

Equipment needed for the Hysteresis of Iron Experiment.

The Washing Machine: (See Figure 1.)

- 1 x Washing Machine Power Supply.
- 1 x 7.5Ω Rheostat.
- 4 x Heavy Duty wires.

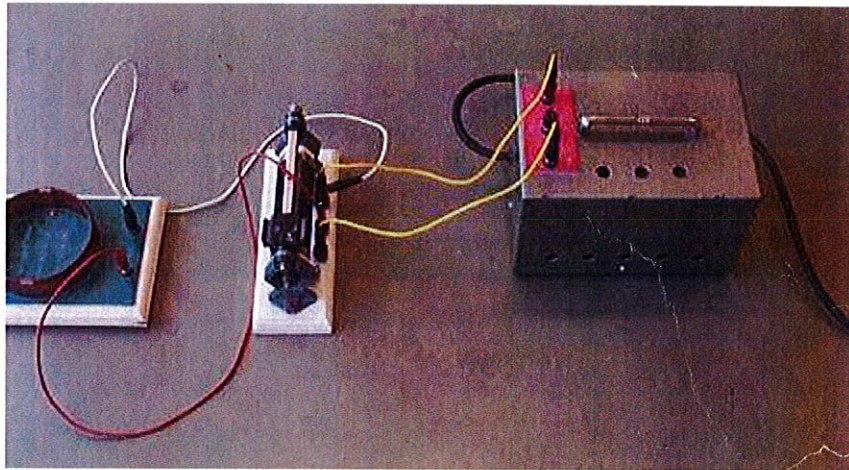


Figure 1. The Washing Machine Circuit.

High-Current section of Circuit: (See Figure 2.)

- Power Source (Battery).
- 1 x 5Ω Rheostat.
- 1 x 7.5Ω Rheostat.
- 1 x 14Ω Rheostat.
- 1 x $5K\Omega$ Potential Divider.
- 1 x 2600μ F Capacitor.
- 1 x Solenoid (Blue Base for better results).
- 1 x Switch (Simple).
- 1 x Switch (Single-throw crossover switch).
- 8 x Heavy Duty wires (thinner wires can be used when more are needed because of additional rheostats in the circuit (i.e. less current)).

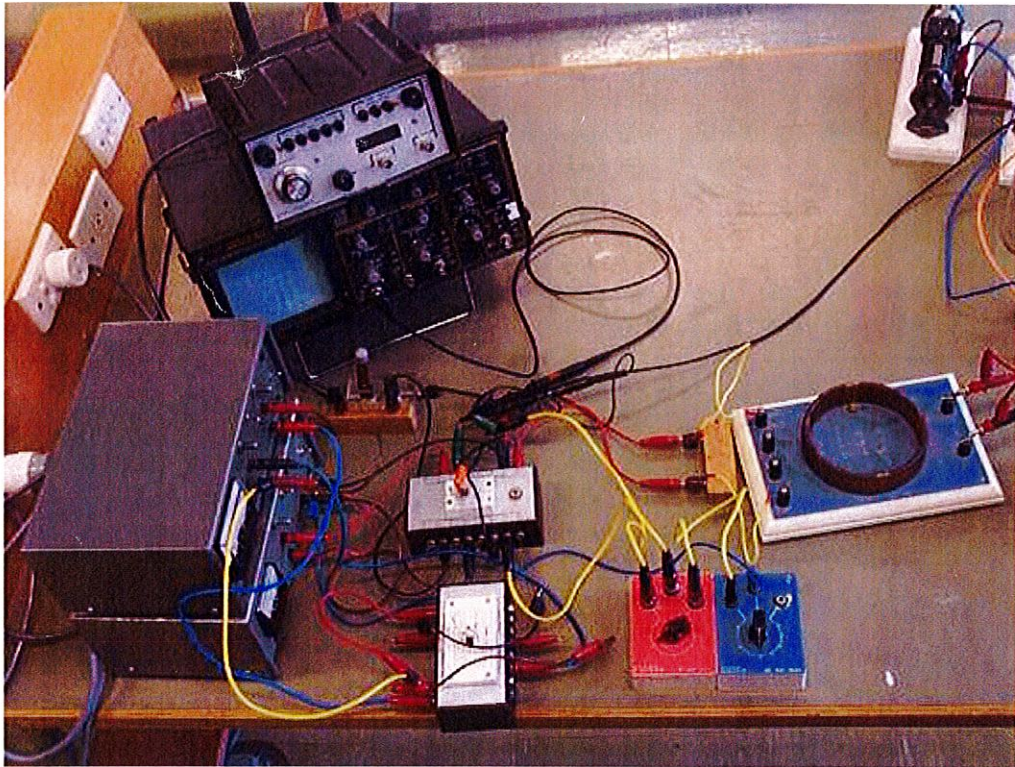


Figure 4. As you will probably need both amplifiers several times, it is a good idea to make them so that minimal adjustments are needed when changing between them.

DAQ Gear:

- 1 x Computer with DAQ card.
- 2 x CRO probes.
- Status for Windows.

