4. Parts Replacement

4.1 Instrument assembly

Chemray 240 is a high- precision instrument, if the instrument has trouble and can not be resolved with the method in this manual, it should be repaired by professionals; If it is confirmed that the internal parts of the instrument have some troubles which should be replaced for repairing, please follow the below steps to dismantle the instrument:

1. Turn off the instrument power switch (unplug the power cord to prevent from turning on the power switch accidently).
2. Remove the eight screws which fix the rear-board of the machine with a screwdriver and remove the rear board, pay attention to protect the board, avoid falling damage.
3. After removing the rear-board, you can see the instrument's internal hardware boards, pump valves, the board sockets of the cable at a glance, so it is convenient for electrical maintenance.

4.2 Light source lamp replacement

The lamp light source will gradually age to make energy attenuation when used for a long time, if the system has given out alarm message, or the total working time is estimated to be over 1000 hours, need to replace the light source lamp.

1. Turn off the power to make the lamp and lamp box cool for 30 minutes.

Note:

Must wait more than 30 minutes after shutdown, even after 30 minutes, you must be careful to touch the shell body of the light source lamp, because the hot lamp and lamp box will cause skin burns.

2. Unscrew the light source cover at the worktable.

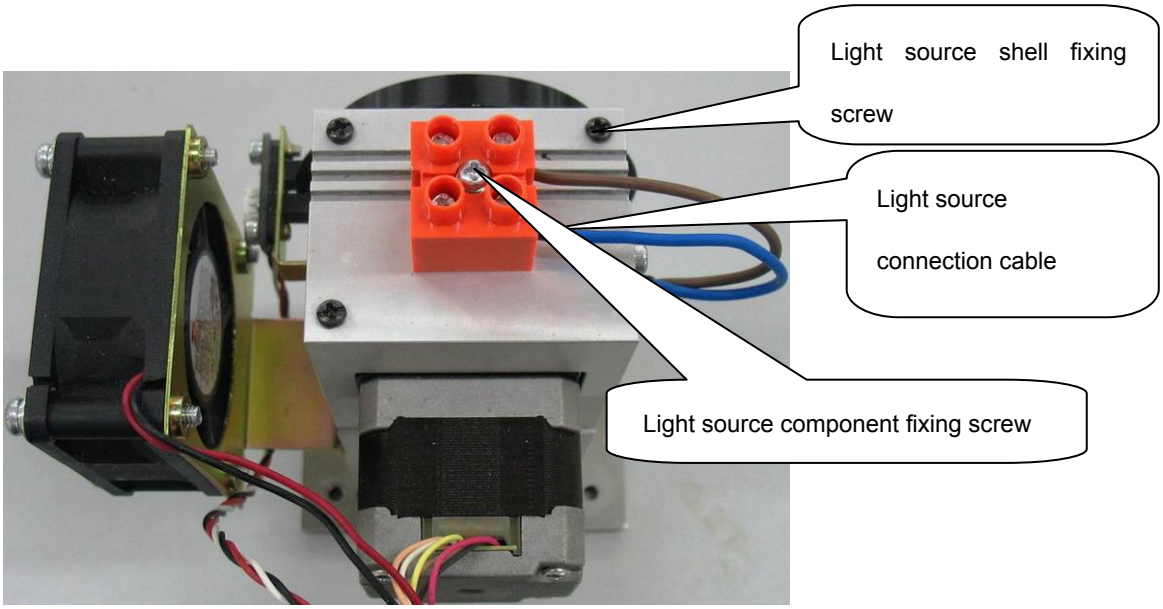
3. Unscrew the three cross screws on the top of the light source body shell.

4. Wait until the light source shell will not burn your skin because of high temperature, pinch the light source cable connectors with hand and hold up the shell;

5. Remove the light source components, replace new light source lamp, connect the light source line well, and then put back the supporting base and lock the three cross screws unscrewed before.

