

VELOVISION

The credible cycling magazine

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REVIEWS:

**SCORPION FS ENDURO
KINETICS ROHLOFF BROMPTON
ELEPHANT BIKE**

SHOWS:

**BESPOKE
SPEZI 2016**



PLUS:

**SCHWALBE TUBELESS
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***Velo Vision* PDF**

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Howard Yeomans

Editor and publisher, *Velo Vision* magazine.

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COVER: Paul, weaving between trees on the Scorpion fs with GO SwissDrive. Read the review on page 34.

OPPOSITE: Sustrans warden and charity fund-raiser, Graeme Willgress, parks up his trike and trailer during his round-Britain tour. Photo of the Isle of Purbeck on England's south coast by Graeme. graemewillgress.com

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Three at once

A bit like buses – a lot of waiting for stuff to arrive to review for this issue, then I soon had so much machinery, it was spilling out of the back of our broken car – I use it as a temporary shed. It was certainly no chore putting together these reviews and I'm ever grateful for the opportunity to produce this magazine for you every four months.

I must now apologise for renegeing on a commitment to improve the print quality following VV50. I investigated the possibility of changing the paper weight, but as the 68-page magazine currently

scrapes under the 250 gramme postage threshold, any such change is simply not affordable.

Regarding correspondence, a plea for more – we value the feedback highly in all forms – written, verbal, video or audio! I try to keep lines of communication open – Skype, Facebook and email are best. If I don't reply to a message, please assume I mistakenly lost it and send again. We're all human!

Finally, please remember we're still running the big 50% off discount, for micro-distributors – see velovision.com/advocate for details.

Howard Yeomans

FULL-FEATURE CREATURE

The Scorpion fs has the looks and features of a genuinely capable off-road machine. We had the enviable task to investigate its full capability and find out if the GO SwissDrive made it a trike to take on the wilderness...



INTRODUCTION

The Scorpion is a widely-acclaimed aluminium-framed tadpole trike with sophisticated full suspension from Germany. Most HP trike models are touring machines but the Enduro is aimed at riders who are looking for an off-road experience. The Enduro's specification differs little from the standard Scorpion fs – extending mainly to the addition

of off-road tyres, the 26"-rear wheel option, gear upgrades, and the removal of extraneous bits and pieces – most of which can be added back on, should the need arise. Heavily engineered, but not too weighty, a the electric motor in the rear hub should take some of the sting out of hills, humps, and gradients, of which there are many... in the local woodland.

FIRST IMPRESSIONS

A hugely sturdy frame in bright green paintwork draws in onlookers. Chunky tyres and the big suspended rear wheel seem to make the whole machine look larger than average. It has some features that don't look out of place on a kit-car – neatly cut and welded frame details, carefully routed cables, and the McPherson strut suspension with stabilising

anti-roll bar. Inside the kingpins is an adjustable spring and elastomer suspension – HP say springs with elastomers perform better than only elastomers in cold weather. The rear design has a straightforward swingarm with an adjustable high performance oil-damped gas shock. To my eye, the number of components and cables on the trike makes it visually complex, but in

shape cross-member making getting down to the seat that little bit easier. When seated, the suspension smoothly accommodates the rider's weight, sagging to the correct degree, or if not, all of the suspension can easily be adjusted; the Rock Shox component at the rear can be pressurised in seconds.

A multi-piece seat called the BodyLink can be set up to closely match the dimensions of the rider as well as the preferred seat angle, although range in angle is limited. The body of the seat adjusts in two ways – the front lip can be pulled up for a more 'bucket' curvature, or flattened out and the total length of the seat extended to bring support right up to the shoulders. It works, and none of our riders noticed the absence of the optional headrest. Our seat also had the adjustable wings fitted to the side of the seat base, which turned out to be almost essential for constraining the rider when cornering towards the extreme of grip and on severe sideways gradients.

There's no hiding the two significant parts of the GO SwissDrive system – the literally massive hub motor in the rear wheel and the battery case in the under-seat area, visually identical to the one fitted to ICE trikes. Conservatively rated at 250W, it complies with current EU rules for pedelecs. The 'Evo' display is securely mounted on an extension from the handlebar, where it is protected from debris and random impacts by an aluminium guard. Nearby, a small cluster of buttons is attached directly to the DuraAce bar-end shifter – perfect for thumb control. Smartphones can be configured to give a visual notification of incoming SMS and phone calls on the display. Trip data and so on can be sent to mobile devices, too, via bluetooth or by a USB connection on the mounting; the same connector can be used for onboard charging of mobile devices.

With all the performance parts and impressive design, it takes a moment to realise what's missing from the Enduro. At first I was puzzled as to where I could stash a few inner tubes and tools, eventually squeezing



ABOVE: BodyLink seat with wings, Airflow pads removed.

