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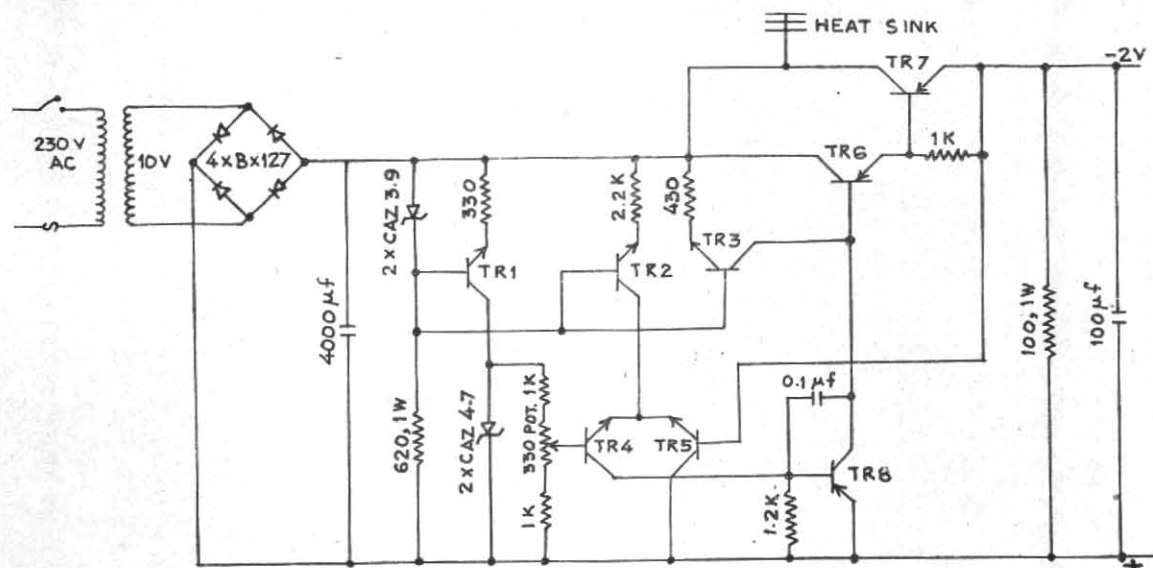
## A 2V 500 mA REGULATED POWER SUPPLY

1. A 2 volt 500 mA power supply unit having a regulation better than 1 per cent has been constructed in the Central Radiation Laboratory, Poona for use as an accessory equipment for pyrheliometer and pyrgeometer observations.

2. The circuit diagram of the unit is given in Fig. 1. 220 volts a.c. is stepped down to 10 volts

diodes CAZ 4·7 in parallel. TR 2 supplies the error amplifier which consists of transistors TR 4 and TR 5. TR 3 feeds the series pass element and Darlington configuration consisting of transistors TR 6 and TR 7.

Under the control of the error amplifier transistor TR 8 sinks all or part of the current coming from TR 3. The error amplifier compares a part of the regulated voltage with a fraction of the reference voltage determined by the setting of the 330 ohm potentiometer.



TR 1 to TR 5 = CIL 512, TR 6 AND TR 8 = SK 100, TR 7 = AD 149

Fig. 1

by the transformer, rectified in a bridge rectifier and smoothed by a large condenser. From this higher unregulated voltage a low regulated voltage has been achieved by reversing the error amplifier and inverting the amplifier's output with a current sink transistor, as zener diodes at such low voltage levels are not available. The zener diode CAZ 3·9 is a common reference for current sources TR 1, TR 2 and TR 3. Two zener diodes are used in parallel for better power handling. TR 1 feeds the zener voltage reference consisting of two zener

3. The regulation obtained has been better than 1 per cent for 0 to 500 mA variation in load current and  $\pm 10$  per cent variation in the 220 volt input power. No ripple could be recognised on oscilloscope.

The output voltage can be varied from 1·8 to 2·2 by adjusting the potentiometer.

The unit is made up of indigenous and easily available components and is cheap.

*Meteorological Office, Poona*  
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REFERENCE

Classen, Claus H.

1971 'Low voltage regulator uses reversed error amplifier'  
*Electronics*, Nov. 22, p. 74.