



Hotfire 3.5

Propulsion Subteam - McGill Rocket Team

2024/05/03

Abstract

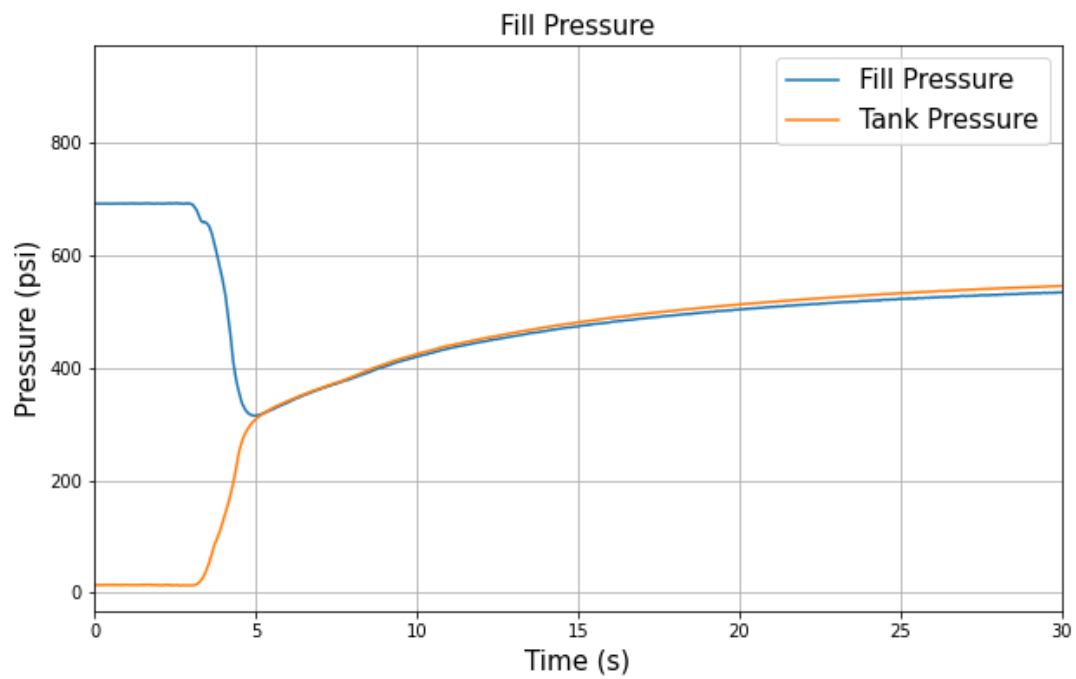
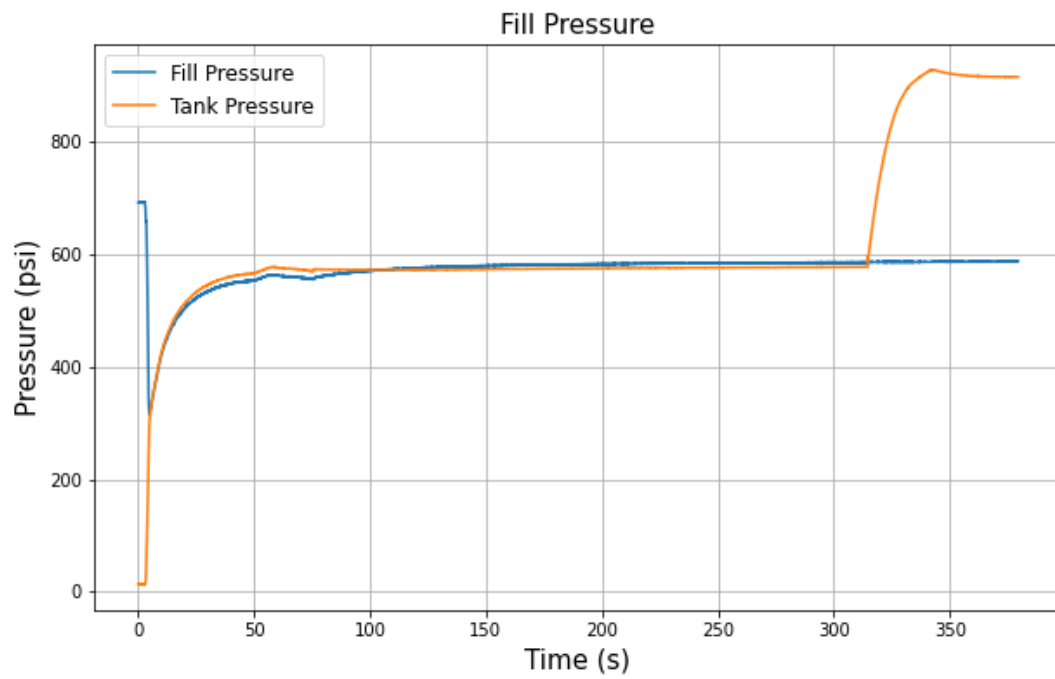
Table 1: Summary Results

