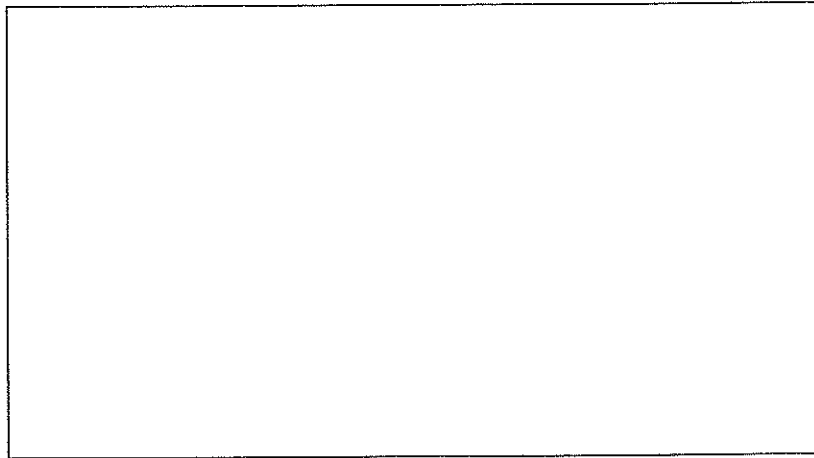


For repair service or further information please contact your local distributor:



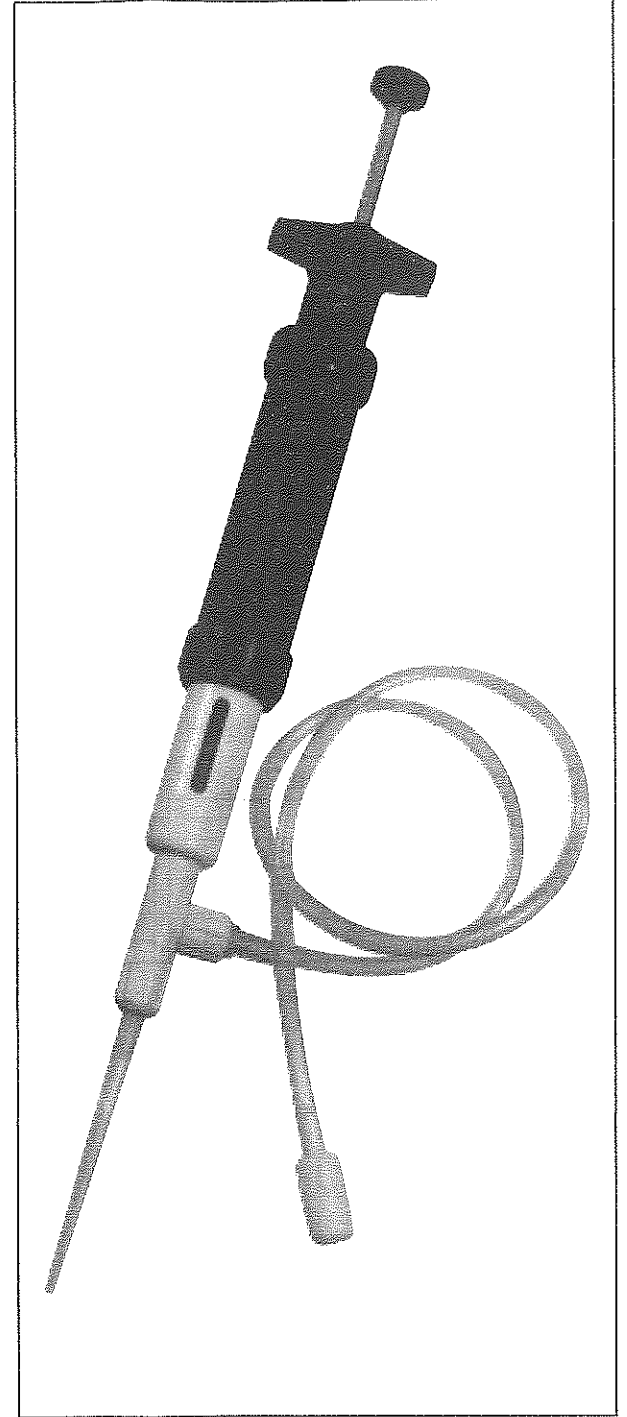
MANUFACTURER:  **NICHIRYO**

2003.11.Ver.1

 **NICHIRYO**

MODEL 2100DG

DIGITAL HAND HELD DISPENSER



FEATURES

- EXCELLENT ACCURACY AND REPRODUCIBILITY.
- DISPENSING FROM MOST LIQUID CONTAINERS IS AVAILABLE.
- VOLUME ADJUSTMENT IS SIMPLE AND REMAINS FIXED.
- WEIGHTLIGHT DESIGN PERMITS ONE HAND OPERATION.
- GLASS CYLINDER AND PLUNGER ARE PROTECTED FROM BREAKAGE BY PLASTIC HOUSINGS.
- * Please be noticed that this **Model 2100DG** is **NOT** autoclavable.
Do not autoclave it; otherwise it may deteriorate in quality.

