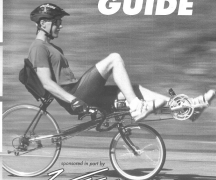


RCN

RECUMBENT CYCLIST NEWS

1997 BUYER'S GUIDE



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Editorial License

By Robert J. Bryant

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WELCOME TO THE 1997 SEASON—HOT STUFF... AND BOB RANTS

Welcome Recumbent Enthusiasts!

To our sixth annual 1997 RCN Recumbent Cyclist News Buyers' Guide. 1997 is gearing up to be a better year! Recumbent acceptance is at an all time high, even though mainstream bike media seems to be the last to catch on. I guess recumbents are just not "pair-fal" enough for the mainstreaming-by-catch-up media. I used to be one, so now I can make fun of them. Truthfully, we're accepting them and the minute the magazines show genuine interest in recumbents, we slip into recumbent mode mode. We may have some help this year along those lines. It appears as though some of the BIG BOYS are coming on board!

The biggest news is that HUPP! BICYCLES has purchased RedBike! Katie Steiner now heads the RedBike division of Huffy. Look for dealer sales, lower prices and much improved availability. This is great news! Look for 797's priced at \$299, 800's at \$399, and others from \$249.

A TRICE '96 Kasser surfaced just as we were going to press, so the WHAT-DO-WE-KNOW section of this issue. We'll keep our eyes and ears open.

The new Wheel FreeGLIDER Line-CLAW looks great. It's a 20" (16cc more compact model) with a wider rear end, Sachs 3x7, and \$699 price tag (Wheel Free!).

The recumbent deals are the BEST they've ever been, whether it's a \$300 RedBike, an \$500 (RedBike) or a \$2000 Easy Rider Gold Rush Republic Black Gold. Most manufacturers are offering better value this year and continually refined models. Perfect examples of this are from AFFINITY and Rans, both fall into an even more-refined than last year. AFFINITY's improved component spec, cable routing, frame details, and then there's the Miral! This is already the hottest deal of the year.

The innovative prototype Vision Rebel may get built if there is enough interest. Rans has refined their seat into the RCN favorite. A new wider seat base, thicker foam and a softer stretchable cover. The

Rocket and Tailwind have reintroduced Orbit frames, the V-Star24 has a Campy seat. The new Rocket has a V has an XT/ESP drivetrain custom paint and Magura hydraulic brakes all for \$1800. Rans has replaced the BMC chain with Sachs Sodi for 1997.

The biggest surprise for '97 is the new Rans "Glim" XT/ES2000 is a musical term meaning to smoothly transition. The Glim uses both Magura, the new Grip Shift ESP's 8 rear derailleur and shifters, Discos XT, as well as a Case Creek shock on the spring rear end. The tires are dual 28" 408 Continental Grand Prix models. The Glim starts for \$2995.

The special custom guys also offer continued refinement. Lightning has the P-58 X (Discos XT) and "Campy" models as well as a built-in Lonzo Lighting/M5 Low Racer with adjustable fork. Ray Kasser has two distinct Tour Day models, a more dated and lower priced E2-1 and the incredible Gold Rush Republic "Black Gold" with optional Carbon-Fiber tubing and holly oak. Rans is refining the ParaMater copter as well as the new SWB Tiger. Angletech has updated specs, new models, and even some lower pricing. They have become for new line-best connection featuring the Thrane Mako, Boregilder and Grand suspended recumbents. Also, look for Angletech-built bikes this year: the Quasipad/Tri-Spender bikes, and for all new Angletech SWB Altitude with suspension.

There are many good deals in the low-end as well. Besides RedBike, Miral is back with models starting at \$199, the S & B Beach Cruiser and the Roster Cruiser.

On the ultra-elite, the legendary Windbeater is back with more upgrades than ever. Unfortunately, we were unable to get adequate info from them. Peter Rans' redesigned Tico is available in the USA, and there are the Angletech built in Colorado, USA bikes. Greenpedal still looks like the king of the road for an outdoor rider, though the Win/Metal reborn looks tempting, at \$1599, though reborn can match the \$249 RedBike or S & B at \$915.



BenBob's '97 summer seat bike, an Angletech V-Star GL50 2400 for the suspension fork touring SWB—Angletech

1997 marks the seventh year of our company. What you may not know about RCN is that it has a tiny editorial staff with one full timer (me). I would like to offer special thank-yous to RCN staff graphic design: Mark Collins (RCN cover design and photo scanning); copy editor: Paul Anzanic; all of the RCN correspondents, writers, supporters and friends; RCN Circulation Manager, Marilyn Bryant for putting up with the wild world of recumbent bicycles; and a special thank you to the very loyal RCN readers.

We are enjoying terrific growth that is allowing us to improve the magazine as we go. Our goal is to make each RCN better than the last.

We hope you enjoy this edition of the Buyer's Guide. Please let the RCN advertisers know that their support of this publication is important to you. If you're ever in the Seattle area on the first Saturday of the month, drop in on our local site, the Recumbent Show '97.

WHAT DOES BOB RIDE

1997 marks my 10th year on a bike. I use dual and low swing models of S.I. (used) or the high end P1 (new) line and low seat models.

For the last few years, my gear consists of two frames of L&S Easy Riders, my current Gold Rush Republic (20") from the year-end sale and looking ahead to a new 20" "Wheel Free" in the coming fall. The performance and high-speed stability of the GRP line still intimidates any other seat models.

My Mirror seat bike has been a rock-solid 20" 31" Aero Rocked with 1600's. Annual People 20 x 1.25" 800's and 8-2000's \$699 tag have delighted. This bike is tough and works exceedingly well for its size. I plan to keep it around for good—longer in the fall too.

My favorite recumbent bike will be an Angletech V-Star (20") for fall. \$1,500-2,000 seemed right. I am excited about the new 1997 version of an Angletech recumbent bike as well as the Vision Rebel Line AF5.

Watch for continued test reports in your new journal "Road Test Database"—See Bryant!

RECUMBENT CYCLIST NEWS



Nobody Covers Recumbents Like RCN!

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RCN#33 May/June 1997 We are planning an auxiliary power comparison, a Maxam Revolve review, ATP Fairing/Rain Poncho test, more touring and homebuilder articles. Look for distribution throughout June. We currently have a Tamer T-Lite, S & B Beach Cruiser, Tallwind, Screamer and a prototype "Glee" test bike, a Wheel EvoGLIDE, HPM Titan and we start our long term Angletech V-Rex GL60 test this Summer! RCN is printed six times per year. See page 59 for details or call 206/830-7200 for our current brochure.

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SUBSCRIPTIONS RCN is published six times per year. USA subscriptions are \$24 (including shipping) per year. Other countries \$30 per year.

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RECIPIENT ADDRESS RCN, PO Box 3276, Everett, WA 98003-3276

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EDITORIAL/PUBLISHER Richard J. Brass - Editor, RecumbentCyclist.com

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DESIGN Cover: Greg Bower on an ATP "Star Plus". Cover and layout design by Mark Collins, Kingdon Heights Design.

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Recumbent Bicycles 1997



And B Kates (left), Tommie (center), John Schiller (right) and Mary DeBorja (far right) at the Midwest "Dirt Rally"



Easy Racers monthly ride at Watsonville, California
Photo courtesy of Easy Racers

THE PLAYERS

- Aerobika
- Angletech (AT)
- ATP Vision
- Bikes
- Crystal Engineering
- Easy Racers
- Lighting
- Linear
- Greenpod
- Hahnel
- Herson Powerd Machines (HPM)
- Infinity
- Fast Two Bikes (FTB)
- Moxon
- Pabloy Ltd.
- People Movers
- Prolog
- Personal Transportation (PT)
- Quadicycle
- Rite
- Rollite
- Rowland Car
- Rite-Rite
- Rotax
- Ryan
- S & B
- Sullivan
- The Comfort Productions
- Turner Engineering
- Wheel Recumbents
- Windcherry
- W/W/Woods

SRM BIKES

- \$292 S & B Beach Cruiser
- \$638 HPM Trek 7-spd.
- \$713 S & B Single
- \$1023 ATP Vision R-40 A/B
- \$1093 Hahnel Legend
- \$1093 Run Rocket
- \$1280 Linear Sonic
- \$1290 Lighting Death
- \$1290 Crystal Proton ~~recess~~
- \$1290 Damon T-Lite
- \$1390 Beebeater

- \$1380 Rotax Tiger
- \$1393 Hahnel Horizon
- \$1393 AT Race Rocket ML350
- \$1493 Run V-Race
- \$1493 Run V-Race 24
- \$1493 Ride-Rite
- \$1493 ATP Vision R-42 A/B
- \$1500 Crystal Speed Race
- \$1520 Lighting Death LX
- \$1790 Pabloy PDQ
- \$1793 Hahnel Hybrid Race
- \$1800 Run Rocket Status V
- \$1823 ATP R-44
- \$2000 P/W Hahnel 2000
- \$2093 Lighting P-38
- \$2193 Turner T-Line Deluxe
- \$2193 Hahnel Travers (imp.)
- \$2375 ATP Vision R-45 A/B
- \$2399 AT Race V-Race GL65
- \$2470 AT/ATP Vision R-44 GL60
- \$2550 Lighting P-38 X-err.
- \$2590 Lighting P-38 Campy
- \$2570 AT/ATP Vision R-45 GL60
- \$2600 Lighting M1 Low Race
- \$2799 AT/Overlighter GL65
- \$2990 Greenpod GR8 2620
- \$2999 AT/Inchless Altitude GL60
- \$3099 AT/Coverd suspension
- \$3299 AT Race V-Race SL
- \$4380 Lighting P-40
- \$4499 Glas-Tec AeroScope
- \$6000 Lighting R-84

DMB BIKES

- \$479 Rotax Cruiser
- \$499 Maxam Revolve
- \$599 Rotax Cruiser 7
- \$675 Maxam Revolve LX
- \$849 Infinity Alpha
- \$899 Prolog C-24
- \$900 Prolog 10x1
- \$1150 ATP Vision R-40 D/F
- \$1200 Linear Folding
- \$1380 Hahnel Storm
- \$1500 Rotax Permit
- \$1593 Easy Racers Tour Easy EX

- \$1599 Easy Racers Tour Easy SS
- \$1599 Race Status
- \$1599 Race Nimbus
- \$1628 ATP Vision R-42 D/F
- \$1628 Ryan Vanguard
- \$1999 Race Olive (suspended)
- \$2099 Prolog T-103
- \$2248 AT Race Glas Tilt
- \$2399 AT Race Status SS
- \$2399 AT Race Nimbus GL60
- \$2999 Easy Racers GR8. RR. Gold
- \$2999 AT/Gold Rank GL60
- \$4999 AT/Gold Rank Replica SS

CLAVE BIKES

- \$2994 Rollite 707
- \$3494 Rollite 818
- \$359 Rollite 2000
- \$359 Moxon Huron
- \$499 Linear 7-spd.
- \$798 BikeE All Around 7-spd.
- \$825 ATP Vision Matrix MT 7-spd.
- \$868 Hay Racer 82-1 21-spd.
- \$895 BikeE RoadE 7-spd.
- \$895 BikeE All Around 21-spd.
- \$825 ATP Vision Matrix MT 21-spd.
- \$915 Doppler Breeze
- \$895 Race Tailwind
- \$899 Wheel Bio-GLIDE
- \$1028 Linear WheelBio-GLIDE
- \$1023 Biketail RoadE 11-spd.
- \$1099 AT/107 Micro Race 17-spd.
- \$1099 AT/Thru-Mike

TANDEM

- \$1450 Maxam Traveller
- \$2800 S & B
- \$2800 Linear
- \$2400 Ryan Duffin
- \$2725 ATP R-85 Double Vision
- \$3000 ATP R-85 DV L.P.S.
- \$3999 Race Screamer
- \$4149 AT Race Screamer GL24
- \$4150 ATP R-85 Double Vision
- \$4150 ATP R-85 DV L.P.S.
- \$3999 AT Race Screamer GL24

- \$4400 Race Screamer IC
- \$4150 ATP R-85 DV L.P.S.
- \$4150 ATP R-85 Double Vision
- \$4150 ATP R-85 DV L.P.S.
- \$3599 AT Race Screamer GL24 IC

TRIKE/QUAD

- \$2440 K/Cherry VP 7-spd.
- \$250 Trillium FunCycle 1-spd.
- \$650 Trillium Low Rider 1-spd.
- \$910 S & B Trike
- \$1299 W/W/Woods 7-spd.
- \$1695 HPM Trike
- \$1895 HPM Tri-Master
- \$2995 Bark Traveller
- \$2995 Aerobika Nimbus Replica
- \$3000 Crystal Trek
- \$2600 Trillium Kaven
- \$2895 Lighting Hand Cycle
- \$2999 Greenpod GTR2620
- \$2995 JTB Mountain ~~open~~
- \$1199 ATP's Spider
- \$2799 AT/Quad ~~recessed~~
- \$4200 Greenpod GDS Tamer
- \$4800 Rollite
- \$3400 Windcherry
- \$6000 Greenpod Tandem
- \$6000 Crystal G800 Tandem
- \$8000 PT Trike
- \$6000 PT Tandem

BIGGEST SELLERS ^(estimated)

- ATP Vision
- Bikes
- Linear
- Race
- Rollite

RACE HISTORY/RECORDS

- Easy Racers
- Lighting
- Greenpod
- Race
- Rotax
- Infinity
- Windcherry (Q)

1997 RCN Editor's Choice Awards



The 1997 ATP Vision Merve —photo courtesy of ATP Vision



Malena Anderson of Freedom Pastimes (body and maker) on the Pacific Coast near Santa Cruz

RCN BEST RECURRENTS BESTS or 1997

The following Awards are the editorial opinion, tests and vote decisions of RCN Publishers, Robert J. "Boss Bob" Bryant.

RECURRENT OF THE YEAR—1997: The ATP Vision Merve CLRS. This is the most popular recumbent in the country at this time and already has a waiting list. The rear suspension, ComfortFrame, Nexus-2500 drive and adjustable price make it a BEST BUY. Congratulations to ATP for this excellent product. If you want one in 1997, order ASAP!

The BEST SWB "Best of '97": Rear Rocket is our absolute favorite. It's our lack of a deal for the 2000? Consider a custom paint job and Magura brake upgrade and you're still under \$4000. The Nexus 3 is also very good.

The BEST CLWB "Best of '97": The ATP Vision Merve wins the show. The Rear Rocket is a great under-valued model with dual 20" wheels in front.

The BEST LWB "Best of '97": The Easy Rider Star Kaye is still the best. It's strong, durable and an excellent non-friction performer as well. The new Rear Glass suspension bike is the most interesting new LWB to come along in years, though the timing was a bit off for 97 awards. This new design is certainly one to watch and may be the shape of LWB recumbents to come.

The BEST High-Performance SWB "Best of '97": Lightning P-35.

The BEST High-Performance LWB "Best of '97": ESO CLWB Black Gold.

The BEST High-Performance CLWB "Best of '97": Angleton/Scope Model.

The BEST High-Performance "Best Deal of '97": Antares Fusion.

The BEST Touring LWB "Best of '97": The Easy Rider Star Kaye EZ GLSS and the Ryan Vanguard (GLSS) are still the best and toughest.

The BEST Touring SWB "Best of '97": Angleton/Scope V-600 GLSS with optional front suspension using a 3-0-8R trailer.

The BEST Trike of '97: Greenwood GTE2020. We are looking forward to the new 40" (more upright) seat angle on this great trike. This is the most durable, rigid and true trike there is—no surprises or no action upgrades.

The BEST "Best of '97": The Rear Scanner is the high-performance dual wheel, though the Double Vision is perfect for new tandem riding couples, parents with small children and/or GLSS/Vision fans and the Ryan DuoPlan is the best value. All three are excellent tandem.

The BEST "Best Enthusiast Deal of '97": The '97 Rear Rocket.

The BEST "Best MB of '97": None for their complete recumbent line, great seat, innovative designs, excellent warranty and continued refinement.

The BEST SWB "Best Design Theory": The Scanner's Lightning P-35.

The BEST LWB "Best Design Theory": Gimble Martin's Star Kaye 4 GSR.

The BEST CLWB "Best Design Theory": See early to sell.

The BEST Trike "Best Design Theory": See Jim's Greenwood.

The BEST New Products of '97: The new Rear Rocket Saurus Front/Glass.

The BEST New Accessory of '97: ATP and Rear will have fenders soon available. How will we need any independent seat covers?

The BEST Add (after-act) seating: The Rear "Addforward" "Fly 4" (check out any Easy Rider here for LWB or CLWB).

The BEST USB (under-seat seating): Malinak and Ryan bar-seat extensions. Mount your controls onto the bar-seat for that pistol-grip feel!

The BEST Rear Hill Climbers: The Lightning P-35 and the Easy Rider Gold Dual-Axle Black Gold. Both are great for local performers as well.

The BEST "Best Handling": Easy Rider Gold Dual-Axle Black Gold Lightning P-35, Star V40024 and Rocket (probably in this order as well).

The BEST "Best Seat": A tough call. My personal favorite is the '97 Rear, Vision and Lightning seats are also state-of-the-art. (See who don't like slipcovers will love the Easy Rider Colors composite seat/Bromberg).

The BEST "Best Cheap-Seat Deal": 2 of 2 SWB Beach Cruiser at \$195,

for 2 of 2 P-35 only with eye, dual drum (instead, the \$119 Maxum Revolver and the \$499 Maxum Amvello (but when it floops).

The BEST Customizability on a "Best": Gimble Martin's Easy Rider.

The BEST "Best Building Plans": Art Rock JWB and Trevor FR3.

The BEST "Best Parts Source": Local dealers or RCN advertisers.

The BEST "Best Component Groups": Vision 8-45, Easy Rider GSR Black Gold Lightning P-3500 Comp, Ryan Glass/Saurus Front and Angleton 83 speed.

The BEST "Best Component": It's a catch-all with the new SRAM Grip Shift 83 8.0 with matching 900 shifters. The shifter are strong, quick and easy.

The BEST "Best Paint Job": Best powdercoat on the Rocket/Dualina is glossier than most. The wrap-ups on the other models is excellent. Look to Angleton and Cycle Fantasy in Orange, California for dream paint schemes.

The BEST "Best Clapnet Pothole-afraid": I will ride Shimano JFD's and like the dual-sized cables, though the Speedplay/Frog are popular with recumbent. Power Clips work well for low-cable-low-budget riders.

The BEST Recumbent Brake: Magura's Shimano M33C Dual Pivots or Campy for secondary safety-pivots. We plan to try some Shimano Superbrake.

The BEST "Best Chainset": Any Saurin—it makes a difference, and Road!

The BEST "Best Chain Miller": Vision, Ryan and Lightning.

The BEST "Best Hub": Lightning P-40.

The BEST "Best Fender": Zip Design for everything!

The BEST "Best Fainting Deck": None (although are included on Streets and Nimbus with B or C bars (see faking for the T-bar...yet).

The BEST "Best Trailer": 3-0-8R, for cargo and new kids!

The BEST "Best Warranty": Limited lifetime warranties from Ryan, Vision and Linnex. There is a huge difference between L3 or 5 years and lifetime.

The BEST "Best Dealer": Your nearest recumbent specialist!

The BEST Custom-spec/Mike: Angleton for custom spec and pre-assembly, track, and road uses. This is an important consideration.

The BEST Industry Rumor: Road goes from Trek (discussing their soon-arrive plans for 1998 at a mid-west shop. Believe it or not?)

The BEST Industry Rumor II: The industry insider said it absolutely must happen. That is not conservative. We'll see in September.

(See Recumbent News '3, Page 7)

1997 Buyers' Guide Primer



Schwinn Delites on the grass—photo courtesy of Peñider



Leaving Leary with her Tour Easy 4000 miles around the USA in 1990

BUYING A RECREMENT

There are many reasons to consider buying a recreation, but first and foremost is comfort. When you ride a recreation bicycle you will no longer have an aching back, stiff neck, muscle aches or a sore bottom. You will be able to ride longer with less fatigue and arrive at your destination feeling refreshed. The reason for this is the relaxed, easy-chair seating position that the recreation bicycle offers. This laid-back position allows for a better view of the road in front of you as well as the world around you. Another benefit of the recreation seating position is a more open chest and diaphragm that makes for easier breathing. Recreations are very versatile machines and can be used for a wide range of applications: recreational and sport riding, daily commuting, as well as a lot of touring and HPV racing. They are options for long-distance touring.

SIMPLE RULES

On the surface, choosing a recreation may seem difficult. It really isn't, as we will point out with a few basic guidelines:

SET YOUR BUDGET

You can expect to pay twice for a recreation over what you would pay for a conventional bicycle. The reason are: low production numbers, handbuilt in the USA, costly comfortable world-class seats and the limited component buying power of small manufacturers. Recreations are more complicated than conventional bikes and take more time to build. Recreation sets are a perfect example; they may be lightweight and comfortable. They can cost 25 times (or more) that of your off-the-shelf upright gal saddle.

The best values in the recreation world are with bikes in the \$800-\$1400 range, however, the best value comes in the \$1400-\$3000 range. Because of this common disease called "you-get-it" that has you willing to spend \$800, but considering \$1500 bikes. The best values are in the CLWB/SWB line. Other excellent deals exist, but may need updates in components or other modifications. Lastly, ride all of the different models you can, get the lay low conditions and go back and ride them again. Use us to do your homework and contact a local group.

HOW TO CHOOSE BIKES STYLE

As with conventional bikes, there are recreation designs for all kinds of riders and all types of riding. These include road bikes, custom, trikes and specialty bikes. Because there are no arbitrary rules to limit the design process, recreations come in every shape and size you can imagine. A recreation may initially feel foreign to you: too sensitive, overly-quick or heavy take you some time to get accustomed to the position. These are traits of the recreation world. The words to remember are R.I.L.A.S.I (Lean back in the seat, take a deep breath and enjoy the ride. Many of the symptoms can be traced directly to overly-soft seats and poor riding posture. Allow your body to relax and stay loose.

Your basic decisions will be which design style to choose. This comes down to budget, storage, riding style, and where you live and ride. Apartment dwellers may not want a LWB or tandem. Urban developers sometimes may not want a high-BB (bottom bracket) SWB. Do you have any special limitations? Where do you ride, on street pavement,

rough road or even off road? How far do you ride or want to ride?

Lastly, All-Arounds/Customs—Trikes—Sport/Tourers—High Performance/Machines exist in every category of these listings. There are fixed and skinny tire versions (copies of the same model) as well as high or low-BB models in each category. Be sure that you understand the differences in order to figure out what design style or variation work best for you.

Listed below is a description for each of the major categories these varied designs fall into.

SWB (Short Wheelbase) 20"-27" These recreations have their cranks in front of the head tube and the front wheel locked underneath or just ahead of the rider's knees. The SWB is a popular design except enthusiasts, home-builders and racers. These bikes are agile, quick-handling, quick-accelerating and extremely responsive. They are also thought of as being excellent for tandem, though all-around commuter, Gopher Martin (Ray Racer) calls to dispute this every time it's pointed. SWB models are usually lighter, with some weighing in the low-mid 20 pound range. They fit our tests best and can store easier than LWB counterparts.

Longer (wheelbase) SWB models can have varying degrees of best performance when the head of your face can cross the path of the front wheel during very low speed sharp turns. While this is initially annoying, the benefits are improved weight distribution, less "post-steer" and improved high performance/high-speed stability. Seasoned enthusiasts don't even notice it after awhile.

The shorter the wheelbase, the

closer the head tube is to your groin area and with 450 this may be a concern. The best performance can vary by model, front wheel size and your height (adjustable boom).

Bike height can also be an issue. There are published seat heights from 17" to 31" on up to 35". The higher the seat, the harder it becomes to sit the footed at a stop, which is an important consideration.

SWB USE: These are great all-around recreational machines. They fit in bike racks, elevators, apartments and small cars. SWB recreations can be used for fitness, light touring, commuting and recreational riding. They often make more attention to the road and offer a finer ride, though this depends on the model. SWB models do not handle as well when fully-loaded. Tourists may want to consider a RBL or center-trailer to tow.

SWB models come equipped with 16" and 20" front wheels. A 16" front wheel should be considered if the rider wants a low seat height.

CLWB

- Very compact
- Very good performance/acceleration
- Very maneuverable/responsive
- Lightweight
- Fit in tight spaces/racks
- Great recreational choice

SWB

- Quick handling
- More attention to the road
- May be rough riding
- Best performance (not all)
- High boom/breaker (optional)
- High-c.g. on 20" models

CLWB: Compact Long-Wheelbase or Medium-Wheelbase,



One of our favorites—the '87 Hasec round tube Recumbent

also known as intermediate and "compact" or "micro" bikes) 47'-68". This is the newest designation for recumbents and has become the most popular choice primarily due to the entry-level models. A CLWB recumbent has a similar configuration to the LWB, but has a higher seat low tension bracket and the front wheel is ahead of the crankset. The designers have made a conscious effort to reduce the silhouette to make the bike easier to handle for novice riders. This is primarily done by making the seat higher-to-heel-toe shorter and/or through the use of smaller diameter wheels. The CLWB recumbent design is the most user-friendly type of recumbent bicycle there is.

The most popular wheel combination is the 20" (orated 18") front. This creates an optimized design that allows a easy step-through frame, though dual 20" wheels are more desirable and offer a smoother ride.

CLWB Performance: If the CLWB falls short in any respect, it's usually suffering performance. The way in which designers achieve the CLWB design is to move the rider rearward on the bike. This usually means raising the seat up, thus moving the center of gravity to a top and back. Riders riding toward it will may want to consider models with "XL" frame sizes to achieve better weight distribution for performance and hill climbing.

A benefit to the CLWB design is it's superior stability in wet and by some in urban traffic and it offers the rider the best view of the road possible on a recumbent. A major detractor in some models have less comfortable seats by comparison to LWB and SWB models.

CLWB USE: This is the best entry level style of recumbent. This is probably not the best design for a cross country tour, though it is done

quite often. We've had reports of likelihood in foreign lands and Lake Huron of Hazy Rovers recently toured the Caribbean Islands on an EE-1. For touring, this design is very compact. The simplicity of the design is its greatest asset. These bikes are perfect for cruising the beach, the local bike trail or a city commute. They can be the ultimate urban assault vehicle. They are the simplest, easiest to ride and are the most affordable recumbents.

\$\$\$

- Easiest to ride/learn
- Easy to maintain
- Comfortable ride
- Predictable handling
- Simple design
- Low cost—as low as \$295
- Best entry-level bike
- Best urban/bike trail cruiser

\$\$\$\$

- Can be heavy
- Hill climbing may suffer
- Performance may suffer
- High seating position/g.
- Seat comfort suffers (some models)
- Heavily-loaded seat and
- Poor weight distribution

LWB (Long Wheelbase) 60"-71" LWB models have the front wheel ahead of the crankset. They are very smooth, stable, fast and inspire confidence in long-distance riders. This is achieved in conjunction with the LWB and the drivetrain are relatively straight forward. For some, they are less maneuverable than their SWB relatives but generally more stable at speed. LWB recumbents are usually outfitted with the more standard 26" or 700c rear wheels and 20" BMX size front wheels.

Some of the negative features of a LWB can be overcoming on a busy city street or narrow bike trail. The LWB bikes are usually heavier than SWB models, although there are



Bill Hatzivar goes over the edge with his Trience

some exceptions.

In the LWB group you will find dedicated touring bikes with fenders and LWB or ABS. There are also high performance machines such as the legendary Gold Rush Krypton and the hot rod Rotator Pursuit/Interceptor, so don't get the idea long bikes are lame. In fact, some builders will argue that the SWB machines ARE NOT better climbers. And they are quick to point out the ultra-quick handling of the SWB. We have found that LWB performance models are absolutely the most stable at speed.

LWB USE: These are the most versatile recumbent models, designed to last, yet they can be used for anything. LWB models can be equally at home on a flat century as it would be crossing the green plains on a tour. Some models are nearly unbeatable performers. The only drawback is the length of the tube.

\$\$\$\$

- Easy to ride/learn
- Fast flat and on the ground as tops
- Smooth/comfortable ride
- Low center of gravity (most models)
- Smooth predictable handling
- Protected design
- Great ergonomics
- Best Wheelie choice

\$\$\$\$

- LWB recumbent FLEX (stangulation is important for larger/hill riders)
- Generally heavier than SWB
- Hill-climbing can suffer
- Poor low-speed handling
- Storage won't fit in bumper racks

TRIKES: Invented in Richard Ballinger's "Richard's Ultimate Bicycle Book," most riders dream of a recumbent trike with a body spanning all over nose protected from the weather. These are

very expensive and rare.

If you've ridden a recumbent bike before, you'll know that every bit of the bike matters is true. They are low, sleek, fast and the most fun you can have on 3-wheels.

Before you buy one, consider the following: Trikes take up more than twice as much of the road, you must then compete with cars for a bigger share of that road, many cities are less than kind to drivers to see (some owners and manufacturers argue that this is not an issue). Trikes are usually slower than two wheelers due to the increased weight and frontal area. Most can roll-over if parked hard.

As the trike market matures, the vehicles are being separated into two groups. The first is the cruiser-style trike. These are the most affordable and have two wheels in back. Next are the low slung racers with two wheels in front. There is no experience quite like zooming around a parking lot in a three wheel human powered sports car.

TRIKE USE: Many recumbent trikes have handles about fully enclosed, weatherproof, futuristic, unsteerable HPVs. This is just a liability for most of us as the commercially available models of this type will set you back over \$1000 before you get them steered (the Solar Electric assist Trike is nearly \$2000). Recumbent trikes are costly to build and very expensive, however, they are the most fun you can have on three wheels. The low-cost trikes are best used for recreational beach-cruising. They are heavy, have low-end components and just all-around braking systems. True world-class high performance road-worthy trikes come with a hefty price tag. Look for excellent hand-built examples from Grouped and others.

The ultimate consumer? I'll leave that for you to decide. Consider

what it would be like riding with your feet 10" off the ground and your head 30" above the road. Imagine riding on a flat line road where unless you are on a "slight white-curtain" that you belong on the sidewalk. These bikes are very devoted.

GOOD

- Extremely responsive
- Sit-on-the-handle
- No balance required
- Very good performance
- Very low to the ground
- Best fun as a roadster

GOOD

- Most bikes are heavy
- Reluctant to transport
- Very expensive
- Brake locking is adequate
- Frame needs to be unusually stiff & tougher (triangulation)
- Usually slower than a roadster
- Very low to the ground
- Riders need to learn lean-steer/body English

TANDEM: This is the big year for tandems. Recumbent manufacturers are hoping that you'll shed old SIBS-SIBS and beyond for a the latest two-place recumbent designs. These seem to pretty straight forward, but every model differs a bit. The LWB (Lowe) is LONG, and that's an understatement. It's a stand-line, and we love it. The LWB runs SWB from tandems (Double Vision & Skrammer) are probably the best idea, but they differ in stoker position, rider-adjustment, wheel placement, head interference, who will sit in front? non-cycling operators? performance lines and frame design. There are also a few side-by-side tandems and even tandem-quads.

The last benefit is tandeming with a spouse, friend, wife or your kids. From the most expensive models.

EASE OF RIDE-ABILITY

Most of all commercially available US-built recumbent bicycles can be mastered by the average rider. Some designs styles and configurations are more extreme and less comfortable. Here are the easiest bikes to ride:

The most natural ergonomic position is similar to that of driving an automobile. All CLWB and most LWB bikes have it. Many low-cost SWB bikes do as well.

We have found that the easiest models to ride are trikes and CLWB. The downward-pedal angle such as the GS-1 (Merida, Talmont and Bikes) offer the most riding position, however, it's not the most efficient. These

models are popular with non-cyclists and those interested in comfortable, user-friendly machines. LWB bikes with excellent user-friendliness ratings are the Tour Easy, Stratus, Nimbus, Gliss, and Skrammer Revolve.

Next are the ABS SWB and LWB models. Models with a bottom bracket height at hip level or below, are the center of the SWB models to ride—providing you are tall enough to hold the bike up. Then come the USS SWB models and finally the low racers. Trikes are easy to ride as well, though you will need new leaning, braking and riding skills.

Recumbents with the fat tires make riding more comfortable. SWB models with heel interference are more difficult to master, though often times are lower to the ground which is a benefit. Most customers will have no trouble with any of these designs after some practice.

The ultra-extreme Ultra-SWB position has yet to catch on in the USA. These models have very reclined (35°) seat angles. The idea is to avoid a narrow profile into the wind. Many Euro designers think as Americans are off our rosters with our more ergonomic (and conservative) design theories. The Euro-SWB and Low Racer riding positions are absolutely the most difficult to get accustomed to.

Every recumbent rider develops their own theories on the subject of rider ergonomics. Just be sure to make your decision based on what you really want from a bicycle, whether it be total comfort or optimum performance. If it's a bike you love, you will become at-one with it and any slight performance differences will be overcome by your own efficiency and experience.

TRICKE-BARREL-OVERLOAD

Another aspect of recumbent ergonomics is plain and simple economics. Do you get "tired up" the year rides with all the gear: Lycra, Gliss, clipless pedals and seat belt and do do you wear contacts or shorts and running shoes? There are the extremes that may define what type of bike you should buy. Extremes who have the gear may want a high-end SWB, performance LWB or trike. If you are a fitness rider who craves the bike but every afternoon—maybe you should opt for a CLWB or low-tilt LWB model such as a Race Stratus, Nimbus or Tour Easy for more-thriftiness. (There are cohesive SWB models as well.)

As you can see, it's not just the cost of the bike, but it's the cost of your riding style. Choose the sim-



Pat Chavira on a morning ride the first day of winter (17°) on an AngliaStar/Pear Vanguard. (Photo courtesy of AngliaStar)

plest customer socio-economic machine, and you need the skill to go with it. Choose the bike-well-critter and just be sure to get a helmet.

HIGH-BEAM WARNING: You will use leg muscles to hold your feet in an outward pedaling position. Keep in mind that the higher the bike/bottom/basket (BB) above seat height, the more you will need clipless pedals. Power Grips (MTS diagonal wrap) and tool-less/adjustable work too, though they do not seem as safe in competition.

Rider conditioning and developing a counterbalancing style is even more important with high-BB models as the blood circulation in your feet is not as good with your feet higher than your hip joint. Potential knee aggravation or injury may also be a concern for big-gear-cyclists or those with knee problems. Some riders can pedal with ultra-high-BB's and never experience any pain or discomfort.

UNDERSEAT STEERING (USS)

This is when the handlebars are placed underneath the recumbent bike's seat. The steering can be via cables, rod, or directly to the fork (most

SWB). All work well and are stable options. When considering performance, underseat steering is less aerodynamic than most upright handlebars, but can be more comfortable for long rides. Underseat steering can also be harder for recumbent workers to learn; however, after a short time, the balance becomes second nature.

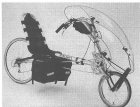
One only objective to underseat steering is when riding in dense urban situations (multi-lane congested), the handlebars out in the side can make the bike wobble. You will need to be aware of the bike's width more so than on an upright steering bike.

Rough to the handlebars can be an issue for some riders. Some manufacturers have had extensions which solve this problem (Tarmak, Reynolds-Halmar). Hyper-extension will cause shoulder discomfort.

Fitings can be mounted to USS models, but it's more difficult and expensive. The fitings can help make up for any performance loss that USS may create.

ABOVE SEAT STEERING (ASS)

This is your standard bicycle steering set up. For recumbent cur-



The Angleton/Thorpse Make—photo courtesy of Angleton

comes, it looks more "normal," if that is possible. ASS can take many forms, but this type of steering is more aerodynamic and all of the serious performance machines use it. Some riders feel that upright handlebars offer more control and an easier in-leans-to-ride with. Others complain of "dilly-like" feel on the LWB type. You will get accustomed to ASS quickly than you will to underseat steering. The major benefit to this set up is that it lends no special parts such as steering aids, rod bearings, and cables. Upright handlebars are much easier and simpler to mount controls, mirrors, and fenders on to.

SWB MODELS WITH ASS or VASD (vertical above-seat-steering) offer ergonomic controls placed closer to your body and the foot pedals have a seat recline adjustment. SWB models with wheelbases less than 58" will have ASS very close to the body, too close for some riders.

Which one is best? Most people choose ASS control. Which one you select will depend on your intended use for the bike and the model itself. Most manufacturers specialize in one type of steering or the other.

BENT IT!

With the wide variety of recumbent styles, it's difficult to select a "BEST" for everyone. With that in mind, here are some helpful hints.

SHORTER RIDERS may want to consider models with a low seat or 14" front wheel. Go keep it low. The one exception would be the CLWB style, that is most riders, 5-6 & 5, Foster and Lightning make very low-seat SWB models. ATP Vision's 16" wheel models are low as well. Add a 20" front wheel, and the seat height increases. If you are looking for an ultra-lightweight/bike,

check out the Vision R-444N and models from Lightning. LWB models can have low seats, though except a heavier bike. All Hahneh SWB models have high seats, even the small rider's Lopedrom. Just for fun, compare the seat heights of the various bikes.

TALLER RIDERS (over about 6'2" depending on X-seat) may not be able to ride every LWB model. Taller riders may find that LWB bikes place too much of the weight on the rear wheel, or they are just too tall to ride them. For CLWB models, consider only XL frame sizes. The best choice for very tall riders is probably a SWB with a wheelbase of 60"-66". Keep in mind that the longer your legs, the more the possibility for loam flex, the stiffer the frame needs to be and the longer the wheelbase can be.

LARGE RIDERS should consider models with a charitable suspension and/or strengthened seat frames and a lifetime frame warranty. Fat tires, extra spikes, 26" and 30" wheels work best.

Forget about LWB monocoils or ultra-lightweight models. Check with your manufacturer for bike weight limits and warranty coverage.

BAMMERHEADS! If you are a pure high-performance rider, you can go on bars, stems and frames, get a triangulated, off-ASS, off-framed recumbent known to hold up in these kind of conditions.

MIKE'S CONSIDERATIONS: Some enthusiastic recumbents can be extreme. Consider best interference, bottom bracket height, seat height, pedal angle and your own limitations in the selection process. Imagine what a particular bike would be like at stops, riding over railroad tracks, up steep hills and down the other



The Make Joliver

side. Can you lift it once used? Can you place your feet on the ground flat-footed? Do you have arthritis, knee or neck problems?

If you are short with a tall bike, your tips may get a workout and you may eventually fall off a stop.

If you have arthritis or knee problems, you may not want a really high BB model.

If you have neck problems, don't consider armily laid-back seat.

If you have any other injury or tailbone problem, you should inquire for seat comfort.

If you have sensitivity in your groin area, stay away from seats with rose sections under seat bones.

Recumbent models vary by how they adjust. Some SWB bikes have sliding beams, others have sliding seat. Some use a handle or critical chain adjustment is necessary. Sliding seats are not so easy to adjust as they look, but in most cases are the better of the evils. Ask your dealer for a seat-adjustment demo.

Be certain to get a properly sized bike. There are no hinges if your bike does not fit. Keep in mind instant (measured—fit pants), X-means and any other measurements called for. X-means is measured by sitting the knee floor with your back against the wall and measure from the bottoms of your feet to the wall (not in the air). This is the most accurate form of fitting. If you are not of average proportions, insist on an X-means check.

COMFORT 101

This is the single most important aspect of a recumbent bike as you cannot dislodge your seat or stand on your pedals. All other recumbent facts and figures aside, if you can't be completely comfortable in your recumbent seat, keep trying bikes until you can. Seat comfort is a personal issue—so try many. Seat recline can make the difference as to whether or not you will be comfortable on any given seat. The more laid-back you are the less weight will be on your lines. We've noticed that

some recumbents come from the factory with the seats fairly upright, so take the time to adjust the recline of your seat, it will make a difference. If you want the most comfortable recumbent, look for the optimum mix of seat comfort and ergonomic rider position for YOUR body. Here is our overview of recumbent seat types:

SHELL/PLATE: This is what works perfect on Easy Racer bikes. If you have a builder who is committed, they can be very comfortable—although cheap/plastic seats do have the comfort edge. The performance, the Europeans seem to have proven that a hard shell seat enables the rider to develop more power. We like the Easy Racer Cobra for power-generation, and the Yarnes seat works well in this respect. Some riders prefer this type of seat. It's simple, easy to modify and can make your bike lower to the ground.

HYBRID: A high-quality mesh back, CrMo frame and a composite bar with foam and cover. This is the incredible Koss seat that scores better for 1997. It has a taught mesh back, wider base and thicker foam. It reclines easily to horizontal and other models. This is an extremely comfortable seat and very adjustable (25° recline adjustment). The Koss seat has been the most comfortable for the RCN staff throughout 1996 and into 1997. What changed? The trick is to recline the seat angle back more than you usually do, thus deadweighting your lines. The Koss hybrid seat exists on all SWB models. On low BB models, some riders may rub the forward edge of the seat with the back side of their legs.

