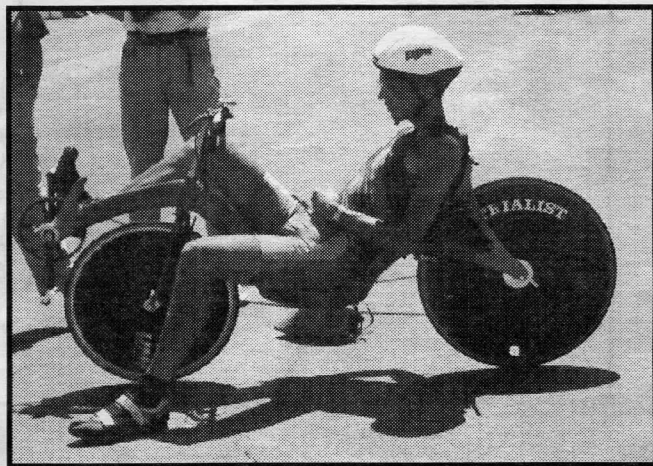


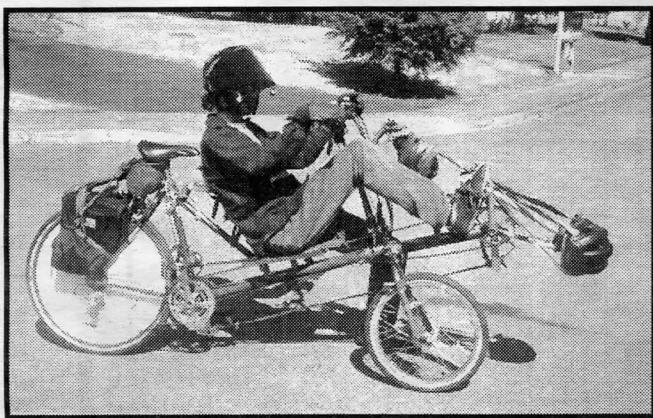
# Invaders from Mars, or Recumbent Cyclists?



**Ed Roeter's custom "Quad"**  
(Photo by Ed Roeters)



**Bram Moen's M5 Carbon**  
(Photo by Eric Seemann)

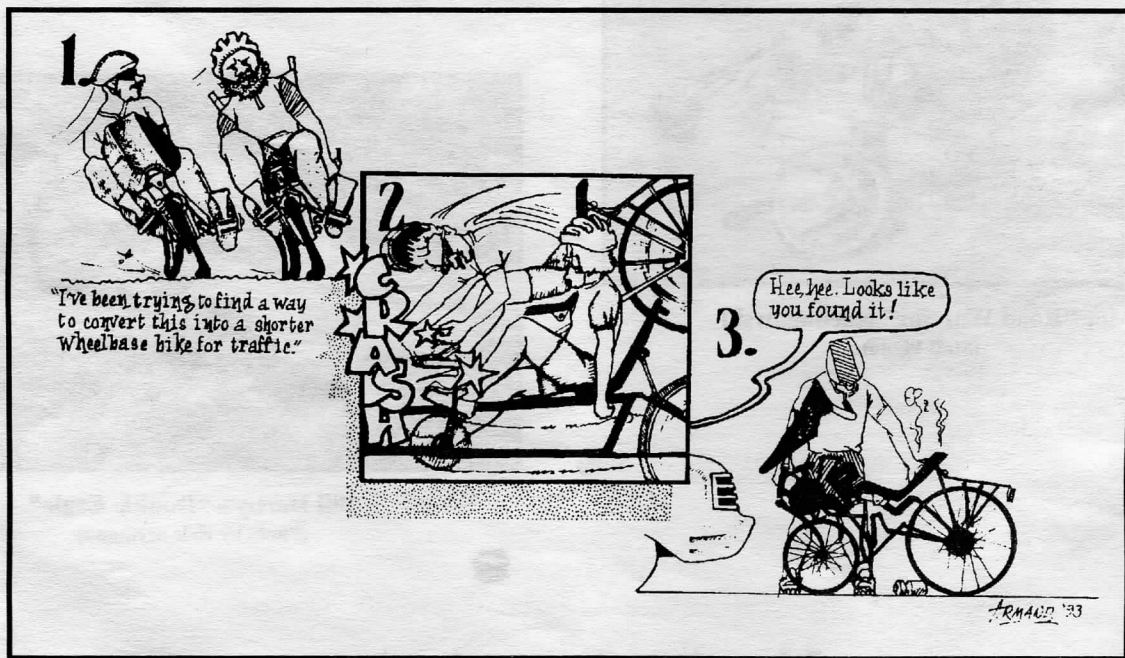


**Joe "Road Warrior" Kochanowski**  
(Staff Photo)



**Bill Darby's "Double Eagle"**  
(Photo by Eric Seemann)

You be the judge.....





# Recumbent Cyclist

M A G A Z I N E

RCM #15 April - May - June 93



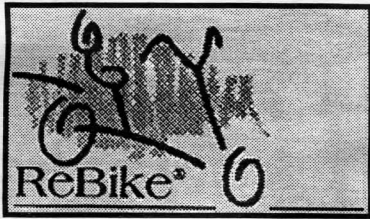
## The ReHog by ReBike

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Are you  
ReBorn to be Wild?  
Find out in this issue!

Also inside:

- Tim Brummer and the Lightning P-38 design history
- How you can support the recumbent movement
- Summer recumbent events calendar.



## THE REBIKE 707!

Do you like to ride bikes and have fun? Would you like an inexpensive way to own and ride a recumbent bicycle? Are many of RCM's test bikes just too high-tech for you? Well, do we have a bike to tell you about! Kathie Skewis does not profess that the ReBike is perfect for all types of recumbent riders, but if riding around the neighborhood, getting fit, cruising down the beach path sounds your kind of fun, then its time to take a look at the inexpensive, simple, fun and comfortable ReBike. The majority of sales are coming from outside the cycling mainstream—non-riders. For these folks, the ReBike is perfect, just climb on and go!

### FRAMESET

The welded square 1.5" steel frame is strong and the design offers an easy adjustment for most adult size riders. Two quick releases let the seat-structure slide on the main-frame. The step-through design is great for first time riders. The frame is now built and painted in Boca Raton, Florida. ReBike reports a 100% success rate and a 0% failure rate for the ReBike designed frames.

### GEOMETRY

The ReBike has a laid-back head angle that allows for easy direct steering. To assist in the bikes handling, a spring is attached from the fork crown to the frame. This low-tech solution acts as a self-centering device. It works well and the only drawback we could find is the "boing" noise of the spring.

*ReTip: University Cycle owner, David Hechart, reports that the "boing" noise can be quieted by encasing the spring with plastic tubing.*

The ReBike steering geometry has been criticized by some, however, ReBike has had engineers put the frame through every "destruction" test imaginable. They have experimented with different forks/ head angles and they are completely satisfied that the bike is perfect, just the way it is. ReBike has no plans to change geometry. "For every critic of ReBike's design, we have received thousands of praises!" Kathie Skewis.

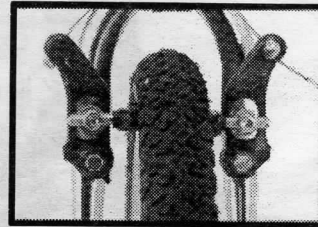
### CRUISING WEIGHT

Kathie Skewis is not concerned with the ReBike's weight and says neither are her customers, The official weight of a ReBike "707" is 45 pounds. Our test bike weighed slightly more. Kathie had this to say about her bike, "For style & comfort, the ReBike is the Rolls Royce & Mercedes of the recumbent world, inexpensive & heavy but fantastic, and a sturdy little machine."

### COMPONENTS & BRAKES

Contrary to previous reports, we were able to find an alloy part on the ReBike. The rear derailleur is much better than last years

Shimano Tourney, the upgraded SunTour Edge shifts great. This is the same derailleur that previously came on \$400+ road bikes. Shifting is done by SunTour mountain bike thumbshifters. The crankset is a single chainring/one piece steel BMX type and the bottom bracket is a large BMX/ American style. The crank arms are 6" which replace last years 5.5." The brakes and levers are MTB cantilevers type and they stop as good as you will ever need on the ReBike. Overall, the component selection is great. The durable steel BMX type components are tough and will last. Parts are very basic and upgrades such as alloy wheels & cranks would be very easy.



ReBike Cantilever brakes

Our experience with BMX type components is that they are the toughest. Built for kids to abuse and pound into the ground. If you are not concerned about weight, they are often a better choice than today's high tech "grupo of the month." If we could upgrade one part of the ReBike it would be the wheels, however, this could raise the price significantly.

### 707 SPEC'S

Wheelbase:	51"
Seat Height:	25.75" (measured at the front center)
Brakes:	Cantilever
Bottom Bracket Height:	12"
Freewheel:	7-spd. 14-28T
Front Chainring:	48 tooth steel
Gear Inch range:	34-69
Weight:	45 pounds
Suggested Retail Price:	\$399.

### 818 SPEC'S

Wheelbase, seat height, bottom bracket height and brakes are the same.	
Freewheel:	7-spd 14-28
Front Crankset:	32/ 40/48
Gear Inch range:	23-69
Weight:	N.A.
1993 Colors:	Royal Blue, Black and new for '93, Forrest Green.
Suggested Retail Price:	\$499.



NOTES: The 818 frame is the same as the 707 with a front derailleur post and a modified chainguard. When I asked Kathie about the price, one of the ReStaff members said, "Priceless."

**REHOG**

ReHogs are custom built to order. ReBike recommends ordering an 18 speed "818" and having custom features done by your local Harley Davidson motorcycle dealer. Prices seem to start at \$499 + shipping and dealer prep for the "818" and from \$1500-\$2700 and up for the leather tassles, saddlebags, leather grips and leather studded seat trim etc.

*RCM ReHog: We thought it would be great to take this one step further. Add a suspended Schwinn Springer front end (from the Krate/Cruiser bikes of the 60's), add a Haro 2" slick to the back and a 16" X 1-3/8" skinny tire with a Sturmey Archer drum brake up front. Set it up with all the trim from the Harley dealer including a radio, alarm, CB and even a custom "chopper" seat. If anyone does this, please let us know!*

**ReTrike:**

Wheelbase:	51"
Seat Height:	25.75" (measured at the front center)
Brakes:	Not available at press time.
Bottom Bracket Height:	12"
Freewheel:	7-spd.14-28T
Front Chainring:	48 tooth steel
Gear Inch range:	34-69
Weight:	N.A.
Suggested Retail Price	\$549.

Details are sketchy, our Ace Detectives have been working over time on this one. It appears to be a ReBike 707 with a custom ReBike fabricated trike rear-end and canted inward rear wheels and a selection of baskets for carrying cargo. The frame is the same as the 707 with a front derailleur post and a modified chainguard. Another version will be the "SS" which will have a seat height only half as high. ReTrikes will come in red and be 7-speeds. These will be hot, the first production run was nearly sold out.



Quick release seat adjustment



Wide padded seat



From right: Kathie Skewis, Dick Ryan and the ReBabes (Cindy Kristen & Donna Allen) at Interbike '92 (Staff Photo)

**REBIKE MARKETING**

ReReps, ReBabes, ReTechs, ReModels and ReTelemarketing staff. Kathie Skewis and her incredible staff really have their act together. The very original and professional marketing done by this impressive staff is what seems to have made ReBike over the past year. The ReBike seems to appeal to everyone, with it's low \$399 price tag.

A typical approach for the staff is to ride around beautiful Boca Raton on ReBikes. People have literally chased them down and bought ReBikes on sight, one excited customer even gave Kathie cab fare home. Even a few well known celebrities own ReBikes, but who are they? That is a ReSecret. Recently, after a long hard day on the ReTelemarketing lines, the staff chose a local hot-spot for an after work ReRendezvous. They did one thing differently than most company's, they rode their ReBikes up to a local restaurant. All arriving at different times throughout the evening. Can you imagine pulling up to your favorite local hangout and seeing a dozen or so ReBikes out front. What a marketing blitz.... for the restaurant!

