

RCN

RECUMBENT CYCLIST NEWS

RCN #24

The World's #1 Recumbent Source

Fall 1994

RCN Crew Goes To Interbike '94

by BJ Strass

The Interbike Industry Bicycle Trade Show was over the weekend of September 9-12 in Anaheim CA. near Disneyland and is the largest show of it's kind in the world. This year Interbike boasted nearly 1000 total exhibitors. The RCN Crew was out in force at the show, for you, the reader, gathering and prying information, checking out new components, attending late night hotel parking lot meetings and generally eating too much.

From a strictly conventional upright bike standpoint, the show was a bit of a let down. One comment I overheard from a conventional bike dealer was, "Just how many ultralight purple CNC cranksets can you look at before going crazy." This seemed to be true. Lots of the same add on, weight reduction components were well represented. I felt as if I had attended, "The Color Anodized, Weight Loss Bike Show."

From a recumbent and alternative cycling standpoint it was a really great year. Of the hundreds of booths, twelve recumbent manufacturers were represented. This is small comparatively, but is the largest showing ever in the history of recumbents and Interbike. And it was the saving grace for the RCN Crew. Recumbent manufacturers represented were Rans, Linear, S & B, ATP, BikeE, Maxam, Ryan, Just Two Bikes, Rotator, Counterpoint, Lightning Cycle Dynamics, Thorpe Consulting andContinued on page 11

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The 1995 Linear Recumbent: the Linear LWB recumbent is a tried-and-true recumbent that continues to improve. The original non-fold model was designed back in the early 1980's. Through the years, the Linear evolved into a very pleasing, high quality, yet affordable machine. The most noticeable changes on the 1995 model are the addition of some new colors and components. A new blue anodized Linear Limited Edition was unveiled at the Interbike trade show last month. This is, by far, the nicest looking Linear we've seen. Linear recumbents are not painted, but anodized, which can be a very expensive process. The blue and black models are a fine addition to the original silver and gold.

The Unique Modular Linear Frame: the modular frame design and trademark I-beam aluminum is original to say the least. The frame is made of an aluminum I-beam extrusion (the correct term for it is, "proprietary extrusion") that is the central unit on the frame. This extrusion is custom made for the Linear Mfg. Co.

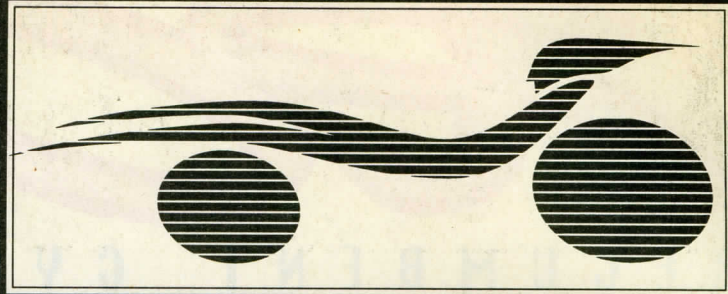
Several fittings slide onto and allen bolt/clamp to the frame. The hinging head tube and one-piece formed chain stays slide into the main-frame and are hinged with an allen bolt and locked with a locking quick release. The Linear fork is full chro-moly steel and painted to match the bike or chromed (as on the limited edition models). Spring loaded fittings are used at both ends of the steering rod, as well on the seat stays. Linears come in five frame sizes 36",39",42",45" and 48" and will fit most riders. The bikes weigh anywhere from 33 to 35 pounds. We have always been impressed with the high quality of the Linear craftsmanship. The design, fittings and folding mechanism are superbly engineered and the bike is of excellent quality.

The Linear Seat: The Linear seat is unique. It has an aluminum frame, mesh back and triangular shaped covered foam base. The seat quick releases on and comes completely off the bicycle in less than sixty seconds. The seat recline angle is fairly upright. Maybe even

....Continued on page 5

Editorial License

By Robert J. Bryant



“Are you ready for the bicycle trend of the 90s?”

So, what's wrong with “RECUMBENTS” that every bicycle manufacturer at the Interbike trade show didn't take our lead, be the first “biggie” to jump on the band wagon and sell the laid back lifestyle to the American public.....maybe it's because the laid back lifestyle isn't defined by this odd term we call RECUMBENT.

A really strange thing happened to me at the Interbike Trade Show. It all started with a Schwinn guy handing out '95 catalogs near the front door of the show (bicycle politics: Schwinn boycotted Interbike in favor of BIO/Las Vegas). I eagerly waited in line for mine and slid it into my pack.....along with the 20 pounds of brochures already in there.

I must own to the fact that I have been a Schwinn fan since 1969 when my dad bought me a Campus Green Schwinn Stingray with a 2.5" slick on the back and a metallic grey banana seat. I miss that bike. Thinking about it kinda reminds me of the way I feel when riding an Easy Racer or Rans Stratus. Heck, I guess my Schwinn “muscle bike” planted the seed for RCN way back then. I suppose my dad's old Harley helped as well.

I feel the same way about the fat tire cruisers, darn if I didn't miss the cruiser era, but who'd of ever thought I'd get a second chance.

Here I am contemplating the past, when I become shocked, dumbfounded, speechless and amazed by the revival of the cruiser style bike and it's Interbike 1995 presence.

Schwinn has seven (lucky seven) new cruiser models plus a repop of the 1955 Black Phantom collectible (retooled and built in the USA). The Cruiser-6 is built overseas from original cruiser blue-prints and sells for \$249! And 14 pages in

their catalog devoted to the “new” cruiser. Schwinn has even “trademarked” the term “cruiser.”

Trek has a small line of cruisers, the Calypso (6 speed) and a retro single speed. Kona has a trick 26 pound cruiser with a Shimano 7 spd hub that sells for under \$500 as well as a one speed. These look more like the early (comfortable) MTB designs. Merlin had a titanium “Paperboy” megabuck cruiser. Retrotec had MTB cruisers & tandems with classic styling, tubes and wild custom paint. These are REAL MTB's that are at home on the road as well as the race course. They even have a drop bar road model, all with the cantilever frame.

If you haven't heard enough already, there is the rebirth of the Stingray type bicycle as the “Low Rider.” Stingray type frames are being built in overseas and sold to wholesalers who are selling what looks to me like a Schwinn “Krate.” The low riders have roots with the East L.A. (CA) amongst young low rider car enthusiasts, but kids all over the USA are demanding this stuff from bike shops. Heck, even my local Renton (WA) Bicycle's West has 'em. What better way to identify with today's “youth” (boy does that make me sound old). Don't get the misconception that these are the unridable type in the Lowrider Bicycle Magazine, as they are not. These are Stingray wannab's with a Krate type front suspension, double spoked wheels and white wall tires.

There was a custom “cruiser” manufacturer at the show from Huntington Beach, CA called, “HB Cruisers.” This company builds a full line of chro-moly custom comfortable upright bikes. One model is a long, low stretched 26" wheeled cruiser, or was it a recumbent? The bike is kind of a retro Tour Easy style (sorry, Gardner) with wide white walls, large cushy (for an upright) cruiser saddle, chrome fenders, handelbars and cheap(er) BMX type parts. This machine was

low tech, retro and.....COOL.

I spoke with the manufacturer for some time. He seemed to enjoy the fact that I was interested in publicizing his bike....but he heeded this warning and asked me NOT to call his bike a RECUMBENT. He wanted me to understand that it was a “Cruiser.” I asked if he'd add a seat-back support and pad (sissy bar and backrest), and he said, “no problem.” In my book, this “cruiser” is about as “recumbent” as you can get, but without the name. To my way of thinking, my labeling this a recumbent should raise the “value” or cost of the bike, but according to the builder, possibly lowering the perception, or innate “coolness” of the bike?

I thought about this situation some more and I ask myself these questions:

- ➔ Have recumbents been put on hold again by the bike industry?
- ➔ In favor of Classic American Nostalgia.....Cruisers?
- ➔ Will the custom cruisers resemble recumbents?
- ➔ Coolness wins over recumbent?
- ➔ Leather vs. pocket protector?
- ➔ Is this the bike industry's answer to comfort?
- ➔ Not a single mainstream manufacturer with a REAL 'bent.....
- ➔ Or, is this the mainstream American bike industry's recumbent?

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RCN PUBLICATION INFORMATION

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RECUMBENT MAIL

Send your cards, letters & photos to:
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Email DrRecumbnt@aol.com

Subj: It's here! I'm finally 'bent!
Date: 94-10-22 23:43:44 EDT
From: 71756.3357@compuserve.com

Well the big day has come! My gloss black V-Rex XT arrived today and it is great. I cannot believe that I spent over \$1000 on a bike that I had not even touched but I couldn't be happier. I live in the black hole of recumbency (Okla) where recumbents are rare. After much tossing and turning and stewing and researching RCN I went with the Rans. My friend who owns the local shop has never carried a 'bent—25+ years in the business—but after riding mine the owner is considering getting one for himself.

This is my first recumbent and I was aware of the shortcomings of this design (higher seat height) but I liked the medium/short wheelbase and the 20" wheel over the 16." I did experience my first heel/wheel overlap in the driveway but after testing the turns and crank position I don't think this will be any more of an issue than the toe overlap on my old criterium bike. Seat height is not a problem at all but I'm sure on my next trip to the wind tunnel I'll catch a little more air.

Everything on the bike works perfectly and it has a nice paint job too. The wheels were a little different than I expected but a pleasant surprise. Both front and rear are XT hubs (expected) with Velocity deep V-section rims (made in Australia—I had not heard of them but they look neat).

Bob Steele

Gold Rush "Sling/Mesh" Seat

Dear Robert,

I have been experimenting with a vintage Tour Easy which I purchased used. I am dissatisfied with the seat because of some back problems. I noticed a reference to a sling seat in your editorial RCN#22 and I am requesting any detailed information that you have on these seats.

Specifically where they can be bought and how they can be made and how they attach to a Tour Easy frame.

I read each issue of RCN cover to cover and I think you are doing an excellent job. I think some articles on recumbent touring would appeal to a wide variety of readers who are interested in touring.

Sincerely yours,
Mel Pedinoff
Thousand Oaks, CA.

Dear Mel, Thanks for the letter. My Gold Rush has a Steve Delaire Rotator Pursuit seat modified to fit a Tour Easy. This was an experimental prototype that was put out to pasture. I have experimented with the seat throughout the '94 riding season and I believe I finally have it worked out. The seat comes with a cloth base cover that goes over the mesh material on the seat frame. I purchased a 2" piece of the most dense open cell foam that I could find (high quality stuff) and put it in the seat cover. It now meets my needs, although, I feel I could design a better fitting seat for the Easy Racer if I had the time. Steve Delaire would be the first person that I would contact. Easy Racer seat sliders and bolts are available from Easy Racers. My guess is this seat will be more costly than the stock Easy Racer seat.

Other ideas: Try a new Easy Racer Cobra seat. Wait for a new '95 Cobra seat that is supposed to be the best yet (miracle material!?). Pick the seat of your dreams and mount it to the Tour Easy. Seats that should work with varying degrees of modification are: ATP, Infinity, Rotator and the new Rans seat. You can use a stock Easy Racer base plate with your own custom mounts.

The trick is that the Easy Racer design is not really suited to a sling/mesh seat. The bottom bracket is too low in relation to the seat base. This causes the backs of your thighs to rub against the seat possibly causing irritation. I experience this slightly with my Rotator/ Easy Racers prototype seat. Other Easy Racer riders tried out my prototype seat and said it slowed the bike down because it was heavier and wider than the stock seat. I believe this is correct, but I enjoy the added comfort. The perfect sling/mesh seat for a Tour Easy style bike would be something based on the original ATP R-20 sling seat (with complex bends). This type of seat would keep the material away from your thighs. The R-20 seat is out of production, but pictured in RCN#9 (on sale for \$3.50 from RCN).

*Please let us know what you come up with.
Robert J. Bryant*

HOME BUILT 4-STROKE HYBRID

Dear Robert,

Since I really hurt my knees last year pulling a trailer on a camping trip, I knew that I needed help or I would have to stay home. So I built a Tour Easy and put a four-stroke gas string trimmer engine on it. I have gone to Canada and back (415 miles) plus another 200 miles around town. I have the help I needed on hills and for trailer pulling, but still have an effective bike.

Your Friend,
Lee Brown

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RCN#24 COVER

Cover photo courtesy of Linear Manufacturing, Inc.. New RCN logo graphics provided by Mark Colliton of Kensington Design.

AMERICA ONLINE "RECURBENT FORUM"

Date: 94-09-07 16:46:21 EDT

From: JohnC91

Subj: Where's Recumbent Forum?

I've been unsuccessfully seeking your recumbent forum. Is it still on AOL (America Online)?

Dear John.

1) Log On

2) "GO TO" Keyword and type *Bikenet*.

3) Click on message center Icon.

4) Click on "List Categories" Icon.

4) Scroll down and click on the category, "Bikes."

5) Scroll down and click on "Recumbent Forum."

I hope this helps.

Best Regards,
Robert J. Bryant
DrRecumbnt@aol.com

RECURBENT CRUISERS

Dear RCN,

In reference to recent dialog (online) about the Cruisers/ Lowriders being the new up and coming wave of popular bikes.

In 1978, I became involved in recumbents by the inquiry of a customer wondering if I knew anything about them, etc. Roger got an Avatar, and then others came for more Avatars, the regrettable Hypercycles, some Rans Stratus' and Nimbus, and Infinity. There was a common thread about these recumbent buyers, fairly militantly anti-upright bike folks who generally were not mainstream types in any aspect of their thinking. No offense to original thinking people, but this is a very limited market.

By the late 1980's I was just about ready to say recumbents are just not going to make it. Then a bit of a renewed interest started to happen. The encouraging thing was that some upright bike cyclists were starting to make the change over, "regular" types were buying recumbents. About this time also, the legitimacy of the computer nerd types materialized, and so the recumbent market has grown (witness Bill Gates stature etc), but the customer base is fairly much the same.

The baseball, hotdogs, Chevrolet, crowd has not found us! Designers in the recumbent industry come from two basic groups: some are cut from the same cloth as the recumbent customers/ buyers and others are engineers that think cool looking products and marketing are a waste of time and unworthy of attention. We also have new designs that were conceived by individuals looking at other existing recumbents, and making clones of these designs with lackluster results. It has been said that once the fundamental design is in place, it's how you connect the dots! Connect the dots in a flashy way, then you've got engineering with some visual, emotional appeal! The car industry has learned this with several products, Chrysler Neon, Ford Taurus (vs. Dodge Aries, Ford Fairmont).

I am seeing new customers drawn to the recumbent, but to bikes with some personality.

The name recumbent may be technically correct, but it's like when Bicycling thought ATB would be a more correct term to use than Mountain Bike, Mountain Bike won (now the name of their sister publication). People have a romantic, American notion about going Mountain Biking. ATBing just doesn't sound like fun. Our MacGiver calls his recumbent a "Biff." A non-technoid, one syllable, fun sounding word would we nice, what's your choice?

Like the only recumbent rider in the Colorado Springs Cycling club said recently: "I'd like to not be the only recumbent rider on every ride!"

I enjoy the customers I work with in the low end end of the market as much as the high end, so if the industry became huge, our position would not change much. The recumbent industry would not be hurt if sudden popularity were to arrive. It would only insure the recumbents place as long term market concept.

Kelvin Clark
ANGLETECH

Since I arrived home from Interbike, this has been a favorite topic RCN, some manufacturers as well as the America Online "Recumbent Forum" members. We have come up with the following list of descriptive names to substitute for recumbent: cruiser, low-cruiser, comfort-cycle, comfort-cruiser, go-cycle, low-bike, low-racer, stream-liner, future-bike, road-cruiser, road-glider, forward-cruiser, velomobile and whizzer. If you would like to take a shot at shaping the future of the recumbent industry, please drop us a line.

WELCOME BJ STRASS

Dear Robert,

First, thanks to RCN for your articles and tests which were key in my selection of the <ATP> Vision. And special thanks to BJ Strass of Introspect Cycle (and RCN!) for his article and expertise on the Vision itself. If any RCN readers have questions on the Vision, BJ's your man (Yes, I want to give him a plug!).

I adapted BJ's chain-guard tube idea which has added to my enjoyment of the Vision. I used to get grease on my right calf every time I rode. Aside from keeping my calf grease-free, it keeps the chain from beating the paint on the bike's boom.

To change the subject, RCN readers need a way of contacting other subscribers. We need a membership list. For instance, I'd like to contact other recumbent riders in the Boston area. RCN readers could choose whether or not to have their names listed. Some of us may be able to provide a place for cross-country recumbenteurs to "crash." We could form regional groups, and contact other regional groups. How 'bout it?

Chuck Leech
Quincy, MA

Chuck, thanks for writing. BJ is a great addition to the "RCN Crew" and were proud to have him. As for your "crash" and mailing list ideas, let's throw them out to see what the readers think.

EXTRA LONG RANS

Dear Robert,

Learning about your magazine was a happy event for me as it gave me enough information to find the perfect recumbent. At 6'7", with a 40" inseam, I was too big for any of the <stock> bikes. However, a call to Allan Butler at Rans proved worthwhile. He said Rans could build me an extra long Nimbus by adding about 4" to the frame. Within a few weeks, my beautifully shiny white Nimbus arrived and I have totally enjoyed each of the 995 miles that I've travelled. It is wonderfully comfortable and has their newest seat design (which was introduced last Spring).

It is vastly improved over the previous seat. I think you should upgrade your rating of the Rans seat to at least a "4" Star rating. This is a wonderful bike that handles great, rides beautifully and draws admiring looks on all the bike trails. Keep up the good work with RCN.

Sincerely,

Bruce Docherty

Bruce, we agree, the new Rans stuff is hot! We have two new seats on the way, plus one new V-Rex. These guys are definitely the ones to watch in '95!

LIGHTNING TAILWIND

Dear Robert,

Thank you very much for the smashing job of publishing my full article together with an ideal selection of pictures. The presentation is just what I would have wished. Gaining legitimacy is the ultimate goal and the surest way is through widening public acceptance. And I must say, Robert, that you are to the recumbent movement what Gene Lemle is to the Lightning Tailwind. Your direction and your splendid publication will without doubt sooner or later alter the course of bicycling history. Time is on our side.

Let recumbency thrive!

Gene Villaret

16" TIRE NEWS

Dear RCN,

Charles Brown's article, "The 16" x 1" Wheel and What It Means" really hit home. I've been building 'bents for over ten years now. The past couple of years, I've concentrated on CLWB (compact LWB) designs that use 16" front and 20" rear wheels.

