

VELOVISION

[Special Needs Buyer's Guide]



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Velo Vision Issue 11

Special Needs Cycling Buyer's Guide

PDF version

This is a free PDF download of the Buyer's Guide feature from issue 11 of Velo Vision Magazine, an international, subscription-based quarterly magazine covering all aspects of cycling as transport – for people of all abilities.

You can find out more about the magazine at:

<http://www.velovision.co.uk/>

where you will find, amongst much else, full subject/author indices, other sample articles to download and an online shop where you can subscribe.

This PDF file also contains an additional page which didn't appear in the printed version: this rounds up some other relevant machines and contacts which didn't make the main article.

If you have any problems with the file, or questions about the magazine, please email me at peter@velovision.co.uk. I regret however that I have neither the time nor the expertise to offer individual advice about Special Needs cycling: plenty of suitable resources are listed later.

I hope you enjoy the read.

Peter Eland
Editor and Publisher, Velo Vision

Technical notes

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Small print

I don't much like copy protection and legalese, but a few things need saying:

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This guide is not intended to offer specific advice about individual disabilities or cycling needs. Consult an expert instead. Use the contents of this guide at your own risk. Velo Vision takes no responsibility for your actions or your dealings with the vendors and organisations listed.



It’s with mixed feelings that I write a Buyer’s Guide to Special Needs Cycling. Not because I don’t think it’s a good thing to do. Rather, because special needs cycling shouldn’t really seen as a separate, ‘other’ thing: something that most cyclists don’t normally encounter or consider.

Instead I see special needs bikes as simply being at one end of a continuum of cycling. Every cyclist adapts his or her bike to suit specific needs: the variety of machines that you’ve seen over the years in the pages of Velo Vision is ample proof. Special needs bikes just tend to be adapted a bit more than most. Changing your stem for a more upright model to ease a stiff back is just as much special-needs cycling as is changing your propulsion from pedals to hand-crank as circumstances dictate.

But perhaps because the mainstream of cycling is dominated by fit, young men, designs which cater for the disabled, the elderly and infirm, or just the non-athletic, are often seen as one of cycling’s more obscure niches. Yet it’s a large and growing sector of the market, with hundreds of manufacturers and suppliers catering for an ever-wider range of all-abilities cyclists. There are some great people out there doing great work and who deserve full support – after all, any one of us could be requiring their services tomorrow, next month, or next decade.

We’ll start with a brief look at why special needs cycling can be particularly beneficial to the disabled, and then run through some of the sources of information. We’ll then examine the range of machines and adaptations available, and list organisations, manufacturers and dealers. We’ll also look at a few specific case studies. Further special-needs cycling articles can be found in back issues of Velo Vision: issues 8, 7,6, 5, 4 and 3 are all particularly relevant.

As usual, we have limited space, and apologies to any organisation or manufacturers who’ve been left out. Once again we’ll concentrate on the UK, with mentions of significant activities or products from other countries. Feedback is welcome, and we’ll print a selection next issue.

Contact details for all companies and organisations mentioned in the text can be found in the listings towards the end of this guide.

This Buyer’s Guide will be placed on the Velo Vision website www.velovision.co.uk for free download a few weeks after subscribers have their copies. If you know someone who would be benefit from reading it, do pass it on to them.

Peter Eland

Why cycle?

The benefits of cycling for the disabled are just the same as for the able-bodied, and probably need little explanation to Velo Vision readers. It’s fun, gives independent mobility and promotes physical and mental well-being. However, for many disabled people, these benefits have a particular significance. Opportunities for exercise may be limited, and there are recognised problems of weight gain, muscle wastage and poor circulation associated with prolonged wheelchair use or a sedentary lifestyle.

Cycling can noticeably extend the speed and distance of independent movement which is possible compared to a wheelchair. And compared to motorised or electric transport, both initial and ongoing costs are minimal. Cycling can also be an enjoyable activity to share with able-bodied friends or carers.

Even when full independence is not possible, the therapeutic benefits of cycling are clear. Many first-time riders explain the feeling as exhilarating, empowering, challenging. Centres across the world are now regularly introducing new people to the joys and benefits of cycling – as well as putting many cyclists who are no longer able to ride a standard bike back on the road.

Finding information and advice

There are plenty of places willing and able to give advice and information – but I think it’s fair to say that there’s no one definitive source. Someday there’ll be a long book written – but until then a little research will be required.

But at the end of the day there’s no substitute for getting expert advice and trying out a range of machines for yourself. So rather than agonise for ages over this guide or spending long hours on the internet, do contact the dealers and organisations which are there to help – and get yourself a test-ride!

