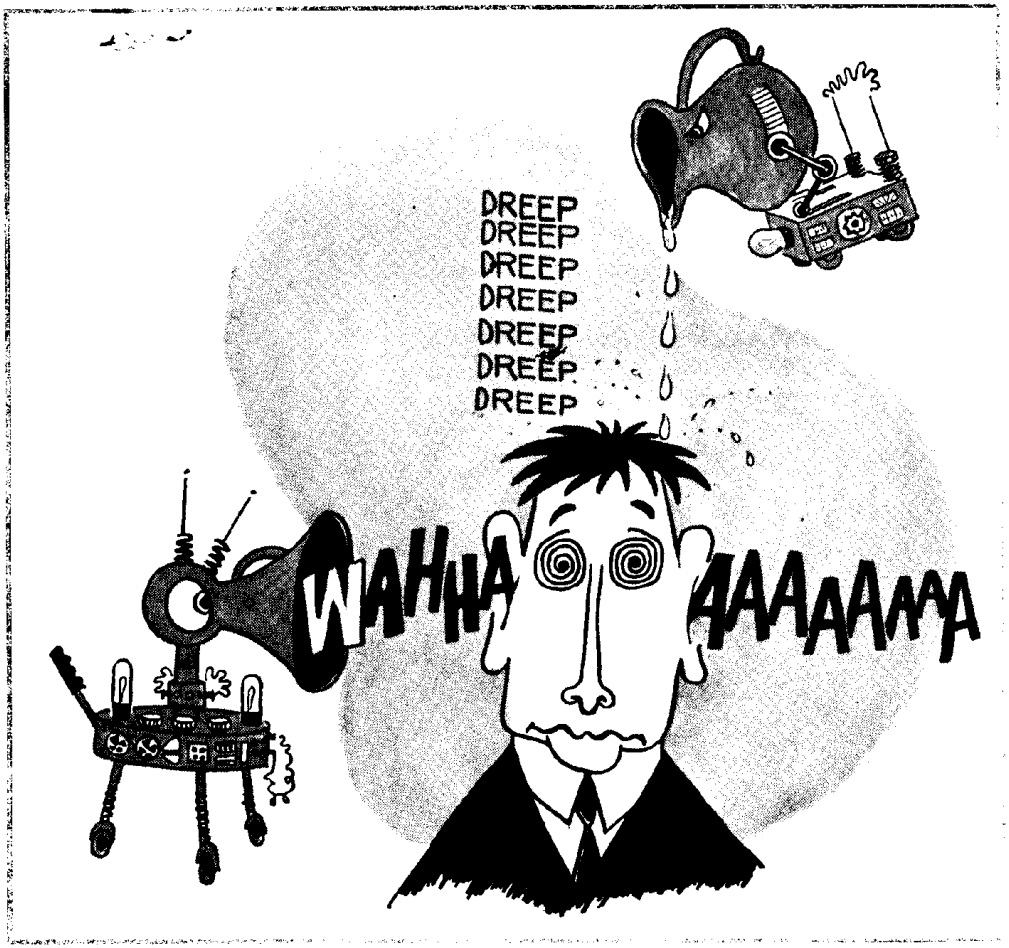


"The Lease-Breaker" and "The Drip"

BY SAM BRESKEND

THERE ARE two types of especially disturbing sounds. One is the loud, raucous wail of the urban ambulance siren with its undulating-tone "whoop-whoop" screaming through the streets. This sound was specially selected to be distinctive and attention-getting.

The second sound is the relatively gentle, low-pitched drip-drip-drip of a water faucet in the middle of the night. Although not acoustically overpowering like the siren, the insistent repetitious pattern can erode your sanity. Heralded in fiction as the "water torture," it will, in its gentle way, rub your nerves raw.

The two circuits described in this article are electronic simulations of both of these phenomena. The first, called "The Lease-Breaker," produces the loud wail of the ambulance siren, while the second, called "The Drip," imitates the "gentle" water torture.

