

## Velo Vision Sample Article



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If you have any problems or suggestions about the magazine in general, or this PDF article in particular, please email me at

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I hope you enjoy the read.

*Peter Eland*

Peter Eland  
Editor and Publisher,  
*Velo Vision*

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### Small print

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VELO VISION AND VELO-VISION  
We weren't first with the name. *Velo-Vision* is a bike shop in Körten, near Bergisch-Gladbach, Germany. *Velo Vision* magazine exists in friendly harmony with *Velo-Vision* in Germany.

*Velo Vision* is printed on paper produced from sustainable forests to Nordic Swan standards.



**COVER:** Your editor on the Fuego.  
Photo: Debz Butterworth

**OPPOSITE:** Speeding down the Innocent Railway tunnel in Edinburgh, it's hard to keep the camera steady.  
Photo: Peter Eland

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### Not before time

I should have done it years ago! Going to see the dealers with whom I've been corresponding for years was an invigorating experience, and I'm looking forward to my next set of visits before the December issue. Folding bike and train is still an effective and enjoyable way to get around our small island.

It's also been a while since *Velo Vision* exhibited at the Cycle Show in London.

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We're there this year on stand D30, and I hope to see many of you there. See the News pages for details.

Finally, some of you may have noticed the 'old yellow bike' making another appearance on page 33, modelling the Klean Kanteen. I'm assured that the long-awaited replacement from Villiers Velo is now at the painters, so next issue should finally see me riding a shiny new bicycle!

Peter Eland

# RIDING THE RAPTOBIKE



## BACKGROUND

Raptobike is a relative newcomer to the recumbent scene, with their first product, the Low Racer, launched in June last year. Sales quickly took off, and they now have a network of dealers worldwide. They also have a mid-height recumbent in the final stages of development. Founder Arnold Ligtoet has his workshop just south of Amsterdam, now open four days a week for visitors – but please do make an appointment if you'd like a test ride.

The basic Low Racer costs around €1195 from Raptobike in Europe, plus delivery, which is more to the UK than to mainland EU. There's also a frameset from €849. In the UK prices are from around £1100. Our bike as tested would come in at over £1300. Numerous upgrade options are available, including disk brakes or Magura rim brakes, carbon seat instead of fibreglass, 9-speed rather than 8-speed gears, and dual chainrings (single is standard). There are four seat sizes and a wide selection of accessories, some custom-made for the bike and some off the shelf. This includes luggage systems from Radical and Elan, seat pads, headrests, chainrings and protector rings, spare frame parts and even a tail fairing. Check the Raptobike website, or ask dealers, for full options pricing.

Our test bike was essentially a 'basic specification' Low Racer, with the addition of those handy Elan rear bags (€110, plus €15 for the necessary support bracket) and a mirror (a Mountain Mirrycle). It also had a seat pad upgraded to the excellent Ventisit type, and the standard Schwalbe Marathon tyres replaced with the faster and lighter Kojak models. Finally, the Raptobike aluminium headrest (€58.75) was fitted.

There are currently two Raptobike dealers in the UK: Bikefix in London and Laid Back Bikes in Edinburgh. Our review machine was kindly provided by David Gardiner of Laid Back Bikes. As it had already been used as a demo bike in all weathers, you'll have to excuse any departures from showroom cleanliness!

## FIRST IMPRESSIONS

The Raptobike is formed around a single large aluminium frame tube, bent in swooping curves which accentuate the length of the bike. The seat nestles neatly into the frame, and the stark black-white colour scheme is simple and effective.

A considerable contribution to the very clean, dynamic look of the machine is made by the front wheel drive system. This means there's no chain and derailleur cluttering up the back of the bike. The front is indeed a bit more 'busy' than on most recumbents, but as the chain closely follows the lines of frame and fork anyway it's still simple enough. Adding to the stylistic effect is the straight stem, 'reflecting' the straight forks and, along with the bold black (straight) cranks, offering a bold counterpoint to the curvy frame. It all adds up to a very purposeful look.

