



P-7000 SAMPLER[®] Micropipetting System

USE

The Oxford[®] P-7000 SAMPLER[®] Micropipetting instrument is a general purpose, hand-held instrument used to dispense specific volumes of various liquids used in clinical and nonclinical laboratories. The System consists of a pipetting instrument, a maintenance kit, and detailed operating instructions. The System uses specially designed, precision molded, non-wettable, disposable plastic tips, thus eliminating pipette cleaning, and reducing danger of cross-contamination and error from variations in technique.

INSTALLATION PROCEDURES

The instrument is ready to operate as received and requires no special installation procedures.

PRINCIPLE OF OPERATION

The Oxford[®] P-7000 SAMPLER[®] Instrument is designed to operate in either the "REVERSE" mode or the "FORWARD" mode. The instrument has a plunger movement which replaces air in a plastic tip with a set amount of fluid. The fluid containment tip consists of a plastic material which resists buildup of inner surface film far better than glass. The user should first become acquainted with the feel of the instrument's compound movement. Normally, the body of the instrument is held in the hand and the plunger knob is operated with the thumb. As the knob is depressed, a stop is encountered; the first depression of the knob is the primary or calibrated movement. Now, with additional pressure, the plunger knob may be depressed to its lowest position, directly against the upper body. This travel beyond the calibrated range is the secondary or overshoot movement.

The instrument is also equipped with a one-handed tip ejection feature. Contaminated tips are ejected by firmly depressing the tip ejector with the thumb.

SPECIFICATIONS

Accuracy and reproducibility, specified in the following table, are guaranteed only if the instrument is used in the "REVERSE" mode and if Oxford[®] "Slim Line" Tips are used.

Model	*Accuracy	*Reproducibility (Standard Deviation)	Model	*Accuracy	**Reproducibility (Standard Deviation)
1 μ L	$\pm 0.12 \mu$ L	$\leq 0.08 \mu$ L	50 μ L	$\pm 1.0\%$	$\leq 0.15 \mu$ L
2 μ L	$\pm 0.12 \mu$ L	$\leq 0.08 \mu$ L	100 μ L	$\pm 0.7\%$	$\leq 0.25 \mu$ L
3 μ L	$\pm 0.12 \mu$ L	$\leq 0.06 \mu$ L	200 μ L	$\pm 0.7\%$	$\leq 0.50 \mu$ L
4 μ L	$\pm 0.12 \mu$ L	$\leq 0.06 \mu$ L	250 μ L	$\pm 1.0\%$	$\leq 0.75 \mu$ L
5 μ L	$\pm 0.12 \mu$ L	$\leq 0.06 \mu$ L	300 μ L	$\pm 1.0\%$	$\leq 0.90 \mu$ L
10 μ L	$\pm 2.0\%$	$\leq 0.06 \mu$ L	400 μ L	$\pm 0.8\%$	$\leq 1.20 \mu$ L
20 μ L	$\pm 1.0\%$	$\leq 0.08 \mu$ L	500 μ L	$\pm 0.8\%$	$\leq 1.00 \mu$ L
25 μ L	$\pm 1.0\%$	$\leq 0.10 \mu$ L	1000 μ L	$\pm 0.6\%$	$\leq 2.50 \mu$ L
30 μ L	$\pm 1.0\%$	$\leq 0.12 \mu$ L			

All instruments are calibrated to deliver deionized water at an ambient temperature of $22^\circ \pm 3^\circ\text{C}$ when used with Oxford[®] "Slim Line" Tips in the "REVERSE" mode.

NOTE: THESE ACCURACY AND REPRODUCIBILITY SPECIFICATIONS ARE ACHIEVED WITH CLOSELY CONTROLLED GRAVIMETRIC TEST METHODS.

- A) Precise and consistent sampling techniques are used in a temperature controlled environment.
- B) Only Oxford[®] "Slim Line" Tips are used.
- C) The recommended operating instructions for "REVERSE" mode are used.
- D) The depth of Tip immersion during pickup and delivery is controlled from 1 mm to 3 mm.
- E) The outside of the Tip is not wiped before sample delivery.
- F) The instrument is held within 10° of the vertical axis during pickup and delivery.
- G) There is no body contact with the instrument before, or during, operation except with the hand on the handle area. Exposure of the instrument to any external heat source may degrade performance.
- H) The weights of the samples are converted to volume and corrected for evaporation.

