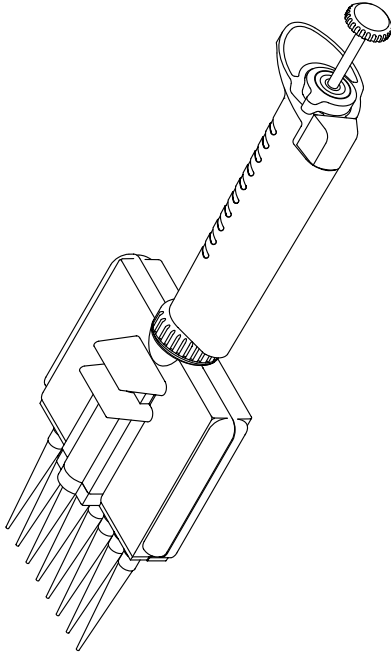


Autoclavable

Nichipet 7000

Multi-channel digital micro pipette

User's manual



**CERTIFIED
ISO9001**

● Thank you for your purchase of our Nichipet 7000.



For safe and proper use of the Nichipet 7000, please be sure to carefully read this manual. After reading this manual, please keep it in a convenient place for quick reference.

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NICHIRYO

Autoclavable

Nichipet 7000

Multi-channel digital micro pipette

Features

- Complete autoclaving (121°C 20 minutes) is possible with this unit.
- Fatigue free operation for long time.
- Digital system allows easy one-touch volume setting.
- One-touch locking function with single hand.
- Covering 0.5 $\mu\ell$ to 300 $\mu\ell$ range with 4 models each of 8 and 12 channels.
- Unit construction design helps to prevent accuracy change due to hand temperature.
- Suitable for sampling to a micro plate with 96 well and 9 mm pitch.
- Because the handle and casing angle can be adjusted freely (360 degrees), the unit can be used at a position of your choice.
- Includes tip eject function. The tips can be removed without touching them by fingers.
- The simple casing structure enables easy maintenance.

Standard accessories

- Tip 8 ch x 16
12 ch x 24
- Silicone grease x 1
- Cleaning wire x 1
- Wrench x 1

Please make sure that none of the above accessories are missing before using this unit.

Safety precautions

- For safe and proper use of the Nichipet 7000, please be sure to carefully read the “Safety precautions” in this section and “CAUTIONS” on the next page before starting work with it.
- The contents of “CAUTIONS” are matters that require the user’s attention, not only for using the Nichipet 7000 properly, but for preventing the user from accidents and physical damage.
- After reading this manual, please keep it in a convenient place for quick reference.

Please observe the following cautions to ensure the safe use of this product

 **CAUTIONS**

Be sure to observe the following instructions for using your Nichipet 7000 properly and safely.

If the user uses the Nichipet 7000 in the wrong way, disregarding the following instructions, it may result in injury to the user or/and other persons or physical damage to this instrument or/and other equipment.

1. Do not use for any other purpose than handling of liquid.
2. Never modify this instrument, as this may cause an accident.
3. Do not use for handling of liquids that will be directly injected into the body.
4. As certain types of liquids are harmful to the body, never discharge any sample liquid while pointing the instrument at a person
5. Do not eject tips while this unit is pointed at a person.
6. Do not eject tips when there is liquid inside.
7. The sharp protruding tips of the unit are dangerous. Please use care when handling.
8. Please make sure that the tips are securely attached to the nozzle. Scattering of liquid will occur if tips fall off the nozzle.
9. If liquid that is harmful to the body has splashed onto the unit, treat it properly before using it.
10. When using liquid that is harmful to the body, never touch a tip that has been used.
11. Do not use this unit to mix liquid etc. This will cause tips to loosen, fall off, or result in liquid splashing on the unit.
12. After autoclaving or drying, do not touch the unit as it is very hot. Touching the unit could result in bodily harm.
13. Although this product is designed to resist chemicals, it may be damaged by some kinds of chemicals such as N-methyl-pyrrolidinone, etc. Please contact the manufacturer before using special chemicals.

