



**ATP 140**

**Tissue Processor  
Operation Manual**

AMOS SCIENTIFIC PTY.LTD. ABN:37 159 778 140

[www.amos-scientific.com](http://www.amos-scientific.com)



# Foreword

**Thank you for purchasing our ATP 140 Tissue Processor. Presented in this 《Operation Manual》 are the functions and operation method of the ATP 140 Tissue Processor and the matters needing attention concerning safety. Please carefully read this manual before use so that you can understand its performance better and make full use of the functions. If you have any questions, contact us and we will provide satisfactory service for you at any time.**

**Please keep this 《Operation Manual》 appropriately for later consultation.**



# Contents

<b>1. Safety Matters.....</b>	<b>1</b>
<b>2. Application.....</b>	<b>2</b>
<b>2.1. Technical Parameters and characteristics.....</b>	<b>2</b>
<b>2.2. Distribution of Liquid Tank.....</b>	<b>4</b>
<b>2.3. Structure Breakdown Diagram.....</b>	<b>5</b>
<b>3. Operation Guide.....</b>	<b>6</b>
<b>3.1 Key instruction.....</b>	<b>6</b>
<b>3.2 Screen LCD display instruction.....</b>	<b>9</b>
<b>3.3 Operation.....</b>	<b>11</b>
<b>4. Trouble shooting .....</b>	<b>13</b>
<b>5. Maintenance .....</b>	<b>14</b>
<b>6. Schematic Diagram.....</b>	<b>18</b>
<b>7.Wiring Diagram.....</b>	<b>20</b>



## 1. Safety Matters

● Please read these explicit rules. Act in violation of them can affect normal operation of the equipment, cause damage to the equipment or result in danger.



Use 220VAC $\pm$ 10% at50HZ or 110VAC $\pm$ 10% at60HZ



The input power supply must have good earthing



The equipment should be installed far away from flammable and explosive objects



Don't open the equipment without authorization to prevent high voltage shock



Only professional maintenance worker are allowed to repair this product



Use fuses with correct capacity



Ensure that the power socket and circuit are able to bear at least two times of its rated current.



The equipment should be installed far away from any interference source

■ **Electrical Protection Ratings: I class, B type**

■ **Baleful liquid Leak-in proof degree: Normal (enclosed equipment without liquid leak-in proof)**

■ **Working system: Continuous running**

### ● Installation environment

(1) More than 20cm of space around the equipment for heat dissipation.

(2) Free of water-drop ,steam, dust(including oily dust and flying dust)

(3) Free of corrosive, flammable and explosive gas and liquid

(4) Firm and without vibration

(5) Free of electromagnetic interference

(6) Ambient temperature and relative humidity at 5℃—+45℃ and less than 90%,respectively

### ● Delivery inspection

Although the product has already been inspected before leaving the factory, the following inspection is necessary atdelivery because may be damaged and accessories get missing caused by careless handling during transportation.

(1) Open the packing boxes and check the contents to make sure thatthereexistthe product, operation manual, certificate, packing list and accessories.

(2) Check the nameplate to make sure that the product is the one you ordered.

(3) Make sure that the product and accessories do not get damaged or missing during transportation.

## 2. **Application**

ATP140 Tissue Processor is an apparatus used for routine processing of animal, plant and human body tissue. It has two hanging basket and can run two program at one time. The processor uses CPU microcomputer control system, UPS device for protection from power cut and LCD. It has complete functions, reliable performance, high degree of intelligence and is easy to operate. It can be widely used in such institutions as hospitals, scientific research institutes, universities and judicial departments for clinical pathological analysis and research on animal and plant cells.

### 2.1 **Technical Parameters and characteristics**

- Quantity of hanging basket: 2  
(Each basket can hold 72 standard embedding cassettes (42x29x6mm(L\*W\*H)) ) .
- Quantity of liquid tank: 10
- Quantity of paraffin tank: 4 ( at the last four tanks)
- Capacity of tank: 1300ml
- Tank is made of Special Plastic material by mold
- Retention period in each tank: 1 minute~99 hours and 59 minutes(it can be set at will but the time period for second running basket should not catch up the first running basket during the program is enforced.
- Environmental protection: it uses active carbon in the instrument to avoid the air in the room from being polluted and protect human health .
- Overheating protection: Used temperature control principle. When it is overheating, it will stop heating automatically which can avoid the all problems caused by high temperature in paraffin tank.
- LCD display: all the states are displayed in the LCD screen.



