



# Recumbent Cyclist News

The Recumbent Enthusiasts' Newsletter — Since 1990 — #096 Sept/Oct 2006



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## The Burley Koosah

*The Koosah one of the most user-friendly bicycles in the world. Named after the scenic waterfall on the McKenzie River, this bike is incredibly comfortable to ride, has simple lines, is infinitely adjustable for every body type and comes at an affordable price. The LWB format is often used for touring long distances. The stretched frame with a low bottom bracket provides an easy, soft ride that minimizes lower back, shoulder and neck strain. Additionally, the adjustable steering mast with ergonomic shifters and brake levers eliminate the problems that some people experience with traditional bicycles. — Burley*

**BIKE:** BURLEY KOOSAH  
**PRICE:** \$995  
**CONTACT:** [www.burley.com/](http://www.burley.com/)

By Bob Bryant

**B**urley has been a household name in the bicycle industry for decades. The company now offers several recumbent models — all built in their Eugene, Oregon factory. The Koosah is their affordable (reasonably) long wheelbase (LWB) model. It has a simple and unique “Z” style monotube frame with low step-over height and a low pedals/bottom bracket (BB).

**USE:** While the Koosah is an entry level recreational model — with a few component upgrades, it is worthy of a much more serious rides.

**SEAT & COMFORT:** The Burley seat is of excellent quality, but still has the lace-up seat mesh. I would prefer adjustable buckles and straps — or even zip ties. Getting the

seat mesh tight is somewhat tedious and you can't adjust the tension or shape of the seat back mesh through lace up adjustment (I've been able to get my seat back tighter by using a pair of zip ties linked together at the top of the seat).

The seat back feels good, the mesh material is of good quality, and attractive. The seat has a medium height back, with a slight lumbar curve. My shoulder blades poke out over the top of the seat back mesh — which I don't mind. There really isn't much reason for a tall seat back.

The 2006 seat base is smallish and firm and can be adjusted in relationship to the seat back. I got to try out a beta version of Burley's updated 2007 seat base. It has softer padding and measures 1/2" taller than the old seat. The new seat is also a few ounces lighter.

The 2006 (& previous model) Koosah's seat came from Burley's higher BB models and has unuseable very reclined adjustment

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# Recumbent Cyclist News

*Recumbent Cyclist News was published by Bob & Marilyn Bryant from 1990-2007, 101 issues. RCN was closed in December of 2007 when it became no longer financially feasible to publish a print newsletter. bryantrj@gmail.com*

## Editorial License The Proud 1/2%?

by Bob Bryant, Publisher  
bob@recumbentcyclistnews.com

American's buy 15 MILLION bicycles per year. About 25% of these bicycles are sold in the USA's 4,700 bicycle shops. From the best that we can determine, about 20,000 +/- recumbents are sold in the USA each year. If you do the math, you'll see that this means that recumbents account for .5% (one half of one percent) of bicycle shop sales. Despite many dealers reporting a good recumbent sales year, and lots of interest — recumbent sales just haven't grown much since the last spike in the late 1990s. In the early '90s, sales were about 5,000 units. By the late 1990s, sales had spiked to 20,000 +/- units.

Some may argue that their market segment is growing, but overall, we haven't seen any trackable percentage growth (to break the 1% threshold). So here is my theory on what may be holding us back:

- High cost of recumbents
- Lack of "specialist" dealers
- Lack of information
- Lack of standard designs
- Non-recumbent market competition
- Manufacturer anti-Marketing
- Performance rhetoric
- Recumbents can be difficult to find
- Recumbents can be difficult to sell (for dealers)

**Cost:** The main reason is cost. Recumbents are 2-3 times as expensive as a similar upright bike (\$400 comfort bike is about \$1000 in a recumbent). And the \$1000 recumbent can be heavier than the \$400 comfort bike.

**Lack of Dealers:** There just aren't many recumbent dealers, perhaps a few dozen in the country, and finding one that stocks many models, sizes and brands is even more rare.

**Lack of Information:** This is a big problem. There are many opinions (and contradictions) between media, manufacturers and enthusiasts — which can confuse new riders. The lines are also blurred as to what constitutes a good "touring", "commuting" or "sport" recumbent. There is a lot of gray area in the recumbent world.

**Lack of Standard Designs:** Recumbents come in all shapes and sizes, and then you can factor in various wheel sizes, above- and under-seat- steering, two or three wheels, direct or indirect steering, high or low seat, laid back or upright seat, high or low bottom bracket, mono-tube frame, triangulated frame. All of this can be very confusing to the new or would-be enthusiast.

**Market Competition:** We now have a lot more competition from other realms of cycling. There once was just mountain bikes, road bikes and recumbents, now we have the following: affordable 20 pound road bikes (like the Trek Pilot), comfort bikes, classic touring bikes (making a comeback?), \$400 mountain bikes and crank-forward bikes (Townie or Fusion). To get an idea of what we're up against, check out the National Bicycle Dealer Association market numbers for 2004 (at the end of this article).

**Anti-Marketing:** This is the ability to turn customers away and sour them on your product and even recumbents in general. Like many of our readers, many of our emails are completely ignored by some recumbent manufacturers. Still others ignore our yearly information requests. There are many other antics as well. There are many good manufacturers who do their best, but marketing and communications can always be improved.

**Performance Rhetoric:** Performance Sells Bicycles . . . right? We should all be rocked back in our recumbent seats, feet skyward — it's all about speed, right? In the recent *Bicycling Magazine* recumbent article (July 2006 issue) the author quotes a midwest lowracer rider who estimates the market for these racey recumbents at "less than 1%" of recumbents sold. Hmmm, let's see, 1% of 20,000 is 200 bikes per year — split between highracers, lowracers and other racey recumbents. Lets give them the benefit of the doubt and double that estimate to 2% or 400 bikes. That is still a tiny market. So the speed records are cool, and we want to be respectful of our recumbent athletes, but we also have to be realistic about the real cyclists in the real world who don't race (the majority of us).

It's also common to hear new enthusiasts complain that their so called "fast" recumbent isn't as fast as they'd been promised.

**Recumbents Are Difficult To Find:** Our local newspaper did a story on our local rider group, me and RCN. As a result, we received several phone calls from people interested in recumbents. Because we have no stocking dealers in our county, I sent two would be enthusiasts off to Seattle (a days round trip) to see recumbents. Another more serious customer drove to Seattle and then Oregon to see recumbents in his size. One dealer wasn't at all knowledgeable about recumbents, and another was closing out recumbents for good.

**Recumbents Can be Difficult to Sell (for dealers):** Recumbents take more time to set

*Continued on . . . page 20*

# Recumbent News

**ANGLETECH:** Kelvin Clark has built up a RANS Stratus XP TO 27 D with an XtraCycle conversion. Check out our blog for a color photo (June archive). [www.angletechcycles.com](http://www.angletechcycles.com)

**BENTECH:** Long for the days of simple SWB and LWB USS recumbents? Bentech sells plans, kits and framesets for either one. They are original designs, but are very Vision-esque. See our May '06 blog archive. [www.bentechbikes.com](http://www.bentechbikes.com)

**BICYCLING MAGAZINE:** If you haven't seen it already, drop by your local library to read the July 2006 issue of Bicycling. There is a nine page article about the recumbent scene, with four mini-reviews by me (Bob Bryant).

**BIKE FRIDAY:** Photos of the new SatRDay 20/20 406mm touring recumbent are at the BF website and our blog (May '06 archive). [www.bikefriday.com/catalog99.cfm](http://www.bikefriday.com/catalog99.cfm)

**CATRIKE:** Is now offering optional two stage sparkle powdercoat paint jobs. The new paint option is a \$100 upcharge.

**CANNONDALE:** Cannondale's Ian McLeran reports that the Bent I full suspension and Bent II rear suspension CLWB recumbent models have ceased production. Introduced in the Fall of 2001 at the Interbike tradeshow, Cannondale built 200-300 units per year. Over the last year or so sales slowed to 100-130 units per year. The Cannondale Bent was unique in that it had an oversized aluminum built in the USA frame, full suspension and fine Cannondale finish quality. While not a super performance bike, the Cannondale Bent is an ideal all around and would make a fine used bike, or perhaps a good bargain for any new models still on dealer showrooms.

**CANE CREEK BRAKES:** There is a cool new brake in the market: The Cane Creek Direct Curve 3. I first found out about these brakes from Kelvin Clark of Angletech who is offering them on V-brake spec'ed RANS Status XP TO 27 D models. The next week my riding pal, Bill, showed up with them on his new Stratus XP. The DC3 brakes are cold forged aluminum in a simpler and lighter design. There is less drag on the system because there is no noodle or linkages. The only downside is that there may be fit issues with some recumbents. They certainly work on the Stratus XP, and we hope to get a set soon. The DC3 brakes weight 181 grams per seat (one wheel) and are \$41 each. [www.canecreek.com](http://www.canecreek.com)

**EASY RACERS:** Fast Freddy Markham won the Dempsey-MacCready Hour Record Prize at the Nissan 1 Hour Challenge on July 2nd. Freddy covered a distance of 53.43 miles in one hour. Freddy was riding the Easy Varna streamliner (formerly the Varna Mephisto) a MWB lowracer.

**Carbon forks:** "The development and testing is done and now the new carbon fiber forks are ready for immediate use. These beautiful forks are under one pound, that's less than half the weight of a conventional Chromoly fork. The construction of the fork and its structural strength was top priority for us here at Easy Racers. The carbon and kevlar steer tubes are incredibly strong. These forks were produced for us by Velokraft, a trusted maker of carbon products. Not only will these forks lighten the bike, but they also smooth out the road with carbons unique shock dampening properties. The forks have a 230 lbs weight limit for rider and bike. The forks are more than a performance upgrade, they also improve the cool factor. Bikes that are ordered from Easy Racers will be fitted with Chris King headsets and carbon stems to complete the look. The carbon fiber fork is available in either a 451 or 406 wheel size" — Fast Freddy Markham.

**C-Rush:** "Most of you by now have heard that there is a world wide shortage of carbon fiber on the market place. It's making my life miserable trying to track down a consistent source of tubing but it's going to happen" — Fast Freddy Markham.

