positive pulse is applied to the set input. When a pulse is applied to the set input the device flips to the set state and remains there until again reset. The device has two outputs that will be designated here as "O" and "$\overline{\text{O}}$".

When the reset key in the circuit is depressed a positive pulse from transistor T5 connected to the reset inputs of I1, I2, I3 and I4 places the circuit in the reset mode. The "O" output of each flip-flop is fed into G6, and a four input nor gate, the output of which turns on a transistor to drive the reset lamp.

The "$\overline{\text{O}}$" outputs of the set-reset flip-flops I1, I2, I3 and I4 are connected to the base junctions of transistors T1, T2, T3 and T4 respectively. These transistors are then turned on when the circuit is in the reset mode. Each transistor acts as a current source and is connected to resistor R1 which sums the current from these four transistors. The variable resistor attached to the emitter of each transistor is used to adjust the current flowing through each transistor in order to provide the desired current ratios as previously mentioned.

The transistors T1, T2, T3 and T4 then act as switches, either permitting or preventing the flow of current through resistor R1. These switches are all open when the circuit is in the reset mode since all transistors will be held on by the "$\overline{\text{O}}$" outputs of gates I1, I2, I3 and I4. The voltage at point A in the circuit as shown in Figure 18 will be for the reset mode:

$$V_o = 17.5 - 100(I_1 + I_2 + I_3 + I_4). \qquad (2)$$

Now consider shorting input 1 of the circuit to ground. The voltage output of G1 will rise from 0 to 3.6 volts. This positive pulse at the output of G1 flips I1 to the set position which turns off the reset lamp and turns off transistor T1. The voltage at point A will now be given by:

$$V_1 = 17.5 - 100(I_2 + I_3 + I_4). \qquad (3)$$