
Operator's Manual

MLA Precision, D-Tipper and Selectable Pipettes

Introduction

This manual provides information on the use and care of MLA Precision, D-Tipper and Selectable Pipettes.

Features

All MLA Precision, D-Tipper and Selectable Pipettes are of the air displacement type and are "to deliver" instruments, i.e. they have a fixed stroke and consistently deliver the stated or calibrated volume when the plunger is fully depressed. Except for MLA Selectable Pipettes, each pipette may be adjusted or calibrated above or below its stated volume. The range of adjustment is approximately $\pm 10\%$. This calibration feature is useful when working with solutions whose viscosity and specific gravity differ from distilled water. Calibration is accomplished readily by inserting a small key into the plunger and turning the key.

MLA Precision and D-Tipper Pipettes

The MLA Precision Pipette has manual de-tipping and the MLA D-Tipper Pipette has mechanical de-tipping. Each model is available in 30 standard sizes ranging from 5 to 1,000 microliters and is available in special volume sizes to meet specific customer requirements. The stated volume is engraved on the bonnet/piston assembly. Pipettes are color coded according to volume size. (See Pipette Information Table.)

MLA Selectable Pipettes

The Selectable Pipette is available in triple range models containing three pipette sizes, such as 50/100/200 microliters. Select the volume by setting the applicable value, engraved on the plunger, adjacent to the line on the bonnet.

Pipette Tips

It is recommended that MLA Pipettes be used with MLA Pipette Tips. The use of tips from other sources may degrade the pipette performance. For information on MLA Pipette Tips, refer to the Pipette Information Table.

Pipetting Procedure

- a. Using MLA Pipette Tips, press the pipette nozzle firmly into a fresh tip.
- b. Fully depress the pipette plunger and then immerse the tip into the solution (approximately 1/8 inch - 3mm deep).
- c. Smoothly release the plunger and allow the solution to enter the pipette tip.
- d. Remove the tip from the solution and touch the tip against the side of the vessel to remove any solution that may have adhered to the outside of the tip.
- e. Place the tip against the side of the receiving vessel as close to the bottom as possible or, if the vessel contains liquid, as close to the liquid as possible. Smoothly depress the plunger.
- f. While holding the plunger depressed, slowly withdraw the tip keeping it against the wall of the container.
- g. Release the plunger and remove the tip.

Hints

- When pipetting serum or other biological fluids, a liquid film may be retained in the tip that may change the pipetted volume. Pre-wetting the tip with the liquid to be pipetted can reduce this effect.
- Smoothly depress and release the plunger maintaining the same speed of action for all samples. Do not let the plunger snap back.
- Fully depress the plunger before inserting the pipette tip into a solution. This will prevent an air bubble from forming in the solution.
- Hold the pipette as vertically as possible at all times. Insert the tip to the same depth into the sample each time.
- If an air bubble forms in the tip during intake, return the sample, discard the tip, and apply a fresh tip.
- Remove and clean the nozzle insert daily. Replace the nozzle insert if necessary.
- Check that the nozzle assembly is screwed tightly into the pipette body.

Tip Removal Procedure using the D-Tipper Pipette

- Grasp the pipette as shown in Figure 1.
- With thumb and forefinger, apply slight upward pressure to the pipette bonnet. This action will eject the tip.

Calibration

Calibratable pipettes are supplied with a key. The pipette is factory calibrated to deliver the volume engraved on the pipette bonnet. Factory tests and calibration are performed at $21.5 \pm 2^{\circ}\text{C}$ using distilled water. To change volume, proceed as follows:

- Determine the pipette delivered volume by testing the pipette.
NOTE: Gravimetric or colorimetric techniques may be used to determine the pipette delivered volume. A procedure for the gravimetric method, or information about a MLA Pipette Calibration Kit using a color dilution principle, can be obtained from the Technical Service Department.
- Insert the key into the plunger. (See Figure 2.)
- To increase volume, turn the key clockwise. To decrease volume, turn the key counter clockwise. Hold the plunger button while turning the key.
NOTE: Do not turn the key more than 4 complete revolutions in the clockwise direction.
- Test the pipette again to determine the delivered volume.

Maintenance

During factory assembly, the internal parts of the pipette are lubricated with a specified grease. Unless the pipette is used with corrosive chemicals or solvents, routine cleaning and lubrication should only be necessary at 6 month intervals. Lubrication is necessary if the plunger is not moving smoothly or does not return to the "up" position.

The nozzle and nozzle insert in particular should be cleaned regularly. In case of accidental sample aspiration, especially corrosive chemicals or solvents, the nozzle insert and nozzle assembly should be cleaned immediately. Cleaning should be done with a lint-free cloth dampened with alcohol. Refer to Figure 3 for removing the nozzle insert.

Should the pipette fail to aspirate or dispense, or if delivered volume is low, the seals should be checked for wear and replaced, if necessary.

To disassemble the pipette for lubrication or to replace internal seals, see instructions in the appropriate seal kit or call Technical Service for assistance.

