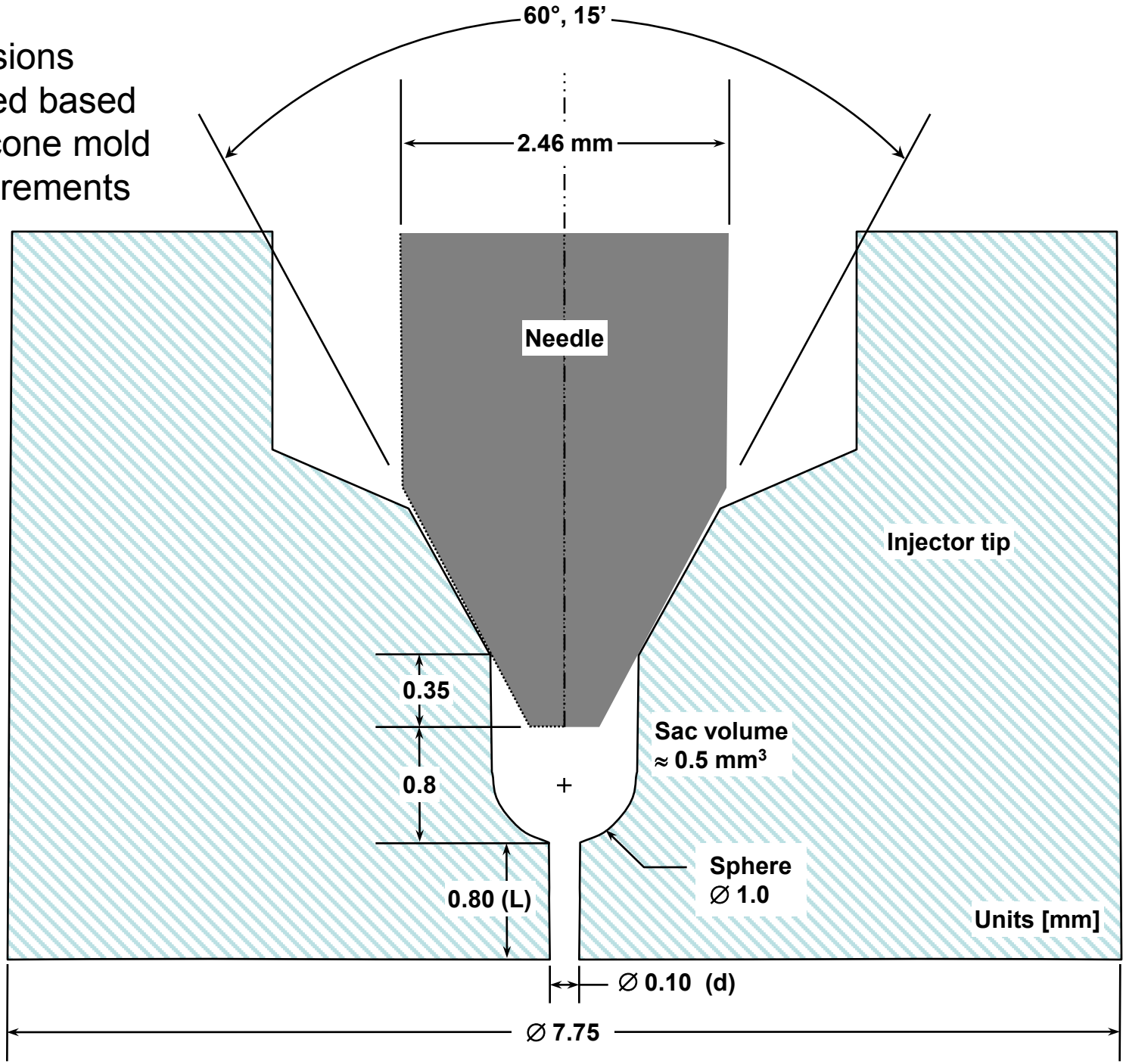
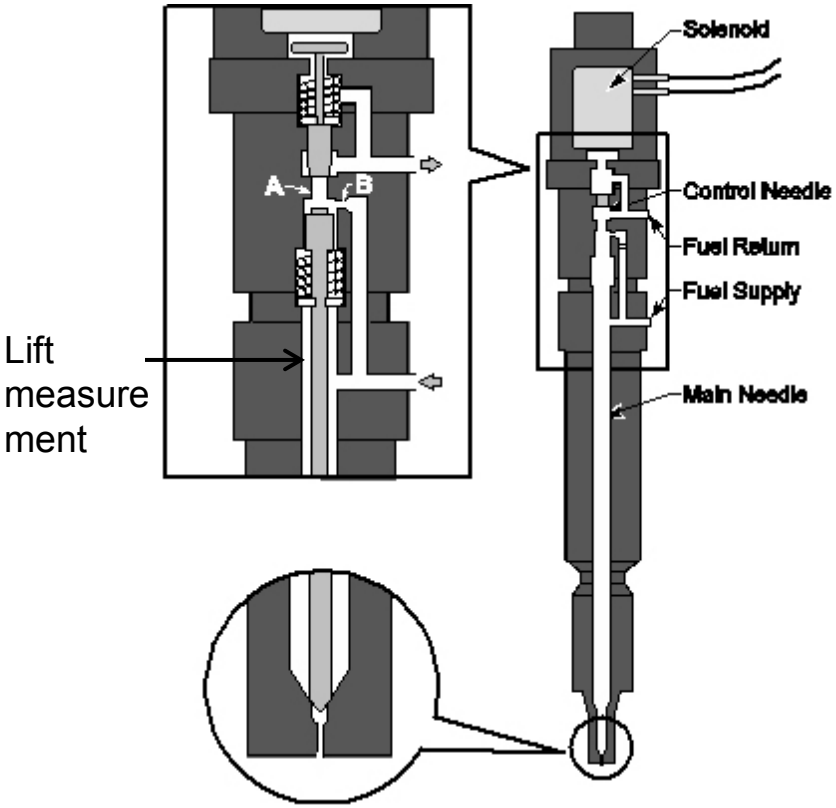
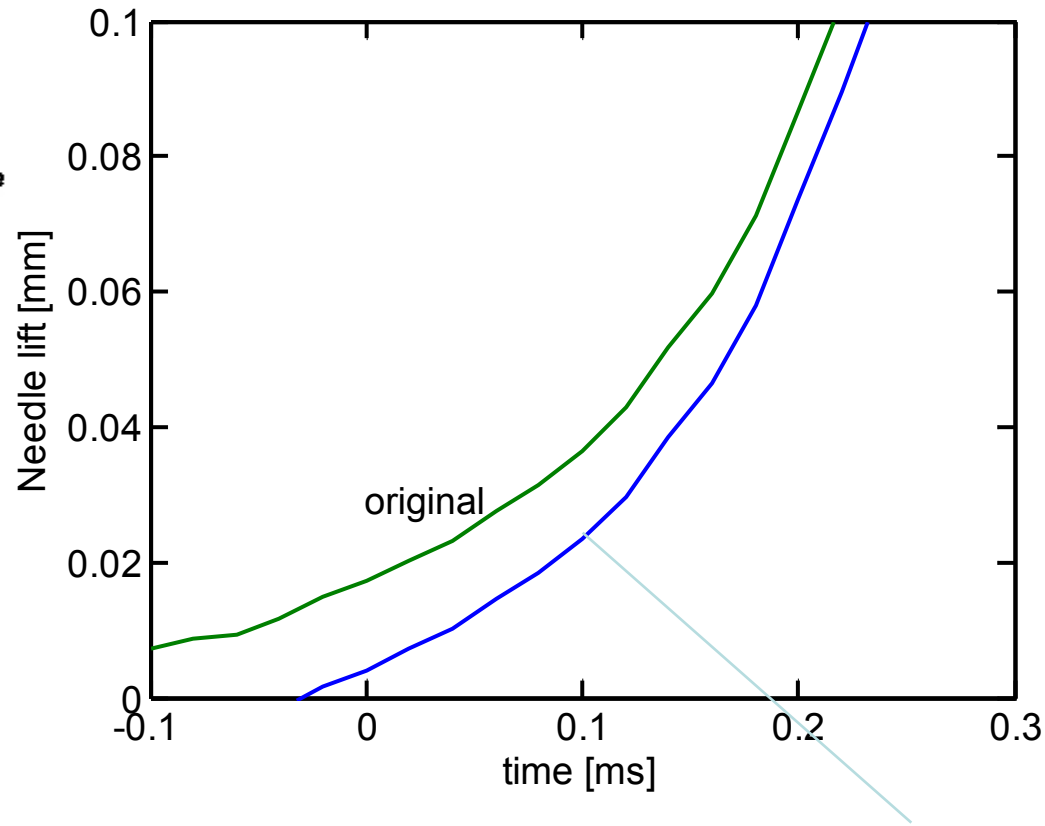
dimensions adjusted based on silicone mold measurements

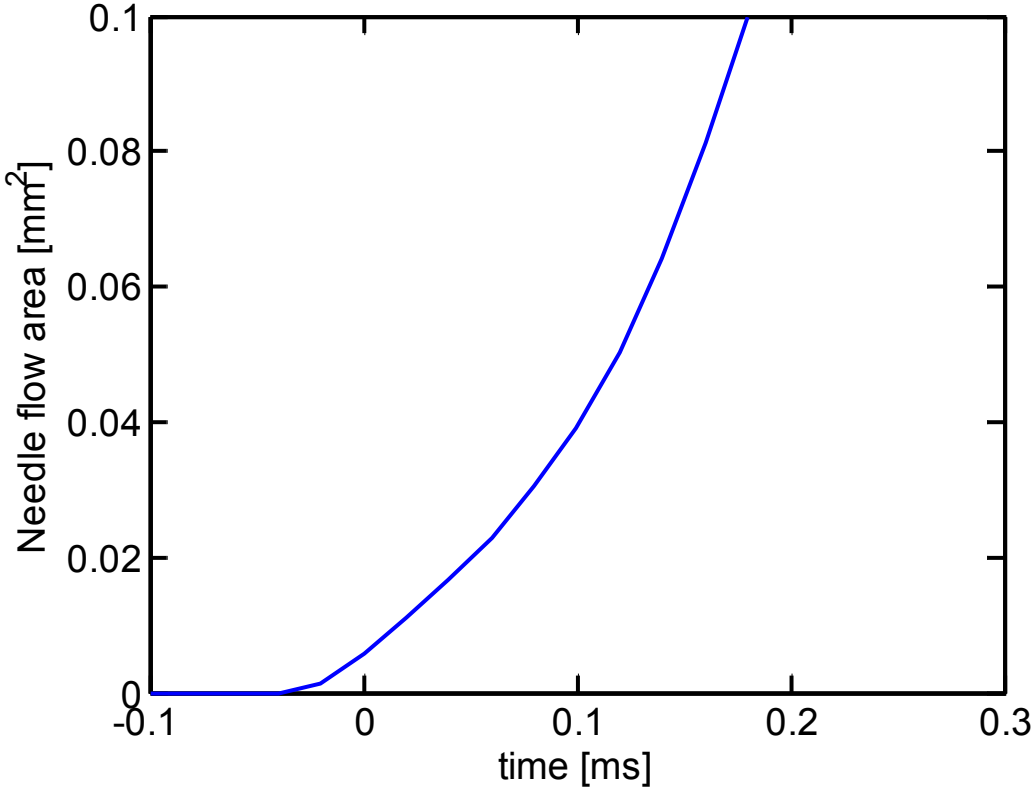






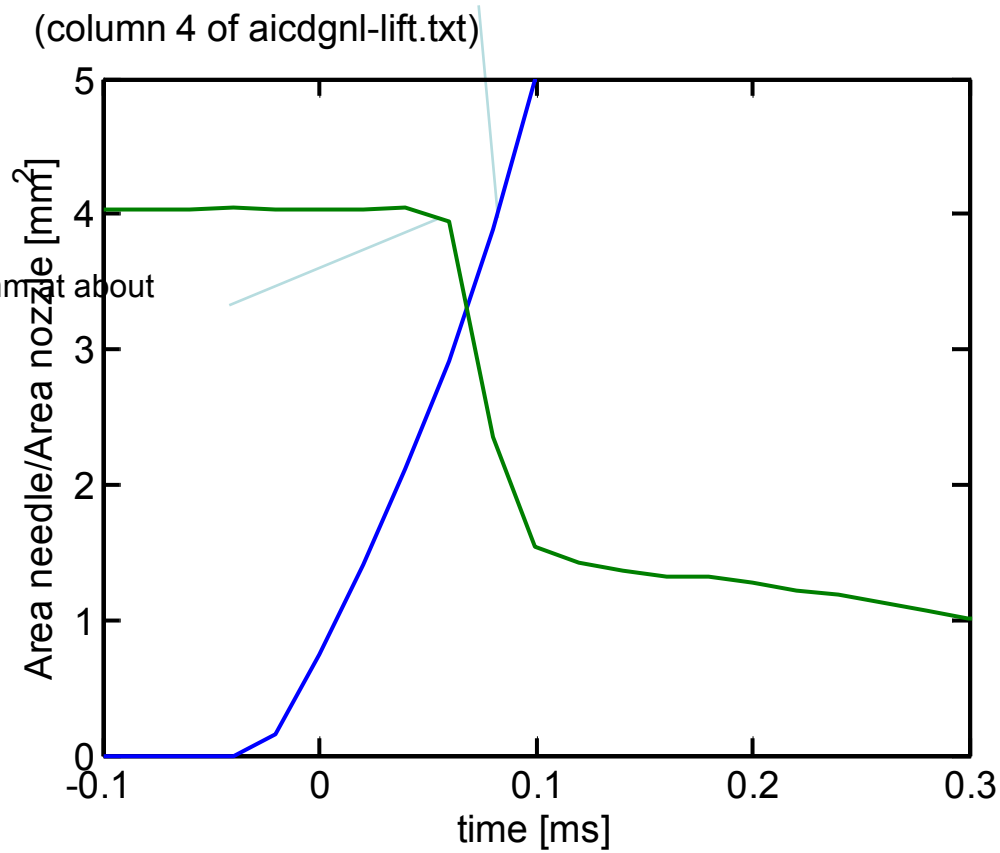
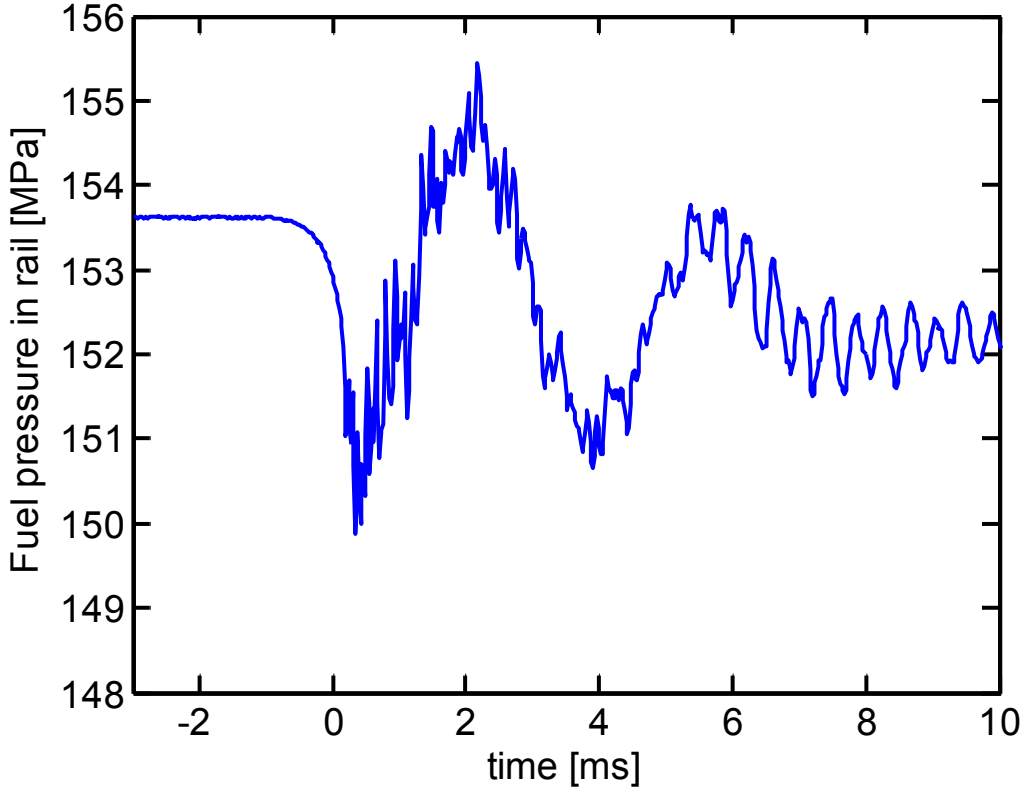
with correction for needle compression
(2nd column of aicdgnl-lift.txt)
a bit of a guess based on minimum cracking (opening) pressure. Feel free to subtract more up to the limit of 0 lift at 0 time.

Flow area normal to opening needle and seat.
with correction for needle compression
(3rd column of aicdgnl-lift.txt)



Flow area normal to opening needle divided by area of nozzle (pi*0.1^2 / 4). Shows that the needle may throttle the flow for about 0.04 ms, slowing the opening. Our rate of injection measurements don't pick this up accurately, I believe. But our vapor and liquid penetration measurements for baseline n-heptane show a slow penetration at first, consistent with this. Very interesting to examine initial penetration based on the computed rate of injection. Also need to consider time to pressurize sac. Sac pressurization time probably dominates over needle area time.
(column 4 of aicdgnl-lift.txt)

Laser at 7 mm div. 2
Shows spray arrives at 7 mm at about 0.06-0.07 ms .
(column 5 of needlelift.txt)



Fuel pressure about 25 cm from nozzle sac.
(6th column of aicdgnl-lift.txt)