

Tissue-Tek

Tissue Embedding
Console System

Operating Manual



Tissue-Tek[®]

Tissue Embedding Console System

**Operating
Manual**

TISSUE-TEK® TISSUE EMBEDDING CONSOLE SYSTEM

MODEL NUMBERS

Embedding Console

4672

(100 VAC)

4710

(115 VAC)

4715

(220-240 VAC)

Cryo Console

4669

(100 VAC)

4709

(115 VAC)

4714

(220-240 VAC)

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Diagnostics Division
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INTRODUCTION

The TISSUE-TEK® Tissue Embedding Console System is used to embed processed tissue in paraffin (forming paraffin blocks ready for sectioning). The System consists of:

- Embedding Console
- Cryo Console
- Tampers (1 large and 1 small)
- Transfer Tray
- Magnifying Lens (optional purchase, see Section 8)
- Base Molds (separate purchase, see Section 8)
- Plastic Scraper
- Forceps Holder

FEATURES

- An insulated work space of sufficient size (allows you to manipulate samples comfortably and efficiently)
- Individual temperature control in five areas (forceps wells, hot plate, paraffin chamber, left and right chambers)
- Up-front keypad and control indicators (for easy access)
- Reversible forceps holder (for right or left-handed operations)
- Automatic Timer (you specify the time you desire paraffin to be ready...instrument calculates time it should automatically turn heater on)

- Embedding and Cryo Console work areas of the same height (so consoles can be placed side by side, in any order to facilitate your choice of “right-to-left” or “left-to-right” work flow)
- Digital clock
- Hinged, thermal chamber doors move completely out of the way (allows full access to both thermal chambers)
- Optional magnifying lens (enhances visibility while positioning tissue specimen)

OPERATION: WARM UP and READY TIMES

Embedding Console

When the Embedding Console is turned on, *either* manually or automatically, 4 hours* is required for paraffin to liquefy and reach set temperature.

Manual Mode: Five areas begin to heat when the console is turned ON (set power switch on back panel to ON; press Manual Mode ON/OFF key to ON (rectangular green indicator lights). All areas, *except* the paraffin chamber, reach set temperature in 30 minutes. The paraffin chamber reaches set temperature (after the paraffin is liquefied) in 4 hours.* When a particular heated area reaches set temperature, the particular area indicator lights. The console remains ON until you manually turn it OFF.

Automatic Timer Mode: The Embedding Console can be preset to be ready to use at *your* specified time. The instrument calculates an automatic “turn on” time from your preset ready time. When the instrument automatically turns ON, only the paraffin chamber begins to heat. The remaining four areas begin to heat 30 minutes prior to the preset ready time. When the console is ready to use, all five area indicators are lit. The console automatically turns OFF at *your* preset “Heat Off” time.

*6 hours if using Model No. 4672, 100 VAC.

INTRODUCTION

Cryo Console

The Cryo Console is ready to use (reaches set temperature) 15 minutes after the compressor is turned ON.*

*set power switch on back panel to ON and press ON/OFF key on Control Panel (rectangular green indicator lights)

HAZARDS

Ensure your safety! Comply with all **warning** and **caution** statements found in this manual.

SPECIFICATIONS

	EMBEDDING CONSOLE	CRYO CONSOLE
Ambient Operating Temperature and Relative Humidity Range	15° – 35° C 0% – 85% RH, (non-condensing)	15° – 35° C 0% – 85% RH (non-condensing)
Dimensions/Weight	Width 50 cm (20 in) Depth 56 cm (22 in) Height 32.5 cm (13 in) Weight approx. 20 kgs (44 lbs)	Width 32.5 cm (13 in) Depth 60 cm (24 in) Height 32.5 cm (13 in) Weight approx. 19.5 kgs (42.9 lbs)
Power Required	Model No. 4672: 100 VAC ± 10% or less, @ 4 amps 50/60 Hz Model No. 4710: 115 VAC ± 10% or less, @ 4.5 amps 60 Hz Model No. 4715: 220 - 240 VAC ± 10% or less, @ 2.4 amps 50 Hz	Model No. 4669: 100 VAC ± 10% or less, @ 2.5 amps 50/60 Hz Model No. 4709: 115 VAC ± 10% or less, @ 2.7 amps 60 Hz Model No. 4714 220 - 240 VAC ± 10% or less, @ 1.1 amps 50 Hz
Chamber Capacity	Paraffin Chamber: approx. 2 liters Left and Right Chambers: approx. 1.8 liters	(no chambers)
Temperature Range Available	Paraffin Chamber, Right and Left Chambers, Hot Plate: 50°C – 70°C Forceps Wells: 50°C – 80°C	Cooling Plate: – 5°C to 0°C
Factory Set Temperature	Paraffin Chamber, Left and Right Chambers, Hot Plate: 62°C Forceps Wells: 65°C Cold Spot: approx. 15°C at 25°C room temp. and 40% R.H.	Cooling Plate: – 5°C
Circuit Breaker/ON-OFF Switch	10 amps	10 amps

UNPACKING, SYSTEM DESCRIPTION

UNPACKING

The **TISSUE-TEK®** Tissue Embedding Console System arrives in *two* cartons.

Inspect each carton for shipping damage.

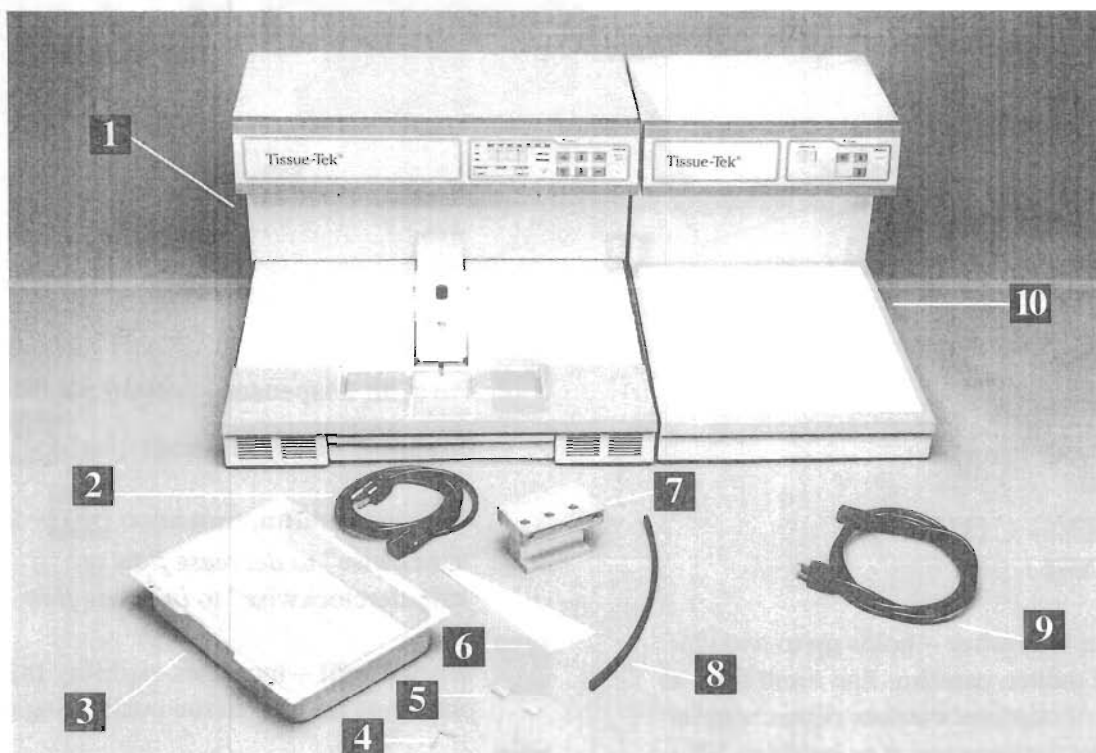
Unpack each carton.

- Use extreme care when unpacking and

handling each console. Each console contains sensitive electronic parts.

Check each item for shipping damage.

- Report any shipping damage to the representative of the carrier or to your Miles Inc., Diagnostics Division Sales Representative or nearest **TISSUE-TEK®** instrument distributor.



CARTON CONTENTS

Product Code Nos. 4710, 4672, or 4715

- 1** Embedding Console
- 2** Power Cord*
- 3** Transfer Tray
- 4** Two (2) Spare Bulbs*
- 5** Tampers (1 large and 1 small)*
- 6** Plastic Scraper*
- 7** Forceps Holder*
- 8** Shrink Tubing*

Operating Manual (not shown – instructions for both Embedding and Cryo Consoles)

*packaged in bubble wrap inside paraffin chamber

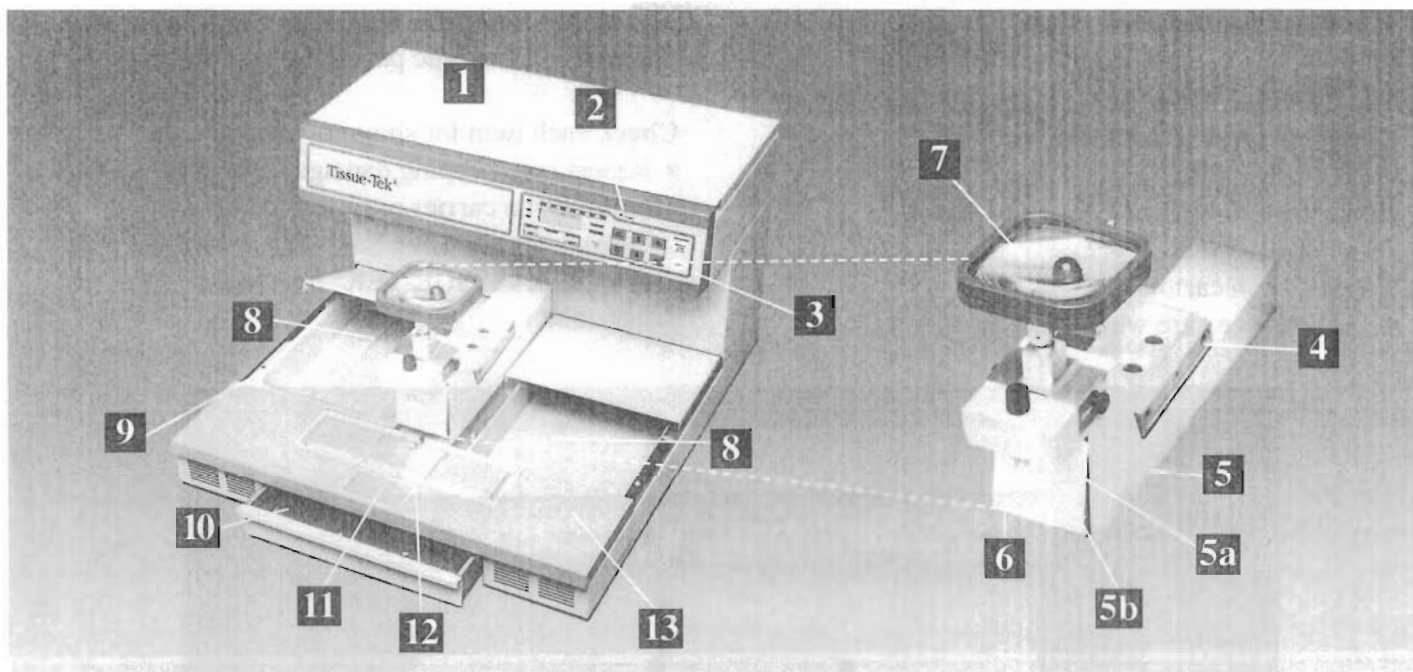
Product Code Nos. 4709, 4669, or 4714

- 9** Power Cord
- 10** Cryo Console

Operating Manual (not shown – Cryo Console instructions, only)

Missing items?...Dial 1-800-348-8100 (U.S. Customers, only). If located outside the U.S., contact your nearest **TISSUE-TEK®** instrument distributor.

