

# Shandon Histocentre™ 3

TISSUE EMBEDDING SYSTEM

ENGLISH

Issue 1

## **OPERATOR GUIDE**

**B64110021**

# **Thermo**

**ELECTRON CORPORATION**

# SHANDON HISTOCENTRE™ 3

## OPERATOR GUIDE

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# INTRODUCTION

The Shandon Histocentre™ 3 provides all the components necessary, in two modules, to effectively perform histological paraffin embedding procedures.

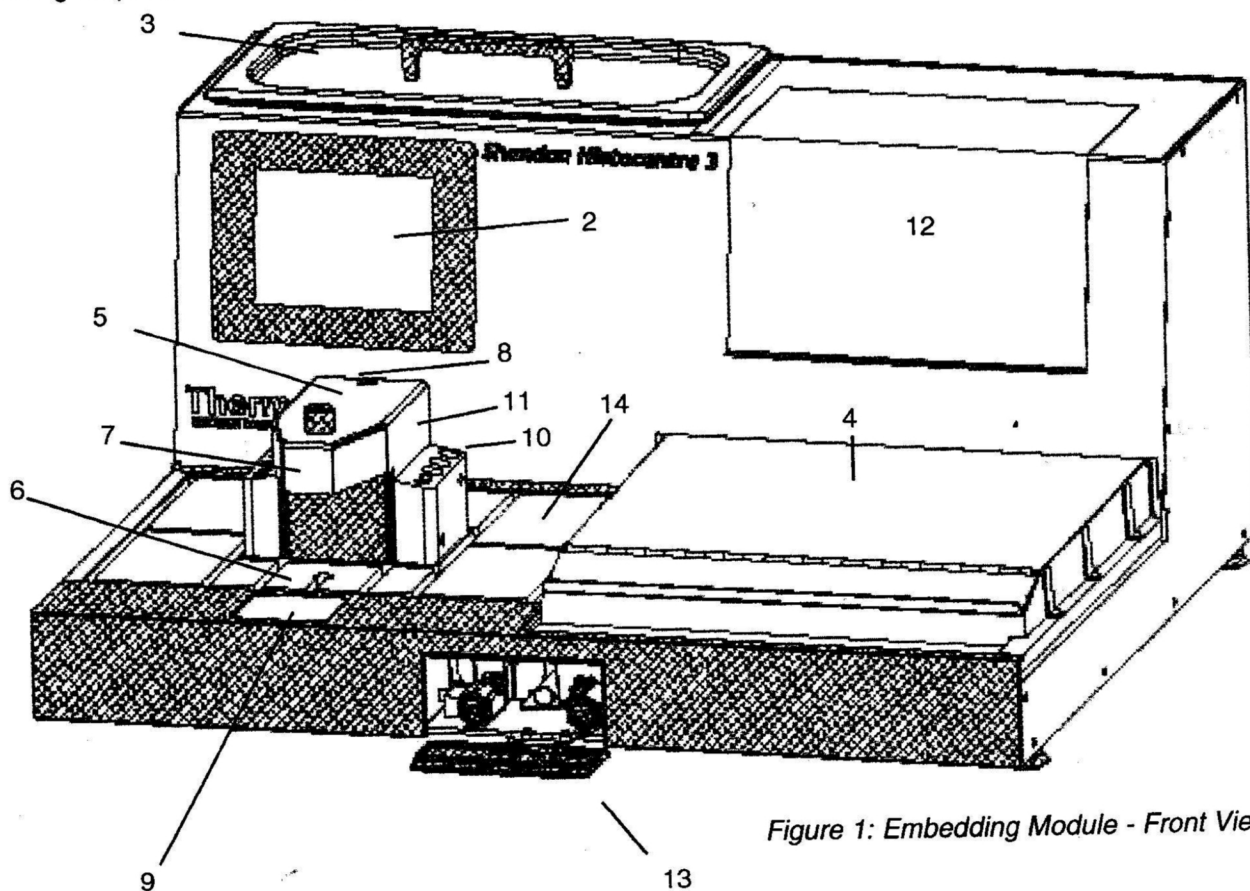


Figure 1: Embedding Module - Front View

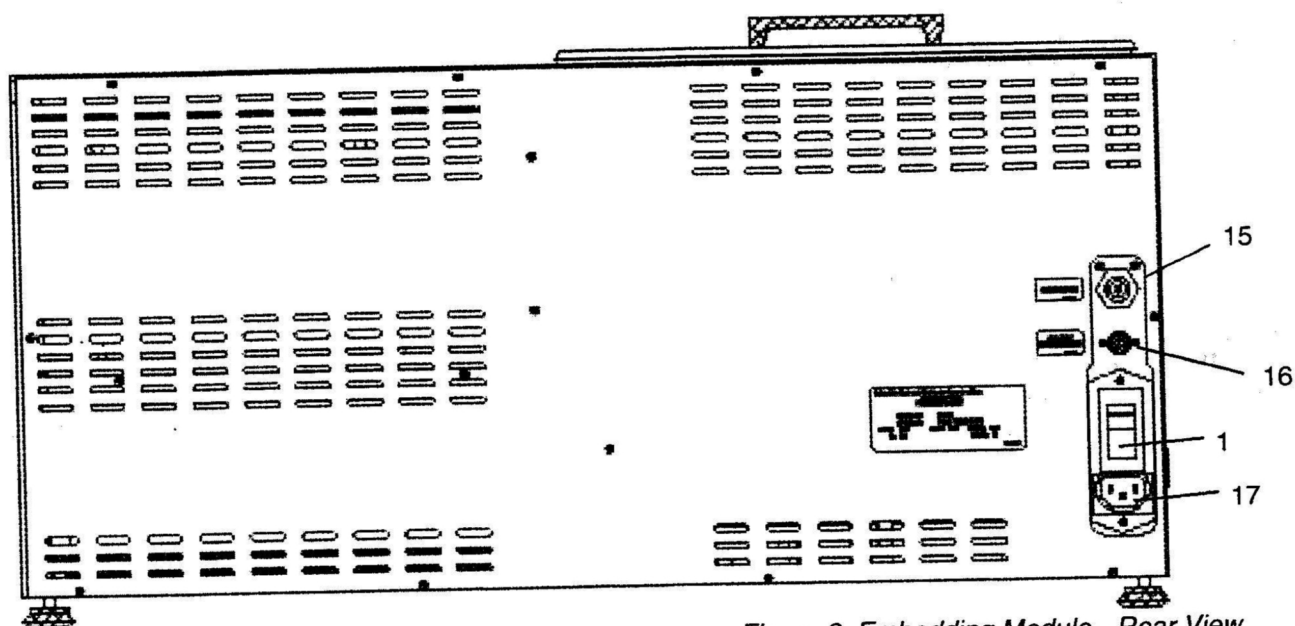


Figure 2: Embedding Module - Rear View



## EMBEDDING MODULE COMPONENT OVERVIEW

### Item Description

- 1 Power Switch/Circuit Breaker – Rocker switch turns power to the Paraffin Dispenser Module on and off. Internal circuit breaker protects electrical system.
- 2 LCD Touch Screen – Screen provides easy access to menu driven software. Individual temperature control is provided for the paraffin tank, hot spot, tissue tank and mold storage oven. A seven day timer menu allows you to program modules to be ready at a specified time.
- 3 Paraffin Tank – A 5-liter tank allows for faster processing due to less time for refilling. A large filter in the tank prevents foreign material from blocking paraffin flow.
- 4 Tissue Storage Tank – The tank has capacity for up to six Shandon Pathcentre® or eight Shandon Excelsior™ processor baskets. The cover slides and hinges for easy access to the processor baskets. A sliding tray inside the tank is provided so baskets can be moved to fill the rear of the tank. The tank can be drained through a valve located in the front of the module. The staging area in front of the tank stays at a temperature approximately the same as the Tissue Tank setting.
- 5 Paraffin Dispenser – The dispenser system consists of plumbing, electro-mechanical valve and nozzle. The system is heated to keep paraffin from solidifying in the valve. When the valve is opened (by hand or foot switch), paraffin will flow by gravity. The flow rate can be controlled by an adjustment screw. Turn the knob clockwise to decrease flow and counter clockwise to increase flow.
- 6 Hot Spot – The Hot Spot keeps the mold base warm while dispensing paraffin. The large heated working surface around the paraffin dispenser housing provides ample space for staging tissue samples. This area is kept at approximately the same temperature as the hot spot. Excess paraffin is drained through holes to a heated waste tank. When paraffin backs up on the working surface, the waste tank is full. Waste paraffin can be drained through a valve located in the front of the module.
- 7 Hot Spot Light – A 10 watt light is built into the dispenser housing to illuminate the Hot Spot. The light can be set to shut off after idle for a specified time and to be turned on with a push of the dispenser touch plate.
- 8 Magnifier Mounting – A 4 inch diameter magnifying lens is provided to enhance visibility while positioning tissue. Mount magnifier shaft in hole provided. For delicate work, a Lighted Magnifier Accessory is sold separately.
- 9 Cold Spot – The Cold Spot can be used to cool the liquid paraffin in the mold base while positioning the tissue sample. The temperature of the Cold Spot is not adjustable.
- 10 Forceps Blocks - There are two blocks, one located on each side of the dispenser housing. Each block has three holes for standard forceps and two lined holes for a heated forceps. The block temperature is adjustable between five power levels.
- 11 Heated Forceps - The Heated Forceps (sold separately) connector is located on the backside of the paraffin dispenser housing. The Heated Forceps temperature is not adjustable.
- 12 Base Mold Storage Oven – The mold storage oven is provided to preheat up to 200 base molds. The oven lid can be latched in the open position for filling and processing.

