

[contents]

DECEMBER 2002

Velo Vision is published quarterly by Velo Vision Ltd. Daily news and updates can be found on www.velovision.co.uk

ISSN 1475-4312

Velo Vision, The Environmental Community Centre, St Nicholas Fields, York, YO10 3EN, UK

Tel +44 1904 438 224
(from UK, 01904 438 224)
Fax +44 1904 438 236
(from UK, 01904 438 236)
Email peter@velovision.co.uk
Website www.velovision.co.uk

EDITOR AND PUBLISHER: Peter Eland
DESIGN: Brian Holt
WEBMASTER: Simon Ward
PRINTER: Stephens & George Magazines Ltd, Merthyr Tidfll, Wales, UK. Tel 01685 388 888
CONTRIBUTING PHOTOGRAPHER: Jason Patient Photography
Tel 01890 883408

PUBLISHING SCHEDULE:
Issue 9: 5 March 2003
Issue 10: 4 June 2003
Issue 11: 3 September 2003
Issue 12: 4 December 2003

VELO VISION AND VELO-VISION
We weren't first with the name. Velo-Vision (note the hyphen) is a progressive HPV-friendly bike shop in Körten, near Bergisch-Gladbach, Germany, who also make their own recumbents. Velo Vision magazine is working in friendly harmony with Velo-Vision in Germany. Contact them on www.velo-vision.de



4 News

Giant's semi-recumbent, French pedalcars, trike drive kits, and much more...

10 Inside Brompton

We visit the factory and meet the men who make the bikes

12 Land of interesting vehicles

Some of the strange cycling things you'll see in Japan

14 Bikes to Turkey

The cyclists bringing bikes back to Turkey's streets

18 Inventors' corner

Wooden children's recumbents and more Minibike madness

20 Cycle 2002

We report from the best bike show the UK has seen for years

22 Chain of thought

The direct drive chainless bike returns, with a fascinating design from South Africa

26 The LOGO trike

We test and affordable up-and-coming recumbent trike from Australia

31 Reviews in brief

Books, masks and security skewers

32 Under power

How does the Powabyke electric-assist commuter measure up?

36 Special Needs at Spokesfest

Tamasine Gilbert returns with a report on Leicester's try-out day

40 Letters

Bumper crop of feedback, ideas and more

46 Eurobike

Trade show report from September's huge event in southern Germany

54 Buyer's Guide: Workbikes

Our overview of the best load-carrying cycles and trailers available today

60 Subscriptions, back issues, calendar

Lovely lighting sets from Basta UK to be won when you subscribe

62 Adverts

The best, most interesting advertising around! Please support these companies, who support this magazine.

NOW WE'RE TWO

Eight issues on, *Velo Vision* is happy to mark the end of its second year with a bumper issue: 16 extra pages. We hope you enjoy the extra amount of material we've been able to include this time, including the first of our Buyer's Guides. As the series continues in future issues, I hope it'll become an invaluable reference. As ever, your feedback is welcomed.

We were also delighted recently when we heard that *Velo Vision* has been nominated by *Utne* magazine in the USA for an Independent Press Award. We won't find out until January whether we've won, but it's nice to be up there against some well-established titles. Check out our website www.velovision.co.uk for news on this and other cycling matters – it's updated almost daily.

Finally, at the risk of turning this column into an advert, could I mention the excellent *Cycle and Recycle* calendar which we're now importing from the USA? Put together by a coalition of cycle advocacy groups, it's a very bike-friendly way to plan your year. All the details are on page 60, along with a chance to win Basta lighting sets, rewards when you recommend the magazine to a friend or give a gift subscription, and details of all our back issues.

Peter Eland

Cover photograph:

Syd Winer from Australia took our cover image using a home-made pinhole camera. He explains: "The cardboard and duct tape camera was velcroed to a jig over the front wheel. Taking the shot involved leaning forward to press the start button of a digital kitchen timer taped to the camera, then flipping open the cardboard shutter, and trying to ride as straight as possible until the timer buzzed. I also had to pedal as little as possible and return my legs to the same position between strokes. If I pedalled continuously my legs became almost completely transparent. I opened and closed the shutter with my right hand, hence its semi-transparency on the handlebars. The rural scenery around me doesn't exist. The pic was shot on a tree lined Adelaide suburban street and I was hemmed in by 6ft high green painted aluminium fences. The 26 second exposure ensured that the trees and fences blended together into a nice faux-rural scene. Of course, I had no idea that this would happen."

