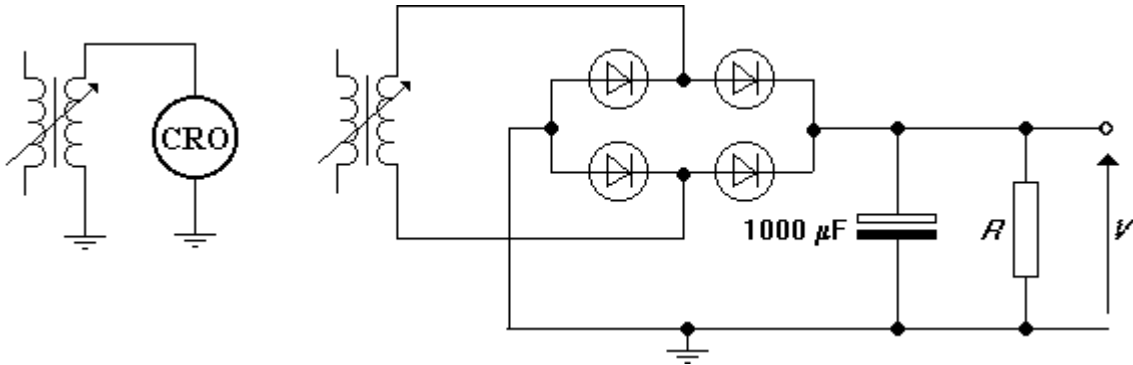


Investigating ripple in a simple power supply

1. Use a CRO to set the peak voltage of a variable transformer (a.c. power pack) to +6.0 V. Settings of 2 V/cm and 5 ms/cm, with d.c. input should work well. Do not adjust the setting of the transformer from now on.



Warning! Capacitors can explode if reverse biased.
Wear eye protection when doing this experiment.

2. Assemble the power supply circuit shown on the right. Have a load R of 10 k Ω (10 000 Ω). Be careful about where you earth the circuit, and which way round you have the capacitor. Connect the CRO so that it measures the voltage V across the load.
3. Switch on the transformer. If all is well, the screen trace should be a horizontal line at +4.6 V.
4. Now copy this table. Do calculations to complete it – don't do any measurements yet! You can assume that the a.c. supply has a frequency of 50 Hz. The current $I = 4.6/R$.

load/ Ω	current/A	ripple/V
100		
220		
470		
1000		

5. Replace the load with the values shown in the table, one after the other. Measure the size of the ripple each time. You might need to switch the CRO input to a.c.