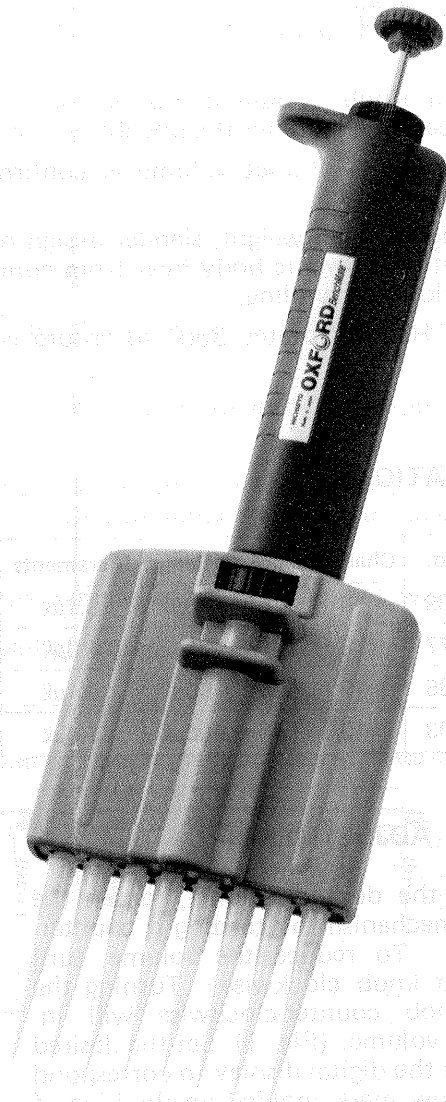


OXFORD[®] BenchMate[®]

Multi-8™ and Multi-12™ Channel DIGITAL MICRO PIPETTE



FEATURES

Thumb Plunger — Smooth, effortless movement of the plunger reduces operator fatigue.

Locking Mechanism — Convenient, easy to use locking mechanism ensures that the selected volume remains securely fixed and will not change during operation.

Tip Ejector Knob — Built in tip ejector for the safe disposal of used tips. Button location eliminates the possibility of accidental tip ejection.

Digital Display — Pre-set volume is confirmed by the convenient digital volume indicator.

Body Design — Lightweight, slender design reduces operator fatigue. Thermal insulation prevents body heat from contributing to measurement error during prolonged handling.

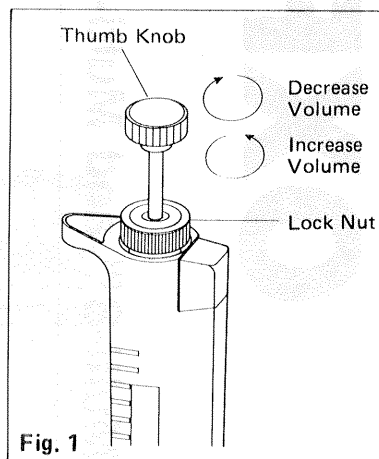
Handle — Handle rotates 360° to ensure comfort and convenience when pipetting.

SPECIFICATIONS

Product No.	Channel	Volume-Range	Increments	Accuracy	Reproducibility
8885-500069	8	5 ~ 50 μ l	0.1 μ l	$\pm 3.0\%$ ~ $\pm 1.0\%$	$\leq 1.5\%$ ~ $\leq 0.5\%$
8885-500077	8	40 ~ 200 μ l	1.0 μ l	$\pm 1.5\%$ ~ $\pm 1.0\%$	$\leq 0.5\%$
8885-500085	12	5 ~ 50 μ l	0.1 μ l	$\pm 3.0\%$ ~ $\pm 1.0\%$	$\leq 1.5\%$ ~ $\leq 0.5\%$
8885-500093	12	40 ~ 200 μ l	1.0 μ l	$\pm 1.5\%$ ~ $\pm 1.0\%$	$\leq 0.5\%$

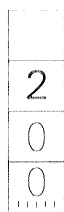
VOLUME ADJUSTMENT

To select the desired volume, loosen the lock nut mechanism by turning it counter-clockwise. To reduce the volume, turn the thumb knob clockwise. Turning the thumb knob counter-clockwise will increase the volume. (Fig. 1) Set the desired volume on the digital display to correspond to the arrow mark molded on the base of the window frame. The selected volume is fixed by turning the lock nut clockwise and can be confirmed on the digital display as in the following example:





