

Recumbent Cyclist

Issue No. 73
January/February 2003

News



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The Bacchetta Ti Aero

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Recumbent Road Bike Rant

By Bob Bryant

Are you ready for a total anti-roadie recumbent rant? Well, you're not going to get it from me. I have to say that these new Euro-inspired highracer recumbent road bikes are the single most exciting thing going in our cycling niche today. Surprised you, didn't I?

Interest in recumbent road bikes really seemed to catch fire this season with the Bacchetta Strada (dual-26 SWB ASS), the Corsa, and now the slick new 21-pound titanium Aero. I haven't seen a bigger buzz for a new recumbent in years. Everybody seems to love it—and they've already sold out the first batch of the \$3,900 Aeros! Though there are other recumbent road bikes, and Bacchetta didn't actually invent the concept (nor did they have the first one on the market—Vision did), the Bacchettas have become the hot buzz bikes this season and we feel they deserve kudos.

I thought it was just a bunch of roadie converts who were buying these things—and maybe some are—but the majority of people buying these bikes might be riding a well-used V-Rex, Lightning, or Vision and looking to take the next step. And we can thank three of our own—seasoned recumbent enthusiasts John Schlitter, Mark Colliton, and Rich Pinto (and all the folks at Bacchetta—for bringing these excellent bikes to us.

Nothing Bacchetta has done is really all that new. Some have argued that M5, Ross, some of the other Euro designers, and others have done most of this before. The trick was to integrate all of it into a new line of readily available high-performance recumbent bicycles for John or Jane Average Recumbent Rider.

So I'm trying to figure out what it is about these bikes. I didn't get it. So after a phone conversation with John Schlitter, I decided that I need to get my hiney down to Las Vegas and check this stuff out.

Like many of you, I went through the Bacchetta demo ride process. Lucky me, I had John Schlitter, Mark Colliton, and Rich Pinto helping me get set up on each of the bikes. I rode the Giro first, then the Strada, then the Corsa (no Aero ride yet). Each bike is a bit more extreme than the other, and each one felt a bit faster than the previous model. When I rode the Corsa, I even stopped on the test route to lay the seat back a bit farther. When these bikes are set up correctly, there's nothing like them. They're aggressive, stable, and stiff, but they ride nice and seem fairly versatile given

their mock- Italian heritage. Yeah, imagine me zooming down Blue Diamond Road outside Las Vegas on a screaming yellow Corsa. This was my favorite ride of the show (see RCN 74).

Another item of note is the passion this company has to do it their way. Hey, I scoffed at these ideas a few years back. I just didn't buy into it. I was kind of cranky and thinking old school. I, for one, am certainly glad that they built this line of bikes based on their expertise, not asking a bunch of other people to help design a new bike by committee. Passion oozes from these new bikes.

We all know that many roadies don't seem to care much for recumbents. They expect us to be slow, or they see a fairing or a body stocking and think "cheater." These new recumbent road bikes are a bit different. The wedgie racer rides up alongside the roadie recumbent, looks over, and sees a full-size wheelset (and no geeky tiny front wheel), road componentry, roadlike tires, and maybe even a carbon fiber fork or aero-type wheel. All of a sudden the riders have something in common, they speak the same language. With the titanium versions of these bikes, road bike-like weights are even achieved (the Aero is 21-22 pounds). Perhaps they're not so different after all.

So, have I become a roadie recumbent convert? Perhaps I'm headed in that direction. I haven't been riding my recumbent offroad lately. Does that count? I still like fat tires (the Giro's and Strada tires are fat enough for me). I still need to carry some cargo. John Schlitter showed me a great little bag by Radical that caps over the Euro seat, and Angletech offers a cool aero trunk for larger loads. We have one here now. So, am I selling out my urban cyclist ethos? Well, maybe I'm trading them in for a faster model. Perhaps I just got bitten by the recumbent performance bug after riding the Strada and Corsa (and a long dry spell for my performance riding). I can undoubtedly say that there's a room for a bike like this in my stable. There's something to be said in being able to use the roadie and triathlete parts, and especially those very fast Vredstein Fortezza superlight 145 psi 650c tires. Hey, everyone needs a good sunny-day bike, right? I surrender. Rich Pinto and the Bacchetta gang have won me over. ♦



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David Lawson with medal (WizWheelz)

WizWheelz Trike sets Distance Record in comfort!

Middleville, MI—June 15-16, 2002—A WizWheelz recumbent trike established a new distance record in the National 24 Hour Challenge (N24HC). The record of 253 miles was set by first-time Challenge rider David Lawson of Santa Barbara, CA, riding an aluminum version of the WizWheelz TerraTrike 3.3. He overcame numerous obstacles along the way, but finished strong and refreshed.

The TerraTrike 3.3 is the latest version of the high-performance recumbent trike made by WizWheelz, Inc. of Hastings, MI. The TerraTrike was designed to provide a really fun way to ride and exercise in comfort.

The N24HC brings riders from all over the US and the globe to converge on Western Michigan for a 24-hour test of endurance. The riders compete against the clock to either attempt a new record, set a personal best, or just enjoy themselves. Many of the better riders pedal the equivalent distance from Cleveland to Chicago (approx. 350 miles).

David withstood thunderstorm delays, cold temperatures, brutal 25 mph winds on much of the route, a fairly hilly course, no sleep, shoe problems, and a tire failure to claim the record. For David, a college lab manager in his mid-50s, riding the trike turned an almost impossible feat into a reasonably attainable goal. His distance of 253 miles is by no means the best a human has ever done in a 24-hour period on any bike. The overall distance record for any single rider is 493 miles, set by a 39-year old male rider in 1996. But what is significant about David's accomplishment, is the fact that he accomplished this without the normal pains and discomfort that accompany an extended ride on a regular bike. While other riders had sore rears, necks, backs, and hands during the nonstop 24-hour ride, and could hardly walk at the end, David remained fresh and comfortable for most of his ride. The following day David was asked how he felt. His reply was, "I feel Great."

David trained intensively for 7 weeks prior to the event, putting in well over a thousand miles on his personal TerraTrike. He utilized a cycling coach and Lance Armstrong's book, "Seven Weeks to the Perfect Ride." David says he's had so much fun that he intends to continue with occasional morning rides in addition to his daily trike-to-work commutes. "In addition to feeling so much better, and losing weight... I've learned so much about optimal cycling and correct eating habits."

WizWheelz, Inc., a manufacturer of exceptional human powered vehicles, has been in business since June of 1996. WizWheelz prides itself on personalized customer service, the highest quality craftsmanship in the industry, and an aggressive approach to continuous improvement. ♦

Source: WizWheelz, www.wizwheelz.com



The new Angletech AeroTrunk

Angletech Introduces AeroTrunk Tailbox

The objective has been to create an aerodynamic tailbox that adds speed (2-3 mph according to our 2 real-world testers of our last prototype), has considerable utility, requires no additional support structure, amplifies sound less than the coroplast or fiberglass examples, and has a high-quality finish and level of materials.

The tailbox is made of slick urethane-coated nylon pack cloth on top and perimeter, ABS and nylon internal stiffeners, ballistic nylon bottom and front panel (at seat end), with mesh mounting pocket. It has two YKK zippers, covered with silent rubber tabs to eliminate clatter. There is 3M Scotchlite reflective tape on perimeter top edge of trunk and a loop for flashing LED light at top rear. There is a 4" x 14" transverse mesh pocket at bottom of front panel. The box comes off the bike and can be carried with a shoulder strap that fastens to 2 "D" rings, and there is an easy-on-the-hands rubber grab handle. The tailbox weighs 3 pounds and has a capacity of 2,850 cubic inches.

Inside, the box is fully lined in gray nylon. A bladder pocket at the front end of the bag has an exit slot at the bottom for a hose. A 14 x 12 x 4" compartment closes at the top with Velcro. It is laptop computer compatible. It has a built-in wallet with additional zippered mesh pocket and a snap fitting for your keys, and there is a mesh cargo floor net with two Fastex buckled straps to anchor your gear. The AeroTrunk fits all types of recumbent mesh seats and there is an M5 carbon seat option. It comes in black, red, and yellow and sells for \$184.99. ♦

Source: www.Angletechcycles.com

David Lawson—a smiling recumbent rider (WizWheelz)





The Bacchetta Corsa

The new 2003 Bacchetta Corsa is a cross between the Ti Aero and Strada models. The Corsa has a CroMoly frame with a 650c wheels, an M5 (fiberglass) Euro seat, Kinesis "Carbon Road" 650c fork, a TerraCycle GlideFlex stem and an Ultegra drivetrain with a FSA CarbonPro triple crank. The Corsa weighs in at 26 pounds, which is 4 pounds heavier than the Ti Aero, and 2 pounds lighter than the Strada. The bike comes in Corsa Competition Yellow and sells for \$2,600. ♦

HPV Racing DVD Now Available

Now available is an hour-long DVD disk of the 2002 World Human Powered Speed Challenge at Battle Mountain. Includes the streamliners launching and running with Sam Whittingham's 81-mph world speed record run, closeup of Rob English's dramatic 70 mph crash in the Kingcycle Mango, interviews with Gardner Martin (on his next streamliner project, the "Backwards Bullet"), Sam, Rob, Matt Weaver, woman's champ Andrea Blasecki, Miles Kingsbury (Mango builder), Sean Costin, Steve Delaire, Garrie Hill, others. See Barcroft Cycles web page, www.barcroftcycles.com, for ordering info. (Tentative price, \$19 plus postage). ♦

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Burley Response

Thanks for the thorough and positive reviews of our bikes and trailer in the current issue of RCN. I suppose we're still a newcomer to the market in the eyes of many, and your recognition of our efforts is bound to lend credibility to our designs. I for one also appreciate the criticisms, which, coming from a rider with your experience, help make my case that our bikes are still a work in progress and Burley can't afford to sit still.

John Morris

Heckman Update

I'm writing to follow up on the article "Stranger in a Strange Land," which appeared in RCN 71 and detailed the injuries I sustained when I was struck by a car while riding as part of the National Bicycle Greenway (NBG) national relay ride. After several weeks of recovery at local hospitals and rehab clinics, I'm convalescing at my parents' house in Dixon, Illinois. I'm happy to report that, to the amazement of my doctors, I'm able to walk using only a cane. I'll need a hip replacement sometime in the future, but with continued hard work and therapy I should be able to walk without a cane, and, I hope, continue to bike. I just wanted to thank everyone for their cards, letters, and e-mails. The encouragement of bicyclists across the country has been a great help and comfort to both me and my fiancée. You can read more about the NBG at www.BikeRoute.com. If you like, you can get the latest about my condition at my Web site, www.patfuel.com.

Incidentally, I was riding a Penninger Voyager trike, which was reviewed in the last issue, during the relay and I concur with the points made in the review. The bike is solidly built, well designed, and easy to ride even when heavily loaded—I highly recommend it for touring.

Thanks again everyone,
Andrew Heckman
heckman@bellwethercomm.net

Port Townsend Cruise

My wife, Trudie, and I just returned from a 3-week vacation in the Pacific Northwest. We took our small motorhome with our RANS Screamer stuffed in the back door. As my uncle lives in Port Ludlow, we had a chance to tour your riding environment on our RANS. We started in Port Hadlock and rode on into Port Townsend from there. We enjoyed visiting the old county courthouse, the waterfront (with the wooden boat festival) and the nearby fort that was used to film *An Officer and a Gentleman*. We then headed back, taking a side road to try and find a winery (which we never found). Your hills don't last forever, but they are nu-

merous and can get your attention! Some of the roads away from the main arteries were really scenic and pleasant to ride.

Anyway, next time I read one of your road tests, I'll have a better appreciation of the conditions that you are subjecting the test 'bents to. Those endless "rolling hills" definitely will give a thorough workout to any machine you might be sampling.

Sincerely,
Kirk and Trudie Newell
Kirk's Bike Shop, Ramona, CA

Big-Wheel LWB's

I thoroughly enjoyed your examination of the Rotator and Lightfoot dual-26 LWB's. The care you took to describe the different missions of the two (utility vs. road running) and the admonition to decide which one a potential buyer really needed before buying was particularly enlightening.

Thanks,
Carl Rush
daggoo22@yahoo.com

SWB Chaining as a Weapon?

The following message I sent out to recumbent manufacturers and got back a mix of replies: I have concern about the hazard presented by the design of some recumbents; those having the crank and front sprocket mounted out front. Uncovered as they are they could inflict serious, even fatal, damage to a pedestrian or another cyclist. Not covering them protectively amounts to the kind of neglect practiced by Detroit auto manufacturers in the 50s and 60s when their designs featured all manner of protruding and sharp edged forms and embellishments.

Respectfully,
Storie Mooser

Editor Comments: I have not heard of any serious or fatal damage caused by crank sprockets in the SWB position, though I suppose it could happen. I have heard of this being a concern where recumbents wanted to race with upright bicycles. If any manufacturers would like to comment, please feel free to do so.

Haluzak Slighted

I ran into a guy on a Haluzak Hybrid Race recently—which made me recall mine. We both agreed that the HR is a great 'bent. Both of us thought that RCN has slighted the bike in the past few years. In two years, I rode mine 4,000 miles; I would have ridden it more, except that I also have a V-Rex that I rode regularly. But for a big ride—like say the Slumgullion tour—I rode the HR. So consider taking a look at the Haluzak.

Carl Smith
Albuquerque, NM

Editor Comments: We have reviewed the Hybrid Race only once, back in 1998. It is a fine bike which also got a fine review.

Recumbent Grin

Much of the debate about numb toes and "recumbent butt" seems to be a means to continue the discussion of preference for short wheelbase or long wheelbase and their respective pluses and minuses. I find it reassuring that different things work for different folks.