Charities/organisations: See our listing later on for details of who does what. In the UK at least, all-ability cycling projects tend to be regionally-based, so some travel may well be required. However, it could well be worth the effort: many of these projects now have well-equipped fleets of specialised cycles, and experienced staff (often volunteers) who can advise on their use and possible modification. Most often you’ll be able to try out a range of bikes in safe surroundings to find what suits your particular needs.

Dealers and manufacturers: again, these are listed later. There are now a good number of dealers and manufacturers in the special needs cycling field, and they’ll naturally be happy to advise on how their products can help get you moving. Many will be equipped to make custom modifications to suit their customers.

Don’t necessarily take the first advice you’re given: not every dealer will have a full range. If you’re after something very particular you may have to hunt around. Often I hear of people having machines expensively custom-built when a commercial model already exists. It’s

a shame to reinvent the wheel when an existing machine is presumably cheaper – and designed with the benefit of valuable development and testing experience.

Dealers and charity organisations will be able to advise on possible sources of funding to help get you the bike you need: this varies so widely from country to country and from year to year I’m not going to even try giving details here. Ask an expert!

Events: Cycling events such as the York Cycle Show, Spokesfest and others often have special-needs displays, at which dealers, manufacturers and often charitable organisations are on hand to advise. A good way to get a quick test-ride! Similar displays may also be on offer at non-cycling-specific disability events.

Racing handcycles can be seen (in the UK) at many running races and BHPC HPV race events – see the UK Handcycling Association info later. In other countries there are similar organisations, with the USA in particular having an active handcycle racing scene.

Internet: There is a huge amount of information on the internet about all aspects of special needs cycling – most manufacturers and dealers have websites, as do most of the organisations active in the field. We’ll list a number in this article, but there are very many more.

A very useful resource is mailing lists such as <http://groups.yahoo.com/group/handcyclists/> where users and potential users can exchange information.

OPPOSITE AND BELOW: Handcyclists taking part in BHPC racing at Spokesfest in Leicester



Types of bike

Many special needs cyclists use the same bikes as anyone else, slightly adapted, or just for different reasons. Many of the specialised designs we’ve featured in past magazines can be very useful – and by riding a machine not necessarily seen as ‘for the disabled’ can be an attractive idea.

For some cases, machines designed specifically for the purpose are required: that’s not to say that these machines can’t also be used by the able-bodied. With a few exceptions we’ll concentrate the bulk of this Buyer’s Guide on this second category, as the other machines will be, or have been, covered elsewhere (in Issue 9’s Guide to recumbent trikes, for example).

We won’t cover ‘therapy bikes’ in great detail – these are machines intended for the very severely disabled and particularly for children. Usually owned and operated by institutions of charities, there are all sorts of solutions available – we can only touch the surface here.

More-or-less standard cycles useful for special needs cycling

TANDEMS

Tandems are ideal when one rider, for whatever reason, can’t control a bike sufficiently along – but can still pedal fine. So for many years now tandems have offered a great way for the visually impaired to cycle – and race, and go on extended tours.



Tandems are also ideal for those with learning difficulties, balance and co-ordination problems to enjoy cycling in safety – and small-frame tandems can be ideal to get children out and about, while remaining fully under the control of the ‘captain’.

Designs which place the non-steering rider at the front have additional benefits for supervision and safety – and also make conversation between the riders easier. These designs are usually intended for child front riders, one exception being the ‘Victorian’ upright tandem trike.



ABOVE: The Epple Millennium from Germany: see www.epple-bikes.de for more details.

RIGHT: The Riese und Mueller Equinox semi-recumbent: see www.r-m.de. They have several UK dealers.



PHOTO: CASS GILBERT



ABOVE: The Victorian tandem from Cyclemakers

LEFT: The Onderwater child-at front tandem from the Netherlands: see www.familietandem.nl or www.dutchbike.co.uk for UK import. Other machines with this layout include the Hoening Co-Pilot and the Co-Star from Cyclemakers

RIGHT: The Pashley Tri-One trike, which is also available in a folding version and, far right, the Hoening T-Bike, a two-wheels-in-front model from Germany.

LOW STEP-THROUGH BIKES

For some riders with limited mobility but good balance a standard bike may be perfectly OK – but getting on and off may be a problem. There are designs around now which have a very low ‘step-through’ indeed, easing the access problem significantly. There’s even one machine from Germany, the Epple Millennium, where the frame wraps around the side, so you don’t have to step over anything at all to get onto the saddle.

SEMI-RECUMBENTS

The recent crop of semi-recumbents such as the Giant EZB – or the Evox 140 reviewed elsewhere this issue – can be ideal for those who find a conventional bike uncomfortable. The lower riding position means that feet can be put flat and stable on the ground when you stop, and an upright riding position keeps the neck straight and puts no weight on the wrists. Just take a few minutes to get used to the ‘light’ steering on most such machines.

