Math Sample

In this sample The cylinder radius is 4 inches and the height is 11 inches. The volume is 552.9 inches. The weight of 1 cubic inch of water is .036127 lbs. 552.9 X .036127 = 19.9746. 19.9746/2 = 9.98731. If we use the half for water and the other for air we get 9.98731 lbs of buoyancy force because of displacement of water.

The chamber is 34 feet high. Equals to 27.7 inches X 15, or 15 psi high.

The lever is 30:1. The working end will lift the lever with 9.98731 lbs of buoyancy force. The business end at 30:1 will give you 299.619 lbs of force.

The ends of the cylinders are 50.2 of area surface. As you see in the drawing
The bottom pressure of the chamber is what you want it to be depending on
the Vacuum on top of the water. Pressure = Pressure + pgh.

7 psi vacuum on top will give you 7.2 psi at the bottom of the chamber. You have 299.619 lbs of buoyancy force and we need 7.2 X 50.2 = 361.44 lbs. This will not work.

10 psi vacuum on top. Bottom is 4.2 psi. 4.2 X 50.2 = 210.84 lbs. You have 299.619 of buoyancy force and you need 210.84. You have a differences of 88.7
lbs extra. For O-ring friction.

The side effect of the equilibrium is the falling cylinders at 34 feet to the turbine. 9.98731 lbs. This is one piston of a large engine.