

Model YR431
Automatic Tissue Processor
Instruction Manual

Thank you very much for purchasing our Automatic Tissue Processor YR431.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.



Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.



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Important illustration

The information, data, points for attention and adjustments in the manual have reflected the latest technological level of us grasped in the field after investigations.

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We don't have the responsibilities if the illustrations, drawings and technological requirements in the manual are in contradiction to the laws of the country the user is domiciled. Particularly, our company don't have the responsibilities for the damages or destructions of the machine for applying with the illustrations in the manual (on other aspects).

The illustrations, drawings and technological requirements in the manual don't represent the guaranty from the company on the characteristics of the product. Only the items specified in the contract are legally effective.

Kalstein France is entitled with the rights of altering the technological characteristics and processing technics, without the obligations of notification in advance. Thus, in this way we can improve ourselves and make the progress on our technology.

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Please refer to the nameplate on the back of the instrument for the serial number and manufacturing date of the instrument.



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3. Safety Regulations of Instrument

- When the instrument is at work, if use the inflammable goods, please pay attention to safety.
- *If do not use the instrument for a long time, pull out the plug and cover the dust enclosure.*

Do not add reagent when the instrument is working, in addition, make sure there is no reagent flow into the instrument when inject the reagent.

- Do not add reagent when the instrument is working, in addition, make sure there is no reagent flow into the instrument when inject the reagent.

- place the instrument steadily, and inclination shouldn't exceed to 5°

- Do not take the solid object to touch the display screen.

- △ Only the power line along with the instrument can be used for connection, and the power supply should be earthing well.

- △ use separate socket for supplying power to avoid interference

- △ Before replacing the fuse, close the main switch and pull out the plug, then replace the fuse with the same model and spec, you may refer to the technical parameter for the concrete model and spec.

- △ We strongly advise you to use the mounting dehydration basket provided by our company.

- △ When clean the instrument, must close the main switch and pull out the attaching plug.

- △ The instrument may not be placed near the flammable and detonatable objects.

- △ *The acet. and xylene organic solvent is not allowed to clean the surface of the instrument.*

- △ The liquid may not overbrim the bath during the processing, and the liquid reagent just immerse the specimen is OK.

- △ The instrument could only be repaired by the technicians authorized by our company.

4. Brief

YR431 Automatic Tissue Processor is an equipment that could automatically perform



fixing, dehydrating, transparency and wax immersing treatment on specimens of human beings, animals or plants. It's widely applied in pathologic departments of various hospitals, pathologic teaching offices of various medical colleges and universities, animal and plant scientific research units and food inspection departments.

- The machine body is spray coated with APS engineering plastic, high intensity, anti-corrosion, fluent line, elegant appearance, easy to clean

- 20 sets of programmed procedures, broad screen finger-touched LCD. With man-machine dialogue, prompt identifying can be made in abnormal situation to make sure each operation can be indicated (online help)

- LCD indicate running situation, adopted with imitated sync graphic display to make operation process perfect

- Environment-friendly inner circulated air cleaning system, absorb, remove, decompose toxic and harmful gas in the instrument

- Randomly setting timing of starting up and automatically showing finish time, make sure task is finished in stipulated time

- 0~90seconds adjustable time of dropping liquid, basket whisking once exchange jar to avoid liquid run from one jar to another, in this way, prolong service time of liquid reagent, avoid dirty on the table

- 0~6times /minute adjustable stirring times (0 shows no-stirring), make sure all tissues immersed thorough, evenly and completed enough

- Once power-off, protecting jar (No.1—No.7 jar) can be set, position of protecting jar can be adjusted as required

- Self-control fan, it automatically starts up once basket goes up, as basket goes downwards; fan works 10second in one minute

- Self-control illuminating lamp, it starts up in programming; touch any key to prolong 2 minutes as the instrument is running

- Waterless inner heating, high precision of controlling



- Low energy-consuming control circuit, self-protecting once power-off; display panel is still illuminated and scrolling panel indicates its self-protecting situation as power-off, and time of running is more than 30 hours
- After running, randomly hand-control can be made to check or add other issues
- More than 130 pieces of tissues can be processed one time

5 Main technical parameters

- Numbers of jar: 12(No.10、 11、 12 are wax dispensing jar, Others are reagent jar)
- Volume of each jar: 2000ml
- Range of temperature control: Ambient~90°C
- Precision error: $\pm 1^{\circ}\text{C}$
- Processing time of each jar:
 - 0~99hours (No.1 jar)
 - 0~24hours (No.2~No.12 jar)
- Time of exchange jar, dropping, whisk: 10~90s(adjustable), and dropping, basket whisking work above jar
- Times of basket whisking 0~6times /Minute(adjustable)
- Protecting jar of Tissue: No.1~No.7 jar(adjustable)
- Voltage: AC110V / 60Hz
- Power: approx. 500VA
- Dimension: approx.1170×465×535mm
- Weight: approx.88kg

6 Box opening and instrument mounting

- Check whether or not the machine was damaged obviously, pls contact with your shipping agent when any damage is found.
- Firstly, open package carton, then take out operation manual and accessories.
- Carry the instrument (together with protection cover), you're advised to use original packages as the instrument need to be transported safely
- Taking out protection cover, place the instrument on level lab table.

⚠ the instrument mustn't be put in the place which is explosive and poisonous condition.

- the machine should be mounted near to the grounding socket to connect the power line anytime

7 Startup

⚠ The instrument should be connected with power line along with grounding socket.

- The instrument can be only connected to exhaust duct.
- Before connecting to power, check the switch see if it's at the position:" 0".

