

Recumbent Cyclist

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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. ♦

Recumbent Cyclist News

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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



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. ♦



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



Bacchetta Ergonomics 101: the "tweaner" 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)

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. ♦

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 "tweaner"
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

Contact

Bacchetta
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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 Bacchetts, 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!)
Easier to ride than you may think

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

Contact

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www.bacchettabikes.com

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.

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. ♦

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. ♦



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

Bacchetta
Tel. 727-341-1881
Web: www.x-eyed.com;
www.bacchettabikes.com

they kept the bike in control at all speeds.

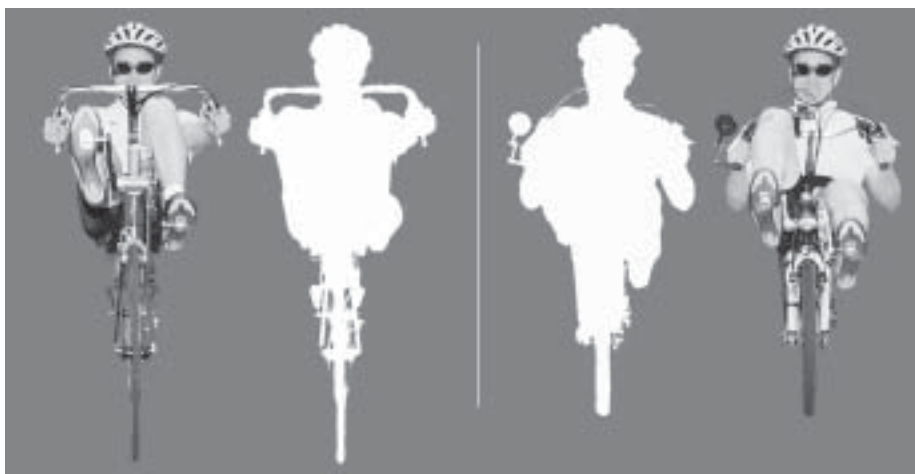
If there is one fault I found with the Aero it is the bars. As mentioned, the Aero is designed to hold your arms straight out in order to reduce air resistance. The position is more extreme than most riders are used to, and I could imagine riders will want the ability to dial in the arm position. And 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. ♦

bent enthusiast, is director of SportSmarts, a science education program of the Harvard-Smithsonian Center for Astrophysics.

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Matthew H. Schneps, a physicist and recum-

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