Magazines, newspapers, TV and radio people have all approached ReBike. (Be sure to check out the ReBike on the Today Show May 29th!) Most are discussing ReBike in the realm of a new trend in cycling. A trend that bicycle and recumbent makers seem to have missed. Low-cost fun (semi)recumbents. In one short year, ReBike probably attained more publicity than all other recumbents put together. Bicycling Magazine named ReBike, "One of 1993's Hottest Bikes."

At the '92 Interbike Trade Show, the term "ReBabes" was coined

by RCM, yours truly—do I dare admit it? Kathie Skewis & staff seemed to get a kick out of it, but to be sure that I would not offend anyone and just before we went to press, I called to asked again.

In a way this term defines the very classy and unique way that ReBike promotes their products and does business. It describes that you don't have to be a gearhead, high performance jock, or techno-weenie to have fun on a recumbent. You don't have to be in the greatest shape, have spent \$2000 on your bike and \$300 on your pedal-system to ride a laid back bike, in fact, many of the thousands of ReBike owners don't even know (or care?) what "recumbent" means. Say guys, did you ever notice that there were very few women involved in recumbency prior to ReBike? ReBike has changed all this, and if your like me, you will see that this is a very welcome change!

We here at RCM have the utmost respect and admiration towards Kathie Skewis and all of her staff who have made the last year and a half very interesting in the recumbent world. To all of our readers who take offense at the name "ReBabe," please accept our apologies and understand that it is all done in fun.

#### HOW MANY REBIKES?

After fourteen months of trying, we were finally able to get an approximate sales number from ReBike. This has been my personal quest. I have succeeded where others failed! Heck, some guy at Interbike sent Kathie a beautiful arrangement of roses, she thought it was me? I should have taken credit for that one.

Estimated "Enthusiast" Recumbents sold in the USA:

1990:	800-1000*
1991:	1000-1200*
1992:	1700-2000*

Estimated "ReBikes" sold between March '92 and March '93:  
**10,000**

\*This number does not include ReBikes or rental type trikes. "Enthusiast" Recumbents: This term means bike suitable for all types of riding. Currently, this market starts at the \$649 (but was \$499 during 1991-1992-Infinity)

#### FUN QUOTIENT

Well recumbent enthusiasts, you probably wonder what a ReBike can offer you? Many recumbent riders have a dream of being in this industry. If you want a lesson in how to throw the entire bike/recumbent industry for a loop and sell five times the amount of recumbents than all other manufacturers together are selling! Pay close attention to ReBike. On a more personal note, lets say you want to open the world of recumbents up to your wife, sister, mother or neighbor without giving test rides on your \$2500 speedster. Or, you want a couple of bikes to take to the cabin, ocean beach or even camping. This is not really the place for your speedster, but a ReBike is perfect. During our testing period (which lasted about eight months!), the ReBike was the most popular bike in the fleet. The idea of having something in the

garage to climb on, no matter what you are wearing, no matter what the weather outside is somewhat appealing. Get-Fit, meet new friends, meet ReBabes, cruise the beach-walk..... I'll take the black ReHog 818 please!

For more information on the ReBike Products, Write:  
ReBike, 103 NW 43rd St., #1, Boca Raton, FL. 33431  
or Phone #407-750-1304

**POSSIBLE UPGRADES:** So you want the most deluxe ReBike around. Here is what we suggest: Convert the crankset to an aluminum one. If you do this, be sure to buy a good one, as of the durability of a cheap alloy cranks will not be as good as the one-piece steel. Bottom brackets that convert BMX/ American size to standard road/ MTB size are available. Some manufacturers even make sealed cartridge bearing bottom bracket units. Wheels: we suggest a 20" X 1.5" or rear wheel with a Haro slick (BMX size). For the front, we like the 16" X 1-3/8" wheel and tire. We like aluminum rims with a good hub. An inexpensive hub can be used, but if you do so, use solid bolt-on axles for added strength. The only drivetrain upgrade we'd recommend would be suited towards a riders personal preference. On recumbents similar to the ReBike, bar-end shifters offer the easiest most precise shifting. As for the brakes, ReBikes cantilevers are very powerful, but you can always have them upgraded to an upper line MTB model. A good source for do-it-yourself upgrade parts is CycloPedia. Recumbent specialty dealers that sell ReBikes would also be a good source for custom component selections. This paragraph is for our recumbent enthusiast RCM readers can never leave their bikes alone. The ReBike is spec'ed very well for the bikes intended use and upgrading should only be recommended for the recumbent hobbist.



Al Kreitler & Killer on his ReBike



**DATELINE MARCH 1992: The Re What?**

We will look upon the years of 1992 and 1993 as a definite turning point in the commercial history of recumbent bicycles. The story is still being played out, and we cannot predict the ending at this time, but we can let you know how it all began.

It all started with the standard recumbent enthusiast fare of "hang'in in the parking lot" talk'in 'bout our favorite subject, recumbent bicycles. The date was March of 1992, the place was the Portland Oregon Bike Show. My recumbent co-horts, Dick Ryan, recumbent folk hero, and his old friend, Kurt Jensen of Eugene Bicycle Works. Dick and Kurt were attending the bike show and helping to staff the RCM show booth. The Portland show offers a laid-back attitude that suits recumbent enthusiasts perfectly, and gives old bike-buddies plenty of time to catch up on the latest industry scoops.

Recumbent history was just about to be made and we didn't even know it. When people who work in the recumbent business get together, we discuss the latest scoops, then what's going on with each other and then we attempt to debate the virtues of various recumbent designs. One of the first topics of conversation was brought up by Kurt, who unassumingly mentioned receiving the latest issue of an industry trade mag, (BBJ) BICYCLE BUSINESS JOURNAL. The story wasn't really a story at all, but a tiny ad for a semi-recumbent bicycle made in Taiwan that retailed for under \$400 sold by a company in Boca Raton, Florida, which until now, was certainly not any kind of recumbent capital of the world. Kurt had seen the ad on the previous day, Dick and I had been at the show and hadn't checked our mailboxes, but anytime anything made in Taiwan enters a market segment, you can bet it will be hot news.

The mystery bike known as the "ReBike" was on all of our minds throughout the weekend. On Monday morning, I high-tailed it up to my post box to look for my copy of BBJ, but no such luck. My copy finally arrived a few days later. I immediately picked up the phone, called ReBike to introduce myself. I was not the first to make this call. Kurt had been the first. He also became the first ReBike dealer on the West Coast (Eugene Bicycle Works, Eugene, OR). Within a week, Dick, Kurt and I had all made our introductions to Kathie at ReBike, the unofficial RCM/ Recumbent Manufacturers & Dealers Welcoming Committee.

**DATELINE SUMMER 1992**

The entry of the ReBike into the US recumbent market inspired another major story. Vic Sussman, a recumbent enthusiast and lucky for us, a professional writer, had been working with his editor for some time on doing an article on recumbent bicycles. With the ReBike entering a market with a reputation of being intended for scientists, professors, techno-nerds and non-conformists (all proud recumbent cyclists-no disrespect intended), the ReBike was an unassuming, easy to ride, low-tech, low-priced and very cool looking bicycle. The media in the Florida area and in the South quickly grabbed ahold of Kathie Skewis' interesting story, which then caught the attention of the trend-setting news magazine, US News and World Reports. We now highly regard Vic's US News and World Report article as being the premier article ever written about recumbent bicycles in the mainstream media. We at RCM have received well over a thousand inquiries from this article and it has spawned interest from magazines and major newspapers across the country and it continues to do so, almost a year later.

**ReDiscover Comfort & Fun**

**ReDefining Biking**

"One of 1993's Hottest Bikes"  
Bicycling Magazine

"The Most Comfortable (Bike) You'll Ever Ride"  
The Los Angeles Times

"A Hot Idea"  
U.S. News & World Report

- Large Wide Seat
- Padded Back Rest
- 7-Speed SunTour
- Cantilever Brakes
- Extra Wide Tires
- High Handlebars



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103 NW 43rd St, Suite 1  
Boca Raton, FL 33431

**REBIKE DID WHAT WE THOUGHT WAS IMPOSSIBLE**

Should long-time manufacturers be concerned with an entry level recumbent? Well, we don't expect that ReBike will take over the market for bikes like the Lightning, Ryan or Tour Easy; However, ReBike was able to bring to market an entry level recumbent, where many industry veterans have gone before and not succeeded.

We thought the key to the mass market was the Taiwan connection, but at least for the main component of the ReBike, that has not proven to be true. The "built in the USA" sentiment was alive and well in the USA during 1992. With the introduction of the '93 ReBikes at Interbike in September of '92, Kathie Skewis announced that the ReBike frames would now be built and painted in Florida.

In February of 1992, it was my belief that our industry growth would come from "trickle-down recumbency." Boy was I wrong. This term defined both the politics of the day and the slow moving trend of recumbent industry growth, neither of which worked. My trickle-down theory can be defined as enthusiast level recumbents becoming more popular due to the recumbent virtues we all know and can dictate automatically on command. The demand would increase, bringing prices for enthusiast level bikes down to the point where they can compete with MTB's and Hybrid conventional bike designs. In retrospect, what a ridiculous notion. My only defense was, "If that's not it, how will it happen?"

**TRICKLE-UP RECUMBENCY?**

So how will ReBike effect recumbent market growth? With so many people buying ReBikes (10,000 new ReRiders?), there will undoubtedly be riders who will eventually upgrade. Sometimes this happens before the customer even buys a ReBike. The ReStaff has been known to give out the names of other manufacturers that may offer a bike more suitable for the potential customer (how's this for a classy organization). The name for this new projected market growth is "trickle-up Recumbency."

**WHO IS THIS MARKET?**

How ReBike changed this was to go after the non-cyclist/ non-enthusiast, folks that had given up on cycling due to discomfort and a "jock" type image that had labeled cycling from the 70's. This seriously untapped market was completely ignored by recumbent manufacturers and the mainstream cycling industry had been doing a very poor job of attracting these types of riders.

One of the main segments of this new market seems to be the mature consumer. Until now, this market has almost been completely disregarded by the bicycle industry. Many ReBike customer seem to be forty-something and they are not cyclists, nor have they been for some time and they want a neat looking fun recreational machine. They don't seem to care about alloy components, wheel size, weight or performance, just cruising comfort. The classy little ReBike seems to be the ticket.

The other hot segments include kids, housewives and folks looking for low-cost fitness fun. How far will this go? The ReBike phenomenon is most definitely becoming a cycling trend

and ReBike history is still being written, so let's see in a year or so when even more surprises are unveiled by ReBike.

**WHO IS THIS RECUMBENT MARKETER EXTRAORDIARE: A BRIEF HISTORY OF THE REBIKE**

Many enthusiasts shake their heads in wonder & amazement of how a former teacher and travel agent, Kathie Skewis, who was not part of the recumbent good-ol' boy network could move in so fast. It all started with Kathy's desire for a bike in which everyday people; young, old, kids, mothers, & grandmothers could ride and enjoy. As we all know, riding conventional bicycles, for any length of time can cause all sorts of discomfort. In an interview with RCM late last year, Kathie told us all about the ReBike;

"I have always enjoyed riding bicycles, but the pain in the wrists, neck, back and bottom was greater than the riding pleasure. A few years ago, I stumbled upon a bicycle shop that had some unusual recumbents. But, they still did not appeal enough to me to purchase one.

The problem with existing recumbent bikes included wheel bases that were too long, cumbersome steering and sky-high prices starting around \$1000 and going to \$2500. I asked my father, whom I consider, "a genius" in design and engineering, to help redesign a bike that would allow the rider to pedal while sitting back with the legs out in front, yet would incorporate the modification that would make it truly comfortable. We took ideas from various bikes and attempted to see if they would work.

I will always remember the lunch at Bennigan's where we finalized the designs for the bike. I still have the napkin that we drew on. The ideas worked because it wasn't long before I was riding the prototype. On one of those first rides, I remember thinking... Redesigning... Reclining... Relaxing.... Recumbent..... ReBike!"

It was in February of 1991. By April, after being besieged with requests for test rides from all age groups, the decision was made to form a company and mass produce ReBikes.

