



**ATP140** (Version: AMOSATP140SM20130402)

**Automatic Tissue Processor**

**Service Manual**

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# Tissue Processor

## Service Manual

### 1: General provisions

The Service Manual of the instrument is compiled according to its structure and characteristic.

### 2: Configuration

The instrument provides the design of AC110V/220V, composes of tank, temperature controlling and mechanism movement.

a、Containers

1): 10 containers of reagent without heating.

2): 4 containers of paraffin with heating.

b、Temperature controlling

The paraffin container heating and temperature control.

c、Mechanical arm movement by microprocessor controlling

1): Mechanical arm to move basket up and down, controlled by a microprocessor

2): Mechanical arm to move basket left and right, controlled by a microprocessor

### 3、Standard Distribution of reagent stations

Station number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
medium	Formalin	Formalin	70% alcohol	85% alcohol	95% alcohol	95% alcohol	100% alcohol	100% alcohol	Dimethyl benzene	Dimethyl benzene	wax	wax	wax	wax

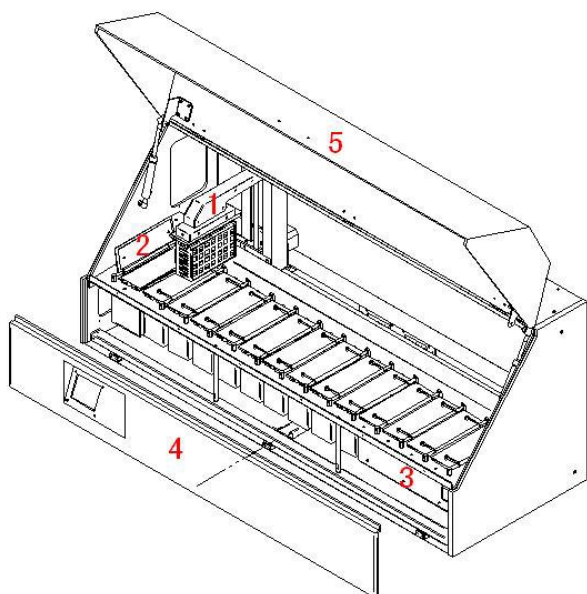
Note: station 1 and 2 be used for loading, fill in “Formalin” (The basket in station 1 will run the first program and the other basket in station 2 will run the second program). Press key Run to active processor working, the system will check automatically and sure the basket in the loading stations. It will run program 2 first and then run program 1. Two programs

can be set available.

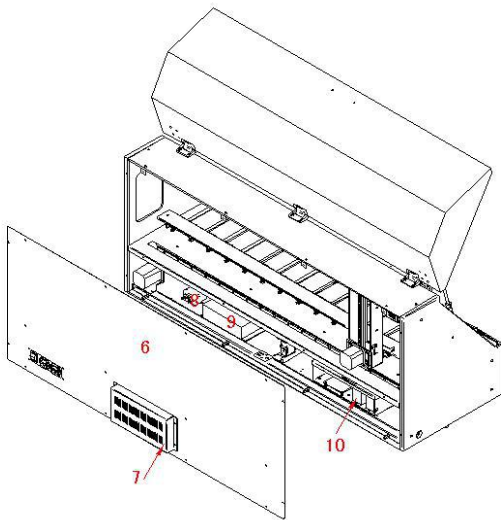
**Example of programming:**

Tank number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
medium	formalin	formalin	70% alcohol	85% alcohol	95% alcohol	95% alcohol	100% alcohol	100% alcohol	dimethyl-benzen	dimethyl-benzen	paraffin	paraffin	paraffin	paraffin
Program 1 time	2hr. 15min	1	1	1	1	1	1	1	40min	30min	1	1	1	
Program 2 time		1	1	1	1	1	1	1	40min	30min	1	1	1	1