OPERATING INSTRUCTIONS ("REVERSE" MODE)

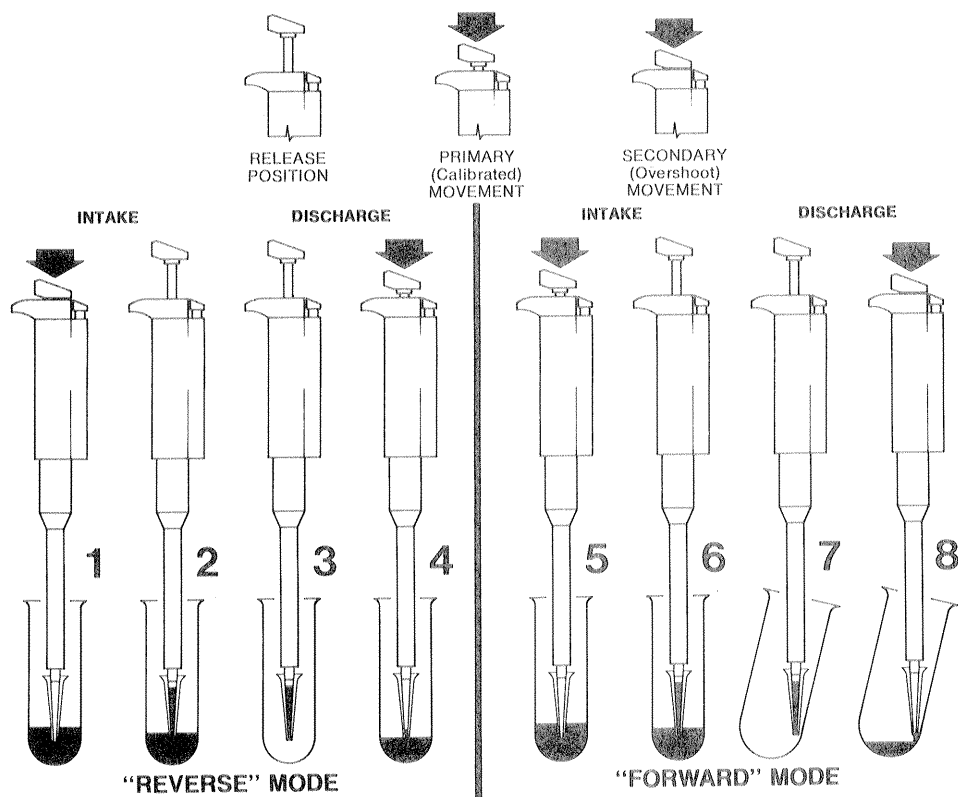
1. Before each day's use, vigorously operate the plunger handle approximately ten times. This will redistribute the lubricant and ensure a smooth positive action.
2. Apply a clean tip to the instrument.
3. Before inserting the tip into the sample solution, depress the plunger knob to its lowest position at the end surface of the body. This position is called the "secondary stop."

- Now immerse the tip 2 mm \pm 1 mm into the sample solution (Fig. 1).
- Smoothly return the plunger knob to the release position, allowing sample to enter (Fig. 2). Do not allow the knob to "snap" back to the release position.
- Withdraw the tip from the sample solution. Do not wipe the tip.
- Place the tip against the bottom of an empty receiving vessel or directly into the fluid in the receiving vessel (immerse up to 3 mm) (Fig. 3).
- Smoothly depress the plunger knob to the first stop. This position is called the "primary stop" (Fig. 4).
- With the knob held in the primary stop position, withdraw the tip directly away from the dispensed fluid. The correct amount of fluid has now been delivered. Do not touch the tip to the walls of the vessel or into the fluid again. The small amount of fluid left in the tip will be discarded with the tip.
- Smoothly return the knob to the release position. Do not allow the knob to "snap" back to the release position.
- Remove the used tip by firmly depressing the tip ejector knob. (This is the knob nearest the hand.)

OPERATING INSTRUCTIONS ("FORWARD" MODE)

(This mode of operation may be used, however, accuracy and reproducibility performance may vary from specifications stated on the front page.)

- Before each day's use, vigorously operate the plunger handle approximately ten times. This will redistribute the lubricant and insure a smooth positive action.
- Apply a clean tip to the instrument.
- Before inserting the tip into the sample solution, depress the plunger knob to the first stop. This position is called the "primary stop".
- Now immerse the tip approximately 2mm into the sample solution (Fig. 5).
- Smoothly return the plunger knob to the release position allowing sample to enter tip (Fig. 6). Do not allow the knob to "snap" back to release position.
- Withdraw the tip from the sample solution. Do not wipe tip.
- Place tip against side wall of receiving vessel (Fig. 7).
- Smoothly depress the knob to the first stop (primary stop). Pause; then depress the knob to the second and lowest position. This position is called the "secondary stop" (Fig. 8).
NOTE:When dispensing serum and other viscous fluids, it is necessary to pause about two seconds before moving to the secondary stop.
- With the knob still held in its lowest position, slowly withdraw the tip while sliding it against the wall of the receiving vessel.
- Return the knob to the release position. Do not allow the knob to "snap" back.
- Remove the disposable tip by firmly depressing the tip ejector knob.