UPRIGHT TRIKES, TANDEM TRIKES AND CONVERSION KITS

One of the most popular sort of machine at most special needs cycling centres is the simple upright tricycle. It has the familiar looks of a ‘normal bike’ but the three wheels provide stability. Trikes are available in all sorts, from shoppers to racing-quality machines – and some have low step-through, too. As for able-bodied riders, trikes can be very practical machines, with load-carrying capacity between the rear wheels.



Tandem trikes are also available (at a price): these can combine the benefits of tandem riding with the lack of balance worries of a trike layout. Manufacturers include Longstaff Cycles in the UK (they have a more affordable ‘Cyclon’ range of solos and tandems alongside the

Ruth’s dual-mode trike

Ian Sims of recumbent trike manufacturers Greenspeed in Australia describes how he modified a trike to suit one of his disabled customers, Ruth Gooding. Apparently about 10% of all Greenspeeds go to disabled riders.

Ruth has only one leg: she was knocked off her bicycle when she was only twelve. To make matters worse she was dragged along the road underneath the wheels, giving her such horrific injuries that she was not expected to live. And thus even her remaining leg is somewhat deficient in muscles.

Recently her hands have also been giving her trouble from the constant jarring of walking on her sticks, normally her only form of exercise.

So we built her a Dual Mode trike, which uses both her leg and her arms. We started with one of our hand trikes for disabled children. After we had built it, the original customers decided that they would rather have an adult size machine. Thus it already had 16" wheels, making it an ideal size for Ruth, who is only 5'2" and weighing about 37 kg.

To give as much clearance as possible for her leg, we put all the drive chains on the right hand side. A fourth ring was fitted to the normal triple chainset to take the drive from the hand-crank. This required a slightly wider spacing than normal, so as to allow room for the front derailleur to change down to the small ring. The



slack side of the coupling chain goes around a spring loaded idler pulley which takes up the chain slack as the hand cranks are rotated from side to side to steer the trike. This pulley also changes the direction of the chain, leading it to the front chain rings.

At the rear we have an 11/32 cassette on the DualDrive hub, and the gears are controlled from the handle using a bar end shifter, with a small twist-grip for the three speed. The longer twist-grip controls the front derailleur. The brake lever is a neat one which has a balance bar in it, to balance

braking forces on the front two drum brakes.

The hand cranks were shortened to suit Ruth’s arms. Using her arms and one leg gives a quite an uneven input, especially at low speed, and arms and leg can also easily collide if not ‘synchronised’ correctly. To solve these problems I got Chris Bell to make us a very egg-like ‘Egg Ring’ custom chainring. This has a peak to coincide with the leg thrust, and this seems to have improved the slow speed climbing significantly.

Ian Sims, Greenspeed

exquisite custom-built ones) and Tempo Trikes in Australia amongst others.

A cheaper option than a purpose-built trike may be a conversion kit, offered by several manufacturers.

It’s worth bearing in mind that the stability of upright trikes can be a bit limited in fast cornering unless the riders are expert and agile.

Some models put the two wheels at the front for greater stability (and, most would agree, easier handling). These do tend to be rather more expensive, though.



ABOVE: The Hase Kettwiesel is well-suited to special needs use, and a hand-cranked version is available along with many adaptations. Several can be linked together for ‘tandem’ use too if required.

The Doublerider from van Raam in the Netherlands



RECUMBENT TRIKES AND TANDEM TRIKES

Increasingly popular with able-bodied cyclists, recumbent trikes are usually very stable, and in contrast to upright trikes have a full seat, rather than a saddle, to support the rider. They can be ideal for riders with back problems. Many types are available: see Velo Vision Issue 9 for a full Buyer’s Guide. They do tend to be a bit more costly than upright trikes.

Tandem recumbent trikes can be particularly useful for special needs cycling: the rear seat is a very stable platform, and can often be adapted to offer either hand-crank or pedal drive. The commercial models around are mainly intended for able-bodied touring, and so are relatively light with good performance.

Side-by-side machines such as the ZEM or 2Can (see our adverts section) or the Doublerider (see Issue 9 page 7) offer additional benefits of easy conversation and sociability, but the width of these machines can put some riders off for use on the roads.

Going Eco

Bill Blakie from New Zealand built himself a series of ever-improving vehicles to get him back on the road again. He now builds the machine to order.



