

# SERVICE MANUAL

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**Dragon Laboratory Instruments Limited**

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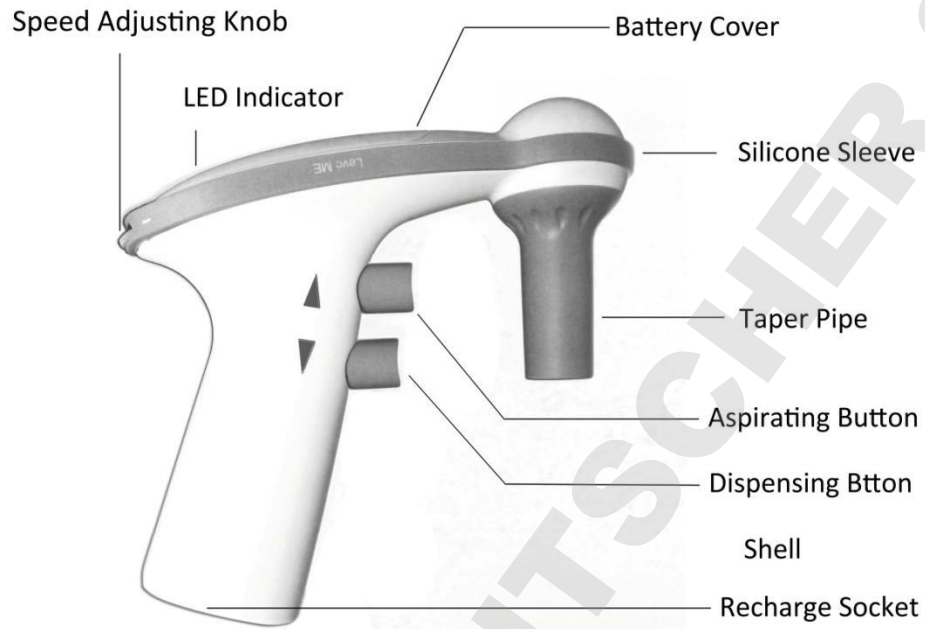
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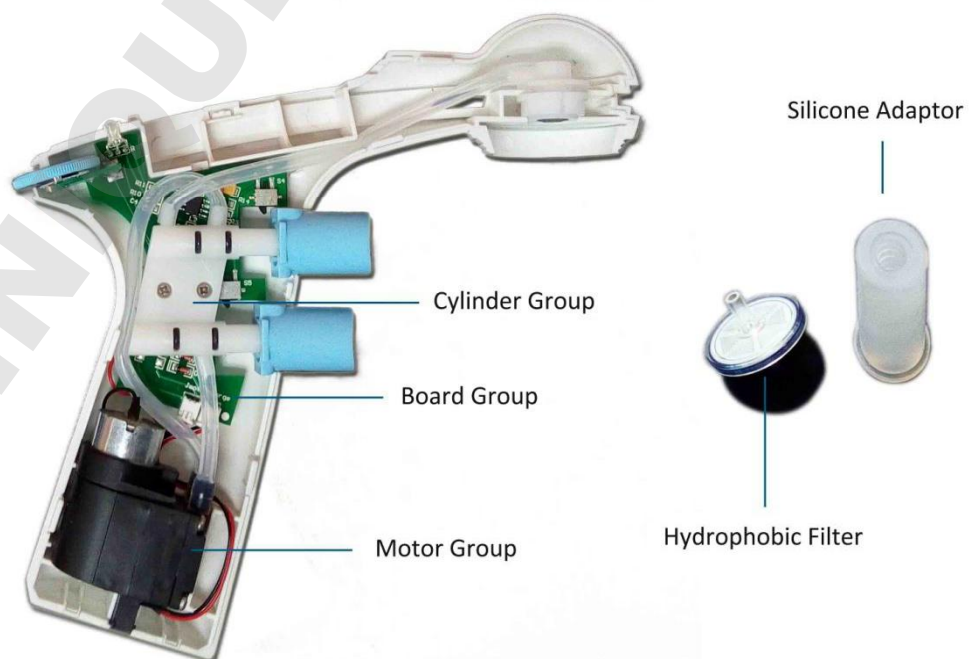
# Chapter 1: Working Principle

