chatter, but hold the seat snug. I'd also be grateful if Bacchetta could incorporate some adjustment to accommodate riders with different arm lengths. The fixed length of the bars means that the angle of the seat is more or less fixed by the reach of your arms. A quick release on the front brake would be a welcome touch.

Despite a quibble here and there, even after a 1000 miles this remains an amazing bike. Is the Aero the fastest bike? Faster than the sleekest low-racers? Maybe, but then again maybe not. But, it's certainly up there among them. Is the Aero a great all-around bike for commuting, city riding, or touring? I'd have to say it's not. But where the Bacchetta Aero wins hands down, no questions asked, is that the Aero is the bike that will make you feel most like a high-performance roadie. No apologies needed with this bike when you're riding a paceline or sprinting up hills. You are there, up in front, and doing it. No fairing — just your legs. (And the puzzled look, "how could it weigh so little?") The diamond frames have on their faces when they heft your bike is priceless! Even after a 1000 miles I can't say whether or not the Aero will evolve to be the racer's choice in 'bents, but I can tell you for sure that this bike is pure indulgent fun.

The 2003 Ti Aero sells for \$3,900. For more info, visit www.bacchettabikes.com ♦

Biomechanical Fit

A Way to Maximize Performance

by Stan Alvidrez, bjbum2@yahoo.com

It had been about nine months riding my Easy Racers Gold Rush Replica that my speed seemed to peak. Not getting any faster, I began looking for ways to increase performance. What follows is a description of a program of about four months that has improved my power output by about 15% with a speed increase of nearly 20%.

Performance & Comfort

With the Gold Rush Replica I found the speed I was looking for but eventually hit a plateau. Part of the problem was from a lower back pain problem I'd been plagued with from riding my upright for so many years. The lower back pain, while not aggravated by the bent, was still there whenever I rode, and it limited my climbing ability. Generally, I just couldn't go any faster.

By coincidence a friend suggested longer crank arms to add more power. His new set was 195 mm and he was getting faster. I contacted his source after looking at their website (comparing it to other sources — websites, online forums, offering the theories and opinions performance improvement). Their service is an extensive evaluation of you on your bike.

The Program

I called High Sierra Cycles and spoke with Tom. He told me out about their two-part program. First there is an evaluation which they call a cycle analysis, and secondly the actual Biomechanical Fit (Biofit). The cost is a couple of hundred bucks for the initial 2-3 hour analysis.

The cycle analysis includes a complete bike fitting where the parts or components of your bike are adjusted (handlebar height, seat position, etc. so you are positioned correctly on the bike). Moreover, any issues of compatibility remaining between bike and rider can be dealt within the Biofit portion of the program.

To better understand what a Biofit is, we have to keep in mind that a bike is a symmetrical machine but we riders are asymmetrical.

In a Biofit, you look at specifics of the general fitting of the bike to modify your bike's components to address the inefficiencies in your pedal stroke (the pedal stroke is the key). A bike fitting, of course at the very minimum is critical, more so perhaps for our diamond frame riding brethren because of greater stresses on the body. Anyway, a Biofit takes the fitting of rider-to-bike to the next a step.

Here are criteria of the cycle analysis used

to make the rider and bike efficiently as one:

1. Pedal strokes are photographed and timed.
2. Digital equipment is used to graph the power output for each leg.
3. Legs are measured to make sure they are of equal length (can affect cycling efficiency).
4. Riding position, i.e., handlebar height/angle, seat position, etc. is measured.
5. A key question was always asked, when riding hard do your legs tire or do you run out of breath first?

Measuring Improvements

I started by measuring speed over a short course I frequently ride (setting the base speed). It's a slight downhill of a grade of maybe 2%. Fastest speed was just above 33 mph prior to the first evaluation session. So far I've improved to almost 40 mph over the same road!