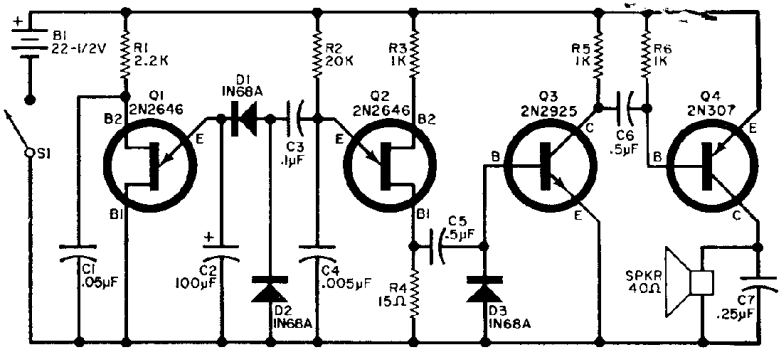


Fig. 1. A pair of unijunction transistor relaxation oscillators originate the wail of the "Lease-Breaker." The two bipolar transistors form the audio amplifier portion of this circuit.

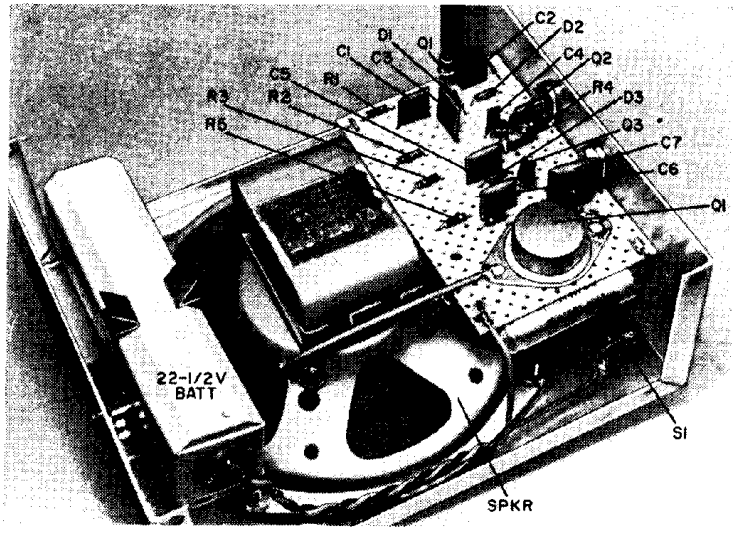
"Lease-Breaker." When turned on, the "Lease-Breaker" starts up with a loud, low-pitched wail that sweeps upscale in frequency to a very high tone, then suddenly drops back to the low tone before starting over again. Audio output from the built-in speaker is enough to disturb a whole apartment house, and when used at night (not recommended), it will arouse neighbors a full city block on each side. When used indiscriminately, it is guaranteed to get your lease, or nose (or both), broken.

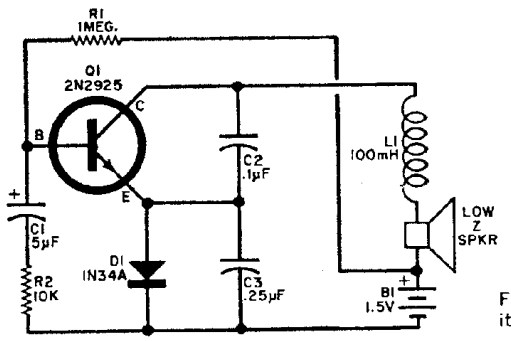
The basic circuit is shown in Fig. 1, while Fig. 2 is the author's prototype. The tone-generating oscillator (*Q2*) is a unijunction transistor (UJT) whose frequency-determining elements (capacitors *C4* and *C3*) are introduced in the circuit in accordance with the operation

