

Although minis tend to hog the limelight, there is a fast expanding micro excavator market in this country. So Editor Nick Johnson went to South Wales to site test the latest product update from micro pioneer Powerfab.

# Small scale success

It is often said that necessity is the mother of invention and this saying rings very true when one discovers why Powerfab developed the micro excavator. For, about four years ago, the recession suddenly hit this South Wales fabrication company very hard when sub-contract work from its three major customers virtually dried up overnight. As Sales Director Ken Johnson calls, the country was on the 2/3 day week but the little family company did not even have sufficient work for the two days it had elected to work.

The situation was getting desperate and Powerfab needed its own product if it was going to survive. So Managing Director David John decided to develop the idea of a very small excavator which he had conceived years earlier whilst laboriously hand digging the garden of a new bungalow. And such was the urgency of the situation that the first prototype Powerfab micro excavator was designed and built in just three weeks.

A public showing of the original Powerfab at the 1981 ICE exhibition convinced the John brothers — there are four in the family concern — that the micro excavator was a viable concept and that the company was set on the right road for success. Some five units were then sold locally — to gain user experience — before the original 125W model was officially launched at SED '81.

## User feedback

The Mark I 125W stayed in production until mid 1982 when improvements were made in the light of feedback from users. Problems with the rear axle resulted in a stronger two position bolt-on design together with larger diameter wheels fitted with better tyres. The Mark II machine also benefited from pivoting front stabiliser legs, a two position boom ram (to provide increased loading height into builders trucks) and a higher capacity Lombardini tandem gear pump hydraulic system (which resulted in higher operational speeds).

Now the Welsh pioneer has moved



Nick Johnson at the controls to remove another bucketful of Welsh muck.

forward yet again with the launch of a further updated version of the 125W. Designed to offer a self-trailer model (designated the 125WT) the unit can be towed from site to site on its own integral trailer. Purchasing a separate trailer is therefore no longer necessary and according to the company the inexperienced user will find the integral trailer far more convenient to use. I went along to the factory at Tredegar in Gwent to find out.

The beauty of the micro excavator in general and the Powerfab in particular is the simplicity of the concept. The machine arrives on site ready to dig and it is a straightforward task to get the machine into its working position. The self-trailing version of the latest 125W comes complete with tow hitch and bar, rubber suspensions with wheels and mudguards and a lighting board. It has a total weight of 540kg and therefore it can easily be towed by a family car or a light truck. Alternatively, this unit can be transported in the bed of a standard pick-up.

The test 125WT was towed to the site behind a standard pick-up. In this travel mode the machine is self contained with the exception of two safety chains which

secure the bucket to the front stabilisers and the rear stabiliser to the towbar. On the road Powerfab recommends a maximum towing speed of 64km/hr (40mph).

For certain jobs, such as where the rear stabiliser spade might damage a finished road surface the 125WT may be used whilst remaining hitched to the towing vehicle. With the weight of the vehicle counteracting the horizontal digging forces and with optional laminated feet on the front outriggers, this format could prove popular with Gas Boards when they dig up public roads.

I wanted to test the 125WT on a rough site so it was quickly unhitched from the pick-up and the tow bar pinned up in a vertical position out of the way behind the operator's seat. Once on its four rubber tyred wheels, the machine can be pushed along on smooth level surfaces by one person. And on site all that is required to be done is to walk the excavator into position using the front end digging equipment.

Despite the multi-level controls I was soon able to master the walking technique. By operating the boom and dipper arm cylinders the machine may be either rolled forward on its two rear wheels or

pushed backwards. The miniature digger may also be moved in an arc by swinging the boom to place the bucket in its required ground position to give turning movement.

To aid walking on site Powerfab rearranged its control levers on the latest 125 models. The crucial boom and dipper controls are now sensibly positioned on different sides of the short central rear outrigger lever. Although the control levers are rather close together they are now vertical, to aid easy operation, rather

gle or 3-phase electric motors, is available.

Powerfab considers that the standard 3.7kW model will remain the most popular with builders and the hire companies which currently take one third of the company's production. The 7.5kW model is attracting more attention from Gas Boards and local authorities since it can also power a hand held hydraulic breaker. A machine-mounted hydraulic breaker is also available for the 125° slew-micros but initial sales have not been dramatic. However this composite unit could find favour

711mm (28in.) or with one leg in the 'in position' for digging alongside walls.

In addition to their horizontal adjustment the front stabilisers on the new 125W's also have a four hole vertical pin adjustment. Now the machine can dig with one leg on a kerb or even with the whole unit on a slope without prior levelling of the site.

Moving the self-trailerred Powerfab off the rough site, I compared it with its Mark II predecessor. It was then obvious that the body of the new machine had been shortened (to aid confined space working) and the weight distribution altered (which enables it to be pushed and turned more easily by one man).

