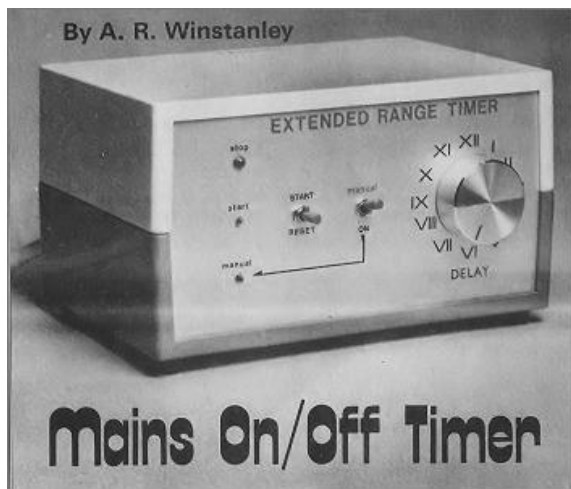


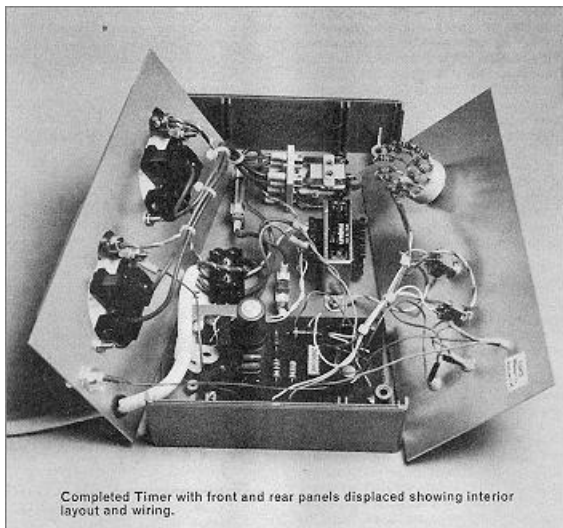
Extended Range Timer

Published as **Mains On-Off Timer**, Everyday Electronics January 1980



For this project I wanted to generate lengthy time periods accurately without using a board full of TTL logic. I used the new self-contained Ferranti ZN1034E timer chip to produce delays of multiple hours (or days if you wanted), maybe to turn a heater or a mains lamp on or off after a time. I used a changeover relay to switch the mains between two 13A sockets (Normally On and Normally Off). I also suggested a BNC socket could be fitted to check the oscillator timing on pin 13 with an oscilloscope (my new Scopex 4S6 'scope was earning its keep by now!).

I think it was the first time I'd used a printed circuit board and the artwork was designed manually using Alfacs rub-down transfers. They might have been etch-resistant transfers applied direct. I pressed my new *Precision Petite* mini drill into service for the first time, drilling the blue GRP board with gusto.



Apart from fiddling with the circuit, which itself was pretty basic, I spent much of the time working on the appearance and style of the prototype. It was built in a large Verobox in light/ dark ABS with attractive anodized aluminium panels. I chose a spun aluminium knob to match, and to mimic a clock

theme I used Letraset and Roman numerals for the markings – I think I was getting carried away! I see from the photos that two LED fresnel lenses (RS miniature types) had fallen out, that I used Mullard C280 polyester capacitors (a mixed bag from Birketts in Lincoln), ½ watt resistors too for some reason.

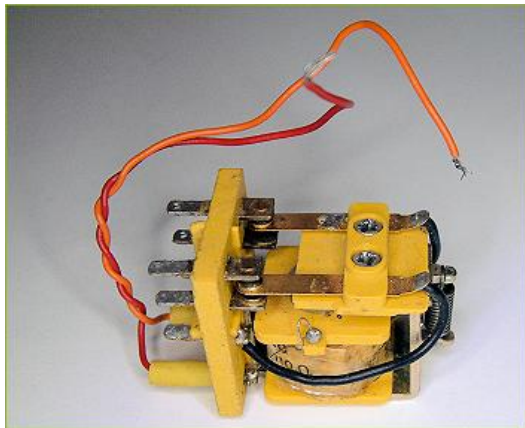
As the ZN1034E could be started or reset using a changeover toggle, I combined these two functions into one control. I used a C&K sub-min toggle which I dressed up with colourful plastic “tang” covers (a bit pointless, as the photography was in black and white) – and despite my endeavours I was disappointed that the smart-looking project didn’t appear on the front cover in colour.

Before better panel-mounting 13A sockets came along I had to use a couple of ordinary 13A surface mounting types which only just fitted on the rear panel. Some laborious panelwork was needed, and I learned that these sockets used M3.5 screws, and that (strangely) the surface of anodised aluminium didn’t conduct so well (it was best to file off the anodising under the earthing screws).

My construction skills continued to evolve though there were still some gaps to fill – I still didn’t have heatshrink tubing to insulate terminals or solder joints, as I couldn’t yet afford a precision heatgun, but at least nylon tiewraps had finally arrived.

I guess my first p.c.b. project didn’t turn out too badly. I discovered how the timer would time-out due to spikes on the mains, and mentioned this right at the end, though no-one complained about it at the time.

Sadly the prototype was scrapped and all that’s left today is the mains relay, which I found recently in my junkbox. It’s the only bit still in colour... oh well.



ARW April 2012

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