It was a health problem that started me back on bikes, when I was having difficulties walking nearly eight years ago (a hip replacement was required). I found cycling helped the condition so much I was able to come off medication. A regular bike was rather awkward to use so I set about building a recumbent. A two wheeler was also unsuitable for me so it was a tadpole trike that I started with. Living in Invercargill, New Zealand I am rather remote from other recumbent builders so I am largely on my own and designing was trial and error. I built several and sold them off as I made the next one. Each is an improvement on the preceding one. They had joystick controls for steering and brakes, but the steering was rather heavy. This four wheel design has several improvements: it is shorter, steering is more like a car, and springs on a subframe under the padded seat make for far smoother riding. It has 16" wheels all round, disc brakes and a basket on the back so it can be a useful work horse. I have two gearing systems: either a SRAM 5 speed hub modified to give reverse gears also, or a derailleur system using two 14-28 clusters set up so that top gear is four times low gear, a far better range of speeds. The seat is set high at 500mm: this is for ease of access not speed, and it can be adjusted for leg length with 300mm of travel. My intention, as a result of my experience, is to try and ‘recycle’ the over-fifties. I would be so beneficial for their health to keep mobile by using this pedal car now – rather than waiting until they get to the mobility-scooter stage. I know this piece of hardware has the capacity to encourage this, so that they can enjoy many more productive years. I have also had enquiries from disabled people, as it fulfils their needs being so stable and adaptable. I make them to order and sell them for 2500 New Zealand Dollars. My website is www.veryeco.com and email is bill_blakie@clear.net.nz

Bill Blakie

UP/DOWN TANDEM

There are really only two available bikes which fit in this category, but they’re worthy of particular note. The first is the Hase Spezialräder Pino: this combines an upright rear rider (who steers) with a recumbent front seat and either pedals or hand-crank. Both riders get a good view to the front and can converse easily as their heads are close together. The rear rider does the balancing, and the front rider can freewheel at will. This can be a high-performance bike suitable for touring. It’s made in Germany, but there are plenty of UK importers. The second is the Strada, again from Germany. It’s a similar layout, but with a wide-track ‘tricycle’ front end for stability. This would be ideal where the able-bodied upright rider can’t fully control a two-wheeler – perhaps because of the weight of a front rider with balance or control problems. I don’t know of an importer at present.



LOADBIKES

Many of the machines which we covered in our Loadbikes Guide (Issue 8) can be useful for special-needs cyclists. Some can simply carry a person in a wheelchair as ‘cargo’ – others are particularly suited to carrying disabled children in safety and comfort. In general, machines with the load-bed in front of the rider are particularly suitable, so that the disabled passenger is in the rider’s view, and conversation is easy. Rickshaw-type machines can of course carry passengers of any ability. ‘Standard’ child trailers are often suitable for transporting young children with disabilities, perhaps with seat and seatbelt modifications to keep the occupant secure.



BELOW LEFT: The Hase Pino up/down tandem

CENTRE: The Strada tandem, made by Die Fahrradwerkstatt.

BELOW: The Pino can be fitted with a hand crank system for the front rider



TRAILERBIKES, TRAILER TRIKES AND TANDEM TRAILER TRIKES

Trailerbikes, trikes and even tandem trailer trikes all allow passengers to experience cycling under the control of the rider of the towing bike. Single-wheeled trailerbikes are only really designed for children, as the weight of an adult could be too much for the towing bike to handle. Burley make probably the best single-wheeler, the Piccolo. Hase do a nice recumbent two-wheeler for children, the Trets. Trailer trikes are also available for adults. Tandem tricycle versions (for children) are also available. Pashley are the main (only?) manufacturer of such machines in the UK.

ELECTRIC ASSIST

Electric-assist systems can be fitted to most cycles these days – so providing extra power on demand. This can be particularly useful for those whose strength can swiftly be exhausted – it’s a ‘get you home’ measure. A bit of electric assistance can also be great when one rider is doing most of the work on, say, an adapted tandem – particularly in the hills. Most manufacturers will have their own systems, but for retrofitting to an existing bike the German Heinzmann kits, imported into the UK by Kinetics of Glasgow, are generally thought to be the best. The Giant Lafree is considered best of the electric bikes.

Special-Needs Specific Cycles

WHEELCHAIR TANDEM

Along with handcycles, these are probably the most familiar ‘special needs’ cycles around. Combining a wheelchair front end with a detachable bicycle rear end, they’re a way to share a bike ride with anyone who can’t ride themselves. The layout puts your heads close together for easy conversation, and both share the view to the front. Usually the wheelchair is quick-releasable from the bicycle rear end, so when you reach your destination the passenger can move around independently. Now available from a multitude of suppliers, the original and best-known of this type is the Hoening Duet. A host of adaptations, supports and the like are available. The rear bicycle part is often equipped with an electric-assist system, especially in hilly areas, as the single rider must propel the weight of two people and a fairly heavy bike. A variation on this theme is the ‘Discoverer’, which has the wheelchair in a ‘sidecar’ configuration beside the bike rider.



TOP LEFT: The Hase Trets is a recumbent trailer ‘trike’ for children



CENTRE: The Pashley U+2 lets two children ride safely under adult control and without balance problems.