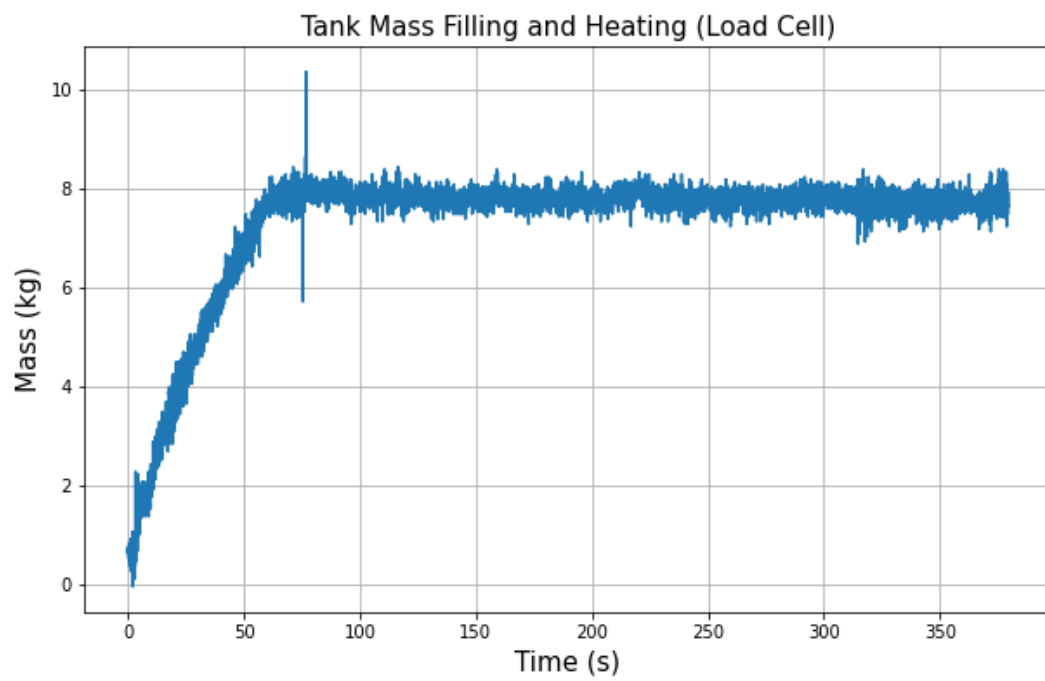
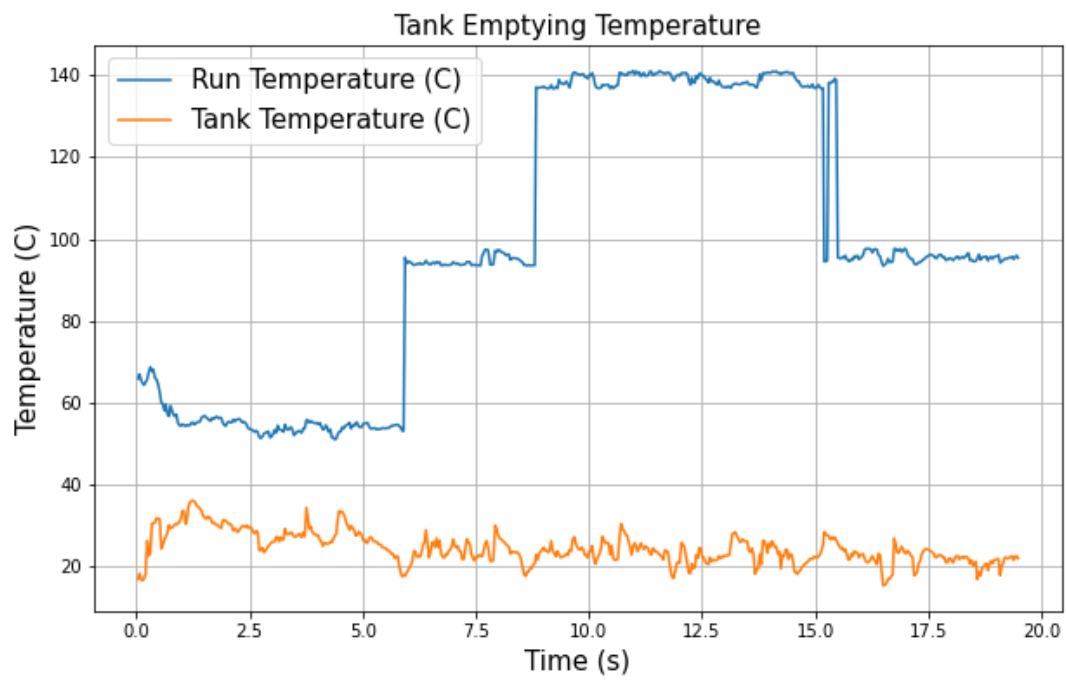
Variable	Value	Unit
Ambient Temperature	17	C
Run Tank Volume	15.3	L
Ullage Factor (estimate)	52	%
Fuel Mass	1.310	kg
Fill Time	379.5	s