△before connecting to power, insert power plug, then insert the other end into socket in the lab.

- before switching on, check whether any part is connected well.

8 Usage and steps of operation



8.1 Sketch of the model:

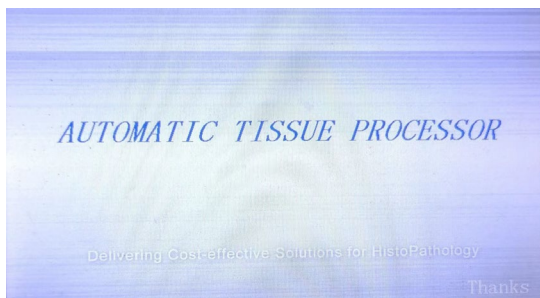
8.2 Abbr. in the text and their meanings

- "PROG" means making programming progress
- "Run" means status of working procedure
- "SET" means forming procedure as you need
- "HETP" means user's guiding instruction
- "Manual" means operating manually by hand-touch

8.3 Steps of operation

- Power on turn on the "power switch", reset the driving mechanism of the instrument and run it to the position of the first cylinder. (1) power on and reset the LCD screen to display

the interface (Fig. 1). After the instrument is initialized, the display will enter the interface (Fig. 2) (screen protection picture switching background).



(Picture 1)

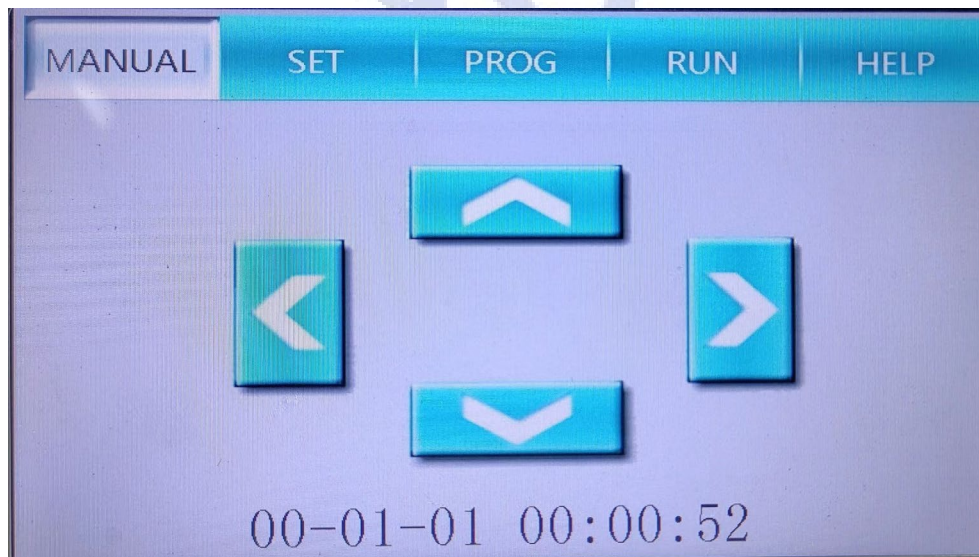


(Picture 2)

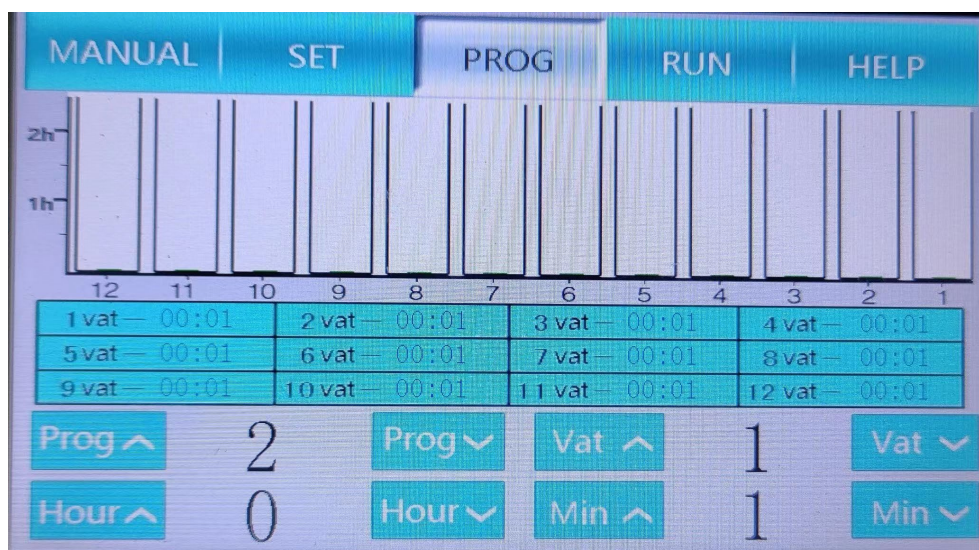
●After the initialization, the instrument displays the main list (Figure 3) and can perform the operation of each step

Touch the programming key to enter the editing interface, as shown in Figure 4

For program adjustment and programming, directly press "program ▲" or "program ▼" to select the program value, 20 sets of optional programs, and then press the cylinder number key "cylinder number ▲" or "program ▼" to select the cylinder position, time adjustment and minute adjustment, and directly increase or decrease the number of "hour ▲" or "hour ▼" and "minute ▲" or "minute ▼" in the selected position.