I would point out that Gaylord Hill of Cyclo-Pedia cautions that the new 16" x 1" tire is rather fragile and really is intended for racing use. Do not despair, Gaylord's new 100 psi version of the 16" x 1-3/8" tire is a marked improvement over what was previously available in this size. This tire definitely fills the void between el-cheapo, poor quality, low pressure 16" tires and the big buck Moulton. I also bought some of CycloPedia's new hi pressure 20" x 1.5" tires. As good as the RL Edge 20" x 1.75 tire is, the new 1.5" tire is better; narrower, lighter and more slick-like.

I am a firm believer in the CLWB design and now that high quality tires are available, it makes more sense than ever!

Recumbently Yours,

Tom Briggs

Waterford, ME

Continued on page 27

.....Continued from page 1.

1995 LINEAR RECUMBENT

too upright? Some riders have drilled a second set of mounting holes on the rear stays to recline the seat back more (this does not affect the warranty). Good news, Linear announced that they will have an optional seat that has a lumbar bend in the seat frame offering a more laid back seat angle. There is a neat pocket behind the mesh seat as well as two velcro straps to hold the seat support stays when the seat is folded forward or off of the bike. The seat design works great on this bicycle. It folds, comes off the bike and the triangular seat cushion is a real plus.

Foldability: One of the big selling points on the Linear is the folding feature. Linear is the only folding recumbent. The front headtube and the rear one-piece formed aluminum chain stays have quick release locks for fast and easy folding. This allows the bike to fit on normal bumper or roof channel racks. The complete fold is even more amazing. With both wheels off, the frame folded and seat removed or folded forward, the LWB Linear can fit into a very small package. It passed the ultimate test, easily folding into the trunk of a Toyota, and reassembling with no tools! If you have EVER tried doing this with any other LWB, you'll know what a miraculous feat this is.

Component Selection 1995: The components selection on the '95 bike the best ever on a Linear model, and excellent at the \$1200 price

point. The Suntour XC-LTD crankset is a good quality full size MTB crankset, as well as an upgrade from the previous Suntour X-1 model on last year's bike. The Linear uses a primarily Suntour drivetrain with a thread-on freewheel, Suntour MT Grip shifters and Suntour XC Expert/ XC Pro derailleurs. These upper line Suntour components actually work better on recumbents, as they mix with other component brands better than Shimano components. The Suntour components are serviceable, repairable and have a kind of "retro" appeal.

The Suntour MT Grip Shifters (not to be confused with SRAM Grip Shifts) are wonderful on this bike. Each gear is a precise "click." On past models, one of our concerns was the extreme amount of pressure required to press the thumbshifters. The Grip Shifters are a definite upgrade to the '95 bike.

Linear's new brake system is proven, simple and extremely durable. The Dia Compe Big Dog and FSE brakes offer very stiff, firm braking with an added benefit, they are extremely easy to adjust and set up, unlike cantilever brakes. This bike stops on a dime, much improved over any previous Linear model.

The Linear is geared for the recreational rider. The gear inch range is 24-99. If you plan to tour or do much hill climbing, you may want have your dealer install a 13-30 or 13-32 freewheel which offers a 22 or 21 gear inch low gear, respectively.

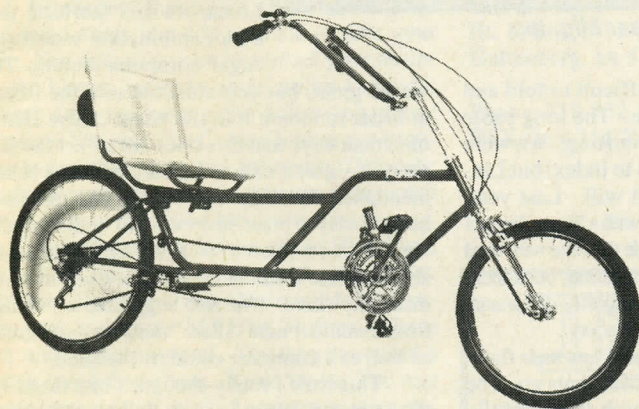
A chain idler! After many prototypes, it appears as though there will be an optional Linear skate-wheel type chain idler offered for 1995. Many RCN readers may even have them on their bikes already.

We were overwhelmingly impressed with the 1995 Linear drivetrain's overall out-of-the-box performance. Over the years, we have had the opportunity to set up and test several Linears. The Linear company does a terrific job with quality control, packing and shipping.

For 1995, the Linear recumbent comes with hand-built wheels by Winkel Wheel in Seattle, WA. LWB recumbents can be hard on rear wheels. For this reason, whenever a manufacturer makes such a serious upgrade, it is worthy of mention and praise. Hand-built wheels can cost bike manufacturers much more to build or have built. For the recumbent consumer, wheels are a subject you should pay close attention to.

The new wheelset is built with Sachs 5000 hubs, with Weinmann 2120 silver anodized rims (matching front and rear), and 14g. stainless steel spokes with brass nipples. These wheels are built to take the added loads that recumbents can put on a wheelset. This is a superior upgrade for the Linear as we have long been a fan of Winkel wheels.

Another option for 1995 will be the availability of a 26" rear wheel. This will be optional, as the 700c rear wheel is standard.



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Linear Sales: Steve Hansel learned long ago that having a strong and active dealer force would be the key to Linear's success. The Linear Company is at most bicycle trade shows promoting recumbents and working to develop a professional bicycle dealer network. They also do their part to pave the way for the general acceptance of the recumbent bicycles. Linear has developed a professional strategy to market their bikes to the average American independent bicycle retailer. Steve Hansel even has a recumbent informational column in a bike industry trade magazine. This is to the benefit of all recumbent enthusiasts and manufacturers alike.

Another advantage of Linear is almost immediate shipment of new bikes. There is no six or eight week waiting period. Linears are shipped in one carton, whereas many other LWB recumbents are shipped in two. One final plus for dealers is the ease of set up. Most consumers will never have to assemble one as the bikes are only sold through dealers, but the assembly is extremely quick and easy. Linear also offers a great owner's manual that will answer most of the questions that you will have about your new bike. It is full of helpful information and illustrations.

Linear Performance: One thing is for certain, the Linear is not a racer and no speed or performance claims are made. The intended use of this recumbent is relaxed recreational riding. Most riders will find the Linear's performance very similar to a hybrid or MTB bicycle, and in some cases, it could be a little slower, or a little faster, depending on the rider. If speed is what you seek, take a look at the Kingcycle or Windcheetah that Linear Mfg. imports into the USA/ North America.

The Linear has a higher center of gravity than most recumbents. For some new riders this makes the initial feeling a little unstable until you are accustomed to it. This higher (upright)

riding position makes for great visibility (to see and to be seen) and it is ergonomically correct. The handlebars are wide, and could possibly be a long reach for some riders, but the bars slide on the I-beam and offer great adjustability.

The upright handlebar option can be truly described as, "ape hangers." And they are very

among the best underseat steering geometry of any recumbent we've tested. The Linear steers easily and tracks straight with a minimum of effort. The trademark I-beam aluminum frame absorbs plenty of the road shock you will find on your daily rides. We noticed much vertical and lateral flex with the Linear's I-beam frame.

This is very noticeable under high-torque riding situations (hill climbing). And yes, there is probably slight power loss due to frame-flex, although, our 1995 model test bike is much improved, as a redone, stiffer rear stay section has been added. These will also retrofit to existing Linear (folding) LWB recumbents. The Linear is not a performance recumbent, in knowing this, the power loss is not a real concern.

Linear Strikes? We really had to work hard to find something we didn't like on our '95 Linear LWB test bike, but even this truly ingenious bicycle has its drawbacks, or so we thought?

There is no place to mount a water bottle! We thought we had them with the water bottle placement dilemma. We have seen people mount waterbottle cages to the seat, on the rack adapter and we have seen other Linear owners fabricate their own combination waterbottle cage/ computer mount. This works great, but you must tap into the I-beam in order to mount it to the beam (Steve Hansel of Linear says that this does not affect the warranty). A quick call to Linear and Steve Hansel mentioned that they are looking into this issue, but it is easy to place several water bottle cages on the rear seat support rods. A 1/2" diameter adjustable stainless steel clamp will allow you to mount them anywhere. We also suggested a modified front derailleur tube "slider" that two water bottles as well as a computer could be mounted.

This time I really thought I had them. Ah, the warranty. When I saw the one year warranty on the seat, frame and handlebars, I was disappointed to say the least.

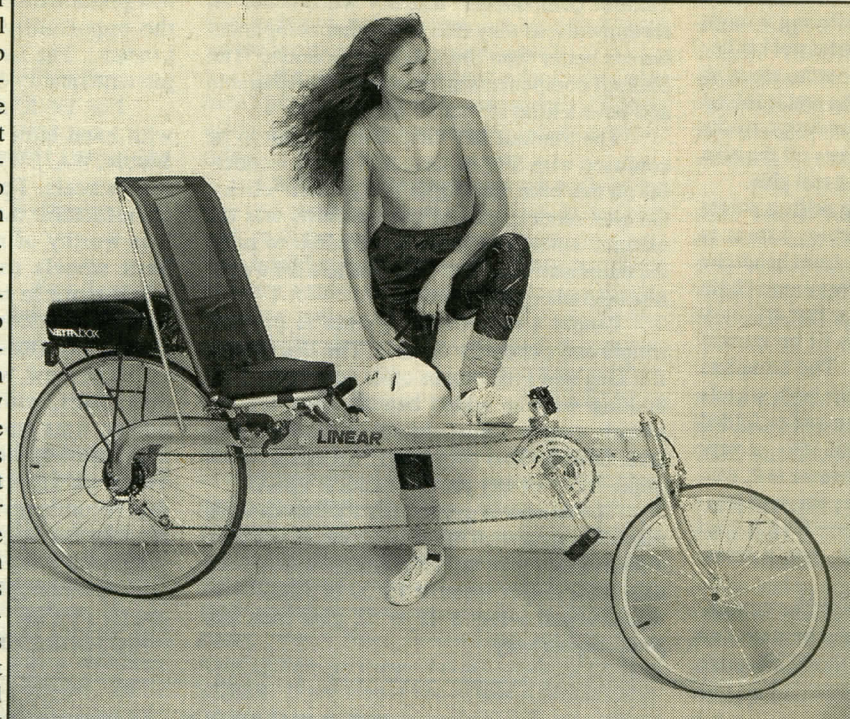


Photo courtesy of Linear Mfg. Inc.

large. They make the bike difficult to fold and stow and the bars are flexible. The long cable run can also effect the index shifting. We were able to get the upright version to index, but Linear does not guarantee that it will. Last year, we set up a Linear upright-steer with a Super Zipper and liked it just fine. We even rode the bike with dual (upright and underseat) position steering, but Linear does not recommend this. The majority of Linears sold are of the underseat steering variety.

Road Manners: The Linear has near flawless road manners as LWB recumbents go. The head-tube angle, combined with the carefully designed steering geometry create a very nice ride and handling. We found the Linear to have

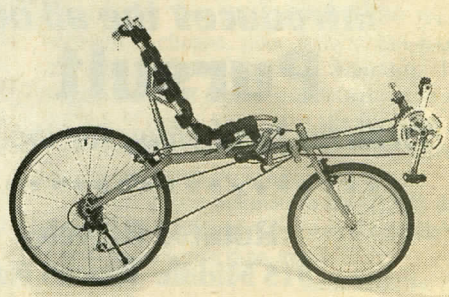
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1994-1/2 Haluzak Recumbent

One quick call to Steve Hansel of Linear is all it took to find out that Linear has just announced a new LIFETIME WARRANTY for 1995. What can be better than this!

O.K., so I finally found one detail to grime about. I have always noticed that aluminum bikes tend to muffle road noise differently, they seem noisier than their steel-framed counterparts. The Linear, with its bolt on modular system pieces, seems to squeak more than other bikes. Keeping the hinge joints well greased and the bike clean will help reduce the potential for this to happen.

High Maintenance? Along with its folding ability, the Linear frame has many pieces, parts and joints. This makes for a bike that needs more regular maintenance. We found that keeping both the head tube and rear stay section joints clean and well lubricated with a high quality grease (we like Finish Line) will keep it from wearing and squeaking. You should develop a ritual that includes a close inspection of your bike before you ride. Checking all of the joints and parts to make sure their all tightened down. When road testing the Linear, we found that a loose quick release on the rear stays will cause the bike to lift under the seat when high torque is put on the pedals. We then tightened the Q.R. and the problem went away. The anodized frame itself is very durable and the finish is easy to keep clean. With the new lifetime frame warranty, future problems should be at a minimum.

Upgrades? If you own a used Linear, here are some items you can upgrade to refit your bike. You may also want to contact your dealer or the Linear company about doing a retrofit. Check into upgrading the following parts: **Brakes:** The new Dia Compe brakes are superior to past side-pulls ('94 and newer). **Wheels:** High mileage riders should consider a top notch set of wheels. The '95 Linear wheelset is good, or really splurge and have a set of Phil Wood hubs built up into a bulletproof touring set. **Shifters:** If you have the old thumbshifters, order a set of Suntour MT Grip Shifters. These are a vast improvement. You may also need a seven speed freewheel. **Rear Stays:** The rear chain-stay section on the Linear was strengthened for the '94 model. **Idler:** For '95, Linear has a new skate-wheel type chain idler.

The 1995 Linear SWB Recumbent: We had to beg Steve Hansel to bring the new SWB to Interbike, and as it turns out, it was the hit of the show. This new SWB model should be a highly sought after model as well as a welcome addition to the Linear line. Imagine a Linear LWB with the main beam cut off short, now add a head tube in the middle section of the I-beam, and there you have it. The components are nearly the same as the LWB, with one exception, the SWB comes standard (\$1200) with Suntour XC Pro derailleurs. There is even rumor of a Sachs 3 X 7 version of the Linear(s) in the near future.

For years the dream of many recumbent owners was to have a SWB model that folds up easily for travel. Well, now we have one.

Also available in 1995 will be travel/ carrying bags for Linear models. We have already heard a few RCN readers discussing the Linear SWB as a candidate to take to the 1995 International Speed Championships in the Netherlands. Linear SWB models will be available by the time your read this article.

There have been many changes at Linear in the past few years. From a single LWB model, to a fine stable of high quality US built recumbents as well as the finest selection of imports in North America. When I think about the bike I tested in 1991, and look at our '95 models, things have really changed for the better. The Linear has become a world class recumbent bicycle while retaining its value added pricing. We cannot say enough about this bike that has come so far in the past few years. The Linears have always been an RCN favorite due to their folding ability, but the new bikes are beyond even what we could have imagined.

For More Information: Linear LWB and SWB recumbents as well as Windcheetah's, Kingcycles, Bromptons and BEVO's are marketed through professional bike shops.

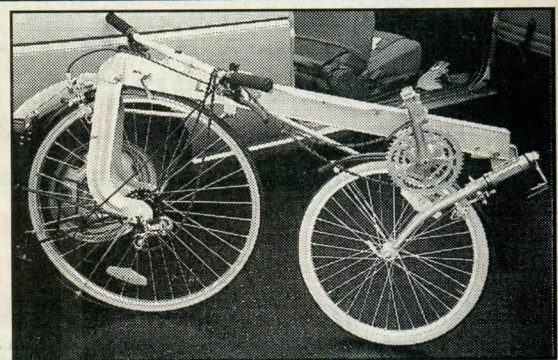
For more information, contact:

Linear Mfg. Inc,
Rt. 1, Box 173,
Guttenberg, IA 52052.

Phone: 319-252-1637.
FAX: 319-252-3305.

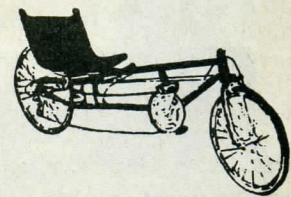
COMPONENTS

Brakes: Dia Compe Alloy Big Dog-rear
Dia Compe FSE black-front
Derailleurs: Suntour XC Expert front and rear
(XC Pro on SWB and Limited Edition LWB)
Shifters: Suntour MT Grip shifters
Headset: Ritchey
Crankset: Suntour XC LTD Alloy 24/36/46
Freewheel: Suntour Power Flow 13-28
Pedals: Sakae Lo Fat Sport
Wheels: Front-20" X 1-3/8," Weinmann rims,
Sachs 5000 hubs with Kenda 90 psi tire.
Rear-700c X 30, Weinmann rims, Sachs
5000 hubs, with 100 psi IRC tire.
(A 24"/16" wheeled "Sport" model is also
available)
Frame size tested: 45"
Wheelbase: 66"
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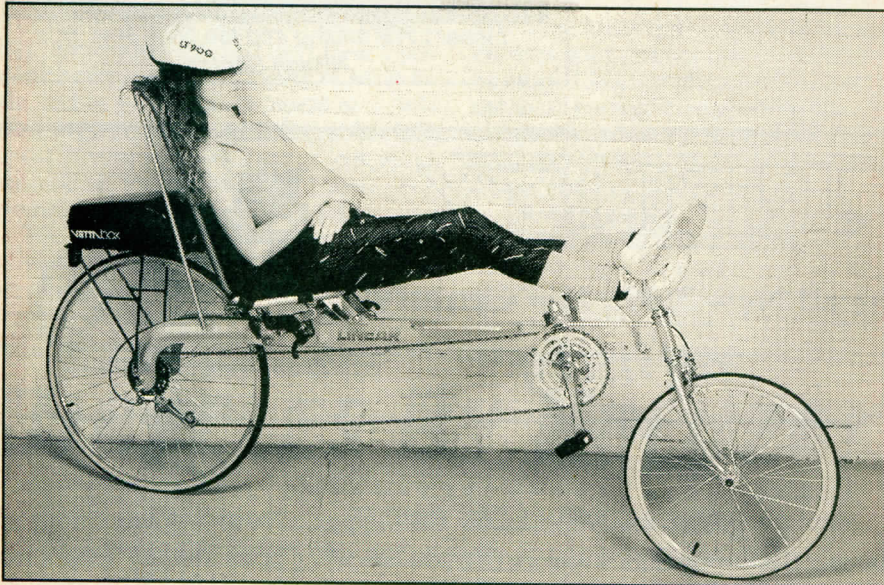
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North American Importers of: Kingcycle, Windcheetah, Radius, Bevo and Brompton

STEVE HANSEL AND THE LINEAR MFG. COMPANY

When we originally tested the Linear folding recumbent back in 1991, the Kann Manufacturing Company was the builder of the bike. Shortly after our test, the bike division manager, Steve Hansel, purchased the company and the rest is history. Steve's history with Linear goes back to 1986 when he took over the bicycle division. He has now run Linear as his company, a completely separate entity, for the past four years.

