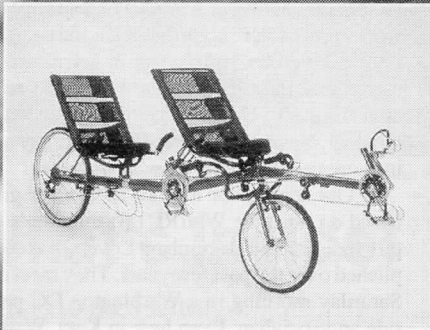


# RCN

RECUMBENT CYCLIST NEWS

## TANDEM SHOOTOUT



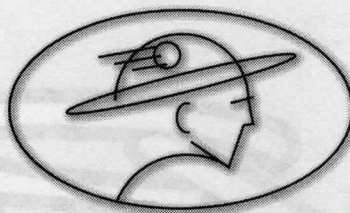
**ATP  
DoubleVision  
VS.  
RANS  
Screamer**



# Editorial License

By Robert J. Bryant

Email: DrRecumbnt@aol.com Voice mail: Ph#206-630-7200



## CARS STINK, WE NEED A GRASS ROOTS MOVEMENT AND BOB RANTS

Cars stink. You think recumbent bikes are expensive? I could buy a new dream bicycle every year for what it cost to run our minivan. \$1000 per year insurance, \$3,000 in payments and who knows how much in maintenance. \$6500 per year/\$.43 per mile—and this car has been reasonably trouble free and we have good driving records! These computerized death-spewing beasts need to be worked on by a “trained technician” charging \$55 per hour, which makes even the smallest repairs too expensive. Keeping a three year old/outdated model has become costly, although probably not as bad as the 1996 incarnation at \$25,000 or \$400+ per month on a friendly EZ lease.

So why would an American bicyclist own a car? The average price for a family home in Seattle, Washington is now \$255,000 or thereabouts. In Kent, our distant suburb, they are \$180,000, but since a \$2,000 per month mortgage is a bit out of my league, I have a less than standard American home that cost \$140,000. This is my third home, and each time I buy it is farther out into the dreaded suburbs. The reasons? #1 Housing cost, #2 Crime and #3 Schools. And with each year that goes by, you seemingly need to move farther out or spend a lot more money to achieve the American Dream.

The majority of my neighbors work at the Boeing Airplane company. Most have two (or more) cars. I am only aware of one other bicycling family. When we take our evening walk, we are usually the only ones, yet this is a friendly middle-class American neighborhood. Sometimes we'll be shocked at the sight of other walkers.

The car is king in suburban Kent, Washington. The streets are terribly dangerous as stressed-out commuters race to work up our development side-street at nearly double the legal speed limit—bicyclists and small children beware!

Boeing commuters are travelling at freeway speeds on our two lane secondary roads in a mad dash to work—to pay the car payment—the mortgage—the daycare—and have time to stop for a Latte that costs three bucks.

The bottom line here is the American city infrastructure. I don't think Kent, Washington is an exception, I think it's the rule. King County (Seattle/Puget Sound area) is supposedly a progressive bicycling area, though besides the myriad of quality bike trails, I don't see a bike-friendly mentality on the streets. The suburban commuting jungle has become dangerous—don't look at anyone the wrong way, pass on the inside or use the car-pool lane with one person—remain calm—use deep breathing techniques and LOCK

your doors. Commuting by bicycle is no better. It's one of the most dangerous vocations one could have in Kent, Washington. Even our three-times-weekly non-peak commute to the Renton Post Office can be a harried experience that takes a well-planned route utilizing as much bike trail as possible. On a recent Sunday afternoon jaunt, I had four close calls on our busy east Kent roads, all four with big gaudy beater trucks that are so prevalent here (along with Pontiac Trans Ams and Camaros). All the drivers looked at me like I was from outer-space...or invisible. I haven't had these problems when riding with a recumbent group.

American mass transit as compared with Europe or Japan is a complete joke and I've lost all hope Seattle will ever figure it out. They voted mass transit down in the 60's when we could have had federal funds and we're now paying the price with our “commuter crunch” and some of the country's worst traffic. The USA once had the finest railroads, trolleys, city/county wide bus or rail systems and now.....we commute by car. Some progressive large cities are rebuilding with light rail....it's interesting how history repeats itself. I got news for them, the electric transit systems of the 30s, 40s and 50s were the simplest, cheapest and most dependable transit systems in the world. Many of the electric mass transit trains and trolleys still run today in specialty working museums and as tourist attractions—which just proves how long they last. Hopefully the new light rail systems won't need to be updated like the computers and software that run them.

So, what ever happened to the so called “HPV Movement” (Human Powered Vehicle)? Is it happening? Did I miss it? I see increased awareness in recumbent bicycles as sales, image and perception—and RCN circulation gets better with each year we print, however, the “Movement” is not happening. People aren't riding or even considering fully faired hi-tech commuter bikes, or solar assisted bikes/trikes (at least in any trackable numbers). New trike manufacturers are shocked when I tell them the market is less than 100 units per year in North America—and nobody builds a true fully faired HPV. So far, the HPV Movement seems to be a majority of upright cyclists commuting on Trek 750s with a hand full of proud recumbent riders mixed in. We need to turn this around! Unfortunately, the IHPVA (International Human Powered Vehicle Assoc.) seems to be pre-occupied with the yearly race-related infighting and bickering so they cannot get anything else accomplished. This leaves the job up to us—recumbent riders who don't need starting assistance.

Am I the doomsayer, ABSOLUTELY NOT! But I'm here to alert you that it's time for a

change—a nationwide paradigm shift where our entire middle class existence may be questioned. This effects most aspects of American life, from where you live, work, how much you make and what day-care your kids go to—or don't. Maybe this shift will include replacing the 2nd car with a bike—a recumbent bike.

We at RCN do our best to promote recumbents, but there's a lot to do in the form of grass-roots rider groups, etc. We can do this and make a difference. The “Movement” will come from us, the recumbent riders. We can get out to the public in number, bypassing the stodgy bicycle shops (you know the ones that portray recumbents as toys or heavy lawnchairs that don't work right or the shops that want to re-engineer your bike when you take it in for a tune-up), media and industry and show a united recumbent front. If you get something going, call the local TV News or newspaper, as Saturday mornings are usually pretty slow news-wise.

Our idea is for a grass-roots rider groups based on what the WHIRL (Washington's Happily Independent Recumbent Lovers) has accomplished over the past few years. They meet every Saturday morning in a Washington DC park to ride and socialize. Even here in Kent, Washington, we've managed to bring out a dozen riders for our monthly cruise to Black Diamond (see calendar). You have no idea what new worlds open up when you fraternize with other recumbent riders. You have instant acceptance and a special interest in common with different people from all walks of life. You will have a good time. So, all of you recumbent riders with bikes in the garages, read the RCN calendar and show up at your nearest recumbent ride.

### RIDE UPDATE

For more about local rider groups, see the listings in RCN#32/33 Buyers' Guide.

If you would like to start a rider-group, RCN will place a free listing to plug your events and contacts. We suggest you pick one place and one day per month (or week) for a meeting place. Make it easy, you do not want to get into the newsletter or dues collecting business. The idea is fun and recumbent riding!

If you'd like to ride with our informal Laid Back rider group in Kent, WA, please send an SASE for ride info. We meet at 9:30am the first Saturday of the month at Lake Meridian park in Kent, Washington. The next ride is July 13, 1996 (2nd Sat. due to Holiday weekend).

Viva Recumbency,  
Robert J. Bryant



Above Photo: Chet Rideout in Arizona touring on his BOB equipped Infinity LWB. See story on page 13. Photo by Piero Tassinari.

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## What's Coming Up!

Look for a Rotator Pursuit review, BikeE vs. EasyRacer EZ-1 Shoot-Out, and articles on the Vision R-44, and Turner 2000. We are expecting a EuroTrice in the mail and, at reader request, we've requested a suspended Haluzak Traverse for testing. If you would like to see a bike tested, send a letter to us and "cc" it to the manufacturer. We also have more touring, bike building, tech tips and other cool stuff!

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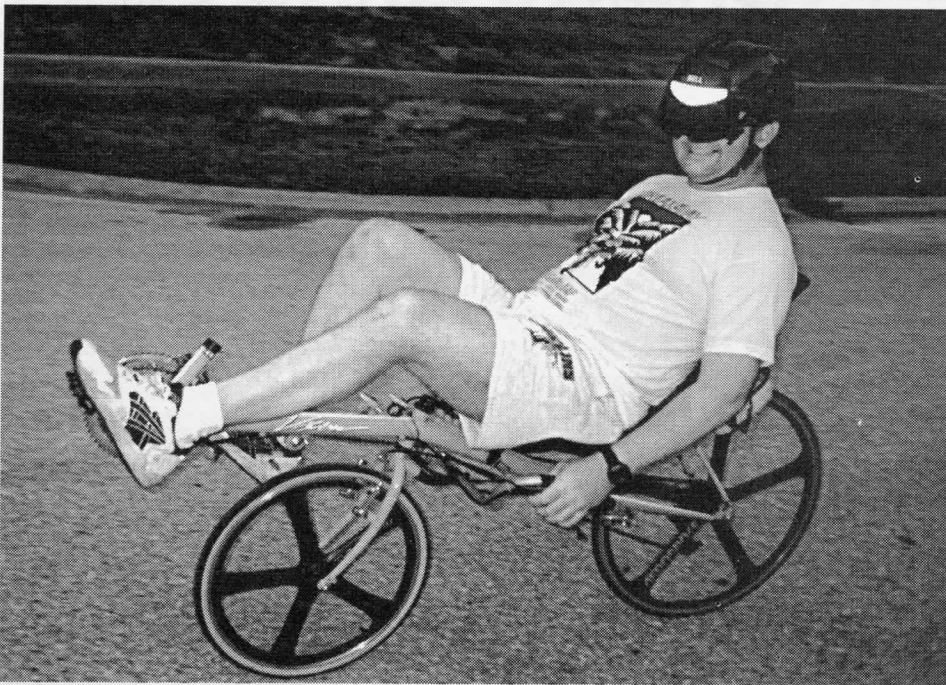
**RCN#34 Cover:** Cover ATP Double Vision photos courtesy of ATP. Rans Screamer photo courtesy of AngleTech. Cover design by Mark Colliton, Kensington Heights Design.

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# Recumbent Mail



Bill Dowling begs to differ on what recumbent is the fastest. He rides a tricked out Vision R-45 with Aerospoke wheels—photo courtesy of Bill Dowling

## SWB SHORTCOMINGS RESPONSE

Hi Bob,

Wow! Keep up the new “humor” column, it had me rolling on the floor!!

Villaret said: “... manufacturers are rushing ahead with SWB production.” And all because of the apparent speed superiority of this type?

He then pontificated 15 items against SWB designs and only one had any significant relevance. LWB bikes brake better than SWB was true (cannot be argued?). Many of his points were ludicrously humorous. Like when he pretended that only SWB designs needed idlers, SWB bents had high-bias gear pairings, and LWB bikes are easier to lift. Boy, the transparent “thinness” of any real arguments is certainly showing through here! And he was probably going to wait for his follow up article on “LWB Shortcomings” to mention: LWBs weigh more and require more effort to go up hill, some LWB designs are impossible to start on severe up-hills, LWBs take more room to store in garage or apartments, and take more effort to transport to rides (vans instead of cars?, custom racks instead of stock?) and the lightly weighted front wheel of a LWB can sometimes

lose traction in certain cornering situations. And if I try as hard as Eugene to “dream up” more reasons, I’m sure I can find more than 15!

I believe Villaret is mistaken in his belief that the move toward SWB is based upon some sort of “speed” reputation. My first bent was a LWB. I rode thousands of miles on it before trying SWB. Now, I just like SWB better. “Speed”, usually, doesn’t come up in the discussion until they ask about it. Then I tell them there are fast and slow examples within each category. The comparative handling of LWB (steady?, stable?) vs. SWB (quick?, overly responsive?) is also responsible for a SWB’s better ability to climb at VERY SLOW speeds (slow walk, 3 mph or less), or starting on a severe (up-hill?) grade. A LWB cannot move to either side fast enough to keep from falling over at these near “track stand” very slow speeds. So I see some irony in Villaret believing that the big thing about SWB is speed, when actually being “at speed” on a SWB, is sort of scary, until one gets used to it.

So, to summarize what is making the SWB more popular: “they are more practical” for more people.

Bill Dowling  
Palm Harbor, FL

## RCN VILLARET SWB ARTICLE

Dear RCN,

I think that it is good for the recumbent community (not necessarily the industry) for Villaret and other riders to express their views to a wide readership. Villaret is wrong on several points, right in others, and debatable in some. I think you did the right thing by publishing the article.

If I were a manufacturer or dealer, I would read his comments very carefully. He represents

an undiluted view from the target market for our bikes. Representative or not, it is still a consumer viewpoint. If he is wrong, the industry needs to educate better and get the word out. Where he is right, designers need to pay attention. His greatest value is that of an irritant that needs some serious scratching.

James G. Vernon (Alloy Mouse)  
Flower Mound, TX

## RCN VILLARET SWB ARTICLE

From: bill\_volk@gmail.com

O.K. you asked for it.... Many of Villaret’s points were good .... and having ridden an Easy Racer and a Ryan ... I do agree that LWB bikes can be great.

However his comments on braking and handling are just plain wrong. Contrast his high opinion of having a lightly weighted front wheel with the experience of your intrepid tourists as they struggle with the roads in Alaska in the same issue! Gravel roads were almost unridable on the LWB bike, but the SWB was able to deal with it. As to braking, yes ... a SWB bike with too much weight distributed on the front wheel could possibly tip under hard braking .... but this isn’t true of many SWB bikes that have equal or even more of their weight on the rear wheel. Lower seats help as well.

In my opinion the actual model makes more of a difference than the configuration (SWB/LWB) In other words I’d rather have a Gold Rush Replica than a Vision, and I’d rather have a Lightning P-38 than a BikeE. Many of us opted for SWB bikes due to the need to transport the bike.

William Volk

## SWB SHORTCOMINGS

From: Anglezoom@aol.com

Dear Bob,

From my perspective there are many shortcomings in the Villaret article.

In the early days (late ‘70’s) of commercially available recumbents you had two choices. A good quality long-wheelbase or a low quality short-wheelbase. My best selling recumbents were LWB through 1987. The vast majority of LWB bikes today come from the late ‘70’s. Good SWB design only started to appear in 1988 (Presto), and didn’t really start to get refined until 1990. (P-38/MWB). The surge in SWB design has appeared only in the last three years. It stands to reason that one would notice this in print after so many years of LWB dominance.

Mr. Villaret identifies SWB designs and riders as “race oriented.” This has never been the case in my customer base. My SWB/MWB customers are touring and commuting oriented, with a very small percentage who are speed focused. I took a 4 day tour last year on a MWB design, had a great time, and endured no physical discomfort from my choice of bike.

The largest selling recumbent designs from Angletech happen to be SWB/MWB. This is by customer choice, as there are at least as many LWB designs flooded in my store. It would not make

## RECUMBENT MAIL

Directions for use: Send your cards, letters, RANTS, gum wrappers, feedback, response, pictures, articles, newsletters, newspaper clippings and whatever you like to:

RCN

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Email:DrRecumbnt@aol.com

me feel uncomfortable if this ratio was reversed by customer choice. I think a person should ride whatever format works best for them.

I encourage everyone to have a very open mind when looking into a recumbent. When people visit ANGLETECH, I try to have minimal discussion up front, and get you on as many bikes as I can that cover CLWB, LWB, MWB, and SWB. Then have you revisit your favorites, and pursue what you find works best. Good and bad design exist in all formats.

Kelvin  
ANGLETECH

### SWB SHORTCOMINGS ARTICLE

Dear Mr. Bryant

So.....about the article in the latest RCN#31, "Short Wheelbase Shortcomings", I am quite hostile about Eugene Villaret's article! The last thing I want to do is use your publication as a squabbling ground for someone's reviews who really admits right from the beginning of his article that he's only been a short time subscriber!

Each month I happily send my extra copies out to targeted bike shops, libraries and sports medicine clinics. Quite frankly, I'm not going to send this issue (RCN#31) out. The last thing our still fledgling industry needs is to give bike shop owners another phobia, excuse or reason to stay away from recline bikes! Instead of negative unproven accusations, we need to put a positive spin on and about recline bikes!

Ken Evans  
Pompano Beach, FL

### SWB SHORTCOMINGS ARTICLE

From: B4BRU@aol.com

Dear Robert,

Before I reply to the article directly I'd like to make several points. Of course there are SWBs that have some of these flaws, but that's an example of bad design, nothing more. There are plenty of SWB bikes that exhibit none of these shortcomings to any degree that matters. The problem some of us have with this article is its pretty obvious the author has little or no experience with SWB bikes, the points he makes are almost all ridiculous. The bottom line is that LWB vs SWB is a matter of taste and riding style. Both designs done well work great and have no problems.

Put me firmly in the camp that thinks it was a mistake to print this article.

The buyers guide is excellent! This is by far the best buyers guide yet. The primer is close to perfection and the listing format is very clear and easy to read, with lots of useful photos. I think you should stick with this format and just update it next year. I give it 5 stars.

Bruce Boyesen

### RCN BUYER'S GUIDE

From: edde@freenet.tl.h.fl.us

Hiya Bob and Marilyn,

GREAT issue. The layout/design is great, content excellent. Read it from cover to cover yesterday - whew! We're getting out to the public better than ever with local ads, flyers, signs and attending rides. I take buyers guides so interested people can have a look at what they never even

imagined existed! You should see the looks on their faces when they thumb through! THANKS for a great issue!

Ed Deaton  
Fools Crow Cycles

### S'BENT MARKETING OPPORTUNITY

From: Philiption@aol.com

Dear Editor,

I've been observing the world recumbent market for the past 3 years as I do a fair amount of International travel. I ask the question that most "bent" people ask: "what might be a marketing catalyst to launch 'bents to another level of credibility and sales volume?"

Try this one on: Current hype in the MTB arena is around suspension and downhill. What might be the results of 'bent producers placing top quality riders on the same course as standard downhill bikes with a race ready full suspension recumbent? Mammoth's Kamakazie Downhill is the perfect venue as the press coverage is tremendous. Low CG + Aerodynamics seem to be key elements for winning. The opportunity is clearly out there to rewrite the reputation of the 'bent scene.

Perhaps I'm proposing the obvious. We'll see come September.

Best regards,  
Philip Novotny  
B.O.B TRAILERS Inc.

### BUYER'S GUIDE CONGRATULATIONS

From: dkohnke@primenet.com

Dear Bob,

What a great job on the RCN Buyer's Guide. I think the new format was fantastic, especially the large quantity of quality photos. I also think the review of the various models was brutally honest, and having ridden most of those bikes, I would have to agree with your opinions on all counts. Again, congratulations!

David K. Kohnke

### RCN 1996 BUYER'S GUIDE

From: wadenelson@frontier.net

Dear RCN,

I just received my copy of the 1996 RCN Buyers guide in the mail. In a word, it's: C O M P R H E N S I V E. The one thing I can't fault Bob Bryant for is thoroughness.

I'm afraid the day's coming when riders won't be able to evaluate every recumbent available before making a purchase. But if you were going to try, the RCN buyers guide certainly lists more bikes, prices, models, and "best of's" lists than any publication in the history of the universe.

I think we all need to give Bob a big hand for what he's done with RCN, giving us "lonely benders" something to look forward to in the mail each month. Congratulations on a job well done.

Wade Nelson  
Durango, CO

### 1996 RCN BUYER'S GUIDE

From: jaseay@ucdavis.edu

Dear Robert,

I haven't read everything yet, but my copy just came. It's beautiful; the cover is the best so far! I like the way you presented the main manu-

facturers and specs. It makes it very easy to compare not only different models from the same builder, but models of one builder from others.

I'm really glad that you included even those who don't advertise. The photos are exceptional: good backgrounds, show good detail, etc. Perhaps next year you can do a bit more with the European builder. Their bikes are beautifully made.

Great job!  
Jean Seay

### STEERING DAMPENERS

From: rlowell@pipeline.com

Dear RCN,

My brother-in-law races motorcycles and considers these steering dampers crucial to safe handling. I have not tested them on a recumbent or any bike so it is all conjecture. Anyone out there who has? Those with front wheels larger than my 16 incher, geometry or reflexes inherently better than mine or those who equate twitch with sporty sensations will consider hydraulic damping of steering utter nonsense. So will those who wish to conserve ounces and dollars. Anyone had experience with them?

Ross Lowell

*Ross, Many SWB and some LWB could use steering dampeners. Bikes that have wheel/fork flop (wheel falls away from center) could utilize even a shock cord to hold steering at center. Kathie Skewis does this with the ReBike. Other simple steering dampeners are a simple "O" ring inside the headseat bearings. This system was used on Counterpoint Presto recumbents. At one time there was a BMX adjustable dampener available from CycloPedia and it was stock on Quadraped (hand and foot crank trikes) from years past—Bob.*

### HELP FOR SMALL PERSON

From: PEGCISCO@aol.com

Dear Doc

I'm a five foot tall woman, looking for a recumbent to fit. The few I tried that adjust small enough left me still unable to put a foot flat on the ground. The best fit was on a BikeE, and it sure was fun to ride. I would appreciate your opinion of this bike and any suggestions of others I might try. I plan to commute and also want to tour self-contained. Thanks!

Peg

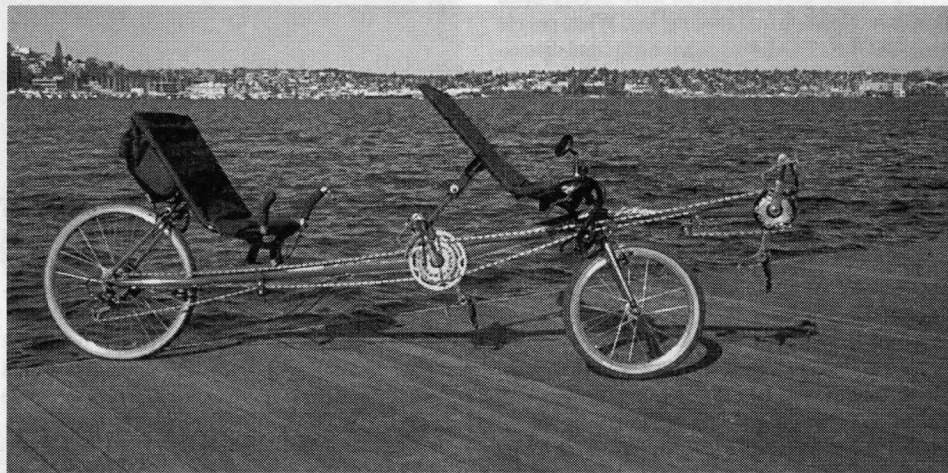
*Peg, Be very cautious in your recumbent selection. The BikeE is a wonderful bike....for city short to medium length recreational type rides, however, it's not the best performer and you will feel this on any long trips or tours (read more about the BikeE in RCN#17 and upcoming RCN#35). Here are some other small size bikes to check out: Infinity small est. \$849; Linear (small wheelset 24/16—special order only) est. \$1200; ATP Vision (16" front wheel) \$995; Haluzak Leprechaun \$995. My #1 choice for a serious performance bike would be the Rans Stratus (\$1600) or the Easy Racer Gold Rush Replica (\$2500). You could ride the smallest size and the bike is low, fast, and more stable than a short wheelbase or the BikeE—Bob.*

Continued on page 28

# Feature Story—Recumbent Tandems



*The Screamer—photo courtesy of Rans*



*The Double Vision—photo courtesy of Greg Bower*

## The ATP Double Vision and Rans Screamer: Two Tandems Face Off!

by Robert J. Bryant

When we discuss 1996 in the realm of recumbent history, the year will undoubtedly be remembered for its marque on tandems. In past years, few tandems have been available and those were custom, one-off or prototypes. The joy of recumbent tandeming is now being spread far and wide. We're excited about this new market. For one thing, it has the potential to bring recumbent pleasures to wives, kids, families and friends.