UNPACKING, SYSTEM DESCRIPTION



SYSTEM DESCRIPTION

(provided for your reference)

EMBEDDING CONSOLE (FRONT PANEL)

- 1 Paraffin Chamber** – holds up to two (2) liters of molten paraffin; fine mesh filter at bottom of chamber catches debris; can be set to any temperature at or between 50° – 70°C ; factory set at 62°C
- 2 Power Indicator** – illuminates when the power switch on the back panel of the Embedding Console is set to ON
- 3 Control Panel** – consists of digital display, keypads and various system indicators (each component discussed in detail later in this section)
- 4 Forceps Warmer Chamber** – holds forceps holder; can be set to any temperature at or between 50° – 80°C ; factory set at 65°C
 - *warming area* for various sized base molds (close lid to keep heat in and dust out)
 - OR
 - *paraffin bath* to keep processed tissue specimen at the appropriate temperature (close lid to keep heat in, and dust out, when embedding process is finished or temporarily stopped)
- 5 Paraffin Dispenser** – molten paraffin is dispensed here; press fingerplate **5a** to dispense paraffin; turn knob **5b** “clockwise” to *decrease flow* or “counterclockwise” to *increase flow*
- 6 Work Light** – increases visibility in hot plate area making tissue positioning easier
- 7 (OPTIONAL) Magnifying Lens Assembly** – increases visibility while positioning tissue
- 8 Left and Right Chambers** – can be set to any temperature at or between 50° – 70°C ; each chamber can be used for *one* of the following at any one time (preference depends on your chosen work flow direction)

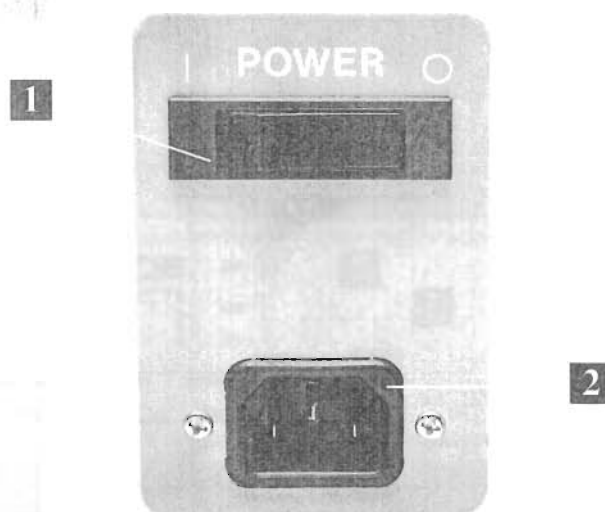
9 Transfer Tray – may be used to transfer processed specimens to the Embedding Console or may be half-filled with paraffin and then used as a paraffin bath

10 Waste Drawer – catches molten paraffin that drains through two holes in grooves around hot plate area

11 Cold Spot – cools liquid paraffin at the bottom of a base mold so that tissue can be correctly positioned

12 Hot Plate – ensures that paraffin does not solidify during embedding process; can be set to any temperature at or between 50° – 70°C; factory set at 62°C

13 Hand Rest – insulated and well-sized for comfort; allows you to manipulate samples comfortably and efficiently



EMBEDDING CONSOLE (BACK PANEL)

1 Power Switch – turns the power to the console ON and OFF; circuit breaker

2 Power Cord Connector – accepts the plug for connecting the power cord to the console

ACCESSORIES

(found inside paraffin chamber; refer to photo on page 2.1)

Power Cord – carries electrical current to Embedding Console

Spare Bulbs (2) – replacements for both Work Light bulbs

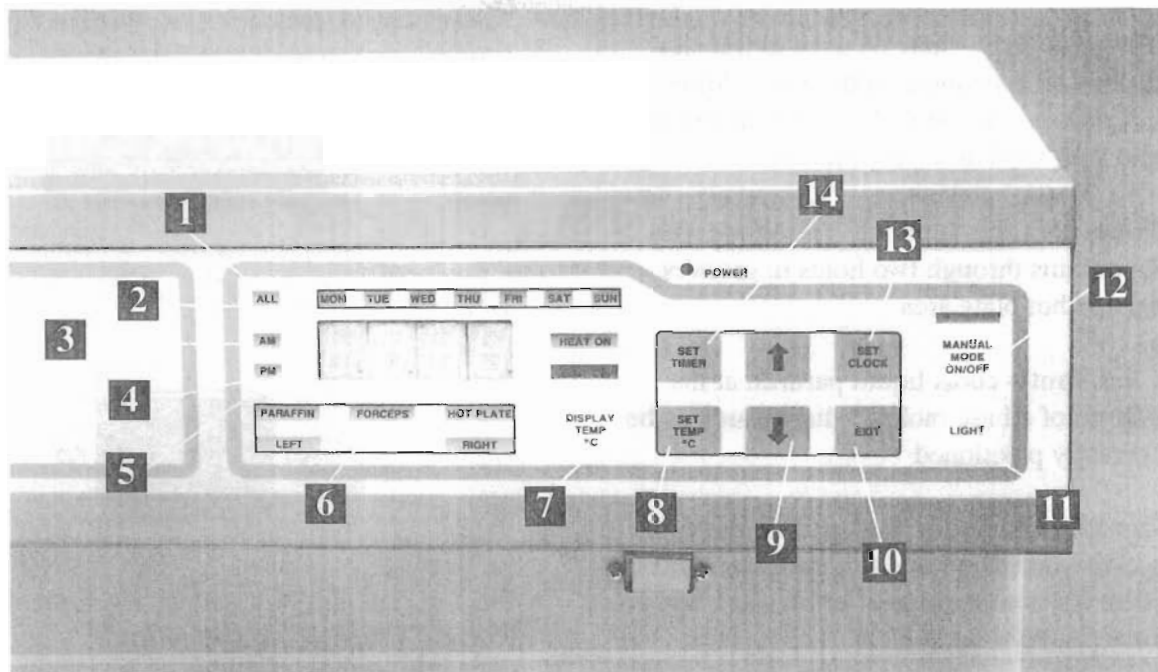
Tampers (1 large and 1 small) – used (as necessary) to press tissue firmly against the bottom of the base mold

Forceps Holder – holds up to three (3) forceps; can be positioned for right or left-handed operations; half-filled with paraffin which aids in the removal of solidified paraffin and tissue debris from forceps

Shrink Tubing – provides insulation and gripping surface for forceps arms (must be cut to size prior to inserting onto each arm; then heat shrunk into place)

Plastic Scraper – used to remove frost from cooling plate of Cryo Console

UNPACKING, SYSTEM DESCRIPTION



EMBEDDING CONSOLE (CONTROL PANEL)

- 1 ALL indicator** – functions when programming (at one time) the same Heat On/Heat Off time for “all” days of the week
- 2 MON through SUN indicators** – function when programming individual Heat On/Heat Off times (separately) one day at a time
- 3 AM indicator** – indicates hours from midnight to noon
- 4 PM indicator** – indicates hours from noon to midnight

5 Digital Display – consists of four digits;

Displays (depending on the mode):

- (a) current time of day (colon blinks)
- (b) Heat On or Heat Off time (stationary colon)
- (c) current temperature of heated chambers
- (d) actual temperature preset for heated chambers;

Signals error conditions via codes or rapidly flashing characters (with or without a 10 second audible alarm)

- 6 PARAFFIN, FORCEPS, HOT PLATE, LEFT and RIGHT indicators** – light one at a time, each time DISPLAY TEMP °C key or SET TEMP °C key is pressed; all are illuminated when the console is ready to use; indicators rapidly flash (and an audible 10 second alarm sounds) to signal an error condition

7 **DISPLAY TEMP °C key** – when pressed once, the paraffin chamber indicator is illuminated and the current temperature of the paraffin chamber is displayed (procedure is repeated for each of four remaining heated areas)

8 **SET TEMP °C key** – used to set temperatures of five heated areas; displays temperature set for the particular area (indicator) illuminated

9 **Arrow keys** – depending upon the procedure, the arrow keys:

- cycle through temperature settings, days of the week, hour and minute digits (when pressed continuously)
- increment/decrement temperature settings by one degree, hour and minute digit(s) by one digit and days of week by one day (when pressed once)

10 **EXIT key** – returns time of day to digital display; ends or escapes procedure

NOTE: When setting Heat On/Heat Off times, each Heat On time must be accompanied by a Heat Off time or the EXIT key will not function.