**FLEVOBIKE:** There is a new US distributor for this unique center-steering, front-wheel drive full suspension SWB recumbent. The Flevo

has a square steel frame, weighs 36 pounds, has dual 20" (or 26") wheels, V-brakes and a SRAM Dual Drive 27-speed drivetrain. [www.flevobikeusa.com](http://www.flevobikeusa.com)

**TW RECUMBENTS:** China Mascot is a company in China that builds many different recumbent models. They have mostly been sold by an elusive Internet company called Actionbent. We've never been able to get a test bike, and I have yet to even see one of these bikes. Apparently China Mascot has loosened up on their exclusive distributors allowing others to import TW Recumbents. The first that we have heard about is [www.recumbentusa.com](http://www.recumbentusa.com)

**RANS:** Rumor has it that Randy Schlitter is riding a 26 pound Stratus XP. The XP is still super popular, two 2006 deliveries we know of took 11 weeks, yet some dealers have them ordered and they just show up on dealer showrooms.

**New Stratus XP sizing:** There are now four frame sizes available for the RANS Stratus XP: Small (29.2"-40.7" x-seam), Standard (32.2"-43.7" x-seam), XL (35.2"-46.7" x-seam) and XXL (38.2"-49.7" x-seam).

**TERRACYCLE:** Has unveiled a custom double idler kit for RANS Tailwind and Stratus (models with a double idler). [www.terracycle.com](http://www.terracycle.com)

**VOLAE RAAM:** The Volae Wolf Pack, consisting of Thomas Kingsbury Loyal, WI and Tim Woudenberg Moss Beach, CA, set the record for the first two man recumbent team in history to finish RAAM with a time of 7 days 15 hours and 47 minutes. At an average speed of 16.56 mph for 3042.8 miles, they did it in style by beating all but one of the two man upright teams in the 2006 Race Across America. ♦



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# Letters

Please write us. Letter limit is 300 words (or write an article).  
We edit for clarity, content and space limitations. bob@recumbencyclistnews.com



## BAD DAY ARTICLE (094)

Got a real chuckle from your article "Bad day, Blowout and a Long Walk", especially the lessons learned part. Great reading! You're quite right, most cyclist publications talk about the more attractive parts of the sports experience. Understandable, but not going to help newbies learn the really important things they need to know. At any rate, keep up the great work!

Eric Geoffrey Vann

## RCN BLOG PEDALS

I note the Speedplay pedals (RCN blog) and can also recommend the MKS BMX pedals carried by Rivendell for \$20 (members). I've been using them for years on my bents with Chuck Taylors and they're just a great cheap, excuse me, inexpensive pedal for those who want the ultimate clipless. Thanks for your hard work for bents.

Gary Calverase

## GOLDEN AGE OF RECUMBENTS

One subject that keeps popping up is the future of recumbency. So I was surprised to see you write the "Golden age of recumbency was most definitely in the 1990's" (RCN 095, page 3). How can that be when I still find cyclists who have never seen a recumbent? I must believe the Golden Age is in the near future, perhaps the twenty-teens. The parts of the 90's I remember indicate it was a hodge-podge of misconceptions, strange promises, blatant skepticism, inconsistent supplies, and most importantly, a lack of refined designs. It might be said the 90's were the Golden Age of innovation for recumbents, but we're really only now seeing very polished and functional designs across a broad spectrum and lowering prices. But that's how evolution works. Concurrently, people are now starting to think recumbents are not only legitimate, but offer some real advantages. Cycling is more popular than ever, and as the current group of serious cyclists age, they will become more receptive to anything that will reduce their pain. We're poised for a recumbency explosion. Don't worry, it'll come . . .

Martin Neunzert

**Editor Comments:** Please be sure to read the editorial in this issue. Many of the most popular recumbent designs were around in the mid-90s. The question may better be what great refinements have we seen since 2000?

## TRIKE CRASH

I had always been interested in biking but found that my arthritic wrists (I'm an active 72) made normal biking difficult. I wanted to explore recumbents, so went to my local bike shop. They had a tadpole trike. I rode it around the parking lot and I was hooked.

I had learned that braking the trike was VERY touchy, even at reasonable speeds. Consequently, I always braked early and tried to hold my speed down. I had just mounted a computer and I decided to take a good long ride to check the accuracy. On a steep descent, I became mesmerized with the way the figures were mounting on the speedometer and did NOT brake early. When I did attempt to brake (passing 34 mph), the trike jerked to the right and my right foot slipped off the peddle. It was immediately *sucked* under the trike and all hell broke loose — as well as my right ankle bones and the fibula!

Miraculously, none of the other appendages that were flailing around sustained breaks and my HELMET saved my head from SERIOUS trauma. All in all, I feel very fortunate to be able to write rehabilitation center, where I have been for some time. I have a number of screws, plates, and devices in my leg — and guarded promises that I will once again ride, walk, hike, and otherwise be fairly normal.

I am concerned that others may be facing similar fates as mine. The current braking and steering system needs help. Why the trike's manufacturer did not put a disc brake on the back wheel and a balanced, single lever system on the side wheels, I'll never understand.

Triker 72

**Editor's Comments:** I'm very sorry to hear of your accident and injuries. As I wrote in our recent trike issue (RCN 088), you'd see that even after 20 years of experience, I'm still shy at over 20 mph on some trikes on our rough roads, many of which are on the edge of cliffs, perhaps over 30 mph on more stable models and I don't recommend riding this fast.

Trikes offer stability at lower speeds (bike trails speeds), but can roll if you lose control at higher speeds. Tadpole trikes are low, you take a risk by riding them in traffic. Trike seat height increases safety from a see/be seen point of view, but makes the trikes tippier. That said, I can put most any trike on two wheels with some effort. Riders must compensate for this with body lean OR ride slow.

Having a rear brake on a tadpole trike is NOT recommended. I can't recall any manufac-

turer who uses a rear brakes (except for parking brakes, and these are rare). The problem is that if you apply the rear brake hard, with an incorrect weight shift, it can throw you into a spin. On a tadpole you need to learn to brake CAREFULLY and evenly MODULATE and safely control your speed.

You need to get to know your trike and understand the handling capability. Tire pressure can play a part in a situation like this (check tire pressure regularly).

I recommend you get some cycling shoes, and either some clipless pedals or wide pinned downhill MTB pinned models.

Best wishes for a speedy recovery.

## WHERE ARE THE USS BENTS?

I work one day a week at a local recumbent bicycle shop (Ajo Bikes in Tucson). I frequently get asked about under-seat steering (USS) bikes. In fact, this past Saturday four people came in asking about USS. Why are manufacturers not offering options? Not everyone is attracted to a Turner, or a Longbikes, or a Linear. And European bikes are not always cost effective to get into this country. Two of the four specifically asked about Turners, so I referred them to him.

Is this a common question around the rest of the country? USS will never take over, but there should be more options.

Harvey Stackpole

**Editor's Comments:** Vision and Ryan are no longer in business. Linear and Longbikes keep a low profile (we'd love to test both). We're not sure what happened to Infinity. Hase, HP Velo make, S&B and Turner make SWB USS recumbents. Used Visions are plentiful here in the Northwest. Two of my local rider pals ride Vision USS bikes, one 26/16 SWB and one 26/20 LWB. Both love their bikes and would unlikely trade them. The SWB rider likes the look of the HP Velo Grasshopper. The LWB USS rider likes the look of the Longbikes.

One often overlooked source for USS recumbents is Bentech: [www.bentechbikes.com](http://www.bentechbikes.com). They sell plans, frame kits and painted frames in SWB and LWB. Another option is [www.haluzak.com](http://www.haluzak.com). I heard from Bill Haluzak and he's actively building bikes.

I think the reason that USS has fallen out of favor are the following: cost to build, complexity, lesser performance (than above seat steering), and a longer learning curve (two wheelers). Trikes have really taken over the USS market in North America.

## RAPID MISTAKE

Robert Long's letter in issue RCN 094 piqued my interest. He's clearly a believer in Rapid-Fire shifters. When I put together my first 'bent, I selected Rapid-Fire shifters. This was on an above seat steering Vision R45, a (very) short wheelbase bike with praying hamster riding position. I set bars as far back as possible to minimize knee clearance issues. Still, I'd occasionally bump the shifters, and it was impossible to read the gear indicator. But they shifted so very nicely that I was quite satisfied with my choice. The R45 was very fast out of the gate, so fast shifting was essential. The very short wheelbase made the bike responsive to subtle steering input, so the fact that they shifted easily was also a good thing. Like Robert, I believe Rapid-Fires are under-appreciated, and should be considered for many above seat steering recumbents.

Today I ride a Greenspeed GTX trike. Rapid-Fires wouldn't work because the cables would exit the shifters pointing up, so I selected bar-end shifters. The Rapid-Fires were faster to shift, but I appreciate the ability to feel what gear I'm in, and the ability to switch over to friction mode might come in handy one day. I believe bar-end shifters are generally a good choice for under-seat steering, and especially for tadpole trikes. The only problem with bar-ends on a trike is that you can't use the bar-end to mount a mirror.

For me the choice is between these two wonderful shifters. You'll never see twist shifters on my ride. Keep up the good work on RCN!

Peter Epstein

## ROCKS FOR PARKING BRAKES

In every one of your trike reviews, I have read, you mention some sort of parking brake is essential on a trike. Do you feel the \$50 option for the HP Velo Scorpion is expensive for a parking brake? Why do you feel so strongly about parking brakes on trikes (essential)? Some people say just roll up to a rock and "there's your brake."

John Rogus

*Editor's Comments: The Scorpion has the best parking brake of any trike I've tested recently. I think the fifty bucks would be well spent. I don't like my trikes rolling away — they like to do this. Rocks are inconvenient. Rarely do I see a perfect rock laying in front of me. I commute, ride in town, run errands and with trikes that don't have parking brakes, I usually hook them around a pole or tree, and that's often inconvenient. I see the parking brake as a must have option, if available. A velcro strap or over-size rubber-band will work in a pinch, but they are very fumbly in comparison.*

## BUS/BIKE COMPATIBILITY

I took delivery of a new RANS Fusion Cruz this past Spring with the idea that it would be

my backup in the event of another abandonment by the local bus service. This morning, I tried to put it on the the bus's front-mounted bike rack. Needless to say, the Cruz was 4 to 6 inches to long to fit in the wheel wells of the rack (Sportworks bus rack). The driver told me that some of the more common mountain bikes have the problem of being too short. I should have measured first. My \$1100 experiment so far isn't going so well! I like the adaptability of the bike and I'm glad that I bought it. My other bike is a 2000 RANS Stratus that I have modified with all the suggestions on a shortened crank and gearing that I read about in RCN. There has been a tremendous improvement in performance of the Stratus. Keep up the good work!

Chuck Maynard ♦



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positions. The new 2007 seat will have more upright adjustments (a good thing). The four nuts that hold the seat base on (under and inside the seat frame) will be gone thanks to a new threaded block which will make for much easier adjustments. You will be able to dial in the right position quickly. Previously you had to remove the seat or hold a skinny wrench under the seat base while you loosen or tighten the four hex bolts. The seat still slides on a track held by two quick releases.

