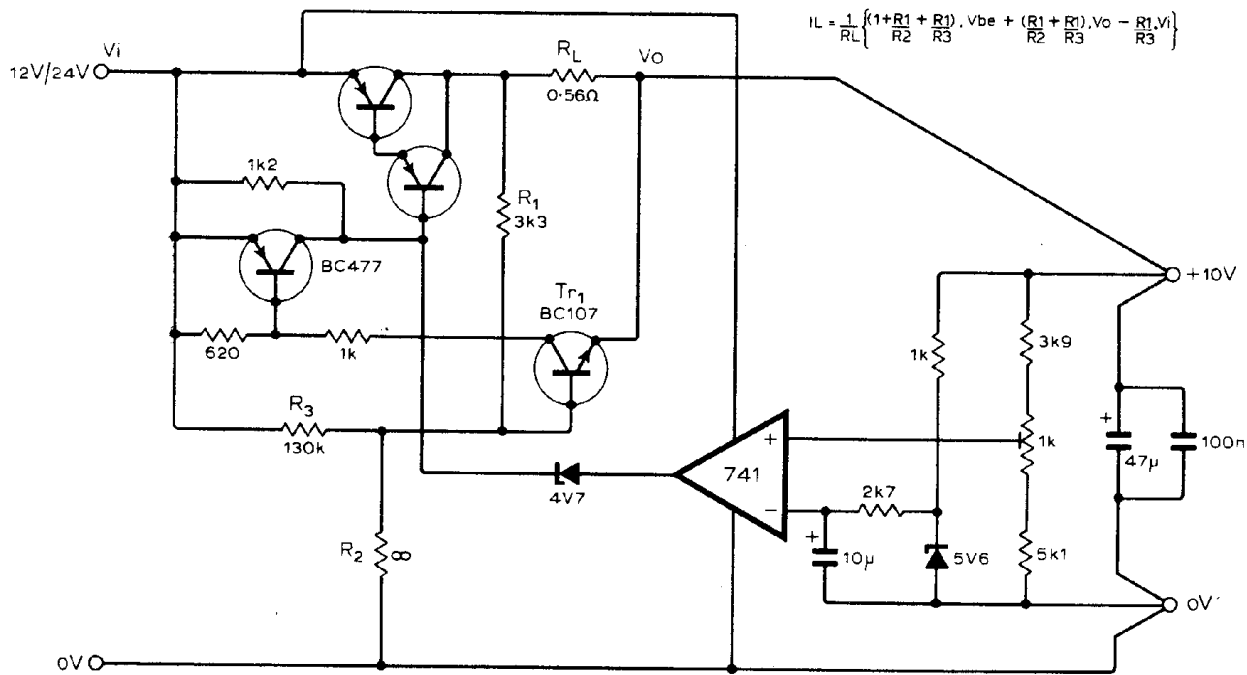


## Fold-back current limiter

This design has been found useful when supplying series regulated circuits from a wide range of input voltages. By choosing suitable values for the current limiting components,  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_L$ , fold-back current limiting characteristics can be achieved that will protect the series regulating transistor from over dissipation when  $V_i - V_o$  is high, and allow higher values of load current to flow when  $V_i - V_o$  is low. Current limiting takes place when  $Tr_1$  conducts. With the values shown and the  $V_{be}$  of  $Tr_1$  assumed to be 0.65 volts, the current limiting characteristics will be similar to those in the graph.

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North Harrow,  
Middx.



$$I_L = \frac{1}{R_L} \left\{ \left( \frac{1+R_1}{R_2} + \frac{R_1}{R_3} \right) \cdot v_{be} + \left( \frac{R_1}{R_2} + \frac{R_1}{R_3} \right) \cdot V_o - \frac{R_1 \cdot V_i}{R_3} \right\}$$