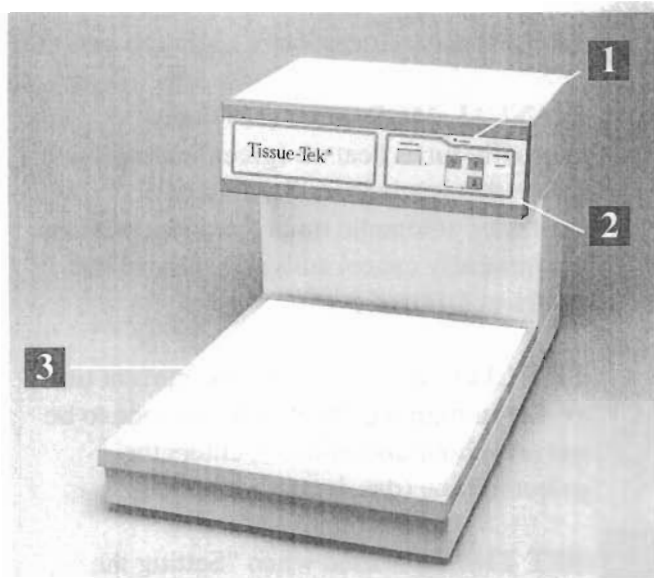
11 **LIGHT key** – turns Work Light ON and OFF

12 **MANUAL MODE ON/OFF key** – manually turns heat on (green indicator above this key is then illuminated); overrides automatic timer function; does not permanently cancel automatic timer Heat On/Heat Off times

13 **SET CLOCK** – used to set the current time of day in digital display; selects mode to be set (day, hour and minute); enters the selected time (day, hour and minute)

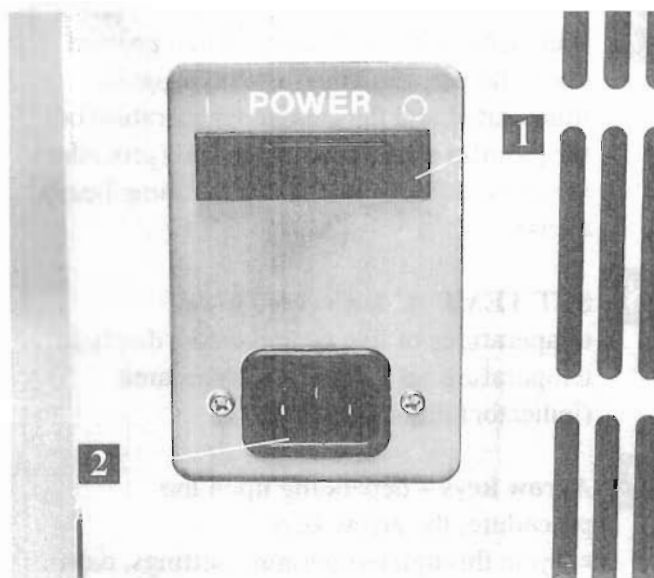
14 **SET TIMER** – used when “Setting the Automatic Timer”; illuminates “ALL,” hour and minute indicators; sets hour and minute digits; enters the selected time (day, hour and minute)

UNPACKING, SYSTEM DESCRIPTION



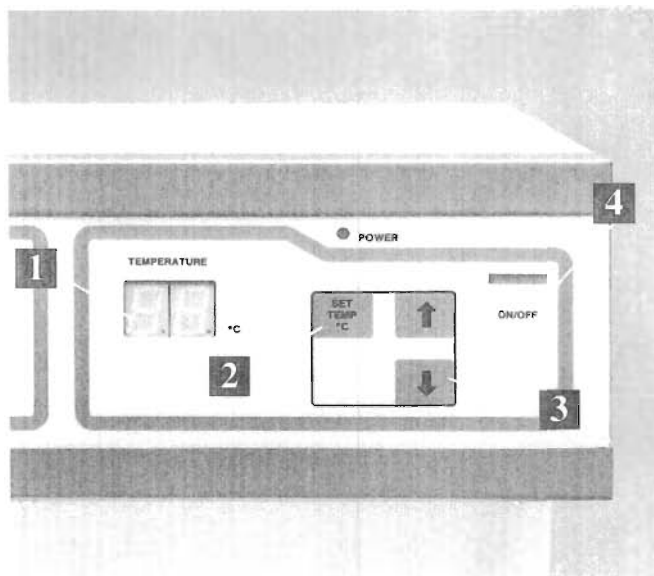
CRYO CONSOLE (FRONT PANEL)

- 1 Power Indicator** – illuminates when the power switch on the back panel is set to ON
- 2 Control Panel** – consists of digital display, keypads and various system indicators (each component to be discussed in detail later in this section)
- 3 Cooling Plate** – holds up to 60 base molds (each containing the embedded specimen); provides for optimum solidification of liquid paraffin; cools embedded specimen prior to sectioning; factory set at -5°C ; can be preset to any temperature at or between -5° to 0°C



(BACK PANEL)

- 1 Power Switch** – turns the power to the console ON and OFF; circuit breaker
- 2 Power Cord Connector** – accepts the plug for connecting the power cord to the console



Audible Alarms

(Embedding and Cryo Consoles)

An audible alarm sounds for ten (10) seconds to signal an error condition (refer to Section 6).

CRYO CONSOLE (CONTROL PANEL)

- 1 TEMPERATURE °C Display** – consists of two digits;

Displays (depending on mode):

- (a) actual temperature of cooling plate
- (b) temperature preset for cooling plate
- (c) available temperature settings for cooling plate
- (d) Cryo Console error conditions (refer to Section 6)

- 2 SET TEMP °C key** – used to verify or change set temperatures

- 3 Arrow keys** –
 - cycle through temperature settings (when pressed continuously)
 - increment/decrement temperature settings by one degree (when pressed once)

- 4 ON/OFF** – turns the compressor for the cooling plate ON and OFF

SET UP

Installation

CAUTION: Do not place the Embedding System where it would be subjected to direct sunlight and/or direct heat, an open flame source, excessive humidity or air current, excessive particulate matter, or electrical noise (such as from refrigerators, centrifuges, ultrasonic cleaners and microwave ovens).

1. **Select** a level surface near two properly grounded electrical outlets in a well-ventilated area of minimum humidity.

WARNING: Make sure the electrical outlets supply the proper voltage (within $\pm 10\%$). Refer to the rating label on each console.

2. **Place** the Embedding Console next to the Cryo Console. It is not necessary to leave air space between the two consoles.

Reminder: The working area of each console is of the same height. This allows you to place the consoles next to each other, *in any order*, to accommodate your choice of “right-to-left” or “left-to-right” work flow.

3. **Check to make sure** the power switch on the back panel of *each* console is set to OFF (O).
4. **Connect** each power cord to the power cord connector on the back panel of each console.

5. **Plug** each power cord into a properly grounded outlet.

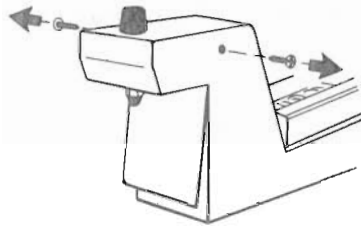
6. **Move** the consoles into place on the designated work space.

WARNING: For cooling purposes, allow at least 3 inches of air space between the wall (or other surface) and the back panel of each console.

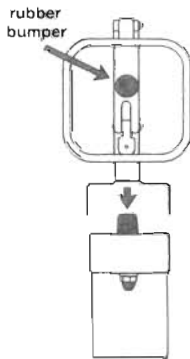
SET UP

Attach Magnifying Lens Assembly (optional and not provided; to purchase, refer to Section 8)

1. Remove both screws from paraffin dispenser.

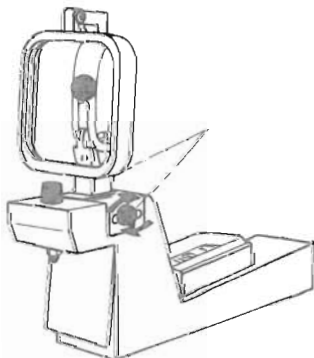


2. Mount assembly over paraffin dispenser (rubber bumper faces you).

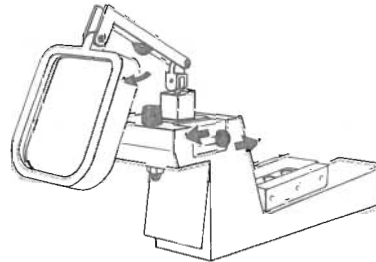


3. Place one of the provided thumbscrews into the threaded hole on one side of the paraffin dispenser; partially tighten the thumbscrew.

Repeat "step 3" to attach remaining thumbscrew to opposite side of paraffin dispenser.



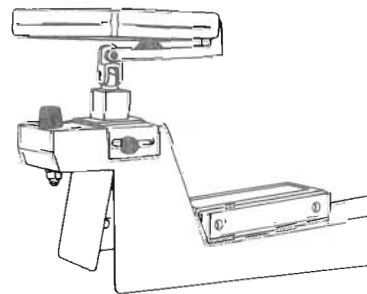
4. Adjust magnifying lens to preferred focal range (pull lens forward and down; slide mounting base backwards or forwards).



5. Finger-tighten both thumbscrews.

NOTES:

When you are not using the magnifying lens, fold magnifying lens (*forward and down*) to meet rubber bumper; then fold (*backward and down*) so that it is horizontal to the console and out of the way.



The magnifying lens can be quickly removed for cleaning (*refer to Section 7*).

Verify Proper Installation/System Functioning/Power On

1. **Set** the power switch on the back panel of the Embedding Console to ON (I).

The following indicators are illuminated:

POWER
HEAT ON
HEAT OFF

The following appears on digital display:

" --:-- "

2. **Press** MANUAL MODE ON/OFF key (on Embedding Console control panel).

The rectangular green indicator (above MANUAL MODE ON/OFF key) is illuminated.

The following indicator blinks:

HEAT ON

3. **Set** the power switch on the back panel of the Cryo Console to ON.

The **POWER** indicator is illuminated.

4. **Press** ON/OFF key (on Cryo Console control panel).

The rectangular green indicator (above ON/OFF key) is illuminated and the compressor starts functioning.

If System functions properly:

- **press** Cryo Console ON/OFF key to OFF to turn off compressor (rectangular green indicator above key is no longer illuminated);
- **press** Embedding Console MANUAL MODE ON/OFF key to OFF (rectangular green indicator above key is no longer illuminated);
- **continue** with "Set Day and Twelve Hour Time Clock" (next page)

If System does not function properly:

Dial 1-800-348-8100 (U.S. Customers, only). If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor.

SET UP

Set Day and Twelve Hour Time Clock

- Clock settings are lost when a power failure occurs and when the Embedding Console power switch (*on the back panel*) is set to OFF. When power is restored, digits flash rapidly and clock automatically resumes from time of power outage (wrong time of day).

Twelve Hour Time Clock

Make sure to check the AM or PM indicator when setting the clock.

Blinking and Stationary Colons

A blinking colon in the displayed time denotes current time, while a stationary colon denotes either “Heat On” or “Heat Off” time.

