

## Velo Vision Sample Article



This PDF is a sample of the material in *Velo Vision* 43, May 2012. The full contents page is shown opposite.

To get an idea of our current output, please visit our busy website:

[www.velovision.com](http://www.velovision.com)

where you will find, amongst much else, full subject/author indices, sample articles to download and an online shop where you can subscribe on paper or in a digital edition (with free reader apps for iPhone, iPad and Android users).

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

[peter@velovision.com](mailto:peter@velovision.com)

I hope you enjoy the read.

*Peter Eland*

Peter Eland  
Editor and Publisher, *Velo Vision*

### Technical notes

This Acrobat PDF file should display correctly on almost any computer. If you encounter problems the first thing to try is to download the latest version of Acrobat reader from the Adobe website: [www.adobe.com](http://www.adobe.com)

If that fails, please send me an email and I'll try to sort it out.

### Small print

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

You are free to print the document out for your personal use, but not for resale or for anyone else. Please do not make it available online without permission.

To protect the copyright of *Velo Vision* and of our contributors, modification of this document, and copying of the contents, may have been disabled.

Words and images remain copyright *Velo Vision* and the original contributors. Please don't reproduce anything without express permission.

*Velo Vision* is published by Velo Vision Ltd.  
Subscription details, news and updates can be found on [www.velovision.com](http://www.velovision.com)

ISSN 1475-4312

Velo Vision Magazine  
York Eco Business Centre  
Amy Johnson Way  
York, YO30 4AG, UK  
Tel/Fax +44 1904 692800  
(from UK, 01904 692800)  
Email [peter@velovision.com](mailto:peter@velovision.com)  
Website [www.velovision.com](http://www.velovision.com)

EDITOR AND PUBLISHER: Peter Eland  
PHOTO ASSISTANT:  
Debz Butterworth  
ART DIRECTOR: Brian Holt  
WEB PROGRAMMER: Simon Ward  
PRINTER: Stephens & George  
Magazines Ltd

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:** David Gardiner of Laid Back Bikes rides the Vortex. Photo: Peter Eland

**OPPOSITE:** Reader Dean Hipple writes: I'm just back from Bologna (Italy) where, strolling through the narrow streets of the immutable city center, I came across this scene: a quick brake adjustment and she was off. Wonderful to see the veteran mechanic, out in front of his shop, still providing service to the community of utility cyclists.

Photo: Dean Hipple

### 4 News

Noomad trike kit launches, extra engineering contacts, Dahon's tiny new folder, new recumbent clothing, Morph in production, a designer load bike and more.

### 8 Trikes on ice

Steve Ellis describes how he's come to develop a brand new human-powered sport from scratch, with his propellor-powered Ice-Bats.

### 12 Review: ICE Vortex 2012

Cornwall's trike specialists have come up with a low, fast and seriously sleek racer. We take it to Holyrood Park in Edinburgh for a test.

### 17 Short review

Georgia in Dublin rainwear Leggits and the Rainwrap: waterproofs with style.

### 18 Review: Bullitt electric cargo bike

Richard Peace loads up a BionX-powered Bullitt Milk Tray with 95 kg of concrete to tackle the Yorkshire hills.

### 22 Review: Pacific Cycles iF Reach

The fast folder from Pacific now has the ingenious Mark Sanders-designed iF folding mechanism. How well does it work?

### 26 Building a batch

We follow the photo diary of a specialist bike builder as Paper Bicycle builds a batch of 60 for a customer in the USA...

### 30 Short reviews

30 Books: *Raleigh* by Tony Hadland, and *Rad Rides*, charting the history of BMX.

31 Spirit: an elegantly simple new design from Atomic Zombie.

32 Moto super-flat pedals, Topeak Cagemount and a Brompton badge.

### 34 A bike too far?

Vicar Chris Stebbing describes his experience of altruistic bike fixing, and the need to set sensible boundaries...

### 36 Steering solutions

Paul Dvorny presents his concept of a side-shifting steering system for trikes, and the Lynden InvenTeam describe a hydraulic leaning trike project.