SPECIFICATIONS

Accuracy: $< \pm 1.0\%$

Reproducibility: $< \pm 0.2\%$

Cat. No.	Volume Range	Increments	Volume Reading
21DG-1	0.2 ~ 1.0 ml	0.01 ml	0/20 ~ 1/00
21DG-2	0.4 ~ 2.0 ml	0.01 ml	0/40 ~ 2/00
21DG-5	1.0 ~ 5.0 ml	0.02 ml	1/00 ~ 5/00
21DG-10	2.0 ~ 10.0 ml	0.1 ml	02/0 ~ 10/0

Model 2100DG is supplied with a dispensing nozzle, a TOALON-G inlet tube and a Teflon® sinker.

PARTS AND MATERIALS

1. Knob
(Polypropylene)
2. Shaft
(Stainless Steel)
3. Lock Nut
(Polypropylene)
4. Volume Counter Housing
(Polypropylene)
5. Volume Counter
(ABS)
6. Plunger Housing
(Polypropylene)
7. Cylinder & Plunger
(Pyrex® Glass)
8. Cylinder Housing
(Polypropylene)
9. Outlet Valve Assembly
(Aluminum Oxide, Platinum Iridium, Polypropylene)
10. Outlet Valve Cap
(Polypropylene)
11. Inlet Valve Ball
(Aluminum Oxide)
12. Inlet Valve Cap
(Polypropylene)
13. Inlet Valve Spring
(Platinum Iridium)
14. Inlet Valve Holder
(Polypropylene)
15. Inlet Valve Ball Seat
(Aluminum Oxide)
16. Inlet Tube
(TOALON-G)
17. Sinker
(Teflon®)
18. Dispensing Nozzle
(Polypropylene)

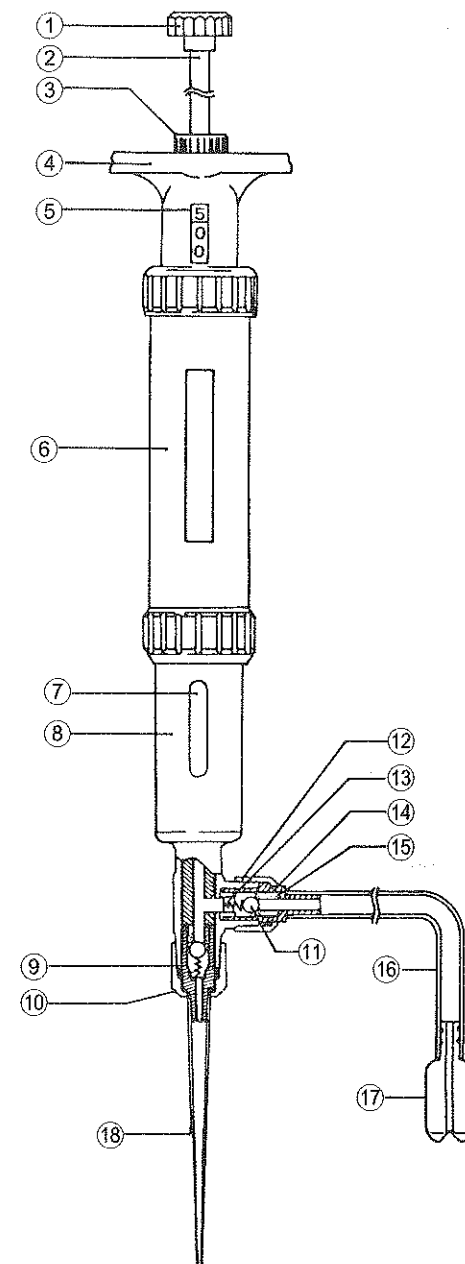
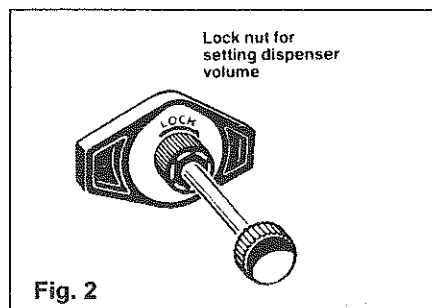