(Picture 3)

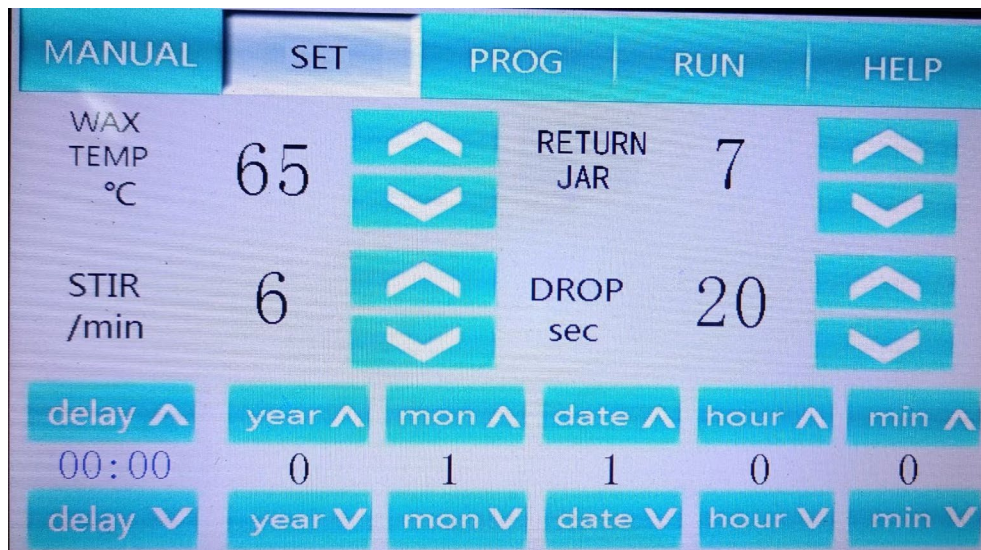


(Picture4)

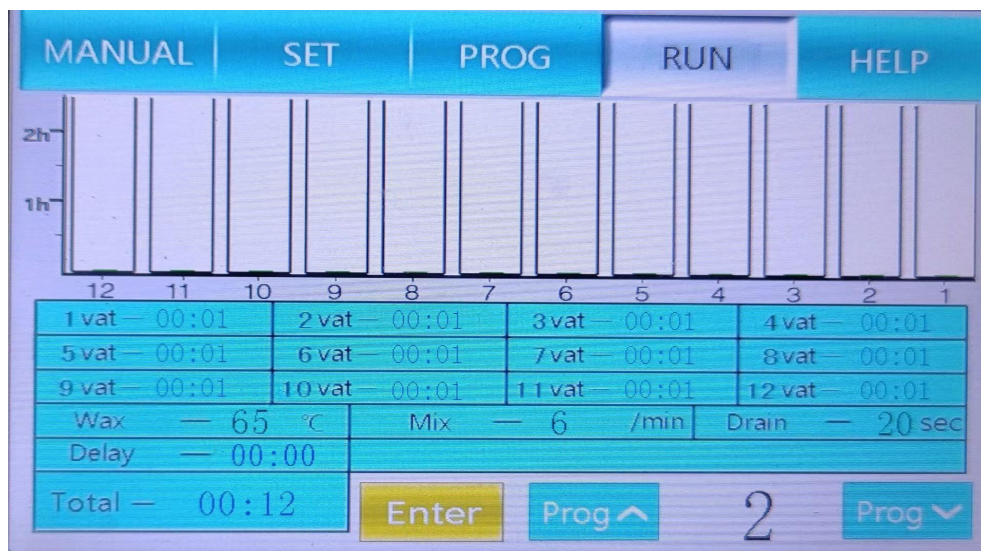
- After editing, press the run key or set key to directly enter the selected function setting.

Press the setting key to enter the interface (Fig. 5) and touch the corresponding function "▲" and "▼" keys to directly adjust the increase or decrease of the value of the corresponding function. Among them, ① the wax temperature is adjustable from 0 to 80 °C, ② the protection return cylinder is adjustable from 1 to 7, ③ the leaching time is adjustable from 10 to 60 seconds, and ④ the stirring time is adjustable from 0 to 6 times / min. The total time and completion time are automatically generated according to the programmed time and delay time. In the setting interface, select the delay time, and the maximum preset delay is 66 hours. After the current time is adjusted, the time is automatically saved.

- At this time, if you press the run key, you will enter the interface (Figure 6)

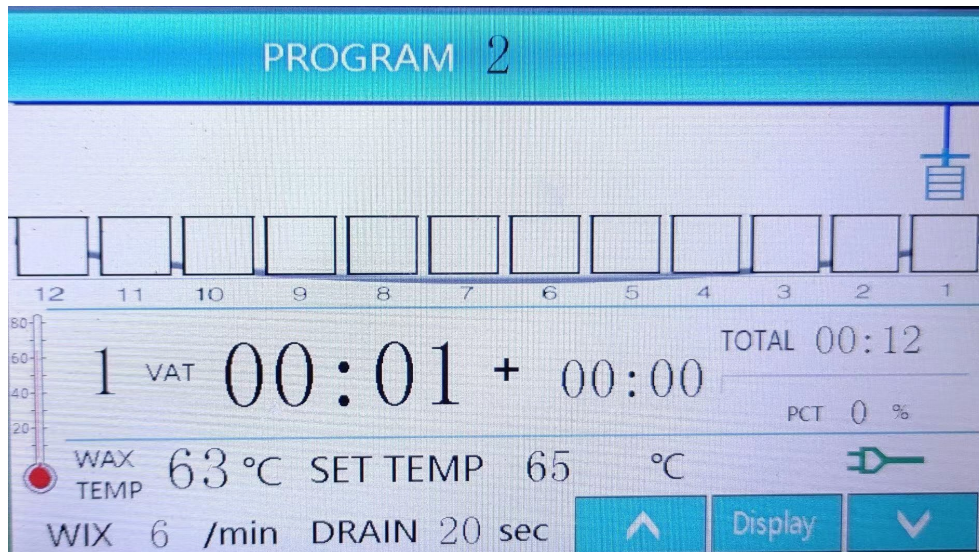


(Picture 5)



