



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) John T. Schwartz, III	Project Number S0323
Project Title The Effect of an Electrolytic Cell on the Power Output of an Internal Combustion Engine	
Objectives/Goals The objective of this experiment was to find how the introduction of on demand oxy-hydrogen produced by an electrolytical cell affected the power output of an internal combustion engine.	
Abstract Methods/Materials The main materials used in this experiment included a weed whacker engine, an electrolytic cell, and a dynamometer. The electrolytic cell system and dynamometer were constructed by myself. I also created an organized bench testing station with these components mounted. To preform the experiment, the small, two stroke engine was run on a constant flow of gasoline. In conjunction with this, oxy-hydrogen was introduced through the air intake at flow rates of 0.0LPM (liters per minute), 0.5LPM, 1.0LPM, and 1.5LPM. The power output of the engine was recorded in watts for each rate of introduction. After performing eighty-four test on the data, twenty-one for each rate of introduction, I concluded my experiment.	
Results The mean values for the 0.0LPM, 0.5LPM, 1.0LPM, and 1.5LPM test groups were 435.89 watts, 462.05 watts, 474.16 watts, and 487.33 watts respectively. Statistical tests revealed significant increases between the control and all experimental test groups. A significant increase was also found between the 0.5LPM and 1.5LPM test groups.	
Conclusions/Discussion The hypothesis was if oxy-hydrogen was introduced into an internal combustion engine, it would increase the power output. Also, a further increase in oxy-hydrogen introduction would correlate to an increase in power output. The data supported the hypothesis. In light of this, the experiment expands the knowledge of the application of an electrolytic cell system.	
Summary Statement This project was about testing the effect of introduction rates of supplemental oxy-hydrogen on the power output of an internal combustion engine.	
Help Received Grandfather supplied drill press; Machinist helped lathe dumbbell weight to make flywheel	