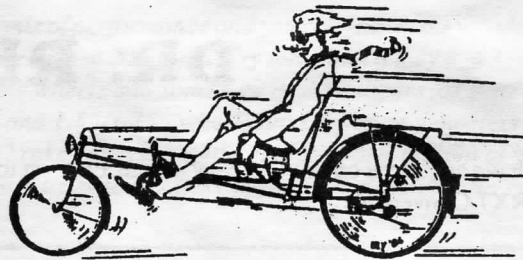
"The response to ReBike was fantastic! One day while I was riding, a police car drove past me, turned around, put on his flashing blues, and pulled me over. I could not imagine what was going on, The officer asked: "Where did you get that bike? My girlfriend would love to ride a comfortable looking bike like that! Teenagers often follow me on their bikes and ask to take a test ride. Off they go, leaning way back in the seat and saying: "Vroom, vroom, vroom." They must know the look of the Harley Davidson Chopper and love it like their fathers do.

My favorite ride is along the ocean from Boca Raton to Delray Beach with a stop at the Holiday Inn for a soda. Once a very nice grey haired lady asked if she could ride my bike. She got on and rode away. A man who looked about 55 said, " WOW, I didn't know mom could ride a bike." I was startled. "Is that your Mother?" Smiling, he replied, "Isn't she something for being 85!"

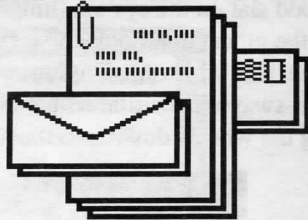


What makes ReBike so special is the comfortable feeling you get while riding. UP WITH COMFORT AND A BIKING WORK-OUT THAT DOESN'T LEAVE YOU "WORKED OVER."

Since going into production, ReBike has been shipped to customers all over the US with dealer requests coming from Holland, Germany, England, Saudi Arabia, Australia and many countries in South America.



## The RECUMBENT MAIL-BOX



EVERYONE,

If you want the recumbent community to grow, we have to do it together. There is NO BETTER focal point for our hobby than the Recumbent Cyclist Newsletter. Robert Bryant is hard working and knowledgeable (just ask him). We must support his efforts of creating a forum for us to exchange ideas, information and equipment. Tell anyone interested in recumbent riding that the RCM is THE source for up-to-date information on recumbents and industry news. What do we all have without the RCM? I feel that our "movement" and its effort to be accepted as a genuine alternative to the other forms of cycling would be set back 5 to 10 years without Robert Bryant and his newsletter. I will be subsidizing subscriptions to the Recumbent Cyclist for any new recumbent purchases made through People Movers. If anyone buys a recumbent from People Movers, who is already a subscriber, then they will receive an additional years membership subscription. I am challenging all recumbent sellers to do the same. Lets support Bob who in turn will support our industry and together we will all make it grow.

Jim Wronski  
People Movers

Dear RCM,  
Just received RCM #14 and have to say that I think it's the best one yet! Thanks for all your hard work. I would also like to take advantage of your discount subscription offer for gifts to government officials, so I would like to sponsor a bulk subscription for one of my favorite government officials, President Bill Clinton.

Thanks again,  
Warren Bowman  
Hermosa Beach, CA.

Dear Robert:  
Had everything gone my way this would have been my next how to construction article for a cheap and easy to build long wheel base recumbent, however things have not gone my way. On February 21, while returning home from a morning ride with my wife on my road bike, I was hit by a car. I was actually heading

home to get my recumbent and go to the monthly meeting of the South Bay Recumbent Club. To make a long story short, I now have a metal plate and five screws in the end of my left tibia. Hopefully, I will be back on a bicycle in six to eight months. Meanwhile, the best I will be able to do, is hobble on crutches for the next three months. The long wheel base recumbent will have to be delayed too. Most of the major frame fabrication is complete and I have taken some of the necessary photographs for the article, but it will be sometime before I am back in the shop or the darkroom. Rick Fowler, my building partner, and I are very excited about our new long wheel base design. I think this may be the easiest homebuilt recumbent yet. Cheap too! Reading about bicycling and designing on paper will be my only cycling experiences for the near future.

Kevin C. Haupt

*Kevin, we wish you a speedy recovery and please continue to keep us posted on your latest project-Ed.*



# RANS

**RECUMBENTS**  
PERFORMANCE BEYOND TRADITION

1104 E Highway 40 By-Pass  
HAYS, KANSAS 67601  
(913) 625-6346

## DR. RECUMBENT

Dear Dr. Recumbent,  
Do you have any ideas on how to carry a Tour Easy on top of a Mazda RX7 Convertible?

Thanks again,  
Warren Bowman  
Hermosa Beach, CA.

Dear Warren,  
*Whew! That's a tough one! My only idea is to get a rear bumper/trunk lid mounting rack and mount your Tour Easy with the front or rear wheels removed. You may also have to remove the Super Zipper fairing if you have one. We would not recommend carrying your bike through downtown LA in rush hour traffic like this, but early morning trips to the bike trail should be OK. (Rhode Gear Super Cycle Shuttle or Thule Trunk Rack) I'd try to mount your Tour Easy in this way before I bought the rack. My only other idea would be to modify one of these new Rhode Gear Euro Shuttle racks that Performance Bike Shop/ Mail Order sells. This rack mounts on the trunk lid & rear bumper and has rails long enough for a road or MTB bike. Longer trays would definitely be needed to haul a Tour Easy.*

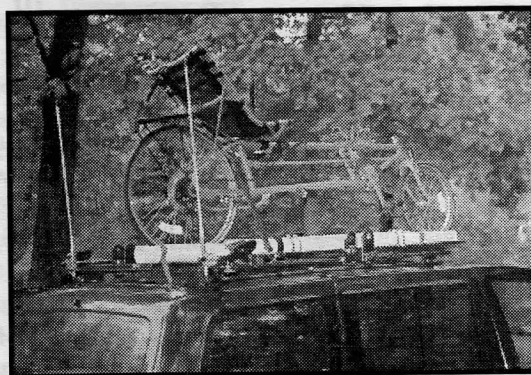
Dear Dr. Recumbent,  
In RCM#14 you suggested putting a recumbent frame directly on a Yakima roof rack. Yakima sells a long wheel tray for their 2A mount. I bought the #882-0004 long wheel tray, 78" long. Using that tray, the 2A mount (which holds the front fork while the rear wheel sits in the wheel tray) holds my Lightning Tailwind Micro (LWB recumbent) easily, with 8"-10" of length to spare. This is sturdy enough so that I can shake the car by pulling on the bike. If you want an even sturdier setup (which I think is unnecessary), you might try a tandem mount.

Sincerely Yours,  
David Wittenberg  
Hudson, MA

Dear David,  
*Thanks for informing us about the new #882-0004 long tray. This sounds like the ticket. We have experimented with the tandem mount for hauling LWB recumbents, and we like the front fork/wheel tray method much better. The tandem mount is expensive and takes modifications (a bottom bracket pedestal) that make it not the easiest set-up to use. Thanks again, Dr. Recumbent*

Dear Dr. Recumbent,  
I have enclosed photographs that show how I transport my Ryan Vanguard bike. The bike carrier is a Thule rooftop type that locks onto luggage rails. I welded galvanized angle iron and pipe to bolt down to the roof top rails on the van and onto this frame I bolted the Thule carrier.

The PVC schedule 40 pipe was purchased at a local building supply house and was cut to length after placing it next to the recumbent. I then cut two notches on top of the pipe approximately 1" wider than the tires and long enough to hold the tires with the tires touching the bottom of the pipe. Stainless steel pipe clamps hold the pipe onto the roof rack. I placed a swinging wood slat on the system (hinged at one end with a brass clamp at the other) that holds the bike in position and I pull from the other side with a small nylon cord. This places the bike in a rigid non-swaying position with bike straps & or bungee cords holding the wheels down into the plastic pipe.



**PVC Bike roof Rack**  
(Photo courtesy of Jack Baskin)

Before placing the bike on the vehicle I tie the nylon cord onto the seat support & place the slack in the seat until mounted. After mounting the bike onto the rack & the tires down into the slots I reach for the rope, throw it across the van, pull it snugly and tie it down. As a result the bike does not sway. There is room for another three bikes on the carrier.

When fully loaded with our four bikes (we have a total of eleven in the garage and really need to cut down) there is ample room between the bikes with no contact between them.

Sincerely,  
Jack Baskin

Dear Dr. Recumbent,  
I just bought a Presto and really like it! I'm surprised at how comfortable it is. I may need an 11T. (cog for my freewheel) later this season. Is anyone doing any experimenting with fairings? Are the 20" X 1-1/8" wheels really faster?

Keep up the great work on the magazine.  
Lew Pavlovich

Dear Lew,  
*The Root's nose-cone is available from Angle Lake Cycle. Also, a new Super Zipper fairing is being designed for the Presto as you read this. RCM Reporter, Zach Kaplan and Dale Clark from Angle Lake Cycle drove down to Zip Designs in California to work with Karl Abbe on the new design. Zach is interested in*



using the new Zipper along with a body stocking and Root's trunk rear fairing on his Ultra high-tech Presto. The 11T cog on a Presto will raise your high gear from 102 to 111 gear inches. This will be a noticeable improvement. There are many ways to get an 11T cog and most of them are expensive. The 20" X 1-1/8" wheels are harder, faster and lighter than the 20" X 1.5" or 1.75." They change the bike into a performance machine. After many miles on our various test Presto's, we like the new Avocet Fasgrip tires the best. These are 20" X 1.75 and 85 psi. They are bald slicks designed for solar cars. They offer

a perfect mix of performance and you can still hit the wooden bridges on the bike trail at 20+ mph. Try these and if they don't do it, order the narrow wheels and some new brake calipers for your bike (20" x 1-1/8" and 1.5"/1.75" wheels have different diameters and need different brake calipers. With all of the parts in front of you, it can be a 20 minute switch-unless you have hydraulics....).

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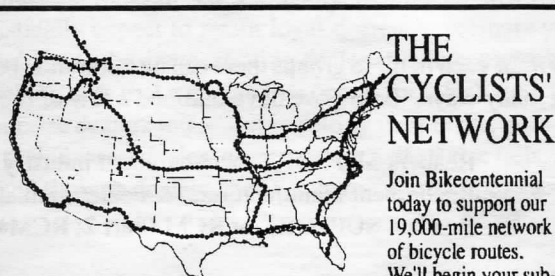
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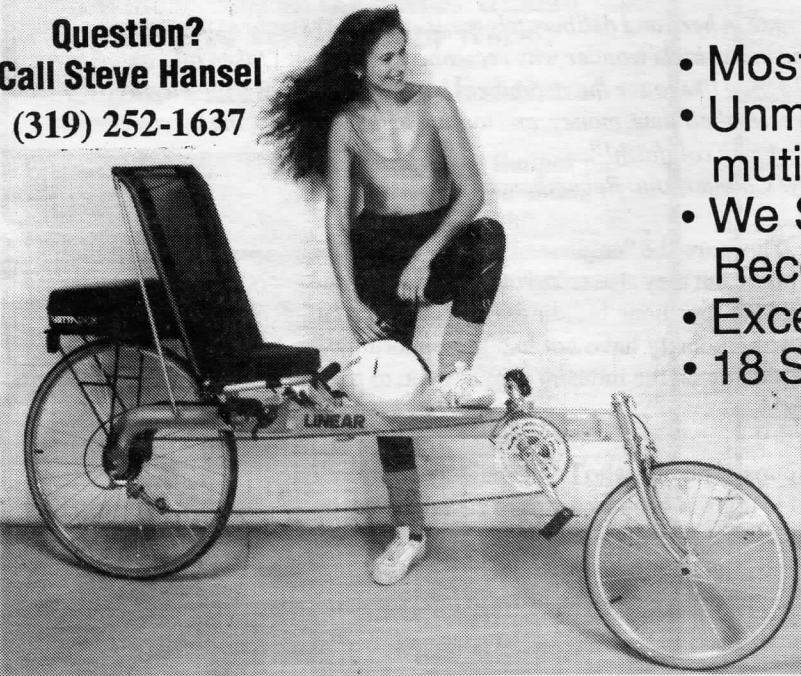
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## **EDITORIAL LICENSE: SUPPORT: Part 1**

by Robert J. Bryant, RCM Publisher

RCM readers are a diverse crowd. The majority of our readers are from any one of seven different groups which include: Homebuilders, Riders of commercially built recumbents, Recumbent shoppers, Couch enthusiasts, Manufacturers, Media and Almost-converts (bike fans lurking into the recumbent world).