While most low BB LWB work best with a more upright position, the Burley Z-frame bikes can be more reclined than any of the other LWB we've tried recently. It was easy to find the perfect position that was reclined enough for comfort, but upright enough to not sacrifice power output.

I strongly recommend the optional Speed Struts (vertical seat back braces). The bike is more comfortable to ride without them, but the Koosah still rides smooth with them. The benefits are stiffer seat back and more power in climbs, more power for starts and the struts made mounting my Angletech Aerotrunk much easier (it stands more horizontal — no slouching and fits better than most other LWB bikes).

**RIDE:** The Koosah handles well at all speeds. It's user friendly at low speeds, though the handlebar ends can hit your knees (depending on how you have them set up). The handling is neutral with just a hint of fork flop (slightly high centered when straight ahead). I like this trait as it somewhat accelerates the steering. The ride is comfortable for relaxed cruising. While the bike was plenty fast, and is right up there with other similarly priced LWB bikes (in weight, ride, handling and comfort), the Koosah isn't a racer.

This style of monotube frame is designed to have passive suspension. This makes for a very smooth ride — more so than any other similar LWB (non suspension). The Koosah has the most comfortable ride of any LWB this side of a RANS Stratus XP — and at half the price.

**PERFORMANCE:** The Koosah isn't an aggressive performance bike, and you won't be winning any races. The handlebars are wide, the bottom bracket is low and the riding position is fairly upright. There is some minor push-through with the comfy mesh seat back. Keeping the seat adjusted tight will help. This is a recreational/sport touring style of LWB.

The Koosah climbs as well as similar LWB machines. The key to climbing on this bike is to get the optional Speed Struts, otherwise, there is some seat flex. Also, I tend to lean forward and push the small of my back into the lower section and stiffer section of the seat.

**FRAME:** Burley's Koosah's frame is its trademark Z-design monotube. From the head



*Burley's seat with optional Speed Struts (braces) and softer 2007 seat base*

tube, an ovalized over-sized Chromoly tube drops to the bottom bracket, angles upward to the seat mount and connects to mono-stays. There's no truss or triangulation in sight. The seat slides on a downward angled main tube, which makes for an easy step-over height. The steering riser also pushes forward out of the way for easier access than any other similar LWB recumbent. The frame is beautifully made in Burley's Eugene, Oregon factory. Our Koosah was painted a very attractive bright red. The bike is also available in blue or can be custom ordered (upcharge) in any of 17 colors that Burley paints.

**WEIGHT:** The Koosah is of reasonable weight for an entry level LWB. Our bike weighed what it was supposed to, under 35 pounds. The Koosah has a weight limit of 275 pounds for rider/cargo.

**STEERING:** The Koosah's stem and riser are very similar to (if not the same as) those found on the other Burley models. The riser has a nut and bolt that control the recline angle of the steering riser. The stem is a top loader. The bars are unique touring style bars, similar to an English 3-speed bicycle. The riding position is very adjustable and the bars feel somewhat similar to the highracer tweener feel. I really enjoyed the Burley handlebars and the unique feel to them. While most other similar LWB have now gone with chopper-style bars, the Koosah's bars are a welcome addition and offer a unique handling feel.

**COMPONENTS:** The Koosah is an 8/24-speed and has SRAM dial indicator type twist grip shifters. I'm not a big fan of the indicators, but again, they worked fine. Our Koosah turned out to be a very robust bicycle. Besides our several months of use, this bike had been

to several bike shows since Fall of 2005. The only drivetrain criticism I have about this bike is that the twist shifters need more frequent minor cable tension adjustments; which seems to be common with these shifters.

Kudos to Burley for outfitting the Koosah with a lower geared 28/38/48 Truvativ Isolfrow 170mm crankset.

**CHAIN MANAGEMENT:** The Koosah has an x-path chain idler system (one idler; over and under). It's reasonably quiet, but does add friction to the system. Our Koosah didn't have enough chain. If you accidentally shift to the large chainring and large cog, the drivetrain will lock up. This is no fun. I should have just added some links to the chain.

**BRAKES:** The bike comes with Tektro V-brakes. The brake handles are not the smoothest working handles I've tried. With a bit of lube I got them to work okay.

**WHEELS:** The Burley wheels have black DT 2.0 stainless spokes, with black faced rims — which look great. Rims are Weinmann Zac 19 on both models. One benefit of buying a Burley recumbent is that their wheels are built in house, and not by a mammoth wheel building machine overseas. In all of our Burley test bikes (at least six), we've never had a wheel build problem. The Koosah uses an alloy semi-sealed hub and we had a squeaking problem that turned out to be the rubber bearing cover on the rear axle. I cleaned and greased it which solved the problem.

**TIRES:** The Koosah comes outfitted with one of my favorite tires, the Kenda Kwest tires. I also installed a set of Schwalbe Marathan Slicks (1.375") that were a bit faster and more comfy riding than the Kwests.

**UPGRADES/ACCESSORIES:** Burley offers a workstand adapter, rack installation kit, kickstand mount, Speed Struts (seat braces) and trailer hitch. They also offer a gel seat pad.

**Fenders:** Burley sent along some Planet Bike fenders. I had to trim the rear fender to just below the chainstays or it interfered with the chain. With this one minor adjustment, the fenders were just fine throughout our test.

**Seat bags:** Burley offers two seat bags, the Compact Recumbent Bag (\$70) is the smaller of the two at 400 cubic inches and stretches across the center of the seat back; the Burley Seat bag (\$90) carries 670 cubic inches and caps over the seat back. My Angletech Aerotrunk fit the Koosah very well, especially once I added the Burley Speed Struts (highly recommended; see above).

**Trailer & hitch:** Burley makes some of the best bike trailers on the planet. My kids were carried in a DeLite trailer in the 80s and that trailer was tough as nails. We rented a Burley trailer to haul JR (our Jack Russell terrier) and that worked well. We have and use a Burley Nomad cargo touring trailer which also works great. Burley makes their Alternative hitch which is basically a quick release and the

trailer is hitched on with a "D" pin. Using a Burley trailer with a Burley recumbent is a highly recommended set up.

The Koosah has lots of cool accessories that fit easy. The standard Koosah with a few options is ready for the open road.

**VALUE/RESALE:** The Koosah offers the best value of any similar LWB recumbent and is certainly the best recumbent you can buy under \$1000, perhaps \$1200 or \$1300. I really liked this bike and kept it all season.

**COMPARABLES:** The Sun EZ Sport (\$979) offers some component upgrades, but the wheel build is not as good, and the frames are made overseas and the EZ Sport is five pounds heavier than the Koosah. Our scheduled Cycle Genius LTX test bike did not show up. The LTX has an imported aluminum frame, disc brakes and slightly upgraded specs, and the very unique look to it. The Koosah has by far the best frame of the group, but in the end it will come down to which model you are most comfortable on.

**RECOMMENDATION:** The Koosah has a lot going for it and I'll be the first to admit that I liked it a lot more than I did the last time it was here. Perhaps it's the unique handlebars or the new seat base. I like the idea that the frame is built in Eugene, Oregon and Burley still builds up their own wheels in-house. The frame pieces are as tough as you'll find from on any other LWB recumbent out there. But most of all it's the price — under \$1000 for this attractive and sweet riding recumbent.

Some may still have issues with the seat base, and others may feel that the riding position is too adjustable (seat recline and stem/bar positioning can be time consuming), but I feel these are minor issues considering the quality and value in this bike.

Burley's recumbent mission is about riding bicycles in relaxed comfort. This is what recumbent bicycling should be about. The Z-frame concept is the slickest LWB frame design to come about in years. It's simple and works extremely well. The Koosah is an excellent buy in a comfortable riding recumbent bicycle.

**FOR:** USA built frame, excellent value, low step over, great company, best LWB value under \$1200.

**AGAINST:** Smallish seat base, somewhat tedious seat base adjustments (2006 model), not the most aggressive power generating riding position, lots of ergonomic adjustments (can take some time to get the bike set up perfectly for you).

**NUMBERS:** Wheelbase: 65". Seat height: 22". Bottom bracket height: 15". Weight: 35 lbs (no accessories)/as stated by manufacturer. Weight limit (rider & cargo): #275.

**FIT:** One-size fits 35-45" X-Seam (fit me perfect; no XL frame size required).

**FRAME & SEAT DETAILS:** Frame: TIG welded Supalite 4130 Chromoly steel. Fork: TIG welded Chromoly unicrown. Chain idler: Burley X-path. Headset: VP 1-1/8". Seat Back: Aluminum frame with mesh. Seat Base: Foam with cover. Handlebar: Burley OC. Stem: Burley Megadjust. Color: Red or blue (2006).

**COMPONENTS:** Rear derailleur: SRAM SX-5. Front derailleur: Shimano 2203. Shifters: SRAM SX-4 twist. Crank: Truvativ Isoflow 28/38/48 triple. Bottom bracket: Sealed cartridge. Cassette: 11-32 8-speed. Chain: KMC Z. Brakes: Tektro 857 AC V-brakes & levers: Tektro. Hubs: Burley alloy QR. Rims: Weinmann ZAC19 32". Spokes: 2.0 stainless. Wheel build: Burley. Tires: Kenda Kwest 1.5" 100 psi. Pedals: Wellgo LU9 platform. ♦



Action photo courtesy of Burley



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LOWER RIGHT: Our test Koosah with Burley Nomad trailer, Speed Struts (seat braces) and Planet Bike fenders

# ROAD TEST: Sun EZ Sport AX & CX

**BIKE:** SUN EZ-Sport AX Limited  
**PRICE:** \$1200-\$1325 (CX model: \$900)  
**CONTACT:** www.sunbicycles.com

By Bob Bryant

*"The EZ-Sport is a step up from the EZ-1, a bit more responsive and efficient, ideal for touring, commuting and long recreational rides. The EZ-Sport delivers a comfortable and relaxing ride mile after mile . . . The EZ-Sport offers remarkable handling at any speed." — Sun*

The Sun EZ Sport is the entry level enthusiast long wheelbase (LWB) over-seat steering (OSS) recumbent that was developed by the late Gardner Martin to be sold through Sun Recumbents (distributed by J&B Importers). The EZ Sport comes in two versions, the AX (aluminum) and CX (ChromoMoly steel). The AX is the more enthusiast oriented of the two, and is lighter weight. The Sports are are casual cruising recreational LWB recumbents. They are easy to ride, own and they are reasonably affordable. They are quite capable of doing more, but you'll have to outfit your bike for what you plan to do with it. I have regularly ridden EZ Sports off-road, gravel rail-trails and walking trails. It's the perfect all-around recumbent if you occasionally take the unpaved fork in the road.