SLING/MESH/PLD: This is what's offered from ATP Vision and Lightning Cyclic Dynamics. These seats have steel or aluminum frames, mesh backbones and a foam pad on top of the mesh base. This is a very comfortable style of seat. Vision and Ryan seats have a sometimes objectionable seat form that hold the seats up on the forward edge of the seat. Vision has covered them with foam pad, so you barely notice it.

SLING/MESH: This is a CrMo or aluminum frame that has a nylon mesh attached to the frame. The best one we've found is on the Hahneh. This seat is similar to the old Proton, but the back is lighter. The mesh is made by New What? (Patent Pending seat mesh maker). Koss has updated their seat and we like the bouncy-cool-kick suspension. It's similar to the Lightning seat, but lower and made of CrMo. If you're looking for a SLING/MESH/PLD seat,

a SLINGSHOT may feel too hard, but recumbent performance disagrees.

Keep in mind that slightest seat will not work on all designs. The lower the bottom bracket, the more likely there is to be problems.

SEAT RECLINE ANGLE: An adjustable seat recline angle is a preferred feature as seat recline angles can vary dramatically from the bare-FWB olive ball ball (35° or so) to a more natural ergonomic angle of 35°-53°. Consider the "feet angle" as well. Take a side-view of any recumbent. Draw an imaginary line down the seat back. Now, draw a second line from the seat back/seat intersection, out to the bottom bracket (pedals) of the bike. Figure the angle, this is the Feet Angle. The number itself is not as important as what varying angles represent. Bikes like Vision, Ryon and S & B recumbents with very reclined seats and relatively low bottom brackets create a very relaxed and COMFY pedaling angle. Straighten up the seat back, take the bottom bracket above the seat base height and you have a very closed performance-oriented pedaling angle. This is very similar to the difference between an upright hybrid bike and a drop-bar racer. Whatever option you choose, be sure it is ergonomically comfortable for your body.

PERFORMANCE 101

Recumbents hold all of the human-powered speed records. They are aerodynamically superior to conventional bicycles; less frontal area means less wind resistance. The Lightning F-40 currently holds the Race Across America speed record of five days and one hour. Gender Martin's Easy Rider Gold Rush, ridden by Paul Fiedky Makham, was the winner of the DuPont Prize for breaking 60-mph and runs in the Smithsonian. Features for street use are common and optional equipment on many models. They protect you from rain, cold and wind with up to a 50% reduction in drag. The general rule is that an aerodynamic recumbent is about 10% faster than an upright bike. With a fairing, that can increase to 15%-25% faster. With a full body it can be 30-40% faster.

Production recumbents are not always faster than conventional bicycles. It depends on the rider and the machine. To get the performance edge on a recumbent, you need those key things: A. A fat bike. B. A fat rider. C. A fairing. You best bet is to do your homework and if your goal is performance, be sure that you look for a recumbent designed for this

purpose. Pay attention to speed records, racing victories and how active the manufacturer/owner has been in recumbent racing circles. Models can vary by up to 14 mph for the same rider (aided). Some riders say "I don't care about speed!" With an efficient performance bike, you can ride longer and farther with the same amount of energy.

HEEL CLIMBING

The best recumbent/heel climbers are medium and high-DB FWB performance bikes with stiff frames as well as performance LWB models. FWB models have an edge in low-speed maneuverability, primarily due to bike length. Low LWB machines can be more ergonomic and coast farther over rolling hills. Like weight matters unless the weight loss results in an overly flexible frame or fork. Aerodynamic add-ons such as fairs are generally worth the weight penalty.

Exceptions to this above can be found. If you are one, chances are you are an in-line with your machine and a very skilled "heel climber."

Slight design divergences are not so important as rider conditioning. You need to develop a smooth, powerful pedal stroke/steep hills successfully. Cross-train on a stair-stepper or indoor recumbent trainer (interval and hill simulations really do work). Then go out and look for hills to climb. After a month of attacking the hills with a vengeance, you will most likely climb what is to you still on your weight and in greater comfort.

NEW RIDER TIPS

The most difficult part of all finding recumbent models to sit and ride. If you can, find a recumbent specialist (that carries many models) or club and try as many bikes as you can. You have already stated your quest by purchasing this guide. Your second step will be calling the listed manufacturers and ask them for the name of your closest dealer or owner. Your final step should be the local yellow pages, just to see if you've missed anything.

Become educated, do not expect to get this safety from a dealer or manufacturer. Ride bikes, talk to owners and read BCM issues about models that you are interested in.

Watch out for dealers trying to cash-in on the recumbent "wave." Some white flags are that there is no knowledgeable recumbent salesperson, bikes are poorly setup and often they will only sell one or two bikes. The odds of satisfactorily com-



The Lightning M8 Low Rider with monocoque fork, built in California

pleting your recumbent education may be hampered and you certainly will not experience the diverse world of recumbent bikes to its full extent. Do yourself a favor and look for a reputable recumbent specialist.

If you have no local dealer, or the bike that you want to see is not represented locally, consider visiting the manufacturer or a regional specialist. Within an hour of first rides you should have an idea of what you want in a recumbent bicycle.

Mail order customers should consider the issue of bike accessibility. Manufacturers have differing and sometimes multiple levels of accessibility, so be sure to ask. You don't want a bike with a frame and another box, with parts, when you may be able to pay a few bucks more and be out riding in 15 minutes. If you need to find somebody to help setup your bike, ask the manufacturer for a referral.

Recumbents are expensive—and you get what you pay for. While competing models, keep in mind that even the cheapest ones are built by hand and mostly in the U.S.A. by American builders.

TEST RIDE TIPS

Look for an empty parking lot or quiet area side location. It's best to avoid attention. We do not want an audience on your first time out, though an experienced recumbent rider or qualified sales rep is handy.

Be sure to have all of your vital signs in your car or with a friend. Wallets, keys and pocket change have a tendency to come out of your pockets when riding a recumbent.

Clipped pedals are a definite plus for recumbent performance. After you've mastered the bike, switch over to clipped pedals or a Power Grip-type foot/pedal-rotation device.

When climbing onto a recumbent, always hold one brake lever as recumbents tend to roll backward unless a brake is applied.

Prepare ahead of time for stops, release one foot early and be ready. Recumbents give you less balancing time when coming to a stop.

When preparing out on a recumbent, place your power-foot in the 120 position and give it a goosie. More start-up power is necessary when starting out on a recumbent.

CONNECT WITH A GROUP

If there is one aspect of this hobby that you should absolutely DO, it's go to some local recumbent rides. If you don't have a local rider group—**START ONE!** Choose an easy route with a nice rate along the way. Pick a meeting place once a week or month, and volunteer to show up for a few months. We'll help too. Send us a notice-group listing for our next issue. ☐

1997 RCN READER BEST AWARDS

BEST NEW RECOMBENT

Lightning F-40
\$14,995 Street—100%
\$15,995 Race—100%
\$15,995—14%

BEST LOW RECOMBENT

Easy Rider—100%
\$10,995—100%

BEST COMB "COMFORT"

Vision Metro—100%
\$10,995—100%
\$10,995 Race—100%

BEST TRIBE

Easy Rider—100%
\$10,995—100%

BEST ABOVE-AVERAGE

Easy Rider—100%
Lightning—100%
\$15,995—100%
\$14,995—100%

BEST UNDER-5000 THING

ATV Vision—100%
\$10,995—100%
\$10,995—100%

BEST RECOMBENT MPV

Easy—100%
Easy Rider—100%
\$10,995—100%

BEST RECOMBENT DESIGN

ATV Vision—100%
Lightning—100%
Easy Rider—100%
\$15,995—100%

BEST RECOMBENT PERSONALITY

Easy Rider, Vision
Easy Rider
Paul J. Bryant, BCM

View From The Big Chair!

WHY NOT TO OWN A RECUMBENT

by BJ Stress



Our man Brother 'Big Bangin'' at People Moves—RCS

There it is the boom over 6 years now since I "Went Rec." My first recumbent was a philly thing but it got me started... I showed for that there was a better way! I had been down the path and, gladly, eagerly I started running and never looked back. Once outside it didn't take long for me to go "Totally Rec" and rid myself of those old wedge bikes and replace them with wonderful RECUMBENTS! The happy and wonderful miles then started adding up. A lot of the northwest coast, my first metric century, sponsored recumbent miles, my first full century, regular commuting, my minor accomplishments started adding up and I was proud. If it was required of me to raise a wife, share my head and share in an airport lobby handling our recumbent propagandists, gladly I would have done it. I had become a total "Boss Head!"

Place me in a group of wedge pilots and I was like a traveling fish and someone proacher at a town square. First I would rip away their notions of what a bike is. Then make them feel silly for believing that a

"properly" complete a century you had to suffer on a USCFPLD legal bike. My words pushed them and they listened. No matter how foolish they thought I sounded, the concept was just too exotic and exciting. I could get them severely wishing for just a little time on a recumbent. After I was finished preaching, many of them may have ditched me, but they UNDERSTOOD about recumbents.

This went on for a long time. It probably should be illegal to have so many recumbents as I have owned. There were a lot of wonderful bikes and still are. I still own four recumbents but for the first time in a very long time I am in the market for a...—dare I say...a wedge...? you a conventional bike!

Now don't get the wrong idea, Brother BJ has not lost the faith. I will continue to own too many recumbents. But finally I see some very good reasons to own a conventional bike. Let me share these with you and you decide.

1) **Assembly:** Even in "roller state" raised through the beautiful California it is still not possible to be so convenient on a recumbent. Though often I don't mind being the best down in the parade, more and more I just want to ride to my favorite cafe and not spend all my time explaining recumbents.

2) **Practicality:** It never fails that I really get a big kick out of seeing a loud guy that shows up at my favorite cafe each week on a \$2500 full suspension mountain bike. It is obvious that he bought it only because it cost so much and he only rides the six blocks to the cafe and an occasional three or four miles down the bike path. I do not let this bother me, as it makes him happy and in no way is he interfering on me, but it seems like so much of a waste. You can get into the same thing with a recumbent. If you plan on distances

it can be a great choice, but if you are only riding to the cafe, go to Wal-Mart and get a \$125 hybrid speed cruiser and take an extra minute on the savings.

3) **Maintainability:** Pretty much any good recumbent is going to be just as safe, if not safer than a wedge. But how you perceive entry is another thing. Though you typically present a much larger profile on a recumbent they are lower. Really this isn't usually a problem unless if you perceive it to be, it is. Getting on these riding and feeling safe can take some time and some people just don't have the patience or capacity for this.

4) **Speed:** Oh here is a real sticking point. Are recumbents faster or slower than wedges? They are both. The main thing is that almost without exception if you ride a bit now and go to a recumbent you will be slower by a while. The muscles utilized are different on a recumbent, especially the ones with the higher bottom bracket. It is important to accept the slower speed while your muscles adapt. Also watch your knees. On a recumbent, you are between two fixed points, the seat and the pedals. Your own push handle but you can easily over strain your knees at first. On a wedge your weight is your safety valve, you can push only as hard as gravity holds your weight down. As for climbing, recumbents climb well but may not climb as fast. This point has been argued over and over but the truth is you are likely to climb a bit slower. If you practice you may climb just as fast or even faster but this is usually the fitness level you have reached on a recumbent as opposed to the wedge. Maybe you didn't ride as much before because of the discomfort.

5) **Versatility:** Recumbents are usually low-suspended, stable and well-equipped a recumbent is, there are still times it cannot handle with the versatility of a conventional bike. Being able to shift your weight all over, on and off the seat, just isn't as possible on a recumbent. There's comment on rough roads with hillside traffic, emergency different events, bends and as hard ever "hooded" as I am, there are times I would have liked to sit on a wedge over a recumbent.

6) **Cost:** If anything seems off

knows this is usually the biggest point. I really cannot believe how cheap conventional bikes are. Anytime you go into a good shop and get a great bike for around \$100. That is incredible and they continue get cheaper. A single model of a single brand may be made by the tens of thousands and their cost of production on an individual unit is practically nothing. Consider a small recumbent built in a factory trying to get the same buyers as the high production bike. Both bikes having the same level of quality and components, but the recumbent may cost double. This isn't good or bad, it is just that the recumbent builder has to "feed the building" like all of us and from my years in the business, believe me, we are getting rich off recumbents. Keeping production costs down is much harder. For example take the seat. A bike seat is they universal and highly mass produced. It only has to bear the weight of the rider at the times the rider is on the seat. On a recumbent the seat may contain ten to twenty times as much material. The recumbent seat has to support the rider's weight and the rider's weight when pedaling and this has to be much stronger—a big difference. When you buy a recumbent, expect to pay more for less if you are accustomed to mass produced bicycle bikes.

7) **Mass Transit:** I am truly happy to see more and more it is possible to combine bike travel with train, bus and subway travel. Many buses have racks on the front or back and some Amtrak lines have racks on board. Commuter train always such as Sacramento's Light Rail or San Francisco's BART avoid bikes on board held by the rider in the aisle. All this helps me but getting a recumbent on and off the racks or out the subway door can be much more of a hassle than a conventional.

I am sure there are more reasons that can be found, some credible and some not for owning a conventional bike over a recumbent. Either way, avoid disappointment and own a bike (or bikes) that suits your needs, be it recumbent or conventional.

Ride and Relax... BJ ☐

Your First Recumbent Ride

By ATZ Motion Recumbents

RECOMBENT SET UP

Riding any recumbent is no more difficult than riding a traditional upright bike. If you are new to cycling, you'll find it easy to learn to ride on a recumbent. If you are an experienced rider, you'll have to learn some new habits, but the benefits of riding a recumbent far outweigh the steep learning curve. Either way, it's important to spend a little time adjusting to your new bike before riding in traffic or commuting yourself to a long ride.

First of all, be sure your bike is correctly set up. To ride well you have to be comfortable. Most adjustments should have been made by your shop, but see the Owner's Manual for your bike if you have adjustment questions. The seat angle on "Vee" recumbents is adjustable, and really affects how you feel on the bike. To start out you will probably want to set the seat at upright (all the way forward) as possible. After you have some experience you can recline the seat incrementally until you find your own ideal position. Make sure the two seat QR levers are tightened securely.

GET SET & RELAX

If you're comfortable on your bike, it's time to go riding. First and foremost, the most important part of riding any bike is to wear proper safety equipment. It is essential to wear a helmet, all the time, anytime you ride. It's also very important to wear gloves when you ride. If you do have an accident and fall over, you'll probably catch yourself with your hands, so save your palms and wear gloves. You should also wear protective gear such as knee and shin protectors to make the bumpy ride. Wearing cycling shoes, shims, gloves and jockey cap help you be more comfortable. A helmet and gloves are essential for safety.

Now you're all set to hop on and peddle into the sunset, right? Wrong! The key to riding smoothly and in a controlled fashion on any bicycle, recumbent or not, is to be comfortable enough to relax. If you are nervous and tense, you will tend to ride in a jerky, over-controlling fashion. Nervousness like this makes you more uncoordinated, which leads to even worse riding, but it doesn't look cool. So you need to approach this bike as your friend, someone you'll enjoy spending the day with. The

intent here is to spend some relaxed time getting to know your bike before you get into traffic or far from home. Practice riding in a parking lot, or any open space with no traffic.

Before you start to ride, look at your gears and make sure that you are in a good gear to start in. On a flat surface this usually is in the middle chainring (up front) and in one of the three largest cogs (on the back). If the bike is not in one of these gears, have someone hold the rear wheel off the ground so you can spin the cranks and shift the gears. Don't forget that you should only shift when pedaling! As you gain experience you will find yourself thinking ahead and shifting into a low gear before you come to a stop.

GO RIDING

Now let's go on the bike. Start-up on the left side, hold the seat back with your right hand. Standing in front of the handlebar and facing the bike, swing your right leg over the front beam. You are now looking forward, straddling the bike. Now reach down and grab the handlebar grips, apply the brakes, and sit down. Smile yourself into the seat and get comfortable. Sit upright, rock back and forth and from side to side. Notice how the seat cradles you, and how comfortably close to the ground you are. Crisp the handlebars and rock the front wheel from side to side. Relax the bike a little. Yield a few times. Do whatever it takes to relax. Many first-time riders try to sit forward on the seat, not being used to the relaxed, laid back position. Sit back and enjoy the comfort!

Now pick a destination by the most people this is your right leg. Pick your leg up and swing the crank arm around so you are ready to catch the pedal. If you are using clips and straps, slip the pedal clip over your foot, but keep the strap over and loose to start with. Try catching the clip from underneath with your toe, you might find it easier. Being the crank around until your foot is in a "cocked" position somewhere close to the top of the pedal stroke. It's helpful to squeeze a brake lever, keeping the bike from rolling. When you're ready, release the brake, and push forward gently on the pedal. As you start moving, lift your other foot up and keep pedaling. As first you probably will wobble a little, but don't panic and tense up, just relax and concentrate on making small corrections with the handlebars. The

most common error is to over-control the bike. If you relax and let your hands sit lightly on the handlebars, you will find it easier to avoid this condition. Lean back. You probably will swing lean forward, to mimic that "biker" type bike you've been riding. Another common first time mistake is to stare at your feet, after all, you've never seen them before! Look ahead, see the scenery you've been missing.

Once you're riding smoothly in a straight line, it's time to practice looking around. Compared to a traditional bike you will find yourself looking at the world from a whole new perspective, a comfortable one. A problem you will face is keeping your mind off the road. Since you are riding in a relaxing reclined position it's all too easy to forget about everything except the scenery in front of you. Looking behind you is not difficult, but it does take practice. As you ride in a straight line, and are sure you're not about to take a long ride on a short piece, practice swinging your head to the left and right, taking quick glances behind you. The first time you do this you will inevitably shift your weight and hand position, causing the bike to wobble. Don't panic, this is why we use practice in the parking lot instead of a congested street. Using a mirror is a good idea, you should find one that works with your bike or helmet. It's also a good idea to be able to actually look around behind you. This not only gives you options on checking out traffic, but practicing this will increase your skills and confidence on the bike.

RECOMBENT SKILLS

At this point you should be feeling pretty good about life, smiling along side and comfortable, relaxed and thinking about how much this you are going to have on this thing. Before you hit the open road there are a some more exercises you should do. Practice circling, both to the right and to the left. Start out with gentle curves, and progress to tighter and tighter radius "U" turns. You should try to master turning in a tight curve as possible around a street, this gets you ready for the real world of your destinations and detours. If you find yourself wobbling or jerking the handlebars around, you are probably too tense. Relax, let your hands grip the bars in a light but firm manner. Let your shoulders drop, relax your neck, don't "death-grip" your

teeth. Once you relax you will have more control over the bike.

Next, you should practice using the brakes. Stop and take off a few times, getting a feel for how much pressure on the lever it takes to slow down or stop the bike. Remember to always use both brakes together, with gentle pressure at first to stop the bike smoothly. Drop both your feet to the pavement while giving the brakes the final squeeze to stop the bike. Lean forward a bit and stand up, while reaching behind you for the seat frame to steady the bike. Practice stopping and dismounting, then starting off again. You should also practice stopping by dropping only one leg, typically your non-dominant leg. This exercise will help you deal with emergency stops, such as at stop signs and traffic lights. It does take a little practice to balance the bike leaning into a single leg. Remember to keep one hand clamped on a brake to prevent the bike from rolling. I usually wear my "wrist-locks" leg for the seat, and then hold pressure on the brake until I'm ready to go. You should carefully investigate what happens in the bike with gradually increasing brake pressure, so you will be comfortable with quick decisions on the road.

SHIFTING 11-SPEDS

The last thing you should practice before hitting the open road is shifting. Be aware of how your gears work. It's best to only shift with a light load on the pedals (stand up on the pedaling pressure before you shift). This does take some practice, so be patient. Try to anticipate what gear you will need, and when. The three derailleurs (left shifter) with it's three positions controls a bigger "jump" in the gearing, but shifts slower. The rear derailleurs (right shifter) operates over a range of narrower slight gears, shifts faster and cleaner when you need it. The most important thing to remember is to practice shifting back to a nice starting gear BEFORE you come to a stop. With a little practice, you'll know what gear you want for different conditions.

You should also be ready for the world of traffic, pedestrians, animals and other bicycles. Remember to wear your protective gear and be aware of what's happening around you. Also remember to have fun, relax and enjoy yourself. By biggest problem is being in my teeth, so watch your smile. ☺

ATP Vision



The 1987 ATP Vision R-42 (SVE) with 400 and a 30" front wheel



The 1987 ATP Vision R-44 (SVE) with 400 and a 30" front wheel

Model:	R-40 BT "Mare"	R-40 BT "Mare"	R-40 SVE (SVE)
Designer/Date:	Grant Bowles/Jan Smith/1987	Grant Bowles/Jan Smith/1987	Grant Bowles/Jan Smith/1987 & 1987
Design/Steering Type:	CLARIBASS Racetour Rear Suspension	CLARIBASS Racetour Rear Suspension	CLARIBASS in ABS, 18" or 20" fr. wts. 30"
Wheelbase:	55 1/2"	55 1/2"	55 1/2"
Seat/Bottom Bracket Height:	N.A./fixed seat-rodline angle	N.A./fixed seat-rodline angle	N.A./1/2" adjustable
Headtube/Seat Post/Seat Angle:	409x4	410 (Crestle/Custom/TG)	408/30x1 1/2 (Crestle/Custom/TG)
Wight/Weight Distribution (M/L/R):	41/50/49	41/50 (Crestle/Custom/TG)	40/50/50 (ABS) or 40/50/50 (SVE)
Frame/Parts/Construction:	Alloy hemacylon mast(s) to frame pad	Alloy hemacylon mast(s) to frame pad	Alloy hemacylon mast(s) to frame pad
Seat Frame/Material:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano PD-11 speed
Derailleurs (M/L/R):	N.A./Shimano Nexus	Shimano Nexus 7 speed (internal hub)	Shimano Power Grip Plus
Shifters:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano FC Comp (SVE/SVE)
Cranks:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Case/Case/Chain:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Gear In/In Range:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Brakes (M/L/R):	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Steer Levers:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Rear Wheel/Hub/Rim/Spokes:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Front Wheel/Hub/Rim/Spokes:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Tires (M/L/R):	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Bottom Bracket/Headset:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Paint/Colors:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Rider Height and Adjustment:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Model Designed For:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Suggested Retail Price:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48

Model:	R-42 SVE (SVE)	R-42 SVE (SVE)	R-42 SVE (SVE)
Designer/Date:	Grant Bowles/Jan Smith/1987 & 1987	Grant Bowles/Jan Smith/1987 & 1987	Grant Bowles/Jan Smith/1987 & 1987
Design/Steering Type:	CLARIBASS in ABS, 18" or 20" fr. wts. 30"	CLARIBASS in ABS, 18" or 20" fr. wts. 30"	CLARIBASS in ABS, 18" or 20" fr. wts. 30"
Wheelbase:	55 1/2"	55 1/2"	55 1/2"
Seat/Bottom Bracket Height:	N.A./fixed seat-rodline angle	N.A./fixed seat-rodline angle	N.A./1/2" adjustable
Headtube/Seat Post/Seat Angle:	409x4	410 (Crestle/Custom/TG)	408/30x1 1/2 (Crestle/Custom/TG)
Wight/Weight Distribution (M/L/R):	41/50/49	41/50 (Crestle/Custom/TG)	40/50/50 (ABS) or 40/50/50 (SVE)
Frame/Parts/Construction:	Alloy hemacylon mast(s) to frame pad	Alloy hemacylon mast(s) to frame pad	Alloy hemacylon mast(s) to frame pad
Seat Frame/Material:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano PD-11 speed
Derailleurs (M/L/R):	N.A./Shimano Nexus	Shimano Nexus 7 speed (internal hub)	Shimano Power Grip Plus
Shifters:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano FC Comp (SVE/SVE)
Cranks:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Case/Case/Chain:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Gear In/In Range:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Brakes (M/L/R):	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Steer Levers:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Rear Wheel/Hub/Rim/Spokes:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Front Wheel/Hub/Rim/Spokes:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Tires (M/L/R):	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Bottom Bracket/Headset:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Paint/Colors:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Rider Height and Adjustment:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Model Designed For:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48
Suggested Retail Price:	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 7 speed (internal hub)	Shimano Nexus 12-30/36/48

ATP Vision



The ATP Vision R-40 LRS with LRS, 17" front wheel and an ATP zipper front fender.



The 1987 ATP Double Motor.

Model:

Designer/Date:
Design/Steering Type:
Wheelbase:
Seat Bottom Bracket Height:
Headset/Seat Post/Seat Angle:
Weight/Weight Distribution (M./F.):
Frame/Park/Construction:
Seat Frame/Material:
Drivetrain (R./L.):
Crankset:
Cassette/Chain:
Gear Inch Range:
Brakes (R./L.):
Brake Levers:
Rear Wheel/Fly/WheelSpokes:
Front Wheel/Fly/WheelSpokes:
Tires (R./L.):
Bottom Bracket/Headset:
Fender/Color(s):
Water Height and Adjustment:
Model Designated For:
Suggested Retail Price:

R-44 A/E (1985)
Great Recumbent Seat/1985
9/40/9/55 or 4/55 17" or 20" R. wh.
38"
18.0/20" or 21" (20" R. wh.)
9.4/10" adjustable
60/100L—50%
4/30-Cruiser/Cruiser/TB
Alloy transmission rear/190 from pad
Shimano FD 100 24 speed
Sachs Heavy
Shimano FD 100 20/24/32
Shimano 12-20/24/32 15/90
28-113
De Comp V2-150 rear/fender
De Comp FC1
20/20 Shimano Ultra/Sun/55 32P
1F or 20/18 Shimano Ultra/55 32P
Water HP or Shimano Heavy 50k
Cruiser/TB
Ponderwood Pad or Black
47"-4" folding boom
Multiple-use/Young/Sport/Commuting
\$1825

R-48 A/E (1985)

Great Recumbent Seat/1985
9/40/9/55 or 4/55 17" or 20" R. wh.
38"
18.0/20" or 21" (20" R. wh.)
9.4/10" adjustable
60/100L—50%
4/30-Cruiser/Cruiser/TB
Alloy transmission rear/190 from pad
Shimano FD100 24 speed
Sachs Heavy
Cock Shimano 20/24/32
Shimano 12-20/24/32 15/90
28-113
De Comp VC-150 rear/fender
De Comp FC1
20/20 Shimano Ultra/Sun/55 32P
1F or 20/18 Shimano Ultra/55 32P
Water HP or Shimano Heavy 50k
Shimano Ultra/TB
Any color you want
47"-4" folding boom
Multiple-use/Young/Sport/Commuting
\$2275

R-40 R-43 LRS.

Great Recumbent Seat/1985
7/40/9/55
37"
20" (21.31" in 1/200ths) 17" (in)
9.4/10" adjustable
60/100L
4/30 Cruiser & stainless/Cruiser/TB
Alloy transmission rear/fender pad (2)
Shimano 100 L.A. 21 speed
Sachs Heavy
Shimano 20/24/32 or Water LRS
Shimano 12-20/24/32 15/90
28-113
De Comp VC-150 rear/fender
De Comp FC1
20/20 Shimano Ultra/Sun/55 32P
20/18 Shimano Ultra/Sun/55 32P
AOS 201 Heavy Box Black
Cruiser/TB
Ponderwood Pad or Blue
47"-4" folding boom
Multiple-use/Young/Sport/Commuting
\$1995

Model:

Designer/Date:
Design/Steering Type:
Wheelbase:
Seat Bottom Bracket Height:
Headset/Seat Post/Seat Angle:
Weight/Weight Distribution (M./F.):
Frame/Park/Construction:
Seat Frame/Material:
Drivetrain (R./L.):
Crankset:
Cassette/Chain:
Gear Inch Range:
Brakes (R./L.):
Brake Levers:
Rear Wheel/Fly/WheelSpokes:
Front Wheel/Fly/WheelSpokes:
Tires (R./L.):
Bottom Bracket/Headset:
Fender/Color(s):
Water Height and Adjustment:
Model Designated For:
Suggested Retail Price:

R-44 R-43 LRS
Great Recumbent Seat/1985
7/40/9/55
37"
20" (21" in 1/200ths) 17" (in)
9.4/10" adjustable
60/100L
4/30 Cruiser & stainless/Cruiser/TB
Alloy transmission rear/fender pad (2)
Shimano 100 L.A. 21 speed
Sachs Heavy
Shimano 20/24/32 or Water LRS
Shimano 12-20/24/32 15/90
28-113
Magura Hydraulic
Magura
20/20 Shimano Ultra/Sun/55 32P
20/18 Shimano Ultra/Sun/55 32P
AOS 201 Heavy Box Black
Cruiser/TB
Any color you want
47"-4" folding boom
Multiple-use/Young/Sport/Commuting
\$1850

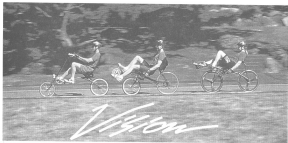
New for 1987: The latest suspended (over "copper" rebound) is the biggest news from Vision this year. The Vision uses the famous internal hub 7 speed or an optional Sachs 24. The R-40 has been upgraded to a Shimano 100L drivetrain. Sachs water rollers, matched with improved roller coating and 16mm shells. The R-42 has Shimano FD 100 with an R-40-43 cassette. The Sachs sprockets (pinned on the 80 cover) may be installed as it is desired in very limited quantities. Contact Vision if you are interested.

Options: The Vision seatpost has a capacity of 220 lbs. An optional pocket and/or under strap (Aos), a narrow wind, stainless, inflatable seat cushion, light mount bar and front (shangant) air products. Ares, Shimano/magura/water roller set are in the works for the LRS. Packages: Vision Zipper (R-42), Rain Pumps (used with Zipper) and a new

Zipper for the Metro. Pre-assembled: Yes. Search (1985): Yes (state) Warranty: Lifetime frame, one year on non-optional components. Years in business: 4. Available From: Dealer. AOS Article# PCN-85, 21, 25, 34, 35, 36.

Contact Info: Advanced Transportation Products 850 Republic St. Seattle, WA 98108. Phone: 425-8221. Fax: 425-8227 or 74.

Email: ATPVision@aol.com
Web: <http://vision.com/vision>



AngleTech



An artist's conception of the Angletech full suspension Affluence with Boulder rear suspension, ballistic front suspension, Flare seat, Flip-Fit stem, dual 20" wheels and CHMS frame pipe (3' and Alarm, available)



Terry Thompson of Kinston, NC, and his Angletech Flare Stratus (26.5" 26.0" "Flare" with Flare and Copper fittings)

Model: ANGLETECH® Rocker BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 22/25.5"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): E. Cantarelli, cantarelli/Stop Frade
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Powdercoat Gloss Black or Flat Red
Other Height and Adjustment: Stem, Torque
Model Designed For: Sport Touring
Suggested Retail Price: \$1,000.00

ANGLETECH® Flare BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Fly/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 24.0/29.4"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): Magura Hydraulic/Stop Frade
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Spark (Red) or Jade Green
Other Height and Adjustment: Stem, Torque
Model Designed For: Touring/Commuting
Suggested Retail Price: \$2,000.00

ANGLETECH® Flare BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 22.0/27.4"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): Shimano/10-11-25/50/75/85/95/105/110/120/130/140
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Shimano U6000/5000
Other Height and Adjustment: Shimano U6000/5000
Model Designed For: High Performance
Suggested Retail Price: \$2,000.00

Model: ANGLETECH® Flare BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 22/25.5"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): Magura 10-11 Hydraulic/Stop Frade
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Shimano U6000/5000
Other Height and Adjustment: Shimano U6000/5000
Model Designed For: Sport Touring
Suggested Retail Price: \$1,000.00

ANGLETECH® Flare BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 24.0/29.4"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): Magura Hydraulic/Stop Frade
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Shimano U6000/5000
Other Height and Adjustment: Shimano U6000/5000
Model Designed For: High Performance
Suggested Retail Price: \$2,000.00

ANGLETECH® Flare BLUET
Design/Date: Randy Schiller/1994
Design/Steering Type: SWP/ABS Custom V-Bar/Flex
Wheelsize: 26.75"
Seat/Bottom Bracket Height: 22.0/27.4"
Headset/Seat Post/Handle Angle: 7/20/35° adjustable
Weight/Weight Distribution (lb./%): 40/55 (55/50) seat-vari by rider
Frame/Post/Construction: 4130 Chrom/CroMo/Ti3
Seat Frame/Headset: (AA45) mesh back/Form base
Derailleurs (F./R.): Shimano U6000/5000
Shifters: Shimano ST 36/30/28 21 speed
Controls: Shimano ST 36/30/28 21 speed
Cassette/Chain: Shimano 10-11-25/50/75/85/95/105/110/120/130/140
Gear Inset Range: 18.4-140
Brakes (F./R.): Shimano/10-11-25/50/75/85/95/105/110/120/130/140
Brake Levers: Shimano
Rear Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Front Wheel/Hub/Rim/Spokes: 20" x 1.2" 406/36ths (x175) 35° 20"
Tires (F./R.): Continental GP/Continental GP
Bottom Bracket/Headset: Shimano U6000/5000
Paint/Colors: Shimano U6000/5000
Other Height and Adjustment: Shimano U6000/5000
Model Designed For: High Performance
Suggested Retail Price: \$2,000.00

AngleTech



The AngleTech OneBiker



The AngleTech V-Race Glider with optional suspension fork

Model: ANGLETECH/V-Race™ V-44/48" GLIDER
Designer/Date: Grant Bensen/Oct 1994/1995
Design/Seating Type: OneBiker
Wheelbase: 39"
Seat/Seatpost Bracket Height: 24.5/17" adjustable
Headset/Seat Postline Angle: 69/67°—70°
Weight/Weight Distribution (R/F): 43/32 Crotch/Crank/TB
Frame/Fork/Construction: Alloy Interspin 4130/4130 Mach and
 Salsa Quanta/Custom 4130/TB 55 speed
Seat Frame/Seatpost: Salsa Team XP 24.5/17"
Seatpost/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost Range: Magura Hydraulic with Road Stop pads
 18/20
Brakes (R/F): SR/Brake 100 30/30/40/50 30"
 30/30/40/50 Quanta/Araya/50-30"
Star Post Range: New Star 1.5/Spec. Flat Top 1.25
Brake Levers: Shimano 2700/YET Alloy
Rear Wheel Hub/Fire System: Real or Rock conventional, custom
 4130-4130/Blading beam
Front Wheel Hub/Fire System: Touring/Spout Touring/Commuting
Other Notes: 21/75, 28/21/75, 33 (Custom color)
Suggested Retail Price:

ANGLETECH/Outrider Attitude GLIDER
Designer/Date: 1994/1995
Frame/Fork: Custom Rip 21 Road/Fat sup.
 40"
Seat/Seatpost Bracket Height: 22/14.75"
Headset/Seat Postline Angle: 70/67° adjustable
Weight/Weight Distribution (R/F): 41/30 Crotch (opt. 37) Stem./Crotch/TB
Frame/Fork/Construction: MAAS mach./backbeam base
Seat Frame/Seatpost: 108 20/16.75 30 and
 Sidelap 24/17/24.5/30" Taper
Seatpost/Seatpost: Shimano Logic 40/30
Seatpost Range: Shimano 450 11-25/24.5 Sidelap
 17.4-140
Brakes (R/F): Magura Hydraulic with Roadstop pads
 18/20
Star Post Range: 30" 40/30/40/50 New Star/Araya/50 30"
 30" 40/30/40/50 Quanta/Araya/50 30"
Customize/Customize: Customized Top/Touring 1-28"
Other Notes: Shimano 4502 opt./Shimano 450
 Custom seat post
 Blading seat and beam
 Touring/Spout Touring/Commuting
Suggested Retail Price: \$2000.00

AngleTech/Outrider™
Designer/Date: 1990
Frame/Fork: Full suspension (2" travel)
 37.4"
Seat/Seatpost Bracket Height: 20/14"
Headset/Seat Postline Angle: 70/67°
Weight/Weight Distribution (R/F): 41/30 Crotch (opt. 37) Stem./Crotch/TB
Frame/Fork/Construction: MAAS mach./backbeam base
Seat Frame/Seatpost: 108 20/16.75 30 and
 Sidelap 24/17/24.5/30" Taper
Seatpost/Seatpost: Shimano Logic 40/30
Seatpost Range: Shimano 450 11-25/24.5 Sidelap
 17.4-140
Brakes (R/F): Magura Hydraulic/Roadstop pads
 18/20
Star Post Range: 30" 40/30/40/50 Quanta/Araya/50 30"
 30" 40/30/40/50 Quanta/Araya/50 30"
Customize/Customize: Customized Top/Touring 1-28"
Other Notes: Shimano 4502 opt./Shimano 450
 Custom seat post
 Blading seat and beam
 Touring/Spout
Suggested Retail Price: \$2400.00

Model: ANGLETECH/OneBiker GLIDER
Designer/Date: OneBiker/Nov 1994
Design/Seating Type: OneBiker
Wheelbase: 39"
Seat/Seatpost Bracket Height: 24.5/17"
Headset/Seat Postline Angle: 69/67°
Weight/Weight Distribution (R/F): 43/32 Crotch/Crank/TB
Frame/Fork/Construction: Alloy Interspin 4130/4130 Mach and
 Salsa Quanta/Custom 4130/TB 55 speed
Seat Frame/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost Range: VTR Carver/Martinson 4-Data
 Multispeed 2L
Brakes (R/F): Shimano 450 11-25/24.5 Sidelap
Star Post Range: 30" 40/30/40/50 Quanta/Araya/50 30"
Brake Levers: SR/Brake 100 30/30/40/50 30"
Rear Wheel Hub/Fire System: Real or Rock conventional, custom
 4130-4130/Blading beam
Front Wheel Hub/Fire System: Touring/Spout Touring/Commuting
Other Notes: 21/75, 28/21/75, 33 (Custom color)
Suggested Retail Price:

ANGLETECH/OneBiker™
Designer/Date: 1994
Frame/Fork: Custom 4130/4130
Seat/Seatpost Bracket Height: 24.5/17"
Headset/Seat Postline Angle: 69/67°
Weight/Weight Distribution (R/F): 43/32 Crotch/Crank/TB
Frame/Fork/Construction: Alloy Interspin 4130/4130 Mach and
 Salsa Quanta/Custom 4130/TB 55 speed
Seat Frame/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost Range: VTR Carver/Martinson 4-Data
 Multispeed 2L
Brakes (R/F): Shimano 450 11-25/24.5 Sidelap
Star Post Range: 30" 40/30/40/50 Quanta/Araya/50 30"
Brake Levers: SR/Brake 100 30/30/40/50 30"
Rear Wheel Hub/Fire System: Real or Rock conventional, custom
 4130-4130/Blading beam
Front Wheel Hub/Fire System: Touring/Spout Touring/Commuting
Other Notes: 21/75, 28/21/75, 33 (Custom color)
Suggested Retail Price:

ANGLETECH/V-Race™
Designer/Date: 1994
Frame/Fork: Custom 4130/4130
Seat/Seatpost Bracket Height: 24.5/17"
Headset/Seat Postline Angle: 69/67°
Weight/Weight Distribution (R/F): 43/32 Crotch/Crank/TB
Frame/Fork/Construction: Alloy Interspin 4130/4130 Mach and
 Salsa Quanta/Custom 4130/TB 55 speed
Seat Frame/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost/Seatpost: Shimano 450 11-25/24.5 Sidelap
 17.4-120
Seatpost Range: VTR Carver/Martinson 4-Data
 Multispeed 2L
Brakes (R/F): Shimano 450 11-25/24.5 Sidelap
Star Post Range: 30" 40/30/40/50 Quanta/Araya/50 30"
Brake Levers: SR/Brake 100 30/30/40/50 30"
Rear Wheel Hub/Fire System: Real or Rock conventional, custom
 4130-4130/Blading beam
Front Wheel Hub/Fire System: Touring/Spout Touring/Commuting
Other Notes: 21/75, 28/21/75, 33 (Custom color)
Suggested Retail Price:

BikeE Corporation



Model:
Design/Color:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Handlebar/Seat Post/Seat Angle:
Weight/Weight Distribution (M.L.):
Frame/Type/Construction:
Seat: Type/Material:
Seatbase (H x W):
Shifters:
Cassette/Chain:
Gear Inch Range:
Brakes (H x C):
Brake Levers:
Rear Wheel Hub/Free Spokes:
Front Wheel Hub/Free Spokes:
Tires (H x W):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

BikeE All Around 7 Spd.
 Aluminum/1983-1984
 CLWB/Move seat steering
 32"
 26 1/2"
 30 1/2" adjustable recline
 40#/14%—25%
 6000 Aluminum/steel seat post/750
 stainless steel/steel base/frame/cover
 60/60 T speed
 Sachs Pro Shift (solid shifters)
 100#m forged 170mm
 Shimano RD 11-28/8AC 10/20
 20-40
 Cantilever
 2x10
 32" x 1.75 40#/60#m/28" 32
 18" x 1.5 20#m/6.6 40#m/18" 32
 Cheng Shin/Firefly 40#m/28" 32
 Via Comp/Assisted™
 Adjustable/recline
 To 6'4" (XL, adjustable seat
 Multipoist™/P-Frame
 \$278

BikeE All Around 21 Spd.
 Aluminum/1983-1984
 CLWB/Move seat steering
 32"
 26 1/2"
 30 1/2" recline
 40#/14%—25%
 6000 Aluminum/steel seat post/750
 stainless steel/steel base/frame/cover
 Sachs 30 T speed
 Sachs Pro Shift (solid shifters)
 100#m forged 170mm
 Shimano RD 11-28 cassette/8AC 10/20
 20-40
 Cantilever
 2x10
 32" x 1.75 40#/60#m/28" 32
 18" x 1.5 20#m/6.6 40#m/18" 32
 Cheng Shin/Firefly 40#m/28" 32
 Via Comp/Assisted™
 Adjustable/recline
 To 6'4" (XL, adjustable seat
 Multipoist™
 \$395

BikeE Road 21 Spd.
 Aluminum/1984-1986
 CLWB/Move seat steering
 32"
 26 1/2"
 30 1/2" recline
 40#/14%—25%
 6000 Alum./steel/steel seat post/750
 stainless steel/frame/cover
 Sachs 30 T speed
 Sachs Pro Shift (solid shifters)
 100#m forged 170mm
 Shimano RD 11-28 cassette/8AC 10/20
 20-40
 Dual post/mtd. each side/peel
 2x10
 32" x 1.75 40#/60#m/28" 32
 18" x 1.5 20#m/6.6 40#m/18" 32
 P-Frame 32" and 18" x 1.50"
 Via Comp/Assisted™
 Adjustable/recline
 To 6'4" (XL, adjustable seat
 Multipoist™/P-Frame
 \$340

Model:
Design/Color:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Handlebar/Seat Post/Seat Angle:
Weight/Weight Distribution (M.L.):
Frame/Type/Construction:
Seat: Type/Material:
Seatbase (H x W):
Shifters:
Crankset:
Cassette/Chain:
Gear Inch Range:
Brakes (H x C):
Brake Levers:
Rear Wheel Hub/Free Spokes:
Front Wheel Hub/Free Spokes:
Tires (H x W):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

BikeE Road 7 Spd.
 Aluminum/1987-1988
 CLWB "C" Comp/Move seat steering
 32"
 26 1/2"
 30 1/2" recline
 40#/14%—25%
 6000 Alum./steel/steel seat post/750
 stainless steel/frame/cover
 Sachs 7 speed
 Sachs Pro Shift (solid shifters)
 100#m forged 170mm
 Shimano RD 11-28/8AC 10/20
 20-40
 Dual post/mtd. each side/peel
 2x10
 32" x 1.75 40#/60#m/28" 32
 18" x 1.5 20#m/6.6 40#m/18" 32
 Via Comp/Assisted™
 Adjustable/recline
 To 6'4" (XL, adjustable seat
 Multipoist™/P-Frame
 \$240

New for 1987: The line has been divided into four distinct models, 121 speed/21-speed and 104/20-speed wheelchair sets. BikeE's new low-overhead cross-brake design (patent pending) means less weight above the user of 40# or 40 lbm (20" wheels steel) and 30# and 24 lbm for wheelchairs. Steel also has a new seat height/adjustment feature for better fit and use.