- Protection from getting stuck: To avoid the tissue dry in the air when the basket is stuck.
  - A. When the basket moves into front of the protecting tank or after wax tank, the basket will return to the previous tank if encountering the stuck.
  - B. When the basket movies between the protecting tank and wax tank, the basket will enter into the set protection tank automatically
- Temperature setting range for paraffin station: 55°C ~ 70°C
- Safety: it use external UPS to prevent tissue damaged if power failure. When the power failure, UPS will act a power supply to keep instrument enter into protection state (the basket will stay in the current processing tank and will continue running the program after power on.
- Agitation frequency : two baskets in turn every 5 minutes.
- Dripping stay time is 20 seconds default. Adjustable from 2 seconds to 99seconds (when the basket is moved up from liquid tank, there are some liquid stayed on the basket. This function enables the liquid fast drop into container, to avoid impact on purity of next liquid tank)
- Agitation time in each tank: every 15 seconds default and the extent is 5mm, and the 5-30seconds could be adjustable as different required
- Power supply: 220V ± 10%, 50Hz / 110V ± 10%, 60Hz
- Fuse: 220V:5A UPS:2A/110V:8A UPS:3A
- Power: 466W
- Outside dimensions(mm):1235X475 × 590(W\*D\*H)
- Weight: 70 kgs

## 2.2 Distribution of Liquid Tank

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 benzene	Dimethyl benzene	paraffin	paraffin	paraffin	paraffin

**Note:** The formalin is put in Tank 1 and 2 which are initial tanks for hanging basket work(the basket is staying in tank 1 to waiting to run the first program and other basket in tank 2 wait to run second program). Press key **RUN**, the system will test the basket in the initial tank automatically, if the two baskets all stay well in the Tank 1 and 2, the instrument will run the second program first, and then run the first program. The system provides eight programs( 4 groups) be edited. (Note: when programming, make sure the basket in tank 1 running don't overtake the basket in tank 2 to avoid getting stuck, if encountering the stuck, the long buzzer ringing will remind user.)

Example for 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 benzene	Dimethyl benzene	paraffin	paraffin	paraffin	paraffin
Set time in program 1(minute)	2.5	1	1	1	1	1	1	1	40	30	1	1	1	
Set time in program 2(minute)		1	1	1	1	1	1	1	40	30	1	1	1	1

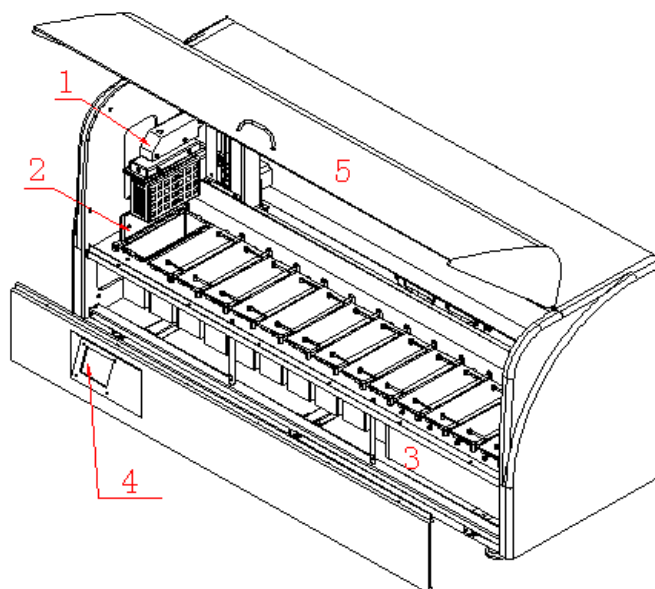
### Suggestion

Suggestion	Container No.	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	paraffin	paraffin	paraffin	paraffin
How to edit the programme	Programme 1	Step:1 Tank no.1 Hr: 2.5	Step:2 Tank no.2 Hr: 1	Step:3 Tank no.3 Hr: 1	Step:4 Tank no.4 Hr: 1	Step:5 Tank no.5 Hr: 1	Step:6 Tank no.6 Hr: 1	Step:7 Tank no.7 Hr: 1	Step:8 Tank no.8 Hr: 1	Step:9 Tank no.9 Hr: 00 Min: 40	Step:10 Tank no.10 Hr: 00 Min:30	Step:11 Tank no.11 Hr: 1	Step:12 Tank no.12 Hr: 1	Step:13 Tank no.13 Hr: 1	Step:14 Tank no.00 Hr: 1
	Programme 2		Step:1 Tank no.2 Hr: 1	Step:2 Tank no.3 Hr: 1	Step:3 Tank no.4 Hr: 1	Step:4 Tank no.5 Hr: 1	Step:5 Tank no.6 Hr: 1	Step:6 Tank no.7 Hr: 1	Step:7 Tank no.8 Hr: 1	Step:8 Tank no.9 Hr: 00 Min: 40	Step:9 Tank no.10 Hr: 00 Min:30	Step:10 Tank no.11 Hr: 1	Step:11 Tank no.12 Hr: 1	Step:12 Tank no.13 Hr: 1	Step:13 Tank no.14 Hr: 1

