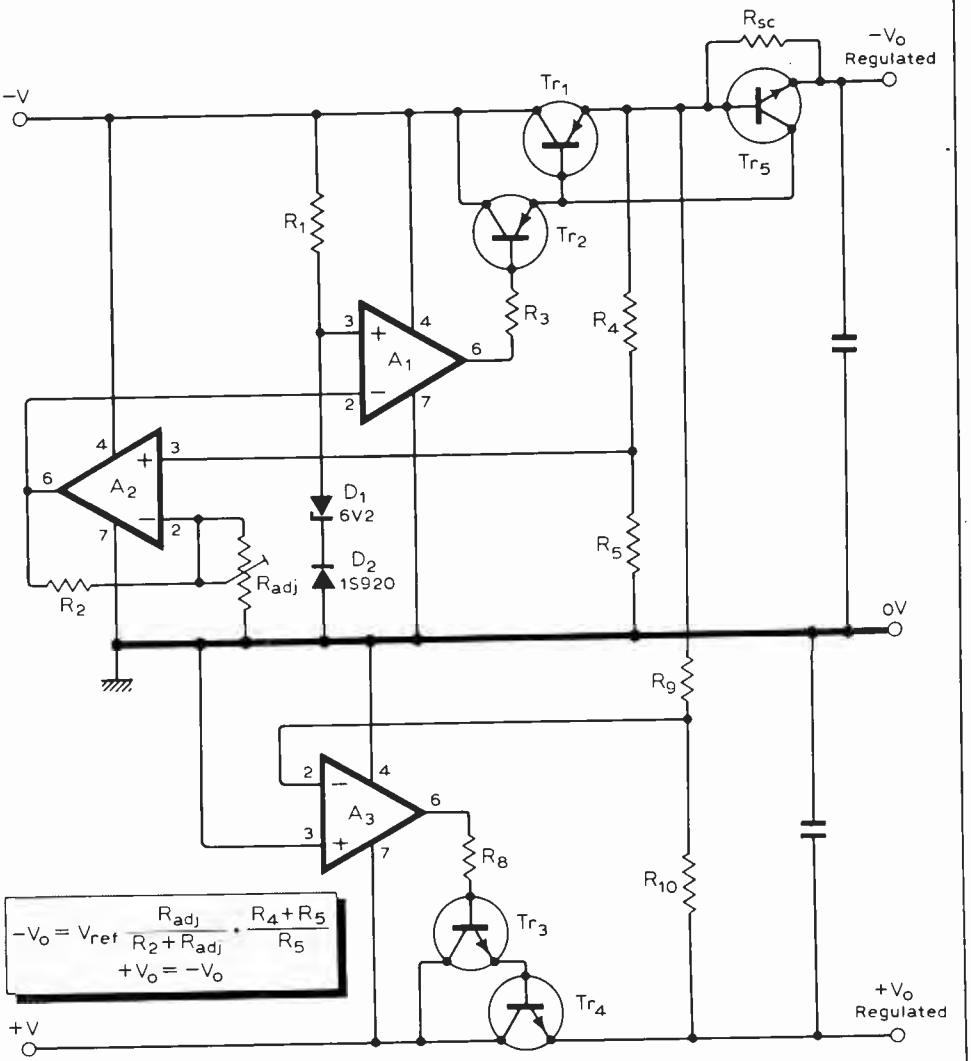
Adjustable tracking voltage regulator

BOTH OUTPUTS of this regulator can be adjusted simultaneously by one potentiometer. Diodes D_1 and D_2 act as a reference, where the positive temperature coefficient of D_1 is cancelled by the negative temperature coefficient of D_2. Amplifier A_1 regulates—V_0 so that the output of A_2 is always at the reference voltage. Amplifier A_3 has its non-inverting input connected to 0V and the point between R_9 and R_{10} is also at 0V. Because $-V_0$ is fixed, $+V_0$ has to be regulated at the same voltage as $-V_0$. Resistor R_9 equals R_{10}, R_4 and R_5 are scaled to give a constant K so that $-V_0$

$$= V_{ref} \cdot \frac{R_{adj}}{R_3 + R_{adj}} \cdot K.$$

R_{11} acts as a current sense resistor, and provides a current limit of approximately $\frac{0.68\ A}{R_{11}}$

S. Choudhari,
Trondhiem,
Norway.



Negative supply for op-amps

A SINGLE TIMER i.c. used as an astable multivibrator can provide a 200mA negative supply from a positive rail voltage. The square-wave output drives a diode-clamp consisting of C_1 and D_1. Components C_2 and D_2 smooth the squarewave to give a negative d.c. output. With the component values shown the oscillator frequency is about 2kHz, but any value between 1kHz and 4kHz is satisfactory.

A. Pongsupaht,
Dept. of Electronic Engineering,
University of Birmingham.