13 Drain Valves and Drain Tube – Two drain valves are located behind a hinged door in the front of the Paraffin

Dispenser Module. The left valve drains the waste tank and the right valve drains the Tissue Storage Tank. An 11 inch length of tubing is stored in a heated chamber. Place the tube over the valve nozzle for draining. The tube can also be used on the dispenser nozzle to drain the paraffin tank.

- 14 Waste Tank Cover – Waste paraffin from the heated surfaces collects in tank under this cover.
- 15 Foot Switch – A Foot Switch bellows is provided for hands free dispensing. The bellows tube connects to a switch mounted in the back of the Paraffin Dispenser Module.
- 16 Cold Plate Timer Connector – This connector accepts the timer cord to the Cold Plate Module. The cold plate can then be controlled by the Paraffin Dispenser timer programs.
- 17 Power Cord Connector – This connector accepts the female plug end of the power cord.

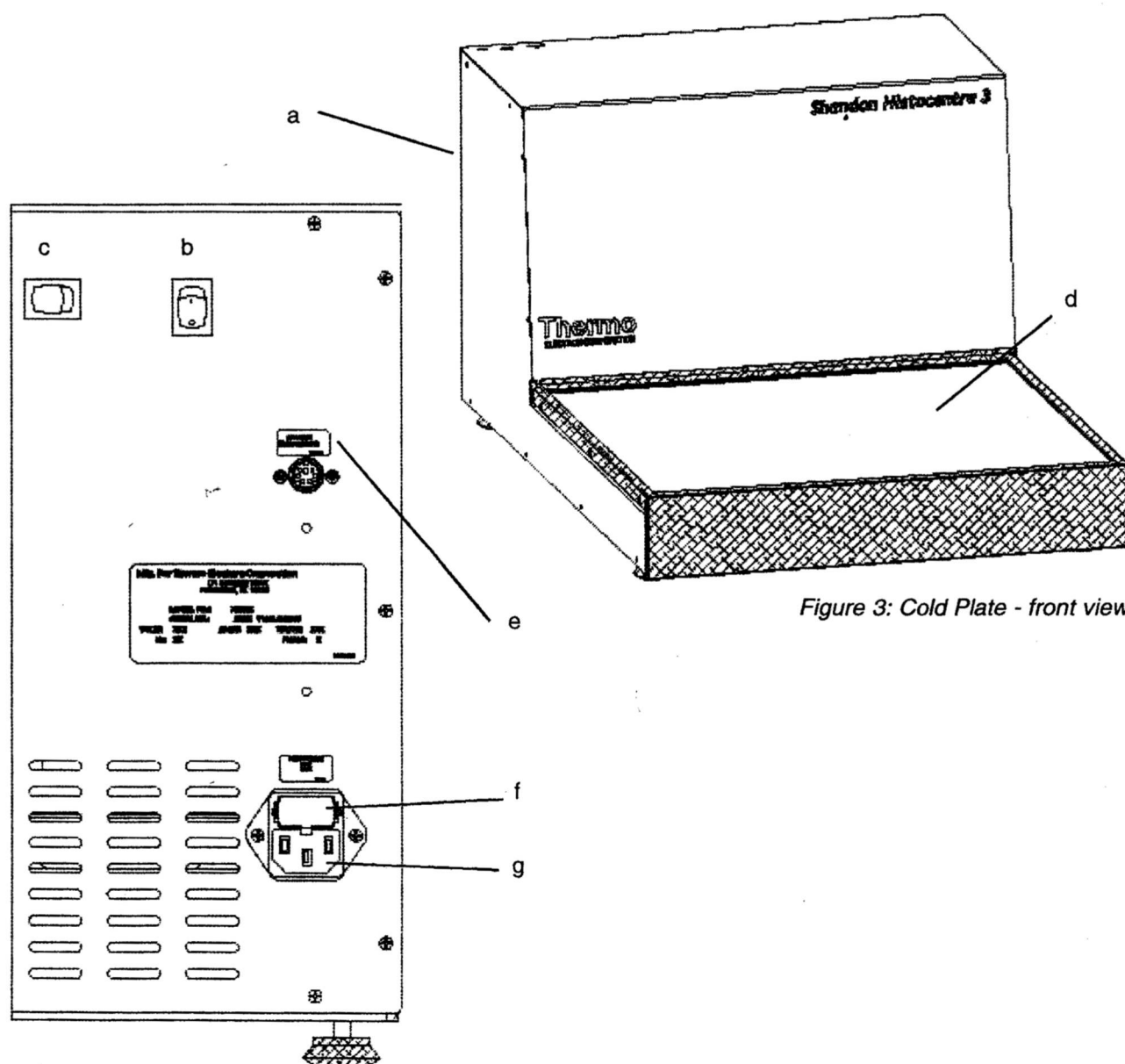


Figure 3: Cold Plate - front view

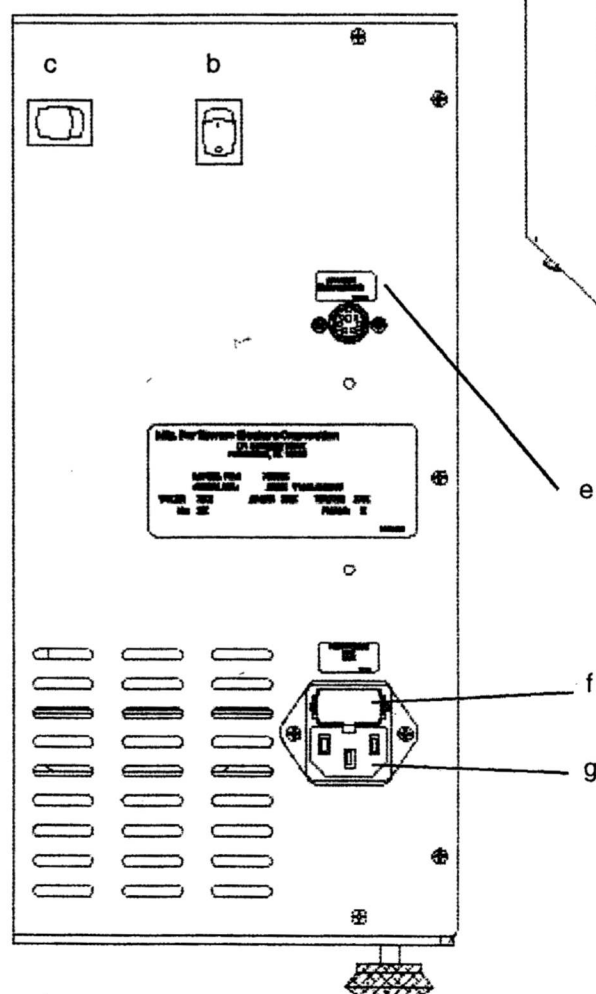


Figure 4: Cold Plate - rear view

## COLD PLATE COMPONENT OVERVIEW

- a Cold Plate -The Cold Plate can be placed on either side of the Paraffin Dispenser Module. You can choose between right-to-left or left-to-right workflow.
- b Power Switch – The rocker switch turns power to the Cold Plate Module on and off.
- c Timer Control Switch – Push rocker switch to “TIMER CONTROL” to have Cold Plate controlled by the timer program in the Paraffin Dispenser Module (the timer cord must be connected to both the Cold Plate Module and the Paraffin Dispenser Module). Use the “COMPRESSOR ON” position to bypass the timer and have the Cold Plate run continuously.
- d Cooling Surface -The large cooling surface can hold up to 72 base molds. The temperature cannot be adjusted.
- e Cold Plate Timer Connector – This connector accepts the timer cord from the Paraffin Dispenser Module. Connect the cord for timer control of the Cold Plate Module.
- f Fuse Holder – This holds two 20 mm x 5 mm fuses. Replace only with fuses specified on the fuse label.
- g Power Cord Connector – This connector accepts the female plug end of the power cord.