LEFT: Trailerbikes like the Piccolo from Burley can be great for getting families out on the bike together.

HANDCYCLES

Alongside the wheelchair tandem the other iconic ‘special-needs’ bike is the handcycle. Powering the wheels by arm-power rather than pedals, these machines offer greater efficiency and speed than the usual ‘wheeling’ of a chair ever can. A wide variety of types is available:



Varna racing handcycles in action

Racing handcycles are built for speed and performance, and with a fit rider can be quite capable of keeping up with able-bodied cyclists on a social ride. Usually low-slung and lightweight. Visit a handcycle race, or check out some of the handcycling websites we list below for details of the various brands on offer. Many are made in USA and Canada, where the racing scene is well-established, but there are plenty of importers.

Add-on handcycle units attach in front of a more-or-less conventional wheelchair, usually in quick-release fashion, and provide a relatively cheap and simple way to add efficiency and mobility. There are a multitude of models available (mostly, wheelchair and drive unit are bought together) and all levels of gearing etc are available. These units can also be combined with electric-assist systems.



A handcycle in action (above) and a Hoening Duet (left) at the Wheels for All Centre in North Tyneside.

Side by side handcycle trikes or quads are often used by cycling centres: they offer great sociability in a very stable platform. However, the only ones I’ve seen have been very heavy ‘institutional’ types – good for having a go, but not much use as transport.

BUYER’S GUIDE: SPECIAL NEEDS CYCLING

Offroad handcycles are a bit of a rare breed: I know of a number of prototypes and proposals, but just one commercial one: the US-made One-Off Titanium All-Terrain Handcycle. A quite remarkable machine – see www.titaniumarts.com for more details, or see VV Issue 3 page 6.

An even more amazing vehicle is the ‘Snow-Pod’, a tracked, hand-cranked machine used to ascend large snow-covered mountains: see the makers’ website at www.mobilityeng.com for details. They also make an interesting two-wheeled handcycle – almost all others have three wheels.

Check out some of the images and stories on those websites. Both machines show that you need accept no limits just because you’re hand-cranking not pedalling.

SPECIAL NEEDS ADAPTATIONS

Often a rider’s existing bike can be adapted to take account of a special need, rather than replacing it with a custom machine. Here’s a few of the available items:

Pedal plates are used to keep the rider’s foot firmly in position. This can be important for safety.



www.hase-spezialraeder.de

Adjustable cranks (right) are useful where the range of motion on one or more limbs is restricted – so the pedal or hand-crank needs to move through a smaller arc.

Freewheeling cranks are useful to keep a non-functioning foot in place, while the bike is driven by the other, fully-functioning limb.

Pedal spacers are used when extra clearance is required for feet.

Fixed wheel: it can sometimes be a good idea to have no freewheel in the system, so the pedals turn whenever the bike is moving. Especially when one limb is weaker than the other, it keeps the pedals turning evenly, the inertia of the bike carrying it smoothly past the ‘dead spots’ at top and bottom of the pedal stroke. A fixed gear can also be a very convenient ‘reverse’ – getting the



www.hase-spezialraeder.de

bike to move backwards could otherwise be tricky without dismantling. **One-handed operation:** (left) it’s relatively simple to move all controls to one hand. The brake lever can be modified (both for cable and hydraulics) to actuate two brakes at

once, and gearing controls are usually straightforward.

A Schlumpf bottom-bracket gear unit can be helpful to reduce the ‘clutter’, as it requires no extra cabling.

Hip, back and neck supports: these can be useful where a rider may need some extra support while riding to avoid possible injury – or just to increase comfort.

SPECIAL MOTION MACHINES

By ‘special motion machines’ I mean machines which use some mechanism other than hand-cranking or pedals for propulsion. In general, this is because they cater for users whose range of movement or power application may be limited, and an alternative action is more comfortable and efficient.



The Step’n’go (above) from America is a well-established machine which uses a sort of ‘paddling’ action: “more like walking than cycling” they say. It has an impressive collection of testimonials on the website – worth a look if pedalling is a problem. See www.stepngo.com or Tel +1 802 862 2980.

The OVG Therapiedreirad, (below) which we described in detail in Velo Vision 8 page 49, uses a combination of rowing-like sliding action and pedalling. See www.firma-ovg.de



BELOW: A try-out session at the Wheels for All North Tyneside special needs cycling centre. ‘Taster’ events like this give many wheelchair users a first chance to try out handcycling, for example.



ORGANISATIONS

There are many more organisations than I can list here with an interest/involvement in cycling for the disabled (such as general mobility organisations, sporting associations and the like). However any of the ‘advice’ organisations listed below should be able to give further details where relevant. Apologies in advance to all I’ve missed out.

