

## 42 Flip It

□ The continued versatility of the 4017 counter and DL-750 digital display is demonstrated in this flip-it coin-toss simulator. As an added feature, the decimal point of the display is illuminated for an Odd or Even "Low Count," 0, 1, 2, 3, or 4 count from the counter. Even numbered counts (0 is considered even, for the sake of symmetry) cause the display to present an E, while odd-

numbered counts result in a O. Segments A, D, E and F are common to both O and E, but they are driven by the clock along with B, C, and G to stimulate all the segments into "random" motion. Holding down the pushbutton, causes C to discharge through R, giving an uncertainty period of five or seven seconds, depending upon the size of the capacitor chosen. Good Luck!

### PARTS LIST FOR FLIP IT

**C1**—0.47 to 2.2- $\mu$ F electrolytic capacitor, 15 VDC

**C2**—50 to 100- $\mu$ F electrolytic capacitor, 15 VDC

**D1 through D10**—1N4148 diode

**IC1**—4017 decade counter

**Q1 through Q4**—2N4401 transistor

**LED 1**—DL-750 7-segment display

**R1**—500,000-ohm, linear-taper potentiometer

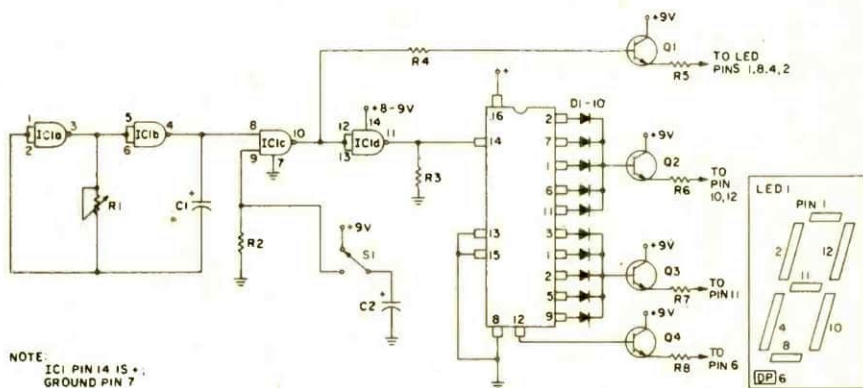
**R2**—100,000-ohm,  $\frac{1}{2}$ -watt resistor

**R3**—1,000-ohm,  $\frac{1}{2}$ -watt resistor

**R4**—560-ohm,  $\frac{1}{2}$ -watt resistor

**R5, R6, R7, R8**—1,000-ohm,  $\frac{1}{2}$ -watt resistor

**S1**—SPDT momentary-contact pushbutton switch



## 43 Theremin Junior

□ Let's return now to prehistoric times, at least as far as electronic music is concerned. Way back then, nearly forty years ago, an odd-looking and

equally odd-sounding instrument known as the Theremin was born. Playing the Theremin entailed waving one's arms spastically between