Linear has become a major player in the recumbent market, both here and abroad. Linear has been at the top of North American recumbent sales for years. This is largely due to the very strong dealer network that Linear has worked so hard to develop.

In several moves that have taken many by surprise, Linear has become North America's #1 importer of European recumbent bicycles. Linear now offers a complete line of recumbent bicycles and tricycles. The "Euro-Bents-connection" was possible through an exclusive marketing agreement with Graham Bell of Neatworks in Scotland in order that Linear would import several European model recumbents.

Most notable of the group is the Windcheetah, a legendary three wheeled hot-rod designed by Mike Burroughs. This HPV was sought after for years while only available as a castings kit. Finally, in 1993, road-ready Windcheetah's went back into production in the U.K. Very shortly after this was announced, Steve Hansel's Linear Company made arrangements to import this legendary HPV. We hope to have a complete test on this trike this year. \$5700

The next bike to enter the US market through the Linear connection was the Kingcycle. This SWB/MWB recumbent is one of the most finely crafted machines of its type. It also is a hyper-bred racer. Lean, light and fast. When the Europeans say "high-performance" recumbent, I guess they mean it. The bright yellow Kingcycle's are a great addition to the Linear line. Kingcycles sell for just under \$2800 depending on options. The King is offered with Magura Hydraulic or Sachs Drum brakes. It is available in both a touring and racing versions, although from what I saw, this is a performance bike—no matter what kind of brakes it has on it. A suspended fork, front fairing, rear trunk and wheel covers are options. Look for an upcoming test in RCN.

The Brompton is quite possibly the finest folding (upright) bicycle made. O.K., before I get a bunch of letters from Moulton and Bike Friday owners, let me explain. The Brompton

TEAM EASY NEWS

AGAINST THE WIND!

Ah, to be nineteen again...and the proud owner of a new **TOUR EASY** builtup by *Gardner Martin* himself...better yet, your new ride comes as a gift from your American AuPair family. For sure *Peter Seliger's* friends back in Dresden will ask: "So, what did you do in The States" and the very-affable Peter can say: "I wet my rear wheel in Greenwich CT and rode over to visit my sister in Wisconsin, then dropped down to North Rim Grand Canyon enroute to front wheel dipping in Cambria CA...Great ride! **4,123 miles in 35 riding days**, but some wind and snow blew in my face in Colorado"...Peter is blessed with "photographer eyes" and plans to produce a photomontage of late-summer America 1994 featuring the reliable companion he's taking home to Germany.

ERIC HOUSE 508

Internet maven (ehouse@apple.com) and serious marathon rider *Eric House* posted a plenty presentable 8th place finish in the 1994 **Death Valley 508** last month...plenty presentable indeed since 10 of 27 men who started DNFed as did 2 of 4 women and all 3 tandem teams...maybe it was the 35,000ft of climbing that thinned the field... but no problem for the **Gold Rush Replica** Eric onboard.

Dynamite Video.....\$5 gets you a rich info pack...four-color brochure, glossy spec sheets, order form and a twelve-minute professionally-made color video.

Serious stuff.

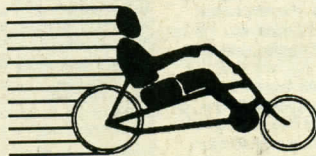
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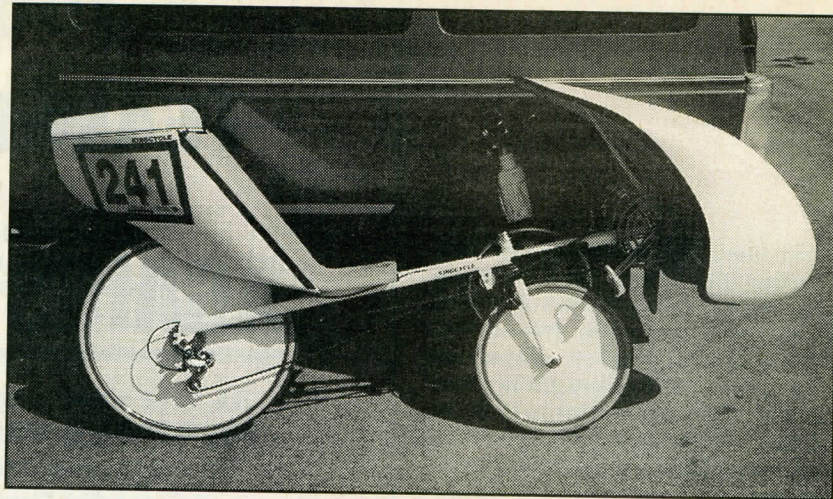


can be ridden up to the door of a store, restaurant, shop or airport, folded up without tools in less than thirty seconds, dropped into a bag that slings over ones shoulders and carried in. It takes a careful eye to notice that it's a bicycle in a bag. A unique feature of the Brompton is the rear suspension, which does not have an upper attachment to the frame. Just lift the bike at the seat, and the rear triangle pivots down underneath the bike. The Brompton comes in three and five speed models with several options. Prices start at just under \$740.

Linear is also the North American distributor for the Radius Peer Gynt. This is a LWB underseat steering recumbent quite similar to an Avatar or Ryan Vanguard, except that it has rear (Moulton type) suspension as well many deluxe touring features. The bike comes equipped with fenders, racks and a generator with lights. This is the Mercedes of recumbents. The Peer Gynt sells for just under \$3500.

The Linear company always has its eye for a new product. Hans Voss a German recumbent. When he mentioned he had a new production bike (the BEVO FWD-RCN#23), Linear became a natural to import it. Now there is a possibility of North American manufacture of the BEVO. With their history of being on top of the Euro-Bent market, you may want to keep Linear in mind the next time you see a futuristic new recumbent or HPV.

The pride of the fleet is no doubt the Linear folding aluminum recumbent. No other recumbent bicycle does such an efficient job of folding down for easy transport. The Linear is the ideal choice for a long distance trip to far-away lands. Unveiled at the Interbike show this past September, was the first finished prototype SWB Linear. If you are planning to make the trip to the Netherlands for the International Human Powered Speed Championships, this would be the best bike to take. The Linear SWB will fold down tinier than any other recumbent that we know of, at least any other production recumbent.



The Kingcycle racing in the midwest-Photo by Mike Eliasohn

RCN's First Ever Back Issue Blow Out Sale

We are in the process of reorganizing the list & availability of RCN back issues that we offer for sale. Some early back issues may be phased out completely. If you have ever been interested in a complete set of RCN issues, now is the time to order! To validate this offer, please clip out or photocopy this ad. Offer valid through February 1995 only! No other discounts apply. Mailorder/ no credit card orders please.

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Out Now! Encycloepedia 94/95

THE INTERNATIONAL GUIDE TO ALTERNATIVES IN CYCLING

The rich variety of worldwide recumbent design is beautifully portrayed in Encycloepedia, a full-colour book, published by cyclists in England. It details the latest in HPV thinking from many countries (particularly Europe), along with other innovative cycling ideas. Much bigger and better than last year's, the new edition details the latest in HPV thinking.

The people behind Encycloepedia also produce Bike Culture Quarterly - an unconventional ads-free magazine of ideas, with many colour pages. BCQ is read by a community of free-thinking HPV enthusiasts and others in over 40 countries. It's an information exchange for bike designers, inventors, open-minded connoisseurs, die-hard traditionalists and off-the-wall visionaries. Watch out: BCQ also covers the kind of US news which mainstream mags never touch.

To let you sample BCQ we've broken the entire issue 3 into Encycloepedia, making it a substantial book of 180 pages. This 'two in one' Encycloepedia/BCQ is available from:

Centre for Appropriate Transport
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College Park, MD
20740
Tel: (301) 8315151

Fairfield Bicycle Shop
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CANADA
Tel: (604) 3812453

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For more information and BCQ subs contact: **Open Road USA (Ref RCN), PO Box 1065, Ansonia Station, NY, 10023. Tel. 212-865 7688.**



"The latest Encycloepedia/BCQ is awesome beyond words - light years ahead!"

John Dowlin, Editor, Network News, Philadelphia.



BJ on his new V-Rex!

View From The Big Chair

RCN Crew goes to Interbike 1995.....The Color Anodized, Weight Loss Bike Show!

Continued from cover: Interbike

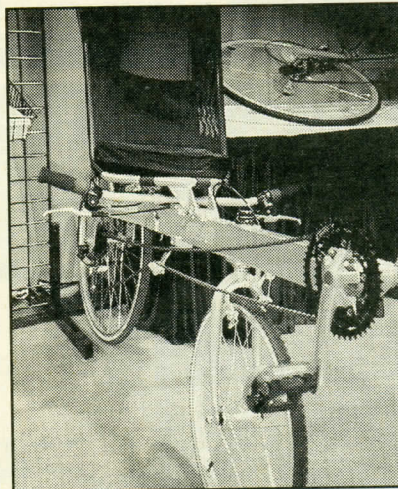
ReBike. The following is a compilation from our findings of the recumbent industry and other items of special interest to the recumbent rider.

Rans had the best, and most professional display at the show with a total of seventeen recumbents displayed. The Nimbus, Stratus, Response, Tailwind, and the newest SWB designed by Mark Colliton and Rans; the V-Rex were on display. The V-Rex was one of the big hits of the recumbent scene and a popular bike at the test track. The V-Rex was displayed in both the 20"/700c and 16"/24" wheeled versions. New to other models was the addition of silent urethane chain-riders (for those models that use them). Mark Colliton and Randy Schlitter spent much time encouraging the RCN crew out to the test track to get our opinions of his design.

Linear's display was also outstanding with the highlight being the new SWB Linear based on it's LWB brother. This bike also folds and would be of interest to those looking for an ultra compact recumbent. A slightly higher bottom bracket and around 37" wheelbase promises for this bike to be really maneuverable. Also on hand were the new color anodized LWB Linear's, a Kingcycle, a Windcheetah (Speedy) and the extremely compact folding upright bike, The Brompton.

Lightning's display included the prototype of the new lower cost model (the "Stealth?"), a custom painted "Fantasy Art" P-38, and an R-84 suspended carbon fiber frameset.

Maxam displayed what are now the three models of the low cost Reveille. Buyers can now order an 18 speed indexing Reveille starting at around \$400.



The 1995 Linear SWB

Counterpoint has a new dealer marketing scheme and unveiled a new dealer model of the Presto. It seemed to be very similar to the SE-63, but had no front derailleur (21 speed) and the price went up. Custom Presto's will continue to be available from Angle Tech.

ATP had an R-40, 42, and 45 on hand. The Vision has proven to be very popular and has seen only some very minor changes for '95. The rumored full suspension Vision R-?? remains a rumor at this point.

BikeE displayed the versatile 21 speed, the prototype of the E-Racer earmarked for Spring '95, and a really trick concept BikeE that would be a monocoque frame in the same basic BikeE

configuration, made of injected thermoplastic, and have seat suspension. While I was hanging around someone dropped by and left a nice photo a rider who was touring across the country on a well loaded BikeE.

American Derailleurs? Both Paul Components and Joe's Components had CNC machined, domestically made rear derailleurs on hand. Joe's seemed to be the most promising, but there was no working model on hand. It is totally rebuildable, will be light, come in anodized colors, but cost will be ...\$\$\$.

Thorpe Consulting displayed their polished aluminum CNC machined, glued and bolted high speed recumbent, the Road Runner. The bike was a MWB configuration and featured a very high bottom bracket, 22lb weight, front and rear suspension, Moulton wheels, and a seat/handlebar combo that rotated fore and aft to adjust the rider for the best performance. Comfort doesn't seem to be a priority as the seat was constructed of flat unpadded carbon fiber. Their hopes are to produce 10 - 20 bikes in '95 that will sell for around \$5000 each.

Aero Wheels. Both HED and Aero Spoke are planning on building composite wheels in a size usable for 'bents. HED will be making the 17" size and Aero Spoke will be making the 20" (451 ETHRO) size. Sun also will be making the new 18" x 1" wheel for a matching 1" Primo tire.

Cannondale drags their feet and had no recumbent this year. No info on the rumored production model recumbent could be found. It looks that for now they have chosen to go into the BMX market instead.

Continued on page 13

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S & B RECUMBENTS



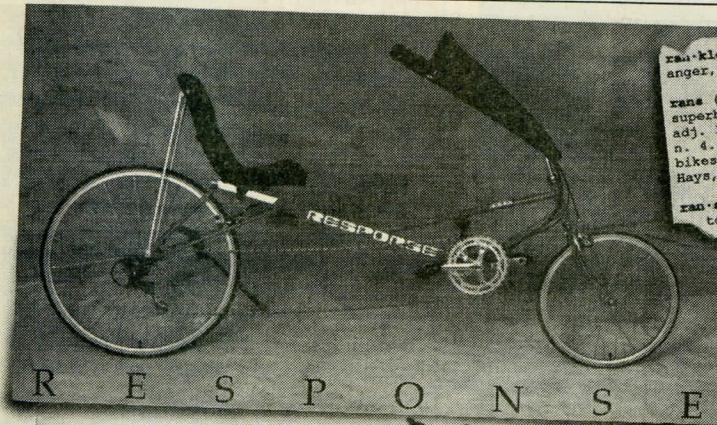
S & B
Recumbents
lighter side.
Captain SWB is
Bob Reinisch

ATTENTION Recumbent Manufacturers

RCN is currently compiling recumbent bicycle information for the 1995 season. If you are a recumbent manufacturer, dealer or related business and you ARE interested in having your products featured in the RCN season kick-off issue or you would like to be listed on our database to be contacted for the RCN 1995 buyers guide issue, please write RCN ASAP. Here is a list of what we will need:

- Your 1995 or current brochure/ presskit.
- Black & white side view photos of your bike.(color will work in some cases)
- Model, spec and component info.
- Product availability info.
- 1995 Pricing info

Details are still being worked out for the 1995 guide and we will contact only those manufacturers who contact us from this ad. Send Info to: RCN, PO Box 58755, Renton, WA 98058

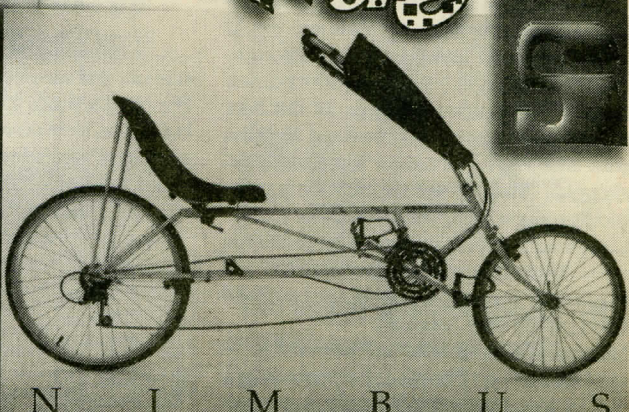
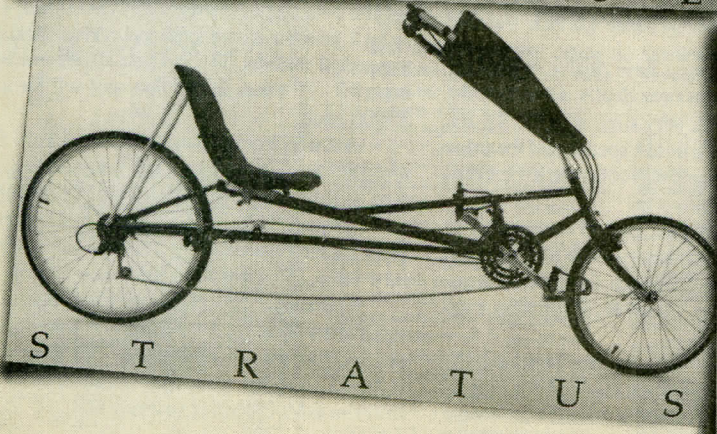


ran-kle (rang-kel)
anger, irritation and annoyance of

rans (RANZ) vt. 1. to cycle in comfort and speed with superb handling n. 2. a form of recumbent cycle adj. 3. to be extremely well crafted, yet a great value n. 4. a really cool company bent on building incredible bikes. ADDRESS: RANS Inc. 4600 Highway 183 Alternate, Hays, KS 67601 Phone: (913) 625-6346 Fax: (913) 625-2795

ran-sack (ran-sak)
to search

defining
the
Ride



S & B returned for a second year with a "comical" approach to promote their lower priced framesets and bikes. Shown new this year were their tandem model and a 22 pound aluminum model.

Rotator Steve Delaire of Rotator shared a display with "Zap" the electric bike motor conversion company. Highlights were the "interceptor" a special model Pursuit with an intermediate drive and upgraded components. This bike also had optional kevlar/carbon fiber front and tail fairings as well as a Zap electric motor. Also at the booth there was a promotional appearance by electric car enthusiast and actor of "Naked Gun" fame, Leslie Nielsen! Could we get him on a recumbent for the next Naked Gun series???

Please sponsor **Myhee!** Myhee, the recumbent riding dynamo that set the most recent 24 record was at the show picking up sponsors for his 70,000 miles in 365 days attempt. It is still unknown as to which 'bent he will be riding for this attempt. Word has it that he's jumped ship.....

Meeting of the (bent) minds. **Jim Wronski** the owner of **People Movers** sponsored a recumbent industry reception at his shop which was less than 5 miles from the convention center. The atmosphere was laid back (what else) with most of us talking of the industry's growing future and the larger market share the SWB is taking, all while stuffing our faces with the excellent catered food. Jim is to be commended for this gathering and his promotion of industry unity.

