

Zero DSR Black Forest Electric Motorcycle

Needless to say the age of the electric vehicle is well and truly upon us. Visit any major manufacturer's showroom today and there will be some option for a hybrid electric which is either charged at a pod, or at home, or self-charged. Alternatively, there is the full electric, obviously only charged via some external source.

To date for myself this has only been an experience within the car industry. Of course, I knew (ish) about development in electric motorbikes, and indeed the FIM MotoE World Cup, but what if the average everyday biker was interested in going electric, and what would it look like if they did?

Well, I recently got the chance to test ride a Zero DSR Black Forest. This is essentially the Zero DSR kitted out with a luggage set (Givi top box and side panniers) and other adventure or touring style changes such as knobbles for rubber, a longer travel suspension, a more upright riding position, crash bars and a good touring screen. It can also have as an option Zero's Charge Tank and my demo bike did have it fitted. This technology enables the bike to be charged around six times faster than by using a standard Type 1 charge, by using Type II charging stations. This means a 7.2kWh single battery DSR can be charged within about an hour. Impressive. The Black Forest, a twin



battery 14.4kWh model format, takes about 2.5 hours. A long time for a coffee break maybe but it still means you're charging half the "tank" in about an hour.

The suspension is pretty versatile, as you might expect on a touring version of any bike. The front is a Showa 41mm inverted unit with adjustable pre-load, compression and rebound. The rear is a 40mm single unit with the same adjustments. All adjustments are manual, it is not an electronic setup like the ESA units on BMWs or the WP units on modern Triumph Explorers. Front brakes are Bosch gen 9 ABS single disc units front and rear. There's a J-Juan asymmetric dual piston floating caliper on the front (320 x 5 mm disc), with a J-Juan single piston floating caliper (240 x 4.5 mm disc) to the rear. If you are used to chunkier bikes like the GS, Explorer or KTM offerings, you might begin to think that this braking arrangement is a little on the light side. However the Zero has sub 200kg curb weight and all I can say is that on the road it has all the braking you need.

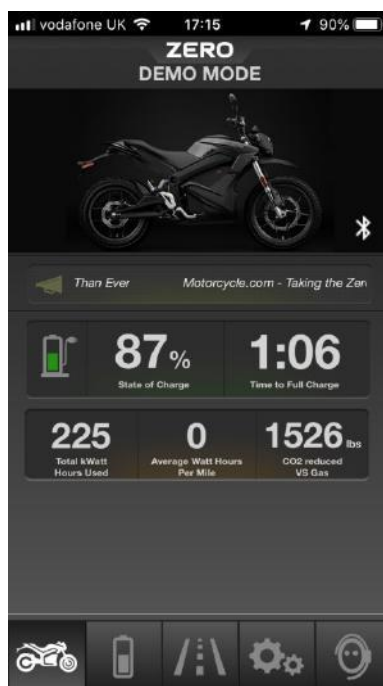
The dash is fairly straightforward and consists of a single LCD screen with the usual array of warning lights and the like along the bottom. The screen shows the battery state, the mode (eg. ECO) that the bike is in, whether power is being taken or the battery is undergoing regeneration during braking, the odometer, clock and other communications. There is also a power output socket which is

kind of useful for any mobile phone based GPS you might like to attach to the bars. So what do I mean by communications? Well, here's the thing, the bike comes with an App. You've heard of those haven't you? All the rage nowadays with iOS, Android, Bada and others.

The Zero App is how you change the setup of the bike, monitor trip and battery information, and generally find



out what is going on with your bike. There's an intro screen which shows how long it will take you to charge the bike back to full, and believe it or not how many pounds of CO2 you have failed to send into the environment by virtue of being an eco-warrior with an electric bike. The real advantage of the App though is in the setup of the bike. You can change the drive setup, particularly custom top speed, max torque, and max regeneration. Max



regeneration in terms of braking is important. Turn it right down to zero and you won't get any, which means take your hand off the throttle and the bike will just idle along with no "engine" braking. Whack it up to 100% and you can hear the brake generator going and the bike will emulate engine braking to an extent. I put it up to 90% when I tested the bike (twisties and open road along the old Plymouth road between Totnes and Cap'n Jaspers café on the barbican, Plymouth), and it gave me reasonable "acceleration sense" style control of the bike. On a short bit of the return trip, again in the twisties, I put it down to 0% and didn't like it at all: I was forever on the brakes to slow the thing down on entry to the bends.

There is also an LCD screen setup page. There are five areas on the bike's LCD screen and you can decide what you want to see in each of them, including distance or time to "empty", which is rather useful!

Switches and the like on the bike are fairly sparse. These are for lights (including hazards), indicators, horn, kill-switch and "mode". That's it. No cruise, no heated posterior or hands,

no radio, no daylight v night-light running, suspension or ride mode controls or dash information edit switches (remember this bike has an App for that!). The “mode” switch is there to let you move from the “mode” you set via the App (regen, max speed etc), and an ECO mode, which tries to get you the farthest it can.

So, enough about the bike, what about the ride itself. I was warned to keep the setting for the throttle turned down, at least to start with. This is because, as you may or may not know, you get maximum torque from zero “revs”. Net result is that the bike can take off like a rocket if you are a bit heavy handed on your right. I found after no more than about 15-20 minutes I wanted to get control back and made up my own “mode”, designed to be let’s say “more progressive” in its response. In other words it really doesn’t take that long to get a feel for this early availability of torque provided you’re not a complete ... if you know what I mean!