Just after mailing the buyers guide issue, the RCN crew hopped on a plane to hang out in LA for a few days, get some sun and try some bikes. Our LA test bikes were supplied by Jim and Linda Wronski from People Movers, a shop that is one of the few places in the world where you can try out a variety of recumbent tandems as well as many other bikes we cannot seem to get for RCN tests—and boy did we try bikes!

### THE CREW

Our LA crew were, myself, RCN publisher—Bob, RCN circulation manager—Marilyn, and test kids—Amy and Dan who had to be bribed with passes to Disneyland.

The bikes were the Rans Screamer and ATP Double Vision. The Screamer was a factory stock version and lists for \$3875. The Double Vision was the R-82 with Independent Pedaling System (I.P.S.) and lists for \$3800 (base price \$3400).

### TANDEM TECHNOLOGY

The tandems in this test are of the LWB<sup>1</sup>-rear and SWB/MWB<sup>1</sup>-front variety which is proving to be the most manageable configuration. This is a design idea that came about a few years ago with the Kurt Wold tandem that was brought to market by Steve Delaire as the Companion tandem. During 1995, ATP and Rans designed double versions of their single bikes in the Double Vision and Screamer, both of which are the excellent new choices for the tandem rider.

### FRAME/BUILD

Our two test tandems were finely crafted, impressive flagships from both ATP and Rans. ATP builds two tandem models, the R-82 and upgraded R-85. Rans offers only one model and framesets to dealers and custom-spec outfitters.

The Screamer has a more traditional triangulated frame that consists of a Stratus/Nimbus tail section, mated with an updated V-Rex front end and with the front wheel pushed out farther. The frame was designed to be as compact as possible with the stoker's pedals right under the captain's seat. This makes for near perfect weight distribution, however, this increases heel interference significantly. The Screamer's wheelbase is 74.5" and it weighs 45 pounds.

The Double Vision has a different design theory altogether. ATP tried to make its tandem even more user-friendly by extending the boom and moving the head-tube back, thus creating a true SWB front section. The monobeam frame drops down in the rear section for a less obtrusive "easy access" stoker seat. The Double Vision has more of a load on the front wheel, though it has virtually no heel interference. The Double Vision's wheelbase is 77", though it's adjustable as the frame telescopes based on stoker size (guide bolts keep the frame sections from twisting). The Double Vision weighs about 48 pounds with the 1.8 lb. I.P.S. option.

The Screamer is TIG welded by Rans of 2" 4130 CroMo top-tube with smaller secondary tubes. The welding quality of Rans bikes is excellent and the weld-beads are near perfection. This is a unique design with the open seat/chain stays and rear frame section which adds to stoker ride comfort. Screamer prototypes initially had some flex. Since first pictured in RCN, (RCN#30 pg. 27/BG photos/Rans brochure) the bike has been updated with some larger diameter tubes and stiffer seat struts. The frame is stiff in all the right places with a smooth and dialed ride. The Screamer stoker position is comfortable, though the frame does not have the vertical flex that the Double Vision offers (a plus for some, a minus for others). The Screamer captain position is back

behind the front wheel, so the ride is a bit smoother than the Double Vision.

The Double Vision has a TIG welded 2.5" (main) and 2" (boom) stainless steel monobeam frame design and is 2.5" longer in wheelbase (in most cases/telescoping frame). ATP R & D Engineer, Joel Smith, told RCN that for every inch the diameter of the main frame tube increases in size, the strength increases four times. The Double Vision is a unique blend of torsional stiffness, better than a diamond frame design, according to ATP, and just enough vertical flex to offer the stoker a very smooth ride. The captain gets jarred a bit more from being almost on top of the front wheel. Though the fat front tire, sling/mesh seat and integrated foam pad take the edge off.

Forks can be an important aspect of frame design, especially in recumbents where non-standard geometry and progressive design theories are found. The Double Vision has an oversize custom design tandem fork that is costly to build and has a geometry specifically set for the bike. With the Double Vision's captain placement, the custom heavy fork is a good idea. The ATP fork has a lifetime warranty to the original owner.

The Screamer uses a stock J & B CroMo fork<sup>2</sup> which is the same one found on the V-Rex, and incidentally, the Ryan DuPlex tandem. It's not a tandem specific fork; however, John Schlitter of Rans sees no problem in using it. He has inspected the AngleTech/Nobilette fork (custom tandem) and will stay with the J & B on factory built Screamers. Dick Ryan replied, "we've never had a problem using the J & B fork and it is very strong." The J & B fork is probably adequate, yet we'd like to see the beefier custom US made made fork on the Screamer. After all, it's a \$3800 bike.

### STEERING/HANDLING

The Screamer comes standard with Rans "Flip It" fold-forward above seat steering (ASS). This is the finest tilt ASS we've tested. It's the same unit that is optional on the Rocket and V-Rex, though it works best on the Screamer. For the single bikes, the ASS strut angle seems to be designed for a more reclined almost "in your chest"



The Rans "Flip It" stem  
photo courtesy of AngleTech

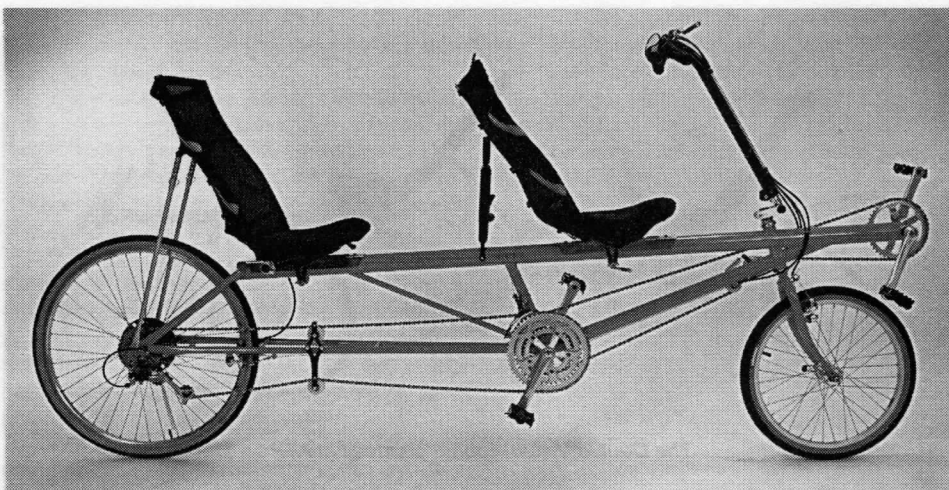
position. This is where we found the optimum handling "sweet spot." When we emulated the fixed ASS position with the tilt ASS on the V-Rex 24, the steering strut was too far forward and the handling-feel suffered. With the Screamer's wheelbase and added stability, the steering is less sensitive and the "Flip It" stem/riser is usable in more varied positions.

The Screamer has the best road-manners and steering geometry of any Rans model we've tried. The steering is neutral and quick. It is similar to the 26/20 single V-Rex, and the extended wheelbase increases the stability. The Screamer is the hot-rod of the group with an aggressive stance and smooth ride. The captain's position (behind the front wheel) and ASS instill confidence at speed. The Screamer gives the aura of a more performance-oriented bike, though the Double Vision is no slouch. For our testers, the Screamer was less user friendly than the Double Vision. This is primarily due to the higher top-tube, captain and stoker ease of entry/exit and heel interference.

Our biggest question about Screamer handling is how the bike would react to some serious NW low speed granny gear hills where you sway back and forth just to keep your balance. Our concern is that you'd have to pay close attention to the heel/front wheel overlap. Most seasoned MWB riders tell us this is not a problem after a few rides.

The ATP under-seat-steering (USS) is closer to the rider than on the singles as the head tube is right under the forward tip of the seat (ASS is not an option). The new double clamp handlebar/fork arrangement offers added security with the wide ATP bars. The Double Vision USS required more attention to the road than did the Screamer ASS, (we find this true on all USS bikes). The steering is much lighter than you'd expect and is stable, predictable and is better than any ATP model to date. The Double Vision steering has the slight oversteer that we love<sup>3</sup>, yet the bike is user friendly for serious riders, newbies, wives, kids and friends alike—once you become accustomed to the direct under-seat-steering on such a long bike.

Another interesting trait is the Double Vision captain seat position that makes it difficult to see the front wheel, which is an odd sensation. This combined with the USS made high speed maneuvers a bit more cautious.



The Rans Screamer—photo courtesy of Rans

## DRIVETRAINS

The Screamer and Double Vision both have very good drivetrains and acceptable braking systems, however, if there was ever a need for hydraulics—this is it. Dynamic duos, trailer tow-ers, serious tourers/mountain climbers will need the stronger Magura Hydraulic brakes<sup>3</sup>. And if your budget can handle it—get them. Given the long cable runs and the dual riders, the cable actuated cantilevers will be working overtime in many situations. Of the stock brakes, we liked the Screamer's Ritchey cantilever brakes a bit better than the Double Vision's XC Pro—though the only complaint we have about top-of-the-line Suntour is that they are no longer made.

The Screamer comes with an Arai drum drag brake standard, whereas the Double Vision only has the hardware ready to add the drag brake<sup>4</sup>. An auxiliary drag-brake on a tandem is a good idea.

The Screamer comes stock with a refined and top-rated Specialized 32/44/54 tandem crankset, Shimano Deore XT derailleurs and GripShift SRT 600 twist shifters. The gear inch range is 28-117. The gearing is a bit high in the low end (28), and a bit low in the high end (117). This tandem is capable of spinning out that 117 high gear, yet could use a lower low for mountain climbing.

The Double Vision 28/40/54 crankset is an optional ATP designed and built I.P.S.<sup>5</sup> tandem crankset and drivetrain assembly utilizing mainly readily available bicycle parts. This is a world class dual freewheeling crank that makes tandem riding a breeze. While testing it in downtown Seattle traffic we found that the stoker can power-on from a stop while the captain clipping in which speeds-up and smooths-out starts.

The Double Vision has an XC Pro front derailleur with a Deore LX rear. Shifting is done with SRAM SRT600 GripShifts. The Double Vision brakes are old stock Suntour XC Pro Cantilevers without a drag brake (but the hardware is in place<sup>6</sup>). The gear inch range is 26-117<sup>7</sup>. The low gear is lower (26) than the Screamer, but possibly not low enough for some riders. The high (117) is not high enough, as strong teams will spin-out.

Both tandems are spec'ed with top notch near bullet-proof wheelsets using Sun Rhino 40 hole rims (rear) with Phil Wood hubs and stainless steel spokes with screw-on freewheels. The front wheels on both have 36 hole 406mm 20" x 1.5" (BMX

size) with Phil Wood hubs.

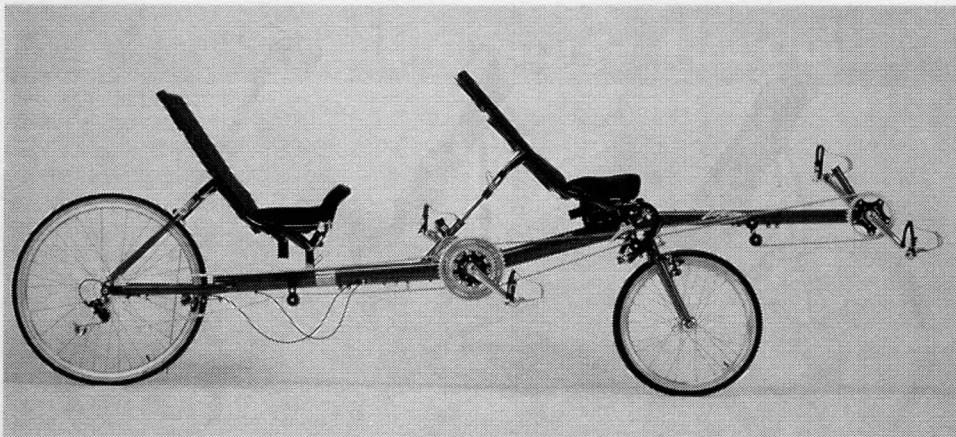
The Double Vision comes outfitted with an IRC Metro 100 psi. 26" x 1.5" tire in the rear and a ACS 100 psi 20" x 1.75" in the front. The Screamer comes with a Specialized Fat Boy 100 psi 26" x 1.25" tire in the back and an ACS 100 psi 1.75" tire in the front. On the AngleTech Screamer, Kelvin Clark specs 26" Fat Boys and Avocet Cross 1.5 inverted tread tires in the back. Not being a fan of the ACS tire, he offers ST Comps, Avocet Fasgrips 1.75 slicks and Haro 1.5" for front tire selections.

Both tandems are outfitted with acceptable bottom brackets, the Screamer has a Shimano UN51 cartridge and the Double Vision a YST cartridge. The tandem headsets are a Suntour XC Pro "Grease Guard" on the Screamer and a YST on the Double Vision. The clear winner here is the Grease Guard, though it is a discontinued item, its a very high-quality headset. If you feel the need to upgrade, remember the name Chris King for headsets and Phil Wood for bottom brackets—you will be able to feel the difference.

The Screamer's Deore XT derailleurs and Ritchey cantilevers are a definite upgrade from the Double Vision, however, this is more than made up for by the ATP I.P.S. Both the Double Vision and Screamer are outfitted with competent drive trains, with one notable exception—the chain.

On both models the shifting performance was only adequate with the long cable runs and Sachs freewheels, though the Phil Wood cartridge-sealed-bearing hubs are a worth the Hyperglide (cassette/freehub) sacrifice. The most likely problem is with the KMC chain used by ATP and Rans. We've had problems with this chain on other recent test bikes. KMC chain can often be related to your chain resisting shifts, chain skip and stiff links. A Sachs Sedisport chain upgrade will improve the shifting performance. Many recumbent professionals including: AngleTech, Ryan and Easy Racers all agree that Sachs chain works better. AngleTech sells custom length Sachs chains for any recumbents bikes. Many dealers carry the common Sachs Sedisport chain. It works great with Sachs, Suntour and Shimano drivetrains.

We also have some concern over the amount of chain, chain management and new design forward spring loaded idlers on both tandems. There



*The Double Vision—photo courtesy of ATP*

have been updates on both bikes, so check with ATP and Rans if you have one of the first tandems delivered. Also, the ATP I.P.S. is an updated version and totally new for 1996. On a recent NW recumbent ride a new Double Vision experienced chain problems, though they seemed to be more a set-up issue (and possibly chain quality?). Only time and miles will tell how dependable the drivetrains will be. Setting the proper chain length, making sure the idlers are set-up correctly, and upgrading to a better chain is our best advice.

## SEATS

Recumbent seats are the most important aspect of a recumbent bicycle. Performance is a widely debated, curious and often overstated subject. The true worth of a recumbent bicycle is found in the ultra high-tech recumbent seat, which needs to be both light weight and comfortable. Our test tandem seats vary in design theory and comfort—which can also vary by rider.

Both seats are great, though we found the newly redesigned Double Vision seat the most comfortable. It is a full sling mesh with an integrated foam base. The seat recline angle is very adjustable, more so than the Screamer. Long distance riders will agree that nothing soothes the hiney like a full sling/mesh seat. A foam base can be considered either a bonus or blasphemy—depending on who you talk to. For this rider, the foam base on the newest incarnation of the ATP seat is in a word fantastic. If you find yourself getting up every hour to relieve your rear, consider this seat. Double Vision riders aren't in the habit of getting up at stops. The ATP seats are mounted firmly and securely on the bike with standard quick release mounts at the base and back which adjust and pop-off easily. The seat frames have a low cross section that easily allows your legs down lower to hold the bike up at a stop.

The Double Vision stoker seat is a literal "throne" that holds new riders in nicely. If you let your wife pick the bike, you can bet this will be an issue and maybe the ultimate decision maker. The seat rails and horn hold you in on all sides without any pressure points. The rails make for a perfect mounting for the bar-end handlebars which will give new riders a sense of security. Double Vision seats are supported by CroMo struts which offer a firm feel when you need to hammer the bike.

The ATP captain adjusts via movable boom, incidentally, this is the longest boom on any ATP

model as the rear wheel is brought inboard to eliminate any heel interference. The stoker adjustment is via the telescoping frame, which is a real pain. The up-side is that you won't have any extra wheelbase that you don't need. ATP has a height range on stokers of 3'-6" and captains 5'3"-6'5". The ATP seats come with a lifetime warranty on the seat frame and one year on the mesh.

The Screamer is outfitted with the latest version of the Rans hybrid sling/foam base seat. Screamer seats slide on an aluminum track and are held with a quick release (Q.R.) under the seat base and dual ball-detent pins on the rear seat struts. Rans had reduced the size of the MWB seat base shell, although the large shell is now standard on all models. The comfortable mesh back gives full breathable coverage for even the tallest riders and offers more back support than does the ATP seat. The Rans seat-base is ergonomic and the foam rests freely underneath the nicely sewn Rans seat cover. The comfort on this seat base will be determined by the recline angle and the individual rider. Some find the seat base too hard unless they recline the seat as the more upright the seat, the more pressure goes on the tailbone. Just after our test, Rans upgraded the seat foam to a better quality 3" variety. With these upgrades we expect improved seat comfort.

RCN reader Jim Kellet just rode 2500 miles across the USA on his custom "Barcroft MWB" (homebuilt) with a new Rans seat. Jim had this to say about the Rans seat, "the RANS seat is by far the most comfortable seat I have ever ridden...and that includes the Lightning, Tour Easy, Linear, Vision, Horizon, Infinity, Presto and Ryan." The moral of the story is be sure to take the time and dial in the recline angle of your Rans seat.

The Screamer stoker seat is not as user-friendly as the Double Vision. With full-frame triangulation and a higher top-tube, climbing on is more of a chore. Once upon the seat, you will notice that the stoker handlebars (bar-ends) are narrow and comparatively low. Yes, the Screamer has USS for the stoker and ASS for the captain. Stokers are free to put their hands anywhere they please, though a longer/wider bar-end would improve the USS stoker position.

The early Screamer seat struts, especially for the stokers, flexed more than the ATP's. For this reason beefier 3/4" aluminum (Tailwind) seat struts have been upgraded to standard. Another area of consideration is the Rans quick release seat

mounts. We've heard rumblings about Rans seat quick releases (Q.R.) slipping under hard pedaling pressure. Rans feels this will not be an issue for 90% of riders. Rans' John Schlitter said that many riders may not have the Q.R. tight enough and should check that first. Rans improved the quick release quality last year and in early June, added a special nut to the Q.R. non-lever side which will allow it to be made tighter with less effort. Two reader Quick-Fixes are replacing the Q.R. with a bolt and lock nut and the other is to use non-skid tape (boats and skate-boards) on the seat track.

Rans offers custom boom lengths of up to a 2.25" addition for captains above 6' tall. This allows the captain's seat to be forward and/or laid back more. The Screamer seats come with a one year warranty.

Recumbent seat comfort is about as personal as the hineys that set upon them. Most recumbent riders will agree to the most comfortable seats, and the Screamer and Double Vision seats are both among the best available on recumbent bicycles today.

## ERGONOMICS/USER-FRIENDLINESS

The Rans cockpit feels compact, yet comfortable as the ASS makes for a closed-in feel. It has an aggressive seating position that begs to be ridden hard and fast. The seat can be as upright or laid back as you need it, the bottom bracket is high enough, though not too high. The ASS offers versatile strut positioning and will accommodate a wide variety of user styles, though tall captains who like laid-back seats should opt for the custom longer boom to allow added "lounging space."

The Screamer is the ergonomic tour-de-force if you are an ASS/high-performance type of rider. The only potential drawback is the heel interference with the front wheel, as the wheel has really been pushed out. This is a design aspect that will find its way into the Rans MWB single line in years to come. Rans riders don't seem to be concerned with the heel interference issue.

The most "comfort-based" ergonomics come with the Double Vision. It has a luxurious feel and the dual cockpits seem stretched out and laid back more so than the Screamer. USS handlebar reach can sometimes be an issue with the single bikes, but probably not on the Double Vision as the bars are closer to the rider. ATP has brought the captain seat inward and made the boom longer. This has the head tube placed just underneath the forward tip of the seat and there is less heel interference on this ATP than any other model. The captain seat is relatively high, the position works well, though I haven't tried any high-speed mountain descents with it (potentially the most unnerving situation for a USS bike). The monobeam frame offers an unobtrusive rear section that seems to be open and inviting to everyone. The seat frame has stoker bars (ends) that will hold even the little ones into the seat. The Double Vision USS, new seats and total comfort aspect of this bike are very apparent to all who ride.

The stoker position variations are worth mentioning. Some SWB/MWB riders will find the Screamer has too much of a LWB position with a high seat and low bottom bracket. The Double Vision stoker bottom bracket is higher.



## KID TEST

The RCN LA test crew came away with one distinct "Kid-Test" winner, the ATP Double Vision. The bottom line is that Grant Bower put many a test mile on the Double Vision prototype with now five year old daughter Laura as a stoker (a Double Vision Kid-Back stoker option is due out soon).

RCN LA test crew members Amy (age 7) and Dan (age 4) both stokered the Screamer, Double Vision, DuPlex and a brief stint on the Linear. Not always able to pedal, they demanded at least two test loops on each test bike and came away with a clear view of which bike they liked the best—the Double Vision! And Laura Bower and Amy and Dan Bryant have only met once, back in '93 and they didn't talk tandems.

## RECOMMENDATIONS

The choices are pretty simple. The variations of Screamer and Double Vision models are enough to satisfy any tandem rider. If you ride a SWB/MWB and must have ASS—the Screamer is your choice, and not a bad one at that. The Screamer has the most stable feel of any MWB we've ever tried. Also, the ASS adds confidence to any high speed or aggressive tandem riding.