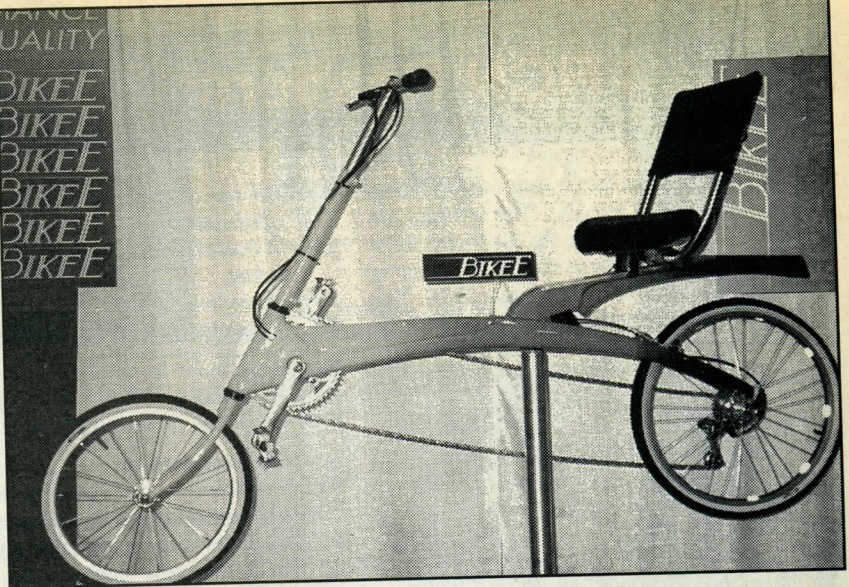
Mike Burrows, designer of the **Wind-Cheetah**, Chris Boardmans record setting

Olympic track bike, and long time HPV designer and enthusiast was caught hanging around the perimeter of the Giant (his new employer) booth trying to look inconspicuous so as to get reactions to his new Giant concept road bike. The bike had many innovative features such as plastic bladed spokes. **RUMOR:** rumor has it that Mike has built a few recumbents for the consideration of **Giant** and that the CEO could be interested.

The Cool and the Useful. There are always a lot of neat, useful items at the show but unfortunately many may not last in the market long for whatever reason. I tried to find useful items, not just light items as my interests lie in

touring and commuting. While there I picked up an air horn for bikes made by **Samui Corp.** This is a rigid plastic horn with a remote air canister that pops into a bottle cage. It is **VERY** loud and can carry around 30 blasts before the need for refilling with a bike pump. It is also surprisingly light. **Cycle Magic** was showing their retrofit kit to add emergency quick release to toe clips. They seemed to work well and by

Continued on page 29.



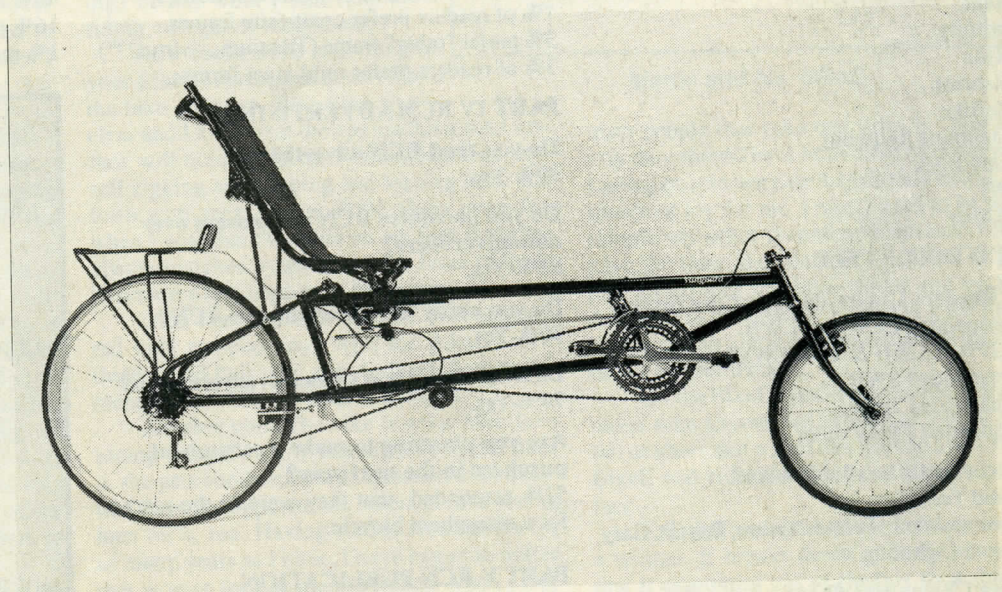
The BikeE Thermoplastic Concept Bike

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1994 RCN Readers Choice Awards & Survey

Welcome to the RCN first ever Readers Choice Awards and Survey. The information compiled below was taken from official RCN Readers Surveys sent in to the RCN offices in between February 1994 and August 1994. The original form was mailed out in RCN#19/20, the 1994 Buyers Guide Double Issue.

PART I BIKES

Readers Choice Favorite Manufacturer:

- 1st Place: Counterpoint-22%.
- 2nd Place: Lightning-21%.
- 3rd Place: Easy Racer-19%.
- 4th Place: ATP-12%.
- 5th Place (tie): Rans-5%.
- 5th Place (tie): Ryan-5%.
- 6th Place: Windcheetah-4%.
- 7th Place: Linear-3%.
- 9%-Other.

Readers Choice Favorite Recumbent Models:

- 1st Place: Counterpoint Presto.
- 2nd Place: Lightning P-38.
- 3rd Place: ATP Vision.
- 4th Place: Easy Racer Gold Rush Replica.
- 5th Place: Easy Racer Tour Easy.
- 6th Place: Ryan Vanguard.
- 7th Place: Linear LWB.

What kind of recumbent do you own?

- 18%-Easy Racer.
- 16%-Lightning (Brummer).
- 11%-Counterpoint.
- 10%-ATP Vision.
- 8%-Linear.
- 8%-Rans.
- 4%-Infinity
- 4%-Ryan
- 2%-Haluzak
- 2%-ReBike
- 1%-Lightning Tailwind.
- 1%-Laid Back
- 1%-DH
- 14%-Other

PART II BIKE STYLE

RCN Readers Choice design of the future:

- 43% responded CLWB or LWB (29%- CLWB & 14%-LWB).
- 38% responded SWB.
- 18% responded Trike.
- 1% responded FWD/ other.

Is it a currently available bike?

- 60% said Yes
- Top four answers: Presto, Vision, BikeE, Easy Racer and Lightning

Readers Choice wheelbase

- 46% of readers prefer SWB.
- 45% of readers prefer LWB/ CLWB.
- 7.5% of readers prefer trikes.
- 1.5% of readers prefer FWD/ other

Readers use of their recumbents:

- 37% of readers main interest is touring.
- 23% of readers main interest is performance/racing.
- 20% of readers main interest is recreation.
- 5% of readers main interest is commuting.

Readers Choice handlebar preference:

- 77% of readers prefer above the leg handlebars
- 23% of readers prefer underseat steering.

Are you interested in:

- 74% responded favorably to Fairings
- 26% responded favorably to Bodies
- 53% of readers are interested in European recumbent coverage.

PART III Materials & Components

Readers Choice wheel sizes/ combo's.

Rear wheels:

- 38% of readers prefer 700c rear wheels.
- 24% of readers prefer 26" rear wheels.
- 22% of readers prefer 20" rear wheels.
- 14% of readers prefer 27" rear wheels.
- 2% of readers prefer 24" rear wheels

Front wheels:

- 69% of readers prefer 20" front wheels.
- 19% of readers prefer 16" front wheels.
- 11% of readers prefer 17" front wheels.
- 1% of readers prefer 24" front wheels.
- 0% of readers prefer 18" front wheels.

Readers Choice frame material:

- 70% of readers prefer chro-moly frames.
- 17% of readers prefer aluminum frames.
- 7% of readers prefer composite frames
- 3% prefer "other" frame (Titanium..."virtual?")
- 3% of readers prefer mild-steel frames.

PART IV RCN ADVERTISING

Do you read RCN advertising:

- 99%-Yes.

Do you patronize RCN advertisers over non-advertisers?

- 88%-Yes.

Do you enjoy the advertising in RCN?

- 99%-Yes.

Do RCN ads tell how serious an advertisers is?

- 76%-Yes.

Are you planning to make a recumbent purchase in the next year?

- 52% responded that they were in the market for a recumbent bicycle.

PART V RCN PUBLICATION

Do you enjoy RCN road tests?

- 99% responded Yes.

Would you like our road tests to:

- 49% responded "remain the same."

- 21% responded "more frequent but shorter tests."
- 29% responded "more reader written tests."
- 0% responded "fewer road tests."

Do you like RCN's equipment oriented style:

- 96% responded with a yes.

RCN readers want more article on:

- First place: touring.
- Second place: bent comparisons.
- Third place: commuting.
- Fourth place: (tie) reader written articles, 'bent people and homebuilder stories.

What do you like most about RCN?

- Road tests was the (two to one) favorite.
- Recumbent News was second
- Reader written stories third.
- Homebuilder Corner fourth.

What do you like least about RCN?

- Homebuilder corner came in first (and is on both lists?)
- Display ads was second.
- Classified ads was third.

Choose your favorite RCN format:

- 62% said "Five issues per year including the annual buyers guide."
- 17% said "Eight or ten smaller RCN issues per year (no buyers guide)."
- 11% said "Six issues per year with no buyers guide."
- 10% said "Quarterly RCN (incl. buyers guide)."

RCN subscribers household income:

- 36% make 40K+ per year.
- 46% make 31K-40K per year.
- 16% make 20K-30K per year.
- 1% make \$0K-19K per year.

RECUMBENT GLOSSARY

Frequently used recumbent terms.

LWB: Long wheelbase 56"-71." The most popular recumbent type. Long and low bikes with the crankset low and behind front wheel.

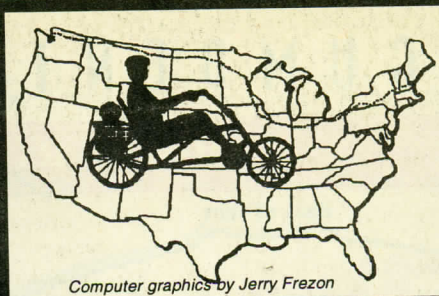
CLWB: Compact Long Wheelbase 46"-64." These are bikes that have a shorter LWB configuration. CLWB designers have made a special effort to make the bike manageable and easy to ride by shortening the wheelbase (usually by raising the seat and/ or using smaller wheels).

SWB: Short wheelbase 33"-39" (crankset high and in ahead of front wheel).
Medium Wheelbase 40"-45." MWB is classified as a SWB

FWD: Front Wheel Drive

“Awake Again” on a Recumbent

By Martin Kreig Part Two of Two



Computer graphics by Jerry Frezon

“At the 1993 Interbike trade show in Las Vegas, I made the mistake of going for a test ride on a BikeE. On one side of the bike were smiling onlookers, on the other, proud parents looked to be showing off their latest pride and joy. I took the bike for a ride. Wow!!

The assembled BikeE group had reason to be self-satisfied. They had created the Alpha Romeo of recumbents. Fast, quick and responsive, this bike lived up to its jazzy looks. Theirs was a bike that recreated the excitement I had experienced on my very first recumbent ride. And because it was so easy to ride, I knew had stumbled on a machine that could make it fun for America leave the car in the driveway.

What impresses me about the BikeE that I've been riding for the past eight months is another kind of speed. Speed off the bike, speed on the bike and fun and comfort in between. It may not be able to go as fast as an Easy Racer, a Ryan or a Lightning, but if your run and zips are short little three or four mile jaunts, especially through obstacle laden streets, the BikeE does not have any competition.

If your office or home are up stairs, like mine are, getting a BikeE up and down them is not a problem. You throw the handlebars over your shoulder and off you go. If you need to dash out of the office to make a photo copy, I guarantee you can do so on a BikeE faster than any bike in the business, upright or conventional. When I must move quickly, which a lot of the time I must, I unlock the BikeE, toss my attaché over one of the seat bars, start jogging along side it, hop on side saddle, swing my legs on to the pedals and off I ride.

Do lots of quick shopping errands? Once again, ease and speed on the BikeE. Cloth shopping bags can be easily lifted on and off over the tops of the seat. For light loads, you'll never have to bother with bungee cords or load compromising bike racks ever again. This is so because you can pretty much hang anything off the seat without interfering with your pedaling or your steering. As further testimony to this concept, I hang my lock and tool bag off of the light-duty strut that holds the two seat bars in place.

When a heavy load needs to stay on the bike for a long time, such as for a tour, the BikeE people have created a clever rack system that does not change the handling characteristics of the bike. It mounts under the seat.

If you need to transport bigger items such as, kids, dog food, lots of groceries or garage

sale purchases, a trailer mounts easily to the BikeE. I've even moved a bed and regularly transport 240 pounds of drinking water behind my BikeE.

You can mount trailers designed for an upright seat post hitch by strapping to either side of the vertical bars of the BikeE seat. The BikeE company tells me they are designing a hitch for the drop out variety as well. And with either, you will feel totally in control no matter how big the load because if you should falter or have to stop suddenly, the closeness of the ground allows your feet to act like pontoons for added stability.

The performance of this bicycle goes on and on. Need to make a Bat Turn (a 180)? Just lift up the front wheel, turn around and the whole bike turns with you. How about a figure eight or a moving U-turn on a bike path? The BikeE has the smallest turning radius (while still pedaling) of any bike I can remember riding, upright or recumbent.

How about some slaloming on your BikeE? Awesome. I can't make the bike go down. When the way is clear and I know that the approaching road surface will hold my tires, I oftentimes find myself zigging and zagging and leaning back and forth with great fervor. FUN. Even more fun when I note that the smile on my face is almost always matched by smiles on the faces of those bystanders that happen to be looking.

Didn't get a chance to downshift before a red light stopped you? With the BikeE's new three speed hub, you can do large gear increment shifts while the bike is stopped.

Another plus. The bike is sexy. Men love seeing women on it. When my lady friend rides it, she gets bombarded with question after question from the opposite sex. Women love seeing men on it, too. Having ridden recumbents for as many years as I have, I have begun to notice that women look at me differently when I ride the BikeE. It seems that members of the opposite sex are saying, “Gee I wonder if he'd let me try it”, instead of “What a show off”.

Kids, motorists, even hard core cyclists all respect the BikeE. I hear “cool bike” nearly every time I ride it. Another response I hear a lot



Martin and his BikeE

from people that take test rides is “this is the way they should have built bikes to begin with”. Letting people test ride the bike has been a great source of joy for me. I rarely used to let people sample my other recumbents because I didn't have the time, the necessary patience or I was just afraid that my bike would end up being damaged in the process. I quickly grew tired of having to run along side test riders as they tried to learn recumbency.

On the BikeE I just let them ride away. I've never seen anyone fail. Young or old, fit or fat, tall or short, not a soul has walked away from a BikeE test ride without a smile on his or her face.

Even off the street, the BikeE comes away a winner. It breaks down with the same ease that it assembles out of the box they ship it to you in. Then for car trips, in minutes it can easily be stored in the trunk.

And because the BikeE people are committed to starting a “BikeEvolution,” they provide an 800 number for potential buyers. They
Continued on page 29.

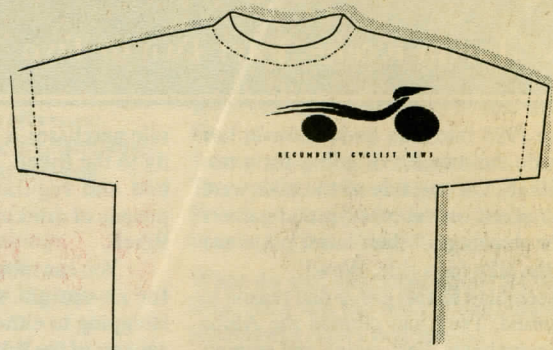
RECUMBENT CYCLIST NEWS

Official RCN T-Shirts and Hats

Back of shirt



Front of shirt



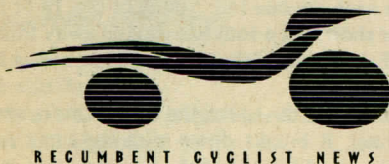
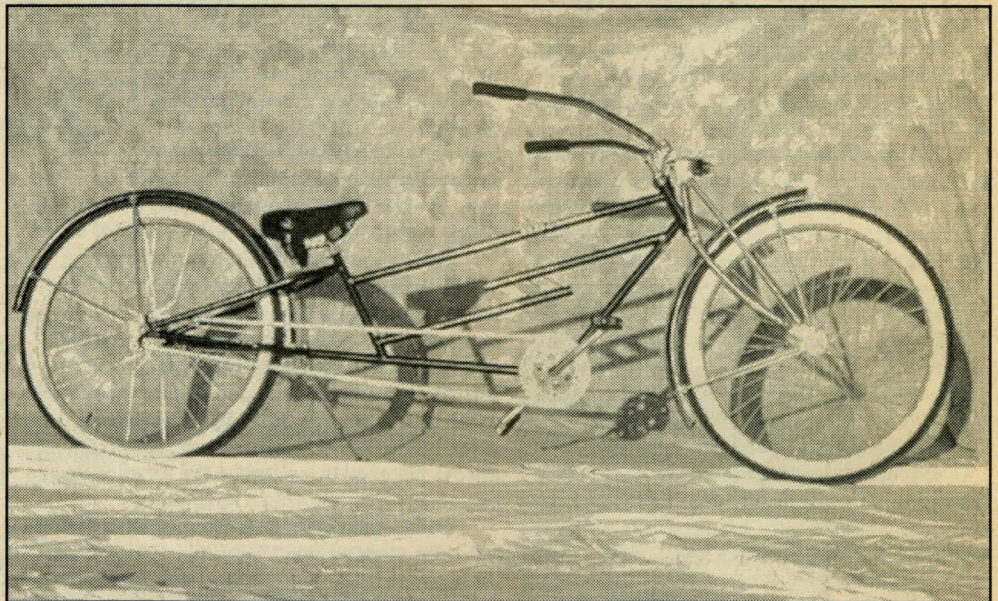
T-Shirts are the best quality available. They are 100% cotton Oneita Power-T. T-shirts are white with two colors (Purple & Teal printed on the front and back. RCN script written across the back and our new "wave recumbent" logo and "Recumbent Cyclist News" written on the front. Sizes: L, XL, XXL. Shirts are \$16.99 + \$3 shipping and handling. (XXL add \$1.50). **RCN HATS** The hats are made in the USA high quality white material with a white braided cord across the top and teal "recumbent wave" logo graphics and purple "Recumbent Cyclist News" lettering. The hats also have a leather adjustable strap. RCN hats are \$13.99 + \$3 shipping & handling. **SHIRT & HAT SPECIAL:** Pick any size of shirt and a hat, we will pay the shipping \$30.98 Washington residence please add 8.2% sales tax.

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Is it a recumbent? Looks kind of like a retro-bent. These bikes are available in many configurations starting from around \$500.

