

Drill Control Unit

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Like most hobbyists I made my own boards and until now (1984) I'd used a Precision Petite p.c.b. hand-held drill with a fairly basic speed controller and drill stand. It wasn't brilliant but I ploughed my royalties back into my hobby and it was a start. The crude Precision Petite controller didn't impress me much, and I eventually came up with a much more rugged regulated variable d.c. project based upon an LM317T.

I added a simple current overload i.e.d. to warn of excess load being applied to the power supply (if not the drill). It lit when the current reached 1.2 amps or so, which warned when the drill was stalling or you were nearing the maximum current; the LM317T would shut down if it overheated due to excess power dissipation. Quite a useful idea, I mused, and it was very effective in practice. I also fitted a useful footswitch to make operation hands-free. I would often be seen stamping the footswitch on and off on the garage floor during drilling.

There was no back-e.m.f. feedback involved so the unit didn't deliver a constant load to the drill like a sophisticated motor controller would, but it was more than adequate for p.c.b. work and I used it a lot, taking the overload i.e.d. to its limits.

The very large Bakelite knob was sold by Maplin for train controller projects and it was ideal for this design. The case was a monster, a grey and hammer-black sloping steel thing that was murder to work with and had sharp corners, but it was as tough as old boots. It was probably twice as big as I really wanted, and I even added a carrying handle! Again I used a multi-function centre-off toggle switch, with panel dress nut (ElectroValue) and lens clips for the leds, and I was automatically using a cable gland for securing the mains cable inlet by now. No more P-clips and grommets hopefully.

As well as Letraset I'd also started using (now obsolete) *Permasign* UV-sensitive label-making products by this time, a fantastic black UV adhesive film that was exposed to artwork and developed, then a coloured double-sided adhesive laminate would be added that appeared through the clear areas. The shiny Drill Control Unit badge above the knob had bright green lettering and looked very smart! I used Permasign a lot for little panels, and I often borrowed the guillotine from a lab at work in order to slice my labels accurately. (I often returned it gunged up with adhesive...)

As my Precision Petite drill stand went rusty I graduated to better equipment (a Dremel) and the prototype and drill were eventually scrapped after falling into disuse. But my Drill Control Unit worked hard and earned its keep through the 1980's and beyond.

You can download the original constructional article as a PDF from www.alanwinstanley.com.

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