Keys To Use

- SET CLOCK** – **selects mode to be set** (day, hour or minute)
– **enters** selected day, hour or minute
- ARROW KEYS** – **cycle through each available setting** for day, hour or minute (when pressed continuously)
– **increment/decrement each available setting** for day, hour or minute by one setting (when pressed once)
- EXIT** – **starts the clock**
(press only after the desired setting for each mode is selected *or* is already displayed)

STEP-BY-STEP PROCEDURE

What You Do	What Happens
1. Press SET CLOCK	A day of the week indicator flashes
2. If the correct day of the week is not already flashing, press ↑ or ↓ until the correct day of the week flashes	The correct day of the week flashes
3. Press SET CLOCK	The hour flashes
4. If the correct hour is not already flashing, press ↑ or ↓ until the correct AM or PM hour flashes	The correct AM or PM hour flashes
5. Press SET CLOCK	The minute(s) flash(es)

— continued

6. If the correct minute is not already flashing, press ↑ or ↓ until the correct minute flashes

The correct minute(s) flash(es)

7. Press EXIT

The selected day and time are set

The clock starts (colon blinks)

SET UP

Change or Verify Factory Set Chamber Temperatures (Embedding Console)

- Temperature settings are retained in memory and are not lost when a power failure occurs or when the Embedding Console power switch (*on the back panel*) is set to OFF.

Keys to Use

SET TEMP °C	– illuminates one chamber indicator each time it is pressed – initiates flashing of the current temperature setting for the chamber (indicator) illuminated
ARROW KEYS	– cycle through each available temperature setting (when pressed continuously) – increment/decrement each available temperature setting by one setting (when pressed once)
EXIT	– terminates procedure; returns time of day to digital display NOTE: Upon initial system set up, press EXIT only after the desired setting for each chamber is selected or verified.

Factory set chamber temperatures*:

Paraffin Chamber....	62°C
Forceps Chamber....	65°C
Hot Plate	62°C
Left and Right Chambers	62°C

*It is recommended that factory set chamber temperatures be verified prior to first use of the System.

STEP-BY-STEP PROCEDURE

What You Do	What Happens
1. Press SET TEMP °C	Paraffin indicator is illuminated Paraffin chamber preset temperature flashes
2. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes
3. Press SET TEMP °C	Forceps indicator is illuminated Forceps warmer preset temperature flashes
4. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes

5. Press SET TEMP °C	Hot Plate indicator is illuminated Hot plate preset temperature flashes	11. Press EXIT	Factory set temperatures are verified <i>and/or</i> Selected temperatures are set
6. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes		
7. Press SET TEMP °C	Left chamber indicator is illuminated Left chamber preset temperature flashes		
8. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes		
9. Press SET TEMP °C	Right chamber indicator is illuminated Right chamber preset temperature flashes		
10. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes		

SET UP

Change or Verify Factory Set Cooling Plate Temperature (Cryo Console)

- The cooling plate temperature is retained in memory and is not lost when a power failure occurs or when the Cryo Console power switch (*on the back panel*) is set to OFF.

The Cooling Plate reaches set temperature 15 minutes after power to compressor is turned ON (press ON/OFF key on control panel to ON; green indicator above ON/OFF key is illuminated).

Reminder: When the Cryo Console is not in use, turn the power to compressor OFF (press the ON/OFF key on the control panel to OFF; green indicator above ON/OFF is not lit).

NOTE: To protect the compressor from damage, the compressor **will not restart for 3 to 5 minutes** if power is interrupted or turned off while the compressor is on.

Keys To Use

- | | |
|-------------------|---|
| SET
TEMP
°C | – causes set temperature to flash in digital display |
| | – sets selected temperature |
| ARROW
KEYS | – cycle through each available temperature setting (when pressed continuously) |
| | – increment/decrement each available temperature setting by one setting (when pressed once) |

Factory set cooling plate temperature*:
– 5°C

* It is recommended that factory set cooling plate temperature be verified.

STEP-BY-STEP PROCEDURE

What You Do	What Happens
1. Press SET TEMP °C	The preset temperature flashes
2. If the desired temperature is not already flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes
3. Press SET TEMP °C	The selected temperature is set
	or
	The temperature is verified

Add Paraffin (Embedding Console)

Do not use paraffin with a melting point higher than 68°C.*

*or paraffin will not liquefy; the maximum temperature of the paraffin chamber is $68 \pm 2^\circ\text{C}$

WARNING: Molten paraffin is hot and may cause burns. Do not overfill paraffin container.

1. **Open** Paraffin Chamber Lid.
2. **Add** approximately 2 liters of clean molten paraffin (or equivalent volume of paraffin chips/flakes) to the chamber. *Do not overfill.*

NOTE: 2 parts dry flakes/chips = 1 part molten paraffin

3. ***If using the transfer tray as the paraffin bath,*** add equivalent of 50 mL of molten paraffin** to either right or left chamber (whichever you select depending on your work flow direction)

**added to increase heat conductivity between tray and chamber

Place transfer tray into the chamber (over 50 mL molten paraffin).

4. **Add** paraffin to the paraffin bath to a depth of about 13 mm (about .9 liter molten paraffin or equivalent in dry chips/flakes).

Reminder: The paraffin bath may be either right or left chamber or transfer tray (whichever you select).

NOTE: Change paraffin frequently to prevent build-up of tissue debris.

5. **Pour** about 1 mL of clean molten paraffin into each well in forceps holder.
6. **Place** one forceps into each well.

Place Base Molds Into Chamber

Place base molds (obtained by separate purchase) into empty chamber (either right or left depending on your chosen work flow direction).

SET UP

What Happens When Power Is Turned Off

Embedding Console

When the power is turned off for maintenance procedures, etc. (*via power switch on back panel*) or interrupted by a power failure:

- current time of day is lost (clock stops functioning) and must be reset when the power is turned back on

NOTE: When power is restored, the clock automatically resumes from time of power failure (with digits rapidly flashing). Be sure to reset clock to current time of day.

- preset Heat On/Heat Off time will be retained but will be behind schedule (equal to the total time of the power outage) if console heater was scheduled to “come on” or “was on” during that time

Cryo Console

To protect the compressor from damage, the compressor **will not restart for 3 to 5 minutes** if power is interrupted or turned off while the compressor is ON.

When the Cryo Console is intermittently not in use during the day, turn the compressor OFF by pressing the ON/OFF key *on the Cryo Console control panel*. (The rectangular green indicator above ON/OFF key is not lit when power to cooling plate is turned OFF.)

When To Set Power Switches On “Back Panel” To OFF

Set power switches to OFF when consoles are not in use for *long* periods of time and when performing designated maintenance procedures.

The power switch on the back panel of each console is also a circuit breaker.

AUTOMATIC TIMER (optional use)

EMBEDDING CONSOLE

“Heat-On” and “Heat-Off” time for each day of the week:

- can be preset*
- can vary daily (for up to 7 days)
- is automatically re-used from week to week
- can be overridden at any time using the MANUAL MODE ON/OFF key
- can be easily canceled

*The System calculates an automatic “Heat-On” time from your preset “ready” time. The calculation is based on normal room temperature conditions. “Ready” time may be delayed as much as 1 to 1½ hours as room temperature approaches the low end of the operating temperature specification.

Setting The Automatic Timer

- **Automatic Timer settings are stored in memory and are not lost when a power failure occurs or when the power switch (on the back panel) is set to OFF.**

REMINDER: If a power failure occurs or the power is turned OFF, the clock stops functioning and the current time of day is lost. When the power is restored, the clock automatically resumes from time of power failure (wrong time of day) with digits rapidly flashing. Preset Heat On/Heat Off time will be retained but will be behind schedule equal to the total time of the power outage. Be sure to reset clock whenever a power outage occurs.

KEYS TO USE

- | | |
|---------------|--|
| SET
TIMER | – enters set timer mode |
| | – illuminates “ALL,” “hour” and “minute” indicators |
| | – sets hour and minute digits |
| ARROW
KEYS | – cycle through days of the week, and hour and minute digits (when pressed continuously) |
| | – increment/decrement hour and minute digit(s) by one digit (when pressed once) |
| | – increment day of week, by one day (when pressed once) |

- | | |
|------|---|
| EXIT | – escapes or terminates current procedure |
| | – returns clock to current time |

REMINDER: A “blinking” colon denotes current time of day while a “stationary” colon denotes either “Heat On” or “Heat Off” time.

Step-by-step instructions provided are as follows:

- ☐ Setting the Automatic Timerpage 4.2
- ☐ Canceling the Automatic Timer (One Day at a Time)page 4.4
- ☐ Canceling the Automatic Timer (All Days at a Time)page 4.5
- ☐ Checking the Automatic Timer (What Time is Set?).....page 4.6

IMPORTANT—In the following instructions: “HEAT ON” time refers to the time you want the console to be “ready to use”

AUTOMATIC TIMER (optional use)

EMBEDDING CONSOLE

Setting the Automatic Timer

STEP-BY-STEP PROCEDURE

What You Do	What Happens
	2. Press SET TIMER
	Enters mode for setting Heat On time
	Hour indicator flashes (or actual hour if previously set)
1. Press SET TIMER	"ALL" flashes
To set the same time for all 7 days, continue with step 2.	3. Press ↑ or ↓ until the desired AM or PM hour flashes
To set the time for a particular day, press ↑ or ↓ until the desired day indicator flashes. Then continue with step 2.	The selected AM or PM hour flashes
	4. Press SET TIMER
	The minute indicator flashes (or actual minute[s] if previously set)
	5. Press ↑ or ↓ until the desired minute(s) flash(es)
	The selected minute(s) flash(es)
	6. Press SET TIMER
	Enters mode for setting Heat Off time
	The hour indicator flashes (or actual hour if previously set)
	7. Press ↑ or ↓ until the desired AM or PM hour flashes
	The selected AM or PM hour flashes
	8. Press SET TIMER
	The minute indicator flashes (or actual minute[s] if previously set)
	9. Press ↑ or ↓ until the desired minute(s) flash(es)
	The selected minute(s) flash(es)

CAUTION:
Continuing this
procedure when
"ALL" is flashing
results in replace-
ment of individually
preset Heat On/
Heat Off times.
(Hint: Press arrow
keys to determine
what times are set
for each day).
To escape procedure
now, press EXIT.

10. Press SET
TIMER*

Heat On/Heat Off times
are set

“MON” flashes *if* you
have set the same Heat
On/Heat Off time for
all 7 days

or

Next day indicator
flashes *if* you are
setting Heat On/Heat
Off time one day at a
time

11. If the desired
Heat On/Heat
Off times have
been set, press
EXIT.*

Terminates procedure

Current time of day is
displayed (colon
blinks)

If you desire
to continue,
press ↑ or ↓
to advance
to next day
indicator.
Then repeat
steps 2 through
11.

HINT: If you want to set the same Heat On/Heat
Off time for most days (e.g., Monday through
Friday), set all days to the same time via the “ALL”
indicator; then go back and change or cancel
individually (as desired) the Heat On/Heat Off time
for the remaining days (e.g., Saturday and Sunday).

