

SERVICE MANUAL

Levo Plus



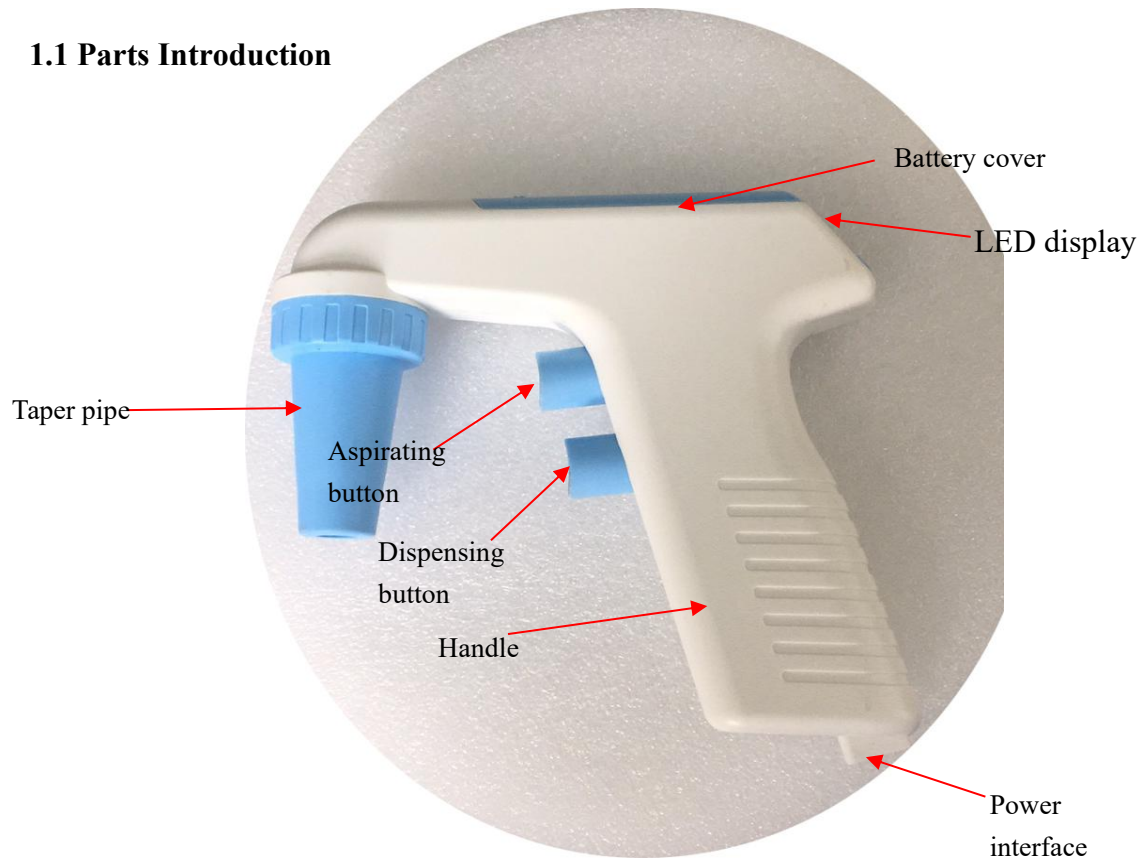
VERSION20200603

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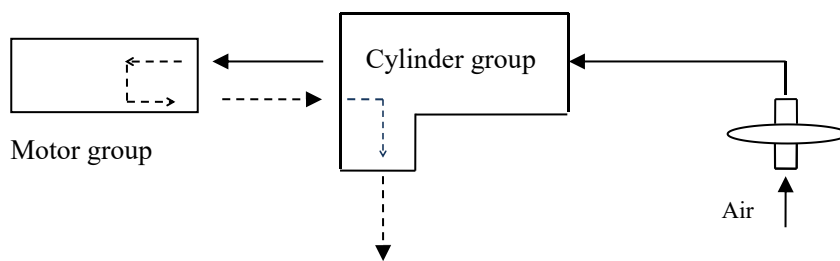
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Chapter 1: Working Principle

1.1 Parts Introduction







1.2 Working principle



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 pressing the blue buttons marked with + or -.