RIGHT: Buttons can be operated unsighted, by feeling surface markings.



them into a gap behind the seat. Attaching proper luggage directly to the trike is not possible (I tried), and there is space for a single bottle cage to the front derailleur post, but mind – it must be a slim design to clear the chainguard. There is a way to add further bottle cages to the seat wings, if prepared to drill holes. Even though this is an off-road machine, the suspended rack would, I expect, be high on many people's list of options. Mudguards have been omitted from all wheels (and can't be added) and, while it looks possible to devise some kind of flap to prevent debris hitting the back of the head, no option for one is available.

THE RIDE

We had high hopes for a fast hilly ride on the Enduro. Starting with the unassisted on-road experience, shifting the significant 34.0 kg weight manually takes some effort. Pedalling hard, it was with some surprise I noticed no hint of squatting or lifting of the back end

nor when braking. I tried a quick swap with a standard 9-speed freehub wheel to see if the trike was faster and had the same general sensation so the mass of the hub and any magneto drag had virtually no effect on the speed or balance of the trike.

With electric, things get started much more quickly and without any noise from the motor using 'level 1', indicated by a coloured slider on the clearly laid out display. A play with the boost levels one to five shows the motor can smoothly add a lot of power if the rider pushes too. The assistance is proportional to the rider's effort as detected by a spring mechanism on the freehub body. The pedal force required to move this to full deflection is not much, which explains why high-torque pedalling, in particular when starting off, usually results in maximum electrical power. To make frugal use of the assistance in stop-start conditions, level one is the most appropriate setting.

no way untidy and everything is appropriately screwed down, tucked away, or tied up – exactly what you want on a machine that's likely to be 'roughed up' occasionally.

Although our test machine had been through many hands before ours, its good condition stands testament to the high-quality finish. The main frame with its sparkly green paint has a distinctive 'V'

The trike's wide track and medium seat height inspire confidence, even on tarmac, and most riders were soon exploring the full steering and suspension experience, turning the bars fully to the tighter than average lock. The limits of cornering forces were some way beyond where most riders expected them – unlikely to be an issue for high-speed road riding.

For our experienced pilots, a change of surface was required to exercise the full capability of the handling. Loose surfaces were a real pleasure to ride and the suspension took a lot of provocation to cause loss of grip and, even then, it was always momentary. Grip on all surfaces was generally excellent – the rear tyre is a tubeless model while the front ones have tubes; I deliberately set them all to a close to minimum pressure for improved off-road grip; on tarmac, though, they still ran very quietly.

Going further into the unknown, down heavily rutted and ballast-strewn tracks, the suspension provided a good level of comfort from the modest travel – 60 mm at the front and about 80 mm at the rear. There was very little noticeable stiction – none at the front – making it a very responsive system. Even with the suspension, the seat felt a bit hard to me, although this was partly down to the well-used seat

pads – we laundered them giving some improvement. With a little more padding I could imagine myself riding rough trails for hours without ill-effects.

For the ultimate test, we prepared the trike for some off-road action by dialling more preload on the front suspension (the only adjustment we could make without needing optional parts), and increased the rebound damping slightly at the rear. Ordinarily you'd want minimal damping, but by increasing it for off-road, it should reduce the chances of being bounced off severe bumps and, largely, it worked. On a few occasions, bombastic riding got the better of the suspension usually when hitting a big lump and the trike lifted a wheel unexpectedly, but when ridden correctly, it's easy to stay in the safe zone.

Playing in the dirt of the woodland trail showed 120 mm (5") of ground clearance is generally enough in most situations, but avoid jumps and deliberate obstacles, unless the manoeuvre has been rehearsed beforehand (with weight on the chassis). Despite the mud flying about, the 27-speed Shimano XT derailleur behaved well and the chain stayed clean too, showing the

RIGHT: Charger connects with an easy-to-use magnetic plug.

BELOW: Gaiters and sealed rod ends keep dirt at bay. Cables are tucked up out of harm's way. Anti-roll bar (white) is available in two stiffnesses.



BELOW: 'Tour review' display and general riding displays in level +2 and regenerative level -2.



tubes to be very effective. The single idler on the power side felt smooth and efficient and, generally, all the transmission ran very quietly. Ratios from the Truvativ triple chainset and 9-speed XT cassette range from 21 to 111", which is definitely low enough in combination with a motor, but could be a little tough without assistance and the 'going' hard.

GO SWISSDRIVE

The motor's advertised power rating is 250W, so it came with some surprise to see the Evo display showing instantaneous power consumption as high as 660W. Whether or not the numbers are entirely accurate, they allow comparisons between assistance levels and let you know, at a glance, the motor's still at work (sometimes it can be hard to tell).

There are five forward levels and two regenerative levels intended for long descents, all selectable from the '+/-' buttons. The right brake lever includes a micro-switch to activate regen level '-2' just before the brake pads touch, whatever level you're riding in. Nothing has been made over-complicated, which we liked.

The regenerative braking even in -2 is fairly mild, but useful for gently holding speed down. Even though regen is weak compared to a brake, one scenario we checked was the effect of using it on loose surfaces while cornering; it was no problem –

braking hard on the front right wheel and going into a tight left-hand corner, the rear wheel remained steadfastly on track.