Options: Various rack/basket, motor, kick, fenders, XL extended length frame (fits riders up to 6'10"), 104 lbm/20" body rear wheel, 4 1/2" 18" x 1.37" and 20" x 1.87" with a 1/2" member (this is designed for riders up to 400#), 104 lbm/20" wheels (no rear gear), 40 lbm/20" rear and a 24 lbm/18" front.

Features: Steel, Copper
 Powder-coated, Two
 Bench tested, Two
 Warranty Lifetime frame

Name in business: J
Available From: Dealer
804 Antares Golden R & Brown

Contact Info:
 BikeE Corporation
 5400 SW Polkman Blvd.
 Corvallis, OR 97331-1008
 Phone: 503-327-0747 or 1-800-271-0728
 Fax: 503-752-8000
 Email: sales@bikee.com
 Web: <http://www.bikee.com>



Crystal Engineering



The 1987 Speed Flow with Spring-loaded Seat



The 1987 Flow with Spring-loaded Seat

Model:
Design/Date:
Design/Seating Type:
Wheelbase:
Seat (Saddle) Bracket Height:
Headtube (Seat) Reaction Angle:
Weight/Weight Distribution (M, R):
Frame/Fork/Construction:
Seat Frame Material:
Dimensions (L x W x H):
Materials:
Options:
Accessories/Chain:
Gear Inch Range:
Brakes (M/R):
Brake Levers:
Rear Wheel Hub(s)/Spokes:
Front Wheel Hub(s)/Spokes:
Tires (M/R):
Bottom Bracket/Headset:
Paint/Colors:
Slider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Speed Flow
 Peter Fossé/1986
 640/645-65 or 1.650
 42"
 17.50"
 70°/40°
 20/20/60—50%
 Cold drawn carbon steel-501/10000
 Aluminum/Kevlar mesh
 Shimano Deore LX 21-speed
 Ultragrip Bar Ends
 Shimano Deore LX 10/20/34/42
 Shimano 11-28 Spline Saddle
 21-102
 Dia Compa PC750 cantilever
 Dia Compa PC-24
 700 x 28 or 28
 27" x 1.75"
 IRC Pinnacle/Sherwin City Marathon
 Shimano sealed/Tange Lamin
 Professional
 Sliding boom
 Multiple use
 \$1800

Flow
 Peter Fossé/1986
 Tires 650 two wheels in front
 20"reach 30"width 28"
 17.50"
 N.A.A.P non-adjustable
 60/60/60—50%
 Cold drawn carbon steel-501/10000
 Aluminum/Kevlar mesh
 Shimano Deore LX 21-speed
 Ultragrip Bar Ends
 Shimano Deore LX 10/20/34/42
 Shimano 11-28 Spline Saddle
 21-102
 Shimano Jockey Box (2)ultragrip
 Hinges
 26" x 1.675ultragrip Q.R.20P
 20" x 1.675 Shimano Ultra20P
 Pinnacle/Tape City Saddle
 Shimano sealed/Tange Lamin
 Professional
 Sliding boom
 Multiple use
 \$2000

Feather
 Peter Fossé/1986
 640/645
 42"
 18.50"/17.50"
 70°/40° 10° adjustment
 60/60/60—50%
 Cold drawn carbon steel-501/10000
 Aluminum/Kevlar mesh
 Shimano 30T
 Ultragrip Bar Ends
 Shimano, with Cont. Seat 67" x
 75-75 x 1.675 seatless
 102-102
 Dia Compa ultragrip/PC750 cantilever
 Dia Compa PC-24
 20" x 1.67"
 18"
 Pinnacle/IRC Pinnacle 63 100 pt
 Shimano sealed/Tange Lamin
 Professional
 Sliding boom
 Racing
 \$2200 Pre-owned

Model:
Design/Date:
Design/Seating Type:
Wheelbase:
Seat (Saddle) Bracket Height:
Headtube (Seat) Reaction Angle:
Weight/Weight Distribution (M, R, L):
Frame/Fork/Construction:
Seat Frame Material:
Dimensions (L x W x H):
Materials:
Options:
Accessories/Mid-drive/Chain:
Gear Inch Range:
Brakes (M/R):
Brake Levers:
Rear Wheel Hub(s)/Spokes:
Front Wheel Hub(s)/Spokes:
Tires (M/R):
Bottom Bracket/Headset:
Paint/Colors:
Slider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

1988 Recycled Title
 Peter Fossé/1988
 Two seat bike/one wheel in front
 76.0"
 17.50"
 60°/40°
 60/60/60—50%
 Cold drawn carbon steel/TG
 Aluminum/Kevlar mesh
 Shimano 21S 21 speed
 Shimano
 Shimano 21S LX 10/20/34/42 11mm
 Saddle 10-30 10-30 10-34 10-34 10-34 10-34 10-34
 10-102
 Ultragrip Hydraulic
 Hinges
 20" x 1.75"
 20" x 1.75"
 Pinnacle 100/68
 Shimano sealed/Tange New Lamin
 Professional
 Sliding bottom bracket
 Sport Touring/Commuting
 \$2000

NOTE: The Speed Flow, Feather and Gem are available direct only from the manufacturer. The Flow is available through Amazon/Post, Fools Flow and Pinnacle Motors.
 New for 1989: Int'l now the Flow available in the US has been a model which was designed in 1986 and made under license by BioCycle (Corvallis, OR, USA). The Flow now available from US dealers was formerly known as the EuroFlow, and is a much improved 1990 design. The frame and seat are made in England and the components are 100% by US design. BioCycle no longer builds or makes the Flow. Options: Manufacturer custom and dealer options are available. Ratings: Two ratings: 600-8500/100-100 rear-4500.
 Warranty: Lifetime frame
 Years in business: 1925+ plus
 Available From: Dealer & Direct
 800-466-6666 FAX 416 and opening

Contact Info:
 Crystal Engineering
 1811 Julian Street
 Commercial Road
 BARRY'S, Cornwall
 England TR19 8AD
 Phone (011 44) 1330-278444
 Email: info@crystaleng.com.uk

Flow US Dealers:
 Fools Flow Cycles (214)6024-4767
 Email: info@foolflow.com

People Movers (414) 623-2882
 Email: PeopleMovers@aol.com

Easy Racers, Inc.



Who says "compact" aren't high performance bikes. EZ-1 doing a wheelie. CENTER: EZ-1's new "mini-base" dummy seat



Melanie Anderson of Proform Fashions (body suit maker) and Easy Racer Tor Easy-20 on the Pacific Coast near Santa Cruz

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat Bottom Seatline Height:
Headset/Seat Bottom Angle:
Height/Weight Distribution (M, F):
Frame/Fork/Construction:
Seat Frame/Material:
Seat/Fabric (M, F):
Shifters:
Controls:
Cassette/Chain:
Rear Wheel Range:
Brakes (M, F):
Brake Levers:
Rear Wheel Hub/Flex/Spokes:
Front Wheel Hub/Flex/Spokes:
Tires (M, F):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

EZ-1
Garrett Martin 1992
1992 "Compact" road seat steering
88"
24 1/2" F
62/58/50" non-adjustable recline angle
40/50/50—40%
HTS-Cadde/Carbon/TiO
Alum./Foam composite/flex/Lycra
Shimano Sora 6.21 speed
Graphite SR1400
Shimano SX 30/26/25
Shimano 11-26/8x26
23.5-28
Surrou XC Pro cantilever
Tektro
27" x 1-1/8" 401/Aligna/SunSP 58
27" x 1-1/8" 368 Shimano/SunSP
Prime 30 psi
5.1, XC Plus 1/8" Ballset
Ballset: Red or Green Black powdercoat
47" x 17" 88/87 seat
Multi-wood
699

Tour Easy 88 (Exposition)
Garrett Martin 1992
1992/Aligna seat steering
88" (medium)
25.5/17.5 F
59/55-70" adjustable recline angle
40/50/50—40%
Aligna Cadde/Carbon Cadde/TiO
Carbon/Foam composite/flex/Lycra
Sachs/Shimano Sora 21 speed
Graphite SR1400
Shimano Suga 30/26/25
Shimano 11-26 cassette/8x26
25-28
Di2 Comp P88-XC Pro cantilever
Tektro
700/20 Shimano Pantera/SunSP 58
27" x 1-1/8" 400/Aligna/SunSP 58
Race 1.25/300 700x26
Surrou XC Pro
Ballset: Red or Green Black Powdercoat
51" x 17" 88/87 seat
Touring
8199

Tour Easy 99 (Super Sport)
Garrett Martin 1992
1992/Aligna seat steering
88" (medium)
25.5/17.5 F
59/55-70" adjustable recline angle
40/50/50—40%
Aligna Cadde/Carbon Cadde/TiO
Carbon/Foam composite/flex/Lycra
Sachs/Shimano Sora 21 speed
Graphite SR1400
Shimano Suga 30/26/25
Shimano 11-26 cassette/8x26
25-27
Shimano 400 XC Pro cantilever
Tektro
700/20 Shimano Pantera/SunSP 58
27" x 1-1/8" 401/Aligna/SunSP 58
IRC 100psi/Carbon Pro Max 700 x 26
Ballset: XC Pro
Ballset: Red or Green Black Powder.
51" x 17" 88/87 seat
Touring
8199

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat Bottom Seatline Height:
Headset/Seat Bottom Angle:
Height/Weight Distribution (M, F):
Frame/Fork/Construction:
Seat Frame/Material:
Seat/Fabric (M, F):
Shifters:
Controls:
Cassette/Chain:
Rear Wheel Range:
Brakes (M, F):
Brake Levers:
Rear Wheel Hub/Flex/Spokes:
Front Wheel Hub/Flex/Spokes:
Tires (M, F):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Gold Rush Rayline "Black Gold"
Garrett Martin 1992
1992/Aligna seat steering
88" (medium)
25.5/17.5 F
59/55-70" adjustable recline angle
40/50/50—40%
801 (Steel) Tektro/Aligna/Cadde/TiO
Carbon/Race composite/flex/Lycra
Shimano 105/Sora 21 speed
Graphite SR1500
Shimano 30/26/25/24 Post: 24/45/55
Shimano 37V Titanium/Sachs
21.5-17.5
Shimano 100 Dual Post
Tektro
700/20 Shimano Suga/SunSP 58
27" x 1-1/8" 401/Aligna/SunSP 58
IRC 100 psi/Cyclo Pro Max 700 x 26
Surrou XC Pro cantilever/steel
More Black Powdercoat
51" x 17" 88/87 seat
MTB/Touring/Touring/Spd./Com.
6999

New EZ 1993: The Tour Easy is now available in a touring (TR) and performance (SR) version. The Gold Rush Rayline has been upgraded with the Black Gold package that includes upgraded components and a brand new bonded finish. There is also an original Karlov fabric (like a Super Zippo) and body suit. The EZ-1 has a new lower price. Key Stats: 21 speeds formerly the Speed Street option as standard. There is also an optional "wide-base" seat for the EZ-1. Options: replacement seats for all sizes; 200psi (SR Carbon-Fiber 100psi/140psi) and 451 mm) Inlay: Inlay (Surrou), mirrors, spares. A new EZ-1 model has 21-speed using a Shimano Nexus 7-speed gear hub matched with a triple crankset. A larger base seat is optional as well. Partings: Easy Race standard/Zippo-8199 and Super Zippo-8249; Black Gold: Custom Lycra body clothing with

Carbon/Flex Pairing 8499; Pre-assembled; Two Barrels included; Two Warranty: 5 years frame and fork, 1 year seat. Years in business: 20 Available From: Dealer (808) 450-0200; CENTER, 907, 833
Contact Info:
 Easy Racers, Inc.
 15401 Preston Blvd.
 Fremont, CA 94538
 Phone: (415) 873-0707
Email: Torrey@EzRacer.com
Web: www.ezracers.com




ABOVE: ...And the Lord said, "Let there be long bikes!" ...and Easy Racer #1 was born—1978

BELOW: Fitz Keller rode from Mexico to Canada on his EZ-1



ABOVE: The Easy Racer Gold Rush Replica "Black dead" with fairs, body stocking and optional composite rear wheel
BELOW: Fast Freddy with the Gold Rush Concrete



Greenspeed



The Greenspeed GT10000 Touring Trike



Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Handle Angle:
Weight/Weight Distribution (F,R,T):
Frame/ Fork/Construction:
Seat Frame/Material:
Derailleurs (F,R,T):
Shifters:
Cassette/Chain:
Gear In/H Pump:
Spokes (F,R,T):
Front Wheel/Front Spokes:
Tires (F,R,T):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

GT10000 Touring Trike
 Jan 2004/1994
 Trike, less wheels in front/100
 59.5/78.5/31.5"
 1.7/1.6"
 Cassette 11/25/35 or 42" fixed axle angle
 45.8/55.4/L
 41 lbs (28.5/30.5)
 Reynolds 853/lyles mesh
 Sachs 301, 40 speeds
 Shimano Bar-Ends
 Sachs 35-45/52
 Sachs or Shimano 11-28/Sachs-Sachs
 45-12
 Sachs FT10000 Drive (Steel 100)
 Sachs/with touring brake
 Sachs 1.75" 408/Sachs/lyles/35P 50
 20" x 1.75" 408/Sachs/lyles/35P 50
 20" x 1.75" 408/Sachs/lyles/35P 50
 Togo Comp Pin 150 psi alloy
 Sachs or Shimano PL
 Powdercoat Green, Red, Yellow, Blue
 41" 41" Telescopic (adjusting) beam
 Touring/Commuting
 \$2500/Ann.

GT10000 Sports Tourer (Trike)
 Jan 2004/1990
 Trike, less wheels in front/100
 40/78/31.5"
 30/78.5"
 Cassette 11/25/35" fixed axle angle
 45.8/55.4/L
 41 lbs (28.5/30.5)
 Reynolds 853/lyles mesh
 Sachs Quays 24 or 42 speeds
 Shimano Bar-Ends
 Sachs 40S 10/1
 Sachs or Shimano 11-28/Sachs-Sachs
 35-12/2 5/16 tall
 Sachs Drive of Hydraulic Clutch
 Sachs
 20" x 1-1/8" 408/Sachs/lyles/35P 50 or 7
 20" x 1-1/8" Sachs/lyles/35P 50 or 7
 1PC Road Lite EX 100 psi
 Sachs New Cassette PL
 Powdercoat Green, Red, Yellow, Blue
 41" 41" Telescopic (adjusting) beam
 Road/Touring/Commuting
 \$2500/Ann.

GT12000 Tandem Trike
 Jan 2004/1990
 Tandem Trike, less wheels in front/100
 80/78/31.5"
 30/78"
 Cassette 10/20" or 42" fixed axle angle
 45.8/55.4/L
 43.0 (28.5/30.5)
 Reynolds 853/lyles mesh
 Sachs 301, 40 speeds
 Shimano Bar-Ends
 Sachs 35/45/52
 Shimano 11-28/Sachs-Sachs
 35-12
 Sachs Power Drive (Hydraulic)
 Sachs
 20" x 1.75" 408/Sachs 408/lyles/35P
 20" x 1.75/50/35/35P 408/lyles/35P 50
 Togo Comp Pin 1.75 80 psi alloy
 Sachs or Shimano cartridge PL
 Powdercoat Green, Red, Yellow, Blue
 41" 41" Telescopic (adjusting) beam
 Road/Touring/Commuting
 \$3000/Ann.

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Handle Angle:
Weight/Weight Distribution (F,R,T):
Frame/ Fork/Construction:
Seat Frame/Material:
Derailleurs (F,R,T):
Shifters:
Cassette/Chain:
Gear In/H Pump:
Spokes (F,R,T):
Front Wheel/Front Spokes:
Tires (F,R,T):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

GR10000 Tourer (Trike)
 Jan 2004/1995
 2004/2004
 59"
 31.5/78"
 1.75/1.6" fixed axle angle
 45.8/55.4/L
 41 lbs (28.5/30.5)
 Reynolds 853/lyles mesh
 Sachs or Shimano 24 speeds
 Shimano Bar-Ends
 Sachs 35/45/52
 Sachs/Steel 11-28/Sachs-Sachs
 45-12
 Sachs FT10000 Drive/FT1000 Drive
 Sachs
 20" x 1.75" 408/Sachs 408/lyles/35P 50
 20" x 1.75" 408/Sachs 408/lyles/35P 50
 Togo Comp Pin 80 psi 150 psi alloy
 Sachs 300A/Powar
 Powdercoat Green, Red, Yellow, Blue
 41" 41" Telescopic (adjusting) beam
 Touring/Commuting
 \$2500/Ann.

Model: Approx pricing is for Australian delivery in Australia dollars. For first US equivalent, check exchange rate. Air freight to North America is approx. \$700/Ann.
Now for 1997: Expect a smaller framed 18" 20" 2000 model, a new larger wheelbase single trike designed for smooth 2000 wheel 2000 and fully rated like body opening for 1997.
Options: Some options come over later than models. 2000 Hydraulic Clutch Drive (2000); Front suspension (2000) (2000); Front and rear suspension (2000) (2000); Lighting system (2000); Fairings (2000); Longer wheels (2000); Light-weight wheels (2000); Kick-Or saddle (2000); Sachs 301 hubs with 40 speeds (2000); Hydraulic Disc (2000) (2000); 11 Spokes (2000); Alloy Drive (2000); Longer wheelbase front/2000 (2000) (2000); Sachs 301 hubs with 40 speeds (2000); Heavy Duty rack (2000); Shimano Mountain Drive (two speed bottom bracket) (2000).

Features: Trike body in the works. Warranty: 1 yr.
Typical Delivery Time: 2 mos.
Price in US dollars: 2500.00, with Available From: Dealer & Direct PCB website: PCB direct opening.
Contact Info:
 Greenspeed Recorders
 39 Mountain Drive Dr.
 Pinesdale, GA
 Victoria, Australia 2100
 Fax: 61 3 91 4 9158 0541
 Fax: 61 3 91 4 9158 0104
Email: greensp@ozemail.com.au
Web Site: www.greensp.org.au/Greenspeed



The Over-speed GERRARD Ticker SWB available with optional full suspension (not shown)



The SWB Natural Hybrid Race



Peter Ross' Cycle Engineering Pacific Low Race available as a tandem only



The SWB Natural Storm

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Bicycles by Haluzak



The 1987 Haluzak Horizon



The 1987 Haluzak Laproflexion

Model:
Designer/Date:
Design/Building Type:
Wheelbase:
Rear Bottom Bracket Height:
Headtube/Seat Post(s) Angle:
Weight/Weight Distribution (lb./%):
Frame/Fork/Construction:
Seat Frame/Material:
Seat(s) Size (L x W):
Shifter:
Controller:
Cassette/Chain:
Gear Inch Range:
Brake (s) (s):
Brake Lever(s):
Rear Wheel Hub/Spokes:
Front Wheel Hub/Spokes:
Tires (L x W):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Horizon
 88 Haluzak 1987
 5400/550 (450 opt.)
 42.5"
 22.5"
 70/80°
 425, 540PS—54%,
 CRMO/CRMO/TB
 Alum./Nylon mesh
 Shimano Deore LX 21 speed
 Shimano Ultegra Bar End Shifters/Levers
 Sugeno 28/30/32
 Shimano 11-28/8achs
 21-121
 Shimano 11-28/8achs
 21-121
 Shimano Ultegra Bar End Shift
 Tektro
 26" x 1.75/32mm Deore LX/SP 32
 26" x 1.75/32mm Deore LX/SP 32
 36. Range 133 psi/PSI Male
 Shimano URB-1/Tange CD Lever
 Full-sized Red, Blue and Green
 57-67" Riding boom
 Touring/Sport Touring/Commuting/Fitness
 \$1685

Hybrid Race
 88 Haluzak 1988
 5400/550 (450 opt.)
 42.5"
 22.5"
 70/80°
 425, 540PS—54%,
 CRMO/CRMO-out. racing fork/TB
 Alum./Nylon mesh
 Shimano Deore XT 24 speed
 Sugeno
 Shimano 11-28/8achs
 Sugeno 28/30/32
 Shimano 11-28 cassette/8achs
 21-121
 Shimano XT rearshift/Ultegra Dual Front
 Tektro
 26" x 1.75/32mm Deore LX/SP 32
 26" x 1.75/32mm Ultegra/SP 32
 36C Headset 100 psi/PSI max
 Shimano URB-1/Tange CD Lever
 Full-sized Red, Blue and Green
 57-67" Riding boom
 RR/Touring/Street Touring/Commuting
 \$1795

Laproflexion
 88 Haluzak 1988
 5400/550 (450 opt.)
 38"
 21.5"
 70/80°
 425, 540PS—49%,
 CRMO/CRMO/TB
 Alum./Nylon mesh
 Shimano 21 speed
 Shimano Sugeno
 Sugeno 13/28 (short seat) 30/32
 Shimano 11-28 cassette/8achs
 20-118
 N.A.
 P.A.
 26" x 1.75/32mm Ultegra/SP 32
 26" x 1.75/32mm Ultegra/SP 32
 Shimano 10mm/12mm HP
 Shimano URB-1/Tange CD Lever
 Full-sized Red, Blue and Green
 57-67" Riding boom
 Shimano/Fitness/Recreational
 \$1 885

Model:
Designer/Date:
Design/Building Type:
Wheelbase:
Rear Bottom Bracket Height:
Headtube/Seat Post(s) Angle:
Weight/Weight Distribution (lb./%):
Frame/Fork/Construction:
Seat Frame/Material:
Seat(s) Size (L x W):
Shifter:
Controller:
Cassette/Chain:
Gear Inch Range:
Brake (s) (s):
Brake Lever(s):
Rear Wheel Hub/Spokes:
Front Wheel Hub/Spokes:
Tires (L x W):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Traverse
 88 Haluzak 1990
 5200/535 (450 opt.)
 41"
 22.5"
 70/80°
 425/440—54%
 CRMO, Alum. living arm/CRMO/TB
 Alum./Nylon mesh
 Shimano Deore LX 21 speed
 Shimano Ultegra Bar End
 Shimano Deore LX or opt., 24/30/32
 Shimano 11-28/8achs
 21-121
 Shimano LX cassette/De Compz Big Dog
 Tektro
 26" x 1.75/32mm LX/Bar/SP 32
 26" x 1.75/32mm Deore LX/SP/SP 32
 36psi 2.8lbs
 Shimano URB-1/Tange CD Lever
 Full-sized Red, Blue and Green
 57-67" Riding boom
 Off-road/Urban
 \$2135

Blaze
 88 Haluzak 1990
 5200/535
 41"
 22.5"
 70/80°
 415/435—54%
 CRMO/CRMO/TB
 Alum./Nylon mesh
 Sachs Race LX 21 speed
 Sachs Total Grip
 Sachs Race 17/28 20-1
 Sachs 11-28 cassette/8achs
 20-114
 De Compz Big Dog side-pull
 Tektro
 26" x 1.75/32mm Bar/SP 32
 26" x 1.75/32mm Deore LX/SP 32
 36psi 3.0lbs/PSI
 Shimano URB-1/Tange CD Lever
 Full-sized Red, Blue and Green
 57-67" Riding boom
 Touring/Sport Touring/Commuting/Fitness
 \$1795

Options: 455, Bar-end shifters, Brake upgrades, SR7100 Carport option, Day (seat) Bag, Lightcomputer mount, Insulated, rock, head-light, LED tail light, water-bottle cage, micro-bubble seats available, Fairbridge Comfort Grip Design, Custom Spec Available! See Price/assembly fee
Special notes: See Warranty Lifetime
Years in business: 4
Available From: Dealer & Direct
808 AIRMAIL: PCH #22 and #21

Contact Info:
 Bicycles by Haluzak
 2190 San Juan Ave.
 Santa Fe, CO 80607
 303/524-4444
 Email: send_me@bicyc.com
 Web: <http://bicycles.com/haluzak.html>

Human Powered Machines



The HPM "Titan" trike with rear disc brake



The HPM "Optik" DMB from 2000

Model:
Design/Modeling Type:
Wheelbase:
Seat/Bottom Bracket Height:
Seat/Bottom Bracket Angle:
Weight/Weight Distribution (lb./%):
Frame/Tube/Construction:
Seat Fabric/Material:
Seat/Seatpost (S.P.):
Shifters:
Crankset:
Front/Rear Chain:
Seat Post Range:
Brake (S.P.):
Brake Levers:
Seat Width/Height/Depth:
Front Wheel/Hub/Rim/Spokes:
Rear (S.P.):
Tires:
Bottom Bracket/Headset:
Paint/Color:
Other Height and Adjustment:
Model Designed for:
Suggested Retail Price:

Titan DMB
 Jan VanderTol/1998
 2000/2000 (Direct or linkage)
 30.1" (60) 30-30" (60)
 18.1" & 20.0"-20" & 20-1/4"
 20" & 21.00" with 1" adjustment
 408 & 410 lbs. A.
 Recumbent 6061 Alum/Carbon/TiS
 Alum/Carbon mesh
 Sachs 7 speed internal hub
 Sachs Twist
 Shimano 44-1
 N.A./Sachs
 N.A.
 Carliover/Sachs Shim
 Tires
 21" or 21.00/21mm/24 DT 32
 20" or 19.00/21mm/24 DT 32
 40.0 1.75" 100 performance Tearing
 Shimano 20/32/16 Shimano sealed
 Powerlock
 41"-41.5" & 41"-41.5" fitting seat
 Multiple Use
 \$2800/2850

Titan Trike
 Jan VanderTol/1998
 Trike, two wheels in back/4000
 19"
 20"YIELD
 408/41" with 1" adjustment
 408 lbs. A.
 41 50 Carbon/Carbon/TiS
 Alum/Alum mesh
 Sachs 11 speed
 Shimano Bar Shift
 Shimano 20/32/16
 11-30 Front/Rear/Chain
 14.83
 Shimano-carliover/Sachs Hydraulic disc
 Tires
 20"/21mm/24mm/24 DT 32
 20" or 19.00/21mm/24 DT 32
 40.0 1.75" 100-100
 Shimano sealed/Shimano sealed
 Powerlock
 41"-41.5" fitting seat
 16,800/ 16k
 \$1500

Ti-Hauler Trike
 Jan VanderTol/1998
 Trike/FWD/low-rear-back/front steer
 20" (18" low) & 24" (10) low/trike 20" DT
 20/21-1/4"
 408/41" with 1" adjustment
 446 (145 low) & 411 (1/2) long/A.
 41 30 Carbon TiS. Guage/Carbon/TiS
 Alum/Alum mesh
 Sachs 7 speed internal hub 11 speed
 Sachs 7 speed
 Shimano 20/32
 N.A./Sachs
 N.A.
 Sachs Carliover/Sachs Hydraulic disc
 N.A.
 20"/21mm/24 DT 32
 20"/24cm/1" speed/20 DT 32 (steel)
 Sachs
 Shimano sealed/Shimano sealed
 Powerlock
 41"-41.5" fitting seat
 Load carrying/haul
 \$1600 (15) low & \$2000 (1/2) low

New for 1997: Human Powered Machines is a division of CAT Center for Appropriate Technology in Eugene, Oregon. CAT has classes, a 400-sq-foot space rental area, a 100-unit rental and storage lot, a new 1000 sq ft building. Jan VanderTol builds the long-travel cargo trike used by Pushers Etc. as well as the built-in trike.

Options: Disk brakes, seat, Sachs 11" and 14", Titan levers, back-side unassisted seat comfort. Ti-Hauler: 13"-10" aluminum ballast, 3" x 4" 1.5-Ton fiberglass container or aluminum flat bed. No towing. MCH: Titan is similar to Titan trike that's a few years back. Ti-Hauler is similar to front-wheel-drive Trike. Package: Package are available. Custom Spec. available! Yes.

HPM-2000/2000 Trike
 Backrest: Yes
 Warranty: Limited 3 year
 Years in business: 8
 Available From: Direct only
 OEM Articles: Licensing

Contact Info:
 Human Powered Machines
 Jan VanderTol
 455 West First Ave.
 Eugene, OR 97401
 (503) 417-0000
 Fax: 402-343-6000
 Fax/241-1000-1010

Email: cat@cat.org

Web: <http://www.hpm.org/~cat>



The HPM "Ti-Hauler" FWD trike for that heavy load. Designer/builder Jan VanderTol also builds lightweight LMB cargo bikes.

Infinity Recumbents



Infinity at the RCM coast-seat facility in Astor, WA (Slocum Creek Trail)



Chief Recumbent Infinity BOB on tour—photo courtesy of Peter Siskind
(The low-riding seat is found in RCW62)

Model: Infinity Alpha[®]
Designer/Date: Ann Tied P & D/1981
Design/Steering Type: LWB/ABS
Wheelbase: 63" and 67"
Seat/Bottom Bracket Height: 20 1/2" & 21"
Headtube Seat Post/Seat Angle: 22°/14.4, 101-104-106/66
Weight/Weight Distribution (24-26): 42/70%—57%
Frame/Fork/Construction: 6061 Series 20, 2002 Alum-4761/70
Rear Frame/Member: Aluminum/Steel
Drivetrain (2, 1, 1): Shimano ST speed
Shifters: S.A.
Cranks: Shimano
Front/Rear Cassette/Chain: Shimano 11-28 T type
Seat Post Height: S.A.
Brakes (S, A): Walbroam 600 Sidepull
Spoke Lacing: Weinmann
Rear Wheel/Fire/Flare/Spoke: 700/20mm D.F. Wide .029
Front Wheel/Fire/Flare/Spoke: 27" 454/Socor 0.8, 1mm .029
Tires (2, 1, 1): S.A.
Bottom Bracket/Headset: Shimano/PSI
Paint/Colors: Powdercoat Red, White, Blue
Rider Height and Adjustment: 4'11"-6'0" (6'0" seat)
Model Designated Pin: Seat Touring/Commuting/Fitness
Suggested Retail Price: \$649

Infinity Omega[®]
Ann Tied P & D/1981
LWB/ABS
63" and 67"
20 1/2" & 21"
22°/14.4, 101-104-106/66
42/70%—57%
6061 Series 20, 2002 Alum-4761/70
Aluminum/Steel
S.A.
S.A.
S.A.
S.A.
S.A.
S.A.
Walbroam 600 Sidepull
Weinmann
700/20mm D.F. Wide .029
27" 454/Socor 0.8, 1mm .029
S.A.
Shimano/PSI
Powdercoat Red, White, Blue
4'11"-6'0" (6'0" seat)
Seat Touring/Commuting/Fitness
\$649

Notes: *Specs and prices subject to change without notice.
New for 1997: A new company owner will market the bikes out of Scottsdale, Arizona, though Infinity framesets and parts will still be built in Minneapolis, Indiana. Look for a total of three new models to be unveiled over the course of the year. Specs subject to change.
Options: S.A.
Painting: Zip-Designs
Custom Spec Available: Check
Pre-assembly: No
Warranty: 1 year, frame
Years in business: 16 years, new owner in 1997
RCM #/B244: RCW622
Contact info:
Infinity Recumbents
4433 E. McDonald Dr.
Scottsdale, AZ 85250
Post 1-800-GetBike (372-4831)



Shown here with optional Aerospoke wheels

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 RCW622 Summer '94

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For information, please send \$1.00 to: **Infinity Recumbents, 4433 E. McDonald Dr. Scottsdale, AZ 85250 Call Today For Information Post-1-800-GetBike (372-4831)**

Lightning Cycle Dynamics



The 1987 Lightning Street



The 1987 Lightning P-28 with optional wheel cover, bag and fender

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Rear Bottom Bracket Height:
Headset/Head Tube Angle:
Weight/Weight Distribution (M.L.):
Frame/Fork/Construction:
Seat Frame/Material:
Saddle(s) (LxW):
Shifters:
Crank(s):
Cassette/Chain:
Gear Inch Range:
Brakes (F/R):
Brake Levers:
Rear Wheel Hub/Spokes:
Front Wheel Hub/Spokes:
Tires (F/R):
Bottom Bracket/Headset:
Paint/Colors:
Other Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Street:
 Tim Brunner/1986
 SWB/ABS
 43"
 19"00"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/Carbonless (steel)
 Ergott T70 Aluminum/beam pad
 S.T. XC Expert/10s 21 speed
 Graphite SW/400
 Cytone 25/28-4
 Shimano 11-28 Free/SMC 55
 25-115
 Shimano STI centerbar
 28"
 28" x 1.25" road/40/40/38P
 18" x 1-1/8" or 21" x 1-5/16" road/38P
 Pano or City Jet/PSI Bag
 Alloy
 Black or Red powdercoat
 41" x 17" riding boom
 Multiple use
 \$1250

P-28:
 Tim Brunner/1984
 SWB/ABS
 43"
 20"04"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/Carbonless (steel)
 Ergott T70 Aluminum/beam pad
 Shimano Deore LX 21 speed
 Graphite SW/400
 S.T. XC Comp/Shimano Stage
 Shimano 11-28 Free/SMC 55
 25-123
 Dual Front caliper
 Tektex
 Tektex 40P/Shimano STI caliper 38P 55
 18" x 1-1/8" or 20"07/18" or 20" 55
 Pano or City Jet/PSI Bag
 Carbon/ST. 3C Pts
 Blue or Red powdercoat or custom
 41" x 17" riding boom
 Multiple use
 \$2000

P-28 S:
 Tim Brunner/1988
 SWB/ABS
 43"
 20"04"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/Carbonless (steel)
 Ergott T70 Aluminum/beam pad
 Shimano Deore LX 21 speed
 Graphite SW/400
 Shimano Deore XT 24/46/50
 Shimano 11-28 Free/SMC 55
 25-123
 Shimano Deore XT 17" brake
 On Comp/PSI
 Tektex 40P/Shimano STI caliper 38P 55
 18" x 1-1/8" or 20"07/18" or 20" 55
 Pano or City Jet/PSI Bag
 Shimano Carbon/Deore XT
 Blue or Red powdercoat or custom
 41" x 17" riding boom
 Multiple use
 \$2500

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Rear Bottom Bracket Height:
Headset/Head Tube Angle:
Weight/Weight Distribution (M.L.):
Frame/Fork/Construction:
Seat Frame/Material:
Saddle(s) (LxW):
Shifters:
Crank(s):
Cassette/Chain:
Gear Inch Range:
Brakes (F/R):
Brake Levers:
Rear Wheel Hub/Spokes:
Front Wheel Hub/Spokes:
Tires (F/R):
Bottom Bracket/Headset:
Paint/Colors:
Other Height and Adjustment:
Model Designed For:
Suggested Retail Price:

P-44 Campyonic:
 Tim Brunner/1988
 SWB/ABS
 43"
 20"04"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/Carbonless (steel)
 Ergott T70 Aluminum/beam pad
 Campy Velox/Aluma 1020 speed
 Speed Tri Bar/10s
 Campy Velox double or Mirage triple
 55c drive 12-28 5-100/PSM 55
 25-120
 Campy Velox Monoposter
 On Comp/PSI
 Tektex 40P/Campy Velox/Merida 38P 55
 17" Multi/Velocity/18" or 20" 55
 Multi/PS/Contra/Steel
 Campy Aluma/Velox
 Blue or Red powdercoat or custom
 41" x 17" riding boom
 Multiple use
 \$2000

P-42:
 Tim Brunner/1988
 SWB/ABS Pano/Suspension
 43"
 20"04"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/5-1 Susp./On Comp (steel)
 Ergott T70 Aluminum/beam pad
 Shimano Deore LX (21) speed
 Graphite
 SW/400 17/50s
 Shimano 11-28 7-100/SMC 55
 24-140
 Shimano Deore XT 17" Brake
 Tektex
 Tektex 40P/Campy/Merida 38P 55
 17" Multi/Velocity/18" or 20" 55
 Multi/PS/Contra/Steel
 Ultra/ST. 3C Pro
 Blue or Red powdercoat or custom
 41" x 17" riding boom
 Multiple use
 \$4200

P-44:
 Tim Brunner/1988
 SWB/ABS Susp./composite frame
 43"
 17"02"
 6 x 1.5/1.7"
 20/28/35—45%
 41/51 Carbon/5-1 Susp./On Comp (steel)
 Ergott T70 Aluminum/beam pad
 Shimano Deore LX 21 speed
 Graphite
 Lightning Deore/55
 SW/11-25 5-100/PSM 55
 25-120
 Road Super Crank
 On Comp/PSI
 Tektex 40P/Campy/Merida 38P 55/50c
 Multi/11 x 1-1/4" HD/55c 14 or 18"
 Multi/PS/Contra/Steel
 Lightning/PSI
 Calyx/Aluma/Glar carbon (opt.)
 41" x 17" riding boom
 High Performance/Paving
 \$5000

Lightning Cycle Dynamics



A pack of Lightning F-40s at a California race



Lightning F-40 composite

Model:
Design/Seating Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Seat Angle:
Weight/Weight Distribution (M/L/R):
Frame/Fork Construction:
Seat/Seatpost Material:
Overhubs (F/R):
Shifters:
Controls:
Power/Speed Cassette/Chain:
Gear Inch Range:
Brakes (F/R):
Brake Levers:
Rear Wheel Hub/rim Spokes:
Front Wheel/Hub/rim Spokes:
Tires (F/R):
Bottom Bracket/Headset:
Paint Colors:
Rider Height and Adjustment:
Model designed for Purpose:
Suggested Retail Price:

Lightning F-40 Low Rider:
 L, Shimano/B, Shimano/BBB
 880/1020
 48"
 920/91"
 14.4, 20°
 33.5/6 L
 Carbon, Aero/Carbon Monocoque/Carbon
 Fiberglass shell/frame
 Shimano Ultegra 10 speed
 Day After CO-DT
 Shimano RD110R 28/27
 Ultegra 11-28 cassette/BBB SS 91
 40-120
 Shimano RD110R Dual Pivot
 Ergo
 28" x 17"
 17" x 20"
 Buyer's Choice
 Shimano Ultegra
 Performance/Custom
 54" x 18" Riding toom
 Time Trial
 \$2500

Lightning Hand Cycle:
 John Frank/Tim Brumby/BBB
 Elite Hand Cycle/BBB/Lean steer
 54.0, 54" track/1700
 87/88" (barrel crank 8.8")
 207-207 (adjustable/207
 40/35/26, -30/4
 Ergo/Carbon
 Carbon/Carbon split mesh
 Shimano RD110R/BBB LX
 Shimano BB3
 Ergo/Pro B 24/20/18
 Shimano Cass LX 11-28
 40-110
 Day Comp
 Day Comp
 28" /850/28/28
 18" /1000/200 20"
 Performance/Time
 Shimano Cass-LR/BBB
 Performance/Custom
 Sliding beam
 Multiple Use
 \$2995

How far 'ET' (Crest Point F-M) travel, Y-Offset): F-40 rear suspension (opt'd); front suspension and a new Q.R. smooth seat mount. Watch for Lightning carbon cranks soon. Also, a fast-3/8" size.
Options: Lightning offers more custom options than any other bike. Full-length Lightning Travel (and) Super Crankset (Cape Crankset), F-40 (longer rear axle, separate body with a Laser wheelbase).
Custom Spec Available? Yes.
Pre-assembled/Build/ Tested: Yes
Warranty: 3 years.
Years in business: 15
Available From: Cyclic & Direct
Stock Locations: FCH #1, 24, 24, 26
Contact Info:
 Lightning Cycle Dynamics, Inc.
 210 North St., Ste. B
 Lenoir, GA 31602
 Phone: 706-370-0700 / 800-633-3388
 Email: Lightning@earth.net
 Web: <http://www.bikerails.com/>
LightningCycle.com



The next step in
 the evolutionary
 cycle. Call,
 1 800.231-3136

bike
E

Linear Mfg.