### 38 Readers' bikes

38 Return to the rim: the new rim-running COMPACT-dynamo from Germany.

40 COMPACT-Tandem: the dynamo developer's short wheelbase design.

42 Three wheels or four? A USA triker goes quad with a machine from Utah Trikes...

44 Top trailer: a young builder comes up trumps.

45 The bendy bike: Paul Hill describes his lean-steer DIY recumbent.

### 46 Letters

An eponymous MIG welder, umbrella bike stands, bargain cycling T-shirts, a Rotovelo owner reports back, cargo creations and more...

### 55 Subscribe to Velo Vision

How to subscribe, back issues and details of our distributors worldwide.

### 56 Advertisements

The first place to look for specialist products and services! Please support these advertisers, who support this magazine.

### Season's cycle

It's been a tough old winter here, so it's good to pull out of it by getting this issue out of the door.

As well as making the ride home more pleasant, the onset of long light evenings really helps with magazine production: it's easier to find willing models to ride the bikes after the working day is over, and every photographer knows that low evening sun can be magical. I was also extra-fortunate during the Vortex review in Edinburgh: it was effectively

gambling (via the pre-booked train ticket) that the weather on that particular day would be OK for a photo shoot. As you'll see, it came up trumps.

Special thanks to David from Laid Back and to Historic Scotland for the opportunity to shoot in Holyrood Park.

Thanks too, as ever, to all of our splendid contributors, both of letters and articles. Your efforts in helping us make this magazine are much appreciated!

Peter Eland

# BUILDING A BATCH

When an order came in for a batch of 73 Paper Bicycles, Nick Lobnitz decided to document their creation in words and pictures. Read on for a glimpse into the work of a specialist bike builder...



10

**01** I manufacture bicycles in an old chicken shed in Ayrshire, Scotland. It is a third hand chicken shed with the novel quirk that the roof sheeting was put on upside down, meaning that there are 1000s of holes in the rain channels. The phone number on the door is out of date. In three weeks a container will arrive at the workshop to collect 73 bicycles for a customer in New York. This is a photo diary of the building of these bicycles.

## DAY 1

**02** The brake cables are pre-made to length before fitting. Pre-making is quicker and more efficient, but mind rotting. My colleague Michael is tackling the pile.

**03/04** Paper Bicycle frames are made in Taiwan, and despite best efforts on both sides sometimes the details aren't quite right. The original Taiwanese brazing on the seatpost clamp is too weak on this batch, so my brother re-brazes this joint with a lovely fillet braze. The original braze had about a 0.5 mm fillet, with sections where you can see daylight through it. The brazing we add is about 5 mm deep. Once it has been modified, the thread strips on the binder bolt before the braze fails.



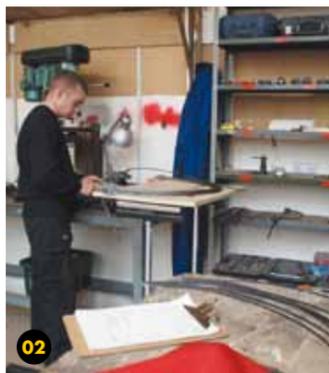
03



04



06



02



05



01

Brazing here was a mistake anyway, it should have been a TIG welded joint like the rest of the frame, and current batches are welded. But every one of this batch of frames had to be hand brazed to modify them so I have moved from being a passable fillet brazer to an excellent one. When busy, I pass batches over to my brother to reclaim some of my evenings.

## DAY 2

**05** I prefer my bikes to be largely logoless, which until I am big enough to insist otherwise means wiping logos off parts. The cranks need soaking first to loosen the logo. I'm not consistent though, I like the Sturmey Archer and Schwalbe logos so they stay.

Break out the chemicals and gloves and masks, and open every door and window. Soak the cranks, then wipe the logo. Four hours later, and it's done.

**06** These bicycles get aluminium chain panels that will be powder coated. This is how they arrive from the laser cutter who makes them. The catch is that

they all need sanding and washing by hand as they are too delicate to be grit blasted in preparation for painting.

**07** Michael sanded all of the chain panels: 50 sets, 150 pieces, 300 sides. Now they need to be washed to clean and degrease them.