Fig. 1

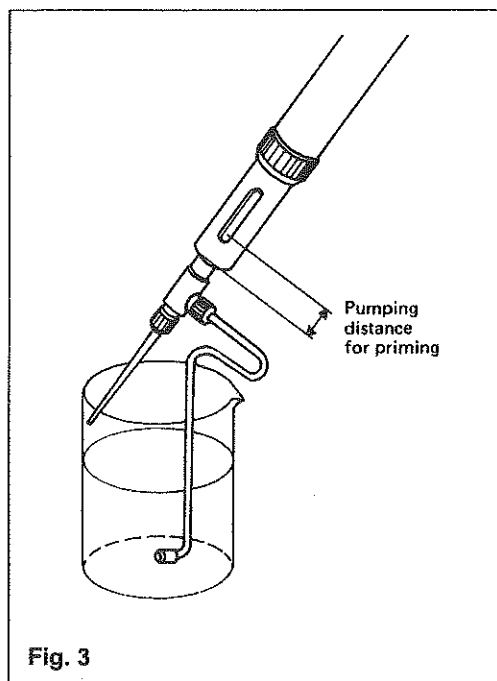
OPERATION

1. Holding the instrument with the valve assemblies upwards, remove the outlet valve cap by turning it counter-clockwise. Attach the provided dispensing nozzle onto the outlet valve holder. Return the outlet valve cap to its original position over the dispensing nozzle and tighten it firmly.
2. Attach the provided TOALON-G inlet tube with a Teflon® sinker firmly onto the inlet valve holder.
3. Loosen the lock nut by turning it counter-clockwise. Turn the knob until the desired volume is indicated at the digital volume counter. Clockwise turning of the knob reduces the dispense volume. (Fig. 2)
4. Lock the shaft by tightening the lock nut, then the desired volume is fixed.
5. Place the sinker in the vessel containing the dispensing liquid.
6. Purge all air bubbles in the cylinder by pumping the knob strongly several times. It will eliminate loss of liquid if the liquid is recycled to its original vessel until the instrument is completely primed.
7. Touch the dispensing nozzle to the wall of the receptacle. Gently depress the knob as far as it will go and dispense. Liquid for the next dispensing is drawn into the cylinder by releasing the knob slowly.



PRIMING (Fig. 3)

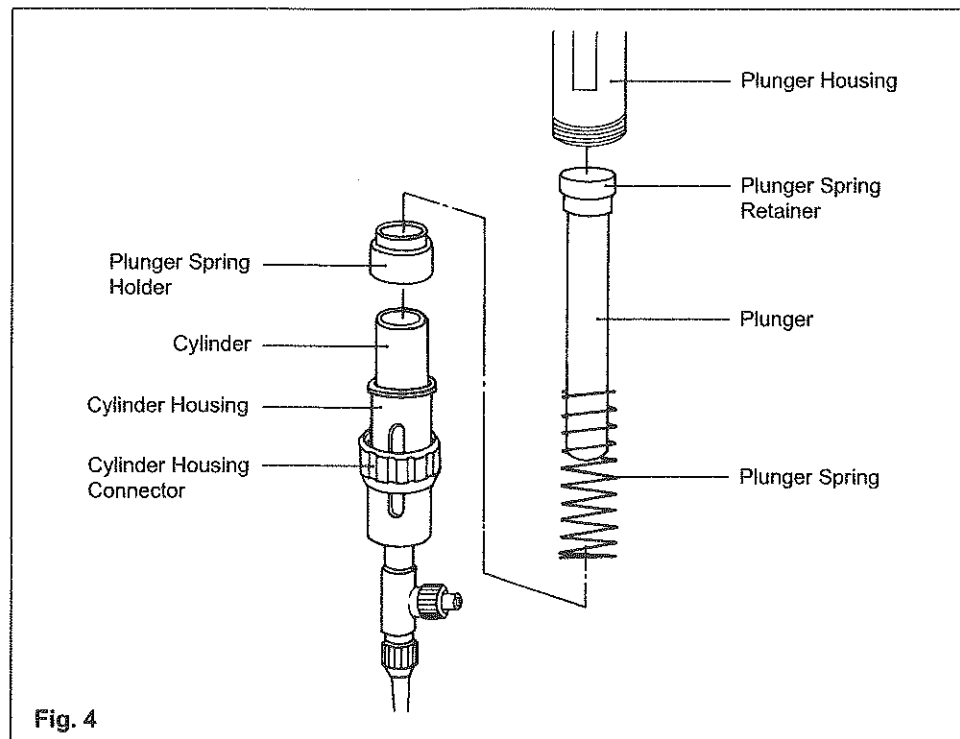
It is recommended to dispense the liquid several times by pumping the knob strongly using short strokes at the lower end of the cylinder, in order to purge the air bubbles quickly and completely.