Within each of these groups there can be a common bond—SUPPORT of the recumbent movement. This can be approached in many ways. Below we have outlined a few of them.

Readers SUPPORT the recumbent industry  
 Recumbent manufacturers & dealer mutual support  
 Readers SUPPORT of RCM (Part 2; RCM#16)

### **SUPPORT of the recumbent industry**

I can put all rumors to rest. Sellers of \$1800 recumbent bicycles do not drive Porsche's or vacation in the south of France. Generally, they are on the same mission that we here at RCM are. They are devoted to the concept of the recumbent bicycle riding position. Why do recumbents cost so much? This is an easy one. First of all, the bikes are built in limited quantities. Secondly, US labor rates are high. Go out and price any US built handmade bicycle frame. Next, price out components; the cost of components worthy of being on an \$1800 bike and of making a trans-America crossing do not come cheap. Then there is the often misunderstood term, "overhead," which includes rent, phone, fax, lights, garbage, staff and insurance. (We have heard of insurance costing upwards of \$100 per bike!) Recumbents that are introduced at low introductory prices generally have very thin margins and may take unexpected price jumps as the reality of the retail world awakens the manufacturer (these can be fantastic bargains for enthusiasts). A lesson in retail marketing will easily outline how much a bike will need to cost if it is sold through a bicycle retailer—they don't just sell bikes because they are nice guys.

A few of situations that I've experienced throughout the past few years come to mind. At every bike show, you get the token home-builder who stands around criticizing the commercially built recumbent designs and discussing his \$5 home-built recumbent bike, all within ear-shot of paying customers. Let me first say there is nothing wrong with being a home-builder. I can guarantee you that I'd be one if I wasn't so involved with RCM, however, I really have trouble with the \$5 concept of bike building. Anyone who rides year round, rain, sleet or snow knows what level of components they need so the bike will hold up. My guess is that the \$5 bike builder/ rider is not a very demanding or high mileage pedaller. My point is that a sounding board for the \$5 recumbent scenario is at an HPV club meeting or ride, not in front of the recumbent booths at the bike show. Even the builder of the elusive \$5 bike can benefit by the R & D of the \$1800 bike.

*The \$5 Bike: "A person will occasionally come in here and deliberately measure up a recumbent, then go off and attempt to build a copy. These same individuals wonder why recumbents have not "taken off" as a mainstream bike alternative! If you would truly like to see the recumbent bicycle succeed as a long term choice, buy one. These people who have invested their time, money, and tooling in forward thinking bicycle design deserve your support. Then watch things roll forth!"*

*Kelvin Clark, Angle Lake Cyclery/ Counterpoint Recumbents*

There is another group that deserves some criticism. These are the "engineers" that you know are making \$40K+ who come around and not only whine about the high cost of the bikes, but they also criticize the designs & designers. The point I cannot seem to get across is why "THEY" should make \$20+ per hour building airplanes or computers and the recumbent manufacturer work for free? Probably because they personally have not had the opportunity to buy a 747 or corporate mainframe system. For those of you who insist on picking on the industry, I invite you to try your hand at the recumbent business and attempt to make a living at your hobby.

I do not mean to come down so hard on these two groups of people who I do genuinely enjoy talking to (opinionated people make for invigorating conversation), but we all need to think in broader terms to encompass everyone involved in the sport/hobby/ business that we all love. In this age of environmentalism, global concern and political correctness we can take a lesson in how we as individuals can impact a whole movement of people by what we say or don't say. If my short career in cycling journalism has taught me one thing, it is to think before I speak or write (and sometimes I actually do it....). This can be a good lesson for all of us.



### Recumbent Manufacturers & Dealers Mutual Support

Recumbent manufacturers strive to keep bike costs down and to attract dealers to sell their bikes. If recumbent bicycles are to enter the mainstream of bicycle retailing, changes will need to be made as to how some bikes are marketed. The biggest obstacle to overcome is the manufacturers who are in direct competition with their own dealers and are also selling consumer-direct out the back door of the factory. Nothing can put a damper in the manufacturer-dealer relationship faster. I once heard from a dealer who spent three plus hours with a customer only to have the customer order the \$2500 bike factory direct—and this is a regular occurrence! If you are a recumbent consumer guilty of this, you are most definitely hurting the growth of this industry. If you are a manufacturer guilty of this, how can you realistically expect to retain loyal dealers to promote your products? Manufacturers should not accept orders like this, they should go to the demonstrating dealer. Manufacturers who sell direct and through dealers should have a fool-proof system for making sure that a dealer gets orders for which time was spent selling the product. Recumbent dealers need to nurture and schmooze dealers interested in selling their bikes, possibly offer discounted floor demo's, offer sales leads, and send customers to their nearest dealer to see the bikes. If all else fails, and you cannot get a dealer to deliver the bike or the manufacturer does not sell through dealers, then we do recommend purchasing directly from the manufacturer.

Recumbent dealers need to use good sense in selecting a product line. Select high quality recumbents with good availability, good predictable quality and ones that support independent recumbent dealers. It can also be very important not to have duplications in your recumbent product line. Dealers, like recumbent enthusiasts need to choose recumbent models and designs that they believe in and can promote. If you don't believe in what you are selling, you may be wasting valuable floor space. The above can be defined as "recumbent manufacturer-dealer mutual respect & support."

Recumbents are getting more popular all of the time. Whether it be on Good Morning America, or in US News and World Report, RCM or from ReBike trickle-up sales, there is an increasing demand to see and test ride recumbents. If we, as enthusiasts, manufacturers and dealers can learn to support each other through these periods of market growth and change, we will have a better chance of defining the direction recumbency takes.

In "Support Part 2" (RCM#16), we will examine the business of "The Recumbent Cyclist." Find out all about what it's like to produce the ONLY recumbent publication in existence.

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Danny Ray Burdick pictured at the helm of "Sasquatch," his Zipper Fairing equipped Ryan Vanguard Recumbent:



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**DESIGNER FORUM:****THE LIGHTNING P-38 DESIGN HISTORY**

I initially began design work on the Lightning P-38 over 10 years ago. At that time, recumbents were even more rare than they are today, so there was not much previous design information to go on. Thus I had to decide what the main objectives of this bike were going to be. This is necessary because in the design process of any piece of machinery, trade-offs normally have to be made. For example, with a recumbent, wind resistance can be decreased by lowering the rider, which results in higher speeds, but this also makes it harder to see and be seen in traffic. Thus it is best that you know what you want the bike to do before you design and build it.

**DESIGN GOALS**

At the time, I owned a Raleigh Grand Prix "ten speed" bike, and rode quite a bit with a friend of mine. He owned a really nice Italian sport-racing bike. Like me, he not only used his bike for day rides, but also for occasional commuting and lightly loaded tours. Thus I used this Italian bike as the starting point for my design, with the goal to improve on it in some areas. What I came up with is the following (as compared to the Italian bike):

1. Obviously, have a much more comfortable seat
2. Safer braking with a shorter stopping distance
3. Improved cruising speed
4. The same level of hill climbing, acceleration, and handling performance
5. About the same price range

Plus I felt the following was important:

6. Seat as high or higher than the average automobile seat, in order to safely ride in traffic
7. Ability to put a relatively compact, practical full fairing on the bike.

Steel was selected for the frame material for a couple of reasons. The best bikes were being made from steel at that time. Alternative material bike frames were just making their appearance, so their reliability was not yet certain. Also, steel was, and still is, the easiest material to modify, repair, and add "braze-ons" to.

**REAR WHEEL SIZE**

A 700C rear wheel size was chosen because of the gearing advantages it offered. For the unfaired P-38, a top gear of 110 inches was desired. For the F-40 model, a high gear of at least 130 inches was needed due to the faster speeds made possible by the fairing. For hill climbing, a low gear of 24 inches for both bikes was preferred. The only way to do this using available bicycle geartrain components was:

- A) Use a 700c rear wheel, or
- B) Use a smaller rear wheel with a pair of overdrive gears in place of the idler under the seat, similar to the ATP. It was not possible then, and is not possible today, to use a 20 inch rear wheel with a

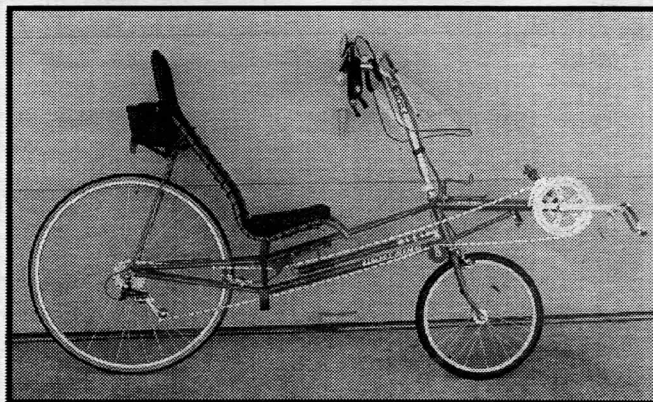
normal type of geartrain and obtain the gear range desired. If the low gear is kept the same at 24 inches (39x32 sprockets) the highest gear possible is 112 inches (64 x 11 sprockets). The gear range cannot be increased any more than this because available derailleurs are already at their limit with the 25 tooth front chainring difference and 32 tooth largest rear cog.

The drawback I discovered to overdrive gears are the extra weight, drivetrain, and aerodynamic losses. This type of gearset has four times the bearing loads as a simple idler. As a result, the bearings and support structure needs to be much heavier in order to ensure adequate longevity. Any weight saved by the smaller rear wheel would be more than offset by this extra weight. By my calculations, about 1/2 pound more. The double wraparound chain losses, while only about 2%, are still measurable. Another disadvantage is the rear derailleur is now down lower in the airstream, which increases frontal area and thus air drag, especially if a fairing is used.

So my solution was to use a 700C rear wheel. Besides the other reasons cited, I also thought a larger rear wheel made the overall design look better.

**FRONT WHEEL SIZE**

This was a harder decision than the rear wheel. The options were between the 20" and 17" sizes. The 20" size was initially preferred because it is much more available here in the United States. When building my prototypes, however, this size caused a lot of problems. For the best handling and braking characteristics, I found that the front axle needed to be within 4 to 10 inches of the bottom bracket, depending on frame size. This was also the best place for good stability at high speeds, especially when using a fairing. But on the other hand, the front tire had to be far enough away from the bottom bracket so that the crank arms would not hit it when the front wheel was turned. When a 20" front wheel was used, these



**The Lightning P-38**  
(Photo courtesy of David Yust)



conflicting requirements led to a high bottom bracket, and consequently a high seat. This not only increased the air drag, but also made it very hard to put your feet on the ground.

I also found out that while 20" BMX tires for dirt riding were readily available, 20" high performance road tires were not. In the town where I live (population 40,000), all three bike stores did not stock them, but told me they could order them....., in other words, availability was the same as a 17" tire.

Thus I decided on the 17" size, with the 16x1-3/8 size as a less expensive alternative for touring or commuting on bad roads.

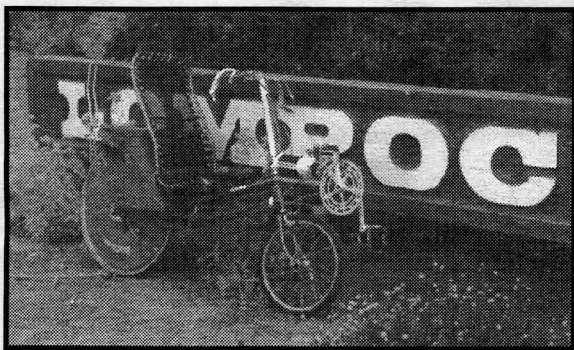
### SEAT DESIGN

During development of the P-38, I built and tested numerous different seat designs. Of the various designs, the seat currently used on the Lightning was the most comfortable, coolest, lightest, and had the smallest power loss. I tried suspending the seat, similar to the current Presto and ATP, on one of my first prototypes. I found that there were significant power losses when accelerating and climbing hills. This was because (as every recumbent rider knows) when I pushed hard against the pedals, I was also pushing hard against the seat. Part of my power was compressing the elastomer suspension bushings, but when they rebounded, I did not get any of that power back.