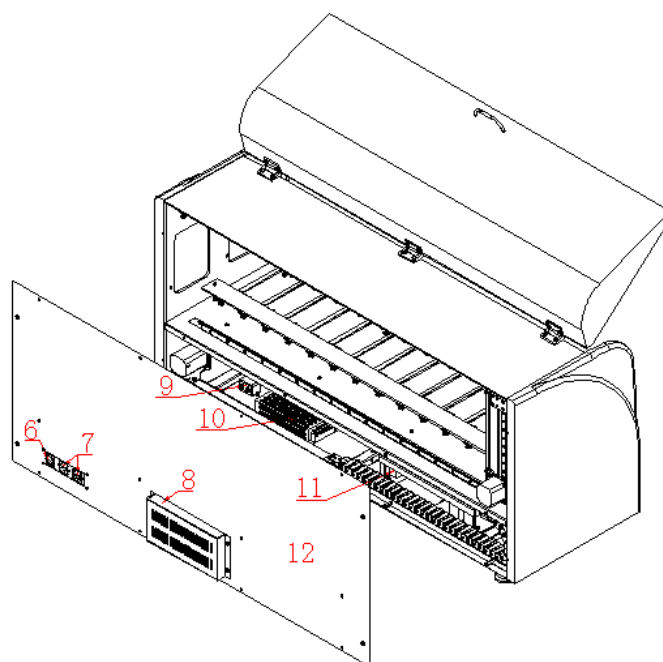
Please note: The Reagent and Running time could be changed as customer's different requirement.  
The regular pattern of step and tank number is refer as the above showing.

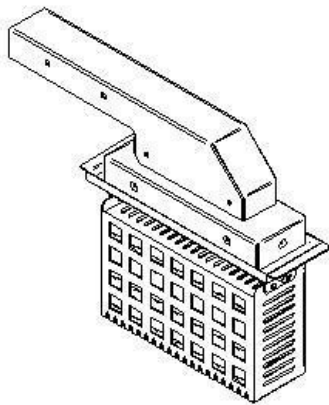
### 2.3 Structure Breakdown Diagram

- 1) hanging basket
- 2) Sealing cover
- 3) Oven type heater
- 4) Front panel with display LCD
- 5) Plexiglass glass housing

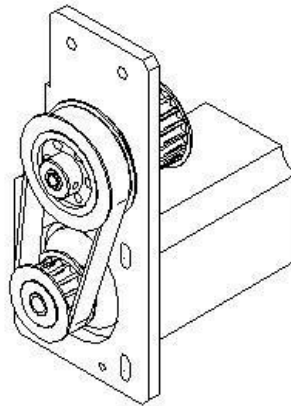


- 6) Power switch
- 7) Power socket
- 8) Activated Carbon filter
- 9) Filter
- 10) Power supply
- 11) Control Box
- 12) Rear cover board

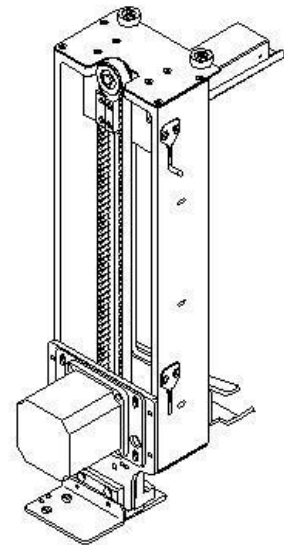




Hanging basket assembly

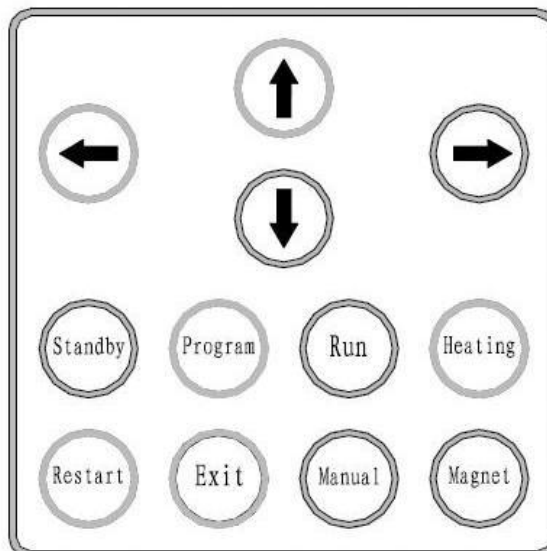


Movement assembly




### 3. Operation Guide

#### Display Panel



#### 3.1 Key instruction

**Standby** It can be activated in Auto or Manual mode, press this key to pause running or continue running. But when the instrument is running a procedure, press this key, it can not pause at once and must finish the current procedure and then pause.