*If three beeps sound, you are returned to step 3 for
one of the following occurrences:

1. “Heat On” time was selected without a “Heat Off” time.
2. Selected “Heat Off” time is an earlier time than the
selected “Heat On” time.

To correct the error, repeat the procedure (begin with Step 3).

AUTOMATIC TIMER (optional use)

EMBEDDING CONSOLE

Canceling Automatic Timer (One Day At A Time)

IMPORTANT: This procedure cancels the preset Heat On/Heat Off time for the selected day.

STEP-BY-STEP PROCEDURE

6. Press EXIT

Selected Heat On/Heat Off times are canceled

Current time of day is displayed (colon blinks)

What You Do	What Happens
1. Press SET TIMER	"ALL" flashes
2. Press ↑ or ↓ until the day of the week to be canceled is illuminated.	The selected day flashes
3. Press SET TIMER	The hour digit(s) flash
4. Press ↑ or ↓ until "--:--" is displayed.	"--:--" is displayed (hour indicator flashes) "Heat On" and "Heat Off" indicators are illuminated
5. If this is the only day you want to cancel, continue with step 6.	

If you would like to cancel additional days, repeat steps 2 – 4 for each additional day before proceeding with step 6.

Canceling Automatic Timer (All Days At A Time)

IMPORTANT: This procedure cancels (at one time) all preset Heat On/Heat Off time.

STEP-BY-STEP PROCEDURE

What You Do	What Happens
1. Press SET TIMER	"ALL" flashes
2. Press SET TIMER	Hour digit(s) flash
3. Press ↑ or ↓ until "--:--" is displayed.	"--:--" is displayed (hour indicator flashes)
4. Press SET TIMER	"--:--" is displayed "MON" flashes "Heat On" and "Heat Off" indicators are illuminated
5. Press EXIT	Heat On time(s) for all days of the week are canceled Current time of day is displayed

AUTOMATIC TIMER (optional use)

EMBEDDING CONSOLE

Checking the Status of the Automatic Timer (What Time is Set?)

1. Press SET TIMER:
Either A or B, below, occurs:

A	B
“ALL” indicator flashes	“ALL” indicator flashes
Heat On time is displayed	“_ _: _ _” appears in digital display
AM or PM is illuminated	HEAT ON and HEAT OFF are illuminated
HEAT ON is illuminated	

2. If “A” occurs, the console is set to be ready the same time each day. The Heat On time (ready time) is shown in the digital display.

If “B” occurs, Heat On/Heat Off time was not previously set via the “All indicator”. However, Heat On/Heat Off times may have been set individually.

To determine if Heat On/Heat Off times are set for individual days, press arrow key(s) to cycle through the days of the week.

- Preset Heat On times appear in the digital display.

EMBEDDING PROCEDURE

EMBEDDING PROCEDURE (Example)

NOTE: The following procedure is an example only. You may prefer to use your own method.

Before proceeding, make sure:

- both consoles are properly set up according to instructions in Section 3 (and Section 4, if automatic timer is used)
- both consoles are ready to use (check temperature indicators, paraffin volume, base molds, paraffin tray)
- tissues have been processed and are in the paraffin bath of the Embedding Console

Embedding Procedure (example)

1. Press LIGHT key to turn on Work Light.

Optional:

Properly position magnifying glass for best view.

2. Using a heated forceps, remove one cassette from the paraffin bath and place on either right or left hot plate (depending on your work flow direction).
3. Remove cassette cover.

4. Select (and remove from heated chamber) one base mold that would best fit the tissue(s) in the cassette.
5. While holding base mold under paraffin dispenser, press fingerplate to dispense only enough paraffin to half-fill base mold.
6. Place base mold on hot plate under paraffin dispenser.
7. Using a forceps, place tissue(s) from cassette into base mold.

If tissues do not sink to bottom of mold, use tampers or forceps to lightly push tissue(s) down (into proper position) on the bottom of base mold.

8. Move the base mold to the cold spot (bottom of the base mold rapidly cools and a thin layer of paraffin solidifies).

NOTE: If the tissue is not correctly positioned, move base mold back to hot plate; then use forceps to re-position tissue(s). Return base mold to cold spot. **Repeat** this procedure as necessary until tissue(s) are properly orientated.

CAUTION: Never allow paraffin to completely solidify during this process.

9. Place one cassette over properly positioned tissue(s) in base mold.

Embedded tissue(s) adhere to cassette.

– continued on next page

EMBEDDING PROCEDURE

10. Move the base mold to the hot plate under paraffin dispenser.

11. While holding the cassette under paraffin dispenser (and above center hot plate), press fingerplate to dispense paraffin into base mold until the cassette is filled with paraffin.

NOTE: Do not overfill base mold.

12. Place base mold containing embedded tissue(s) onto cooling plate.

NOTE: The surface of the cooling plate will usually be covered with a light layer of frost (depending on ambient humidity). This enhances heat exchange between the warmed base mold and the cooling plate.

13. Check to make sure the paraffin block is completely solidified; then remove paraffin block from base mold.

NOTE: The paraffin block should easily release from the base mold. If not, the base mold may need cleaning.

14. If the paraffin block is not to be immediately sectioned, the block may be stored on the cooling plate.

15. Press LIGHT key to turn off Work Light.

NOTE: To extend life of bulbs, always turn off Work Light after embedding procedure is completed.

ERROR CONDITIONS, TROUBLESHOOTING

Error conditions are in alphabetical order.

Use the table below to quickly determine if this section addresses your particular instrument problem.

Cryo Console	Page
Alarm sounds	6.2
Cooling plate does not function.....	6.2
Cooling plate does not reach set temperature	6.2
Power indicator will not illuminate	6.2

Embedding Console	Page
Alarm sounds and area indicators rapidly flash.....	6.3
Paraffin will not dispense correctly.....	6.4
Power indicator/other indicators will not illuminate	6.4
Time of day is rapidly blinking	6.4

In the event this section cannot assist you in solving your instrument problem, call:

1-800-348-8100
(U.S. Customers, only)

If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor or representative.

ERROR CONDITIONS, TROUBLESHOOTING

CRYO CONSOLE

ERROR

CONDITION

CAUSE

SOLUTION

Alarm (tone) sounds for
10 seconds

Cryo Console has
malfunctioned

Press "DISPLAY TEMP °C key."
Character(s) shown below appear on the display.



Contact Customer Service.

Cooling plate does not
function

Power outage or
compressor malfunction

Check to make sure:

- the power cord is connected to a "live" outlet
- the power cord is securely attached to the Cryo Console
- the power switch on the back panel is set to ON and power indicator is illuminated
- the ON/OFF key on the Cryo Console control panel is ON (rectangular green indicator is illuminated)

If the problem persists, contact Customer Service.

Cooling plate does not
reach set temperature

Cryo Console has
malfunctioned

1. **WARNING:** Make sure at least 3 inches of air space exists between the wall and console.
2. Check the room temperature and make sure the console is not in an area of excessive air current.

If the problem persists, contact Customer Service.

Power indicator will not
illuminate

Power outage or Cryo
Console has
malfunctioned

1. Check to make sure power cord is securely connected to the console and plugged into a "live" power outlet.
2. Check to make sure the power switch on the back panel is set to ON.

If the problem persists, contact Customer Service.

EMBEDDING CONSOLE ERROR CONDITION

CAUSE

SOLUTION

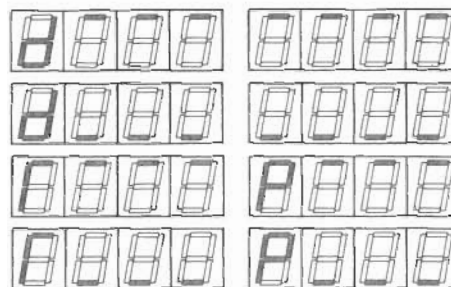
Alarm (tone) sounds for 10 seconds;

Flashing area indicator(s) (Forceps, Hot Plate, Paraffin, Left or Right)

Temperature is out-of-range by more than 5°C

Press "DISPLAY TEMP °C key."

If any of the following symbols/characters are displayed (with a rapidly flashing temperature), contact Customer Service.



If only a rapidly flashing temperature is displayed (no symbols/characters):

1. Check to determine if you have recently added cold paraffin, base molds, replaced a cool forceps warmer etc., that may have caused more than a 5°C drop in an area temperature. If so, wait a few minutes for the temperature to stabilize and the error condition will then cease.
2. Check to verify that at least 3 inches of air space exists between the wall or other surface and the back panel of the console.
3. Check the temperature of the room. Adjust the temperature if necessary.
4. If the error condition persists, contact Customer Service.

ERROR CONDITIONS, TROUBLESHOOTING

EMBEDDING

CONSOLE ERROR

CONDITION	CAUSE	SOLUTION
Paraffin will not dispense	Paraffin may not be molten	If paraffin is not molten: ■ Check the temperature of the room; adjust temperature if necessary. ■ If using the automatic timer, check to verify that the correct AM or PM "Heat On" time is set. ■ If using the manual mode, wait at least 4* hours after the console is turned ON for paraffin to liquefy and reach set temperature. ■ Check the temperature of the paraffin chamber. If the temperature is slightly below the set temperature and decreases over a long time period, the heater has failed. Contact Customer Service. *6 hours for Model No. 4672, 100 VAC
	Paraffin filter may need cleaning	If paraffin is molten and set temperature has been reached, paraffin flow may be obstructed by a clogged paraffin filter. Refer to Section 7 for cleaning instructions.
Power indicator/other indicators will not illuminate	Power outage or Embedding Console has malfunctioned	1. Check to make sure power cord is securely connected to the console and plugged into a "live" power outlet. 2. Check to make sure the power switch on the back panel is set to ON. If the problem persists, contact Customer Service.
Time is rapidly blinking on display (time is incrementing normally, but is behind schedule)	Power outage (or power switch on back panel was turned OFF, then ON)	Reset the clock to current time of day.

CARE, MAINTENANCE, MINOR REPAIR

INSTRUMENT CARE

The Embedding and Cryo Consoles contain sensitive electronic parts.

- Handle consoles with extreme care. Severe mechanical shocks can damage and/or dislodge internal parts and connections.
- Do not place the System where it would be subjected to direct sunlight and/or heat, an open flame source, excessive air current, excessive humidity, excessive particulate matter, or electrical noise (such as from refrigerators, centrifuges, ultrasonic cleaners and microwave ovens).
- Do not block the ventilation panels on the back panel of each console. Allow at least three (3) inches of air space between the wall (or other surface) and back panels.
- Set the power switch on the **back panel** of each console to OFF when consoles are not in use for long periods of time.
- During the day, when the Cryo Console is (intermittently) not being used, turn OFF the compressor (use ON/OFF key on **control panel**).
- Do not place anything on the top panels of each console. Placing items on top panels interferes with proper ventilation and heat exchange.
- **WARNING: Molten paraffin may cause burns.** Do not move the Embedding Console when the paraffin chamber (or paraffin bath) is filled with molten paraffin. Turn the power OFF, then allow the paraffin to solidify before moving the console. Do not remove the transfer tray if it is filled with molten paraffin. Allow paraffin to solidify before removing tray.