❗ Matters that require strict observance

Users are required to strictly observe the following points in order for the instrument to keep its excellent precision, reproducibility and original performance for a long time.

1. Avoid exposing this unit to direct sunlight 2 hours before operation as well as during operation. Exposure to sunlight may result in loss of accuracy.
2. Avoid touching the tip and nozzle sections as much as possible just before operating. Warming of these parts may result in loss of accuracy.
3. Please use the forward method when sampling (the operation method used in this manual). Using a different method may result in loss of accuracy.
4. Press the push button gently. If pressed quickly, liquid will be pulled into the inside of the unit which may result in loss of accuracy. Liquid inside the unit may also result in performance loss.
5. Please discard tips after use. Repeated use may result in loss of accuracy. There is also danger of contamination (*) caused by mixing of liquids.
* Liquid remaining in a tip may be mixed with new liquid suctioned in causing an undesired result.
6. Do not turn the unit on its side or upside down when there is liquid in the tips. Liquid will get inside the unit which may result in performance loss.
7. After autoclaving and drying, wait till the unit has cooled down sufficiently before using. Using while warm may result in loss of accuracy.
8. After autoclaving and drying, assemble the unit after it has cooled down sufficiently. Assembling while warm may result in damage to screw heads or other forms of product quality degradation.
9. When turning the push-button, don't exceed the specified sample volume limit, otherwise the instrument may be damaged or deteriorate.
10. Do not operate when the liquid amount is less than the set volume. It may cause the liquid to scatter into the main body and the instrument may deteriorate in the quality.

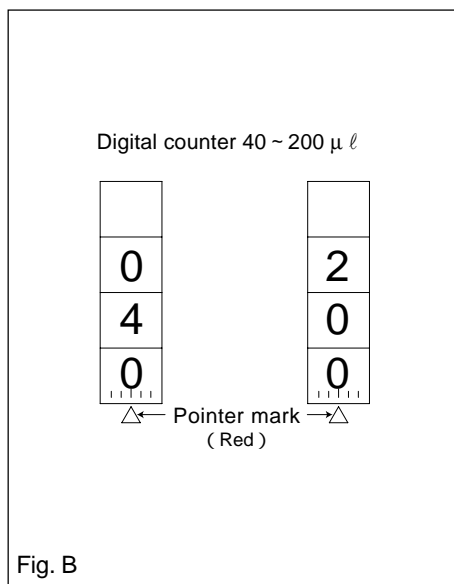
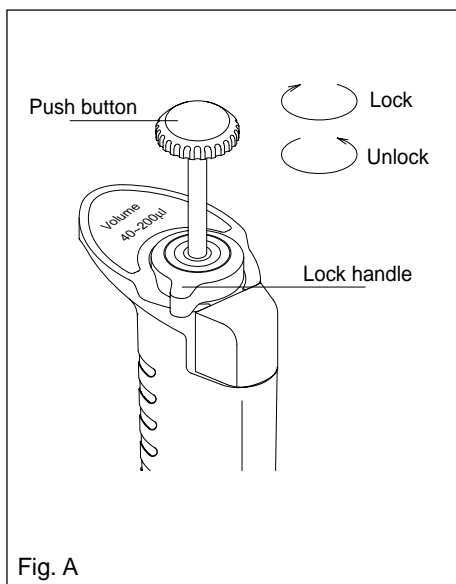
Operation

1. Volume setting

- 1) Turn the lock handle in the unlock direction and loosen it. (Fig. A)
- 2) Turn the push button to set the digital counter to the desired volume. When increasing volume, first set the scale a half revolution further, and then set it to the desired amount. When decreasing the volume, the scale can be set directly to the desired amount. At this time set the counter's scale to the pointer mark (red) located at the bottom section of the counter window. (Fig. B)
- 3) After volume setting, turn the lock handle in the lock direction and tighten. (Fig. A).