**Program** It can be activated in main menu to check and program state. The operator can press this key into checking windows from the main menu, and press this key into program state from checking windows while press this key again to program each programme, and then press  to set parameters as following:

Parameters displayed in checking windows

Program 1 ← Program 2 Program 3 Program 4	Check Step: 01      Time Hr:00 Tank No.: 06   Min:00 Temp: 65      Standby   Sec:20
--	--

Parameters displayed in program state

Check Step: 01      Time Hr:00 Tank No.: 01   Min:00 Temp: 65      Standby   Sec:20	Program Step: 01      Time Hr:00 Tank No.: 01   Min:00 Temp: 65      Standby   Sec:20
--	--

**Run** It can be activated in main menu when it is in Manual mode, press this key the machine will enter into Auto mode, the hanging basket arm runs automatically and the temperature begins to rise, and stir up and down in 15 seconds. The temperature and shaking state will be displayed in the screen, as picture shows:

Step : 02      Program 3 Tank No.: 02   Auto Temp: 43      Heating: On Time: 00:03	Step : 02      Program 3 Tank No.: 02   Auto Temp: 45      Heating: On Time: 00:02   Shaking
---	---

**Heating** It can be activated in Auto or Manualmode, press this key the machine will start heating or stop heating.

**Restart** It can be activated in Auto or Manual mode, press this key the machine will back to the initial status after carrying out the current procedure.

**Exit** It can be activated in Auto standby or Manualmode. Main Functions : The operator can press this key to back to main menu from checking windows, and press this key to back to checking windows from programming state, and press this key to back to main menu when it is in Auto or Manual mode.

**Manual** It can be activated in main menu when the machine standby in Auto mode or end running. The operator can press this key into manual mode. The parameters are displayed as the following in the screen:

	Manual
State	Heating: On
	Temp: 65

**Magnet** It can be activated in Auto or Manualmode, press this key to start or stop to run the magnet.

**↑ ↓** It can be activated in main menu , manual mode or program state. The operator can press these keys to select required program in main menu, and press these keys to set value while it is in program state and to control the basket move up and down in manual mode.

**← →** It can be activated in manual , program state and checking windows display. The operator can press these keys to examine programme parameters of different steps when it is in program state or checking windows, and to control the basket move to right and left in manual mode.

### 3.2 Screen LCD display instruction

#### 3.2.1. Main Menu

Program 1 ←	Program 5
Program 2	Program 6
Program 3	Program 7
Program 4	Program 8


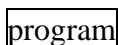

**Notes :** There are Eight programs(four groups programs) available, and ← shows the current selected program.

#### 3.2.2. Checking windows and Programwindows

Check	Program
Step: 01      Time Hr:00	Step: 01      Time Hr:00
Tank No.: 01    Min:00	Tank No.: 01    Min:00
Temp: 65    Standby    Sec:20	Temp: 65    Standby    Sec:20

**Notes:**

In checking windows, it will display the parameters set: tank number, temperature and time in each step.

In Edit programwindows, the operator can set required value by  when the icon is flickering and then press  key to set tank no , temperature and time for each step and press  to change step number.

### 3.2.3. Manual Mode

Manual
State: Heating: On
Temp: 65°C

**Notes:**It displays heating state (On or Off) and the current temperature when in manual mode.

### 3.2.4. Auto Mode

Step: 02	Run State:
Tank No.:02	Auto
Temp:65°C	Heating: On
Time:01:01	Waiting

Notes : In automatic running mode, the windows displays : the basket running step, tank number, actual temperature, the rest time to finish this step, heating state( on / off) and the state of basket( waiting, rock, vat block, standby, ending and so on). As the picture showed, the basket is running to step 2, tank 2 , the actual temperature is 65°C, and the rest time is one hour and one minute to finish , the heating state is on and the basket is in waiting state.



### 3.3 Operation

#### **⚠ There are four groups programs available:**

the user can changes the parameters as requirement. Any changes value will be saved automatically.

#### 3.3.1. How to Check

- \* In the main menu, press key  to select the program user wants to check.
- \* And then press key  to enter into the checking windows
- \* Then select the required step by  to check its parameters
- \* After finish the checking, press key  to back to the main menu.

#### 3.3.2. How to Program

- \* In checking windows, press key  to enter into program state
- \* And then select the step you want to program by
- \* When the step selected, press  circularly to select the parameter for setting in turn: tank number, temperature and time. The flickering icon will lead the user to set the corresponding value by

Note: The first step of Program 1 , Program 3, Program 5, Program 7 is tank number 01 ,

The first step of Program 2, Program 4, Program 6, Program 8 is tank number 02.

- \* If the procedure don't need running to the last tank, the user should set the next tank of required ending running tank as 00, but its time could not be set 00. Notes: The ending tank of program 1 , 3, 5, 7 should be set before the ending tank of program 2 , 4, 6, 8 to avoid two baskets barge against.

- \* After finish the programming, press  to back to the checking windows and the set value is automatically stored and will load automatically at the next power on.


**⚠** Please make sure the time of the last four tanks with paraffin is more than half an hour, which will help the processing.

Note: Agitation time and Dripping stay time could be selected by .

Agitation time be used for the Eight programs(4 groups.)


Dripping stay time could be set for each procedure.

### 3.3.3. Operation in Manual Mode

- (1) In main menu press **Manual** or press **standby** when the machine in Auto mode and then press **Manual**, to enter into manual operation mode.
- (2) The basket can be moved by  .
- (3) Press key **Heating** to change heating on or off.
- (4) Press key **Exit** to back to main menu, and press key **Restart** to Restart the machine and back to the main menu.

