SPINNING ALONG

Greenspeed riders Tim Kirk and Rob Hague have both been testing the Swiss Lightspin dynamo, which promises unheard-of efficiencies.

ROB HAGUE

The packaging was a little under-whelming. It arrived in a padded envelope with a simple two sheet A4 instruction leaflet. After spending 60 British pounds on a dynamo I sort of expected the packaging to look more reassuringly impressive, but I guess it would have gone straight in the dustbin. At least I can reuse padded envelopes!

Fitting was straightforward. Unscrewing the base of the unit reveals the electronics (all looking well-sealed under a plastic encapsulating layer) and three spade connectors – two 'live' and an earth. This is fine if you have suitable connectors to hand. Just one was supplied. One small problem was that it was difficult to close the casing when using wires slightly larger than those supplied. I tried to use more resilient two core bell wire to provide a solid earth, but ended up reverting to the thin wire supplied, and using the frame as my earth. Similarly, when I tried to use three wires, two live and a separate earth, the casing was tricky to close. If you don't mind a bit of carving with a penknife, though, it should be easy enough to trim off the edge of the casing to make everything fit.

I also bought the Lightspin mounting bracket, a little different from the standard dynamo mounting bracket as the unit has two mounting bolts rather than the usual one. The mounting bracket fitted easily to the seatstay of the Greenspeed GTS trike, although the angle adjustment of the dynamo was at one of its endstops with the 20" rear wheel. It looks like this might require some thought with an even smaller-wheeled machine. It is worth using Loctite (thread lock) on the bracket bolts as they don't have Nylok inserts, and I lost one of them on my first test ride.

The unit is engaged by pulling it away from the wheel and releasing. This releases the catch and the head of the roller rests against the tyre. Pulling it back from the tyre engages the catch again: a simple mechanism giving a clean line without any levers or buttons to operate, and a useful feature when wearing gloves or mittens.

The base of the unit reads 6V 3W, but as there is (or will be!) a Lightspin model with battery backup the unit actually provides more power than this (some is spare for future battery-recharging purposes). With the Lightspin Lite, with no battery backup, this means that the full output of 4.5W is available to drive the lights. I fitted two Lumotec 2.4w headlamps, one on the front of each steering arm on the trike. The light output from these has been excellent compared to the output from the single lamp, powered by a 3W Nordlicht 2000 dynamo, that I used before.

I had been using a metal roller on the Nordlicht because of the wet autumn and muddy local roads. The Lightspin's rubber roller has behaved well in comparison, slipping only occasionally for a second or two after riding through mud and puddles. One or two initial longer slips were remedied by pushing the roller against the tyre momentarily. These longer slips have not repeated so I've put them down to 'running in'.

So how does the Lightspin behave? Is it all we have been told? Well, pretty much, yes! On steady climbs the two lights have been on and have appeared to be running pretty much at full power. On the flat, riding with the lights on is almost no extra effort. The hum of the Lightspin is the only real clue that it is there. The only time I have noticed it is on rolling hills. When trying to pick up maximum speed on a descent to climb the next hill I've been starting to climb a little earlier than I normally would. But this test was carried out in daylight and I'm pretty sure I wouldn't want to be travelling at that sort of speed in the dark...

The only worry is that the instruction leaflet does warn of a maximum speed limit of 34mph (or 55km/h) when using the Lightspin. Whilst that might sound like a wild speed for night riding I regularly ride at such speeds coming down off of the moors, where I may need to use the lighting in poor weather. Time will tell if this is a serious limitation. No problem has been noted during testing so far.

So the Lightspin is finally here and in the shops. It has been a long time coming but seems to be delivering all it promised to, maybe even with a little more output that I expected. I consider it £60 well spent and have no plans to return to the older generation of dynamos.

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The Lightspin (above) in place on Tim's Greenspeed (below).

TIM KIRK

Brighter light and lower resistance were what tempted me to replace my aging Nordlicht. I mounted my Lightspin on the bracket from which I'd just removed my old dynamo, and with a Nylok nut to hold it tight, it has remained secure and rigid.

