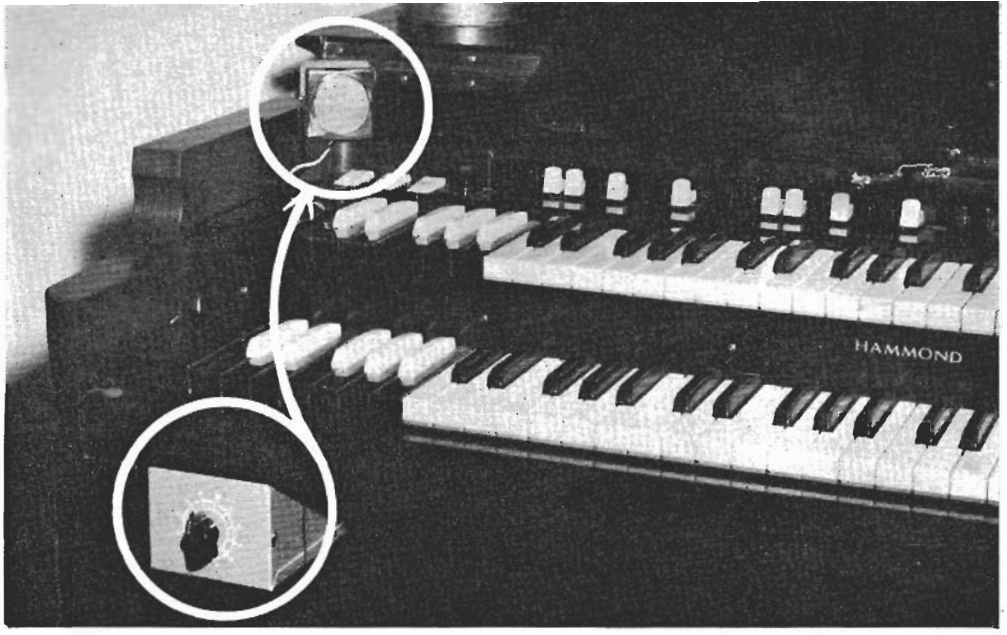
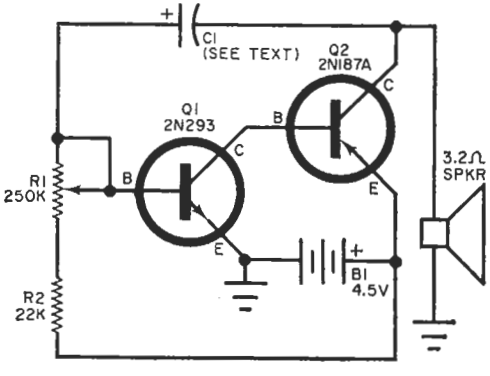


On the Beat Electronically

THE FAMILIAR spring-wound, pyramid-shaped metronomes used by musicians since the time of Beethoven are giving way to the clicking of electronic timers. The transistorized electronic metronome (seen above, with remote speaker) is a compact, battery-operated unit that can be adjusted for any musical tempo. Clicks produced at the miniature speaker are of sufficient amplitude to override the sounds of most musical instruments.

You can construct the metronome to suit your own particular needs. In the photo above, the speaker is mounted in a small but attractive case, sitting on top of the organ, while the remainder of the unit is housed in an aluminum chassis box under the keyboard. Pianists may want the electronic metronome mounted all in one case, with rubber feet, to rest on top of the piano. How *you* do it is up to you.

Audio amplifier with added feedback circuit (C1) produces "motor-boating" clicks for timing beats.



Follow the schematic diagram carefully as you wire the circuit. Resistor *R2* is a 22,000-ohm, ½-watt unit, and *C1* is a 15-μf. electrolytic rated at 5 to 10 w.v.d.c. Be sure *C1*'s negative (unmarked) lead connects to the collector of transistor *Q2*. Then connect the 4.5-volt battery, *B1*, making certain that the polarity is correct.

Now check the number of clicks with potentiometer *R1* fully clockwise, and then fully counterclockwise. The metronome should cover a range of 40 to 210 beats per minute or better. If it cannot go down to 40 beats, increase the value of *C1*. If it's necessary to increase the upper limit, lower the value of *C1*. But vary the capacitor's value by no more than 10% at a time until the desired limit is reached.

The author used a Burgess Type N3 battery with snap-in terminals to power his unit. When the battery is snapped out of the circuit, the metronome stops clicking, and the removed battery serves as a "key" to prevent unauthorized use of the device.

—John J. Borzner