I found that a better solution was to lean forward in the seat when you hit big bumps, and a little later on, also leave some room between the forward seat cross tube and main frame top tubes, so that the seat bottom acted as a springboard. These two items result in a seat that is actually more comfortable than the elastomer suspended seat frame was, and there is almost no power loss when cranking hard.

### FRAME DESIGN

During my initial design process, I mathematically calculated the differences between various frame designs. There were three different "space" frame designs, and one monotube design. During this process, each frame was designed to have the same amount of stiffness to resist deflections under pedaling loads. I then determined the weight, and the current P-38 frame design had the lowest weight of the four options. The monotube design was the heaviest, weighing at least 3 pounds more. I later confirmed this by building a monotube design.



(Staff Photo)

### HANDLEBAR DESIGN

This was an easy decision to make. I built one bike that had two handlebars, one below the seat and the other shoulder high. You could ride around and steer using either handlebar. The high handlebars were lighter, simpler, faster, gave much better handling, and provided a mounting point for speedometers and fairings. The low handlebars had the one advantage of being more relaxing, but not by much, since I could steer with one hand on the high handlebars, and let my other arm relax. I could also drape both of my forearms over the high handlebars when riding - this was another relaxed position.

### CONCLUSION

Some of the aspects of the P-38 design mentioned above may make you think that I made certain decisions in order to gain a relatively small increase in performance, like I was splitting hairs. This may be somewhat true, but you have to remember that many of these decisions have to be made in the design of a bicycle, and they all add up. Thus it is important to look at every little detail during the design process, in order to ensure the initial goals are met. In the P-38 design, I have even emulated some of the Italian bikes' frame details by using custom pointed lugs, sloping fork crown, and forged dropouts with adjusting screws.

The end result is a bike lighter, faster, and more comfortable, in combination, than any other recumbent built. Plus, 95% of the other recumbents built do not have the quality, detailed frame construction and finish of the P-38. Other designs may have their attributes, but for a total performance package, the P-38 is the only way to go.

When you take a recumbent on Saturday training rides with the Santa Barbara Bicycle Club, like I do, you need to have the best one made in order to keep up with these guys. When you ride in a group like this, a fairing does not help your speed much, and on the negative side is viewed as antisocial. Interestingly, riding a recumbent is not, and I have had no problem being accepted.

I feel that if the recumbent is going to ever replace the upright UCI bicycle, then it has to do most everything that the UCI bike can now do, as well or better. This is the biggest advantage of the P-38. Additionally, it has the added flexibility so that I can ride it in a group unfaired, then easily put a fairing on it for solo rides or commuting.

Tim Brummer  
Lightning Cycle Dynamics  
Lompoc, CA.



## RCM INFORMATION

The Recumbent Cyclist Magazine is dedicated to promoting recumbent bicycles and providing and encouraging communications between HPV enthusiasts, home-builders, dealers and commercial manufacturers of recumbent bicycles. We are cycling's future.

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## FYI: RECUMBENCY ON THE ROAD

At least two recumbents, Infinities ridden by a father-daughter team, will test their mettle on the 1993 "Pedal-for-Power" ride from Portland, ME to Orlando, FL. They'll ride 1,632 miles in 23 days, beginning in late September!

Pam (Kellett) Woods (34) of Farmville, VA and her father Jim Kellett (57) of Fairfax, VA have been 'bent riders for over two years now. The ride merges in one adventure a celebration of family values, their dedication to two worthy charities (it's not too late for a couple of "points of light" to shine...), and the promotion of fitness and recumbency.

Their team approach to the ride will make recumbency particularly visible not only to the many other participants, but to the several bicycle clubs who support them along the way and to the public through the publicity generated by the organizing group.

To participate, each rider must raise funds for the charities of their choice. Jim and Pam have chosen the Bicycle Education and Legal Foundation (BEL), and the Habitat for Humanity International. BEL is familiar to any reader of this newsletter. Habitat is a wonderfully productive organization of volunteers and donors who builds housing for low income families and handicapped persons who could not otherwise own a home. You may have seen ex-President Jimmy Carter in action as a volunteer building these homes.

Your support is needed. Every dollar donated is fully tax deductible! This is a good way to focus your charitable efforts into areas of concern for all of us...please be generous. Checks should be made out to "BEL/HABITAT", and can be sent to: Jim Kellett, 4133 Meadow Hill, Fairfax, VA 22033-3113 or Pam Woods, 301 First Ave., Farmville, VA 23901.

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## WINTER RECUMBENT RIDING

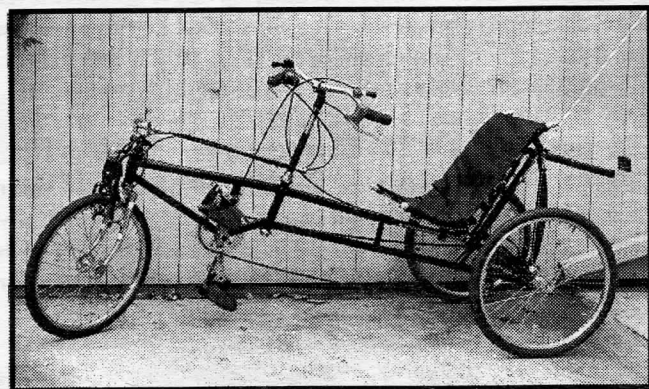
By John Riley

As a bicyclist and lover of warm weather, Winter has always been a difficult time for me. I have tried every form of Winter exercise imaginable and found nothing as satisfying as my cycling in the Summer. I considered many of the things I tried really unpleasant. It occurred to me that if I had a pedal powered device that could be ridden in the Winter, I might be able to extend my cycling season and I could continue to pedal to work rather than take the bus. By summer standards, two 20 minute bike rides of under four miles each way hardly count as exercise, but a more fair comparison is how much time I could stand to spend on an exercise bike. I have tried it. I consider it torture.

I knew there would be days when it would not be wise and perhaps not possible to ride even with a trike, but as it was I was not riding whenever there was a chance of ANY ice ANYwhere on the road or ANY chance of freezing precipitation, i.e. most of the winter.

It was a two year struggle, but as of late November 1992, I now have a trike to ride. (Perhaps I should note that this all began long before I heard of the products from R&D Tech.) The first part of the struggle was to get an axle from England, which is the only place that makes an axle of what I consider adequate width. They are also top quality. After a nine month wait with Ken Rogers, I cancelled the order. I eventually got an axle from George Longstaff. Most English axles mount AHEAD of the dropouts. Typical commercial recumbents do not have enough room in their rear triangles to accommodate this type of axle, so it was not a bolt on proposition, as it would have been if I were putting it on a conventional bicycle. I had to find somebody to build the rest of the trike around the axle. I managed to do this with some difficulty. Then there were unexplained delays from the builder amounting to a six month wait. During two years of waiting, I have had plenty of time to imagine the perfect pedal powered device. Guess what? It is not anywhere near perfect! But it is rideable.

The trike has one wheel in front. All three wheels are 20" by 1 3/8". Seat height (base) is about 18", BB height is about 14". The wheelbase is about 59", and the track is about 29". Hopefully the weight is no more than 50 lbs., but I haven't actually weighed it. The steering is in front with a remote linkage. I requested brakes



John Riley's custom built trike  
(Photo courtesy of John Riley, Toronto, Ontario, Canada)

in back, but the builder gave it two on the front wheel, which is standard English trike practice. Conventional trikes aren't as rear weight biased as a recumbent, so I was not comfortable with this at first. So far the brakes have been just adequate, but they are better than I expected from this approach. So far I have not had problems with rim icing, but eventually this may be a problem. It may be that drum brakes are the way to go on an all weather vehicle. On the other hand, if conditions are that bad, I may not have any traction anyway.



Winter recumbent riding  
(Photo courtesy of John Riley, Toronto, Ontario, Canada)

I had asked for a large main tube type of frame. The builder thought this would be too heavy and went with two smaller tubes. This has resulted in the frame being too flexible. The front end of the bike twists along the long axis under hard pedalling. Flex is a problem with trikes. I have seen two-in-front trikes flex around their single rear wheel under hard pedalling such that they fish-tail down the road. This is one reason why I favored a two-in-back design, but it seems I have not completely avoided these problems. At this point, I do not understand the problem well enough to know what the solution would be. A stiffer frame seems like a good place to start.

English trikes drive the left wheel, which works out since they ride on the left and the crown would transfer weight to the drive wheel. You might think this would be a problem for me, but it doesn't look like it. Two reasons: I have a lot more weight on the back than an upright trike. In the winter, riding on the right, it is the left wheel that is more likely to be on dry pavement.

Overall, I feel like the trike handles Winter road conditions at least as well as a car. Unfortunately, this is not saying much! As anticipated, there are still many days when I don't ride out of fear of having a car slide into me. But I am definitely doing more riding than I would be without it.

One other aspect of Winter conditions, besides traction, is that it is an extremely hostile environment to the mechanical elements. One picks up a nasty brine of water, salt and grit. I would hate to think of this eventually working its way into the axle bearings. For this reason, and others, like improved weight distribution, I have begun to think about trying to design a two-in-front trike with all conventional components. The front wheels would be in conventional forks. If one used decimal sized 20 inch wheels, like 20 x 1.75, they would be cheap and plentiful. These could be used for the worst conditions, and better quality wheels could be used as conditions improved. Hopefully this rig would eventually have a partial or full covering to make rain riding more pleasant in the Summer months as well.

I see this trike being along the lines of the Presto Triad, though it would be a bit lower and the headsets would be in a conventional position. I would have steering at my side, rather than in front, so

hopefully sitting down would still be easy. This was apparently one reason why the Presto, with its above-the-seat steering, put the headsets beside the forks. Another example of the trike I am proposing is the German Muscabrio illustrated in the IHPVA book First International Human Powered Vehicle Scientific Symposium Proceedings. This group built several practical machines in the 70's, but I have been unable to find out what their conclusions were. And as we all know, those without a knowledge of history are condemned to repeat it, which is what I seem to be doing.

The issue of fish-tailing remains. Hopefully it can be at least reduced by using large enough tubes to keep the frame torsionally stiff. Failing that, I suppose I could mount a fin and use the action as an additional source of propulsion. Hey, it works for fish! Then again, maybe not.

## Commuting Accessories

by B.J. Strass, Introspect Cycle, Sacramento, CA.

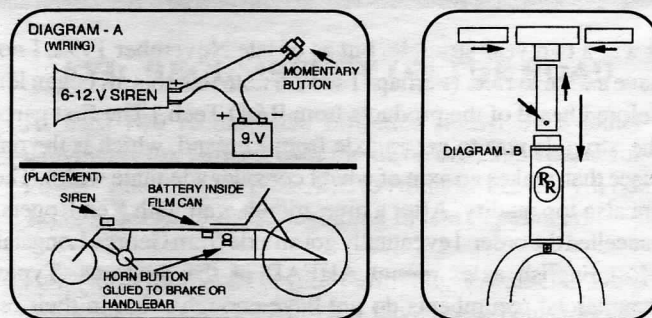
It seems that the large majority of us recumbent owners are also recumbent commuters. There may be no more practical and environmental way to commute than by recumbent. My wife and I both are "Clean Air Commuters" riding our Ryan Vanguard's each way typically 4-5 days a week.

Riding in traffic presents some special problems. Lights are a necessity during winter or for those, like I, that commute at night. Mounting lights to our Vanguard's wasn't too difficult as I used the tried and true method of installing an old stem and short piece of handlebar in the headset and then installing the light on the handlebar piece. This worked well but was overkill in the strength and weight department. A very light and better looking solution is shown in Diagram A. The material used is 1/2" Thin wall PVC tubing and a T connector.

To start, slide the uncut PVC into the headtube until flush with the bottom of the headtube at the forkcrown. The 1/2" tubing will just slide inside the headtube for a snug fit. Mark through the fork crown hole on the front and back so as to know where to drill the PVC tube. Next mark the length of the tube to get the height that is desired for your light. Remove the PVC and drill the holes and cut to length. Next cut the end pieces of PVC at the desired length (usually 2-4"). Reinsert the PVC that fits into the headtube, align holes, and install a bolt. Next glue the T fitting and short end pieces together making sure everything is aligned. After the glue has dried the mount may be painted.

