A portable, audible-interval signal device¹

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Described here is a compact and battery-operated unit that produces a short audible signal at uniform intervals, variable from 2 sec to 2 min.

Laboratory operations often require the presentation of a periodic audible signal. At the Wisconsin Regional Primate Research Center, for example, such signals are used to indicate the times at which certain monkey social behaviors are to be sampled and scored. The purpose of this note is to describe a Mallory Sonalert unit that can be used to generate a tone at uniform intervals.

The dc-operated Sonalert is a compact solid-state tone generator available in two frequencies, 2500 Hz and 4500 Hz. The components required for interval operation of the unit cost about \$10 (see Table 1) and can be easily mounted in a 1-5/8 x 2-1/8 x 3-1/4 in. Bud-type aluminum box. Battery operation increases its versatility.

The circuit schematic is shown in Fig. 1. When the unit is turned on, capacitor C1 begins to charge through resistor R1. During the charge time only a small leakage current flows in the emitter of the unijunction transistor Q1. When the voltage across C1 reaches a predetermined value (about 13 V), Q1 "fires" and C1 discharges through R2 and the parallel combination of R3 and R4; the current in R4 turns on Q2, which operates the Sonalert until the voltage across C1 decays to about 3 V. The cycle then repeats with C1 charging and discharging between 3 and 13 V.

Using the listed components, the interval range is 2 to 45 sec. For longer intervals, C1 and R1 can be increased. With a good quality C1 capacitor, R1 can be increased to a maximum of about 2 megohms (this will increase the range to 2 min, but decrease the adjusting sensitivity). Of course, for much longer intervals, a more sophisticated circuit is needed.

Changing the value of R2 will change the audible signal duration. Increasing R2 will increase the duration up to a maximum of 1 sec with a value of 5 kilohms. To control the

Fig. 1. Schematic diagram of circuit for audible-interval signal device.

Table 1
List of Circuit Components

A ₁	-	Sonalert (Mallory SC628)
B ₁	-	22.5 V battery (Burgess U15)
C ₁	-	100mfd 35 V (Mallory 100E35)
Q ₁	-	2N4870
Q ₂	-	2N5172
R ₁	-	500 k potentiometer
R ₂	-	2.2 k ½ W
R ₃	-	100 ½ W
R ₄	-	470 ½ W
R ₅	-	560 ½ W
S ₁	-	SPST switch
Misc.	-	Battery holder (Keystone 177)
	-	Aluminum box (Bud CU 21202A)

All parts are available at Allied Radio.

volume of the signal, a 25-kilohm potentiometer can be installed in series with the Sonalert.

NOTES

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