**SEAT & COMFORT:** The Sun seat is an imported version of the Easy Racers Koolback seat. While heavier, it actually has more adjustments and has a quick-release mount. The seat base can adjust closer or farther away from the seat back, and the seat back tensions straps are easily adjustable. The seat recline adjusts with ball-detent pins. They can rattle a bit. I just tape them with black electrical tape and they quiet down.

The Sun seat base seems a bit smaller, flatter and has less foam in contrast to the Easy Racers layered and glued foam. Some prefer the Sun's seat because it has more adjustments and it doesn't have as large of a foam seat horn (forward tip of the seat).

One fit note, the x-seam range on this bike is to 45". I'm 6' tall and have a 44.5" x-seam (with shoes on). I can ride the bike fine with the 170mm cranks, it's a tight fit. So be careful in your fitting of the EZ-Sports or any one-size recumbent if you are around 6' tall (same goes for the Burley, I ride an XL size frame on the RANS Stratus LE).

**RIDE:** The EZ-Sport handles confidently and tracks well, though it doesn't have the handling "groove" of a Tour Easy. The handling is more neutral feeling, perhaps more optimized for all around low to medium speed riding. The bike is extremely easy to handle in traffic — perhaps my favorite recumbent to ride in traffic and the



*I love orange bikes, and this paint job is very unique. It's not bright orange, but sort of a metallic darker shade, almost bronze with the gray accent. Visit Sun's website to see the color photo.*

diverse terrain of my area.

The EZ-Sport AX's aluminum frame is very stiff. There is a noticeable difference between the steel CX and aluminum AX. However, both EZ-Sports would be ideal for fatter lower pressure tires. The stock Kenda Kwests can also be quiet firm riding at 100 psi (especially on the AX aluminum).

The low bottom bracket makes the bike very user-friendly, but the seat is rather tall. So be sure you can rest your feet flat footed on the ground when at a stop.

**PERFORMANCE:** The EZ-Sport AX is a decent performer, but I wouldn't describe it as a fast bike. This high seat and low bottom bracket riding position is not as efficient for generating power as say an Easy Racers Tour Easy, but entry level riders will prefer the user-friendly riding position. We were disappointed in the bike being over-weight, which hurt hill climbing performance.

The Sport doesn't climb as well as an Easy Racers LWB, or perhaps an entry level SWB.

**FRAME:** The frame is built overseas of 7005 TIG welded aluminum. It's fairly common material and the bikes have proven durable. The Sports have a unique curved twin top tubes, for a retro cruiser-like look and the aluminum AX is lighter than the steel CX. The workmanship is fine on both bikes. The fork is a full ChromoMoly unicrown "generic" recumbent fork. The bike looks great if you're into the retro cruiser look. One drawback is the high top tubes make it noticeably harder to climb on and off than the more "step through" frame of the Burley Koosah.

Our 2006 model was a bright orange in the rear section of the frame and silver/gray in the front, transitioning just head of the front derailleur tube. A less intense blue/silver is also available.

**WEIGHT:** Our EZ-Sport AX was over-weight by 2+ pounds. The factory published weight is 34 pounds. Ours weighed 37 pounds with pedals. So if you're buying the AX just to save a few precious pounds, the weight savings isn't as much as you'd expect.

**STEERING:** The steering geometry is not as refined as the Easy Racers Tour Easy, but this bike is more recreational and utilitarian versus built for high speed handling. The Sun bars are wider and more comfortable than the more performance oriented Easy Racers bars. The Sun bars have a fixed wrist angle and are narrower than the new RANS chopper bars. The system is simple and works well.

**COMPONENTS:** The components on this bike are fairly impressive and if you have a conscientious selling dealer to carefully check spoke tension, bottom bracket and headset adjustments, you should be fine.

**GEARING:** The bike comes outfitted with a Shimano Tiagra road triple 30/42/52 road triple and 9-speed 11-32 cassette. The gear inch range is 24-119. This will be fine for flat-land riders, but new riders, those climb steep hills or carry cargo may want a lower gear. I like the stock crankset, just not the gears. I suggest changing the inside 30-tooth to a 24-tooth, and the middle from a 42-tooth to a 39-tooth. Have your selling dealer make this change for you. This will give you a lower mid-range and widen the gear range to 19-119 gear inches. Ideally, we'd like to see a 28/38/48 triple on this bike from the factory.

**CHAIN MANAGEMENT:** The drivetrain runs smoothly, with only a small diameter return side skate-wheel type idler. It's possible to run without the idler as well.

**BRAKES:** The EZ-Sport AX comes with Avid V-brakes which stop very well.

**WHEELS:** We've had a few spoke breakage and truing issues with previous Sun wheels,



but not on either of our EZ-Sports. The trick is to have the tension checked when the bike comes out of the box, and then again at the break-in checkup.

**TIRES:** The EZ-Sport comes outfitted with the venerable 100 psi Kenda Kwests — a fine all around tire. They are a bit slower than Comets, but more durable.

**UPGRADES/ACCESSORIES:** Sun offers a messenger/seat bag (\$40), kickstand (\$18), Edge fairing (\$170), under-seat pannier rack (\$30) and fenders to fit all Sun models (\$40). Our Angletech Aerotrunk fit the seat just fine.

**VALUE/RESALE:** Despite the incredible value Sun has to offer, we've found used Sun test bikes to not hold their value as well as the competition. Perhaps this is due to the sheer number of Sun bikes that are sold and that used models are plentiful. While the spec of the EZ-Sport AX is very good, the bike is heavier, and it's priced higher than its competition.

**COMPARABLES:** Sun EZ-Sport CX (\$979), Burley Koosah (\$995), Cycle Genius LTX (\$1100), RANS Stratus LE (\$1230), and Bacchetta Agio (\$1250).

The Chromoly CX EZ Sport model is a much better buy, has lower-line components, doesn't have double wall rims and is a bit heavier (approx. 40 pounds).

The EZ Sports are really classy cruiser-esque looking bikes. Most people either like the retro design — or they don't. While I don't have any problem with the quality or workmanship of the frames, they are not quite as finessed as the Bacchetta, RANS and especially the Burley.

**RECOMMENDATION:** I've long been a fan of the EZ-Sports because they were designed by the late Gardner Martin and they are good values. The look great and have almost as good of a feel as a Tour Easy, but they aren't as fast, nor do they climb as well.

If I were to make one criticism, I think Sun could improve on quality control. Our EZ-Sport CX had a slightly crooked seat back and the twin tubes were slightly misaligned. Sun always takes care of any problems quickly, AND these items would probably be noticed by your recumbent dealer. Finding an experienced selling dealer who can carefully assemble your new bike, and tension up the wheels carefully can go a long way to making for a trouble free bike.

The steel EZ-Sport CX feels heavier, but wasn't that much heavier (AX was overweight). The steel frame makes for a slightly less jarring ride. Since it's almost \$400 less in cost, it's probably the bike for most. The main upgrade for me on the AX was the double wall rims (tougher). The EZ Sport CX is Wheel & Sprocket's best selling recumbent model. For bigger, stronger and more serious riders, they offer a "big guy" rear wheel. So if you opt for the less expensive EZ Sport, perhaps look into a more robust rear wheel.

The EZ-Sport AX has a lot to offer. The frame is compact (for a LWB, 62" wheelbase),

the components are excellent and the bike's heritage (Easy Racers) is as good as it gets. The frame is stylish and the ride is relaxed user-friendly. The upright riding position is ideal for commuting or recreational riding — but the bike can certainly do more.

Because Sun Recumbents are distributed by J&B Importers, a bicycle parts wholesaler, they are stocked throughout the country, readily available (usually) and can be ordered for you by almost any bike shop.

The EZ-Sport CX is a fine value and the AX is a nicer bike. Either of these bikes would be a fine choice for the new, casual rider or even an enthusiast who appreciates the retro style.

**FOR:** Cruiser looks, loads of value, aluminum frame, fully adjustable and quick-release seat, lots of accessories, and lots of dealers.

**AGAINST:** Not a lightweight, tall seat height, tall top tube (to lift your leg over), gearing not low enough, and seat foam not as comfy as Easy Racers.

**NUMBERS:** Wheelbase: 62". Seat height: 26.5". Bottom bracket height: 15.5". Weight: 37 lbs. w/pedals (RCN digital scale) Weight limit (rider & cargo): NA.

**FIT:** One size fits most, 36-45" x-seam

**FRAME & SEAT DETAILS:** Frame: 7005 TIG welded aluminum. Fork: TIG welded Chromoly. Chain idler: return side skate wheel type. Headset: VP. Seat Back: Aluminum frame with mesh. Seat Base: Foam with cover. Handlebar: Sun alloy. Stem: alloy. Color: Orange/silver or blue/silver (2005 was blue/silver or red/silver).

**COMPONENTS — AX (aluminum frame):** Rear derailleur: SRAM X.9. Front derailleur: Shimano FD443. Shifters: SRAM X.9 twist. Crank: Shimano Tiagra 30/42/52 170mm triple. Bottom bracket: CT92 square taper. Cassette: SRAM 11-34 9-speed. Chain: KMC ZZ. Brakes: Avid SD5 V. Brake levers: Avid. Hubs: Shimano Deore. Rims: alloy double wall machined side. Spokes: 14g stainless steel. Wheel build: machine. Tires: Kenda Kwest 1.5" 100 psi. Pedals: Wellgo platform.

**COMPONENTS — CX (Chromoly frame):** Rear derailleur: SRAM 4.0. Front derailleur: Shimano FD2203. Shifters: SRAM 4.0 twist. Crank: Shimano Sora 30/42/52 170mm triple. Bottom bracket: CT92 square taper. Cassette: SRAM 11-32 8-speed. Chain: KMC ZZ. Brakes: Avid SD3 V. Brake levers: Avid. Hubs: Shimano Deore. Rims: alloy. Spokes: 14g stainless steel. Wheel build: machine. Tires: Kenda Kwest 1.5" 100 psi. Pedals: Wellgo platform. ♦

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# ROAD TEST: Bacchetta Agio

**BIKE:** Bacchetta Agio

**PRICE:** \$1250

**CONTACT:** www.bacchettabikes.com

By Bob Bryant

*"A long wheelbase recumbent that will re-define the category. The Agio allows you to ride a new legend at a price far below what you would expect. The lightweight aluminum frame weighs several pounds less than other bikes that are much more expensive . . ." — Bacchetta*

The Agio is Bacchetta's new long wheelbase model. Bacchetta is known for their "stick" frame laid back high performance highracers and short wheelbase recumbents. With its fully trussed (triangulated) frame, the Agio is a complete departure from previous Bacchetta models. The Agio breaks out of the "performance" genre and offers a much more rider-friendly design (though not quite as their LWB market competition).