For more traditional tandem riders, the Screamer brings time proven tandem theories to a new recumbent design format.

If you are a USS fan, you have little (or BIG!) kids, or a non-cyclist husband, wife or friend, the Double Vision runs away with top awards for family use. The reasons are primarily the stoker "throne" that holds riders in so nicely, step over frame tube and that wonderful I.P.S.<sup>5</sup> The Double Vision I.P.S. solves cadence differences, speed differences and your kids will love riding a recumbent tandem, possibly even more than you! And keep in mind the I.P.S. is a \$400 optional that we specified for our test as it brought the tandem prices closer together. The Double Vision base price is \$475 less than the Screamer.

The Double Vision offers a more laid back riding position<sup>8</sup> and the question comes up, does this effect the riders attitude? Do USS bikes make their riders feel more laid back, more comfortable and possibly less-aggressive? I don't know, but the Double Vision is sure a great cruising machine

Are they perfect? The answer is probably not. The frame designs are pretty much dialed, as is the handling, but my guess is that these somewhat complex machines will require an update or two

along the way. Would this stop me from buying one? No, these are both great bikes.

Let's face it, recumbent tandems are expensive, though your recumbent riding enjoyment should at least double with a tandem. ATP and Rans have made selection easy with their varying design theories and model differences.

In closing, the design aspect that really came to light with this article is that *added wheelbase=stability*. If you haven't believed this in the past, we suggest that you go out and ride a V-Rex and then a Screamer; or a Vision and then a Double Vision, and you can see what a few feet of wheelbase can do. □

## TEST NOTES

<sup>1</sup> LWB: Long-Wheelbase; MWB: Medium-wheelbase; SWB: Short-wheelbase.

<sup>2</sup> AngleTech, a custom-spec Rans dealer offers a custom Colorado, USA built Nobilette CroMo non-tapered tandem rated fork that is a duplicate in geometry and a few ounces lighter than stock. AngleTech also offers the Ballistic suspension fork for the Screamer.

<sup>3</sup> Handling Defined: some recumbents are *neutral* steering and offer no feedback, yet just go where you point them. Example: Lightning P-38 with a 17" front wheel; Others have *wheel/fork flop*: describes a bike that has a very relaxed head tube angle and the front wheel/fork falls right or left and you have to apply steering pressure to keep it pointing straight ahead. The designers feel this offers improved stability at speed on SWB recumbents (and the occasional LWB). Example S & B and Turner SWB models. Our favorite is a *slight oversteer*: is the perfect median between the extremes. The bike points straight naturally, and requires no pressure to go straight, yet when you turn, the bike slightly glides you in and out of the turn. Handling such as this offers a euphoric sensation of being at one with the bicycle. The best examples have custom forks, rake and trail that have been dialed in. It helps if the manufacturer's goal is to achieve this trait. Examples: Easy Racer Tour Easy/Gold Rush Replica and Counterpoint Presto. To some extent the Rans V-Rex and Rocket also have this feel, though it depends on the wheel/tire combo.

<sup>4</sup> AngleTech Screamers are fitted with Magura Hydraulic brakes. Some models also come equipped with Sachs disk drag brakes. The upgraded ATP Double Vision R-85 is outfitted with an Arai drag brake and Magura Hydraulics

<sup>5</sup> I.P.S.—ATP's own Independent Pedaling System allows either rider to pedal while the other coasts. This system was custom designed for the Double Vision by ATP. AngleTech offers complete tandems with the similar I.C.S. Independent Coasting System that was designed for all tandems by Vertical Descent. Rans offers framesets to dealers with the I.C.S. modifications, however, the I.C.S. is not an option on complete tandems. The first major benefit of this system comes in the ease of starts. One rider clips in while the other powers. The second benefit would be if you have kids or a new or non-cyclist stoker. The third benefit is to have a cool whiz-bang gizmo that your riding buddies don't have yet. If any of this sound good, you'll love ATP I.P.S. or AngleTech I.C.S.

The downside of I.P.S./I.C.S., undoubtedly it brings drivetrain complication to the bike, added weight and a special system that many mechanics may be puzzled by. Serious tandemists may boo-hoo the system as not needed. Arguments against are: First, it may make your stoker (or captain) lazy. Secondly, I've been told that irregular cadence can create unwanted oscillations and "bounce" that you would not find with traditional tandem drivetrains.

<sup>6</sup> Double Vision dealers can provide drag drum brakes and they are standard on higher end models.

<sup>7</sup> The gearing can be altered using dealer supplied larger/smaller chainrings. AngleTech offers Sachs 3x7 equipped 63 speed Screamers that have wider gear ranges.

<sup>8</sup> Even though both models have adjustable seat recline angles, the ATP seems to have an even more relaxed angle even in the most upright position. Both the Screamer and Double Vision offer riders the unique ability to dial in the recline angle and personalize the seat.

## SCREAMER



Full Triangulation/2" main and down tubes  
Aggressive Performance stance  
Great components (XT, Phil Wood, Ritchey)  
Aircraft quality fabrication  
Best Rans seat ever  
"Flip It" fold forward stem/riser  
Excellent weight distribution and balance  
Standard Arai drum drag brake  
Simple tandem technology



High captain seat  
Large turning circle  
Lots of chain and idlers (KMC chain ⊗)  
Seat clamps could use an update  
(we have not tried the new Q.R. bolt, yet)  
Lots of heel Interference  
Won't work with small children  
Stoker bars need attention  
One model/few options

## DOUBLE VISION



2.5" Stainless Steel Monobeam  
User friendly/EZ stoker access  
Luxurious riding positions  
Great components (LX, Phil Wood, ATP I.P.S.)  
Great new seats with integral foam pad  
Custom designed USA built fork  
Great for kids (child-stoker)  
No heel interference  
Perfect stoker bars



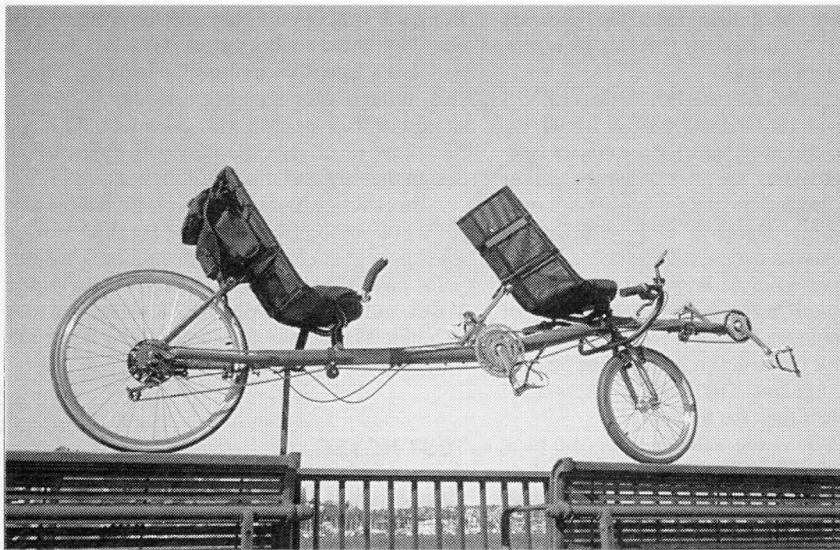
High captain seat  
Large turning circle  
Complex I.P.S. (first year for this system)  
Lots of chain and idlers (KMC chain ⊗)  
Telescoping frame/stoker adjustments are a hassle  
High captain's seat (rides on top of front wheel)  
Ultra long boom  
No drag brake (on this model)

### SCREAMER

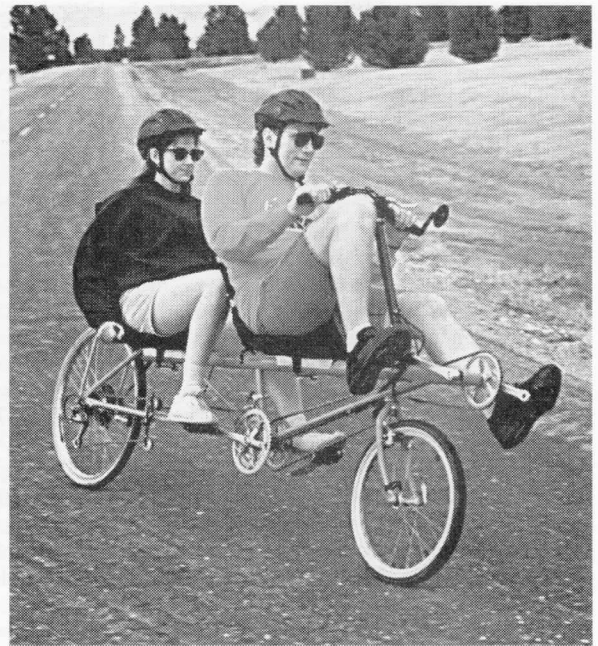
Frame/fork: Cromo/CroMo/ TIG  
Seats: CroMo/fiberglass/foam/cover  
Weight: #45  
Wheelbase: 74.5"  
Seat Height (captain): 25.5"  
Seat Height (stoker): 23.5"  
Head Tube Angle: 74°  
Derailleur (rr): Shimano Deore XT  
Derailleur (ft): Shimano Deore XT  
Crankset: Specialized 32/44/54  
Freewheel: Sachs 12-30/7-spd.  
Shifters: SRAM GripShift SRT600  
Gear Inch Range: 27.7-117  
Brakes: Ritchey Logic cantilever/Arai drum drag  
Wheel (rr): 26" Phil Wood/SS spokes/40°/Sun Rhino rim  
Wheel (ft): 20" x 1.5" Phil Wood/SS spokes/36°/Sun rim  
Bottom Bracket: Shimano UN51  
Headset: Tange Levin  
Colors: Hot Lips and Midnight Blue  
Suggested Retail Price: \$3875

### DOUBLE VISION

Frame/fork: Cromo-1020-304/CroMo/ TIG  
Seats: 6061 T6 Alum./nylon mesh/foam/cover  
Weight: #48 (46 + 2 for the I.P.S.)  
Wheelbase: 77"  
Seat Height (captain): 25.5" (at rail)  
Seat Height (stoker): 21.5" (at rail)  
Head Tube Angle: 72°  
Derailleur (rr): Shimano Deore LX  
Derailleur (ft): Suntour XC Pro  
Crankset: ATP I.P.S. 32/40/54  
Freewheel: Sachs 12-28/7-spd.  
Shifters: SRAM GripShift SRT600  
Gear Inch Range: 26-117  
Brakes: Suntour XC Pro cantilever  
Wheel (rr): 26" Phil Wood/SS spokes/40°/Sun Rhino rim  
Wheel (ft): 20" x 1.5" Phil Wood/SS spokes/36°/Sun rim  
Bottom Bracket: YST cartridge  
Headset: Tioga  
Colors: Red or Black Powdercoat  
Suggested Retail Price: \$3400 + \$400 (I.P.S.)



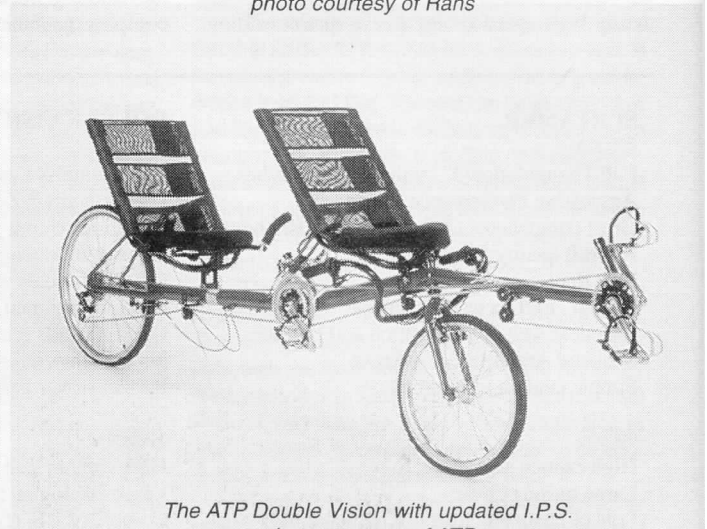
The ATP Double Vision—photo courtesy of ATP



The Rans Screamer  
photo courtesy of Rans



The AngleTech Screamer 3x7 equipped GL63  
photo courtesy of AngleTech



The ATP Double Vision with updated I.P.S.  
photo courtesy of ATP

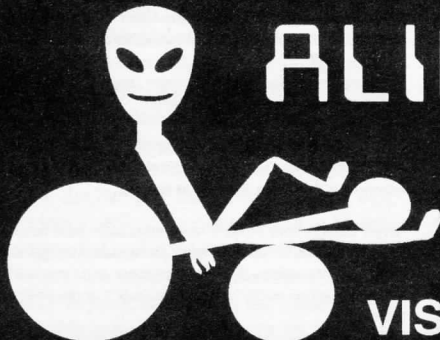
For more information on ATP Double Vision recumbent tandems, see your ATP dealer or contact: ATP, 952 Republican St., Seattle, WA 98109. Ph#206-467-0231, Email: <ATPVision@aol.com >.

For more information on the Rans Screamer, see your Rans dealer or contact: Rans, 4600 Hwy. 183 Alternate, Hays, KS 67601. Ph#913-625-6346.

For more information on custom-spec and I.C.S. equipped Rans Screammers, contact: AngleTech, 318 N. Hwy. 67, PO Box 1893, Woodland Park, CO 80866-1893. Ph#719-687-7475, Email: <Anglezoom@aol.com>.

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## COMFORT ☺

Reynolds 531 seat frame; laid back with open weave mesh, and shock cord lacing.

*"The most comfortable "chair" in my house."* - Orlando Weibe, Winnipeg, Canada.

*"Finished the "Great Eastern 1,000" event with no sore rear end or pain anywhere."*

*"The Greenspeed is definitely the machine to ride on long distance events."* - Pete Gifford, North Clifton, England.

*"It is fun to ride, incredibly comfortable and motorists give me more room than I used to get on my old bicycle."* - Michael Payze, West Footscray, Australia.

## SAFETY ☺

*"For me the greatest benefit was the stability and the ease of handling."* - Diane Eager, Canberra, Australia.

*"The brakes are hooked up independently, but you can brake 100% on one side with no problem. It is certainly the most well-balanced trike I have tried. It seems to be impossible to lift up the rear wheel, and the turning radius is super tiny."* Robert Bryant, USA

*"The Greenspeed is great. You ride like on rails even when it's very icy."* - Andreas Falschluger, Schwoich, Austria.

## PERFORMANCE ☺

Low center of gravity, low frontal area, centre point steering.

*"The sudden acceleration, light and positive steering, fast cornering and powerful braking are an experience not to be missed."* - Jim McGurn, "Encyclopedia" 1993/4, U.K.

*"The trike is beautiful. The design of your trike is the best I've seen. Boy is this thing low! And a blast to ride! I have never*

*experienced a trike with this good handling and super positive and light steering. The steering/front end geometry is fantastic, the best I've tried."* - Robert Bryant, USA

*"Universally there was great acclamation both for the performance and the construction."* - Joe Blake, Perth, Australia.

## ENGINEERING ☺

Cro Mo 4130 main frame, 90 ton steel axles, and sealed wheel bearings.

*"As for the craftsmanship, the frame tubes are excellent, some are hand ovalized on only one end. The boom is exquisite. The frame with integral triangulated seat (as part of the frame) is a great design. It's stiff, but very light at the same time. The stiffness and strength of the seat, handle bars and all systems together seem to offer the durability (and gorgeous simplicity) that is missing from the other trikes."* - Robert Bryant, USA

*"What a marvellous life it was! Fourteen months, 206 riding days, 15,035kms. That was our ride around Australia. The Greenspeeds did not let us down once."* - Val Wright & Eric Butcher, Ocean Grove, Australia.

## FUN ☺

*"The Greenspeed is an electrifying ride, making my sluggish body feel like a powerful engine."* - Jim McGurn, "Encyclopedia" 1993/4, U.K.

*"I will check the alignment but I think it (tyre wear) has been due to my inability to control myself on those corners! It is the best toy I have acquired."* - Dr. Lincoln Brett, Perth, Western Australia.

*"The feeling of freedom and enjoyment I get when I am riding is amazing."* - Philomena Macdonald, Box Hill, Australia.

# GREENSPEED RECUMBENTS

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# LOW DOWN and LAID BACK by Gern Fairing



My wife, Felicity, and I, Gern Fairing, just couldn't take it anymore. We were avid recumbent riders, but we'd had it with crowded roads, narrow shoulders, and, what was worse, the ridicule heaped on us by the spandexed wedgie cyclists. We lived in a suburban appendage of a Western Washington urban area, one of those little dots next to one of those really big dots on the state map. My dear wife and I were experiencing the newfound and heady glee of recumbency but were becoming the innocent targets of subtle and blatant 'bent bashing. We'd heard it all:

"Couldn't you afford real bikes?"

"Do you ride those things because you're handicapped?"

"Is that one of those incumbents?"

Or the last straw:

"My uncle rode one of those. 'Course we had to institutionalize him."

Felicity and I, quietly shouldering this burden of indignities, decided to make the break. We'd show them. We'd up and move to a rural nook or cranny of Washington State. There'd be quiet, farm roads, low traffic volume, and only the benign, bucolic, and non-judgmental stares from animals in the pastures as we'd pedal by in 'bent bliss. But where to relocate? I was a high school teacher and rural kids were hungry for enlightenment. The resumes went out to hamlets far and wide; I got one offer and took it, I got a job in Skookum, Washington, a real small dot appearing on just a few maps and never appearing on those lists of towns in the column on the side. If you needed to fit it, it'd be about "D-3." It's nestled in the rolling hills nudging the western edge of the Cascade Mountains. The chief industries were farming, logging, and the Pucker-up Pickle Factory, the largest employer in the area.

We soon U-Hauled ourselves to Skookum, crammed our things into a fresh rental house on a little road and readied ourselves for the relaxed, refreshing, and recumbent life in our new small town digs. We had no idea then that we'd moved smack dab into a hotbed of recumbent enthusiasts, homebuilders, and flat out 'bent fanatics.

We got our first hint that things were not quite normal on our first Sunday as Skookumites. We hopped on our recumbents and rode toward town for a morning ride. Felicity and I anticipated that we'd be a curiosity and maybe even a source of

wonder to the locals. As we neared town, we rolled past the Skookum Sweet Fruit of the Vine Inter Denominational Christian Church. The church had a sign out front letting the town know the topic of the sermon of the week. It read:

"God Rides a Recumbent and He's Sometimes Hard to See in Traffic. Bob 'M5' Supine, Pastor"

Felicity and I read the sign, grabbed brakes, careened wildly in the street narrowly avoiding a couple of synchronized LWB hip plants and screeched to a halt.

"Gern, you see that?"

"Yeah, but I don't believe it."

We rode on into town and pulled up in front of Sven's Skookum Stop'n'Shop. We wanted to continue our time-honored ritual of canceling out the weight loss potential of our rides with a box of powdered sugar donuts. Sven rang up our purchase. He'd seen us ride up and glanced at our matched LWB 'bents. We'd expected a polite question or two, but Sven caught us off guard.

"You like the more upright seat angle on your factory-builts?"

"Well.....uh..." we mumbled in reply as we stumbled over each other's words.

"Reason I ask," Sven continued, "is that Pastor Bob swears by the extreme 'Euro angle. Well, he don't exactly swear by it, but he does rhapsodize about the low drag coefficient of his body on that 'bent of his."

"There's another recumbent in Skookum?" I asked.

"More'n that," Sven declared. "Fact is we got a bona fide recumbent club. Meets Tuesday nights in the church basement. It's called The Low-Down and Laid Back Cycling Club of Greater Skookum. Oh yeah, I sell the current issue of RCN out of Renton in case you're interested. We gotta keep our finger on the pulse of the recumbent world, after all."

A recumbent clergyman and a group of 'bent devotees that were interested enough to meet once a week. Skookum was getting curiouser and curiouser. As Felicity and I stepped outside the store, we glanced at a community bulletin board festooned with dog eared 3 X 5 cards. We were in for more surprises. There were five or six index cards among the clutter indicating a thriving recumbent bike and parts trade. One of the cards

read:

## "DIVORCE FORCES SALE"

Homebuilt Recumbent Tandem For Sale Good Shape.....\$1000 P.S. If I don't sell this quick, my 'ex' is going to use a cutting torch and take her half. Call Joe.

Another read:

## SAVE BUCKS ON YOUR 'BENT

Let me macrame a comfy recumbent seat- your frame or mine. Choice of colors available.

Edna's Knit 'n' Sit.

There was even an ominous, posted warning from the Skookum Log and Pulp Company asking recumbent riders to refrain from drafting on their log trucks.

Felicity and I hopped on our bikes and began to head home, too stunned to talk I finally broke the silence.

"Have we stumbled on the recumbent mecca of the known world or what?"

Felicity responded, "Gern, we've got to go to that meeting Tuesday night."

We rode past the church. The service must have ended because the last members of the congregation were pulling out of the parking lot. We dodged a few rusty pick-ups and the drivers looked at us with non chalance and indifference. Then thunder struck. Five unidentifiable recumbent bicycles catapulted out of the parking lot at amazing speeds. They hit the pavement of the road behind us and four peeled off in various directions. I was glued to my rear view mirror. The fifth bike was heading the same direction as us and eating up the distance between us in seconds. He pulled up next to us on a sleek, low-slung 'bent, glanced over at us, winked and shouted, "Hallelujah!" Then he looked down the road, smiled, and flew past disappearing over the crest of the hill ahead of us.

Our lives were certainly changing with our move to Skookum. Felicity and I were not alone out here. The recumbent world was a mite bigger than we thought. We figured we'd just have to meet those recumbent phantoms at the Tuesday meeting in the church basement. We did, of course, but that's part of the continuing saga of the *Low-Down and Laid Back Cycling Club of Greater Skookum*. Can't wait to tell you. That's it for now from Gern Fairing living in one of the really little dots on the map out here in the Northwest. □

# Touring by Recumbent

## THE THOUSAND MILES

From the Grand Canyon to the Top of the Rockies by Piero Tassinari

My name is Piero Tassinari. I live in Meldola, Italy, and I would like to tell all you bike touring pioneers about my bicycle adventure from the Grand Canyon to Rocky Mountain National Park! This has been the adventure of a lifetime, and I began to dream of it almost two years ago. Through Adventure Cycling's "Companion Wanted" column, I got in touch with Chet Rideout who lives in Fort Collins, Colorado. We began corresponding in July of 1994, exchanging pictures and experiences. Chet organized the ride, arranging eight possible itineraries on his computer, and the ride from the Grand Canyon took shape.

When my airplane was landing on June 20, 1995, I had a great view to the east of green meadows and the snowcapped Rockies to the west. I was overwhelmed when I thought of climbing those high mountain passes! When we met Chet and his wife at the airport we recognized each other at a glance... it was as if we had been long time friends.

