**Adiabatic Processes: Sensor Calibration, Work and the Adiabatic Index**

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**Section I: Background**

To perform this experiment to determine and measure the Volume, Pressure and Temperature of the two main phases of the adiabatic process which are the compression phase and the expansion phase. To get these values an Adiabatic Compression Apparatus, which is connected to the capstone software via the Pasco Interface box, with three different sensors plugged in. The objective of the experiment was to determine the relationship between the Volume, Pressure and Temperature during the compression and expansion phases of the adiabatic process.

**Section II: Theory and Procedure**

The experiment was performed with an Adiabatic Compression Apparatus that would create and measure the adiabatic reaction that is desired. There are two phases to the adiabatic process, the compression phase which will be recorded while the compressor will be in the process of being pushed down, this will be done a total of three runs, the second phase is the expansion phase which will be the process of the pulling up thereby increasing the volume, and will be recorded during that process and also ran for three runs. To perform and record the for the compression phase begin with setting the recording rate 500Hz and begin pressing the piston down, taking about 0.4 to 0.8 seconds to complete the compression. After it is completely compressed wait 10 seconds and then release, after fully decompressed wait another 10 seconds and then stop recording data, this serving as one run, repeat two more times. For the expansion phase, the data concerning the point after the release of the piston.