

## Filling the Manual Injector with Oil (or Water)

Remove the Hamilton syringe from the clamping mechanisms of the manual injector. You will need to remove the syringe clamp and plunger clamp to remove the syringe (Figure 1). Twist the syringe to remove it from the luer fitting on the 3-way valve. Place the tip of the syringe in oil (or attach a blunt large gage needle to the syringe and place into oil) and draw the plunger all the way back to draw oil into the syringe. Then press the plunger all the way forward to flush oil and air bubbles, and repeat this two or three times to make sure all air bubbles are driven out of the syringe. Then slowly pull out the plunger 1.5 inches to draw in oil and fill the syringe. If you draw oil into the syringe too rapidly you can “outgas” the oil and create air bubbles. Now position the 3-way valve knob to position **D** (Figure 2) and re-insert the syringe into the valve luer fitting. Depress the syringe plunger until it will fit into the plunger head clamp. When doing this, some oil will flow from the syringe into the top port of the 3-way valve. Replace the syringe clamp and plunger clamp.

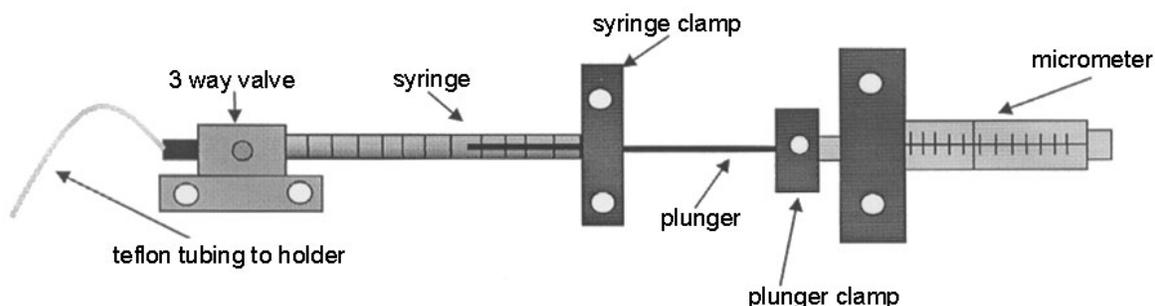


Figure 1. Top view of Manual Injector

Draw oil into a 3cc or 10cc syringe and fit it into the top port of the 3-way valve. Turn the valve position knob to position **B**. Fill the injection tubing with oil by depressing the plunger of the 10cc syringe. Turn the valve knob to position **C**. You should now have a continuous oil path between the precision syringe and the injection tubing. Depress the plunger of the precision syringe by turning the micrometer. If you see any air bubbles visible in the tubing, turn the valve knob to position **B** and bleed the air bubbles out of the line by depressing the 3cc or 10cc syringe.

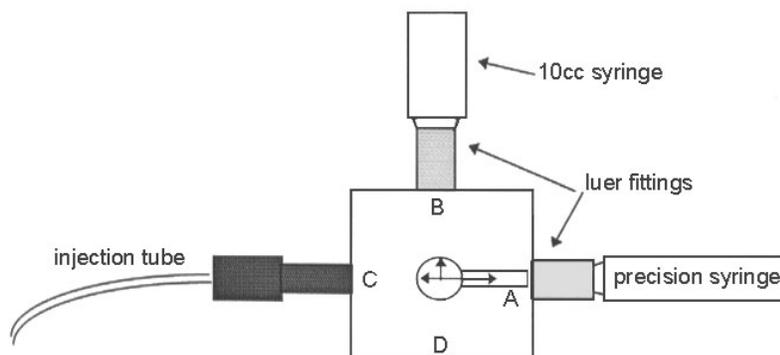


Figure 2. - Side view of 3-way valve assembly.

Insert filled precision syringe into luer fitting with valve knob in D position. Fill injection tubing with oil from 10cc syringe and knob in B position. Injections are performed with knob in C position.

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ONE DIGITAL DRIVE, NOVATO CA 94949

TEL: (415) 883-0128 FAX: (415) 883-0572 EMAIL: [INFO@SUTTER.COM](mailto:INFO@SUTTER.COM)