Note: Do not exceed the specified liquid volume limit, otherwise the instrument may be damaged or deteriorate in the quality.

Note: After changing the volume, use the unit after first carrying out a trial operation.

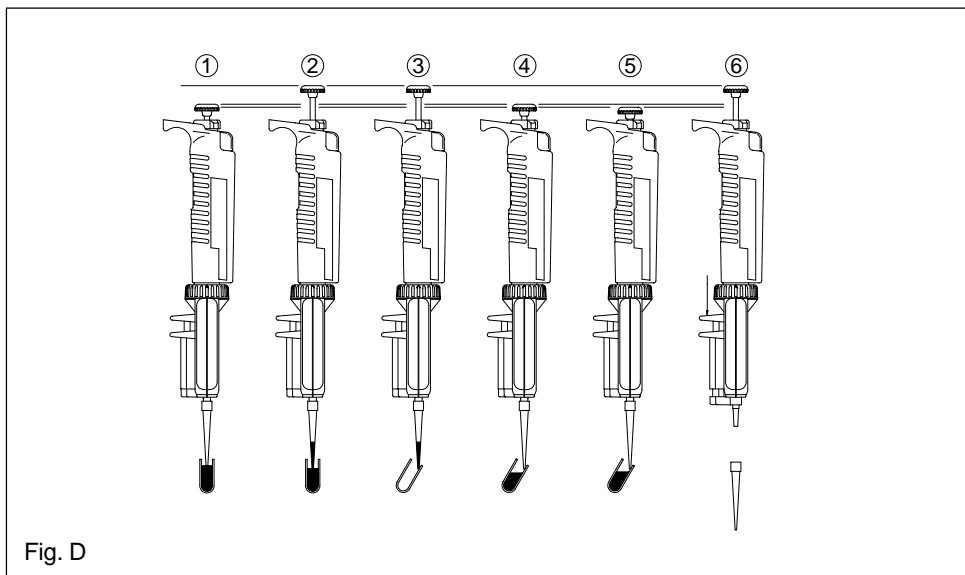
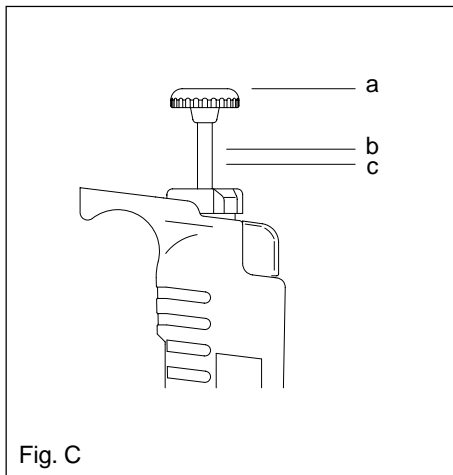


2. Suction

- 1) Attach the disposable tip to the nozzle (attach from the rack when doing so).
- 2) Press the push button down to a ~ b. (Fig. C)
- 3) With the push button pressed down, insert the top of the tip to a point suitable for suction of the desired volume. (Fig. D-①).
- 4) Return the push button gently to its original position. The liquid will be pulled into the tip. At this time pause for 1 second to wait for complete suction of the liquid. (Fig. D-②).
- 5) Withdraw the tip gently from the liquid. By doing this gently, hardly any of the liquid will remain on the outside surface of the tip. If liquid does remain, remove it by paper or something similar, being careful not to touch the tip's point.

Note: Do not carry out suction from the c position shown in Fig. C. (liquid will be pulled into the nozzle if done from this position)

Note: Operate the push button gently. Releasing quickly will cause liquid to be pulled into the inside of the unit causing possible loss of accuracy.



3. Discharge

- 1) Touch the top of the tip to the inside of the receiving vessel. (Fig. D-③).
- 2) Gently depress the push button from a to b. Wait about 1 second, then depress to the c position. The liquid is now discharged. (Fig. D-④,⑤).
- 3) Press the eject button to remove the used tip. (Fig. D-⑥).



