

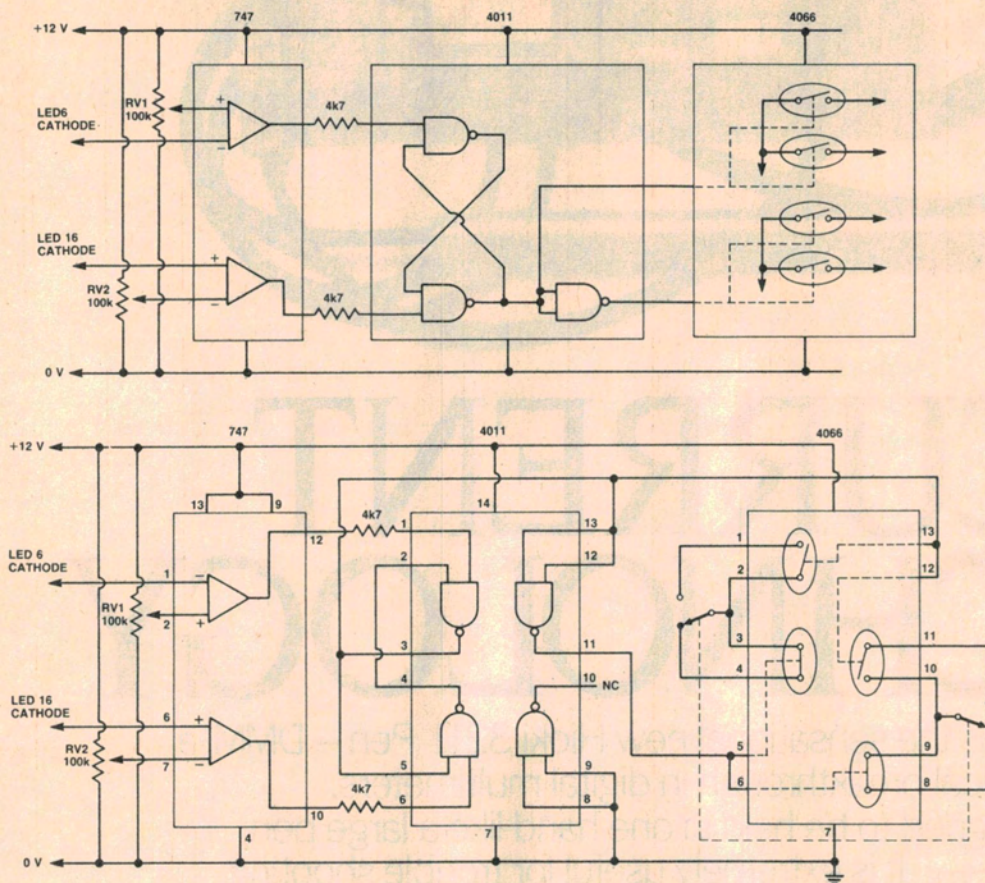
IDEAS FOR EXPERIMENTERS

LED tachometer

A modification which automatically ranges the LED tachometer project, ETI-324, August 1980, has been designed by **Bill Keenan** of West Heidelberg Victoria.

The flying leads to the cathodes of LEDs 6 and 16 sense the drop in voltage as the LEDs turn on. This is compared to the preset voltages produced by RV1 and RV2, by the comparators of the 747. The highs and lows are fed into the 4011, which is wired as a flip flop. The 4066 and one gate of the 4011 are wired as a DPDT switch, which eliminates the switch in the tachometer circuit. One gate of the 4011 is not used, so its inputs are earthed. Pins 4 and 8 of the 4066 go to low range calibration, and pins 1 and 11 go to high range calibration.

RV1 adjusts the revs at which the tachometer swaps to low range and RV2 adjusts the revs at which it swaps to high range. The tachometer must be re-calibrated after this modification, due to the 90 ohm resistance across the switches in the 4066.



Cheap high output alarm

Alec Phillips of Myrtleford Victoria has modified the circuit for the American siren in '555 timer applications' in ETI Circuit Techniques Vol 1. The sound is similar to the Victorian ambulance siren and the output is boosted by the addition of C2, C3, Q1, Q2, R1 and R2.

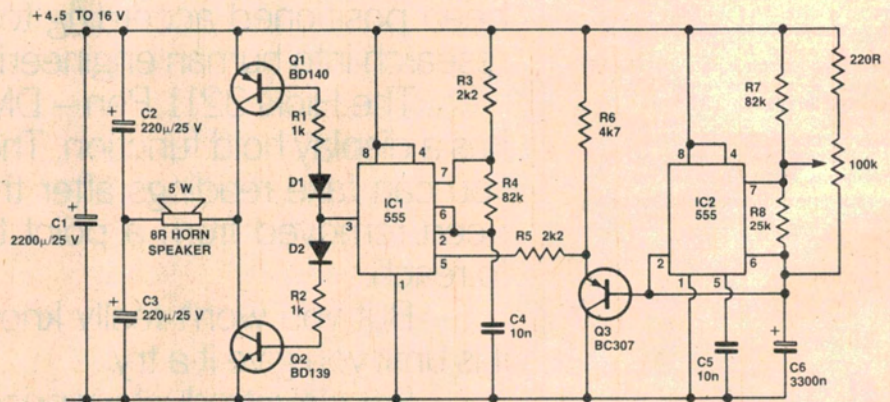
By driving one or two 8 ohm, 5 W horn speakers, the output at close range is quite deafening when using a 12 V supply.

Apart from the output, the only other changes to the original circuit are both timing sections of the 555's — this gives the required frequency and modulation for the particular type of sound required.

For a variety in sound modulation, R7 may be changed to 220 ohms, and R8 changed for a 100k trimpot with the wiper connected to pin 7 of IC2 as shown. This will change the sound to a rapid 'whip-whip' sound in one direction through to a 'wow-

wow' in the other direction. Modulation varies from about 6 or 7 Hz to about 1 Hz just short of the end of the wiper travel.

Note: If the alarm is to be used with two speakers and/or above 6 V, Q1 and Q2 must have moderate heatsinks. If two speakers are used at 9 to 16 volts it gives a better output with



470 μ F capacitors for C2 and C3.

Below is a list of current consumption at different voltages using 220 μ F for C2 and C3, and one 8 ohm speaker:

16 V, 420 mA; 12 V, 320 mA; 9 V, 250 mA; 6 V, 160 mA; 4.5 V, 100 mA.

Using two speakers, the cur-

rent increases to nearly twice the amount along with the sound output. As a further note, C1 is essential with any power source as it supplies power storage with the rapidly changing current drain.

Please consider other people when testing and using this alarm.