

User Manual
Tissue Processor
TSJ-1A

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Brief Introduction

TSJ-1A automatic tissue processor belongs to the pathology equipment range. It has following features:

1. Microcomputer controlling of the whole operating process so as to ensure operating convenience and working stability;
2. Tissue basket relocating controlling perch enabling the tissue to be put in any jar;
3. Electricity protection and obstacle protection functions;
4. Agitation dehydrate mode to guarantee the complete mix and contact with the tissue, solvent and paraffin so as to achieve good dehydrate effect;
5. Range of time settings:
 - Max delay time : 59 hour 59 minute
 - Min distance of time setting: 1 minute
6. Constant temperature controlling system adopted on the paraffin jar to ensure high precision of temperature controlling, TEFLON coating on the internal surface
7. Standby power source.

I Name and function of each part

1.Obstacle detector

It's in the jar position just ahead of that of the tissue basket. If any obstacles (e.g. the paraffin in the paraffin jar hasn't melted) is met during changing relocating tissue basket into another jar, the obstacle detector will be lifted and generate fault signals. An alarm and warning of "POWER FAILURE!" will be shown.

2.Relocating controlling perch

When the tissue basket is lifted up, pull out the relocating controlling perch by hand. The top cover and the tissue basket then can be manually pulled to another jar position.

Notice: Once the corresponding jar position is reached, put the perch into the locating slot insure the exact position.

3.Paraffin jar

The paraffin jar is an automatic constant temperature controlling system with temperature controlling accuracy of $\pm 5^{\circ}\text{C}$. It is preset to be 70°C . During heating the red indicator lights up while the state indicator lights up when the jar is powered off. The tuning knob above the indicator is temperature tuning knob. The temperature will get higher when tuning it clockwise and vice versa. It is recommended not to tune it if there is no special temperature requirement.