### Note

- 1 *The Cold Plate module includes external (user replaceable) fuses for the overall electrical system.*
- 2 *Additionally, the compressor in the Cold Plate Module is thermally fused with an automatic reset. The embedding module includes an internal circuit breaker for the overall electrical system. One-shot thermal fuses pre-vent temperature runaway in the heaters for the paraffin tank, the tissue tank, the hot spot, the mold storage area, forceps block and the paraffin dispenser.*

# UNPACKING

## Note

- 1 If you notice shipping damage, retain the carton and packing material intact with the unit and file a claim with the final carrier. Usually, the firm will send an inspector to ascertain liability.

Your Shandon Histocentre™ 3 is shipped completely assembled in a single carton. After unpacking, locate each item in the list below. If anything is missing, notify Thermo Anatomical Pathology, giving the name and number of the missing item.

Please refer to the Serial Plate for the complete model number and serial number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Thermo dealer from whom you purchased this unit, or can be obtained promptly from the factory. When service or replacement parts are needed, check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department.

## Combined Paraffin Dispenser Module and Cold Plate Module

	Model Number	B64100001 (230V UK)	B64100002 (120V US)	B64100003 (230V EURO)	B64100004 (100V JAPAN)
Qty	Description				
1	PARAFFIN DISPENSER MODULE	B64100010	B64100010	B64100010	B64100010
1	COLD PLATE MODULE	B64100011	B64100012	B64100011	B64100013
1*	BLACK SNAP-IN HOLE PLUG	B64110012	B64110012	B64110012	B64110012
1	CORD, COLD PLATE TIMER	B64110008	B64110008	B64110008	B64110008
2	CORD, POWER 115V-15A	--	B64110010	--	B64110010
2	CORD, POWER 1MM-2 BRIT 10A	B64110011	--	--	--
2	CORD, POWER 1MM-3 240 10A	--	--	B64110009	--
1*	FILTER-PARAFFIN TANK	B64110016	B64110016	B64110016	B64110016
1	FOOT SWITCH BELLOWS	B64110024	B64110024	B64110024	B64110024
1	FOOT WRENCH	B64110031	B64110031	B64110031	B64110031
1	FORCEPS - 8 inch	6455	6455	6455	6455
2*	FUSE 5X20 4A T - Cold Plate	B64110003	--	B64110003	--
2*	FUSE 5X20 8A T - Cold Plate	--	B64110029	--	B64110029
1*	HALOGEN BULB, 10W	B64110020	B64110020	B64110020	B64110020
1*	KNOB-MAGNIFIER HOLDER	B64110019	B64110019	B64110019	B64110019
1*	KNOB-PARAFFIN FLOW	B64110018	B64110018	B64110018	B64110018
1	MAGNIFIER ASSEMBLY	B64110006	B64110006	B64110006	B64110006
1	OWNERS MANUAL	B64110021	B64110021	B64110021	B64110021
1*	PARAFFIN TANK COVER & HANDLE	B64110015	B64110015	B64110015	B64110015
1	SCRAPER	B64110023	B64110023	B64110023	B64110023
1*	SCREW-PARAFFIN FLOW	B64110022	B64110022	B64110022	B64110022

## Combined Paraffin Dispenser Module and Cold Plate Module (continued)



	Model Number	B64100001 (230V UK)	B64100002 (120V US)	B64100003 (230V EURO)	B64100004 (100V JAPAN)
Qty	Description				
1	TAMPING TOOL (1/2 x 1/2)	B64110026	B64110026	B64110026	B64110026
1	TAMPING TOOL (3/4 x 3/4)	B64110005	B64110005	B64110005	B64110005
1*	TISSUE TANK COVER ASMY	B64110015	B64110015	B64110015	B64110015
1*	TRAY-TISSUE TANK	B64110027	B64110027	B64110027	B64110027
1*	TUBE CLEANER	B64110030	B64110030	B64110030	B64110030
1*	TUBE-DRAIN	B64110025	B64110025	B64110025	B64110025
1*	WASTE COVER	B64110032	B64110032	B64110032	B64110032

#### Cold Plate Modules

	Model Number	B64100013 (100V JAPAN)	B64100012 (120V US)	B64100011 (220-240V)
Qty	Description			
1	CORD, TIMER	B64110008	B64110008	B64110008
1	CORD, POWER 1MM-3 240 10A	--	--	B64110009
1	CORD, POWER 115V-15A	B64110010	B64110010	--
1	CORD, POWER 1MM-2 BRIT 10A	--	--	B64110011
2*	FUSE 5X20 8A T	B64110029	B64110029	--
2*	FUSE 5X20 4A T	--	--	B64110003
1	OWNERS MANUAL	B64110021	B64110021	B64110021

\*Shipped assembled or mounted.

In the event that additional parts are needed, order by the specified part number, description and quantity described above.

# USER SETUP

## POWER ON

Be certain that the Embedding Module is connected to the proper voltage supply. Turn on main power to the unit by pressing the power switch located on the back, bottom left of the Embedding Module to the ON position. When the Embedding Module is powered up, a logo screen will appear, followed by the System Menu. This is the beginning menu from which all setup functions will originate.

## DISPLAY SIGNS

### Timer "ON" Signal

When the timer is "ON," a signal featuring a clock inside a circle will appear on the left side of the display. When the signal is showing, the unit will go into the Sleep Mode and turn back "on" based on the programmed times. When the signal is not showing, the unit will need to be placed into the Sleep Mode and turned "on" manually.

### Warning Signal

An exclamation mark inside a triangle is a warning signal. If this shows on the right side of the display, one or more of the unit's temperature sensors is not operating properly. If this signal shows on the screen, shut off the Embedding Module with the switch on the back of the unit. Then contact an authorized Thermo service representative to service the unit.



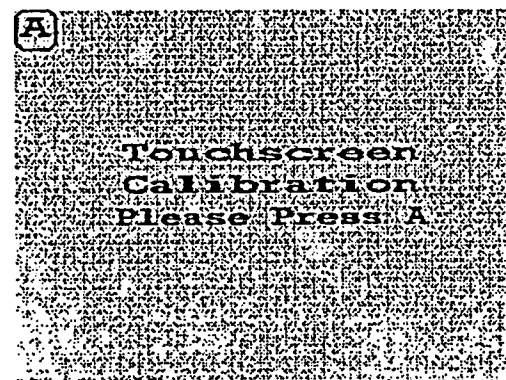
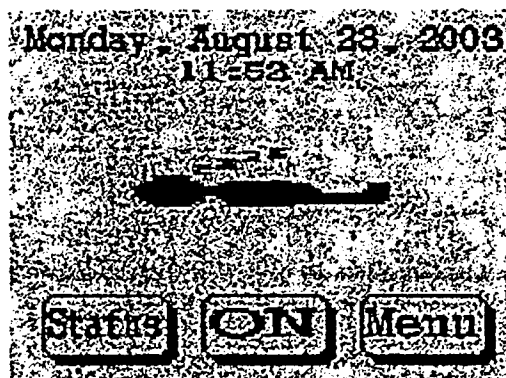
**NEVER USE SHARP INSTRUMENTS TO PRESS THE BUTTONS ON THE TOUCH SCREEN DISPLAY. DO NOT PRESS HARD ON THE DISPLAY, ESPECIALLY WITH FINGERNAILS. A LIGHT TOUCH WITH A FINGERTIP IS ALL THAT IS REQUIRED.**

## TOUCHSCREEN CALIBRATION

During initial start, a Touchscreen Calibration screen may be displayed. Follow screen instructions. Press the A in the upper left hand corner then the B in the lower right hand corner. The Logo Screen and the System Menu will be displayed.