I was tired, but our schedule was so tight that we began to prepare the bikes that day. Mine was disassembled in a bike case, which was bewildering, and there was all the panniers and racks to deal with. Chet planned to ride a strange machine called a recumbent. At first, though I didn't say, I thought it wasn't suitable for this kind of a ride, since I am used to more traditional mountain and racing bikes.

On June 21st we loaded up all the bikes, packs, and camping equipment on Chet's car, and Bill, Chet's friend, came along to drive the car back from Grand Canyon Village. The scenery was fascinating. We visited Canyonlands and Arches National Parks and sampled the desert wonders to come.

My Marin mountain bike, equipped with drop handlebars, had a large pannier set I brought from Italy. Chet supplied me with a low rider rack for the front wheel, and front panniers by Performance. His bike, a long wheelbase Infinity recumbent, was equipped with a larger rear pair of Performance panniers, and a one wheel BOB trailer, which is attached by a yoke to the rear axle of the bike. Both of us had triple front chainrings, giving us 18 gears to climb the mountain passes. We used an 8' x 8' Holubar expedition tent with a 6' center pole, and we did our cooking over an MSR stove burning white gas. When we left Grand Canyon Village Campground on our loaded bikes I couldn't believe this was really happening. I kept on repeating, "it's me, I'm really pedaling in this amazing landscape!" It was so rewarding to see the scenes I had eagerly studied in so many books. After all our rides on unloaded bikes, we found the loads made our bikes heavy and less responsive.

At first the desert scared me: I was afraid of the hot temperatures, the lack of civilization, and the potential poisonous snakes. Instead, I found that I enjoyed the solitude, the silence, the warm



Chet Rideout below Leadville, CO—photo by Piero Tassinari

earth colors, and the long shadows of the rock formations. To beat the heat we rose early, usually at 5:30, and we were on the road by daybreak.

In Arizona and Utah the road was a succession of hills, and was more tiresome than climbing passes in the mountains. It was Indian country; I noted many mobile homes in that dry land with no visible resources. We stopped at jewelry stands, where we enjoyed hearing flute music and stories. The villages were made up of small wooden houses, and the social centers seemed to be the gas stations, the corner stores, and the laundries.

In Monument Valley, I felt like a knight on my modern metallic horse, conquering the infinite horizons. When we climbed toward the pass we were hailed from a passing car, "Hey Forrest Gump." My buttocks were continually sore from the saddle! I started to change my mind about Chet's recumbent since he had no pain at all. "Perhaps in the future I will try one," I thought.

When we had completed each day's ride (about 50 miles), we looked for a place to camp and relax. After a late lunch Chet would sometimes take his mandolin from his pack and sing some western folk tunes...weren't we two pioneers?

Near Cortez the landscape changes suddenly; clusters of trees in green meadows replaced the sagebrush, and the snowcapped peaks of the San Juan Mountains appeared on the horizon. We made deep excursions into the American past when we biked to Mesa Verde to visit the Anasazi ruins at Cliff Palace.

When we coasted down into Durango the next day, I tasted the real west—the cattle herds near the ranches, the colorful wooden houses, and the narrow gauge railway to Silverton. We had a

wonderful evening in Durango where we experienced the hospitality of Chet's friend, Wade Nelson, who took us out to a buffet dinner and to a small coffee house which reminded me of home. I slept well that night.

The Durango and Silverton Narrow Gauge Railroad looked too good to miss, so we loaded our bikes and packed onto the baggage car the next day and gave our legs a break. The engine huffed and puffed, pulling us along high cliffs into Animas Canyon. As we climbed the weather changed, and became very cool and started to rain. It made me worry, since tomorrow's climb would be the Red Mountain Pass, much higher than the highest altitude I had ever bicycled in Europe!

That night it froze in Silverton, and in the morning our pots were filled with solid ice! We launched our climb as the sun gradually warmed the landscape, and I found no problems when we crossed the pass at 11,318 feet between Leadville and Frisco. I actually found these passes easier than those in the Italian Dolomites or Apennines because although the climbs tended to be longer, they were less steep.

In Ridgeway I had many experiences: I rode a horse, threw tomahawks at targets, witnessed a robbery and a hanging in a small western village (part of a 4th of July rehearsal), and slept in an Indian Teepee. All of this was possible thanks to Rick and Dawn Bresett, who call themselves, "The Memory Makers." Their rendezvous encampment features teepees, sweat lodges, council fires, and nearby Buffalo herds... in short, I was thrown back into the past of the American west!

Another big climb awaited us—the Black Canyon of Gunnison. This I found more spectacular than the Grand Canyon because of its depth. We saw the river far below, streaming tumultu-



Chet and Piero on Poncha Pass—photo by Chet Rideout

ously between the black vertical walls of the narrow canyon.

The San Luis Valley was very boring: miles and miles of flat road with only sagebrush or wetlands for scenery. In Saguache, I became the dinner of mosquitoes, so I asked for some repellent at a gas station. Since they had none, I rushed back to our motel, seeking the safety of the screen windows and doors. But the San Luis Valley had its reward: The Great Sand Dunes National Park.

We camped at the dunes for two days. We left camp early in the morning to catch some spectacular photography, and just after sunrise we were crossing the river which flows below the dunes. At first it seemed like a very easy climb, but very soon I realized that the dunes went on for miles. From a high dune we saw the river and its green banks, the wavy dunes, and far behind, the Sangre de Cristo Range capped with snow.

When we left the San Luis Valley, we headed for the core of the Colorado Rockies. The Collegiate Range fourteeners were all around us, their white peaks reflecting the sunlight or gathering

glum, straggling clouds for the afternoon storm. Seeing this from our bikes was incredible: we could smell, breathe, and scan every inch of these mountains where the immense valleys rise gently to the summits, opening the infinite horizons of peaks, canyons, fir forests and glistening lakes.

Chet is an expert on wildlife, recognizing the wild animals by their footprints or voices. In Rocky Mountain National Park, we occasionally came upon wildlife that added excitement to our ride. In Timber Creek Campground three Elk and a White Fox visited our breakfast table. We also sighted Moose, Bighorn Sheep, Deer, Eagles, Hawks, Yellow Bellied Marmots, and many other mammals and birds. One night Chet quieted me during a wild chorus of sounds, whispering, "listen, the song of the coyote."

During the ride, Chet taught me a lot of English "figures of speech" (slang). He would also start each day with a limerick, which helped me to understand the double meanings of English words! "There once was a man named McBride..."

Lynn, Chet's wife, joined us and brought a

canoe, which we used in Grand Lake for a different view of the Rockies. We had taken a rest day, stopping at Timber Creek Campground, just fifteen miles from our final pass—Trail Ridge Road at 12,183 feet. We drove to a bike shop in Granby to have Chet's rear wheel trued. While waiting for repairs, I asked Chet, who is taller than I, to get down a pack on the wall behind the counter. Not knowing there was a hidden staircase in the floor there, he disappeared down the stairwell, looping the loop down into the cellar, his wrist broken. He was lucky he didn't break his neck! What a sudden end to our ride, and such a disappointing loss of the last two spectacular days.

The more I think of my US cycling adventure, the more I am satisfied with our trip: we crossed three states, saw more different landscapes than I had ever experienced, and visited five beautiful National Parks. I think we caught the real America—the America of small villages with small wooden houses, the America of friendly people who greeted us along the road, who talked to us in food stores, and who listened to our story over a beer. Where was the violent face of America that we always see in the front pages of the newspapers?

Chet has been a great companion; through his eyes I learned so much, and along the road we have built a friendship.

Any complaints? After a one month ride, I was beginning to miss Italian "slow food." Lynn tried to make me feel at home back in Fort Collins, where she cooked pizza and spaghetti to celebrate the success of our thousand mile cycling adventure. In two years, we hope to tour again together in my native Italy!

Thank you Chet, and thank you Adventure Cycling! □

Article by Piero Tassinari  
 Editing by Chet Rideout, Wade Nelson, Paul Arends and Robert Bryant  
 Photos by Chet Rideout and Piero Tassinari

QUALITY.....STYLE.....COMFORT.....SPEED.....CLEAN AIR TECHNOLOGY...

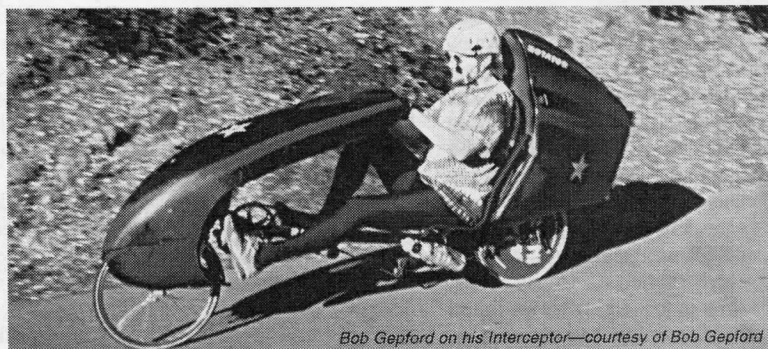


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# Touring by Recumbent

## A Journey Through Life

Story and photos by James M. Hendrickson

My 23-week journey from Washington State to Israel had many ups and downs, both literally and figuratively speaking. On June 16, 1995, I began pedaling eastward from my home in Bellingham, Washington, aboard a brand-new, custom-made recumbent that cost \$2,600. I ordered the long-wheel base bicycle from Cambie Cycles in Vancouver, British Columbia in Canada. A recumbent was an appropriate choice for my long-distance journey simply because that type of self-propelled vehicle is much more comfortable than any other type of bicycle that I had ever ridden. I instructed the designer and builder, Brock Davis, to construct my recumbent with certain features. Specifically, I wanted all XT equipment, a set of SPD pedals with cleats on one side and a flat surface on the other side, a rack under the seat to hold my two small Ortlieb panniers, a dependable Avocet-Cross Kevlar tire on the 26-inch rear wheel, very strong rims with thirty-six thick spokes in each rim, a Blackburn expedition-quality rack to hold my large Ortlieb panniers, and a Sachs disk brake on the rear wheel for better braking than cantilever brakes could offer.

My steel recumbent weighed 60 pounds, my loaded panniers weighed 65 pounds, and my flesh and bones weighed 165 pounds; total: 290 pounds! I certainly felt the weight of that enormous elephant as I cycled over the Cascades and the Rockies. No wonder I lost twenty-five pounds during my transcontinental trek!

My first literal ups and downs were Rainy Pass and Washington Pass in my home state. I nearly died pushing my monstrous rig up the latter part of those two passes, but I zoomed down them like Snoopy on skis. Wheeeee! I paused in Winthrop, Washington where I had my first major breakdown. A smart bike mechanic in that town replaced a small wheel, on which my long chain rested, with part of a rear derailleur from another bicycle. The repair work cost just over twenty-six dollars, but it was worth every penny because the chain functioned very smoothly again.

In Bonners Ferry, Montana I mailed home fourteen pounds of gear that I swore was absolutely essential before I left home. You know, stuff like a transistor radio, an extra pair of cycling gloves, and rain pants. I never missed any of those items for the rest of my journey.

Near East Glacier, Montana my recumbent suffered a second major breakdown. The shaft on the fork began to break as I was coasting down a steep mountain pass at forty miles per hour in a freezing downpour. My body shivered uncontrollably. I wiped off my eye glasses to see ahead but my gloves were already soaked, so I saw only blurry images. My left leg warmer constantly slipped down, so I had to pull it up again and again. In the meantime, I had to switch gears occasionally, look for traffic over my windshield and in my rearview mirror, and balance my shaking recumbent. I sensed that something was very wrong with the bicycle. It wobbled so much that it was



difficult to balance. I didn't know what was causing the problem, and I wasn't willing to stop in the cold drizzle to check it out. I desperately wanted to reach the town of East Glacier where I intended to spend the night in a youth hostel. I pushed harder and harder on my pedals as my recumbent zoomed down into a deep valley and finally into East Glacier.

After a day's respite, I put my boxed recumbent and myself on a train and headed 165 miles to the closest bicycle shop to the east. In Havre, Montana another smart bike mechanic spent five hours fixing my broken fork shaft. That repair job cost me eighty-five dollars. Yikes! Talk about losing weight! But my steel steed was in fine shape once again, and I could continue my journey eastward in safety.

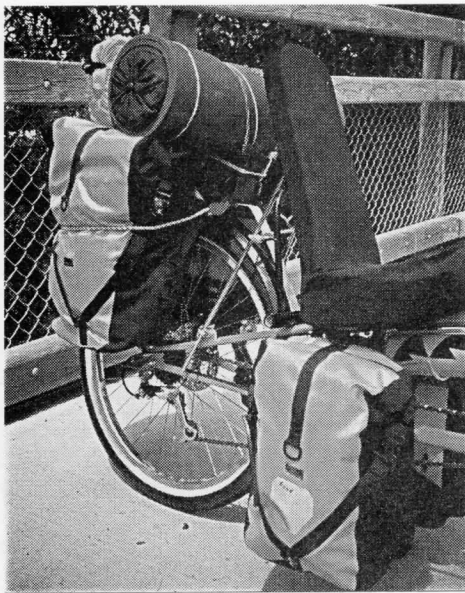
Tailwinds, flat terrain and a renewed spirit of energy helped me to sail across central Montana, North Dakota and Minnesota on my prairie schooner. Along the way, I also met lots of friendly, hard-working folks. Many of them asked me a rainbow of questions about my recumbent and my journey — and several children even questioned my sanity. Some people waved as I rocked by, others gawked at me with their mouths wide open, and lots of kids raced me down Main Street. "Hey! Cool bike!" they shouted. I proudly acknowledged their compliment by smiling and

giving a thumbs-up sign.

I continued pedaling across the Midwest, and then down into Kentucky where the winding, narrow roads of Appalachia challenged my physical strength and emotional stamina. The mountain roads won the challenge when I diverted my route northward into Ohio along the West Virginia border. There might have been gold in them thar hills, but there were also vicious dogs, coal trucks, and super steep climbs — all of which I wanted to avoid. I crossed into Pennsylvania, rolled up and down hills across New York State, and finally sailed into Boston, Massachusetts. The 4,100-mile trans-American trek took exactly three months to complete.

From Boston I flew to Amsterdam, Holland with my recumbent aboard. It cost an extra ninety dollars to fly the bicycle, which wasn't too bad considering that the airline company wanted to charge me \$270. As I biked through Europe, kids laughed at me as if I were a colorful clown riding around on a unicycle in a circus. Ha, ha, ha, they mocked. They had probably had never seen a recumbent in their lives. I realized that I was putting on quite a touring show for the Europeans, and the admission was free of charge.

I took my time eating and drinking my way across Germany and Austria: Schocolade, Bratwurst, Wienerschnitzel, Wein, and Bier —



in isolated areas or in towns without accommodations. On those occasions, Romanian families to whom I was a complete stranger, took me into their humble homes, feed me, and gave me shelter.

As I crossed the Danube River into Bulgaria, a massive snowstorm prevented my further progress by bicycle. Winter had finally caught up with me and my recumbent. From Bulgaria I trained through Turkey to Istanbul, and then I flew to Tel Aviv, Israel. Oh what joy to cycle in warm weather again! The Holy Land, the Sea of Galilee, Tiberias — and my third and final major breakdown. The rough roads in Romania had wrecked the shaft in my fork. This time there was no smart bike mechanic around to repair it, nor were there any spare parts available for me to repair it. So I decided to donate my broken steed to the Nazareth Hospital through the Church of Scotland in Tiberias.

So ended my 7,000-mile bicycle journey that was filled with a lifetime of adventures, misadventures, and memories. It was a journey that, like the proverbial mystic mirror on a wall, made me see my strengths, my weaknesses, and my limitations. It was a journey through life. □

Read Jim Hendrickson's newest book, *CYCLING THE NORTH STAR*, in which he describes his 3,200-mile self-contained bicycle expedition from MONTANA TO ALASKA sponsored by Adventure Cycling Association. 120 pages and 20 photographs. Send \$15.00 U.S. check/money order to: JMH Productions, Box 30163, Bellingham, WA 98228-2163.

stuff like that. Well, heck, I had to regain some of that lost weight, right? Because it was Fall, it was too cold to camp out. Instead, I stayed with lots of friendly folks through a world peace organization called Servas International. My generous hosts were from all walks of life: teachers, farmers, students, journalists, factory workers, unemployed. Fortunately, I speak six European languages, so I had little difficulty communicating with my new friends abroad.

Relatively speaking, cycling through Holland, Germany, Austria, and Hungary was a

breeze. The weather was not always cooperative, the traffic was not always light, but at least the roads were in excellent condition. Romania, however, was much rougher on this bicycle tourist. The roads there were replete with potholes, rocks, gravel — and more potholes. Unfortunately, some Romanians drove along those fun-filled roads like bats out of you know where. They would come barreling down the highway at breakneck speeds, zoom around me — barely slowing down — then put the metal to the pedal it to catch up for lost time. A few oncoming drivers treated me like an obstacle on a race track. They passed slower cars in my lane, aimed their dragsters straight at me, and accelerated their engines as I headed for the nearest ditch. I lost a few more pounds in Romania — from flight (or was it from fright?). On the other hand, I found the Romanians to be extremely hospitable people. Several times, I found myself

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## Road Test—Lightning Stealth

Lightning's are known for low seats with upright seat-backs, feet-flat-on-the-ground jet fighter cockpit-like feel and bottom brackets that are higher than the seat base. These are the design aspects that Lightning fans have come to know and love. Lightning models have race-proven designs, quick handling, are very responsive and excellent performers. The Stealth is no exception—if you're a fan of the Lightning of Lompoc guru and looking for a budget version of the space frame or carbon fiber dream bikes—this just may be your bike.

### THE TEST BIKE

Our test bike was a well-worn shop bike that had old specs and one of the notorious Kenda 90 PSI front tires (discontinued). We had hoped to see a glowing example of a Stealth, but no such luck. After six years of trying, we have yet to receive a Lightning test bike that equals what you get from the competition in quality control, component selection, service or warranty. Some feel the performance-oriented design is worth the trade-offs, though we'll leave that decision up to you.

Lightning builds expensive cutting-edge high-performance recumbent bicycles. Rotator, builds affordable entry level as well as high-end performance bicycles. The 1996 Lightning Stealth is a team effort between these two companies, though is seemingly underplayed by Lightning in the hot entry level SWB/MWB market.

The Lightning beginnings of the Stealth came about in the late 1980's with the inception of the rather heavy and clunky Lightning F-14. This model was probably ahead of its time, however, due to its weight, it was quickly put out to pasture and is seldom spoken of today. The actual design for the Stealth came from Steve Delaire (Rotator) as the MWB version of his Rotator Pursuit LWB. The LWB Pursuit has the same rear stays, monobeam frame design and materials, though the geometry is different. Tim Brummer added his comfortable aluminum sling/mesh seat, seat stays and ASS to the design—and the Stealth was born.

### FIRST GLANCES

If we had a lineup of all entry level \$1000-\$1200 short and medium wheelbase recumbents and had the ability to ride with our eyes closed (do not try this at home), our choice would be the Stealth. The low "feet-flat-on-the-ground" fighter plane like cockpit initially feels better than similar models. The center of gravity is low and the wheelbase is the longest of any short or medium wheelbase listed in the RCN buyers' guide. Ergonomic considerations do not arise until you lift your feet up to the high pedal position. Even if this feels OK at first. You won't really know if the position suits you until you are rolling—even better, after an hour or two ride. A parking lot test on the Stealth is not enough to know if you'll acclimate to the high bottom bracket design. Some beginners feel the upright seat back instills more confidence, which may be true.

The Stealth has a simple, yet high quality CroMo monobeam frame, matched with the



The Lightning Stealth up against a brick wall—photo courtesy of Gunnar Fehlau

excellent seat and ASS, along with several mediocre features in some component choices and the six hose clamps that hold the seat to the frame. Here is what else we found:

**FRAME/FORK**—The first impression is that the Stealth has sloppy braze joints, though as it turns out our test bike was not representative of what a customer gets (more on that later). The Stealth is brass brazed with the beads left natural and then powdercoated painted. The braze beads are more apparent on the Stealth as the tubes are bigger (than the P-38). According to contract builder Delaire, the braze joint is stronger than comparable TIG welds. We ran this concept by a few recumbent designers, some agreed and others did not. The fork is an off-the-shelf J & B CroMo 16". Arguable aspects aside, the Delaire brazed 2" CroMo (main tube) Stealth frame is pretty nice, though don't expect the refined TIG beads that you see on similar Rans models or the Delaire welded Gold Rush Replica frames.

**ASS STEERING**—The Stealth above-seat-steering (ASS) is an excellent example of a simple fixed system. With the Stealth's longer MWB, the position makes for a roomy and comfortable cockpit. The riser is simply clamped to the fork steerer tube and rises up to meet a stem clamp with nice wide alloy handlebar that could be trimmed or replaced to make it as wide as the rider requires. The Stealth ASS was a pleasant surprise.

**DRIVETRAIN**—The Stealth has an uninspiring mix of components that made for lackluster drivetrain performance. The derailleurs and shifters worked fine, though the shifting is compromised by the KMC chain and the lack of a Shimano Hyperglide cassette/freehub. Our crankset was a Suntour XCT, a long out of production low-end model. Specs call for an Suntour X-1 or Sachs 3000, which are equally poor. The Stealth has both upper and lower chain idlers that cause some noise/vibration, though the idler de-

sign and chain management is excellent.

The best way to handle the component shortcomings is to build the Stealth up from a frameset. If you buy a stock Stealth, consider upgrading the crankset, rear wheel/ tire.

**BRAKES**—The Stealth is outfitted with Shimano STX cantilever brakes. The front is mounted on the back side of the fork which hampers its performance, makes it harder to adjust (as if cantilevers needed to be any harder to adjust). Cantilever rants aside, once adjusted correctly, the STX brakes on the Stealth are excellent stoppers and are all you will ever need.

**SEAT**—You'd be hard pressed to find a better seat on any recumbent. This is a very comfortable seat whose only detracting feature is the way it's hosed-clamped to the frame via six generic hose-clamps. Rotator fans have commented favorably about the hose-clamp seat fastening, though we are not aware of any other bike manufacturer using them, nor would they be acceptable in any other aspect of the cycling world.

**WHEELS**—The Stealth comes stock with a rather generic 26" x 1.5" rear wheel with a Sovos hub. The rear tire is a wide and out-of-place City Slicker/Metro type tire. The front wheel is a 16" x 1-3/8" with the same Sovos hub and one of the world's last remaining Kenda 90 psi tires. Separately, these are acceptable, though when used together they do not work well. The front tire is narrow, the rear wide. As you corner, you can feel the squared edge of the rear tire and hear the hum of the tread. Simply change out the rear to a Fat Boy 1.25 or similar and all is corrected. Current spec Stealth's may have the tires updated.