Do not touch the tip during use or after use when liquid that is harmful to the body is being used.

Disassembly and assembly of the airtight unit

If any of the problems included in the “Troubleshooting” section of this manual arise, use the following procedure to disassemble and inspect this unit.

1. Disassembly

- 1) Turn the ring in the direction of the arrow and remove the casing from the handle. (Fig. 1)

Note: If the connection screw is loosened, tighten it with the provided wrench. (Fig. 2)

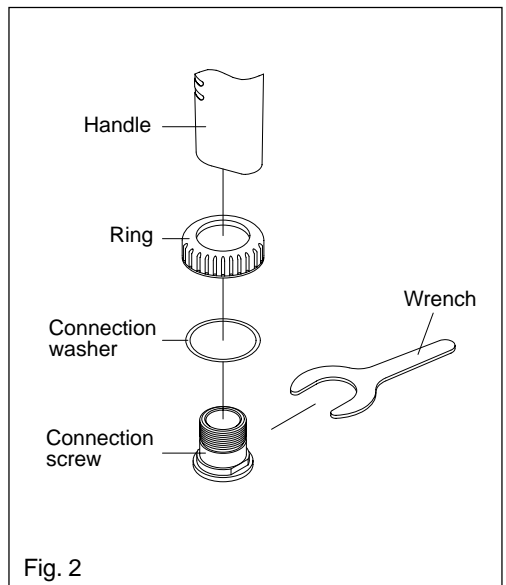
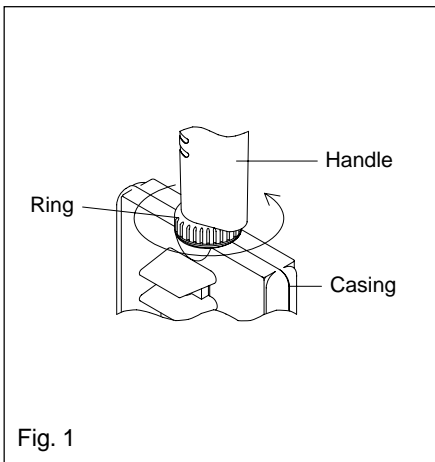
- 2) Remove the screw that holds the ejector and remove the ejector from the casing. (Fig. 3)
- 3) Remove the screw that holds the casing. (Fig. 4)
- 4) Lightly press the nozzle and remove the casing A set as shown in Fig. 4.
- 5) Remove each part. (Fig. 5)

