Laboratory Equipment Manufacturer
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Operation Manual for
Auto Hematology Analyzer
HA-17600
Short Version

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

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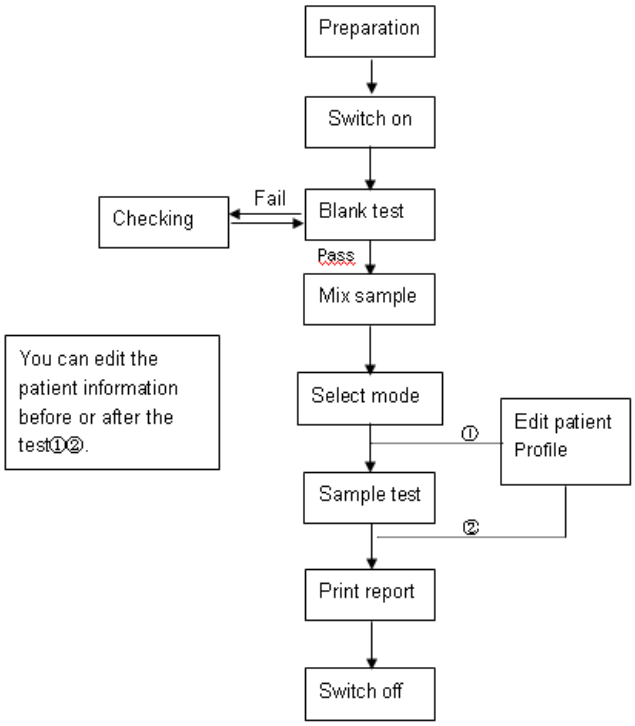
HEMATOLOGY ANALYZER BRIEF OPERATION INSTRUCTION

（Note: This direction is only basic operation, for further details please refer to the **USER MANUAL**）



1. Preparation

Before operation, the operator should check the following:

a) Be sure that the Diluent, Lyse and Cleanser are **enough** for testing; be sure that the pipeline is **not folded** and all the connections are OK; please **empty** the waste bottle if any.

b) Be sure that the power supply adapter is **safely and tightly** connected to power socket.

c) Be sure that there is **enough paper** for printing in internal or external printer and the paper is **well installed**.

To connect the Diluent, Lyse and Cleanser bottles correctly, please refer to the **USER MANUAL**.

2. SWITCH ON THE INSTRUMENT

Turn on the instrument with the **rear power button**.

3. BLANK TEST

Press **Aspiration key** to start blank test. Acceptable range for blank test is as following:

Parameter	Acceptable blank range
WBC	≤ 0.2×10^9 / L
RBC	≤ 0.02×10^{12}/ L
HGB	≤ 1 g / L
HCT	≤ 0.5 %
PLT	≤ 10×10^9 / L

4. CHECKING

If the results of blank test are not in this acceptable range, please repeat the steps above until the results are good. If the results are still **out of range** after **5 times' tests**, please check if the **reagent** and **connections of pipeline** are good. And please try to use functions like "**Remove Blockage**", "**Back Flush**", "**Cleaning**" and "**Concentrated Cleanser Soaking**" in the software **Service Menu** to solve possible

aperture blockage problem.

5. SAMPLE TEST

A. Sample mixing.

The blood sample must be **mixed well** in sample tubes before testing. Suggested method:

Shake the tube up and down; rotate the tube for 3-5 minutes. Please do not shake the tube acutely.

Note: The samples waiting for testing shall be stored at **room temperature** and is **only valid** for testing within **4 hours**. If the storage time is too long or the sample has not been mixed well, the accuracy of test result will be affected.

B. Select "Mode" button.

Cautions! Before counting, please be sure that you've selected the right sample mode and have the correct blood sample ready. Otherwise, it may block the counting aperture.

C. Sample test

Test procedures are as following:

a) Put the sample tube **under aspiration pipette**, press **aspiration key**, then the instrument will aspirate sample.

b) Instrument starts analyzing the sample, the status bar on the top of screen displays "**Testing…**"

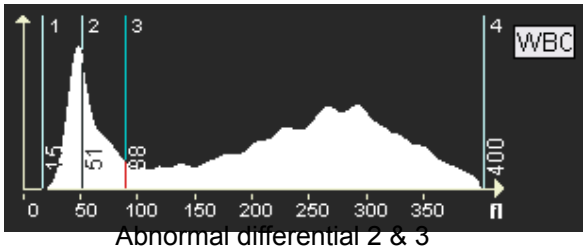
c) When test **Pre-diluted peripheral blood,** prepare one tube and put it under the needle click **"diluent",** press **"aspirate key",** then the 700ul diluent will be dispensed into test tube, accurately add 20ul **peripheral blood** and mix completely. Aspirate the liquid for testing.

D. WBC Histogram Adjustment

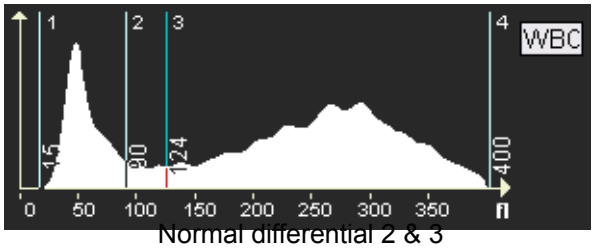
a) Please make sure the environment temperature is between **15**℃ and **30**℃, or the result will be abnormal.

b) Some times the instrument needs some adjustment during the first installation. If the Mid% result is a little high, please try to adjust differential 2 and 3.

c) After testing a patient sample, you will get WBC histogram.