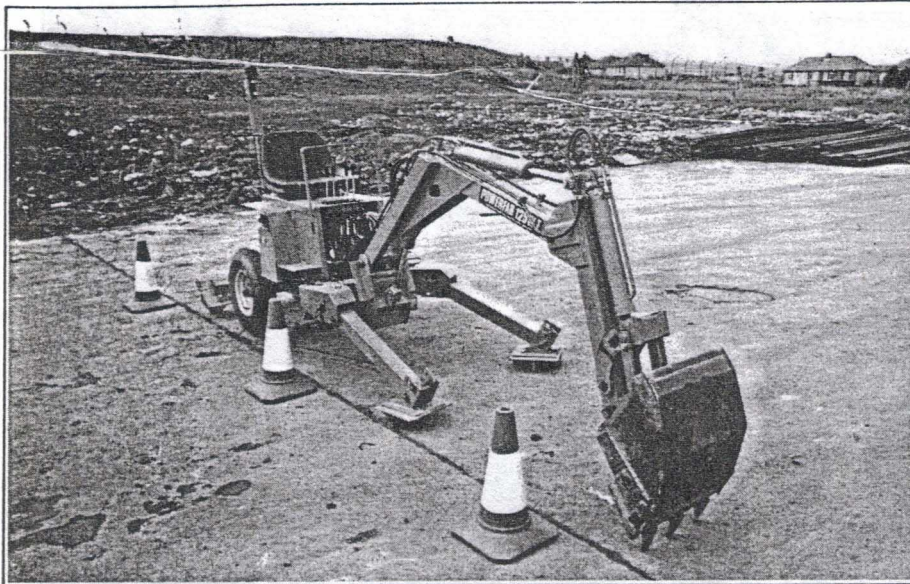
On the old machine the engine access was provided by a hinged canopy whereas the new shortened unit does away with this canopy and the engine, hydraulic tank and valve block can be reached from the cutouts in the back, side and front of the bodywork. Whilst this might aid the fitter it does expose the components more to the threat of vandalism, since neither the fuel or hydraulic tanks have locking filler caps.

## Two types

After removing the old machine I arranged for the standard 125W Mark III to be positioned alongside the 125WT. For although the self-trailerred 125WT has been launched to satisfy certain market needs, Powerfab is convinced some people will still prefer machines with a separate trailer. Indeed, its original philosophy was that the machine should be designed purely for site operation and that the trailer would be left at the side of the site — clean, tidy and, above all road-worthy.

Now with the ability to tailor its latest 125W to suit most market requirements — and there is even a special grave digging version — Powerfab looks set to maintain its lead in the market it created. Certainly I was impressed with the performance of my test 125WT and I can see the UK micro market growing rapidly from the 500 machines estimated to have been sold last year, as more people discover this welcome replacement for the pick and shovel.

David John remains tightlipped about his annual production, but machine serial numbers indicate that over 1,100 125° slew micros have been sold so far. And with production of the larger 360° units now increasing, Powerfab with its small scale machine has probably become the largest excavator maker in Wales following the departure of Hydrac from the nearby Rhymney Valley. **T.M.J.**



The 125WT adapted to work alongside a wall with front wheels removed and one stabiliser in the 'in position'.

than at an angle as on previous models.

Whilst I would prefer to see twin joysticks (in standard excavator tradition) one soon becomes adept with the four main levers and a prominent instruction plate clearly shows what each lever does.

## Improved comfort

Operator comfort on the latest 125W is improved with a better seat which sports a higher back, fore and aft adjustment and that most essential requirement in our wet climate — a drain hole at the rear. Another useful addition is the hand-rail over the top of the levers which not only protects them from damage but also enables the operator to pull himself on board without grabbing for the levers, which would be dangerous if the machine had been left running.

In operation the standard 125WT with its 3.7kW (5hp) Honda GX140 engine proved to be a fair digger. However, the stony Welsh material probably warranted the extra digging power obtainable with the optional 5.2kW (7hp) or 7.5kW (10hp) Honda G300 and G400 engines. Alternative power, in the form of Isotta or Lombardini diesels or even sin-

with demolition contractors working on the upper floors of multi-storey buildings if the base machine were to be fitted with lifting eyes to enable it to be safely craned into position.

The micro is primarily designed for excavating and, with its standard dipper arm and standard 330mm (13in.) bucket, the unit can achieve a maximum digging depth of 1.6m (5ft 3in.) with the boom in its deep dig position. The use of an extended dipper arm and a deep dig bucket can increase digging depth to well over 2m (6ft 6in.).

## Stable unit

With the front stabilisers at their widest setting the machine proved completely stable even with a full bucket load at maximum outreach and at the limit of the 125° boom slew angle. For all normal digging operations the front stabilisers should be at this fully out position. There is also an intermediate position for confined spaces and an 'in position' where the legs are lying in line with the chassis and the feet are at the narrowest centres. This position allows the machine to pass through narrow openings down to