### Note

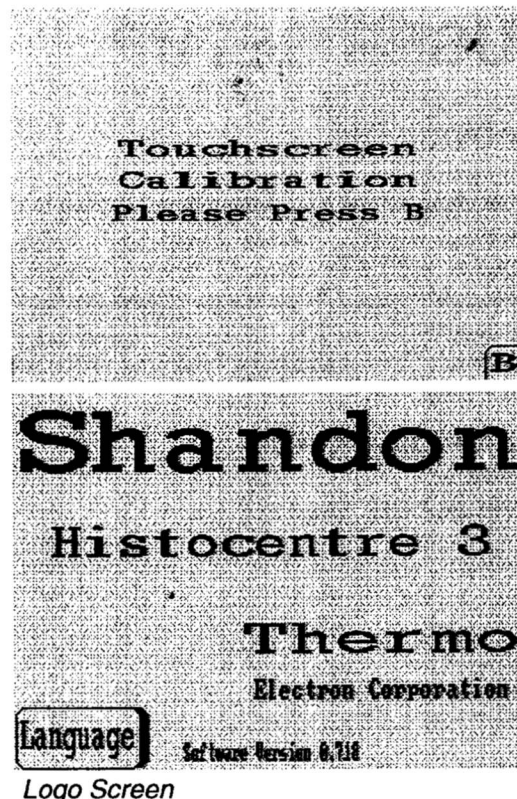
- 1 Operator control is provided through a touch screen interface attached to the lighted graphic LCD display located on the left side of the Embedding Module. A single button-press or combination of button-presses on the touch screen initiates all user functions. The Shandon Histocentre™ 3 is designed such that general troubleshooting and diagnostics can be performed through the front panel and do not require the removal of the cover. The display will provide you with up to date process information and alert the user to most abnormal system operations.





If the System Menu buttons don't work, the touchscreen may need to be calibrated.

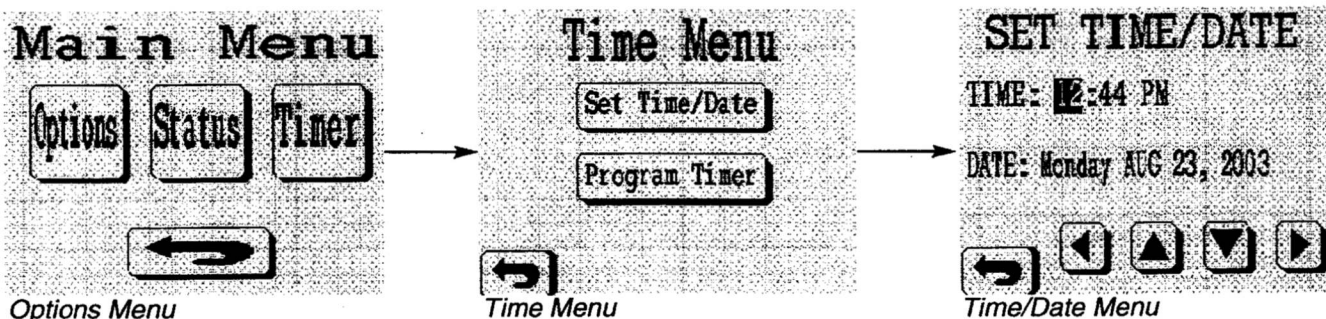
1. Shut off Embedding Module with power switch on back of unit.
2. Place finger on center of touchscreen and hold.
3. Turn on Embedding Module with power switch on back of unit.
4. Remove finger from touchscreen when Touchscreen Calibration screen appears.
5. Press the A in the upper left hand corner then the B in the lower right hand corner of the Touchscreen Calibration screen.
6. The Logo Screen and then the System Menu will be displayed.



## SET THE TIME AND DATE

From the 'System Menu'

1. Press "Menu".
2. Press "Timer".
3. Press "Set Time/Date".
4. While in the Time/Date menu:
  - a. Use the Up/Down arrows for changing the value highlighted by the cursor.
  - b. Use the Left/Right arrows for moving the item selected as shown by the cursor.
5. When finished, press the BACK button until the Main Menu is displayed.





## SET TEMPERATURE UNITS (°C OR °F)

From the Main Menu

1. Press "Options".
2. While in the 'Options Menu', temperature units may be changed between °C or °F by pressing the "Units" button.

## Sleep Mode

### Note

1. During Sleep, the display will show an image of a person sleeping (see page 15).

To conserve energy when the unit is idle, the Sleep Mode can be used to shut down the Cold Plate and all heaters except the Paraffin Tank and Tissue Storage Tank. Typically the unit can be ready for processing 30 minutes after being taken out of Sleep Mode.

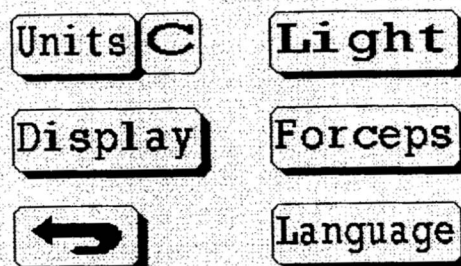
1. If not at the 'System' menu, press BACK button until arriving at the 'System' menu.
2. From the 'System' menu, press the graphic 'moon' button to go into Sleep Mode.
3. If in the Sleep Mode, pressing the 'on' button will take the unit out of Sleep – again turning on the Cold Plate and all heaters.

## SYSTEM TEMPERATURE SETPOINTS

From the Main Menu

1. Press "Status" to go to the 'Status Menu'. From here all the system temperature settings can be programmed.
2. Press "Paraffin Tank" to go to its setpoint menu.
  - a. If the heater is not on, turn "On" by pressing the "Paraffin Tank" button located above the BACK button.
  - b. Use the Up/Down Arrow to change the temperature setpoint of the Paraffin Tank.
  - c. When finished press the BACK button until the Status Menu is displayed.
3. From the Status Menu, repeat step 2 above for:
  - a. 'Tissue Tank' setpoint.
  - b. 'Mold Storage' setpoint.
  - c. 'Hot Spot' setpoint.
4. When finished, press the BACK button until you reach the Main Menu

## Options Menu



Options Menu

Monday, August 23, 2003  
11:52 AM

ON



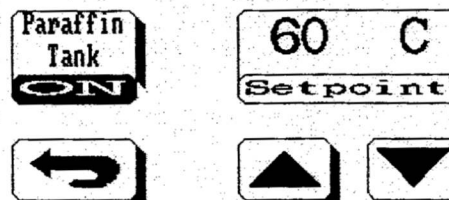
System Menu (unit on)



Status Menu

## Paraffin Tank

Current Temperature: 60 C



Paraffin Tank Setpoint Menu



## SET THE AUTOMATIC TIMER

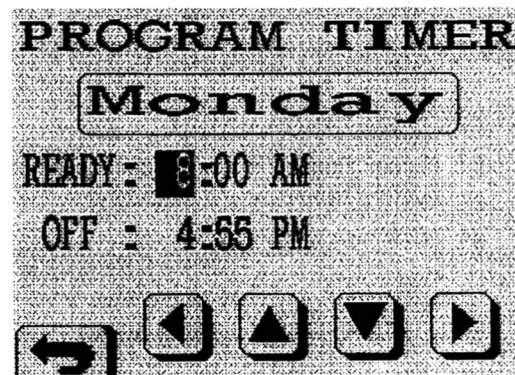
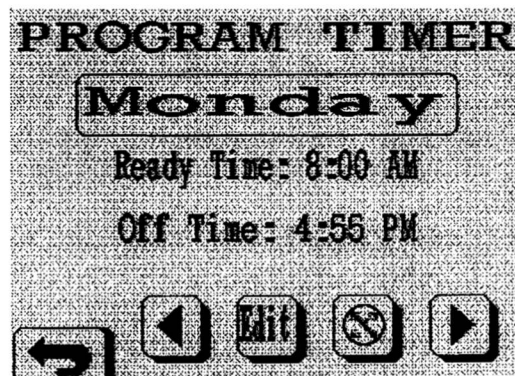
The automatic timer allows you to program a time for the unit to reach operating temperature and be ready for use at the desired time. It also allows for parts of the Shandon Histocentre™ 3 to be automatically turned off during the day or night. The timer allows individually programming for seven days: Monday through Sunday.