**USE:** The Agio is an entry level all-arounder LWB. The bike accepts fenders and racks and can be used for commuting or touring.

**SEAT & COMFORT:** Bacchetta's ReCurve seat has a tight mesh back, a contoured plastic base pan with a foam and lycra cover. The ReCurve seat differs from other similar seats in that the top of the seat back bends forward (or straight up when in a reclined position). This design works great for Bacchetta's laid back high bottom bracket (BB) models, but is less ideal for a LWB with a moderate BB height. I have a long torso, and I could feel the seat back cupping under my shoulder blades. This may be objectionable to some riders.

The Bacchetta seat foam is thinner under your sit bones and thickens near the seat horn. This is designed to hold you in the seat better. However, on a LWB with a moderate BB height, the foam bulge isn't as necessary.

**RIDE:** The Agio has a stiff aluminum frame with firm riding Kwest tires. However, the ride wasn't as jarring as I expected. The Agio's handling is ideal for fast riding on smoothly paved bike trails and carving through wide turns. The bike really seems optimized for this type of riding. The handling is less ideal at low speed and didn't work very well for trails and gravel roads which I ride on daily. Zooming down smooth Florida bike trails at 20 mph would be just about ideal riding for the Agio.

**PERFORMANCE:** While not the fastest LWB you can get, the Agio performs well and feels good on the open road. Climbing seems more efficient with the moderate bottom bracket (BB) height, but it's not too high (no toe numbness).

**FRAME:** The Agio has an attractive over-seas-built fully triangulated TIG welded heat



*The Agio is an attractive bike. The reach to the bars is fairly long for 6'+ riders. I would have liked to recline the seat more, but couldn't due to the bar/stem limitations.*

treated 7000 series aluminum frame. The frame has an ovalized main tube which looks cool, but is probably unnecessary on this already stiff frame. The Agio's fork is unicrown Chromoly and also has the unused V-brake studs on it (as does the frame).

**WEIGHT:** Our test bike weighed in at just under 35 pounds with stock pedals and a kickstand. The factory stated weight is 32 pounds. I mentioned this to Bacchetta's John Schlitter, his comment was, "Worried about weight — buy a Carbon Aero." Point well taken. I don't have a problem with the 35 pound weight, but Bacchetta's website states, "The lightweight aluminum frame weights several pounds less than other bikes that are much more expensive."

**STEERING:** The Agio's stem riser adjusts vertically, but this doesn't do enough to bring the bars back toward the rider. Taller riders may find the reach too long and this also limits how far you can recline the seat — as you can see from the photo of my test bike (above).

We've heard of some dealers installing RANS double bend bars. Bacchetta's John Schlitter said, "I've done a tweener set up with cut-down Giro bars for taller (6' and up) riders. The beauty is that there is a lot of after market handlebars and you can switch them out easily."

**COMPONENTS:** The Agio's component mix is adequate. The weakest link on the bike will be the SRAM shifters, but they proved okay for our test. Recumbent riders have a love/hate

relationship with twist grips. There is no doubt that they are the easiest shifters to use, but they don't always hold adjustment properly and they can have a short lifespan.

I don't often mention pedals because most riders install their own. The Agios stock pedals are alloy cruiser pedals with rubber deck. The problem is that with your feet up at this height, slipping off the pedals is more of a possibility. I recommend you do not use the stock pedals. Check out some pinned MTB Downhill pedals or your favorite clipless system.

**GEARING:** The Agio comes equipped with 165mm cranks. Bacchetta is one of just a few manufacturers offering short cranks (see RCN 091 for short crank comments). However, part of the "short crank" recipe is lower gearing (the Agio has a road triple 30/42/52). Bacchetta's John Schlitter responded, "We plan to offer lower gearing on future production runs." For those who purchase Agio's now, a 24/39/50 or 52 is a good gearing upgrade. This will require having your dealer change out two or three chainrings for you.

**CHAIN MANAGEMENT:** I was worried when I saw the petite power and slack side idlers in the catalog photo. While I'm not fan of power-side idlers, the Agio has nice big 2.75" diameter idlers that roll smoothly and quietly.

**BRAKES:** This is the first time I've tried the Tektro I0 discs. Like the Tektro Aquila's on our RANS F26, these affordable discs work well. However, I found the pad adjuster to be lame

(limited adjustment range). I found the proper adjustment easily by releasing the mounts and sight aligning the caliper over the disc.

**WHEELS:** Agio wheels are machine built overseas. Our test bike's wheels stayed trued and were problem free.

**TIRES:** The Agio comes equipped with Kenda Kwest 1.5 100 psi tires which are an excellent quality and affordable all-around recumbent tire. While I love Kwests, throw on some Comets or Marathon Slicks and the bike will undoubtedly be faster.

**ACCESSORIES:** Bacchetta offers a full selection of accessories to fit the Agio. Fender set (\$50). Back Rack (\$40). One For All (OFA) black 500 c.i. bag (\$65). Mid-Ship Rack (\$45). The Big Bag is a black 800 c.i. bag (\$80). Our Angletech Aerotrunk also fit just fine.

Bacchetta forgot to ship our fenders. I'm aware that not everybody rides in the rain, but I like to check fit and clearance. Fenders are important because they keep dust off of your bike and body.

**DIRECT PURCHASE:** Our Agio was shipped to us using Bacchetta's new Easy Purchase Plan (EPO). Ours was one of the first bikes shipped this way and details are still being worked out. EPO bikes are set up by Bacchetta factory technicians and shipped in a giant box by semi-truck (shipping cost \$228 one way!). The shipper was a day late due to an shipping address mistake. The shipper called us two days prior to delivery. We set up an appointment for 3pm. The bike did not arrive here at 6pm.

Once the bike arrived, the first task is to lift



*Note the upturned top of the seat back. This design doesn't work as well on LWB as it does on SWB and highracer models.*



*While the idlers appear wimpy in the catalog, the production versions are like robust skate wheels — smooth and quiet.*

it out of the cavernous box. The next step is to install the front wheel. The bike is shipped front wheel off, zip-tied to the frame. Our frame got a scratch from the front wheel rubbing against the frame. The next step is to turn the stem around and install the handlebars.

I had several issues with the set up of our test bike. Both disc brakes dragged and needed readjustment. The rear derailleur needed to have the high gear set screw readjusted and the headset was noticeably loose. All adjustments took less than 30 minutes, but these tasks are beyond the reach of most new owners — which means riding a poorly adjusted bike or a trip to the local bike shop. Bacchetta's John Schlitter said the guys could have been lax because this Agio was coming to an experienced recumbent rider. However, I'm a critical reviewer writing about the new EPO process. The original mission of RCN was to write about the entire purchase process to readers who may buy their bikes sight-unseen and direct from the manufacturer. There was no owners manual or assembly guide included with our EPO Agio — apparently this is in the works.

When the bike was ready to be shipped home to Bacchetta, we found out their choice of shipper does not make residential pick-ups, but Bacchetta handled this glitch quickly and efficiently and got the bike picked up by another shipper.

**COMPARABLES:** RANS Stratus LE (\$1230), Sun EZ Sport AX (\$1325) and Burley Koosah (\$995). The Stratus is a more refined all-around recumbent with its lower bottom



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The Agio's front end clearance appears to be tight with the 165mm cranks, but there was no interference. The 1.5" tire width seems to be about right, I can't imagine this bike taking much wider tires plus fenders.

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bracket and long production history. The steel Stratus also fits a wider range of riders and the LE is lighter by a few pounds (our XL weighed 33.25 pounds). The Easy Sport AX has slightly better spec than the Agio, but the Agio's build quality is a bit more refined. The EZ Sport is a more user-friendly design, with a cruiser-like look. The Koosah is the single most user-friendly of all of these bikes with Burley's low step-over height Z-frame. The specs aren't quite as good, but the price is lower. Burley frames are built in the USA, as are the wheels. The quality is very high, but the Koosah is a less performance oriented bike. The Agio is unique in this group with it's moderate bottom bracket height. It isn't as user-friendly or utilitarian as the Sun EZ Sport, Burley Koosah or RANS Stratus LE, but the Agio feels sportier.

**RECOMMENDATION:** The Agio has a striking resemblance to the RANS Tailwind 26 prototype from the late 1990s. It also has a V-2-like look, and a RANS-style LWB trussed frame. Interestingly, this Agio doesn't look much like the Agio prototype I rode two years ago at the Interbike tradeshow. Having just reviewed the RANS Formula 26 (dual 26 V2), the Agio seems quite tame in comparison.

The Agio is an entry level recumbent. Bacchetta suggests that it's best for riders who want some exercise 10-20 miles up to three times per week. They also suggest that it's a bike for the casual rider/commuter. I actually feel that the bike could be more than all of this, as some riders prefer lower and moderate height recumbents and don't need to make apologies for it. I would have liked an option to get the handlebars closer to my body in the Bacchetta style (they always tell me I'm sitting too upright. This time I couldn't recline the seat anymore without hyper-extending my arms; which can lead to neck and shoulder pain).

The Agio would seem at home on a long rail trail (paved), bike trail, long country road or perhaps a ride like the STP (Seattle To Portland). The bike just feels like a "sport tour-

ing" recumbent. I'm not sure I'd choose it for a loaded tour or a commute due to the superman ergonomics and "straight head" handling feel (good for the open road, not as good for low speed maneuvers, trails and urban riding).

While the Agio isn't like the serious performance models we've come to expect from Bacchetta, the Agio is a fine bike. It looks good, rides well and has fairly decent specs. The Agio is a unique LWB and should be a welcome addition to the LWB recumbent lineup.

**FOR:** Attractive, robust look & feel, good value, and finally a Bacchetta LWB.

**AGAINST:** Heavier than expected, possible handlebar reach issues for tall riders, disc brake adjustment, 165mm cranks with too high gearing, and poor pedals.