**WARRANTY**—At three years, Lightning's factory warranty is too short. The competition, ATP and Rans, offer lifetime on the frame. This consideration is important as the Stealth design is a monotube frame with a monostay rear-end where one single joint connects the rear wheel/stays to

the mainframe. Had the Stealth come with a lifetime warranty the design would be a non-issue.

## THE LIGHTNING MYSTIQUE

For many riders, the Lightning ergonomics is the center of their cycling world. The low seats allow the rider to place his feet flat on the ground. The seat is wide and comfortable. The handlebars are ergonomic and with the 45" wheelbase, spaced away from the rider for optimum control. Lightning seat angles have always been upright, though the Stealth seat recline angle is adjustable.

The high bottom bracket and upright seat angle force your body into an extreme inverted road bike position. Some riders feel the "sprinter position" makes for incredible short bursts of power, though its probably not the best choice for casual riders or tourists. Lightning recumbents are known for excellent acceleration and hill-climbing abilities. Some high bottom bracket riders complain more of foot/toe numbness (tingling "asleep" feel) as with each stroke you must lift the weight of your legs. Other riders feel this position stresses the knees more. One thing is certain, the Lightning position utilizes different muscles which extends the learning curve.

We found that when you drop the bottom bracket height down equal to or just below the seat height, the ergonomics issues slip away, and Lightning riders may agree that performance slips away as well.

If you make it through the learning curve, you may be set for life with Lightning recumbents. Riders of this brand are among the most loyal we've seen. They take the bad with the good and rave about their chosen design.

## STEALTH HANDLING

The Stealth offers a taste of what you get with a P-38 or R-84, though the detractions made to keep the price down are apparent. At 29 pounds, the Stealth weighs six noticeable pounds more than a P-38 (by factory specs) and ours was a bit heavier. This combined with the fat tires and wide bars give the Stealth a more stout feel. The handling on our test Stealth was quick—too quick for some and definitely less predictable than a P-38. The Stealth climbs well for its weight. The stiff ASS and seat made steep hills a breeze, though you must pay attention to the heel interference at low speeds. Fast descents were a bit unnerving with the skittish handling possibly caused by the Kenda front tire. Acceleration is very good as has been

the case with all Lightning models we've tried. Flat land performance is also excellent once you are accustomed to the riding position. The smooth spin over long distances takes practice.

The Stealth demo that we tried at People Movers in mid-April handled better than our shop-bike loaner, and was a much nicer bike overall, which leads me to believe that the front tire on our Stealth played a part in the quirky feel, or maybe the shop demo test bike was actually a prototype.

We inspected the poor quality Kenda tire prior to each ride and there were no rips, tears, splits down the tread or side bulges. Given the history of this tire, we limited our speed trials and wore full safety garb. Any flaws in the tiny worn Kenda 90 psi front tire were aggravated by the blustery NW winter riding conditions—ice, snow, sleet and plenty of wet riding. The People Movers bike we tried in LA had the Raleigh 16" x 1-3/8" 55 psi tire and the bike was more stable and predictable. This is not a pitch for the Raleigh tire, but rather a discussion about the importance of a high quality 16" front tire on a SWB/MWB recumbents.

The dream of many recumbent enthusiasts may have come true—ATP in conjunction with Primo have just unveiled the new Primo/ATP 16" x 1-3/8" 85 psi tire. This tire is now available from ATP and recumbent dealers. Riders can also purchase the Stealth with an optional 20" front wheel which alters the geometry of the bike.

## RECOMMENDATION

When all aspects of this bike are considered, our once decisive blind test decision erodes, and the bike doesn't make the cut in side by side comparisons with the competition. The primary reason for going with the Stealth would be the Lightning design, riding position and performance heritage which is not duplicated by any other SWB/MWB recumbent manufacturer.

The Stealth isn't competitively priced, but no Lightning model is. We'd also like to know why we've had so much trouble getting to see and ride a Stealth. Lightning's reluctance to market this bike against the Vision and Rocket leads you to wonder if they are afraid of open market competition and the educated RCN readers.

If you buy a Stealth, you may not get the best components, nor will you get the best value. If we based our recommendations on Lightning's road test antics and the way they respond to us, well, we won't get into that here. Enthusiasts buy

Lightning's for performance reasons. If you can live with the shortcomings and attitude, then the Stealth is a worthy entry level speedster.

**LATE UPDATE:** The Stealth we rode in late April at People Movers had improved braze-joints and overall construction. Contract Stealth frame-builder Stephen Delaire, said that one of his employees built our Stealth test bike. The People Movers bike had improved craftsmanship, an updated crankset and had four (of six) of its seat hose-clamps refitted with neat "twist-dial" clamps.

We would like to thank Steve Delaire of Rotator for his hard work, patience and the part he played in getting RCN a Stealth test bike. □

### RCN STEALTH ROAD TEST FACTS

- The Stealth test bike was provided by Rotator, though it was on loan from Lightning seemingly for the sole purpose of an RCN road test.

- Our last "official" loaner test bike was our first Lightning test bike back in 1991. A second P-38 (1993) and F-40 (RCN#24) were purchased for testing.

- We've had a variety of quality control issues with our Lightning test bikes: preassembly, poor brazing quality, pin-holes in the paint and component incompatibility to name a few.

These issues have never been dealt with to our satisfaction. Lightning continues to be stand-offish and uncooperative. We had requested both a new in the box (our standard request) P-38 and a 20" Stealth, however, Lightning canceled all future RCN test bikes this past month.

RCN would much prefer that Lightning cooperate in our tests and participate with RCN. If you are a Lightning fan, please take the time to write Mr. Brummer and tell him that you would like to see a Lightning presence in RCN.

### LIGHTNING STEALTH SPECS

Design/ Steering Type	MWB ASS
Wheelbase	45"
Seat height/recline angle	20"/30-40°
Weight (mfr. supplied)	#29
Weight distribution	55/45 (bk./ft.)
Headtube Angle	N.A.
Frame/ Fork/ cons.	2" 4130 CroMo/CroMo/Brazed
Seat frame/ material	Alum. heat treated/mesh/foam
Derailleurs (fr./rr.)	Shimano RSX/Alivio
Shifters	Grip Shift SRT400 21 spd.
Crankset	XCT7-X-1/Sachs 3000 24/36/46
Freewheel/ cassette	Shimano Alivio 11-28 7 spd.
Gear Inch Range	22.3-108.7
Braked (fr. & rr.)	STX Cantilever
Rear Wheel:	26" Alloy/36"
Front Wheel:	16"x1-3/8" Alloy/36"
Bottom Bracket/Headset	Suntour SL/YST
Paint/ colors	Red or Black
Rider Height	5'2"-6'8"
Suggested Retail Price	\$1195 (\$1550 with P-38 spec)

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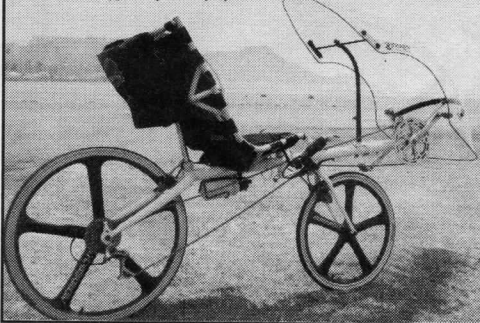
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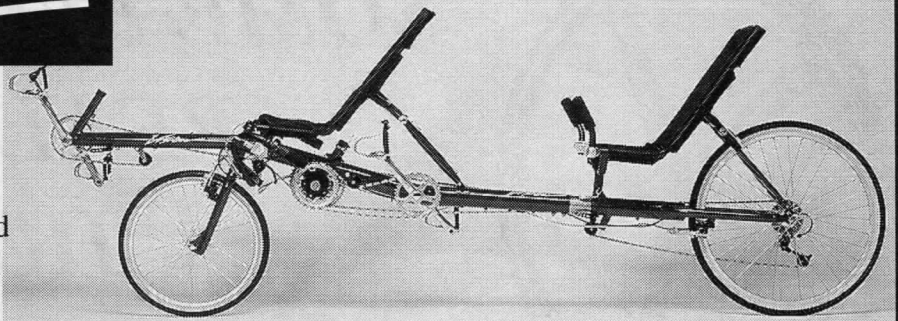
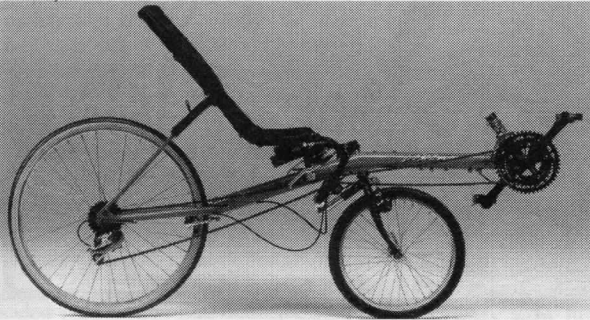
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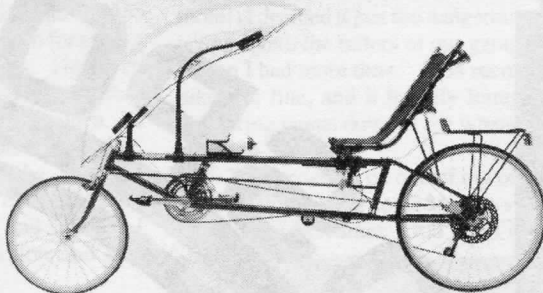
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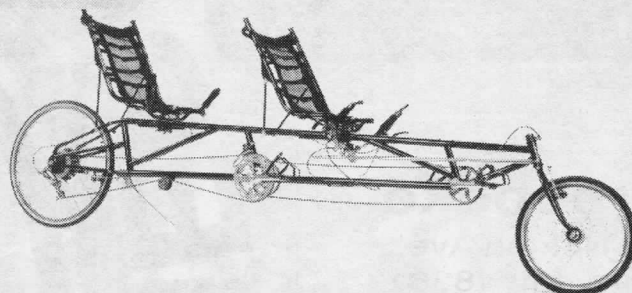
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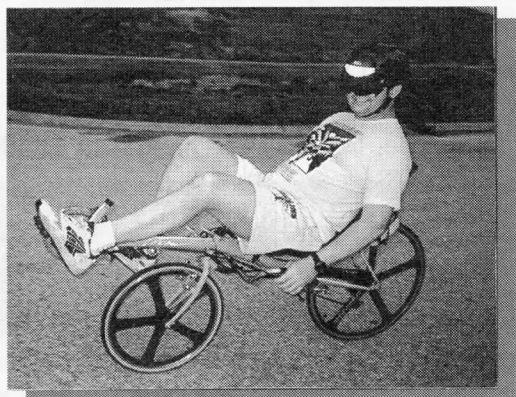
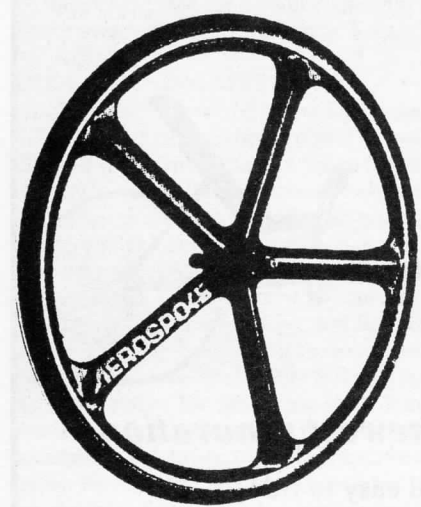
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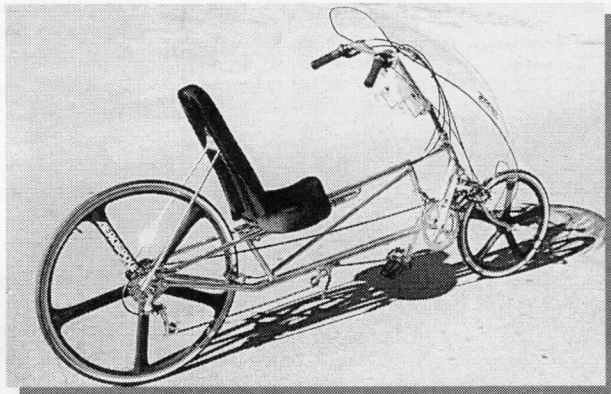
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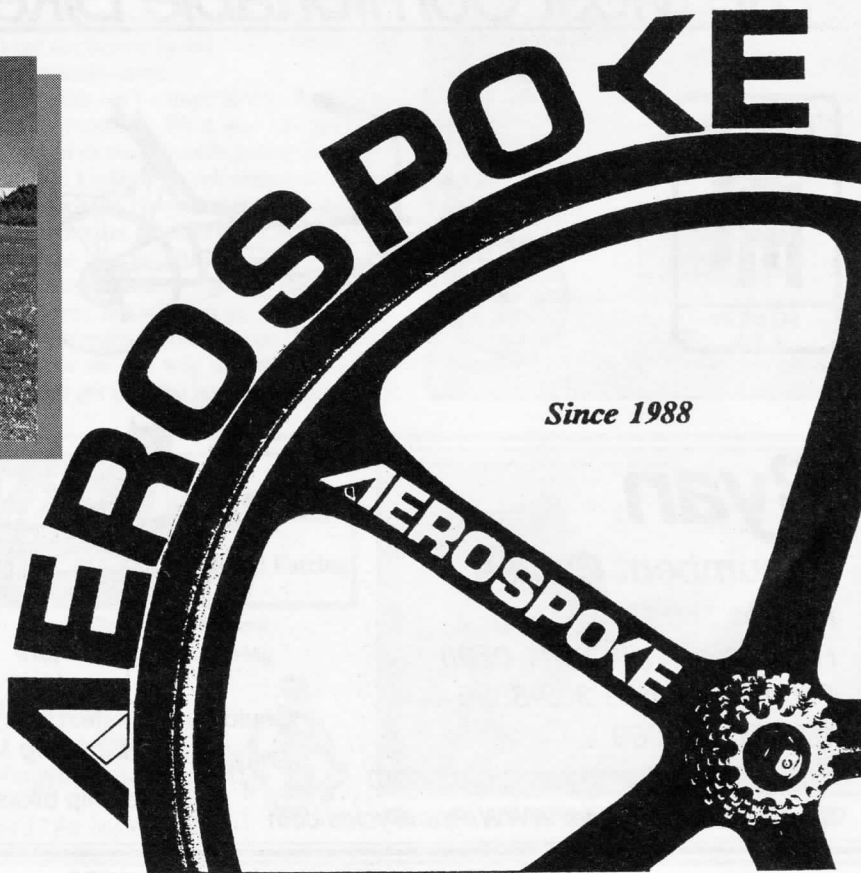


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## Homebuilders Corner



### Scream Easy

#### Building a Recumbent Tandem

Story and photos by Tom Mahood

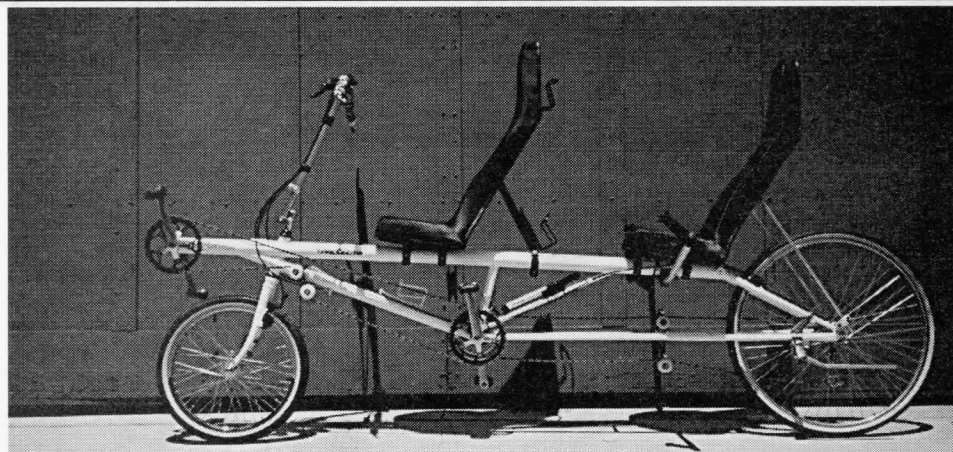
I'll admit it. I'm a thief of ideas. Well, good ideas anyway. It wasn't always so. Recumbents did it to me. A few years ago, I managed to construct a very nice Tour Easy from raw CroMo tubing. This did several things: I learned to braze, I got the building bug, and it left me wanting more. This "more" part finally manifested itself in an idea to build a recumbent tandem. At the time, there were very few of these critters around, so I'd have to come up with a design all on my own. Now how hard could that be?

After much reading and research, I finally decided on a design that could best be called a medium wheelbase at 74". The front end had the crank at the end of a boom. The steering was USS, with a direct connection to the wheel located almost under the front seat. This piece of design work, which I felt smugly brilliant about at the time, proved to be the bike's downfall.

I wanted to use a single 2" diameter CroMo tube as the main spine of the bike, both for ease of construction and cleanliness of lines. However, stress calculations showed the design would eventually fail from fatigue, so I dropped the idea. To make it stronger and stiffer, I ran a second 1" diameter tube parallel to the 2" tube, about 2" above it, connected by standoffs every 8" or so. While this gave me the strength and stiffness I needed, it complicated construction and seat attachment.

The seats were an interesting exercise, as I'm not a creative sort. I'm always on the lookout to steal good ideas, and I had my first opportunity with the seats. For my Tour Easy, I purchased a factory seat, so I had a good look at how its construction. Having a retail source of exotic composite materials nearby, I acquired some kevlar and graphite and set about making molds. I stole, uh, I mean copied, the basic seat design, but decided to recline it more, adding a third angle to the seat-back, behind the shoulderblade area. After completing the kevlar shell, with layers of graphite to provide strength and stiffness, I glued on and shaped several layers of dense foam padding. Finally, they were covered with a black Lycra covering, which my wife reported was quite a pain to sew.

The wheels were a 20"/700c combination, with tandem grade hubs. Brakes were Magura



hydraulics, using Magura specific braze-ons.

Sounds nice, doesn't it? It looked pretty good, too. But then I tried to ride it. My first reaction was that a crash was imminent. I was certain that the sensation would soon pass as I got used to the bike, but it never did. The problem seemed to be the location of the front wheel and steering axis. Another problem was a high center of gravity for the front rider, where I could just barely touch the ground with the tips of my toes when stopped. It was like riding a unicycle that just happened to be towing a second person behind! My wife, in the rear seat, was quite comfy and content, oblivious to the quarts of sweat pouring out of me. It was the scariest thing I ever rode.

Since I had invested so much time and money into the project, we bravely took it out on a few rides, trying to force ourselves to like it. But after only a total of about 60 miles (it seemed MUCH more!) I deemed it just too dangerous to ride, banishing it into the rafters of our garage to be fixed "when I had more time." This seemed to suit the bike just fine, and it happily lounged up there, snickering taunts down at me whenever I walked by below.

Then recently, on one of my periodic forays into Jim Wronski's People Movers store, I spotted a new Rans Screamer. Ooh was I impressed! It

was the tandem I should have made, had I known what I was doing. After a test ride I was even more impressed and I set about contriving how I could get one. Unfortunately, the chunk of change I had available was not tandem sized. However, in my scheming I realized I had most of the components I needed, being stored up in my garage in a mean, nasty, vaguely bicycle shaped holder. I lacked only a frame. While the Screamer is available as a frameset, I preferred to build a frame, so I might get some closure on the whole project. Jim graciously accommodated me, allowing me to take the measurements I needed from the Rans frame. Another great idea about to be shamelessly borrowed.....well, ah, stolen!

I had some anxiety about fabricating the intersection where the main 2" boom, the head tube and the downtube all intersect. However, using only hole saws, a hand drill, and large blocks of wood, I was able to easily fabricate it. Each cut did require about an hour setup for a 1 minute cut. I consider the frame to be a fairly easy frame to make, since the 2" main boom acts as a very rigid spine, holding the remaining tubes in reasonably good alignment for brazing.

The necessary chain-riders and tensioners I pretty much copied from the Rans design, cutting down skateboard wheels on a lathe for the





pulleys.  
 I utilized the heavy duty fork I had made from the previous tandem, as well as the previous "seat-stays." This was advantageous, as both had the specialized braze-ons for the hydraulic brakes, just where they needed to be.  
 The mating of Tour Easy style seats to the new tandems 2" top tube was a bit complex. Since I was unable to steal anyone's ideas forced me to design a clamping arrangement with quick releases, allowing for easy fore and aft adjustment.

For handlebars, I found that People Movers carries a really affordable nice set of ASS bars made by Bill Haluzak, that fold forward, and adjust vertically 4", just what I needed. In a final bit of creative theft, I copied Lightning's idea of using bands of large diameter heat shrink tubing to hold the brake and shift cables in place on the handlebar stem.

The final bike exceeded my expectations. The ride is excellent, almost hands off. There is a bit of flex laterally, but we quickly got used to it. The seats work well, but I think I'd prefer the mesh back seats that Rans uses. They're cooler on the back. Hmm...maybe if I took a few measurements....□

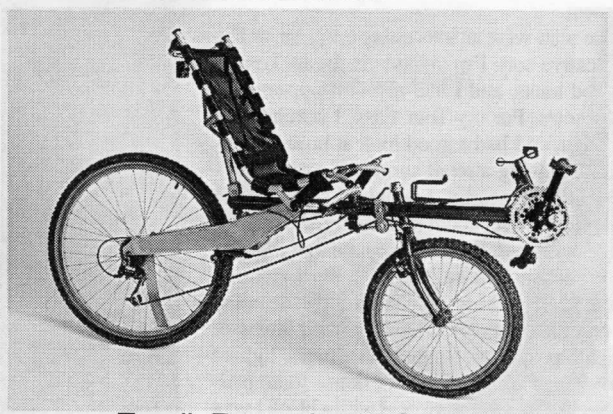


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# Recumbent Tech: The Sachs 3x7

by Richard Drdul, Email: drdul@mindlink.net

You may have heard about Sachs' 3x7 hub, and if so, you've probably wondered how it works and why so many people like it. As far as I'm concerned, the 3x7 hub is the best thing to happen to cycling since the invention of clipless pedals. I ordered my V-Rex with one, and liked it so much I rebuilt my old upright road bike with one.

The 3x7 hub is essentially a combination of a 3-speed internal hub (like on an old Raleigh, but without the coaster brake) and a 7-speed cassette. The result is 21 speeds, and we haven't even got to the chainrings yet. You can use a single chainring, or go for the full 63 speeds with triple chainrings.