## 1.1 Parts Instruction

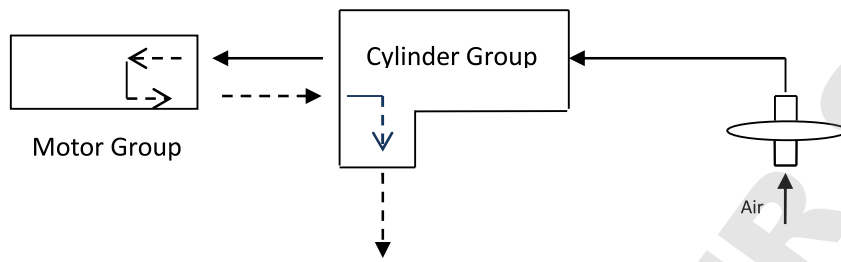


PIC.1 Parts Instruction

## 1.2 Working Principle



PIC.2 Internal Structure



PIC.3 Working Flow

After the pipette is installed properly, pressing the control buttons (Aspirating Button & Dispensing Button) would start the motor group to generate a vacuum in the pipette. Then the air/liquid would follow the vacuum into the pipette.

The sucking speed can be adjusted by turning the blue knob at the end part.

The specification as follows:

<b>Aspirating Speed</b>	Pure Water of 25ml<8s
<b>Dispensing</b>	Gravity Dispense
<b>Battery</b>	lithium battery
<b>Running Hours</b>	Intermittent working for at least 8 hours
<b>Pipette Type</b>	Glass and Plastic of 0.1-100ml;Pasteur Pipette
<b>Filter</b>	0.45 μ m hydrophobic filter

## Chapter 2: Removal and Installation

The troubleshooting list provides guidance for a fast diagnose and solution to most of the problems this product would come across. Then a further test or part replacement may be needed to fix the problem. Here follows the process of dismantling the product.



Step1 Take off the silicone sleeve



Step2 Remove the taper pipe



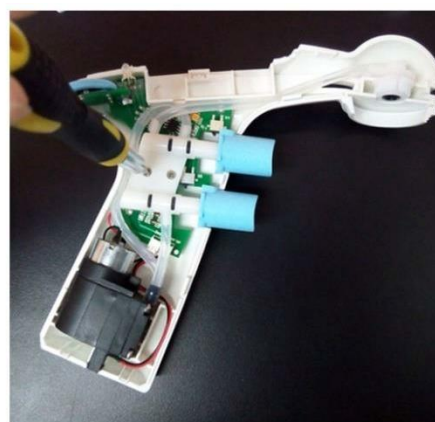
Step3 Remove the silicone adaptor



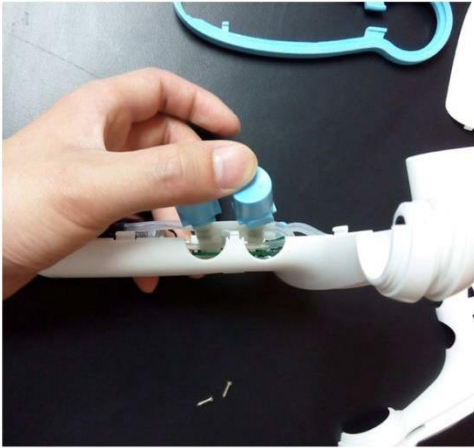
Step4 Remove hydrophobic filter



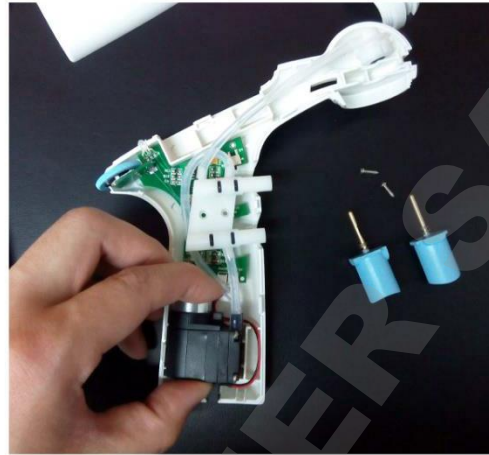
Step5 Separate the shell



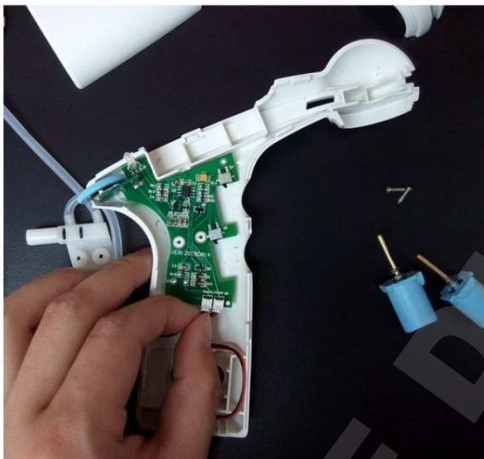
Step6 Dismantle the cylinder group by removing the two screws