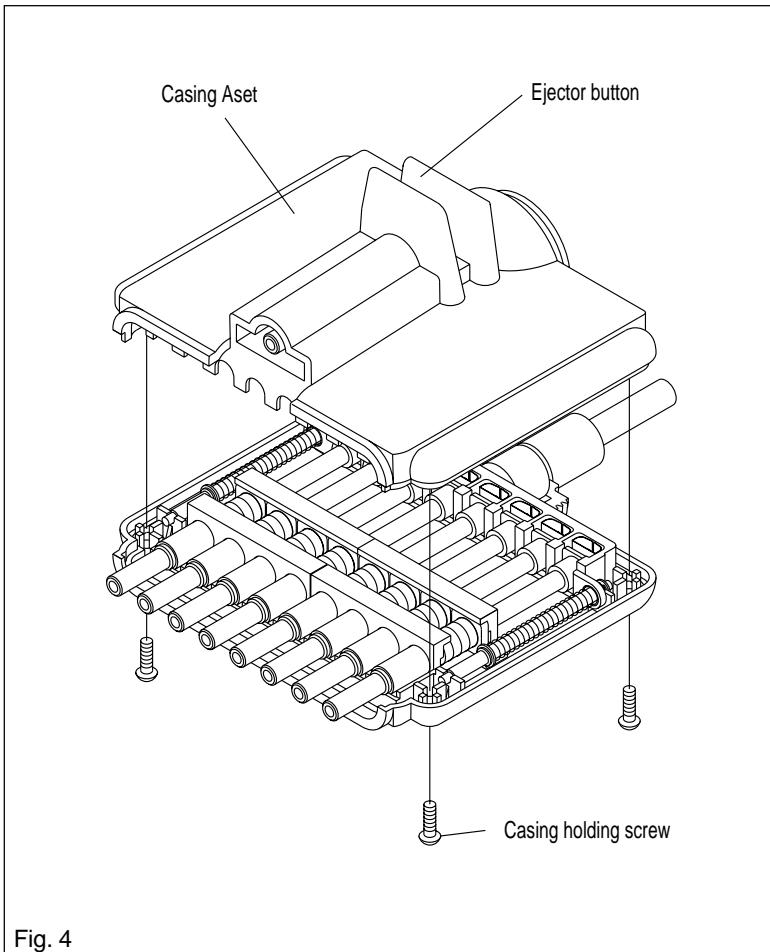
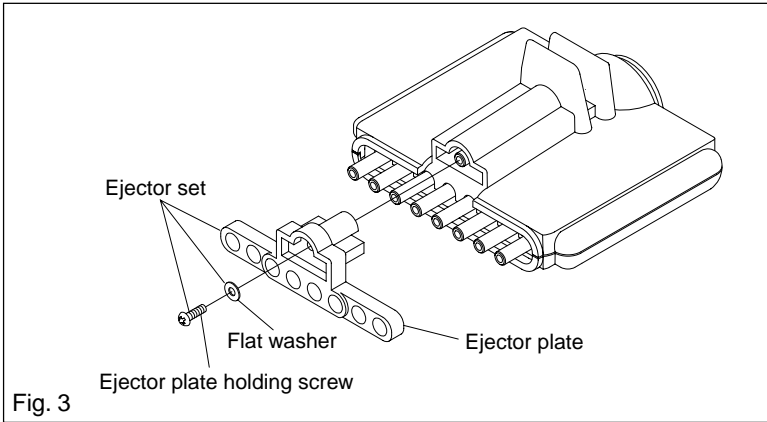
2. Assembly

- 1) Attach each part to casing B. (Fig. 5)
- 2) Assemble and attach the casing A set. (Fig. 4)
- 3) Assemble and attach the ejector to the assembled casing. (Fig. 3)
- 4) Assemble and attach the casing set to the handle. (Fig. 1)

Note: When assembling be sure to set the counter to the maximum volume range. (Parts will not mesh properly)

Note: If the connection screw is loosened, tighten it with the provided wrench. (Fig. 2)