"LEASE-BREAKER" PARTS LIST

B1—22½-volt battery
C1—0.05-μF capacitor
C2—100-μF electrolytic capacitor, any low-voltage type
C3—0.1 μF capacitor
C4—0.005-μF capacitor
C5,C6—0.5-μF capacitor
C7—0.25-μF capacitor
D1,D2,D3—1N68A diode
Q1,Q2—2N2646 unijunction transistor
Q3—2N2925 transistor
Q4—2N307 power transistor
R1—2200 ohms
R2—20,000 ohms
R3,R5,R6—1000 ohms } *all ½-watt resistors*
R4—15 ohms
S1—S.p.s.t. switch
SPKR—Any low-impedance type speaker

Fig. 2. Author's "Lease-Breaker" is mounted in a 6" x 5" x 2" metal box with holes cut out for the speaker.





"DRIP" PARTS LIST

B1—1.5-volt dry cell
C1—5-μF electrolytic capacitor, any low-voltage type
C2—0.1-μF capacitor
C3—0.25-μF capacitor
D1—1N34A diode
L1—100-mH miniature inductor
Q1—2N2925 transistor
R1—1-megohm, ½-watt resistor
R2—10,000-ohm, ½-watt resistor
SPKR—Any low-impedance type speaker

Fig. 3. The "Drip" has a low-level audio output, but its insistent chirp will annoy most sensitive people.

of auxiliary UJT oscillator *Q1*. The output signal, a rapidly increasing frequency (until *Q1* fires to return it to a low-frequency tone) is amplified by *Q3* and power transistor *Q4*.

As there is no need to take special wiring precautions, the circuit can be arranged as desired. The author elected to use perforated board construction, but any other method, even point-to-point wiring, will do the job just as well. The entire system, including battery and speaker can be mounted in a small metal enclosure.

"Drip." Diametrically opposed to the loud, raucous "Lease-Breaker," the "Drip" produces a low-level once-per-second chirp that in itself is gentle-sounding. However, when listened to over a short period of time, it is enough to drive even the most patient of people to distraction.

The circuit is shown in Fig 3, and the author's prototype in Fig. 4. This circuit is a Colpitts oscillator designed to "squegg," that is, periodically block itself into and out of oscillation. A low-impedance magnetic earphone is connected in series with the inductor of the frequency-determining circuit (*L1*), and responds to each current pulse that passes through the coil.

Frequency of oscillation is determined by the *Q1* base circuit time constant. Resistor *R2*, which determines the *on* time, can be varied to change the duty cycle. Because current consumption is only about 100 μA, the "Drip" will continue to emit its highly irritating "bleep-bleep" for many months operating on a hearing-aid type battery.

Once again, the construction method is left up to the builder, since there is no critical wiring involved. Although the author used perf-board construction, any other type will suffice. —30—

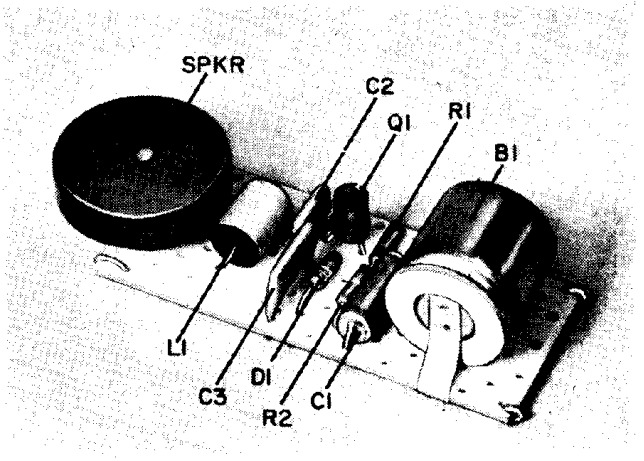


Fig. 4. The author built his "Drip" on a 2¼" x ¾" piece of perforated board. Because the unit requires only 100 μA to operate, a power switch is not used. The size of your "Drip" will depend only on the size of the components you install. The speaker used here is a low-impedance earphone, although any type of miniature speaker will suffice.