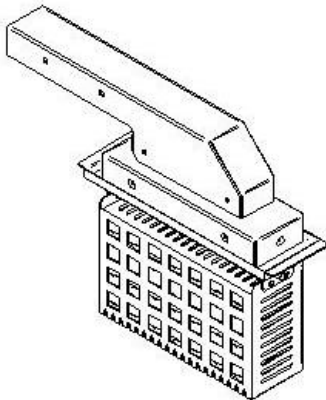
**4、Exploded view**



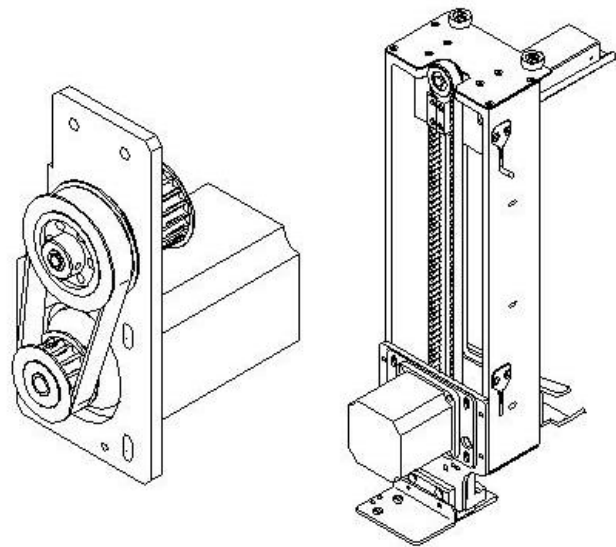
- 1) basket gripping device
- 2) sealing cover
- 3) Oven type heater
- 4) Display and keyboard
- 5) Plexiglass glass housing



- 6) Rear cover board
- 7) Active carbon filter
- 8) filter
- 9) power switch
- 10) electrical control box



Basket gripping assembly



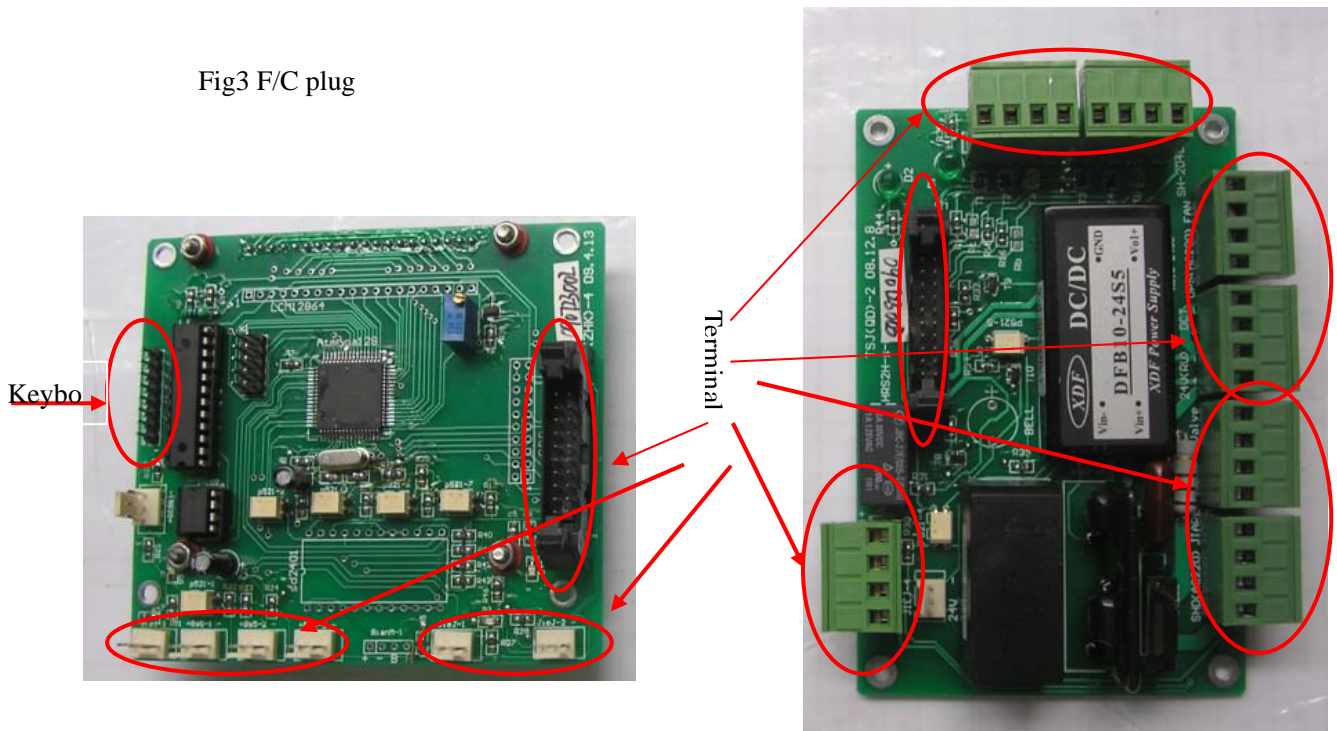
Movement assembly

## 5、 Troubleshooting

### 5.1、 No any display after switching instrument on

- 1): The power cord is not well connected or damaged. Plug the power cord again or change a new one.
- 2): 5A fuse blows out, please replace it.5A
- 3): 5V switch power supply has no output signal, please replace it.
- 4): 24V switch power supply has no output signal, please replace it

Fig3 F/C plug



5) Flat Cable(F/C) plug is looseness( Refer to the Pic.). Check if all the F/C plug is fixed: pull each plug out and reinsert it. And then pull each wire on the F/C gently by hand to check if the wire is loosen, if so , please fix them again with screwdriver.