50µl



200µl

OPERATING INSTRUCTIONS

1. Attach clean tips firmly to the instrument.
2. Before entry into the sample solution, depress the thumb knob to the "First Stop".
3. Now immerse the tips approximately 3mm into the sample solution. (Step 1, Fig. 2)
4. Smoothly return the plunger knob to the release position allowing sample to enter tips. (Step 2) Do not allow the knob to "snap" back to release position.
5. Withdraw the tips from the sample solution. Do not wipe the tips.
6. Place tips against the side wall of receiving vessel. (Step 3)

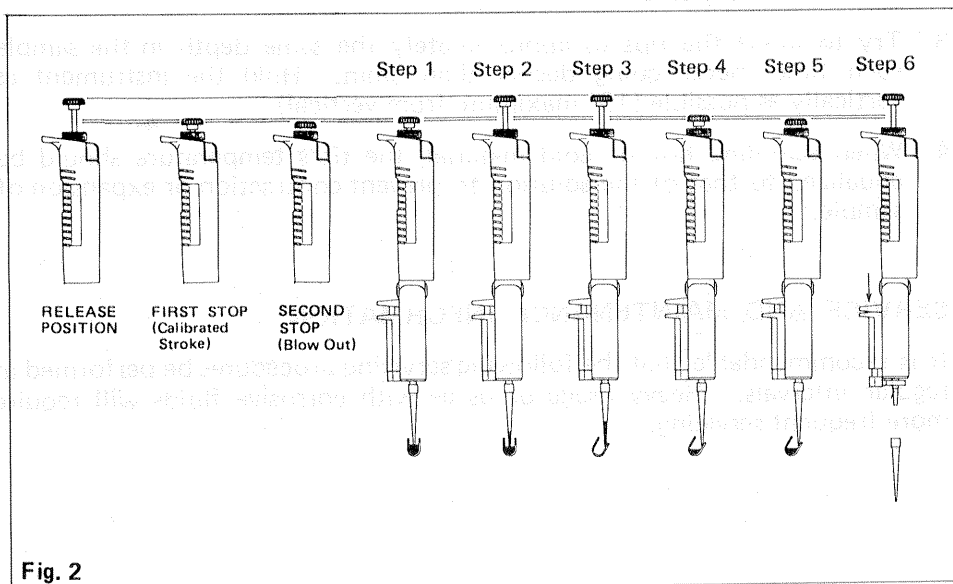


Fig. 2

7. Smoothly depress the plunger knob to the first stop (Step 4), pause; then depress the knob to the second stop. (Step 5)
Note: When dispensing serum and other viscous fluids, it is necessary to pause about two seconds before moving to the secondary stop.
8. With the knob still held in its lowest position, slowly withdraw the tips while sliding them against the wall of the receiving vessel.
9. Return the knob to the release position. Do not allow the knob to "snap" back.
10. Remove the disposable tips by firmly depressing the tip ejector knob. (Step 6)

AIDS TO REPRODUCIBILITY AND ACCURACY

Listed below are some techniques found to improve sampling precision. READ THIS SECTION CAREFULLY.