The 1987 28 pound Linear CLWB model with a 26 inch 2x7 and optional 26 inch disk brake



The 1987 Linear "Folding" model

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Handle Angle:
Weight/Weight Distribution (FR, R, F):
Frame/Tube/Construction:
Seat Frame/Material:
Derailleurs (F, R, F):
Shifters:
Cassette:
Cassette/Chain:
Rear Hub Range:
Spokes (F, R, F):
Spoke Lenses:
Rear Wheel/Friction/Speaks:
Front Wheel/Friction/Speaks:
Tires (F, R, F):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Linear Folding
 Doh Servo/1987
 LMB/1987
 52" (2 frame sizes)
 27 1/2" x 7"
 70/90mm adjustable
 825/705—1075
 Alum. extrusion/Carbon/TiO
 Alum./wood/foam cushion with lumbar
 Shimano STX
 Cayenta (ST-10)
 Suntour XC Comp 28/28/48
 12-28/32/36
 28-104 (2F) or 27-108 (2000)
 Dia Comp F50 in 1/8g Dog
 7/8mm
 27" or 26 1/2" (100/100) Q.R. (2F) 28"
 20" 18kg Q.R. (2F) 22"
 N.A.
 Suntour XC Pro
 Anodized blue, silver, gold, black
 5'7"-6'7" (adjust avail)/folding seat
 Multiple purposes
 \$4200

Linear (Basic) (1987)
 Dave Harned/1986
 SWS/1986
 50"
 27 1/2"
 70/90mm adjustable
 825/705—1075
 Alum. extrusion/Carbon/TiO
 Alum./wood/foam cushion with lumbar
 Shimano STX
 Cayenta (ST-10)
 Suntour XC Comp 28/28/48
 12-28/32/36
 28-104 (2F) or 27-108 (2000)
 Dia Comp F50 in 1/8g Dog
 7/8mm
 27" or 26 1/2" (100/100) Q.R. (2F) 28"
 20" 18kg Q.R. (2F) 22"
 N.A.
 Suntour XC Pro
 Anodized blue, silver, gold, black
 5'7"-6'7" (adjust avail)/folding seat
 Multiple purposes
 \$4200

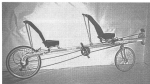
Linear CLWB
 Howard/1986
 LMB/1986 (2000 opt.)
 52" (extra length models available)
 27 1/2"
 27 1/2"
 80/100 mm adjustable
 825/705—1075
 Alum. extrusion/Carbon/TiO
 alum./wood/foam cushion with lumbar
 STX, 26 inch 2x7, 21 speed
 Cay. Shifts
 Dohet forged 48-T
 Shimano F6 in 1/8g/28/36
 27-104
 Dia-comp/Tekno-carbon/over
 7/8mm
 26" x 1 7/8" 100/100mm/28/36/28
 18" x 1-3/8" 100/100mm/28/36
 Price \$60 (incl. 80g 100 psi pad)
 \$2850/2400
 Anodized Gunmetal
 5'7"-6'7" (folding seat)
 Open touring/commuting
 \$1000

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Handle Angle:
Weight/Weight Distribution (FR, R, F):
Frame/Tube/Construction:
Seat Frame/Material:
Derailleurs (F, R, F):
Shifters:
Cassette:
Cassette/Chain:
Rear Hub Range:
Spokes (F, R, F):
Spoke Lenses:
Rear Wheel/Friction/Speaks:
Front Wheel/Friction/Speaks:
Tires (F, R, F):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Linear 7-speed
 Howard/1986
 CWB "Compa"/1986
 52" (extra length models available).
 N.A.
 N.A./non-adjustable
 N.A./705—1075
 82, or 80, 80mm/Carbon/TiO
 Alum./wood/foam cushion & lumbar
 Shimano Nexus 7 speed/optional hub
 issues 7
 Suntour 48-T
 N.A./AOC
 N.A.
 Dia-comp
 7/8mm
 Shimano Q.R. (2F)
 20" 18kg Q.R. (2F)
 N.A.
 N.A.
 Frontend
 Folding seat
 Open touring/commuting
 \$600

Linear Tandem
 Dave Harned/1985
 Tandem/1985
 N.A.
 N.A.
 N.A./non-adjustable
 N.A.
 Alum. extrusion/Carbon/TiO
 Alum./wood/foam cushion & lumbar
 Shimano STX
 Cayenta (ST-10)
 Suntour XC Comp 28/28/48
 12-28 cassette/R3C
 28-104 (2F) or 27-108 (2000)
 Dia-comp/Tekno-carbon/over
 7/8mm
 20" 18kg Q.R. (2F) 22"
 20" 18kg Q.R. (2F) 22"
 N.A.
 Suntour XC Pro
 Anodized blue, silver, gold, black
 5'7"-6'7" (adjust avail)/folding seat
 Multiple purposes
 \$6000

New for 1987: Linear has two new lower priced models for 1987. The CLWB model was developed in conjunction with Kinco & Synodal Bikes (Shaw/West) Pharmaceuticals in Milwaukee, WI and has a non-fold aluminum frame with a standard 20" x 1 7/8" wheel (open and sells for \$4200). The square steel tube aluminum Linear will be introduced at \$600 in May 1987. **Patents:** by Dave Harned. **Pre-announcement:** The **Brand:** (billed) The **Warranty:** Lifetime frame; 3 years in fullness; 10 Available From: Dealer \$2000 (includes invoice & accompanying Contact Info: Linear Mfg. Inc. 20744 Cedarvale, Cedarburg, IA 52002 Phone: (319) 252-1427 Fax: (319) 252-2005 Email: Web: N.A.



The 1997 Linear Tandem



The 1997 Linear "Folding" model folded about to go into the back seat of a Nissan Sentra

Company goes upscale in '97 with New Gold Rush Replica Black Gold

New for 1997 Shimano XTR plus Boost Technology CHC cranks T1 cage and bottom bracket. The Gold Rush Replica goes upscale to become the awesome new Black Gold Limited Edition for 1997. Order today. Call 428-723-6797.

EASY RACERS INC

Box 155 Freedom CA 95018-0155
www.easyracers.com
 428-723-6797 Voice/Fax
easyr55@aol.com



Featuring a suspension frame, this nimble about town machine is an ideal spot-of-the-moment bike. It's easy to ride, easy to maintain, and fits on most standard car racks.

VR-30 Metro Specifications:

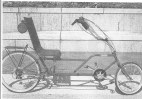
- 1.75" TIG welded CroMo mainframe
- "MMC" Suspension System
- Collapsible for transport or storage
- Alloy 170mm crank
- Shimano Cartridge Bottom Bracket
- KMC LG 50 Chain
- 1-1/8" threadless headset
- Alloy quick release front hub
- Alloy rear rim, 30" (406)
- Alloy front rim, 16" (348)
- 29.5 pounds
- 7 Speed: Nexus 7 speed Internal hub
- 21 Speed: Sachs 3x7 Internal hub
- Starting at \$428 MSRP



Advanced Transportation Products, Inc.

952 Republican Street, Seattle, WA, USA 98108
 Tel. 202-467-0231 • WWW: <http://cyclogy.com/vision>

Maxam, Inc.



The 1987 Maxam Revella



The 1987 Maxam Revella with optional 26" rear wheel

Model:

Designer/Date:

Design/Seating Type:

Weight:

Seat/Bottom Bracket Height:

Handlebar/Seat Post/Seat Angle:

Weight/Weight Distribution (F/R):

Frame/Tube Construction:

Seat Post/Material:

Seat/Seat (H, L):

Drivetrain:

Front/Chain:

Chain Link/Range:

Brakes (H, L):

Brake Levers:

Rear Wheel Hub/Hub-Spokes:

Front Wheel Hub/Hub-Spokes:

Tires (H, L):

Bottom Bracket/Headset:

Paint/Colors:

Rider Height and Adjustment:

Model Designed For:

Suggested Retail Price:

Revella LC (Range 80)

John Day/Chris Day/1984

1200/1400

147 lbs.

37" x 37"

N.A. Steel seat post/seat

44/47/51—57"

10/14-18/18/18

Steel frame/headset

Range 800 (1 speed) (Range 80 18-speed)

Open Grip Speed Lever (Open/Close)

Aluminum 26/26/18 (steel)

18-26 7-10/11/11, 11-26 8-speed (10/10)

24 1/2" (20-30)

450g carbon/steel

N.A.

26" x 1.75/1.75" O.D. 26" (Steel wheels)

26" x 1.75/1.75" O.D. 26" (Steel wheels)

N.A.

Frontwood Forest Green, Blue Black

27"-47" sliding seat

Multiple use

\$275 (S&H for Range 80)

Retreat

John Day/Chris Day/1986

1000/1400

111/141/17

80/114

N.A.

N.A.

18/26-18/26/18

Steel frame/headset back/front base

Patton Range 80

Open Grip 8-speed

Steel, one-piece S.U.T.

14-26 8-speed/10/10

N.A.

Alloy 100g pull

N.A.

26" or 26" x 1.75/1.75" O.D. 26"

26" x 1.75/1.75" O.D. 26"

Low pressure

Frontwood Forest Green, Blue Black

27"-47" sliding seat

Open/Close/Close/Fitness

\$288 8-speed \$400 10-14 speed

Tri/velion

John Day/Chris Day/1986

1000/1400

87/114

87/114

26" x 27" x 26"

N.A. Steel seat post/seat

N.A.

18/26-18/26/18

Steel frame/headset

18/24 21-speed

Steel

Trips

N.A.

Alloy Dual Post

N.A.

26" x 1.75/1.75" O.D. 26"

26" x 1.75/1.75" O.D. 26"

N.A.

Frontwood Forest Green, Blue Black

27"-47" sliding seat

Multiple use

\$1400

Now for 1987: It's time to get back! Maxam is back with two new models. The new Retreat "compact" will accept a 26" or 26" seat wheel and the new Tri/velion model (18" rear wheel) is back. The Maxam Revella comes in two versions, the 800 has 18 speeds and an auxiliary rear wheel. The Revella LC has 17 speeds, slightly tighter gearing and alloy wheels. It weighs 140 lbs.

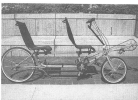
The newly updated Maxam seat is fully supported 18" wide polyurethane vinyl mesh that offers comfort, an excellent and built support. Removal of the cover is made easy with convenient velcro-leaving. The most seat comes in black.

Maxam accepts American Express, Visa, Mastercard and Discover. Options: Retreat 14 speed (1400); 26" wheel available, rear-wheel, 26" x 1.75/1.75" (26"); pump, spare tube

wheel options, seat bag. The Revella comes in a standard model and an upgraded "LC."

800 Advice: Upcoming Features: Available aftermarket by Day Design. Pre-announced: The Retreat (steel); Dealer Warning: CHS 4000. Years in business: 4 Available From: Direct or dealer

Contact Info: Maxam, 11500 Spring Ct., Cincinnati, OH 45240. Phone: (513) 448-0022. Email: Verlog@2.18.net.com



The 1987 Maxam Revella tandem

Pashley Handbuilt Bicycles



COMING SOON TO
A DEALER NEAR YOU

PDQ

Hand made by W.R. Pashley, Ltd.
Stratford-upon-Avon England

Model

Design/Steering Type:
Windblast
Seat/Bottom Bracket Height:
Adjustable/Seat Frame Angle
Weight/Weight Distribution (D.A.R.):
Frame/Fork/Construction:
Steel Frame/Monocoque
Seat Frame/Material:
Sawalux (5.1m²)
Wheels:
Crankset
Cassette/Chain:
Gear Inset Range
Brakes (D.A.R.):
Brake Levers:
Rear Wheel Hub/Front Spokes:
Front Wheel Hub/Speaks
Tires (D.A.R.):
Bottom Bracket/Hesler
Frame/Colors:
Rider Height and Adjustment
Model Designed For:
Suggested Retail Price:

Pashley PDQ

Open Frame/1990
22000000
33.5"
30.0"/31.0"
N.A./50"
Under 28 pounds/N.A.
Scamless Carbon-Fiber/Carbon/Fib.
6061 Aluminum/Steel/Aluminum
Sears Center (30" 21 speed)
Sears Performance Plus (best value)
Sears/George B.150 with gear 48-T
Steel/Aluminum
N.A.
1990/1991 4-Speed
Tektex
20" x 1.1" 48-tooth 30/50
20" x 1.1" 48-tooth 30/50
Rohloff City Planer 1.75
Strength Steel Case-1957 Gear/Free
Adjustable/Handoperated/Handbrake
Sizing from
Multiple Use
Est. Retail \$1120

Now for 1991: The Pashley PDQ is based on a North American design which will sell for 10 years. 1991 is available (D.R.) and near perfect weight distribution. The predecessor of the Pashley PDQ had one major design/magazine editor is convinced that it was the first recumbent that he had ridden that felt like a bike. Since the seat is fabricated/magazine adjustment is made by turning the pedals, the weight/distribution is very similar to a road bike - what the height of the rider.

The Pashley PDQ is well suited to commuting, day rides, and touring. The PDQ's special seat (20" 480) wheels give the bicycle strong, light wheels with low inertia. (Should the rider wish to tailor the performance of the bike, there are many choices in aftermarket tires. The good Sears 37 tires are available in a wide gear range for most applications.

The Pashley PDQ's full-track seat allows for ventilation and drainage in wet weather. The seat frame is suspended between the rails, distributing the rider's weight over a large area and provides a measure of isolation from road shock. The seat frame also has a shock absorbing medium between the upper frame and the bike frame. Since this shock absorber is not in line with the pedaling motion, etc., it saves energy is lost.
Warranty: Indefinite (in printed form. Years in business. New model Available From: Dealers.

Manufactured by: W. R. Pashley Ltd. England
Imported and Distributed by:
Dakota Service
3532 115 Ave. SE
Bellevue, WA 98006-3247
PH: (206) 841-8828/Fax: (206) 841-8797
Email: dakota@adsl.com
Web: <http://www.weston.com/~dskbweb>

More than just a comfortable seat!

World Class Performance

Brad Crane
1989 USA World
Champion

Dean Peterson
Modified Class
World Champion

Robert Ogilvie
Modified Class
Silver Medalist

Steve DeLong
1989 USA World
Champion
1988 USA World Champion



(714) 633-3663
500 N. Main St. - Orange, CA 92667

REGULATOR, 913 Middle Road, Santa Rosa, CA 95409 (707) 532-0283 Fax (707) 536-5324

RANS Recumbents



The 1987 Rans V-Raz (2400)



The 1987 Rans V-Raz24 (2400)

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Seat Angle:
Weight/Weight Distribution (M, F, I):
Frame/Tubing/Construction:
Seat Frame/Material:
Dimensions (L x W):
Options:
Crankset:
Cassette/Chain:
Rear Hub Range:
Brakes (L x R):
Brake Levers:
Rear Wheel/Fork/Spokes:
Front Wheel/Fork/Spokes:
Tires (L x R):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Vendor:
 Family Sportswear 1988
 0600/0608 V-Raz/Flex
 38.12" 41-mm size
 22.25"/26.12"
 N.A./25" adjustable
 68.5 lb/55 lb/55 lb seat-verts by rider
 4100 CrMo/CroMo/T70
 PWR2 mesh back/foam base
 S.T. 30 LTD/20mm. 40mm 21 speed
 Regulus RT1400
 Shimano Deore LX 21 speed
 Shimano 1050 11-28/28mm Saddle
 25-104
 De-Comp 100 side-pull/Deore LX cont. Saddle
 27" x 1.75" Shimano Advan50 2P
 26" x 1.75" Advan50 2P
 180 Shimano 105 105 pad (upgraded-avail)
 Shimano 105/105 T. 30 Pro
 3042 Black or Red Flat Penderwood
 4-year sprg. 25.75-34.25/riding seat
 Multi-purpose
 \$1400

Vendor:
 Family Sportswear 1988
 0600/0608 V-Raz24/Flex-24
 38.12" 41-mm size
 22.25"/26.12"
 N.A./25" adjustable
 68.5 lb/55 lb/55 lb seat-verts by rider
 4100 CrMo/CroMo/T70
 PWR2 mesh back/foam base
 S.T.30/20mm. 40mm 21 speed
 Regulus RT1400
 Shimano Deore LX 21 speed
 Shimano 1050 11-28/28mm Saddle
 25-104
 Regulus RT1400 Hydraulic
 Saddle
 27" x 1.25" Advan50 200T 25 2P
 26" x 1.25" Advan50 200T Velocity 200T 2P
 Continental Grand Prix L 26 100 psi
 Shimano 105/105 Pro 30 Pro
 3042 New color vertical split
 4-year sprg. 26.75-34.25/riding seat
 Multi-purpose
 \$1400

Vendor:
 Family Sportswear 1988
 0600/0608 T-Raz
 38.12" 41-mm size
 22.25"/26.12"
 N.A./25" adjustable
 68.5 lb/55 lb/55 lb seat-verts by rider
 CrMo/CroMo/CroMo/T70
 PWR2 mesh back/foam base
 Shimano 105/105mm. Advan 21 speed
 Regulus RT1400
 Shimano 105 11-28/28mm Saddle
 25-104
 Shimano 100 LTD cassette
 Saddle
 27" x 1.75" Shimano Advan50 2P
 26" x 1.75" Advan50 2P
 180 Shimano 105 pad (upgraded-avail)
 Shimano 105/105 T
 Shimano 3042/3042
 Shimano 105 or Red Flat Penderwood
 4-year sprg. 26.75-34.25/riding seat
 Multi-purpose
 \$600

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Seat Angle:
Weight/Weight Distribution (M, F, I):
Frame/Tubing/Construction:
Seat Frame/Material:
Dimensions (L x W):
Options:
Crankset:
Cassette/Chain:
Rear Hub Range:
Brakes (L x R):
Brake Levers:
Rear Wheel/Fork/Spokes:
Front Wheel/Fork/Spokes:
Tires (L x R):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

V-Raz
 0600/0608 Cyclista/Cyclista 1994
 0600/0608 V-Raz/Flex
 38.12" 41-mm size (37-46)
 22.25"/26.12"
 N.A./25" adjustable
 67.5 lb/55 lb/55 lb seat-verts by rider
 4100 CrMo/CroMo/T70
 PWR2 mesh back/foam base
 Shimano Deore LX 21 speed
 Cyclista 5P1200
 Shimano Deore LX 21 speed
 Shimano 1050 11-28/28mm Saddle
 25-104
 De-Comp 100 side-pull/Deore LX cont. Saddle
 27" x 1.75" Shimano Advan50 2P
 26" x 1.75" Advan50 2P
 180 Shimano 105 105 pad
 Shimano 105/105 T. 30 Pro
 Flat Lx or Saddle
 4-year sprg. 25.75-34.25/riding seat
 Multi-purpose
 \$1400

V-Raz24
 Family Sportswear 1994
 0600/0608 V-Raz/Flex
 38.12" 41-mm size (37-46)
 22.25"/26.12"
 N.A./25" adjustable
 67.5 lb/55 lb/55 lb seat-verts by rider
 4100 CrMo/CroMo/T70
 PWR2 mesh back/foam base
 Shimano Deore LX 21 speed
 Cyclista 5P1200
 Shimano Deore LX 21 speed
 Shimano 1050 11-28/28mm Saddle
 25-111
 De-Comp 100 side-pull/Deore LX cont. Saddle
 27" x 1.75" Shimano Advan50 2P
 26" x 1.75" Advan50 2P
 180 Shimano 105 105 pad
 Shimano 105/105 T. 30 Pro
 Shimano 105/105 T. 30 Pro
 Shimano 105 or Red Flat Penderwood
 4-year sprg. 27.75-34.25/riding seat
 Multi-purpose
 \$1400

Stokes
 Family Sportswear 1978
 0600/0608 J or B bars with spring
 37.12" 41-mm size (35/27-40)
 22.25"/24.12"
 N.A./25" adjustable
 68.5 lb/55 lb/55 lb seat-verts by rider
 4100 CrMo/CroMo/T70
 PWR2 mesh back/foam base
 Shimano Deore LX 21 speed
 Regulus RT1400
 Shimano Deore LX 21 speed
 Shimano 1050 11-28/28mm Saddle
 25-111
 De-Comp 750/Deore LX cont. Saddle
 27" x 1.75" Shimano Advan50 2P
 26" x 1.75" Advan50 2P
 180 Shimano 105 105 pad/padded
 Shimano 105/105 T
 Shimano 105 or Red Flat Penderwood
 4-year sprg. 25.75-34.25/riding seat
 Multi-purpose
 \$1000

RANS Recumbents



The 1987 Rans Nimbus is one of the most user-friendly recumbents available today.



The Stratus dates back to 1978 and was the first recumbent model produced by the Rans company.

Model: Design/Steering Type: Wheelbase: Seat/Bottom Bracket Height: Headset/Seat Post/Seat Angle: Weight/Weight Distribution (R/L): Frame/Tube Construction: Seat Frame/Material: Seat/Frame (R/L): Material: Controls: Cassette/Chain: Gear Inck Range: Brakes (R/L): Brake Levers: Rear Wheel/Fab/Wheel/Spokes: Front Wheel/Fab/Wheel/Spokes: Tires (R/L): Bottom Bracket/Headset: Pedal/Color: Wider Height and Adjustment: Model Designed For: Suggested Retail Price:	Model: Randy Schiller™ 887 CR8/832 (C or B base with fender) 55-65" 23.4/13.7" 5.4-10" adjustable 42/33/33/33 seat varies by rider 44/38 Crotch/Under/TG RANS mesh back/foam base Shimano Deore LX 11 speed Shimano 10/7000 Suntour HL Comp 24/28/40 Shimano 8000 11-28/32mm Sells 20.5-100 Deore LX cantilever Terra 30" x 1.75/70mm Shimano 8000 SP 30" x 1.5/68mm Shimano 8000 SP Waco 28/600/32mm Sells Shimano 10/65/70 HS 126 and Mirafloja Blue X-race range: 16.75-54/55/56 seat SR/Suppose \$1,599	Model: Randy Schiller™ 907 CR8/850 T-Bar, suspended 65" 20/18.75" 5.4-10" adjustable 40/33/33/33 seat varies by rider 41/32 Crotch (air shock susp.)/Crotch/TG RANS mesh back/foam base XT/Aluminum 8SP 8.0-24 speed Suntour 10/700 Shimano Deore XT 42/28/40 Shimano 8000 11-28/32mm Sells 20-104 Shimano 100 11 Hydraulic Shimano 30" x 1.875/70mm Shimano 8100 SP 30 30" x 1.5/68mm OC/Velocity Aero/80 SP Continental Grand Prix 1.25 100 or Shimano 28/600/32mm SC Pro Rans Blue/Silver or Emerald Green/Silver SR/Suppose \$1,999	Model: Randy Schiller™ 1000/1001 TR8/8400, 1000/1001 Floor 74.5" 23.8"/23.0/13.0/13.0/13.0 (adjustable) 35.5"/35.5"/2" (adjustable) 44/33/33/33/33 seat varies by rider 41/30 Crotch/Under/TG RANS mesh back/foam base (2) Shimano Deore XT 24/28/40 Suntour 10/700 Revelation Tundra/Sunglo/Rans Shimano 8000 11-28/32mm Sells 30-100/100-140 Shimano 1001 Hydraulic/1001 drag Shimano 30" x 1.75/70mm Shimano 8000 SP 30" x 1.5/68mm Shimano 8100/80 SP Continental Grand Prix 1.25 100 or Shimano 28/600/32mm SC Pro SR/Suppose or Terra T, C, D CR-28/31.75 8-37.5-48/50 seat SR/Suppose \$2,099/\$1,499 (Boraxer TC)
Model: Design/Steering Type: Wheelbase: Seat/Bottom Bracket Height: Headset/Seat Post/Seat Angle: Weight/Weight Distribution (R/L): Frame/Tube Construction: Seat Frame/Material: Seat/Frame (R/L): Material: Controls: Cassette/Chain: Gear Inck Range: Brakes (R/L): Brake Levers: Rear Wheel/Fab/Wheel/Spokes: Front Wheel/Fab/Wheel/Spokes: Tires (R/L): Bottom Bracket/Headset: Pedal/Color: Wider Height and Adjustment: Model Designed For: Suggested Retail Price:	Model: Dave/David 897 (hard tail) Randy Schiller™ 895 CR8/8400, upright 62" 14.4/17.2" 5.4-10" adjustable 42/33/33/33 seat varies by rider 44/38 Crotch/Under/TG RANS Duroal wide base Shimano Alivio 7 speed Qipone 10/700 Terra 40-1 Shimano 8000 11-28/32mm Suntour 10/700 HS 126 and Mirafloja Blue X-race range: 16.75-54/55/56 seat SR/Suppose \$999/\$999	Model: Randy Schiller™ 987 CR8/850 T-Bar, suspended 65" 20/18.75" 5.4-10" adjustable 40/33/33/33 seat varies by rider 41/32 Crotch (air shock susp.)/Crotch/TG RANS mesh back/foam base XT/Aluminum 8SP 8.0-24 speed Suntour 10/700 Shimano Deore XT 42/28/40 Shimano 8000 11-28/32mm Sells 20-104 Shimano 100 11 Hydraulic Shimano 30" x 1.875/70mm Shimano 8100 SP 30 30" x 1.5/68mm Shimano 8000 SP Waco 28/600/32mm Sells Shimano 10/65/70 HS 126 and Mirafloja Blue X-race range: 16.75-54/55/56 seat SR/Suppose \$1,599	Model: Randy Schiller™ 1000/1001 TR8/8400, 1000/1001 Floor 74.5" 23.8"/23.0/13.0/13.0/13.0 (adjustable) 35.5"/35.5"/2" (adjustable) 44/33/33/33/33 seat varies by rider 41/30 Crotch/Under/TG RANS mesh back/foam base (2) Shimano Deore XT 24/28/40 Suntour 10/700 Revelation Tundra/Sunglo/Rans Shimano 8000 11-28/32mm Sells 30-100/100-140 Shimano 1001 Hydraulic/1001 drag Shimano 30" x 1.75/70mm Shimano 8000 SP 30" x 1.5/68mm Shimano 8100/80 SP Continental Grand Prix 1.25 100 or Shimano 28/600/32mm SC Pro SR/Suppose or Terra T, C, D CR-28/31.75 8-37.5-48/50 seat SR/Suppose \$2,099/\$1,499 (Boraxer TC)



The 1997 *Rain Model* round tube



Ed Logan's *Angletech V-Plex 3L65*—photo courtesy of Angletech



The 1997 *Rain Diverger*



The *Rain/Whiner*, all-weather



The prototype *Rain Olix* with rear suspension will be available in June 1997 (competition model will have a fully triangulated frame with the rear stays running out, under the bottom bracket to the head tube.)



Rain Devil suspended cruiser



The 1997 *Rain Diverger*

ReBike



The 1997 ReBike 707
LEFT: The 1997 ReBike 2000. RIGHT: The 1997 ReBike 707

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Trail/Rearsets Angle:
Weight/Weight Distribution (R/L):
Frame/Parts/Construction:
Seat Frame/Material:
Derailleurs (D.L.):
Shifters:
Crankset:
Frontwheel/Chain:
Gear Inset Range:
Brakes (R/L):
Brake Levers:
Rear Wheel/Fub/Wheel/Spokes:
Front Wheel/Fub/Wheel/Spokes:
Tires (R/L):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

ReBike 707
Kelly Swartz/1997
OLM/steer-over-seat steering
31"
30.25"/adjust. up, dn. for. 45/44.4
N.A./non-adjustable seat
440.0/4.4
St. Hifen/Chrome-plated Hifen/TIG
Hifen steel/Carbon-fiber/Vinyl/foam/foam
7 speed
Shimano thumbshifts
44-7
14-28/40/42
24-88
4/150 cantilever
4/150
27" x 1.75 408/foam on steel/27"
18" x 1.75 308/foam on steel/27"
Vita Peng 1,750.00
N.A.
Pendulum Jet Black and Forest Green
10-11/11/30/30/440
Lithium/Plastic/Plastic
\$299-\$329

ReBike 800
Kelly Swartz/1997
OLM/steer-over-seat steering
31"
30.25"/adjust. up, dn. for. 45/44.4
N.A./non-adjustable seat
440.0/4.4
St. Hifen/Chrome-plated Hifen/TIG
Hifen steel/Carbon-fiber/Vinyl/foam/foam
Shimano Tourney 18 speed
Shimano thumbshifts
Triple 20-40/48
14-28/40/42
24-88
4/150 cantilever
4/150
27" x 1.75 408/foam on steel/27"
18" x 1.75 308/foam on steel/27"
Vita Peng 1,750.00
N.A.
Pendulum Jet Black and Forest Green
10-11/11/30/30/440
Lithium/Plastic/Plastic
\$299-\$329

ReBike 900
Kelly Swartz/1998
OLM/steer-over-seat steering
N.A.
30.25"/adjust. up, dn. for. 45/44.4
N.A./non-adjustable seat
440.0/4.4
St. Hifen/Chrome-plated Hifen/TIG
Hifen steel/Carbon-fiber/Vinyl/foam/foam
Shimano Altus 18 speed
Shimano thumbshifts
Triple 20/40/48
14-28/40/42
24-88
4/150 Cantilever
4/150
Jet Black, Citrus Red and Green
10-11/11/30/30/440
Lithium/Plastic
\$299-\$329

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Bottoms Angle:
Weight/Weight Distribution (R/L):
Frame/Parts/Construction:
Seat Frame/Material:
Derailleurs (D.L.):
Shifters:
Crankset:
Frontwheel/Chain:
Gear Inset Range:
Brakes (R/L):
Brake Levers:
Rear Wheel/Fub/Wheel/Spokes:
Front Wheel/Fub/Wheel/Spokes:
Tires (R/L):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

ReBike/ReBike 8P
Kelly Swartz/1997
Tilt (See in text)/steer-over-seat steering
N.A.
30.25"/adjust. up, dn. for. 45/44.4
N.A.
440.0/4.4 440.0/4.4
St. Hifen/Chrome-plated Hifen/TIG
Hifen steel/Carbon-fiber/Vinyl/foam/foam
Shimano Tourney 7 speed
Shimano thumbshifts
44-7
24-88
Cantilever/Bar
N.A.
N.A.
27" x 1.75 408/foam on steel/27"
18" x 1.75 308/foam on steel/27"
N.A.
Vita Peng 1,750.00
Pendulum Jet in Black
10-11/11/30/30/440
Lithium/Plastic/Plastic (YPR) plastic (YPR)
\$249-\$299

New for 1997: A new year of new innovations. We are extremely proud to announce that ReBike is now a division of Huffy Bicycles. Two of the biggest innovations including bringing you exciting new options:
Stainless Steel: Put the black metal and ReBike will dress it for you, or you can customize it yourself.
Options: Two wheel models come standard with a Pedal Assist and Pedal Call for Pedal Assist catalog: 1-800-800-8000 and ReBike jewelry.
Painting: Home Pre-assembled, Via Storefront, Retail, Via Storefront, Lifetime in warranty (Home) Years in business: 8 Available From: Dealer & Direct ROM Articles: ROM and opening

Contact Info:
ReBike
208 Evans Pl.
Millsboro, Del 19966
P.O. Box 1000 ReBike (730-493)
Phone: 1-800-800-8000
Email: rebike@swonline.net
Web: <http://www.rebike.com>



Rotator Bicycles



ABOVE: The Rotator Cruiser single speed
RIGHT: The Rotator Pursuit with Innovator™ with upgraded Revlar racing option



Model:

Design/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Seat Angle:
Height/Weight Distribution (lb./ft.):
Frame/Fork/Construction:
Seat Frame/Material:
Details (R./L.):
Spitters:
Coaster:
Cassette/Chain:
Gear Inch Range:
Spokes (R./L.):
Spoke Levers:
Rear Wheel/Hub/Rim/Spokes:
Front Wheel/Hub/Rim/Spokes:
Tires (R./L.):
Bottom Bracket/Headset:
Paint/Colors:
Color/Height and Adjustment:
Model Designated For:
Suggested Retail Price:

Pursuit
Steel/Aluminum/1000
LWB/400mm seat-steering
88"
17"R/L
P.L.A.
90/90/55—33%
Cable/M/Ten/T10
Carbon/vented nylon
Sachs Centers (3) speed
Sachs Pro (3)T (steel/offset)
Sachs 170mm
13-28/13/2
25-110
Sachs 8000-carbide
Sachs
20" x 1.25 400mm/28mm/28
20" x 1.25 400mm/28mm/28
Schwabe City Marathon 20" x 1.25"
Tape
Steel/pendulum
Sliding seat/seat-clamp adjuster
48"Race/Sport Touring/Commuting
\$1,500/Pre-assembled available

Type:

Steel/Aluminum/1000
PWB/400mm seat-steering
47"
18"10"
40 L
P.L.A./P.L.A.—48"
Cable/M/Ten/T10
Carbon/vented nylon
Sachs Centers (3) speed
Sachs Pro (3)T (steel/offset)
Sachs 170mm
13-28 cassette/PAC/Chain
25-110
Sachs 8000-carbide
Sachs
20" x 1.25 400mm/28mm/28
20" x 1.25 400mm/28mm/28
Schwabe City Marathon 20" x 1.25"
Tape
Steel/pendulum
Sliding seat/seat-clamp adjuster
48"Race/Sport Touring/Commuting
\$1,500/Pre-assembled available

Cruiser:

Steel/Aluminum/1000
LWB/400mm seat-steering
88"
18"R/L
P.L.A.
P.L.A./P.L.A.—38"
Sachs (P/L/M/S)
Carbon/vented nylon
Sachs (Aluminum) 7 spd. optional
Sachs
One piece (R/L) steel 10-T
18-T
85
Coaster Brake
P.L.A.
20" x 1.5 400mm/28x2 steel
20" x 1.5 400mm/28x2 steel
Sachs
Tape
Steel/pendulum
Sliding seat/seat-clamp adjuster
48"Race/Sport
P.L.A./Commuting
\$1,700/598 (7 spd.)

New for 1997: The Innovator™ tubing kit is an upgrade option for the otherwise similar Pursuit. Nexus 7 spd. is optional on the Cruiser. Factor has captured top events in 1996 at race events including the "Triad" World State Rally in Japan and the 4800 events in Las Vegas, NV. With a background in race car fabrication and motorcycle racing, Factor brings their skills to the road bike design. The Pursuit and Type models are efficient, comfortable, performance oriented vehicles. The Cruiser uses similar design techniques offering a more economical option for those interested in trying their first road bike.

Options: Paintings, lighting kits, aerodynamic wheels, 48" tires and custom modification/development.
Features: Innovator™ Pedals for racing 8000-Revlar oval; fenders that bring 8400-400er seat; 48" Race/Pursuit 8250; Super Zapper 6700.

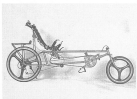
Pre-assembled: Yes
Bench tested: Yes
Warranty: 3 years
Years in business: 10+
Available From: Dealer & Direct
800-440-0000; 609-697

Contact Info:
Rotator Bicycle
1618 Maleta Street
Santa Rosa, CA 95402
Ph: 916/533-4200
Fax: 916/533-3344
Email: R.A.
Web: <http://www.rotatorbicycle.com>



The 1997 Rotator Type 3WS with mid-drive

Ryan Recumbent Bicycles



Ryan Vanguard Pro—A.B. Orosco



The 1997 Ryan DuFlex tandem

Model:
Designer/Date:
Design/Powering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Post/Steering Angle:
Weight/Weight Distribution (M/L/R):
Frame/Tube Construction:
Seat Frame/Material:
Seat/Seatpost (L/in.):
Material:
Color(s):
Frame/Seat Connector/Chain:
Seat Tube Height:
Brake (L/R):
Brake Levers:
Rear Wheel/Hub/Firefly/Sprocket:
Front Wheel/Hub/Firefly/Sprocket:
Tires (L/R):
Bottom Bracket/Headset:
Paint/Colors:
Size/Weight and Adjustment:
Model Designed For:
Suggested Retail Price:

Vanguard
 Club Ryan/1999
 LWB/VLWB
 34"
 25 1/2"
 89
 190/195—10%
 Carbon/Carbon/T10
 Alum./Fiberglass mesh
 Shimano Deore LX 21 spd.
 Shimano bar-cone (bar-end)
 Shimano 105 20/32/52
 11-28/50ths
 26-123
 Shimano Deore LX cantilever
 Tektex
 27" x 1.25" Sova/Main-Gon/27" 65
 20" x 1.25" Sova/Main-Gon/27" 65
 Max. shock/Spec. Fat Boy 1.25"
 S.A.
 Black or red powdercoat
 2 frame sizes in 20" inseam/riding seat
 Touring
 \$1999/Frameless \$1200

DuFlex
 Club Ryan/1997
 LWB/Van/VLWB
 100"
 22 1/2"
 89
 190/195—10%
 Carbon/Carbon/T10
 Alum./Fiberglass mesh
 Shimano Deore LX 24 spd.
 Shimano bar-cone (bar-end)
 Specialized 28/45/65
 12-28/50ths
 26-123
 Shimano LX cantilever/Alu. drum drag
 Tektex
 27" x 1.25" Sova/Main-Gon/27" 65
 20" x 1.25" Sova/Main-Gon/27" 65
 Max. shock/Spec. Nimbus III 1.75"
 S.A.
 Black or red powdercoat
 in 24" inseam/riding seat
 Touring
 \$2499/Frameless \$2000

New for 1997: 5 & 8 couplers on the DuFlex for easy take-apart.

Options: Tandem case \$600; 5 & 8 Couplers \$200-\$600; Computer mount \$25; 4-Clamp \$15; Seat post \$30; Wheelburn rack \$44 and custom paint \$100-\$145.

Settings: Ryan Super Clipper seat-able from 24° Design. Pre-assembled. Yes. Beach tested. No. Warranty: Lifetime frame. Years in business: 15.

Available From: Direct only. RCA America, RCA, 450 and 452.

Copyright 1997.

Ryan Recumbents

4-Sprocket Drive

Hampstead, NH

ProFlex/1-800-832-2888

Order: 1-800-832-2888

Email: ryanbike@ryancycles.com

Web: <http://www.ryancycles.com>

The Most Comfortable Bike You'll Ever Ride.



