

# A Simple Electronic Siren

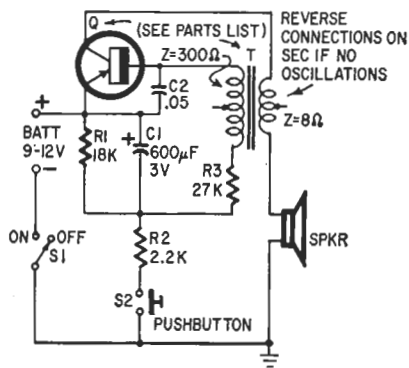
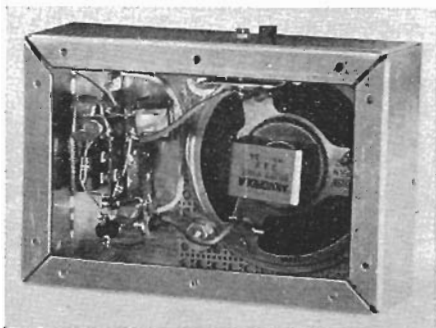
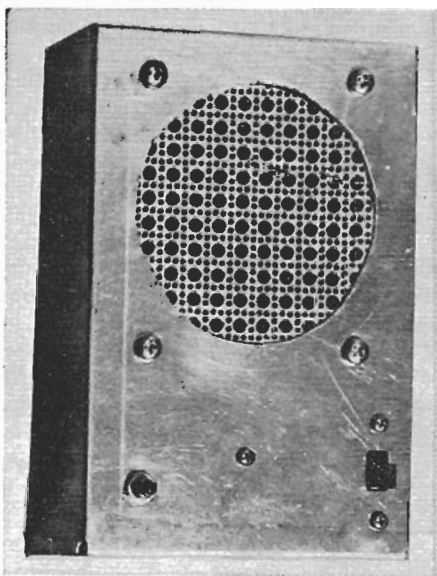
By **HERB WHITE** and  
**JOHN R. LANGE, K9ARA**

THIS SIMPLE ELECTRONIC CIRCUIT GENERATES a very realistic sirenlike sound. It produces increasing-, then decreasing-frequency square waves when you push the button. The siren can be built for about \$10. It'll make any child the envy of his playmates when they hear him coming on his wagon, pedal car or bicycle. The volume is adequate, but not high enough to disturb the neighbors.

You can make a fine low-cost siren for volunteer firemen, policemen, or other emergency vehicle drivers authorized to have sirens by simply feeding the output of the siren circuit to a mobile PA amplifier.

The circuit uses one transistor and a transistor portable-radio output transformer to develop feedback from collector to base. When the on-off switch is turned on, and the pushbutton pressed, the 600- $\mu$ F, 3-volt capacitor charges up at a rate determined by the 2.2K resistor. The siren oscillates at a steadily increasing frequency up to a maximum determined by the values of C2 and base resistor R3. When the pushbutton is released, the circuit continues to oscillate at a decaying frequency rate determined mainly by the 600- $\mu$ F capacitor and 18K emitter resistor. An on-off switch prevents battery discharge that might result from leakage back through the transistor.

The photo shows the siren mounted in a 2 x 6 x 4-inch aluminum chassis box



BATT—9-volt transistor radio battery, or any well filtered dc source up to 12 volts.

C1—600  $\mu$ F, 3 volts

C2—.05  $\mu$ F (any voltage)

Q—2N651 (Motorola), GE-2 (General Electric) or almost any 25-volt 150-mW p-n-p germanium transistor

R1—18,000 ohms

R2—2,200 ohms

R3—27,000 ohms

All resistors  $\frac{1}{2}$  watt, 10%

S1—on-off switch (any kind)

S2—spst normally-open pushbutton

SPKR—small PM speaker, 8 ohms impedance

T—transistor output transformer, 300- to 500-ohm primary, 8-ohm secondary; center taps, if any, not used (Stancor TA-21, Knight 62 U 358)

Aluminum chassis or box to suit application (see text); protection for speaker (see text); miscellaneous hardware

with a 3½-inch speaker mounted behind a piece of perforated aluminum sheet. A piece of polyethylene film can also be sandwiched between the speaker and the perforated aluminum to keep the speaker cone dry in case the unit is left outdoors.

Most of the circuit components are soldered to two terminal strips. A regular 9-volt transistor portable radio battery is clamped inside the case with two screws and a strap. Be careful to hold transistor leads with long-nose pliers while they are being soldered so that heat is conducted away before it gets to the body of the transistor.

If the siren does not oscillate when the pushbutton is pressed, reverse the collector and speaker connections on the low-impedance winding of the transformer.

The larger the speaker, the more realistic the sound. If you plan to use an amplifier, omit the speaker, and ground that transformer lead. Couple the output from the transistor's collector through a 0.1 to 10- $\mu$ F capacitor, depending upon the input impedance of the amplifier. (0.1 is OK for inputs of 100K or higher; increase the value proportionally for lower impedances.) END