Note: \* To extend the life of the machine, please cut off the power supply after finishing work.\* To reduce liquid volatilization, please close all the liquid covers when the instrument don't work. Method: In manual state, make the basket arm above on any tank from the second tank, and then move it to the previous tank.

### 3.3.4. Operation Auto Mode

- (1) In the main menu, select the running program by  .

(Attention: Program 1 and 2 is in a group ,

Program 3 and 4 is in a group,

Program 5 and 6 is in a group,

Program 7 and 8 is in another group.)

- (2) Press key **Run**, the system will check the basket automatically. If there is a basket in the first or second tank, it will have a buzzer sound to notice the machine is ready to work. If no sounds, it means that there is no basket in tank, and the corresponding program will also don't run. After self-testing is complete, machine will go to run automatically.
- (3) If there is any problem when the system is in automatic running, please turn the instrument off. If you want to look over the tissue dehydration effect, please press key **standby** first, and then press **manual** to enter into manual state and to look over the tissue dehydration effect, after it, press **exit** and **run**, and the instrument will continue to run previous program.

- (4) Press **Restart** in the running process, system will exit Auto running state automatically, and the machine Restart to the main menu.
- (5) After finish running, press **standby** to do the manual operation, and take out basket by **Magnet** and **↑ ↓ ← →** . And then press **Restart** to Restart the machine and back to main menu, and wait for next running.
- (6) If put only one basket to processing, press **Run** to running the required procedure only.

During the running processing , if it need to insert other basket , it should press **standby** firstly, and then press **exit** to back to the main Menu, choose the required procedure and press **Run** to start running.

Note: Using this method to insert basket to processing which only allow the start running from the first tank, and the required procedure number cannot be the same odd or even as the running procedure. For example, if the running procedure number is program 1, the insert procedure number cannot be programmed 1, 3, 5, 7, it should be chosen from program 2, 4, 6, 8. That could avoid the running time, end tank or other source time to conflict.

If need take out the basket after the program is finished, because the temperature is very high, to avoid injuring the hand, please use manual function to take it off. Firstly, open magnet switch, and suck the basket by magnet and then press **↑** to move the basket up, and use a tray holding on the basket and then turn off the magnet switch.

### 3.3.5. How to set protect tank and delay time function

- (1) Press **→** in the main menu to enter into protect tank and delay time set.
- (2) Press **Program** to select protect tank or delay time to set it when it is flickering.
- (3) Modify the protect tank or delay time value by **↑ ↓** .

Attention: ATP 140 Tissue Processor with two baskets could set two protection tanks and the unit of delay time is hour, the range is 1 to 48 hour. The protection tank and delay time interface is as follows:

Safe tank:	4
	5
Delay time:	00

### 3.3.6. Operation for secondary running

If there is break off in automatic running or the tissue dehydration effect is not good, the operator could dehydrate the tissue again as follows:

1) \* Press **standby** in main menu, and then enter into the initial tank set interface for the secondary running, and by **↑**、**↓** to set the initial tank.

\* and then put the basket in the initial tank, and press run in this interface, it will run secondary dehydration.

(Note: The secondary running allows to run the currently selected procedure only, and it can be started at any tank, but if you run the secondary operation from program 2, the initial tank can not be set from the first tank. Please see the below diagram shown:

<p><b>Run again</b></p> <p><b>Start tank 01</b></p>	<p><b>Step : 01      Program 1</b></p> <p><b>Tank No.: 01      Auto</b></p> <p><b>Temp: 64      Heating:</b></p> <p><b>Time: 00:05</b></p>
---	--

2) Selected the procedure, enter the CHECK or EDIT status to check the relative steps, tank number is the same as the basket stayed into, Press **Run** go to running. But regardless of the insert by which way, the largest number of programs can run at the same time is two programs which cannot be same as the odd or even program.

3) If one program are running processing , if it need to insert other one basket , it should press **standby** firstly, and then press **exit** to back to the main Menu, choose the required procedure and press **Run** to start running.(Using this method to insert basket to processing which only allows starting running from the first tank, and the required procedure number cannot be the same odd or even as the running procedure.

### 3.3.7. Attention matters in operation process

When the first running of the instrument or the set time is modified, there may be one basket not running, maybe because of the time clash between two programs( when running program 1 and 2 automatically) , please add one more minute to the first step in program 1 that could solve the problems.