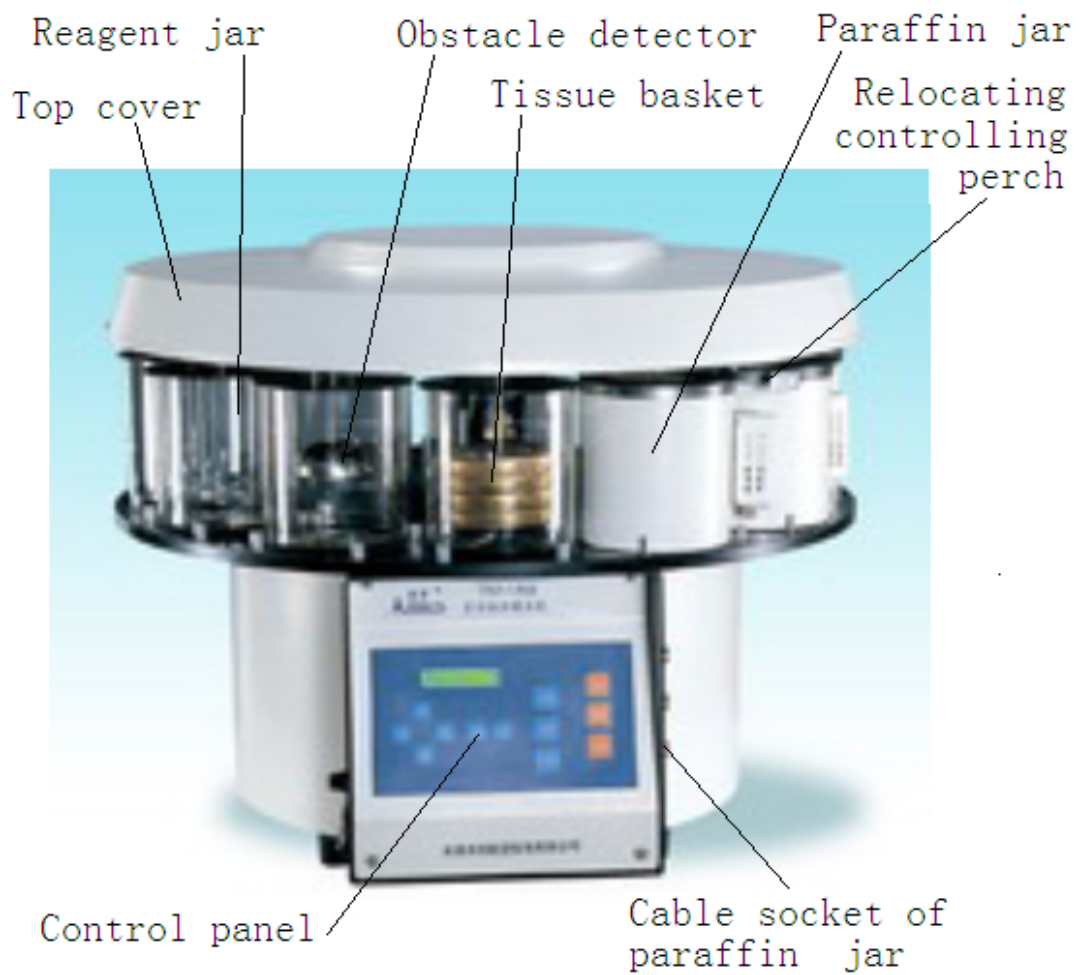


Figure1. Name and function of each part

4. Controlling panel

It is used to set operating parameters, display the working data and control operating state of the equipment.

II Controlling panel

1. Controlling keys

They are **AUTO, PAUSE, MANUAL.**

- a) Press “AUTO” key, the equipment will start dehydrating by the preset timing (**Notice:** If the timing of this item gets amended after certain item in the timing table gets into operation, the program will still operate according to the former timing. This amendment will not be valid for this cycle of dehydrating unless shutting off the machine and then restarting it. The timing alteration for the items after this item is valid for this cycle of dehydrating operation.)
- b) “PAUSE” key: press this key the equipment will pause dehydrating or tissue basket relocating operation. The timer will also stop timing.
- c) “Manual” key: press this key the equipment will always be in forward going tissue basket relocating state. The timer will stop timing under such state. Then press the **PAUSE** key, the tissue basket will be suspended in any possible position.