6): UPS has no output singal

Inspection measure: After starting, two LED lights on left of UPS are bright, if not, Please replace the UPS because it's bad.

7) The key is not work well, it means the key membrane is damaged or the key F/C does not plug well.

### 5.2、 Constant sound after starting

1): The over-heating protection switch blows out, please replace a new one.

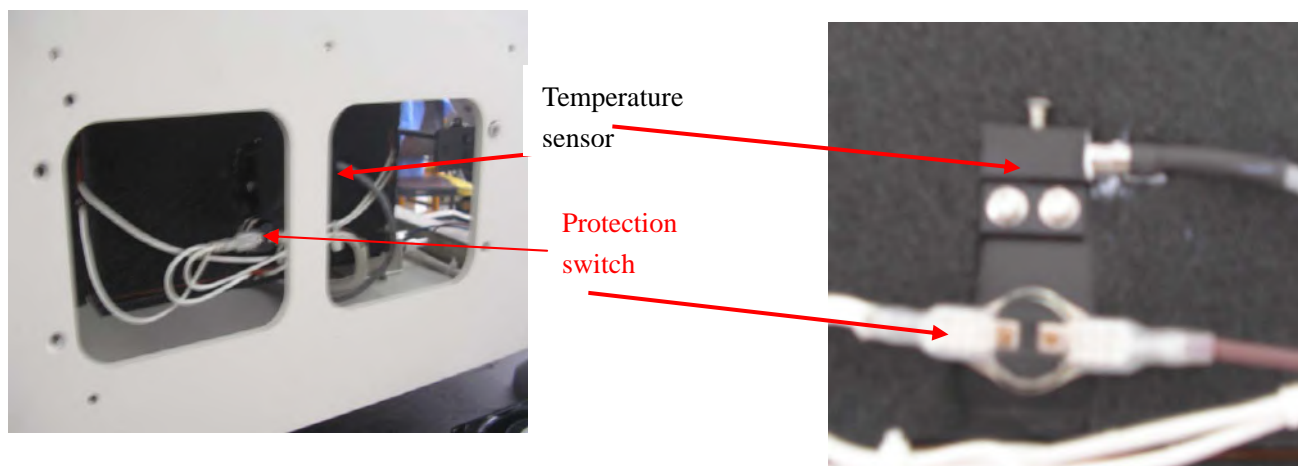


Fig4

Replacement method:

- a、 Open the right cover and you will see the over-heating protection switch of paraffin tank (as showed in Fig.4).
- b、 Then pull the over-heating protection switch out, and change it.

2): Over-heating protection of paraffin tank, the initial set temperature is 65°C, but the measured temperature is not in control, and uprise to 90°C , the machine will be constant sounds to protect the machine.

Cause: the solid state relay is damaged.(as showed in Fig3)

Replacement method: loosen the sixteen screws on the rear cover by using cross screwdriver,and take down the rear cover, you will see a box in the right of the machine(as showed in Fig 5), and then loosen the four screws on the box and open the cover , and then loosen the fixed screw on the mainboard and take the mainboard down, and then change the damaged solid state relay.