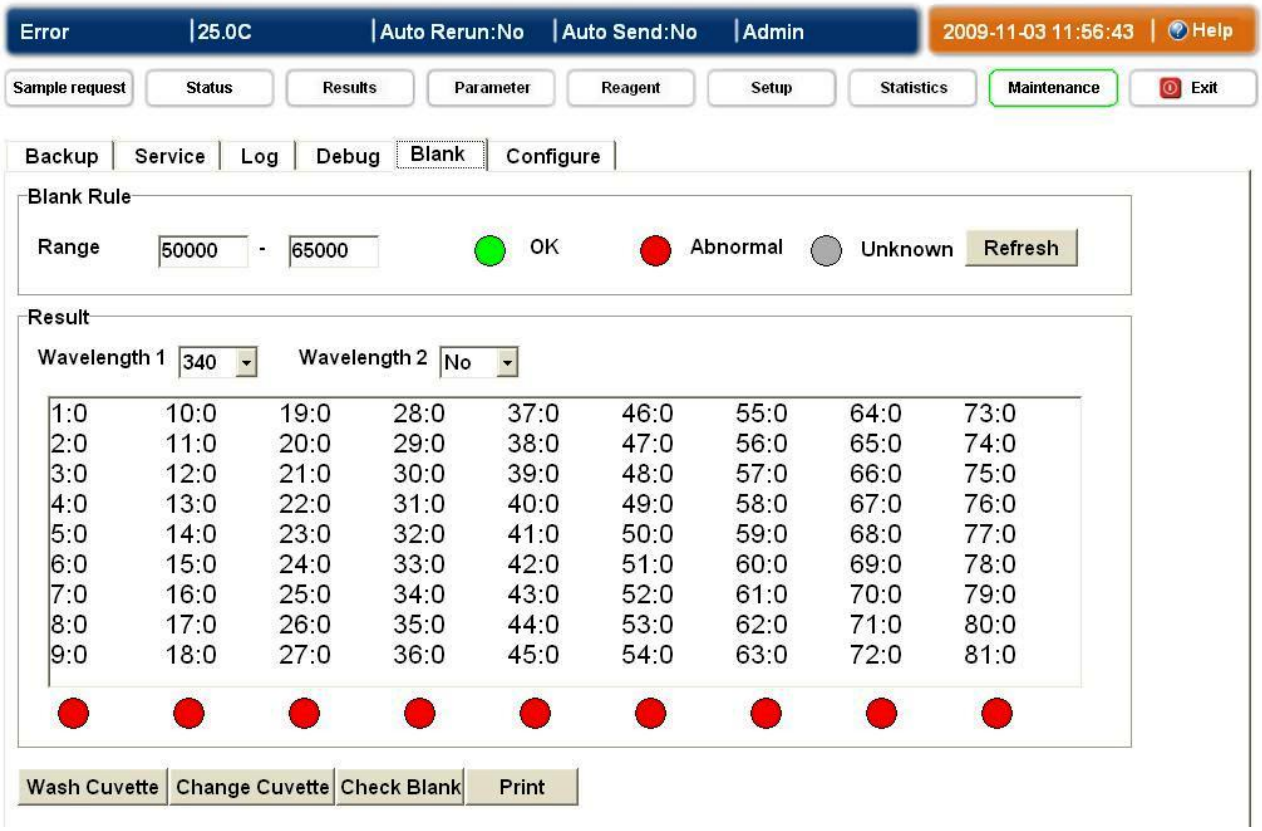
Note:

When assembling or disassembling the light source, even if the lamp has no heat, please do not touch the translucent lamp surface with your hands, because this may change the characteristics of the light source due to grease, dirt and other reasons, if inadvertently make the translucent surface stained with grease, dirt, you can wipe it with a clean cotton swab dipped with absolute ethanol.



6. The light source lamp has been positioned by screws, no need for fine-tuning, but because of the differences of various lamps, you need to adjust the received light energy, it is recommended to replace all the reaction cups here, in order to avoid the large differences between the old and new cups. Method 1: turn on the instrument, enter into the "Chemray 240 auto chemistry analyzer management software" → "Status" → "Reaction disc", click on “Change Cuvette”" button, and then you can replace it based on prompt, (method 2: or from the " Chemray 240 auto chemistry analyzer management software," → "Maintenance" → "Blank" and then click on "Change Cuvette" button, but note that this method requires a user authorization; Method 3: "Engineering debugging software" → "Blank" → "Change Cuvette".

7. Users usually operate only with method 1 and 2, after correct replacement of the reaction cup, from the " Chemray 240 auto chemistry analyzer management software" → "Maintenance" → "Blank" and then click on “Check Blank” button, record the proximate light intensity AD value of each wavelength, and then enter into "Maintenance"→ “Configure”, adjust the magnitude ratio of each wavelength, make the light intensity AD value of each wavelength to be about 55000, but for the wavelengths over 510nm, its AD value could be about 57000 (if it can not successfully auto-configure the magnitude ratio, you must configure it manually, the AD value is proportional to the configured value), after completing the configuration, please perform the blank check once more, please observe whether it is appropriate or not, you may need to repeat several times before it meets the requirements.



8. After confirming that there is no problem, you can tighten the light source cover of the worktable.

Note: When adjusting the location of the light source lamp, do not let the light directly shine your eyes, because the strong light may hurt your eyes.

4.3 Reaction cup replacement

1) Open the reaction cup replacement entrance on the worktable.

2) The method to replace the reaction cup is the same with the steps mentioned in section 4.2. Method 1: turn on the instrument, enter into the "Chemray 240 auto chemistry analyzer management software" → "Status" → "Reaction disc", click on “Change Cuvette”" button, and then you can replace it based on prompt, (method 2: or from the " Chemray 240 auto chemistry analyzer management software," → "Maintenance" → "Blank" and then click on "Change Cuvette" button, but note that this method requires a user authorization; Method 3: "Engineering debugging software" → "Blank" → "Change Cuvette".

3) If the instrument is with auto-rinsing system, when replacing the reaction cup, carefully unscrew the reaction cup fixing screw; do not let it slide inside. If it has been slid inside, the proposed operation is to

shutdown firstly, and rotates the reaction disc in place by hand or takes the falling screw out with tweezers or magnetic screwdriver.

4) If the instrument is not with auto-rinsing system, when replacing the reaction cup, pay attention to take it out vertically to prevent the reaction cup orientation column breaking accidently; when placing the new reaction cup, please put it vertically, after it has been positioned well, press the cup joint slightly, to check whether it is flat or not;

5) Because that the reaction cups may have differences in different batches, it is proposed that you should observe the Cuvette blank after replacing the reaction cup; from " Chemray 240 auto chemistry analyzer management software," → "Maintenance" → "Blank" and then click on “Check Blank” button, observe the proximate light intensity AD value of each wavelength, to determine whether need to adjust the magnitude ratio;

6) Close the reaction cup replacement entrance cover-plate on the worktable.

4.4 Pump\valve Replacement

Firstly, disassemble all the pump\valve components requiring for replacement, and then replace the specific pump\valves.