Peak Tank Pressure	915	psi
Peak Tank Temperature	36	C
Peak Casing Temperature	204	C
Peak Run Pressure	708	psi
Peak CC Pressure	382	psi
Injector Holes	16	
Injector Hole Diameter	2	mm
Peak Mass Flow Rate (estimated)	0.97	kg/s
Average Mass Flow Rate (estimated)	0.77	kg/s
Burn Time	19	s
Peak Thrust	4202	N
Total Impulse	20932	Ns
Specific Impulse (nozzle estimate)	228	s
Specific Impulse (total impulse estimate)	232	s

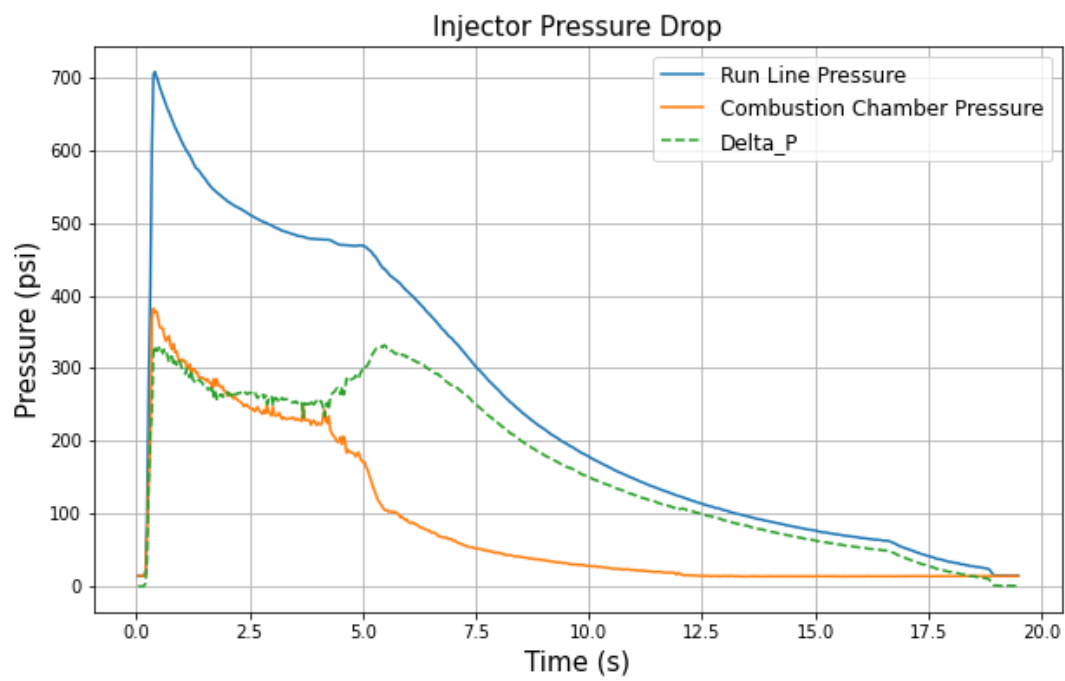
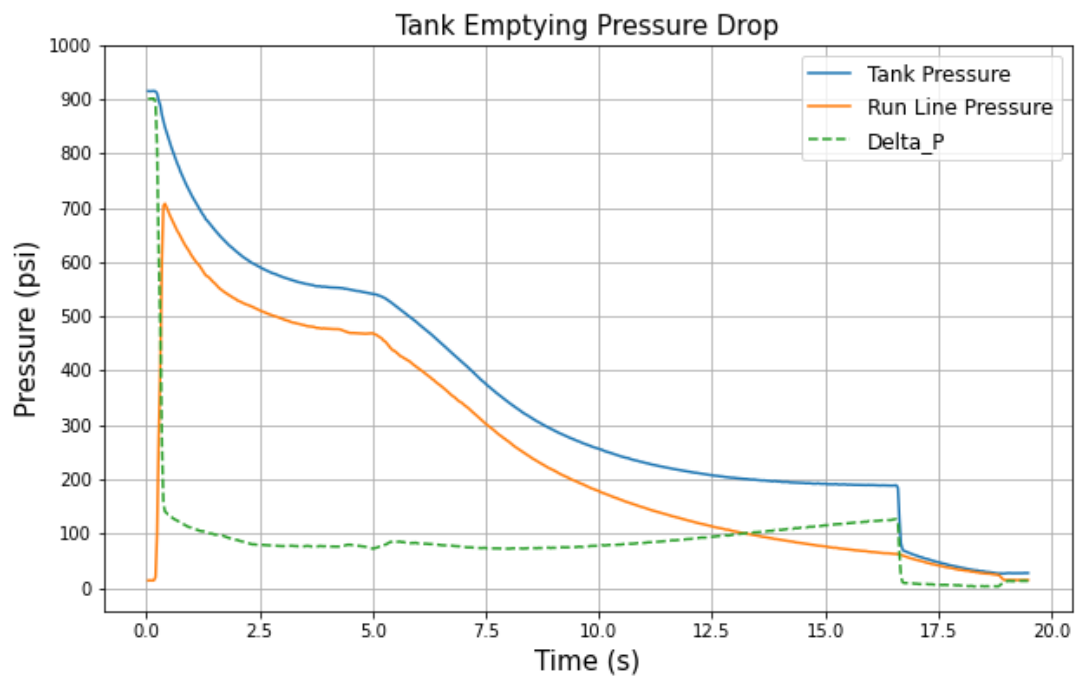
Table 2: Nitrous Mass Estimates

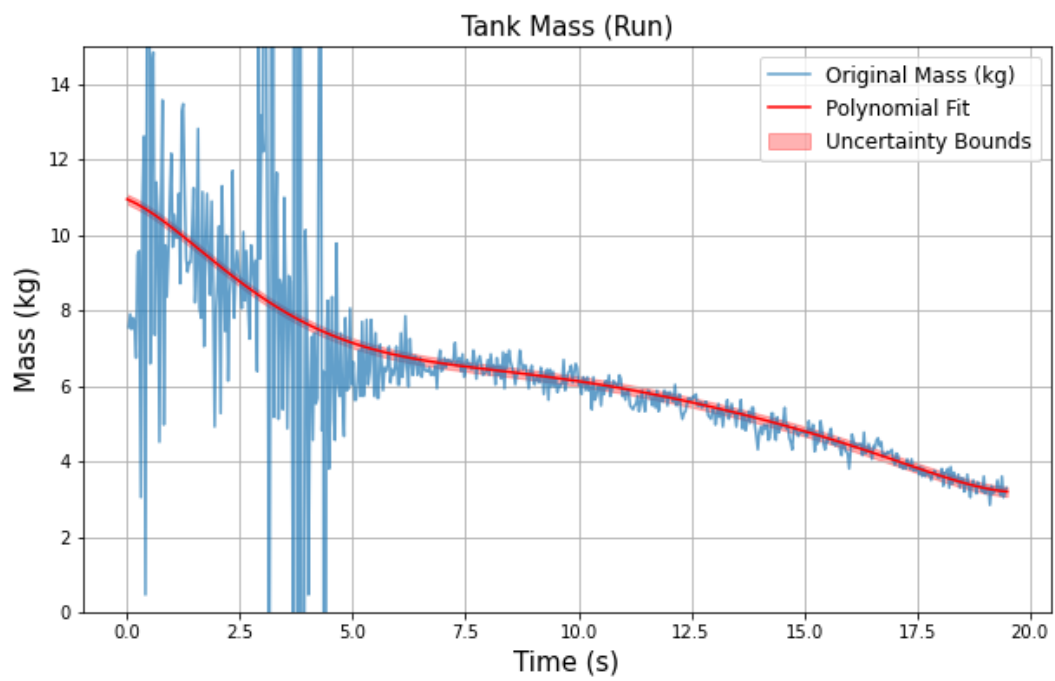