POWER BIKING

Electric-assist bicycles promise pedalling without the sweat - without losing the benefits and joys of cycling. But is it all too good to be true? We test the latest offering from Powabyke, the £845 Commuter, to find out.

BACKGROUND

Electric-assist bicycles have come of age to a certain extent in the last few years. Most urban cyclists now see an electric-assist bike of one sort or another occasionally around town. Many of the riders you'll see on these machines are elderly or unfit, and it's rare you'll ever see anyone 'looking like a cyclist' on such a machine. Indeed, among some



cyclists there's an anti-electric backlash, a feeling that it's 'cheating' and 'not really cycling'.

A more balanced view, and one *Velo Vision* takes, is that electric-assist bikes are just another piece in the transport jigsaw. They take up much the same road space as a bicycle, don't threaten other road-users or contribute to congestion, and are quiet and pollution-free (if the electricity the charger uses comes from renewable sources, at least...).

They can bring non-cyclists out of cars and onto two wheels and a saddle. They even have the potential to extend the range of journeys that are feasible by bike, even for committed cyclists, again avoiding the use of less environment and community-friendly forms of transport. This is particularly the case in hilly areas, where even with good gears and the best of intentions, cycling can be a real physical effort.

The best-known of the electric bike brands on the UK market today is probably Powabyke, thanks to their vigorous promotion and extensive dealer network. They claim over 12000 bikes sold in the UK to date. Stiff competition, though, comes from the like of Giant with their Lafree, the Heinzmann/Estelle range (and we'll be testing one of these machines next issue) and a raft of imported machines, mostly from China (as is the Powabyke, but unlike many, they have a solid UK headquarters for R&D and support).

Powabyke machines start at £539 (inc VAT) for a single-speed shopper, and folding and tricycle versions are also available. Top of the range is the 24-speed Commuter at £845, the bike we chose to test.

FIRST IMPRESSIONS

Unfortunately, the first impression of this bike is its weight: a hefty 39kg with the battery on board, neatly tucking under the 40kg limit set down in electric-bike regulations (explained in the sidebar overleaf).

Wisely, Powabyke recommend that the bike and battery be carried



separately if you need to move them around – and unless you're a weightlifter, that's the only way you'll be able to. Effectively this rules out the convenient use of the bike if your journey, or storage arrangements, include carrying the machine up and down stairs or lifting it over barriers. Leaving the battery unwatched as you carry the bike, and vice versa, isn't really an option in most places.

The battery itself, a 36 volt, 14 amp-hour lead-acid type, is a solid lump at around 12kg, leaving 27kg for the bike and chunky 200W motor, which is built into the front hub. You can expect 300-400 or so charges from the battery before it gets 'tired' – but when it does Powabyke will recondition it for around £89, half the price of a new one, and do so in five working days: a good scheme to reduce both waste and running costs. Charging takes eight hours from the mains, using a 'smart' charger which automatically switches off when done, and the electricity per charge apparently costs around 5p. It also has a nice long cable, so with luck you may be able to leave the battery on the bike for charging.

The test bike's battery had a small crack in its casing 'out of the box' – there's a fair bit of stress on the battery as you put it onto and off the bike – you have to shove it down hard against some sprung contacts, and then lock it in with the key supplied. Pulling it out is also a bit awkward, as the handle is at the wrong end to give you decent leverage.

The frame – one size (17") only – is constructed solidly if somewhat less

than elegantly in steel, and the battery box is accommodated in a holder where the top tube might be. The moulding at the headtube end accommodates the battery contacts, a battery charge level display, and a key-operated power switch. This lets you select between 'pedal-assist' mode, when the power-assist only works when you're pedalling, and a more intuitive mode whereby the power comes on whenever you twist the throttle – the right-hand handlebar grip.

In either mode, as a safety measure the motor only comes on when you're going along above 3mph.

A decent-quality Shimano Acera groupset is used for the cycle parts, giving 24 derailleurs gears, while V-brakes do the stopping. Wheels are 26" mountain-bike size, with very solid aluminium rims and wide tyres. Handlebars are wide and high, giving an upright posture, while the angle-adjust stem lets you adjust the reach, too. The saddle is a very wide and soft affair, and further cushioning is provided by a basic suspension seatpost. A carrier rack, solid two-leg stand and rear mudguard complete the equipment.