London Cycling Campaign produce an All-Abilities Cycling Guide, a 16 page, A5 guide to machines and resources in the UK. It’s available for £3.50 from LCC, Unit 228, 30 Great Guildford Street, London SE1 0HS or Tel 020 7928 7220 or see www.lcc.org.uk.

The LCC are also behind the **All-Abilities Cycling Group**, set up by London Mayor Ken Livingstone to make London’s cycling special-needs friendly, and to act as a resource for special-needs cycling in general. Contact Debbie Allaire, Chair: debbieallaire@onetel.com or Allan Sutherland: atsutherland@freeuk.com Tel 020 7326 1811

Bikeability: Ipswich-based special-needs group with a large fleet of bikes and team of volunteers. Bikeability, The Wellington Centre, 52 Chevallier St., Ipswich, Suffolk, IP1 2PB. Tel 01473 257302 or see www.geocities.com/bikeability/ **CycleMagic** (incorporating many projects that used to run under ‘Spokesfest’): Leicester-based cycle promotion charity which includes special-needs activities: good fleet of bikes and workshop in safe surroundings for try-out. Rides, advice

etc. Tel 0116 262 5551 or see www.cyclemagic.org.uk

Wheels for All (Cycling project for the North West): Well-established group offering cycling for all at centres across the North West: ring their ‘hotline’ on 0161 745 9944 or see www.cycling.org.uk for full details. They also have some interesting and useful publications on offer.

Wheels for All (North Tyneside): Special needs try-out centre in Newcastle/Gateshead area. See article in Velo Vision 7. Good fleet of bikes. Tel 07974 720002

Companion Cycling is a not-for-profit scheme based in Bushy Park in South-West London and has a fleet of mostly side-by-side tandems, which allow all to go for traffic-free rides in company. Tel 07961 344545 or see www.companioncycling.org.uk

Company of Cyclists produce a free info sheet listing special needs cycling resources: they also sometimes do special-needs roadshows. Tel 01904 778 080 or see www.companyofcyclists.com

Tandem Club: The UK Tandem Club has a Disabilities Liaison Officer who may be able to help with queries related to disabled people and to visually handicapped cyclists. Contact Miriam Woodland: Tel 01908 282485.

Gateway Wheelers: Disability cycling group in the Chester-le-Street/Tees Valley area: have a good range of machines and offer rides, advice and more. See www.gatewaywheelers.org.uk or phone Dave on 0191 3712505 or email david@wheelers.fsbusiness.co.uk

Handcycling Association UK: promote handcycling, both recreational and competitive. Their website lists events, has advice on buying, and more. See www.handcycling.org.uk

US Handcycling Federation: US racing handcycling body: www.ushf.org

MANUFACTURERS & SUPPLIERS

Attempting to offer even a reasonably comprehensive list is a mammoth task, especially with the limited space available here. Bear in mind that many of the specialist dealers who advertise in Velo Vision will also offer special needs services and products – or specialised cycles which are appropriate. Alongside these, the ones listed here should be a good start.

BELOW: A Speedy Tandem imported by Bromakin Wheelchairs. A lever mechanism allows the wheelchair user to attach and detach unaided from the cycle front end. For heavier riders hydraulic brakes can be fitted the wheelchair wheels, linked to the front bike. Versatile fittings mean that usually it’s possible to use an existing wheelchair.



IN THE UK:

Bikecare: offer tricycle conversion kits and a range of family cycling and special needs cycles. 92 The Avenue, March, Cambridgeshire. PE15 9PR. Tel 01354 660049 Website www.bikecare.co.uk

Bromakin Wheelchairs: major, established supplier of wheelchairs and handcycles, with a huge range. Includes imported machines from Varna (Canada), Speedy (Germany) and more. Everything from basic bolt-on hand-crankers to top-class racers. Bromakin Wheelchairs, 12 Prince William Road, Loughborough, Leicestershire LE11 0GU UK. Tel 01509 217569 or Fax 01509 233954 or see www.bromakin.co.uk

Chevron: UK manufacturer of handcycles and an adult upright trike: Brunswick Business Park, 18 Summers Road, Liverpool L3 4BL. Tel: 0151 707 1146 Fax: 0151 707 0353 www.chevronwheelchairs.co.uk

Cyclemakers (also known as Logic Engineering Concepts): make the Victorian and Discoverer tandems, and the Co-Star tandem, and also offer a custom engineering service. See www.cyclemakers.co.uk or Tel 01562 731 355

Cyclone Mobility and Fitness: Sell the Tracker range of handcycles along with a wide range of wheelchairs and other vehicles: Cyclone, Freepost, Unit 5, Apex Court, Bassendale Road, Croft