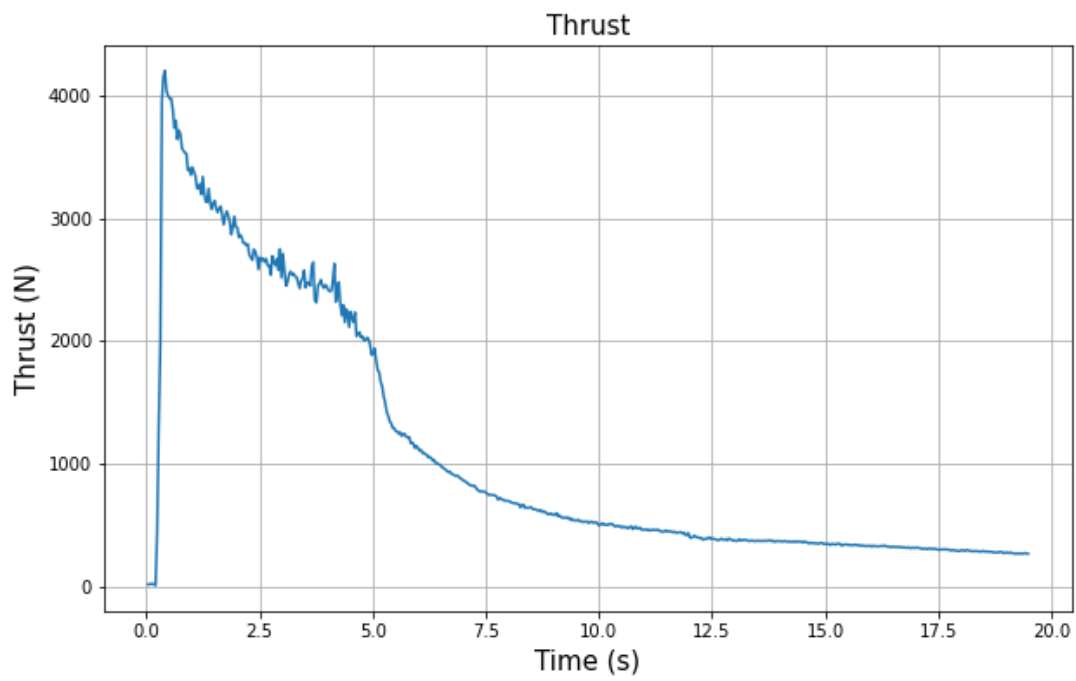
Variable	Value	Unit
Load Cell (end of fill)	8	kg
Ullage (25%)	NA	kg
Integrated Mass Flow Rate Fit	7.75	kg
Liquid Mass (estimate)	7.8	kg
Gas Mass (estimate)	0.2	kg