A front mudguard is supplied with the bike, despite the pictures here. I have to hold my hand up and plead guilty – it was hiding amongst the packaging in the box, and I only found it after the photo shoot. In any case, all of the assembly and checking of the machine would be handled for consumers by their dealer, so this sort of problem shouldn't arise.

TOP LEFT: The 12kg lead-acid battery powers the bike for up to 20 miles, and can be recharged on or off the bike

TOP RIGHT: A twistgrip throttle controls motor power

BOTTOM LEFT: The Powabyke comes with a solid rear carrier and full mudguards

BOTTOM RIGHT: A row of LED lights indicates how much battery charge remains



THE RIDE

How does the electric assist work in practice?

Well enough, as it turns out. You get a hefty electric boost and a battery with enough capacity to keep boosting for (as close as we could guess, and with the new battery) something like the 20 miles (without pedalling) that Powabyke claim. For an urban user, that could be half a week's commuting, with a few shopping trips thrown in for good measure.

The 200W motor, once it kicks in, fairly rapidly builds up the speed to its cutout at 15mph, at which point it still makes noises but doesn't contribute to propulsion. Actually, it was rare that (even pedalling as well) that I reached 15mph. The weight means that the bike rolls heavily, and the riding position is certainly not aerodynamic. For what it's worth, I'm certainly faster on my usual unassisted town bike.

The motor is powerful enough to take you up hills unaided (not that I could find any very steep ones to test it on in York), and moves you away from the lights with some alacrity. The motor makes a quite loud noticeable buzz and whine, enough to attract glances from passers-by. I found it an unwelcome contrast to cycling's usual silence.

The twistgrip throttle controls the motor speed incrementally, which is useful for slow speed manoeuvring. But most of the time, you end up using it as an on-off switch, as it's such hard work to accelerate the beast with the pedals. I tended to do all acceleration electrically, then once up to speed either coast or pedal until my speed had slowed enough to require another boost.

The wide saddle, soft suspension seatpost and upright position reduce the efficiency of pure pedalling – while increasing comfort when you're buzzing along with power-assist. And although the gears worked fine, I found it hard to keep the ratio matched to my speed. To get the motor to kick in, you need to get the bike moving, which requires a low gear. Then, as then motor 'boosts', you frantically switch up to try to contribute. More

usually, you end up freewheeling. Of course, in a hilly area, the range of gears on this bike would become much more relevant.

Handling was predictable and safe, and the extra torque coming through the front-wheel drive was easy enough to control. The weight of the machine reminded me of touring with a very full load of camping gear – the bike just felt ponderous, all the time. The weight makes it a bit of a handful for wheeling around, too. It was all right for me, but if you've bought it because you're elderly or frail, it could be a problem.



SUMMARY

It was an interesting experience riding the Powabyke, the first electric-assist bike I've ridden properly outside the corridors of trade shows. While I'm clearly too young, too much a cyclist and too fit for me to match the target audience, it certainly wasn't all bad news. Yes, the cyclist in me went 'uurgh!' at the weight and the chunky frame, but I now appreciate better why people are attracted to the idea of electric assist.

Given roll-in, roll-out parking, and no obstructions *en route*, you can move about town on a Powabyke with very little physical effort. For the inform or elderly, this may be ideal – it's still a much more active way of getting around than being transported by car or bus. It's probably faster, too, much cheaper, and allows you to retain independence.

Another target user may well be the corporate type who has to arrive at work unruffled and not sweaty: something like the Powabyke could be a real option, and certainly a better one than giving up cycling altogether and getting the car.

Users will also no doubt be very interested in the possibility of getting much of the performance of a small moped without the need for a driving license, registration, insurance and all of the hassle that goes with riding a 'proper' petrol-powered two-wheeler. A perfectly valid viewpoint, and if it results in

one less petrol engine in a UK town centre, it can't be bad. No compulsory motorbike helmet also means that the wind-in-the-hair fun of rolling along on a bike is retained, even if it's the motor not the pedals doing the rolling...