Business Park, Bromborough CH62 3RE. Tel :0151 346 2310 Fax : 0151 346 2311

EPC Wheelchairs: large UK retailer importing machines from Invacare and impressive racing machines from Sopur, and also making a few themselves. Lots of electric-assist etc options too. EPC Head Office : 43 Alexandra Road – Farnborough – Hampshire – GU14 6BS. Tel: 01252 547939 Fax: 01252 377588 Website www.epc-wheelchairs.co.uk

London Recumbents: offer try-out and advice in Dulwich Park in London, with another centre on the South Coast at Brighton. Distributors for Hase, Hoening and others. Their website is particularly good if you’re looking for possible sources of funding. Tel 0208 299 6636 or see www.londonrecumbents.co.uk

Longstaff Cycles: As well as making lovely custom tandems and tandem trikes, George Longstaff produces affordable trikes and tandems for children and adults under the ‘Cyclon’ brand. Trike conversion kits are also available, as are many crank adapters and other fitments, and machines can be constructed to suit individual requirements. Longstaff Cycles, Albert St, Chesterton, Newcastle-under-Lyme, Staffs ST5 7JF. Tel 01782 561 966 www.longstaffcycles.co.uk

Pashley Cycles: importers of the Hoening range, and manufacturers of many useful family and special needs cycles. Contact them on 01789 292 263 or see www.pashley.co.uk for more details.

Specialbikes: York-based specialists offering a range of machines from Pashley and Hase as well as special childrens’ trikes, recumbent trikes and electric-assist vehicles. Can also undertake custom engineering work. Tel 01904 703 413 (evenings) or see www.specialbikes.co.uk

Wise Wheels: Malcolm and Mary Jones supply specialist cycles to children and adults with disabilities or mobility problems. UK distributors for specialised equipment from Draisin, Triaid, Hoening and Berg Toys. Tel/Fax 01295 770806 or see www.wisewheels.co.uk

BEYOND THE UK: **Aiolos:** folding recumbent trike offering advantages for the disabled: www.aiolos.de

Double Performance: high end handcycle makers from the Netherlands: www.doubleperformance.nl

Freedom Ryder: US maker of racing handcycles: www.freedomryder.com

Greenspeed: Australian recumbent trike manufacturers who do much special needs work: www.greenspeed.com.au

Hase: German manufacturers of the Pino up-down tandem, the Lepus and Kettwiesel recumbent trikes and the Trets child trailertrike. Have a huge range of special-needs adaptations and add-ons, including hand-crank versions of most of their machines. Several UK agents. www.hase-spezialraeder.de

Hoening: One of the larger German manufacturers, who kicked it all off with the Duet wheelchair tandem which now has a user group with regular newsletter and meetings. Plenty of other products now – maybe a tad expensive but all top quality. Several UK importers.

Invacare Top End: US-based manufacturer of high-end racing handcycles – the parent company Invacare make all sorts too. Agents in most countries. www.invacare.com.

M5: Dutch manufacturer making a rather fast handcycle alongside their range of recumbents: see www.m5-ligfietzen.com

One-Off Titanium: make a unique off-road handcycle: www.titaniumarts.com

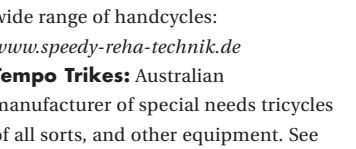
Speedy: German manufacturer of a wide range of handcycles: www.speedy-reha-technik.de

Tempo Trikes: Australian manufacturer of special needs tricycles of all sorts, and other equipment. See www.tempolafaek.com.au

Van Raam: Netherlands manufacturer of nicely-styled and practical special needs machines of all sorts, including the Double-Rider side-by-side tandem, wheelchair tandems, trikes and more: www.vanraam.nl

Varna: Canadian manufacturer of high-class performance handcycles, including an interesting tandem: www.varnahandcycles.com

The Varna Handcycles hybrid tandem



The Varna Handcycles hybrid tandem

This page contains a mix of short articles and pictures which have appeared in past issue of Velo Vision magazine, and which may well be relevant to a Special Needs audience. Note that the magazine also regularly includes longer feature articles not shown here - see the www.velovision.co.uk website for details.

Hardy handcycles

Timed nicely to complement the article about Morocco's handcyclists, Mike Augspurger of One-Off Titanium sent us some news from the other end of the technology spectrum: "Here are some photos of the four-wheeled version of my titanium handcycle. It was commissioned to make an arm-powered ascent of Mt Rainier (14410ft) in Washington State. It is capable of negotiating the most extreme terrain. These photos are of some early testing.

Weight is 75lb (33kg) and the transmission uses two Schlumpf Mountain-Drives with a Sachs 5-speed hub. This gives 15 ratios, no overlaps, and you can shift all gears while stopped. The current sprockets give a gear range of three-quarter inches up to 25". It also has three Shimano disk brakes, one on each front wheel and one on the rear axle.

