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BUILD A KEYBOARD CONVERSION CIRCUIT

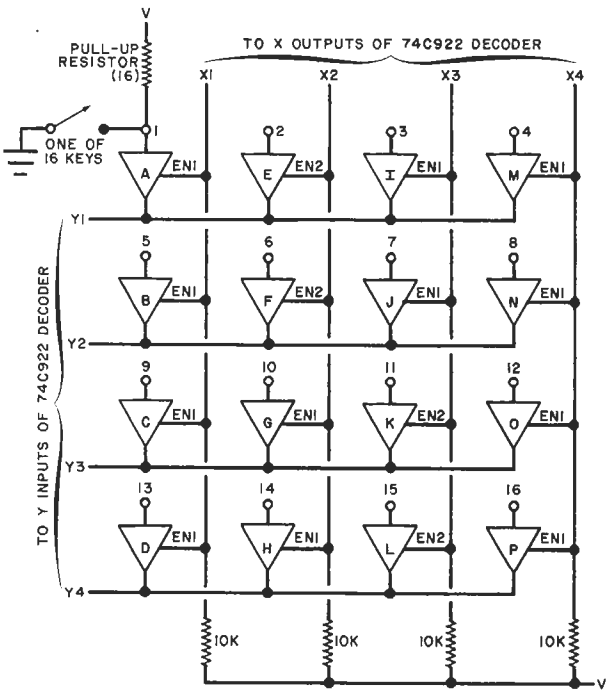
Three IC's convert spst keyboard output to column-row format used by decoder chips.

ESSENTIALLY, there are two types of keyboards available for the digital experimenter. These are column-row types, and low-cost keyboards having independent spst switches with one side of the switches sharing a common bus.

There are several decoder chips (such as the 74C922 16-key and the 74C923 20-key decoder) that provide all the logic necessary to fully decode a column-row device. The circuit shown here converts an independent spst keyboard into the column-row format that can be used with the above mentioned decoder chips.

The circuit requires three DM8097, DM7097 or SN74367 noninverting hex three-state buffers. The columns have their three-state enable pins bussed together with these lines serving as the X-inputs to the decoder chip. The row (Y) signals are also bussed to form the Y-inputs to the decoder.

The individual keys are grounded on one side, with the other side tied to each buffer input. Each key may be tied high through a pull-up resistor to improve noise immunity. The three-state enable lines (X) are scanned by one input at a time going low, or becoming active with the next one becoming active and the others inactive, etc., until all columns have been scanned (tested). This action enables a column, and each individual keyswitch enables its associated buffer (within the enabled column). The column-row enabled input is applied to one of the 16- or 20-key decoder logic where it is latched at the output. The output of the decoder is also three-state. ◇



Buffers A through F are on one IC (DM8097, DM7097, or SN74367); G-L on second; and M-P on third.