ROUTINE MAINTENANCE CHART *(Summary)*

Daily	Periodic and As Required (by spillage, troubleshooting or contamination)
Replenish Paraffin (<i>Embedding Console</i>)	Clean Paraffin Bath, Paraffin Chamber and Filter, Forcep Wells, Exterior Surfaces and Ventilation Panels, Waste Drawer, and Chamber storing Base Molds; Add clean paraffin; (<i>Embedding Console</i>)
Remove Spilled Paraffin/Debris from insulated workspace and hot plate area. (<i>Embedding Console</i>)	Clean Magnifying Lens Assembly (<i>optional purchase for Embedding Console</i>)
Turn off compressor (press ON/OFF key on Cryo Console Control Panel).	Clean exterior surfaces (<i>Cryo Console</i>)
Remove condensate from cooling plate (<i>Cryo Console</i>)	

CARE, MAINTENANCE, MINOR REPAIR

DAILY MAINTENANCE

Embedding Console

☐ Replenish Paraffin

WARNING: Molten paraffin may cause burns. Do not overfill paraffin container.

- 2 parts dry paraffin = 1 part molten paraffin
- The paraffin chamber holds 2 liters of molten paraffin
- The paraffin bath (either transfer tray or chamber, whichever you are using) should be half-filled (about .9 liter) with paraffin.

NOTE: Refer to Section 3 for complete instructions regarding "Adding Paraffin."

☐ Remove Spilled Paraffin/Debris

WARNING: Xylene is flammable.

- Using the provided plastic scraper, remove solidified paraffin from the gray, insulated work space and hot plate area.
- As necessary, wipe the insulated work space and hot plate area with a xylene-dampened cloth.
- Clean the grooves surrounding the hot plate areas with a xylene-dampened cotton swab.

Cryo Console

- #### ☐ Turn off compressor (press ON/OFF key on Cryo Console Control Panel).

Allow cooling plate to reach ambient temperature.

Remove condensate from cooling plate (use an absorbent cloth/towel).

DISINFECTION:

After performing daily maintenance, you may disinfect the surfaces and keypads (if desired) as follows:

- Wipe area using a soft cloth dampened in alcohol (70 – 75% solution isopropyl or ethyl).
- Do not wipe dry. Allow area to air dry to maximize disinfecting procedure.

PERIODIC (AS REQUIRED) MAINTENANCE

Embedding Console

☐ Clean Transfer Tray (if used as the paraffin bath); Add Clean Paraffin

1. Allow paraffin in transfer tray to solidify.

NOTE: Check to make sure MANUAL MODE ON/OFF key is set to OFF (rectangular green indicator is not lit). If using automatic timer, perform this procedure during a time period when console is not set to come on.

2. After paraffin is solidified, press MANUAL MODE ON/OFF key to ON (green indicator is lit).

Allow paraffin between chamber and transfer tray to liquefy (just enough to be able to remove tray); remove tray.

3. Turn tray upside down over a waste container and “slightly twist” tray to eject solidified paraffin.

4. **WARNING:** Before proceeding, press MANUAL MODE ON/OFF key to OFF (rectangular green indicator is not lit).

Allow paraffin (in chamber where tray was located) to solidify.

Using the plastic scraper, remove as much solidified paraffin as possible from this chamber.

5. **WARNING: Xylene is flammable. Be sure console is cool before using xylene.**

Wipe transfer tray and appropriate chamber with xylene-dampened cloth. Dry transfer tray and chamber with a soft, clean, dry cloth.

NOTE: To add paraffin, refer to “Adding Paraffin” in Section 3 of this manual.

CARE, MAINTENANCE, MINOR REPAIR

- **Clean the following (and then add clean paraffin where appropriate)**

Paraffin Chamber
Paraffin Filter
Forceps Wells
Exterior Surfaces
Waste Drawer
Paraffin Bath (right or left chamber)
Chamber storing/heating Base Molds

WARNING: Molten paraffin may cause burns.

1. Allow solidified paraffin to liquefy.

NOTE: Press MANUAL MODE ON/OFF key to turn heater ON if paraffin is not molten.

2. Using a cup (or similar device) remove as much paraffin as possible from the paraffin chamber and "right or left chamber" paraffin bath. Do not tilt console.
3. Place container under paraffin dispenser. Press fingerplate to drain remaining paraffin from chamber.
4. Using cotton swabs, remove liquefied paraffin from each forceps well.
5. **WARNING: Before proceeding, press MANUAL MODE ON/OFF key to OFF (rectangular green indicator is not lit).**

Allow Embedding Console to cool; allow remaining paraffin on surfaces to solidify.

Remove base molds from either right or left chamber.

6. Remove solidified paraffin from exterior surfaces, waste drawer, paraffin bath and paraffin chamber (use plastic scraper).

Using a clean cloth, remove loose debris from the chamber used to store/heat base molds.

7. Using a xylene-dampened cloth, wipe exterior surfaces, ventilation panels and inside surfaces of paraffin chamber, paraffin bath, base mold storage chamber and waste drawer.

Wipe each forceps well with a xylene-dampened cotton swab.

WARNING:

- (a) **Xylene is flammable. Be sure the console is cool prior to using xylene.**
 - (b) **Do not pour xylene into paraffin chamber. Xylene will damage the gasket and sealing materials.**
 - (c) **Excessive use (soaking) of xylene or other organic solvents will destroy the painted surfaces of each console. Minimize use of such solvents on painted surfaces.**
8. Dry surfaces (as necessary) with a soft, clean, dry cloth. Replace base molds.
 9. Using a curved tipped forceps (or similar device) remove metal ring over paraffin filter in paraffin chamber; then remove paraffin filter.
 10. Remove as much foreign particulate matter and paraffin debris as possible from the paraffin filter.
 11. Immerse the paraffin filter and metal ring in xylene. Use a stiff nylon brush (or similar device) to remove remaining particulate matter from filter and metal ring.

12. Dry paraffin filter and metal ring with a soft, clean, dry cloth.

13. Replace paraffin filter. Replace metal ring (place on top of filter).

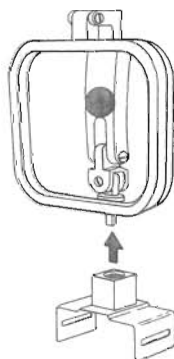
CAUTION: Return xylene and xylene-dampened cloth to safe storage prior to restoring power to the console.

NOTE: To add paraffin, refer to “Adding Paraffin” in Section 3 of this manual.

☐ **Clean Magnifying Lens Assembly (obtained by separate purchase)**

The magnifying glass and assembly may be cleaned:

- while still attached to the Embedding Console
or
- when totally removed from Embedding Console (unscrew and remove thumbscrews; then lift entire assembly off console)
or
- when only both metal arm and magnifying glass have been removed (metal base remains mounted to the console)



NOTE: Hold on to metal arm and pull upward until arm is released from base.

To remove non-paraffin debris:

1. Dampen a soft cloth with household glass cleaner.
2. Wipe magnifying glass and entire assembly to remove fingerprints, dust particles and other non-paraffin debris.
3. Dry entire assembly using a clean, dry, soft cloth.

To remove paraffin debris:

1. Dampen a soft cloth with xylene.
2. Wipe assembly to remove paraffin and other debris.

WARNING: Xylene is flammable. Be sure the console is cool prior to using xylene.

Important: Do not immerse assembly in xylene or frame surrounding lens may soften or disintegrate.

3. Dry assembly using a clean, dry, soft cloth.

Cryo Console

☐ **Clean Exterior Surfaces/Ventilation Panels**

1. **WARNING:** Set power switch on back panel to OFF. Unplug power cord from outlet.
2. Using a clean cloth dampened in water or mild soap solution, remove dust/debris from exterior surfaces, ventilation panels and work area (surfaces under and around console).
3. Rinse as necessary. Dry using a soft, clean, dry cloth.
4. Connect power cord to console. Plug power cord into outlet.

CARE, MAINTENANCE, MINOR REPAIR

MINOR REPAIR

Replacing Bulbs

Tools Required:

None

Bulbs Required:

Use the replacement bulbs (2) provided with your TISSUE-TEK Tissue Embedding Console System. For additional replacement bulbs, refer to Section 8.

WARNING: Set the power switch on the back panel of the Embedding Console to OFF. Unplug the power cord. Allow console hot plate to cool to room temperature.

1. Locate the two bulbs.
2. Grasp bulb and pull downward to remove bulb. Repeat procedure for other bulb (if it also requires replacement).

WARNING: Avoid touching hot plate.

3. Grasp new bulb and insert upwards into socket. Repeat as required for other bulb.
4. Plug power cord into wall outlet. Set power switch on back panel to ON.
5. Press LIGHT key. The light comes on.

Reminder: To extend bulb life, turn off light when not embedding specimens.

SERVICE, PARTS AND ACCESSORIES

SERVICE

When you have a problem with either console:

- Refer to “Error Conditions and Troubleshooting” (Section 6).

If Section 6 cannot assist you in solving the problem, *continue* with “How To Report the Problem” (next page).

SERVICE, PARTS AND ACCESSORIES

How to Report the Problem

STEP ONE

Record the following information.

Embedding Console Serial No. _____

Cryo Console Serial No. _____

Embedding Console Model No. _____

Cryo Console Model No. _____

Date of Installation _____

STEP TWO

Complete the following "Preservice Questionnaire" for the particular console that has malfunctioned.

EMBEDDING CONSOLE

1. Is the power cord plugged in? ☐ Yes ☐ No
2. Is the power switch on the back panel set to ON? ☐ Yes ☐ No
3. Is the "Power" indicator lit? ☐ Yes ☐ No
4. Does the rectangular green indicator illuminate when the MANUAL MODE ON/OFF key is pressed? ☐ Yes ☐ No
5. Is "HEAT ON" indicator flashing? ☐ Yes ☐ No
6. Does the digital display function? ☐ Yes ☐ No
7. Do keys properly function? ☐ Yes ☐ No

CRYO CONSOLE

1. Is the power cord plugged in? ☐ Yes ☐ No
2. Is the power switch on the back panel set to ON? ☐ Yes ☐ No
3. Is the "POWER" indicator lit? ☐ Yes ☐ No
4. Does the digital display function? ☐ Yes ☐ No
5. Does the cooling plate reach the correct temperature within 15 minutes? ☐ Yes ☐ No
6. If step "5" is NO, what is the lowest temperature reached? (record in blank) _____ °C

STEP THREE

Call 1-800-348-8100 for help (U.S. Customers, only).