In use the Lightspin lives up to its low drag reputation but at first I found it somewhat noisy. This was due to the rather lightweight, but heavily treaded, rubber cap that runs along the tyre. After less than a week the rubber split. My local bike shop found a functional replacement, a much heavier-duty cap from a dynamo they had replaced on another bike, which fitted on well and has resulted in a very quiet ride indeed. Unfortunately, the rubber-on-rubber contact, while working very well in the dry, is poor in the wet. The dynamo slips in the greasy conditions that are all too common in the winter in York, and I have had to reach behind my back to give it a push start several times. This is exactly the same problem that I had with my Nordlicht, but that was solved when I found that Nordlicht offer an optional milled metal head for their dynamo. This performed flawlessly in all conditions, and I am considering making some modifications to the Lightspin so that I can fit a Nordlicht head to it.

In conclusion, the Lightspin offers the lowest resistance and the most solid electrical connections I have ever seen on a dynamo. The resistance is low enough for me to have ridden to work in the morning without realising that I had left it on from the previous night. However, the main unit is slightly let down by the very average rubber head that is (in common with many dynamos) not up to bad weather commuting. The addition of the forthcoming integral standlight facility would make the Lightspin an excellent lighting solution, and with a metal head to give poor-weather performance it could become the definitive lighting solution for both commuters and long-distance cyclists.

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MANUFACTURER'S RESPONSE

From Werner Stettler, Dynosys AG, Staad, Switzerland

We have succeeded in developing a magnetic circuit that allows the rider to generate electricity with hardly any resistance. Despite this low resistance, we have received a few reports about slippage in heavy rain. We checked them out and found that most of the time the LightSPIN was not mounted correctly:

- Use a tyre with a dynamo band on the side wall. Slick side walls are not reliable, offering no grip to the pulley cap. Wash off the greasy film from street traffic which sticks to the side wall.
- Mounting: in the vertical OFF position the distance between pulley cap profile and the tyre side wall should be closer to 12mm than 15mm.
- Alignment: the axis of the LightSPIN must be exactly aligned to the centre of the wheel so that no useless friction is produced between pulley cap and tyre. If the LightSPIN is not aligned correctly then the humming sound gets somewhat louder. Alignment is crucial!
- Modern front lamps have a zener diode built-in. Since the LightSPIN has its output regulated and limited to 6.2V, zener diodes interfere with the electronic circuits and produce an additional resistance of around 5W. We recommend that such zener diodes be removed.
- We use crimped connectors to connect the cables because this method is used in the automotive industry and is very reliable even in moist and salty conditions. We are aware that not everyone has a crimp tool and the correct size of connectors on hand, so it might be best to have the LightSPIN mounted by a dealer. We supply one cable (with connector) to go to the front lamp and, in series, to the back light, and we assume that the earth is taken from the frame. Nevertheless there is a separate spade connector on the circuit board for the earth to be taken out with a cable if need be. If three cables are used, 2 for lamps and one as earth, the two small openings in the casing bottom cover have to be worked open slightly to have the cables fit in.
- In response to feedback, we have increased the pressure of the spring with which the pulley cap is pressed to the tyre.

I hope that your report does not give a negative impression. We have many users who do not have any problems. We very much appreciate hearing about the experiences of users: these are the basis of all improvements. Please do feel free to contact me with any questions of feedback.

[Editors note: I wonder if the 20" wheels on the Greenspeeds which Rob and Tim tested the Lightspin on may be more sensitive to alignment than, say 26" wheels, because the dynamo's 'track' is more sharply curved? In fact, shortly after finishing his report, Rob found his pulley cap had come off, which, say the manufacturers, is a clear indication of things not in correct alignment. It is to the credit of the manufacturer that as soon as he heard about their problems, he phoned both testers up and is now working with them to sort out the slippage. He also put me in touch with several happy customers who have had no problems with slippage at all.]

Availability:

So far only the Lightspin Lite model without the back-up battery that keeps it burning when you stop is available. If you're very lucky your local bike shop may have one: otherwise, contact the manufacturers for a list of stockists. You can also order direct.

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The website is shockingly out of date, and hasn't been changed at all in the last few years. But there are plenty of other sites with Lightspin info: just do a search.

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