Why would anyone want 63 speeds? Well, with standard mountain bike components you'll find it difficult to get a wide enough range of gears for a recumbent. The widest chainring spread that most front derailleurs can handle is 24 teeth (they're rated at 22 teeth but you can push it a bit). That would limit you to a typical gear range of 21 to 98 inches. In order to spin up steep hills, you'll want a low gear below 20 inches, and to blow away upright riders on downhills you'll want at least 125 inches. You could modify the front derailleur cage to handle a wider spread, but the 3x7 hub solves the problem by effectively adding seven lower gears and seven higher gears to what a standard triple chainring provides.

High gear is a 36% increase from neutral, and low gear is a 27% decrease from neutral. With a single 38-tooth chainring, for example, the 3x7 hub provides the equivalent of a 28/38/52 triple. On my 63-speed V-Rex, I have a gear range from 18 to 138 inches with a 24" rear wheel.

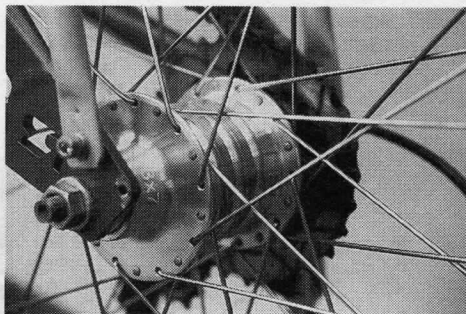
The model of hub that I'm using is the Torpedo. It has an aluminum body, is designed for a standard road bike dropout spacing of 130 mm, and comes with 36 holes and cost \$100.

For 1996, Sachs is offering three 3x7 hub models. The big change is that all hubs are now reconfigured for a 135 mm mountain bike dropout spacing. The Torpedo has become the middle-of-the-line hub, equivalent to the Centera or Neos component groups, and sells for about \$130. Top of the line is the \$190 Quarz 3x7 hub, with a forged and CNC machined body, which can accommodate Sachs' disk brake on the left hand side. A new economy model — the Trax — uses a steel body for lower production cost but higher weight, and is not yet imported to North America. All hubs come with 36 holes only.

## Real world experience

The 3x7 hub shifts smoothly. In fact, it's so easy to shift that I find that I shift the hub more than I use the front derailleur — it shifts immediately and I never have to worry about trimming the derailleur to avoid chain rub.

One of the things I like most about the 3x7 hub is that you can shift it when you're stopped. This comes in really handy at unexpected red lights when I haven't had the chance to downshift. When you're moving, you just let up slightly on the ped-



als, shift, and then continue pedaling.

The hub is bolted onto the dropouts, rather than using a quick release. This adds a minute or two to wheel changes — don't forget to carry a 15 mm wrench! The shift cable is disconnected by releasing a plastic "sleeve" from a threaded "rod". Reconnecting the sleeve and rod requires care to get the cable tension just right. For a while, my wife was having difficulty shifting her hub into low gear. I solved the problem by tightening up the sleeve a couple of threads.

I haven't been using the hub long enough to comment on its reliability, but I've communicated with several people on the Internet who've been using the 3x7 hub (and its predecessor, the Orbit 2x6 hub) for years without any problems. Ian Sims of Greenspeed told me that he installed a 3x7 hub on a tandem trike that was used in Paris-Bres-Paris, again with no problems despite the high torque loads of a tandem. For what it's worth, the hub comes with a two-year warranty.

As far as maintenance goes, Sachs' literature says that "the hub has been adequately lubricated." How reassuring. I phoned Sachs USA, and was advised that all I need to do for regular maintenance is drip some oil (Phil Wood Tenacious oil is good) down the indicator chain into the hub. If the hub is exposed to a lot of water, the bearings can be regreased, but I was cautioned *not* to grease the internal gears.

## Shifters

You have three choices of shifters:

- Sachs' PowerGrip Pro is a 3-speed/7-speed pair of GripShift-style twist shifters. They required straight (not curved) handlebars.
- The PowerPush shifters are a 3-speed/7-speed pair of RapidFire-style pushbutton levers (will not mount on curved bars).
- And if neither of those work for you, there's always a 3-speed Sachs "trigger" shifter which clamps anywhere on the handlebars (requires a 3-speed gear cable).

On my V-Rex, I use GripShift shifters for the front and rear derailleur, and have the trigger shifter for the hub positioned just to the left of the right hand shifter on my ASS handlebars.

Do not use GripShift or RapidFire shifters to shift the hub — the different amount of cable pull will mis-align the gears and screw up the hub.

There is no bar-end shifter available for the 3x7 hub. On my upright hpv, I kluged a sort-of-bar-end shifter by placing the trigger shifter at the



end of the handlebar. A recumbent rider in the UK told me that he has used a friction bar-end shifter for over 10,000 kilometers, shifting to neutral by feel, and has had no trouble. Sachs USA told me the same thing, but I'm not about to risk my hub with guesswork shifting. If someone ever comes up with an elegant bar-end shifting solution, let me know!

## The weight question

I'm not a weight weenie, so I don't really care what the 3x7 hub weighs. But for those of you who just have to know...

The 3x7 Torpedo hub weighs 890 grams, plus another 75 grams for the axle nuts, axle washers and indicator chain. Compare that with 475 grams for a Shimano XT freehub. The 490 gram difference is a bit more than a pound, for the metrically challenged.

If you're satisfied with 21 speeds, you can also count a weight savings of up to 350 grams by losing the front derailleur, two chainrings, a few extra links of chain and the long cage on the derailleur. In this case, the net weight penalty is about 150 grams or a third of a pound.

## Other important stuff

Other things you should know about the 3x7:

- Both Sachs and Shimano 7-speed cassettes fit the freehub body (both use 5 mm cog spacing).
- Running the shift cable from the handlebars to the hub requires additional braze-on's. Don't sweat it if you're planning to retrofit your 'bent, though—Sachs provides clamp-on cable guides with the hub. They look a bit on the cheap side, but they do the job.
- If you use the 3x7 hub on a front-wheel drive bike, or any bike with a short chain length, you'll need a chainring chainguard.
- At this time, towing a BOB trailer with the 3x7 hub takes modification. AngleTech sells a conversion kit BOB plans to have a 3x7 mount this fall.

Could there possibly be a better hub out there? Maybe. I'm drooling at the prospect of Sachs' soon-to-be-released Elan 12-speed internal hub (with coaster brake, no less). Just imagine — no derailleurs at all. It will have a gear range similar to a 21-speed mountain bike, and I figure it will be perfect for my currently-only-imaginary recumbent city bike! □

## WEIGHT

by Zach Kaplan

At one time, I was once preoccupied with the weight of my HPVs. The area where I live is very hilly and I'm lazy and don't like to pedal hard if I can avoid it. Naturally reducing weight and aerodynamic drag would be high priorities for a lazy man's bike in addition to maximizing comfort. I have always wanted the comfort, convenience, and speed of a car in a HPV without the polluting engine and excessive use of resources and road space.

Being car free, I occasionally had a need to go for a longer trip outside the immediate area. I could take mass transportation such as the train or a bus, but such infrastructure is sadly limited in the Western United States. This is what got me into long distance cycling. It got to the point where I was taking a long ride to enter a group ride only to ride back home later that evening or the next morning. There was a feeling of satisfaction to be able to cover great distances in 24 hour periods in reasonable comfort without the use of an engine. I entered some PBP (Paris Bres Paris) qualifiers as an experiment just to see if I could do it, having ridden my first "double century" in 1994.

After riding a faired HPV, I found the riders of equivalent or greater strength on conventional lightweight road bikes would pedal by me on the long uphill but I'd catch them again on the downhills, often not meeting them again for the rest of the ride. It was clear the HPV had a tremendous aero-advantage, but something had to be done about its weight. Stronger riders in a paceline were generally able to complete the ride sooner than me if significant climbing was involved.

In a quest for less weight and more comfort I obtained Lightning F-86, a carbon fiber streamliner with full suspension. Incidentally, it also has a lower, more aerodynamic sail cloth fairing. The main benefit I found was the increased comfort and control resulting from the addition of rear suspension. It weighs 3kg less and climbed easier. Initially, it felt much faster on the uphills but the novelty of being slightly lighter wore off and I realized the time savings on climbs was only a matter of seconds, no big deal. I did notice on rolling hills the new HPV seemed to "flatten" them somewhat. I would go down the downhill faster and get more up the next uphill before I started having to pedal hard. After a coast down test with a heavier rider on the older steel framed F-40 and myself coasting past him on the lighter lower bike I concluded that the rolling hill flattening effect was due mostly to the improved aerodynamics and only slightly due to the lower weight.

I had a lengthy wait for my F-86, as it was a new model. During the course of the wait I did more long distance rides on the F-40 and learned a lot from the various failures. As a result, my component specification changed several times, each time getting a bit heavier.

I realized the 18 x 1 Primo tire didn't have enough of a safety margin for streamliner speeds so I changed the specification back to the tried



Zach on his Lightning HPV  
photo courtesy of Gardner Martin

and true Moulton-Wolber 17". Some people I knew broke some spokes with 14 and 16 spoke wheels so the spoke count went up. I broke a Daido Supershift chain while climbing so I tossed out plans for the ultra light Regina hollow pin chain in favor of heavier conventional chains. I experienced some unexplained catastrophic failures of Air-B latex tubes and a friend had an unexplained blow out of a Delta latex tube, so I changed to the heavier Pacemark-Airlock self-sealing tubes. After some rear punctures I found a very reliable tire made by Michelin called the Supercompe HD. I chose the 23mm width rather than the ridiculously light 20mm IRC Paperlight. I found my knees and ankles preferred to be closer together when pedaling so down went my plans for a super-light Toplevel crankset. In its place came the narrowest Q-factor triple crankset I could find—a Mavic.

With the F-86 overdue, I was able to do several long rides on a preproduction prototype, which resulted in more component changes. The Union titanium spokes creaked noisily while climbing steep hills, so I dropped that plan and went with heavier DT Revolution stainless steel rear spokes instead. On twisty descents I noticed the F-86 coasted faster than the F-40 resulting in the rim brakes smoking out. For safety reasons, this led me to go with a heavier disk brake to get the heat away from the rim to avoid melting tubes or blowing tires. I went with the lightest disk brake, the AMP, which is perhaps too light for the application. The higher speeds also prompted me to raise the top chainring from a 56 to a 62 which was heavier and needed more chain. This also led to a heavier modified triple pulley rear derailleur.

I ended up putting a rear rack on it for touring, mudguards, and a high powered lighting system. The original plan was to take these accessories off when I was through with my tour and use the F-40 for commuting and the F-86 for higher-speed long distance rides, however, my plans

changed. The improved aerodynamics, full suspension, and better stopping power of the disk brake prompted me to make the F-86 the full time bike for nearly all purposes. I initially planned on removing the rack, mudguards, and lighting system prior to entering hilly group rides, then realized that it wasn't worth the hassle to remove them. Many of the group rides involve going into the night so the headlight system would be a good feature and also useful for riding home. The rear rack would always be useful to stow food, or in case I ran into severe wind conditions and had to remove the fabric fairing. Finally, the mudguards would always come in handy for unexpected rains and just to keep the inside of the fairing and drivetrain much cleaner. Why take off 500 grams of mudguards only to end up with 1500 grams of water and mud sprayed all over the inside of the fairing and your clothes? Ironically an ultralight experimental front mudguard fatigued and ended up causing a nasty accident, so it has been replaced by a heavier Esge mudguard specially reinforced with 6 struts.

What has become clear to me is that aerodynamic drag is far more important than weight in most conditions. I saw how the relatively simple substitution of sail cloth for stretch fabric in the fairing mid section increased my level ground speed 10%. You get a lot more performance improvement for your money through better aerodynamics than lighter weight. This isn't saying that weight is not important, just less important in comparison. A thousand dollars of weight reduction improvements may save me ten seconds on a major climb while a relatively inexpensive aerodynamic improvement could get me several more kilometers down the road every hour.

I realized that with the single position pedaling angle one is forced into on a recumbent, I will never be able to keep up with equal or stronger riders on the steepest or longest hills. My only hope is continued aerodynamic and handling improvements which will enable me to quickly make up any lost climbing time on the downhills and flats. My future direction is towards lower seat heights, improved aerodynamic shape, composite hard shelled fairings, long travel full suspension, and double disk brake systems with anti-lock braking. I am willing to accept an HPV which is heavier and slightly slower on the climbs if it is much faster on the flats. For now the sail clothed fairing F-86 is a good compromise and will always be useful for urban and suburban commuting whereas a more specialized ultra low hard fairing streamliner may be of more limited use.

My HPV continues to get heavier. I am upgrading the front disk brake to a stronger, heavier model and am also replacing a rear titanium bolt on skewer with a heavier CroMo quick release type to achieve a better interface between the rear hub and rear suspension swing arms.

I once had a reputation as a "Weight Weenie". From now on let it be known that isn't the case, I am rather instead an "Aero Weenie." □



# RECUMBENT NEWS & RUMORS

## \$15,000 WORTH RECUMBENTS STOLEN

Orange, CA—It was a warm and sunny afternoon in Orange. She came into our store and asked to use the restroom. Ten minutes later she emerged and started making small talk. She was not our typical customer: dressed in hot wool pants, about 5'5", reddish-brown hair, slightly pudgy with a lot of pale makeup covering the scars on her cheeks. She was about 35 years old and said her name was Pam Walters.

After about an hour of test riding bikes, "Pam" told her well rehearsed story of how she had recently married for a second time. She had two kids and so did he. She wanted to have an activity that the family could share.....bicycling. It was to be a surprise, with the funds coming from the sale of a boat.

"Pam" had a carefully chosen list: four BikeE's (one of each color), a red Easy Racer EZ-1 for herself and a blue Lightning P-38 for her husband. She had them decked out with racks, kickstands, water bottles and cages. She added helmets, gloves, pumps, slime and tools to her list. Pam said that she'd call back in a few days to make payment arrangements and pick up the bikes.

Four or five days passed. "Pam" called from a cell-phone and asked for the total. It came to \$7,636.20. "Is a personal check OK or would you prefer a cashier's check?," she asked. I fell for the obvious and asked for a cashier's check. Arrangements were made to pick up the bikes on Thursday, May 9 just after noon. She arrived late, about 4:45 in the afternoon and immediately handed Linda a parchment envelope which contained the check. A quick glance confirmed the amount and it was put aside.

She had rented a U-Haul mini truck with a box on the back to haul the goods. She pulled around back and Frank, our shop mechanic, loaded the bikes. Mike Jefferies, a weekly regular at the store, sat at a table and watched as we excitedly loaded the van. It was over in about 15 minutes. We all sat down and gave ourselves a "pat on the back" for just consummating the largest single sale since we started People Movers.

Friday morning came. The day started as usual with lots of phone calls and questions about recumbent bikes, but something was wrong. I told Frank that I felt funny, that I didn't feel right, though I couldn't put my finger on it.

About 11 AM, I opened my drawer and saw the envelope that contained the check. I looked at it with anticipation of depositing in the business account later in the afternoon. For some reason, I decided to call the bank that the check to make sure it was good. "No such number check," I was told by the teller. There had to be a mistake. Perhaps it came from another branch. "No, all cashier's checks are registered on the central computer," she replied. I faxed them a copy of the check and the verdict was in—the check was counterfeit.

On Wednesday, April 15, I learned that this same person went to Hal's Recumbents in Redondo Beach two hours later and swindled him out of a Windcheetah, Kingcycle, Radius Peer Gynt and a BOB trailer.

If you see or hear anything about these bikes, please contact People Movers at Ph#714-633-3663.

The serial numbers are as follows: BikeE, red, 21 spd. #19680; BikeE, black, 21 spd. #19601; BikeE, violet, 21 spd #19646; BikeE, blue, 21 spd. #196272; Lightning P-38, blue #733; Easy Racer EZ-1, 21 spd. #189; Windcheetah (trike) #140FS; Radius Peer Gynt (LWB USS rear susp.) #33R393; King Cycle #KC1247. The Local and Federal authorities have been notified and are investigating.

## NEW 16" TIRE NOW AVAILABLE

Seattle, WA—Vision Recumbents is pleased to announce the arrival of their newest product; the only high quality, high pressure 16" x 1-3/8" (37-349) tire in existence. Featuring a herringbone tread on gum wall sidewalls, this 37mm tire has a extremely supple casing, and is rated at 85 psi. Vision has long been aware of the limitations of the 16" x 1-3/8" tires that were on the market in the past. Since the 16" size was typically used on juvenile bikes over the years, development of high quality tires has never been an issue. With the explosive growth of Vision Recumbents over the last three years, the supply of 16" tires of any quality dried up completely. Approaching the problem head-on, Vision worked with a major tire manufacturer to design a 16" tire that would have high performance and an excellent ride. After months of design and testing, the HP16 was perfected and is now available.

With its high cord-count the HP16's casing is supple and yields a comfortable ride, yet is still very efficient, with excellent rolling resistance characteristics. Suggested retail in the US is \$23.00. Contact your local Vision dealer, or ATP/Vision direct for more information.

## ANGLETECH ULTIMATE TOURING BIKE

Renton, WA—New from the guy who can't leave anything alone—and specs among the nicest recumbents on the face of the earth. AngleTech introduces the ultimate touring-spec LWB: the AngleTech Stratus GL63 (Touring) LWB recumbent. This cross country or fire road barn-burner comes equipped with a 26" x 1.5 Avocet Cross rear tire, a 20" x 1.75" Tioga ST Comp front, hand built with DT spokes and Sachs New Success front and 3x7 Sachs rear hub (for 63 speeds). The headset is a lux Chris King, bottom bracket a Shimano sealed, outfitted with low touring gears, an XC Pro crankset, Magura brakes, Deore XT derailleurs and SRAM Grip Shifts. Kelvin had this to say about the new Stratus, "I strongly suggest the low rider stuff (or BOB Yak) for good (touring) weight distribution and front wheel traction as most touring customers want to dirt road tour as a regular thing. With the new Rans seat, Rans X-seam ranges have been revised, now few people need a '40' (large size) and the '33' Nimbus is actually a mainstream size!"

To go along with your custom touring Stratus, AngleTech has just announced a custom BOB Yak trailer option. The stock trailer is \$259, and with a custom handbuilt 16" x 1-3/8" wheel that



The Batavus Relaxx

includes: 28 DT spokes, a Phil Wood hub, Primo tire, etc., this option is an additional \$179.

Lastly, for the barely upright crowd, an AngleTech spec 63 speed (Sachs 3x7) Rans ZeroG cruiser will also be introduced this season.

## RECUMBENTS GOING MAINSTREAM..... but not in the USA?

Renton, WA—Did you catch the last minute RCN#32 press release about the new Canadian recumbent, the "Quetzal"? If you didn't, turn to pg.65 and read it. This monobeam aluminum framed, intermediate drive equipped LWB 20/16 recumbent is rumored to be produced by a MAJOR Canadian bike firm, PROCYCLE (the Trek of Canada?). This is a company that we had never heard about until a reader faxed us a copy of the flyer. We've tried to get info on this bike three times to no avail.

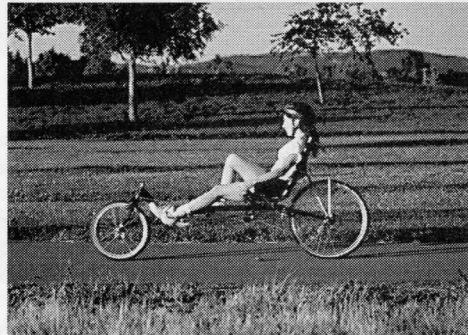
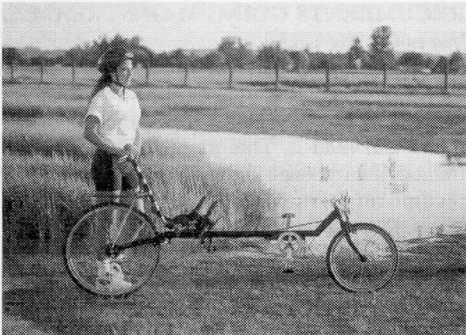
As reported in the "hot-off-the-press" *Bicycle Culture Quarterly* #9 (BCQ), Europeans are leading the way into the mass market recumbent world with a new Johannes Vrieling (FlevoBike) designed Dutch Batavus MWB "Relaxx" recumbent. BCQ reports that the bike costs about the same as a good touring bike, £615 or \$900. BCQ reports, "The Relaxx is fitted with mudguards, carrier, dynamo lightning and Shimano Nexus seven-speed hub gearing....Opinions differed among smaller HPV manufacturers. Many thought that Batavus have missed a trick, aiming the Relaxx at an older, affluent touring market, while keeping the specification and price relatively low. Others remarked on the design similarities with the Lightning Stealth frame, and the Linear seat. All realized the significance of what seems to be the world's first mass-market recumbent." An RCN reader faxed Batavus about US distribution and they declined. BCQ also reported on the dutch company, Gazelle's high-low concept bike that seems to be a cross between a cruiser, city bike and recumbent. BCQ#9 is available at several recumbent shops or for \$8 + \$2 postage from: Open Road USA, PO Box 291010, Los Angeles, CA 90029 (BCQ USA Agent).

## HAWAIIAN HALUZAK CONNECTION

Santa Rosa, CA—Bicycles by Haluzak is pleased to announce that Lynn Miller (see RCN#31) is the newest BBH representative. Lynn's new company, located in Pearl City, Hawaii will be known as Hawaii Rainbow Riders. HRR has several unique ideas on the promotion



Haluzak Storm photos by Jean Von Trende



The Italizan Zizile

of recumbent riding. One of which is to make it easy for tourists to enjoy a recumbent vacation. Why not take home a souvenir that won't gather dust on a shelf", says Lynn. Along with the purchase of a new Horizon, HRR will offer free guided tours, plus re-packing and delivery of your new Horizon to the airport. If you want to bring your own bent, that's fine too. Lynn would love to show

you around his beautiful island home. Come and meet fellow bent enthusiasts and take home memories that you will never forget. To reach Lynn and HRR, phone 1-808-456-5707.

**HALUZAK INTRODUCES LWB USS**

Renton, WA—Due to customer demand, Bill Haluzak has just introduced the new "STORM"

*Recumbent Cyclist News #34*

LWB BBH model. This monobeam LWB has a low 19" seat height, a low bottom bracket height designed for comfortable riding. The STORM has a 66.5" wheelbase and weighs 32 pounds. The new model will be outfitted with 21 speeds via a Sachs 3x7 hub, shifted by Sachs Grip Shifters. The rear wheel is a 26" x 1.5", the front a 20" x 1.5" with a Sachs Neos front hub. Both wheels have Sun CR16 rims. The brakes are Dia Compe Big Dog calipers with Tektro levers. The new model comes in red, blue and green. Also noticeable from the pictures are the new custom bend handlebars with integrated bar ends. The suggested retail price of the STORM is \$1395.

**NEW BIKE FROM ITALY**

Tolmezzo, Italia—We are a new research team called SEEK, and we are the first in Italy that have projected and built a recumbent the ZIZILE, meaning swallow in Carnian language.