**4. Trouble Shooting**

Symptom	Cause	Remedy
UPS sounds sing-tone intermittently, and work well in manual state	Power cut	Waiting for power
	not plug in	check if it is plug in
	fuse of power supply socket is fusing	change 5A fuse
	fuse of UPS is fusing	change fuse
Long sound after turn on the instrument	overheat protection switch open circuit	Change a new overheat protection switch
	it is overheating in paraffin tank	Adjust temperature
	temperature sensor is broken	Change a new temperature sensor
After turn the instrument on ,the temperature displays in non-numerical.	Damaged driver of stepping motor	Repair by Factory or distributor
Tank cover would not be opened or closed.	Jammed by obstruction	Remove the obstruction
	damaged spring	Change it.
The basket can not move up and down or left and right	step motor or driver is broken	change a new step motor or a new driver
Paraffin would not be heated.	there is obstruction in the bottom of the paraffin tank	Remove the obstruction
	paraffin tank is lean	Correct it
	temperature sensor is broken	change a new one
	solid relay is broken	change a new one
	IC is broken	change a new one

## 5. **Maintenance**

Please carefully read this operation manual before operation. Operation should be done according to the requirements stipulated.

- (a) When the direction keys are pressed during manual operation, if the basket is already in the limited position, the system will ignore the instruction.
- (b) Keep the machine tidy and clean and protect it from being stained with liquid, wax and dust.
- (c) Lubricant should be added to the transmission parts to ensure normal operation.
- (d) Don't add too much liquid and paraffin to the tanks to prevent the damage to the parts and components caused by overflow of the liquids.
- (e) Handle the liquid and paraffin tanks carefully to avoid the damage to them which will cause leakage.

### **Notices in use**

- (a) Keep the upper side of the cover (the place magnet contact) clean and without obstruction.
- (b) Keep the black bottom of the magnet-suck-box clean and without obstruction.
- (c) Don't have electromagnet long time at active status under the manual operation which affects the electromagnet performance and life.

### **Recharge and Maintenance of UPS**

The machine is provided with a UPS built in external of machine. The UPS is always in a state of recharge provided that the machine is connected to power supply with the power cord, regardless of whether the power switch is open or closed. Each time after the built-in power sources used, the UPS should be recharged for 6~8 hours. The UPS should be discharged every 6 months (i.e. use the built-in power source for operation for about 10 minutes) to extend the service life of the UPS. The batteries in the ups are maintenance free.

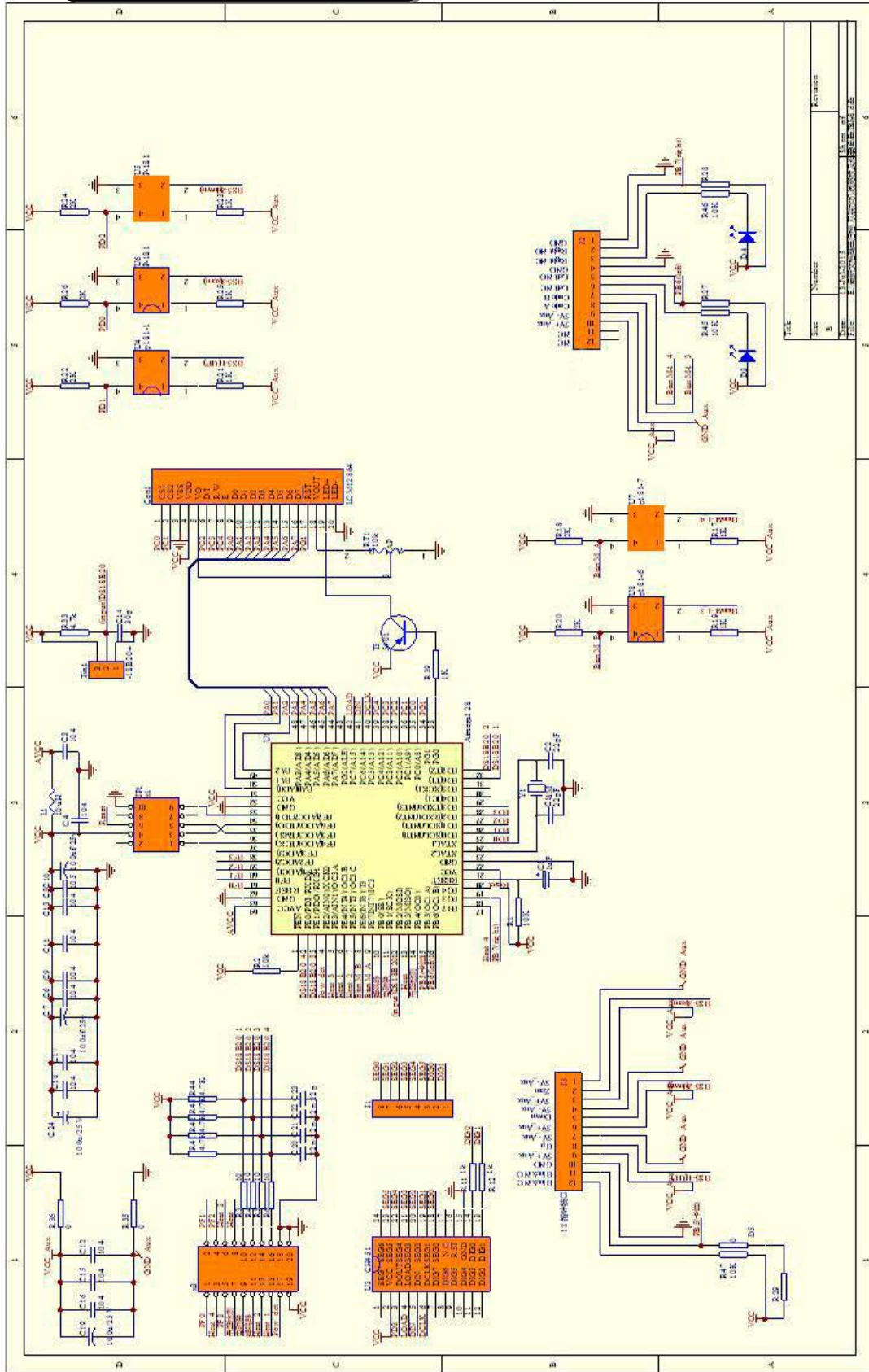
**Protection functions for Power Failure:**

