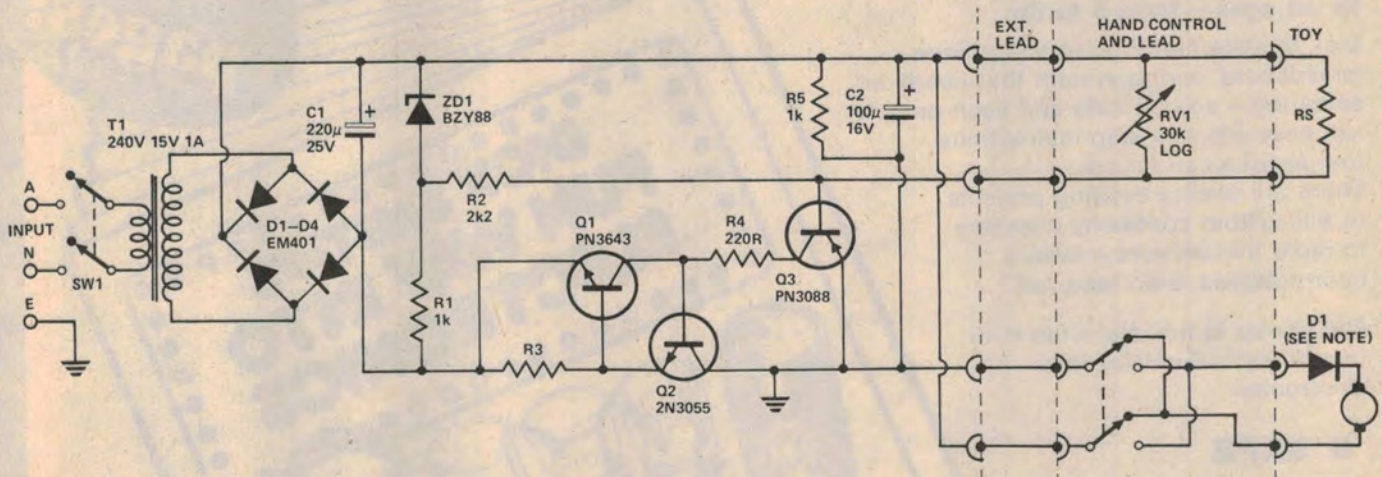


# Ideas for Experimenters

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.



## Power supply suits battery-operated toys

Here is a power supply for toys such as race tracks, cars, Meccano motors etc. modified from the ETI 221 Basic power supply.

The power supply components are fitted inside a metal box with the 2N3055 in contact with the case. R6

is a hand-made wire resistor adjusted to get one amp output current with the output shorted. A small four pin socket is mounted on the case for the output.

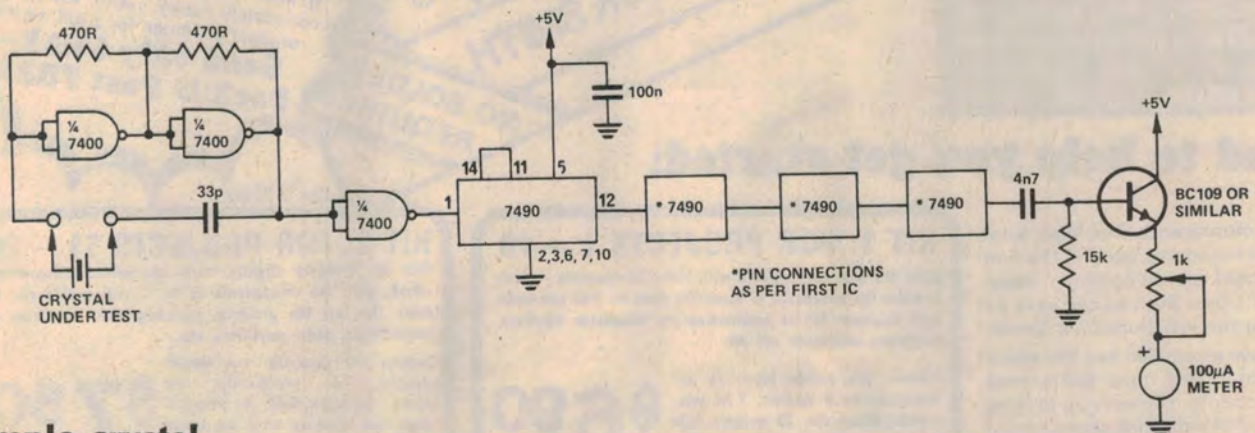
A four core extension lead is made to go between the power supply and the toys, with plugs on both ends.

A four pin socket is fitted to each toy so that one extension lead is sufficient for all toys. Resistor RS is fitted to this socket to set the correct

voltage. RS is 1k for 3 volts, 1.8k for 4.5 volts, 3k for 6 volts and 10k for 9 volts.

For cars with no speed or direction control a hand control unit goes between the extension lead and the cars. Control is by a 30 k log pot and a double pole change over switch fitted in a tobacco tin.

Diode D5 is fitted only to toys that must not go in reverse.



## Simple crystal frequency meter

Have you ever had a whole heap of crystals which are unmarked or stamped with a frequency which is not the crystal frequency but rather the output frequency of a transmitter.

John Rickard of Heathmont, Vic. Certainly has and he has submitted his

circuit for a crystal frequency meter. The meter gives a direct reading of frequency on a moving coil meter for crystals in the range 500 kHz to 10 MHz.

Two gates of a 7400 form a crystal oscillator with a third gate used as a buffer. Four 7490s divide the crystal frequency by 10,000 to give an output

between almost zero and 1 kHz. This output is differentiated by C2 and R3 and the meter integrates the pulses giving a linear frequency scale. Overtone crystals will oscillate at their fundamental in this circuit which may be misleading. To calibrate the instrument adjust R4 with a known crystal in circuit.