Chapter 2. Removal and installation

When instrument failure occurs, firstly, you should conduct a failure analysis; if the failure is caused by the damage of instrument hardware, the related components must be repaired or replaced. Here are the relevant contents of the replacement and disassembly of instrument.

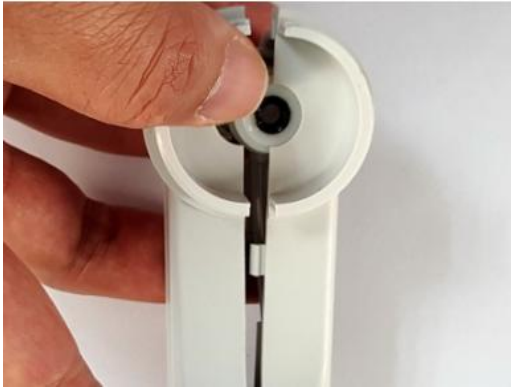
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|  |  |
| 1-Remove the taper pipe and silicone adapter. | 2-Remove the hydrophobic filter . |
|  |  |
| 3-Open the LED display with a blade, and take it down. (gluing the LED display when re-installation) . | 4-Sliding the battery cover to the backward.(following as the red arrow) |



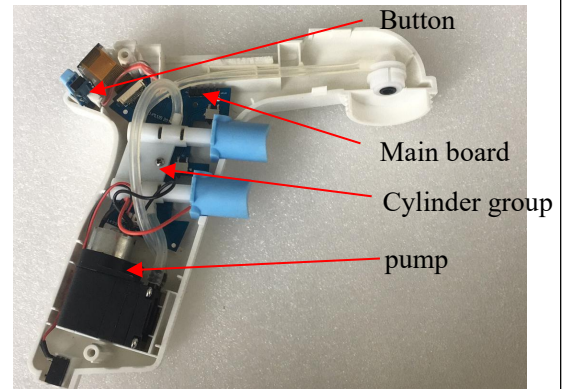
5-Take out the battery, unplugging the cable terminal, please note the polarity.



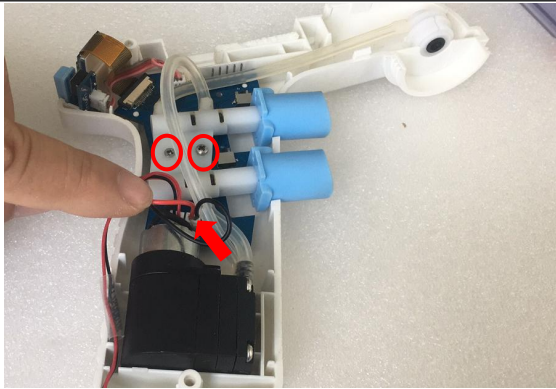
6-remove the 2 screws (marked with red circles) .



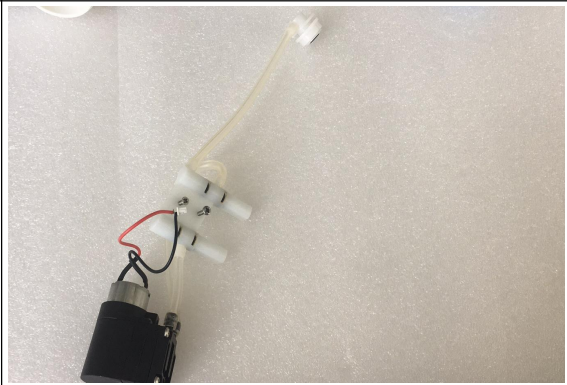
7-Open the shell.



