Caleb Hubbell

If I was to build a new engine based on the knowledge I now possess, and the longstanding goal of max coast,

I would:

* Make the flywheel vertical, to put the pressure on the bearing balls not the seal to the bearings.
* Decrease the crank radius, to increase the RPM’s.
* Increase the distance from inlet to exhaust hole to get a stronger stroke.
* Not use delrin for long lengths, it is hard to stabilize.
* Not use acrylic if a pressfit is needed, it is a gamble whether it works.
* If using acrylic, heat it after cutting to remove imperfections.
* Make sure no two materials rub against each other, it creates too much friction.
* Machine down the face of my cylinder so that only the space around the screw and around the port hole actually touches, to reduce friction.
* On top of that, add small delrin pads to further reduce friction.
* Use two cylinders and pistons to increase rpm, and allow push on both cycles while still allowing the e-pin to spin out, after one full rotation.
* Make a wider, angled notch in the end of the piston, so that it gets a better grip.
* Angle all cuts on the piston so that everything flows nicely, and there are no hang points.
* Keep the piston small for all but the inside the bore, to reduce useless weight.
* Do more inserts in the flywheel, and put them all along the rim, to increase weight.
* Make the edge of the flywheel go to a point, to reduce wind resistance, same for the crank disc.
* Make a larger crank disc, as it will add to the rotating mass, and therefore make it coast longer.
* Make a longer crank shaft, as this machine should perform well in torque and I would like to test it.
* Not use wood, it is hard to machine and chips, therefore not looking professional.
* Make sure to use a bottoming tap when tapping the screw hole for the cylinder.
* Sand down the piston using the lathe, to get an even finish.