AIDS TO REPRODUCIBILITY

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

- Try to effect the same speed of intake and delivery for all samples. Smooth depression and release of the plunger knob will give the most consistent results. Never allow the plunger to "snap" back.
- Always depress the plunger knob to the proper stop before insertion of the tip into the solution. Depression of the plunger knob after insertion may cause the formation of an air bubble in the tip and result in a filling error.
- Try to immerse the tip approximately the same depth into the sample each time, never going deeper than 3 mm. Hold the instrument as vertically as possible (10° maximum from vertical).
- 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.

AID TO ACCURACY

The plastic tip filler inserted in the end of the instrument (sizes 30 μL to 1000 μL) must be properly installed for use with Oxford[®] "Slim Line" Tips or the device will dispense low quantities.

AIDS TO TIP EJECTION

1. Tips that are forced onto the end of the instrument harder than necessary to seal properly will be more difficult to eject.
2. To avoid possible injuries, always eject used tips downward into a suitable waste receptacle.

SERVICE AND MAINTENANCE INFORMATION

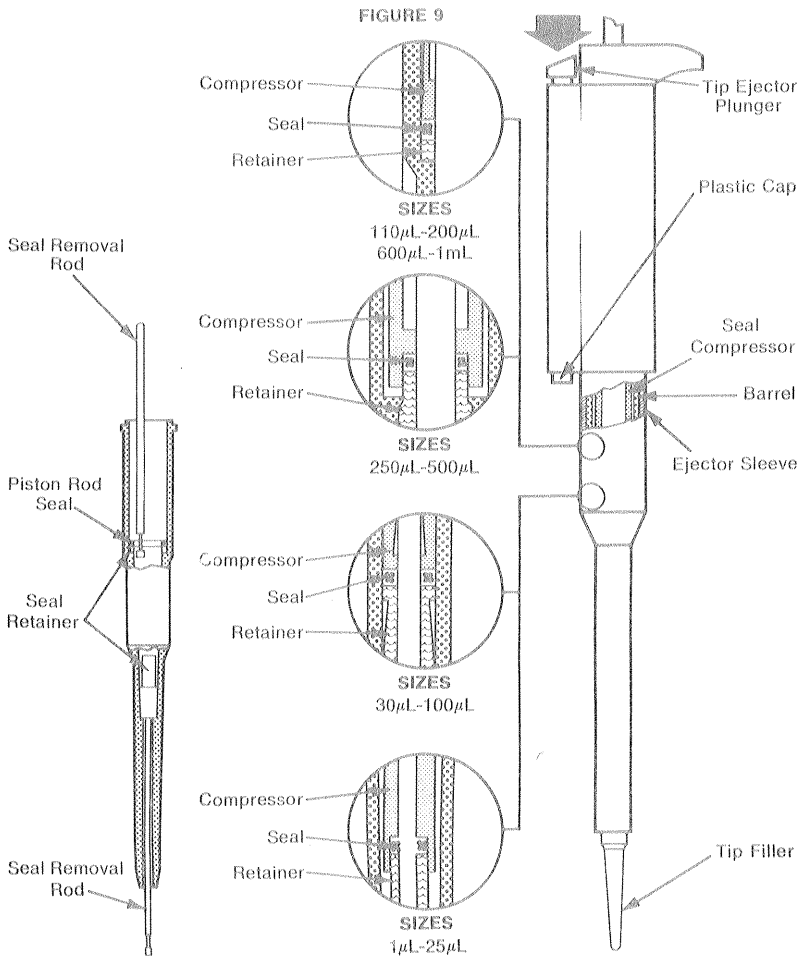
It is recommended that the following servicing procedure be performed at regular intervals or if plunger action becomes sluggish. Heavy usage or usage with corrosive fluids will require shorter intervals between servicing.

DISASSEMBLY (Reference Fig. 9)

1. Depress the tip ejector plunger and unscrew the plastic cap.
2. Slip the tip ejector sleeve off the end of the instrument.
3. *Unscrew the barrel assembly from the handle and carefully pull directly away from the handle. Take care not to bend fragile piston rods on instrument sizes 1 μL through 50 μL .*
4. Remove the seal compression spring and seal compressor; or, on some models, the lower seal retainer. It may be necessary to tap the open end of the barrel on a table to dislodge the compressor.
5. *Piston Rod Seal Removal: (Use the seal removal rod found in the maintenance kit for this operation.)*

Instrument Sizes	Processing
600 μL -1 mL 110 μL -200 μL	Insert the grooved end of the seal removal rod into the large end of the barrel and pull the seal out with the edge of the groove on the rod.
250 μL -500 μL 1 μL -25 μL	The seal is contained in the end of the seal compressor.
30 μL -100 μL	Pull the tip filler out of the tip end of the barrel. Insert the seal removal rod into the tip-end of the barrel and push out the seal and seal retainer. Note the orientation of the seal retainer on 100 μL devices for proper reassembly.