### Note

- 1 The paraffin and tissue storage tanks will always remain on, independent of the timer program, so that the paraffin remains melted and ready for immediate use.
- 2 The automatic timer can be disabled by pressing the "Timer" button located at the top left in the 'Status Menu'. The button will toggle between ON and OFF.

From the Main Menu:

1. Press "Timer".
2. Press "Program Timer".
3. While in the 'Program Timer' menu:
  - a. Use the Left/Right arrows for moving between days.
  - b. Use the "Disable" button to turn off the automatic program for the specified day.
  - c. Use the "Edit" button to go to the time setting portion of the program timer for the specified day.
4. While in the edit mode portion of the program timer:
  - a. Use the Up/Down arrows for changing the value highlighted by the cursor.
  - b. Use the Left/Right arrows for moving the item selected as shown by the cursor.
  - c. When finished, press the BACK button to return to the 'Program Timer' menu to select the next day.
5. From the 'Program Timer' day selection menu, repeat steps 3 and 4 above to program the remaining day.
6. When finished, press the BACK button until returning to the Main Menu.



## ADJUST THE DISPLAY CONTRAST AND AUDIO

From the Main Menu

1. Press "Options".
2. Press "Display".
3. While in 'Display Settings' menu:
  - a. Press "1" through "5" to select the desired display contrast (higher numbers correspond to darker contrast).
  - b. Press "Touch Beep" to turn on/off the audible beep that accompanies every button press.
4. When finished, press the BACK button until you return to the Main Menu.

### Display Settings



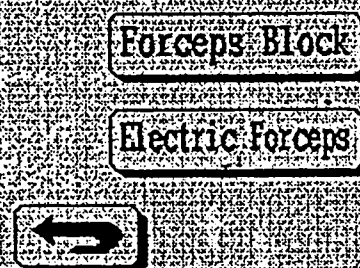
Display Settings Menu

## SET FORCEPS BLOCK POWER LEVEL

From the Main Menu

1. Press "Options".
2. Press "Forceps".
3. Press "Forceps Block".
4. While in "Forceps Block Settings" menu, press "1" through "5" to select the desired Forceps Block power level. (The higher numbers correspond to a warmer block).
5. When finished, press the BACK button until returning to the Main Menu.

### Forceps Options



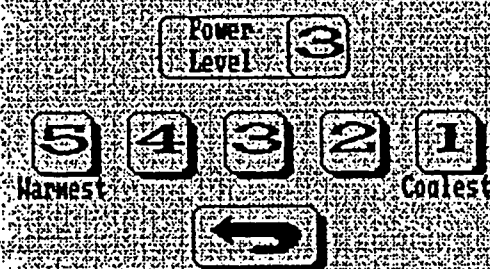
Forceps Options Menu

## ON/OFF FOR ELECTRIC FORCEPS

From the Main Menu

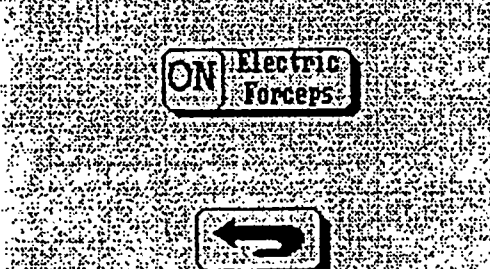
1. Press "Options".
2. Press "Forceps".
3. Press "Electric Forceps".
4. Press "Electric Forceps" to turn on/off power to the Electric Forceps.
5. When finished, press the BACK button until returning to the Main Menu.

### Forceps Block Settings



Forceps Block Settings Menu

### Electric Forceps Settings



Display Settings Menu

Accessories (page 30) for more information on Electric Forceps.

## DISPLAY LANGUAGE

The Shandon Histocentre™ 3 is capable of displaying information in multiple languages.

From the Main Menu

1. Press "Options".
2. Press "Language".
3. While in 'Select Language' menu, use Up/Down arrows to select desired display language.
4. When finished, press the BACK button until returning to the Main Menu.

During System Power Up:

1. From the startup logo screen, press 'Language' button.
2. While in 'Select Language' menu, use Up/Down arrows to select desired display language.
3. When finished, press the BACK button to return to system initialization.

### Note

- 1 During power up, the logo screen will only be displayed for approximately three seconds.

## HOT SPOT LIGHT INTENSITY SETTINGS

From the Main Menu

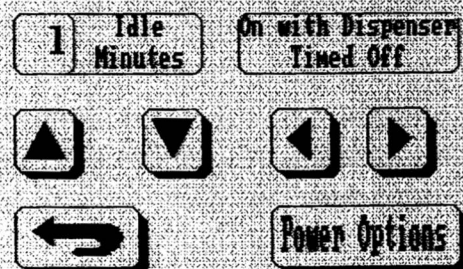
1. Press "Options".
2. Press "Light".
3. Press "Hot Spot Light".
4. Press "Power Options".
5. While in 'Hot Spot Light Power' menu, press "1" through "5" to select the desired light intensity (the higher the number, the brighter the light.).
6. When finished, press the BACK button until you return to the Main Menu.

### Light Menu



Light Menu

### Hot Spot Lamp Settings

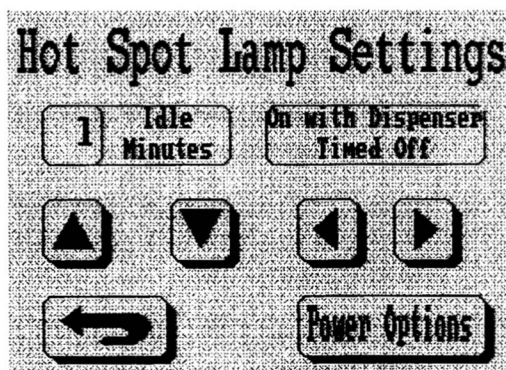


Hot Spot Light Settings Menu

## ON/OFF FOR HOT SPOT LIGHT

From the Main Menu

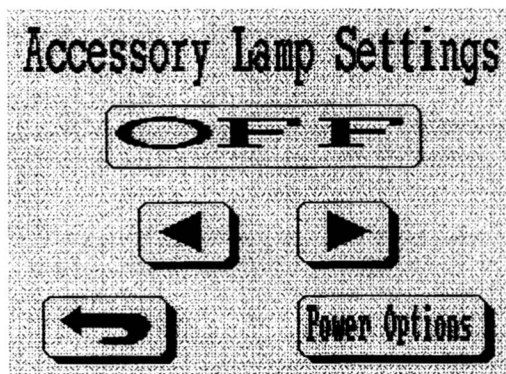
1. Press "Options".
2. Press "Light".
3. Press "Hot Spot Light".
4. While in 'Hot Spot Light Settings' menu:
  - a. Use the Left/Right arrow buttons to select the desired Hot Spot Light mode of operation.
  - b. If light mode is selected as "On with Dispenser and Timed Off", use Up/Down arrows to select length of time (in minutes up to a maximum of 59) for light to remain on following a paraffin dispense.
5. When finished, press the BACK button until you return to the Main Menu.



Hot Spot Light Power Menu

## HOT SPOT LIGHT REPLACEMENT

1. Shut off hot spot light following instructions in "ON/OFF for Hot Spot Light".
2. After bulb cools, grip bulb with fingers and pull bulb straight down.
3. Replace bulb with 10-watt bulb listed on page 11. Use a compact mirror to align the bulb pins with the light fixture holes.



Accessory Lamp Settings

## ON/OFF AND INTENSITY SETTINGS FOR LIGHTED MAGNIFIER ACCESSORY

The Lighted Magnifier is an optional piece of equipment that has a jack plug that is inserted into a socket on the backside of the paraffin dispenser housing.