But there is a serious ache that seems to affect all recumbent riders, and it begins the moment you get on, no matter what configuration. In extreme cases it could lead to temporomandibular joint dysfunction (TMJ), which is not something to be taken lightly. The condition in question should perhaps have a name, so let's call it Recumbent Grin.

In mild cases it just tends to make riders look mildly silly, but every single recumbent rider I see in Bellingham has it, and for some reason wedgies just don't get it!

Long may you ride,
Jeremy Brown
jeremyandjill@earthlink.net

RCN 71 Stem Article

I'm sorry, but I couldn't let this go without comment. Re: RCN 71 article "TerraCycle Fold-Forward Stem" by Shari Bernhard. I hope I'm correct that the author meant no disrespect to the rider of the vehicle that she mentioned in the first paragraph of her review. However, I do believe she owes a great number of people an apology. "One of his special-needs trikes powered a rider to two silver medals in the 2000 Sydney Paralympics." I think not. The trike may have held, or perhaps even carried the rider, but that incredible athlete did every bit of the powering required to win those medals. Thank you.

Sincerely,
Jules DeGiulio
jules.degiulio@probes.com

Editor Comment: At first I thought I should have caught this, but after looking it over. I can't imagine many readers failing to understand what the writer meant—(i.e., thinking that the bike had an engine of some sort.)

RCN Layout

I like the new look, it is cleaner and crisper looking, the layout is more interesting, but still has that homey, one-or-two-person-working-to-put-out-a-great-newsletter feeling. Keep up the good work.

I work at a publishing company (driver, warehouse guy, and bindery worker) here in the Midwest, what a place to ride, flat, well at least here in central Illinois.

Thanks for RCN, it has taught me a lot about

'bents, and is entertaining. I just got done reading, for the 3rd time, issue no. 70, of course I read all issues 2 or 3 times.

Mike Sylvester

Editor Comments: Thanks for the comments. It's still mostly just me doing RCN. We've hired a freelance copy editor, but it's added time and costs to our production process. We'd still like to bump up to more issues per year. As for the new layout, this template is far easier to lay out, use, and hopefully navigate.

Recumbent Butt

My experience with "recumbent butt" may help Doug Merrill [letter in RCN 71—Ed.]. My first recumbent was a RANS V-Rex. I rode the bike for two months but couldn't ride very far without butt pain. I was getting really discouraged. On a trip to Milwaukee to visit family, I visited the Wheel & Sprocket store in Hales Corners. I explained my problem to Harry, Wheel & Sprocket's recumbent specialist, and he wanted to see how I had my bike set up. The first thing he said when he saw my bike was to recline the seat . . . a lot! He also said that when I mount the bike, I should scrunch my butt forward so that it is centered on the seat pad. He went on to say that I should be able to slip my hand between the seat back and my butt. In this position, pressure is applied to the upper back and shoulders rather than the butt and lower back. Because the more reclined position seemed too extreme to me, I only half-followed his advice. The pain continued. I ended up selling the V-Rex and buying a RANS Tailwind, thinking that the lower bottom bracket position would help the butt pain problem. I still had pain, but if I would recline the seat some, the pain went away. To make a long story shorter, I really didn't like the CLWB/low-BB bike. I much prefer the feel and quickness of a SWB. I am now back on a V-Rex, and I'm following Harry's recommendations. I've gotten used to the more reclined position and have ridden over 3,500 miles since March, including three centuries. I hope this helps.

Mike Marchildon

mbmarchildon@netscape.net

Finding the Right Recumbent

I've written you in the past the problems I've had trying to find the "right" recumbent. I began with a Vanguard, too slow and I had this uncomfortable sensation when I was traveling down a steep hill. Then a Gold Rush Replica. I developed recumbent butt. A RANS Rocket that produced numbness in my toes after seven hours of cycling across Georgia during a 1997 BRAG ride. A Haluzak, which is fine until you have a stop at a traffic light, and just as you described, you have to be quite tall to be able to reach the ground comfortably. I'm only 5'9". A RANS Stratus. Again recumbent butt after several successive days on the bike. An

Angletech Altitude, which I think is too heavy, the bottom bracket is too high and the RANS seat frequently slips. A Longbikes Slipstream. heavy and also recumbent butt after several days in a row. A Burley Limbo, heavy and the seat back became uncomfortable on long rides. A Vision R44, it is difficult to make the seat comfortable and the bike is squirrely.

The reason for this prolonged rant is that my main complaint is that all these bikes seemed fine when I first tried them. Also even the first few short rides at home did not reveal the problems that arose. For some reason, recumbents seem to require a longer period of time to evaluate before you make this very expensive purchase. There should be a place where one can try many of these bikes out for extended periods of time before having to make a purchase. I am willing to contribute my bikes for such a worthwhile purpose if there is an organization that can undertake such a venture. I think you should spearhead such an organization, or at least put your support behind it so that people will take such an idea seriously. Also, which bike should I buy next?

Yours in recumbency,
Erwin

Editor Comments: Having a good, well-stocked recumbent dealer who offers long test rides for serious customers is probably better than an organization. An organization in Port Townsend probably wouldn't help too many people. I couldn't afford to run such an organization unless it was a nonprofit with some very solid financial backing (I'm ready to go when you are!).

I think you need to decide what seat works best for you (sounds like a full mesh) and then figure out what design format works best. The dilemma for many is that upright positions can sometimes lead to recumbent butt, while very reclined positions may lead to neck pain and toe numbness (high bottom brackets). Every rider needs to find their perfect position.

Every rider's needs, terrain, and ride demands (length of time on bike, etc.) will vary. Often a rider's needs will change from time to time, as will the bike that works best for them.

Over time, you will be able to predict how you will react to certain recumbent styles. I've been riding for 15 years and can almost predict my reaction from a photo. I don't do this, because once in a while I am surprised.

Happy Lightning Customer

I am now the happy owner of a Lightning P-38 with the F-40 full-fairing option. This bike is fantastic. I have ridden it 2,300 miles in the past seven months. The extra 4-8 mph fairing gives you a real blast when going down hills, or cruising on the flats at 25+ mph with bursts of up to 28-30 mph (that will put your heart rate at your maximum). This bike is a bargain if you enjoy going fast. I am an average rider who rides 2,000 to 3,000 miles per year, about to turn 50 next year. This bike makes you feel 20 years younger. I rode TOMRV this past June, along the bluffs of the Mississippi River and I felt pretty good after riding 106 miles, with 60 of those miles being long hills. I coasted down some hills at 49 mph, and the bike felt rock solid on high-speed descents. A fellow rider pedaled on this descent and reached 55 mph on his P-38. I've never grinned so much in my life while on a bike.

When I'm asked by other bikers about the loss of hill-climbing speed on a 'bent, my response is always the same: I pass them going uphill. After you've ridden a fully faired 'bent you will know why this happens.

I was pretty impressed with the paint and finish on the bike as it has really tough paint. I think Lightning has improved this bike over the years, as I recall they had some issues a few years back on the lack of a quality finish on their bikes.

The only disadvantage to this bike is that you end up riding much of the time by yourself, out front by yourself, if you consider that to be a disadvantage. <grin>

Ken Leibold
Waterloo, IA

Greenspeed GTT

Just got a copy of RCN 71 and was stoked to see the GTT on page 1! I got us (me, my 8-year-old, and my 2-year-old) a GTT last March. Red wasn't bright enough so we got orange with yellow seats. I have to agree with the comment that I have NEVER, in my life, received SO many positive responses, smiles, waves, politeness, and room on the road as we do riding our GTT.

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Send Letters to the Editor of RCN

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

It gets even better when we attach the Burley trailer. Had to have that as the twins will be arriving any day now! Of course we'll have to wait a few months until their little heads fit a helmet before they can join the "parade." And that's what someone said about our trike, we were a parade unto ourselves. And parade it we do. Oliver (8) and I took it to the Fair Oaks Fiesta Parade where we were hoping to hook up with the Recumbent Riders of Sacramento. We rode but didn't find the rest of the group until after the parade.

We live on the Monterey Peninsula but have taken it all over northern California to ride. Oliver and I won the unfaired tandem race at the Hellyer Park Velodrome a couple of months back. That was an IHPVA event in San Jose. We also took it over to Santa Cruz for the National Bicycle Greenway Festival where many people got to demo the rig. After the festivities we rode up to Felton and hit a new top speed of 48 miles per hour! Oliver said he had to close his eyes it was so scary! But he is a really good sport about Dad's need for SPEED! Other than that we keep to mellow cruising doing anywhere from 14 to 30 miles at a time. As a note Oliver hadn't ridden a bike before we got the GTT. That was one of the main reasons we got it, to introduce him to the wonderful world of cycling. And it HAS been worth it.

As for lugging such a behemoth to all these events you would think that we own some sort

of monster SUV. Not so! We haul it around atop a Honda Accord. And we don't even use a roof rack. How is this possible? A \$69 Hollywood folding trunk rack!!! The GTT rear wheel sits on the roof of the car just behind the sunroof. The trike's front axle rests on the ends of the rack's bullhorns. Tie-downs are hooked over the "oh shit" handles in the back seat and run to the opposite side of the car, out the window and up to the stoker's handlebars. Then I use toe-clip straps around the GTT axle bar and the rack's horns. Two more around the handlebars and the horns to keep the wheels from flapping around. As an extra precaution a toe-clip strap goes around the GTT frame and the top crossbar of the folding rack. To get the trike on, I simply lift the GTT rear wheel onto the trunk lid and then umph the front end up and roll the trike wheel up onto the car's roof and set the trike axle onto the rack. Attach straps and you're all set. And I have road- tested this setup at a little over 90 mph and it's good to go.

So there it is, a rundown on our life as tandem trike recumbent riders. We highly recommend that YOU DO get yourselves "a big, long TRIKE!" So now I'm gonna put a check in the mail to get our subscription going so I can read more about our favorite kind of transportation. Keep up the good work!

Mark

P.S.: I have a GTT available for rent, see www.abent4rent.com. ♦



Atlantic Bicycle

Atlantic Bicycle is one of the east's largest recumbent dealers offering models from RANS, Vision, Haluzak, Lightning, Easy Racers, Burley, Sun and others.

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The Bacchetta Giro: Kudos for the New Kid on the Block

by Shari Bernhard

I had read a smattering of comments regarding a new recumbent manufacturing company started by John Schlitter (currently of X-eyed Designs and formerly of RANS) and Mark Colliton (designer of the V-Rex among others) on the hpv mailing list. Someone posted the Bacchetta website, so I took a look at the Giro SWB/ASS 20/26. Sleek. Simple. Racy. Okay, that's nice—so? I wasn't particularly impressed, but I wasn't in the market for another recumbent either.

Then my friend Jose Hernandez, formerly of BentRiderOnline, received a Giro from Bacchetta for a road test, but he was going out of town for the next couple of weekends. It seemed a shame to let the poor bike sit in his garage all that time—would I mind test-riding it while he was gone? It took me about two nanoseconds to answer in the affirmative.

Bottom line: it's now my bike, and I'm here to tell you why. First, the objective stuff (with a little opinion thrown in).

Systems

The frame is made in Taiwan of 4130 CroMoly steel with an aluminum fork on a 47-inch wheelbase. The boom tube has a unique teardrop shape, rounded at the top and coming to a rounded point at the bottom.

Wheels—The rims are 32-hole Alex DA-16's (406 front, 559 rear) with a nice aero profile (they lack eyelets for the spokes, however, which can increase the chance of rim cracks).

The Giro is spec'd for 100 psi Kenda Kwest tires, but they were not available at the time so the bike was shipped with 65 psi Kwest touring tires. I soon switched to Schwalbe Stelvios. The Kwests are good touring/commuting tires. They performed surprisingly well, but on a bike like this that screams for speed, higher-performance rims and tires would be my preference.

Seat—The seat, one of the primary features of any recumbent, is reminiscent of the well-loved RANS seat but is modified to include a perfectly aligned lumbar and shoulder curve. The seat can be laid back much more than I'm used to because the shoulder curve supports my upper back very well. The seat attachment system also sets it apart from the RANS line. The rear struts are the same design as RANS, a set of aluminum tubes with holes every inch held in place with a detent pin. However, the frame attachment is new and a definite improvement, made possible by the boom's distinctive teardrop shape. Instead of a square slide rail attached to the frame and a pair of brackets on the seat bottom, it uses a Delrin bracket shaped like the frame, with a quick-release skewer as a tightening mechanism. Very simple, very slick. Complete seat removal is, however, not quick. It requires removing a couple of bolts and is actually not recommended if it can be avoided.

Steering—The steering system is my favorite feature of the bike. First, it has the innova-

tive TerraCycle GlideFlex stem, and second, it has the most comfortable set of handlebars I've ever tried. It's a U-shaped bar that puts my hands and arms in the most natural position next to USS. The bars are separate from the riser, allowing for infinite rotational positioning to provide a wide range of hand/arm placement.

Finish—My 2002 model's frame is powder-coated in a bright green with black accents. The other black elements (cranks, steering riser, seat, tire sidewalls) give it a snazzy look without being ostentatious. The finish is lovely, although the weld beads are not as clean and even as I would like. In the bike's defense, it was born in a relatively early model run.

Weight—The Bacchetta website lists the Giro's weight at 29 pounds, and that's exactly what my scale showed after I added pedals, waterbottle cages, and a mirror.

Sizing—The Giro comes in three frame sizes, fitting riders from 5' (154 cm) to 6'6" (198 cm). Not all recumbent manufacturers make a variety of sizes, so this is welcomed by those outside the "norm."