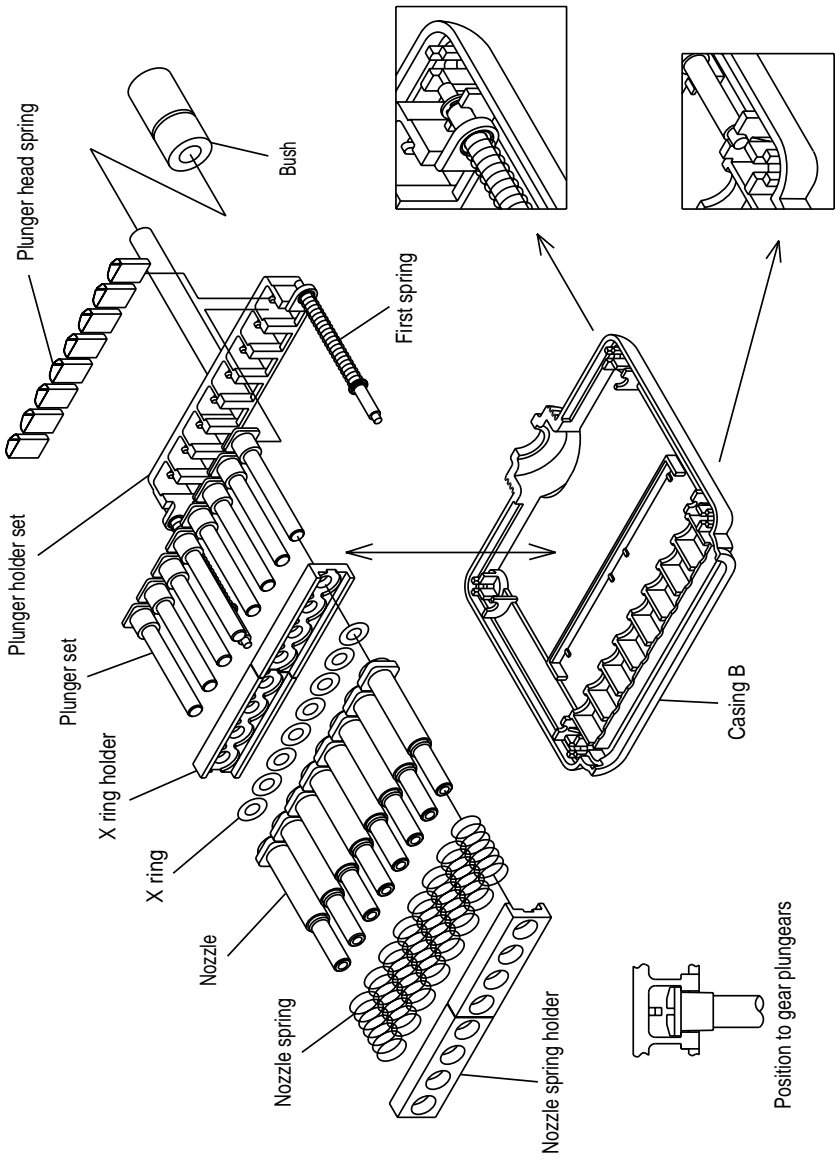


Fig. 5

Autoclaving

Autoclaving of this complete unit is possible. Follow the procedure below at a temperature of 121° C for 20 minutes.

- 1) Be sure to loosen the lock handle and set the counter to the maximum volume number of the volume range.(Fig.A)
- 2) Loosen a connecting screw in the Fig.2 by 180 degree.
- 3) Loosen four screws on the casing in the Fig.4 by 180 degree.
- 4) When placing inside the autoclaving unit, be careful not to damage the nozzle. Also, place in a position that does not put any weight on the nozzle.
- 5) After autoclaving, be sure to dry the unit thoroughly.

Drying

Carry out drying immediately after autoclaving. Dry the unit thoroughly in a constant temperature air-drier at 60° C for over 60 minutes.

- 1) Dry the product in the same condition as when it was autoclaved.
- 2) Be careful not to damage the nozzle when placing the unit in the dryer. Also make sure that the unit is placed in a position that does not place any weight on the nozzle.
- 3) Make sure that the unit turned to the normal temperature after the drying.
Tighten the connecting screw in the Fig.2 and four screws on the casing in the Fig.4. And make sure that a ring in the Fig.1 is tightened.

Note: After drying, if the unit is assembled while it is still warm, screw head damage etc., may occur causing damage to the product or loss of product performance. Be sure to reassemble the unit after it has completely cooled down. Also, using the product while it is warm may result in loss of accuracy.



Do not touch the unit directly with your hand just after autoclaving and drying, because the unit is extremely hot during autoclaving and drying. Directly touching the hot unit may cause an accident.

Code (Model No.)	Variable range (μl)	Measured volume (μl)	Accuracy (%)	Precision (%)
00-NP7- 8V, 12V	0.5 ~ 10	1 μl	± 8.0	<4.0
		5 μl	± 4.0	<2.0
		10 μl	± 2.0	<1.0
00-NP7- 8S, 12S	5 ~ 50	5 μl	± 3.0	<1.5
		25 μl	± 2.0	<0.8
		50 μl	± 1.0	<0.5
00-NP7- 8L, 12L	40 ~ 200	40 μl	± 1.4	<0.5
		100 μl	± 1.0	<0.4
		200 μl	± 0.9	<0.3
00-NP7- 8K, 12K	50 ~ 300	50 μl	± 1.4	<0.7
		150 μl	± 1.0	<0.5
		300 μl	± 0.6	<0.2