Mean Mass	7.87	kg
Standard Deviation	0.18	kg
Standard Error	0.13	kg

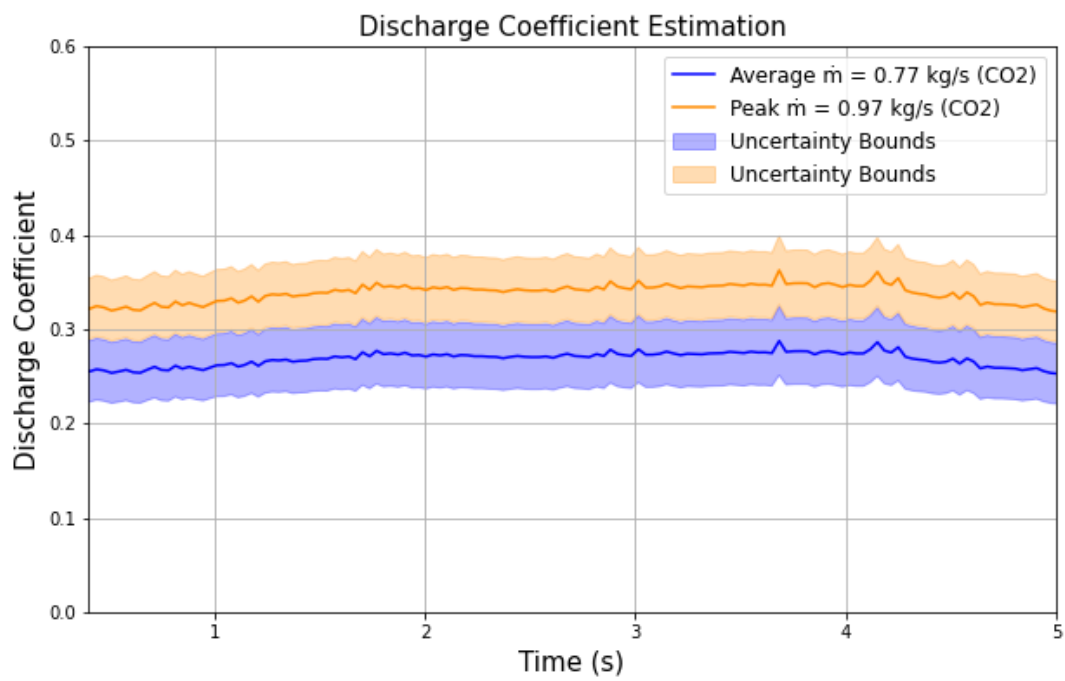
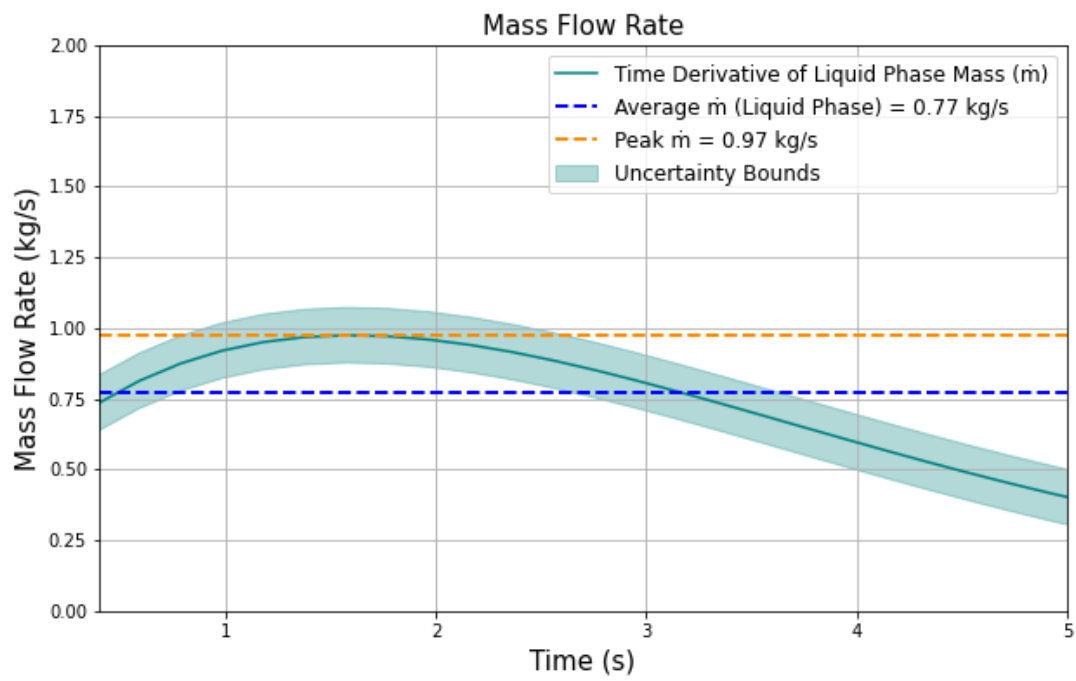
1 Plots

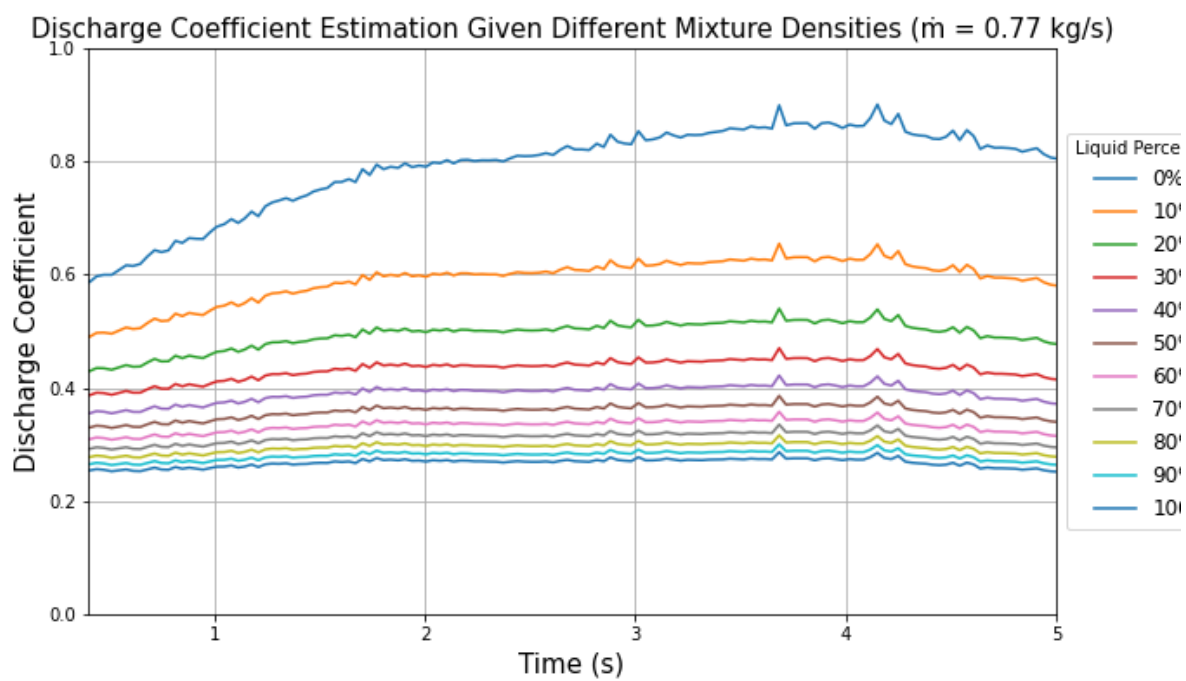
