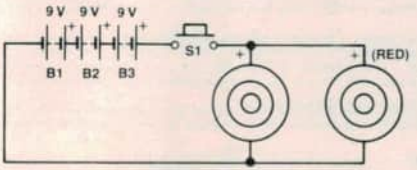

Figure 1. An ear-piercing output.

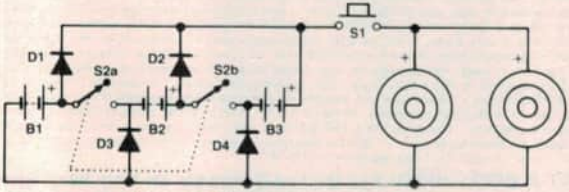

Figure 2. Moderated sound level.

Pea-zo whistle

A friend of a friend of **M.J. Gempton of Nth Parramatta NSW** referees local soccer matches on weekends. This referee friend suffers from asthma and even though he is just able to keep up with the play, can only wheeze into his whistle instead of blowing it. M. Gempton was inspired to help.

The solution required something small, efficient, battery operated, having a high output and natural sound. I thought of a modulated piezo transducer, found the device I was after in Dick Smith's catalogue, and bought two in case one was not loud enough. Then I realised that the two transducers were of slightly different frequencies and the resulting beat produced an excellent rendition of a high pitched pea whistle.

When operating on three 9 V batteries in series (27 V) the sound level was quite deafening, so the lower output option, as shown in Figure 2, using all batteries in parallel, was developed. To keep it small a DPST switch was used. With parallel operation there is, of course, the voltage drop across a forward biased diode but with S2 closed (series operation) all diodes become reverse biased and the full 27 V is available.

For anyone with the application, this series/parallel idea can easily be expanded for N batteries using a single throw switch with N-1 poles and 2(N-1) diodes.

The only special component is the transducer (DS cat. no. L-7024). The diodes used were 1N4004s because they were on hand but anything similar would do.

The original 'Pea-zo whistle' was housed in an aluminium case approximately 52 mm x 25 mm x 140 mm and, when presented to the referee, was gratefully received. That weekend, however, he was laid up in bed, voiceless, so he first used his new whistle for paging his wife.