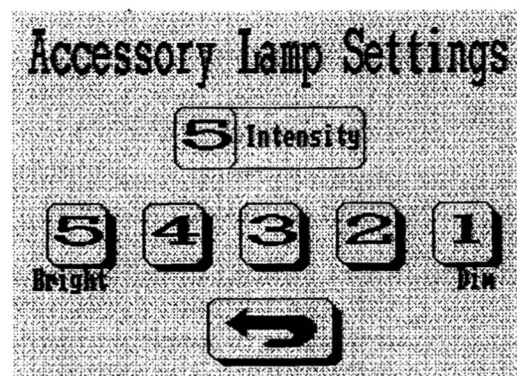
### Note

- 1 The available 'Lighted Magnifier Accessory' options are:
  - a) "OFF"
  - b) "ON"
  - c) "Linked to Hot Spot Lamp" which causes light to cycle on and off with the Hot Spot light.
- 2 The red switch on the Lighted Magnifier Accessory may also need to be pushed for the light to come on.



From the Main Menu

1. Press "Options".
2. Press "Light".
3. Press "Accessory Light".
4. While in 'Accessory Lamp Settings' menu, use the Left/Right arrow buttons to select ON, OFF or Linked to Hot Spot Lamp.
5. When the accessory light is on, press "Power Options" to change intensity.
6. While in "Accessory Lamp Settings" menu, press "1" through "5" to select the desired light intensity (the higher the number, the brighter the light).
7. When finished, press the BACK button until you return to the Main Menu.



Accessory Lamp Settings Menu

See Accessories (page 30) for more information on Lighted Magnifier Accessory.

# OPERATION

Prior to operating the unit, be sure to read and observe the following safety instructions.



**DO NOT USE IN THE PRESENCE OF FLAMMABLE OR COMBUSTIBLE CHEMICALS. FIRE OR EXPLOSION MAY RESULT; THIS DEVICE CONTAINS COMPONENTS WHICH MAY IGNITE SUCH MATERIALS.**

**DISCONNECT THE UNIT FROM THE ELECTRICAL SUPPLY BEFORE SERVICING.**



**LIQUID PARAFFIN IS HOT AND MAY CAUSE BURNS. DO NOT OVERFILL PARAFFIN TANK OR TISSUE TANK.**

**WARNING**

For proper cooling, allow at least 7.6 cm (3 in.) of space between the back panel of each module and a wall or other surface. Also allow at least 7.6 cm (3 in.) of space between the side panel of each module and a wall or other surface.

**WARNING**

Use a grounded electrical supply of correct voltage and ample current capacity. (see specification plate on unit).

**WARNING**

Do not place the unit directly under an air-conditioning vent, a heating vent or near an open window. Keep the unit out of direct sunlight.

**WARNING**

Do not use paraffin with a melting point greater than 70°C (167°F) or paraffin may not melt.

The embedding methodology provided below gives a general idea of how to operate the Shandon Histocentre™ 3. Obviously, there are various kinds of commercial molds and cassette/mold systems which are widely used in histopathology laboratories. Specific embedding techniques are usually specified by the supplier of each system and any special requirements must be incorporated into the following general procedure.

1. Turn Cold Plate Module "On/Off (I/O)" Switch to "ON (I)" position. Turn the Cold Plate Module "Compressor On/Timer Control" switch to the timer control. Turn Embedding Module "ON/OFF (I/O)" switch to the "ON (I)" position. Turn unit "ON" with display screen. Let temperatures stabilize.
2. Position magnifying glass for proper view of work area.
3. Place your processed tissue capsules or cassettes into the Tissue Storage Tank. Melted paraffin must cover the cassettes.
4. Remove a tissue capsule or cassette from the Tissue Storage Tank. Remove the cover and place in the cassette working area in front of the Tissue Storage Tank.
5. Select from the Mold Storage Oven a base mold which will accommodate the size of your specimen. Place base mold on the hot spot and fill with paraffin to your desired level.
6. Remove the specimen from the tissue capsule or cassette and place in the base mold. Orient your specimen as required.
7. Slide the base mold to the cold spot in front of the hot spot holding the specimen in position with the forceps if necessary. Wait a few seconds for the paraffin to change from clear to translucent appearance.
8. Slide the mold onto hot plate.
9. Place your cassette on top of the base mold and fill. Fill base mold to top if a cassette is not used.



10. Slide the base mold to the back of the cold plate for rapid chilling. Then remove the case specimen from the base mold to microtome.

#### Note

- 1 *Some systems contain identification tags that are to be embedded with the specimen.*
- 2 *Allow 20 minutes for the cold plate to reach optimum operating temperature.*
- 3 *The cold plate will normally develop a frost build-up, the rate of which depends upon the humidity in the laboratory. Minimal build-up will not interfere with cooling; for excessive build-up, simply turn off the cold plate for a short time until defrosting takes place. Wipe off water on surface with a dry rag.*
- 4 *An hour's chilling is generally more than adequate; prolonged chilling may cause minute cracks at the bottom of the base mold with some paraffins.*

#### WARNING

Do not allow skin to form on the surface of the paraffin inside the base mold. This partial solidification could cause the block to separate during microtomy.

### OPERATIONAL PRECAUTIONS

The following information is designed to ensure optimum and safe operation of your Shandon Histocentre™ 3.

1. Periodically check the temperature of the paraffin in the paraffin tank with a calibrated thermometer, and compare the reading with the digital display. The two readings must be within  $\pm 2.0^{\circ}\text{C}$  at any setting. If this specification is not met, contact your authorized Thermo service representative.
2. It is recommended that the waste paraffin tank be drained daily.
3. Do not place the Shandon Histocentre™ 3 directly under an air conditioner vent, as this can form a skin on the surface of the molten paraffin in the warming tank.
4. Do not block the air flow at the rear of the Shandon Histocentre™ 3.
5. The Shandon Histocentre™ 3 is sealed in critical areas to prevent spilled paraffin from leaking inside the unit. Large spillages of paraffin must be inspected thoroughly to ensure paraffin did not leak inside the unit. In the event that internal leakage is discovered, contact your authorized Thermo service representative.

# CLEANING



**DO NOT USE XYLENE FOR CLEANING PURPOSES. WHILE HIGHLY EFFECTIVE AS A PARAFFIN CLEANER, XYLENE IS ALSO HIGHLY FLAMMABLE WITH A FLASH POINT OF 27°C (81°F) TO 32°C (90°F). HENCE, XYLENE IS INAPPROPRIATE FOR USE WITH THE SHANDON HISTOCENTRE™ 3 WHICH CONTAINS HOT SURFACES AND INTERNAL SPARKING CONTACTS.**

1. A plastic paraffin scraper is provided to remove spilled paraffin on the case or cold plate.
2. Surplus wax may be removed from the tips of the hot electrical forceps by wiping them with a dry tissue.
3. Most cleaners can be used to clean the graphic display overlay, however **DO NOT** use any of the following: mineral acids, high pressure steam over 100°C or benzyl alcohol.

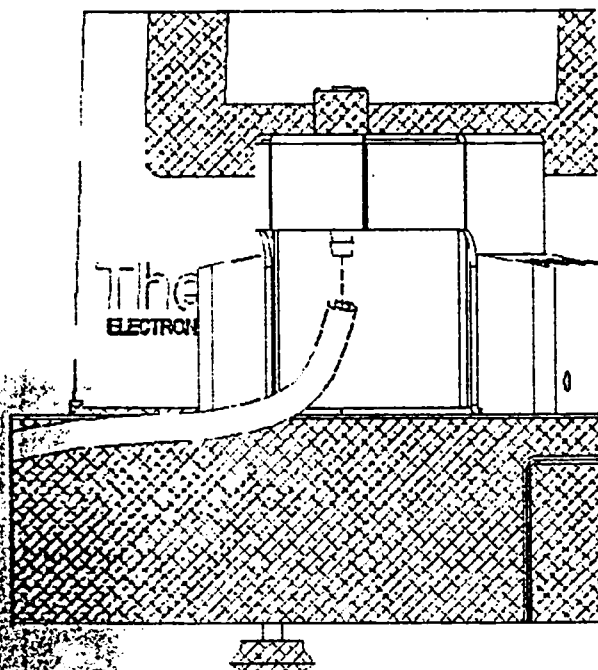


Figure 7: Draining paraffin tank, step 1

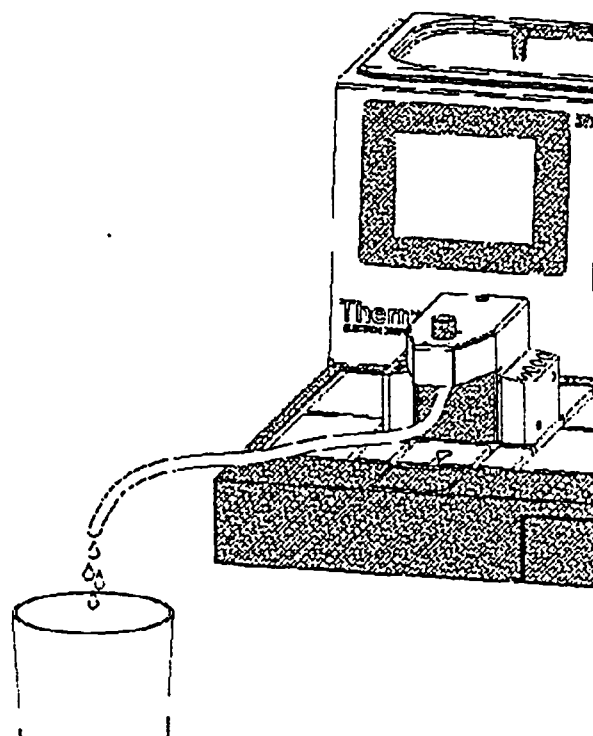


Figure 8: Draining paraffin tank, step 2; press and hold dispenser paddle or foot switch