Headlights, flashers, etc, may be mounted by using small strips of innertube to shim their mounts up to the standard 7/8" handlebar size.

Another useful item I have made is a warning horn. Such items are available on the market (MegaHorn, CycleAware) but I didn't feel they were loud enough. Mine is simply made of Radio Shack



Commuting accessories

(Diagrams courtesy of B.J. Strass, Introspect Cycle)

parts, is less expensive, and may be customized to personal preference. (The following list is under the assumption that you already have a soldering iron, solder, and shrink tube) Items needed are part numbers 49-489 miniature auto alarm siren, 275-1547 miniature push button switch, some light gauge speaker wire, 270-325 9.v battery clip, and a 9.v battery. Diagram A gives the basic and simple schematic for the wiring. The siren, being water resistant may be mounted on the above constructed mount or elsewhere on the bike using zip ties. The battery may be mounted inside a 35mm plastic film can. The switch may be mounted to a brake clamp bolt by making a mount of a small strip of aluminum, or as I have mine mounted, zip tied to the brake lever clamp. Make sure to premeasure the wire before cutting to get the length needed for the placement of the siren, button, and battery. Solder all items together as shown and cover with shrinktube.

The total cost of my horn was less than \$20.00. In use 2-3 quick "BLEEPS" are usually enough to warn pedestrians and other cyclists you are passing. When warning a motorist you can really lay it on "BLEEP" "BLEEP" "BLEEP" for their attention. Though I have not yet tried it should be possible to wire two sirens together for persons wanting a really loud setup.

*B.J. Strass is an independent recumbent dealer in the Sacramento area of Northern California. If you would like to contact B.J., his phone number is Ph#916-481-2906—Ed.*



## RECUMBENT CYCLIST CALENDAR

<b>JUNE 5 &amp; 6, 1993: PEDAL POWER POTLATCH</b> Sat. & Sun. 10am-5pm. A celebration of human powered boats, Center for Wooden Boats, 1010 Valley St., Seattle, WA. 98109, Ph.#206-382-2628.
<b>JUNE 12th, 1993: 10TH ANNUAL MIDWEST HPV RALLY</b> Waterford, MI. Various events. SASE to: Linda Jayne, 2878 Renshaw, Troy, MI 48098, Ph.#313-689-7898.
<b>JUNE 12, 1993: OHPVA RECUMBENT MUSTER.</b> To get on Oregon HPV Assoc. mailing list send \$10 to: PO Box 614, Beaverton, OR 97075. See Rider-Group listings for more info.
<b>JULY 16-18TH DA VINCI DAYS HPV Celebration, Show, Competition and Heart of the Valley Ride: Corvallis, OR.</b> Fri.-Sun. Events Cash prizes and Peoples Choice Awards. For more info Ph#503-753-9747.
<b>JULY 4, 1993: STOCKTON WATERFEST CRITERIUM</b> Stockton Ca. For more information, call: Ernie Schimpf Ph:#209-931-5457
<b>AUGUST 14-15 &amp; 17, 1993: INTERNATIONAL HUMAN POWERED SPEED CHAMPIONSHIPS: Pre-Ride Tours.</b>
<b>AUGUST 18-22, IHPSC (Speed Championships) Minneapolis (Blaine), MN.</b> The MnHPVA is the hosting HPV Club. Their address is MnHPVA, 4139 Brookside, St. Louis Park, MN. 55416. A check for \$5 will keep you up-to date as details for this event become available. If you get some news, please send it our way too. MnHPVA Hotline 612-929-4049.
<b>AUGUST 20-22, 1993: EARTH SPORTS EXPO: Blaine, MN.</b> In conjunction with IHPSC, there will be an exposition of earth friendly sports and products to be held at the main arena at the National Sports Center. Current recumbent exhibitors will include Rans Recumbents and Angle Lake Cycle.
<b>SEPTEMBER 13-17, 1993, IHPVA SPEED WEEK</b> Colorado USA. Open Invitation. Call Steve Delaire for more information Ph:#707-539-4203.
<b>SEPTEMBER 18, 1993, SECOND ANNUAL NEWARK DAYS RECUMBENT PARADE ENTRY:</b> 9 am Saturday. Newark is in the east San Francisco Bay area, next to Fremont. There will be a Bar-B-Q provided free to participants after the parade. Please call Gregory Clark, D.C. of Pain Relief Center at Ph:#510-791-1811 or FAX 510-791-1527, or write to The Pain Relief Center, 34720 B Cedar Blvd., Newark, CA 94560
<b>SEPTEMBER 17th-20th 1993: INTERBIKE 1993</b> LAS VEGAS, NEVADA-North America's Premiere bike show. Should the RCM Crew have a meeting?

### THE SEATTLE BIKE EXPO

The Winter season's premiere NW bicycle event is Cascade Bicycle Club's Seattle Bike Expo. My first booth at this show was three years ago. The only recumbents there were a Presto at the Angle Lake booth and my little RCM booth. This year, recumbents had a serious presence at the show. The Expo has become the Northwest's unveiling of our local recumbent builder's new models. Angle Lake Cycle/ Counterpoint brought out their new Titanium Presto, The new Triad trike prototype was fresh from the paint shop and the new Opus Trio Tridem, an Opus with a second recumbent seat on the back, over the rear 20" wheel. The Trio was seen all over the show grounds with happy people grinning from ear to ear from the rearward view.

The new A.T.P. alliance of Joel Smith, Greg and Grant Bower showed their latest SWB, the Vision R-40, a superb SWB underseat steering recumbent that also converts to a LWB. Several R-40's were on display, including two on wind-trainers for people to try out. This is a fine recumbent for \$895, definitely the SWB to watch for 1993.

The newly formed BikeE Corporation displayed their new CLWB easy to ride recumbent for the very first time, also sharing their booth

was the Pedalcraft Quadraped hand and foot powered trike. The BikeE has a rectangular section aluminum frame with a 20" rear and a 16" front wheels. The BikeE was very popular in the bicycle parking area in front of the show, as BikeE was allowing test rides for anyone who asked. We watched as new recumbent cyclists climbed on for the first time. The BikeE has proved to be very easy to ride taking no lengthy instruction.

## THE PORTLAND BIKE SHOW

The Portland show is much different than Seattle's Expo. It is more laid back and oriented towards the average cycling enthusiast. Seattle is a show where dealers and manufacturers sell and take orders, Portland is full of manufacturers Repts and no selling is allowed. I very much look forward to both shows, but I must say Portland is my favorite. The laid-back "Oregon-friendly" attitude is wonderful.

The best part about Portland is the indoor road test area. The show is held in the Memorial Coliseum Exhibition Hall. An adjacent hall is used for bike road tests and this year, the roller-blade Kamakazi's had an equal size test area (plenty of crash space). Portland's show offered the same manufacturers as Seattle's Expo with the addition of Robert Como's Space Age Cycle Booth. Kurt Jensen and Dick Ryan shared a rather large space as Eugene Bicycle Works/ Ryan Recumbents.

Kurt Jensen & Dick Ryan had the best selection of bikes. Dick brought out an irresistible shiny back Ryan Fleetwood Tandem along with several two and three wheeled Ryans. Kurt had a rare \$3300 Thebis trike, a new Maxam Prestige, a Laid Back-E, a '93 Rans and a pink ReBike 707. Space Age brought out their new 20" front wheeled prototype and shared their booth with Oregon HPV Association. Angle Lake Cycle had a total HPV booth, with the Counterpoints tandems, recumbents, trikes and one Moulton.

The indoor test area was a good way to see how your bike would handle with novice riders. There were spills & chills, but hundreds were able to test out bikes. The BikeE, Ryan, Presto and Presto Trike seemed to be among the most popular for show attendees to check out. The manufacturers and dealers who allow their bikes to be tested are the heroes of the show and our hats are off to you guys.

In a surprise move, RCM did not have a booth at either show. After three years of NW shows, we canceled both booths when we found out the extent of recumbent presence. Many RCM readers were looking for us, and I was able to meet many of you. To those who we missed, hopefully we'll see you again soon. We were just hang'in out and a bit bored without a booth to call home, so maybe next year we'll get booths again. I can't figure out which is worse, being bored & laid back or working twelve hour days in a solo booth?

## CHEETAH RECORD CONTESTED!

by RCM Staff Reporters

In RCM#13, we reported on the Team Cheetah breaking the HPV World Speed Record with a new record of 68.7 mph.

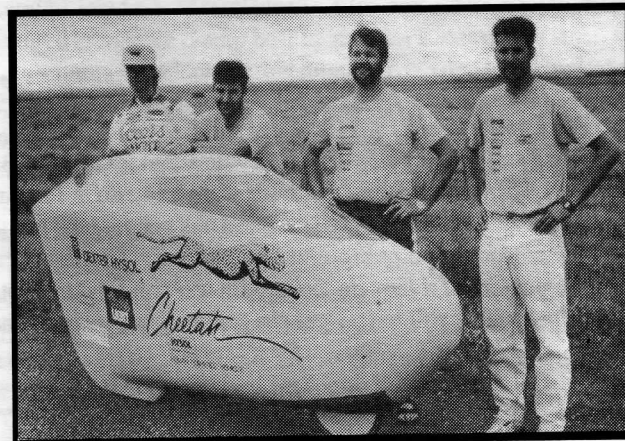
It now appears that the new record has been contested. An official protest letter was mailed to the IHPVA by former record holder Fast Freddie Markham and racer Matt Weaver, as of this article, there has been no official response from the IHPVA.

The record being contested is the 68.7mph run, the final run for Team Cheetah. The Easy Racer Team/ Fast Freddy Markham HPV record was broken earlier in the record attempt with a 65.5 mph run by Team Cheetah. According to racing sources, the 68.7mph run was almost unbelievable, it was a 5% increase over Team Cheetah's fastest prior run. Computer analysis shows that it takes a 25% increase in pedaling power to go from 65.5 mph to 68.7mph. How could he go that fast?

The IHPVA uses virtually untrained members of its organization as official observers for events such as this. The official protest letter and a videotape made of the record run timing showed the official observers helper rolling up the pressure sensitive timing tape while the Cheetah was still in the timing traps! The IHPVA has admitted to using two types of timing tape. The type used at

Yreka IHPSC 1992, can be tripped when touched. The Cheetah record run timing tape is not supposed to be affected by these types of irregularities. The fact that two types of timing tape exist only leads one to question the record results further.

The IHPVA has become the self-professed governing body of speed events such as the Cheetah record. If they want to remain



**The Team Cheetah: Chris Huber, Jon Garbarino, James Osborne and Kevin Frantz**

(Photo © Chester Rideout)



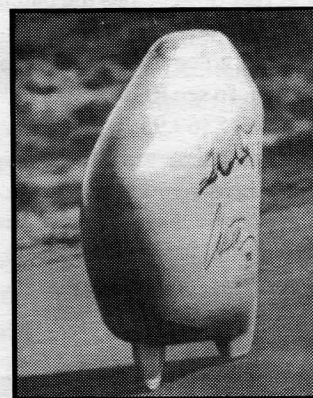
in such a capacity, we highly suggest using trained official observers for every official speed run. I am sure, if given the choice, the IHPVA would not sanction the handling of the electronically sensitive timing tape for record speed attempts.

If in fact, it can be proven or even a reasonable doubt exists that the handling of this timing tape altered the results of the record run, it could be potentially embarrassing to the record speed run governing bodies within the IHPVA.

**LAST MINUTE NOTES:** In an attempt to bring our readers the absolute most up to date information, we have requested from the IHPVA copies of the following documents: official record run results, official observer reports, record run timing video, official IHPVA finding of the record run investigation and official comment for this article. Our request was mailed to the IHPVA on April 6, 1993. We held off printing RCM#15 until May 5th, 1993 in hopes the IHPVA would respond. Just before press time the IHPVA faxed us their official reply that the Cheetah record protest had been denied. The reply was short and to the point. It did not

include any of the other materials that we requested.