- The basket will enter into current liquid tank as the Power failure, and shall continue to operate as the original process until power on.
- It can be provided high efficiency battery to ensure that the program is completely executed without interruption under the power status of power failure.

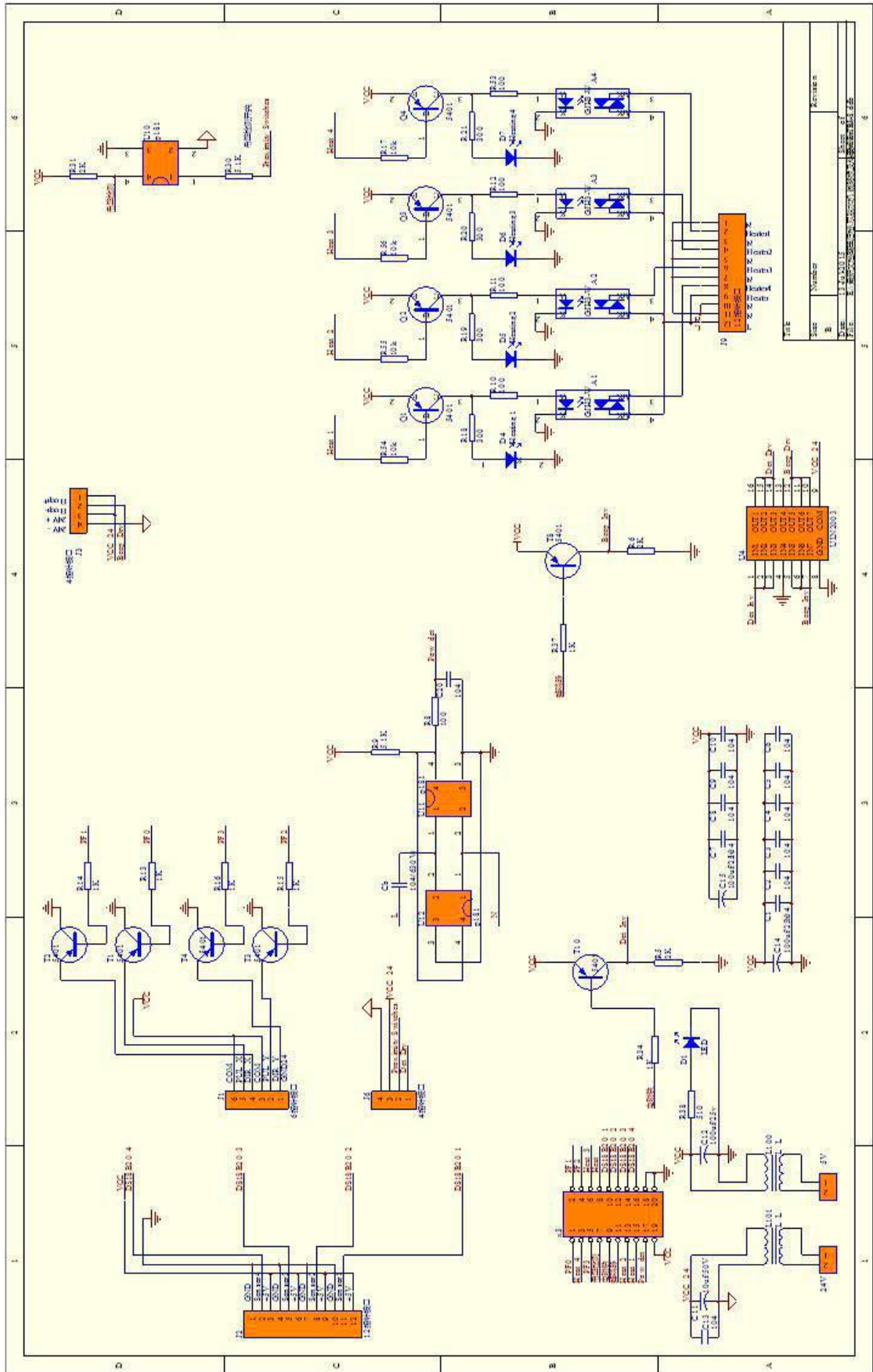
Note: Prior to instrument operating, please ensure the power is connected well and then turn on the power switch for operation.