Abnormal differential 2 & 3



Normal differential 2 & 3

d) If differential 2 and 3 are abnormal, please click Adjust button, select WBC option and then click OK.

e) Click differential 2 or 3 and then adjust them around the valley.

f) Click Confirm button to save the setting.

6. EDIT PATIENT INFORMATION

On the test window, click "**Profile**" at **Sample Test Window**, edit information of patient before or after the test.

7. PRINT REPORT

At **Sample Test Window**, click "**Print**" button to print the test report. You can also print the report later in **Results Menu**.

8. SHUT DOWN THE INSTRUMENT

Click "**Shut down**" to **perform the** correct shut down procedure **before you switch off instrument.**

When display turns to **black screen**, switch off instrument.

HEMATOLOGY ANALYZER DAILY MAINTAINANCE INSTRUCTION

（Note: We strongly recommend that user should maintain the instrument as following ）

DAILY MAINTENANCE

A. Every day

a) **Clean the sampling needle**: before shut down the instrument, you should use a soft cloth or clean paper dipped with a little concentrated cleanser to clean the needle.

b) **Clean the aperture:** Enter the **Service Menu**; perform the operation of "**Back Flush**", "**Remove Blockage**" and "**Cleaning**" one time.

c) **Clean the surface:**
Wipe liquid away, if there is any on the bottom plastic plate or inside the instrument.

d) **Blank test is too high solution:** If you find the test results abnormal, please perform blank tests and check if the results are high. If these results remain high, please refer to the **trouble shooting**.

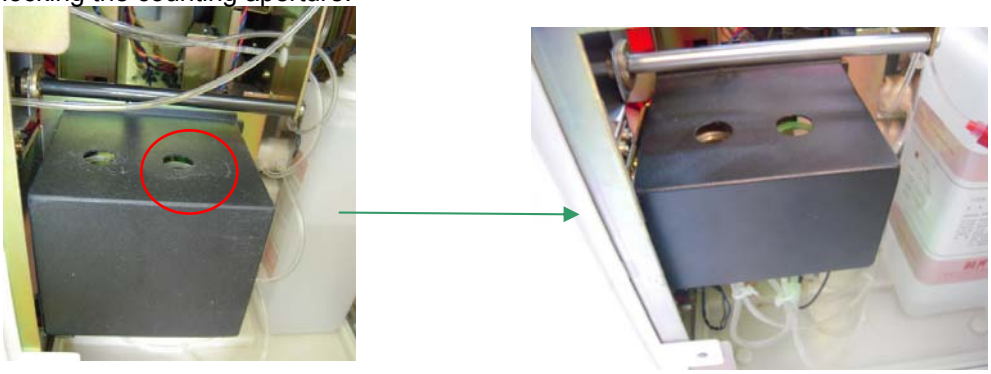
B. Every week

a) Every week you should perform the operation of "**Concentrated cleanser soaking**" at least two times. Adding **2ml** concentrated cleanser into the **each counting chamber.** And then click "**Concentrated cleanser soaking**". You can also increase times of soaking according to your test amount.

b) Please turn off the instrument **at least once a week, and keep the instrument in close condition for 1 hour**.

C. Every month

Clean the shield of counting chamber: If the black shield cover of counting chamber is dirty, please clean it with wet clean cloth. This is to prevent unexpected objects like dust entering the counting chamber and blocking the counting aperture.



BASIC TROUBLE SHOOTING

Possible problems	Solutions
1）Instrument can not power on	Check the power supply of instrument. Check if the power cord has been well connected. Check the voltage from power supply. Restart the instrument.
2) No Diluent	Change Diluent; perform the operation of Prime->Diluent in maintenance menu.
3) No Cleanser	Change Cleanser; perform the operation of Prime->Cleanser in the maintenance menu.
4) No Lyse	Change Lyse; perform the operation of Prime->Lyse in the maintenance menu.
5) Waste bottle full	Empty the waste bottle.
6) Temperature abnormal	Click "**System Info**"->"**System status**" at main menu of software, check the environment temperature, if it is not in the range of 15°C ~35°C, please get the environment temperature back to this range.
7）Blank test result remains high	Check if the reagent is finished. Change the reagent with new. Check if the reagent is not valid or polluted. Perform the operation of "**Back Flush**" at the service menu, if the problem remains, please perform the operation of "**Concentrated cleanser soaking**". Clean the aspiration needle and cleansing set assembly. Check if the temperature or pressure is in normal range. Check whether there is high voltage electricity or magnetic field interference.
8) Blockage in aperture	Perform the operation of "**Remove Blockage**" at the maintenance menu. Also perform the operation of "**Concentrated cleanser soaking**". If you can not solve the problem by above method, perform the operation of "**Burn**". Please check pressure inside the instrument in the service/debug/target value. Or test the pressure with barometer.
9) Air bubbles	Perform the operation of "**Cleaning**" in the maintenance menu. Check if the valve is working well. Check if the reagent pipeline system is well connected. Perform the operation of "Prime" again.
10) Printer can not print	Check if there is enough paper in the printer. Check if the printer and instrument are well connected Check the printer settings in the software.
11) Abnormal noise in the instrument	Open the two side doors of the instrument, check if there is unexpected object blocking the movement parts, if any, clean it away. Check if the piston of the vacuum pump is out of the pump body. If so, please make the piston towards the pump body and push it back. If the problem remains, please contact our service people.