With three sessions to date here is the progress made. At the end of the initial session (the cycle analysis), we found that my seat was too far back by at least 3/4". I'd been experimenting with seat position, setting and resetting it back and forth, either on my own, taking the helpful suggestions from the bike manufacturer and the dealer while trying to find the optimum seat position.

I guess I never did get it right because after the first session I moved the seat forward the 3/4" as suggested and immediately increased speed by nearly two mph. Now we're talking.

Also, my right leg was working harder than the left leg by 15%. This apparently contributed to additional stress to the right side of my lower back. As mentioned before, riding the bent didn't aggravate the problem like it did on my upright, but it never completely went away.

Later, I was given a set of adjustable, temporary cranks (matched to my existing chain rings). My biking efficiency would be continually evaluated (meeting for several sessions with the bent on a stationary stand) whereby crank arm adjustments could be made. The new cranks were 175 mm right, 180 mm left instead of the stock 172 mm right and left, and with the left crank set at four degrees left of dead center. The left clipless shoe cleat was

moved back 1/4", and the seat was again moved forward another 5/16". I was told to break in the new riding position for 200 miles or so, then I could go all out.

When pedaling during this break-in period the left leg felt different, smoother, and after 200 miles passed speed was noticeably increasing. In a subsequent session the right crank was set at a two-degree advance. There was constant tweaking. Evaluation, change, evaluation, change, that's the program.

The third and final session was a confirmation of what changes had been made, all the while getting feedback from me, hooking up to the computer, evaluating the pedal stroke, etc., and measured real-world by hitting the higher speeds. Also, power output had increased, originally from 205 watts (the reading at the time of the first session) to 238 watts.

The permanent crank set was now ready to be built, modified from where the temporary crank set configurations had left off.

Coming Together

As stated earlier, when first tested the right leg worked about 15% more than the left leg. With the new setup the left leg is working more (the right leg is now only working 5% more at present) and with more time on the bike, the left leg will continue to get stronger. Just as it takes maybe six months and more for new 'bent owners to get acclimated to their bikes, so does a change in your overall fitting as the stroke gets smoothed out for maximum efficiency. It takes time.

With the new cranks the timing of each pedal stroke is such that I will be putting more load where the most powerful part of the pedal stroke is. This is effectively helping me go faster and longer with less energy expended, and with greater comfort. Eureka.

In retrospect a flatter course is a better measurement of performance gain but this short stretch of road happened to be where I was always checking my newest top speed. The percentage gain in power (watts) might better reflect the performance gain.

One other item that should be mentioned is the addition of high performance tires. I had added Schwalbe Stelvio tires with 120 psi on the front, 145 psi on the rear (up from 110 and 120 psi). Speed was increased by nearly two mph. And about a month later after that speed run with the new tires, another run was made,

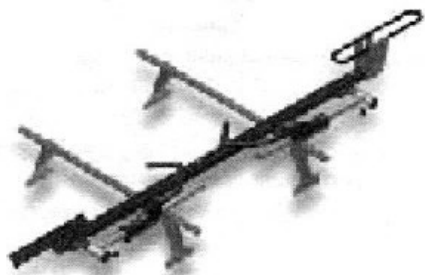
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... Letters continued from page 9

and bikes had come loose and was about to blow off the truck. As it was, I permanently dimpled the fairings from driving too fast with them on (expensive lesson). David Campbell and I discussed his letter on the phone, and he told me that at 62 mph you're duplicating a hurricane level wind. So, if you have a roof rack, drive slow(er). If you will be driving on at freeway speeds for extended periods, be sure to remove your seats and fairings.

Weight of Recumbents

Do you know why recumbent bikes weigh more than upright bikes? Is there an inherent inefficiency in the design of recumbent bikes? Why can't these smart recumbent gurus come up with a lightweight recumbent equivalent to an upright bike? Is it the seat? Is it the frame? What exactly pushes the weight up on a recumbent?

rhart49@comcast.net

Editor Comments: Recumbents are heavier for lots of reasons, including the following: larger diameter tubes, or more tubes for non-standard designs, a much larger, heavier (and more comfy) seat, more chain, and larger handlebars (non-standard items) and a mix of non-standard bicycle components.