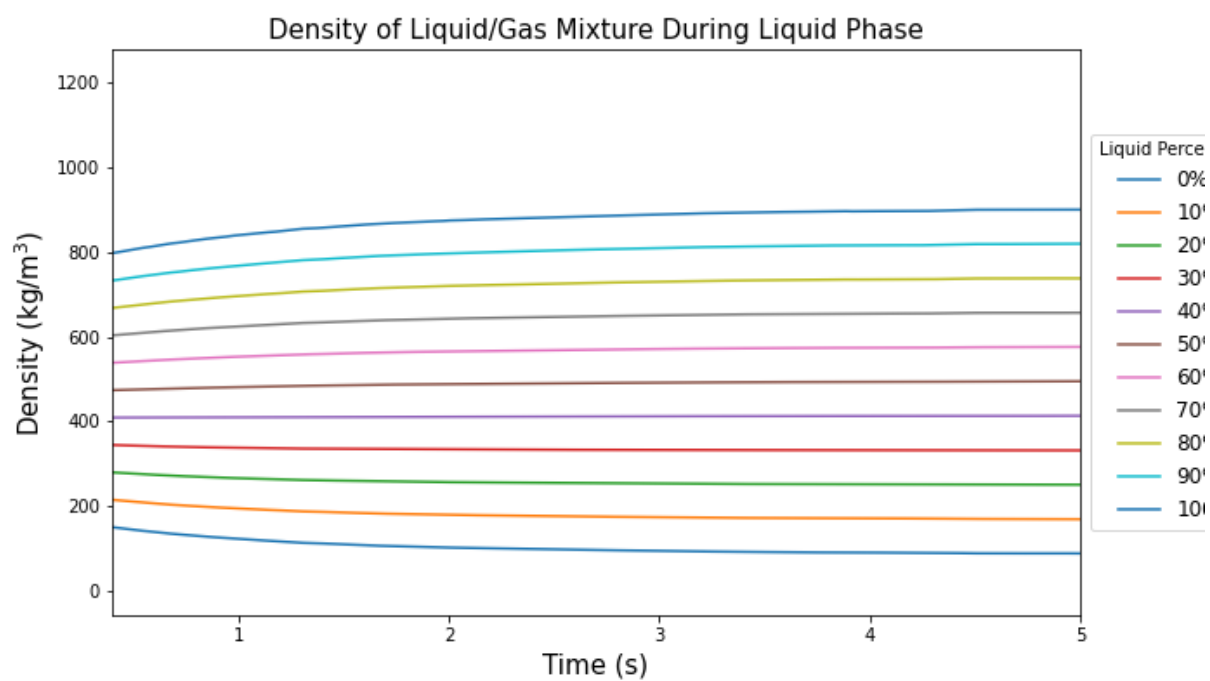


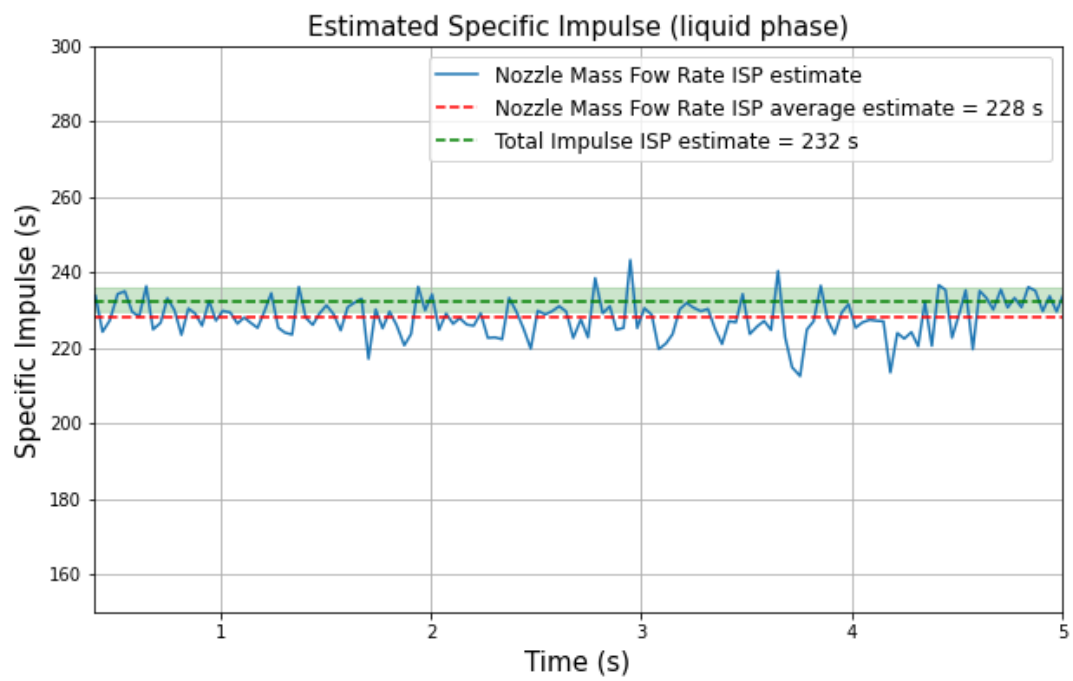
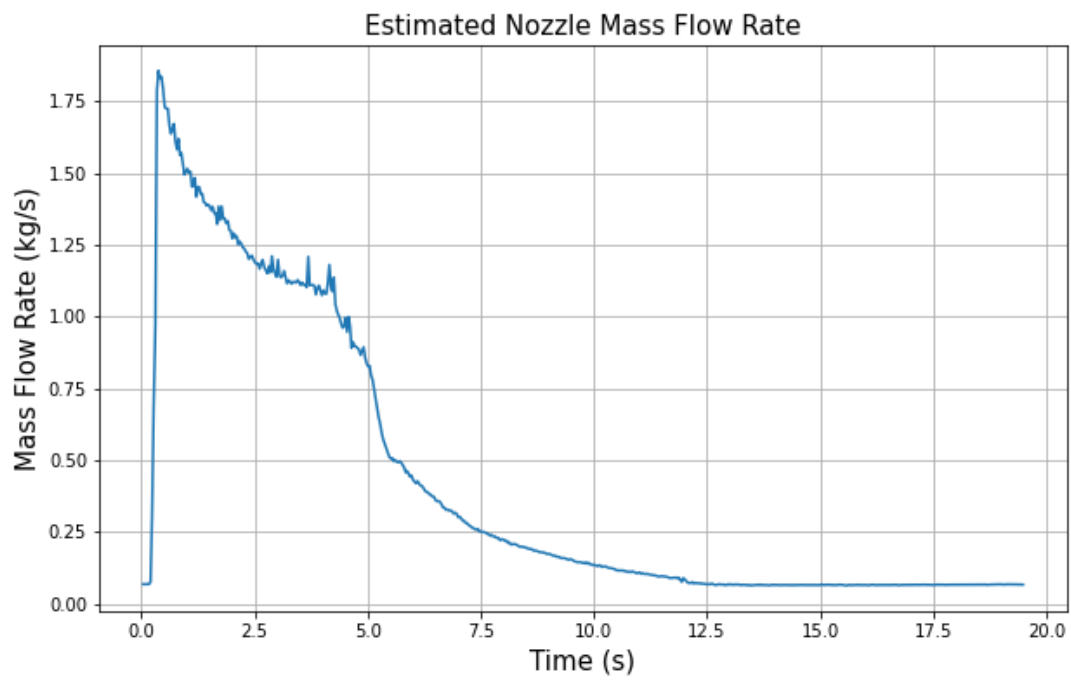












2 Issues Encountered

3 Conclusions

A Engine Disassembly Pictures