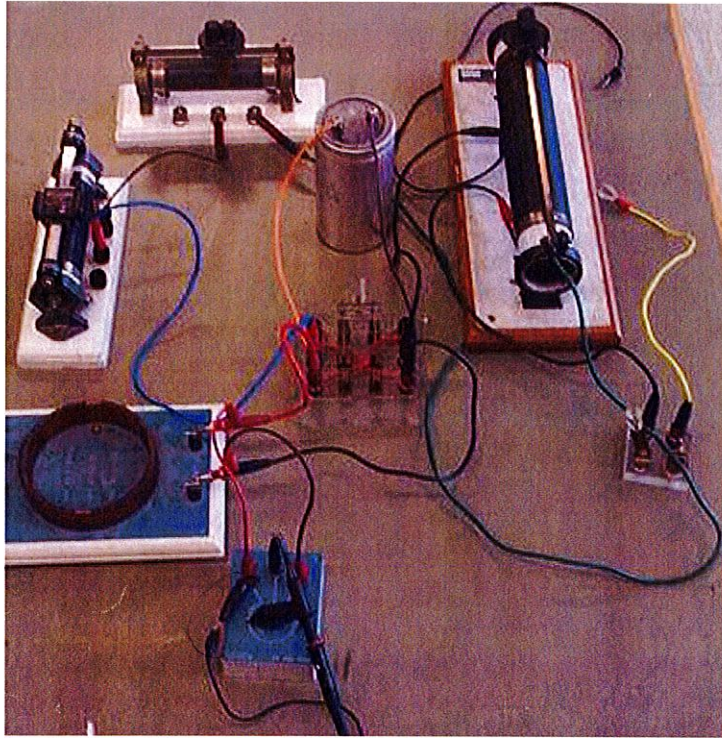


Figure 2. The High Current part of the Circuit.

NOTE: The power source is not shown, but the manner in which it is wired up is critical. If you reverse-bias the big capacitor, the resulting bang will be both loud and expensive...

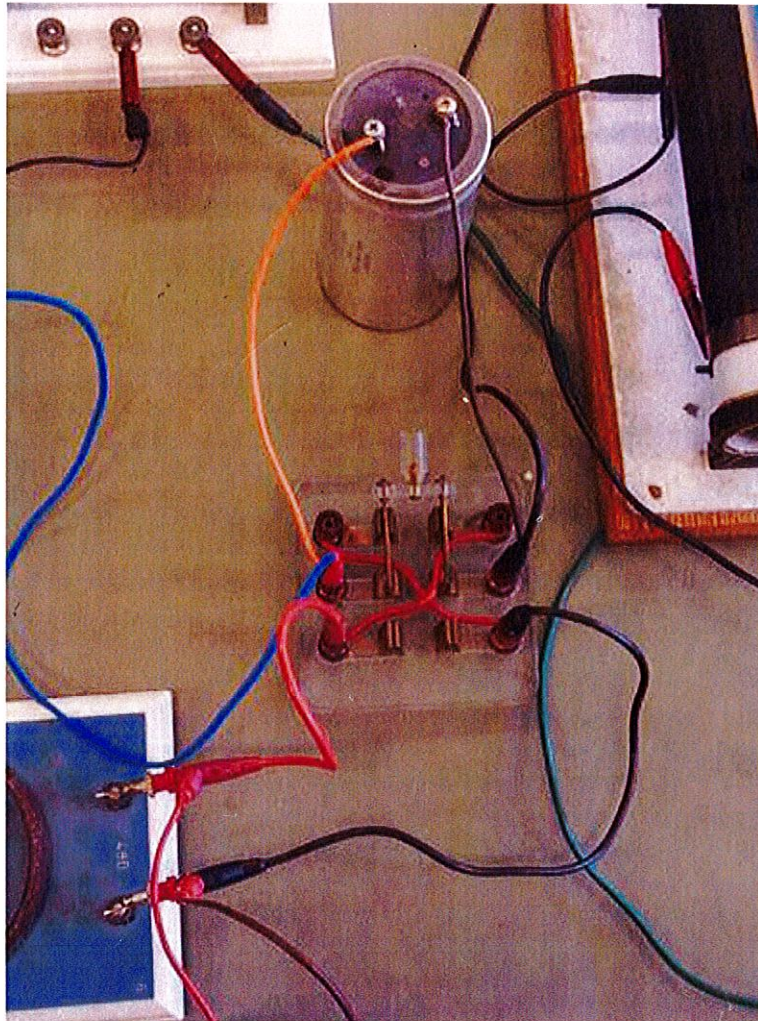


Figure 3. The way the crossover switch is wired up is crucial for good results (and to save the capacitor).

Amplifier Circuits:

- 2 x DC Power Supplies.
- 2 x Circuit Breadboards.
- 2 x LM301 Operational Amplifier chips.
- 1 x CRO.
- 1 x CRO probe.
- 1 x Switch (Simple).
- Wires, resistors, and capacitors as needed to construct a regular and an integrating amplifier.