If you're willing to pay, you can find light recumbents. Check out the Bacchetta TiAero, Reynolds, Volae, Lightning, Vision, Easy Racers and others.

Weight is only a concern for rapid acceleration and hill climbing. However, there are some very fast, heavy bikes (streamliners and faired or partially faired recumbents). Often adding a few pounds of fairing can make the bike go faster.

Shipping Large Bikes (USA)

Perhaps the best and cheapest way to ship bikes is Amtrak. We've shipped a RANS Screamer (twice) and another tandem across the country, both for the charge of a single bike. With the RANS, we had to pay a bit extra for the box we used for the seats. Amtrak is very

friendly toward bikes, and has a low flat rate for any size bike. You can buy the (very large) bike boxes supplied by Amtrak — not very expensive or very sturdy. If necessary, you may use two of them for a longer bike. They really don't have a size limit. I recommend considering Amtrak as an excellent way to ship recumbents across the country.

Mary Poppendieck
mary@poppendieck.com

Prostate & Recumbents

Do you know someone or can you ask the readers of RCN if they have prostate problem and riding a LWB OSS?

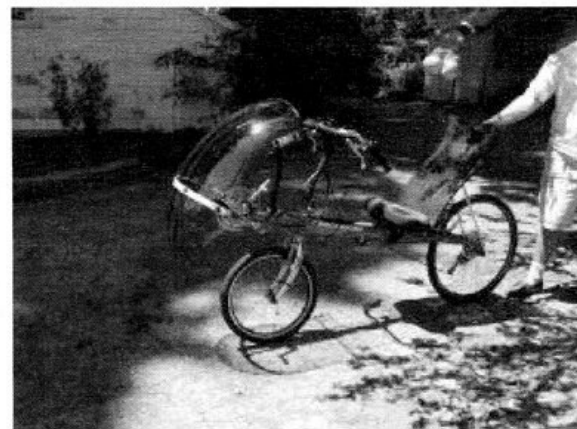
Gerard Witowski
WITOP@aol.com

Buzz Saw SWB Chainrings

The letter sent in by Storie Mooser, (RCN 073) concerning SWB chainring safety struck a familiar chord with me. Being in the retail 'bent biz myself for over ten years, I once sent a similar note to bike manufacturers, stating that these bikes should be equipped with chainring guards to protect other riders from possible injury. Only one maker answered at all, and he didn't give much weight to the subject.

Let me relate an event that happened to some customers of mine. This particular couple was riding their recumbent tandem up a steep hill and missed a shift. They stalled and fell over, and no damage was apparent until they stood for a moment and assessed the situation. The stoker had sustained a serious gash to the lower leg, caused by the chainring. The cut was so swift, she didn't know she was injured. The injury required several stitches to repair. What does that have to do with SWB chainrings? Plenty! This nasty cut was sustained at zero mph by a somewhat protected chainring.

Now apply that to what happened to me a few weeks ago. I was riding my SWB just ahead of my friend when I caught the road edge and was dropped on the highway uninjured. Fortunately, my riding partner has very quick reflexes, and was able to stop inches from me before falling over, too. It's worth mentioning that he was on a LWB bike (he has a SWB,



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and a tooth into the side of my head was better than average reflexes. Anyone who has ridden considerable mileage has seen this type of accident happen, probably with upright bikes, where the rider flips instead of landing on a hip, such as I did.

common. I'm guilty, too. I ride a SWB, and I have the metal working capability to make a chaining guard. A little bit of prevention may save 'bent makers their very craft, and someone else a serious injury. We all know of more than one manufacturer that was *derailed* by a single lawsuit.