● Tips (autoclavable)

Code	Volume range ($\mu\ell$)	Color	Applicable model	Tip length	Q'ty / bag
BMT-UT	0.1 ~ 10	Natural	00-NP7-8, 12V	31.0 mm	1000
BMT-SE	5 ~ 200	Natural	00-NP7-8,12S / 8, 12L	51.1 mm	1000
BMT-K	50 ~ 300	Natural	00-NP7-8,12K	58.9 mm	1000

● Rack tips (autoclavable)

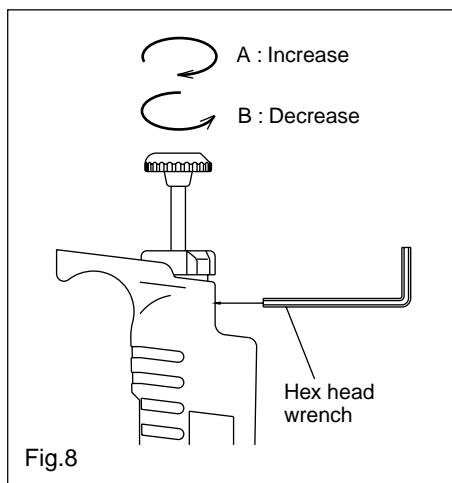
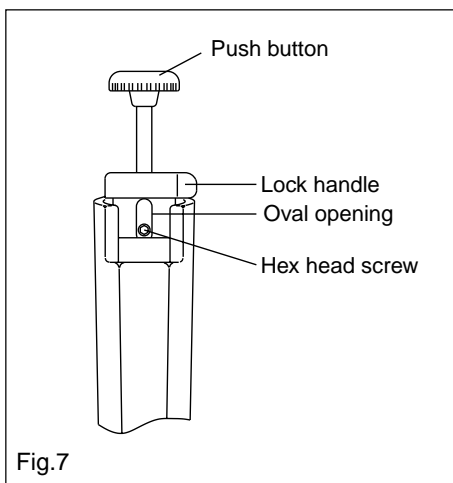
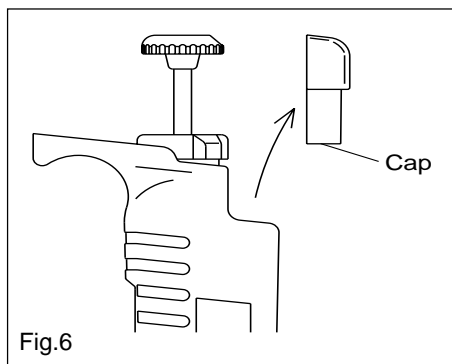
Code	Volume range ($\mu\ell$)	Color	Applicable model	Q'ty / box
BMT-UTR	0.1 ~ 10	Natural	00-NP7-8,12V	960 (96 x 10 cases)
BMT-SER	5 ~ 200	Natural	00-NP7-8, 12S / 8, 12L	960 (96 x 10 cases)
BMT-KR	50 ~ 300	Natural	00-NP7-8,12K	960 (96 x 10 cases)

RECALIBRATION PROCEDURE

1. Remove the cap by pulling it out with your fingers. (Fig.6)
2. Loosen the lock handle by turning it counter clockwise and stop when the oval opening on the lock handle faces you. (Fig.7)
3. Rotate the push button until one of two hex head screws can be seen through the oval opening. (Fig.7)
4. Loosen both hex head screws with a hex head wrench (1.5 mm) by turning them counter-clockwise one by one. (Fig.8)
5. Keeping the hex head wrench inserted into one hex head screw, turn the push button to calibrate the pipette. (Fig.8)
6. The pipetting volume can be adjusted by rotating the push button clockwise to increase and counter-clockwise to decrease. Please refer to the table standard volume adjustments.