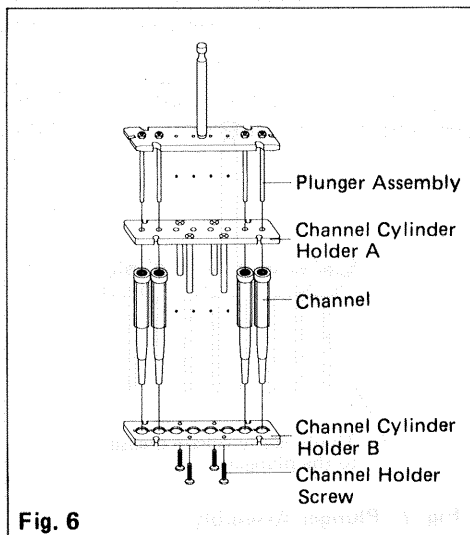
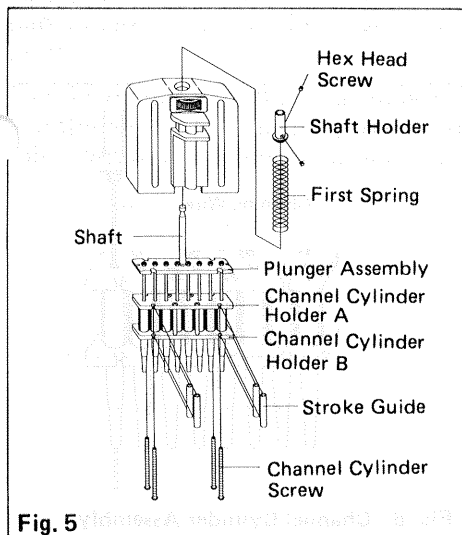
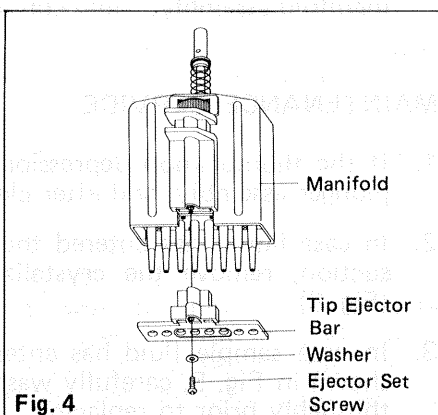
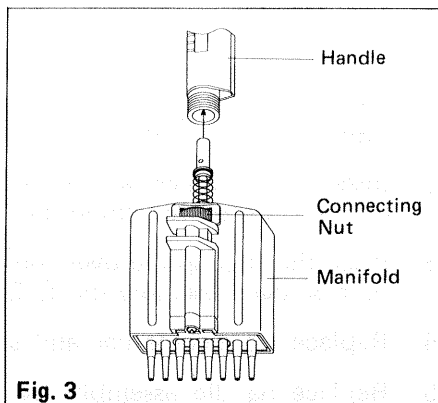
1. Try to effect the same speed for both the intake and delivery of all samples. Smooth depression and release of the plunger knob will give the most consistent results. Never allow the plunger to "snap" back. Consistency of technique is a key to precision.
2. Always depress the plunger knob to the proper stop before insertion of the tips into the solution. Depression of the plunger knob after insertion may cause the formation of an air bubble in the tips and result in a filling error.
3. Try to insert the tips to approximately the same depth in the sample each time, never going deeper than 3mm. Hold the instrument as vertically as possible (10° maximum from vertical).
4. When sampling hot or cold material, the tip's temperature should be equalized to that of the solution to prevent contraction or expansion of sample.

SERVICE AND MAINTENANCE INFORMATION

It is recommendable that the following servicing procedures be performed at regular intervals. Heavy usage or usage with corrosive fluids will require more frequent servicing.

DISASSEMBLY

1. Remove the manifold from the handle by turning the handle counter-clockwise. When turning, hold the connecting nut to prevent slipping. (Fig. 3)
2. Loosen the ejector set screw, remove the tip ejector bar from the manifold. (Fig. 4)
3. Remove the channel cylinder screw (in four places). Depress the shaft fully to remove the channel cylinder assembly. (Fig. 5)
4. Loosen the hex head screws on each side of the shaft holder. Remove the shaft holder. Depress the shaft fully, remove the plunger assembly. (Fig. 5)

