

## Electric Trike Conversion

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Still not back in circulation and with time on my hands I decided to convert my 1953 Higgins Ultralite Tricycle to electric assist.

I am on the (long) waiting list for a knee replacement (I really need both knees replacing) and am aware that cycling without load is a good form of exercise both pre-op and post-op.

Having looked online there are many options to convert bicycles. As I was using a Trike only a front wheel conversion was viable (rear wheels are driven through a differential).

In the UK there are strict standards to follow to be 'road legal'.

No more than 250 watt motor  
Maximum of 15 mph road speed  
Pedal Assist (PAS) control to engage the motor

Ebay is littered with parts of the solution but not all work together and most of the motors on offer exceed the UK maximum wattage.

Other considerations are wiring standards for accessories and charging, compatible charging unit and battery pack which can be sensibly mounted.

I decided to pay a little extra and settled on the Swytch kit. Delivery time was much longer than I would have liked and import duties added before delivery !

To accommodate the electric kit I decided to change the handlebars and brake levers. I adopted the Brompton bars with Shimano levers. This raised the riding position considerably as it replaced dropped handlebars.

On arrival I unpacked and checked the kit against a check list supplied – all was present.

The battery pack went on charge (upto 3 hours charge time).

I started by fitting the Power Pack Bracket to the handlebars. The instructions were clear and the design well thought out – a few minutes later it was in place.



Next I turned my attention to the front wheel. I fitted a new tyre & inner tube, then inflated. I then attempted to fit the front wheel with it's motor hub – not as easy as I had hoped. The fork ends having a 3/8" slot and the hub spindle being 10mm. After much sole searching I opened up the fork ends to a 10mm fit and painted them where damaged. The wheel now in place I ran the wiring up the forks to the power unit.



Next I fitted magnetic disk onto the nearside crank axle. Locating the PAS sensor within a millimetre of the magnets was another challenge – only made more difficult by the sensor only working in certain orientations ! Again the wire was run along the frame tubes and cable tied in place.



I added a Thumb turn throttle as an extra to allow the motor to assist when pulling away at a standing start. This is extremely useful at road junctions for safety reasons.



With the kit fitted it was time to alter the settings – partly to understand the options available and of course to get the settings in line with my requirements.



The power level can be simply altered whilst riding along – I only need level 1 (60%) for normal riding but appreciate level 5 (100%) when climbing a hill. Keeping it on level 5 would not only shorten the battery life but would also take the trike up to 15mph more quickly than I am comfortable with.



I have been out on the trike and it is so much easier to pedal – almost like the wind is behind you which ever way you are riding. My next task is to fabricate a new pannier rack which will be lower down but still allow rear lights and reflectors to be fitted. That will help with mounting and dismounting the trike when my new knee has been fitted.

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