Degree of Rotation	0.5 μl ~ 10 μl	5 μl ~ 50 μl	40 μl ~ 200 μl	50 μl ~ 300 μl
360°	0.31 μl	1.6 μl	6.5 μl	9.6 μl
720°	0.63 μl	3.2 μl	13 μl	19.2 μl

7. Tighten the both hex head screws after adjusting the push button and measure the accuracy of the pipette.
8. Repeat the above procedures until the pipette is calibrated within the specified accuracy. An accuracy test should be made at the specified minimum and maximum volume of each pipette.
9. Return the cap to its original position.



Troubleshooting

Problem	Probable cause	Solution
Liquid is not sucked in.	Foreign matter in the nozzle.	Remove foreign matter with provided cleaning wire.
	X ring is worn or damaged.	Replace the "X ring set" with the new set.
Liquid leakage from tip.	Plunger is damaged or rusty.	Replace the "X ring set" and "Plunger set" with the new sets.
	Nozzle tip attachment part is damaged.	Replace the "nozzle set" with the new set.
	Attached tips are loose.	Attach the tips firmly.
Push button movement is poor.	Plunger has shifted.	Press the push button a few times.
	X ring is damaged.	Replace the "X ring set" with the new set.
	No grease on the plungers and/or X rings.	Coat the plungers and/or X rings lightly with the provided grease.
	Liquid in the nozzle.	If immediately after suction or if there just some adherence of liquid, disassemble and clean the parts.
Looseness of body and casing.	Ring is loose.	Tighten the ring.
	Connection screw is loose.	Tighten the connection screw with the provided wrench.

If the problem persists even after the above points have been checked, stop usage of the unit immediately and consult with the sales outlet where the unit was purchased.

Caution: At this time please confirm that there has been no contamination by chemicals that are harmful to the human body.

● Replacement parts list (Please specify volume and channel number when ordering).

Replacement part's name	Contents	size
Ring	x 1	common
Connection washer	x 1	common
Connection screw	x 1	common
Casing A set	Casing A (x 1)	Each volume
	Insert nut (x 5)	
	Ejector button (x 1)	
	Ejector shaft A (x 1)	
	Ejector shaft B (x 1)	
	Ejector spring (x 1)	
Casing B	x 1	Each volume
Plunger fixing unit set	Plunger fixing unit (x 1)	Each volume
	First spring (x 2)	
	Guide shaft (x 2)	
	Guide tube (x 2)	
	E ring (x 4)	
	Bush (x 1)	
	Stem (x 1)	
Plunger head spring Set	8ch x 8, 12ch x 12	common
Plunger set	Plunger (8ch x 8, 12ch x 12)	Each volume
	Plunger head (8ch x 8, 12ch x 12)	
X ring suppressor set	X ring suppressor (8ch x 2, 12ch x 3)	Each volume
Nozzle spring holder set	Nozzle spring holder (8ch x 2, 12ch x 3)	common
X ring set	X ring (8ch x 8, 12ch x 12)	Each volume
Nozzle set	Nozzle (8ch x 8, 12ch x 12)	Each volume
Nozzle spring set	Nozzle spring (8ch x 8, 12ch x 12)	common
Casing holding screw	x 4	common
Ejector set	Ejector plate (x 1)	Each volume
	Flat washer (x 1)	
	Ejector plate holding screw (x 1)	
Wrench	x 1	common

Note: Parts marked with a star () influence precision of the product. When replacing these parts, please replace all of them with new parts.

Please contact your local distributor for price information.

Specifications of the instruments and optional accessories as well as contents of accessory sets are subject to change without notice.

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Memo

Inspection and Calibration Statement

The enclosed pipette was tested and calibrated under closely controlled environmental conditions to ensure that it meets published calibration specifications. The precision and accuracy results obtained for this pipette are provided on the enclosed calibration certificate. Because temperature and humidity conditions affect the calibration results of liquid measurement devices, your pipette should be calibrated under conditions of use. The calibration results obtained in your laboratory may vary from our results due to differences in environmental testing conditions.



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