Write to:
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92648

See also Editorial License:
this issue pg 2.
Tell them you read about it in
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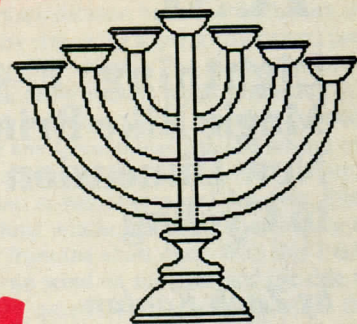
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RCN Reader Road Test

Lightning F-40, Magic Bike Brings New Dimension to Cycling

by Zach Kaplan



WELCOME ABOARD THE LIGHTNING F-40

As you walk up to the bright yellow airplane fuselage shaped F-40 you note it looks like it is moving fast standing still. The left side of the fiberglass and fabric fuselage is zipped open. You enter this human powered vehicle, standing over it while putting your right foot through the right foot slot. Now sitting down on the tensioned mesh over aluminum frame seat, you swing your left leg through the door and drop your foot through the slot. The matte black anodized handlebar with down turned ends sits in front of you like a control on an airplane. You practice picking up your foot and putting it back through the foot slot to get a feel for it before taking off, now again with the right foot. You note those slots are exactly in the right spot and it doesn't take any concentration to lower the "landing gear."

With your left hand you pop the spring loaded side wind tube into position. This tube runs between the seat and nose fairing. Then you quickly zip up the side zipper and are now almost ready for takeoff. You taxi over to the starting line, a one finger application of the hydraulic brake lever stopping the front wheel precisely at the line. Reaching into the "glove compartment" on the right wind tube, you pull out a special yellow tinted pair of glasses, as conditions are foggy. While positioning the glasses under your helmet, you simultaneously flip a small toggle switch on the handlebar which activates a 45 watt quartz-halogen light located behind a polycarbonate window smoothly integrated into the front of the fairing. A vertical tube on the tail also becomes illuminated by 9 high powered light emitting diodes. You casually take a sip of energy drink

from a tube conveniently located near your face. You zero the odometer with its heads up display located in front of your face. The heart rate transmitter must be working as you note the pulse reading on the heart rate monitor located next to the speedometer is increasing.

The official standing next to you with the two way radio says you are almost clear for take-off. As the countdown begins, you lower the pivoting polycarbonate windscreen into position in front of your face. Clear for takeoff now, you raise one foot to the pedal and click in, pushing off while releasing the brake. After half a revolution of the crankset, the other foot is brought in and engaged to the pedal. Not fully warmed up, you take the first half of the 600 meters easy, gradually increasing the power output level. You note 25 mph comes up fairly quickly with little effort. That type of speed would really take some exertion on an upright bike or even on most unfaired recumbents. The orange pylons of the timed 200 meter area are spotted off in the distance. Now you start hammering. The numbers on the digital display start increasing 50, 55, 60, 65 km/h. As the HRM indicates 190 beats per minute and increasing you enter the timed area. All you can hear is a gentle hissing of the wind passing around the fairing and the low rumble of the high pressure tires on the tarmac. Near the end of the timed 200 meter stretch, your speed is still increasing. After a cool down, you make a tight U-turn in one lane and return to the timed area, barely pedaling at 21.7 mph. An IHPVA official says you averaged 41.7 mph through the timing trap.

While cruising back to the starting area, you note that you are essentially an average commuting-touring cyclist of rather low power

output yet you have gone significantly faster than most road racers on UCI bikes can go, and with none of the pain and all the comforts of home along for the ride. A more powerful rider could have gone faster. At the starting line you see just such a rider being lowered into a low slung hard bodied machine, team mates scrambling with duct tape to seal the rider into the fairing. Even though that vehicle is faster in a straight line, how practical could it really be if you can't operate it on the road like the vehicle you are sitting in. The sun is now out and a group of spectators on unfaired recumbent bikes are busy applying sun screen to their arms and legs. You smugly take another sip from your drink tube, glad the vehicle you are piloting provides almost complete protection from ultraviolet radiation.

The above story is a composite of several events which I actually experienced on different occasions while riding an F-40. It is all based on reality.

THE MAN BEHIND THE BIKE

Any similarity to an aircraft is not coincidental. The owner of Lightning, Tim Brummer is an aerospace engineer. He formerly worked with rockets and now runs Lightning Cycle Dynamics. He has been working with human powered vehicles since 1977 when he helped design and build the record setting White Lightning as a college project.

With little previous design information to go on, an unable to obtain funding for human powered vehicle research, Lightning designer, Tim Brummer, has done most of his research himself. The production Lightnings have *Continued on page 19.*

undergone continuous refinement over the past ten years. (see RCN #15, Lightning P-38 Design History). He has a clear vision of what a practical hpv is and is gifted with the skills to make it a reality.

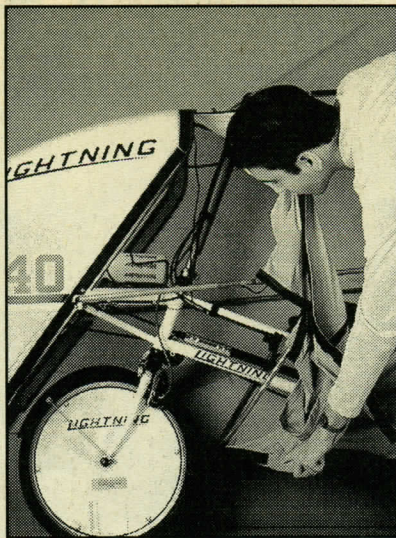
F-40 PRACTICALITY

I tested the F-40 with an eye towards practicality in every day situations. In the course of testing I have entered countless centuries on the F-40, done a double century, used it for my primary transportation to and from work and for shopping (I don't own a car), taken it on the BART train system in the San Francisco area, taken it into elevators, carried it up three flights of stairs daily, regularly ridden it through the dense traffic and hills of San Francisco, used it for touring, and entered it in the 20th Human Powered Vehicle Speed Championships in Eureka, California. The bike has worked out most favorably in these situations. The F-40 meets my practical transportation needs better than any other bicycle in its price range or below while simultaneously providing the most fun and smiles per hour.

The F-40 is actually an integrated fairing package which fits onto the P-38 frame (see RCN #7 P-38 Road Test). The P-38 is a medium wheelbase (a longer SWB) recumbent which makes it an ideal platform for a fully faired vehicle due to its excellent weight distribution and high speed stability. The triangulated space frame of the P-38 is quite resistant to flex under hard pedaling. This combined with the fairly high bottom bracket and the angle of the seat back give the bike excellent hill climbing and acceleration abilities. I regularly pass roadies on surprisingly steep grades. The tensioned mesh seat back over a contoured aluminum frame is patented and is recognized by recumbent enthusiasts as being one of the most comfortable in the business. On a 372 mile ride I only got off the bike a few times and it wasn't because of the seat! I couldn't have ridden that far on an upright bike and it would have been difficult even on most other recumbents.

The fairing is better integrated than any other fairing package I have seen on a bicycle. It is relatively easy to get in and out, and once practiced very easy to get my feet through the foot slots for stopping and starting in traffic. Some stops need to be anticipated sooner than on an unfaired bike, such as when stopping on an uphill or when riding in dense stop-and-go traffic. In these situations I generally unclip one foot and sometimes stick it out of the slot long before I actually need to stop, pedaling with the other foot, very steep hills with a stop sign at the top are also difficult. Knowing where such intersections are, I generally avoid them. Operating the F-40 requires perhaps more thought and advanced planning than with other bicycles. This is a thinking person's machine, which is fine with me since it adds to the fun. Once you get out of the hilly high traffic areas, the concentration level required for stopping and starting greatly decreases. In fact, in level ground traffic, stopping has become second nature and I rarely give thought to it.

The test bike has the fluorescent yellow stretch Gortex fairing (rather than the stock spandex). With this setup, the optional mudguards, and a helmet cover I am able to stay almost completely dry in the rain. The fairing



Zach installing his F-40 Gortex body.

kept me warm on cold days, no need for winter gloves or shoe warmers on this bike! People assume that the bike must be a rolling sauna on warm days. For some people it can be, but most people who have ridden F-40s, myself included don't find it much hotter on a hot day than an unfaired bike. There is plenty of flow through ventilation at the speeds the F-40 operates at. Air comes in through the front wheel opening. By opening the zipper on the top of the fairing flow through ventilation can be achieved. When going up long grades, the door zipper can be opened. Some F-40 riders on the east coast have installed a second set of zippers on the right side to further improve ventilation in warm, humid conditions. Cruising on level ground on a hot, sunny day, an F-40 with a light colored fairing can also be cooler than an unfaired bike because it is like carrying your own personal shade trees with you. The fairing acts as a sun shade. This brings me up to another important F-40 advantage- no need to apply sunscreen anywhere but your face and neck.

A veteran F-40 rider who recently switched from the spandex to the Gortex fairing cover told me the Gortex is much hotter than the spandex and harder to keep clean. He said the regular spandex still keeps the rider fairly dry in the rain. As well as costing \$120 more the Gortex fairing weighs about one pound more than the spandex. Standard on all F-40 fairings this year is the side wind tube kit. It prevents the mid-section of the fairing from blowing inwards in side winds. The left aluminum tube is spring loaded and opens for getting in and out. I found it desirable to run with the wind tubes in at all times. I know of three F-40 riders who have installed coroplast panels under the mid sections of their bikes with similar speed advantages combined with low cost and easy installation and removal for special events.

The fairing had another unexpected advantage- privacy. While motorists and other cyclists can see your head, that's all they can see. In true aircraft fashion, I installed an onboard toilet using one of the sets of bottle braze-ons beneath the seat. This turns out to be a great convenience and time saver when randoneur touring and doing century type rides. No more waiting in long lines to use a filthy outhouse. No more laying the bike down in the dirt by the side of the road and getting your cleats dirty trying to find some trees.

Two windscreens are available, the standard short almost vertical one and a long aerodynamically sloping one for racing which pivots forward. It is possible to interchange the short windscreen back and forth with the long one by removing a quick-disconnect pin if you order that option. The short windscreen provides fairly decent facial protection from the wind and bugs. Most bike fairings don't provide any facial protection and when I removed the short windscreen I noticed a dramatic increase in wind noise and dry eyes. Putting on the long windscreen is a major step up in comfort from the short one. With this I felt virtually no wind on my face and the ride became eerily quiet. When going up hills, the long windscreen can be pivoted forward providing excellent ventilation. With all the fabric on the fairing, road noise is muffled giving the F-40 a lower cockpit noise level than any other bike I have ridden. People outside the bike will disagree however. From the perspective of a pedestrian or other bicyclist an F-40 passing by makes a deep rumbling thunder-like noise. I put RainX on the outside of the windscreens and anti-fog on the inside. This combination works fairly well but the windscreens still fog up under certain conditions such as when stopping on a rainy or foggy day or going up a long hill on a cold day. The knock against the long windscreen is that it is more prone to fogging than the short one, must be pivoted forwards for getting in and out of the bike, adds 6.6 oz., and may require modification of your helmet mirror to provide adequate clearance. Never the less, I prefer to run with the long windscreen for the added comfort and speed.

An interesting and useful feature of the windscreen mount is the short horizontal tube located at the base of the windscreen. This tube is just long enough to mount one cycle computer and one heart rate monitor, and it places them high up at eye level, directly in the rider's field of vision. This is the closest thing to a heads up display on a bike that we are going to see for a while. No more peering at computers through zippers or having to take your eyes off the road. Being the information junkie that I am, I selected a combination of computers which display seven lines of information to me simultaneously. Hey, that's better than most car instrumentation- who needs a car!

There is plenty of room behind the seat for mounting a rack and panniers. When touring the panniers can't be overstuffed due to tight fairing clearance but plenty of stuff can be piled above them in the tail fairing without needing

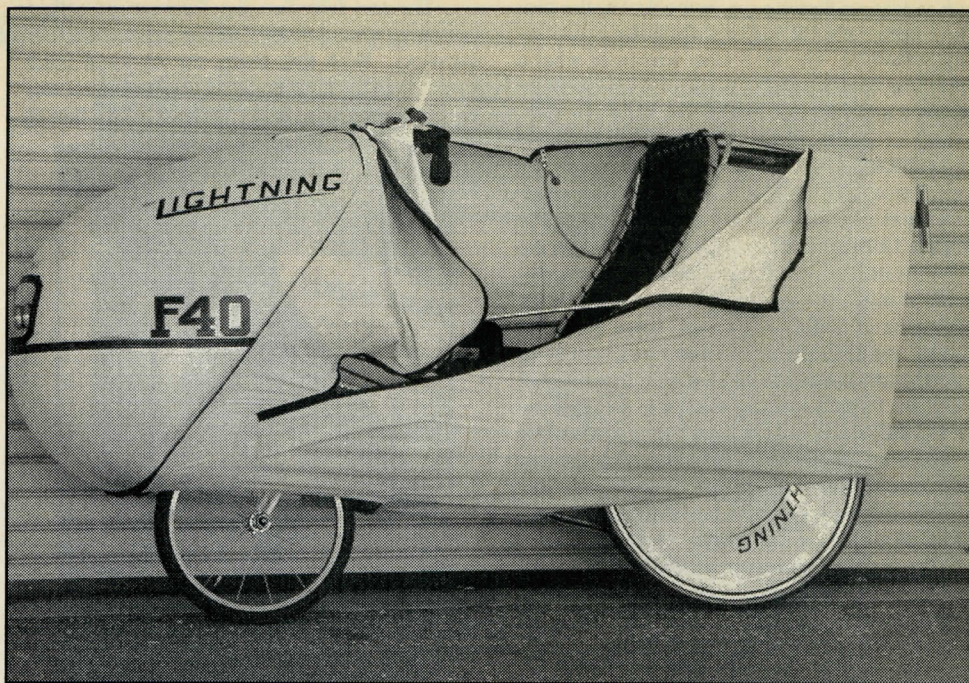
to strap it down for fear of it falling out onto the road. The sleeping bag and tent can be strapped in the space under the seat. The bike is no less aerodynamic fully loaded than unloaded, making it an ideal touring bike. Daily distances can be dramatically increased while simultaneously increasing the comfort level and reducing the fatigue level. Imagine riding into a headwind all day at speeds faster than you can cruise on an unfaired bike with a tail wind. The noise reduction of the fairing and windscreen is greatly appreciated when touring.

Last but not least, an important component of the F-40s practicality lies in its tremendous speed advantage. Lightning claims the bike is 40% faster than a standard UCI roadbike. I generally found that to be true on level ground, sometimes more sometimes less depending on wind conditions and my power output level. The more powerful the rider, the greater a speed advantage an F-40 has. For someone like me who doesn't own a car, the speed advantage is an extremely practical feature. I am able to extend my daily range significantly. This is an area most other practical HPVs don't address nearly as well as an F-40.

I found the F-40 to be faster than a good light road bike up to about a 5% grade. At that point it levels out due to the added mass. When the speed drops below approximately 10 mph the F-40 doesn't have any real aerodynamic advantage so it is desirable to save your power for the uphill to try to keep the speed above this break even point. You can really take it easy on the down hills, easily coasting by road bikers who are pedaling away furiously. On long, steep grades some of the stronger roadies pass me at a fairly low speed differential. However I generally pass them again on the downhill within 5 minutes. If the downhill is particularly treacherous and the maximum speed potential can not be realized, I am unable to catch the roadies on the downhill. As soon as the road flattens out I just sail right by at a tremendous speed differential. The F-40 is really in its element on rolling hills. In such conditions I can pedal down the hills getting up to extremely high speeds and use the momentum to fly past all the light road bikes on the upgrade. I frequently can crest such a hill still doing 31+ mph passing by people on road bikes who are standing on the pedals giving it all they're worth doing under 15 9.3 mph. It is at times like this that I feel I am really riding a magic easy chair. Moments like this make all the disadvantages of the F-40 worth while.

CERTIFICATION NEEDED FOR OPERATION

Tim Brummer admits the F-40 is not suitable for the average cyclist and I agree. He interviews all interested F-40 customers to make sure the bike is appropriate for them, and to help make sure they can handle the incredible performance. Many F-40 riders have experience riding high performance motorcycles, flying airplanes, and/or with light sailboats. This type of experience makes riding an F-40 much easier. Tim recommends at the very least, one year and



Zach and his F-40-Article photo's by Zach Kaplan

5000 miles of riding a high performance road bikes or recumbents, preferably with some racing experience. There have actually been a couple of cases where he would not sell the fairing to people he did not think were qualified.

The F-40 comes with an extensive owner's manual which is required reading prior to putting the F-40 into service. It has useful tips for dealing with cross winds and high speed down hills. According to the owner's manual, the F-40 can be ridden in steady cross winds of 20-25 mph and gusty wind conditions of 15-20 mph. I am a fairly light weight rider and found my comfort level to be at the lower end of these wind speeds. When the wind speed exceeds the safe limits, the spandex covering can be removed in under a minute. For temporary gusty conditions the fabric need not be fully removed. The front portion can be unvelcroed from the fiber glass fairing and stowed behind and under the seat. When riding in this configuration, the bike handles almost as well as with no fairing at all.

It took me several months of riding to feel comfortable in gusty wind conditions. Tim admits the F-40 has a fairly slow learning curve though it easier to ride than a hard bodied streamliner in windy conditions. My speeds gradually increased in such conditions as my reflexes improved. Leaning into the wind has added a whole new dimension of fun to cycling, using the fairing as a sail.

SAFETY

If ridden appropriately the F-40 is potentially safer than either an upright bike or unfaired recumbent. It has the low center of gravity and feet first position advantages of other recumbents in addition to some other passive safety features. When ordered in the bright yellow color the F-40 is more visible on the road than any other production bicycle. The large

surface area of the fairing and the bright color make it far more visible to motorists than the average "stick figure" bicycle. The thin fiberglass nose fairing can flex quite a lot before breaking, providing some frontal collision protection. The pedestrians you may hit will also appreciate the blunt front fairing shape as opposed to the lethal chainrings found on the front of many recumbents. Incidentally, any time you lay an F-40 down while in motion, there is going to be some fairing damage. All F-40s have a window in the front fairing to mount a headlight behind. The test bike was equipped with an extremely bright Nightsun Max system which includes a large nine LED tail light on the rear fairing which is so bright that it illuminates the white lines on the road and the backs of road signs. The test bike was also equipped with a strip of 3M tape running vertically from the top to bottom of the tail. An awe struck motorist who passed me at night described the rear of the bike as "glowing."