Is the Powabyke good value? Well, to be honest I've not tested enough of its rivals to know. I would have liked a little more of a quality frame on a £845 bike, but maybe that's beside the point. It did strike me, though, that for flat areas at least the 24-speed transmission is overkill, especially for a bike where pedalling really isn't a priority. So it would probably be worth potential purchasers also trying a bike at the lower end of the Powabyke range – using the same motor and battery – such as the single-speed Shopper: at just £539 and with less to go wrong, it might just make more sense.

AVAILABILITY

As part of their Christmas promotion, *Velo Vision* readers can call Powabyke on 01225 443737 for a £50 voucher against the purchase of any machine in the range, valid until the end of December 2002. They'll also tell you the details of your nearest dealer.

Powabyke have a range of dealers across the UK, and they're also looking for distributors abroad.

Powabyke, 3 Wood St, Queen Square, Bath BA1 2JQ. Tel 01225 44 68 78
Website www.powabyke.com

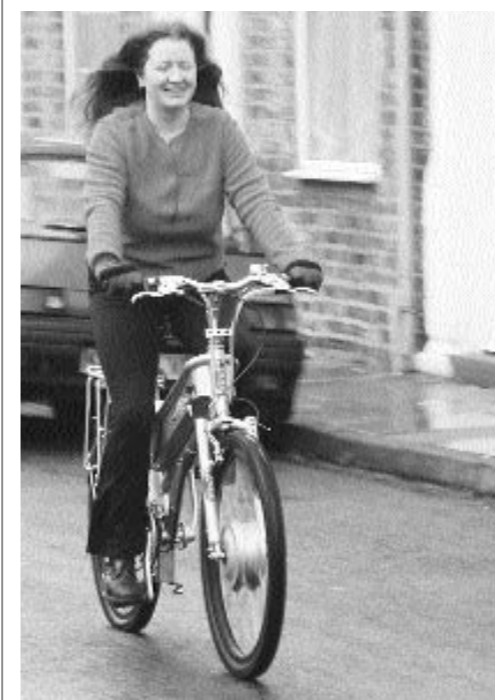
ELECTRIC BIKES AND THE LAW

According to Powabyke, current UK legislation affecting electric-assist cycles is as follows:

* Under British law (1981 Transport Act), an electric bicycle avoids being classed as a motorcycle only if it weighs less than 40kg, is fitted with usable pedals, has an output not exceeding 200 watts and cannot be propelled under power at more than 15 miles per hour. The rider must also be over 14 years of age.

* In the UK one does not have to pedal (although there must be pedals) and can enjoy pedal free cycling under power. In mainland Europe one must keep pedalling, and the motor assists the effort you put in. The new Powabyke Euro range complies with these EU regulations.

* If an electric bicycle exceeds these limitations in any way it becomes classed as a motorcycle, with DVLC registration, vehicle excise licenses, motor insurance and an appropriate user's license all legally required for use on public roads.



SECOND OPINION

Every cyclist I have asked about electric bikes has said something negative, so I was keen to test this bike to see if they were right.

The first factor is that the bike really is much more heavy than an ordinary cycle. That's primarily because of the electric battery. Located in the stepover, this makes it quite wide and I found my knees banged on it before I got used to the new width.

The gears are complicated – there are separate buttons to increase and decrease gear on both handlebars. The right hand also operates the electric boost; because the boost needs constant pressure, it will stop when you need to signal to turn right. It would be ideal to have electric gearing (as on the Equinox bike I tested in Issue 2) as well – as it is, you can easily stop the boost and then find yourself in a high gear with a very sudden drop in speed.

I found the riding position uncomfortable and it was hard to find the right leg extension – the pedals seem set rather high. With the saddle set at a comfortable leg extension for pedalling, I

found it hard to stand safely and take the weight of the bike.

The boost is very good and I can see why people enjoy it, as it really does make a difference to the quality of the ride. It is excellent for those tricky times when you need to start moving quickly, for example in a bike well at traffic lights on a busy junction. It really made me feel safer in traffic and was a lot of fun to use, although my wrist got tired quickly from operating it.

The bike is nice looking and definitely looks like a bike and not a moped wannabe, which I personally think is an advantage.

I cycle regularly and found that for me the benefit of the boost did not really offset the extra weight of the battery. For someone who is not fit, or who doesn't want to break into a sweat going up a hill to work, though, it would be a definite advantage. But do yourself a favour and find a ground floor shed to store it in, as you won't be getting it up and down stairs!

Kriss Fearon