If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor or representative.

REPLACEMENT PARTS

Part	Part Number*
Paraffin Drawer	50090093
Transfer Tray	50573048
Tamper, Large	84586008
Tamper, Small	84586009
Bulbs	50030130
Operating Manual	99947109
Plastic Scraper	50541098
Power Cord	
Embedding Console	40330044
Power Cord	
Cryo Console	40330044
Embedding Console	
(110 VAC)	4672
(115 VAC)	4710
(220 - 240 VAC)	4715
Cryo Console	
(110 VAC)	4669
(115 VAC)	4709
(220 - 240 VAC)	4714

*part numbers are subject to change
without notice

Where To Order?

In the U. S., replacement parts and pricing are
available directly from:

Instrument Service
Miles Inc., Diagnostics Division
P.O. Box 2004
Mishawaka, IN 46544

or by calling

1-800-348-8100

If located outside the U.S., contact your nearest
authorized TISSUE-TEK® instrument distributor
for information on ordering replacement parts.

ACCESSORIES

(Available for use with your TISSUE-TEK® Tissue
Embedding Console System)

TISSUE-TEK® UNI-CASSETTE™
Embedding Cassette

TISSUE-TEK® II
Processing Embedding Cassettes

TISSUE-TEK® Base Molds

Magnifying Lens Assembly
(Product Code No. 4711)

Where To Order?

In the U.S., accessory and pricing information is
available directly from:

Order Services
Miles Inc., Diagnostics Division
P.O. Box 3100
Elkhart, IN 46515

or by calling

1-800-248-2637

If located outside the U.S., contact your nearest
authorized TISSUE-TEK® instrument distributor
for information on ordering accessories.

SERVICE, PARTS AND ACCESSORIES

OTHER AVAILABLE TISSUE-TEK® EQUIPMENT and ACCESSORIES

An extensive line of TISSUE-TEK® equipment and accessory items is available. Refer to the "TISSUE-TEK® Systems Catalog"* for complete information on each item listed below.

*catalog is available in the U.S., by dialing 1-800-348-8100. If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor or representative.

Equipment and Accessories

Features

TISSUE-TEK® Tissue Processor

- Timing Disk provides for automatic processing
- handles 100 specimens at a time

TISSUE-TEK® Vacuum Infiltration Processor (VIP)

- processes and safeguards up to 300 specimens simultaneously
- brings reagents to the specimen (eliminates the hazards of moving specimens)
- air handling system isolates specimens from ambient air and keeps solvent fumes out of the working area

TISSUE-TEK® Biopsy Cassette

- has 1 mm pores (no slots)
- design eliminates the need to wrap specimens which reduces risk of specimen loss
- five contrasting colors assists in locating biopsy specimen

TISSUE-TEK® Mega Cassette

- increased depth to accommodate larger specimens
- used with mega base molds

TISSUE-TEK® Microtome Chuck Adapter

- holds embedded blocks in place on any standard Microtome
- ensures proper positioning during sectioning

TISSUE-TEK® Filing Cabinets

- six drawers accommodating about 250 cassettes per drawer
- data sheets affixed to each drawer, lightweight construction and molded ridges or stacking legs to permit stacking cabinets on top of one another



Tissue-Tek[®]

Cryo Console

**Operating
Manual**

TISSUE-TEK® CRYO CONSOLE

Date of Installation:

Cryo Console

_____ Model Number

_____ Serial Number

MANUFACTURER'S WARRANTY

Miles Inc., Diagnostics Division warrants to the original purchaser that the TISSUE-TEK® Cryo Console, for a period of one (1) year, will be free from defects in materials and workmanship from the date of installation (except as noted below). During the stated warranty period (above), Miles shall replace with a reconditioned unit or, at its option, repair at no charge a unit that is found to be defective.

This warranty is subject to the following exceptions and limitations:

1. A 90 day warranty only will be extended for consumable parts, and/or accessories.
2. This warranty is limited to repair or replacement due to defects in parts or workmanship. Parts required which were not defective shall be replaced at additional cost, and Miles shall not be required to make any repairs or replace any parts which are necessitated by abuse, accidents, alteration, misuse, neglect, non-Miles Inc. maintenance, or failure to operate the instrument in accordance with instructions. Further, Miles assumes no liability for malfunction or damage to Miles instruments caused by the use of reagents other than reagents manufactured or recommended by Miles Inc.
3. We reserve the right to make changes in design of this instrument without obligation to incorporate such changes into previously manufactured instruments.

Disclaimer of Warranties

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE.

Limitations of Liability

In no event shall Miles Inc., Diagnostics Division be liable for indirect, special or consequential damages, even if Miles has been advised of the possibility of such damages.

Warranty Service: For assistance and/or instructions for obtaining repair of this instrument, contact the Customer Service Department of Miles Inc., Diagnostics Division by calling 1-800-348-8100 (U.S. Customers, only). If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor.

TISSUE-TEK® TISSUE EMBEDDING CONSOLE SYSTEM

Date of Installation:

Embedding Console

_____ Model Number

_____ Serial Number

Cryo Console

_____ Model Number

_____ Serial Number

MANUFACTURER'S WARRANTY

Miles Inc., Diagnostics Division warrants to the original purchaser that the TISSUE-TEK® Tissue Embedding Console and Cryo Console, for a period of one (1) year, will be free from defects in materials and workmanship from the date of installation (except as noted below). During the stated warranty period (above), Miles shall replace with a reconditioned unit or, at its option, repair at no charge a unit that is found to be defective.

This warranty is subject to the following exceptions and limitations:

1. A 90-day warranty only will be extended for consumable parts, and/or accessories.
2. This warranty is limited to repair or replacement due to defects in parts or workmanship. Parts required which were not defective shall be replaced at additional cost, and Miles shall not be required to make any repairs or replace any parts which are necessitated by abuse, accidents, alteration, misuse, neglect, non-Miles Inc.

maintenance, or failure to operate the instrument in accordance with instructions. Further, Miles assumes no liability for malfunction or damage to Miles instruments caused by the use of reagents other than reagents manufactured or recommended by Miles Inc.

3. We reserve the right to make changes in design of this instrument without obligation to incorporate such changes into previously manufactured instruments.

Disclaimer of Warranties

THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE.

Limitations of Liability

In no event shall Miles Inc., Diagnostics Division be liable for indirect, special or consequential damages, even if Miles has been advised of the possibility of such damages.

Warranty Service: For assistance and/or instructions for obtaining repair of this instrument, contact the Customer Service Department of Miles Inc., Diagnostics Division by calling 1-800-348-8100 (U.S. Customers, only). If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor.

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CRYO CONSOLE MODEL NUMBERS

4669	4709	4714
(100 VAC)	(115 VAC)	(220 - 240 VAC)

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TISSUE-TEK® CRYO CONSOLE

1. INTRODUCTION

The Cryo Console cools embedded specimens prior to sectioning.

Specifications

Ambient Operating Temperature and Relative Humidity	15° - 35 °C 0 - 85% RH (non-condensing)
Dimensions/ Weight	Width 32.5 cm (13 in) Depth 60 cm (24 in) Height 32.5 cm (13 in) Weight (approx.) 19.5 kgs (42.9 lbs)
Power Required	Model No. 4669: 100 VAC $\pm$ 10% or less, @ 2.5 amps 50/60 Hz Model No. 4709: 115 VAC $\pm$ 10% or less, @ 2.5 amps 60 Hz Model No. 4714: 220 - 240 VAC $\pm$ 10% or less, @ 1.4 amps 50/60 Hz
Temperature Range Available	Cooling Plate: -5°C to 0°C
Factory Set Temperature	Cooling Plate: -5°C
Circuit Breaker ON/OFF switch	10 amps

2. UNPACKING

Inspect carton for shipping damage. The Cryo Console contains sensitive electronic parts. Use extreme care when unpacking and handling the console.

- Report any shipping damage to the representative of the carrier or to your Miles Inc., Diagnostics Division Sales Representative or nearest TISSUE-TEK® instrument distributor.

Carton Contents:

Product Code Nos. 4669, 4709 or 4714

- Cryo Console
- Power Cord
- Operating Manual

3. SET UP

CAUTION: Do not place the Cryo Console where it would be subjected to direct sunlight and/or direct heat, an open flame source, excessive humidity or air current, excessive particulate matter, or electrical noise (such as from refrigerators, centrifuges, ultrasonic cleaners and microwave ovens).

1. **Select** a level surface near a properly grounded electrical outlet in a well-ventilated area of minimum humidity.

WARNING: Make sure the electrical outlet supplies the proper voltage (within $\pm$ 10%). Refer to the rating label on each console.

2. **Place** the Cryo Console next to the Embedding Console. It is not necessary to leave air space between the two consoles.

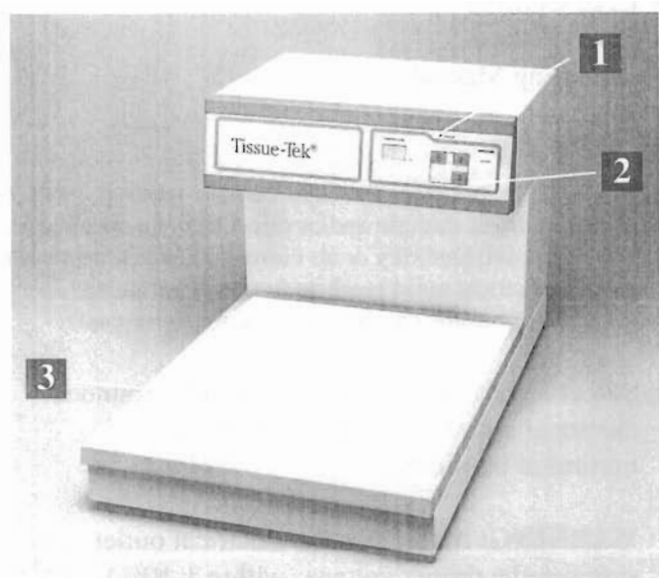
Reminder: The working area of each console is of the same height. This allows you to place the consoles next to each other, *in any order*, to accommodate your choice of "right-to-left" or "left-to-right" work flow.

3. **Check to make sure** the power switch on the back panel of *Cryo Console* is set to OFF (O).
4. **Connect** power cord to the power cord connector on the back panel.
5. **Plug** power cord into a properly grounded outlet.
6. **Move** the Cryo Console into place on the designated work space.

