

included, the capacitor would reach a negative charge approximately equal to the voltage of E_1 , which is the same as that of E_2 . Fig. 9 shows the discharge curve, where the dotted portion is the charging voltage which would occur if it were not halted by the varistor. Just after the charge on the capacitor has passed zero, the voltage at point A will be nearly zero, but will have changed polarity. This small voltage is in such a direction that the varistor conducts as at the beginning of the cycle, maintaining point A at nearly ground potential. With the potential at point A stabilized at slightly below ground, the charging of the capacitor is suddenly cut off. It is this sudden cutting off of the current through the relay that permits accurate timing of the circuit.

Although the current in the capacitor is suddenly cut off, the inductance of the r-relay coil will maintain a short transient current. The duration of this transient current is determined by the values of the inductance of the coil and the capacitance of the capacitor, but is relatively short and has

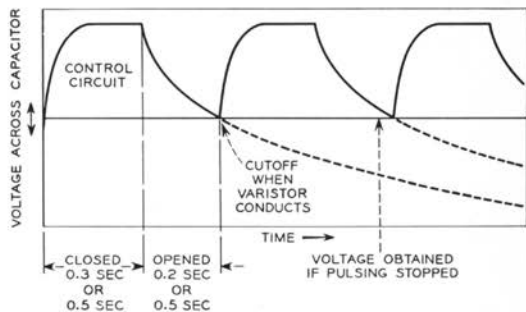


Fig. 9—Graph of voltage across capacitor. Dotted line is charging curve if varistor did not conduct. Relay will not release during interruptions.

little effect on the accuracy of the timing. The most accurate timing is obtained when the value of the capacitor current at cut-off is equal to the hold current required by the relay. Only a slight change of current is then required for the relay to release.

Three-in-one Machine for Making Telephone Cords

Changing from hand operations to machine operations is one of the most important functions in Western Electric production methods. A typical example is this "3 in 1" machine which does three jobs formerly done by hand on neoprene-jacketed telephone cords. Two machines now do the same jobs as several hands—and do them ten times as fast. The machines automatically cut telephone cordage to a predetermined length, strip the neoprene jacket from the conductors at each end, and count the cords into bundles of fifty, all in a single continuous operation. More than one million cords of the neoprene-jacketed type are produced each month at Western's Point Breeze plant, to supply the demands of the Bell System.