This story was brought to us by IHPVA members, who supplied us written materials, but declined to authorize reprinting to RCM.



**The Cheetah**

(Photo courtesy of Chet Rideout)

## MEDIA WATCH:

**WHY THE DIAMOND FRAME IS A CLASSIC JEWEL:** The debate started with Dave Moulton's ridiculous comments about recumbent bicycles in an issue of VELO NEWS. We ran Dick Ryan's unedited response along with our own comments on page 33 of RCM#14. In the March 22nd VELO NEWS, Moulton strikes (out) again with even more ludicrous recumbent rants, "Mr. Ryan is absolutely correct-recumbents are perfect, if you want to go slow. But if you look at the full title of VeloNews, it is "The Journal of Competitive Cycling." So I am writing for the serious racing cyclist, who presumably wants to know how to go faster, not slower." Boy, has this guy had his head stuck in a hole or what? We are speculating that even though he builds frames (100 year old design?) and is now a journalist that he has never heard of the Lightning F-40? How about the Gold Rush? Cheetah? Fast Freddie? This is what we have to contend with. ....Ed. **NEWS FROM BICYCLING:** The February 1993 Bicycling Magazine listed many recumbents in this Buyers Guide issue, however, they forgot to list the Tour Easy which was awarded the "Best Buy Recumbent" in this same issue last year. Bicycling made a big stride in the right direction with a listing for recumbents under "Bike Types" in the "Bike Buying 101" article on page 48. "RECUMBENT: Named for their reclined rider position, recumbents are more popular than ever. Two factors have contributed: Prices are dropping, and the design has recently received greater publicity, informing people of the benefits." **IN OTHER MEDIA NEWS,** our friends at the new **BICYCLE GUIDE** have done a quasi-road test on the Lightning P-38 and then another article in the following issue featuring the new Ryan Fleetwood Tandem. They have offered so much recumbent coverage as of late, I am kinda worried about my job.-Ed. **TV-NEWS:** The RCM offices received a call from a "Good Morning America" producer who was considering a segment on recumbents. The big question and seemingly determining factor was whether recumbents are a bicycling trend? Does anyone know the answer to this....we certainly don't. **LINEAR MFG. INC.** Many of you may have seen Craig T. Nelson riding a Linear recumbent in the TV Movie, the "Fire Next Time" in mid-April. Craig T. Nelson and the Linear also graced the pages of the National Enquirer in late March. In preparing for their May Recumbent Issue, cycling industry magazine, "American Bicyclist," announced that, "our 1992 recumbent issue even annoyed some of cycle marketing's crusty conservatives." and that, "Recumbents are the single growth potential in bicycles!" Wow!-Ed.

## RECUMBENT NEWS:

**INFINITY PLANS:** Don Barry and crew are hard at work on plans for the long awaited "Bulldog" MWB. The new design has two 20" wheels, upright or underseat steering and uses muffler-molly (1.5" muffler pipe) as a frame material. For more info, give Infinity a call at Ph.#317-831-8798. **EASY RACERS:** A new 2nd Generation Easy Racer promotional video has been released. Cost is \$10. Also ask for a copy of the brand new Easy Racer brochure Ph:#408-722-9797. **18th IHPSC SPEED CHAMPIONSHIPS VIDEO TAPE** Fully narrated including all official times on vehicles, riders and events. 17th Annual IHPSC excellent full coverage video Both available in NTSC-VHS or 8mm format. \$20 each US Write: Steve Iles, 839 Nimrod Ln., Bolivar, OH, 44612. **NEW EAST COAST RECUMBENT DEALERS:** Larry & Linda Black owners of "College Park Bicycles and Mt. Airy Recumbents," both in Maryland now stock ReBike, Infinity, Rans, Linear, A.T.P. "Vision," and Ryan Recumbents. The store even has a '93 Ryan Tandem on display! College Park was named one of "America's Best Bike Shops" Honorable Mention by Bicycling Magazine. Give Larry a call at or Ph:#301-831-5151 or Ph:# 301-864-2211. Steve Morgan is also one of the largest recumbent dealers in the USA. Steve's company,

"Morgan Cycle & Fitness" is located in Rocky Mt., NC offers complete recumbent service and stocks Rans, ReBike, Linear, A.T.P. "Vision," and Ryan Vanguard Recumbent Bicycles. Give Steve a call at Ph:#919-443-4480.

### FUTURE-TECH NEWS:

**NORDICTRACK'S** (formerly the Yankee) unveiled its new MTB 14 spd. version in an April advertising blitz (although not in RCM...). The new "Pro-Former" has the patented rim-band brake, 14 speeds, 26" wheels and a 39-88 gear inch range. The new bike weighs 32 lbs. The original Yankee, now the "Fitness-Bike" has just 9 speeds, 24" wheels and weighs 30 lbs. NordicTrack offers a 30 day moneyback guarantee so you can try the transmission and brake out before you take a torch to the frame and convert the system to HPV use. For more info see RCM#12 or call 1-800-858-BIKE). Prices range from \$199.95 for the "Good Life Bike," a one speed with the rim-band brake, \$369.95 for the Fitness Bike and \$499.95 for the new Pro-Former. **SACHS** is rumored to be working on a new three-speed Orbit hub that will make a 21 speed with no front derailleur or chainrings (or a 42 or 63 speed with a double or triple crank). Orbit hubs are heavy and lose some power to increased friction, but they are wonderful on HPV's. 7-speed internal hubs are in development from both Sachs & Sturme Archer. Many small American MTB specialty parts companies including the Northwest's own **Magic Motorcycle** are working on new & innovative drivetrains. The top-secret **Shimano FM-5**, 5-speed internal front hub that replaces the venerable triple crank has been seen on the mountain bike race scene. We have seen it pictured in several MTB rags. Lets keep our fingers crossed for this one.

## CLASSIFIED ADS

**SUBSCRIBER ADVERTISING NOTE:** Effective January 1st 1993, RCM will charge for subscriber/ personal classified ads. See below for rates.

### WANTED: RECUMBENTS & PARTS

**WANTED: USED RECUMBENTS:** We buy used Prestos, Ryans, Tour Easys and what have you. Trade-ins accepted. Call us first. "Recumbent Hotline" 206-639-2347. (WA)

**WANTED:** Parts, Frames, Misc? Home-builder needs parts to make first recumbent. Send Info to or call: J. Franks, PO Box 7695, Colorado Springs, CO 80933. Phone#719-389-1607.

### RECUMBENT DEALERS

**BIKE Rx:** Full service recumbent dealer for southern Colorado. We stock Turner, ReBike, Linear, A.T.P., Yankee and mountain bikes. Complete line of accessories & custom wheel building. 706 Red Feather Lane, Woodland Park, CO. Ph:719-687-6217 David Sader

**ELLIPTIC RECUMBENT BICYCLES.** Full service recumbent dealer for the San Francisco and Northern California. Custom selection and special orders to suit YOU. Try before you buy. New, Used, Accessories, Repairs, Rentals. Current used bikes: '86 large Tour Easy \$950. and a Custom suspended LWB. Call Stephen @ Ph: #510-782-4566 for showroom hours. (CA)

**EUGENE BICYCLE WORKS:** Recumbent Sales and Rentals. Test ride your next recumbent on Eugene's Willamette River Bicycle Path. Oregon's best selection. 455 W. 1st Avenue, Eugene, OR. 97401. Phone 503-683-3397. (OR)

**INTROSPECT CYCLE:** Your Northern California recumbent dealer. We offer ReBike, Infinity, Linear, Ryan, A.T.P. R-40, Trice and others. Recumbent accessories and custom modifications. 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. (CA)

**PEOPLE MOVERS:** We specialize in Ryan, Linear, Rans, Infinity, Laid-Back, BikeE, Land Rowers & A.T.P. recumbent bicycles. Drop-ship anywhere in the USA. People Movers, 811- So. Tustin Ave. (At 22 Fwy. in Orange) Phone# 714-633-3663. Your full service recumbent shop. (CA)

**THE WHISTLE STOP:** Northern Colorado recumbent specialists. We stock Rans, Infinity, Ryan, Linear, Turner, and ReBike recumbents and framesets. Rentals, sales, plus new and used parts for buildups. Phone#303-224-5499. (CO)

**MORGAN'S CYCLE & FITNESS:** We are a full service bike shop and we specialize in A.T.P. "Vision," Prestige, Ryan, ReBike, Infinity, Linear and Rans recumbents 2513 Sunset Ave., Rocky Mount, N.C. 27804, Contact: Steve Morgan Ph.#919-443-4480. 10am-7pm M-F, 10am-5:30 pm Sat. (MD)

### RECUMBENT/ HPV PARTS:

**CUSTOM DESIGN & REPAIR:** Recumbent Seats, Panniers, Covers, Back-Packs and Seat Bags. Affiliated with Angle Lake Cyclery for ten years. Quick turn around and free estimates Sew What!/? 1000 "E" St. SE, Auburn WA. 98002. Ph:#206-939-4539 or 206-939-6767 10am-7pm. (WA)

**Classified Ads Rates:** "Parts Wanted," & "Parts For Sale" & "Personal ads" are free to subscribers. "Bikes For Sale"—\$5 each 25 words. Non-Subscriber rates \$10 each 25 words. Commercial classifieds are \$1. per word (35 word minimum). Name, address & phone counts as 10 words. Please call 206-639-2347 for a display ad rate card. Be sure to ask about special first timer special rates and discounts.



**FOR SALE:** 16" and 20" Recumbent Performance Road Wheels, Deore XT Hubs, 36 hole, Sun Mistral or Arai rims with quick release axles. \$69.95 TO \$74.95 each plus shipping. Call People Movers Ph#714-633-3663.

**FOR SALE: FLASHING SAFETY LIGHTS** (like Vista). They have three L.E.D.'s which can be set to flash or remain steady. They come with a clip in back. Regularly \$12+, available for just \$6.49 or 3 for \$15 (plus shipping) Call People Movers Ph#714-633-3663.

**FOR SALE: REAR WHEEL,** 48-spoke Wolber "Super Champion" model 58 Rim on 140-mm Phil Wood Hub with Disc Brake, Complete, \$295 OBO, or trade for T.A. Tandem Crankset. Cornel Ormsby, Ph:#916-373-0039, P.O. Box 1867, West Sacramento, CA 95691.

## NEW RECUMBENTS

**FOR SALE: 1993 LINEAR** \$999 & 1993 RYAN \$1299: One of each, new and in the box. We are also expecting other neat stuff! Have you ever considered a Mavic/ Phil Wood/ Campy equipped recumbent? We can do this for you, own & ride the best! Call the Recumbent Cyclist 206-630-7200 (Hotline) & 206-639-2347 (Office). (WA)

## USED RECUMBENTS

**FOR SALE: LIGHTNING T-38 TANDEM RECUMBENT,** Tim Brummer's best work. Upgraded to index, 21 speeds. \$2500, serious inquires. Details and photos available, call 904-767-5768 6 pm-9 pm eastern. (FL)

**FOR SALE: 1992-1/2 PRESTO SE TOUR** Black, fenders, Avocet 40 computer, Haro 1.5 tires, Shimano drivetrain, bar-end shifters, Blackburn Rack and Transverse trunk. Excellent condition. \$1600 + shipping. Vic Ph#202-955-2093 (MD)

**FOR SALE: 1992 RYAN VAN-GUARD,** Red, Like new, ridden 900 miles, fenders, Blackburn rack, \$900. Call Mike Ph:#503-282-6092. (OR)

**FOR SALE: USED 1991 TRICE,** Like new! Low mileage (under 100). One of the (if not "THE") last model(s) made in England to be sold here in the states by EcoCycle before they began to sell the "made in the US frames". 32" track touring model. 21 speed. Bar-Con thumb shifters with index/friction (work great). Brakes: side-pull rear & front drums (good stoppers!). Asking \$1250.00. call (716)461-5084 evenings (EST) or weekends and ask for Mike or e-mail on GENIE @ M.Brisson or on CompuServe @ 73757,2225.9 (NY)