The demo trip was taken along with Steve Hyde on his Pan European. That bike is not renowned for being “noisy” in that sense. But everytime we stopped all I could hear was Steve’s bike buzzing away behind me! The silence takes more getting used to than the throttle, believe me! The most noise the bike made was through the regen-brake unit when “engine braking” was being called for, and the relatively knobbly tyres (Pirelli MT-60s) on the Queen’s Highway. Perhaps my smile filled joyous laughing was another factor, but the bike itself? – ziltch, nada, silencio.

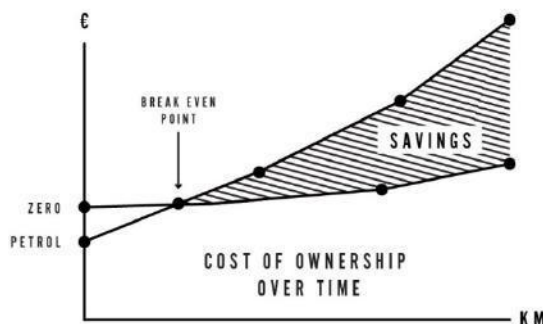


The bike is a hoot. It takes off smoothly (with careful use of the throttle), brakes well, is very well balanced, tips into bends like a pro, sticks to the floor (good preload, rebound and compression as factory set, though if you took it to a suspension specialist to get it right “for you” it would likely become astonishing good).

When we got to Plymouth I parked up quite by chance to an old Norton. What a noticeable change in technology over my lifetime (this far, and no comments thank you!). While engaging in the customary fully filled bap with coffee, quite a few interested people came along to stare at the two bikes what he thought. All he said was, “I can’t see where the exhaust pipe is, and why’s the engine covered?!” In many ways, that was the whole experience of this bike. Overall it looks like a (“normal”) bike and it handles like a (“normal”) bike. It just isn’t one: it’s 100% electric.

The Zero website shows a neat little graph that gives the long term view over the cost of ownership for one of these bikes. There is no doubt the initial cost is greater. The cost of the demo Black Forest is £19,585 on the road, and that’s after receiving a £1,500 Government

grant (actual book price £21,085). That's not cheap! My top of the range Triumph Explorer cost £17,200, and arguably has a lot more "toys", but that's not cheap either (not to self: cripes! hope my wife doesn't read this mag!!). In fact no top end bike is cheap anymore, and running them certainly isn't what it used to be. We run bikes now because we love them, not because they are a cheap form of travel. There are cheap bikes, don't get me wrong, but that isn't the market we are talking about here, nor the riding ethos. The same website also shows a lovely picture of 15 things you will never do again, and when you take into account the cost of doing these things, well, the pound signs start rolling around. Sure, there is maintenance of sorts, you still have to keep the belt drive adjusted and replaced, and there are still tyres. There is also the question of the battery and maybe the Charge Tank. I don't know about this



bike, but any buyer should take pains to get some assurance over what the cost of a replacement will be, and how many years each one/set will last. By way of example a friend of mine owns a Peugeot hybrid (car) and has just had to replace his battery after 5.5 years. Cost? £6,500. To show my skill in maths that's over £1,000 a year running budget for just the battery. I doubt very much the 14.4kWh units in these bikes would cost that, but it is a cost that should

be taken into account when working on any cost of ownership graph. Zero do have an unlimited five year warranty on their batteries, so at least time is comparable.

Finally we come to the charging question while out on the road. Bear in mind the "combined" figure for this bike is around 90-100 miles, and certainly my experience on the demo would confirm that. For starters say hello to at least two more Apps, but likely one or two more than that. There is "Zap-Map" which can tell you where charge points are and provides a routing option whereby you can see where all the charging stations are on the route you need to take. Then there are the Apps that enable you to use those charging stations and, like carparks, there isn't just one agency that controls these, so that's one App per agent's chargers that you'll need. Recently I had to go to an Examiner's meeting in Bristol, 95 miles away. There isn't a charging unit at the venue which means I would have had to charge most likely (to be safe) on the way up, for maybe 30 minutes at least. So a 1.5 hour trip runs into a 2 hour trip. On the way back a full hour's charge would be needed, so now the return trip is 4.5 hours, instead of 3 hours. This could seriously hamper a time-critical touring type use of this kind of bike. However, if I had to test an Associate, this bike would be absolutely fine, provided I didn't have to travel more than about 20 miles to get to/from the meeting point (leaving enough "juice" to do the task in hand).

In conclusion I think the bike in itself is wonderful. I really liked it and had just the most fun out of riding it. There may well be cost benefits over an extended period of time, but I do feel you would need to judge this well and be careful to take the battery replacement into account. For short (90 mile) trips the bike is excellent. In ECO mode while gently commuting there is a chance you could get nearer 150 miles. If you blast up a motorway at 70 mph you're only going to go for just over an hour. Then you'd have to stop for an hour to get a 90% recharge.

This is where touring amongst the twisties and up into the hills would make me think twice as to the suitability of such a bike. I can go a good 220 miles on a tank with my Explorer and with backup fuel can extend that to 400 easily, no stopping. Within that distance I can usually find a gas station, no matter where I am and even if it means buying it in a used plastic container off some child by the side of a dusty road. Can I say the same for every 90 miles and the availability of a Type II charger? Frankly, no. And would I want to spend an hour, every hour and a half, doing nothing, going nowhere? Frankly, no.

If you have the money, or are involved in a certain kind of riding which would suit, there is no doubt the electric evolution would be a viable option and just as much fun (especially if you fitted a speaker with downloadable bike sounds – you could have a different bike every day of the week!). Currently, if you do a lot of touring, over bigger distances, are time-strapped and will be in lesser known territory, you'll still need your petrol one. Answer, have one of each, for the present anyway. So, assuming my wife doesn't read this magazine, how can I now convince her I (also) bought this one for a lot less than I did!?

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