The F-40 can also be more dangerous than an unfaired bike. When sitting in the bike surrounded by the fairing one tends to feel protected and thus may take greater risks. According to Tim people who crash on F-40s generally do so because they are going too fast for conditions. It is easy to forget you are connected to the road by just two narrow bicycle tires. Any kind of moderate down grade will get the F-40 up to highway speeds, and unless conditions are optimal and the road is known, the use of the brakes to keep the speed reasonable is advised.

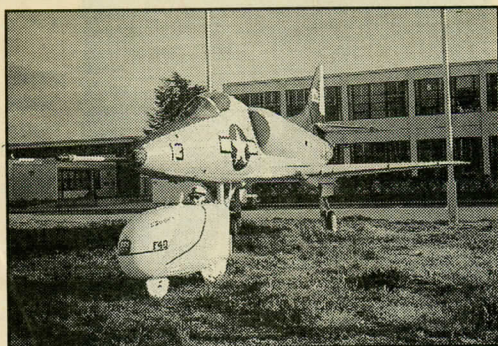
After riding the F-40 about four months I had become more confident in windy conditions, perhaps overconfident. While out testing the handling on an extremely windy day, I came to a long fairly straight stretch of road. With the strong tailwind at my back, I cruised for about 9.3 miles at speeds of 34-40 mph.

I was feeling really great and on top of things when suddenly the wind shifted direction. It started blowing hard from the left. I leaned into the wind as hard as I could but the bike was still heading over to the shoulder of the road, so I applied the brakes. The shoulder of the road was coming up too fast, so I applied the brakes harder. I didn't realize how much lift the wind was creating. The tires were lightly loaded as a result and I went into a two wheeled skid for 18.3 feet. I didn't realize both wheels were locked up at the time but later on I measured the skid marks left by the front and rear wheels. The skid marks stopped at the edge of the shoulder where the bike jumped a curb and landed in a field beside the road. I climbed out of the head hole like an alien emerging from a crashed UFO. Miraculously I was uninjured and aside from mud all over the side of the fairing the only damage to the bike was two small tears in the fabric and a small scratch on the widest part of the fairing. I learned how to sew in the course of patching the tears and also how to buff a scratch out of fiber glass. The most important learning experience was finding out where the limits of the handling were.

RELIABILITY

I initially took delivery of the bike in Lompoc and rode it with a full touring load up the coast to San Francisco. I noticed the front suspension was not very responsive as it seemed to be sticking. Tim said it might take some riding for it to loosen up. Upon arriving in San Francisco the suspension was still rather nonfunctional. I called up Tim and he said the machine shop

which machines the fork parts had machined some parts to the wrong tolerances. Within two weeks another fork was sent to me. The new fork worked fine immediately, though not as responsive to the small bumps as I had hoped for. The fork responded mostly to the larger bumps, potholes and driveway edges, but these



are exactly the areas where suspension is really needed. After several hundred miles, I began to notice some lateral play in the fork. It turned out the slider tube had loosened up within the fork crown. I was given one of the new generation forks with a longer slider tube and improved seals. The newest fork is much more responsive to small bumps and hasn't given me any more problems.

While inspecting the original defective fork, I observed a hairline crack in the head tube of the bike frame. I was surprised as I only had the bike two weeks at that time. I called up Tim and told him the frame was defective. We de-

termined that the crack was small enough that it would still be safe to ride the bike while waiting for a new frame. The new frame has held up well.

The wheels were another low point of the F-40. The front wheel, which had just 14 spokes, suffered from loosening spokes on the tour up the coast. I don't think the problem was the low spoke count although that exacerbated the problem once the spokes started loosening. The reason why they were loosening in the first place was the spokes were not tensioned properly. An expert wheel builder uniformly tensioned the 14 spokes to high tension and the wheel has stayed true ever since. The rear wheel also went out of true on the initial tour and has never really been able to stay true since. As a result of the wheel problems, all the rear wheels are now being built by Wheelsmith.

COMPONENT SELECTION

Component selection has never been one of Lightning's strong points, and while the components are better than those of the P-38, there are still a few substandard parts for a bike this great. While it would be nice to have all the right components on in the first place, when you are spending this much money you probably have your own ideas of what components you want.

The highlight of the component selection is the powerful IBC hydraulic brakes. These have better modulation than any brake around.

The half-step gearing provides a good selection of closely spaced gears. I found the 28-32 first gear too high for the San Francisco hills so I installed a 24 tooth chainring which provides an adequate low. Later on this was

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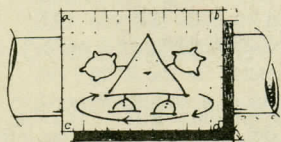
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replaced by a custom elliptical Climb Control chainring from OHO Designs which greatly improved hill climbing and traction on steep grades at the expense of needing to do some major modifications to the front derailleur to enable it to shift from what was effectively a 22 tooth gear to a 50 to a 54.

The 125mm Suntour Grease Guard bottom bracket provided marginal foot-fairing clearance so I traded it for a narrower one. Because of this incident, the F-40 specification now calls for a 120mm Ritchey bottom bracket. Tim is responsive to customer complaints if the complaints are valid.

Shimano doesn't make an 11-32 Hyperglide cassette, so regrettably the F-40 uses an 11 tooth Hyperglide cog with the rest being the older style non-gated SIS.

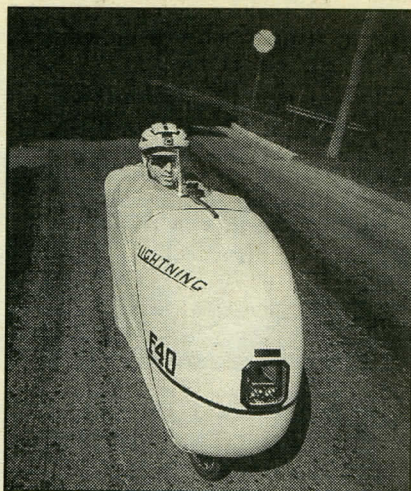
I consider the Suntour SL headset cheap garbage, but for this application Tim continues to use it because the headset in an F-40 leads an easy life due to the front suspension and the fairing preventing dirty water from getting sprayed all over the headset. Never-the-less, I consider headsets which require headset wrenches archaic, so I chucked the SL and installed an American Classic headset which tightens down with an allen wrench.

THE NEXT GENERATION

Most of my complaints about the F-40 will be addressed by the soon to go into production R-84/F-86 series. These are the new carbon fiber versions of the P-38 and F-40. The frame has the same geometry and wheelbase for the same good handling, but this is not simply a different frame on the same bike.

In addition to the carbon fiber box section frame, a lighter handlebar and seat frame will be used. The fork blades will be made of a higher grade steel and have a unicorn design to reduce weight. The 1 1/4" steerer tube will be made of aluminum to further reduce weight. The larger diameter steerer

enables elastomers to be used instead of springs decreasing the weight and increasing responsiveness to small bumps. The new bike will use aluminum bolts and screws in all the places the F-40 uses steel. Even the chain idlers will be lightened up. These improvements will knock 5 pounds off the frame kit alone.



Zach on the road. All photos in this article courtesy of Zach Kaplan

The F-86 will have suspension on the rear which will greatly improve high speed cornering, rough road handling, and comfort.

The seat height of the F-86 will be 2 inches lower than that of the F-40, enabling a lower fairing to be used. This way the rider won't have as much frontal area and the reduction in side area will give somewhat of an improvement in side wind stability. The smaller size of the fairing also means less material is needed, thus the fairing will weigh less.

The F-86 fairing will have quick release mounts and should be able to come completely off the bike in under two minutes. This will greatly increase the versatility of the bike for those days when you actually want

to work hard when riding with the club riders.

The F-40 is an excellent bike which has exceeded my expectations in most respects. It is a good all purpose bike, perhaps the ultimate commute-touring bike for areas where it rains instead of snows. It is worthy of keeping in my personal transportation fleet for such purposes, but I will begin testing an F-86 at the end of 1994.

THUMBS UP!

Very fast by bicycle standards
Excellent weather protection
Practical for commuting/touring
Highly visible in traffic
High fun factor

THUMBS DOWN!

Sensitive to cross winds
Heavy by road bike standards
Could use rear suspension
Quality control needs improving
Some sub-standard components for cost
Expensive

F-40 SPECIFICATIONS:

Base Price: \$4200.
Price as tested: \$5217
Frame: brazed CrMo space frame with aluminum seat frame/ handlebars
Fairing: fiberglass nose, alum. tubed Dacron covered tail frame, spandexmid section
Weight as tested in keep up with roadies on hills configuration (spandex fairing, no wheel covers, side wind tubes removed): 33 pounds.
Weight as tested in full commuting-touring configuration (Gortex fairing, f+r wheelcovers, side wind tubes, rear rack, f+r mudguards, Nightsun light system, battery, glove compartment, seat bag, and skid plates) 41 pounds.
Wheelbase: 44 inches.
Head angle: 71.5 degrees
Bottom bracket height: 23.25 inches.
Seat height: 19 inches.
Overall length: 84 inches
Total width: 20.5 inches.
Total height with windscreen: 49 in.
Gear Inch Range: 20-133
Brakes: Innovative Bicycle Components (IBC) hydraulic with custom bent hand levers
Wheels: Front- Sun M17L, 14* or 16 spokes, radial lacing, 14 gauge, Shimano Dura Ace hub. Rear- Sun M13L rim, 32* or 36 spokes, 3 cross lacing, 14 gauge, modified Shimano Dura Ace hub with 11-32 HG-SIS cassette.
Tires: Front- Wolber 17x1 1/4. Rear- 700x25.
Derailleurs: Suntour XC Pro
Shifters: SRAM Gripshift CX-DT bar end
Crankset: Suntour XC LTD 28/50/54 standard.
Pedals: Onza H.O. or pedals deleted.
Headset: Suntour SL

Are you a recumbent manufacturer?

RCN is currently compiling recumbent bicycle information for the 1995 season. If you are a recumbent manufacturer, dealer or related business and you ARE interested in having your products featured in the RCN season kick-off issue or you would like to be listed on our database to be contacted for the RCN 1995 buyers guide issue, please write RCN ASAP. Here is a list of what we will need:

- Your 1995 or current brochure/ presskit.
- Model, spec and component info.
- Black & white side view photos of your bike. (color will work in some cases)
- Product availability info.
- 1995 Pricing info

Details are still being worked out for the 1995 guide and we will contact only those manufacturers who contact us from this ad. Send Info to: RCN, PO Box 58755, Renton, WA 98058

Lightning F-40 Reader Commentary

Subj: P-38 Speed
94-06-13 01:37:17 EDT
From: BentAnimal (from Internet)

A non-F-40 riders narrative of an F-40 rider by "BentAnimal."

When a rider of an (Lightning) F-40 finishes a ride ahead of other cyclists, he says to himself (and often, out loud, to other cyclists), "once again, I have demonstrated the (superior?) speed of my bike," in whatever exact words he chooses, that day. Sometimes he only thinks it, but the smile on his face "says it for him" on the days when he doesn't.

Others (nearly all other riders?, recreational & bent' heads) are not thinking this. Their thoughts run more along the lines of: "you don't think that plastic and fabric F-16 fighter jet fuselage thing you got attached your BIKE, is what really got you to the finish line first?" That's what all the riders except the one on the F-40 are thinking.

The non-F-40 riders are incredulous the rider of the "thing" believes his "Bike" is faster. The biggest difference between them and the F-40 rider is that F-16 fighter jet fuselage thing. And the guy riding it says his BIKE is faster??? They will refuse to believe there is even a bike inside the "thing" unless shown it. And if shown it, many will still not concede the point that what they are looking at (inside the fuselage) is actually a bike.

Most of the riders do not necessarily believe his bike is slower. Some will feel the F-40 rider has cheated on them, and feel justified (have motive to believe?) his "bike" must be slower. That he is "USING" his jet fuselage thing to mask the poor performance of his bike. But most will be fair minded and believe the speed of his bike, is as yet, "undetermined."

But it doesn't end here. Now the F-40 rider attempts to convince the others that his bike is faster due to technical (design) reasons. As he does this, the others believe he ignores the obvious and is instead bombarding them with techno-mumbo-jumbo. They think/say among

themselves "methinks he doth protest too much." They believe he is "thin skinned" because of previous and similar, discussions.

In all of the above there is an additional "something" going on. People are "speaking past" each other because of differences in knowledge levels and in the meaning of the word BIKE (in different "bike worlds"). It is as if they are from 3 separate countries and the word bike means very different things.

When the F-40 rider initially said my bike is faster, recreational cyclists didn't even know he was on a bike, and bent' heads knew, but were not willing to admit his "BIKE" was faster, because that has not yet been established to their satisfaction. And because 'bent heads understand the performance difference between full fairings and partial fairings and no fairings.

When the F-40 rider tries to explain why his bike (design) is faster, most bent' heads, knowing of the overwhelming importance of aerodynamics, still believe he is basically ignoring the obvious, and bombarding them with (HPV specific) techno-mumbo-jumbo. This particular F-40 rider "IS" a very serious HPV enthusiast and sincerely believes (most?) of what he is saying. In other words, in the HPV world these things he is saying might even be obvious, but he doesn't realize he is talking with people ('bent heads) who are in a different world. When he mentions the effect of bottom bracket height while seemingly ignoring effect of a full fairing, nearly all the 'bent heads are thinking "man, he's really going off the deep end on this." Nearly all the bent' heads think "methinks he doth protest too much," (if only one has the courage to say it.)

Now the F-40 rider is about to (shout as loudly as he can) "that's not what I said, play back the tape recorder." He should in fact reconsider the exact words he did used. The idea he tried to convey could have been said in a way that bent' heads WOULD NOT interpret as (also?) meaning "full fairings don't make much difference concerning the speed of a bike."

Bill Dowling

Subj: Re: F-40 Impressions (from Internet)
Date: 94-05-12 12:51:36 EDT
From: tmahood@netcom.com

I just converted my Lightning P-38 over to F-40 status, and I thought I'd share my impressions. I've had the P-38 for over a year and put about 3,000 miles on it. When I got it, I ordered it with the F-40 stub on the front boom, just in case.

Through a bit of amazing luck, I was able to acquire all the components, used, but in good shape, from several sources. The differences between my bike and a "stock" F-40 is I don't have a suspension fork or hydraulic brakes.

Much to my surprise, I will probably convert the bike back to its P-38 condition except for "special occasions." For me, I found the increase in speed (which is FANTASTIC!) not worth the negatives associated with the fairing.

First of all, I generate a lot of heat when I ride. I found the F-40 far too warm even on 65 degree days. It was a rolling sauna, even with the top zipper open. I should point out that the particular nose cone I have even has a vent in it over the light opening, unlike stock noses. Still not enough. Climbing steep grades became a whole new kind of misery! At 10 mph, I was getting essentially no flow through. In fairness, when I got up to cruising speeds of 25-27 mph (very common) the cooling became almost adequate. However, the only time I was able to zip the top zipper and not feel like a Butterball turkey was on descents. In all these instances the temperature was 65 or less, pretty cool.

The bike with fairing takes up a LOT of room. Difficult to store in the garage. I found I couldn't carry two bikes anymore in our 4Runner. I also had to switch to my MTB (ugh!) to commute to work since the F-40 wouldn't fit in the elevator.

Another aspect I didn't consider is who I was going to ride with? My usual riding buddies couldn't keep up, otherwise I had to force myself to ride slow (Yeah, I know...What a problem!).

Continued on page 29.

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Homebuilders Corner

The Grasshopper, a Homebuilt FWD Collapsible

by Izzi Urieli

In the three months since completing the Grasshopper, I have ridden over 600 miles on three continents. The bike created a sensation in Tel Aviv, was voted the "most rideable HPV" at the CycleFest in Lancaster, England, and was enthusiastically received by all in Eureka, CA. Getting to all of these exotic places was the reason and motivation for building a collapsible FWD-I would simply collapse it, pack it in an 18" x 36" Eastpack duffle bag, and submit it as an item of luggage. The knock-down takes only a few minutes with a 5 mm hex to throw it into the trunk of a Honda Civic, and about an hour with nylon ties and foam board taped on critical sections to make it "airline-proof."

The main features of the Grasshopper are as follows:

1) Front Wheel Drive (FWD), front wheel steering (very compact, very convenient short chain).

The main reason why many people find this configuration "unrideable" is the difficulty coordinating the conflicting requirements of steering, pedaling, and maintaining balance, all done with one's feet. Once one is accustomed to it, then riding can be done "hands free"—with the occasional pause from breakfast to shift a gear or touch the brake. Even experienced riders relate differently to this configuration—thus at CycleFest, Mike Burroughs (Windcheetah designer) got it within ten minutes, but Peter Ross (Ross SWB/ Trice designer) did not.

2) A split outer shell which clamps around the head tube. I believe this to be my major contribution to the (hpv) art. It allows the bike to be conveniently split into two parts without affecting the headset bearings or alignment.

3) A space-frame rear section built out of 1/2" x .028" chro-moly tubing. This turned out to be an extremely light, springy and strong structure. Some extremely heavy persons have tried to ride the bike, as well as Gunnar Fehlau (German author of Das Liegerad). Anyone who has witnessed Gunnar taking a bike through its paces can appreciate the fact that it survived the rigorous "Gunnar-Test."

4) 17" Moulton wheels front and rear (my pre-



The FWD foldable Grasshopper-Photo courtesy of Izzi Urieli

vious recumbent is a Moulton AM7 "Mutant." A five speed Sturmey-Archer internal hub on the front wheel—I can't wait for the seven speed Sachs internal hub gear to be available in the USA.

5) ATP (Advanced Transportation Products) Vision quick release seat. It is very comfortable on long trips with the Thermarest seat pad. The bike also has ATP folding (upright) handlebars.

6) Magura hydraulic brake: I was hoping that a front brake only would be sufficient. This turns out to be incorrect and I very nearly flipped while trying to avoid hitting a typical Tel Aviv jaywalker. I now ride very carefully and defensively.

7) Weighs about 26 pounds, 60% front and 40% rear weight distribution, a 36" wheelbase, 70 degree head tube angle with no rake.

I built the four main components (for Grasshopper) after being apprenticed a while with Don Harse (Coo's Bay Flyer designer, builder). I discovered that one of the most important aspects of building a bike is building a (frame building) jig. There are no short cuts in this process, even for an experimental one-off bike. The jig MUST be built on an accurate flat metal surface, at least as long as the longest component of the frame. In order to ensure accurate alignment the axle slots were milled after

mounting the axle brackets on the jig.