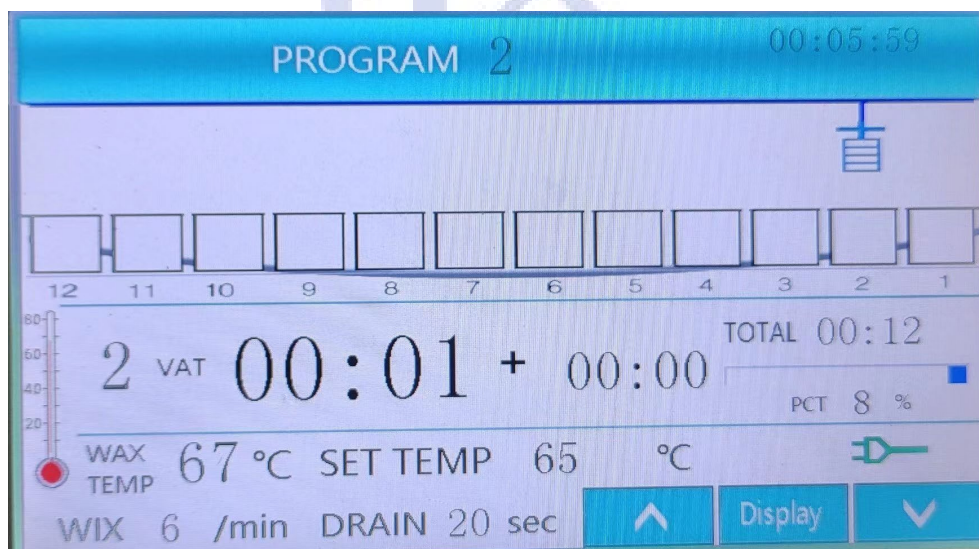
(Picture 6)

- Press the OK key to enter the interface (Figure 7) after reaching the starting cylinder, and the instrument starts to run according to the program.

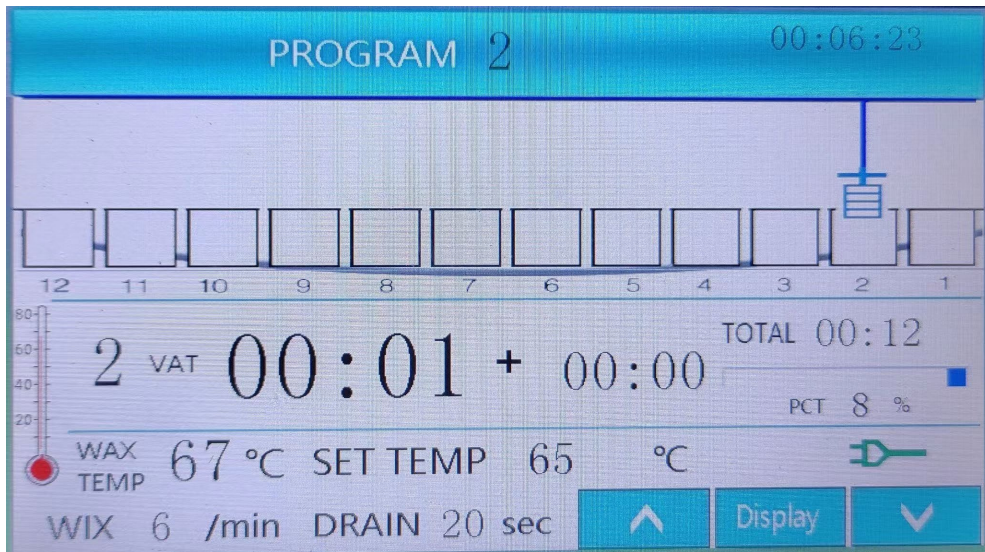


(Picture 7)

●When the instrument needs to check the organization during operation, directly press the upper cylinder button, i.e., the upper "▲" and the lower "▼" buttons on the left and right sides of the "display" button, and the interface will display (Figure 8). The upper cylinder is "▲", and the basket will automatically rise as shown in Figure 8. Press the "continue to lower the cylinder" key according to the operation prompt, that is "▼", and the instrument will return to the normal operation state, (as shown in Figure 9) :