DISMANTLING AND REASSEMBLING

A. Cylinder & Plunger (Fig. 4)

1. Holding the plunger housing in one hand and the cylinder housing connector and cylinder housing in the other, turn the cylinder housing connector clockwise to remove it from the plunger housing so that all parts below the plunger spring retainer, detailed in Figure 4, are taken apart from the plunger housing.
2. Pull the plunger out of the cylinder gently so that the plunger and the plunger spring come apart from the cylinder.
3. After cleaning the plunger or replacing the parts, return all parts to their original positions, as shown in Figure 4, and tighten the cylinder housing connector firmly.
4. Before operation, push the knob several times to make sure that the instrument works smoothly.

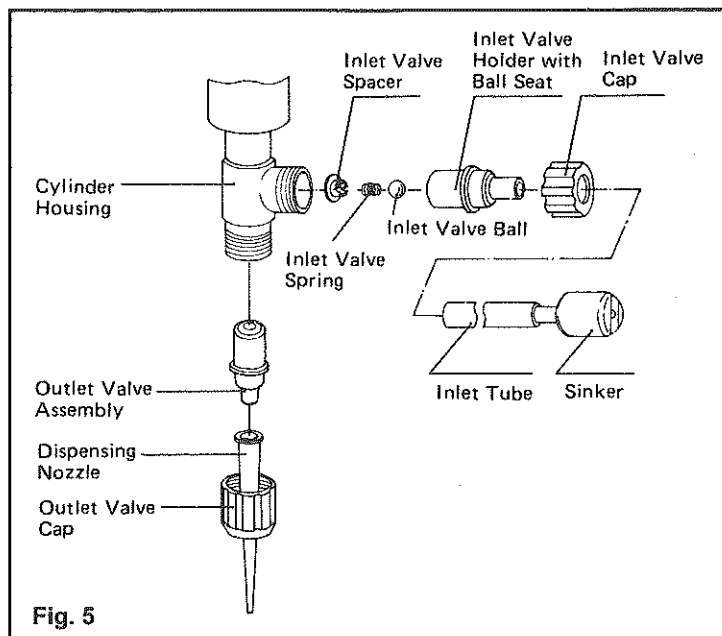


B. Inlet Valve (Fig. 5)

1. Remove the inlet tube from the inlet valve holder, and unscrew the inlet valve cap by turning it. It is recommended to hold the instrument so that the inlet valve faces downwards, so that small parts such as spacer, spring and ball are not lost. All of the component parts of the valve come out together with the cap.
2. These parts are dismantled easily by pulling the inlet valve spacer slowly out of the inlet valve holder.
3. After cleaning or replacing parts, return all parts to their original position in accordance with Figure 5. First, hold the spacer so that the surface with teeth faces upwards, and place the spring at the center of the teeth. Place the ball on the spring. Do not push the spring with the ball in place. Put the inlet valve holder over the spacer. Make sure that the ball meets the centre of the valve seat.
4. Push the assembled inlet valve into the opening of the cylinder housing, and tighten the inlet valve cap over the holder firmly. Incomplete tightening causes leaking of air into the cylinder.

C. Outlet Valve (Fig. 5)

1. Holding the instrument so that the dispensing nozzle faces upwards, unscrew the outlet valve cap by turning it and remove it from the instrument. Remove the dispensing nozzle by pulling it gently from the outlet valve assembly.



2. Then gently pull the outlet valve assembly off the cylinder housing.

3. After cleaning or replacing parts, slip the opening of the cylinder housing over the outlet valve assembly. Turn the instrument upside down holding the outlet valve assembly. Place the dispensing nozzle onto the assembly and tighten the outlet valve cap over the assembly and nozzle firmly.

CLEANING

1. After use, rinse the instrument with 6 to 10 dispenses of distilled water.
2. Prior to prolonged storage, rinse it thoroughly with a good quality detergent for laboratory glassware and thereafter with multiple dispenses of distilled water.
3. If the plunger sticks to the cylinder and the valve ball sticks to the valve seat after use, do not force them to move. Dismantle the instrument in accordance with this instruction, and place all parts below the plunger spring retainer shown in Figure 4 in hot water until the plunger and valves start to move. Then rinse the instrument thoroughly with a good quality detergent and thereafter with multiple dispenses of distilled water.
4. If the plunger does not work smoothly, dismantle it and rinse the plunger with hot water and a good quality detergent.
5. To prolong the life of the instrument and to keep the plunger and cylinder free of scratches from any particulate build-up, it is recommended that the procedure in step number 3 be carried out periodically as routine maintenance — especially if the plunger movement becomes unsmooth.

NOTE

Do not dismantle the instrument at the volume counter housing and lock the nut to maintain the instrument calibration.