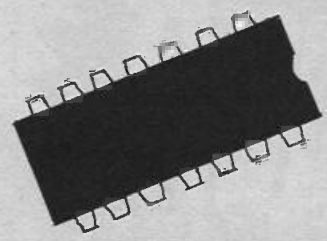
DOOR BLEEPER



By A. FREED

A simple circuit providing an interrupted tone output.

MANY circuits for electronic doorbells have been published. Few, however, are as cheap or simple as their mechanical counterpart. The circuit here uses only seven components, which are cheap and readily available, but it produces quite a complicated noise.

The sound is very noticeable even against high levels of background noise. This sound is simply an interrupted high frequency bleep.

CIRCUIT

Two capacitors and an integrated circuit are used for the two oscillators required (Fig. 1). This type of oscillator is unusual but has the advantage of simplicity. The high frequency oscillator formed by the three gates G1 to G3 feeds the loudspeaker driver transistor (TR1) directly, with a resistor (R1) to limit the base current. The second low frequency oscillator formed by G4 to G6 forces the first to stop oscillating during the negative part of its cycle. This produces the interrupted bleep. The diode (D1) used to couple the oscillators is to stop interaction.

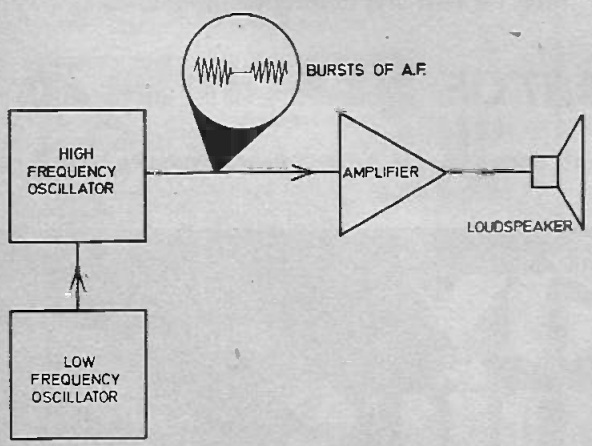
Because of capacitor tolerances, the two timing capacitors might have to be changed to produce the desired sound. A D.T.L. (diode, transistor, logic) integrated circuit has to be used in this circuit.

Any cheap medium power *pnp* transistor can be used for TR1 such as AC 128, ACY 17/19/20/21 or NKT 222/223. A small 8 ohm speaker was used in the prototype but any speaker from 3 to 16 ohms can be used. A 5 volt supply is ideal but a 4·5 volt battery is equally good, and will last the shelf life of the battery in normal use.

CONSTRUCTION

Layout and wiring details are shown in Fig. 2. Commence by cutting the board to the required size and making the necessary breaks in the copper strips. Next insert and solder the two link wires and flying leads followed by R1 and the two capacitors. Insert D1 and TR1 observing the lead identifications and solder up each lead while using a heat shunt to protect the device. Finally insert IC1 taking note of the pin identifying notch and again make the soldered connections whilst using a heat shunt.

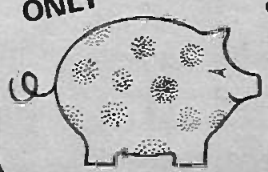
SIMPLY



Two oscillators are made, each from half of one integrated circuit. One runs at a fairly high audible frequency the other at low frequency. The low frequency one turns the other on and off, thus producing a series of bleeps which are amplified and fed to a speaker.

FOR GUIDANCE ONLY

ESTIMATED COST* OF COMPONENTS
excluding V.A.T.



£1.75
excluding case

*Based on prices prevailing at time of going to press

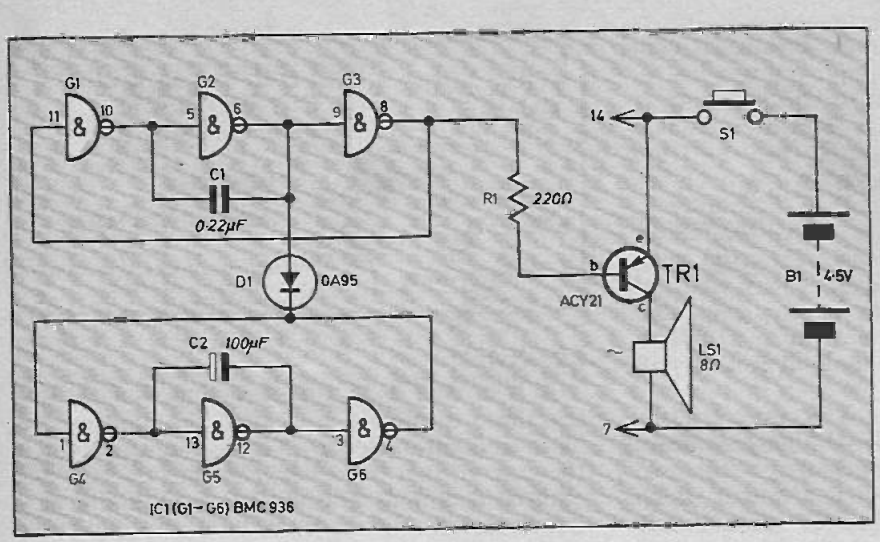
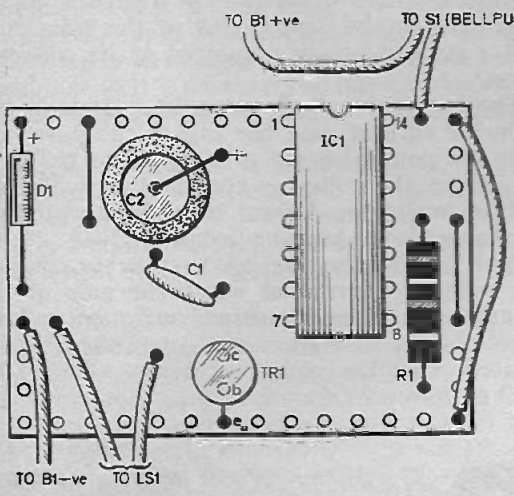


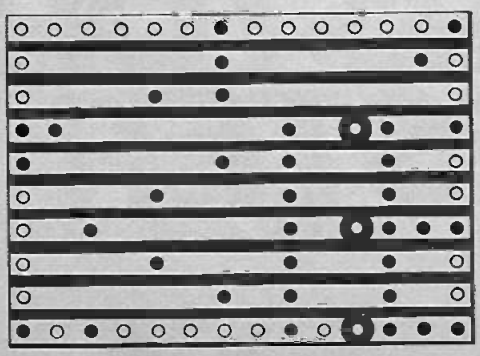
Fig.1. Circuit diagram of the Door Bleeper.

To complete the construction connect the loudspeaker, battery and bell-push and test the unit.

The prototype was built in a hemispherical plastic container; however, there are no special requirements for the case, unless it is used outside where it must be weatherproofed. There is no limit to the length of wire used to connect the doorbell switch to the circuit. ▣

Fig.2. Layout and wiring of the Door Bleeper.





Components....

Resistor
R1 220Ω ¼W±10% carbon

Capacitors
C1 0·22μF disc ceramic
C2 100μF elect. 10V.

Semiconductors
TR1 ACY21 or similar *pnp* (see text)
IC1 BMC 936, MIC 936, DN 936, BP 936 etc. (DTL 930 series integrated circuit)
D1 OA95 or similar

Miscellaneous
LS1 3 to 16Ω miniature moving coil loudspeaker
S1 s.p.s.t. door push
B1 4·5V type 1289 battery
Veroboard 10 strips by 14 holes, 0·1inch matrix; connecting wire; case—see text.

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