Powa El-Tox Citybike, a real green motorcycle?

Alan Cathcart

Suddenly, the world is turning Green – politically, that is. The growth of the environment lobby, coupled with the aftermath of events like Chernobyl and Bhopal, has awoken ordinary people all over the world to the long and short term dangers of our present widespread disregard for the future of the earth we live on. Inevitably, politicians have rushed to climb on what they perceive as a vote-winning bandwagon; at the point someone as fundametally disinterested in introducing controls over the way industry is allowed to operate as Margaret Thatcher espouses the Green cause, you can be sure a breakthrough has been made. Environmental politics are here to stay; acid rain and CFCs are out, joining Greenpeace and using lead-free petrol are in.

The greening of the motorcycle world is already being felt, and nowhere more so than in Switzerland, where the population's innate conservatism has been surprisingly deeply tempered with a widespread concern for the environment. Switzerland already has the world's most stringent emissions and noise regulations, requiring manufacturers to build special Swiss-market models if the wish to sell their products in what is nevertheless one of the most dedicated European bike communities: more RC30 Hondas were sold in Switzerland than in any other country last year, for example – even though their race-level power output was strangled by the effects of the 82dBa noise regulation, measured under acceleration in second gear at full throttle. Add in a rigorously-enforced 120kph (74.5mph) speed limit on freeways (and 80kph almost anywhere else), and you might come to the conclusion that the time is ripe for a radical rethink on the topic of two-wheeled design.

Hans Walther would agree with you: he's one of the people who's been doing the rethinking. Best known as the creator of such outrageous Swiss specials as the Moko-Harley and Powa D-10, 42-year old Walther is also an avant garde industrial designer whose Powa (POlyester WAlther) Design Studio in Basle works in a variety of fields from two and four wheels to interior design. A former road racer on 250 Yamahas, he's had a seminal influence on the evolution of current motorcycle GP bodywork, as well as designed a Powa helmet which will shortly hit the market, equipped with several innovative, even revolutionary features.

Now Walther has turned his attention to producing an environmentally-friendly motorcycle which at the same time is attractive enough and has sufficient performance to make it a real alternative to the current breed of machines powered by the internal combusion engine which are encountering ever-increasing restrictions. The result is the Powa EL-TOX Citybike, an avant garde commuter bike equivalent in size to a conventional 125cc machine, but designed specifically to capitalise on

Phil Masters

POWA CITY BIKE

Switzerland's so far unique regulations designed to stimulate the development of ozone-friendly vehicles.

The key to the Citybike's specification lies in its name: TOX because it's non-toxic, EL because it's electrically powered, though a DE-TOX version powered by a small-capacity four-stroke engine fitted with a catalyst to substantially reduce toxic emissions was also considered before Hans opted in favour of the electrical solution. The crucial factor is that his brother is an electrical design engineer, who has developed a motor for the Citybike which is expected to meet Hans' target of 100kph (60mph) top speed and 50km (30 miles) range between charges, using no more than eight and possible as few as six conventional 12v batteries. 'Expected', because at present the Citybike exists only in 1:5 scale model form, though construction of a prototype is well advanced and plans have already been initiated for series production of a customer version – in Taiwan!

The key to this unlikely manufacturing site is Walther's partner in the Citybike project, Swiss homoeopathic doctor Urs Zimmerli, whose brother owns a factory in Taiwan with a high-quality technical capability in mechanical manufacture and which among other products is producing the Powa Design helmet about to be launched on the Swiss and German markets next year. Zimmerli is not only an active motorcyclist himself but also one of Walther's customers for his D-10 Yamaha FZ750-based dream bike, and is able to provide the kind of commercial backup that an artist like Hans all too often lacks. How come he decided to become involved in the Citybike project?

'Environmental issues are the single most important consideration affecting everyday life in Switzerland today,' states Zimmerli fervently. 'Both in politics and business, they affect every decision made, and the public support for green politics means this will only intensify in the future. Transport is the sector most obviously affected by this attitude, so the time is extremely ripe for a project such as this, which will offer an advanced solution to the problems of two-wheeled design for the 21st century. We're targeting SF6000 (£2300) as the price for the Citybike when we launch it some time within the next year or 18 months, when we will have produced the first batch of 200 customer bikes. After that, if as we hope demand for the product is high, the price can come down in mass-produced form, thanks to the economies of scale. I personally believe that the concept will catch on: we have the right idea, at the right time.'