The rear dropouts are spaced at 100 mm so that any standard front wheel can be used – in this case a Shimano Deore hub laced with black spokes into a black-anodised alloy rim is used, all reinforcing the two-tone graphics. A disk brake mount is fitted to the dropout, ready for optional updates or later retro-fitting, and mudguard eyes are also present. Our bike used the canti bosses which are also provided, fitted with good quality mid-range V-brakes, Avid Single Digits.

There's not much to say about the seat – it's a standard hard shell type as used on many European recumbents, with simple brackets mounting it to the frame via Allen bolts. The rear bracket has five holes, allowing you to fine-tune the seat angle from, they say, around 20 to 25 degrees. Seat height was close to the quoted 27 cm including the Ventisit 'comfort' pad.

Also fitted was the optional aluminium-framed headset (they make another type in carbon). The cushion is supported on aluminium rails, which are clamped to a small alloy block bolted to the seat. The headrest is available separately and should fit most hard-shell seat recumbents.



**ABOVE:** The front wheel drive system has remarkably little effect on the steering, while saving quite some length of chain compared to rear wheel drive equivalents.

**BELOW:** Tightly packed components on the bars.

**BOTTOM:** Disk brake mounts are fitted as standard, front and rear.



Up front is where it gets interesting. The crankset is conventional enough, with a black alloy front boom section pulling in and out of the frame for leg length adjustment – Raptobike say it should fit riders from 1.60 m to 2.05 m tall (5' 3" to 6' 9"). Maximum rider weight is 120 kg. The bottom-bracket and cranks were of the external-bearing type, good quality by the looks of them, and branded 'Samox' – although I'm told current production bikes may use a different model. The single chainring on our bike was a 60-tooth monster – but as you'll see from the pictures and read later, some riders fit even larger rings. The front derailleur post, not used on our bike but needed if you use multiple chainrings, is extra-long to accommodate up to 70T rings.

The chain runs back from the chainring to a set of pulleys alongside the headset, and from there the drive runs down to a derailleur on the front wheel. The power run of the chain is diverted by a very substantial pulley, and the chain is held in place by a metal guard – of which more later.

The front 20" (406) wheel uses what would normally be a standard 135 mm rear hub, with 8 or (optionally) 9-speed wide-range (11-32) cassette. A good quality SRAM SX4 derailleur does the shifting (current bikes use the even nicer SX5). You could of course fit any other derailleur or hub gear system you wish, including Rohloff. Here, the ratio range is approximately 38"-109".

Tucked in amid all of the chains is another V-brake, and the fork is also fitted with disk brake mounts and threaded holes ready to fit mudguards.

On then to the stem and controls. The stem/tiller is rigidly fixed to the fork, so there's no angle adjustment possible (an optional pivoting version is under development). There is a telescopic adjustment for length. Two versions of the actual handlebars are available, with a 90 or 110 degrees bend between the two grip areas: the 110 version was fitted on our bike to give a little extra knee room. The handlebar

width makes little difference to the handling, as steering is by side-to-side movement of the whole bar, rather than a turning motion.

Cable routing is very tidy, with a frame-mounted guide to the left of the headset gathering all three cables from the handlebars and curving them neatly to their destinations.



As you'll see in many of the pictures, for much of the review we used the bike fitted with the Elan low racer bags. This is a one-piece unit which hooks over the seat back and is supported over the rear wheel by a simple alloy brace, which fits to the mudguard mounts on the frame. Velcro hoops keep the bag locked to the brace. There's a large zipped compartment each side, plus two sleeves for water bottles, and the fabric over the wheel means it doubles as an effective rear mudguard. It's more than big enough to carry all you need for day or even weekend riding, or a fair load of commuter gear or shopping. A neat system.

Weight as tested was 14.38 kg, without the Elan bags but with everything else shown including the basic pedals supplied (most riders will use their favourite clipless system). Not a super-lightweight, but not bad at all!

