Preliminary Valve Testing

1. Required Equipment
   a. ¼” air quick connect coupling
   b. ¼” female-female coupler
   c. ½”, 3” long nipple
   d. ¼” end cap with ¼-28 tapped hole
   e. ¼-28 male-male coupler
   f. MINSTAC to ¼-28 adapter
   g. MINSTAC tubing with fitting at both ends
   h. VHS M/2 valve
   i. .0075” ID MINSTAC nozzle
   j. Teflon tape
   k. Air hose
   l. Regulator hooked up to shop air
   m. Corn syrup
   n. Water
   o. Rubbing alcohol
   p. 6 mL syringe
   q. Dual Power Supply
   r. Waveform generator
   s. Cables/wires
   t. Valve control board

2. Procedure
   a. Setup
   b. Assemble the liquid container as shown in Figure 1
   c. Attach the MINSTAC tubing and nozzle to the valve
   d. Attach control board to power supply and signal generator as shown in the Lee Co instructions (CD)

3. Water Test
   a. Fill liquid container with water through quick connect fitting using syringe
   b. Attach air hose to quick connect and turn air on
   c. Set regulator to 10 psi
   d. Turn on power supply and signal generator
   e. Cycle signal from .1 Hz to 500 Hz and make sure water is jetting from the nozzle
   f. Turn off signal generator and power supply
   g. Disconnect air from quick connect
   h. Empty out remaining water

4. Corn Syrup Test
   a. Mix corn syrup with water until the viscosity roughly matches that of the resin (visually test by rocking the container back and forth)
   b. Fill liquid container with solution through quick connect fitting using syringe
c. Attach air hose to quick connect and turn air on

d. Set regulator to 10 psi

e. Turn on power supply

f. Set signal generator to 1 Hz and turn on

g. Gradually increase pressure using regulator while observing the output of the valve

h. Check to see if solution is jetting from nozzle

i. Stop one jet has been reached or when max pressure is reached (~80 psi)

j. Turn off signal generator and power supply

k. Disconnect air from quick connect

l. Empty out remaining solution

5. Cleaning

a. Rinse container with water to remove any remaining solution

b. Carry out Water Test as shown in part B only this time using rubbing alcohol

---

**Figure 1:** Liquid container assembly (all threads wrapped with Teflon tape)