6. Pull the tip filler out of the tip end of the barrel on instrument sizes 30 μL through 1 mL.



If fluid has been accidentally drawn inside the instrument, all of the contaminated surfaces should be cleaned with alcohol and then thoroughly dried, preferably by blowing air through the barrel. Insert the cleaning wire (provided in the maintenance kit) through the small orifice in the end of the barrel tip on instrument sizes 1 μL through 25 μL . This should remove stubborn deposits.

Clean the piston rod seal and relubricate by rubbing a small amount of lubricant (supplied in the maintenance kit) into the seal. Wipe off excess lubricant with a tissue.

Smear a thin film of lubricant* on the end section of the piston rod protruding from the handle. Reassemble the instrument by reversing the preceding disassembly procedure.

*Use only the Oxford lubricant supplied with the instrument and maintenance kit (see back page for listing of maintenance kits).

NOTES

1. Make sure the seal retainers are properly located before reassembly (Reference Fig. 9).
2. Make sure the piston rod seals are firmly located in their respective sealing pockets before the seal compressors are reassembled. The seal removal rod may be used to position the seals (Reference Fig. 9). The piston rod seals should be replaced every three to six months, depending upon usage. The maintenance kit contains new seals, cleaning wire or seal removal rod, and a vial of lubricant.

WARRANTY INFORMATION

All Oxford® SAMPLERS® bear a one-year guarantee against defects in material and workmanship. This guarantee becomes effective when the ultimate user receives the product. If ultimate user receives the product. If within this one-year period the instrument is found to have such defects, repair or replacement will be made without charge by Oxford Labware (transportation to the point of repair to be assumed by the purchaser).

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

Instrument Out-of-Warranty— Return the instrument to Oxford Labware. For a reduced price, the customer requesting replacement will receive a new instrument with a new one-year guarantee.

In-Warranty and Out-of-Warranty Returns (U.S. and Canada):
Instruments returned without prior authorization will not be accepted. For return authorization contact Oxford Labware's Product Assurance Department at: (800)325-8668.

International Customers— All in-warranty claims as well as out-of warranty repairs and replacements must be handled by the dealer from whom the instrument was purchased.

ORDERING INFORMATION

Oxford® P-7000 SAMPLER® Instruments

PRODUCT NO.	CALIBRATED VOLUME
8885-700107	1 µL
8885-700206	2 µL
8885-700305	3 µL
8885-700404	4 µL
8885-700503	5 µL
8885-701606	10 µL
8885-702004	20 µL
8885-702509	25 µL
8885-703002	30 µL

PRODUCT NO.	CALIBRATED VOLUME
8885-705007	50 µL
8885-710007	100 µL
8885-720006	200 µL
8885-725005	250 µL
8885-730005	300 µL
8885-740004	400 µL
8885-750003	500 µL
8885-700008	1000 µL

Oxford® "Slim Line" Disposable Tips (Non-wettable polypropylene)

PRODUCT NO.	COLOR	DESCRIPTION
8885-091044	(White)	Bulk, 1000 per package.
8885-091333	(White)	Five organized racks of 200 tips each. Total of 1000 tips per pack.
8885-091028	(White)	Package of 250 tips, individually wrapped/sterilized.
USE ON 1 µL - 200 µL P-7000 INSTRUMENTS		

PRODUCT NO.	COLOR	DESCRIPTION
8885-091143	(Blue)	Bulk, 1000 per package
8885-091341	(Blue)	Five organized racks of 200 tips each. Total of 1000 tips per pack.
8885-091127	(Blue)	Package of 250 tips, individually wrapped/sterilized.
USE ON 201 µL-1000 µL P-7000 INSTRUMENTS		

Replacement Maintenance Kits for P-7000 SAMPLER® Instruments

PRODUCT NO.	INSTRUMENTS
8885-728801	1 - 10 µL
8885-738800	11 - 25 µL
8885-748809	26 - 50 µL
8885-758808	51 - 100 µL
8885-768807	101 - 200 µL
8885-778806	201 - 300 µL
8885-788805	301 - 500 µL
8885-798804	501 - 1000 µL

- PRODUCT NO. 8885-080005 **Oxford® SAMPLER® Pipetting Center**
Includes 1 rack, 2 support trays. Rack stores 7 SAMPLER® Instruments and holds tray of organized Tips.
- 8885-080013 **Oxford® SAMPLER® Pipetting Station**
Clear plastic stand. Compact unit stores 6 SAMPLER® Instruments.

To Order: Contact your local authorized distributor of Oxford products.

MANUFACTURED BY



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