The instrument disconnected with the power supply before operation will cause the storage charge of UPS to use up and damage. It needs to replace with a new UPS.

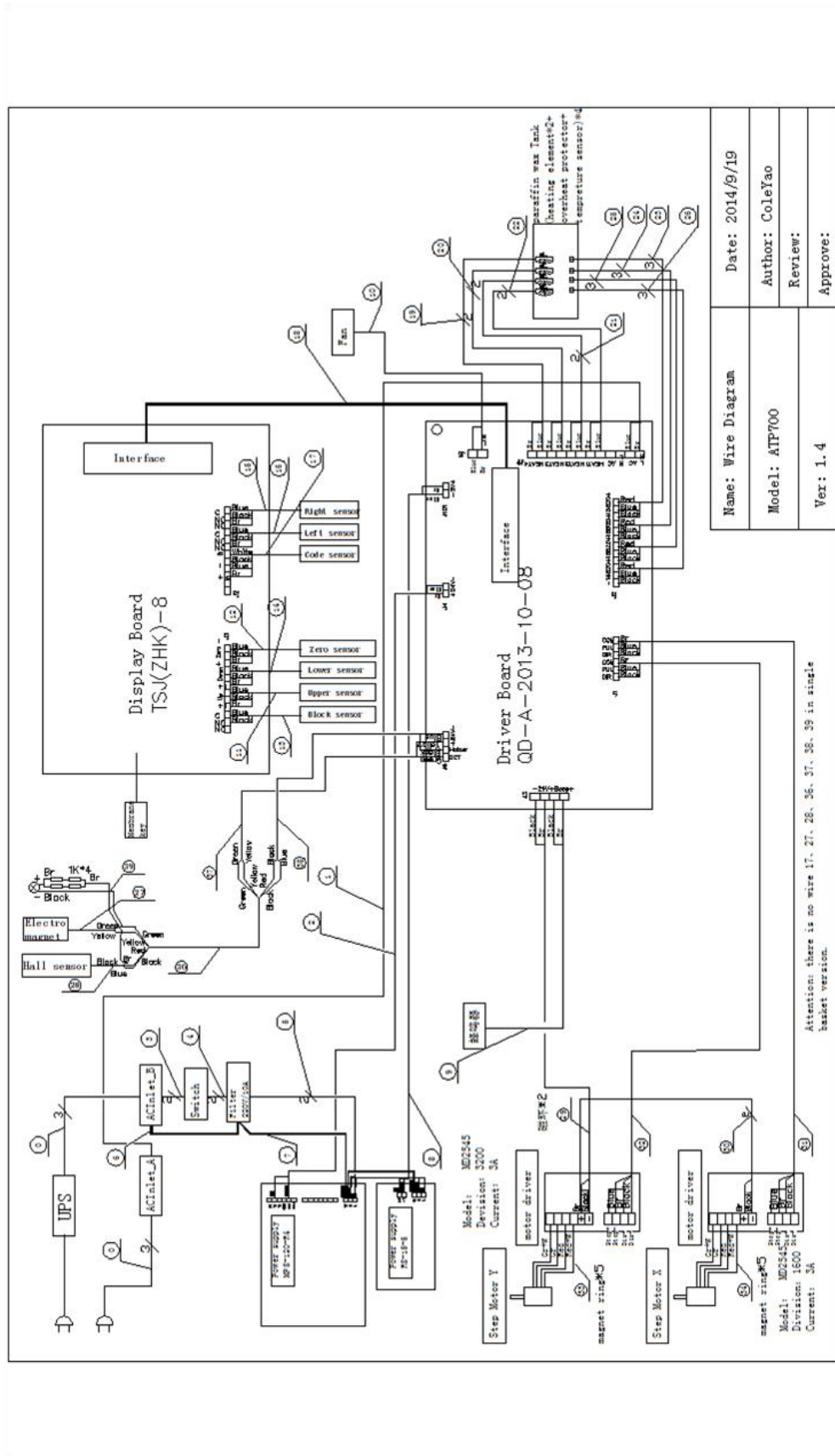
**6. Schematic Diagram**







**7. Wiring Diagram**



### Standard accessories list

No	Accessory Name	Qty	Notes
1	Tissue processor	1 set	
2	Power cord	2pcs	
3	Fuse	4pcs	
4	Basket grid	2 sets	6pcs grid for small tissue 6 pcs grid for large tissue 12pcs grid for customer special requirement.
5	Basket	4 pcs	
6	UPS	1 pc	
7	Operation Manual	1pc	

Published by:



## **AMOS SCIENTIFIC PTY.LTD.**

7 Gabrielle Court, Bayswater North VIC 3153 Melbourne , Australia

Tel: +61-410190188 Fax: +61-410190188

ABN 37 159 778 140

[www.amos-scientific.com](http://www.amos-scientific.com)