Drivetrain

The components are a Shimano mix—derailleurs (Deore LX), 9-speed cassette, brakes and brake levers (Deore V-brake), hubs, and Hyperglide chain. The crank and bottom bracket are TruVativ, and the shifters are SRAM Attack Shorty twist-grip.

Chain Management—The chain is handled by an amidship mounted idler. The drive side crosses the return side before and after the idlers, forming a double X (x-path). Having deflection in the drive side is supposed to contribute to power loss, but I can't detect it. It's an extremely quiet system, thanks to the large-diameter Delrin double-wide idler. The Hyperglide chain is a big step up from the KMC chains that are stock on most recumbents at this price point.

Brakes—The braking system was very quiet. I've always had problems with V-brakes squealing, no matter how much I cleaned the rims, sanded the brake shoes, changed the brake shoes, adjusted the toe-in, lit a candle, prayed, and sacrificed a stuffed goat at midnight. In several months of riding the Giro, the brakes haven't made a peep.

The standard front brake noodle on my bike had been replaced by an "articulated" noodle. The reason given was the lack of clearance between the boom and the brake, causing the noodle to rub against the chain. It's my understanding that Bacchetta will be equipping future bikes with a smaller noodle. I never operated the bike with the original equipment, so I can't comment further, but the modified brake noodle works well. However, front wheel

removal and replacement means rubbing your hand against the chain—keep some wipes handy for cleanup.

Additionally, the rear brake has a travel controller inserted in place of the standard noodle. It's there because the brake cable stop is located close to the caliper arms, but it made for a difficult time adjusting the brakes. I'd recommend Bacchetta move the cable stop forward a few inches and dispense with this component.

Comfort

One rider's comfort is another rider's hurt. I mentioned that the seat is among the most comfortable I've sat on. My husband has the opposite view. For his particular physique, the shoulder curve caused discomfort in his upper back. I don't doubt that that's his experience, but since it is my bike and my article, I stand by my opinion of the exceptional seat. On the plus side, I know I won't have to fight him for the bike.

Allow me to pick one little nit with the seat struts: the inner strut tube is just a teensy bit short. When I adjusted the seat-back angle, I had trouble aligning the holes in the outer strut tube with the single hole in the inside tube. I thought I had it right, but when the seat back moved, I realized that I had inserted the detent pin above the inside tube, missing the hole. On my V-Rex, the inside tube is just long enough to see half of it in the hole above the one where the pin needs to be placed. It's a minor thing, but it makes a difference.

The seat base is generously sized. The foam is dense and cushy, and I felt so at ease on it that it didn't even register as an issue. The seat-back mesh is of fine quality, although I've found that it's stretching over time, so in a sprint, when I put a lot of pressure on the seat back, I can feel one of the cross rails. This can be alleviated by simply tightening the zip ties that hold the edges of the fabric together in back.

One clever little detail: the bottle cage mounts are welded near the bottom and inboard of the seat-back frame. There were little holes poked in the seat mesh for the bolts. Now, that's forethought.

Adding to the overall comfort of the Giro is the handlebar setup. I said it before, but it bears repeating: these U-shaped bars are as optimal as you can get. This is enhanced by having an independent riser with a GlideFlex stem so you can adjust it incrementally until you find your very own sweet spot. The position in which it puts my arms, wrists, and hands makes it an effortless endeavor to keep the bike steady as she goes. As much as I'm enthralled with this system, there are those who do not care for "tweener" bars (where the knees fit between the handlebars). It might take some people a little more time to get used to them. For me, it felt as comfortable as an old pair of slippers.



Shari on her Giro

Ergonomics

The possible exception to superior comfort for some might be the high bottom bracket height in relation to the seat. I've never had a problem with this, and I've ridden SWB bikes with high BB's (bottom bracket) since 1996. The Giro has a higher BB than any of the ones I've used (Vision R-44, V-Rex, and Screamer tandem), but when I'm in the Giro cockpit it just isn't a concern. For riders who have trouble with high BB's, it's possible that the other positive ergonomic aspects of the Giro won't be able to overcome that. For me, riding the Giro feels like a natural state of being.

At 5'6", I'm on the short end of the spectrum. I have the standard-sized Giro frame, and I have no problem sitting on the bike with my feet flat on the ground. The seat height is 22.5", about 1.5" lower than the V-Rex. The small frame seat height is 22", and the large frame is about 23".

The only trouble I can envision is if the rider has short arms in relation to very long legs. In this case, it's conceivable that the reach to the handlebars might be a stretch. The GlideFlex stem doesn't provide a super-steep angle.

Performance and Reliability

I'm not sure there are enough superlatives in the dictionary for this section. The Giro's performance is astounding. I'm a weekend warrior, and if I'm lucky (and I'm not always) I can ride every weekend. I hadn't ridden faster than 18 mph for months, yet I rode the Giro 45 miles at 19-22 mph, including 17 miles into a headwind, smiling all the way. And that was with the lower-performance

Kenda Kwest 65 psi tires.

For SWB riders, this has to be one of the most user-friendly, stable, and solid-tracking bikes on the market. My V-Rex has all that, but the Giro takes it a step beyond. The handling is stellar, just begging you to lean it over into turns at high speed.

How about climbing, you ask? We don't sport many hills in south Florida, but I actually accelerated the Giro while ascending highway overpasses. That said, I still feel that the V-Rex has a slight edge over the Giro in this regard, as well as when it comes to starting up from a complete stop. The difference here could be the V-Rex's triangulated frame vs. the Giro's straight boom. The added frame flex of the Giro takes away just a little power.

The oh-so-comfortable "tweener" bars have one slight disadvantage: they are wider than the more common T-bar style, especially if you hang a mirror off the end of the handlebar. It hasn't stopped me from riding between two parked cars, but it does require a good eye when moving through tight spots. Overall, the maneuverability of the Giro is first rate.

This bike can accommodate any riding need. Want a bike for commuting? This is it. Fast club rides? Oh, yeah, baby! Touring? Running errands? Centuries? Absolutely!

Accessories

For accessories, there's X-eyed Designs custom Mid-Ship rack, as well as braze-ons for fitting a standard rear rack. A variety of seat-back bags will work fine also. I use the Lightning seat-back bag for club rides. A larger bag, such as the new RANS Tailpack seat bag, is



The TerraCycle GlideFlex stem



Bacchetta's X-path idler and seat adjuster

great for day-long trips. X-eyed Designs also has special light mount that is cleverly designed to position the headlight forward and below the spin of the pedals.

Market Competition

There is some excellent competition out there for the SWB OSS configuration. The ones that

come to mind are Lightning P-38, RANS V-Rex, Vision R-44/45, HP Velotechnics Speed Machine, Barcroft Dakota/Virginia, and Burley Hepcat/Django. All of these are great bikes; however, if you compare performance vs. component spec vs. price tag, the Giro, at \$1,550 MSRP, comes out on top in my view. The only factors that need to be overcome are personal opinion and customer loyalty.

Bacchetta is just starting out. They've already developed a network of dealers in many areas, and that is sure to grow as word of this bike and its siblings gets around. I'd heard of some problems with the first production run of the bikes, so I e-mailed a sampling of dealers listed on Bacchetta's website. All replied that either none of the bikes they sold were brought back in for repair or that there were some minor shipping-related or other first-model-year issues that were quickly and easily taken care of by either the dealer or the manufacturer. In fact, the dealers were quite pleased with Bacchetta's fast attention to any and all glitches they came across.

Verdict

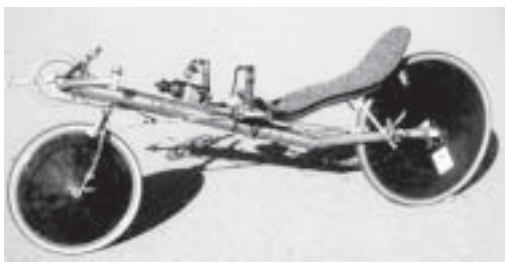
In case you couldn't tell, I'm completely smitten with this bike. I have had a lot of 'bents under my butt over the years, and the Giro truly has the most natural feel I've experienced. I was planning to wait till the honeymoon was over and reality set in before writing this review, but it looks like that ain't gonna happen. The Giro may not be the perfect recumbent for everyone—nothing is ever perfect—but it's the closest I've found so far. ♦



Bacchetta Ergonomics 101: the "tweener" bars. The TerraCycle Glide Flex stem allows the Bacchetta riser to recline. Optimum ergonomics on a Giro, Strada or Corsa require that your knees just clear the bars during the pedal stroke. The system is unique and works very well. (Photo courtesy of Shari Bernhard)

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INFO AT A GLANCE

Specifications

Model—Bacchetta Giro
Type—SWB
Steering—OSS
Wheelbase—47"
Seat height—22"-23"
Bottom bracket height—26"-27"
Frame sizes—Small (5' to 5'8"); standard (5'6"-6'4") and large (5'10"-6'6")
Weight—29 lbs.
Weight limit—#275

Frame—CroMoly steel custom XX tube set
Fork—Bacchetta 20" aluminum, polished
Riser Base—TerraCycle GlideFlex
Riser—Bacchetta top load
Handlebar—Bacchetta 47 mm "tweener"
Seat—Bacchetta "re-curve" mesh back

Components

Crank—TruVativ 32/42/52
Bottom bracket—T.H. ISIS
Headset—T.H. Th-858 1" threadless¹
Derailleurs (front)—Shimano Road FD-443
Derailleur (rear)—Shimano Deore LX
Shifters—SRAM Attack Shorty
Cassette—Shimano Ultegra 11-32 9-spd.
Chain—SRAM
Gear inch range—25.4-120
Pedals—Wellgo LU-996
Wheel (front)—406 mm 20"
Wheel (rear)—559 mm 26"
Hubs—Shimano Deore
Rims—Alex DA-16 32 hole
Spokes—Stainless steel
Tires—Kenda Kwest 1.5" 100 p.s.i.
Brakes—Shimano Deore V-brake

¹ T.H. is the house brand for FSA

Incidentals

Price—\$1,550

Warranty (frame)—Lifetime (orig. owner)
Colors—Powdercoat BP Green
Options—Coming soon: One Armed Light Mount, Bacchetta Mid-Ship rack, M5 Carbon seat and an M5 seat bag

Pro

Exceptional value
Speed, comfort and stability
Adjustability, versatility, maneuverability
Fine road manners, superb handling
First-rate customer service, growing dealer network

Con

High bottom bracket might not work for all
Handlebar reach for long-legged, short-armed riders could be a problem
No disc brake option

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Bacchetta Strada: Open-Road High Roller

By Bryan J. Ball

The Bacchetta Strada is a new concept for the American market. European manufacturers like M5 and Challenge have been producing big-wheel recumbents (often called highracers) for years. However, with the exception of a few one-offs and Rich Pinto's Aerocycle line, highracers have been pretty rare in the United States. Rich has since joined the Bacchetta gang and added his high-octane Ti-Aerocycle (now dubbed the Aero) to the Bacchetta line.

This seems to be the year of the highracer in America. While Vision has produced a semi-highracer for the last couple of years in the dual-24 Saber, they have upped the ante for 2002 and increased the Saber's wheel size to 650c. George Reynolds has also entered the fray with his new T-Bone titanium dual-big-wheel 'bent.

As of now, the new Strada is at the head of this American highracer pack. It preceded the Saber into the market by a few months, and the T-Bone isn't produced in very high numbers. The Strada's own stablemate, the Aero, costs twice as much and really isn't even in the same category.

History

Some of you may not recognize the names of John Schlitter or Mark Colliton. John worked at RANS for many years. You can give him at least partial credit for bringing to life many

RANS models. Mark is the co-designer of the legendary RANS V-Rex. He helped to convince RANS to jump into the SWB market. He also has co-designer credits on the Barcroft Dakota and the Angletech MC2.

When these two guys got together and decided to start a new recumbent company of their own, people got excited. The buzz reached a deafening level just before the 2001 Interbike trade show. John and Mark debuted their new baby, Bacchetta Bicycles, to the world at that event. Their new line included a general-purpose 26/20 SWB called the Giro and a dual-26 showstopper dubbed the Strada.

Mark Colliton has long been a fan of big-wheel 'bents. His customized dual-big wheel V-Rexi have been featured here in the pages of RCN. For those of you who know Mark, it was really no surprise to see a high-performance high roller in the Bacchetta line.

Systems

Frame—The Strada, like all Bacchettas, uses an ovalized monotube frame. The Strada and Giro use a CroMoly version, while the Aero's is titanium. The ovalization helps the Strada avoid the frame flex problems that plague some monotube designs. I found the Strada's frame to be plenty stiff while sprinting and climbing, but it didn't beat me up on rougher roads. This probably has as much to do with the big

wheels as it does with the frame design. The welds on the Taiwan-made frame looked pretty good—right on par with other frames from that country.

Fork—The Strada uses an aluminum Kinesis 650c road fork. Kinesis has a reputation for making great products, and this fork is based on one of their most proven and widely produced designs. It works very well on the Strada, tracking well through the corners with a minimum of flex and not chattering too much over the rough stuff. Forks seem to be an afterthought on most recumbent designs, so it's nice to see that Bacchetta took the time to choose such a well-known and proven piece for the Strada.

Paint—Bacchetta chose a love-it-or-hate-it shade of mango orange for the Strada. The powdercoat is thick and evenly applied. The sticker kit on the Strada looks a bit more flashy than some of its competition's and really adds to the bike's highly finished look. Bacchetta thoughtfully added a large black patch right where your foot would hit the frame when mounting/dismounting the bike.