**NUMBERS:** Wheelbase: 63". Seat height: NA. Weight: 34 lbs. Weight limit (rider & cargo): 275 lbs.

**FIT:** Normally proportioned riders 5'2"-6'2".

**FRAME & SEAT DETAILS:** Frame: Ovalized aluminum. Fork: Chromoly with disc tab. Chain idler: (2) Power and return side. Headset: VP 1-1/8". Seat Back: Mesh. Seat Base: Foam. Handlebar: Aluminum. Stem: XT Top Load. Color: Royal Blue

**COMPONENTS:** Rear derailleur: SRAM 5.0. Front derailleur: Shimano Sora. Shifters: SRAM 5.0. Crank: Truvativ IsoFlow 30/42/52. Bottom bracket: Truvativ 113mm square taper. Cassette: 9-speed. Chain: KMC Z9000. Brakes: Tektro Io Mechanical disc. Brake levers: Alhonga. Hubs: Alloy QR. Rims: Alex DA-16 2/CNC sidewall. Wheel build: Imported machine built. Tires: Kenda Kwest 100 psi. Pedals: Wellgo LU 975 platform. ♦

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# Folding Recumbents

by John Riley

Folding bikes have been one of my recumbent obsessions for several years. It is partly about the frequency of my travel, and partly about my preference for small cars. My car trips are often several days long, so I like the security of having the bike in the vehicle, as opposed to being on a rack.

I owned a locally made Doppler Beamer for awhile (long-time RCN readers may recall Shari Bernhard's review of one of these). It was heavy, didn't get that small, and it was difficult to get the hinge completely secure.

I thought about doing a RANS Rocket for my next project. Several of these have had couplers installed, and they seem to work well for this. V-Rexs have also been coupled. But I prefer a longer bike with a lower bottom bracket (BB), so I used a RANS Wave.

I am fortunate to have a skilled and talented local machinist near me (Jim Best) who does custom bike projects. I showed him the 32" suitcase I wanted the bike to fit in and he designed the hinge and did the work. I used that for awhile, but got some other ideas about it and traded that bike.

The bike you see here is my second RANS Wave folder. It has a bit more material around the hinge flange, and it uses bolts with nuts, rather than bolts and threads in the hinge itself, as on the first one.

This is not a quick hinge, but it seems to be absolutely secure. I haven't found a way to buy folding bike hinges, and I think designing them from scratch might be tricky.

The advantage of the hinge over S&S couplers is that the chain does not have to be removed — it looks like it is under a lot of stress in the pictures, but it is not. It turns out having Jim do this is also a lot cheaper than couplers.

I prefer the older Tailwind and Wave models because the main tube is smaller and this keeps the hinge narrower. If it comes to the point where I want to do one of these and I can't find a small tube bike, I would consider doing couplers because of the width issue. My leg comes quite close to the hinge on the current bike. I think there might be contact with a wider hinge. I don't have anything against the couplers, other than cost. (RCN 094 had a story about a Tailwind with couplers.)

I thought I was going to end up with a bike that would fit in an oversize duffel bag, but it turns out that it fits into the slightly oversize suitcase even better than the first one!

In addition to the hinge, the following modifications were made: The cables were run in guides all the way on the handlebar riser instead of being exposed. I can pull the riser off the stem without the cables coming out of their guides and getting tangled. I didn't want water bottles on the back of the seat, since these would have to come off when the seat was packed. Jim made a short extension on the derailleur post and added mounts, so I can have a bottle in front of and behind the post. I always have trouble with seats slipping, so he mounted a clamp and a small rod that attaches to the seat QR to keep it from slipping.

In April I drove to Florida to do some cycling, including a few days of the Florida Safari. My wife flew down and we spent a few days together. With the bike folded in the back of the car ( a Toyota Matrix), it was no problem to accommodate her and all our luggage. I can get a non-folding long bike in this car, but it often requires folding the front passenger seat.

I've continued to consider the problem, and may try at least one more version. This time I would place the hinge with the assumption that the fork would be removed. Using two cases, with the frame and rear wheel in a case, and the seat and front wheel in a duffel, I think I will finally end up with something that is airline legal.

I am aware of the Lightning Voyager and the SatRDay. These are SWB's and not to my taste. They are also much more complex. If one absolutely had to get the bike in one case, something like that might be



John Riley's folding RANS Wave — John Riley



The Wave folded in case


The custom folding hinge



The bike folded with seat and wheels on

necessary. My priorities are having a bike that I enjoy riding, and one that is not too mechanically intense to pack, over having a bike that absolutely goes in one case.

I find it very satisfying to see one of these long bikes suddenly get down to a manageable size. This would easily fit in the trunk of a small car. If I finally settle on a more performance oriented LWB bike, it may not be immune to this treatment, even if it wouldn't be airline legal. ♦



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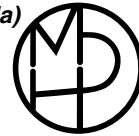
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# The BionX Electric Motor

By Bob Bryant

The BionX is a lightweight electric bicycle motor that consists of a motor inside the rear hub, a battery on the rear rack and a controller on the handlebars. The kit adapts to most bicycles (with 16", 18", 20", 26" and 700c drive wheels). BionX does not sell bicycles, but they work with the US Birdy folding bike distributor, so we got to try the kit on a Birdy. Kits include the rear wheel with hub motor, controller, cabling and the battery. On the Birdy, the battery mounts to the rear rack. It slides and locks on with a key.

The BionX electric power motor kit is the most sophisticated system that I know of. Perhaps even too sophisticated (more on this later). It's not an electric moped, you have to pedal to access the power assist. The model we tried was the basic P250, 250 watt motor. 350 watt models are now available.

The BionX is really a thinking-persons electric system. The controller has a manual mode with a thumb trigger, and four automatic power modes: 25%, 50%, 100% and 200% power. Shifting the BionX motor requires pressing the electronic A+ button to shift for more power (4 different modes). When you need less power, you use the G- button Generation modes. These 4 models turn the hub into a generator which is used when descending down steep hills. In between the two sets of 4 modes is a "0" mode which is essentially a neutral. Here are the different BionX operating modes:

## POWER (+A) MODES

- 1 (25%) is best for flat ground.
- 2 (50%) is good for hills, headwinds and cancels out the bike's weight.
- 3 (100%) is for steep hills and strong head winds.
- 4 (200%) is for very steep roads.

## GENERATION (G-) MODES

- 1 is best for down hills, tailwind or recharge on flat ground.
- 2 is best for fitness mode, less aggressive, recharge on flat ground.
3. Fitness mode aggressive (I couldn't pedal very long).
4. Fitness mode difficult (I wouldn't even try to pedal with this on).

Most of the time on the flats I just used mode 2. When I needed extra power for short bursts, I used the thumb trigger. This is great when accelerating from a stop (though this takes more energy than flat land cruising). When I climbed any of the Port Townsend hills, I immediately moved to Mode 4. I rarely used Modes 1 or 3.

One day I rode to town and tried to shift between the four Power modes, four Generation modes, all while trying to remember to shift the bike's derailleur gears. This is a lot of shifting. The BionX owner's manual mentions using the bike as a "fitness machine" to charge the battery. I did this a few times by setting the controller on Generation (G-) mode 1 or 2. Modes 3 and 4 are just too intense for commuting.

It only took this one trip to realize that the Generation mode is really best used for long descents, not stop and go descents. Also, I never saw the Generation mode increase the power in my battery. I finally realized that my 8-12 mile round trip commute never used up the battery, so the Generation mode was unnecessary for me.

## BIONX BIRDY GEARING

With the BionX electric hub, you must use a 7-speed freewheel instead of the 8- or 9-speed cassette that comes on stock Birdys. The 14-28 freewheel and 35-70 gear range on this test bike was poorly thought out and limited the performance of the bike and motor. While I love the compactness of the Birdy, the BionX would work better on a bike with more wide range gearing and a larger rear wheel.



*BionX on a Greenspeed — photo courtesy of Greenspeed*

On the flats the BionX Birdy's sweet spot is 14-17 mph with pedaling. I can accelerate up to perhaps 20 mph briefly. The beauty of the BionX is how it flattens out the hills — climbing is about twice as fast as pedaling up the same hill. The BionX can take my XL-sized body up Sims Way (big hill in Port Townsend), 19th or several other steep hills at 8-10 mph (average 9-9.5 mph) with pedaling.

## CONCLUSION

The Birdy folding bicycle with the added BionX kit weight is not as efficient as my LWB recumbent or my upright commuter bicycle. The folder actually needs electric power to make up for the inefficiencies of a 45 pound (on our digital scale) bike with 18" wheels.

All in all I really enjoyed reviewing the BionX system. It would be a great addition to any recumbent for a commuter or somebody who needed extra help up steep hills. Climbing was the big benefit for me. I live at the top of a long steep hill, 8-10 minutes of climbing. Sometimes I do it twice a day. The BionX made climbing almost effortless (the same as riding on flats on a bike without a BionX). That said, the 20+ pound system makes the bike harder to ride, and makes you need (and use) a power assist more. I can't tell you if it would work for you. I wouldn't want to install a BionX or any other electric kit on my main bike, but would definitely consider setting up a designated electric-assist commuter bicycle. I used the BionX system hard for a month and had no problems with it, though I did hear of one customer who has experienced a controller failure. The BionX system is very sophisticated, perhaps too much so. And if you're looking to make your bike into more of an electric moped, there are stronger systems out there (see contacts).

## PRICES

P-250: \$995, P350 NiMH: \$1175, PL350 Lithium Ion: \$1450. Custom longer cabling is available, the price is \$50 (dealer)-\$90. Batteries: 24-volt NiMH \$445, Lithium Ion \$795 and 36-volt Lithium Ion \$995. The Lithium Ion increases energy output by 15%.

## OTHER OPTIONS

- Greenspeed offers BionX equipped trikes: [www.greenspeed.com.au](http://www.greenspeed.com.au)
- Hediger offers BionX equipped trikes: [www.trimuter.com](http://www.trimuter.com)
- Lightfoot: [www.lightfootcycles.com](http://www.lightfootcycles.com)
- EV Solutions imports the Crystalyte motor: [www.evsolutions.net](http://www.evsolutions.net)
- Go-Hub: [www.largoscooters.com](http://www.largoscooters.com)
- Wilderness Energy offers hub motors: [www.wildernessenergy.com](http://www.wildernessenergy.com)
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- Staton Inc offers Honda 4-stroke power: [www.staton-inc.com](http://www.staton-inc.com)
- Doyle offers a Honda 4-stroke trike: [www.doylecustombikes.com](http://www.doylecustombikes.com) ♦

# In The Gruk: My Raleigh Gruk 2.0



*The Gruk 2.0 CF bike — Raleigh USA*

**BIKE:** Raleigh Gruk 2.0  
**PRICE:** \$399-\$449  
**CONTACT:** [www.raleighusa.com](http://www.raleighusa.com)

By D Raj Raman

The day after purchasing my silver Raleigh Gruk 2.0 this past January, I was convinced I'd bought the right bike. The ride that convinced me has appalling statistics to most serious cyclists: six miles covered in nearly two full hours of riding. No, I wasn't slogging through snow drifts here in the upper Midwest (more on the bike's suitability for that duty later). Instead, I was on those most precious of recreational rides, a slow wander with my six and nine year old sons, two of their similarly-aged friends and their parents. We circled the neighborhood several times, and then headed out for some lunch and ice cream at a place about a mile and a half away along a bike path. Throughout the ride I was comfortable, my hands and wrists not giving me any of the problems that had virtually driven me off upright bikes and onto my first recumbent nearly fifteen years ago. Yet, unlike my beloved recumbents (a Counterpoint Presto, followed after a brief gap by a RANS Rocket), I was able to noodle along with my younger boy at a snails pace, and to pop off and then back up a poorly constructed curb near a railroad crossing — cycling nirvana for this forty-something rider.