It has a solid rear axle with no differential. Sharp turns on grippy surfaces are not a pretty sight. It has no suspension but articulates in the main frame tube near the front of the bike. Any single wheel can rise 13" without lifting another wheel. This provides a very unique feeling, with the seat on the back half and the handlebars on the other.

Because of the extreme climbing it can do, an anti-slip-back device is needed. The brakes can't be relied on to hold the vehicle on a steep climb if a chain brakes. It would take too long to move one's hands from the cranks to the brakes anyway. There is an aluminium toothed disk on the rear axle with a spring-loaded pawl. The rider can let go of the cranks at any time and not roll backwards. For reversing, the pawl can be de-activated with a thumb shifter on the handlebars. The sound of a boat winch is the sound of safety.

The front half of the vehicle is like our three-wheel handcycle, shown in the other picture. There are two



ABOVE: The One-Off Titanium handcycle in action

steering systems: the handlebars and the 'steering wheel'. This is a large round padded chest support which rotates and is connected by cables to the steering.

Like with leg powered vehicles, the three wheeler is for most purposes faster and more practical than the four-wheeler. These vehicles have been well-received and we are about to start a production run of about 30. Unfortunately at \$5000 each they're not cheap, with the fancy transmission, but they are sturdy, bombproof and suitable for rental as well as private use. Full details on the handcycle part of our website, www.titaniumarts.com.

Another site that might be useful is the United States Handcycle Federation website: www.ushf.org. This is the world of arm power all on one site, with extensive links to groups and manufacturers all over the world" One-Off Titanium, 221 Pine St, Florence,



MA 01062, USA. Tel/Fax +1 413 585 5913 Email oneoffti@jvanet.com Website www.titaniumarts.com



Travel by Trilite

Many disabled cyclists find transporting themselves and their machines a real problem: the Trilite trike was developed by Christoph Beck from Berlin, himself disabled, to overcome just this problem. Giving three-wheel stability and a seat height which makes transfer from wheelchair easy, it also folds to a remarkably small size for transport by car or even public transport, so allowing independent mobility.

With just the rear wheel and seat removed, it forms a neat 33 x 50 x 80cm package – barely larger than some bikes. Aiolos, the company formed to manufacture it, is happy to arrange test-rides in Germany, and are also working on distribution arrangements for several other countries.

Aiolos: Tel +49 3031 806013 Fax +49 30 31 806012 Website www.aiolos.de



The Trilite folding recumbent trike. A remarkably neat folded package for a three-wheeler.

Lean steer

'FastFwd' in the Netherlands produce child's recumbents, usually rear-steer trikes. They also do a version, the 'Yepp', for children without arms or the use of their arms – it's steered by tilting the seat back.

FastFwd: Tel +31 35 694 4840 Website www.fastfwd.nl



Toucan do it

A side-by-side trike, with special needs-friendly possibilities has been launched by Toucan Engineering in Middlesbrough. The cleverly-named 2-Can comes in two versions to cater for the different needs of families and institutional users.

Toucan Engineering Limited: Tel 01642 881881 www.2cancycle.co.uk



ZEM silver

A new built-to-order top-end version of the two-seater ZEM sociable has been launched recently by the Switzerland-based company. Complete with two Rohloff hubs and racing components, the ZEM 'Silver' apparently takes the machine to a new level of performance. The vehicle costs around €5600. Contact ZEM Europe: Tel +41 1210 4774 Fax +41 1210 4770 or see www.zem.ch



At the Double

In Issue 7 we reported from the CycleVision show in Holland, where we'd seen a rather interesting sociable recumbent prototype. Several readers wrote in to tell us more, and we've also now heard from the manufacturer, Van Raam Aalten BV in Holland:

"We designed the Double Rider as a tandem, but different. The cyclists sit next to each other in comfortable seats with armrests. These seats are very easy to adjust to the height of the riders, so adults as well as children can ride the bike.

The bike has a modern look, as many parts are covered by bodysells. These are not only for appearance: they also protect the components and reduce maintenance.

The Double Rider is a tricycle, so it is stable and very easy to handle. It suitable for outdoor activities away from surfaced roads, too. It weighs approximately 53kg. For riders with limited power, it can be

fitted with an electric-assist motor.

Normally it's equipped with a five-speed transmission, but seven-speed and Rohloff 14-speed gears are optional. There are hydraulic disc brakes on the two back wheels, and a cable-operated drum brake at

the front. All of the brakes are controlled by one lever on the central 'joystick', which can be operated by either rider."

The Double Rider costs around €3400 plus tax and delivery (around \$3400, £2000).



Van Raam Aalten BV: see www.vanraam.nl or Tel +31 5434 73002