Whatever mode, assistance only applies up to an indicated speed of 17.2 mph (27.7 km/h), then stops fairly abruptly – in level five, the rider and GO SwissDrive can play 'tag' as the power comes in and out, but that's often down to an energetic pedal stroke and not particularly bothersome. We're not sure why the assistance exceeded the legal maximum of 15.5 mph (25 km/h), but a cross-check with a GPS concurred with the 17.2 mph. Customer builds will, say HP, be correctly calibrated.

At the maximum assisted speed, I was usually riding about three clicks from top gear, so the handful of ratios remaining were useful only for occasional downhill running – up to about 30 mph but not much more.

When riding, the display shows power, speed and an indicative range, which remains somewhat unproven. HP claims a typical range of 81 miles (130 km) at 60%, of what we're not sure. Circumstances vary greatly and, during fairly normal riding, peak power fluctuates quite wildly.

During our test where we made considerable demands on the system, and easily used 80% of the battery in 25 miles. HP recommends charging only when the battery

reduces to 20% remaining.

The assistance is not only sufficient to push up our nearby 5% hill at top speed but it also gives a big helping hand when riding over rough and energy-sapping terrain. While conditions keep speed under the maximum cutoff, the motor can be called upon to put in all of the available power. The effect is enough to give a doubling of speed compared to fully manual. We didn't trigger it, but both motor and battery have overheat protection.

Two pushing aids can be activated by holding the '+/-' buttons, without the need for pedal input. The forward mode we found a bit of a handful while walking alongside but it can be used while seated. The reversing aid is a very usable feature, mostly for multi-point turns – simply push the '-' and hold it to move up to 3.7 mph (6 km/h) backwards.

FOLDING

All Scorpion models have a quick fold in the main hinge. A 30-second fold starts by opening the three under-seat levers to remove the seat, then tightening the top one again, which includes a 'lollipop' for later use as a prop to support the back end. Next, open the main hinge with its big lever, then flick the spring-loaded safety catch to let the trike hinge touch the ground; bring the back wheel up and over, automatically folding the chain in

the tubes; finally, rest the rear wheel on the cruciform and secure the lollipop on the main frame with the Velcro strap.

The folded trike sits naturally on its front wheels and either the hinge or a prop near the chainring. Incidentally, the steel chainguard is standard on the Enduro and is rounded and strong to protect those around and the chainrings from accidental impact.

After stage 1, the trike can still be pushed around on its two front wheels. To make the package that bit smaller, a second stage involves only a single tool to remove the front wheels. With a 5 mm Allen key, a bolt on the axle is unwound sufficiently to clear a flange in the steering assembly, then the axle and brake disc are free to slide forward out of the frame – the easiest and fastest system for disc brakes we've seen.

CONCLUSION

The Scorpion fs 26 is a rugged machine with a chassis to cope with whatever conditions prevail. Its class-leading handling feels safe and predictable at speed and the front suspension keeps roll under control while also being soft and comfortable.

Additional to its 'mountain trike' label, the Enduro could easily be prepared for a trans-continental tour with the optional 25 kg rated rack. The fully-adjustable suspension



would, I expect, accommodate the additional load easily. Our well-worn example gives confidence in the long-term reliability, too.

Added power from the GO SwissDrive is a major boost, but it's no free ride and the fun-factor seemed to increase motivation in most riders. The system was always well behaved, quiet and easy to control. It's a system that would suit a variety of applications, from stop-start commuter journeys to multi-day tours or more!

AVAILABILITY

Trikes and accessories are priced in US dollars (excluding taxes), and in Euros, including 19% German VAT. Add shipping if required.

Base specification for the Scorpion fs 26 Enduro includes SRAM DD3 (DualDrive), Shimano XT 27-speed with bar end shifters, Truvativ Stylo 1.1 crankset, and Avid BB7 mechanical disc brakes for

\$5190/€4690.

Compatible accessories include lighting, racks, mirrors, etc. plus parts for comfort & ability are detailed on the website.

Extras fitted to our model were as follows: GO SwissDrive 250W system with 36V Li-Ion 558Wh battery, \$2490/€2190 (a second additional battery would add \$949/€799). Rock Shox Monarch RL, \$219/€209. Seat wings, \$179/€169. Tektro Auriga Hydraulic disc brake upgrade, \$119/€109. Airflow seat pads (standard is closed-cell foam), \$69/€60. Rear Avid 'V-brake' as parking brake, \$45/€40. All of which takes the total price of our trike to \$8311/€7467.

Howard Yeomans

See www.hpvelotechnik.com for a list of worldwide dealers or tel Germany +49 61 92-97 99 2-0.



ABOVE: Fast one-key wheel removal.



ABOVE: Hinge and black safety catch.

RIGHT: Trike, with wheels also removed and tucked below. The display looks vulnerable but could be protected by rotating the arm.