Even if in Italy MTB, and conventional bike's market is lively, there isn't anyone ready to build We have shown ZIZILE at the International Cycle Meeting in Milano and a lot of magazines (Italian) reviewed our work with compliments.

The most important innovations of ZIZILE compared to previous 'bents are:

16" front wheel is placed in front of the pedals axle and the steering is controlled by a close circuit wire used in aeronautical works.

The crankset is moved to a lower position; in this way the pedal axle doesn't obstruct visibility, and moreover, becomes cleaner.

The low center of gravity and front wheel favor an excellent ride at high speed. The rigidity of the frame guarantees the greatest propulsive effort to the back wheel, avoiding torsional stress.

Going up and down ZIZILE is too easy. Even beginners can relax themselves, after a few meters, and ride for a lot of miles with ease.

For more information write or email: "Seek" ing. Franco Pittino Via Monte Croce 33028-TOLMEZZO-UNINE (ITALY). Tel. 0433/928791.

**ATP PRODUCTION MANAGER DIES**

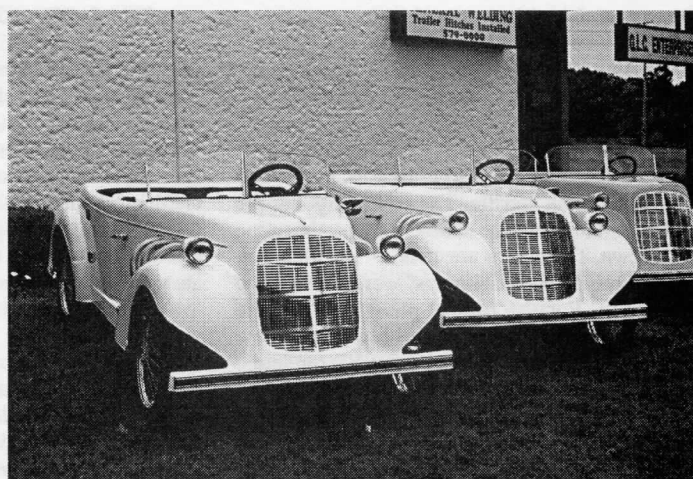
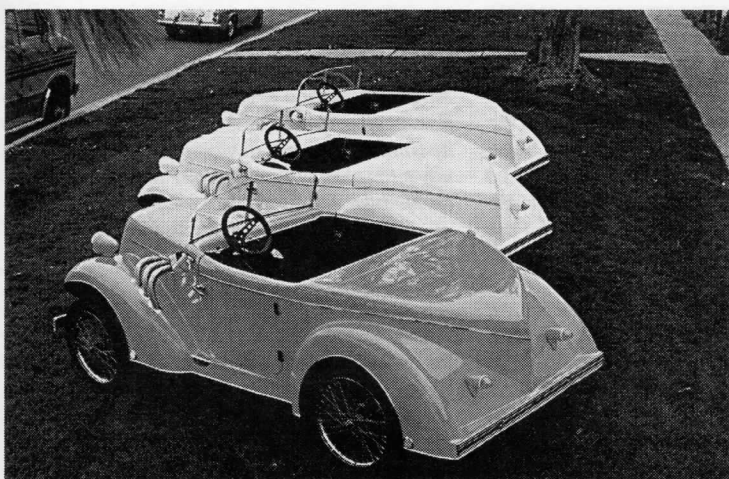
Seattle, WA—Jerold D. Larson unexpectedly passed away June 2, 1996 of cancer. Jerry was responsible for running the Everett fabrication facility for ATP. Jerry's strong work ethic and passion for quality of his products, made him a person any company would be lucky to have on the team. Jerry had been with ATP since the inception, and will be truly missed by everyone at ATP and the recumbent bicycling community.

**HALUZAK—WINE COUNTRY RIDE**

Santa Rosa, CA—Bicycles by Haluzak is sponsoring a Wine Country ride throughout the Santa Rosa, CA area on Saturday June 29, 1996. The route is approximately 35 - 40 miles. All Human Powered Vehicles are welcome. Hope to see you there! Call: (707) 544-6243

**SCHWALBE CITY JET TO BE IMPORTED**

Kent, WA—J & B Importers, a local wholesale bike supplier will be importing the 406mm 20" x 1.25 Schwalbe City Jet tire from Germany. Look for the tire in your favorite recumbent shop sometime in late August..



The Autobike Pedal car

#### THE AUTOBIKE PEDAL CAR

Simi Valley, CA—Finally, something to excite the entire family! Autobike pedal car is classy, it's fun and great exercise, all in one. This two passenger classic vehicle is powered by foot pedals. A TOY FOR ADULTS. The Autobike is styled after the 1936 Auburn Speedster. The entire body is made of durable fiberglass. The color is in the fiberglass and comes in red, black, creme, yellow, blue or grey. The doors are suicide (open front and outward) with chrome handles inside and

out. There is also an optional working trunk. The Autobike has chrome bumpers as well as body side moulding.

The Autobike is chain driven with multiple gears, has 16" heavy duty wheels, disc brakes, rack and pinion steering and each passenger has independent pedaling and adjustable padded seats.

Autobike prices start at \$2995. For more information, contact Autobike Creations, 1464 Madera Rd., Ste. N160, Simi Valley, CA 93065 or call 805-527-5850.

#### PEOPLE MOVERS TO SELL AIR-ZOUND

Orange, CA—People Movers announced today that they have become distributors for Air-Zound Bicycle Horns. The Supercharged Air-Zound charges with a pump and is said to be the loudest bike horn on earth. Suggested retail price of the Air-Zound horn is \$34.95, they are on sale at \$24.95 through August 31. People Movers, Tel. 714-633-3663. □

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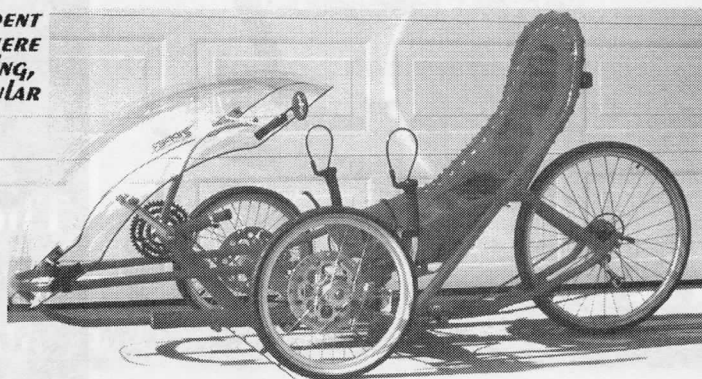
## THE ZEPHYR MK III FROM PRACTICAL INNOVATIONS

**OUR NEW Zephyr Mk III GTX Sports Recumbent Trike makes you the center of attention everywhere you go. The Mk III GTX includes a Zipper Fairing, XT components, Disc Brakes and the ever-popular Sachs 3x7 for a total of 63 speeds.**

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**Email address:**  
 rhorwitz@hooked.net  
<http://www.hooked.net/users/rhorwitz>



**RCN BUYER'S GUIDE**

From: 70156.564@CompuServe.COM

Dear Doc,

Congratulations on your best RCN yet. The Buyers Guide is terrific. The cover is good, the layout beautiful, and the number of typos has gone way down. The photos are clear — and plentiful. Your "Primer" and "Critiques" were right on the mark, too. For the future, please review the Haluzak Traverse (one of the few really new designs listed) and the two "SWB" tandems. Thanks again for all your work on a great issue.

Ollie Deex

**THE ASS AND USS CONTROVERSY**

Dear Bob,

I don't know about you, but I find it embarrassing to discuss USS and ASS configurations in mixed company. Therefore, I humbly suggest that the designations be changed to UFS for Under Frame Steering and AFS for Above Frame Steering. What do you think?

Sincerely,  
David Seaver  
Manhattan Beach, CA

*David, Even though I am guilty of occasionally inventing terms, I did not come up with ASS. This was started on the Internet HPV list and to keep thing simple we started using it as well. You can access the "HPVList" from: <http://www.ihpva.org> and look for email subscription information.*

**STEERING: ASS VS USS**

From: Wyms@aol.com

Dear Bob,

Do we not owe something to history? USS is "WHATTON BAR" steering. ASS is "HANDLE BAR" steering.

Bill Patterson

**GOLD RUSH REPLICA ADVICE .....**

From: VidVan@aol.com

Dear Dr. Recumbent,

I'm writing, asking for advice. I'm presently entering my second year of daily commuting in New England on my beloved Ryan. I have the hours, paid the dues, skipped the car payments,

secondly, because I don't think you'll need them. Personally, I would not put them on my GRR, however, RCN Magura-guy, Ron Schmid, who rides a Magura equipped Presto and Triad, visited Easy Racers this Spring and said his GRR will have hydraulics. Ron has always been partial to cooking-oil brakes and talks of the day when nothing on his bike will be cable actuated ☺. AngleTech now offers Gold Rush Replicas with Maguras and will sell the correct brakes and mounts for the bike—Bob.

My question is about the braking system. I've never been happy with the stopping power on the Vanguard. As you know, there has been a lot of chat about Maguras on the Internet. I questioned Gardner about installing them on my GRR. He diplomatically pooh-poohed them, saying he has had bad luck with his hydraulics. I'd sure appreciate your highly respected 2¢.

Thank you, in advance,  
Clint Van Orsdell

*Clint, Thanks for your kind words. You will love your Gold Rush Replica (GRR). It is an excellent bike and my guess is that your commuting time will decrease. Here are some of the changes we've made to our long-term GRR test bike:*

- More radical gearing: 24/42/54 180mm crank
- Short cage Shimano rear XT derailleur and 12-30 freewheel (this gearing is not supposed to work, but it shifts great.)
- Zipper "T" brackets to hold the Zipper fairing
- Dia Compe high quality MTB brake levers (I used the "T" brackets because I wanted better brake levers) I use high quality lined brake and derailleur housing. I lube it with TriFlo once per month. Many who have ridden my bike have noted how dialed it felt.

*Here are some other suggestions:*

- If you will ride on bad roads or weigh over 200#, get fat tires.
- Get the Super Zipper fairing for those cold NE mornings and a noticeable speed increase.
- Get the dual water bottle cages on the bars.

*As for the brakes. I am a big fan of high quality caliper brakes and I hate cantilevers. My Shimano 105SC dual pivots stop better than most of the cantilever set-ups I've tried. Certainly better than a stock Ryan or even Easy Racer Tour Easy set up. Both are pretty good (aside from Ryan front brakes). One of the most important keys to a good dialed brake system is also the most often overlooked—levers and cables. A good cable (GRR stock is good) and an aftermarket brake lever will improve the braking "feel" and sometimes the power, depending on how good the lever is. As for the 105's, give them a chance. If you don't like them, upgrade to Maguras later. I would not recommend getting the Maguras right away. Firstly, because Easy Racers doesn't deal in them, and*

secondly, because I don't think you'll need them. Personally, I would not put them on my GRR, however, RCN Magura-guy, Ron Schmid, who rides a Magura equipped Presto and Triad, visited Easy Racers this Spring and said his GRR will have hydraulics. Ron has always been partial to cooking-oil brakes and talks of the day when nothing on his bike will be cable actuated ☺. AngleTech now offers Gold Rush Replicas with Maguras and will sell the correct brakes and mounts for the bike—Bob.

**RANS STRATUS - MODIFIED STEERING?**

From: jj@zero.ssg-reston.tandem.com

Greetings,

I've had a Rans Stratus since 1989. My mileage was roughly 150-200 miles a week on various frames (touring, road, ATB, recumbent) during the summer BC (before children). Right now it's more limited and mostly on the Stratus. It's comfortable for short to mid-length rides, but the current seat (fiberglass) isn't suited to long treks. I've ordered a new seat for it and hopefully that will take care of the seating issue. My other issue is the steering. I have the "C" bars and I've never been real happy with it. I've done a number of adjustments, but haven't found anything I'd call ideal. So I'm looking for insight on either adjusting my current steering setup, replacing it with the "B" steering.

John J. Zimsky, Jr.

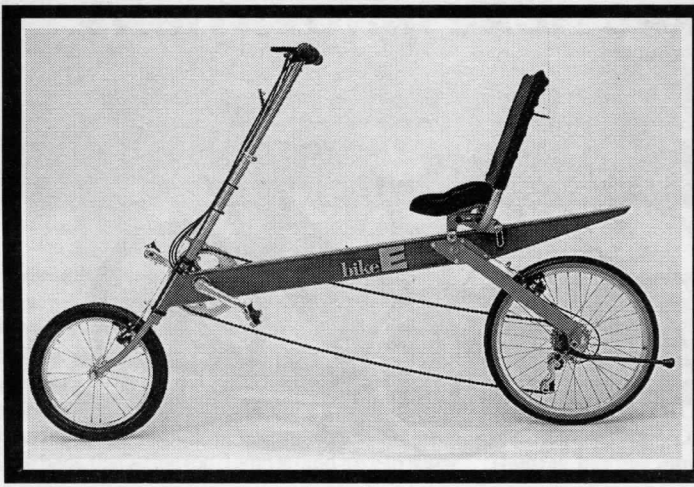
*John., the "C" bars are the closed loop type and Rans favorite. John Schlitter of Rans says they are much narrower and more aerodynamic. This is not really an issue because this bike should have a Super Zipper fairing. The "B" bars will give you a much wider open stance bar, that is not as stiff (and even the C bars aren't that stiff). Your other option would be to go with Easy Racer bars. I like the EZ-1 bars, which are wider, taller and have a more open wrist position than Tour Easy bars. I'd do some measuring before I spent the bucks, but this may be the answer. Easy Racer bars must be purchased with a stem. While you're at it, get the Super Zipper if you don't already have it.—Bob.*

**CHAIN TENSIONER**

From: glim@pa.mother.com

Dear RCN,

I saw a chain tensioner device that hooks up



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to the rear derailleur recently. It was overpriced at \$29 and didn't fit my derailleur, but it seemed like a good idea. It consisted of a piece of aluminum that extended directly rearward from the rear axle and a spring that connected the aluminum piece with the lower pulley end of the derailleur. Has anyone had any experience with such a device? I wonder if such a device would permit my Tour Easy to run without the noisy chain idler.

Live long and prosper  
Gerald

Gerald, I believe you are commenting on the Bullet Bros. chain tensioner. It comes standard on some Rans models and works really well on recumbents that don't have or need a chain idler. The Bullet idler can tighten up your drivetrain (especially if its plagued by a weak-sprung Shimano derailleur), but it WILL NOT replace a stock idler. As for riding your Easy Racer without "the noisy idler", I would not recommend it. This idler takes in the slack of 3" (or so) of chain. This allows the bike to have a wide range of gearing that is not possible on many recumbents of similar design, without complicated gearing schemes.

Some of the idler noise can be reduced by sealed pulleys, but I don't recommend taking it apart unless you know what you're doing. I once took mine off and installed a skate wheel idler. Within one day, the stock idler was back on.

Another interesting element specific to LWB Super Zipper users is that the fairing tends to muffle and intensify some noises--such as those made by the idler. Veteran Easy Racers don't even notice it, however, newbies still bring it up—Bob.

#### SHIMANO V-BRAKE NOT PERFECT?

Dear Editor,

There's another problem with Shimano's V-brake, more obvious and potentially more serious than lever compatibility. Feel the extremely loose mounting of the brake shoe. If any other brake manufacturer had produced a brake with shoes fastened this loosely on the cantilever arms the whole industry would have instantly found fault with it. But, in this case attention is focussed on the long upper arms and the horizontal pad pressure that this potential problem is being overlooked.

Attachment of shoe to arm should be as solid as possible whether on a new brake or a well-worn one. With the multiple small, weak pieces on the V-brake, one can expect vibration or chattering on some rims even when new. And this should increase as the brake is used and these parts become worn.

How could this have been marketed? Well, all we have to remember is the elliptical chainrings.

Rather than this expensive gimmick, all cyclists need to do is adjust the shoes in the "roll" mode so that the pad meets the rim as flatly as possible, then adjust vertically so the pad is as close to the tire as possible. It will quickly wear into full rim-pad contact and will at most need one upward adjustment when half-worn.

Very sincerely,  
Edward Scott  
Scott/Mathausen Corp.

Edward Scott manufactures the Scott Super Brake scissor action caliper brake. "Lighter, simpler and

more powerful than what Shimano and Campagnolo offer..."—Road Bike Action. "Your Superbrake is magnificent! I've never had such a sure and responsive braking! I fitted one brake to the rear wheel of my Avatar, where most (67%) of the weight is, and my stopping ability, and feeling of safety, is transformed. It has a very solid feel to—no sponginess - no noise or chagger..."—David Gordon Wilson.

#### GREENMACHINE NOTES & BG KUDOS

From: tbunch2@ix.netcom.com

Dear Doctor Recumbent,

My thanks to you for a fabulous 1996 Buyer's Guide. I don't see how you can top it without increasing your staff by 100% and increasing rates by 200%. All of us out here in "recumbentland" appreciate your efforts.

I'm writing to give you a translation of the Flevobike Greenmachine ad that is in the HPV site files. I have a Dutch friend that read it for me today. It says: "The Greenmachine is a recumbent bike that has full suspension. It is constructed of high quality, no maintenance aluminum modules. The Greenmachine has a fully internal chain-transmission to the rear wheel. The 20" suspended wheels are mounted one-sided, and they have low maintenance drum brakes. The machine may be folded compactly. Delivery of the Greenmachine will start in spring 1996. Introductory price is FL. 2480 ( Netherlands pricing ) Flevobike DE Contact Flevobike direct at: De Morinel 55, 8251 HT Dronten, The Netherlands."

Tom Bunch ☐

## Cruise in Comfort on a Linear Bicycle



The Linear is now offered with full a  
**LIFETIME** frame warranty

# LINEAR

## ALUMINUM RECUMBENT BICYCLE

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For your nearest dealer call

**Call: 319-252-1637**

**Fax: 319-252-3305**

North America's only  
**FOLDING** recumbent!

**LINEAR FOR 1996: 700c or 26" rear wheel and our new lumbar-cushioned seat**

# RCN Rider Calendar

## Haluzak Dry Creek Valley Ride & BBQ

June 29, 1996  
Santa Rosa (Hillsburg), CA  
Contact @ 707-544-6243 to preregister.

## Midwest HPV Rally

July 6, 1996  
Burlington, WI  
Contact: Dennis Northey @ 414-671-4560

## WISIL "Cheddar Cheese" Challenge

July 7, 1996  
Kenosha, WI  
Contact: Dan Glatch @ 414-377-0864

## • LOW-DOWN and LAID BACK Cycling Club of Greater Skookum\* No Host Recumbent Ride

July 13, 1996  
Pedal 20 miles RT from Lake Meridian in Kent, WA to the Black Diamond Bakery.  
Kent, WA (Lake Meridian Park 9:30 am)  
Contact: SASE to PO Box 58755, Renton, WA 98058.

## Twin City's HPV Rally

July 27, 1996  
Elko, MN  
Contact: Dave Krafft @ 612-929-2978

## Minnesota HPV Rally

July 28, 1996  
St. Paul, MN  
Contact: Dave Krafft @ 612-929-2978

## Exhibition of HPV's

Late July, 1996  
Pasadena, CA  
Contact: Stephen Nowlin @ Ph# 818-396-2397 or  
Email: nowlin@artcenter.edu

## European HPV Championships (BHPC)

July 26-28, 1996  
Leicester, England.  
Contact: Nick Green, secretary @ +44 1785 664879(UK) or 100771.3023@compuserve.com

## Cyclefest U.K.

July 31-August 5th, 1996  
Lancaster, England  
Contact: John Bradshaw @ +44 01524-63446 X474

## • LOW-DOWN and LAID BACK Cycling Club of Greater Skookum\* No Host Recumbent Ride

August 1, 1996  
Pedal 20 miles RT from Lake Meridian in Kent, WA to the Black Diamond Bakery.  
Kent, WA (Lake Meridian Park 9:30 am)  
Contact: SASE to PO Box 58755, Renton, WA 98058 .

## IHPVA World HPV Championships

August 16-20, 1996  
Las Vegas, Nevada  
Las Vegas Motor Speedway Park  
Contact: IHPVA, PO Box 727, Elgin, IL 60121-0727  
Ph/Fax#708-742-4933

## • LOW-DOWN and LAID BACK Cycling Club of Greater Skookum\* No Host Recumbent Ride

September 7, 1996  
Pedal 20 miles RT from Lake Meridian in Kent, WA to the Black Diamond Bakery.  
Kent, WA (Lake Meridian Park 9:30 am)  
Contact: SASE to PO Box 58755, Renton, WA 98058.

## Northbrook 100

September 7, 1996  
Northbrook, IL  
Contact: Sean Costin @ 708-468-1312

## Interbike Anaheim International Bike Expo

September 19-22, 1996  
Anaheim, CA  
Contact: Interbike @ 714-376-6161

## People Movers Open House and Ride to the Beach

September 21, 1996: 8am-5pm  
980 N. Main, Orange CA.  
Contact: Jim Wronski Ph#714-633-3663.

\*Formerly NW Recumbent Riders

**DON'T MISS THE ANNUAL PEOPLE MOVERS OPEN HOUSE AND RIDE TO THE BEACH. September 21, 1996, 8am-5pm Call People Movers for more information, ph#714-633-3663**

## Active Rider Groups

• **CHICAGO AREA RECUMBENT RIDERS:** Meet 9:00am Sunday mornings (weather permitting) at the parking lot at the South end of the Caldwell Woods bike path. Contact: Joe Dickman at , Ph#312-725-0331.

• **COLORADO RIDERS:** Recumbent rider group forming for touring, racing, fun rides, exchanging information, etc. Rides could be arranged anywhere in the state. If interested, Steve Ph#719-546-1287, Email to: scarmel@smtpgate.ssmc.noaa.gov

• **EASY RACERS:** Quarterly rides, ph#408-722-9797.

• **LASERR:** Loose Assemblage of SouthEast Recumbent Riders: Covering FL, GA, & AL. Sample newsletter, send SASE to LASERR, 1964 Forest Avenue, Daytona Beach, FL 32119-1591 Subscription \$5.00, payable to Fred Ungewitter. Info: 904-767-5768, fredu@america.com

• **LOS ANGELES RECUMBENT RIDERS:** Meet monthly, third Sunday, 10 am at Burton W. Chace Park, Mindanao Way, Marina Del Rey, CA. Contact: Chris Broom Email: pwtccb@is.arcom.com

• **Michigan HPV Assoc:** Linda Jayne, 45223 Cass Ave. Utica, MI 48317.

