IDEAS FOR EXPERIMENTERS

NiCad monitor

This circuit was designed specifically for the NiCad float charger (ETI-268) by **I. Davies** of **Cheltenham, Vic.** However, the general idea is useful for other applications.

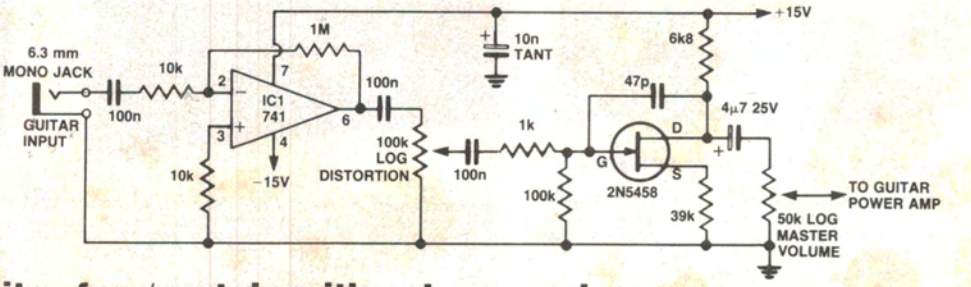
I wanted something that would indicate the state of the cells, whether in trickle charge or not, and indeed, whether they were being charged at all.

Although the circuit could be simplified by using several LEDs as indicators, I felt a single LED was more appropriate as it is so easy to understand and requires little work to install in an existing panel.

This circuit monitors the output of the op amp as this indicates the state of the cells, and whether charging is occurring. Voltage is taken from the original supply and is about 15 V using the recommended transformer.

With the charger unloaded there is about 2.3 V at point A. 2.4 V indicates a trickle charge while voltages greater than that indicate a full charge.

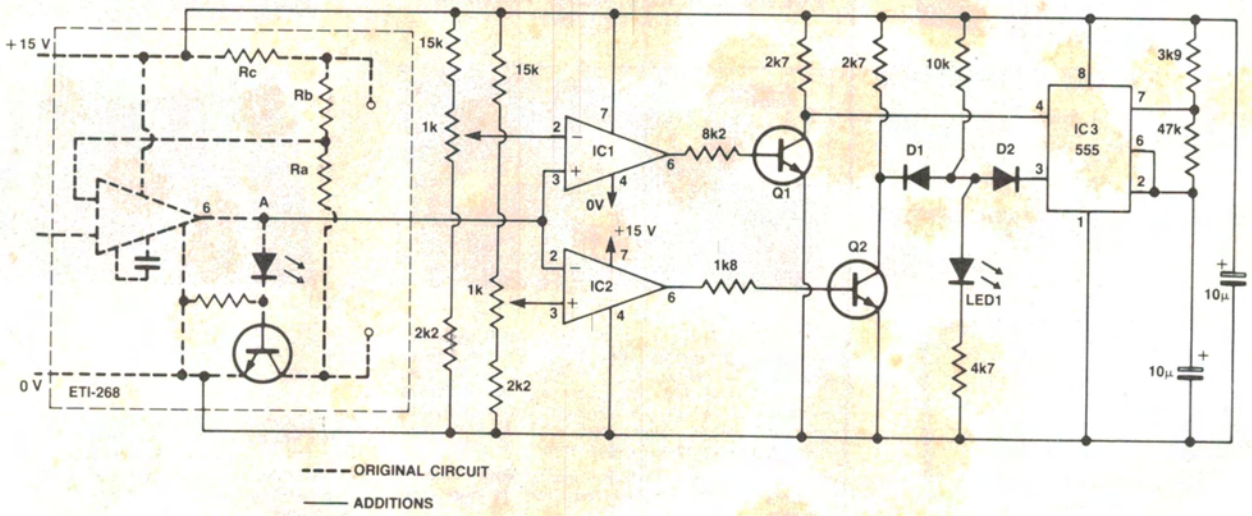
The voltage divider networks provide reference voltages over a fairly narrow range. IC1 detects the charge rate by having the reference voltage set to about 2.4 V.



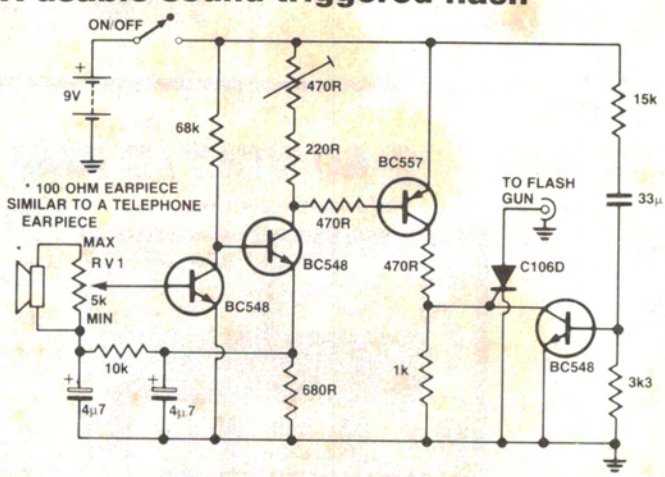
Guitar fuzz/sustain with valve sound

The heart of this circuit from **G. Condick of Yarraville, Vic,** is the FET, which is overdriven by IC1 so that a large amount of distortion occurs. Sustain is increased by compressing the initial waveform amplitude while the decaying note is amplified by a large amount. The distortion produced is fundamentally third harmonic, hence it sounds like one of the popular but expensive valve amps.

Screened leads must be used between jacks and circuit boards and the unit should be placed inside a metal box to minimise mains hum. In practice, the distortion control will be used to give maximum distortion. The output of the circuit is quite high, about 2 V p-p, therefore it may be connected directly to a power amplifier with a sensitivity of approximately one volt.



A usable sound-triggered flash

When he constructed a sound-triggered flash, **Donald Kay** of **Lockleys, SA,** found that it drew excessive amounts of current and the usable area of the sensitivity control was very small. The circuit described has overcome all these problems with only a few more components. It also has a section that stops triggering when switched on.

The pot, RV1, adjusts the sensitivity from a point where it will never trigger to a point where it is hard not to trigger. It is preferable that the pot be logarithmic, although a linear pot will work. It should be adjusted to get a sensible range of sensitivity. The lower it is set the harder it is to trigger.