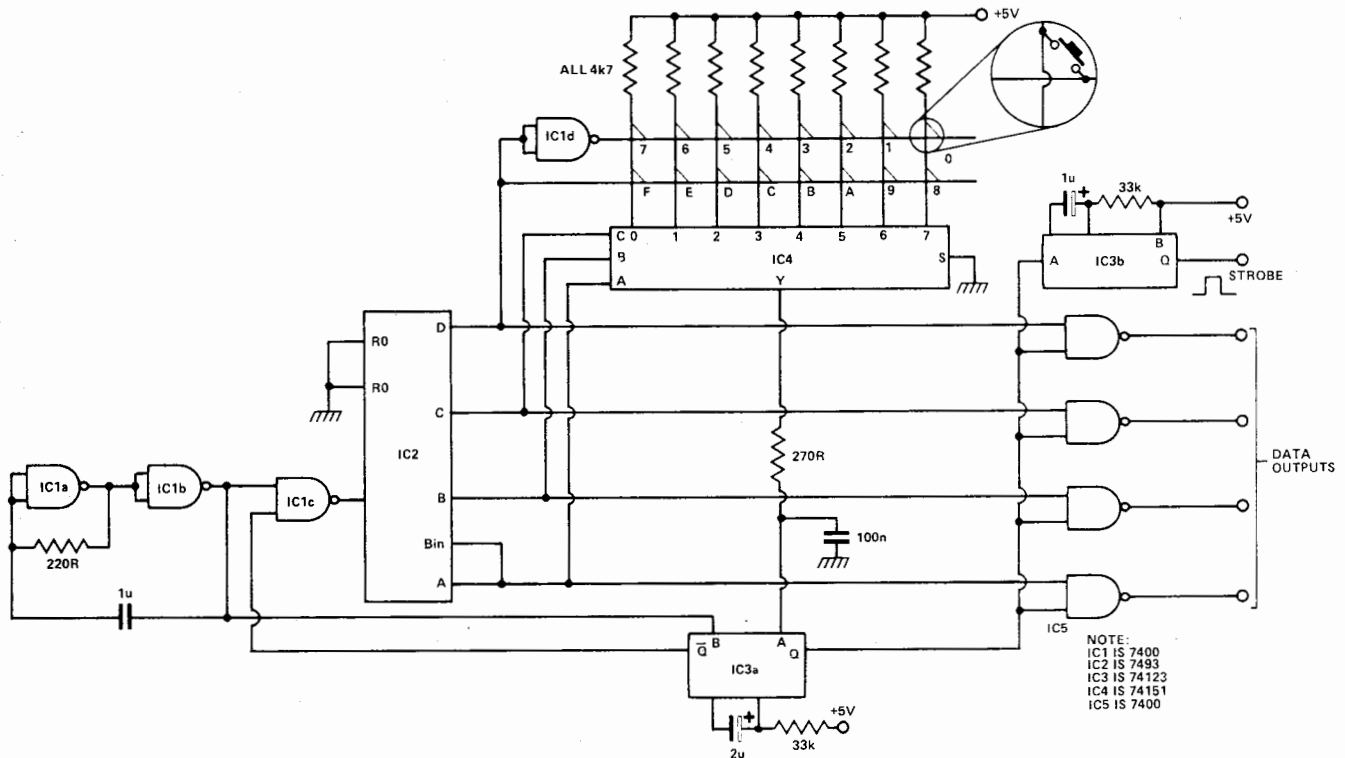


tech tips



Hexadecimal Keyboard

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Programming a microprocessor can be a time consuming business if instructions are entered in binary using rows of toggle switches. A far more convenient method is to enter the code in hexadecimal notation using an appropriate keyboard. A suitable keyboard should be fully debounced, provide a strobe whenever a key is struck and use standard power supplies. The following circuit provides all these features.

The eight by two matrix of keys are scanned sequentially by the 74151 data selector, IC3 and the D output of the 7493 four bit counter, IC2. If no keys are pressed the Y output of IC3 is always logic 1 since all eight inputs are pulled high by the 4k7 resistors. When a key is pressed the counter remains high until the counter reaches the inverse of the required 4 bit data. The appropriate input of IC3 is then pulled low and the Y output changes to logic 0. This triggers monostable IC4a which disables the

clock input to the counter, enables the data outputs via IC5 and triggers IC4b to provide a data strobe. While the key is closed IC4a is retrigged by the clock so that the data remains stable on the output lines until the key is released.

If latched data outputs are required IC5 can be replaced by a 7475 quad latch clocked from the output of IC4b. The data would be available at the Q outputs of the latch.

Tech-Tips is an ideas forum and is not aimed at the beginner. We regret we cannot answer queries on these items.

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