Steering—This has been one of the most controversial parts of the Bacchetta designs. When Mark Colliton designed these bikes, he chose a very European handlebar setup. The rider sits with arms fairly well extended and placed next to his or her knees. A few riders have expressed a dislike for this position. Many have also expressed fears of knee interference during tight turns. I never really have any problems with that on the Strada. Like heel interference (the Strada has a small amount of that, too), it's one of those little quirks that you just get used to and begin to subconsciously work around in a short amount of time.

The handlebars themselves are custom-made *tweaner* (legs go in between) bars and are mounted to an overseas-produced version of the TerraCycle GlideFlex stem. This is probably the slickest folding stem I've ever seen on a recumbent. Its only flaw is that you have to keep an eye on the bolt that tightens the tilting mechanism. The stem did work its way loose and develop some play a couple of times.

Weight—Our Strada test bike weighed in right at Bacchetta's claim of 28 pounds—pretty respectable for a mass-produced SWB.

Drivetrain—The Strada uses a road-oriented drivetrain. Most of the running gear—derailleurs, hubs, and 12-27 cassette—is made up of Shimano 105. The FSA Gossamer triple cranks are not as well known but just as roadie-oriented. They use 30/42/52 rings and a very nice ISIS hollow-spindle bottom bracket. They are less expensive than Shimano crank and bottom bracket combos, but I did find their performance equal to that of the Shimano 105 cranks and bottom bracket on my own bike.

Bacchetta uses SRAM Rocket Shortie shifters. I've long been a fan of the Rocket/Shimano combination. The only low point of the drivetrain was Bacchetta's choice of a Shimano chain. Ours had a bad link from the factory and never really performed up to same standard as the rest of the components. Shifting performance improved exponentially when we replaced it with a SRAM PC99 (Bacchetta's are now shipping with SRAM chain).. The Bacchetta uses a single crossover idler (x-path) to manage the chain. These are becoming quite popular on American SWB's and work great. The Strada was among the quietest recumbents I've ridden.

Braking—When choosing the braking components for the Strada, the guys at Bacchetta created an interesting problem for themselves. One of the coolest features about the big-wheel Bacchetta is that it can use either 559 mm or 650c wheels. In order to facilitate this, Mark and John had to develop a couple of unique solutions. The first was a dual-pivot road brake for the front of the bike that had enough adjustment to accommodate both wheel sizes *and* had cable routing on the left side to avoid chain interference problems. Quite frankly, one didn't exist. Bacchetta contracted Alonga to make one for them. The hybrid unit was surely not cheap to produce, but it works great and is a perfect front stopper for the Strada. Unfortunately, this solution created a problem.

The Strada's front brake necessitated the use of a standard-pull brake lever, whereas its rear Avid V-brake needs a long-pull lever. Rather than spending an inordinate amount of money on another custom machined part, Bacchetta attempted to use a travel-enhancing roller on the Strada's rear brake. This hybrid system does provide adequate stopping power, but it doesn't have very good feel or modulation. Initial setup can also be a problem. Bacchetta has found a source for matching levers that have different amounts of travel, and these are now being spec'ed on the bikes.

Wheels and Tires—The Strada rolls on Shimano 105 hubs laced to 32-hole Alex DA-16 rims. The rims are fairly light, look great, and stayed round and true throughout the duration of my test. The 105 hubs are a proven commodity and are very reliable. The most interesting thing about the Strada's wheelset is the tires. Bacchetta chose 26" x 1" Specialized Turbo ATB with their Flak Jacket Kevlar puncture protection. Turbos are very popular with the roadie set, and the one-inch version seems like a very appropriate choice here. They roll and corner very well and have a very nice ride. Roll down tests showed the Schwalbe Stelvios to be a bit faster, but the ride quality was compromised a bit.

Comfort

Seat—For all the things the Strada has going for it, the Bacchetta "re-curve" seat may be



Mark Colliton and the Strada (Bryan Ball)

its best feature. If you're familiar with RANS bikes, imagine the RANS seat optimized for a high-BB, laid-back bike. The "re-curve" seat has a taller back than the RANS, and it has a slight forward bend at the top. This shape cradles your back and helps to keep you from slipping up the seat when pedaling. The base is also smaller than the RANS so that it won't interfere while pedaling. Don't worry, though, the base is still plenty cushy and very supportive. I was very pleased with the Bacchetta seat. Overall, it's probably the most comfortable recumbent seat I've been on. However, it probably wouldn't work as well with a more upright, lower-BB bike.

Bacchetta's seat mount is also fairly unique. Most sliding seat mounts travel on a track of some sort. All Bacchetta models use a Delrin clamp that wraps all the way around the bike's frame. The ovalized tubing makes the use of this type of mount possible. The tube's shape reduces the possibility of the seat rotating under heavy pedaling. I was just as happy with the seat mount as I was with the seat itself. I clamped it down good and tight from the start and never had any slippage. Both the seat and the mount combine to make a very light total package.

Ergonomics—Many high-performance bikes suffer ergonomics issues of one sort or another. Most often these idiosyncrasies are related to the height of the bottom bracket in relation to the height of the seat base. Most high-performance SWB's have rather high bottom bracket (BB)/seat ratios, and the Strada is no different in this regard. Some riders experience problems with foot numbness on higher-BB bikes, so if you're one of these people, be advised.

The Strada's seat is also very laid back. If you suffer from neck problems on laid-back bikes, you will definitely want to test-ride the Strada before making a purchase decision. Fortunately, the shape of the seat turns the entire upper half of the torso up slightly and alleviates more neck stress than some other laid-back designs.

The arms-outstretched position on the Strada did not lessen the bike's comfort level for me at all. In fact, it actually increased the pleasurable experience. Some riders will undoubtedly hate it, but so far reviews have been positive from owners and people who have actually ridden the bike. Most of the criticism has come from people who either haven't ridden the Bacchetta's at all or from those who have very limited experience on the bikes.

All in all, this is a very comfortable high-performance bike. However, it does make a few ergonomic concessions in the name of speed and may not agree with everyone.

Ride and Handling

For a big-wheel bike, I give the Strada high marks for stability. It's really not much more difficult to manage at low speed than a Lightning or any other high-performance SWB. That's quite an accomplishment for a dual-26 bike. The only real flaw I found was a slight hint of something that felt like wheel flop and a bit of heel/wheel interference.

At higher speeds, the Strada is rock solid. This baby is meant to fly. Keeping the bike in a straight line at 20-25 mph is nearly effortless. Descending at 40-plus mph was also a pleasurable experience.

Speed and Efficiency—Just by counting the number of times I've used the term "high

performance” in the preceding paragraphs, you can tell that I found the Strada to be a very fast machine. On the open road, it can hang with anything out there. The big wheels and fast tires roll along with a minimum of resistance, and the bike’s aerodynamic position cuts through the air like a knife. The bike’s fairly light weight also allows it to climb with aplomb. It’s one of the few recumbents I’ve been on that allowed me to climb with the roadies.

Comparing the Strada’s performance to that of other recumbents, I would say that it falls somewhere between a LWB (with front fairing) and a lowracer. I found it a little bit faster than an unfaired conventional SWB—by probably 1 or 2 mph in average speed. The Strada can also run with any LWB out there, but the margin may be a bit closer. The only bikes that have faster times on my test course are all lowracers. On that same flat course the Strada lost about 1 mph to the three lowracers whose times I’ve documented (Challenge Jester, M5 Low Racer, and Optima Baron). The course has some pretty rough pavement in one long stretch, and I think the Strada’s big wheels helped out there to keep the margin close. On a track, I think the gap would be wider. Conversely, I think the Strada would be capable of outrunning most lowracers on a hilly or particularly rough course, as it certainly climbs better than any lowracer I’ve ridden.

User-friendliness—While the Strada is not an EZ1 or EZ Sport by any means, it’s not as intimidating as it may appear. As I said above, the big Bacchetta is really not much more difficult to live with than a V-Rex or P-38. The seat height is just a bit higher than these aforementioned machines, but not by much.

Fun Factor—Fast bikes are fun. Whether you’re competitive or not, every recumbent rider gets a grin from smoking the unsuspecting roadie. Fun time can quickly be ruined by discomfort, but the Strada is plenty comfy enough to let you enjoy your amusement for hours on end.

Owning and Purchasing

Versatility—The Strada probably falls a bit short of being called an all-purpose recumbent, but it’s much more versatile than other bikes in this performance category. The stock tires are by no means wide, but they’re beefier than some other high-performance tire choices, and the Strada is capable of handling larger rubber if you so choose.

Shipping and Assembly—Bacchetta has had some packing problems at their Taiwan factory, which has caused some early problems with the bikes. By the time you read this, these issues should be corrected.

Quality and Durability—The Strada’s build quality was fairly typical of Taiwanese-made recumbents: welds, paint, and fabrica-

tion were on the same level as its competition. Long-term durability is unknown with this new model and new manufacturer.

Cost and Depreciation—At \$1,850 the Strada is pretty fairly priced for a bike equipped at this level. Its closest competitor, the Vision Saber R65, is similarly equipped and costs \$1,995. The Strada is currently a very desirable bike and is selling well.

Options and Accessories—Fast Back makes an excellent seat bag/hydration system for the Strada, and X-eyed is working on an underseat rack. Fenders are not yet available.

Market Competition—The Strada’s closest competition comes from Vision in the form of the R60 Saber series. The Sabers are a bit more expensive and come stock with a more unique 650c wheel size. They are just becoming available as I write this, and I can offer no direct comparisons. Some Strada customers are also considering the new Reynolds T-Bone.

Bacchetta is hoping to gain a good share of the crossover market with this bike. Crossover riders are those coming over from the upright world looking for a fast recumbent that performs like their road bike. The Strada definitely has the potential to attract those customers. The bike drafts well with upright bikes, climbs well, and has two big wheels just like a “real” bike. It also has a lot of components that roadies will recognize. When riding the Strada at a large organized century, I was asked many questions by the assembled mass of roadies. Rather than focusing on the recumbent stereotypes, most people were actually wondering how they could get one. The most common question wasn’t “How do you get up the hills on that?” but rather “How much does that cost and where can I get one?”

Analysis

Verdict—Bacchetta has definitely come out of the blocks strong with the Strada. It gives the new company the buzz generator that all new manufacturers need. It’s very fast, very comfortable, user-friendly, and not outrageously expensive. It’s a bike that absolutely loves the open road and will suck up miles with the best of them. So far dealers are selling them as fast as they can get them, and most of the owners seem to be very satisfied with the product. This one’s a winner in my book. ♦

Update: After the review period was up, I did begin to experience assembly related problems with the bike. After doing some research, I learned that broken chains, squeaky idlers and damaged rear drop-outs were somewhat common in first run Bacchetta Strada and Giro models. I had a lengthy conversation with Mark Colliton about these problems in which he outlined Bacchetta's plans to remedy these flaws. Later shipments are much improved.

INFO AT A GLANCE

Specifications

Model—Bacchetta Strada
Type—SWB Highracer
Steering—OSS
Wheelbase—47”
Seat height—24”-24.5”
Bottom bracket height—32”-32.5”
Frame sizes—Standard (5’6”-6’4”) and large (5’10”-6’6”)
Weight—28 lbs.
Weight limit—#275

Frame—CroMoly steel custom XX tube set
Fork—Kinesis Classic 650c aluminum road
Riser Base—TerraCycle GlideFlex
Riser—Bacchetta top load
Handlebar—Bacchetta 47 mm “tweener”
Seat—Bacchetta “re-curve” mesh back

Components

Crank—FSA Gossamer 32/42/52
Bottom bracket—T.H. ISIS
Headset—T.H. Th-858 1” threadless¹
Derailleurs (front)—Shimano Road FD-443
Derailleur (rear)—Shimano 105
Shifters—SRAM Rocket Shorty
Cassette—Shimano Ultegra 11-32 9-spd.
Chain—SRAM
Gear inch range—24.75-117
Pedals—Wellgo LU-996
Wheels—Dual 559 mm
Hubs—Shimano 105
Rims—Alex DA-16 32 hole 559 mm
Spokes—Stainless steel
Tires—Specialized Turbo ATB 26” x 1”
Brake (front)—Bacchetta dual pivot
Brake (rear)—Avid Single Digit 7 (V-style)

¹ T.H. is the house brand for FSA

Incidentals

Price—\$1,850

Warranty (frame)—Lifetime (orig. owner)
Colors—Powdercoat Crimson Red
Options—M5 seat option is \$375. Coming soon: One Armed Light Mount, Bacchetta Mid-Ship Rack and an M5 seat bag

Pro

Fast
Exciting new SWB design
TerraCycle GlideFlex stem
Dual big wheel handling feel (26” wheels!)
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Con

Some first year glitches
Mushy rear brake on 2002 models
High bottom bracket might not work for all
Handlebar reach for long-legged, short-armed riders could be a problem

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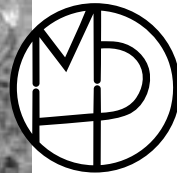
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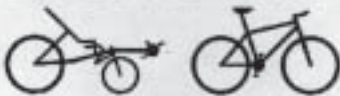


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Bacchetta Blues

By Bob Bryant

For the first few months of Bacchetta's new recumbent deliveries, the internet was a virtual love fest of positive comments about the bikes from both dealers and owners alike. Now that people have been riding them all season, some problems with the bikes have surfaced. Here are the problems we've had reported to us by owners and dealers:

- **Poor packing** by the factory in Taiwan. To keep this from happening in the 2nd and 3rd batches, Bacchetta was repacking bikes in the states.
- **Assembly woes:** There were complaints of over-tightened components.
- **Idler:** The idler spacing needs to be adjusted (spacer installed or idler replaced). Bacchetta's John Schlitter told RCN, "There is no need to replace the idler unless it wore out because of improper spacing."
- **Chains:** Some chain pins were installed incorrectly and broke. Bacchetta's John Schlitter told RCN, "It was only

Shimano chain on the first load of bikes. If anyone has a chain problem they can contact us for replacement of the Shimano chain."