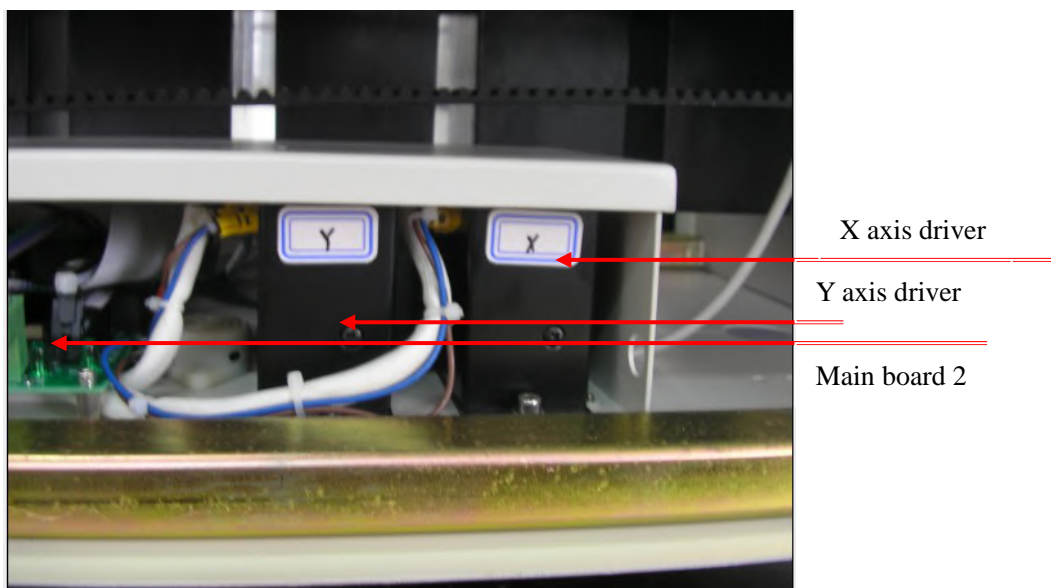


Fig 5

**5.3、 The basket Shivering on the top or the bottom when running up and down.**

Incorrect Operation: On the machine automatic running, presses key Standby to pause, and then presses Manual to remove the hanging basket. Please note: If continue to run, the hanging basket must return to the standby position. If the hanging basket didn't return to the position, presses Run while the motor will out of control and hanging basket will vibrate on the up or down position.

**5.4、 hanging basket getting stuck**

- 1): Tank cover is unable to open while the hanging basket move to the tank, because of tank cover's small pulley depresses , and then its not reset (Open the beam on the cover to be able see)



Maintenance Method:

- a、 The tank cover rotation place has obstacle, cleans out them.
- b、 Broken Spring, please replace it( As shown on the Pic.)

- 2): The tank cover is unable flexible to open and close. The opening cover will be depressed when the hanging basket move into the next tank because of the opening cover don't close as rule, so the hanging basket gets stuck

Maintenance Method:

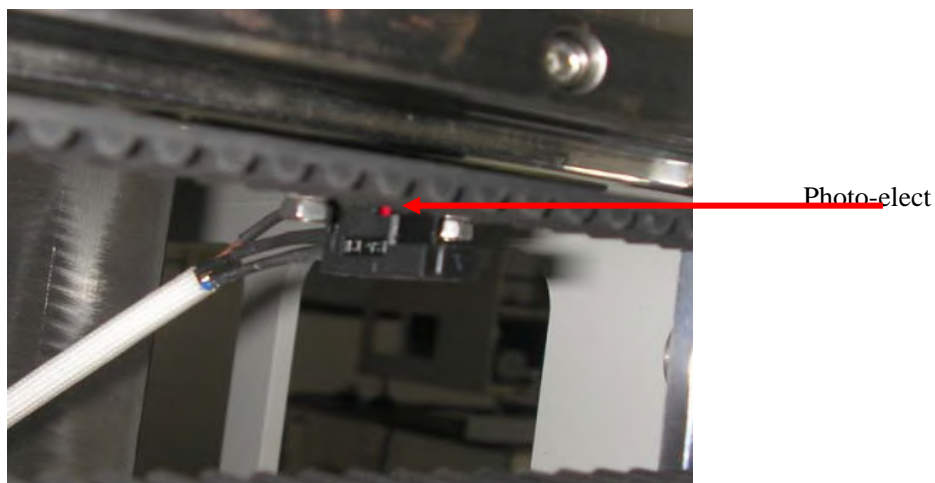


Correct the two fixed columns on the two end of tank cover to make the flexible cover.

3): Hanging basket getting incline or stuck when move into the next tank.

Observe and make sure the hanging basket and basket's backbone is vertical firstly, if confirm, please open the rear cover board to view the photo-electricity switch incline or not(As shown in

Fig6) .



### 5.5、Machine don' t heat up when running normally

1): One of the four wax tanks ( wax tank position at 11、 12、 13、 14 tanks ) melts the paraffin slowly, because it has something in the bottom or the wax tank incline.

2): LCD screen shows the test temperature 99°C ,but the machine don't heat up. Make sure the temperature Sensor is damaged.