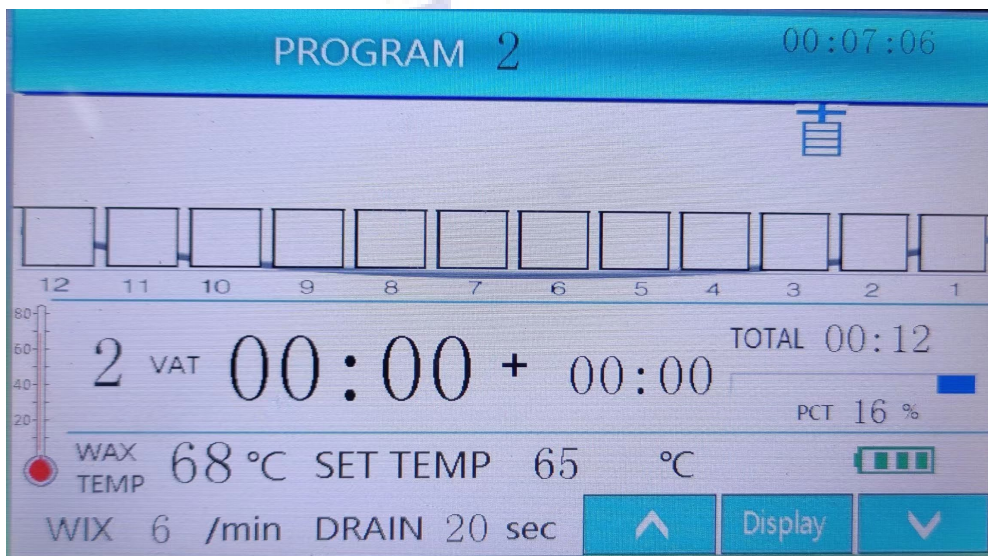


(Picture 8)



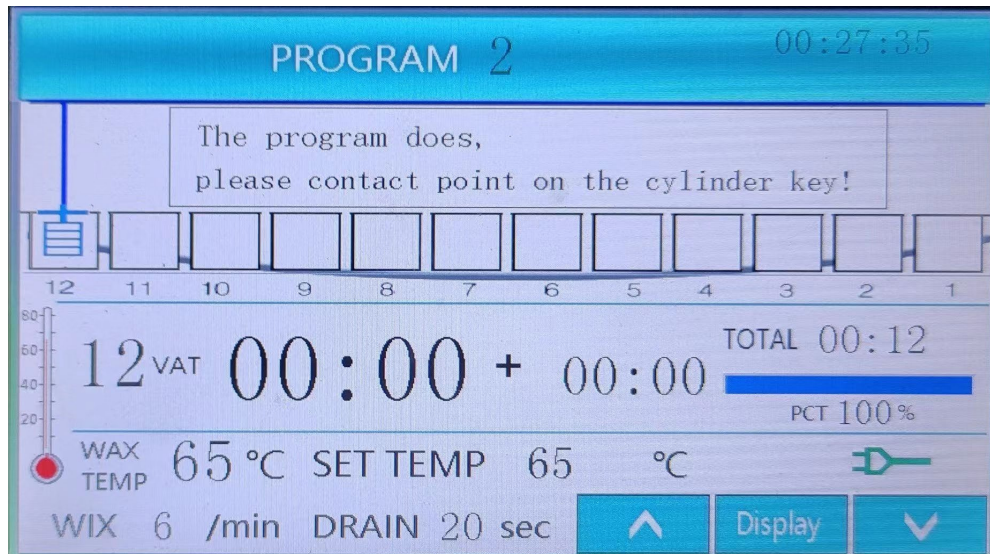
(Picture 9)

- When the instrument enters the operating state, in case of power failure, the interface will display the battery power supply icon, (as shown in Figure 10) .

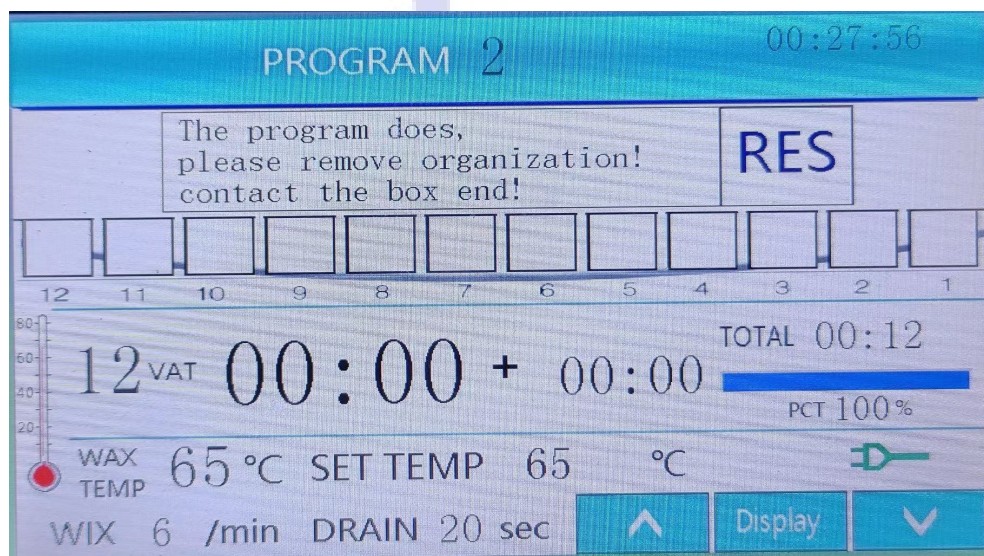


(Picture 10)

●After the program runs, the interface (Figure 11) will be displayed. Press the end upper cylinder key (i.e., the upper key "▲"), the basket will rise, and the reset prompt will be displayed (Fig. 12). After removing the tissue, press the reset button to reset the instrument automatically and return to the standby state.



