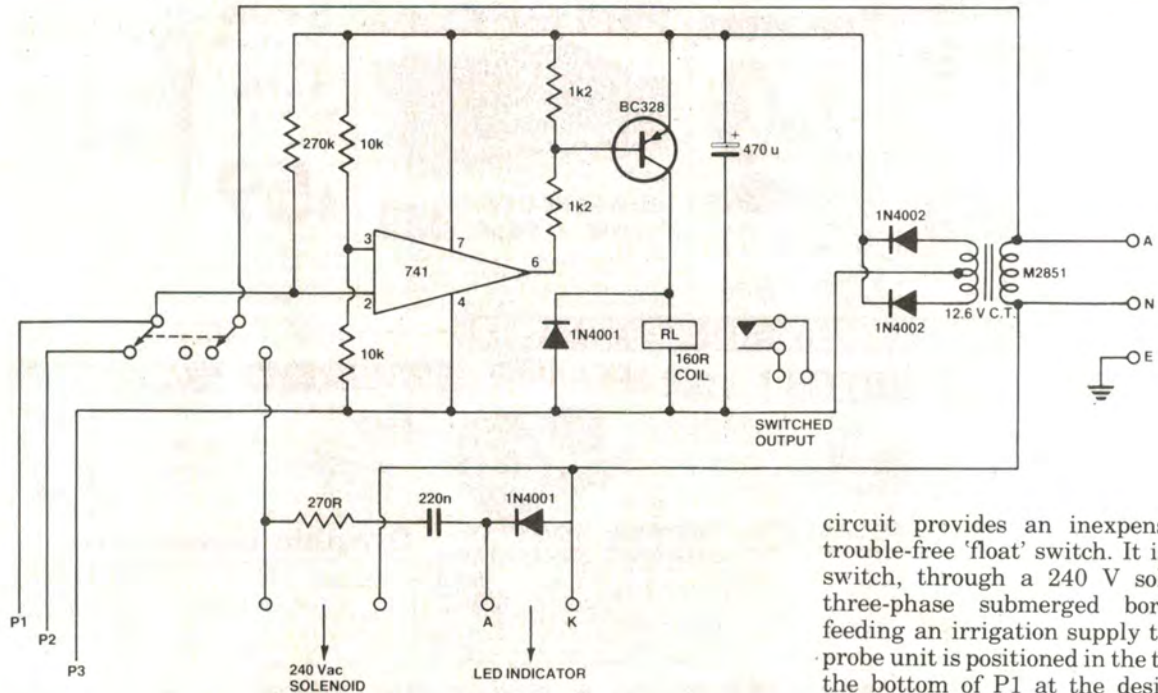


Ideas for Experimenters

These pages are intended primarily as a source of ideas. As far as reasonably possible all material has been checked for feasibility, component availability etc, but the circuits have not necessarily been built and tested in our laboratory. Because of the nature of the information in this section we cannot enter into any correspondence about any of the circuits, nor can we produce constructional details.



Water level sensor and switch

Here's a novel idea with a practical application, from **F.L. Harrison of Ardross in West Australia**.

It is a water level sensor that controls a pump which maintains the water level

in a tank. Three 'sensor' wires are employed: one at the 'high' water level (P1), one at the 'low' water level (P2), and one well below the latter (P3) so that it's permanently in the water. Here's what it's all about.

Using an inexpensive 741 IC and a relay with two sets of contacts, the

circuit provides an inexpensive and trouble-free 'float' switch. It is used to switch, through a 240 V solenoid, a three-phase submerged bore pump feeding an irrigation supply tank. The probe unit is positioned in the tank with the bottom of P1 at the desired 'full' level.

The bore pump does not start until the water level falls below P2 and is not switched off again until the water level reaches P1. This ensures that the supply tank always remains full. The LED, which is remotely mounted, gives a visual indication of when the pump is running.

ETI-606 tuning fork mods

With a few slight modifications to the ETI-606 Tuning Fork (Nov. 1979) it is possible to use the very cheap and plentiful TV colour crystal tuned to 4.43361875 MHz, according to **M.L. Duncan of Greenford, UK**.

The oscillator circuit output is divided by 2519, giving a frequency of 1760 accurate to one part in 250 000. The division is done by a 4040 in place of the 4020 and the switching giving an alternate 'A' at 445 Hz is eliminated.

A 4013 dual flip-flop is added before the output buffer to give further division by two and four. These outputs are switched before the buffer to give a choice of 'A's at 880 and 440 Hz re-

spectively. The extra cost of the 4013 is offset by eliminating one of the 4011s.

The diagram shows the altered parts

of the circuit. The oscillator is retained, using the changed crystal, as is the output circuit from R4 onwards.

