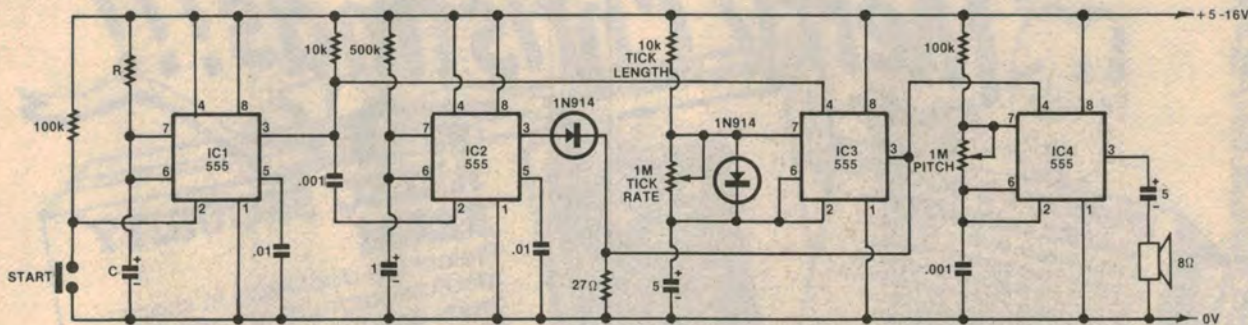


# Circuit & Design Ideas

Interesting circuit ideas from readers and technical literature. While this material has been checked as far as possible for feasibility, the circuits have not been built and tested by us. As a consequence, we cannot accept responsibility, enter into correspondence or provide constructional details.

## Low-cost darkroom timer has audible output



This is an audible process timer which can be used in a darkroom for timing development. The circuit is quite straightforward and used four 555 timer ICs.

The timer works as follows. IC1 is the "master timer" and the components R and C are chosen to give the desired timing interval. R may be a potentiometer to give a continuously variable timer or, for more accurate timing, you could use switched values to give a preset range of times.

IC2 gates the tone generator (IC4) to produce a beep at the end of the timing interval. The values given here should produce a beep of around 0.5 second, although with the large tolerance of some capacitors, you may have to experiment.

IC3 gates IC4 to produce a ticking sound which is set to 1Hz via the trimpot. Incidentally the diode from pin 7 to pin 6 allows a small duty cycle thus giving a "tick" rather than an annoying

"beep"; the 10k resistor may be varied to alter the length of the tick if desired.

Finally, IC4 is a tone generator, the frequency of which is set by the 1M resistor trimpot. To produce the actual sound you can use a small 8Ω speaker or an ordinary 8Ω earpiece. In the darkroom situation this gives ample volume without being obtrusive.

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