Step 7 Dismantle the two buttons



Step 8 Take out the motor



Step 9 Pull out the plugs



Step 10 Take out the power socket

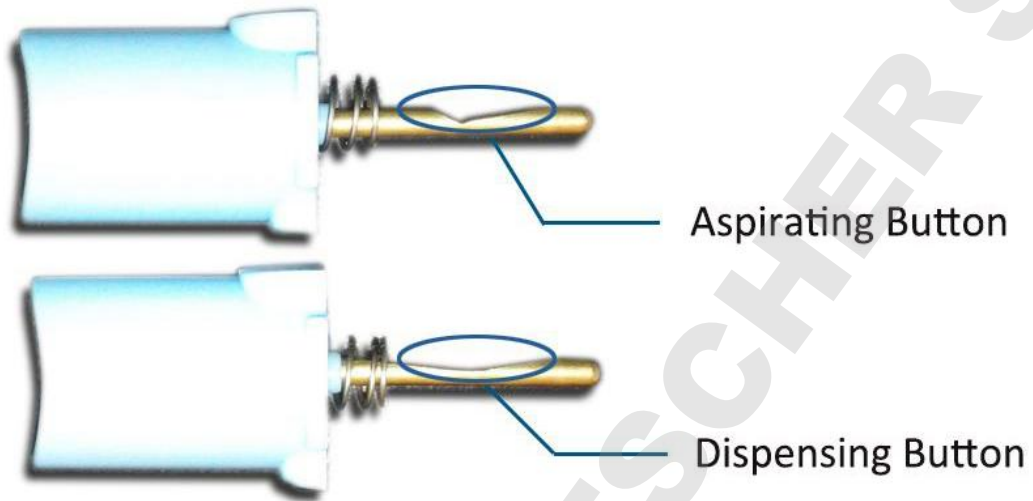


Step 11 Dismantle the board by removing the screw



Notice:

The Aspirating Button and the Dispensing Button are different. The follow shows how to distinguish them from each other.



## Chapter 3: Trouble shooting

### 3.1 Sample Leaking

#### 3.1.1 Filter Failure

The hydrophobic filter would get damaged if it's flooded by the sample. Then the product would be suffer a leaking risk.

Under this situation, please change the filter.



#### 3.1.2 Cylinder Ring Aging

The cylinder seal functions by for rubber sealers together with the Aspirating Button and the Dispensing Button. With sample corrosion and working time going on, the sealer would age gradually. Then its sealing property fades, which leads to a leaking risk.

Under this condition, please replace the rubber ring or the cylinder group.

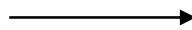


### 3.2 Sucking Failure

#### 3.2.1 Motor Trouble

First please make sure the battery is OK and charged for at least 2 hours. Then press the Aspirating Button and the Dispensing Button, observing the LED indicator on top of the product.

If the LED is on while without motor running sound, please do the following test.



Please turn the multi meter to DC scale, then connect the two pens to the two ends of the motor as shown in the picture.

Then press Aspirating Button or the Dispensing Button and observe the reading of the multi meter.



- If the reading is around 3V but the motor doesn't run, then it's the problem of the motor, please replace it with a new one.
- If the reading is around 0, then the board fails, please change the board group.

### 3.2.2 Battery Failure

If the LED indicator is off, please do the following test:



First please make sure the battery is charged for at least 2 hours.

- If the reading is around 3V, then the battery is ok, please check the board or motor.
- If the reading is around less than 2V, then it's battery or charge failure, please change with a new one.

### 3.3 Speed Adjusting Failure

This only happens when the board fails. To confirm it, please do the following test:



Turn the knob and observe whether the reading is changing. A changing reading means the knob is OK, the failure is resulted from a board trouble. If the reading does not change when turning the knob, then please replace the knob or the board.

## Contact us:

Dear Sir/Madam, if you have any questions or suggestion when reading or operating this book, please contact us as follow email: [info@dragon-lab.com](mailto:info@dragon-lab.com)

Thanks!

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