**FOR SALE: 1989 INFINITY ALUMINUM RECUMBENT,** Breeze-Eeze Fairing, computer, panniers, Magura hydraulic brakes, Uni wheel disc, Phil Wood hubs, many extras, low miles. Excellent Condition. \$1200 Invested. \$700 or best offer. Brian 1-800-521-0515, X 4489. (MI)

**FOR SALE:** Infinity, 18 spd. 27x1 1/8 rear, 20x1 1/4 IRC front, computer mount, 2 bottle cages, rear rack, \$400 + UPS. Chicago area will deliver. Call Matt. 708-534-1344 8pm-12am cst. (IL)

**FOR SALE: 1986 TOUR EASY,** Red, Large size, little used and in nice condition. It has a Super Zipper Fairing, 40 spoke Phil Wood hub rear wheel, Esge Fenders, head and tail lights, Sugino AT Triple crank 26-46-52, bar end shifting with MounTech derailleurs. Asking \$900. Ask for Steven. Ph.#408-253-6488. (CA)

**FOR SALE: ECON-BENT SWB Recumbent.** Built like the plans except for 20" X 1.75" rear wheel (with 100 p.s.i. tire) and a 16" X 1-3/8" front wheel. It has a 45" wheelbase, 18 speeds with decent components. Should fit riders with a 31"- 33" inseam. Medium blue with yellow/ blue seat. \$475. Call Tom Briggs at Phone#207-583-4183. (ME)

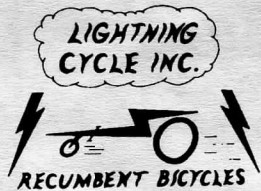
**FOR SALE: GEORGIEV BUILT VARNA FWD TRIKE:** As seen at Yreka '92. This new trike has three 20" wheels with drum brakes, front wheel drive and is in mint condition. \$1200 + shipping. Call Mark Colliton. Ph#301-933-2176 after 7:30 pm EST or leave message. (MD)

**FOR SALE: TOUREASY TANDEM RECUMBENT:** This Black powder coated bike is beautiful. Set up for touring with rear rack, altimeter/ odometer, hydraulic brakes, 9 water bottles and cages and 84 indexed speeds, fully adjustable seats. Featured in Jan/ Feb. "Recumbent Cyclist." Riding partner no longer rides. A steal at \$3,350.00 will ship to you. Call Ph:#510-351-8342.

## RECUMBENT T-SHIRTS

**"DEFINITIVE" RECUMBENT T-SHIRTS- LWB (Tour Easy) or MWB (Lightning);** Black or Navy; Medium, Large or X-Large: \$16. each, postpaid. Please send check or money order to: GRAN DESIGN 2053 Echo Park Ave., Los Angeles, CA 90026. Ph#310-829-5662.

## RECUMBENT MISC.



**LIGHTNING  
CYCLE INC.**

**RECUMBENT BICYCLES**

GENE LEMLE  
(419) 826-4056

3819 Rt. 295  
Swanton, Ohio 4355

**RCM HELP WANTED:** The Recumbent Cyclist is interested in subcontracting a part time commission advertising sales person. Any ideas? We will accept written correspondence only. Write to: RCM; Ad sales, PO Box 58755, Renton, WA. 98058.

**WANTED:** Correspondence with high-performance/ club recumbent enthusiasts. Write/ call Roy Ryall, 1809 Castleman Dr., Nashville, TN 37215, Ph:#615-292-1411. (TN)

## CYCLING PUBLICATIONS

You can try to be heard alone.....**OR YOU CAN ADD YOUR VOICE TO OURS. IT'S THAT SIMPLE.** The League of American Wheelman has been protecting bicyclist's rights since 1880. Your \$25 membership can help to continue this effort. Join us to preserve your access to America's trails and roads. League of American Wheelman, 190 W. Ostend St., Ste. 120, Baltimore, MD, 21230. voice 410-539-3399/ fax 410-539-3496. The National organization of Bicyclists.

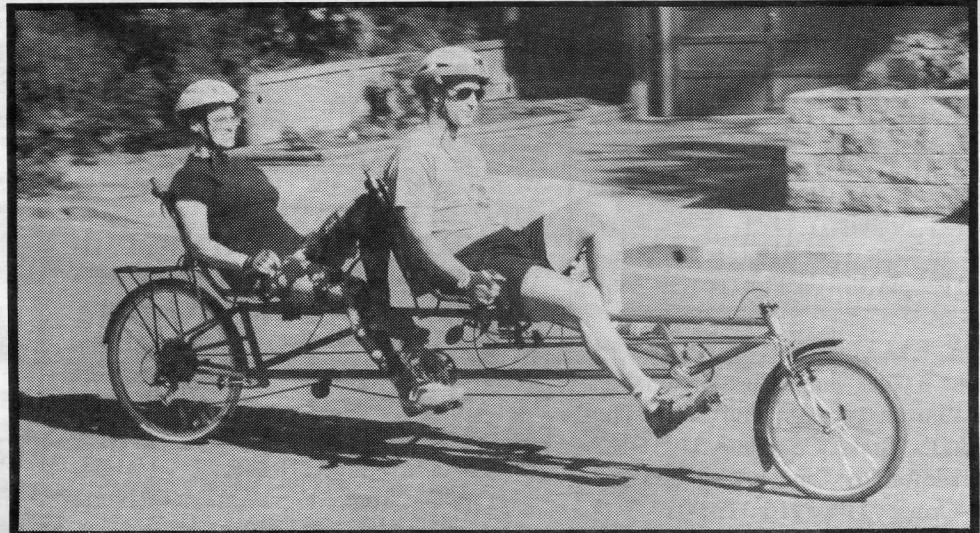
**Cycle America Regional Directory** for the Central Coast of California from San Jose to Santa Barbara. Special section on recumbents! Help build a TransAmerica Bicycle Greenbelt. Pocket size. Only \$7.95 to Cycle America, 147-River Street South, Suite 222, Santa Cruz, CA 95060.

**RYAN RECUMBENTS INC.**

*Bicycles, Tricycles & Tandems*



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RECUMBENT  
VALUE."  
THE RECUMBENT  
CYCLIST MAGAZINE**



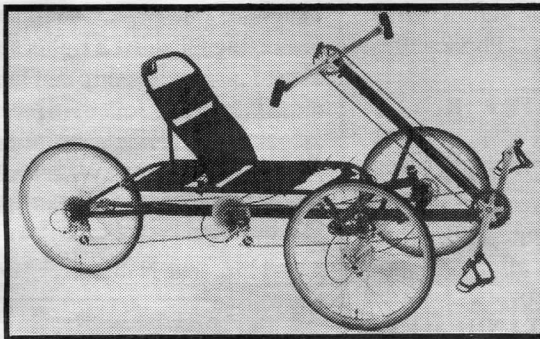
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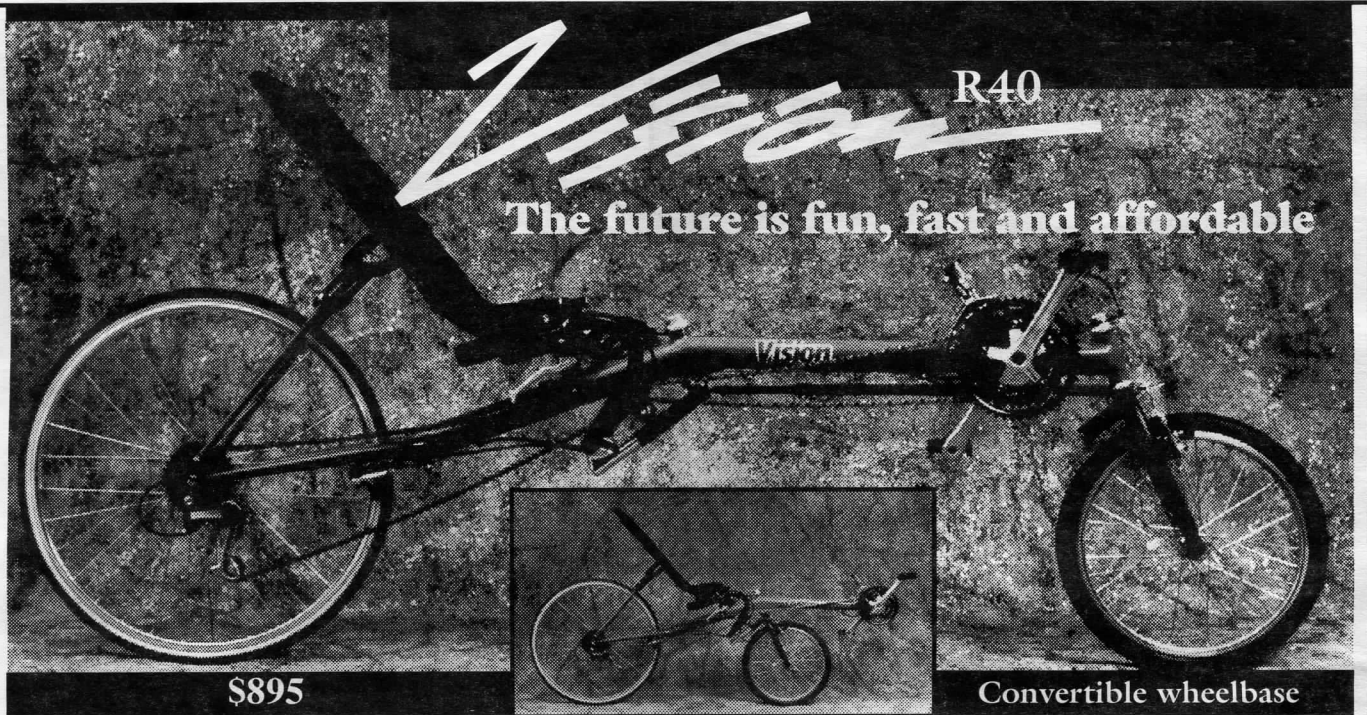
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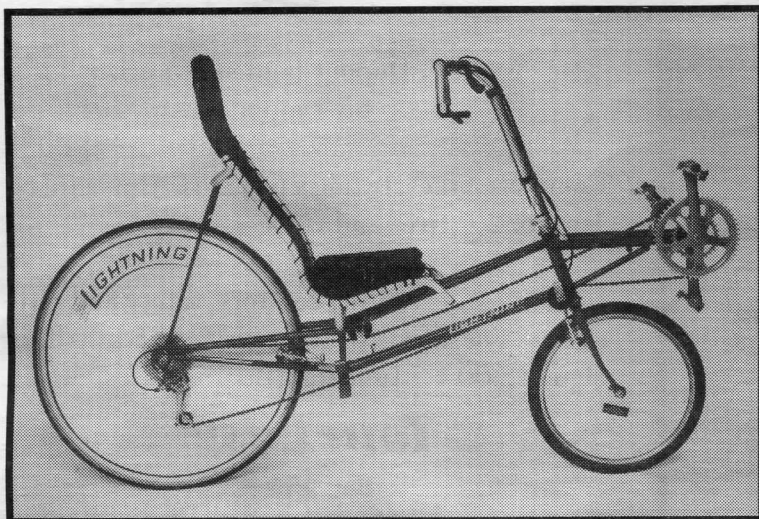




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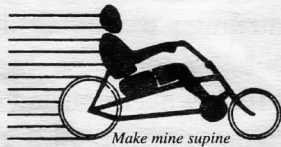
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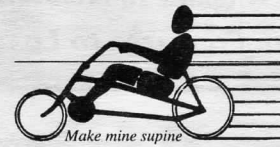
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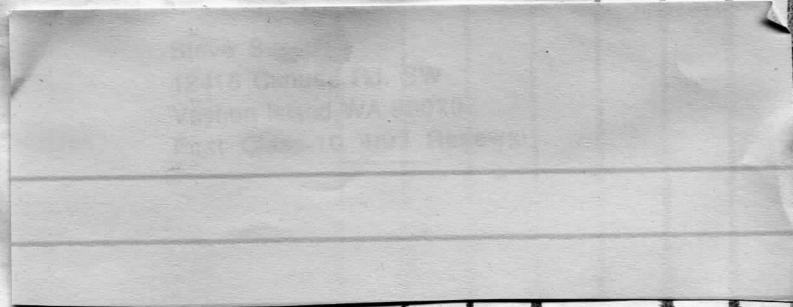
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