

Figure 41.16

Figure 41.17. Glow transfer is achieved in the GC 10 D by applying a single pulse only. This is done by making use of both the leading and trailing edges of the transfer pulse, and by the phenomenon called 'auto transfer', which may be explained as follows:

In Figure 41.18 we have the anode and two electrodes *A* and *B*, which may be cathodes or guides. If the glow can by some means be caused to alight on electrode *A*, the glow current will charge *C* to a definite potential difference determined by *R*. If by this process *A* becomes sufficiently positive the glow 'auto-transfers' to the more negative electrode *B*. *C* then discharges again through *R*, but the glow will remain at *B*.

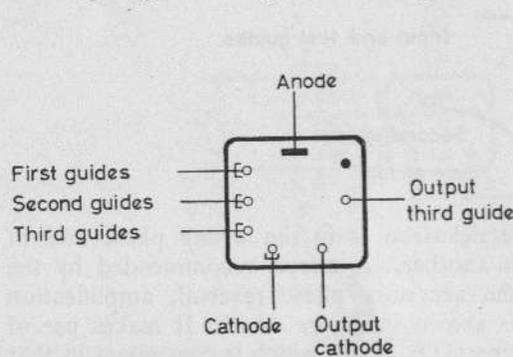


Figure 41.17

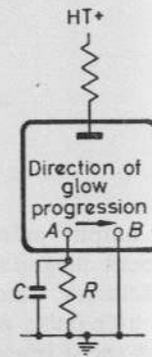


Figure 41.18

Thus a typical GC 10 D drive circuit is shown in Figure 41.19. Let the glow be on the *n*th cathode. On the arrival of the leading edge of the transfer pulse the first and second guides are driven sufficiently negative to draw the glow on to the first guide, whereupon it auto-transfers to the second. The back edge of the transfer pulse then comes along, driving the first and second guides positive again. The third guides are now relatively

It might seem at first sight that the first and third guides might be dispensed with; that the leading edge of the transfer pulse could be used to move the glow from *n*th cathode to a guide, and the trailing edge would then move it on the *n* + 1th cathode. The difficulty is to prevent its moving back to the *n*th again. In point of fact single-guide tubes do exist; specially shaped electrodes ensure that transfer occurs in the required direction.

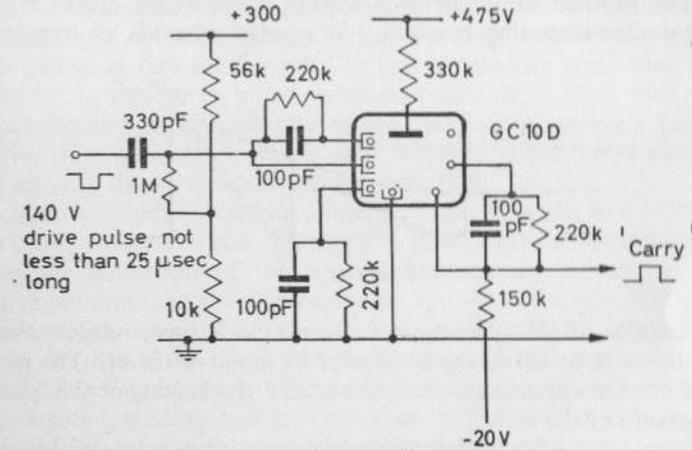


Figure 41.19

A GC 10 D can be driven from another GC 10 D via a GTE 175 M high-speed trigger tetrode at rates up to 1,000/sec. The necessary circuit is shown in Figure 41.20, and is reproduced from part of reference 4 in this chapter.

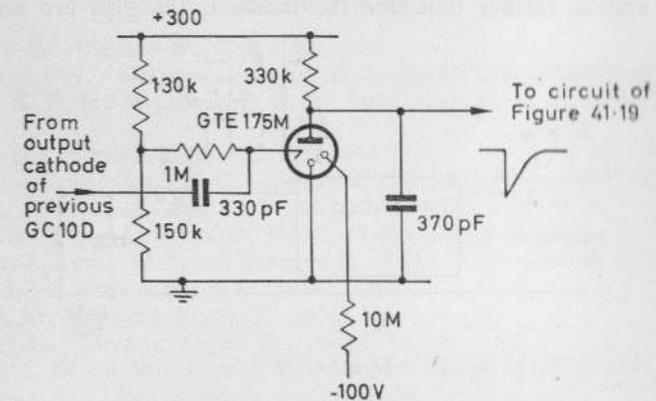


Figure 41.20

A scaler for radioactivity measurements using dekatron counters has been described by Florida and Williamson¹². Kerkut¹³ has given details of a dekatron action-potential counter. The time marker, employing dekatrons, published by Kay has already been mentioned.