"Could be the safest and most comfortable bike in the world" *Bicycling Magazine*, August 1994.



Ryan Recumbent Cycles

PO Box 588, Hampstead NH 03841-0588

Phone/ Fax: 603-329-8338 or 1-800-832-2888

Email: ryanbike@ryancycles.com WEB: WWW.RyanCycles.com

We ship bikes anywhere in the world!

S & B Recumbents



ABOVE: The 1987 S & B Tandem
BEACHCRUISER: The S & B Beach Cruiser
RIGHT-LOWER: The S & B Single



Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Postline Angle:
Height/Weight Distribution (M, F, J):
Frame/Parts/Construction:
Seat Transmission(s):
Seat(s) (M, F, J):
Shifters:
Controls:
Cassette/Chain:
Gear Inset Range:
Spokes (M, F, J):
Spoke Levers:
Rear Wheel/Hubs/Wheel Spokes:
Front Wheel/Hub/Wheel Spokes:
Tires (M, F, J):
Bottom Bracket/Headset:
Paint Colors:
Rider Height(s) and Adjustment:
Model Designed For:
Suggested Retail Price:

S & B Beach Cruiser
J. Smith/Jan. 1987/1988
DPR/Underseat steering
38"
17 1/2"
N.A.
200/200—40%
HFR/FR/FR/TG
Platiglass shell with foam padcover
S10000 5 10/400
Shimano
Cosh 10-T
Shimano 13-30/SMC 8000
N.A.
Nash/Shimano drum
N.A.
24" x 2.00/30mm drum
16" x 2.00
White Shimano
18/17/17
Platiglass (purple, yellow or black)
48"-7" (50/100) 140
Cosh/Orion/Pinax
Price \$200

S & B Single
J. Smith/Jan. 1987/1988
DPR/Underseat steering
38"
17 1/2"
N.A.
200/200—40%
HFR or Cosh 100/170
Platiglass shell with foam padcover
S1000 5
Shimano or Sachs
Shimano/SMC 5000
N.A.
Cis Comp axle out/Bachs drum
N.A.
24" x 1.75/Wash 100
16" x 1.75/Wash 100
N.A.
Shimano LM60/Tiga
Powdercoat (your choice)
48"-7" (50/100) 140
MultiPurpose
\$170 (1-400), \$190 (14-400), \$200 (21-400)

S & B Trix
J. Smith/Jan. 1987/1988
Title (see above) FR/100
24" (wash 100)
17" (all), seat backbase/17"
N.A.
200/200—40%
Cris/Mc/Tan/TG
Fiberglass shell with foam padcover
Sachs Shimano
S1000 Shimano
Cosh or Sachs
Shimano/SMC 5000
N.A.
Free Sturm option/30mm drum
N.A.
24" x 1.75/Wash 100
16" x 1.75/Wash 100
N.A.
Shimano LM60/Tiga
Powdercoat (your choice)
48"-7" (50/100) 140
MultiPurpose
\$210 (\$400)

Model:
Designer/Date:
Design/Steering Type:
Wheelbase:
Seat/Bottom Bracket Height:
Headtube/Seat Postline Angle:
Height/Weight Distribution (M, F, J):
Frame/Parts/Construction:
Seat Transmission(s):
Seat(s) (M, F, J):
Shifters:
Controls:
Cassette/Chain:
Gear Inset Range:
Spokes (M, F, J):
Spoke Levers:
Rear Wheel/Hubs/Wheel Spokes:
Front Wheel/Hub/Wheel Spokes:
Tires (M, F, J):
Bottom Bracket/Headset:
Paint Colors:
Rider Height(s) and Adjustment:
Model Designed For:
Suggested Retail Price:

S & B Tandem
J. Smith/Jan. 1987/1988
FR/Underseat-rod steering
38"
17" 640, 440, 100/200/19 (50/17)
N.A.
400/300
Cosh/Cris/Mc/TG
Platiglass shell with foam padcover
Sachs 10/21 speed
Shimano
Shimano or Sachs
Shimano 13-30 (flat—optional)SMC 8000
N.A.
Cris/Drum
N.A.
24" x 1.75/Bachs (Cris/Wash 100)
16" x 1.75/Wash 100
Paint
Shimano 100/Tiga
Powdercoat (your choice)
48"-7" (50/100) 140
MultiPurpose
\$200

New for 1987: The 200 S & B Beach Cruiser is the best deal in recumbency for 1987. It can be upgraded to a 7 1/2, 21 speed or a 30". Rotor has it that there may be a fully loaded S & B into this 1987.
Options T, 14 or 21 speeds, Sachs 10/1000 option, Sachs (1000 option) or HFR frames, chaincases, rollers, custom colors, custom modification, tubular axle design. S & B offers freewheel on all. The release frame, 100/100 cover, handlebars, bottom bracket, headset (140) single and (200) for the trix. A higher back seat is also available for an additional \$100 and a carry wheel seat cover (\$20). Electric seats 5 & 8's are also available.
Painting: Akemcolor paintings are available. Pre-assembled (see Beach Cruiser) Trix

Warranty: Frame—18 months
Needs to be repaired in Available Power (Sport or Dealer) FOR PARTS. 10/2000
Contact S&B:
S & B Recumbent
PO Box 2001
Compton, CA 90220
Phone 714-762-0244
Fax 714-762-0244
Recumbent Summer '87


Turner Enterprises



1987 Turner T4 Lite is high-performance and touring model.



Model:
Design/Date:
Design/Weight Type:
Wheelbase:
Saddle/Seat: Saddle height:
Handlebar/Seat: Saddle Angle:
Weight/Weight: Weight/Volume (Lb./L):
Frame-Construction:
Seat Frame/Material:
Dimensions (LxWxH):
Colors:
Options:
Cassette/Chain:
Gear Shift Range:
Brakes (LxR):
Spoke (LxR):
Rear Wheel/Hub/Rim/Spokes:
Front Wheel/Hub/Rim/Spokes:
Tires (LxR):
Bottom Bracket/Seatset:
Paint colors:
Seat Height and Adjustment:
Model Designed For:
Suggested Retail Price:

T4 Lite
 Million Turner 894
 2000/1987
 29" (29" on small model)
 27" x 27"
 8914" adjustable
 8000/8000—100%
 Chromoly/Mo/Ti6
 Fiberglass/Carbon/Fiberglass
 Saddle 8000 21-speed
 Saddle Pro 800 (metal saddle)
 Saddle or similar 20/48/20
 11.50/Saddle Saddle
 24-88 (24), 26-108 (26), 27-110 (27)
 Chromoly 8004 cable pull
 Saddle
 29" 29" 700c/Saddle 8000/Weir/80 29"
 19" x 1.25"/Weir/Saddle 2000/20 29"
 N.A.
 Powdercoat Dr. Blue, Red or Black
 2'-6 1/2" (21" seat)
 24/20/20 Touring/Commuting
 \$1200/From our website

T4 Lite Deluxe
 Million Turner 894
 2000/1987
 29" (29" on small model)
 27" x 27"
 8914" adjustable
 8000/8000—100%
 Chromoly/Carbon/Ti6
 Fiberglass/Carbon/Fiberglass
 Saddle New (Carbon) 21-speed
 Saddle Pro 800 (metal saddle)
 Saddle or similar 20/48/20
 10-88 (24), 11-108/26/Saddle
 23" x 1.125/24/24—108/26 (24), 24-110
 Dr. College Blue/Black
 Saddle
 29" 29" 700c/Weir/Saddle/80
 19" x 1.25"/Weir/Saddle/80
 N.A.
 Powdercoat color Dr. Blue, Red or Black
 2'-6 1/2" (21" seat)
 24/20/20 Touring/Commuting
 \$1350/From our website

Save for 1987 Turner has discontinued the 8900 model and is working on a graphite replacement. Both models use the same frame and handlebars are available. Turner Lite has a 8000 pound capacity.
Options: Saddle 24", graphite seat
 Small Saddle model comes standard with lighting system and standard. All models will accept a 29", 27" or 700 seat wheel.
Preassembled: Yes
Serial/Label: Yes
Warranty: One-year
Year in Production: 11
Available From: Dealer & Direct
800 Number: 1-800-810-0000
Contact Info:
 Turner Enterprises
 1200 E. Flamingo Pl. #33
 Las Vegas, NV 89119
 Phone: 702-735-8848
 Email: T.E.
 Web: <http://www.turner.com/turner>



A custom Turner T4 Lite with Spinning wheel, optional bar-end controls, a custom idler and modified Ballistic suspension fork—Jeff Baser



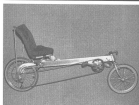
Turner T4 Lite high-performance gaming and optional Uni-tilt wheel cover

Wheel Recumbents



Model:
Design/Color:
Design/Steering Type:
Wheelbase:
Seat Distance (Recumbent Height):
Posture/Seat Recline Angle:
Weight/Weight Distribution (M/L/R):
Frame/Tube/Construction:
Seat Post/Seat rails:
Seatrails (M/L/R):
Shifters:
Controls:
Controls/Chain:
Gear Inch Range:
Brakes (M/L/R):
Brake Levers:
Seat Wheel/Hub/Spokes:
Front Wheel/Hub/Rim/Spokes:
Frame (M/L/R):
Bottom Bracket/Headset:
Paint/Colors:
Rider Height and Adjustment:
Model Designed For:
Suggested Retail Price:

Wheel Recumbents (RPO) Model:
Material/Finish:
Customization (seat steering):
30" 36" seat tube length-models available:
20" V17
SP1720 recumbent:
408/704...1074
Atom, evolution/Linear/Creative/DO:
Atom/Atom seat/Atom chain, Linear:
80/80 30", 21-speed
Zip Shifts:
Color: triple 40-T
Shimano HG-11 28-Speed
21-104
Side-pull/brake controller
74/85
20" x 1.75" 40-600s/Gustoff 60
18" x 1.25" 34/40-600s/Gustoff 60
Frame 14" 60 24/70, Edge 13" 100 24
Surplus Shimano Steel
Standard Summit
2-471/512 and
Seat swing/hanging
2002



Note: The Wheel (RPO) is made for Wheel Recumbents by Linear Mfg. A similar model is available through Linear corporation (model within the state of Wisconsin where it is available through Wheel Recumbents and Wheel & Spindlers only.

Note for 1997: The concept behind the design: The integration of design elements Linear Manufacturing and Wheel Recumbents of Wisconsin, has resulted in a Wheel & Spindlers to bring together many ideas. These ideas come from existing recumbent ideas, using their experience, innovation and the experience of our internal recumbent experts. The end result: The EVOLUTION. This model has been designed to offer you an easy-to-use and ride recumbent cycle. It will still fit all sizes and preferences. Stay tuned to 9/97 for further product news and developments by Wheel Recumbents.

Options: Add available seat, Wheel & Spindlers is a complete full service (Wheel Recumbent dealer and offers a number of options. Financing is available.

Fairings: Linear Zipper Custom Open Available? Yes
Pre-assembled: Yes
Brake tested: Yes
Warranty: Lifetime
***Years in Business:** 11 (Linear only)
Available Parts: Dealer & Direct
RCM & Sales: Learning Spring 97

Contact Info:
Wheel Recumbents
11122 S. 128th St.
Maple Center, WI 53153
Phone 1-800-363-8827
Fax 414-452-8899

Wheel/Zip: S.A.

Zip Designs

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Streamline your dreams with

ZIPPER
ROAD FAIRINGS



Zip Designs

P.O. Box 14
Davenport, CA 95017

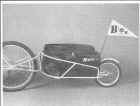
Send \$2 for color brochure

Call Today 1-888-WINDSORN (344-7376)

http://www.zipperca.com/Zipper Fax: 408/426-1167



B.O.B. Trailers/Cargo



Model:
Designer/Date:
Design:
Frame/Construction:

THE YAK
Proly Hooster™ 1999
Cargo Trailer
4/28 (C/O)OTY

Weight:
Dimensions:

PIE
38" L x 17" W x 11" H Cargo space 28"
L x 16" W x 10" max. height. Storage
dimensions 27" L x 17" W x 11" H.

Capacity:
Wheels/Tires/Spokes:

675
17" x 1.75" O.P. alloy cast, sealed butyl
alloy tires/6 spokes with 6 joint
attachment aluminum fender

Attachment:

SPECIAL B.O.B. Quick Release for
Bike rear axle/masterless steel pivot
and **YAK B.O.B. Quick Release** adjusts
to fit 125mm-150mm wheel drop out
spacers. Steel axle and geared hub
adapters available.

Frame:

PYOTE: Polyethylene DELPHIN™
loadings on trailer fork pins.
Powdercoat Silver
Cargo bag "Yak, BAK" modular, 1750g
oz., i.e., weather resistant, coated nylon
rings shafts. 4 way splitter lunge cord
with 4 feet ports.

Safety:

Safety flag (2 piece) fender reflector/
wheel reflector/warning feature has
replaceable nylon strips.

Suggested Retail Price:

\$249.00

Features:

- frames — fits between car and curb
- steel cargo system, mounts to most
recumbents.
- Low center-of-gravity + low cen-
trifugal drag
- Front fork brace for compact storage
- Slings in seconds to most rear hubs
- Accessible available for most solid axle
rear hubs including internal gear hubs
and Sachs 5T.
- Ideal cargo system for recumbents
and tandems
- Robustness feature when parking (see
various manuals)



B.O.B. BOOMER/BOOMER 2-LUX
S.O.B. 1999

Kid Trailer 2 seat
18" Top stack/Bottom-Alloy
Foldable (both models)
1999?™
28" L x 30" W/28.0" L x 32.0" W

15000 100

28" x 1.75" O.P. steel cast, sealed butyl
plated spokes and 28" x 1.75" O.P.
alloy cast, sealed butyl alloy
spokes (24x10)

SPECIAL B.O.B. Quick Release for
Bike rear axle/masterless steel pivot
and **YAK B.O.B. Quick Release** adjusts
to fit 125mm-150mm wheel drop out
spacers. Steel axle and geared hub
adapters available.

PYOTE: Polyethylene DELPHIN™
loadings on trailer fork pins.
Powdercoat Black
Cargo space behind seat on both
models.

Safety flag/Reflector/5' cushion
sarcovac-standed on both models

\$279.00? (alloy)

- Quick Folding feature (both models)
- Allow trailer to track on corner
- Equal left and right turning action
- Maximum rear-deceleration when
parking
- Maximum leg-clearance when
dismounting, parking off and starting
- Robustness feature for parking and
loading
- No lunge effect when climbing
(common with free joint chain systems)
- Rear springless face away from the
seat when
- Improved visibility for the kids
- Easier to load children (no hitch
interference)
- No trail or dangerous objects along
from the seat to the top of the
side

Who is B.O.B. anyway?

That's a team of passionate cyclists with
many experiences in product
development and business,
questioning internal combustion,
Location: beautiful San Luis Obispo,
California

Agenda: promote cycling as a
means of transportation for both
recreation and utility.
(NO BIKES, BIKING CLUB)

Boomer: They've taken the
conventional low wheel trailer design
and created a new rear-line
attachment system using their pat-
ented B.O.B. Quick Release-master
attachment system. No more angle
bars that clamp to chain stays!

The key to B.O.B. protection is the
simple, universal attachment system
that adapts to virtually any bike.
Trailers are attached/detached in
seconds. The system is a modified
rear wheel quick release with pins on
each end. Attachment at the rear
hub gives a 20% stable, aerodynamic
performance—insures that perform-
ance-detriction in the cycling world!

Options: "B.O.B. Hubs" accommod-
ates adapters available in 3 axle sizes.
For Quick Release type hubs and for
master frame type single speed hub
quick-releases, internal 3 speed hub
adapters are available.
Available From: Customers and
distributors.

Contact Info:
B.O.B. Trailers, Inc.
3644 Sacramento Dr. 40
San Luis Obispo, CA 93401
Phone: 805/768-2000
Fax: 805/768-0004
Email: bobtrailer@earthlink.com
Web: <http://www.earthlink.com/bobtrailer>

B.O.B. SEE YOUR BIKE SHOP
OR CALL US AT
805-768-2000

Seen & Noted-North America

Autobike Creations

Model:

Designer/Date:
Design/Seating Type:

Wheelbase/Weight:

Frame/Pedal/Seat:

Drivetrain:

Brakes (F/R):

Wheels (F/R):

Model Designed For:

Suggested Retail Price:

Warranty:

Autobike Creations

1044 Hudson Rd. Ste 14-100

San Valley, CA 90383

Ph:606/327-5888

Autobike 38 Auburn Scooter

U.S.

Custom paint car with fiberglass body

Dimensions: 44x18x14

47 lbs/100

1 800. 820000 (Multi-quad)

Rear dual brakes

40" W"

Continuing ped. rentals

\$2995

U.S.

New for 1997. Pumps of a stretch van.

Options: Independent pedaling, gas or

electric assist, multiple seating, waver

and a working trunk.



Doppler Cycle Tech

Model:

Designer/Date:

Design/Seating Type:

Wheelbase/Weight:

Frame/Pedal/Seat:

Drivetrain:

Brakes (F/R):

Wheels (F/R):

Model Designed For:

Suggested Retail Price:

Warranty:

Doppler Cycle Tech

51 Victoria Street

Kitchener, Ontario N2G 1P6, Canada

Ph:519/875-8478 Fax:519/875-8107

Web: dopplercycle.com/sympost02.cfm

Seamer

M. Seamer/Phalen/1996

CR6 "Compact" 488

84.87x100

Highly visible 18" aluminum alloy seat

Seat: Carrera/Proton Topco

Dr. George Bug Dog/Dewco LX rearfender

87" x 1.875x100" 50" W" x 1.875x100"

Multiple Use

\$800 + 54H

1 year

New for 1997. New model available

through dealerships. Model available in

international yellow, blue and black.

Options: Puncture repair, 30" seat (4 lbs),

extra luggage carrier.



Earth Traveller

Model:

Designer/Date:

Design/Seating Type:

Wheelbase/Weight:

Frame/Pedal/Seat:

Drivetrain:

Brakes (F/R):

Wheels (F/R):

Model Designed For:

Suggested Retail Price:

Warranty:

Parade Creek Bicycles

811 S. Main St.

Roberts, ID 83840

Ph:208/862-4700

Order 800-1-800-555-1882

Earth Traveller

East 4000/1994

Triax 488 (two wheels in back)

87" W"

Cadillac/T10/Turner 1g (steel beam seat)

Shimano Acera/Olympus/hubless

Front side-out

87" x 1.875" W"

Patented in 1990s needs

\$995

U.S.



Glas Tec

Model:

Designer/Date:

Design/Seating Type:

Wheelbase/Weight:

Frame/Pedal/Seat:

Drivetrain:

Brakes (F/R):

Wheels (F/R):

Model Designed For:

Suggested Retail Price:

Warranty:

Glas Tec Fabricating

5017 E. Morgan St.

Tulsa, OK 74114-0024

Ph:918/588-0181 Fax:918/748-8448

E-mail: U.S.

Ambone

Seat: Luv/VC.A. Inc/Can/1996-1997

88x148x148 (485 optional)

97" W"

Cadillac/OrMo/Fiberglass shell/steel seat

Seat: 30" (optional)

2x2 Comp

70" W" x 18" H" Alloy 30"

48" W" x 18" H" x 18" H" x 18" H"

\$4995

8 years like platform/ year body shell

New for 1997. New tuby frame (485)

Options: Electric 3sp assist, carbon

frame, ABS, chromolux brakes, lighting

systems and custom options.



Just Two Bikes

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 JTB
 4811 Washington Ave.
 White Bear Lake, MN 55113
 Phone (612) 835-1848 Fax (612) 835-8444
 Email: JTB@JTBUSA.com/JustTwoBikes

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 New for 1997. Rental and special needs
 versions are available.
Options: Adjust seat back, fenders, fenders, multiple seat mounting, hand mounting, cranks, computer and custom signs.



Personal Transportation

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 Personal Transportation
 28, 4 Box A42
 Waterloo, WI 53090
 Phone (414) 787-0300
 Fax (414) 787-0100

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 New for 1997. High-back suspended ultra
 deluxe bike. Also available in the Phoenix
 tandem bike 90000.
Options: Disc brakes, Cap motor, rack,
 lights, CD player and more models.



Peugeot/Quetzal

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
Contact Info:
Peugeot-Canada
 6881 130 e Ave
 St. George, Quebec, Canada G9A 1A7
 Phone (819) 863-8834/Fax (819) 837-8798
 Phone (800) 543-4142 (U.S. only)

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 New for 1997. Custom Technology has
 sold 300 P-100s in Canada. Watch for
 new sizes 101 and 102 speed models
 priced at \$899 and \$1199 respectively.
 For more info, contact your Peugeot
 dealer or local recumbent specialist.



Quadracycle, Inc.

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 Quadracycle, Inc.
 6115 E. 500 S.
 Hamden, IL 62706
 Phone (618) 448-0900

Model:
Designer/Date:
Design/Steering Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Controls:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Availability:
 New for 1997. Coasthopper (18" size) and
 Coasthopper, 8 foot seat pedic car with 21
 speeds (see \$2899).
Options: Basket, deluxe seats, 81-APC,
 fan, lights, brake lights, fenders, horn
 and canopy.



Rhodes National Corp.

Model:
Designer/Date:
Design/Seating Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Drivetrain:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Warranty:
Rhodes National Corporation
 188 Rhoades Lane
 Hendersonville, TN 37075
 Phone 615-823-2727 FAX 615

Shuttle Car
 Four-Wheeler
 Steel 1998-087
 U.S.A.
 47" (x1000)
 3 speed (optional 28 or 36 speed)
 Disc Brakes
 30" X 1.75"
 Multipurpose/rental
 From \$999
 1 year
New for 1997: Rhodes has many different models including 1.2-4 passenger and photo/camera mounts.
Options: Deluxe seats, 36 speeds, 50/40/30, 10/16, bumper protection, windshield, golf bag carrier and canopy.



Ride-Rite Bicycles, Inc.

Model:
Designer/Date:
Design/Seating Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Drivetrain:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Warranty:
Contact Info:
Ride-Rite Bicycles, Inc.
 6022 17th Ave. SE
 Bellevue, WA 98008-0022
 Phone 206-835-8008 Fax 206-837-1497

Shuttle 95-1
 One-Speed Shuttle 1994
 42.5" Upright/Recumbent steering
 47" (x100)
Orlando Cycles/Orlando Cycles/Orlando Cycles
 \$620 (Recumbent) \$67 (21 speed)
 \$620 (Upright) \$67 (21 speed)
 18" (x100)
Training/Commuting/Sport/Fitness
 \$1499
 One year
 \$1499
New for 1997: This is a new model for 1997.
 9245-581: Model for international sales company.



Trailmate

Model:
Designer/Date:
Design/Seating Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Drivetrain:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Warranty:
Trailmate
 2000 Trailmate Co.
 Sarasota, FL 34243
 Phone 813-557-1034
 Fax 813-557-8141

Le Rider/General-Purpose/Run Cycle
 Trailmate
 7 lbs. (no in back) 7 lbs. (no in steel)
 U.S.A.
 47" (x1000) from navigation over steel
 1-speed (optional 3 spd. on some models)
Coaster
 18" (x100)
Multipurpose/rental
 \$65, \$900 (steel)
 U.S.A.
New for 1997: Great entry level equipment for kids, retirement, rental or special needs.
Note: Check with your local accountant specialized for Trailmate only.



The Low Rider

Tricumbent Productions, LLC

Model:
Designer/Date:
Design/Seating Type:
Wheelbase/Weight:
Frame/Fork/Seat:
Drivetrain:
Brakes (R/L):
Wheels (R/L):
Model Designed For:
Suggested Retail Price:
Warranty:
Contact Info:
Tricumbent Productions, LLC
 111 S. Main St.
 Sunland, CA 92481
 Phone 951-271-4171
 Email: TRICUMBE@net.com

Seven
 \$6 (Main 1996)
 This, too, has a rear wheel steel (1996)
 30" (x1000) by steel/steel with 30" (x1000)
Orlando Cycles/Orlando Cycles/Orlando Cycles
 \$620 (Recumbent) \$67 (21 speed) \$67 (21 speed)
 \$620 (Upright) \$67 (21 speed)
 18" (x100)
Multipurpose/rental
 \$650 - \$75 (14" (x100))
 One year
New for 1997: U.S.A.
Options: The Seven is offered in a "color" kit. A custom floor seat shell, rollers and gearing changes are available.



WizWheelz

Model:
 Designer/Date:
 Design/Building Type:
 Wheelbase/Weight:
 Frame/Fork/Seat:
 Drivetrain:
 Seating (LxH):
 Wheels (LxH):
 Model Designed For:
 Suggested Retail Price:
 Warranty:
 Manufacturer:
 635 W. Clinton
 Hingham, MA 02043
 Phone (508)435-0000
 Fax/FX (508)435-0000
 Email: WizWheelz@aol.com

Year/Price:
 J. Wheeler/99, Datasoft, Gen 10 / \$4
 Price, less in frontload:
 12'00" track
 Frame (seat/seat back) (SANS)
 Seats Super 17" xpl., Seats 3x7, 21" xpl.
 Seats drum
 20" xpl./Seats/Velosity/OP/ST 80
 Multiple use
 \$1,500
 Newer 1987 (New model for 1997)
 Options: The Seater Super 7 internal hub
 is standard. The Seater 80/74 opposite op-
 tional. It full body is in the works and possibly
 a "convertible."



"The Trick"



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 Appropriate Transport

From the designer of the
 fastest thing on two wheels...
 the fastest thing on three wheels.

WINDCHEETAH

PEOPLE MOVERS
 714.633.3663



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2,000 square feet of floored bikes

- In-House Manufacturing
- Home of Human Powered Machines
- Youth Apprenticeships
- 455 W. 1st Ave., Eugene, Oregon
- 541/344-1197 <http://www.efn.org-ent>

World Wide Manufacturer Listings

Aerobikes, Ltd

Model: Compact
Type: OHV "Compact" Rear Sued
Frame: Coloured (Air spring seat)
Drivetrain: Sachs 21 speed
Brakes: Shimano Jockey drum
Wheels: 700x20
Purpose: Commuting
Price: £1495.00/£1920.00
US Distrib: Pohl-Cox-Coles
Contact:

Aerobikes Ltd
 Unit 13 Cuddington Yards
 Solihull B91 3 2JF
 UK/Fax (0121 42) 91 427 995
 Email: 1004123@aerobikes.com

New for 1997: Three new models in the "four high speed" (shifting) series and the "four-speed" "four" (hydraulic disc front brake and lighting system).



BELOW:
 The new
 Jumbo
 folding
 Aerobike



A.S. Engineering

Model: Tika
Type: FWD suspended
Frame: Steel
Drivetrain: FWD 41/26/50/21-424
Brakes: (L/R) Hydraulic drum
Wheels: 27" (2)
Purpose: Multi-purpose
Price: N.A.
US Distributor: No
Contact:

A.S. Engineering
 AASD, Inc. Unit 10, 10-000
 Malaga TN360
 Florida
 Fax: 7 086 420 2887
New for 1997: N.A.



Aeroproject

Model: S.A.
Type: OHV/ABS
Frame: Steel
Drivetrain: 21 speed
Brakes: (L/R) N.A.
Wheels: 700x20
Purpose: Multi-purpose
Price: N.A.
US Distributor: No
Contact:

Hartig Maschinenbau für Landmaschinen
 Pfaffen Sieders Str. 48
 D-41489 Biegholz-Großhain
 Germany
 (Phone N.A.)
 Fax/N.A.



Bavo

Model: Bavo-Bike
Type: OHV "Compact" ABS
Frame: Chromo
Drivetrain: 7 speed (normal)
Brakes: (L/R) Magura/Carbonyl
Wheels: 650
Purpose: Rec./Fitness/Comm.
Price: £550.00
US Distributor: No
Contact:

Non Special Rad GmbH
 Tiefenweg 3
 D-20024, Spanten-Islandort
 Germany
 UK/Fax (011 49) 421 47408

New for 1997: The Bavo has just made it to US shores, we hope for a great sales scenario, visit us @ www.bavo.de for the European equivalent list.



Extreme Engineering

Model: Rubicon
Type: Tika (two wheels in front)
Frame: Rectangular stainless steel
Drivetrain: Sachs Race Success
Brakes: (L/R) Hope Hydraulic
Wheels: 26" (1) (2)
Purpose: MTB/Racing/Rec./Com.
Price: £950
US Distributor: People Moves
Contact:

Extreme Engineering
 20 Oak St.
 Southport, Merseyside
 PR8 6DD England
 UK/Fax (011 44) 1754 642818

New for 1997: The Rubicon has a fiberglass seat, column (adjustable) steering, and is custom built for 18 lbs rider (no frame or seat adjustments).



Flux Fahrrader GmbH

Model: General
Type: OHV
Frame: Chromo
Drivetrain: N.A.
Brakes: (L/R) N.A.
Wheels: N.A.
Purpose: MTB/Racing/Com.
Price: N.A.
US Distributor: No
Contact:

Flux Fahrrader GmbH
 Knechtstr. 6/Street-3
 D 134 Germany
 Fax (011 49) 3143 50180
New for 1997: N.A.



Kingcycle

Model: Kingcycle
Type: OHV/ABS
Frame: Aluminum Chromo
Drivetrain: 21 speed
Brakes: (L/R) Shimano/Joyo
Wheels: 34" (2) (2)
Purpose: MTB/Racing/Commuting
Price: N.A.
US Distributor: No
Contact:

Kingcycle
 Ltd Unit 18A, Blands
 High Wycombe, Bucks
 HP12 4JQ England
 Fax (011 44) 1494 524004
 Fax (011 44) 1494 431191



Leitra

Model: Leitra
Type: Tika (two wheels in back)
Frame: Steel
Drivetrain: Sachs 21 speed
Brakes: Shimano/Joyo drum
Wheels: 40mm 30" (2)
Purpose: Touring/Commuting
Price: \$8,000 USD + \$24
US Distributor: No
Contact:

Leitra
 Str. 64 08-0700, Gallehus, Denmark
 Fax (011 45) 62 55 9277
New for 1997: This unique bike designed by Carl George Raasmussen is shared by leitra, has a fiberglass/harbon fiber seat and has a 18" forward full weatherproof body.



Photo by Silver Swallow

World Wide Manufacturer Listings

HP Velo

Model: Street Machine
Type: 20" Full suspension
Frame: CrMo/Steel, Inta/TIG
Drivetrain: Sachs 8000/XT
Brakes (B.M.): Magas
Wheels: 700/20
Purpose: Multipurpose
Price: 2890 DM
US Distributor:
Contact:
 HP Velotechnik
 Rosenstr. 38 D-49500
 Kalk, Germany
 Fax: (011 49) 5018 21479
Note for 1987: HP Velo is planning to introduce an entry level model in '87. HP will ship into the USA.



Radius

Model: rama/vee
Type: UNISUS UN9 suspension
Frame: Carbon
Drivetrain: S.A.
Brakes (B.M.): Magas Hydraulic
Wheels: 20"
Purpose: Touring/Commuting
Price: N.A.
US Distributor: No
Contact:
 Radius
 Porzang-Verlag
 Rankstr. 23
 41 500 Mülheim
Note for 1987: No stock from Germany, however, the Viper has to be one of the steepest mounts on the planet. No need somebody doesn't import them. We suggest you email the help of a dealer to purchase a Radius.



Slipstream Cycles

Model: Damon
Type: 100% (two wheels in front)
Frame: Inta, Alum./Carbon fiber
Drivetrain: Sachs 307 21 speed
Brakes (B.M.): Hope Tech disc
Wheels: 26x20
Purpose: Multipurpose
Price: N.A.
US Distributor: No
Contact:
 Slipstream Cycles
 PO Box 204, Puchheim,
 Havelth, England/0914 4038
 Phone: (11 44) 1830 721887
 Fax: (011 44) 1830 721112



Pivot-Liegegerader

Model: Purefare and Harpoon
Type: 20"V
Frame: Carbon
Drivetrain: S.A.
Brakes (B.M.): S.A.
Wheels: S.A.
Purpose: S.A.
Price: S.A.
US Distributor: Currently looking
Contact:
 Pivot Liegegerader
 Abtstr. 15
 80000 Tettnang, Germany
 Phone: (11 49) 7542 34008 Fax: (11 49) 7542 3007
Email: Pivot.Liegegerader@t-online.de
Web: http://www.t-online.de/home/pivot.liegegerader@t-online.de



Riley Bicycles

Model: De La Tourist Seat
Type: L261 838
Frame: Rep/009/501
Drivetrain: Shimano/Titanium
Brakes (B.M.): Cantiver
Wheels: 26x20
Purpose: Multipurpose/Touring
Price: £1000/£1000
US Distributor: No
Contact:
 Riley Cycles
 24 Alving Close
 Chesham/Cherly
 Bucks MK37 8BQ England
 Phone: (11 44) 1500 88887
Note for 1987: New manufacturer and new models. (73 stands for Tour, Touring & Transport).



Windcheetah

Model: Windcheetah
Type: 100% (two wheels in front)
Frame: 6000 Aluminum bonds
Drivetrain: TDF/Minimo/Comp
Brakes (B.M.): SA Drum 20"V
Wheels: 26" 21 Motion
Purpose: 100% Recumbent/Tour/Com
Price: \$1400
US Distributor: No
Contact:
 Seat of the Pants Company
 Unit 1075 L & M Blvd, Fish
 Spring Road, Broadheath
 60114/ham, Cheshire, England
 Phone: (11 44) 0181 820 5078
 Fax: (011 44) 181 828 8588



Note for 1987: The Windcheetah is now available in the USA through select dealers. The North American distributor can be reached at 800/303-1622 (PST).

Recumbents as low as....

\$359

Maxam is proud to introduce two new recumbent bicycles for "1987." The **ReHeat (CLWB)** and the **ReVellon (tandem)** are Maxam's answers to the high priced recumbent. Combined with the already popular **ReVella**, Maxam has the bike you're looking for at a price you can afford.

Call now and place your order before summer arrives. **513/648-0022**

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MAXAM
 INCORPORATED



Recumbent Homebuilder Ideas



Homebuilder recumbent information is becoming harder to find. Commercially available plans are rare, though there are individuals offering noncommercial plans on the internet if you're willing to do the detective work.

Over the past year recumbents have continued to gain momentum and are becoming more readily available. Unfortunately, this has hurt homebuilders. On the upside, there are more recumbents and parts available for homebuilders to use. We are firm believers in utilizing existing technology and design where applicable, so don't try and reinvent the wheel, unless you want to build someone else's (homebuilder syndrome). Forks, steering columns, seatposts, other than that, it's construct the rest.

Our best advice is to think it through before you start. You can buy complete frames for \$150, an \$40 Search Center for \$200, or well or other incredible values in new or used bikes.

To come up with a realistic comparative price, do a careful cost analysis that includes a decent seat, parts and acceptable components.

Another option would be to frame it in, possibly even appointed to save some cash. Groundwood will even sell a take-out with plans.

Lastly, riding mechanics tend around with junk-bikes for components. Keep in mind the safety aspects of using others' stuff, especially for moving parts (chains and wheels).

PLANS

LWB PLANS: The first and foremost recumbent building planmaker, EasyRacer Inc., stopped producing plans in 1996. There are plenty of sets out there. Plan site or wait-as the plans are first to RCN subscribers.

SWB PLANS: The BenTech plans are excellent. For a review, see RCN366. The Rebel plans from New Zealand were still available the last

time we checked.

PWD PLANS: Tom Taylor is a PWD planner and offers excellent building plans. The background, design theory and jig building information is worth the price cost.

BMX CONVERSION: The easiest way to get on the road as a homebuilder is to convert a BMX bike. Weld on a frame and add a seat and you're in business. Watch for the RCN homebuilder booklet due out this Spring (SAVE to RCN for info).

TRIKE PLANS: Cheapgood and Civil Engineering (Trike) offer blueprints for the homebuilder. The Haldi trikes are very good, though expensive.

SEATS: The best deal on a recumbent seat is from S & R Recumbents. For around \$100, you can get a fiberglass seat shell and covers. The Tuscany seat is similar, but better. The Rams seat is a great setup for the homebuilder and adapts easily. It comes in varying seat diameters with the rivet or screw into your top tube. The seat quick releases to the diameter. The ATP seat mounts via two-quick releases and is another easy retrofit. For the latest recumbent seats expect to pay \$200-\$300. GM-stock frame "buckets" and ATP models may be available at a savings as well. The lowest cost alternative is to cut two pieces of plywood, connected via a doorknob type hinge and cover with foam and vinyl or similar material. This is for over \$20 max.

UNDERSEAT STEERING: This is a tough one. Cables are the easiest if you can track down an in-line steering strap, otherwise plan on lots of work.

ABOVE-SEAT-STEERING: Clearly the best is the Rams fold-forward "flip up" setup. ATP offers LESS kits as does Haldol (cheapest).

FORKS: Many recumbent manufacturers are using the same kit. Check with homebuilder parts sellers such as Prairie BPV or manufacturers. This fork is available in 18" and 20" size. Italian suspension forks are available to the 20" size from AngliTech and others. Some 20" and 20" steel forks are meant for juvenile and BMX bikes that have 70mm spacing, which can be too narrow for some recumbent front wheels. Most will work, just be sure you are aware of what you have.

FRAME STEEL: You may be able to talk your local recumbent builder into selling you the tube you need, if it is a tube they use. Prairie

BPV has frame tubes and homebuilder aircraft sources are another good bet. Check your local scrap yard, second hand bike store, swap meet or if you live in the northwest go to Boeing Supply.

WHEELS: There are incredible differences in the quality of wheels available. Creative recumbent wheels can be purchased in 18" and 20" sizes from Prairie for under \$40 is more than \$100 per wheel. A great set of replacement wheels can be purchased from recumbent dealers and manufacturers. NOTE: Don't use steel wheels, upgrade to decent Q.R. hubs with alloy rims.

Keep in mind sizing variations. 20" x 1.5" (406) and 20" x 1.18" (451) wheels are different diameters, there are varying 24" and 26" sizes.

INTERNET: Do a search for

recumbents, BPV's, BPVVA, and you'll find plenty to keep you busy for hours. Advertisers and sources to RCN have web sites of interest and there is the BPV mailing list (send a message to: mgj@rcnweb.cipky.com, send us to subscribe). Include in the message body "subscribe bpv".

BMX SEATS: We like to think of RCN as a "college course" (OK, maybe an experimental U course...) on recumbents. The back issues are an invaluable source of information on past, present and future designs.

For 1997, we plan to put out a very basic/no-nonsense homebuilder booklet with homebuilder articles reprinted in condensed sized (for cheap) size who'd care how you take these magazines...). Send an SASE to: RCN, PO Box 58153, Rancho, WA 98058. ☐

TEAM EASY NEWS

YAHOO! As they say on the World-Wide-Web these days. You're only as good as your latest web-page update. Up since 1995 and still earning high-kudos among the digerati, Easy Racers very own site www.easyracers.com just keeps getting better

and better. Look for an expanded Florida area and more emphasis on specifications, less emphasis on order forms and such. Check out the latest in specifications/modifications under **KEYWORD: Bicycling on AOL**.

So, you've been thinking of a little Gold Rush touring once the weather eases up? How about knocking off 2600 miles on the Alaska-Canada Hwy. from Fairbanks, AK to Prunedale, CA. Be ready, as Gold Rush rider Wayne Boone was in June/July 1996, to climb a total of 137,000 feet, endure 100+^o heat and hypothermic cold,

Yukon Territory roads that make you think "Hell-Can We'llay!" plus those horseflies that stick right with you at 17mph? Are we having fun yet? Wayne got seven flats but had no mechanical bike trouble, he got on local TV and into lots of newspapers including the one in One Hundred Mile House B.C. Hey! Can those things climb hills?

EASY RACERS INC

Box 255 Freedom CA 95019-0255

www.easyracers.com

408-732-6797 Voice/Fax

teeasy1@aol.com

Recumbent Accessories/Upgrades

This section includes our thoughts on recumbent components, accessories and options. For more information take a look at our favorite Report in *SCN* 383.

AERO WHEELS: Are they more aerodynamic—Yes (usually). Are they lighter than spokes—No, not always. Aerodynamic (45mm 28") HED (17" x 24") and SPIN (40mm 28") full manufacturer complete wheels in recumbent sizes. We suggest you ask your manufacturer dealer for a recommendation.

AERO WHEELS/DRIVE UNI: drive uni are still available for those who like to be punished (removed for installation is a real pain). The Lightning wheel covers have a great look and ride down that allows you to fill the drive up without removal.

BELLSHOES: We use an AirCondition People Motors jet rider's attention to foot rides. A Specialized Dr. Singer works better on bike trails with kick, drag, horse and occasional cycles.

