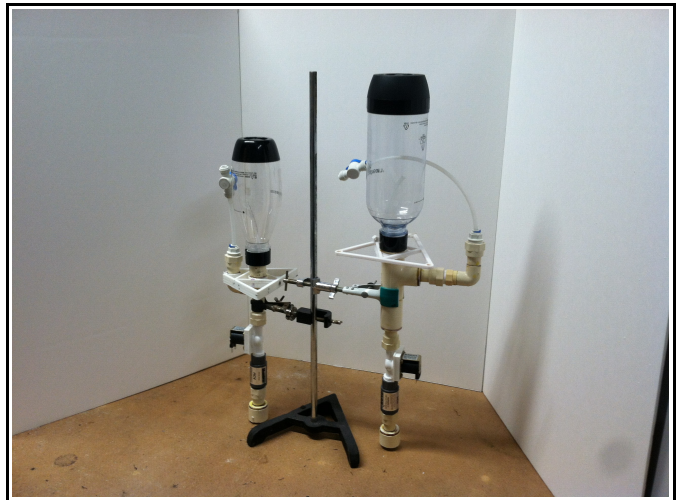


Executive Summary

This month, I used a lightweight generic soda stream bottle as the propellant/pressure tank for the Mk I Viper. The bottle failed the test at 40 psig. However, I found that Soda Stream® has a 500 ml bottle. It's mass is 26 gm lighter than the 1L bottle. Starting at 140 psig in both bottles, the calculated pressure difference is about 8 psig (~123 psig vs ~131 psig) at the end of the run. So, I'll have to test to see the effect on performance.

Technical Stuff

This month, I used a lightweight generic soda stream bottle as the propellant/pressure tank for the Mk I Viper. The bottle failed the test at 40 psig. However, I found that Soda Stream® has a 500 ml bottle. The mass is about the same as the generic soda stream bottle and 26 gm lighter than the 1L bottle. If pressurized to 140 psig at the start of the run, the calculated pressure at the end of the run is ~123 psig in the smaller bottle vs ~131 psig for the larger bottle. The pictures below show the two Soda Stream® bottles side by side. Next month I'll run a few engine test to see what effect the pressure difference has on performance.



The smaller bottle necessitates shortening the fuselage and thus reducing the mass of the Viper. In my opinion, the reduced mass will offset any reduction in performance. So, it's back to designing, printing, and fit checking PLA brackets for the Mk I Viper frame. Also, I'm switching to 4 oz fiberglass for the fuselage instead of carbon fiber. Fiberglass is easier to work with and cheaper.

Finally, I continued to upgrade my rocket engine test stand for higher thrust. I poured concrete for another 4' x 8' section of the concrete reinforced wall. This takes about 20, 60 lb bags of concrete and about four and half hours to mix and pour. It completely wears me out. I am worthless for a few days afterwards. I have five more 4' x 8' sections to mix and pour. I hope to finish by the end of the year. Also, I practice power off landings with a Cessna 172 (simulated with a VR headset, of course). Might as well have a little fun while recovering from the test stand upgrade.