**08** Washing the panels. We do this in the morning just before visiting the powder coater, to reduce the chance of contamination.

**09** I'm beginning to run out of space for things. 73 bicycles in one bite really stretches the capacity of my shed, so things like tyres are getting shoved in random corners. By the end of Tuesday I will have 100 wheels to hide, when I only have racking to hold 40. Components and subassemblies tend to get ordered in 50s or 100s for economy, which means a lot of temporary storage and endless cardboard boxes.

Michael used to build brick walls, so I suspect his skill will be resurrected and he will soon be building a wheel wall.



07



08



11



09



15



16



12



14



13



17

**10** Usually I cycle home but today I drove the van as I need to run frames up to the powder coaters tomorrow, but I then headed out on my bike to maintain sanity. It's been a day of strange light so I took my camera.

**11** Sanity restored by the bike ride it's now time to catch up with my paperwork. Workshop days shove all the paper chase to the front and the end of the day, so I normally end up working two days in the space of one. Panda eyes.

## DAY 4

**12** Michael and I will be putting 146 tyres on 146 wheels over the next few weeks: this is a magical device to aid the task. It should cut the time and save on finger cramp. Making this sort of time-saving device is a constant side job for me whenever I can see a way to speed up production. It takes a little time to devise and build them but that is paid back and more in time saved on repetitive tasks.

**13** 16 freshly painted frames are in the boxes, ready for building up on Wednesday. This is the first outing for the racking holding the forks, another recent construction to cater for this batch.

## DAY 5

**14** Wheels arrive built from Birmingham on pallets. More storage space needed!

**15** While I organise the wheels Michael has time to build a bike up for Laid Back Bikes in Edinburgh. David of Laid Back ordered on the Friday, and this is his being built on a Tuesday. We're not normally this fast, but there was a spare frame from a cancelled order and an island of time in the middle of the day.

**16** This is the completed bike, ready for a final check over before it goes into a box. It took ages to work out how to box the bikes quickly and without risking damage on the way. This wooden stand made up from scraps lets the person assembling it cable tie it all together then just lift the whole thing into the box.

**17** These are forks ready for building up this week. There in the background is a glimpse of what 150 bicycle boxes look like. It's a cliff face of cardboard.

**18** Now the Laid Back bike is complete, it's on to tyres for the rest

of the day, for both of us. With our magical new tyre lever thing its about 4-5 minutes per wheel to assemble rim tape, tyre and tube, and to inflate.

**19** Rim tape, or Gordian knot? There is definitely an art to picking this up without getting into a tangle.

**20** Wheels that are about to get used are hung on these wheel racks, ten bicycles to a rack. Michael made these racks on his first day here. Just in view is the Laid Back bike, boxed up behind.

#### DAY 6

**21/22** After another trip to the powder coaters we can get on with more assembly, this time the rear mudguard. This needs the rear light fitting and the dynamo cable glued into the mudguard. This is best done in advance of fitting the guard to the frame, as this gives a chance for the glue to dry, and allows focus on what is a fiddly job.

The cable runs along the edge of the mudguard and is held in place by silicon mastic. It smells faintly of lemon.

**23** Here we have several bikes part done, but the gear cables outers needed for the next step are not here. Its never good to half finish bicycles, they get dusty and are easily damaged. These will be finished and boxed tomorrow.

#### DAY 7

**24** I cut my finger nails the other day, forgetting that they're needed for peeling rim stickers. For me a wheel looks better without stickers, so off they come. It turns out a Stanley blade makes a good substitute finger nail. This is the view the rats get as they scuttle along the shelves. Actually, I think the spiders scare off the rats, we get spiders in here that are about 2½ inches across.

Frustratingly this is as far as the bikes we're currently building can go until more gear cables arrive. The truck delivering the cables broke down.

#### DAY 8

**25** Dynamo cables also need to be pre made up to length before fitting. Here I am cutting lengths of heat shrink: once cut they're meant to land in the red bucket on the floor.

**26** These are all the small parts orders that built up during the week getting packeted up to post out. We normally do these just before lunch: the village is about a mile away and it makes sense to combine a trip for sustenance with a trip to the Post Office.