BRAKES: You won't believe what a high-quality set of cables, housing and levers will do for you. Magura hydraulics are even more popular this year with Kaps offering them as optional equipment. If you can make them work, Shimano 105HC and Ultegra dual pivot setups are simple and strong, although they require slanting drive and the pull is on the wrong side for a SWB lever. Lightning's dual pivot that fits their bikes. AngleTech mounts "V" brackets on SWB models. Upgraded brake pads on rubber/brake are important. Look for Arma, Rail Stop or Scott Super brake pads.

BAR/ENDS: Do you want your US\$ 10000 controls to have that "pink-grip" feel? Add a set of side-act bar ends with controls to your Mix. You won't believe the difference. Besides offering more consistent "in-control" feel, they bring the controls much closer to your body. These riders have to reach to get to the bar for comfort on stock US\$. Bar ends for this purpose can be purchased from Hakaiki, Ryan and Turner. Be aware that these work best with bar-end shifters with the handle levers and shifters mounted on the bar-end. By way of "L" bond handle lever/cables/cables when used with work handles remember your old Schwinn Varsity?

CABLE HOUSING: High quality cables and cable housing are a must for often long or creatively routed recumbent cables. We tested the Ride-On housing on the

Grouped cable and a work great. Cheapie Try: Spray Tri-Flu into the lines every two days. This makes for smooth operating levers and shifters. Be sure to keep your systems CLEAN.

CLAMP BRIDES: Are you always frowning on the pages of the MTB magz at the inner disc-locks? Well, just when we thought we'd tested it all, HCN found good-will ambassador and West Coast Campusian, Ron Schmidt, has come up with CNC-machined, all-steel cable-ends in recumbent sizes. Ron was the first recumbent guy in the world to have Cook Brothers nitro-ox-nitro-stem drivers on his bike that are custom machined for his Q.R. foot-wherever-to-see-and-propose Provo Triad. These are available from AngleTech.

CAR RACKS: We use Yehira roof racks with a front fork clamp/rear top arrangement. If the bike is too long, you set the rack over to the frame just ahead of the rear wheel lays in the top setup of some form. Tandem rack-converters used with some modifications, and various extended stays available. Rumpac racks work OK on big, wide cuts or SWB/CLWB bikes, though we've seen a Yehira fly on the back of a Honda Civic before. If you do this, you may want to mount one on both of your wheels. Motorcycle/bike sometimes don't mount on bumper rack tight, and we've heard of users turning bikes upside down—wherever worked! The best rack setup is probably the Drufmanns motor bike mount. It will accept recumbent singles and tandems with ease.

COMPUTER: You may want to go with what your recumbent distributor/writer wants to install and warranty. When in doubt, we're going with Trek and Schwinn for this reason. If you like glasses, check out the Arcon 35 with an altimeter and more sensors than you can reasonably deal with.

COMPUTER MOUNTS: The best computer/light mount we've seen is ATF Vision and Hakaiki. It fits on top of the front down-tube tube of SWB recumbents. Pairing frames on US\$ recumbents are handy to mount a computer and accessories to well.

CHAIRN: If you don't have a Sachs chair on your bike, get one the next time you replace it. Sachs chair is the best. Most chairs should notice a difference. Maybe we should take up a collection of BMC chairs and send it to a 3rd world country.

CHAIN GUARDS: The best one we've seen is the Hakaiki. You can make one yourself (see *SCN* 383).

CLUBS/BIKES: Need some "best do-not" Check out Alky Minni's article in *SCN* 383. The House has checked every source for custom bike shows. We found a few others: Lightning, AngleTech and West Coast Custom-made shorts makers are available in most towns.

CRANKSET UPGRADES: Bentley Logic and Campagnolo are my favorites, though the Ray Race Racers and ATF Vision Cook Brothers CNC-machined/computer milled or "CNC-No-Comers" (just very nice).

DEARLEIGH: It's best to get a front derailleur designed to work with the rear derailleur and chainring/derailleur that you have. We recommend NOT using a MicroDrive style front derailleur with road gearing. Also, we suggest NOT mixing Grip Shifts with Suntour front derailleurs. Sade and Shimano systems interest just fine.

Most Sachs and Shimano based systems will do just fine. The Shimano STX 8R is a great rear derailleur for recumbents. LX is more spillover and may or may not shift any better. Shimano XTB is high-end MTB racing and the cross-fit is a cross, though may really just be an exercise in a "best gear" set. Shimano seems to have the edge with ramped cuts and chainrings. The Race Racers-Vision City 100 ESP system works great with its 1:1 shifting.

We are fans of the Sachs 3:1 interest but-remember T speed and Nexus systems. The 3:1 is the only way to get the super-wide-range touring drivetrain where you need a 15 gear inch low and a 140+ high gear for scanning down the back side of mountain passes. Check out Ray Race Racers Maxima (with a front derailleur) 21 speed 10:1. The rear derailleurs is left on top of the chain.

DRIVE TRAIN TIRES: The old Rohloff will replace the "C" tires on your rear derailleurs housing with a roller and it works! RR 4M has the Race Work which springs the rear-derailleur cable. Turn your BMC chain and go for a nice 40mm (drive-axle) roller. Make sure you have high quality latex compressed detail-free housing and name-brand cables and lined brake housing and name-brand cables on your bike.

PAIRING/BIKES: Zipp Design manufacturers have fittings of different sizes, thicknesses and mounting procedures as well as experimental fits. Your best bet is to dis-

cover fitting availability with the manufacturers or dealer of the bike you intend to buy. Zipp has fittings for almost every recumbent model. Race differentiated fittings on Shimano/Motors LWB models. AngleTech has a special SWB Zippos and its updated "Rooster" Presto fittings. ATF Vision has a custom fitting that uses a Zipp handle and custom mount. There is also a rail pinion. Full bodied bikes are available from Lightning, Glas-Tec, LeMond and others. Pairing kits are available from Cambie Cycles in Vancouver BC and Campagnolo has front and rear kits.

Ray Racers has a rear carbon fiber Zipp-like front fitting with a body lock. A nice company, Kumpage, offers a Croydon front and rear fitting kit for SWB models.

David DeLano built a rear suspension, one tall fitting that works on Roman models. There is a matching Douglas front fitting as well. AngleTech built Koo's-to-the-Sky new cones designed for the Presto's and similar bikes.

We're also very interested in homemade Campagnolo-based fitting technology as (strong)plugs bodies are generally beyond the realm of the home-builder.

FRONT: Chrome cleaves or "fibers" are available in 18" and 20" tall sizes for knee-low speeds. It's possible to buy and/or tool front levers in size. AngleTech has front derailleurs. Lightning has steel ones. Race and ATF should have better ones this season. Ray Racers makes Karlar 20" levers for both sizes (400 and 451). TSP *SCN* 383 has a good home-built front article.

REARS: The best forks are those built in the USA by the manufacturer of the bike—and then are becoming more rare. The few that come to mind are the Lightning P-38, ATF Double Wilton and AngleTech/Race Racers. Several best or custom-designed forks to the designer specification. These are found on Ray Race Racers, Next, other custom mild forks, such as those on Hans LWB and others. This comes at the off-the-shelf-Cable vent-type that is so widely used today. Did you know that ATF, Race, Ryan and Hakaiki are using basically the same fork? Whether you know it as the J & B Cromie mountain fork (as paired by J & B Pacific, white/black only) and comes in 18" or 20" sizes. The kind of fork you don't want is a RTW steel juvenile fork. In many cases you can upgrade to Cromie.

These are information *SCN* 383

MTB suspension forks available. Check with your manufacturer first and then with your dealer.

FRAMESETS: We DO NOT recommend that customers buy frame-sets unless you have been doing your own manufacturing. For awhile, we DO NOT recommend that you buy a frame-set like unless the custom-guy says how what they are doing. Keep in mind that component incompatibility runs rampant these days. There are specialty linkers, wheels and droppers to deal with. And/or-dish wheels(ATP). And there are the compact vs. road size drive and gearing combinations. We suggest you discuss your gear/component choices with the manufacturer before you make the order. Stock models hold their value better (notable exception: Angleshite).

The only exception to the rule is with low-end or bargain bikes such as Mongoose (see upcoming BCN99A, S & B and some Turner framesets where you can get on the road inexpensively if you build a frame-set).

HANDLEBARS: Stock bars are usually the best. For US\$ bikes, adding bar-ends is usually a good idea. For A\$5 LWB bikes, bars sometimes intimidate. We've found of Ray Kean and Kean bars interesting. Two-time bars are narrow and stiff. GS-1 bars are wide and expensive with a more relaxed wrap position. Kean "C" are the closed loop (dollar) bars. "C" are the open bars that are the widest and good for road/comm/cross-riders. The new Kean "I" bar (Half-width/Close bars) will fit down-tube models and offer more options and flex/roll adjustment.

A frame for a swap may be to get a bar/ends that has flex/roll, up/down adjustment. This is handy if you're playing around with fittings, levers or seat swaps.

Undercut-steerer may want to look into bar-end accessories to bring the controls closer. Haines, Ryan and Turner all offer this. Side-swing steering such as the Peugeot already has been built in.

HEADSETS: Recommendations based on headsets, especially DWS models. Don't strip bars, if you want a really good headset, answer for the name Chris King. We should be able to find the difference. Keep a watchful eye on your headset.

SEDS: Shimano and Sachs road and MTB are the best of the mid-range bins. I don't like to see imported "Seven" bars or mixed centers of combined steel on expensive roadsets. Roll-ons are a serious unless they are Sachs 307 or drum brakers. In the high and Phil Wood,

Campagnolo and maybe the new Chris King are preferred.

LIGHTS: If you use lights, better discuss this with your dealer or manufacturer prior to ordering your bike. The best means we've seen are from ATP/Haines and Haines for SWS models and some non-brand LWB roadsets. With other LWB bikes, your lights will mount to your A\$5. However, you must be a bit creative when you direct your lights through a fitting.

For specific brands, we suggest you see your recumbent dealer/specialist and check out our literature report in BCN98. We liked the Q-Wal and Netherland best.

LOCKS: I use a U.S. cable with a really heavy duty lock/shackle lock from Angleshite, but I don't like it in a high-draft area. Kryptonite U-locks are very good as well.

MIRRORS: If you ride a "beat", you need a mirror (mirror, plain and simple). Check with your manufacturer and find out what models best with your make/model. Another one what works best for you.

MOTOR KITS: The electric Zip motor cost, and we're going to get a test unit soon, though we've researched about how long the juice will last on NY bikes. We like the commitment to recumbency that Dimension Edge has made. You can turn your "beat into a recumbent" with one of their nice, power kits.

PANNIERS: The contest on the road are the lighting wire-panniers. I've found they even give you a performance boost! Angle/Dish, Boncar and Greenpedal also have panniers available.

PEDALS: Most recumbents these-days come with crummy pedals, this is because most manufacturers eventually go to clipless. This is a very good idea for your low-LWB or SWS rider in takes effort to hold your feet inwards. It's best not to start using your clipless pedals until you've mastered the bike.

If you are an average or just don't want to spend the money, re-consider your bike choice toward a lower bottom bracket model, or get some Powerpedals (optional wrap across pedal/Non-clip clipless wannabe), these work pretty well.

Low BR CLWB models are good candidates for some simple platform/MTB or BMX pedals. Turn the plastic pedals to the junk bin. TIP: The higher the BR (pedals) the more you will need clipless pedals.

RACKS: Blackburn MTN racks are the best for most uses, though custom builders are available. The N&E trailer is great for haul-

ing larger loads. Ray Kean (GS-1) and Bickell both have under-seat panniers. Kean will install panner/brackets as an option and they are working on a GS rack.

RETRORIECUMBENT STUFF: There are specialty fix groups for old road and MTB components such as classic Camp, Shimano/Chris King, etc. Heck, even the old Shimano Provo-Stokes are popular with the goodnies. The best source for this stuff is the Reynolds specialist, p#811893-3304 and the Bicycle Traders, p#811894-3304. Local used bike shops, co-ops and donations are a good source of some parts. If you don't care about index shifting, components of the 70's to mid-80's are great. The final SWS/SG Pro parts were very high quality, as are Campy, Sugino (Ritchey), Sachs and Shimano handlebars.

SEAT BAGS: Custom made seat bags by Haines, Angle/Dish and ATP. Lighting and Bickell offer handlebar bags. Other bags LWB A\$5 roadsets will take handlebar bags.

SHIFTERS: M is a very noticeable issue, with SH&M Grip Shift SHIFTER/008. If you upgrade to a Grip Shift SHIFTER/008, you will notice much spicier shifts due to the 1:1 shift ratio. Sachs has shift shifters that work great on roadsets. Beware that they do not have a "friction" (bar-linked) mode. We still like bar-linked and external shifters if you can find them. The White Industries rotational shifter look great too.

Remember that direct index shifting requires frequent maintenance. This means YOU need to learn to do it or PAY somebody else who usually doesn't care about it as much as you do. If you don't know you've not a wren, why not consider an internally geared hub? Sachs makes 7-speed, Shimano has the new Nexus (GS-1 and MWS) and Sachs has the new Elan 12-speed internal hub (Angle/Dish MWS).

TIRES: A simple rule is skinny equals performance and fat equals comfort. Skinny tires are good for lightweight weight bike/riders; fat tires are good for luggatory riders or those who are riding less than ideal terrain or commuting/playing. There is a wide variety of tires available today. For 30" and 700c, go with a some-brand-quality tire. We like the very best Avonon Pangeo (up to 1.85"), Spicco/and Continental (including Grand Prix's).

The best 30" front tire available is the AT/Proton 340mm 30" x

1-88." This is the tire your 30" wheel equipped bike should have.

For 28" front wheels, you have more choices. The 40mm 30" offers a plethora of tires. The situation for 1997 are downsize everything. There is the tried and true 1.5-1.5 slick, to the more rare (S&B fav) Avonon Pangeo 1.75 slick. A new breed of slippy 1.25" 40mm tires are available in the Continental Grand Prix (the best recumbent tire we've seen) and the Schwinn City Marathon which is another excellent choice. Both are expensive tires that fit BMX sized tires. Now consider the many, many 40mm tires available for BMX bikes, from slicks, to semi-knobs to mountain bike tires. The taller 40mm 30" really only offers two useful choices, the 1-1/2" IRC Road Lite EX and the Primo 1-3/8". This 100 psi tire has been the mainstay of the performance LWB crowd for years. A new tire, the Primo 1-1/8" is a bit smaller and offers a somewhat ride that the Road Lite. Be sure your frame and max tire matching. Various working size new 400-30" Primo 1.3 tire 17" Mountain tires are the most high performance small wheel you can get. They are rare and expensive.

TRAILERS: The unmodified recumbent rider's trailer is the N&E, Phil Novosny's "Ghost of Batten" one-wheeled cargo trailer. This inconvertible object will work in just about any recumbent. Custom spec'd and painted (S&B's) are available through Angle/Dish. If you need to tow kids, B.O.B. has a new kid-friendly trailer and the Forley Deluxe is refined, neat and nice.

TRAINERS: We've tried riding our bikes indoors with minimal success (though trainers work great as "best-possible" models). Last November, we picked up a Killion AirDyne "Track Draft" Recumbent test trainer for winter spinning. It's heavy and chunky but works great. The seat is only full (ivory) covered wool. Training indoors for an hour at a time is a pleasure on the Back Draft. It's got intervals, hills, turn-out training modes with a five-level wrap-grip adjustment and other options on the simple and very useful built-in computer. I've tried Nordictrack, recumbent and step-uppers (the Back Draft is nearly a step-upper). For off-season training, nothing can match the AirDyne for recumbents.

For ECM Schwinn indoor recumbent specialists is Bob Cummings from The Torx Wheel in Harley, IL. Let Bob fix up you with a Back Draft, p#8080758-9433. ☺

Recumbent Contacts, Parts and Supplies

The companies listed below are recumbent bike parts, kits, related suppliers and manufacturers. Most manufacturers will sell parts for bikes they build. For further details listings contact the individual firm's.

Aircraft Sport & Specialty

200 W. Traylor Ave.
Pellenton, CA 92692
PH4714-970-1551
Products: Aircraft parts, Catalogs.

Aeroglobe

1200 Holden St.
Milford, ME 04851
PH603/685-9080
Products: 27" composite wheels.

AngleTech

518 N. Hwy 67
PO Box 1805
Woodland Park, CO 80666-1805
PH763/718-6871-7475

Email: Angletech@net.com
Products: Recumbent/RCN dealer, custom spcs, special needs, tables, Euro-benches, parts list, Catalogs.

Alternative Pedal Sports

9122 66 St.
Eau Claire, Wisconsin, CA
PH1-800-531-8558
Web: <http://altpedsports.com/altsp>
Products: Recumbent/RCN dealer

Angle Lake Cycles

20940 Pacific Hwy. So.
Seattle, WA 98188
PH206/8278-7457
Products: Recumbent/RCN dealer.

ATP Vision-See Mfr. Listing

Beachrider

11 800 N. Kendall Dr. Ste. 308
Miami, FL 33176
PH1-800-815-BACE
Products: Recumbent mb, builds
PH305/652 \$1200 bike.

Benson Bay Frames

Rick Gates
14752 SE 38th St.
Bellevue, WA 98008
PH206/346-7117

Products: Frame building, modifications and custom work.

Ben Tech

PO Box 188
McEwen, PA 16428
Web: <http://www.bentech.usd.com/>
customers@bentech.usd.com

Products: DWS Recumbent building plans. Bikes can be built for \$180. CAD3D designed and fully illustrated

BikePro USA

3701 W. Bismarck
Phoenix, AZ 85009
PH602-800-108-3330

Products: Custom made bike travel bags. Will build to fit.

Bicycle Evolution

985 Irving Blvd
Eugene, OR 97404
PH405-353-2773
Email: bel@evlo.com

Products: Recumbent/utility bike trailers. Company is co-owned by the Bicycle Kidz. Models from \$180.

Black-Sco Manufacturer Listing

BikeWorks

12717 46th Ave. W.
Everett, WA 98204
PH425/374-2688
Product: Recumbent/RCN dealer.

B.O.B. Trailers

3541 Sacramento Dr. #1
San Luis Obispo, CA 93404
PH805/541-2534
Email: info@bobtrailers.com

Products: DOB one-wheel cargo trailers and new child trailers.

California Cycle

1621 West Lake St.
Minneapolis, MN 55408
PH612/837-8231
Email: tenogood@net.com

Products: Recumbent/RCN dealer, rental and service.

Canada Cycles

5317 Carleton St.
Vancouver, B.C. Canada
PH604/671-7616
Email: ebc@netportal.ca

Products: Recumbent dealer, parts, service and a new lease listing list.

Century Cycle Works

2825 SE Hawthorne
Portland, OR 97214
PH503/238-7723
Products: Recumbent/RCN dealer.

CMB, Wason Co.

425 Chaucer St.
Palo Alto, CA 94301
PH415/321-0808/PH415/321-8579
Products: US distributor for
Drepanen/riding bicycles and parts.

Crystal Exp.-See Mfr. Listings

CYC Recumbent Cycles

538 4th Ave.
San Francisco, CA 94111
PH415/321-3681
Products: Recumbent dealer.

Dollak Service

3033 116 Ave. SE
Bellevue, WA 98008
PH206/694-8028/PH206/694-0131
Web: <http://www.ecd-limo.com/>
-mfrlisting

Products: Modules, Parkway distributor, Distributor for the PDQ/SPRS.

Dick's Recumbent Cycle

7983 Heritage Rd.
Eden Prairie, MN 55348
PH952/949-3781 or 512-2966-5234
Products: RCN/Recumbent dealer

Dwellcraft

1300 Red 48th Ave. Ste. 1300
Hillsboro, OR 97124-5889
PH503/593-1902/PH503/593-8007
Products: Recumbent bike racks that will carry recumbent singles, LWB and tandem.

Evo Street Recumbents

4507 Red River St.
Austin, TX 78751-4022
PH512/473-0438
Products: Recumbent dealer.

Eugene Cycle Sport

446 E. 11th Ave.
Eugene, OR 97401
PH541/343-3382
Products: Recumbent/RCN dealer

Eugene Bicycle Works

453 W. 1st Ave.
Eugene, OR 97401
PH503/583-1997
Products: Co-op, repair and classes.

Fairfield Bicycle Shop

1275 Oscar St.
Victoria BC, Canada V8V 2S8
Products: Recumbent/RCN dealer.

Falmouth Recumbents

PO Box 6781
Portland, ME 04103
PH207/734-4837
Products: Recumbent/RCN dealer.

Flying Dutchman Cycles

PO Box 698
Shoreps, FL 32849
PH407/653-6185
Products: 14th recumbent models.

Foals Crew Cycle

1848 Commercial Dr.
Tulalahoma, FL 32510
PH904/234-4767/PH904/277-6628
Products: Recumbent/RCN dealer, parts and service.

Freeman's Bicycle Repair

1127 Dodge Ave.
Oroville, CA 95965
Products: RCN dealer

FutureCycles UK

Pincode Yield, Power Row
East Sussex BN11 8SE England
PH0111 441 1342 822 847
PH0111 441 1342 826 736

Email: info@futurecycles.com
Products: UK recumbent dealer
RCN European subscription Rep.

Gaelton, Inc.

834 Grant Ave., Ste. 410
San Francisco, CA 94108

PH405/262-1866

Products: Recumbent parts
Also See Mfr. Listing

Green Gear Cycle

4085 W. 11th Ave., Ste. 14
Eugene, OR 97402
PH405-777-0258
Products: Mfr. of Bike Policy, 10" tandem and parts.

Greenwood-See Mfr. Listings

Halsbrook-See Manufacturer Listings

Hall's Recumbent Cycles

881 Meyer Lane
Rutland Beach, CA 90278-5213
Products: Recumbent rider clothes.

HEB Cycling Products

5555 9th St.
White Bear Lake, MN
PH612/653-0253/PH612/653-0279
Products: HED wheels.

Hedley Triles

Tom McGuff
PO Box 23944
Indianapolis, IN 46222
Products: Triles building, bike design and listing building materials.

Huffy-See Huffy Mfr. Listings

Human Powered Machines-See Mfr. Listings

Infinity-See Manufacturer Listings

Jalton Bicycle Co.
PO Box 2035
Julien, CA 90804
PH619/365-2200
Products: Recumbent/RCN dealer

Lighting-See Mfr. Listings

Linear-See Manufacturer Listings

Luna Strives

12233 Hwy 48
Arlford, OR 97320
Products: Small parts.

Mazum-See Manufacturer Listings

Microcycling, Ltd.

33-57 Cape Road
Mendon, MA 01461-1117
PH978/364-0283 or 1-800-451-4746
PH978/364-0288
Web: <http://www.MicroGroup.com>

Products: MicroCat recumbent pedal powered canisters.

Mfr. Alloy Bicycle

4548 CM National Pike
Mt. Airy, NCD 27717
PH813/291-3151

Products: Full service recumbent and bicycle dealer, parts and service.

NewSport

7760 143th Ave. SE, Ste. 26-134



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COMFORT ☉

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"It's a joy to ride. Incredibly comfortable and versatile gives me more room than I want to get on my old bicycle." - Michael Payne, West Footscray, Australia.

SAFETY ☉

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

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

"The Greenspeed is great. The ride like on rails even when it's very dry." - Andreas Felschberger, Schwabach, Austria.

PERFORMANCE ☉

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

"The stable acceleration, light and positive steering, fast cornering and powerful braking are an experience not to be missed." - Jim McGarr, "Encyclopaedia" 1993/4, U.S.

"The ride is beautiful. The design of your tricycle is the best I've ever. Day in this thing! And a blast to ride! I have never experienced a ride with this good handling and super positive and light steering. The steering!

front end geometry is fantastic, the best I've tried." - Robert Bryant, USA.

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

ENGINEERING ☉

Cr-Mo 4130 main frame, 80 ton steel axles, and sealed wheel bearings.

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

"What a marvelous life it was! Fourteen months, 20k riding days, 25,000km. That was our ride around Australia. The Greenspeeds did not let us down once." - Val Wright & Eric Butcher, Ocean Grove, Australia.

FUN ☉

"The Greenspeed is an exhilarating ride, making my sluggish body feel like a powerful engine." - Jim McGarr, "Encyclopaedia" 1993/94, U.S.

"I will check the alignment but I think if there ever has been due to my inability to control myself on those corners! It is the best by I have enjoyed." - Dr. Lincoln Brett, Perth, Western Australia.

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

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69 Mountain Gate Drive, Ferntree Gully, VIC 3156, Australia.

Phone +61 3 9756 9341, Fax +61 3 9752 4115 E-mail greenshp@coxmail.com.au

WEB SITE <http://www.cfbpa.org.com/~Greenspeed/>

Boston, WA 98058

PH2066849-8888/PH2066979-8897

Products: Curbless waterproof pans and Ultra Lite mirrors

North East Recumbent & Wheelchair Co.
Yonkers, NJ 07044

PH201-239-8958

Products: Recumbent/BCN dealer, parts and service.

Omni Instruments/EROS

133 Nevada Dr.

Petaluma, CA 94954

PH707-762-6992

Products: Classic power seats.

Open Road USA

PO Box 391810

Los Angeles, CA 90039

PH813-544-3288

Products: BCN/BCY/Cyclops dealer.

Packley PDQ—See Dealer Service

People Movers/Recumbent Bicycles

880 N. Main St.

Orange, CA, 92667

PH714-663-9860

Products: Dealer, parts and service. Call for parts catalog.

PumpOut/Quest—See Mfr. Listing

Praxis Design—HPV Supply

21806 Stradivari Rd.

Peets, Prater, KS 67370

PH616-643-6237

Products: BCN Dealer/Recumbent building/repairs supply.

Rampage Cycling Products

1544-D S. Euclid Ave.

Tucson, AZ 85715

PH520-784-4580 or 520-626-6117

Products: Complete fitting kits.

Ram Recumbents—See Mfr. Listing

RCI Consultants/Robert I. Bryant

PO Box 32785

Seattle, WA 98108-1785

PH206-838-6111-9728

Services: Recumbent industry consulting, specialized reports, press consultation, accident publications.

ReReRe/Holly—See Mfr. Listing

Reled Cycle Plans/Top Woodcoats

Aurilion Airfield

Poplar, New Zealand

Product: SWR plans, info SL.

Recumbent Sea

1225 Rosewood St., PO Box 283

Widonia, MI 49100

PH616-924-3288

Email: rls@widonia.com

Products: Recumbent/BCN dealer, parts and service.

Richardson Bike Mart

84 Dal Rich

Kilhamton, TX 75088

Products: Recumbent/BCN dealer.

Robinet—See Manufacturer Listing

Open-See Manufacturer Listing

Senior & Soft Recumbents

788 Nethurst

Alvin, TX 77611

PH713-553-4683

Products: "C" Bikes recumbent frame kit made from 5295.

S & B—See Manufacturer Listing

Sand/Walkerway Corporation

Box 1205

San Valley, ID 83159

PH208-756-5422

Products: Scott Supertrikes (high-end, high-power winner action venty-pull) and Scott Speed/brake parts.

Specialty Cycling

34 E. Coast Hwy.

Newport, OR 97365

Products: Recumbent/BCN dealer.

Spin Wheels

Innovations in Composites

4059 Coronado Blvd., Ste. E.

Coronado, CA 92036

PH619-443-3088

Products: Composite 20" wheels.

Tandem East

81-Oxywood Dr.

Pittsboro, NJ 08518

PH609-451-5104

Email: Tandemeast@aol.com

Products: TMs, specialty-line catalog.

Tandem Toppers, ATOC, Inc.

6015 180th St SW

Lynnwood, WA 98037

PH206/745-2131/1-800-470-0221

Email: atoc@atoc.com

Products: Floating tandem car rack. Mounts to major rack systems.

Third Hand

PO Box 212

St. Beaus, CA 94867

PH916-926-2800

Products: Repair, tools and books.

T.D. Traylor PWD Building Plans

23407 Wainwright Ave.

Torrance, CA 90503

Products: Power-wheel drive building plans, 30 pages of pictures, drawings, text, and implants—\$14.

The Bike Doctor

523 E. Spence Street

Minnetonka, MN 55302

PH952/771-5377

Products: Quality touring wheelsets.

The Bicycle Spokesman

3012-A Yonge St.

Richmond Hill, Ont., CAN, L4C 9B6

PH905/777-4143

Products: Recumbent/BCN dealer.

Totally Tandemed

PO Box 1981

Marshalltown, IA 50328

PH815-253-0276

Email: tandem@wtm.net

Products: TMs, specialty-line catalog.

Triflites, Inc.

804 Douglas Ave.

Rahway, NJ 07065

PH908/228-8058

Email: triflites@triflites.com

Products: Triflite seat bags, fairsings and accessories; The Triflite Zipper and body work. Triflite claims speed gains of 10% during a 1000 body sock.

Triner Enterprises—See Mfr. Listing

The True Wheel

PO Box 1608

Hatley, ID 83333

PH208-768-5418/1-800-807-7915

Products: Recumbent/BCN dealer, parts and service.

Mixed & Spruick

5722 S. 108th St.

Hales Corner, WI 53130

PH815-800-362-8170

Products: Recumbent/BCN dealer, parts, service and manufacturer.

Wicks Aircraft Supply

PO Box 129

Highland, IL 62249

Products: Manufacturer direct parts. Catalog \$5.

WtWheels—See Mfr. Listing

Wheel & Spoke/Bike Shop

5721 S. 108th St.

Hales Corner, WI 53130

PH815-800-362-8337

Products: Full-service bicycle shop, recumbent shop and manufacturer.

Zap Power Systems

117 Morris St.

Statenland, CA 94071

PH815-800-21-4551

Web: <http://ZapSystems.com>

Products: Electric power-assist kits.

Zach Kaplan Cycles

219 Pacific Way, Box 214

Main Beach, CA 94963

PH415-683-9723

Products: Dealer, parts, service, custom fabrication, and high-performance HPV specialty.

Zelp Design

PO Box 14

Devonport, CA 95017

PH408/425-8281/1-800-926-0283

PH408-425-1157

Products: Designs & mounting kits, most all recumbent & experimental. Send \$2/lookup. Q

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503/230-7723

Buying A Used Recumbent Bicycle

Have you ever considered purchasing a used recumbent bicycle? How about buying one through the RCN classifieds long distance? Recumbent bicycles can be expensive and there are many reasons to consider used bikes. Below are some ideas to help you when considering buying a used bike.

SAVINGS

It is possible to save 25%, 50% or even 50% over the cost of a new recumbent by buying used.

The more expensive bikes initially depreciate most, which means more savings to you, and options take a bigger bite than the bike does. The resale on XT28 and T1 just appears will not be good.

USED BIKE PRICING: Expect that a mid-condition low-mileage lightly desirable model will depreciate 30-25% in the first year. Models that are not as popular will depreciate more—up to 50% initial drop. The more miles and worse condition, the value can plummet to possibly 50%. I've seen this happen on a one-year old cross country racer. You will pay more for a used bike from the manufacturer or specializing dealer. Be sure to ask about the service/warranty done and possible warranty.

Some models hold their value better than others: Lightning P-88, Ryan Vanguard, Ray Racer and other long-established designs. We've seen well-used bikes selling for over \$1000 that you could find a new-up and some updating.

The market can be saturated with a given model. 1993 Rockers were soft on the market because the price was increased ninety days after bike's introduction. Dealers bought up as many as they could. There may be some still out there.

SALE/SAFETY

We are only aware of one case of an RCN classified ad sale problem in seven years, it was a complex deal and a planned rigoff from the start. One way to hedge your bet is through an escrow service like the service that People Riders offers. They hold the check, and the bike is delivered and everything is OK. This is the safe way to buy a bike mail-order. Another way to do it is make a down payment and then have the bike shipped COD (cash on delivery) specifying a caution check for payment. The only problem with this is that you don't always know what is

in the box until it's opened—after the delivery has left with your check.

Be sure to wrap and pack carefully, insure each box and COD each package separately for its value. SWB and some CLWB models will ship in standard bike boxes. Some manufacturers will sell you new boxes and ship them to you, but, though this could cost you up to \$50,

REPAIRS

Keep in mind that a well-used bike needs an overhaul once per season (even though most don't get there). This could cost you back \$100 from a bike shop. Add a new chain (\$25) and a new freewheel/hubs/etc (\$100+). A new comparison to an equivalent new model is essential.

SPECIALTIES

The bikes that are really dated/intricate over the years and appear to be the really "The Price Is Right" perfect example. In 1993, you could often find a used Presto for around \$1200, but the suspension, brake, handlebar and other upgrades were costly. Many purchasers of "vintage" used bikes know you want to upgrade from the old vinyl covered seat, to the new Caber or even a Race seat. Keep in mind that this could cost you upwards of \$300. Is it still a good deal? Check update costs need to be figured in as well.

COMPONENTS

Specs can vary, especially from small manufacturers, so ask what equipment the bike has on it. Is it a rock machine, built from a frameless (some canalic) or a custom spec like Angleton (very desirable)? Racers equipped models are not as desirable as Shimano or Sachs. Do not even consider anything with heavy/heavy metal components unless the frame alone is worth the price.

WARRANTIES

Consider the fact that you won't have a warranty. This even a stronger consideration if you are buying a high-performance, ultra-light-weight or aluminum/composite framed bike. Some manufacturers have been known to offer affordable repairs to the original owners even after the warranty periods is up.

DEALS

ATP Values: A lot of Vision R-40's have been sold. We've seen one year old dealer demo going for \$500! There may have been some com-

ponents/low-pd 10" tires, but they are sound bikes and good deals.

SHOE: This bike was completely revamped for the 1990 model year. The '90 had a different main-frame extension, seat and fork. Some even had a front derailleur. It's possible to find a real SHOE for less than \$500, though frame, fork and seat parts will be difficult to find.

Linear: A lot of Linear's have been sold in excellent condition over the years. This has to be the king of the mountain made-in-It. It's possible to find some year-old Linear for \$400 and sometimes as low as \$600, nearly half what it cost new. It's a fine bike, but has been a bit soft on the market. This won't get any lower in 1993 with the swelling of the new CLWBs. EuroCide at \$995/\$1025, which is a great buy and possibly a better bike as long as you don't need a fender.

S & B: You can get a new "Beach Cruiser" model for \$599! It's possible that used, rebuilt frame-bike or dealer clearance at no-price happens. S & B offers great deals direct to the consumer and the "new" prices are tough to beat. Previous models used lower grade components.

Thrasher: Until 1990, Thrasher specialized in 30-speed conversion and frame-bike. They also had the L-R-E square bike model that sold well to \$199 complete. These can be good deals, but try-before-you-buy. Some early L-R-E's had problematic double rear protruding and rear mounts, though they are pretty durable bikes. Setup problems and parts incompatibilities were rampant in frame-bike build-ups.

Hypocycle: This is the best-remembered by the Thrasher and S & B. The improved frame were mid-model (aluminum) and are prone to breaking. The last California OEM's versions are rare and stronger. Some were early Laid-back models. Hypocycle can be found in group sales for \$300-\$350.

Infiniti: In 1993, a new Infiniti was only \$499 for a 12-speed, add \$100 for 18 speed. I've seen them available used for as low as \$200. Used Infiniti's come up for sale in the \$280-\$600 range across today. They are good workout bikes. Be aware that the only models suffered from occasional frame-failure though the fixed fender they were from occasional frame-failure though the aluminum frame offers a smooth and comfortable ride.

Key Racers: I've seen four Ray's with 15,000 miles on them for \$750 as well as like new six or seven year old models for \$1200, neither of which is that good of a deal considering what it would/could be update. This good news is that the Ray's really holds its value well, maybe the best of all recumbents. The Race Striker is a very similar bike, and may be less expensive on the used market. RC-1's are a good buy, but don't beat their value as well.

Race-Cred deals can be found in new old-stock Race models. Race has been building bikes so long, that there are many serious and talented models around. Keep in mind that the new seat is much improved over the old "becker" and as an upgrade will cost you. The new QJR, that went into production in mid-'90 is superior to previous models. Updating requires modifying the QJR bike. The square tube Racers should be an excellent buy on the used market.

New-Bike-Addicts: These are individuals who buy a new bike every year or two. Their old bikes are usually perfect, dated high-end versions and the dealer are good. Look for deals like this in RCN.

RCN: Every Spring we have a list of bikes for sale. If you'd like a copy of the list, please send us \$AGE or small ad. There are text bikes, trailers, or trailers. Act fast, as these bikes are offered to dealers as well.

Offshore brands: Lightning Tailwind used bikes built by Gene Lemke, got scratches however I heard of them. We've seen one year old low-mileage bikes sell for \$750. I've seen a few low mileage, mid-DIY (\$500) with custom options sell for half what it cost new—and it took a long time to sell! It could be how popular the bike is when you buy. You may get an excellent bargain when you buy, but less your start at resale. The same models are those from low key regional builders.

SELLING A "BENT": Bike values can vary by up to 30% by season. Bikes are soft in the fall and increase in the Spring. April-June are hot months to sell your bike. October-January are the months to buy.

Keep in mind that if you sell your bike as a dealer, you may only get 60-70% of its retail value. If you consign, expect commissions of 25%-15% in the selling dealer. A sale in may be worth looking into.

Happy bargain hunting and Viva Recumbent! (G)

Recumbent Ratings 1997



The ATP Double Vision on a dock—photo by Greg Hever

The below **Recumbent Ratings** are derived from riding and testing of the bikes and the editorial opinion of the BCN publisher. Ratings: 1-Poor; 2-Fair; 3-Good/median/average; 4-Very Good; 5-Excellent. Some items may be listed as both a positive and negative depending on your perspective. Keep in mind that all models have strong and weak points. We hope this information helps you form your own opinion and is recommended that you test ride as many bikes as you can.

ATP Vision Trike

Recumbent Rating: 3.7

④④④

- Very good stability
- Rear suspension
- Round tube Corde frame/tub
- Exc. steering geometry
- User friendly entry level bike
- Excellent bumpsteer for the \$95
- Great ASS feedback
- Best "compact" value
- Maxima 7 speed or Sachs 10T21-opt.
- Great Vision seat with seat-cap
- Top-4 manufacturer (overall value)

④④④

- Best recline angle is fixed
- Heavily loaded rear wheel
- Not for stairs
- Lachrymose pre-tensioned finish
- Milliflex should consider XL frame
- Place your order now (wait list!)

