To: Neal Ninteman

From: Caleb Hubbell

Date: 09/21/15

Subject: Design Intent for an Oscillating Air Engine.

I will discuss a broad overview of what design and materials I will use to meet the desired goal of my engine. My goal is to create an oscillating air engine that dominates the competition in the coast category. My design also keeps creativity in mind, orienting like a tabletop with the flywheel on top. On the bottom will be a single, single acting piston with large displacement. This will allow maximum torque, which will get my heavy flywheel moving quicker.

The engine will be primarily made out of aluminum, with some brass, steel, and delrin added in. For a tabletop orientation a baseplate can be avoided. What will replace it is four aluminum legs down from the four corners of the aluminum valve plate. In order to get enough momentum to trigger my clutch system, my crank will be designed for weight and also made out of aluminum. My flywheel is designed for max momentum. With that in mind it will be aluminum with 4 brass shafts designed to add weight, press fit eqi-distance apart inside the circumference of the flywheel. Lastly, my clutch system will consist of two thin, black delrin plates mounted to springs, designed to fly out and apply force once spinning. This is all so that when power is cut off from my engine, everything will disengage from the flywheel, leaving it to spin freely on the crankshaft.

Attached are:

Bill of Materials

Hand Drawings

Calculations