### THE RIDE

Before you ride the Rapto you need to get into it! As the tiller doesn't pivot up (see the Nazca review a few pages along to see a type which does) you need to limbo under it to get into the bike. I found it easiest to straddle the bike and then sort of slide down the seat into position. Not a problem once you're used to it. Getting up also requires a certain agility – one way is to put both feet down as you're rolling to a halt, grab the stem and stand up lifting the bike as you do so, using your momentum to help.

Once you're in, though, the position is super comfortable. Lying down as you are in an ultra-reclined position, the well shaped seat and supportive Ventsit pad spread your weight all across your back, and the hands fall easily onto the bars above your chest.

I must admit that I took my first strokes of the pedals on the Raptobike with some trepidation. Low racers have traditionally been a bit hard to master, and while I've ridden a fair few recumbents, I've not really ridden a racing two-wheeler for any length of time. Let alone one with front-wheel drive...

But with a firm push on the pedals I was off, and wondering what all the fuss was about. It's quite remarkably stable for such a low bike, and what's more the front wheel drive had no effect that I could discern on the handling – it's almost uncanny. Only when going very slow and swinging the bars right round does the chain system eventually start resisting, but by that time you can't pedal anyway as the tiller stem will be hitting your leg. Slow speed manoeuvring does require concentration, as the turning circle is quite wide. Sometimes it was easier to get up, swing the bike round and set off again.

I did find you need to be in the right gear to set off – it's a lot easier towards the bottom of the range, so you can get moving without too much strain. So you do have to remember to shift down as you stop.

Underway, the Raptobike remains stable and well-behaved, but it's an exciting ride too. It's very easy indeed to pull away from companions on upright bikes,

especially in headwinds, and you have to make a deliberate effort to slow your pace if you want to be sociable. There really is a significant speed advantage from the aerodynamics of a recumbent this low. Like Ian (see 'Second Opinion') I was fairly frequently in top gear – you can wind up to this sort of speed at the least hint of a down slope or a tailwind (or without, perhaps, if you're fit!) but for me, the range was about right. I wouldn't have wanted to sacrifice the low starting-off gears for a higher top. Living somewhere more hilly, you'd probably want a double-chainring arrangement for a wider overall range.

Braking was generally good, and with no danger of going over the bars you can really squeeze that front brake to stop you fast. I did occasionally worry about overheating that small front rim on longer fast descents, and if you do a lot of this sort of riding I'd suggest the disk brake upgrade.

The frame lacks any suspension as such, but the long wheelbase and the large support area on your back help dissipate any shocks, and small vibrations are also well cushioned despite the hard, narrow Kojak tyres.

There are a few downsides to the Raptobike experience. It did what no other test bike has done – it drew blood! The main chain pulley is right next to your inside leg as you pedal, and if you're in shorts, beware: leg hairs can get plucked off by being drawn between pulley and chain or, worse, the Rapto can 'bite' you by drawing the flesh of your leg between the metal chain guard and the pulley. Ouch – I still have the bruise marks several weeks later. This 'bite' happened to almost everyone who rode the bike for any distance – trouser wearers were spared injury but many noticed scuffs afterwards. It's also been widely reported as a problem by other Low Racer users via the internet.

Raptobike are of course aware of the issue, and say it affects just a small percentage of users. They are soon (shortly after this issue is out) to offer a new pulley guard which should eliminate the problem, but

in the meantime they recommend just removing the metal guard if you tend to get bitten. That should be an easy and effective fix.

Anyway, this didn't spoil what really was a very fun ride. It's fast, fun and if you rather childishly like overtaking people who are probably fitter than you through sheer aerodynamic advantage, this is the bike to do it on. Its other natural home is on the racetrack, and several are raced regularly at British Human Power Club events and on the continent. If this is your interest, just go along to an event and chat to an owner – they'll be delighted to share their experience!