ATP Vision R-40-SWB

Recumbent Rating: 3.8

④④④

- Minimal heel interference
- 16" or 20" front wheels
- Versatile modular design (LWB, SWB, USS, ASS, 18" or 20")
- Great seat/ret. away sides
- Flat foot steps
- Quick release seat slide adjust.
- Great value

- Lifetime frame warranty
- Great dealer base

④④④

- A Quick handling SWB
- USS+longer learning curve
- Wheelbase is short (36"-38")
- USS is wide
- Not the best high speed choice
- Seat from bottom some riders
- ATP USS better than ASS
- Not for stairs

ATP Vision R-40 LWB

Recumbent Rating: 3.5

④④④

- Versatile modular design (LWB, SWB, USS, ASS, 18" or 20")
- Great seat/ret. away sides
- Flat footed steps (most riders)
- Quick release seat/slide adjust.
- Great value
- Lifetime frame warranty
- Optional fairsing, and side pendo
- Affordable, dependable owner
- Great Vision seat
- Great accessory line
- Top-4 manufacturer (overall value)
- Great dealer base

④④④

- A Quick handling LWB
- USS+longer learning curve
- USS is wide
- LWB man-over frame flexes
- Not the best high speed choice
- Not for stairs
- Seat from bottom some riders
- ATP USS better than ASS

ATP Vision R-44AS SWB

Recumbent Rating: 3.9/4.2

④④④

- Minimal heel interference
- ASS or USS
- 16" or 20" front wheel
- Great seat/ret. away sides
- Flat foot steps (most riders)
- Quick release seat/slide adjust.
- Lifetime frame warranty



The Flite Trike!—photo courtesy of Hans

- Optional fairsing and side pendo
- Very lightweight frame/bike
- Great accessory line
- Great dealer base
- Top-4 manufacturer (overall value)

④④④

- A Quick handling SWB
- Wheelbase is short (36"-38")
- Seat from the bottom some riders
- ATP USS better than ASS
- Frames flexes under load
- Not for stairs

ATP Double Vision LPS

Recumbent Rating: 4.0/4.2

④④④

- A very dated tandem
- Minimal heel interference
- USS Only
- Great seat/ret. away sides
- Quick release seat/slide adjust.
- Exc. for complex or parent/child use
- Lifetime frame warranty
- Great Q/R adjust seats
- Great accessory line
- Great dealer base

④④④

- Very laid back captain position
- Control reach may be loose
- LPS one-time 21-speed coil-over
- Side rim almost absent front wheel
- Seat from the bottom some riders
- Long man-over frame flexes
- Mopax or drag brake are upgrades
- Brake adjustments are a pain
- LPS comes with 17mm cranks

④④④

Flite! Recumbent Rating: 3.5

④④④

- Quick steering
- Custom fork/steering geometry
- User friendly city commuter
- Excellent accessories and fairsing
- Lifetime frame warranty
- Four distinct models for 1997
- Great dealer base
- Top-4 manufacturer (overall value)

④④④

- Built-on mono-stays
- No triangulation
- Not protection (previous method)
- High upright riding position
- Narrow handlebars (XL) are wider
- Small seat/backpack lacks support
- Heavily loaded rear wheel

Easy Racer Boat Easy

Recumbent Rating: 4.8

④④④

- Very disintegrated seat
- Great touring/performance LWB
- Excellent high speed stability
- Excellent road manners
- Quality built-in flexible-width rim
- Custom fork/steering geometry
- Hi-quality triangulated frame
- Performance bike with race accents
- User friendly bike
- Strong seat and mount/excellent power generation
- Optional Super Zipper works best on this design
- Optional Flite seat

④④④

- LWB is long/hard to mount/dism
- Marive handwork position
- Slower climbability
- Steel/fiberglass seat
- Most warranty

Easy Racer GBR Black Gold

Recumbent Rating: 4.8

④④④

- Best performance LWB U-rim
- Best hi-speed stability/road manners
- Custom fork/steering geometry
- Experienced mid-levels design
- Performance bike with race accents
- Excellent quality mid-thru/you soft
- Exc. LWB climber
- Strong seat and mount/excellent power generation
- Optional Carbon Flite Painting/body work
- Improved components for '93



The German Rasko "Chili" compact

0000

- LWB is toughened to stiffen seat
- Low speed stability/linking
- Narrow handlebar position
- Shift/brake seat rides on rear spine
- Short warranty
- We rates natural polished frames.
- Price went up

Easy Rider 82-1

BestBOB Rating: 3.5

0000

- Very good stability
- Excellent road manners
- Quality built/Fast Freddie middle 'em
- Classic fash/storing geometry
- Use flexibly any level bike
- Excellent torque/mom. for \$200
- Clean A&S handlebars
- New optional wider seat base
- Optional Super Sprocket
- New lower price for '97

0000

- Square steel frame
- No seat incline adjustment
- Recently loaded rear wheel
- Not for racers
- Short 3 year warranty

Greenwood GTX-200 Trike

BestBOB Rating: 4.2

0000

- A very strong and durable bike
- Best in the starting priority
- Best in the handling
- Rungie load seat
- Components are dated/Bucks 3x7
- Reynolds 531 steel parts
- Lots of custom options
- Fitting in the woods
- New opt. 40" more upright seat

0000

- This trike is LWB!
- A very refined seat (30")
- Seat is narrow
- Long seat for delivery
- Virtually no US warranty
- BBG welded frame

Halskott Trike

BestBOB Rating: 3.7

0000

- Stable handling SWB tower
- Minus/own frame for comfort
- Indirect rod linkage steering
- Ergonomic bar-end extensions
- Single/brake seat
- Great chain line/spacer than most
- Flat tires for comfort
- Lifetime frame warranty

0000

- Trikes/own only need apply/light e.g. 8" rider on tip/own to hold up at stop
- Indirect US/usable road foot
- Minus/own frame lock/longulation
- No derailleur index cable housing
- Old brake/cable adjuster front
- Bike has slight pedal steer
- Poor documentation (no owners manual or assembly inst.)
- Good interference
- Not for racers

Halskott Hybrid-Kate

BestBOB Rating: 3.9

0000

- Stable handling USB SWB
- Minus/own frame for comfort
- Versatile multi-use bike
- Ergonomic bar-end extension USB
- Single/brake seat
- Very good components/driverless
- Excellent interference
- Excellent accessories
- A&S seat available
- Lifetime frame warranty

0000

- Tall riders only ecologically/light e.g. 6" rider on tip/own to hold up at stop
- Misleading/minus/own frame (locks longulation)
- Indirect US/own-complicated
- Poor documentation
- A tall high-performance bike!
- Good interference
- New about a 1/2 day Hybrid Pace!

Halskott Storm LWB

BestBOB Rating: 3.0

0000

- Single/brake seat
- Stable 3x7 21 speed



ATP Made LWB—photo by Greg Power

- Larger diameter main tube for '97
- Lightweight & low to driver/rides
- Lifetime frame warranty

0000

- A very slow handling LWB
- USB/minus/owning curve
- LWB minus/own frame flexes
- Not the best for hi-speed stability
- Poor documentation (no owners manual or assembly inst.)
- Not for racers

Infinity

BestBOB Rating: 3.0

0000

- Aluminum frame for comfort
- Very good steering geometry
- VG stability/quick feeling
- Simple seat adjustable steering
- Low seat height

0000

- 1997 Spec is accurate
- '97 seat is accurate/extended
- Industrial square stem, frame
- Atom frame may affect performance
- Slower climber
- Early bikes had frame failures
- No brake-adjustable stops
- Moderate documentation
- Short 3 year warranty

Linear Folding LWB

BestBOB Rating: 3.2

0000

- Folding LWB
- Atom "boat" frame for comfort
- Excellent USB steering geometry
- High tech boom look & fittings
- Simple design
- Seat has handle curve
- Top-4 manufacturer (overall sales)
- Experienced sub-Apexian design
- 26" rear wheel option available
- Steps for almost any rider
- Lifetime frame warranty

0000

- LWB associate frame flex/very affect performance
- Rear stays flat
- Pione seat base can bottom out

- Seat handle curve is odd
- Low speed stability/long bike
- Heavy/slower climber
- Component specs need a revamp
- High/reward e.g.
- Joints equal/boxed main.
- A&S not recommended
- Not for racers

Lightning P-300-Campy P-40

BestBOB Rating: 4.04/34.6

0000

- Excellent high speed stability
- Excellent road manners
- Coady files braced spare handlebars
- Custom fabricating geometry
- Very comfortable sling/seat/seat
- Performance bike-without records
- Lightweight bike
- "Closed" riding position/upright seat/high BB/brake adjustable for '97
- Flat feet at stop
- Cockpit-like lighter plane feel
- Excellent accessories/40 upgrade
- Exc. acceleration and hill climbing
- Optional Lightning wheel discs
- Optional 17" AM/37" from wheel
- Dual pivot brakes
- New seat incline adjustment
- Front suspension option
- Proven design

0000

- Upper chain link causes some noise/obscure
- Lightweight bike
- "Closed" riding position-longer learning curve
- Warranty not as good as competition
- Flat quality control issues
- P-300/Campy goes on much better

Lightning Storm 1.5

BestBOB Rating: 3.0/3.5

0000

- VG only level performance SWB
- VG stability/road manners
- Optional 20" 16 wheel for tall riders
- P-38 sling/tech/boom seat
- Performance bike with race records
- "Closed" riding position/lightweight seat/high BB

- Flat tire at stops
- Cockpit-like lighter frame feel
- VO acceleration and hill-climbing
- Broad Delta-Delta frame
- Excellent ABSX bars (with & w/o)

\$\$\$

- Spins out in good competition
- Price not as good as competitors
- Doesn't set as good as competitors
- New clamp seat clamp
- Handling not as slick as the P-38
- "Closed" riding position—longer learning curve
- Fair quality control issues
- About 1 year warranty

Race V-Rex/V-RexM
BestRider Rating: 3.6/4.0
ABS Class: 4.2
\$\$\$

- Excellent stability/handling
- Excellent road feel (2470-300)
- Excellent overall quality build
- Top-4 manufacturer (overall sales)
- High performance bike
- Versatile performance bike
- Excellent hill climber
- Clean maintainable engine
- Optional air-forward ABS
- Excellent ergonomic hybrid seat/foam base seat
- SRX frame
- Excellent paint
- New wider seat base, front and cover
- Optional Magura hydraulic brakes
- Lifetime frame warranty
- New with Sachs Sello chain

\$\$\$

- Side-pull brake does not have QJR
- 24" tires more difficult to find
- 30" wheel makes bike higher
- Needs 8 brake spacers (QJR, 8 pads)
- How about a fit for factory 24

Race Tailwind
BestRider Rating: 3.6
\$\$\$

- Excellent overall quality build
- Top-4 manufacturer (overall sales)
- Excellent ergonomic hybrid seat/foam base seat
- New wider seat-base, foam and cover
- Very good entry level bike
- Great ergonomic handlebar seat
- New Round-Crudo main tube/Solo
- Simple design
- Excellent component choices
- Dual 20" (w/whorl) tough/compact
- New wider seat-base, foam and cover
- Excellent powdercoat paint
- Lifetime frame warranty
- Magura upgrade optional
- New with Sachs Sello chain

\$\$\$

- Heavily loaded rear wheel
- Consider Magura upgrade
- Tube valves may need opt. XL frame
- Rolling front brake
- Handbars flex
- Not for racers

Race Rocket/Sakers V
BestRider Rating: 3.6/4.2
\$\$\$

- Very good SWS stability
- Excellent overall quality build
- Top-4 manufacturer (overall sales)
- Exc. entry level bike
- New Round-Crudo main tube
- Excellent offsetter
- Dual 20" (w/whorl) tough/compact
- Optional air-forward ABS
- Excellent ergonomic hybrid seat/foam base seat
- New wider seat-base, foam and cover
- Excellent value
- Lifetime frame warranty
- Excellent powdercoat paint/Sakers V wet-spray vertical split paint
- New with Sachs Sello chain

\$\$\$

- Grip Shift with Sakers front handlebar (hard strong twist grip)
- Not good for storm riders/race use
- High bill for entry level bike
- Rolling front brake, consider Magura upgrade
- Sakers V "XT" front handlebar is a microfine drifting 42/51/81

Race Stratos/XT GL30
BestRider Rating: 3.1/4.1
\$\$\$

- VO to-speed stability/road manners
- Excellent overall quality build
- Top-4 manufacturer (overall sales)
- Experienced multi-pose design
- User friendly design
- Exc. quality shell/frame/cost/controls
- New wider seat-base, foam and cover
- 3-handlebar choices (A, C and D)
- Standard Race fitting
- Lifetime frame warranty
- New with Sachs Sello chain
- Excellent wet-spray paint

\$\$\$

- LWB is long/hard to store/handle
- Low speed stability/handling
- "C" wheel/hop/hum flex and offset-ness
- Seat does not work as well as low-RR models
- Seat is in a more upright position (will not recline as far as others)
- Handbars flex

Race Strayner
BestRider Rating: 4.2
\$\$\$

- A very dated tandem
- Best hi-performance tandem choice
- Best ABS
- Great seat/fit. Eco stops
- New wider seat-base, foam and cover
- Top-4 manufacturer (overall sales)
- Quick release seat/cable adjust.
- Tough triangulated frame
- Tight adjustments are QJR, and EE
- Captain's cockpit is excellent
- Solar ride in LWB low-RR pos.
- Magura & drag brake are standard



Richard Schrader's Angleshok Tri-Speeder (foot-pedal) only version of the Quadpedler built in Ontario, USA—photo courtesy of Angleshok

- Lifetime frame warranty
- I.C. (incl. coast) non-air-spring
- New with Sachs Sello chain

\$\$\$

- Scooter ride in LWB/low-RR pos.
- I.C. can cause oscillation
- Lots of belt interference
- Price went up

Motor Pariah/Intrepid
BestRider Rating: 3.6/3.8
\$\$\$

- Entry level performance LWB
- Exc. high speed stability
- Quality build/Steve Delano
- Microspacers/beam/forward
- CoMo frame
- Performance bike with race accents
- Dual 20" wheel
- Dual mid-drive—35 speed
- Excellent steel frame, suspended rock seat
- Complaint frame for comfort
- Performance benefits with SWS pedal position
- Very low seat height
- Exc. Con-Mold/hangpost/handlebar
- Narrow aerodynamic profile
- Optional Aerospide wheels
- Optional Intrepid fairsing plug

\$\$\$

- LWB is long/hard to store/handle
- Low speed stability
- Very dramatic tilt/steer/hand flip
- LWB noticeable frame flexes
- Short five year warranty
- Three clamp seat adjusters
- Seat mount/tilts/adjustable plate
- Consider Pariah fairsing "Kerby" speed

Race Vanguard
BestRider Rating: 4.0
\$\$\$

- Great long-distance racing LWB
- Excellent built/overall manners
- Quality build
- Excellent steering geometry
- User friendly bike
- Exc. quality triangulated stiff frame
- Excellent bar-end controls
- Improved front/break/cable routing
- Experimental sub-Aerovex design
- Upgraded frame geometry for '97
- Lifetime frame warranty

\$\$\$

- Complex steering set-up
- Seat bars the bottom seat riders
- Angleshok sells Race seat to fit
- LWB is long/hard to store/handle
- High forward c.g.
- Not for racers

Minichobals trike
BestRider Rating: 3.8
\$\$\$

- Legendary trike
- Best "road trike" of my tribe
- Fiberglassed seat
- Kilo's art
- Very slick controls
- Perfect reference records
- Five racing options

\$\$\$

- Relying too much on past "logged"
- Past durability/fitting problems
- Long wait for delivery
- Race N. American representation
- Hard to get info on
- Broken frame
- Replacement parts???
- Components spec is uncertain
- Very, very expensive! 2

RCN What-Do-We-Know?



The German Flux 3 Comp

ATT VISION

WHAT-DO-WE-KNOW: When is the public stock offering? The Metro is the first "compact" we've seen. The SWB models are cool, and we like the ultra-light R-44 and R-43, but why does ATT promote the LWB models? Is our local dealer an inside group, almost every Vision owner rides in LWB mode. There are even a few "DT's" (DWRASS). The LWB Visions are quick handling (Vision trademark), like their SWB counterparts, but they are the best deal in LWB USA: faster, though expect some frame flex.

ANGLETECH

WHAT-DO-WE-KNOW: Angletech now manufactures the Quadroped, Tri-Spinner and Altitude. The Quadroped is a Gary Hale designed hand/foot powered bike that Richard Ray (BikeE) rolled over the years. It was taken out of production two years ago, and now back, built under license by Angletech in Colorado. I had the opportunity to ride a Quadroped for a week a few years ago and it was the most invigorating and multi-faceted recreational experience that I've had. Don't get the idea that the arm power will make you go faster. Although incorporating the "Quad" is not as fast as your Y-Rax or Easy Racer. The Tri-Spinner is a foot-powered version of the Quadroped.

The Altitude is a Kalvia Clark/Boatline Bicycle full suspension dual 20" wheel-down bike. We're expecting this bike will have all of the finest points from the Presto, V-Rex, Rocket and Boatline suspension mountain bikes. The standard frame is Carbon though it's available with an optional aluminum or Ti frame. Angletech has become North

America's new Euro-connection. Available are the renowned look Sverigebike, the new bonded-aluminum compact performance Thorpe Mike, and the German suspended Orsted. Orsted also builds a SWB ASS, LWB and track toboggan tandem (not available in the USA). The Orsted's have now suspended forks.

BikeE

WHAT-DO-WE-KNOW: Four new distinct models for '91. A new fork and wheel options make the BikeE even more refined. We'd like to see a wider seat base and a stiffer, more supportive seat back. BikeE's are readily available for 1991. The updates make this the best BikeE to date...until the rumored "no comment" spring model is unveiled.

CRYSTAL ENGINEERING

WHAT-DO-WE-KNOW: I just rode my first Trix when it was right off the line in Portland, Oregon in 1990. I was enamored with this amazing English pedal-powered sports car. Our RCN is this hot issue has been popular, though the reviews weren't totally positive. The Trix was just \$1,500 back then. For 1991 it's \$2000! We received a pre-production prototype last summer that was improved, but still had a few bugs. A new '91 Trix originally due here in January has been postponed by slow production. Trix are available from a few US dealers. The Speed Race is available UK direct.

DOPLER

WHAT-DO-WE-KNOW: Doppler is a small innovative no-again, off-again recumbent manufacturer from Ontario, Canada. The emphasis is on the new compact "Brouer." We have never been able to see or ride a Doppler bike, ever?



The Orsted fully suspended LWB available from Angletech

EASY RACER

WHAT-DO-WE-KNOW: A new wide seat and wider prior for the RC-1, but can it withstand the "compact" heat? There are now two Easy SS (Superlight) and EX (Expedition) models. There's still a waiting list at Easy Racers. The Black Gold has become a hot seller, and rightfully so, it's a fun LWB. The updated Race-our option looks great. Still the king of the LWB scene. No LWB handles as well or looks as cool as an Easy Racer. Last Gemini redesign...see OUR Black Golden Bike in our

GREENSPED

WHAT-DO-WE-KNOW: You should be very careful in choosing your Greensped bike so as to get the size, options and special features just for you. Communications across the world can be difficult, although less is very close via fax/email. Greensped got our highest offer builder' looks for a job well done. We didn't get a complaint from a reader who got the X-axis moved up and his GS didn't fit. The message here is CAREFULLY take your measurements. Round-trip the world shipping is expensive.

HALUZAK

WHAT-DO-WE-KNOW: Haluzak will need to work overtime competing with the likes of Race and ATT Vision. Some of the bikes have taken spec: some grade this year. We hope to test a Triaxone. The "Stano" (don't) seems to be quite dated, though the bike has a larger main tube diameter this year. Haluzak is in the process of upgrading Horizon bikes with a cantilever/V-brake combo. They do not use compression index housing for their ditches. Haluzak customers

love those slow/able-handling racing models.

INFINITY RECLIMENTS

WHAT-DO-WE-KNOW: The company was sold. Bikes will now be built by Ann Lind and sold through Dr. Mike in Scottsdale, AZ. Expect seat, spec and price changes this year.

LINEAR

WHAT-DO-WE-KNOW: Linear will offer the only "true" folding recumbent. 1991 specs seem to be subject to change with the Big Dog brokes out of production. The Bull Dog replacement is not strong enough. We much prefer the 20" rear wheel. Seats and custom are poor offerings and have an odd very steep head angle (like get thanks direct from several BCM crew members). We have yet to see even a picture of the new square steel Nexus 7 Linear and are unclear. The new Linear CLWB/Wheel Brokes may be the best Linear ever. It has a 20" rear wheel combo and the same aluminum extension with the stays shortened and TH1 welded on. The bike is significantly shorter, lower and much more user-friendly. The spec was done by Wheel and Linear and, in many ways, is better than the upper Fobler. The new bike is equipped with a Sachs 3x7 which defines the driveline post from the front end. This is another hot model for the entry level/compact market segment.

LIGHTING

WHAT-DO-WE-KNOW: Lighting's continue to be the most high-performance SWB recumbents available. Owners love them, they always rank high in our reader surveys. The spec is better than the best this year, with the dual pivot brakes, and "X" and "Candy" tilt

tion. Don't look for competitive pricing, you pay for the proven performance. "Although I had very good luck with our past test bikes, we haven't had a '36 since '93, though we want to try again sometime."

BASHLEY

WHAT-DO-WE-KNOW: The FOX SWR bike surprisingly like a successful SWR model from Sacramento Post, Ore. We did hear a rumor about this... last fall... "Nah, it couldn't be...." well? The FOX is built in the UK by Pashley who built the Honda/Land Rover AFR's as well as many other interesting odd-powered vehicles. Anyway, this one makes me smile.

REAR

WHAT-DO-WE-KNOW: 1997 is a year of Rear seat perfection and BESTS. The Flip-In ASS is the best around. The seat has been the most comfortable of all RCN test bikes this year. There is a wider base, new thicker foam and a new stretchable fabric base cover that makes the seat feel even better. Components separate through the spring, though you don't feel them, you will see new round tube frames replacing the square tubes (Blackout and Tailwind). Rear decked in the last decade is revamped with 30" CLWB Tailwind with a Carbon seat/frame tube? This is a worthy contender. The W-Rear continues to be the last outlier at Rear. It may be the best All-Around SWR. The Anglenox version are just the icing on the cake. The Rear hybrid seat works best on medium-high bottom bracket models. There can be some risk back of the hip on the seat edge on low BB models. Consider adding a seat Q.R. or seat plate bolt to your outward emergency spare parts kit.

REKKE

WHAT-DO-WE-KNOW: Rekke has kept a low-profile over the past 6-8 months. Recently, Rekke's Katie Stevens called to say that her company had been purchased by Huffy Bicycles in Ohio! This is big news. Look for lower pricing and improved availability very soon.

REAR-RITE

WHAT-DO-WE-KNOW: This is Clive Tucker's Adventure/Performance "upright" e-scooter. Clive has reinvented the design/look. It's light and surprisingly easy to ride. The performance and aerodynamics leave something to be desired, though they already know that. The bike has excellent components and the frame is built by Steve Delaire (Rotator). We'd love an article on one of these.

ROTATOR

WHAT-DO-WE-KNOW: Steve Delaire has moved into a new shop space and has been very busy. Steve has done preproduction work for Lightning, Ride-Rite and has been the Gold Coast Rapids frame-builder. He is a talented builder/tester who shows speciality in high performance. The "Center" is a square tube one or seven-speed, version of the Parrot. The Intceptor kit is a Parrot option for '97.

RYAN

WHAT-DO-WE-KNOW: Sell the best LWB US\$1000. This bike has a dual back seat with low-DB. Some riders don't like the seat form. Some say performance suffers, though we had one report that a racker Ryan was a faster bike and better hill climber than his W-Rear, which goes to show that every rider is different. Ryan recommends an acid maintenance-circuit only, you will find custom acid-pliers-wiring to build but equipped and Dura XT Spins from a trainer. There is an upgraded frame geometry DB position for '97.

S & B

WHAT-DO-WE-KNOW: Jack Baker told us recently that 75% of his sales come from RCN readers. I was shocked, amazed and happy to hear that. I was also concerned because we've never done an in-house review of the S & B. So, we've ordered up a Super Deluxe Beach Cruiser. This has to be the best SWR deal in this mag. We love it & it gives the fabrication a great, though we'll withhold judgment on the aluminum-back geometry until the test comes out. Every bike in the S & B line is a bargain and the craftsmanship is pretty nice as well. Be forewarned that S & B has a competing website. The best prices are low, and there are many add-ons from Clive, to 14-21 speeds, 3c/7 hubs, alloy wheels (opt. on some models) to opt. dual stem holders.

TRIK

WHAT-DO-WE-KNOW: We heard that a Trix top gun told a Midwest bike dealer that there WOULD BE a Trix recumbent in 1998 (a Intrepid???). The speculation is that it would be a \$500+ "tempo" style recumbent for the entry level market. An industry insider told us "No Way" will Trix enter the market. Till Time/Waves and Troy that RCN is for sale.

TRUCKBENT

WHAT-DO-WE-KNOW: The Raven! This is the unique PWD EAS leaning bike from Wisconsin.

A dozen or two have been sold in the last year or even less than half that. Our experience with the Raven is about 20 minutes in the People Moves parking lot. It's a gas-punking in aerodynamics. Though in test it stays, its side-stand is uncomfortable, the other nearly chaps on the ground. The turning radius is very wide. The Raven has decent components only comfortable seat and built broken against on the front wheel. After several attempts to get a test bike, we've about given up.

TUMBER T-LITE

WHAT-DO-WE-KNOW: We did a road test with M&B Turner and one of his Ltd Back '96's in the Road Bowl parking lot back in 1996 (one of our first tests). He is an associate of T & B's "Smiley" and his recumbent instead gave way, way back (Hypocrite). Nobody in this business has come so far without their product as M&B Turner. The T-Lite represents the BEST Turner recumbent in class. Turner even stopped producing the same expensive 2000 because the T-Lite is a better bike. Watch for a review this Spring.

MAXAM

WHAT-DO-WE-KNOW: Maxam is a small company in Ohio that builds LWB and CLWB entry level ASS bikes. Maxam's past work are basically due to trying to produce a

low-priced recumbent in a low-volume market. John and Chris Day are committed to the cause, yet astutely frustrated. 1997 could be the year for Maxam. The bike itself is a great entry level bargain, maybe a "Flea Man's Top Bar". The Maxamers sturdy-OK components in a triangulated mid-seat frame with a sliding seat that adjusts without nuts/bolts. We don't know what "Bogus" components are, but they're not Shimano, Sanyo or Sachs. If you get a recumbent they may have a shorter-than-usual lifespan. If the complete bike price are the low, imagine what the frame price are. We'll have Kowalew and Robert bikes in test this Spring.

PRACTICAL INNOVATIONS

WHAT-DO-WE-KNOW: The Zipper and Thunderbolt are almost history as Wiley Horvitz and company are out of business. Mail was returned with no forwarding address, though there is a web-site with domain (777) Thunderbolt plans and we did hear of at least one person who had seen, ridden and bought a T'bolt.

PIEGENT

WHAT-DO-WE-KNOW: We finally got into, though nearly too late for the guide. They have reportedly sold 200 of the T-187's in Canada over the past year, though we only know of one US dealer (Buckman



EZ-1
The only
Easy Cruiser
with
a
performance
'bent!

Checkout the lower price on EZ-1 for '97. \$699 gets you the 21-speed setup plus popular Primo tires, GripShift and Shimano indexed rear derailleur. The optional Super Zipper fairsing is available for the EZ-1 as shown above.

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Lightnings and other BMW racers
Photo courtesy of Joseph Haberman



Axel Felber racing his Aerodynamer (SWF Photo
courtesy of Günther Felber, Germany)

area). The rumor from the '96 CANADA show is that we'd get a new bike, though nobody has told us. We'd like to use this new bike. The upcoming model looks like riding.

LINEAR CLIMBER/VEHICLE
WHAT-DO-WE-KNOW: This bike was designed by Steve Hanzel of Linear and the folks at Wheel and Sprocket Bike Shop in Helen, Conn., Wisconsin. This compact 1.918 (250) (250) road/75 bike uses a standard Linear 1-tube, a shortened rear stay system (baffles), welded to the main beam, a Sachs 307 31 speed, and a 2874 wheel combo. This is the finest new road/75 we've seen from Linear since the original folding version.

WINDSHIELD
WHAT-DO-WE-KNOW: The saga of the legendary Burows Windshield could be made into a movie of the week. The original trailer was sold to a lit. 40+ hours of machining were needed to make aluminum tubes in custom castings to mount on a frame. Burows has turned out production in various companies. In 1995, the "Spooky"

was imported by Linear, Mfg., Inc. Problems developed when modified tubes would not bond to the aluminum castings. There were also improper tolerances. Linear stated fabrication. At the 1995 Interstate show, BUROWS was handing out Speedy brochures and considering becoming the US-distributor for the new bike. In total surprise, we found Son-Of-The-Photo (current builder) at Interstate 1996. We were given a careful explanation of what happened and how things had been corrected. Since September, we've hand-ground glass from the new Coleman distributor, 15 new upgrades, involvement with Lotus cars, US manufacturing, big truck, fully-faired commuter bodies, involvement by Richard Hanson (Wiggle Kneads/Wiggle Athlete/Enduro pilot), and an RCN test ride, though we're losing faith in seeing a real bike appear soon.

Throughout all of this, we couldn't get complete specs, though there are several US dealers who would be happy to help customers with a new Windshield purchase.

WEEWHEELZ

WHAT-DO-WE-KNOW: This manufacturing company bike is built in Wisconsin and uses a RAMS seat. The non-triangular shape are of minor concern considering the side-to-side torque a trike can develop and our past trike experiences. An initial dealer report was good (Greenwood Seat, and hey, it's built in the USA and costs half what the

other trike do. We do not have a test scheduled as of yet. It seems they have located the "last seat" and is another possibility. We hope for a 1997 test bike. If you'd like to see an RCN test, drop WAAH into a line. ☺



The Rambler (SWF), see page 58 for more info.

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Recumbent Tech: The Zipper Faring on SWB



Story & photos
by Richard Decker

Like most recumbent cyclists, you've probably considered a faring for your SWB recumbent in one time or another, but wondered if it was worth the cost. I wondered too, but then I said "What the heck?" and took the plunge.

And did I ever plunge! I thought not one, but two Super Zipper fairings done for me, one for my wife) from Karl Althea at City Designs. Karl is a joy to deal with—a willing to customize the best solution, quick to respond when I needed parts, and full of valuable information.

Here's what I learned about the Zipper faring on a SWB recumbent:

The Speed Thing

The faring increased my terminal velocity (the fastest speed I could get, pushing the cranks) on a steadily descent from 59 mph to over 60 mph—an increase of 20%! Accounting speeds, the faring has boosted my average speed about 5% to 10%. Of course it does nothing for me on an uphill, but the good news is that doesn't seem to slow me down, either.

I plan to correct my wife into seeing a Lycra body stocking, which would attach to the sides of the faring and the seat. Karl tells me that this should give me an additional 10% boost in speed.

Comfort

On cold mornings when I would otherwise need gloves and a

gloves, I can get away with decreased or no gloves. My hands still get a breeze on the ASB bars, so I use lightweight gloves when it's cold. Surprisingly, on hot days I still say "ouch"—there's enough of a breeze to avoid overheating.

Riding in rain is better overall with the faring. Everything from my chest down stays much drier. Even in a heavy downpour, my feet were totally dry (and warm). And if that's not dry enough for you, ATP makes a rain protector that attaches to the top of the faring. On over your head and hangs over the back of the seat.

I forget a floor full of rain, however. Some of the rain seems to get pushed up and over the top of the faring into my face. Whether I get significantly more rain in my face than without a faring, I can't tell (and I'm not about to get out there in the next downpour to test it out). Either way—rain or without a faring—my face gets wet, so it's not a big issue for me.

Several cyclists have asked me if it's stable in crosswinds (I guess they think it's like a sail or something). My answer is always "yes." I find that I don't get blown around any more than I would without the faring.

Oh, yes, one other nice benefit of the Zipper—in reference to weight at covering vehicles. It's like riding with your high beams on (usually, this effect only occurs on ramp days).

So What's The Bad News?

So far a faring sounds like the

ultimate recumbent add-on. Well, there is a downside—cost. The Super Zipper faring is \$290, and the mount system is \$200 to \$250, for a total cost of \$500 to \$550. For do-it-yourselfers, Karl offers an "in-progress kit" for \$150, which includes an unfinished faring and hardware, but no mount system.

Your bike will be heavier and bigger. The faring and mount system add as much as 2 kg (4.5 lbs) to the bike, and at least 13 cm (5") in length. I really don't notice the weight or the size except when I'm carrying the bike through the door into and out of the house.

The faring does reflect some road noise up at you, as well as the noise of the front brake, but very little. I noticed that on a LWB bike with a faring, the sound was more pronounced, but on my SWB, it's not an issue.

Choices

If you decide to purchase a Super Zipper for your SWB, here, you have several choices:

Karl offers three different faring bubble shapes. The "visor" and "P-lit" farings are both quite curved at the bottom, to provide better coverage of the sides of the feet on a SWB. The "visor" faring is rounded at the top, and the "P-lit" faring is flat across the top. Otherwise, both are straight, and both are about 48 cm (19") at the top.

Several cyclists have also mounted the "Rye" faring on their SWB frames, even though it's intended for LWB bikes. It's 33 cm (13") wide at the top, so it provides better coverage of the shoulders and hands. However, it doesn't have the deep front section of the SWB model.

None of these shapes suited me, so Karl recommended that I consider to be the optimum SWB faring—one with a deep front section and the 33 cm width at the top.

Karl also made some of his farings in two different thicknesses—the thinner 1.087 Lexan sheet is 30g (1 lb.) of weight off a faring as compared with the standard 1.087 Lexan.

Mounts

There are three types of mount systems. The "P-lit" mount attaches at two points—a clamp on the bottom bracket and a clamp on the boom to support the top of the faring. The bottom bracket clamp can be rotated

to raise or lower the bottom of the faring, and the boom clamp can be moved back and forth and raised and lowered to adjust the top of the faring. For me on the Visor, I was concerned that the boom clamp might interfere with the two smaller tubes when they join the boom between the bottom bracket and head tube.

The "visor" mount attaches at two points—a clamp that fits inside the front fork tube, and the boom clamp on the inside of the main tube, and a adjustable mount that also bolts to the frame. Lots of people use this system with no problems. The Visor faring is less expensive and installable only through ATP dealers.

I bought the "P-lit" mount system, which Karl describes as the "Goldilocks" version. It's about 20g (0.5 lbs) more, but offers the ability to adjust the angle of the faring. It attaches to the bottom bracket and boom, but a bracket further back on the boom than the P-lit system. It would not be suitable for a recumbent with a sliding boom if you still wanted to be able to adjust boom length.

Setup Tips

Although I'm still fiddling with the setup of my faring, and my wife's, in an on-going effort to optimize coverage and aerodynamic benefits, I want to share the major adjustments I figured out, and have learned a lot in the process.

Karl recommends that the top of the faring should be just below eye level. Originally, I had my faring set about 5 cm (2") lower than this recommended position. I learned it, and noticed a speed improvement. Surprisingly, the faring obscures very little of the roadway ahead—just a small section about 30 cm (12") in front of me. I can see hazards on the road clearly through the faring, well in advance and with plenty of time to react around them.

I've set our farings with about 10° to 15° downward, to allow for "bounces" or heavy-rain slippage. I've also set the distance between the lower Chassis and the top crossbar to gently pull the faring into a slightly longer shape than when it is unmounted—this has the effect of increasing the tension in the sides of the faring so that they fit less in the wind.

On a SWB recumbent, the optimum cyclist height appears to be



140 cm to 170 cm (5' 7" to 5' 6"). My wife is 163 cm (5' 4"), and on her bike I have been able to position the fairing quite low at the front so that it covers most of her face at the lowest position on the pedal stroke, and I've angled the fairing so that it is as close as possible to her without interfering with the A&S handlebars when they're lowered. On the other hand, I'm 183 cm tall (6' 1"), and the lower part of my face was exposed for almost half the pedal stroke because

the fairing is positioned much higher. My wife likes this, of course, as it makes her more aerodynamic than me, and gives her a fighting chance when we ride together.

Removing the fairing is simple — just loosen two screws and pop it off. To make removal easier, position the "bird's beak" clamp for the top console with the opening facing forward. When I transport my recumbent on the car, I remove the fairing and toss it in the back seat (I don't bother to detach the brackets and console from the fairing). To prevent scratches, especially when the fairing is off the bike, my wife made

covers for our fairings out of an inexpensive soft fabric and elastic. Zip onto fairing covers as well. For shipping, remove the brackets and roll the fairing up into a tube about 70 cm (30") long and less than 15 cm (6") in diameter.

The Bottom Line

\$280 is a lot of money, so realize what currency you convert it to. On the other hand, speed and comfort count, otherwise we'd all be riding wedgies. It all depends on how much that's worth to you.

There are much less-expensive fairing options, most of which in-

volve complex, fibreglass and lots of glue, but these can be messy, time-consuming and ugly. If you want to get fitted, and you don't want to wait or you're not a do-it-yourselfer, then the Zipper option is a great way to go. It's a well-designed, extremely well-made product backed up by great customer service. For my wife's and my situation, for \$1,100, I spent on two fairings and mounts was worth it.

Contact: Zipper Design, PO Box 14, Downey, CA 90242, phone 800-840-6666 Fax 800-425-1167, <http://www.zipperdesign.com>

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RECURRENT NEWS & RUMORS



The 1987 Plans Screamer with I.C. (Independent cone)



The \$1599 NitroWheel Facetaria built in Wisconsin, USA

WHEEL RECURRENTS TO INTRODUCE 1991 GUIDE

Hales Corner, WI—The EVO Guide is the first recumbent produced by Wheel Recumbents. New models will be released throughout the year. Wheel Recumbents' goal is to take current recumbent models and advance the design, thus contributing the evolution of the recumbent. Wheel Recumbents was created by various interests throughout the industry who are dedicated to promoting the sport of recumbent cycling.

The EVO Guide is being distributed by Wheel Recumbents, via Wheel & Spoke in Milwaukee, WI and by Lerner.

Wheel Recumbents and Wheel & Spoke are unveiling The Midwest Recumbent Round Up on July 24th & 25th, 1991. Starting the 24th will feature a recumbent bicycling race, and Sunday will be a full-blown Recumbent Expo and Fair at Wheel and Spoke's independent headquarters in Hales Corner, WI. All recumbent owners and prospects are invited to attend. For more information please call 414-753-8003.



The Angletech Triops Matri

ANGLETech INTRODUCES "Matri" RECURRENT

Wheaton/Park, CO—The British Matri "compact wheelbase" leg-

ner class recumbent features a bonded aluminum frame, Nolex-coil coil rate suspension and small package break-down ability. This new bike offers the best of the "compact design with a seat height a full 4" lower than similar models, and a high bottom bracket for optimum climbing and aerodynamic advantage. Top it off with the Nolex-coil rear suspension, elegant anodized finish with tapered stays, rounded roll-over fenders, seat frame and the smaller transport package of any recumbent available today! A list, photo booklet recumbent.

BONDED-FRAMEKIT—The 2.5" heat treated aluminum frame tube is bonded to heat treated aluminum stays. Anodized aluminum frame has 30,000 psi more yield strength than a TIG welded 6061 aluminum frame. The frame has two eye aluminum "brake stops" to anchor the telescoping section. Tubing is anodized and easily slides in and out for adjustment without any grease to show you up!

COMPACT PACKAGE—Quick release the handlebars, seat, wheels, fold under the rear spring arm, slide the frame apart and you have the microcompact travel recumbent on the market at \$1100 in its form. The optional Copper spring fenders up! Angletech offers an optional truckrack to make this feature even more use friendly.

17" SEAT HEIGHT—A full inch seat with a high back, leather curve, adjustable velcro restraining and a thin base pad for ultimate comfort. Wind resistance is low, for fast comfortable ride.

REAR SUSPENSION—3" of travel with rate of the air Nolex-

"roll-over" shock. The riding arm pivots on roller bearings for long life.

ADJUSTABLE "TRIO BAR"—Wrap around, easy to reach Euro handlebars with liberal vertical adjustment.

QUIET CHAIN MANAGEMENT—Lower-ider-only chain management. By eliminating the upper idler in the system, you get a quiet ride, even on hard climbs!

ANGLETech SPECS—Two models are listed, the GL24 with quality 24 speed drivetrain and the popular GL42 frame, with a range spanning 15-140 gear inches!

COMPLETE ASSEMBLY—and road test before shipping to you. For more information call Angletech at 719-682-7415. Email: Angletech@aol.com

SCREAMER GETS INDEPENDENT COMBAT

Maya, KS—1990 brought the introduction of the Rams Company's first recumbent road bike two variants. I say two variants because in the '70's an manufacturer a three wheeled tandem recumbent sailing machine called the Gemini. The Rams Screamer instantly became a hit and immediately became the performance standard of choice. The stock Screamer is no slouch and begs to be ridden.

The 1991 Screamer has received some upgrades. The new one wheel Chorus front fork is lighter, adjustable and has reduced drag and noise. We've smoothed out the shifting by going with Shimano XT tandem hubs and eight speed cassette. Also, you will find Magura Hydraulic standard on '91 Screammers.

The new Screamer IC has independent cranking. This is where you don't have to tell your partner what your intentions are when it comes to coasting and pedaling. The Screamer IC does have one disadvantage and that is a slight weight increase. The fact that the power source isn't locked into one seems to cause what we call random "bub" between the riders. This phenomenon may go away as riders become accustomed to each other's strengths and weaknesses.

THE TERRAFLIX IS HERE!

This recumbent bike is the result of years of designing and prototyping human powered vehicles. It has top components, it handles like a top rail, and weighs less than 30 pounds. Quarter mile road tests showed an average speed increase of 7 miles per hour over a conventional racing bicycle. The adjustable steering and seat will fit a very wide range of riders. It's stable, safe, fast and fun. Whether you're looking for high performance, innovation the ultimate in touring or a great commuter, the TerraFlux has it all. Compare the price (starting at \$1299 USA) to other bikes of this quality, and you will see that the TerraFlux is a winner. Phone 1-800-448-4881 Email: W@Wheel@aol.com

SIT ON IT RAJPRE

Maya, KS—Motorsports of the bike shows saw a good deal more than they expected at the KANSAS display. Besides all of the really cool bikes, surrenbikes, and trios, we saw the new Rams Matri Back Chair! Yes, we are really building these things and



The Aerolope



Inside the Aerolope

they really are for sale. Built around our track back seat, these chairs will make a wonderful addition to your shop or even inside your house! Use it as your commander to control you what you should be tracking. We've electrified them to be seamless video game chairs. The chairs use a three-track back V-flex type seat and feature 12" of frontal adjustment and nearly 25° of angle adjustment. The base only is also available.

AEROLOPE HPV—THE "CAR-FREE" ALTERNATIVE

Rancho Conejo, CA — Getting out of the car is liberating but exclusively is a dream many of us have. Unfortunately, there are times when only an automobile will do. Right? Well, not any more...