But after the debacle of the Sinclair C5, a similarly environmentally-friendly electrical powered three-wheeler whose creator Sir Clive Sinclair had great hopes for its acceptance by the public at large, but which turned out to be a multi-million pound flop, can Zimmerli and Walther really have any rational hopes for success with the Powa Citybike – however snazzier and more stylish it may look than the C5? 'Sinclair was five years too early to be successful,' says Walther firmly, 'plus there was one big drawback with his C5 – it wasn't designed by a motorcyclist! Firstly, it didn't have enough power – with only two 12v batteries, the range was minimal and the ▶

performance was very poor: there was hardly enough power to pass a moped, for example. Secondly, it was far too low, so that not only did the rider feel threatened by other traffic – sometimes with good cause – but he also couldn't be seen, especially by high-mounted drivers such as in trucks and buses. I'm surprised more people weren't killed in Sinclairs, and I wasn't surprised the idea didn't catch on, even if I applauded it then. It was the design of a cyclist rather than a motorcyclist, and it was too far ahead of its time.'

'Our Citybike on the other hand is a proper motorcycle in terms of size and performance. The prototype is using the wheels and brakes off a 125 Yamaha, for example, and our target weight for the complete bike with six batteries is the same as a 250cc twin-cylinder four-stroke. Computer projections show that with the present performance of our engine, we can achieve the 100kph/50kms range that was my design target when I started the project, thanks to the low drag factor and light weight of my bodywork design. But the most important factor is that, after the initial purchase price and ignoring the cost of consumables like tyres and brake pads, the Citybike will literally cost nothing to operate! We have a law in Switzerland which permits you to 'borrow' electricity from the national grid, and to pay it back at a later date from your own solar-powered generator. So if your house has a solar panel, as an increasing number of properties in Switzerland do, then even if you can't recharge the Citybike's batteries from your own resources because the weather's not good enough, you can plug it into the mains and they pay back the current you've consumed later on when the sun shines. Really, this is a much more practical solution than equipping vehicles with solar panels, which are not only very costly but also require a lot of physical area to produce any power, which end up negating the advantages of two-wheeled transportation.'

But that's not all: Switzerland's green thinking even extends to the ACUs, as the new generation of batteries, aka charge units, are termed. Hans Walther explains: 'Recent advances in ACU technology have enabled their size and weight to be reduced relative to the charge and therefore the power they yield – which makes realistic performance and range now attainable – as well as the number of charges they will accept from full discharge. New ACUs now need only to be renewed after 1000 charges – but on top of this, they can now be recycled to produce born-again ACUs!' Looks like the Powa Citybike, if the working prototype fulfils the claims made by its inventor, will come close to providing that ultimate ideal: free, self-regenerating transportation.

Amidst the green benefits of its mode of propulsion, the exciting design aspects of the Citybike's bodywork are in danger of being overlooked. Walther claims that the design will offer adequate weather protection, sufficient to enable a city businessman to use it to whizz to work without getting his suit wet, while the many ingenious touches like the rear view mirror mounted above the rider's head, or the electronic alarm system on the dash, or the way the controls are arranged so that all can be operated without removing your hands from the evolutionary handlebars, or the single-sided front and rear suspension; all are the products of a fertile imagination. Forget about the ozone-friendly engine – the Citybike would be an exciting form of commuter transport even with a NO-TOX motor fitted – as in NO attempt at eliminating TOXins!

Definitely one of the funkiest two-wheelers ever designed, the EL-TOX is everything the Sinclair C5 should have been

Walther and Zimmerli are convinced the time is right for the launch of the Citybike, and have already had offers from large corporations to take the project over. For the time being, they prefer to develop it themselves to the point that the first batch of 200 machines is built and sold. 'At that point, we'll be able to assess the market and decide if we need outside help to go into mass production,' says Zimmerli. Wonder if one of those big names was Kawasaki? After all – this is a Green tweenie . . . !

Feet-forward (eeek!) riding position and full enclosure should widen the Powa's appeal beyond 'mere' motorcyclists