• **Minnesota HPV:** 4139 Brookside St. St. Louis Park, MN 55416. (*Members, please send us an update!*)

• **OREGON HUMAN POWERED VEHICLES:** Meetings rides and a bimonthly newsletter. Newsletter available. Dues \$10. OHPV, PO Box 614, Beaverton, OR 97075

• **LOW-DOWN and LAID BACK Cycling Club of Greater Skookum** (NW /Seattle area Recumbent Riders & friends): Riders meets the first Saturday of the month at Lake Meridian Park in Kent, WA (July ride is on the 13th!). SASE to: PO Box 58755, Renton, WA 98058.

• **PEOPLE MOVERS/ORANGE CO:** Monthly rides, Ph#714-633-3663.

• **SAN DIEGO RECUMBENT RIDERS:** William Volk, 2348 Lagoon View Drive, Cardiff CA 92007. PH#619-930-2323, Email: bill\_volk@lightspan.com, Ride on last Sat. of the month, Mission Bay Visitors Center off of I-5.

• **WASHINGTON DC AREA: W.H.I.R.L.** (Washington's Happily Independent Recumbent Lovers) The folks meet at the Viers Mill Recreation Center. MD, north end of Beach Drive, Saturday morning, weather permitting, at 8am (9am after the clocks go back in the fall.) For more info contact: Vic Sussman at 301-897-5959 or vic@clark.net. To subscribe to the WHIRL mailing list, send email to majordomo@cyclimg.org. In the body of your message type SUBSCRIBE WHIRL

• **WESTERN WHEELERS:** Monthly Recumbent & HPV rides, every 3rd Sat. AM (April-Nov.) at Gunn HS in Palo Alto CA. Call Alvin Chin ph#415-571-5147 or Email: AlvinTChin@aol.com

• **WISIL HPVers** (WI/IL): Meets the last Sat. of each month. Contact: Len Brunkala, 260 S. Channing, Apt.#1, Elgin, IL, 60120-6619.

This is a listing of **ACTIVE** recumbent rider groups and contacts. If you would like your group or notice to form a group listed, please send it to RCN, POB 58755, Renton, WA 98058. A phone number with listing is preferred. If you are a member of group that does **NOT** keep RCN on your mailing list, please drop us an activity report, note or newsletter. Riders, please send an S.A.S.E. with any correspondence.

# Recumbent Sea News

Your source for Recumbent Bikes in the Great Lakes area of the USA and Canada



### Advertisement

The Recumbent Sea is THE source for Recumbent Bikes in the Great Lakes area of the US and Canada. We STILL offer FREE test rides but we like you to know that it actually costs us nearly \$100 to provide you with a day of test riding. WE also have an extended test ride program that gets you a full day of test riding for \$50 bucks and gets you a coupon for \$100 off any recumbent.

## Recumbent Sea

1225 ROSEWOOD  
PO BOX 285  
MOLINE, MICHIGAN 49335  
616.877.2050  
SHELDONHE@AOL.COM  
1 800 354 6916 ORDER LINE

### Observations on selling things part one:

As many of you know it is not in my nature to sell things. I am not a born salesman. There is no high pressure sales pitches at the shop. I probably could sell lots more by doing the stuff they teach at sales seminars. Come in and hang out at the most laid back shop on earth. Shel.

### BikeE Sale

Buy a BikeE and get a pannier rack free, a \$75 value.

Floor models available September 1. Choose from 20 Recumbents at 25%-50% off list. No floor models available until Sept. 1.

RANS  
Easy Racer  
ATP  
BikeE  
Maxxam  
Quetazal  
Lightning  
Linear  
Haluzak  
And more!

### Summer Weekly Open House

For test riding: Saturday 10AM to 8PM. We are at the shop nearly all the time during the summer. But we do get out and ride too. So call ahead if you are traveling a long way. Feel free to make an appointment for most any time.



# S & B

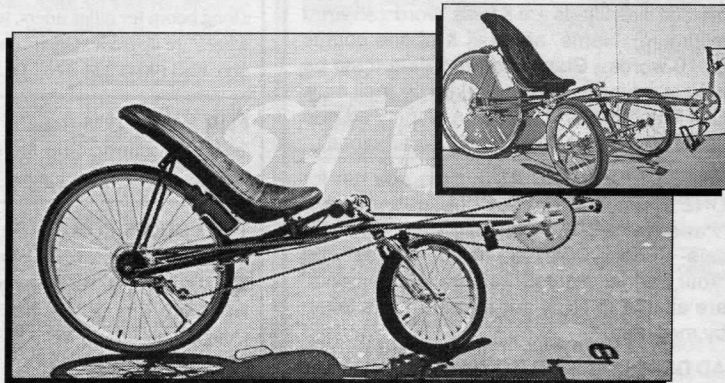
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## NEW/ DEMO RECUMBENTS

**RECUMBENTSEA LABOR DAY FLOOR MODEL SALE** Some of these will go as low as 1/2 of the current retail price. Sale starts on AUG 30, Labor Day weekend and continues till all are gone. **RANS:** Rocket, 16" x 20", red, list \$1095 sale \$700; '95 model Stratus, small frame, 26" mtn. rear, 20" BMX front, 37" "B" bar '95 model cantilevers, list \$1595 sale \$1200; Nimbus 26" mtn., 20" BMX front, cantilevers "B" bar, 37", green list \$1595 sale \$1200; '95 model Tailwind 20" x 20" BMX size, green, "B" bar list \$985 sale \$800; '95 model Response 26" rear, 20" BMX front, "C" bar, list \$1375 sale \$650; '94 V-Rex, 37"; '96 V-Rex 24 \$1475, floor model \$1300; Screamer tandem (small frame) here floor model list \$3875 sale \$2995 **ATP VISION:** R-40 USS SWB current floor model, list \$995 sale \$800. **BikeE:** 21 & 7 speeds: \$100 off your choice, these are new and never ridden, an overstock special. **LINEAR:** floor model \$950. **Recumbent Sea,** Moline, Michigan. Tel. 616-877-2050 or 1-800-354-6916 (orders only) Email: SheldonHe@aol.com

**FOR SALE: 1996 HALUZAK TRAVERSE,** suspension! immediate delivery, \$2195. Now taking orders for the new Haluzak LWB Storm. People Movers Ph#714-633-3663 or Email: PepleMovers@aol.com

## Classified Rates

**SUBSCRIBER/NON-COMMERCIAL RATES:** \$12 one insertion/\$18 for two to 35 words. Non-Subscriber rates: \$24 one insertion/\$36 for two for up to 35 words. Commercial classifieds are \$1. ea. word (35 word minimum). Name, address & phone counts as 10 words. Classified ad orders must be paid in advance and are taken by mail only. Call Ph#206-630-7200 for a display ad rate sheet (classified ads are paid in advance).

**FREE CLASSIFIED ADS:** Free ads run for ONE issue and are for subscribers only. "Parts Wanted," "Parts For Sale," "Bikes for sale- under \$499" & "Personal ads" and "Tour Partner Wanted/ ride announcements" are all free to RCN subscribers. Ads taken by mail only.

**AD DEADLINE FOR RCN#35:** Aug. 10, 1996.

## HOMEBUILT RECUMBENTS

**BUILD YOUR OWN RECUMBENT:** Introducing a new 20" MWB design that can be built for under \$100. CADD designed with fully illustrated building guide. BENTECH, P.O. Box 198, McKean, PA 16426 (http://members.aol.com/domerie/bentech.htm)

## USED RECUMBENTS

**FOR SALE: Counterpoint Presto,** excellent condition, low miles, traverse trunk, computer, mirror. \$1500 OBO call Erik Viken @ Ph# 612-623-6175 days or 612-545-5447 eves. Email EViken@aol.com (MN/34)

**FOR SALE: 1994 EASY RACER TOUR EASY,** red, large model, full Zipper, \$1250. **1995 Rans V-Rex,** blue, 40" frame, \$1000. Both are like new and have too many extras too list. Call John@Ph#618-931-2769

**FOR SALE: 1994 RYAN VANGUARD,** Red Imron factory paint. Great shape, rides like a dream (see RCN#29). I pay shipping in 48 states! \$1050. Contact Jeff Ph#616-458-9174 (MI/34)

**FOR SALE: 1995 RANS RESPONSE.** New Aug. 95, used 12 times, blue, cloth fairing, 700c/20", twist shifting, comfortable new mesh seat, 30 lbs. Blue, exc. condition. \$975+shipping. Bob English 314-532-5240 or Cycle Fun@AOL.COM

**FOR SALE: 1996 BikeE black** 21 speed. \$799; **1996 Easy Racer EZ-1,** Speed Wheel, 21 speed, Grip Shifts, large size, black. \$895; **1996 Linear LWB** USS, \$1095, All bikes in stock and available today. People Movers Tel. 714-633-3663.

**FOR SALE: Varna "Sprite" Trike.** (as seen in RCN#26), Black, 12-Speed, Suntour Hardware, Trek Radar. New Sprocket, Cables. \$675.00. Chris (919) 782-4600, X157 (W) (919) 852-1022 (H) (34)

**FOR SALE: BikeE,** clwb/ass, 21 spd, blue w/ kickstand. '95 model, rides GREAT, very few miles - \$750 obo. Call (904) 224-4767 DLR (FL/34)

**FOR SALE: S & B Tandem,** white, 14 spd. Designed for taller captain and very short stoker. '94 bike, LOW miles. STEAL THIS BIKE for \$1250 plus shipping. Call (904) 224-4767 DLR (FL/34)

**FOR SALE: HALUZAK HORIZON,** mwb/uss, xlong boom for taller riders, red, w/aero 700c/20x1 1/8 wheel/tire upgrade. Great condition '95 model - \$1200 obo. Call (904) 224-4767 DLR (FL/34)

**FOR SALE: 1995 Rans Rocket,** dark green about 200 miles, mirror, Grip Shift, safety flag, 21 speed, seat bag can CatEye computer. \$675. Tel. 414-744-3828.

**TWO BIKES FOR SALE: #1 Rans Rocket.** Green 14 speed. New style seat. Computer mount. Great shape. \$700.00 OBO. **#2 ATP Vision R40** w/ASS, USS, LWB and SWB kits. Rack. Extremely mint condition. Currently set up as SWB/ASS. Teal. 21 speed. \$1100.00 Ph# (209)579-0402 (35)

## USED RECUMBENTS

**FOR SALE: '93 Rans Stratus XT,** all Deore XT componentry, cantilever brakes, "B" heavy duty bars, rear rack, CatEye computer, Hi-Tech gray paint, slightly modified seat cushion to provide lumbar support. Lomi, many extras, bike is in excellent, like new cond. Call Steve at (719)-546-1287, or send e-mail to: scarmel@smtpgate.ssmc.noaa.gov (CO/34).

**FOR SALE: 1994 Lightning P-38,** large, blue, low miles, with new Shimano Deore DX derailleur. People Movers, ph#714-633-3663 (CA/34)

**FOR SALE: US Model Trice,** (trike) Exc. cond, Suntour components, 100psi tires all around, S/A hub brakes, fibreglas bucket seat. Triple crank. \$1500, call 904-767-5768 or email to fredu@america.com (FL/34)

**FOR SALE: VISION R-40,** SWB, ASS, 16" front wheel, Suntour, Grip Shift, 21 spd., Aqua, computer and seat bag. \$800, Ph#916-489-4540 (34)

**FOR SALE: 1994 INFINITY, LWB,** used very little, like new cond., Aircraft aluminum frame, #27, 21-spd., underseat steering. \$480. Ph#540-953-1561 (VA/34)

**FOR SALE: LINEAR LWB,** Phil Wood hubs, hydraulic disc brake on rear wheel, \$495 and you figure out how to ship it. Ray Hawk, Florence, MT, ph#406-777-5120 (MT/34).

**FOR SALE: 1994 ATP R-40, SWB,** 16" front wheel, 52 tooth chainring, low mileage, excellent condition. Asking \$850 + shipping OBO. Call Ed, ph#412-621-7012. (PA/35)

**FOR SALE: 1995 RANS V-REX,** Pearl white, 63 spd (3x7 Sachs hub), tilt steering, 24/20 wheel configuration, Deore XT components, exc. cond., less than 75 mi., \$1949 + shipping, Ph#503-524-6625. (OR/34)

**FOR SALE: COUNTERPOINT PRESTO.** The last one. Order it your way! ANGLETECH, Ph#719-687-7475

**FOR SALE: V-REX 24/20** GL63 narrow tire format, Uni Disc, custom color fade, Demo. ANGLETECH, Ph#719-687-7475

**ANGLETECH "briefcase trunks"** to fit Rans, Lightning P-38, Presto, Haluzak. First class, lap top computer compatible, shoulder strap, etc. ANGLETECH, Ph#719-687-7475.

**SUSPENSION FORKS** for 20" format bikes, elastomer type, rebuildable, tunable, 2.8#. \$249.99 prepped to fit your bike. ANGLETECH, Ph#719-687-7475.

**SACHS 3X7** rear wheels to upgrade your recumbent. All fittings available for quality install. ANGLETECH, Ph#719-687-7475

**FOR SALE: LIGHTNING F-40,** red, medium, less than 50 miles on bike, "0" on fairing portion. \$3999. ANGLETECH, Ph#719-687-7475

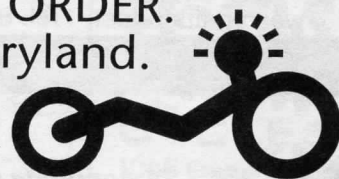


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#### LATE CLASSIFIEDS

**FOR SALE TWO BIKES: HOMEBUILT LWB and SWB**, above-seat steering, dual 20" wheels, pro-TIG welded and powdercoated. LWB has intermediate drive. SWB is a BMX conversion. Either available as a complete bike or frameset, \$150 per frame or \$300 complete bike. Call Ivan 804-730-0316 (VA/34)

#### WANTED TO BUY

**WANTED TO BUY:** Late model good condition DH500, Rans Nimbus or Ryan Vanguard. Jerry Kloth, Ph#414-242-0252 (WI/34)

**WANTED TO BUY:** EconBent frame and/or plans. Also, Sansin or similar 40H rear threaded hub in new or excellent condition. Bob ph#403-343-8052 (CAN/34)

#### PARTS FOR SALE

**RED RUMP? Fast Century!** Use "Skin-Shield" (Hi-Tech) Barrier \$12.95 Health Cycle, 105 N. 50 St., Omaha, NE, 68132. Tel. 402-558-6348 (NE/34)

**FOR SALE: ATP SWB conversion boom.** Burgandy in color and in absolutely virginal condition. Will sell for \$60. Will ship within USA. Terry Parker. Ph##206-851-2286.

**LINEAR DRIVE SYSTEMS BY ALENAX:** Stair-stepper motion. Kit includes: shifter; cable with splitter (easy way to run 2 brakes from 1 lever); ball-bearing pulley; 12" alu. crankarms with special bottom bracket and multi-leverage chain attachment; double-sided drive freewheeling hub, 36 hole; photocopy of brochure photo showing intended orientation of parts. Just \$40 + \$10 shipping gets you a box full of project potential! Call (970) 224-3013 with Visa/MC/AMEX/Discover, or send a check with your order to: Bike Works Inc., 1725 S. College Ave., Ft. Collins CO 80525

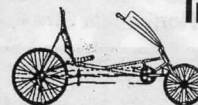
**HI-TECH MOPED**, dependable 2 HP Puch motor, full torque C.V. transmission. \$1200 plus freight. **ELECTRIC POWER KIT**, Twin permanent Magnet Motos, 250 Amp. Locked rotor. 17 Amp. Hour. Gel Battery, Comp. Battery Charger. \$500 plus freight. \$599 Health Cycle, 105 N. 50 St., Omaha, NE, 68132. Tel. 402-558-6348 (NE/34)

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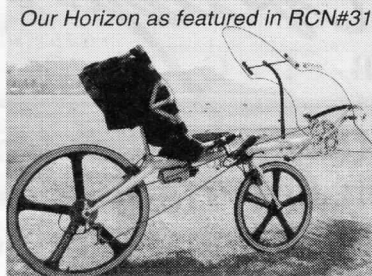
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**Bob Cummins** - Owner

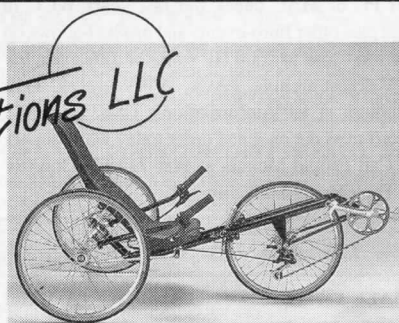
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Deerfield, WI 53531  
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*The Raven*



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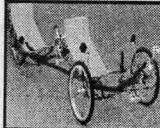


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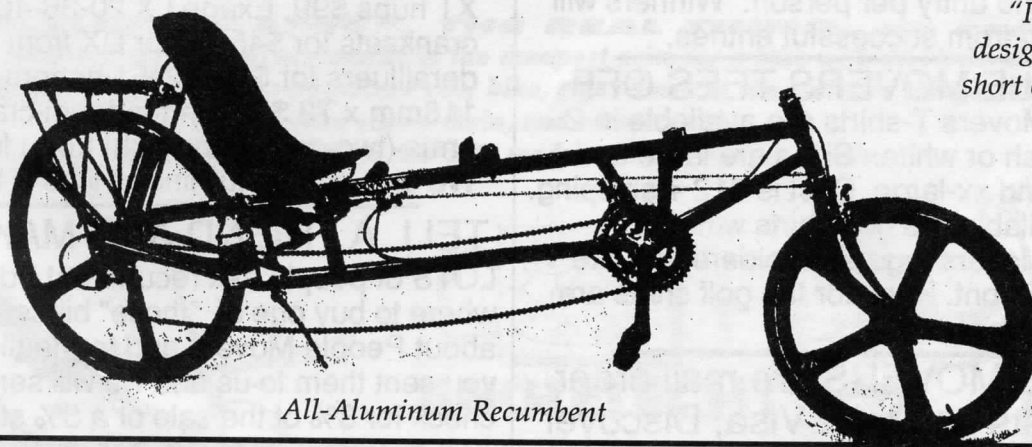
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# PEOPLE MOVERS NEWS

## WIN A BIKE!

### TANDEM SALES ARE UP

People Movers wants them to go higher, so here's the deal. All tandems purchased from June 15 through August 15, 1996 will qualify to enter drawing to win one of the following new recumbents: BikeE, Rans Rocket, EZ1, Vision R40, or S&B. One winner will be chosen by random drawing. Sale tandems excluded.

### ESCROW SERVICE NOW AVAILABLE

Want to buy or sell a bike but are afraid of getting ripped off? For just \$35 People Movers will be your "safety valve". Seller sends us the bike, buyers sends us the funds. Then we ship the bike to the buyer and the funds to the seller. Straight forward and simple. Call People Movers for details.

### WIN A P.M. Tee SHIRT

Solve the following riddle and send your answer via U.S. Mail and you'll have a chance to win one of six People Movers Tee shirts. Here is this issues puzzle:

SIX MEN EACH HAVE SIX BAGS. EACH BAG HAS SIX CATS. EACH CAT HAS SIX KITTENS. HOW MANY FEET ARE THERE? (PAWS COUNT SAME AS FEET)

Entries must be received by July 30, 1996. One entry per person. Winners will be drawn from successful entries.

### PEOPLE MOVERS TEES OFF

People Movers T-shirts are available in 2 colors, ash or white. Sizes are large and x-large and xx-large. Cost is \$12 + shipping. Also available are golf shirts with the People Movers logo embroidered on the left top in front. Price for the golf shirts are \$29.95 + shipping.

PEOPLE MOVERS are mail order specialists and take Visa, Discover and Mastercard over the phone

### E-MAIL ADDRESS.....

If you would like to reach us via computer our address is: PepleMovrs@aol.com

PHONE: 714-633-3663

### SIX RECUMBENTS STOLEN

On May 9, 1996 six recumbents were stolen from People Movers. They were four 21 speed, 1996 BikeEs (red, black, purple and blue) with racks, a red 21 speed EZ1 with a black rack and C15 computer and a blue Lightning P-38. A reward of a new Rans Rocket will be given to anybody supplying information leading to the return of the bikes.

### TIM (not Tom) SAWYER

of Cambridge Mass. was the winner in the Haluzak "Name The Bike Contest". His name was drawn from several dozen entries. The name for the new long wheel base recumbent? The STORM. The STORM is now available at People Movers for \$1395.00.

### 16" Hi PRESSURE TIRES ARE ROLLING AGAIN!

The long awaited 16 x 13/8 85 p.s.i. tire from ATP has finally arrived. It has a smooth, herringbone design tread and a soft gum wall. Regular price is \$22.99. Intro price through August 15th is \$19.95.

### PARTS FOR HOMEBUILDERS...

People Movers has a variety of parts for home builders. 16" & 20" front wheels with XT hubs \$99, Exage LX 20-36-46 cranksets for \$45, LX or DX front derailleurs for \$10, UN51 bottom brackets 118mm x 73 \$12, and tandem crankset arms (two on left and right front) for \$45. We also carry a full line of tires & tubes.

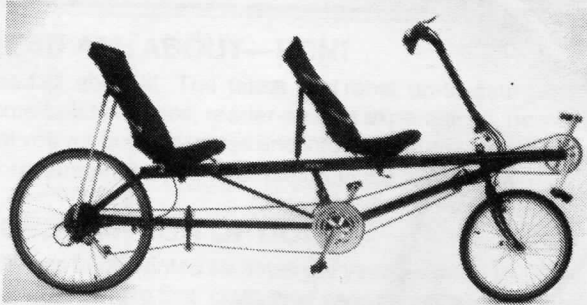
### TELL A FRIEND AND MAKE 3%

LOTS of people ask recumbent riders where to buy one of "those" bikes. Tell them about People Movers and to mention that you sent them to us and we will send you a check for 3% of the sale or a 5% store credit.

### WE'RE OPEN EVERYDAY-

If in S. Cal. stop in for a cup of coffee and to test ride a variety of bikes. Our address is: 980 N. MAIN STREET, ORANGE, CA (2 miles east of Disneyland)

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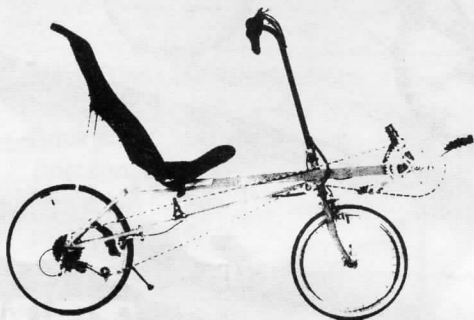
### **CAR ROOFTOP TENT**

CALL US FOR INFORMATION ON THE NEATEST PRODUCT ON THE OUTDOOR MARKET.

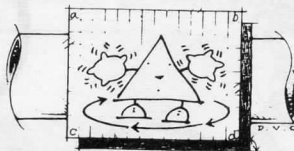
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Above: Gold Rush Replica with optional Aerospoke wheels.  
Below: EZ-1

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