Alternative Petal Sports and Glass Inc. are pleased to offer the exciting new Aerolope HPV!

If you were to design the ultimate human-powered vehicle for a car-free lifestyle, what would your "wish list" include? You would probably start with such things as streamlined efficiency, surge-sweeping capacity, visibility, weather protection, and maximum comfort. And you'd like it to be fun.

The Aerolope HPV is now here, with astounding aerodynamics, speed, reduced sound, large interior trunk space, and high visibility. Best of all, it's a blast to ride! Constructed of gal-vest fiberglass, the Aerolope hull/body shell weighs only 18 pounds. While side openings allow great outward vision, ventilation, and room to easily place both feet out and on the ground when stopped. The standard platform is a FRP design with ergonomic seating, a 16" wheelbase. Saddle 13" diameter, 16" front wheel, 26" rear wheel, collar handles, and metal shifters.

Aerolope options include var-

ious floor construction, custom components, lighting systems, dual or dual-brake, and electric motor assist.

AVAILABLE NOW FROM ALTERNATIVE PETAL SPORTS. The Aerolope HPV is suitable for commuting, touring, dual centers, racing, or even trips to the corner market. Complete models start at under \$2000. Time to get the car!

RECURRENT SEA TO FEATURES NEW BIKES

Menlo, CA—The first is a Rans Sporter 3226. The 32 is for the new Franco size available in 1997 because of Shell's new step lobbying on its Rans. The 26" rear wheel and 29" front wheel is standard on Shell's Sporter because "you can get into anywhere." This is the ultimate touring bike. With the optional FAT tires, this model would be a viable tool world or off-road travel. With the 25" frame and low seat position, this is the perfect bike for those riders or petite women who've had very few choices until this year.

Also, now this year is the Project line of mountaineers that will be featured at the Sacramento Sea. We've had a few of the high-mountain mountain models and customers loved them. This is a very innovative design. New for 1997 are lower priced Cyclic versions of the same bike.

STREETGLIDER HANDS IN THE USA

By Kristin Clark

After working with American mountaineers every day (but today this is being), it's interesting to take on a special ride like Roger Toller's custom Streetglider from Europe!

What's different? The twisting that you notice upon looking at a Streetglider is the rear vertical head tube angle (80°), and a 2.8 inch wheel! The effect is a short 13.5" wheelbase, and a "pull-to-center" feel when



The Anglotech Streetglider—photo courtesy of Anglotech



The W4Wheels TeraVelo with three seats—W4Wheels

riding. On a zero-mpg U-turn on an uphill grade, you get a very distinct "pull-to-center" effect as well. Think of it as negative steering. This, along with the 17" diameter main tube, and short boom extension yield a very stable bike, with no pedal steer effect when peddling hard.

Features? This is a feature mountain coming from the typical mountain bicycle. The Streetglider has this in abundance. Starting at the front and working back, the adjustable-bars slide into a main tube cut at a slant rather than a least-rod-out, a very elegant effort. The fork is an investment-car crossed Reynolds 531 unit, with tape gauge blades. At the back of the 17" main tube, where the rear stays hook up, you will find a radius cut to the tube, sealed off with a matching cap that has a threaded/braze-on for a fender in the center. The drops are of custom design with proper braze-on for rack and fenders. The upper stays disappear into the seat tube.

At last the seat design, with its fibreglass base, might not look too inviting, but this one works! The backrest has a built-in handle curve, and high back support contained at the shoulder. The base is of a cast-way nature to shape with a custom-

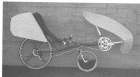
raised contour. Paddling is both wrapped in Contour, and fanned with stags to the grey fibreglass shell. There are 6 built-in D-rings at the seat back that you thread a rackstrap through for holding gear.

Swearing is under-seat (USA) with a six-rod-link to the fork. Nothing new, except you realize that the fixation of a spread hubbing pivoting system is not there. Looking deeper you notice that the handlebar pivot on the frame has a roller-bearing insert, very smooth! Also, Streetglider makes some nice stainless-steel parts that finish off the components to a near-perfect position. Shimano Barcon (bar-ends) shifters are plugged into the ends.

The seat/rack relationship is Rans Rocket-like, and the seat is a high 36". My 170" self could reach the ground reasonably due to the cast-way seat base design. The wheel layout is 700c/26" (41 mm).

The standard paint finish leaves something to be desired after seeing the other manufacturing touches. Our Streetglider was custom painted Saturn-Yellow base in Colorado.

The Streetglider is a great touring/commuting mountaineer, with the most stability of any 36" wheelbase SWO class bike. You will pay a \$200



The Rampage commuter fairing fits on a Turner 7-Lite—Jeff Dukes

premium over a comparably well-equipped Motocross VM45, which may even be the off your list. But if you like the frame construction details mentioned above that are missing from most of today's mountainers, you'll find it worth the cost.

RAMPAGE INTRODUCES FAIRING KIT

Turner, AZ—RAMPAGE front and rear fairs kits are assembled by the customer from pre-cut sheets of corrugated plastic (Chaparral is our brand name). It is available in black, white, red, blue, green, yellow, and silver. The customer uses pop-rivets and our clear instructions to fully assemble the kits in 4-5 hours. All of the design work is done during the installation. Customers can apply custom vinyl graphics available from any local sign shop.

The front fairs kit costs for \$185, the rear \$140. The front fairs kit is specifically sized for a SWB, but can be adapted to some SWB models with minor modifications by the purchaser. A great combination for SWB owners is to use a Zip fairs kit in the front with a rear fairs made of corrugated plastic. The rear fairs fits up to 1.5 cubic feet of cargo and mounts to standard rear luggage racks. It also has hooks supplied to support a Camelback style drinking bag and tube. For safety, there is a mounting area for a rearward red "blinker-light." Front headlight mounts in up to the purchaser since there are so many different styles of lights. The corrugated plastic is easy to manipulate with a sharp blade and can be easily modified by the purchaser to have a part for the headlight to shine through, or a stand can be drilled to the exterior of the shell. The front fairs is also designed to give clearance in front of the rider so that any vest is simple. Anodized-aluminum mounting hardware are included.

Recently, I ran a few mountain bike speed tests using the new Ram-

page Cycling Products fairs kit. On a 50 mile ride along with several fast tandem couples I previously finished just behind the lead group. Ironically, with the new fairs kit, on the same course, with the same riders, I finished the ahead of even the lead group! Today I rode a course that I've ridden hundreds of times with previous top speed of 30mph, today my speed was 34 mph, an increase of over 15%!

Corrugated plastic is stronger than fiberglass once for canoe, is waterproof, UV resistant, difficult to break, fire, impact resistant, easy to work with (no expensive molds necessary), and lightweight. The front weighs approximately two pounds, the rear about three pounds. The dimensions of the assembled kit is as narrow as possible (36") so that there is as little aerodynamic drag as possible. According to wing research, the rear of the tail section is the most effective at reducing turbulence than if the sides of the rear tail section were brought together like the point of a sail-plane. The kit has been tested on very windy days (20 mph gusts) with minimal buffeting. This is due to the narrow profile of the front fairs and the sloping sides of the rear fairs as can be seen from the side-view pictures.

We believe that there is a market for after-market fairs. We've eliminated anything that could be expensive in the manufacture of the fairs which includes weight, bulk in shipping (our kits ship flat), and labor (the customer does the assembly). If we're correct, current offerings will be a full body kit with open bottom so that the rider can get foot down easily, unlike the heavier and slower composite-bodied bike currently on the market.

For more information, contact Rampage Cycling Products, 1944-B S. Euclid Ave., Tucson, AZ 85713. Phone: 208884-4808 or 520/526-4117. Ed. Note: The "Rampage" fairs kit includes 1988 Turner 7-Lite with



many custom options including a custom shortened Sullair, Purgator, Spangco wheels and a 47P Hain chain rollers. There will be more about this bike in our Turner 7-Lite test.

SACROS SET REALITY CHECK

By Edwin Chen

It has been communicated to me by a number of people the negative perception of the Sachs 3-7 hub is about KLN coverage. I'd like to comment on our experience with this system so the whole picture is in view and informed choice can be made.

Here in Angelesc, we've have had four models years of 3-7 installations today, and we're embarking on our fifth. We originally looked into the system for our customers who wanted to "have it all" in the rear surge department. To climb the vertical mountain passes, then pedal down the other side.

The 3-7 has been extremely reliable in all circumstances. For example, one of our customers commutes to Denver from this 3-7 provided a 3-speed trials to ride home when his downhill were frozen solid. The system has also been reliable on our own Sacramento tandem.

REMARK: In a recent RCN article, Alternative Drivetrain Applications, Zach Kaplan commented that the 3-7 "works poorly if at all under load." This is the part that makes our feel like an old hat coming up on 44 years of age! You are not supposed to shift the 3-7 under load, you coast when you shift. This is the way it has always been for internal hub shifting. I learned this when I had a 3-speed bike in my youth. Many story Generation X-ers who have only grown up with derail-hubs have missed this principle. This shifting method also allows you to down shift at a stop, an advantage in many people's eyes. Over time to make a quick stop, and light to downshift. This is one unusual hub that allows both trigger shifting method. Sachs redesigned the trigger six months ago, and it's a question how many



The Sachs 3-7—Richard Dede

people than the previous studies, and remarkable to say 3-7 system. In a rare case of knee-company comparison, the Sachs folks made the bike compatible with the Shimano HG50 cassette that shift the best.

EFFICIENCY: The 6% efficiency loss in under-drive and pre-drive range is barely discernible, long in mind that the 98% efficient main range is the same as a standard drivetrain, and you see still using the range most of the time. You are using the under-drive range while climbing at a very slow 2-4 mph, your alternative being walking. You are using the over-drive range in a speed surge where positive acceleration choice but to coast on a standard drive. The best example I can give here is from the Rampage/Zip test on dry-cone, the ground, with a 41 mph tailwind. I was able to accelerate to the 40 mph surge and keep increasing speed, while run 31 speed/1000 rpm and able to do so.

WEIGHT: The 3-7 adds about 200 pounds to the wheel's center. Fortunately, it's worth it because of what it gives back in expanded surge. The "clicking" sound while pedaling in direct and overdrive is a modest sound. We haven't had any customer complaints about it.

Overall, we like the system and note many mountain commuters of

ours. It's not for everyone, and we are very up front with owners before ever taking a bike order. We use very sports building bikes with standard drive, and have gear charts in our computer-to-computer standard, 3x3, and mid-drive systems.

For more information, contact Angleton, 508 N. Highway 5780 Box 1893, Woodland Park, CO 80863. Phone: 303-747-7475. Email: Angleton@rac1.com

NEW GREENSPEED EXPEDITION TRIKE

Adventure Gully, Australia—

With the advent of the Greenspeed Tandem Trike, it has become obvious that the Greenspeed GTR 2000 Touring Trike can carry a lot more luggage than there is space for in the standard machine. Thus we are now building a new version, called the "Expedition" trike to suit riders who wish to ride around the world and carry all their camping gear with them, or for people who just want to carry over-shopping etc. The wheelbase of the trike has been extended about four inches, an extra seat added, and we have gone up one gear in the main frame being. These are similar to the models that were made for Val & Eric's trike to enable them to do their 15,000 km Around Australia Tour. However, in addition to these models, we can also fit a 2nd pair of tandem seats, in front of the standard rear rack, so that a standard "FRONT" pair of cycle pannier bags may be fitted in addition to the standard rear pannier bags.

Furthermore we are also fitting our "tandem" rear wheel to this machine, which has a wider and stronger rimmed special 1 1/2" stainless steel spokes. Our first machine has been sold only in America (Living in Portland), and has been ordered with the optional hydraulic disc brakes, plus the Shimano Motor Drive (MFD) 2-speed crankset. With a single 50-T chainring, a 10/50 cassette, and a 3x7 hub, the MFD gives a gear range from 11 inches in bottom to 125 inches in top. This or should never run out of tires or gears!

NEW GREENSPEED OPTIONS

Adventure Gully, Australia—

While we find most owners are very happy with their Greenspeed GTR 2000 Touring and GTR 3000 Tandem trikes, some people feel they need a different fix for support due to Greenspeed's low, aero, seat angle. Although a head rest is optional, it also comes extra air drag, so we do now offering a new 40 degree seat, as well as our 35 degree rest. The seat also has a different

shape to enable it to more comfortably fit a greater range of rider sizes. The Sports Trikes will enable us 30 degree rest, and our racing trikes will continue with their 20 degree seats for maximum speed. For those who require more rough road comfort than our spring seats, fat tires, and fenders provide, we are now offering suspension. At the rear we are using unsplit sprung swing arms with a progressive Fox suspension unit. Both the springing and the damping are easily adjusted in these units which are used extensively on MTBs. At the front we are using another MIRA suspension (MCU) - forks Carbon polyurethane, with a sliding linkage arrangement - lights and fenders. The first trike to have all three of these options, will be delivered to an outdoor Western Australian owner by the time you read this, and should get a good test workout!

DISCOMPTON "FOLLOWER" CONVERSION KIT

Gilkie, Germany—No matter how many conversions you own, LWB or SWB, tri-cycles, folded or unfolded, there is always one bike in your shed that remains "unused," the Follower. So why stop giving your every moment your (eventually) expensive but inconsiderate of an upright riding position. There is a solution waiting to bridge this gap.

We have taken the most versatile 40/40 model, the Discompton, and developed a "no-welding" bike conversion to a recumbent. The Discompton owner can convert without any tools—no "see-saw" upright or recumbent conversion.

The recumbent Discompton will still fold into a really small package. The whole bike can be pulled along on its carrier rack rails as usual. There is one minor problem, the bike will no longer fit into its original carrying bag, though we hope to overcome this soon. It will fit into a railway station luggage locker.

The conversion kit consists of the following:

- A foldable seat that remains on the bike when folded.
- A frame and bottom bracket clamps to the steering tube and when folded, swings with the front part of the main frame.
- A lightweight handlebar.
- A hub-drive for transmission from the new bottom bracket.

The conversion kit is very easy to use and it keeps the excellent handling of the original Discompton.

We are about to finish producing—and expect the kit to be on sale in late Spring 1995. The price



The Discompton with owner's kit—John Head!

is expected to be in the range of about 1700 US for the kit (does not include Discompton bike).

For more information, write Valrie Meek, Holmberg 2, 11308 Gilkie, Germany (tel 040 73080104)

ATV GEMMY FOR 1995

Franklin, MA—For 1995 there have been several changes to the Vision recumbent line-up. First, we have added a new model, the B20 Mirra. Designed as an affordable, easy to ride around town and commuting bike, the B20 promises to be the hottest bike of 1995 for Vision Recumbents. In addition to designing the B20, the engineers and designers at Vision Recumbents have not been idle. Several improvements to the bike frames have been made, and the component selection has been completely revamped.

The frames of the B40 and B42 have been modified slightly in a couple of ways. First of all, the seat mount on the 40 and 42 has been changed to the 4440 style, so that the seat now sits on debris spacers, not directly on the frame. The cable routing on the B40 has been improved, reducing swing heights to improve riding accuracy. Spur changes are numerous, but to highlight a few:

B40: Now uses a Shimano B22 rear derailleur, rear hub and a Shimano-cassette (11-28). The rear shifters are now the new PowerGrip Plus from Sachs, and the brakes are the excellent Dia-Coupe VC-2.

B42 & B44: These bikes pick up a 24 speed drivetrain, utilizing a Shimano: EX160 Group (Crank, front and rear derailleurs, hub and 8 speed cassette). Shifters are from Sachs WFC, matched to Dia-Coupe VC-7 brakes and VC-7 controllers. These are upgraded, a Ritchey

Tom Slick now across the sea, with the first rider being the Vision HP18" or the recently imported Schwinn 110 City Mountain 20" x 1.25" (40mm)

B40: Still featuring the Ultragrip Infs, Deon XT derailleurs and Tech Brothers seats. For 1995 we've added double bonded spring and alloy nipples. Dia-Coupe VC-MVC-7 levers and controllers and the Sachs Extreme 8-speed shifters. Still the lightest recumbent available, the B42 is a super delivery speed machine.

The tandem line has also well received, and the comments so far indicate enough orders on it to satisfy the designers. Would anyone out there be interested in a limited production run of frames? (This probably will happen in late spring, and would be available only just complete bikes.) Call Vision if you have any interest.

While it's great to introduce the newest addition to the family, the B20 Mirra. Discompton is an affordable, easy to ride commuter and around town machine, the Mirra promises to be the hottest bike of the year for the first year of Seattle company. Featuring a suspension frame, the Mirra has a very comfortable ride. Above the seat handlebars and relatively upright seat position make this the perfect bike for those who find standard recumbents uncomfortable, yet the machine is a stable performer.

The suspension swing arm of the bike collapses forward, reducing the wheelbase of the bike to upright standard. This allows the bike to easily be transported on standard auto-



Power Racer® Crystal GEM side-by-side recumbent

mobile roof racks. The handlebars also disconnect easily for storage, shipping or transport. Available in a 7 speed version that uses the Shimano Nexus internally geared hub, as well as Sachs 5cT equipped 21 speed version. Retail prices are \$625 (7-sp.) and \$675 (21-sp.).

VIKING ANNOUNCES NEW ACCESSORIES

A new Light Mount device (LMD) installs easily into the dovetail tube on most Viking recumbents (not the Microfairing ones). Lights attach in the dovetail tube. The entire unit is held in place by one hex bolt.

Our new Fairing Protector (FP) is the perfect foot weather companion to our Luxon fairing. The Protector shields around the nose of the ATP Fairing Fairing bubble, then stretches up over your foot stabilizer, providing additional protection from the elements. Made from yellow coated rip-stop nylon with Vikoro clearcoat and nylon webbing straps, the Protector is built to last. It comes complete with Luxon face shield that will attach to almost any helmet.

The Protector adapts to the Viking Fairing. This Luxon bubble provides a distinct aerodynamic advantage as well as protection from all weather. Shield complete with all the hardware required to attach it to your Viking recumbent (does not fit Micro), this sturdy unit will make you more comfortable and help you increase your speed. Once adjusted for your bike, it can be installed or removed in moments. MSRP \$425.

Our new mirror is a Rhoko Clear. We sell it with a frame done to allow for easy attachment to our handlebar. Very adjustable, the MR40 has a large viewing area, and will swing out of the way, unimpeded, in the event of an accident.

WINDSHIELDTAIN IN NE

Nexus, AT... In expanding its line of cycles, Northland Recumbents is studying the Windshieldt

ain recumbent performance triplex. The Windshieldtain bicycle, which had been in a special exhibition at the Museum of Modern Art in New York City, can now be viewed and test ridden at Northland Recumbents in Verona, New Jersey. Also, in stock and for test rides are the Lightning B-36, Easy Racer Tour Easy and others. Northland Recumbents can be reached at 201/279-8998.

MAXAM IS BACK!

Reston, VA—Maxam has a new direction and new models for 1997! A new tandem, the "Tri-villion," has a LWB seat section, teamed with a high bottom bracket (SWB) foot section. Maxam's Ravenna is available at \$499. A new 3759 CRWB model called the Reston has a wheelbase of 33.5" - 36.5", with dual 20" x 1.75" wheels, six speeds with steel side-pull brakes and a one-piece DHD style crank. The Reston can be converted from a 20" rear wheel to a 26". For more information, contact Maxam pH#503/445-9023, fax# 503/445-9021, web# www.reston.com or 1-800-

THE GEM SIDE-BY-SIDE TRI-CYCLE

Corwell, England—The bicycle will not replace the car until it offers protection from weather, the ability to climb hills in comfort and carrying capacity for at least two adults and a child (or the weekly shopping) in comfort.

The GEM is the first step in our plan to develop a "Gloss" replacement for the family second car. The prototype is intended to test the practicality, comfort, ergonomics and stability of the GEM, which will be of benefit in several forms:

•**SHARED**—an open two seat recreational bicycle, much like you see today. A two seat recumbent bicycle which is no longer than a side-LWB recumbent, narrow enough not to be an obstruction in traffic, and



The new Cruise Angler 2002

may be easily dismantled for travel. The two seats adjust to differing leg lengths, and the same frame accepts the steering on either side.

•**ENCLOSURE**—with a sun-protective body giving total weather protection, van luggage space, a child seat behind the two adults, and an electric motor for assistance on hills. This more sophisticated GEM has a fully enclosed body.

•**TRISAPPLICABLE**—so that you may inter-convert it into either a trike, who can help pedal with their legs or there is an arm power conversion.

The GEM will have three 20" wheels, chain drive to the rear axle (both wheels drive/steer wheels in back), independent pedaling and 30 gears (20-120 gear range). Optional electric drive will be on a cross shaft through the pedal gear system with a fixed 500 watt permanent magnet motor. The range will be 10 miles without pedaling, but varies with rider strength.

For more information, contact Crystal Engineering, Unit 1A Jubilee Wharf, Commercial Road, PIMLICO, CORWELL TR16 3AJ, UK and fax +44 (128) 778948. Email crystalp@btinternet.co.uk

ANNOUNCING THE diviMach HUMAN POWERED SPEED BIKE

Greenville, OH—Back in the 1980's the search for higher speeds for HPV's was spurred by the announcement of the defunct Land Speed Prix for the first single rider HPV to break 100 miles per hour through a 200 meter time trap. Research and development rapidly spread throughout the world with numerous groups pushing for over 300's and a few teams breaking 400 mph. The great thing about all this activity was the publicity generated for recumbents in general and the spin-offs of such things as designs for blimps for everyday business

flying. The prize was won in 1988 by the Easy Racer Team running the Gold Kwik, piloted by "Fast Freddy" Workman.

So, what has been accomplished since then? Not much. If anything, public awareness of recumbents has slipped. Certainly there has not been nearly the R & D in our field which we saw during the different period. What to do? The years have gone by with only rumors of groups having real fast machines squandered into garages, just waiting for the right opportunity to present itself. I'm tired of waiting... I feel the need... THE NEED FOR SPEED!!!

Announcing the diviMach Human Powered Speed Bike. In a nutshell, a group of us are putting up \$10,000 for the first HPV (single or multiple rider) to run one mile the speed of sound, 75 miles per hour. The event will be held once per year at a location designated by the public community. The event will be altitude limited to 100 meters above sea level. The vehicles will exhibit the ability to self-launch and self-recover. The goal of the prize is to generate public awareness of recumbent powered (not the old "Race and win on Sunday, sell on Monday" automobile philosophy) and technological development for recumbent users. The diviMach continues its current plan to have the first running for the prize in the fall of this year.

For further information, contact Garrie Hill at 208-748-8496 Cell-Ver, Greenville, Ohio 43023 or email garriehill@netnet.com or pH#614/887-5786.

ZIPP DESIGN'S FAIRING COVERS NOW AVAILABLE

Developed, C-4—Zip Design now offers faired fairing protective covers available for Easy Racers, Verano, Malacca, Infinity, Ryan, Lightning and Angletech Super



The MicroCAT™

Zipper fittings. These covers retail for \$15.

Send for your brochure and price list for all of the Zip Design fishing and fishing-related products to: PO Box 14, Davisport, CA 95817 or phone 800-908-0282. Web: <http://www.zipdesign.com/Zip>.

PEDAL YOURSELF INTO FUN-AND FITNESS ABOARD A MICROCAT!

MicroCat, MicroCatamaran-style pedal boats that combine recreational boating! The always enjoyable recreational activity of boating and the highly beneficial health aspects of a low-impact aerobic workout come together with Micro-CATARAN. Let's introduce you to the MicroCAT™ - a new line of high performance, catamaran-style pedal boats that are fun, portable, versatile - an innovative new concept in recreational boating. The whole family can enjoy this fun high-tech "pedal-power" experience to reverse lakes, rivers, the ocean or marina - any body of water - in an adventure, healthy, new way.

The sleek new MicroCAT™, ideal for any water-recreation sites it meets is a dynamic replacement for the dated, unsightly towboats, water bikes and kayaks of the past.

A MicroCAT™ can be used for unlimited activities - scuba diving, offshore and lake/stream fishing, sightseeing, anchoring, cruising and exploring, river travel, competitive water races and games, and more!

There is also an inflatable MicroCAT™ Ultralight model that comes in its own double travel bag. It weighs only 58 pounds and quickly packs into its 18" x 36" x 42" carry case. It can be carried in the trunk of an automobile, on a roof rack - even checked as luggage on an airplane!

It can be assembled, inflated and launched in just 20 minutes!

As a "people-powered" craft, each MicroCAT™ model is also extremely friendly to the environment. They use no oil or fuel, and each model's gearbox is fully enclosed so water cannot get inside and affect the proprietary greasing lubrication.

Offered as optional equipment for customizing a companion kit for an added passenger's use are: dolly; luggage rack; cupholders; fishing accessories; solar and electric power kits; kneeboard; swim ladder; scuba platform; and hand-pump accessories.

For more details on the exciting new MicroCAT™ pedal boat models, water-floating enthusiasts should contact Micro-CATARAN, Ltd. at 1-800-451-8746; internet website is: <http://www.MicroCatGroup.com>.

HUFFY PURCHASES REBISSA

Manassas, VA.—What a brilliant combination! REBISSA—the fastest-selling, lowest priced recumbent in America—has joined forces with Huffy—the #1 domestic manufacturer of bicycles in the USA.

Founder Kalle Stewart continues to provide vision by serving as Director of RebiSSa. He joins marketing savvy and Huffy's reputation for quality makes 1895 a sure thing!

Huffy—"America's First Choice" and RebiSSa—"America's First Recumbent Choice"—are, statistically a winning proposition.

PLEDGED TO INTRODUCE LOWER PRICED MODELS

Reston, VA.—Over the past year, Progress-Cleveland has sold over 200 LOWE USA recumbents, mostly in Canada. For 1995, a USA market expansion as well as two or more new models will become available. Watch for a new 24-speed steel version as well as 105-44 steel 36x2, all models have mid-drives.

RANS TO USE SACIES CHAIN

Reston, VA.—After months of



A German Cruiser



The Absolute 2095. Not available in the USA

RMC chain runs by RCM publisher Robert Ryan, John Scribner of the Rans company called for some in-house testing of Sachs Sacklochin. Sachs chain was installed on a '91 Rans Talwind and a ZeroG and

tested by himself and Mark Parry. Both John and Mark agreed that the chain worked better and lasted longer and they have decided to drop RMC chain and install Sachs Sacklochin on all Rans Recumbent Bicycles. ☐

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RCN Dealer Listings

MY AIRY REQUIREMENTS offers a full line of recumbents, including Vaino, Easy Racers, Hans, Lightning, Habaema, Blottel, Lincoln and others. We buy, trade, and sell RECYCLED and take trades.

ACCESSORIES: We sell fairs, fairs, mounts, computers, pedals, racks, car racks, lights and clothing.

SERVICE: repairs, frame repair, bearing, and adjustment. Free 307-760 lessons, delivery, pickup available and same-day service.

MAIL ORDER: We have email, hard-to-find parts available for immediate shipping.

TRUST BUILDING: We have several acres of mounts, paved, off-street parking area and low traffic road leads to our bikes in all conditions.

We are in the process of expanding our store to serve our customers more efficiently. A new service area will be included as well as a larger selection of merchandise.

Our parking lot is often a local rider's who of recumbent owners sharing their fun and knowledge with newcomers to the sport.

We promote a recumbent race every year in June and our 4th annual Brentford will be the last week of August. This gala event draws hundreds of people in rural Maryland for a weekend of family fun. Mi Airy Bicycle (PH800-811-3211) or 388-8412 (Brentford order line). Our 7th year of service. Check our new web site www.bike123.com.

RECYCLEMENTS/ERA features fine recumbent bikes from Lincoln, Hans, ATP, Hikel, Peugeot, and many others. I offer live and static at my shop on Saturdays through the riding season. At other times there is a 375 affordable bike. Appointments are suggested. Ask about our new center.

I build up many of our bikes from frame-bike, therefore I can set the bike up the way you want, with the components YOU want. Every order and every bike get my personal attention. Call us at phone (604) 358-1358 or Email tkawalski@pcom.com

PEOPLE MOVERS is the premier recumbent dealer in the United States. We represent all makes and models of U.S. made recumbent bikes in addition to several imported models. 1997 will see several bikes added to the People Movers line, which may include the Grasspood, Windchrober, Therx, Robinson and others.

People Movers offers many ser-

vices to meet your recumbent needs including mail-order convenience of bikes, parts and accessories shipped anywhere; custom gear recumbents; custom painting; by-owner exercise services; professional "in-shop" service; custom-spec service; credit card convenience; monthly rides and Recumbent Cyclist News subscriptions.

Our store is located in beautiful southern California, just 4 miles east of Disneyland and 12 "mile-out" miles from the beach. 860 N. Main St., Orange, CA 92667, (PH)714-693-3663. Open everyday except major holidays.

Stop in and test ride a recumbent at People Movers the next time you're in southern California. The coffee is always on, the fridge is full of water and bottled water and the weather is usually warm and sunny.

N O R T H E A S T RECYCLEMENTS: We are a recumbent specialty shop with a strong emphasis on customer service and with a commitment to support cycling as a sport and as an alternative mode of transportation. We sell and service recumbent bicycles and tri-cycles. Have an extensive showroom, offer test rides and rent recumbents. Northern Recumbents stocks ATP Vaino, Hikel, Easy Racers, Lightning, Hans, Hans, S & B, and Windchrober-cycles as well as a wide range of spare parts and accessories. As an independent affiliated shop, we also sell European cycles and sell bike accessories. Northern Recumbents is situated next to a quiet residential neighborhood, perfect for extended test rides. We're centrally located in the New York/New Jersey metropolitan area, with easy access by car and public transportation. **NORTHEAST Recumbents 9** Weyland Drive, Newark, NJ 07104, (PH)973-2133-3924

ATP HAPP SHOP: Alternative Total Sports is much more than a bike shop. We feature full R&D engineering and fabrication services for custom recumbent cycles, tri-cyclic HP's, and electric-aid systems.

ATP features great deals on recumbent two-wheel bikes, tri-cycles, and trikes — along with friendly personal service for the new recumbent buyer. See us on the web at www.dickbrown.com/cycle, and watch for our new showroom opening for 1997!

IN MINNESOTA by Dick Brown and Dick Miller: This is the story of a partnership formed by the

love of cycling and transformed by a love of mountaineering. Appropriately enough, it all started because of a numb bottom in San Jose, California. In 1987 Dick Miller (Dick W) had just completed a 5000 mile odyssey from Minneapolis to Boulder Creek, 80 miles south of San Francisco. Dick W was newly retired from the VA where he had been a clinical psychologist. While in Boulder Creek he visited his nephew W in San Jose. W was the owner of a Tour Edge and Dick W took the opportunity to scuttle around the block on the Tour Edge (on his own seatpost). The next day was, Tuesday, two days later Dick contacted and bought a used RANS Winnebago at the Earth Ride Bike Shop in Yonkers, Wisconsin.

1993—After Dick Brown (Dick B) had retired as the director of Delta Cessage Training in Maryland. For two years he had roamed the country out of Kalispell, Montana on an orange Commodore. He then moved to the Minneapolis area in 1991 and met Dick W on a local ride. Dick B was immediately taken with the idea of riding a recumbent to parallel his late father who had been laid with sleeping in World War II. He was impressed not only with the comfort of a recumbent, but also with the difficulty of finding recumbents for sale. His entrepreneurial instincts were instantly aroused and before Dick W could say "or back," he found himself on his way to the Rans factory in Waps, Kansas, where they each bought a brand new recumbent. And then a second opportunity appeared. Dick B convinced Rans that they needed a new dealer in Minneapolis, and Dick's Recumbent Cycle was launched.

The marketing approach is to take the product to the customer. Everywhere a recumbent rider goes, he gets a lot of attention, and despite the long flight times, the Minneapolis metro area has an extensive bike-friendly network of on and off street bikeways and trail trails.

Their first customer was another senior citizen who interrupted them on a ride around Minneapolis' Lake of the Isles. Dick W had to retel him while to develop the different sense of balance required as a recumbent. On another occasion when they were on a Madison to Minneapolis camping tour, a van passed them going up hill. The driver waved at the top of the hill to examine their Rans MT's and two weeks later bought a RANS Nimbus.

Since those beginnings they eventually put their "IN MINNESOTA" ad in RCN. This has proved to be the most effective vehicle for getting in touch with potential clients. Their most recent sale was to a man who telephoned from Iowa. He needed a recumbent ASAP in order to ride with visiting adult daughters. Dick B and W drove south and met him halfway. He bought the bike and by 3 pm. loaded back to Iowa completely happy and satisfied. This grassroots approach is one which could prove like the internet to provide a way around the "Bike Shop" impasse. Dick B and W, who sometimes refer to themselves as "the Brucemore Duo," have Rans and Hikel items models in stock. They teach clients how to ride and generally share rides with customers. Post, that's Full Service Recumbency!

THE BICYCLE SPOKESMAN: We are a full service, bicycle only shop located just north of Mississauga, Ontario, Canada. The shop has been in existence for over ten years and is catering our third season of recumbent and alternative cycling sales and service. This is the only shop in the eastern half of Canada that stocks a variety of recumbents for prospective recumbent riders and enthusiasts to see and try. A variety of trailers for children is bigger service available. The Bicycle Spokesman owner, Joe Gutzman, offers expert, personalized service and advice to all customers. Test rides are available on all models and accompanied, extended-rides can be arranged. The terrain around the shop varies from the residential suburban rolling suburban and country roads. This year, seven models from our Rans suppliers will be displayed: ATP Vaino, Blottel, Lincoln and Windchrober. Other manufacturer products may be special ordered.

We are in the process of forming a recumbent-cycling/riding club and are soliciting all interested "bent" riders, both experienced enthusiasts and novice, to contact the shop for further information. Monthly rides in the countryside and in and around the Greater Toronto Area are being planned. Call us at 905/771-9018.

WHEEL & SPROCKET: Our store opened in 1973 as a city bike shop in Milwaukee's southern suburb Hales Corners. Over the past twenty years, Wheel & Sprocket has grown into a first class chain, with national recognition in quality and

quantity, including being the all time largest Trek dealer in the nation, and a B&B Top Hill Dealer for over seven years. We are consistently Milwaukee's Favorite Bike Shop as voted by the city. Customer Service and quality products are what has driven our growth.

Wheel & Sprocket is a strong community supporter. By providing SAG support and charitable contributions is, at least, every major cycling event in Southeastern Wisconsin. Wheel & Sprocket is able to give back to the community. Wheel & Sprocket also supports the sport by organizing SAGBRAV, an annual bike tour across Wisconsin's Fall Color Festival, a mountain bike ride to raise money for future trail development, and is hosting the first annual Reverbfest Road-Up in May.

Chris Kugel, Wheel & Sprocket's owner, started the company as a mechanic and has worked his way to the top. Chris is one of the reasons for Wheel & Sprocket's reverbent enthusiasm. He currently owns five recumbents, which he and his two sons ride on. Wheel & Sprocket's annual bike tour of Wisconsin. Wheel & Sprocket looks forward to the growth of reverbents at the next big news in the bike business.

Chris has directed Wheel & Sprocket on an industry trend setting. Wheel & Sprocket was one of the first Rockwell-style dealers to start the first to drive Cross Country rides with enthusiasm in the late 1970's; one of the first steps to start the Mountain Bike craze, and has most recently led the way in reverbent sales at RANS #1 dealer for 1996.

Wheel & Sprocket can be contacted here at 1-800-362-0237.

WHY ANGLETRICH? Our company has one of the deepest rooted histories with recumbent bicycles in the USA today. Our first reverbents sold govt to the way back to our first Avator in the late 1930's. In addition, we sold Kona, DePuy, Coastpro, and Ryan. Throughout the years our design evolution and good reverbent lineage comes to our attention. With this type of perspective, a thorough phone consultation with us will result in a bike that truly meets your needs.

FIT: You will find a list of measurements on your Angletrich order form that helps us give you accurate fit, even by mail order! Just as there is a difference in fit between men and women on upright cycles, there are gender specific issues to be

addressed in fitting reverbents.

SELECTION: In addition to offering the "factory spec" stock models, we offer up to three additional "Angletrich spec" versions so you can get the best possible bike for your needs, even here "Best." The goal here is to avoid the "I've got a recumbent, but I had to sacrifice quality components and finish quality" syndrome. Our custom-spec reverbents are "the right stuff."

CUSTOM SPEC: Have a desire for a dream bike done YOUR way? A large percentage of our sales are bikes built to order by YOU. We can accommodate almost any request. Present your ideas for a quote.

QUALITY BUILD & ROAD TEST: We carefully assemble your bike and road test it prior to shipping. This step would like a "take-it-for-granted" thing, but it's not! Most bikes purchased mail order are "ball-switched" bikes that your selling dealer has never seen, let alone ridden, and require up to 30.00 in shop assembly at their destination. We build every bike we sell, then it is road tested by five individuals to make sure everything works well. We carefully box your bicycle in a mostly unassembled state, designed to be assembled at your home (even

by a mechanically challenged person) without any trouble. The assembly experience is short, and the most common after the sale customer reverbent is that removing the bubble wrap is the most time-consuming task! Look forward to your call and questions. Kevin Clark, Angletrich, Tel. 719667-7415.

Here at **JULIAN BICYCLE COMPANY** we are bicycle enthusiasts, whether it be recumbent, road or mountain bike, or something in between. We find every enthusiast should have a quiver of bikes!

We carry recumbents by Kona, Watson, Black and we can get you just about any model available including Trikes. We will advise you on the best recumbent for your style of riding. We specialize in building bicycles from the ground up so we can modify each unit to perform at their best. Modifications include upgraded brakes, Goran's shifting cables, and custom gearing for speed and climbing.

We carry traditional road and mountain bikes by Southbend and Otis Clay which offer the most comfortable ride available on a traditional bicycle. We have bicycles serving Southern California. **J**

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To you, this may look like just another recumbent bicycle. We prefer to call it the "bicycle of the future." Perfectly balanced, expertly crafted, absorbs road shock while remaining responsive. For us, the Turner T-Lite is a labor of love.

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WANTED: "BOOTS IN THE SKI" Photo Printing. Contact: Nancy Robinson NRobinson@aol.com or call 31.9236-8908.

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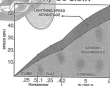
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RCN is pleased to present you a six issue per year schedule. For 1997, we are adding one issue to our lineup by adding the 1997 Buyer's Guide a single issue instead of a double. Here is the 1997 schedule:

- B70471...Jan/Feb '97
- B70472...Mar/Apr '97
- B70473...May/June '97
- B70474...July/Aug '97
- B70475...Sept/Oct '97
- B70476...Nov/Dec '97

RCN has been printed and mailed on time since our inception in the summer of 1990. This is an additional schedule for us. RCN members are mailed quarterly via first-class (first mail). They are prepared to work to address and make other needs as you. They are to stand by our words by the time you receive them.

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"I love it! I rode my 1994 for this morning, and I haven't ridden a bike in over 33 years!"

Jefferson Zick

"I am excited to have this fine machine, and I want you to know how grateful I am to experience this level of performance and comfort. The VR45 is a thing of beauty!"

David Tappert

"My wife and I have been riding our Vision 1994 for just over a year and have been happy with the way the bike sits holding up... I am a 'big' gal (175 lbs) and have had no problems."

Lee Cipp

"About a year ago I bought my wife a nice weight which she could never leave to ride because of her arthritis... I purchased her a VR40 which she rides often and truly loves."

Stephen R. Davis

"When it comes to recumbent bikes, I've owned a lot of them. This is the only one I've ever ridden. I was comfortable and saw things I also on my other bikes."

Wendell Brown

"My Vision is a wonderful bike. I have put over 3000 miles on it in the past year. I've ridden across the state and done major mountain passes. The bike has been trouble free and reliable in all those conditions and recumbent bikes. The comfort is sublime. My weight hangs in the saddle."

Michael Stone I bought my Vision 1994

My Parker (VR40) only

"My Double Vision has been everything it hoped it would be!"

Jim Wondratschke

"I got the Vision initially for touring. After a year I would stick to my upright for group rides... but I am so comfortable I can't imagine ever switching."

Ryan Hicks

"ATP (Vision) Recumbents is the only company that sells through dealers. I do my best to do the ATP name for their independent effort in making good design with smart business!"

Laura Brown, Calhoun Cycle

"Recumbent Cyclery News is right: the Vision is the best recumbent available. It's the ultimate in comfort!"

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Wheel & Sprocket started back in 1973 as a tiny shop in Milwaukee, Wisconsin. In the last 20 years, we have grown to one of the largest bike shops in the nation. We have won several awards, including being past ten years, but really customer service. What Chris Kegel. Chris started the owner of all five locations, come recumbent crowd, and his enthusiasm is spreading fast!

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