The single-chainring, unsuspended Raleigh Gruk and its pricier triple-ring, suspended brethren, the Gruk 2.0 are part of a growing number of so-called crank-forward bicycles, wherein the effective seat angle is slack enough that most rider weight is placed directly on the seat, but where there is enough of a forward stance that little if any seatback is required. Sometimes referred to as crank-forwards (CF)

or semi-recumbent. These bikes are available at price-points ranging from a few hundred dollars (Gruk and Electra Townies) to several thousand dollars (RANS' highly praised Zenetik), and they fill a niche long overlooked in the US bicycle market — comfortable bikes with extremely laid-back geometries suited to utility and gentle recreational riding. As some folks have noted on the internet, bikes with these qualities have stayed popular in other parts of the world even as the US market shifted toward an emphasis on aggressive-geometry racing inspired bicycles thirty years ago.

Interestingly, thirty years ago I spent a fair amount of time on two Raleigh products that foreshadowed the Gruk series of bikes, and I find the Gruk to have some of the best qualities of both those bikes. One of those bikes was my own day-glow green Chopper. Outfitted with a three-speed Sturmey-Archer hub with top tubes mounted stick shift, a squared off and sprung banana seat, and 16" front wheel, the Chopper rider, like the Gruk 2.0 rider, had minimal weight carried on their hands. And just as I could on the Chopper, I can stand on the Gruk 2.0 to climb. When I do this, my hands are a bit closer and higher than ideal, but I can still recruit my arms and back to climb, which I could never do as effectively on my true bents.

As I outgrew the Chopper, I spent more and more time riding my dad's Raleigh Superbe. This classic British bike, with its Brookes leather saddle, factory fenders and rack, lockable headset, and dynamo hub, had the utilitarian practicality of my Gruk 2.0. The newer bike needed aftermarket fenders (Planet Bike which installed beautifully) and lighting (Cateye EL-500 headlamp and Planet Bike LED taillight) to reach that level of utility. The seating position on the Superbe was upright, but not laid back to the extent of the Gruk, and I've verified this

with more recent experiences with a similar vintage Raleigh.

As nostalgic as I am for both those old Raleighs, I wouldn't trade my Gruk 2.0 for either of them, nor would I trade the bike for either of my departed recumbents. The reason is simple: the Gruk 2.0 works. It provides me with a relatively efficient human powered vehicle that is practical and relatively cheap. In 700+ miles and five months of riding almost every day to work, I've found very little to complain about. No, the bike isn't as fast as either of my bents; in a head to head test a few weeks ago I found that I was about as fast on my Dahon Boardwalk as on the Gruk 2.0 — but I was far more comfortable on the Gruk 2.0. If your goal is speed, perhaps a recumbent that gets you into a more streamlined position, or one of the higher-end CF bikes made by RANS, will serve you better. But if your goal is to ride with the benefits of upright bikes — such as ease of mounting, ease of starting, and very low speed handling — and the comfort of a bent, and if utility and gentle recreational riding are your primary styles of riding, the Gruk 2.0 will not disappoint.

With its aggressive and somewhat noisy Kenda Kontakt 26" x 1.95" 65 psi tires, the bike is at home on paved and unpaved bike paths, as well as the occasional mud or snow excursion; I commuted home in two snowstorms and wasn't reduced to walking either time, despite 3 – 6" drifts on the path. (I was reduced to walking speed however!) The CF geometry means that the seat height is lower than a conventional diamond frame bike, and the ability to easily put a foot down adds confidence when riding in snow. The CF geometry does mean that you're making a pretty large hole in the atmosphere, and riding into our Midwest headwinds made me appreciate the Mega-range low gear on the bike. Sometimes, as Kent Peterson says, you just have to keep turning the pedals!

The gearing is fairly standard entry level Shimano componentry, but it has worked extremely well thus far. I was disappointed when I purchased the bike that it was not equipped with the SRAM components that had worked so well on my RANS Rocket, but have frankly been amazed at the function of the trigger shifters and both front and rear derailleurs. Another surprise was the silence of the freewheel mechanism. I don't know what the longevity of this hub will be, but the only thing you hear when coasting on this bike is the hum of those Kendas on the pavement. And sure, I sometimes think of swapping those monsters out for some quieter, lighter, smaller, higher-pressure skins, but it's pretty often that I have occasion to be thankful for their volume or grip.

The brakes are Tektro linear pull brakes, with Shimano levers built into the trigger shifters. The brakes are powerful, and with your weight



well back of the front contact patch, you can stop extremely rapidly on this bike, much as you can on most recumbents. Unlike most recumbents, you are high enough to see over traffic when needed, and you are forward enough that you can look back at traffic or other cyclists. I got used to having a mirror when I had my first bent, and I still use a single mirror on my left bar, but I welcome the ability to look around, especially when riding with my kids.

The frame is a curving construction of aluminum. The welds aren't the beauties that you'd see on say a high-end Cannondale, but appear consistent and solid. The only creaking from the bike comes from the adjustable angle stem; the frame itself seems silent. This is no small feat, because the frame of a CF bike suffers much the same fate as that of recumbents — although you can stand to absorb a large bump, for smaller bumps I often just stay seated and let the tire, frame, and seat take the hit. In fact, this is one place where the Chopper was ahead of the Gruv 2.0 — the Chopper's crude suspension was at the rear, where most of the load was carried, while the Gruv 2.0 has its suspension up front, where probably less than 30% of the weight is. The suspension fork does make for a plush ride up front, which I appreciate on a bumpy downhill section of my daily commute. However, one of the few complaints I have about the bike is the downward creep of the seatpost that occurs over time. I attribute this to the sudden loads that occur when you hit a bump. I may install something like a Thudbuster suspension seatpost to address this issue.



*The author rides his Gruv 2.0 — Mary Raman*

The CF geometry leaves you upright enough to use body English — I find it easy to ride this bike no-handed. However, the forward cranks and large front wheel mean that most riders will have toe-tire interference, and my fenders and big feet contrived to make this quite noticeable at first; I'm now used to it. Finally, the forward crank means that the cranks don't touch the kickstand even when it's down, which is actually pretty useful when wheeling the bike around in the garage.

The silver paint has held up well, but several trips on a car rack with my kids' bikes, and the daily locking to steel bike racks at work have left their mark. Fortunately, the paint color is pretty close to the primer color, as well as to

the color of the frame alloy itself, so the dings don't stand out too much. Although I was disappointed not to get the coffee colored frame at first (or the vivid blue of the standard Gruv), I am now glad that my bike is silver.

While the bulk of my riding has been the five mile roundtrip commute to and from work, I have regularly taken the bike on one- to two-hour rides, and for distances of up to about 30 miles. I have found that I do get mild recumbent butt on my longer rides. I have also found that standing periodically helps this greatly, but I do think that there is some penalty to be paid for having most of your weight supported on your rear. Happily, the Avenir seat seems to keep this weight on my sit-bones and not between them, reducing concerns about numbness issues, but I do sometimes wonder if I could rig one of RANS' seats onto my bike just to try it.

By the way, don't let my low average speeds worry you; I've been suffering with bilateral foot problems for several years now and am not a very powerful rider. Get in shape, throw some lighter tires on the bike, and I think it could easily work for significantly longer rides.

Like all machines, this bike is a compromise. It's not going to be your first choice to dazzle your roadie friends with, but it's a fantastic commuting and utility bike. With a relatively inexpensive price tag (mid \$300 range without lights and fenders), high comfort factor, and user friendliness, Raleigh should have a popular product on their hands. Time will tell if the American cycling public will find these CF bicycles to their liking or not. ♦

## BOB RIDES THE GRUV

By Bob Bryant

The Raleigh Gruv 2.0 is a mainstream recreational crank-forward (CF) bicycle with a semi-recumbent riding position and no seat back. The Gruv caught my attention when on a CF forum, recumbent enthusiast, Jim Hall, outlined how the Gruv was the most recumbent (seat farthest behind bottom bracket) of any of the mainstream CF bikes (but not as "recumbent" as a RANS Fusion). And, the Gruv sells for around \$400. The Gruv 2.0 and similar mainstream crank-forwards are neighborhood and bike trail cruisers for new and re-entry cyclists. They are ideal for rides of 1-10 miles.

The ride of the Gruv is laid back, casual and comfortable. The bike has an Avenir comfort bike seat, which isn't as comfy as it should be. A softer cruiser saddle (like a Cloud 9 cruiser saddle) would add to the comfort of this bike. Performance is not the forte of these bikes and climbing was slow going. You can improve the performance by upgrading to a performance slick tire, like a Primo Comet or similar.

The frame is a TIG welded aluminum custom designed in the USA and built for Raleigh in China. The quality of the frame and paint is very

good. The SR suspension fork is nicely painted to match the bike and has a preload adjustment. The usefulness of such a fork is debatable considering the lighter loading on the front wheel and the cushy tires. Most of the other parts on the bike are nicely polished aluminum and are very attractive. The overall finish of the bike is comparable to \$1000 recumbents.

The component choices are fine for a \$400 bike. I was happy to see the Shimano crank, derailleurs, Tektro V-brakes and Kenda tires. These aren't world class parts, but they are similar to what you'll find on a recumbent costing almost twice as much.

**Verdict:** When I first rode the Gruv for 20 minutes or so around my neighborhood I was very impressed and thought to myself this is all the bike I'd ever need. However, when I rode the bike on my regular commute to town, the deficiencies of the mainstream CF bikes became apparent. The Gruv feels heavy and somewhat sluggish up hills and power generation was not as good as my similarly equipped recumbent. The Gruv was not designed as a commuter, but it's a casual comfort cruiser. The only real downside to the Gruv is that I'd want to upgrade the saddle and tires, and finding one to see and ride may be more difficult than finding

an Electra Townie at a local bike shop.