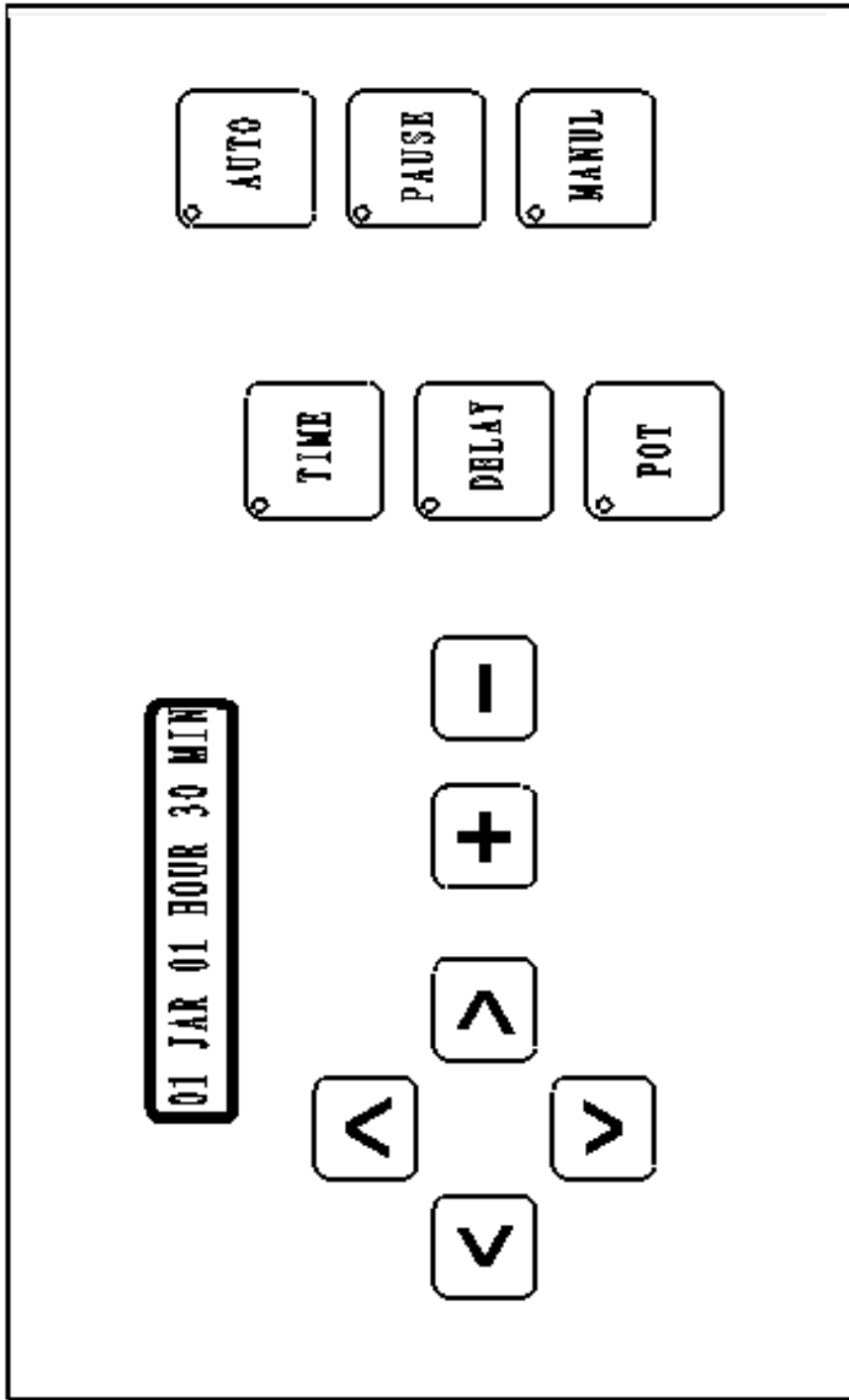


Figure2. Controlling panel

2.Setting key (only effective when equipment is under pause state)

- 1) **Function setting:** they are function, delay and current jar
 - a) **TIME key:** this key is for setting the dehydrating time in each jar position.
 - b) **DELAY key:** DELAY refers to delaying to enter into dehydrating operation. If the delay time is not set to be zero, the machine enters into delay working state after “AUTO” key is pressed. The current jar will not enter into automatic dehydrating working until the delay time is out.
 - c) **POT key:** POT refers to the jar position from which the machine begins automatic dehydrating operation.

Notice: In operation, keep the current jar number consistent with the jar position the tissue basket is in. Otherwise the actual dehydrating time will not be consistent with the preset time.

- 2) **Parameter setting:** they are “<”, “>”, “^”, “v”, “+”, “_”
 - a) “<” hour timing key: press this key to make “+”, “_” operation on the hour digit.
 - b) “>” minute timing key: press this key to make “+”, “_” operation on the minute digit.
 - c) “^” jar number plus key: with each pressing on it, the jar number will plus 1.

d) “v” jar number minus key: with each pressing on it, the jar number will minus 1.

e) “+” time plus key: with each press on it, there will be addition of 1 onto the corresponding time(hour or minute) .

f) “—” time minus key: with each press on it, there will be a deduction of 1 onto the corresponding time(hour or minute) .

3) State indicator

There are state indicator on the up left of the keys of AUTO, PAUSE, MANUAL, TIME DELAY and POT. When certain key is pressed, the corresponding indicator will light up to indicate that the machine is under the operating state.

4) LCD screen

There will be display of corresponding data of current working state on the LCD screen.

5) Timing table

In the equipment a timing table including delay time during auto operation and working time on various jar position is stored. The operators can make amendment onto the timing table get it customized. The table will be stored and can be put into use next time the equipment is powered on. The timing table is shown as follows:

Table 1: Timing table

Delay time	---hour---minutes
01 jar	---hour---minutes
02 jar	---hour---minutes
...	...
12 jar	---hour---minutes

During auto operation the program will read the delay time first. If it is not 0, the equipment will enter into delay time working state. After the delay time is out or the delay time is 0, the program will access current cylinder and start auto dehydrating operation from current jar. If the timing of certain jar is set to be 0, the program will access the working time on next jar position and do the corresponding tissue basket relocating. The basket will be relocated to the next jar to work and carry out all the left preset operation.

The current jar number will also be stored. If no alteration is made, the jar number remains the same each time the equipment is powered on.

III. Equipment operating

(I) Preparation

- 1.Connecting the power supply.
- 2.Switch on power supply.

3. Add the due solvent into the glass jar and paraffin into the paraffin jar.

4. Press the MANUAL and PAUSE key to lift the tissue basket, install glass jar on the jar position from 1 to 9, paraffin jar on the jar position from 10 to 12 (depending on the requirement) and connecting the power line of the paraffin jar.

5. Install the tissue basket.

(II) Parameter setting

Do settings by the table in appendix 1 with delay time of 5 and a half hours.

(1) Set the equipment into pause state.

(2) Delay time setting.

Press delay key, there will be display on the LCD as

DELAY**HOUR**MIN

Press “>” key to make “minute” setting. Press “+” or “-”

key until the LCD has the following display:

DELAY**HOUR30MIN

Press “<” key to make “hour” setting. Press “+” or “-” key until the LCD has the following display:

DELAY05HOUR30MIN

Then the setting is accomplished.

(3) Timing setting

Press “TIME” key and the LCD will give the following display:

01POT**HOUR**MIN

The setting and alteration of timing are the same as that of delay time setting. After 01 jar setting is finished, press “^” key, the LCD will give the following display:

02POT**HOUR**MIN

Do the timing setting of the other jars in the same way until the setting for the 12 jars are finished.