In building the bike I spent about one month building the jig and two weeks building the bike. The care taken in building the jig proved to be worth while—the wheels fit snugly into the dropouts without any adjusting mechanism, and the bike is in perfect alignment. This cannot be achieved with wooden two-by-fours for a jig. The bike was partly brazed (by me) using Welco 17 rods, and partly TIG welded by a professional. It is very easy to have the components hard wired on the jig and then presented to the welding professional to complete.

The completed components were then submitted to a painting professional for powder-coat oven baked painting in a delightful azure-blue and motorcycle black combination. Why then the name, "Grasshopper"? Well, it looks like a grasshopper, and every time I go over the speed bumps in Ohio University it goes, "hop, hop, chirp, chirp."

I have been asked about making plans available, and have decided to hold off until the redesign is complete. The major flaw in the current design is the front end with the telescopic bottom bracket tube. In spite of using thick walled (heavy) tubing, the torsional bending is such that I cannot climb steep hills without.

RCN's Cool Bike of The Month!

THE 1995 EASY RACER EZ-1

The new Easy Racer EZ-1 was introduced in mid-November and is now being offered for sale by Easy Racers, Inc. Easy Racers owner, Gardner Martin, says he has packaged all of the finest qualities of the Tour Easy and Gold Rush Replica into a slick new package designed for the first time, casual or recreational rider.

The EZ-1 is an original design compact wheelbase semi-recumbent which is the most basic type of recumbent available, but refined to its finest degree. It is a wonderful first bike. It is easy to own and ride and not as difficult to master as other recumbents. For the average recreational rider this bike will be less intimidating than any other available.

With its more traditional triangulated steel frame, the EZ-1 will appeal to a wide variety of riders who may not look at seemingly similar mono-beam style bikes. The EZ-1 is designed with the true Easy Racer style and racing heritage in mind. This could be the most versatile recumbent built today. It can handle day trips, tours, commutes as well as riding off road.

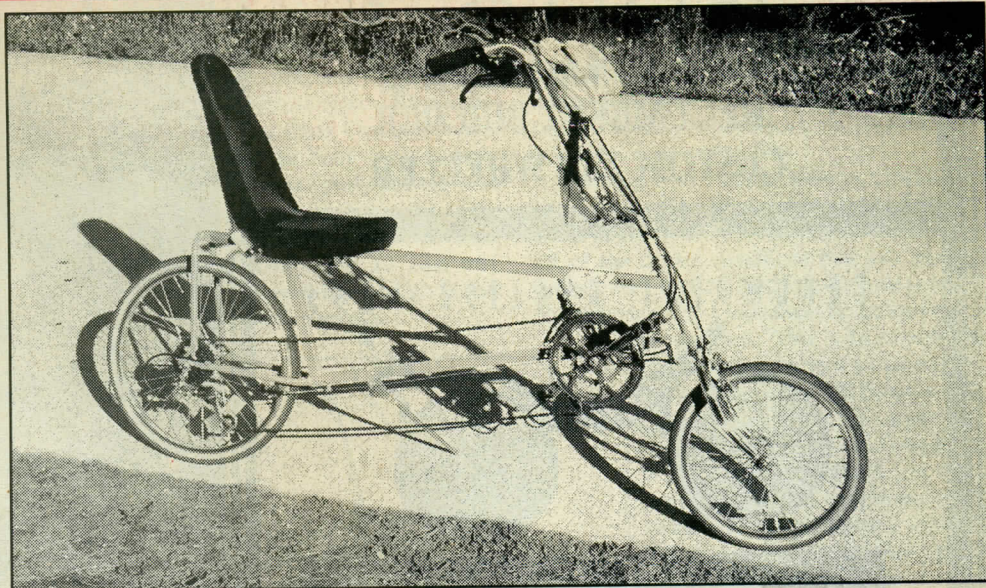
The EZ-1 is 100% TIG welded by Fast Freddie Markham himself in the Easy Racers Watsonville, CA. shop. The main tubes and stays are hi-tension steel. The head tube is chromoly and the bike shares the same forged drop-outs and handlebars with the Tour Easy. The EZ-1 is lighter than all of its CLWB recumbent market competition, weighing in at 29 pounds ready to ride.

The seat is new. It has a sliding aluminum quick release frame that is covered with foam and lycra. It has a lumbar support as well as a comfortable foam base. The EZ-1 fits riders from 5'-6' riders (A long model will be available by Spring '95).

The EZ-1 has quick release alloy wheels with 16" x 1-3/8" front and a 20" x 1-3/8" rear. The tires are new design Kenda high pressure tires (90psi).

The drivetrain is Shimano 18 speed with thumbshifters. The brakes are a MTB roller-cam (same as the Tour Easy) rear and a dual pivot side-pull front.

The first batch of EZ-1 ultimate cruisers will be Christmas red, a full selection of powdercoat colors will be available shortly after the first of the year.



Sneak-peek at the new Easy Racer EZ-1. The new \$795 Easy Racer.

As of this writing it is still possible to get an EZ-1 under your christmas tree. To reserve your EZ-1 today, give Easy Racers a call at Ph#408-722-9797.

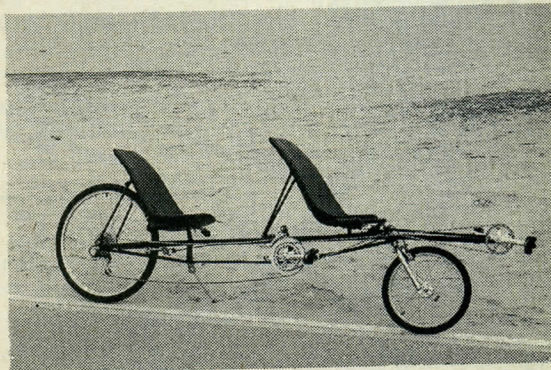


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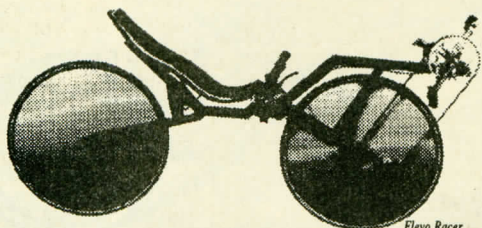
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Please send a picture and short article for "RCN's Cool Bike of the Month" feature to: RCN's Cool Bike, POB 58755, Renton, WA 98058. It can be a homebuilt, commercially built, personalized bike, commercial prototype or you can be a new manufacturer or an old one which something new!

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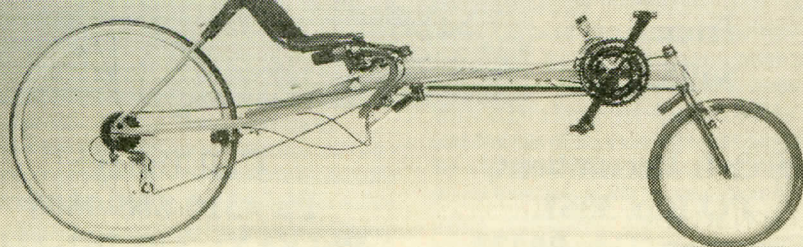
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Letters....continued from page 4.

Tom, we have been very excited about this new tire as well, but I am afraid there is some bad news. ATP (Vision) has told RCN that there was some mold contamination that has caused SOME Kenda 16" x 1-3/8" 90 (100/110) psi tires to split down the center. Be sure to inspect these tires VERY CAREFULLY for signs of separation. If you have a problem with one of these tires, contact the dealer or manufacturer who sold you the tire. Robert

RANS FACTORY TOUR

Dear RCN,

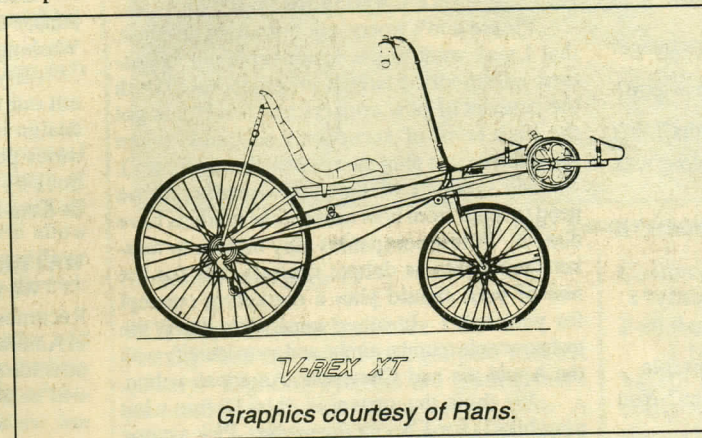
A fellow recumbent enthusiast and I just completed a quick three day trip from my bike shop in Mt. Carmel, IL, to Hays, Kansas to visit the Rans Bicycle and Aircraft production facility. We had arranged a tour of the plant with John Schlitter a few days earlier. After ten plus hours of driving, we exited I-70 just beyond Hays, and soon a large metal building came into view bearing the name, "Rans" in large black letters. It was late evening so we checked in at our hotel and grabbed a few winks to be ready for a full day of "touring."

The next morning, we proceeded to Rans plant 2, where bicycle assembly and shipping are done. John Schlitter greeted us at the door of the very tidy and modern looking office that was completely furnished with computers on every desk, and large glossy pictures of bikes and planes all around. John then started our tour, leading us into the plant where the assembly materials were neatly kept in racks and storage shelves. Metal stampings, extrusions, and tubes of all shapes and sizes were everywhere. We proceeded to the paint booth where several fresh "Response" and "V-Rex" frames were drying for the Anaheim Interbike Trade Show. Once we were in the booth, John flips off the lights and one of the frames stays aglow....Cool! A glow in the dark "Nimbus." We continue. Next, a CNC drilling machine, as special press for shaping and bending steel or aluminum, and many other specialized machines make this homebuilder envious. Most striking is the spacious open air feeling here—the Kansas winds sailing thru open doors. There was no clutter in this plant—very different from any shop I've worked in. The employees seem very relaxed working with John and each other, creating an enjoyable atmosphere.

The next part of the tour is the most exciting. We enter the employees' lunch area by an open overhead door and there are Rans bicycles displayed on two false walls with some of the workers' commuter bikes on the floor nearby. The Stratus B, Nimbus, Tailwind, V-Rex and some prototypes are there for the riding. John pulls the "Rex" out and adjusts the seat for me. It feels light and handles right and looks great in the three color fade. Stupid me! I left my spuds and shorts at home! This bike, at under \$1,100 should rock the performance SWB mar-

ket. The Rex puts to rest all of my previous complaints about SWBs. Having to adjust the chain for rider size by sliding a boom and shortening or lengthening the chain is an inconvenience from the dealer/mechanic point of view. The Rans adjusts in seconds by sliding the seat, and my 5'9" friend and I, at 6'3" could both ride it. The Rans fiberglass seat also allows shorter riders to reach earth easily. Plus, the bike is available in 700c/20" and 24"/16" wheel combinations.

Also of great interest was the prototype mesh style seat which was, in typical Rans style, very different from any other I've seen. The base is chro-moly and the back is aluminum. The fabric is stretched very tightly and the base offers a springboard effect much like the original glass seat. With some minor dimensional changes, this seat could put to rest any grumblings about the Rans foam/fiberglass seat detracting from the whole package.



I could not have been more impressed by John and Randy Schlitter, the Rans people and facility. The fact that nearly all fabrication is done in house coupled with the company's raw material buying power, (as a direct result of selling hundreds of airplanes a year) will put Rans in an excellent position to claim a healthy share of the growing recumbent market. The Schlitters and their salespeople are eager to provide good service, and it shows. Delivery time on orders is much faster than the other recumbent manufacturers that I have dealt with. Bicycle consumers are lucky to have a company with the resources that Rans has. According to John Schlitter, there was a time when the company nearly dropped the bike line in favor of the booming aircraft business. Fortunately, Randy credited recumbents for paving the way to their successful aircraft business, and decided to stick with them. Rans is apparently listening to customers' demands, and showing the appropriate flexibility as evidenced by the introduction of several new models, a new seat and an excellent new chain idler.

When the recumbent market ripens, the Rans company will surely be poised to capitalize on it.

Sincerely,
Tom Beuligmann
Tom's Bike Annex
Mt. Carmel, Ill.

WASHINGTON'S FIRST V-REX

Dear Robert,

I am writing to thank you for your article on the Rans V-Rex in issue #23; it came at a most appropriate time—just before our family Disneyland trip. Needless to say, I badgered my wife to include a trip to People Movers while we were in the Disneyland area.

Before we arrived at Jim Wronski's shop, my wife surprised me by saying that if I found a bike that I really liked, we would buy it and bring it home; obviously, I didn't try to talk her out of this generous offer.

Going into People Movers creates even more of an effect of sensory overload than any other shop, you are suddenly confronted with all of the dream machines that you can only drool over in RCN. Jim was extremely helpful and patient while I rode most of the recumbents

in his shop. This is an experience I recommend to any potential purchaser of recumbent bicycle. It is only by comparing the various alternatives that you can safely find a bike which fits you right and you will be happy with in the long term. I came away from People Movers with a new V-Rex that Jim had picked up from Rans at the Interbike show.

Originally, I had thought that the recumbent for me was one with a long wheelbase and upright steering. After testing almost a dozen different bikes, the two I liked most were the V-Rex and a used Lightning Tailwind. It was a close decision as both bikes are built with top-rate quality. In fact, this may be the single most important reason for purchasing a recumbent through a bike dealer instead of by mail order, i.e. seeing the true quality of the bike by comparing and buying through a dealer is to find that bike that really fits you.

As for the V-Rex, I couldn't be happier. The only problem that I have encountered with the bike is that my wife likes it even more than I do. This means that more than half the time I am left slogging along on our mountain bike while she zips at almost twice my speed.

My favorite aspect of the V-Rex design is the rigidity of the frame created by the triangulation. This contributed to its subjectively superior secure feeling. I was also very impressed by the consistent quality of all of the Rans products. They were better than most of their competitors, matched only by a couple of manufacturers, and exceeded by none.

Keep up the good work; I always find RCN a stimulating read.

Sincerely yours,
Scott Bruns
Yakima, WA

Scott, we agree, People Movers is the best recumbent shop we've been in and the V-Rex is HOT! Have fun with the first V-Rex in Washington state.

.....Continued from page 2: Editorial License

The most intriguing part of this <possible> trend is that these bikes are being ACCEPTED by the bike dealers, bicycle media and manufacturers because they are nostalgic, cool, fun, simple, retro, even cutting edge.....take a look at the Merlin "Paperboy."

One thing they are certainly not is RECUMBENT, a term that, like it or not, we have inherited and is emblazoned on the front cover of this publication.

The whole affair has me strongly contemplating whether we should take this time to analyze "how" recumbents are perceived and marketed? If you take a spin through RCN and try and evaluate whether any of the advertisers has a marketing plan or goal, it is very easy to see that many do not. For this reason, I think it may be time for a RECUMBENT image upgrade. But first we need to invent the image. Ask and answer the following questions:

- ➔ Do RECUMBENTS need a new image?
- ➔ Do they need a new name or descriptive term?
- ➔ Can we market SWB, with MWB, with CLWB along with LWB? Can underseat get along with above bar steering?
- ➔ Does RCN need to focus on a wider market? If so, WHO?
- ➔ Who are we marketing too? (Honestly? I have some of my own ideas.)
- ➔ If so, what is this market? Comfortable bikes, useful bikes, alternative bikes? You tell me.

For the longest time, recumbents have been marketed for "comfort" and/or "speed." These terms could be conceived as cold and impersonal. Many have said, "all we need is to get Arnold, Sly or Sharon on a recumbent." This is the right idea, but we cannot afford a celebrity, so we need to outline a recumbent "image" to sell. We need to come up with a marketing plan that creates this image. The interesting part is that these images could be different, depending on the type of 'bent. When I read recumbent

ads, I try and envision what manufacturers were thinking. It seems that we are a long way past the idea that "if we develop a good bike, people will buy it." This will not work. The other problem is manufacturers so busy developing their bikes, that they completely ignore marketing. I am embarrassed at how many ads I design at the last minute with absolutely NO input from the manufacturer. This is arguably more important than the product itself.

So maybe it's time for a change? I would very much appreciate letters, Email and even voice mail messages on this subject.

How about a contest for a new name. I don't think putting the term RECUMBENT out to pasture is the key, but using it more as a definition to a marketable name. Let us know what you come up with. If we come up with something really good, RCN will come up with some prizes for the winning names.

RECUMBENT CRUISERS PART II

Please don't worry, not even for a moment, that I may want to put recumbents out to pasture, admittedly, I have been preoccupied with the concept of how cruisers and low riders got the high level of acceptance so quick, when recumbents just plug along (with the media etc.).

My synopsis of the whole thing is that we need to learn from how other niche markets have done it. A few companies may be able to market their bents as deluxe cruisers, but for the rest of you, should plan a marketing concept for your bents. In other words, lets dump the technoweenie mumbo jumbo and try to identify with the Apple pie and Chevrolet American public.

We think the answer is this: Define what your bike is for. Choose the market. Pick a name that identifies with that, a buzz word, bike name, descriptive term and use it. Use "recumbent" only as a minor descriptive term. Use words like Fun, Cruise, Ride, Comfort to describe what your bike does best. And if you have ideas on the future of marketing recumbents, please drop us a line to the RCN PO box or Email to (DrRecumbnt@aol.com).

FALL RCN T-SHIRTS UPDATE

The official RCN T-Shirts have become so

popular that we have just printed our second run! T-Shirts are the best quality we could find. They are 100% cotton Oneita Power-T. T-shirts are white with two colors (Purple & Teal printed on the front and back. RCN script written across the back and our new "wave recumbent" logo and "Recumbent Cyclist News" written on the front. Since the cotton shrinks a bit, we have ordered large sizes: L, XL, XXL.. Shirts are \$16.99 + \$3 shipping and handling. (XXL add \$1.50).

RCN HATS

The hats are made in the USA high quality white material with a white braided cord across the top and teal "recumbent wave" logo graphics and purple "Recumbent Cyclist News" lettering. The hats also have a leather adjustable strap. RCN hats are \$13.99 + \$3 shipping & handling. **SHIRT & HAT SPECIAL:** Pick any size of shirt and a hat, we will pay the shipping \$30.98.

Please send orders to: RCN, T-Shirts & Hats, PO Box 58755, Renton, WA 98058-1755. Washington residence please add 8.2% sales tax.

If you like the shirts & hats, and we sell out our initial order, we will start on a second design immediately, and we could do this two times per year! T-Shirt & Hat graphics were done by Mark Colliton of Kensington Design in Kensington, MD.