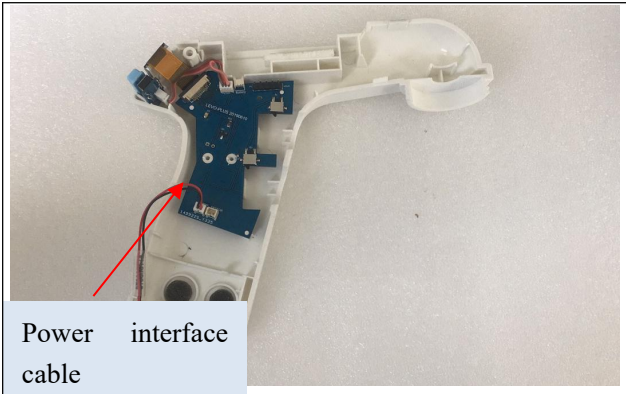
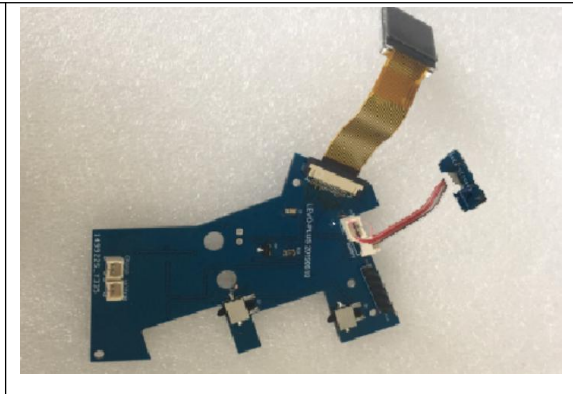
7-Seperating the shell , we can see the internal components.



8-replace the pump and cylinder group - step 1:
 ①unplugging the cables of pump (marked with red arrow above the figure) ;
 ②removing the 2 screws fixed with cylinder(marked with red circle above the figure) .



8-replace the pump and cylinder group - step2:
 Taking out the pump and cylinder group, then dismantle them separately.

| | |
|---|--|
|  <p>Power interface cable</p> |  |
| <p>9-replace master control board (circuit assembly) step1: After dismantling the pump and cylinder group ,unplug the power interface cable of master control board .</p> | <p>9-replace master control board (circuit assembly) step2: After unplugging the power interface cable , then take out the circuit assembly (including display and buttons) to replace. NOTE: when installing the buttons,S1 (-) is lower (left) ; S2(+),is upper(right).</p> |

Chapter 3: Trouble shooting

3.1 Sample Leaking

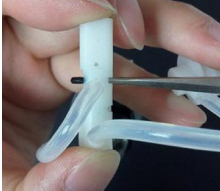
3.1.1 Filter Failure

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

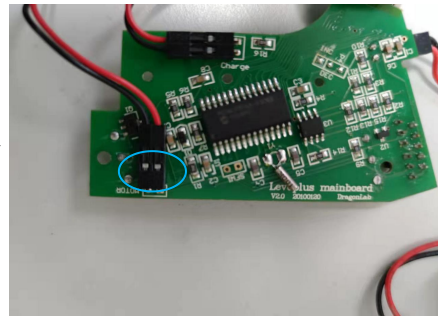
The cylinder seal functions by rubber sealers together with the Aspirating Button and the Dispensing Button. With sample corrosion and working time going on, the sealer would age gradually. Then its sealing property fades which leads to a leaking risk. Under this condition, please replace the rubber 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 on top of the product.If the LED is on while without motor running sound, please do the following test.



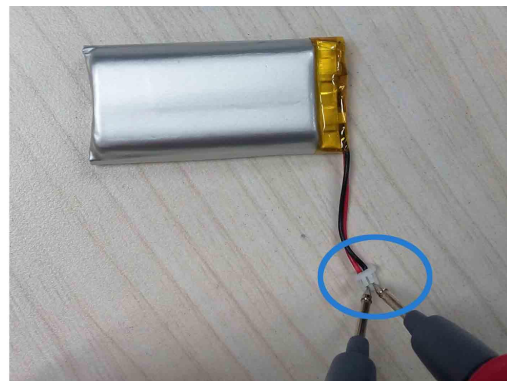
Please turn the multimeter to DC scale, then connect the two pens to the two ends of the motor as shown in the picture.

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

- 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 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.