IC replaces mechanical-interlock switches

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As an alternative to mechanical-interlock switches or membrane switches with latches, **Fig 1**'s circuit debounces, latches, and displays status information for a group of eight pushbutton switches in which only one switch at a time is active. The circuit's only IC is an octal latch.

Closing any one of the switches turns on transistor Q_1 and discharges capacitor C_2. Current through Q_1 then charges C_1, causing a positive transition at IC_1's CLK input (pin 11), which turns on the LED for that switch. The LED remains on until you depress another switch. Because the CLK input is edge-triggered and remains high until you release all the switches, two or more switch closures cannot register at one time unless they occur within approximately one millisecond.

Capacitor C_1 provides a delay that debounces each switch closure. Capacitor C_2 causes Q_1 to turn on briefly at power-up, which produces a pulse at IC_2's CLK input, ensuring all LEDs are off by latching all ones at the Q outputs of IC_1.

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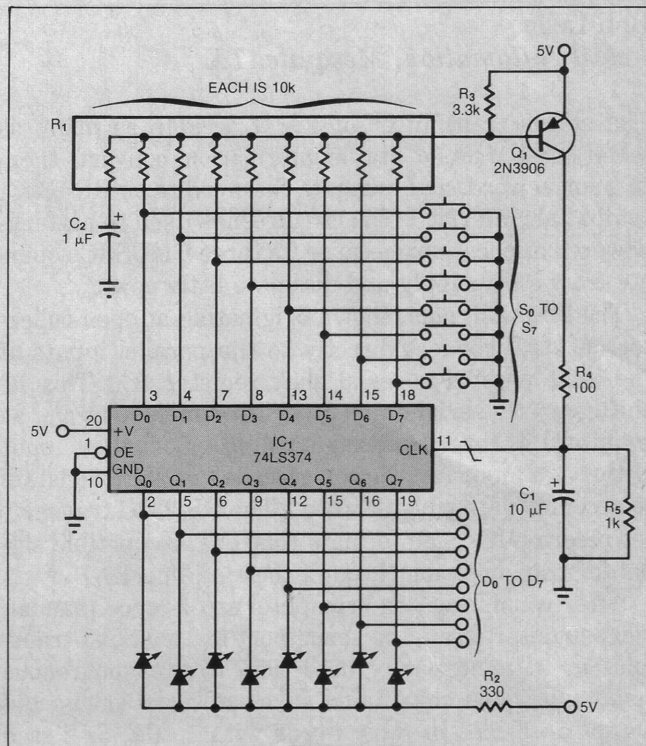
Fig 1—This single-IC circuit debounces a group of eight pushbutton switches, latches the last switch closure, and provides an LED indicator for the currently active circuit.