### CONCLUSIONS

The Raptobike was a bit of a revelation – low racers can be handled by even non-athletes, and they're surprisingly effective all-round machines. The speed advantage really is noticeable. The Raptobike's front wheel drive is very successful, and it saves a good few feet of chain without any significant drawbacks (assuming the 'bite' is soon cured).

At not too far over £1000 in the UK, the Raptobike Low Racer compares very well with pretty much everything else out there price-wise, although once you start adding options the price gap does narrow. The basic components are good quality, with no obvious weak spots. The only thing I would really have liked is a pivoting stem for easier entry and exit, and that's soon to be available as an option.

The popularity of this machine is well deserved – it offers a great performance for a good price. It's probably one of the fastest bikes around which is both relatively practical and affordable: every cycling speed-seeker should get a test ride at least!

**Peter Eland**

### AVAILABILITY

Raptobike: Tel +31 297 525 330 or see [www.raptobike.nl](http://www.raptobike.nl)  
UK dealers: Laid Back Bikes (Tel 07981 430159, [www.laid-back-bikes.co.uk](http://www.laid-back-bikes.co.uk)) and Bikefix (Tel 020 7405 1218, [www.bikefix.co.uk](http://www.bikefix.co.uk))



### SECOND OPINION

*Ian Coulthard also borrowed our test bike and added his comments:*

The Rapto is slightly intimidating when you stand next to it prior to your first ride. It's not as low as the average trike, for example, but its very reclined seating position and non-hinged tiller make it look like a fairly extreme race bike. Which it pretty much is.

However, once you slide down into the very comfortable seat and your hands fall naturally on the odd looking but perfectly positioned bars, it feels quite good. Clipping in and pushing off is almost an anti-climax – it's very well mannered at low speed. And high speed as well, luckily, as that's what it'll be doing most of the time. The Rapto is incredibly fast, spinning out the 109 inch top gear on the flat with only a slight tailwind was unbelievably easy – and I'm far from being a strong rider. Every time I rode it I ended up getting where I was going too early as I just couldn't stop myself from hammering it all the time.

It's not all good news though. The infamous upper chain pulley tried to eat my leg on my first ride. Moving the chain retention bracket from its 12 o'clock position to 9 o'clock may have sorted this as it never happened again. It's an easy problem to solve if you're buying one, though, and the manufacturers are working on this as well.

The brakes were lacking a bit too, I thought. It's not that they are poor quality: they work well, it's just that the speed I was travelling at, and the late braking which the bike encourages, meant I was wishing it was equipped with the optional discs.

It didn't feel particularly light – although it's at least a yard of chain lighter than an equivalent rear wheel

drive bike – but it accelerated really well. It certainly felt light. Which brings me neatly to the fact that it's front wheel drive. If it weren't for the pulleys right in front of you you'd never know it was a FWD machine when you're riding it. It steers perfectly under power and there is no wheel spin worth mentioning. Only the limited right turn steering lock when walking the bike round reminds you.

All this wonderful speed does of course have its price. The extremely efficient aerodynamics attained by laying virtually horizontal (that's how it feels anyway) on the bike mean it can occasionally feel a bit twitchy: it's not a bike you could almost fall asleep on, it requires you to concentrate at all times. It is easy to ride but there's always the feeling that if you get too complacent it might dump you on your ear.

I was glad of the fitted neck rest too, it was welcome on longer rides, as were the Elan bags the test bike came with – they doubled up as a rear mudguard too.

If you're looking for a great value recumbent with all out speed as your top priority then this could be the bike for you. But order it with a bigger chainring!

### CONCLUSION

The Raptobike is amazing. The fact that it's front wheel drive is irrelevant, on the road you really won't notice. It has the potential to be a very versatile machine: you could even tour on it. For me though – and this is purely a personal thing – it's just a bit too laid back for road use. However, if I were a regular racer, or was looking for something fast and exciting to ride, I'd love one.

**Ian Coulthard**