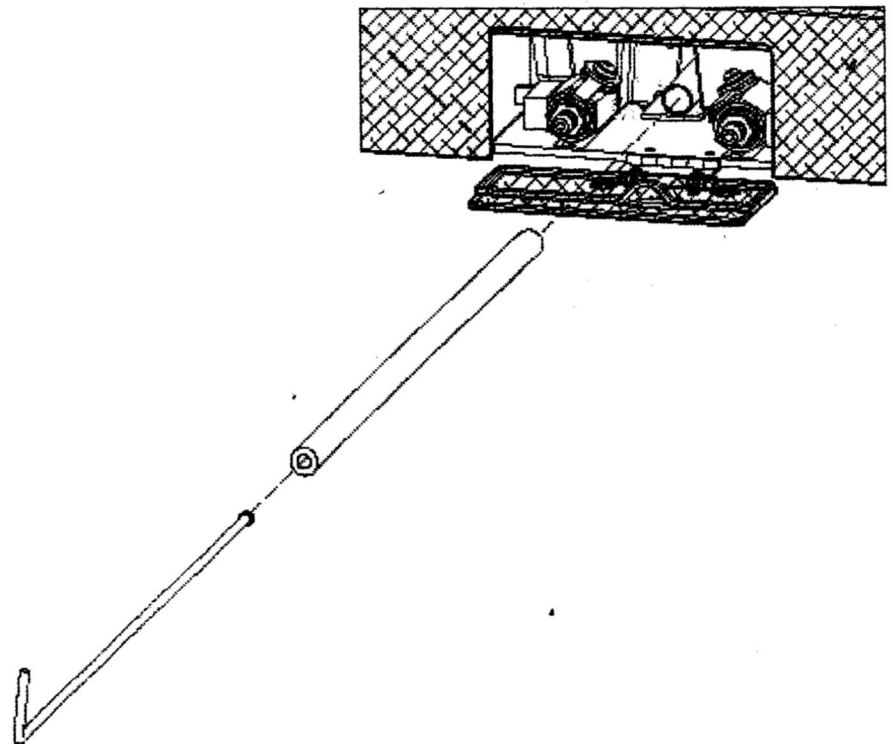


Figure 9: Draining waste (or tissue storage) tank, step 1

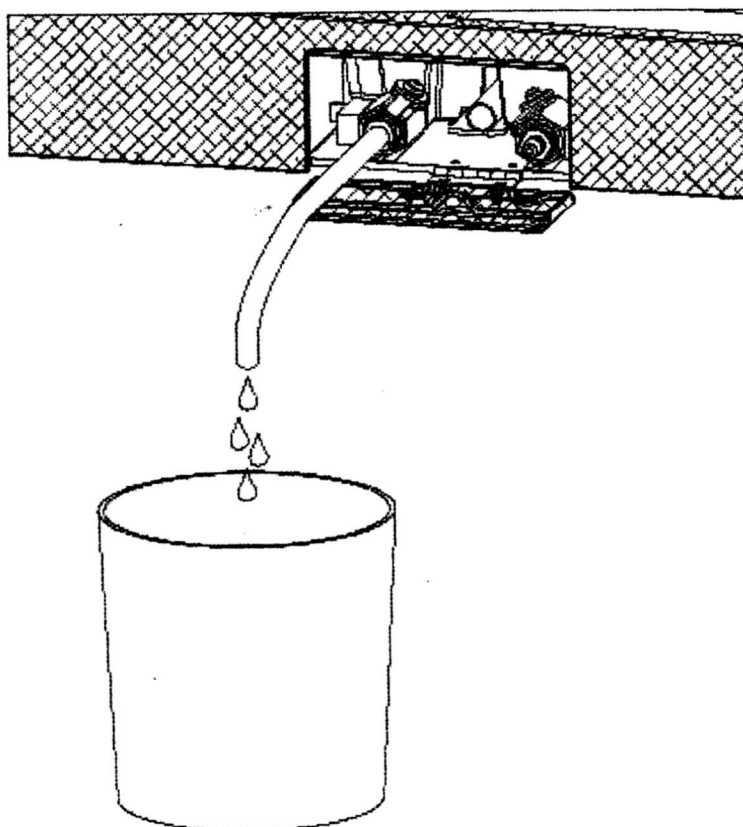


Figure 10: Draining waste (or tissue storage) tank, step 2

# TROUBLE SHOOTING



DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE MAINTENANCE OR SERVICING. REFER SERVICING TO AN AUTHORIZED THERMO SERVICE REPRESENTATIVE.

System Component	Symptom	Possible Cause	Action
Touchscreen Display.	Will not turn on.	Unit not powered.	Turn unit off then on to reset internal circuit breaker.  Verify correct power cord is plugged into the unit and facility power.
Paraffin Tank and Dispensing System.	Paraffin will not dispense.	Insufficient quantity of paraffin in storage tank.  Paraffin not yet melted.  Dispenser heater open causing paraffin to solidify in delivery pipes.	Add paraffin.  Allow time for paraffin to melt.  Verify temperature setting is warm enough for the paraffin being used.  Call service.
	Paraffin will not dispense when using footswitch.	Unconnected or faulty connection.  Ruptured air tubing or bellows.	Insert switch fully into the receptacle (See Fig. 6).  Replace foot switch.
	Erratic temperature control.	External interference from electrical noise.  Temperature control malfunctioning.	Place unit on dedicated power outlet.  Find source of noise and remove/relocate.  Call service.
	Will not heat.	Power not turned on.  Heating element or Thermal Fuse open.	Go to 'Status Menu' > 'Paraffin Tank' and turn power on.  Call service.
	Paraffin drips excessively from dispenser nozzle.	Worn o-rings or plunger assembly.	Call service.

System Component (continued)	Symptoms (continued)	Possible Causes (continued)	Action (continued)
Forceps Warming Block	Does not heat sufficiently to melt paraffin off forceps.	Power level not set high enough.	Go to 'Options Menu' > 'Forceps' > 'Forceps Options' > 'Forceps Block' and increase Power Level.
	Does not heat.	Power resistors or Thermal Fuse open.	Call service.
Electrically Heated Forceps	Do not heat, or fail to reach working temperature.	Power not turned on	Go to 'Options Menu' > 'Forceps' > 'Forceps Options' > 'Electric Forceps' and turn power on.
		Faulty connection at receptacle.	Insert forceps jack fully into the receptacle.
		Failure of heating element.	Replace forceps.
Refrigeration System	Inadequate cooling.	Ambient above 27° C	Lower ambient temperature.
		Condenser air-flow blocked.	Remove blockage.
		Leak causing HFC134A refrigerant loss.	Call service.
	Compressor will not turn on.	Unit not powered.	Ensure fuses are not blown, and are installed in unit.
		Unit set to Timer and not attached to embedding module.	Verify correct power cord is plugged into the unit and facility power.
		Power not turned on via embedding module.	Either attach to embedding module or change setting to 'Compressor On'.  Go to 'Status Menu' > 'Cooling Options' > 'Cold Plate' to turn on.
Hot Spot Lamp	Does not ever illuminate.	Power not turned on.	Go to 'Options Menu' > 'Light' > 'Hot Spot Light'. Press left or right until power on.
		Lamp defective.	Replace Lamp.
Hot Plate.	Will not heat.	Power not turned on	Go to 'Status Menu' > 'Hot Spot' and turn power on.
		Heating Element or Thermal Fuse open.	Call service.
		Sensing thermistor is open.	Call service.