Figure 1:
D-Tipping



Figure 2:
Calibration

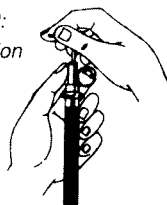
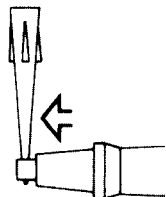
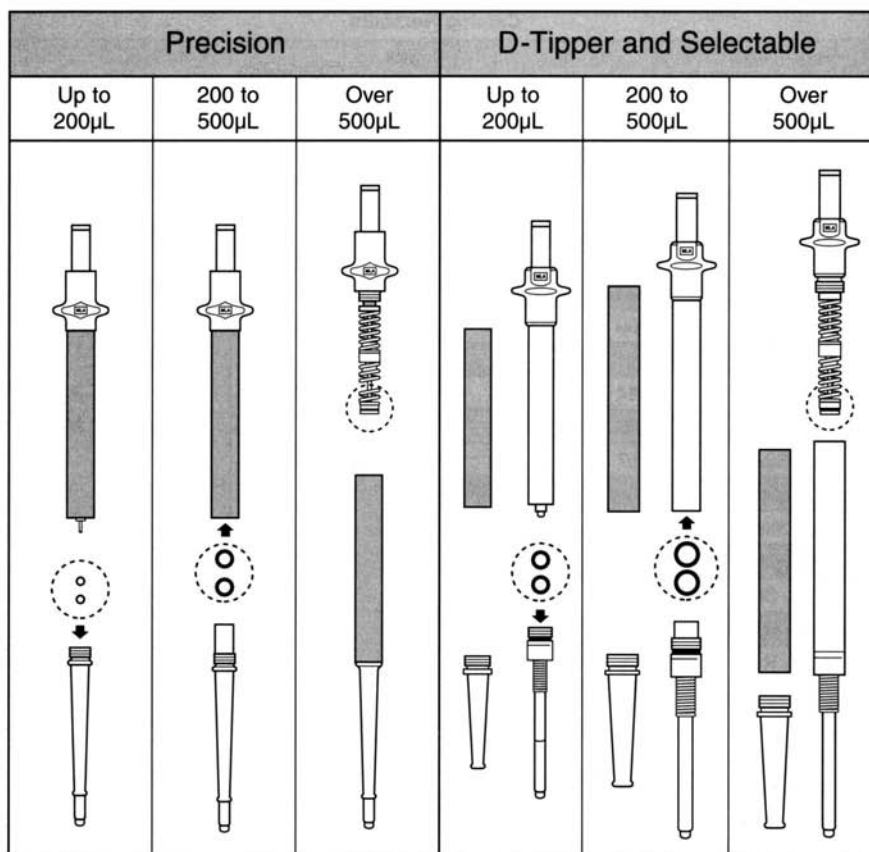


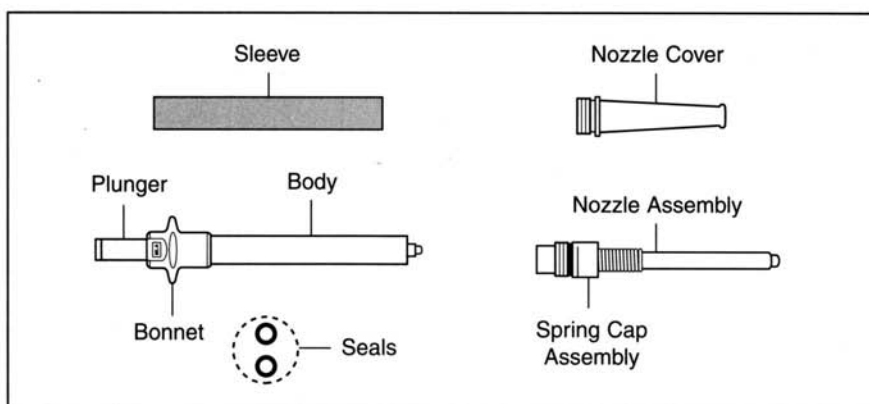
Figure 3:
Nozzle
Insert
Removal



MLA Pipette Assembly



Key to Pipette Assembly



Pipette Information Table

Catalog Numbers						
Description	Pipettes		Seal Kits	Pipette Tips		
	Precision	D-Tipper		Stacked Rack	Bulk	Sterile
5 μ L Silver	1101	1141C	9031			
10 μ L Orange	1021	1051C				
15 μ L Silver	1102	1142C				
20 μ L Black	1022	1052C				
25 μ L White	1023	1053C				
30 μ L Silver	1103	1143C				
40 μ L Silver	1104	1144C	9032	9025	4025 4225	2025 2027
50 μ L Green	1024	1054C				
60 μ L Silver	1106	1146C				
70 μ L Silver	1107	1147C				
75 μ L Silver	1108	1148C				
80 μ L Silver	1109	1149C				
90 μ L Silver	1110	1150C	9033			
100 μ L Blue	1025	1055C				
150 μ L Silver	1112	1152C				
200 μ L Red	1026	1056C	9034			
200 μ L Red (Lg. Tip)	1026LT	1056CLT				
250 μ L Purple	1027	1057C	9035	9026	4026 4226	2026 2028
300 μ L Brown	1028	1058C				
400 μ L Silver	1113	1153C				
450 μ L Silver	1119	1154C				
500 μ L Yellow	1029	1059C				
600 μ L Silver	1115	1159C				
700 μ L Silver	1505	1162C				
800 μ L Silver	1117	1160C				
900 μ L Silver	1118	1163C				
1000 μ L Gray	1030	1060C				
50/100/200 μ L Silver		1132	9033	9025	4025 4225	2025 2027
Accessories						
Nozzle Inserts		8066				
Calibration Keys		1099				
Pipette Stand		1700				