

VOLTAGE OF CAPACITOR VS TIME

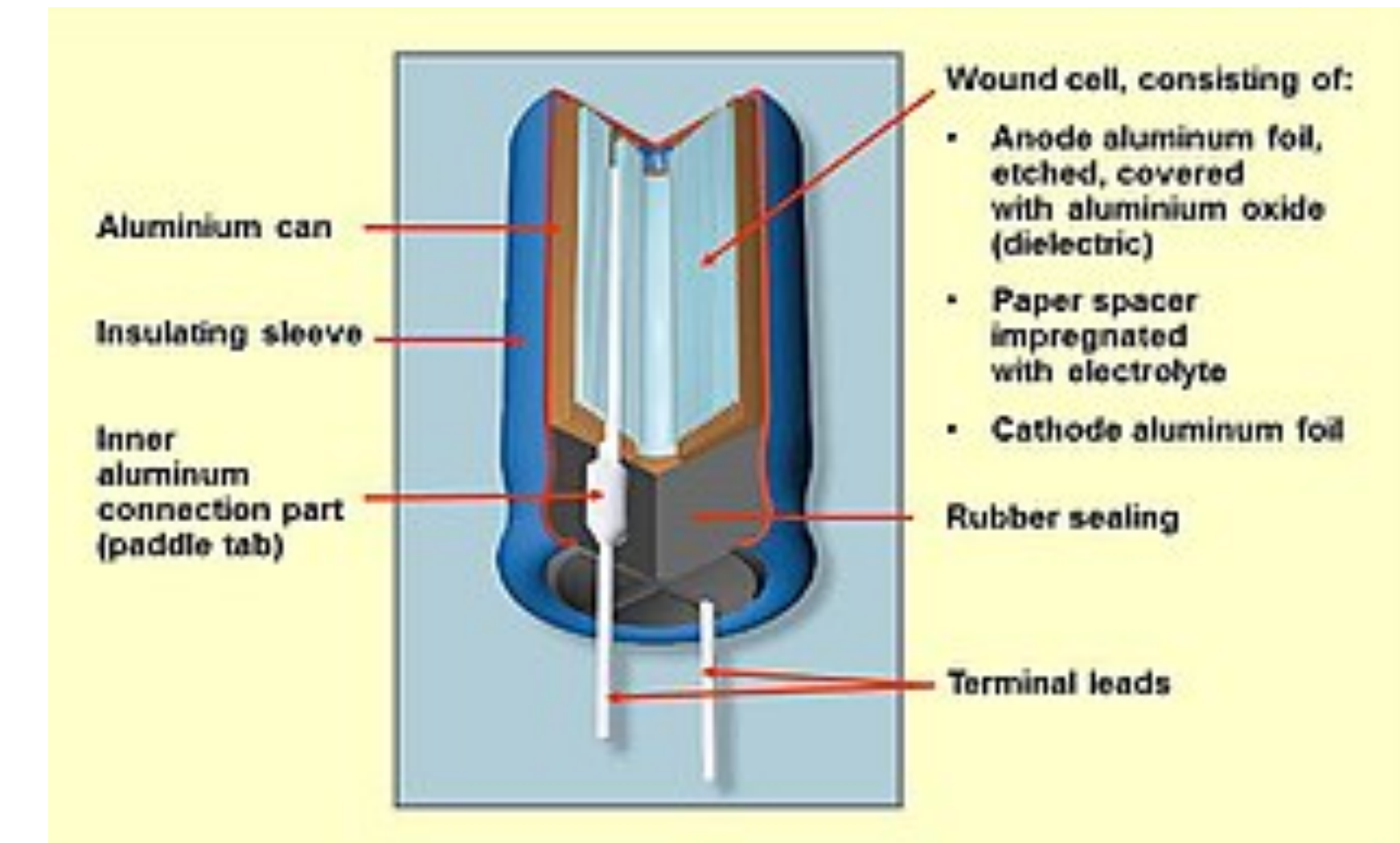


INTRODUCTION

In this experiment I was curious to see what would happen to a capacitor's voltage during the duration of a near space flight. Before taking flight I knew the capacitor would be exposed to many different atmospheric elements. So to make it easy on myself I compared voltage loss from capacitor versus time of flight.