(Picture 11)

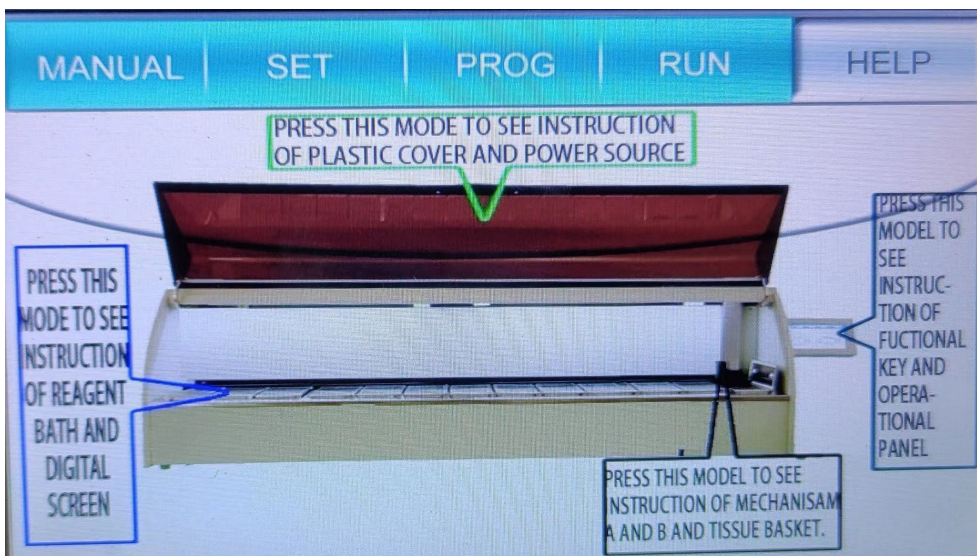


(Picture 12)

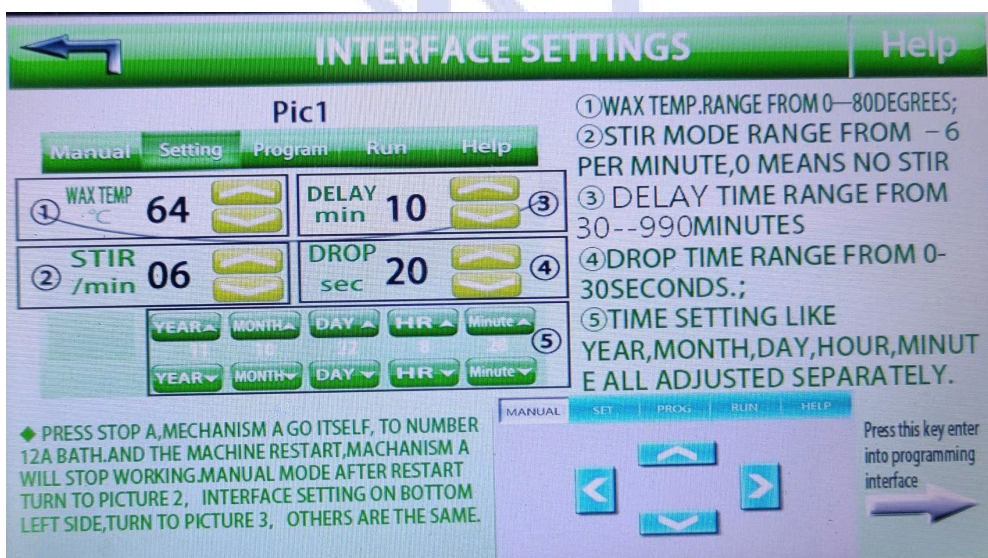
(Note: before unplugging the power cord, please reset the machine before turning off the power switch)

8.4 User guide

● Press the help key when it is not running, and the mechanism will immediately enter the help interface. Figure 13 is the help diagram in the main menu for "Introduction to the function keys and control panel operation of the system control part by pressing this box", Figure 14 is the help diagram for "setting", Figure 15 is the help diagram for "programming", Figure 16 is the help diagram for "manual", Figure 17 is the help diagram for "operation preparation", and Figure 18 is the help diagram for "operation"



(Picture 13)



(Picture 14)



PROGRAMME INTERFACE

←
Help

Pic1

Manual | Setting | **Program** | Run | Help

1st	2:00	2nd	2:30	3rd	3:00	4th	1:30
5th	1:00	6th	1:00	7th	0:30	8th	0:20
9th	0:20	10th	0:30	11th	0:30	12th	0:00

NO 02 BATH 11

HR 0 MIN 30

Pic2

Manual | Setting | **Program** | Run | Help

1st	2:00	2nd	2:30	3rd	3:00	4th	1:30
5th	1:00	6th	1:00	7th	0:30	8th	0:20
9th	0:20	10th	0:30	11th	0:30	12th	0:00

NO BATH SELECT PROG
1-20 sets of programs, select

BATH ELECT BATH
Select the program, choose 1-12 cylinder

HR MIN SELECT TIME
SET THE TIME AFTER SELECTING BATH NUMBER, TIME CAN NOT EXCEED TO 23H59M

PICTURE 2 SHOW BATH NUMBER AND TIME.
IN PICTURE 2, DIAGRAM SHOWS BATH NUMBER AND TIME, X IS BATH NUMBER, Y IS SHOWING TIME IS 2HOUR AND 30MINUTES, WHEN TIME IS OVER, THE DIAGRAM WILL FULLY DISPLAY.

Press this key enter into setting interface →

(Picture15)

Manual interface

←
Help

Pic1

MANUAL | **Setting** | Program | Run | Help

Manual | **Setting** | Program | Run | Help

THIS IS FUNCTION KEY, PRESS ABOVE ANY KEY TO ITS OPERATIONAL INTERFACE, LIKE MANUAL ; SET ; PROGRAMME ; RUN ; HELP

Press this key enter into setting interface →

- ◆ THE SCREEN OF TISSUE PROCESSOR MADE OF 5FEET TFT COLORFUL TOUCH SCREEN.
- ◆ WHEN MACHINE TURNED ON, IT TEST ITSELF, MECHANISM A, B RETURN TO 1B BATH AND 1A BATH (PICTURE 2), THEN SYSTEM GO TO MANUAL INTERFACE (PICTURE 1)
- ◆ IN MANUAL INTERFACE, MECHANISM A AND B CAN BE HANDLED BY MANUAL MODE.