- **Wheels:** The hard plastic rim strip moves around and can cause flat tires.
- **Brakes:** There were some of mushy rear brakes on the Strada. Bacchetta's John Schlitter told RCN, "This is mostly a matter of adjusting the rear brake correctly. To remedy this issue we had a match set of brake levers made. The left lever is made to pull a dual pivot brake and the right lever is made to pull a V-brake. We will trade Strada owners Shimano brake levers if they would like the new Bacchetta levers."

Despite these problems, all of the dealers we spoke to remained optimistic about the company and how they are managing the problems.

Bacchetta's John Schlitter went on to say, "the 3rd batch is 99% good" and that the problems are being corrected. ♦

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An RCN Interview with Bacchetta's Rich Pinto

RCN: Tell us what brought you to the Bacchetta Aero design. What other bikes did you own before you began building your own?

Rich: Late in the fall of 1989, my friend John Fournier told me of a chance encounter he had on his road bike, getting passed by "an old, kind of heavy guy" on a "lawn chair with wheels" (Dick Ryan later told me this guy was a 15,000-mile-per-year rider on a Vanguard!). I was immediately fascinated, and saw it as the solution to my back and hand problems, which had plagued me on uprights for most of the 1980's.

I immediately went looking for any recumbent dealers in the area, found a Linear LWB USS first, and bought it without a test ride! The next day I took it down to Sarasota, Florida, for a week-long vacation with my wife. I did my first few yards in the parking lot of the condo we were staying at, and never got off it! I was completely hooked on recumbents from that point on. I later got a pair of Infinity's for my wife and I, and rode those from 1992 to 1994.

During that 1989-1994 period I had been riding with my local group of roadie friends and having a rough time keeping up, and getting beaten pretty badly in coastdowns with their uprights. I thought, if recumbents held all the speed records, how could this happen?

It got me to do some library work to try to get some basic bicycle science information, which is when I found the early 1980's Chet Kyle *Scientific American* article on basic HPV physics. This led me to the first fast 'bent that started to turn the tide of opinion with my roadie friends, the Lightning P-38. I rented one for a week in the fall of 1994, and shortly after that two of my local riding buddies bought P-38's.

In the spring of 1995, I built a Kingcycle-like aluminum design that had been on paper since 1993. The Kingcycle was, with some reservations, one of Mark Colliton's and my favorite bikes (Mark is a former RCN contributor and now Bacchetta president). I was intrigued by its design and rider position from my first test ride in 1992.

The first aluminum bike I built compared very favorably to the P-38, and shortly after that I started getting many requests from people in our group to build them a bike. While looking for an experienced bike welder, I met and became friends with George Reynolds in later 1995, and he started welding up my CroMoly Aerocycles from that point on.

RCN: How did you come to be part of Bacchetta?

Rich: Mark Colliton called me in the early summer of 2000 and asked me to write an article about wheels for RCN. Mark had been a longtime "big wheel on 'bents" advocate and had heard about the dual-650c Aerocycles that had been around since mid-1998. My interest in bigger wheels didn't really develop until early 1998, when one of our local groups riders, Dean Sgouros, asked me to build him a dual 650c because of the faster forks, wheels, and rubber available in that size. I had been building 700c/20" and dual-24" Aerocycles up until that point.

Mark and I became fast friends during our many phone conversions, and in September of 2000 he came up to meet and ride with my local 'bent group, and bought a dual-650c Aerocycle from me in the fall of 2000. We also talked about getting together in a future recumbent bicycle company, and I told him about wanting to build a CroMoly round-tube bike with the same general rider geometry as the Aerocycle.

My interest in titanium as a material was developing, and Mark and I decided to go off on separate but parallel tracks using CroMoly and titanium. All the time Mark's friend and X-Eyed business partner John Schlitter (my favorite recumbent manufacturer/designer while at RANS) was working with Mark to turn all these recumbent dreams into reality, just as they had successfully teamed up in the past with bikes like the V-Rex.

Fast-forward to Interbike 2001 in Las Vegas. I brought my titanium Aero prototype to the show for Mark and John to see, and a partnership agreement with Bacchetta was reached on day two. I also got to meet Mark Swanson, our financial and computer guru at Bacchetta, and sales/marketing guy Mike Wilkerson—the rest of our Bacchetta team.

RCN: What is your mission at Bacchetta?

Rich: John, Mark, and I want to design and manufacture the cleanest-looking, lowest-drag, yet comfortable and very practical street recumbents that we can. My mission is to keep looking for the next efficiency or ergonomics improvements and to help our company develop new products.

RCN: What are your average speeds and distances?

Rich: I'm just average as a 49-year-old engine!



Rich Pinto on his Aero Cycle (Bob Hicks)

I'm reluctant to state average speeds because they are so dependent on the road surface, hills and wind, group drafting, time, etc. It's not unusual for unfaired guys in the 'bent group I ride with to spend a lot of time at centuries in the 24-28 mph zone in our small packs of two to five riders.

RCN: How are you treated by the upright cyclists?

Rich: Not bad on average, but "serious" cyclists can get pretty tribal! I think six years of going to events like local centuries and showing what a fast recumbent can do—and trying to keep a sense of humor about our bikes (and theirs!)—has changed the attitudes of most of the hard-core roadies in our area. We try to be friendly and helpful to all on the road, regardless of their speed or choice of HPV. It's just really nice to see people out getting some exercise and having fun on any bike!

RCN: Are there many recumbents on these rides?

Rich: Typically the crews we have for these events or group rides are less than five. One event that we have been going to since 1997 (and my first century), the Bangor Maine Century in September, has steadily seen an increase in the number of recumbents, and a big decrease in the number of uprights! Recumbents have been the fastest finishers in this time trial event every year since 1997, and almost threatened to be a majority of the riders in 2001!

RCN: Why do you think there aren't more

recumbents riding with fast upright groups?

Rich: The speed potential of the fastest unfaired recumbents closely resembles tandem uprights in my experience. When you ride with the fastest upright racers in my area, you may work to stay with the best climbers on the steeper uphill, but just go blazing by packs of them, or tapping your brakes, on the downhill and flats. This makes participation with fast upright groups more difficult for many on recumbents, depending on the hill speed differential mostly.

RCN: Which models at Bacchetta have you had a hand in designing?

Rich: Mark and I had agreed to follow separate but parallel paths in titanium and CroMoly after the discussions we had in the fall of 2000. Mark and John took those concepts about bike and body geometry, added many other new features like our custom-shaped tube and delrin seat clamp, a great new seat design, and many other custom touches taken from their 35-plus combined years of recumbent riding, design, and manufacturing experience. The Strada and the Giro resulted from their fine efforts over the last year and a half.

RCN: Besides componentry, what are the differences between the Strada and the Aero?

Rich: Mostly in adjustability and total weight. With the Aero, I'm really trying to get the rider into the more laid-back seat range, with a fairly straight-arm, lowest-drag position. The stock Strada has more seat and steering adjustability, a stiffer, higher-weight CroMoly frame, and a full mesh and foam seat.

RCN: Who is the target market for the Strada and the Aero?

Rich: Anybody who is interested in a higher-performance, good-looking, practical, and road-worthy performance recumbent.

RCN: Is there a theory about the laid-back position and high bottom bracket, or is the riding position primarily a result of the wheel sizes and quest for aerodynamics?

Rich: I've always tried to get to the most laid-back position that I could comfortably adapt to without a headrest or sacrificing the rider's view of road hazards. I've also felt I was sacrificing hill-climbing power with a larger hip/torso angles, something many have reported. The high bottom bracket/laid-back seat designs have the smallest frontal area possible, simply because they have the spinning leg and foot circle inside the reclined torso shadow, while still maintaining a relatively closed trunk/high angle. This type of design totally dominates unfaired HPV racing for these reasons.

RCN: What kind of performance can owners expect?

Rich: They can expect a high-end upright time

trial bike's overall drag, with all of the usual recumbent benefits, in a higher position they can feel comfortable with in traffic.

RCN: What are the factors that make this bike perform so well?

Rich: A low frontal area combined with very low rolling resistance tires, the two major factors in any bicycle's speed potential. And using the feedback of my riders to tweak the design over time. Arm position is critical . . . you can't eliminate the shoulders, so having the hand and arm directly in line with the shoulder makes for the lowest frontal area, and also keeps the arms and hands out of the rider's road sight line. I also like the upright-like arm-width spread and straight position for steering control and minimizing any tiller effects.

I have also found benefits to having some vertical frame flex in the feel, comfort, and handling of the bike. This makes running high-pressure, very low rolling resistance upright road tires possible and comfortable for most. I've seen it with the evolution of my lighter-frame Aero cycles: frame compliance makes a huge difference in rider comfort—it's not just the tire pressures.

Over time, Mark, John, and I have also stretched out the wheelbases of our SWB bike designs for better handling, and all three of our models are in the 47-inch range now.

RCN: One of the benefits seems to be that the larger wheels allow you to use some cutting-edge components on the bike. Can you explain this?

Rich: The upright industry and national teams have spent millions of dollars researching the effects of aero drag and rolling resistance on their high-end racing bikes. If you are going to build a higher recumbent bike that has a similar amount of wheel exposed to aero drag, you can learn a lot from their research into forks, wheels, and tires.

The Aero will use the same fork as the fastest upright time trial bikes (the Kinesis Carbon Airfoil) and stock Velocity Spartacus aero wheels, equipped with the blazingly fast and durable Vredestein Fortezza tires. With the dual-650c format you will also have access to the fastest aerodynamic wheels (HED), which are used on all the top time trial uprights.

RCN: The use of the big wheels and skinny tires makes the bike go fast. What about on rough roads?

Rich: Rough-road performance on uprights or 'bents will depend on how stiff the three major springs between the rider and the road are: the seat padding/cushioning, the vertical frame compliance (passive or active suspension), and of course the tires.

I see the recumbent advantage over uprights which have similar wheels and tires in that we have significant "springs" between the road

and rider at the seat and frame. Upright standard frames have almost no vertical compliance in their very deep truss frames, and most of the road-style seats have little cushioning. On recumbents we have no weight on our hands, the rest of the rider's weight distributed over square feet instead of square inches on the upright, and a more comfortable head position. Even with identical tires and wheels on both 'bent and upright, a recumbent with some vertical frame compliance and a cushy seat is going to allow much less vibration to reach the rider on rough roads than the equivalent upright bicycle.

RCN: There seems to be some debate between the lowracer riders and highracer riders about which is fastest. Can you comment on your point of view?

Rich: Lowracers will dominate the track racing scene for the foreseeable future. Most all of the strongest HPV racers are on lowracers. In the group races, all the main draft is down at a level under my bottom bracket center!

My point in this debate has been just to say that it is possible to build a bike with equivalent total drag and power requirements in many real road cases, with a much higher rider position that many feel more comfortable with.

RCN: Have you guys had any rough spots getting up and running?

Rich: Yes, the normal stuff when you have parts coming in from all over the US and overseas. You always have to have a backup plan for unexpected delays in components.

We did have several delays with the Aero frame production. We chose the best overseas and American titanium frame manufacturers, and the American factory had delays that went into April for our project. Our overseas frames had some initial minor problems that we couldn't straighten out in time for early-summer production, so we went back to our American manufacturer for our frames (frames are built in the Seattle, Washington area).

RCN: Tell us about the Aero componentry.

Rich: The components will be Ultegra triple front and rear derailleurs, SRAM 9-speed chain, Velocity Spartacus aero wheelset, FSA carbon triple crankset, American Classic bottom bracket, and our proprietary reverse bottom-pull front and matching rear dual-pivot brakes.

RCN: The Aero has an M5 seat (Euro ergoshell style); can you explain why?

Rich: The M5 seat is great, 1.5 pounds of carbon and epoxy shaped into a high-performance and comfortable seat. I also really love the reticulated foam cushioning we use, which is light, very cushy, breathes well, and absorbs practically zero water.

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RCN: I noticed that the Aero has a fixed riser (instead of the TerraCycle FlexStem). How do you make handlebar/riser knee clearance adjustments on the Aero?

Rich: Right now they are set so that owners can clear the handlebars without any problem. Riders with long x-seam to arm length ratios may have problems reaching the bars, so we do offer the Strada/Corsa stem to Aero customers only to use on the bikes if this turns out to be an issue for them.

RCN: Will fairings be available for the Aero?

Rich: Rear fairings have been of interest to me for a couple of years, and I've had good results with them in the Powertap power-measuring hub tests I've done with them. Our January 2002 John Cobb/UTexas A+M wind tunnel trip got canceled because of illness at John's company, but I should be at next January's tunnel. I'm hoping to get some good data about the rear fairings effects on the Aero, among many other things. But yes, hopefully we can have something official available after this hectic season is over!

RCN: Would dual big wheels adapted to typical SWB like the Visions, V-Rex, etc. improve performance? Is this a worthy experiment?

Rich: It's possible, and guys like Mark and his mentor Warren "big wheels" Berger have done it successfully. I think the bikes that have been purposefully designed around big wheels will do best. As far as performance, it depends on which tires and wheels you select. Tires can easily cost you 2-3 mph depending on your average speed.

RCN: Is there anything we've missed?

Rich: I just wanted to thank all those dealers and customers who have supported us!

RCN: Thank you for your time.

