Electronic combination lock offers double protection

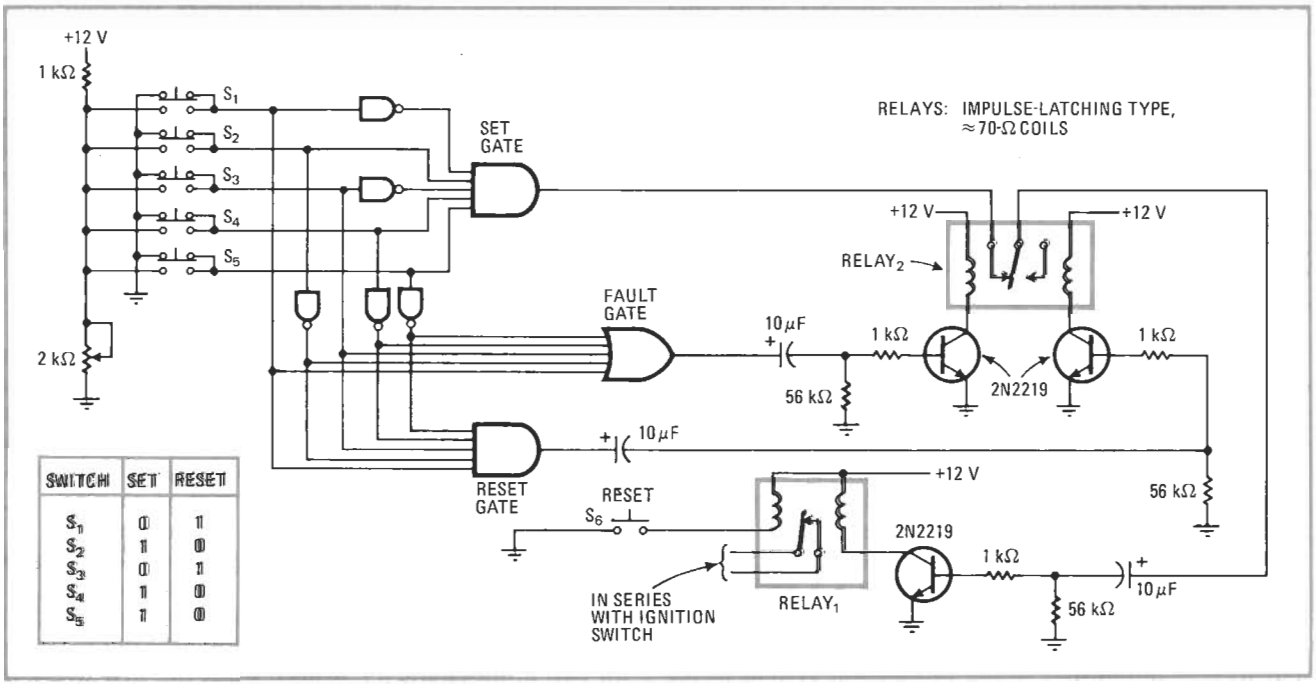
by Louis F. Caso
Bethpage, N.Y.

If you need a doubly safe lock, try the electronic combination lock shown here. It will not unlock unless the correct combination of switches is depressed, and if the wrong combination is chosen, the lock will not open until it is reset with another combination.

The circuit in the figure is intended for installation in an automobile, but it can be easily modified for other applications. When the correct combination of switches S_1 through S_5 is depressed, the output of the SET gate goes to logic 1, closing the contacts of $RELAY_1$. When the car's ignition is turned off, this relay should be reset (contacts opened) by using switch S_6.

To open (set) the lock, switches S_2, S_4, and S_5 are depressed simultaneously. If an error is made, the output of the FAULT gate goes to logic 1, and the contacts of $RELAY_2$ will open. When this happens, the lock must be reset before the opening combination can be used again. Switches S_1 and S_3 are depressed simultaneously to reset the lock.

Any secret combination of push buttons can be selected by arranging the switches as desired. For most applications, the multiple-input logic gates can be obtained by interconnecting standard dual-input gates. □



Safe and sound. To open this electronic combination lock, depress the correct combination of switches S_1 through S_5. But if an error is made, the lock must be reset with another switch combination before it can be opened again (The switches are depressed simultaneously.) The circuit shown here is for locking an automobile ignition, but it can be readily adapted for other uses.