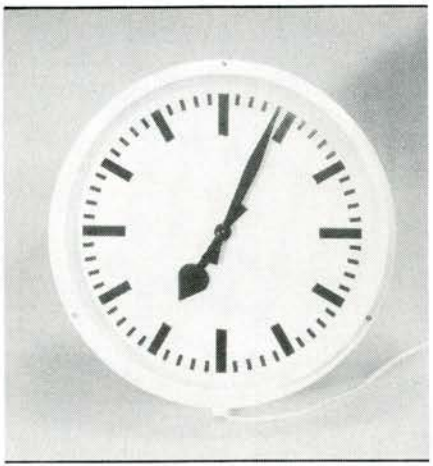
industrial-clock controller 17

Nowadays, most clocks and watches are quartz controlled and, therefore, accurate to within a few seconds a year. Older type electric clocks, particularly those used in large groups in warehouses, department stores, factories, railway stations, and so on, were centrally controlled and synchronized. This synchronization was effected by pulses derived from the mains and sent to each clock via a separate cable network. Many people have such a clock as a curiosity, but have not the means of driving it. The circuit described here will help...

With reference to the diagram, pulse shaper T_1 triggers monostable IC_2 at the mains frequency of 50 Hz.



Counter IC_3 is reset automatically after every 3000 pulses by IC_4 and T_2.

At the same time, bistable IC_5 toggles and causes the bridge circuit composed of T_2...T_8 to reverse the motor polarity every 60 seconds.

Depending on the type of clock you have, the transformer secondary voltage may have to be selected to supply about 0.7 times the normal operating voltage of the clock motor. Furthermore, the bridge circuit as shown should not be made to operate at voltages in excess of 30 V, while the maximum current is about 250 mA.

There is only one adjustment point in the circuit, namely P_1, which should be set to achieve maximum suppression of mains borne noise; if this can not be checked, the preset may

be turned to its centre position. Should the clock be slow, P_1 may be adjusted to give a slightly lower resistance, but care should be taken to avoid setting a monostable time longer than 20 ms, as in that case only half the number of 50 Hz periods can reach the counter. *(Sa)*