**27** This is what I spent my afternoon working on, a jig to hold handlebars in the correct position while they get bolted together. It looks so easy and obvious now it's done. Next step will be designing a similar jig to hold brake levers in the correct position.

**28** This is the workshop where jigs, tools and one-offs get made. There is a Bridgeport milling machine in the far right corner, and the chains on the left are an engine hoist.

**29** Lined up like dominos. The temptation to push the end bike is huge. I will sleep easier once these are in their boxes.

#### DAY 9

**30** Need to get some more frames re-brazed on the seat clamp joint. This is the basic set up I use for fillet brazing. A candle for lighting the torch, bucket of water for plunging the frame into, flux, brass and a mug of tea. The stand is courtesy of Kestrel Engineering, though that's not an official mount for it.

**31** A nice reasonably neat fillet joint. On average it's taking me 10 minutes a joint. I coat the brazing rod in flux to help the brass flow into the joint. This is glassy hard when cool and it's better to clean it off before shot blasting. Plunging the hot frame in water blasts most of the flux off, and the wire brush on the angle grinder cleans off the rest.

**32** This is the set-up for numbering the frames. It's not exactly high tech, but it's amazing what a big hammer can do. Each frame is numbered in sequence. It's never exact, but if you own frame #15 then it was about the 15th to be built. A dot is added at either end of the number to make it difficult for a thief to alter it.

#### DAY 12

**33** Axle protectors being made for when the bikes are packed into the boxes. We could buy them in but it takes just a few minutes with a hole saw and a sheet of packaging foam to make our own.

**34** Handlebar assembly. Michael uses the jig I made earlier on the table to assemble the stems and brake levers all at the correct angle.

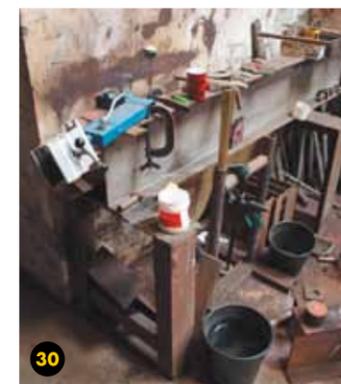
#### DAY 13

**35** We're both at work assembling newly powder coated frames on the work stands here. My work clamp was second hand. I have no idea why it is 'RED'.

**36** I made a tool mount for my work stand, to put key tools within convenient reach. More time saved.

#### DAY 16

**37** More logo removal. Almost all of my component suppliers add their logos



and I'm not yet a big enough customer to insist they don't. This is 100 seat posts queued up to have Nitromors painted on. Most logos wipe off with cellulose thinners, and indeed the seatpost logos have come away with this in the past, but this batch is from a new factory which is making life tougher.

**38** Still at it at the end of the day. These seatposts are washed and ready for use, but there is still about the same again with their logos resisting the best efforts of our chemicals.

#### DAY 20

**39** On to the final stages now. The wood holds the nameplate at the front of the frames in position while the glue dries. The blocks will need to be removed before the bicycles ship for the USA, though, else I will run into problems with them clearing customs, in case the non-certified wood harbours alien species.

**40** The glue's dry, time to box these frames.

#### DAY 21

**41** Container loaded! Here we have 61 boxes, which is almost exactly half full. In this instance it was easier (read cheaper) to ship a half full container than to try and find another load to share the space. The original order was for 73, but the customer had one shipped in advance and is fine with the remaining 12 following on later.

**42** Container ships operate to timetables similar to buses or trains, and we simply have to fit into their schedule. This container is destined for the far shores of the USA. It will sail from Greenock tonight for Felixstowe, and from there it will be loaded onto a bigger ship for transit across the Atlantic.

Tomorrow we start the next batch!

All picture and words courtesy of Nick Lobnitz, Paper Bicycle.

We've had to abridge this considerably for publication in magazine format. The full photo diary, including entries for many days 'missing' above, can be found on Nick's Flickr site, linked from the Paper Bicycle website. We reviewed a Paper Bicycle in *Velo Vision* 41.

Paper Bicycle: Tel 01560 600369 or see [www.paper-bicycle.com](http://www.paper-bicycle.com)