ATTENTION: 1. WHEN MECHANISM A OR B RETURN TO THE BATH, IT CAN NOT GO DOWN, FOR THE COVER OF BATH IS NOT OPENING.
2. WHEN BOTH MECHANISM WORK TOGETHER, IF A GO BACK, MECHANISM B CAN NOT GO TO FRONT.

(Picture16)

Ready to interface

←
Help

Pic1

Manual | Setting | Program | **Run** | Help

1st	2:00	2nd	2:30	3rd	3:00	4th	1:30
5th	1:00	6th	1:00	7th	0:30	8th	0:20
9th	0:20	10th	0:30	11th	0:30	12th	0:30

WAX TEMP: 64 °C STIR: 06 x/MIN DROP: 20 SEC
DELAY: 10 MINS
TOTAL: 13:40

ENTER NO 02 NO

Pic2

Manual | Setting | Program | **Run** | Help

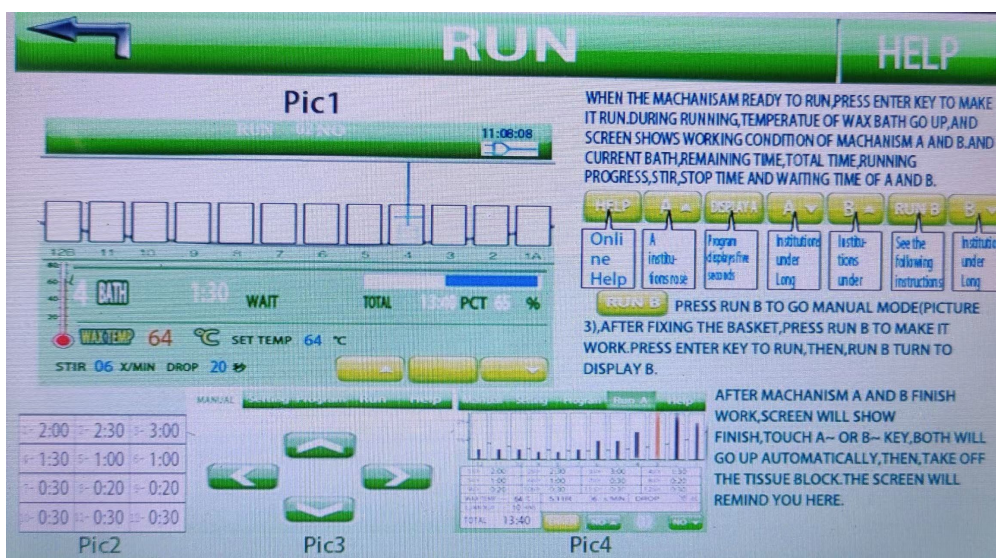
1st	2:00	2nd	2:30	3rd	3:00	4th	1:30
5th	1:00	6th	1:00	7th	0:30	8th	0:20
9th	0:20	10th	0:30	11th	0:30	12th	0:30

◆ IN RUNNING INTERFACE, MECHANISM A WORK AUTOMATICALLY. (PICTURE 1) SELECT RELATED MODE, THE DIAGRAM WILL SHOW ITS WORKING PROGRESS. THE INTERFACE SHOW WORKING PROGRESS OF WAX TEMP, STIR, STOP TIME AND ILLUMINATION DELAY. TOTAL MEANS ACCUMULATED VALUE OF WORKING TIME. PRESS ENTER KEY TO MAKE IT WORK AUTOMATICALLY. MEANWHILE, THE SCREEN WILL SHOW THE WORKING CONDITIONS.

◆ WHEN MECHANISM A STOP, THE SYSTEM WILL GO TO WORKING CONDITION OF PICTURE 2 DISPLAY AND SETTINGS OF OTHER PARTS SAME AS PICTURE 1, ATTENTION: WHEN MECHANISM A STOP, PLS CONFIRM A STOP INTO NUMBER 12A BATH.

Press this key enter into running interface →

(Picture17)



(Picture18)

Note: after the operation, if it is not necessary to continue working, reset the machine first and then turn off the power switch of the instrument.

Attention:

- As number of jars is adjusted to "0", as procedure works, Mechanical arm will skip this jar to do the next step.
- As procedure is completely pre-set, it will be automatically memorized and saved. If you don't need to re-set the program, just press "RUN" button to let it work automatically.
- In case of power off once the machine is running, it can still work for 30 hours.
- As temperature of Wax dispensing jar is lower than wax melting point, the mechanical arm won't whisk
- Carefully and properly hang the dehydration basket to avoid block once it goes into the jar. Use "Manual" mode of operation, press upward button, the mechanical arm goes up, after it stay upwards steadily, you can hang the dehydration basket.
- Working after power off shouldn't exceed to more than 30 hours. Each time after you pull out the power line, you should make charged.

Ways of charging: As power is on, switch on, time should prolong to more than 10 hours, As the machine is working, it can automatically charge, time of charging is not less than 15 hours.

9 Caution in usage

- When the instrument is at work, if use the inflammable goods, please pay attention to safety.