WATER BOTTLES & NEW STUFF

We will soon have new 28 oz. RCN logo/ Recumbent Wave water bottles. They are made in America by California Spring, again, the best possible quality that we could find. Water bottles will be available in the next RCN issue. Dealers, we have dealer pricing!

RCN Road Test Book: We have gone back to the vault and found all of the RCN originals and re-edited all of your favorite old road tests. Each one will include a 1995 update along with current pricing information. These will be printed on white paper using original and some new pictures and they will be bound, like a real book. These will be recumbent keep-sakes. This will not be a regular RCN issue and must be ordered separately.

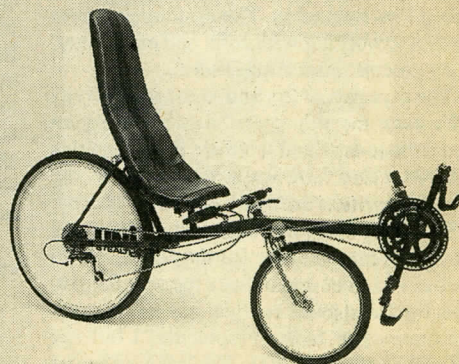
Viva Recumbency!
Robert Bryant, Publisher

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Awake Again Part II

are also extremely responsive to the needs of those who have already bought. Besides their newsletter, they listen very carefully to the needs of their customers and with some of the data they've collected they even have folding bike and 63-speed options on the drawing board.

If we're going to heal a planet that is truly dying, we've got to get people to leave their cars behind. And since the upright bicycle will continue to cause older Americans to leave that job to the kids, we must spread the recumbent gospel. But the recumbent that will get more of the planet on such a means of two-wheel conveyance must score high marks on all four factors below.

- 1) Fun. Most recumbents are. BikeE ☆☆☆
- 2) Comfort. Most recumbents are. BikeE ☆☆☆
- 3) Ease (Transportability, Rideability & Learnability). BikeE ☆☆☆
- 4) Style (Will I look as cool as I do on my upright?) BikeE ☆☆☆

I say BikeE has truly come to the rescue. I know their bike will bring great numbers of people back to cycling while also being attractive to those outside of the sport. It will allow people such as transportation planners and those concerned about the environment to walk their talk.

I'm excited because these multitudes will then bring untold resources and skills to cycling. No longer excluded from the joy riding a bike, these people will surely help us build the National Bicycle Greenway (NBG).

The NBG is the car-free playground that will ultimately stretch up and down both sea-boards and criss cross America from east to west and north to south. It will utilize a network of abandoned rail lines and highways as well as river causeways and active utility rights of way. On the main Greenway, one will be able to find restaurants, lodging and other support services such as showers, campgrounds, and bike shuttles and bike taxis. It will be bordered by attractive landscaping, rest areas and information kiosks. Markers will give directions and mileages as well as explain the history and geography of the various regions one passes through. In time, roller skaters, hikers, joggers and the physically challenged will be able to play on it.

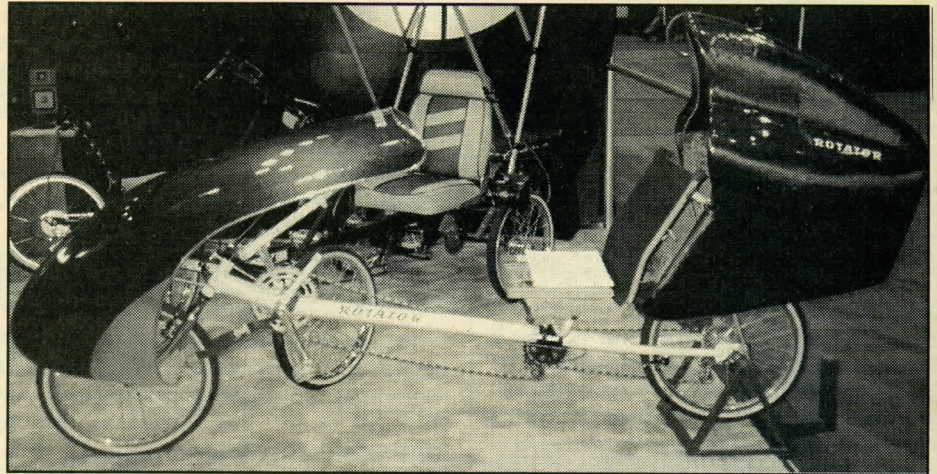
I want you, the reader, to help me build that playground. I want to show you that our dreams really are real. Next summer I will do a fund raising ride across America to help build the National Bicycle Greenway.

We need to raise enough money so we can employ a grant writer. We will need funding for a feasibility study and cost estimate. We also need cash reserves for mailings and the construction of a nationalized computer data base and for a newsletter. We also need a professional booth for trade shows, bike events and summer fairs as well as a video explaining the NBG opportunity to corporations. If you would like to bike

the US with me, pledge whatever you can per mile or state to what I ride in 1995, or contribute your resources, time or expertise to the NBG, call me at 408/426-7702. You can help me make the world a better place to live. You can even do it on a recumbent bicycle. You can even do it in comfort!!

Martin Krieg's new book, *Awake Again, All the Way Back from Head Injury*, is available at

bookstores everywhere. He will be biking across the US for a third time next summer. His next *TransAmerica* crossing will benefit the *National Bicycle Greenway*. If you can't locate his book, would like to ride with him in 1995, or would like to help Martin with the 501c3 nonprofit *National Bicycle Greenway*, you can reach him c/o Cycle America, 147 River St. S. #222 Santa Cruz CA 95060. 408/426-7702.



The 1995 Rotator Interceptor

Continued from page 13

RCN Crew Goes to Interbike

pushing "heel out" you could get your foot out quickly. Lighting systems are getting more plentiful, powerful and all at a lower cost. A new twist on the "Vistalite type" flasher was a completely sealed unit that used no batteries made by **Leader**. This system was operated by a magnet in the spokes, similar to a bike computer, but larger, that supplied the power and regulated the flashing. **Ortlieb**, a German manufacturer of touring bags/panniers were showing their waterproof and fully submersible panniers. These are constructed similar to inflatable rafts and have no sewn seams. Quality was excellent. These should be a real consideration for the hard core bike tourist. **Gullwing** displayed a rear suspension unit which retrofits to the rear of mountain bikes. It is a parallelogram system utilizing elastomers. We have ordered one of these systems to refit to a Tour Easy, I hope to give a test of this product in a future issue.

Now that I have had a few of days to digest all that was seen, heard and felt at the Interbike show I can see just how trend driven the American cycling market really is. Light, fast and colorful could have been themes to most of the items at displays. Are recumbents going this way and possibly becoming more "trendy." Maybe. Colorful anodized Linears, three color fade V-Rexs and 22 pound recumbents are putting the market in a better position, but then I bet that if Arnold..... rode a machine gun wielding recumbent in Terminator-10, everyone would want one the next day! Relax and Ride.....BJ

Continued from page 23.

F-40 Reader Commentary

I found the Lycra shell to be a real hassle (very easy to put holes in), especially when lowering the landing gear (feet) through the slits. I suppose it would become second nature after a while.

Winds were spooky! I found I had to pay attention to wind direction and gustiness when I rode. Several times, I cancelled rides because it was too windy. In slightly windy conditions, I found I was lucky to stay within a track 3 feet wide and found myself getting shoved left and right. Passing trucks tended to suck me into the travel lanes. I had been warned about this: The guy I bought the stocking and tail-cone from had been completely blown over on his side on at least three occasions.

For me, the hassles were not worth the increase in speed. I absolutely LOVE my P-38, particularly its simplicity. I have a new appreciation for sitting there in the breeze. I think by going to the fairing, I gave up more than I got. This is subjective and will of course vary with individuals. And I certainly don't intend to flame the F-40 as I think it is an awesome machine, and am totally impressed with what Tim Brummer has done. However everything I've ever seen about it was so glowing, a report of some of its drawbacks is important.

Tom Mahood

RCN RECYCLE CLASSIFIEDS

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INTROSPECT CYCLE: Your Northern California Recumbent Specialist. We offer Haluzak, Ryan, A.T.P. Vision, Maxam, Rans & others. Recumbent accessories and custom modifications. We are Vision Experts. Call for our current listing of used recumbents. Showroom hours by appointment only. 1029 Amberwood Road, Sacramento, CA. 95864. Call B.J. at Ph#916-481-2906.

RECUMBENT SEA The midwest's recumbent shop now in stock and available to test ride: Rans Nimbus & Tailwind, Ryan Vanguard, ATP Vision SWB or LWB, up or down bar, ReTrike, ReBike, Maxam Revielle 1334 Logan SE, Grand Rapids, MI 49506 or phone #616-454-3260. (MI/24)

PERSONAL

RECUMBENT RIDERS WANTED in the Toledo, Ohio area. I am a beginner with a used Alternative Bikestyles recumbent bike. I would like to ride with one or more recumbents--anywhere, anytime--at moderate speeds.. Doug Tracy Ph#419-534-2431. (OH/24)

Looking for Recumbent Companions for a North-South Tour from Montreal to New Orleans on US Hwy 11, Approx. 17 days at 100 miles per day. Stay in Motels Summer 1995. Call Dave Ph#205-492-3454 (AL/24)

RECUMBENT MANUFACTURERS: 15,000 mile per year cyclist would like to test pilot your bikes. Will ride them over varied terrain and weathe conditions of upstate New York. Contact Bill Ph#518-725-8484 (NY/24)

INTERNATIONAL HUMAN POWERED SPEED

CHAMPIONSHIPS (IHPS) VIDEOS:

19th Now Available. Also Available 17th & 18th Two Hour NTSC-VHS or 8mm. \$25 US, \$5 Extra overseas. Robert Bryant says, "An RCN Favorite." Send To: Steve Iles, 5419 Crestlawn Dr., E. Canton, OH 44730. Call #216-488-2470

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PEOPLE MOVERS: The USA's Biggest and Best Recumbent Shop! We specialize in Ryan, Linear, Rans, A.T.P. Vision, Haluzak, BikeE, Rotator, Maxam, Lightning & ReBike recumbent bicycles. Drop-ship anywhere in the USA. People Movers, 980 N. Main, Orange, CA. Phone # 714-633-3663. Call us last for the **BEST** Price. Open 7 days. (CA/25)

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Recumbent Bicycles of Northern Arizona. Featuring: ATP, Infinity & more. Visit the Grand Canyon...test ride a recumbent. RCNA, 1925 N. Main St, Flagstaff, Arizona, 86004 or call #602-779-3818. (AZ/24)

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Performance Road Wheels, 16" and 20," Deore XT Hubs, 36 hole, Sun Mistral or Arai rims with quick release axles. \$79.95 and up--plus shipping. New! 90 & 110 psi 16" tires. Call People Movers Ph#714-633-3663 (CA/24)

PARTS FOR SALE- water proof mesh seat cover. Lace over **YOUR** frame. \$15. includes S/H postage. Sky blue with rainbow trim comes with brass eyelets and nylon strong to adjust like a crouset or shoelace; instructions included. Lasts for years. Send \$15 to: C.K. Isenberg, PO Box 4422, St. Augustine, FL 32085.

IT'S FAIRING TIME! Roots In The Sky and ANGLETECH-ZZipper fairings for your Presto, Triad, or Opus. **NEW! ANGLETECH-ZZipper** fairing for your V-REX. **PAINT!** Restore your recumbent for next season now! Most brands, new custom powder or imron paint, upgrade your spec's, etc. **LIGHTING:** ANGLETECH light mounts for your TRIAD, QUADRAPED, TRICE. Lights will turn with steering! **New Xenon Strobes, Red or Clear, 1 mile visibility, quality mount.** New Whaletail LED strobes, 1/4 mile visibility. Mounts to your helmet, also works great on fenders of your recumbent bike or trike. **ANGLETECH, 318 N. Highway 67-PO Bx 1893, Woodland Park, CO. 80866 Ph# 719-687-7475 (24)**

WANTED: PARTS

WANTED FREEWHEELS: New or Used SunTour "Perfect" or "Pro Compe"-cheap! Condition of cogs not important, but bearings should be good. Tom Briggs, PO Box 130, Waterford, ME 04088. Ph#207-583-4183.

Recumbent Manufacturers: It's that time of year again. If you are in the recumbent business, we want your brochure/ press kit--RCN.



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MY WIFE WON'T RIDE ANYMORE: Gold Rush Replica, aluminum, Super Zipper, All original equipment. Many extras. \$1200 + shipping. Call Jerry Ph#615-446-3387 (24-25)

FOR SALE: RYAN VANGUARD, bought March '94. Red with Specialized Computer, Blackburn Mountain Rack and Turbocat Lightning System. \$1200 OBO. Ph#508-757-6819 (MA/23-24)

FOR SALE: 1986 DeFelice LWB, 18 speeds, handlebars underseat; drum brakes. All original + extras. \$500 OBO. Eugene Ph#603-625-9829 (NH/23-24)

FOR SALE: 1994 Haluzak Horizon Hybrid Race, Lightweight, narrow wheels, upright and underseat steering, extra (wide tire) fork, XT & 105 component group. All as new. \$1500. Ph#904-788-6476 (FL/23)

FOR SALE: 1994 Linear, blue anodized, 45" (approx. 6' rider) A very nice bike and it's brand new: \$999 + shipping. RCN Ph#206-630-7200

FOR SALE: Linear 42" Frame Only. \$150 or best offer. Call for Eric and leave a message. Ph#508-667-0137. (24-25)

FOR SALE: Presto Tourer-Deore DX \$1250, '93 Infinity, better than new \$550. Hypercycle SWB \$250. Dave Ph#205-492-3454 (24/25)

FOR SALE: 1990 Tour Easy, Red, Medium size frame, large Zipper fairing, triple chainring (half step + granny), rack, computer, water bottle cage, narrow tires, air pump, double kick stand, \$1250 + shipping. Rod Ph#813-294-0051 days, 813-646-3870 evenings EST. (FL/24-25)

CLASSIFIED AD Rates & Information

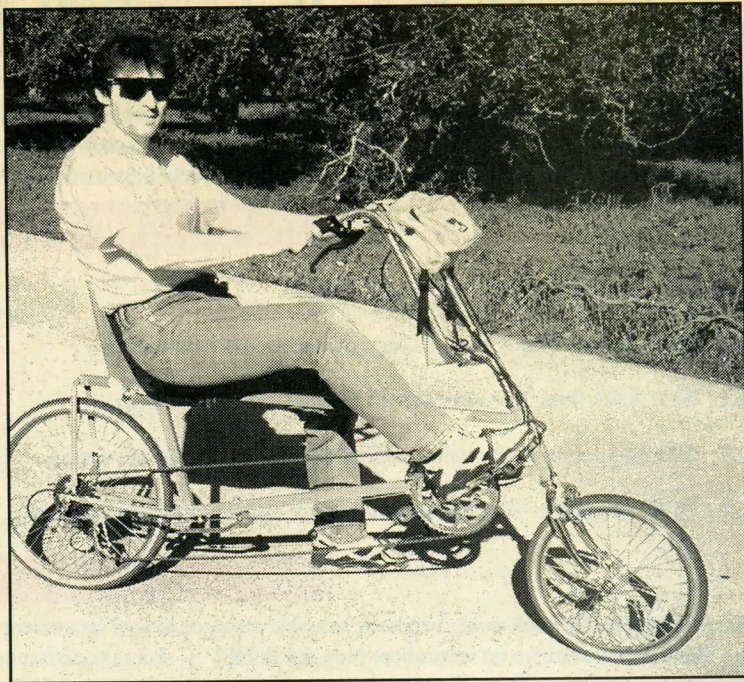
Effective with this issue, all noncommercial paid classified ads will run for "TWO" issues. If your bike sells would like to cancel your ad for the second insertion--please call us ASAP. Free ads run only once--unless we hear from you.

Classified Ads Rates:

"Parts Wanted," "Parts For Sale" & "Personal ads" all free to subscribers. "Bikes For Sale"—Each 25 words \$12.50. Non-Subscriber rates are: \$20 for each 25 words. Commercial classifieds are \$1. ea. word (40 word minimum). Name, address & phone counts as 10 words. Please phone 206-630-7200 to request a display-ad rate sheet. *Be sure to ask about special first timer special rates and discounts. RCN Classified Ads work!*

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Proven Quality from the makers of the World famous Tour Easy and Gold Rush Replica.

It's **Easy, Easy** to ride. **Easy** to transport. **Easy** to buy.

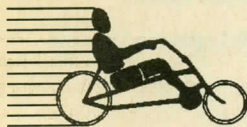
18 speeds with Shimano indexed shifting and a compact wheelbase for on or off road performance.

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Fast Freddie road tests the new EZ-1

RCN ReCycle Classifieds cont'd

USED RECUMBENTS

FOR SALE: Lightning P-38, medium size frame, Aluminum seat frame, Moulton front wheel, Suntour XC Pro & Phil parts, Excellent shape, owned by mechanic. Selling to buy a tandem. \$950 Ph#414-567-9653 (WI/24-25)

FOR SALE: TWO LINEARS, 1994 models, dual pivot brakes, one nearly new, one new in box. Need to sell. Call Terry at Ph#319-252-1076 Osterdock, IA (RCN #24.)

FOR SALE: RYAN VANGUARD demo bike. Red, standard size. low miles. \$999 ANGLETECH Ph#719-687-7475 or 1-800-793-3038 (CO/24)

FOR SALE: 1994 Rotator Pursuit, Ridden less than 20 miles. Bonus: Deore DX front & rear derailleurs. Price includes RCN subscription. Asking \$850 plus shipping cost. Consider cash + trade. Call George at Ph#812-847-4692. (IN/23-24)

USED RECUMBENTS

FOR SALE: 1995. BikeE 21 speed, Violet, Sachs 21 spd. \$CALL! Used, but cannot tell from new. RCN Ph#206-630-7200. Call ASAP for Xmas delivery?

FOR SALE: Windcheetah Never used. 1994 model. Best Offer or trade for? Ph#414-774-5000 (WA/24-25)

FOR SALE: 1994 Linear 42" silver, 21 speed. \$899 OBO. Includes shipping. Rob Ph#607-273-3685 or Email Cubby@aol.com (WA/24-25)

FOR SALE: 1992 Tour Easy. Medium frame, blue, Zzipper. Upgraded 13-32 freewheel, Grip Shifts and Shimano STX rear derailleur. Dual bottle cages. \$1199 + shipping. Ph#715-392-9411 (WA/24-25)

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