Rich: Thank you, Bob. ♦

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Photo courtesy of Bacchetta Bicycles

My Dream Bike: The Bacchetta Ti Aero

by Matt Schneps, Mschneps@cfa.harvard.edu

Before I describe my dream bike, I have to tell you about my nightmare. In my nightmare I'm riding my 'bent and pull up to a light. A pack of uprights—well-toned racers in bright team jerseys—pulls up next to me. "Nice bike!" the leader says, looking down at my 'bent. I beam with pride as he takes an eyeful of my gorgeous bike. "Did you build that yourself?" he smirks. "Nice and comfy?" I slump. I want to shoot him a snappy retort, but in my dream, for some reason, I can't make a sound. It's like I'm gasping for air. I want to scream how recumbents are the fastest bikes on the planet, about all the world speed records they hold, but when I try to speak not a sound comes from my mouth.

Suddenly the light turns green and the pack rockets off. While I'm fiddling to get my feet clipped in, they streak up a steep hill and are gone in a flash. That's when my voice suddenly comes back. I shout, "My bike is really very fast! Really!" But it's too late. The uprights have rocketed out of earshot. They can't hear me. And while I continue to fumble with my cleats, the light turns red. A new pack pulls up, and the whole thing starts over again. That's when I wake bolt upright, drenched in sweat, and realize it's only just a bad dream.

The Tortoise and the Hare

My dream bike is a recumbent that needs no apologies riding next to an upright, one that can outpace the roadies uphill and down. Sure,

when it comes to higher speeds, recumbents are indeed the fastest bikes on the planet. At speeds of 25 or 30 mph and up, the recumbent's aerodynamic advantage really kicks in, and there's hardly an upright around that can touch the speed of a strong rider on a well-built 'bent. But, when it comes to club rides most recumbents just don't make the grade. What's ironic is that the reason isn't because uprights can go faster than recumbents. They can't. The reason uprights dominate the road is that they're much better at going slow. It sounds backward, but it's true.

Imagine you're riding your recumbent up a steep hill at 4 mph, taking ten thigh-burning minutes to reach the top. At the top, you turn around and jackrabbit back down the same hill at 40 mph, completing the descent, white knuckles, in one minute. Now, imagine a strong road racer does the same course on an upright. The roadie gets up off his or her seat and—barely breaking a sweat—pumps up the hill at 8 mph. At twice your speed, he or she makes it to the top in half your time (five minutes), then coasts down the hill at a leisurely 20 mph (half your top speed), sipping water, eating a banana, gliding down the hill in two minutes. Roundtrip time? Seven minutes. Yours? Eleven. Diamond frames rule!

The point of the story is that when it comes to real road conditions, it's slowish but steady that wins the race. The bike that rocks in the slow parts of the ride—the one that keeps its

bottom-most speeds closest to the average speed—is the one that's most likely to win the race. The recumbent, while fast, is sleepy in the starting blocks and often dozes up the hills. The upright, on the other hand, can't hit the same top speeds, but because it rocks when going slow, and keeps going strong, it beats out the recumbent. This is why the diamond-frame bikes dominate the typical club rides.

Every Roadie's Nightmare

The 21-pound titanium Bacchetta Aero, designed by Rich Pinto of X-eyed Designs, is among the first in a new breed of recumbents destined to take the roads back from the uprights. It's been designed from the ground up to compete head-to-head with the roadies. The Aero builds on the latest technical advances that make high-performance uprights superfast and melds these with the aerodynamics and comfort of a recumbent platform.

HighRacer

The Aero is one of a new generation of recumbents that is being characterized as a "highracer" (see page 18 of this issue for an interview with Rich Pinto). The highracer resembles its lowracer cousins such as the Moens M-5, Barcroft Oregon, Challenge Jester, or Reynolds Wishbone in that the bike holds the rider in an efficient aerodynamic tuck that minimizes drag. The difference is that while many would consider the ground-hugging lowracers to be pretty extreme bikes—best suited for off-road (race track, not on dirt—ed.) racing or use on rural roads—the Aero is made for riding the streets. You ride high in traffic so you can see and be seen, riding safely among the cars and other riders. And because you ride higher, and you ride more like an upright, the Aero fits right into a club ride. An upright can even draft off of this 'bent—assuming it can be caught!

It Doesn't Look Like a 'Bent

It's easy at first glance to mistake this bike for a custom time-trial racer, or maybe a Merlin, a Litespeed, or a Seven. With its titanium finish and sleek lines, its matched set of large (650c) aero wheels, it really doesn't look like a 'bent. But the Aero is all recumbent all right—one built for speed and performance, designed to chew up hills and leave the roadies gasping for air.

The brainchild of New Hampshire designer Rich Pinto, the Aero evolved over years of careful design and testing. Pinto originally built this bike for himself, to make a bike that would allow him to ride the hills of New Hampshire and still keep pace with the fastest riders around. Inspired by research in bicycle aerodynamics, he designed an innovative steel-

frame highracer recumbent that he called the Aerocycle. It turned out to be so fast and comfortable that Pinto's upright riding buddies began asking him for copies of the bike, and a small business was born. Pinto's quest for perfection led to his current titanium design.

Last fall Pinto partnered with Bacchetta's John Schlitter and Mark Colliton, themselves major forces in the development of popular recumbents like the RANS V-Rex, and the Aero joined Bacchetta's stable as its top-of-the-line model, a family of innovative recumbents that includes the Giro and the Strada. Designed and built entirely in the United States, the Aero is arguably among the hottest new bikes to come out of this continent in the past few years.

Like a Fine Italian Road Bike

Now, I have to be honest. Although I wouldn't admit this to any of my 'bent-riding buddies, I secretly covet the fine craftsmanship and sleek look of finely made road bikes. When I go to a bike store I'm always annoying the sales staff by hefting their \$6,000 Cinellis or Pinarellos to admire their lightness and feel. Of course, if any of my 'bent buddies are with me I point and laugh, "They call that itty-bitty thing a seat!" but secretly, inside, I'm thinking, "Man, that upright is one cool bike!"

Of all the recumbents I've seen, the Aero comes closest to the look and feel of a high-performance road bike. Though its lugless titanium frame gives it a highly technical look, it's a beautifully crafted bike. The titanium welds are among the cleanest I've seen, and all parts are fitted with precision and care. The design is elegant and simple throughout, right down to the detail on the rear stays.

The 3.9-pound frame is so light, and the bike so well balanced, you can grasp the bike by the boom and lift it with one hand. It is among the lightest 'bents on the market (the Lightning R-84 is comparable). And though there are other titanium recumbents around (the Vision Saber, the Easy Racers TiRush, the Reynolds T-Bone, to name a few), and though it's not the only highracer design (the Saber again, and several by Challenge and Optima, in Europe), there's no question in my mind that this is the one that best approximates a diamond-frame bike in its appeal.

The Ride

To begin our road tests, I took the Aero to the town green in Concord, Massachusetts, chosen for this test ride because it also happens to be a magnet for Boston-area roadies. Rich Pinto joined me for the fun. Sure enough, as soon as we unloaded our bikes, it took just seconds for curious roadies to start gathering—I didn't even have to bait any traps. I rested a flashy-looking Euro-bike, my fully suspended Challenge Wizard, right next to Rich's Aero. Usually my Challenge draws all the attention,

but this time the roadies made a beeline for the Aero. They were drawn by the dual time-trial wheels fitted with high-pressure (145 psi) Vredestein Fortezza 650c tires, attracted by the beautiful detail of the FSA Pro carbon fiber cranks and the Kinesis Carbon Airfoil fork—the same kind Lance Armstrong used in his 1999/2000 Tour De France time trials. No question this is one recumbent the roadies could understand.

And you could tell from their questions that they got the picture right. Instead of the usual litany ("Did you build it yourself?") they were asking, "How fast can it go?" Just the look of the bike inspires speed. In fact, it's hard to imagine a frame design that's simpler or more elegant than the titanium Aero. The body of the bike is a straight fixed-length titanium monotube stretching from the beautifully formed chainstays in the rear, straight and uninterrupted up to the bottom bracket in front. The seat stays make an eye-pleasing triangle with the seat back and the frame to give the bike a finely engineered look.

The handlebars, seat, and fork are vital to the Aero's design, and each is carefully optimized for performance. The bars hold the rider's arms out straight in the direction of motion so as to minimize drag from the arms and upper body. The fork's knife-edge profile keeps drag and weight down while maintaining strength. The superlight carbon fiber seat, imported from Holland, is the same one used in all of M-5's famous racing bikes.

Like Sitting on a "Bike"

When I first saw the bike (almost a year earlier, when it was only a prototype), I felt intimidated by its high bottom bracket and large wheels. I have a short X-seam—I'm too short to fit even a RANS V-Rex—and I had visions of my feet dangling off the ground. But, I was pleasantly surprised to discover I could comfortably straddle the Aero with my feet planted firmly on the ground. When your feet are on the ground, your legs go straight down, rather than shooting forward as they do on many 'bents. Sitting on the bike felt strangely familiar: I felt more like I was on an upright than sitting on a 'bent. Still, once I clipped my feet into the pedals, it felt like a 'bent. It was like sitting on a lounge chair with my feet propped on an ottoman. The grip on the bars was natural and comfortable, with the wrist held lightly in a relaxed thumbs-up position.

I found the Aero's low-speed handling to be excellent. Since the bars and stem connect to the fork in a straight line through the hub—just like an upright—there's no tiller effect. Perhaps because of this, or because of the large front wheel, or maybe because of the bike's evenly balanced geometry, I found that the bike handled more like an upright, responding to subtle shifts of my body. Unlike some 'bents that require extreme concentration just to keep

the bike in line, the Aero barely needs a feather touch—I was even able to ride short spurts hands-free. I felt like the only reason I had to hold the bars was to keep my hands near the brakes.

I had no problem with heel strike on the Aero. Even so, maneuvering tight corners took a little practice. The bar's design holds your arms straight out, boxing in your knees, making it tricky to perform sharp turns. Rich taught me a technique for gliding through these turns—dropping the knee that's trapped by the box. This technique wasn't much different from what I normally do to deal with heel strike on a SWB, except that the action was in the opposite sense. It didn't take me long at all to feel in command of the parking lot.

Turning Hills to Rollers

Though Rich Pinto was generous and patient answering the questions from the roadies gathered around, I was eager to get on with our ride and tackle the scenic hills of Concord. I chose this route, in part because it's a favorite for roadies, but also because I knew it like the back of my hand. The route consisted mostly of rollers, passing through some gorgeous riding stables and farms, bordered by stone walls dating back to the American Revolution. The route includes two short but challenging hills, including one formidable enough to earn my respect, a hill I usually go out of my way to avoid.

Setting aside the "big hill," we tried the easier route first. Here, I was curious to see how the Aero would do on the smaller hills I usually have to chug up in my granny gear. Although I thought I knew this route by heart—the road was essentially a straight shot with no turns—I was surprised when we came to the end of the "hilly stretch" and I still hadn't chugged the hills. I thought maybe we had somehow gotten lost. I kid you not, I actually doubled back to see if I had somehow missed my hills. The hills were still there all right, only the Aero turned them into rollers! I sailed up the slopes without even noticing.

The "big hill" was still a big hill even on the Aero. I found myself going up this slope pretty slowly, but I did notice that when I made it to the top I wasn't nearly as tired as usual. The combination of the Aero's low weight and low-rolling-resistance tires seemed to help level out the hills.

High-Speed Performance

Pinto is a designer who understands that high performance is attained not by any single design element, but by the sum many of small details that add up to make a difference. He methodically tracks down the sources of potential power loss and goes the extra step to keep these losses low. All this attention to detail is what adds up to high performance.

The Aero is designed to punch a very



*The Aero strives for perfection through attention to detail. Notice the quality of the welds on the chainstays.
(Photo © 2002 Randy H. Goodman)*

smallhole through the air as it moves forward. Its handlebars are designed to hold the rider's arms straight out to minimize the arm's cross-section against the wind. The bottom bracket and seat are positioned to prevent the rider's heels from dipping below the line of his or her body. Cables are neatly tacked to the bike to minimize drag. The components are chosen to minimize wind resistance and weight.

My tests (which include coast downs, and comparisons against a variety of 'bents in group rides) confirm that this bike is one fast machine. In moderate descents (around 35 mph) it easily outpaces popular 'bents like the RANS V-Rex or the Vision 44. My Challenge Wizard, which is more aero than bikes like the V-Rex, is able to keep pace with a faired RANS V2 on a downhill at 35 mph, but it couldn't catch the Aero (though once speeds go to the 40 mph mark and up, the V2's faring does seem to provide an advantage over the unfaired Aero). According to Pinto, who has done coast-down tests against the fastest 'bents around, the Aero matches or beats virtually everything on the market—including lowracers. Pinto found that the Aero met its match only when compared to the fastest lowracers that were decked out with disk wheels and a tailbox, bikes few of us would feel safe riding in road traffic.

Fit and Sizing

One of the things I like the most about the Aero is how I look on the bike. While some 'bents make the rider look awkward, as if you're riding a unicycle, the Aero holds your body in a graceful racing position that makes you look like you really mean business.

The Aero has a fixed boom and accommodates different-sized riders by moving the seat forward and back (at predrilled intervals) on a mounting plate. Riders much shorter than around 5'6" may have trouble reaching the ground comfortably. The bike is spec'd for an X-seam range of 40 to 45 inches, but it accommodated my X-seam of 38.5 inches with no trouble at all. Seat angle is adjusted by telescoping the seat stays RANS-style, held by pins. The M-5 seat comes in two size options.