WARNING: For cooling purposes, allow at least 3 inches of air space between the wall (or other surface) and back panel.

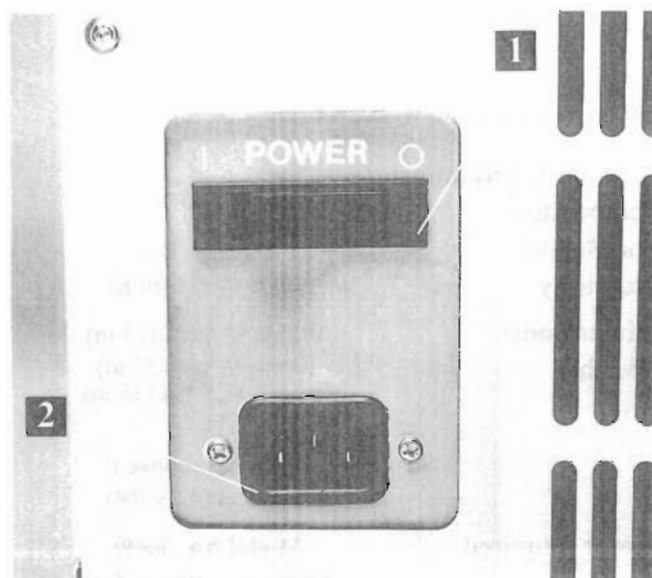
TISSUE-TEK® CRYO CONSOLE

4. DESCRIPTION (for your reference)



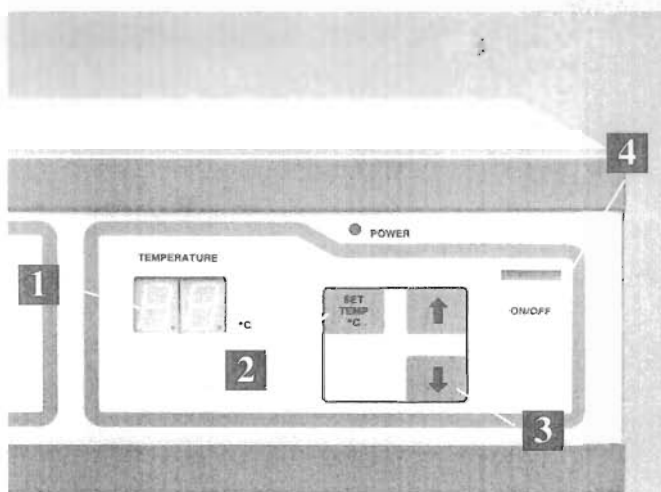
(FRONT PANEL)

- 1 Power Indicator** – illuminates when the power switch on the back panel is set to ON
- 2 Control Panel** – consists of digital display, keypads and various system indicators (each component to be discussed later in this section)
- 3 Cooling Plate** – holds up to 60 base molds (each containing the embedded specimen); provides for optimum solidification of liquid paraffin; cools embedded specimen prior to sectioning; factory set at -5°C ; can be preset to any temperature at or between -5° to 0°C



(BACK PANEL)

- 1 Power Switch** – turns the power to the instrument ON and OFF; circuit breaker
- 2 Power Cord Connector** – accepts the plug for connecting the power cord to the instrument



(CONTROL PANEL)

- 1 TEMPERATURE °C Display** – consists of two digits;

Displays (depending on mode):

- (a) actual temperature of cooling plate
- (b) temperature preset for cooling plate
- (c) available temperature settings for cooling plate
- (d) Cryo Console error conditions (refer to Section 6)

- 2 SET TEMP °C key** – used to verify or change set temperatures

- 3 Arrow keys** – cycle through temperature settings (when pressed continuously);

increment/decrement temperature settings by one degree (when pressed once)

- 4 ON/OFF** – turns the compressor ON and OFF

Audible Alarms

An audible alarm sounds for ten (10) seconds to signal an error condition (refer to Troubleshooting section).

5. CHANGING OR VERIFYING FACTORY SET COOLING TEMPERATURE

- The cooling plate temperature is retained in memory and is not lost when a power failure occurs or when the Cryo Console power switch (on the back panel) is set to OFF.

Factory set cooling plate temperature:
-5 °C

NOTE: It is recommended that factory set cooling plate temperature be verified.

STEP-BY-STEP PROCEDURE

What You Do	What Happens
1. Press SET TEMP °C	The preset temperature flashes
2. If the desired temperature is not flashing, press ↑ or ↓ until the desired temperature flashes.	The selected temperature flashes
3. Press SET TEMP °C	The selected temperature is set or The temperature is verified

TISSUE-TEK®

CRYO CONSOLE

5a. OPERATION

Set the power switch on the back panel to ON.

- The Power indicator is illuminated.

Press ON/OFF key on Control Panel.

- The rectangular green indicator above key is illuminated and the compressor starts functioning.
- The compressor reaches set temperature in 15 minutes.

NOTES:

To protect the compressor from damage, the compressor **will not restart for 3 to 5 minutes** if power is interrupted or turned off while the compressor is functioning.

When the console is intermittently not in use during the day, turn the compressor OFF by pressing the ON/OFF key on the *Control Panel*. (The rectangular green light over ON/OFF key is not lit when the power to compressor is turned OFF.)

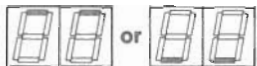
When To Set Power Switch On “*Back Panel*” To OFF ?

Set back panel power switch to OFF when console is not in use for *long* periods of time and when performing designated maintenance procedures.

The power switch on the back panel is also a circuit breaker.

6. TROUBLESHOOTING

ERROR

CONDITION	CAUSE	SOLUTION
Alarm (tone) sounds for 10 seconds	Cryo Console has malfunctioned	Press "DISPLAY TEMP °C key." Character(s) appear on the display.  Contact Customer Service (refer to Section 8).
Cooling plate does not function	Power outage or compressor malfunction	Check to make sure: ■ the power cord is connected to a "live" outlet ■ the power cord is securely attached to the Cryo Console ■ the power switch on the back panel is set to ON and power indicator is illuminated ■ the ON/OFF key on the Cryo Console control panel is ON (rectangular green indicator is illuminated) If the problem persists, contact Customer Service (refer to Section 8).
Cooling plate does not reach set temperature	Cryo Console has malfunctioned	1. WARNING: Make sure at least 3 inches of air space exists between the wall and console. 2. Check the room temperature and make sure the console is not in an area of excessive air current. If the problem persists, contact Customer Service (refer to Section 8).
Power indicator will not illuminate	Power outage or Cryo Console has malfunctioned	1. Check to make sure power cord is securely connected to the console and plugged into a "live" power outlet. 2. Check to make sure the power switch on the back panel is set to ON. If the problem persists, contact Customer Service (refer to Section 8).

TISSUE-TEK® CRYO CONSOLE

7. MAINTENANCE

Daily

1. **Turn off compressor** (press ON/OFF key on Cryo Console Control Panel).
2. **Allow** cold plate to reach ambient temperature.
3. **Remove condensate** from cold plate (use an absorbent cloth/towel).

Disinfection:

After performing daily maintenance, you may disinfect the surfaces and keypads (if desired) as follows:

- Wipe area using a soft cloth dampened in alcohol (70 – 75% solution isopropyl or ethyl).
- Do not wipe dry. Allow area to air dry to maximize disinfection.

Periodic (as required)

Clean Exterior Surfaces/Ventilation Panels

1. **WARNING: Set power switch on back panel to OFF (O). Unplug power cord from outlet.**
2. Using a clean cloth dampened in water or mild soap solution, **remove dust/debris** from exterior surfaces, ventilation panels and work area (surfaces under and around console).
3. **Rinse** as necessary. **Dry** using a soft, clean, dry cloth.
4. **Connect** power cord to console. **Plug** power cord into outlet.

8. SERVICE

Call 1-800-348-8100 for help (U.S. Customers, only).

If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor or representative.

REPLACEMENT PARTS

Part	Part Number*
Operating Manual	50241368
Power Cord	40330044
Cryo Console	
(110 VAC)	4669
(115 VAC)	4709
(220 - 240 VAC)	4714

*part numbers are subject to change without notice

Where To Order?

In the U.S., replacement parts and pricing are available directly from:

Instrument Service
Miles Inc., Diagnostics Division
P.O. Box 2004
Mishawaka, IN 46544

or by calling

1-800-348-8100

If located outside the U.S., contact your nearest authorized TISSUE-TEK® instrument distributor for information on ordering replacement parts.

ERROR CONDITIONS, TROUBLESHOOTING

Error conditions are in alphabetical order.

Use the table below to quickly determine if this section addresses your particular instrument problem.

Cryo Console	Page
Alarm sounds	6.2
Cooling plate does not function.....	6.2
Cooling plate does not reach set temperature	6.2
Power indicator will not illuminate	6.2
 Embedding Console	 Page
Alarm sounds and area indicators rapidly flash.....	6.3
Paraffin will not dispense correctly.....	6.4
Power indicator/other indicators will not illuminate.....	6.4
Time of day is rapidly blinking	6.4

In the event this section cannot assist you in solving your instrument problem, call:

1-800-348-8100
(U.S. Customers, only)

If located outside the U.S., contact your nearest TISSUE-TEK® instrument distributor or representative.

ERROR CONDITIONS, TROUBLESHOOTING

CRYO CONSOLE

ERROR

CONDITION

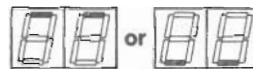
CAUSE

SOLUTION

Alarm (tone) sounds for
10 seconds

Cryo Console has
malfunctioned

Press "DISPLAY TEMP °C key."
Character(s) shown below appear on the display.



Contact Customer Service.

Cooling plate does not
function

Power outage or
compressor malfunction

Check to make sure:

- the power cord is connected to a "live" outlet
- the power cord is securely attached to the Cryo Console
- the power switch on the back panel is set to ON and power indicator is illuminated
- the ON/OFF key on the Cryo Console control panel is ON (rectangular green indicator is illuminated)

If the problem persists, contact Customer Service.

Cooling plate does not
reach set temperature

Cryo Console has
malfunctioned

1. **WARNING:** Make sure at least 3 inches of air space exists between the wall and console.
2. Check the room temperature and make sure the console is not in an area of excessive air current.

If the problem persists, contact Customer Service.

Power indicator will not
illuminate

Power outage or Cryo
Console has
malfunctioned

1. Check to make sure power cord is securely connected to the console and plugged into a "live" power outlet.
2. Check to make sure the power switch on the back panel is set to ON.

If the problem persists, contact Customer Service.