Letters

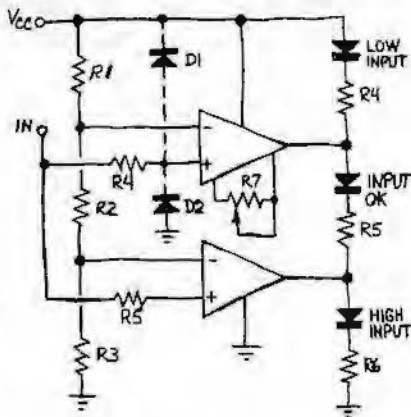## SOLENOID THAT ISN'T

We at Eumig thank POPULAR ELECTONICS for the fine review regarding our Metropolitan CCD cassette deck in the May 1979 issue. We did, however, note an error regarding the deck's transport in the "User Comment" section: "The solenoid-operated transport is astonishingly silent. We heard none of the thumps or clunks usually associated with solenoid operation." You then go on to state that there is a "motor" sound instead of a solenoid sound.

As a point of information, the reason solenoids are not heard is that there are no solenoids. The motor sound is heard because the head mounting assembly is step-motor engaged, using the same motor that governs fast forward and rewind. —Tom Bensen, Eumig (U.S.A.) Inc., Great Neck, NY

MAKING A BETTER WINDOW?

The window comparator circuit shown above has fewer parts and has better input protection than that shown in Fig. 5 of the May 1979 "Experimenter's Corner." Resistors $R1$, $R2$, and $R3$ form the reference voltage source with the upper limit defined by $V_{CC}(R2 + R3)/(R1 + R2 + R3)$ and the lower limit defined by $V_{CC}R3/(R1 + R2 + R3)$. For small windows, $R2$ determines the window opening. For very small windows, on the order of 0 to 15 mV, $R2$ can be eliminated and the opening can be adjusted via $R7$. Resistors $R4$ and $R5$ protect the inputs from excessive current during accidental inputs exceeding V_{CC} or ground. Diode limiting can be added from the inputs to V_{CC} and ground, using $D1$ and $D2$.

System stability is a function of V_{CC} stability and op-amp drifts. For 741s and 747s, V_{CC} should be between 8 and 30 volts. FET-input op-amps lend themselves well to this application. Resistors $R4$, $R5$, and $R6$ limit LED current and should be chosen to allow about 10 mA. —Glenn Fasnacht, Lakewood, OH.