- *If do not use the instrument for a long time, pull out the plug and cover the dust encloser.*
 - Do not add reagent when the instrument is working, in addition, make sure there is no reagent flow into the instrument when inject the reagent.
 - place the instrument steadily, and inclination shouldn't exceed to 5°
 - Do not take the solid object to touch the display screen.
- △ Only the power line along with the instrument can be used for connection, and the power supply should be earthing well.
- △ use separate socket for supplying power to avoid interference
- △ Before replacing the fuse, close the main switch and pull out the plug, then replace the fuse with the same model and spec, you may refer to the technical parameter for the concrete model and spec.
- △ We strongly advise you to use the mounting dehydration basket provided by our company.
- △ When clean the instrument, must close the main switch and pull out the attaching plug.
- △ The instrument may not be placed near the flammable and detonatable objects.
- △ *The acet. and xylene organic solvent is not allowed to clean the surface of the instrument.*
- △ The liquid may not overbrim the bath during the processing, and the liquid reagent just immerse the specimen is OK.
- △ The instrument could only be repaired by the technicians authorized by our company.


10 Problems and elimination

No.	Problems	Causes	Elimination
1	No power indication	Fuse was burnt or power plug isn't connected well	Change fuse or power line



2	Once switch off, pre-set program is missing	Memory battery was broken	Change battery
3	Temperature of wax dispensing jar doesn't change	Heating appliance was broken	Change heating appliance
4	Electrical shock from the enclosure	Grounding wire isn't or connected well	Add grounding wire
5	Time program can't be set	Buttons on the panel are broken	Change panel
6	The startup boom moves to the right (normally, the startup boom rises to the high position and then moves to the right to the first cylinder)	Vertical sensor fault	Measure the photoelectric sensor data of the vertical sensor. If $> 0.1V$, please replace. If $\leq 0.1V$, it is normal
7	The start-up boom rises to the high position but does not move to the right (the vertical guide rail is not at the first cylinder position)	First cylinder sensor fault	replace
8	When moving the vertical guide rail or pressing the left and right keys, the vertical guide rail does not stop	Single cylinder positioning sensor fault	replace
9	The motion mechanism is weak and noisy	Motor phase missing or electric control problem	Check the motor and measure 3717 in the electric control drive circuit
10	Trembling when the boom rises or falls	The toothed belt in the vertical guide rail is missing teeth or the plastic double gear in the vertical guide rail movement mechanism is damaged	replace

11	The vertical guide rail does not move left and right, but there is motor noise	The wire rope in the transverse motion mechanism is broken	replace wire rope
12	The cylinder head on the table panel is not opened or closed properly	Problem of cylinder head uncovering mechanism	Check the return spring and torsion spring in the cover lifting mechanism and adjust or replace them
13	The display screen is not clear	Circuit board problem behind the display screen	Adjust the 103-precision adjustable resistor on the circuit board
14	The button doesn't work	Touch screen fault	Check the touch screen board and connecting line socket

 The technical data necessary for product maintenance shall be provided by the company to authorized and qualified maintenance organizations.

11 maintenances

- the machine shall be placed in a relatively fixed position with good grounding and ventilation measures.
- the instrument shall be regularly maintained every week (the cylinder head spring shall be lubricated every week) and the instrument shall be kept clean.
- When cleaning, turn off the machine first, disconnect the power socket, and clean the instrument surface with ordinary detergent and clean, soft cloth. No detergent is allowed to flow into the instrument during cleaning.
- Before replacing the fuse, turn off the main switch of the instrument and unplug the power cord socket. When replacing the fuse, only the fuse with the same model and specification can be used. Please refer to the technical parameters for the model and specification of the fuse.
- the service life of the machine is 8 years under normal use and maintenance

12 transportation and storage

- This machine should be stored in the clean and airy indoor places with the relative humidity under 80% and be kept far from the caustic gas.
- Handle in care, avoid wetting, and place upward.

13 Appendix

- Product Alteration

Kalstein France reserves the rights of altering the technological parameters of the product without notifying in advance, because the instruments required to face to the alteration and improvement for technological progress.

- Warranty Period

Kalstein France guarantees that all instruments manufactured by the company have been strictly and comprehensively checked on quality to guarantee the compliance with the technological standard.

The warranty conditions will be up to the KALSTEIN sales agent responsible to you. The warranty period is only valid for normal usage according to the specified conditions for the instrument and the circumstances of following the various regulations specified in the operational instruction manual.

Warranty terms are not applicable for the damages caused by misuse or improper operations of instrument and our company is not responsible for the above-mentioned damages either.

- Discard and Disposal

The discarded instrument or parts of instrument shall be disposed according to the existing relevant and effective laws and regulations.

We are pleased to offer you an environment-friendly disposal plan when you need to dispose the discarded YR431.

- User's Service Information

Please contact the sales representative of KALSTEIN or the sales agent once sold the instrument to you if you require any service or parts during the warranty period. Please inform the instrument model, serial number and supply time. Kalstein France doesn't accept any rejection of goods without any formal permission for rejection of goods.

Please pay attention to the following items if you will deliver the instrument back to KALSTEIN:

a. The instrument or parts shall be disinfected or radioactive elimination treatment before sending back if viruses or radioactive substances have been connected with the instrument or the parts. Our user's service technician will be assigned to check this out clearly.

b. If you are sure that the instrument or parts are free from any radioactive or dangerous viruses, please get the suggestions on the possible methods for disinfection and radioactive elimination from your KALSTEIN representative. The instrument or parts will be directly sent back to the customer under the customer's expenses if possible infection dangers are still existed on the instrument or parts upon the arrival of the KALSTEIN representative.

Please tell us the following information if you require technical services:

Model and serial number.

The place where the instrument is located and the contact person.

Reasons for service request.