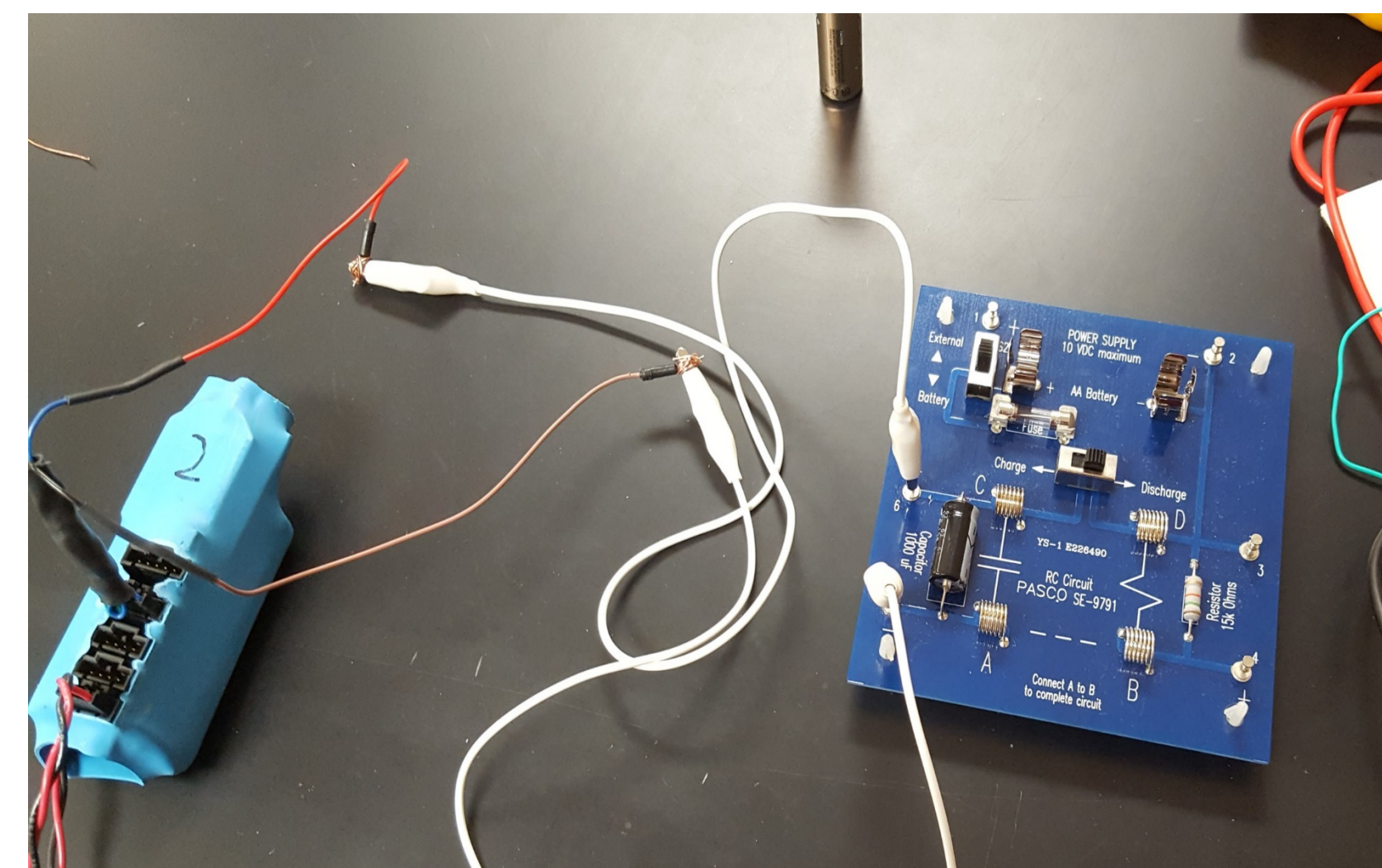
RESULT

As predicted the capacitor lost voltage on the way up to peak altitude. Once the balloon burst, this is where it deviated from my prediction. As the capacitor was descending from peak altitude, the capacitor started to gain voltage rapidly. Once it made touchdown on earth the capacitor was back to original voltage. Now the really question is, how did the capacitor gain voltage when descending?