# TECHNICAL DATA

**Module**  
Embedding with Cold Plate

**Model Number**

B64100001

B64100002

B64100003

B64100004

**Cold Plate**

B64100011

B64100012

B64100013

**Embedding Module**

B64100010

**Voltage/Frequency**

220-240 VAC, 50/60 Hz

120 VAC, 60 Hz

220-240 VAC, 50/60 Hz

100-120 VAC, 50/60 Hz

220-240 VAC, 50/60 Hz

120 VAC, 60 Hz

100-120 VAC, 50/60 Hz

100-240 VAC 50/60 Hz

<b>SPECIFICATION</b> Ambient Operating Range Relative Humidity Range	<b>EMBEDDING MODULE</b> 17 to 27°C (62 to 81°F) 20 to 80%	<b>COLD PLATE MODULE</b> 17 to 27°C (62 to 81°F) 20 to 80%																														
Electrical Requirements  <i>You are recommended to use a separate (dedicated) circuit for this histocenter. Ensure that the circuit is rated for the load.</i>	Module # B64100010 100-240 VAC +/- 10% 50/60 Hz, 12.0 Amps, 1200 watts	Module # B64100011 220-240 VAC +/- 10% 50/60 Hz, 3.0 Amps, 360 watts  Module # B64100012 120 VAC +/- 10% 60 Hz, 3.0 Amps, 360 watts  Module # B64100013 100-120 VAC +/- 10% 50/60 Hz, 1.5 Amps, 360 watts																														
Holding Capacity	Paraffin Tank 5.0 liters Tissue Tank 6 Shandon Pathcentre® baskets 8 Shandon Excelsior™ baskets (Approximately 6.5 liters of paraffin are needed to cover cassettes.) Base Mold Storage Oven 200 base molds	72 base molds Refrigeration Circuit Refrigerant: HFC134A Quantity: 156 gm (5.5 oz.)																														
Temperature	<table><tr><td></td><td>Range</td><td>Factory Setting</td></tr><tr><td>Paraffin Tank</td><td>50 to 70°C</td><td>60°C (140°F)</td></tr><tr><td>Tissue Tank</td><td>50 to 70°C</td><td>60°C (140°F)</td></tr><tr><td>Hot Spot</td><td>50 to 70°C</td><td>60°C (140°F)</td></tr><tr><td>Mold Storage</td><td>50 to 70°C</td><td>60°C (140°F)</td></tr><tr><td>Forceps Block Setting 1 to 5</td><td></td><td>3</td></tr><tr><td>Cold Spot Not Adjustable</td><td>5 ±5°C @ 22°C</td><td></td></tr><tr><td></td><td>50% RH Ambient</td><td></td></tr><tr><td>Paraffin Tank temperature tolerance</td><td colspan="2">±2°C</td></tr><tr><td>Tissue Tank, Hot Spot and Mold Storage temperature tolerance</td><td colspan="2">±3°C</td></tr></table>		Range	Factory Setting	Paraffin Tank	50 to 70°C	60°C (140°F)	Tissue Tank	50 to 70°C	60°C (140°F)	Hot Spot	50 to 70°C	60°C (140°F)	Mold Storage	50 to 70°C	60°C (140°F)	Forceps Block Setting 1 to 5		3	Cold Spot Not Adjustable	5 ±5°C @ 22°C			50% RH Ambient		Paraffin Tank temperature tolerance	±2°C		Tissue Tank, Hot Spot and Mold Storage temperature tolerance	±3°C		Not Adjustable -12°C ±5°C @ 22°C 50% RH Ambient
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Dimensions	<table><tr><td>Working Height</td><td>8.6 cm (3.375")</td></tr><tr><td>Height to paraffin tank handle</td><td>33.8 cm (13.3")</td></tr><tr><td>Width</td><td>63.8 cm (25.1")</td></tr><tr><td>Depth</td><td>58.4 cm (23.0")</td></tr><tr><td>Approx. Weight</td><td>35 kg ( 55 lb.)</td></tr></table>	Working Height	8.6 cm (3.375")	Height to paraffin tank handle	33.8 cm (13.3")	Width	63.8 cm (25.1")	Depth	58.4 cm (23.0")	Approx. Weight	35 kg ( 55 lb.)	<table><tr><td>8.1 cm (3.375")</td></tr><tr><td>31.8 cm (12.5")</td></tr><tr><td>40.9 cm (16.1")</td></tr><tr><td>58.4 cm (23.0")</td></tr><tr><td>20 kg ( 44 lb.)</td></tr></table>	8.1 cm (3.375")	31.8 cm (12.5")	40.9 cm (16.1")	58.4 cm (23.0")	20 kg ( 44 lb.)															
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Agency Listings	CSA CE	CSA CE (220-240 VAC only)																														

# ACCESSORIES

The following table lists optional accessories for the Shandon Histocentre™ 3.

Description	Part No.
LIGHTED MAGNIFIER ACCESSORY	B64110028
HALOGEN BULB, 12V 20W	B64110203
ELECTRIC FORCEPS-RED 1MM TIP	B64110040
ELECTRIC FORCEPS-YELLOW 2MM TIP	B64110041
ELECTRIC FORCEPS-BLUE 4MM TIP	B64110042

## LIGHTED MAGNIFIER ACCESSORY

For delicate embedding, a Lighted Magnifier Accessory is available. This accessory has a 20-watt light with a 5 inch magnifying lens. The lighted magnifier accessory plugs into a connector located on the backside of the paraffin dispenser housing. See "ON/OFF" and "Intensity Setting for Lighted Magnifier Accessory" for operation instructions.

## ELECTRIC FORCEPS

Insert the electric forceps plug into the socket labeled "FORCEPS." The socket is located on the back surface of the paraffin dispenser housing. When turned "ON", the forceps tips will attain a working temperature of 65 to 75°C (149 to 167°F).

The electric forceps must be held in the lined front two holes of the right or left forceps blocks. The forceps tips are separated when in the block. See Fig. 12 which shows a correctly positioned forceps in the forceps block.

See "ON/OFF for Electric Forceps" for operation instructions.

## FORCEPS PRECAUTIONS



**FOR YOUR OWN SAFETY AND TO PROTECT THE FORCEPS, PLEASE OBSERVE THESE PRECAUTIONS:**

1. Use only with Shandon Histocentre™ 3.
2. Do not touch the heaters on the working forceps.
3. Never use the forceps near flammable materials.
4. Do not leave the working forceps in cold water.
5. Never clean the forceps with abrasives or chemical solvents.
6. Do not attempt to sterilize the forceps by bleach or autoclave.

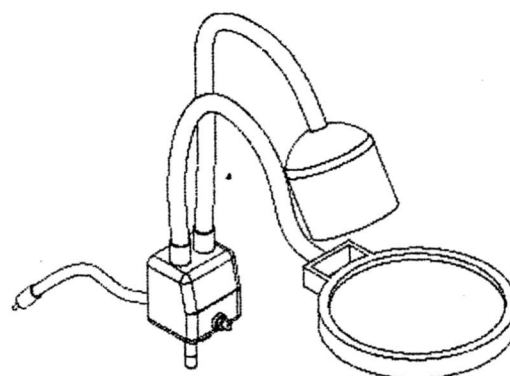


Figure 11: Lighted magnifier accessory

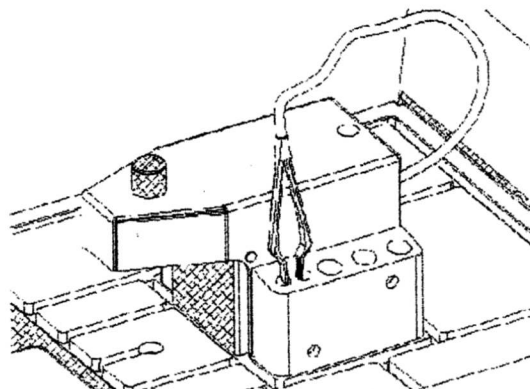


Figure 12: Electric forceps in holder

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