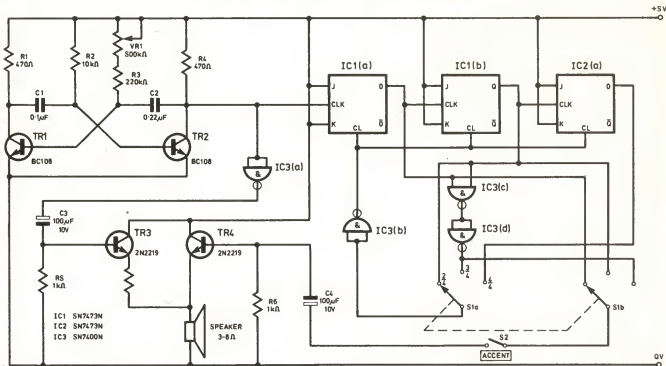


# ACCENTING METRONOME



**T**HE circuit shown produces the same effect as the Synchronizer described in PE March 1976, but at less than half of the cost.

An astable multivibrator generates pulses variable from approximately 60 to 200 per minute which are fed to a NAND gate (IC3a) connected as an inverter. C3 and R5 converts the output pulses from IC3a to spikes which switch TR3 on, producing a distinct click in the speaker.

The accent is produced by three J-K master slave bistables arranged as a 3 bit

binary counter. The multivibrator pulses are fed directly to the clock input of IC1a and depending on the position of S1 a pulse is sent via C4 and R6 to the base of TR4, on the second, third or fourth beat producing double, triple and quadruple time respectively.

For example, consider quadruple time. In every fourth beat, the Q output of IC2a goes to logic 1 which resets the counter via IC3b. In every third beat from the reset condition an accent pulse is produced and applied to TR4. This is louder than the

single beats since a resistor is not included in the emitter of TR4. R7 reduces the current through the speaker on single beats. It should be noted that J-K bistables trigger on the trailing edge of the clock pulse, therefore IC3a was included so that the accent was synchronised with the single beats. S2 is used to switch off the accent when it is not required.

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