Tom Beuligmann
bikeman@wworld.com

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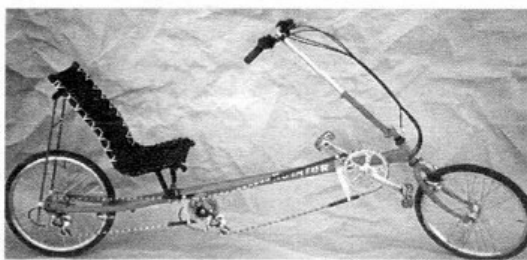
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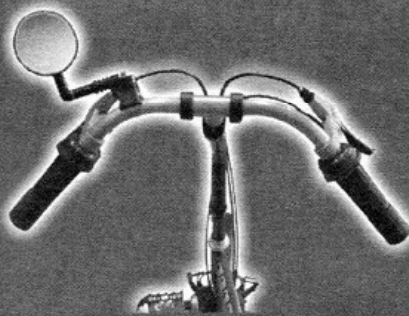
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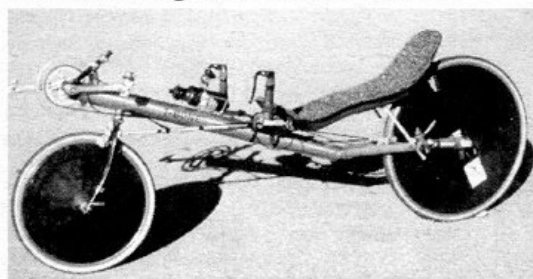
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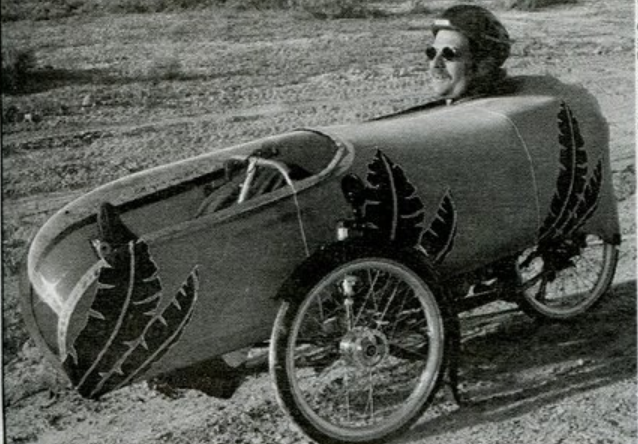
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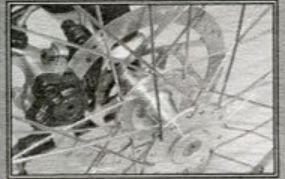
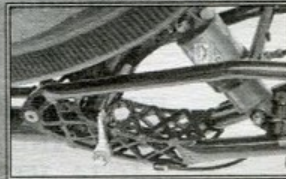
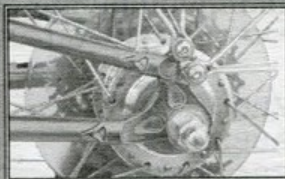
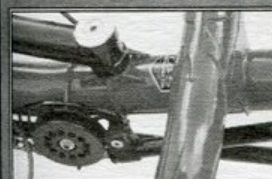
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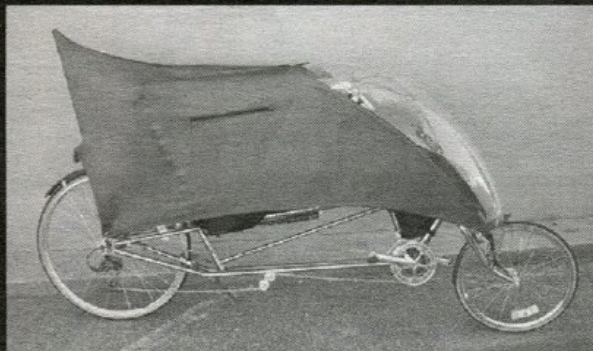
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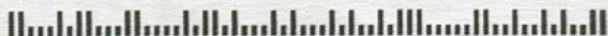


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