CONTROL OF THE OPERATE AND RELEASE TIME OF RELAYS

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In the design of complex switching currents, it often becomes necessary to alter the operate or release time of a relay to insure the proper timing relations between relay operations. In some cases, for example, it may be necessary to speed up the operate time of a relay so that it will close when a very short pulse is put across the coil. This can be accomplished by putting a resistor from the coil to ground through the normally closed contacts of the relay (or to plus if the other end of the coil is connected to ground). This procedure will speed up the action of the relay by keeping the non-operative current above zero so that the rise time of the current across the coil is greatly reduced. The fastest operate time is assured if the non-operate current is just below the operate current for the particular relay. The NC contacts are used so that the non-operate current can be above the hold current of the relay and will not disturb the release operation.

A resistor may also be used to increase the release time of a relay by putting the resistor from the coil to the power polarity used to activate the coil through the NO contacts of the relay. Maximum release time is assured if the current through the resistor is just below the release current of the relay. The NO contacts are used so that the operate time of the relay is not affected by the current through the resistor.

This procedure does not seem to affect the life of the coil. Resistors have been used in our circuits for over a year with no increase in coil failure.