*A ride through historic Concord, Massachusetts. Rich Pinto on his 21-pound titanium Bacchetta Aero.
(Photo © 2002 Randy H. Goodman)*

The shorter seat fit me well, but riders with long torsos will want to make sure they order the larger size. The bike is designed to handle even fairly large riders and is rated for a maximum weight limit of 230 pounds.

Though the bike is built stiff for climbing hills, I found the titanium frame surprisingly pliant when it comes to road bumps. Since my test bike was equipped with a Pantour suspension hub (offered as an option), it was difficult to distinguish how much of the shock absorption was due to the hub and how much to the frame, but my sense was that the Aero's frame flexes well on bumps. One thing was certain: the large front wheel handles road irregularities well, and I felt much safer on downhills than I do with the smaller 16- to 20-inch front wheels I commonly ride.

The Aero's high bottom bracket worked well for me. Though I didn't have any trouble myself, I imagine that those who suffer from problems with numb toes or feet may want to look into other designs.

Components

The bike's component package is of a quality you'd expect in a bike of this caliber. I've already mentioned the carbon fork and cranks. The FSA 30/42/52 triple up front is mated to a 12-27 Ultegra rear cluster, giving the bike a gearing range typical of high-performance road machines. The chain is the highly rated SRAM PC-59. A concentric pair of idlers located under the seat is used to hold the chain neatly and quietly in check, keeping the chain taut and the shifting crisp. The rear brake is Ultegra, while the front brake is a custom-built bottom-pull design similar to Ultegra in appearance, built by Bacchetta to keep fork clearances tight. The brakes provide stopping power to spare, and even with the Pantour hub on my test bike

INFO AT A GLANCE

Specifications

Model—Bacchetta Ti Aero
Type—SWB Highracer
Steering—OSS
Wheelbase—46"
Seat height—23"
Bottom bracket height—31"-31.5"
Frame sizes—Standard (5'6"-6'4") and large (5'10"-6'6")
Weight—22 lbs.
Weight limit—#230

Frame—3/2.5 Titanium custom
Fork—Kinesis Carbon AirFoil 650c
Riser—Bacchetta top load
Handlebar—Bacchetta 47 mm "tweaner"
Seat—M5 Carbon

Components

Crank—FSA CarbonPro 32/42/52
Bottom bracket—American Classic ISIS
Headset—American Classic 1" threadless
Derailleurs (f/r)—Shimano Ultegra
Shifters—SRAM Rocket Shorty
Cassette—Shimano Ultegra 12-27 9-spd.
Chain—Shimano CN-HG73
Gear inch range—29.33-109.31
Pedals—N.A.
Wheels—650c (571 mm x 23c)
Hubs—American Classic Micro
Rims—Velocity deep section
Spokes—Bladed stainless steel
Tires—Vredestein Fortezza 145 p.s.i.
Brake (front)—Bacchetta dual pivot
Brake (rear)—Shimano Ultegra dual pivot

Incidentals

Price—\$3,800

Warranty (frame)—Lifetime (orig. owner)
Colors—Brushed Ti
Options—Reynolds AeroPro fork, HEAD "Alps" wheels

Pro

Ultralight
Fast
Beautiful (brushed ti is exquisite)
Highly optimized designed
Rivals the highest-quality road bikes

Con

Expensive
Possible fit concerns for shorter riders
Fewer adjustment and fit options
(as compared to the Strada/Corsa)

Contact

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Web: www.x-eyed.com;
www.bacchettabikes.com

they kept the bike in control at all speeds.

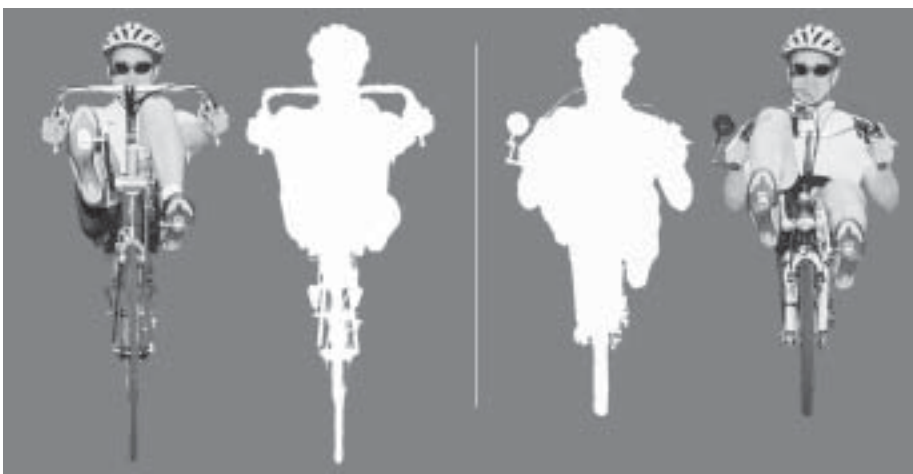
If there is one fault I found with the Aero it is the bars. As mentioned, the Aero is designed to hold your arms straight out in order to reduce air resistance. The position is more extreme than most riders are used to, and I could imagine riders will want the ability to dial in the arm position. And yet, the bars offer only a single provision for adjustment. Much more is needed. (In fairness, my test bike wasn't equipped with the bars as they will be finally sold; perhaps this will be resolved by the time this article goes to press.) According to Pinto, Bacchetta is addressing this concern by offering the bike with an optional TerraCycle GlideFlex adjustable stem like the one provided on the Strada and Giro. At least this will provide some measure of adjustment, but at the expense of a half pound in weight.

Aero uses SRAM Rocket 9-speed twist shifters and Shimano flat-bar road levers for the brakes. Though the shifters were responsive and accurate, I really didn't care for their feel. The click stops felt harsher than I'd expect on bike of this quality. The brake levers, on the other hand, were well chosen to match the ergonomics of the bars.

Quest for Perfection

In introducing the Aero, Bacchetta is taking a risk forging a new market for 'bents. Where the Aero comes up short is in adjustment and fit: performance riders will be looking for a bike that fits them like a second skin. I can't imagine that a rider who buys a \$4,000 LeMond, for example, will accept a seatpost that adjusts only at predrilled intervals, or handlebars and stems that come in only one size. At the edge of performance millimeters count, and one-size-fits-all fits no one when it comes to a high-end machine.

In years to come we can count on Rich Pinto's continuing to modify his design to get the most from the bike. Even now, he is collaborating with John Cobb and Steve Hed to put the Aero in a wind tunnel at Texas A&M University, to find ways to optimize performance even more. The Aero is likely to win over a lot of converts from road bikes to




The Aero's frontal area (left) is almost 20% smaller than that of typical 'bents (Challenge Wizard, right). Air resistance is kept low by holding the rider's arms, legs, and feet within the area of the rider's body and by optimizing the aerodynamics of the fork and wheel. (Photo © 2002 Randy H. Goodman)

recumbents, as strong riders discover that they need not sacrifice lightness, efficiency, or responsiveness to gain the speed and comfort realized by a recumbent design. It's the innovation in recumbent design many of us have been waiting for. A dream come true. ♦

Matthew H. Schneps, a physicist and recumbent enthusiast, is director of SportSmarts, a science education program of the Harvard-Smithsonian Center for Astrophysics.

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A Ti Pursuit 700/20 with Dual Shimano Nexus 7's

by Steven Zrucky
SZrucky@lafila.org

Steve Delaire is a master recumbent craftsman. My new titanium Rotator Pursuit reflects his experience and passion for his bikes. I recently ordered and picked up my “dream bike” from Rotator. It is equipped with two Shimano Nexus internal geared 7-speed hubs. One is a mid-drive and is laced into the 700c rear wheel. The rear hub has an internal “Inter-M” roller brake. The front wheel is a 20-inch.

As one who has ridden many ‘bent miles over the last five years, I agreed with much of Bob Bryant’s RCN 70 Rotator review. I’d like to share my observations on several aspects concerning buying and owning one of these bikes. I don’t know a lot about some of the technical aspects of recumbency but I know what is comfortable, enjoyable riding for me, both in the busy, bumpy streets of Los Angeles and on the open road for touring.

I once owned a Vision (SWB USS) and I currently own an early RANS Vivo with front and rear suspension and hydraulic brakes. I love both of these bikes for the comfortable ride they provide. My mate, Robby, rides and loves her BikeE.

Ordering and buying the bike from Rotator was a pleasure without hassle. Delaire is a friendly, cooperative professional guy who offered his opinion and expertise of the different available options. He never tried to im-

pose his will over the creation of my “dream” bike. Most of our correspondence over a few months in the purchasing process was via the Internet. Each of my many inquiries was promptly and courteously replied to.

The Frame

The brazing reflects a proud craftsman quality and the finish is an attractive polished titanium. The rear chain stays are beautifully connected to the large diameter mono-tube frame and, like Bob says, offers a somewhat effective passive suspension.

I feel compelled to address the issue of Delaire using hose clamps to hold the seat (as well as the mid-drive) onto the frame. These clamps, blending in with the beautifully machined fittings to which they clamp, become a nice, natural part of the bike. And they are consistent with Delaire’s apparent philosophy that simple function is desirable. Just look at that simple big mono-tube frame!

Because there is no derailleur (and no spring tension on the chain) special horizontal “drop-outs” had to be made. This and the fact that the internal hub only accepts a solid axle make changing the back tire only a bit more time consuming. (Delaire warned me about this.)

I have had two flat rear tires so far and removing the rear wheel is actually quite easy:

1. The internal brake cable is disconnected as is the shifting cable from the hub.
2. The brake arm is disconnected from the chain stay.
3. The 15 mm axle nuts are loosened and the chain removed.

Drivetrain

The Nexus 7 is an internally geared 7-speed hub that is made by Shimano for city and commuter bikes. Both of the Shimano Nexus 7 hubs are quiet and smooth with precise, easy shifting. Two days after picking the bike up from Delaire, another knowledgeable recumbent builder informed me that a recent study showed that these hubs were less “efficient” than other internal shifting hubs. I don’t know if this is true but I am very pleased with how they are working and I am confident that they will give me great service without the hassles of external derailleurs.

Shifting can be done while pedaling but shifting is smoother when you slightly ease the pressure from the pedals or coast. With a bit of practice, you can change gears with very little loss of speed. I couldn’t be happier having chosen total internal hub shifting.

While technically there are 49 different combinations of gears, the 14 usable gears seem well spaced. You can shift up and down, 1 through 7 on both hands, and the shifts are always the same—smooth and reliable. Since I don’t consider myself a strong rider, so I asked Delaire to gear it down to allow me to ride up the hills that Robby is always taking me to. I have not been disappointed. And the highest gears still give me all the speed I need.

As reported by RCN, chain management is excellent, very quiet. As an added benefit, this is my first recumbent where I don’t need a chain cover to protect my baggy shorts from the greasy chain!

Brakes—The internal Nexus brake is not as strong as it could be, but coupled with the effective Tektro V-brake in the front, braking has proven adequate. I am confident that when squeezed hard the brakes will be there for me. So far, fortunately, I have not needed extreme braking power.

Wheels & Tires—When ordering this titanium bike, I informed Delaire of my desire to have (in the words of Bob) a bulletproof bike tough enough for the urban potholes of L.A. Both wheels are Australian-made by Velocity. The rear wheel coupled with 700c x 30 IRC tandem tire and the 36 spoke, 20-inch front wheel (Dura Ace hub) with a 1.25 tire are thinner than what I am used to but have so far proven an adequate compromise between speed and durability.

Pedals—Like Bob Bryant, I love those big

Bear Trap platform pedals that Delaire uses. For longer and hilly rides, however, I prefer smoother pedals with Power-Grip straps. On longer rides, these straps appear to conserve some energy.

Comfort

Seat—I know that Rotator's full mesh seats have many avid fans. But, while I found it to be adequate for a couple of hours of riding at a time, over a long day my back developed a slight ache and my butt was less than comfy. The existing cord connecting the back part of the mesh to the seat frame was too loose for me. To be able to custom adjust different areas, I used plastic zip-ties, tightened to my liking, especially in the lumbar area. The bottom mesh section is supported by heavier shock cord but the addition of a Therma-Rest pad makes the ride truly heavenly, but not sloppy.

Ergonomics

With the seat tweaked as described above, I couldn't ask for a more comfortable ride. I chose the low-profile seat. The pedals are at seat height. I realize some folks may not prefer this pedaling position. For me it's a beautiful compromise for more speed and greater comfort. My buns don't chafe on the front of the seat, yet my feet are low enough to be able to easily and often put my feet on the ground when riding in downtown Los Angeles. The frame flexes and float to absorb some of the road shock, and the shock cord in the seat helps neutralize those rough areas.

After coming off my SWB bikes, I was at first afraid that the Pursuit's handlebars might be too far away from the seat for comfort. But after extending the steering tube out near its limit, I very soon grew used to the reach and now it feels very natural and very comfortable.

Ride

Stability—This bike is very stable at higher speeds—although I am not one who likes to ride at high speed. The bike is surprisingly maneuverable in city traffic. While not my SWB Vivo, the 20-inch front wheel and low saddle height make starting, stopping and turning quite easy.

I purchased the optional front fairing. But after a short while, I decided it wasn't for me and removed it. My bike is outfitted with a rear rack, kickstand, tools, and a pump. While this bike could be very light, mine is not. Since I'm not a performance rider, the added gear doesn't slow me down much. Compared to many other bikes I have ridden, this bike is quite fast.

Regarding the topic of "fork flop" or "tiller-effect" sometimes discussed in regards to the Rotator, I've found that this only occurs when the bike is standing still and your hands are off of the bars. This sometimes occurred on



Steve Hulm on the Ti Pursuit in North Dakota on CANDISC (Steven Zrucky)

my upright bike also and it poses no problem whatsoever.