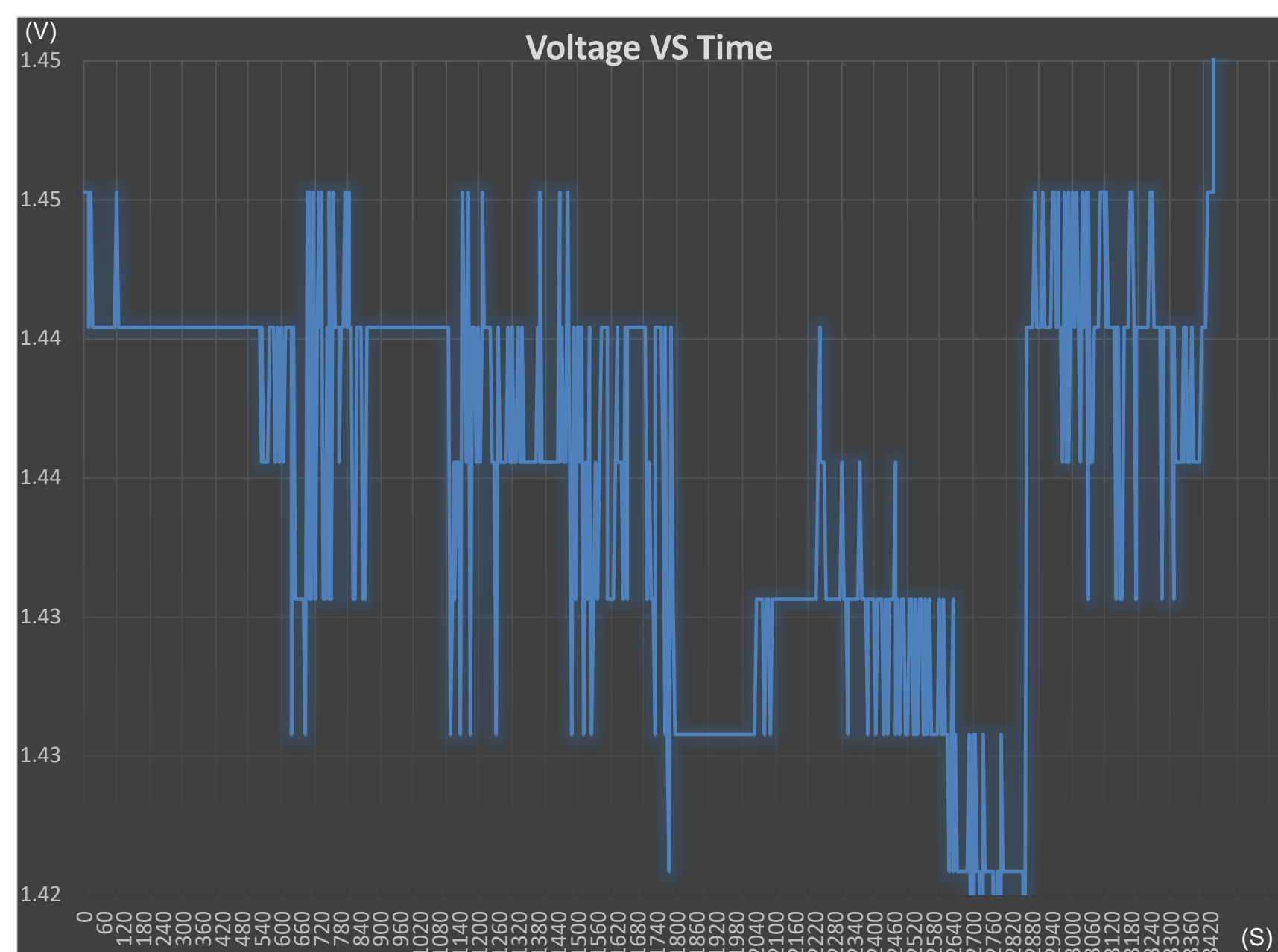
METHOD

To test this experiment I used an RC circuit board that we have previously used in lab. Using this circuit board I was able to charge up the capacitor to roughly 1.5 Volts. After charging the capacitor, I connected one lead to the positive and negative ports from the circuit board. Next, connected the two leads to a receiver which record the data throughout the flight.



CONCLUSIONS

After doing some research, I came to a conclusion that the induced voltage could possibly come from the inductor on the RC circuit. When descending, the inductor is experiencing Earth's magnetic field at different rates, but always increasing. To create a voltage from an inductor there must be a magnetic field running through the coils. This is one of the many possible explanations on why there was a voltage gain during the capacitor descend. If there was one thing I would do different in this experiment would be to hook up multiple capacitors to see they all would react the same.



REFERENCES

- <https://www.electronicstutorials.ws/electromagnetism/electromagnetic-induction.html>

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