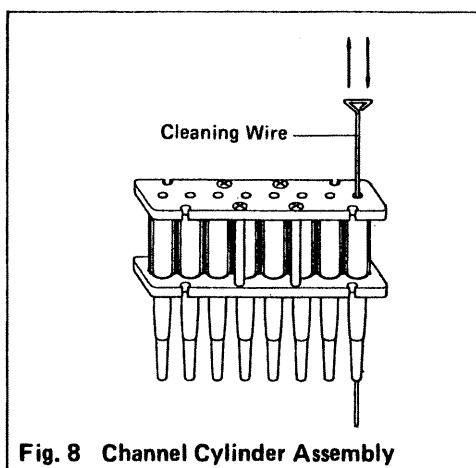
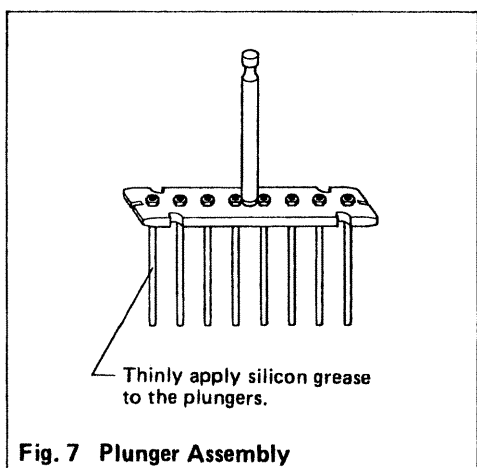


REASSEMBLY

1. Insert the plunger assembly (Fig. 6) into the channel cylinder holder. Insert the 4 stroke guides (Fig. 5) into the channel cylinder assembly. Insert the 4 channel cylinder screws into the stroke guides.
2. Insert the plunger and channel cylinder assembly into the manifold housing. Securely tighten the 4 channel cylinder screws.
3. Place the first spring over the plunger assembly shaft. Place shaft holder over plunger assembly shaft. Securely tighten the hex head screws.
4. Replace tip ejector bar and secure with washer and ejector set screw.
5. Replace handle assembly by turning the handle clockwise on to the manifold assembly. Hold connecting nut to prevent slipping.

MAINTENANCE SERVICE

1. If the thumb knob depression stiffens after prolonged use, remove the plunger assembly, and after cleaning, thinly apply silicon grease. (Fig. 7)
2. In case liquid has entered the channels and crystalized thus preventing suction, remove the crystalization with the enclosed cleaning wire. (Fig. 8)
3. In case sample fluid has entered the cylinder, remove the cylinder as shown in Fig. 5, carefully wash the inside with a mild detergent and dry thoroughly prior to replacing. Thinly apply silicon grease to the plunger.



REPAIR POLICY:

Should any operational difficulties be experienced:

While in Warranty — Contact Oxford Labware's Product Assurance Department (800)325-8668 for return authorization and to arrange for a "No-Charge" repair or replacement. (Transportation to the point of repair to be assumed by the purchaser.)

Out of Warranty — Contact Oxford Labware's Technical Service Department at (800)325-8668 for return authorization. For a reduced price, the customer requesting replacement will receive a reconditioned instrument with a new ninety (90) days guarantee.

Instruments returned without prior authorization will not be accepted. For return authorization contact Oxford Labware's Product Assurance Department at (800)325-8668. [In Missouri call (314)731-1500.]

International customer returns or claims, in warranty or out of warranty, must be handled by the dealers from whom the instrument was purchased.

WARRANTY POLICY:

Your new Oxford® BenchMate® Multi-8™ and Multi-12™ are guaranteed for one(1) year against defects in material and workmanship. This warranty becomes effective when the ultimate user receives the product, and will be based on proof of purchase or date of invoice. Any defects in the pipette will be replaced or repaired (at our option) and defective parts will be replaced without cost within the one (1) year period, provided the Oxford® BenchMate® has not been abused, altered or operated contrary to instructions.

Should damage to the instrument occur due to improper use or improper maintenance (failure to provide reasonable and necessary maintenance), this warranty written or implied is void.

RECOMMENDED OXFORD® BRAND PIPETTE TIPS

The following pipette tips can be used on both versions of the BenchMate® Multi-8™ and Multi-12™ channel Digital Micoro Pipette:

Pipette Tip Model No.	Description
8885-119134	1 ~ 200µl Universal Pipette Tips. 960 tips in 10 hinged racks of 96
8885-119266	1 ~ 200µl Sterile Universal Pipette Tips. 960 tips in 10 hinged racks of 96
8885-119282	1 ~ 200µl Pyrogen Free/Trace Metal Certified Tips. 960 tips in 10 hinged racks of 96
8885-119555	1 ~ 200µl Calibrated Universal Pipette Tips. 960 tips in 10 hinged racks of 96

MANUFACTURED FOR



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 **NICHIRYO CO., LTD.**