(4) Current jar setting

To start from 03 jar instead of 01 jar,

- 1) Press MANUAL key and use the relocating controlling perch to put the tissue basket into the position of 03 jar.
- 2) Press POT key under pause state. Then press the “^” or “v” key to alter the number of the current jar into 03. The LCD will give the following display:

FROM 03 POT

(III) Automatic operating

Once it is confirmed that the above parameters are correct, press the auto key. The equipment will first execute the delay time instruction, then access the timing settings from the 03 jar after 5 hours and 30 minutes and execute the operations on the other

jars until the operation on the 12 jar is finished. Then the LCD will give the following display:

12POT00HOUR00MIN

The pause indicator lights up, auto indicator goes out and the equipment gives alarm tone.

(IV) Dismantle the tissue

Press the MANUAL and PAUSE keys to lift the tissue basket and dismantle the tissue. This cycle of dehydrating is finished.

IV. Handling of abnormality

This equipment can automatically recognize obstacle and power failure, and then make corresponding treatment.

(1) If the paraffin in certain paraffin jar doesn't melt due to some fault, the equipment will stop relocating the tissue basket before this jar, give alarm tone and there will be the following display on the LCD.

OBSTRUCTION!

The alarm will not be ended until the fault is cleared off. Then press auto key, the equipment will work by the preset program.

(2) Power failure

If there is power failure due to some accident, the machine will give alarm tone and there will be the following display on the LCD.

POWER FAILURE!

If the equipment is powered on once again, the equipment will make corresponding treatment according to the jar position the tissue basket is in and how long the equipment has been powered off. See in the following table.

Table 2: Handling of power failure

Powered failure time	Tissue position	Countermeasures
<10 minutes	1~9	Continue working
	10~12	
>10 minutes	1~9	Stop working until the AUTO key is pressed down.
	10~12	

V. Installing service and maintenance

1. Install the machine where there is no water splash.
2. Install it on the stable working stand.
3. Store the machine in dry environment where there is no flame or no dust.
4. Don't install it where there is chemical agent or poisonous gas.
5. Put it away from machine of high voltage and large current (e.g. Large refrigerator, drying cabinet, ultrasonic or

electromagnetic wave generating machine)

6. Connect the plug to the special socket with earthed line and ensure good earthing.

7. Cut off power supply before repairing. Open the top cover 3 Brush-Armature structure can be seen. Don't touch it because of AC220 high voltage.

8. Oil the equipment once a year to guarantee good lubricating.

9. Always power off the main power supply when disconnecting or disconnecting the quick plug of the paraffin jar power supply.

Appendix 1. Procedures for specimen treatment

	Solvent	Normal minimum treating time		
		Used in 24 hours	Used in 48 hours	Used in 96 hours
01 jar	alcohol	1 hour	2 hours and 30 minutes	5 hour 30 minutes
02 jar	alcohol	1 hour	2 hours and 30 minutes	5 hour 30 minutes
03 jar	alcohol	1 hour	2 hours and 30 minutes	5 hour 30 minutes
04 jar	alcohol	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
05 jar	alcohol	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
06 jar	absolute alcohol	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
07 jar	xylene	1 hour	2 hours 30 minutes	5 hour 30 minutes
08 jar	xylene	1 hour	2 hours 30 minutes	5 hour 30 minutes
09 jar	xylene	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
10 jar	paraffin	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
11 jar	paraffin	1 hour and 30 minutes	3 hours 45 minutes	8hours15 minutes
12 jar	paraffin	1 hour	5 hours	11 hours
Total		16 hours	40 hours	88 hours
Condition		Tissue slice:50 pieces 5 mms in thickness Stabilizing: various ways of stabilizing.	Tissue slice:50 pieces 5 mms in thickness Stabilizing: various ways of stabilizing.	Tissue slice:50 pieces 5 ~7 mms in thickness Stabilizing: various ways of stabilizing.

(Notice: this treating procedure is only for your reference. Our company will not be responsible for any consequences of this.)

Appendix 2: Major parameters

1. Tissue treating phases: 12 phases

2. Glass jar:

Number: 9

Capacity: 1.2 L

3. Paraffin jar:

Number: 3

Capacity: 1 L

Range of temperature adjusting: 45~85°C.

4. Program:

Working time on each jar: 0~59 hours 59 minutes

Equipment starting delay time: 0~59 hours 59 minutes

5. Vertically reciprocating motion of tissue basket: 30
times/minute

6. Weight: <60 kg

7. External dimension: 660mm (diameter) ×

550~680mm(height)

8. Rated voltage: 220V, 50Hz Power: 500W

Working ambient:

Temperature: 5~40°C

Humidity: <85%