If you want to cruise around your neighborhood mostly flat bike paths — a mainstream CF bike could be ideal. The Gruv 2.0 is casual, comfortable and rides like a dream. It's readily available at your Raleigh dealer, affordable and is ready to bring semi-recumbent comfort to the masses. The mainstream CF bikes accomplish their mission and cross the bridge between recumbent and cruiser/comfort bike like they should.

**FOR:** Cool semi-recumbent ride for neighborhood cruising, excellent availability, Excellent value, attractive appearance

**AGAINST:** A bit heavier than our Townie, Hard marginally comfortable cruiser seat (can be easily replaced), entry level components

**SPECS:** Frame: TIG welded aluminum. Fork SR NEX-4000. Rear derailleur: Shimano Acera. Front derailleur: Shimano C102. Shifters: Shimano EZ Fire 24-speed. Crank: Shimano TX-71 28/38/48. Brakes: Tektro V. Brake levers: XX. Tires: Kenda Komfort 26" x 1.95 65 psi. Wheelbase: 46.5". Weight: 34.4 lbs. Size: One size fits most. ♦

# 1,000 Miles of Bike Commuting

by Tom Kepler  
thomas.kepler@gmail.com



*The author's Burley Koosah LWB recumbent set up for serious daily transportation*

After teaching for 21 years in a school district 20 miles from home, I transferred to a district in my home town last year. Around that time I decided to commute to work by bike and bought a 2004 Burley Koosah recumbent. When I started commuting by bike, I filled my car's gas tank and decided to see long I could go without filling the tank again. Two and a half months later, I still had a third of a tank of gas left.

I've ridden more than 1,200 miles on my recumbent in the last year, and commuting accounted for about 80% of those miles. My ride is only seven miles per day, but that's long enough for me to recognize a few things about bicycle commuting costs, commuting on a recumbent, physical conditioning, clothing, weather and how to add joy to my life.

Sure, part of the reason I commute is to save money on gas, but if that was the only reason, then I'd have to wait a long time before pedaling myself to profitability. With a \$1,000 investment for the Koosah and another \$500 for bike extras and clothing, \$1,500 is a lot to pay to commute seven miles a day. I'm saving money by commuting, but a more global perspective is what sold me on the idea.

What is that "global perspective"? I'll keep my numbers simple: If I ride my bike 50 miles a week for commuting and pleasure, and if I also drive my car 50 miles a week for errands and out-of-town travel, then half of my travel miles are on a bicycle. I realize this doesn't put me on the cutting edge of "car-free" living, but I feel pretty good about having cut my automobile driving in half. That's much more than most other people

In order to comfortably commute to work, I had to have the right equipment on the bike. My local bicycle dealer, AJ's Bicycle Shop, helped me with Planet Bike fenders, a Protégé 5.0 computer, a Cateye headlight and tail light, Bike Pro canvas "city baskets," Kootenay Axiom panniers and rain covers, a Blackburn Mountain rear rack, a Burley 600 seat bag; and rain pants and a rain jacket. (I already owned a bike helmet.) These accessories allow me to ride in all weather and also at night. The plastic

fenders have held up well so far, and they do not catch the cranks when turning. The Cateye lighting system is just plain great. The headlight is excellent on nature trails at night, and the tail light increases my confidence in traffic. The canvas city baskets and panniers give me a choice when I transport materials to work and back. Often I will use one pannier and one city basket. The Burley seat bag allows me to always carry my rain gear.

Gearing on the recumbent is no problem for me because I live in the Midwest. There are only a couple of hills and no serious, extended climbing on my daily commute. I have noticed that there is a big difference between commuting with a full load of books, papers and a laptop, compared with riding unloaded — especially in the wind! The infamous Burley recumbent seat is a two-piece system consisting of a webbed seat back and a separate padded seat bottom. It has been a challenge, and I have been adjusting the seat since I bought the bike. With the help of my bike shop, I found that if I move the seat base forward toward the cranks and cram my rear deep into the seat, then the gap between the seat back and the seat bottom provided a haven for my tailbone, which otherwise has become sore on extended rides. Shortening my leg reach also gave me more power. I will be interested to see how efficient the Koosah's gearing will be on a couple of upcoming weekend tours.

My first recumbent commuting challenge was that even with all this cool equipment, I found that I couldn't keep grease from my chain from getting on my slacks, even with a leg band. No matter how hard I tried, I would eventually brush against the chain and get grease on the khakis. I decided that getting grease on my pants even once every hundred rides was still too much. At that point, my wife saved the day by sewing a gaiter for my chain-side pant leg. With a Velcro seam, the gaiter wraps around my calf. I then keep the gaiter from flapping with a leg band. This has worked quite well. Gaiters can be bought through outdoor retailers, but mine is a little longer than commercial brands and works even better.

My first encounter with the physical reality of commuting came when I rode my Koosah home from the bike shop. It seemed difficult and not at all fun. I even wondered if I had made an expensive mistake! Riding a recumbent works the same muscles as the leg press machine in the weight room, and over time my leg and stomach muscles toned up. What seemed like a long ride a year ago doesn't seem long at all now. For me, one of the biggest benefits of commuting is being in better shape. I now have greater stamina and health, and this has added to my quality of life.

Clothing is another factor which can make or break the commuting experience. I cannot emphasize how important it was to have rain gear. Even though my rain pants and jacket came from a clothing catalog and are not bike-specific, they have worked beautifully, protecting me from rain and chilly winds. Quite often I arrive at work, take off my rain gear, and I'm dry and happy. Then my co-workers show up, and sometimes they get wet just from walking in from the parking lot! When they tell me how really dedicated I am to ride my bike in the rain, I just smile.

The biggest surprise was discovering how much fun it is to ride in the rain (and even in the snow if it's not too heavy). Given the choice of scraping the car for five minutes and then driving another five minutes in a cold car, a ten-minute bike ride looks pretty good, even in cold weather. My next big surprise was discovering that the real trick of dressing for winter commuting is to not over-dress. I have arrived at work more often over-heated rather than chilled.

When there was too much snow or ice, the recumbent was no longer the right choice. I tried my Koosah, with its 20-inch front wheel, in three inches of snow and found that I couldn't steer. (Not enough weight on the

front wheel, perhaps?) I also found that in ice and snow, higher speeds on the recumbent made me feel like I was careening to work instead of commuting. So, I decided early on to either ride my mountain bike or drive my car when the weather turned sloppy.

Bicycle commuting has helped me increase the joy in my life. If we let it, work can overshadow every other aspect of life. But bike commuting provides balance by enlivening my spirits on the way to work, and by stripping away workday concerns on the pedal home. Biking reconnects me to the planet and puts work in perspective. To hear the honking of geese, to see clouds scudding across the full moon, to illuminate cotton-tails with my headlight on the nature trail portion of my commute—these are priceless experiences which enrich my life and provide me with a fuller existence. The bottom line is that bicycle commuting is good for the body, the pocketbook and the mind!

In the pre-dawn darkness of early December, I snap on my bike light and ease onto the roadway, headed to work. With slacks, wind pants, and a down coat to warm me, I squint as my neighbor pulls onto the road in his car and passes me. Even though the temperature is in the teens, I can't resist riding my recumbent. My neighbor stops his car at the corner intersection and pauses. I put one foot down and watch his silhouette as he scrapes frost from the inside of his windshield with a gloved fist.

I sit patiently, my breath warm and moist within my scarf, and as my neighbor turns left toward the highway, I turn right to catch the nature trail for a quarter-mile shortcut before merging with the highway. I am happy and comfortable with my decision to commute to work by bike. Perhaps I haven't quite achieved the point at which "neither rain nor snow nor dark of night" will deter me from riding my bike to work. I do know that I've saved myself a little money, made the world a little bit better place, and that I'm a healthier person because I commute by bike. And all this while sitting pretty on my recumbent! ♦

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Editorial . . . Continued from page 2

up, explain, test ride and sell. It might take 30-60 minutes to sell an upright road bike, but perhaps 90 minutes to a full day or more to sell a recumbent. Besides all of the explanations, fitting, test riding, Q & A and learning curve — customers may not be as willing to buy on impulse (or that day). Often customers can't see every available model (in one place, or even one state), so they question whether they are buying the right bike.

**Are Crank-Forwards The Answer?**

While RANS reports brisk Fusion sales, and Electra continues to place two page glossy color ads in other magazines, I've had it reported to me by one mainstream crank-forward maker that the market for these bikes is not as good as expected. Apparently, they require some "explanation" to would-be customers (sound familiar . . .) and bike shop employees aren't accustomed to doing this at the \$400-\$500 level. One manufacturer stated that Electra's foothold in the CF market was part of their problem.

**Conclusion: Is There Hope?**

While recumbency has had sales spikes over the years, we've really been the underdogs throughout history. By supporting one another we can make a good go out of our niche hobby/sport — and have a lot of fun being the evangelical underdog recumbent riders. We all know that no other bike style can hold a candle to the comfort we experience riding recumbents. This comfort is what makes recumbent bicycles unique. We just have to come up with new ways to market our bikes.

One dealer I spoke with likes the idea of the "1%" because it makes us special, perhaps like "not everyone can afford a Ferrari" — an exclusive club. The problem with this scenario is that it can be misconstrued as elitist or that you have to "buy your way into the club." I'm supportive of the tribe scenario, but I'm not supportive of the elitist private club where you have to spend thousands to join. Think about this next time somebody on a well used EZ1 says hello to you when you're on a ride. I spent the summer riding a \$995 Burley Koosah and loved it.

I'm not exactly sure where we go from here. I do know that some organization, educational awareness and planning couldn't hurt and we should welcome the entry level with open arms and we need more entry level recumbent models (well under \$1000). We need to make it easier for new enthusiasts to understand what they need to know to join us riding our comfortable bicycles.

Despite the difficulties facing the recumbent industry, the comfort of recumbent bicycles intrigues more and more people every year. Comfort is the key to selling recumbents. This is something we can't lose sight of. While we haven't seen overall sales growth (trackable percentage increases), I've heard from several dealers and specialists who are having an excellent sales year and reporting that interest in recumbents is way up over previous seasons. Here's to the next big wave of recumbent market growth! ♦

**NBDA Notes:** These are the types of bikes that the National Bicycle Dealer Association tracks sales for:

BIKE TYPE	MARKET %	AVERAGE SALE
Mountain bike (front susp)	28.91%	\$391
Comfort	15.55%	\$332
Youth	14.58%	\$219
Hybrid/Cross	2.52%	\$386
Road/700c	10.85%	\$1153
Cruiser	3.89%	\$270
Mountain (full susp.)	3.2%	\$1320
BMX	2.09%	\$205
Mountain (no susp.)	.82%	\$220

*This data is from 2004.*

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