Verdict

Delaire is a master craftsman and he knows how to build recumbents. While the Pursuit, whether in titanium or steel, may not be the right bike for everyone, I recommend that anyone considering a new LWB recumbent give serious consideration to Rotator. Delaire also builds Barcroft frames and Easy Racer Ti Rush frames.

Update

I have now ridden 750 miles on the bike. The first 400 mile ride was an organized tour in North Dakota. The second was a 350 mile ride through Missouri where I carrying 30 pounds of luggage.

Here are my thoughts on my Ti-Pursuit: I love this bike. I put a beefier tire on the rear, a 700 x 37, and was happy I did so as I encountered several expansion joints on bridges

that would have sucked up a narrower tire.

I resolved the seat base problem by adding a thin piece of plywood with good 2 inch foam covered by a lycra cover stretched around and under.

My only real concern is the rear. It is an internal hub brake. It's rather ineffective and grabs tightly when applied. I have yet to resolve this situation. ♦

Contact

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Tel. 707-591-0915
Web: <http://rotatorrecumbent.com>

Note: The Rotator Titanium Pursuit has a list price of \$4,700 (stock spec, not this test bike). There are three frame sizes and two seat widths and at least two seat heights. It takes 6-8 weeks to get a custom Rotator. Shipping is about \$60 within the U.S.A. Rotator offers a 3% discount if you prepay your order.

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The CatEye EL-110



The CatEye EL-200

CatEye LED Lights

A Review by Kent Peterson

Anyone who rides a bicycle at night should have some kind of lights but exactly what kind of lights are best is a subject of much debate. Many factors figure into these debates: cost, how much light is enough light, what kind of riding will a person be doing, and so forth. There are many good lights out there but it is beyond the scope of this article to review them all. Instead, I'm going to describe my experiences and impressions of the current Cateye LED lights.

I'd like to begin by stating that I ride a lot at night. I don't own a car, so I'm a full time bike commuter. I'm also involved in a sport called randonneuring. Randonneurs ride long distances within certain time limits and the sport involves quite a bit of night riding, often in less-than-ideal conditions. I ride an average over 1000 miles per month and many of those miles are ridden in darkness. The views expressed in this article are my own, but they are based on my real-world experiences with these lights.

Light Emitting Diodes (LEDs) have been around for years and while the red LEDs are almost universally used in bicycle tail lights, it has only been in the past few years that newer generation white LEDs have been available for use in flashlights, head lamps and bicycle front lights. These LEDs still aren't capable of putting out the amount of light that a halogen or krypton bulb can produce, but they do offer several advantages over a traditional filament bulb.

LEDs are solid-state devices and under normal conditions they virtually never burn out. Over-volting an LED will destroy it, but this doesn't happen with a properly designed circuit. Unlike filament bulbs, LEDs are unaffected by jarring shocks, such as those encountered in riding over cobblestones. Finally, LEDs draw very little power. This allows the

creation of small lights that have very long run-times.

In the autumn of 2001 Cateye began producing the HL-EL100 bicycle headlight. This was a fairly simple, first generation LED headlight. While this light didn't have any sophisticated circuitry, it did offer a very long run-time, up to 180 hours from a set of 4 AA alkaline cells. I used a pair of these lights and rode for 30 a total of hours of darkness in December of 2001. The battery life was very good, but the beam pattern from the light was less than ideal. For example, a company called Princeton Tec makes an LED flashlight called the Impact that combines a single white LED with a very good focused plastic lens. The Impact also runs off 4 AA cells but puts out a much tighter, more focused beam than that cast by a Cateye HL-EL100.

While you can still find HL-EL100 lights in stores, in the autumn of 2002, Cateye released three LED headlights, all of which are superior to the HL-EL100. Like any good light-obsessed cyclist, I bought all three of the new lights.

General Comments

All three of the new lights use the same mounting bracket. The bracket uses a screw combined with a plastic lever similar to the quick-release lever on a bike wheel. The lights slide into a groove on the bracket and a small spring mechanism locks the light in place. This lets you easily remove the light or switch it between various bikes. In my experience, Cateye lights can sometimes vibrate loose, so I recommend looping a large rubber band around the light and bracket for a bit more security. All three of the new lights are available in either black or silver plastic cases and all are activated by a single rubberized pushbutton located at the rear of the light. None of the

lights have rubber seals around the lighting element or battery compartment, but I have used them on some wet rides and have not had any problems with water seeping into the lights. However, the upper case snaps onto the lower case in such a way that the two pieces overlap slightly like the shingles of a house. If you were to mount the lights upside-down, you might have problems with water seepage.

All the new Cateye lights use 4 AA cells as their power source and they all lack any kind of regulation circuitry. This means that the light output will dim as the batteries drain. Alkaline batteries have a steep discharge curve so while Cateye may list the battery life as being hundreds of hours for these lights, in actual use I've found that it's best to replace the batteries when I start to notice a drop in light output. This point will vary with the model of the light and with a particular riders perceived need for light. But it's less than the optimistic stats quoted by Cateye.

Lithium AA cells are available and while they cost quite a bit more per cell than alkaline cells, they have a much better power discharge curve. They also weigh less, so some riders may find them to be a good choice for use in the Cateye lights. Unfortunately, NiCd or NiMH rechargeable batteries have lower voltages than either alkaline or lithium cells and are not a good option for use in these lights.

The HL-EL110

This is the most inexpensive of the three new lights, retailing at \$17.99. The light has a single LED focused LED and it really does cast a very focused beam. In fact I find the beam to be too narrow. Cateye optimistically lists the battery life at 300 hours and even though you'd probably want to replace the batteries before then, of the three new lights this is the one that will run the longest on a set of AA cells. It's physically the same size as last year's HL-EL100, and while it puts out much more useful light than the older model, I don't recommend either the HL-EL100 or the HL-EL110.

The HL-EL200

The HL-EL200 has the same size case as the HL-EL110. Retailing for \$24.99, this light has three focused LEDs and is the only one of the three headlights that can be set to flash. The flashing mode is very eye-catching and the light is bright enough that road signs and other reflective surfaces strobe. While Cateye lists the output of the HL-EL200 as being only slightly more than that put out by the HL-EL110 (110 candle power for the HL-EL200 vs. 100 candle power for the HL-EL110) the HL-EL200 produces a much more useful beam. In the constant mode, Cateye lists the battery life at an optimistic 110 hours. For a

commuter, this is a very nice little light.

The HL-EL300

The HL-EL300 is the biggest and brightest of the new lights. With five focused LEDs it's a kind of awkward looking thing, but those 5 LEDs put out a very nice beam that Cateye rates at being about 400 candle power. This is the light I've been using for commutes and my recent randonneuring rides and I like it a lot. The always optimistic people at Cateye list the battery life at over 100 hours for this light, but I've found that with alkaline cells, I'll notice a bit of dimming after about 18 hours of use. This is enough life to ride two entire nights in darkness on a single set of AA cells, a feat which would be unthinkable even a few years ago.

Since I've had this light, I've been asked by various people both in real life and on the internet if it's really bright enough to see by or if it's more a just "be seen" light. For me, the answer is "it's bright enough to see by" but what I find adequate may seem woefully inadequate to somebody else. I'll try the best I can to describe the light and let the reader draw their own conclusions.

The HL-EL300 puts out a nice, shaped spot beam in the form of an oval with the widest part of the oval spreading over the road. If you position the light so the oval is cast about a dozen feet in front of you it's maybe three feet in diameter at it's widest. In terms of intensity, the light is about as bright as what I'd see coming off a 3 watt Halogen Lumotec light being driven by a SON hub or the light cast by a 2.4 Watt Halogen Cateye HL-500 Micro. The halogen lights put out a more yellowish light while the LED light is a more bluish white.

On a couple of recent brevets (randonneuring rides) I had the opportunity to ride alongside riders with the above mentioned halogen lights and we found useful light put out by the HL-EL300 to be about the same as what was put out by their lights. In fact, several of the riders I was comparing lights with commented that they "had to get one of those" (referring to the HL-EL300). I also had another friend express doubt in e-mail as to whether or not he should get an HL-EL300 and I told him "just buy it and try it. If you don't like it, I'll buy it off you." He wrote me back a few days later with the following one word review: "Wow." Needless to say, I didn't wind up buying his light.

The TL-LD600

Cateye also produces a very bright red LED tail light, TL-LD600. The TL-LD600 retails for \$19.95 and runs on two AAA cells. It has four modes: flashing, constant, side-to-side and random. Since this is brighter than many other LED tail lights, the batteries won't last as long. In the constant mode, the light will run for about 15 hours. Using the light in any of the



The CatEye LD-600

various flashing modes will up the life to about 30 hours. I've found this to be a nice little light, but because of it's higher power draw, I have to be vigilant in making sure it has working batteries.

Gear for Riding at Night

Some riders seem to be intent on emulating daylight in their lighting set-ups but even the folks at Night Sun will tell you that "no lighting system is as good as the sun." In my night riding I try to make sure I've got a reliable system that makes my presence clear to other road users and provides adequate light to enable me to avoid potential road hazards. While I don't claim that I have the definitive night riding system, I will present what I use as an example of a system that works for night commuting and brevet riding.

I use a lot of reflective gear. Reflective tape is inexpensive and quite noticeable to drivers. I use red reflective tape on my rear fender and the back of my tailbox, white reflective tape on the front and sides of my bike and the sides of the tailbox. Also, reflective tape on moving parts like cranks or rims is very effective. I also use reflective ankle bands and my helmet has reflective tape on it as well. Light colored clothing is also a good choice. All my cycling jackets and vests are bright yellow or orange and have reflective trim.

My current bike headlight is the Cateye HL-EL300 and I also have a helmet mounted LED light. The helmet mounted light is good for reading road signs, maps, catching the attention of drivers and is very valuable if I ever have to change a flat tire in the rain. Princeton Tec makes some very nice headlamps. The Matrix is fairly large and uses 2 AA cells, while the Aurora is smaller and uses 3 AAA cells. With either light, I've found that the best way to mount them to a helmet is to remove the stock strap and replace it with a velcro pump strap. I loop the strap through the vents in my helmet and it's very secure.

In addition to the helmet-mounted light one of my key pieces of night gear is a cycling cap. I wear the cap under my helmet and the brim of the cap is very useful for shielding my eyes from the glare of oncoming automobile head-



The CatEye EL-300

lights. The cap helps me preserve my night vision and also helps keep rain off my glasses. I really count the cap as one of my most essential pieces of night riding gear.

I have three tail lights. In addition to the TL-LD600, I have a second generic tail light which also runs on AAA cells. While this light is not as bright as the TL-LD600, I find it's best to have redundancy. I also have a small Vistalite Whaletail light on the rear of my helmet. This light runs off a single AAA cell.

Since all my lights are solid-state LEDs, I don't carry any spare bulbs. I do carry spare batteries although it's rare that I use them. In fact my most common use for the spare batteries is loaning them to other riders whose batteries have died. No matter what system of lights you use, the important thing is to make sure it's working and will keep working for the duration of your ride. A two Watt system that is working is far more useful than a fifty Watt system with a dead battery. ♦

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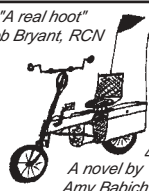
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Easy Racers: Our Customers Speak

SUBJECT: How Does That Thing Climb? April 4, 2001

Just a quick update on the Gold Rush Replica that I purchased about two months ago. Great!!! The weather in Cincinnati is just starting to break. I have over 900 miles on my trainer since February, and about 120 miles on the GRR. With the weather breaking the GRR should see about 150 miles a week.

The GRR becomes more of a blast the more I ride it. I did my first climb out of the river valley where our major bike path is located. Everyone warned me that I would be in trouble on a climb. So I was somewhat apprehensive as I started the 1.5-mile climb out of the valley.

First, I never got out of the mid-chainring. I think I could have stayed in the large (53). I held between 13 and 17 mph for most of the climb. I never dropped below 11 mph. I was very impressed. I have climbed this hill hundreds of times on my Trek OCLV and felt far worse at the top of the climb than on the GRR.

As a matter of fact, I felt great on the GRR!!! No back pain; nothing. The ride back down was a hoot. I had a friend with me (about 5 minutes behind me up the hill) as I descended down into the valley. I was hitting 40 mph without moving my legs, and using the brakes into the turns because I was not sure what to expect from the GRR at speed around the turns. My friend had to pedal like a madman and he still couldn't keep up. The GRR felt like a sports car going down the hill. What fun!!! I wish I had started



*Double Century Man, Ron Bobb
out training for the Terrible Two*

this 30 years ago instead of my mid fifties!!!!

Best regards,
Doug Pendery

**SUBJECT: GRR Update
April 25, 2001**

This past Saturday I rode with a few friends that have conventional racing bikes (Wedgies; I think you call them). We climbed out of the valley up the Route 48 hill. This climb goes for about 1.5 miles. I pulled my friends up the hill at about 18 miles per hour and crested at over 20 mph. Needless to say they were out of their saddles trying to stay up. I must say I was winded, but so were they. Their comment was, "I guess your recumb-bent doesn't have a problem going up hills."

In my younger days (about 8 years ago) I would have pushed myself to my limit to go 18 miles per hour up this hill on my Trek OCLV. My point is the GRR is a great recumbent. I enjoy going up hills on it more than my OCLV. I am more relaxed, my back doesn't hurt, and my legs aren't killing me from being out of the saddle trying to lever the OCLV up a hill.

By the way I had a tailwind on one stretch of the ride. I managed to get up to 36 mph in the flats. Nobody passed me . . . It was a real hoot!!!

Best regards,
Doug Pendery

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