3): Solid State Relay is damaged

Inspection Method: In the state of Power off, please direct the multimeter to resistance grade and test the two pins on AC current output of solid state relay. In the normal state, it is open circuit with infinity resistance, if measured zero, we can judge the resistance with short circuit in the two pins and the solid state relay is damaged, please replace it.

Maintain method is the same as it is showed above.

4): Damaged controlling IC needs to replace a new mainboard. Open the front board( there are four fixed screws on the top and four on the bottom) and you will see the mainboard which is united with the LCD and then take the mainboard down to change it .

5.6、 Single tone sounds happened about 2 seconds interval after machine starting or during running process, but LCD screen display ,self-motion and hand work are well.

Causes: In the state of no electricity connected , UPS works which causes the single tone sound ring.

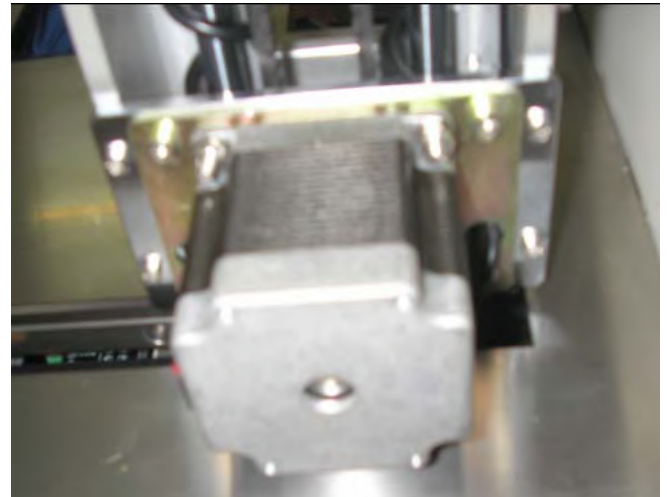


## Better histology , Better life from health

- 1): Electricity is cut off suddenly in the machine running process( Power failure accident)
- 2): Check the power cord connection well, if not, please inserts power cord to the socket again.
- 3): Check 5A Fuse not blow out.

### 5.7、 he hanging basket is out of order on up and down or left and right movement

- 1): Stepper Motor is damaged (As shown on Pic.),change the motor
- 2): Motor is damaged.



**X axis motor Fig7**

**Y axis motor**

### 8、 After machine starts, the temperature shows non-digital sign

Causes: Temperature Sensor is damaged.

Replacement Method: refer to the way to change temperature protection switch.

### 9、 After machine starts, all functions out of order except Fan.

2A fuse is broken, please replaces it .

### 10、 Double sound ring discontinuity happened.

Causes: The hanging basket gets stuck currently.

- 1): If status at manual running, please press key Standby to pause and press Restart to Exit.
- 2): If status at automatic running, the system will inspect two times about up and down.

When the system confirm basket getting struck, the basket moves to the first tank while buzzing Sound ring and LCD screen shows getting stuck. Please press key Standby to pause and press Restart to Exit.

### 11、 Fan doesn' t work

Causes: Fan is damaged.

Maintenance Method: Loosens 16 pieces of screw on the back cover with cross screwdriver and takes down the back cover, obviously two fans insides(As shown on fig8), takes off the bad fan and replaces a new one.

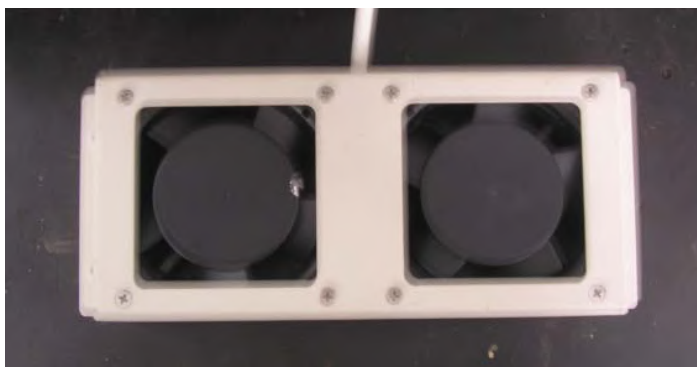


Fig 8

## 12、 Tank cover is unable to open or close

- 1): Tank cover rotation place has obstacle, please clean up them
- 2): Broken Spring, please replace it.



Note: make sure that connect the machine to power supply, and switch the machine on when operate the machine. Otherwise, the machine will run by UPS, and it is easy to exhaust the electricity in UPS and damage UPS and need to change a new one.

Published by:



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