

# PhotoTherm

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## CytoTherm 4D

Dry  
Plasma Thawing  
with  
Rocking Action

Model **CT-4D**

Owner's Manual



### WARRANTY

*Each PhotoTherm product is manufactured under rigid quality control standards. This unit is fully warranted for a period of one year from the date of purchase. Call 609 396-1456 or 800 747-9699 for assistance. If necessary send unit to:*

**PhotoTherm** 110 Sewell Ave. Trenton, NJ USA Tel 609 396-1456 Fax 609 396-9395

Do not forget to mail in your warrantee card.

Please record the following: Serial No. \_\_\_\_\_ Date of Purchase \_\_\_\_\_

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### SPECIFICATIONS

Temperature 37 °C. Accuracy 0.1 °C. Power: The 120 or 240 Vac., depending on the model. Uses 770W, 60Hz (must be grounded).

## **DESCRIPTION**

The PhotoTherm CytoTherm 4D (Model CT-4D) is a dry plasma thawer. Tempered water is recirculated through a bladder. The plasma bag to be thawed lays on one part of the bladder, while the rest of the bladder is folded over to blanket the plasma bag. The plasma bag remains dry throughout. The rocking action speeds thawing. Plasma bag leakage is isolated to one of 3 separate chambers. If a leak is detected, the thawing stops and an alarm sounds.

A digital timer displays the time to completion of the thawing. The plasma bag is also visible during thawing so you can check when it has been fully thawed.

Each of the 3 chambers can thaw two 450ml. bags or one 1,000ml. Jumbo bag for a total of 6 x 450ml. or 3 Jumbo bags.

All the air that comes in contact with the internal water passes through an AIR FILTER.

## **SETTING-UP**

The unit comes packed in 2 boxes. Make sure you have received the following:

..... Control Panel	..... Bath
..... Rack	..... 2 Arms
..... Lid	..... Sensor Connector
..... 6 Bladders, 3 mounted inside RACK	..... 3 Rubber Bars, 10" long
..... Extension Tubing	..... Inlet and Outlet Port Plugs (3 of each)
..... Power Cord	..... Instruction Book

Screw the ARMS to the side of the CONTROL SECTION. The notched side of the ARMS face up.

Place the BATH in front of the CONTROL SECTION so that the chassis on the BATH is next to the indented portion of the CONTROL SECTION.

Connect the umbilical cord of the CONTROL SECTION to the plug receptacle on the back of the BATH section.

**\* \* THE POWER SWITCH MUST BE OFF  
WHEN MAKING OR BREAKING THIS CONNECTION \* \***

Lift the BATH and position it so that the pivots on the side of the BATH slip into the notches on the ARMS.

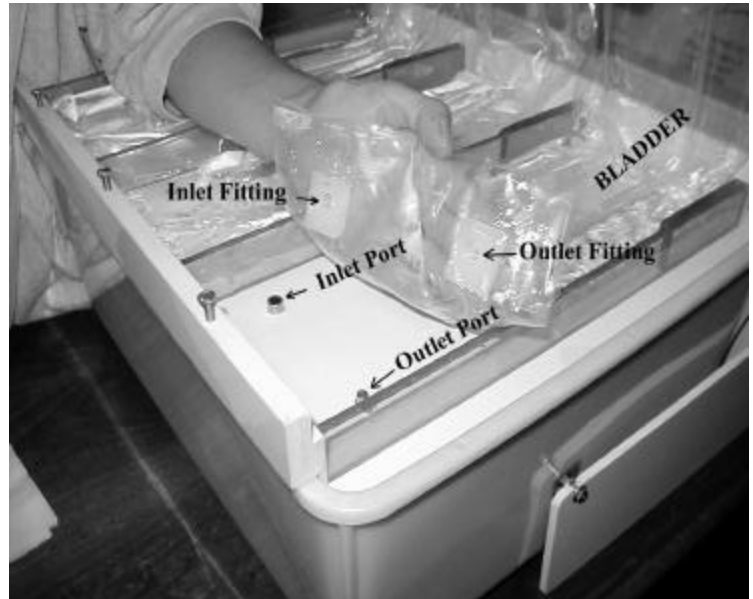
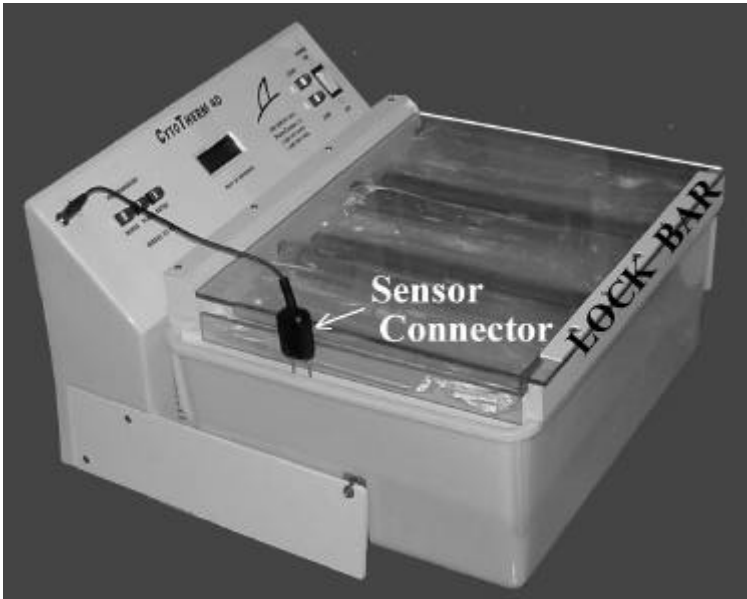
Make sure the power switch is OFF. Plug the power cord into a properly grounded electrical outlet.

Fill the BATH with 4" (10cm) of tap water (1" (2.5cm) above the pivot). If your tap water contains a lot of lime, use distilled or de-ionized water. If you use distilled or deionized water, add a pinch of salt to make the water conductive so that the level sensors will work.

Connect the pump output tubing to the input fitting on the bottom of the RACK. Place the RACK into the top the BATH.

Connect one side of the **SENSOR CONNECTOR** to the **CONTROL PANEL** and the other end to the 2 rods on the left side of the **RACK**. The **SENSOR CONNECTOR** senses if the **LID** is closed and if there is a leak.

Open the **RACK** by pushing the **LOCK BAR** to the left. Lift the **LID** by rotating it back, and when it is vertical, slowly lower it straight down.



Mount the **BLADDER** by pushing the **INLET** and **OUTLET FITTINGS** down and twisting back and forth on the **INLET** and **OUTLET PORTS**. Slip on the **GROMMETS** over the studs in the **LID**. If you are not using all 3 **BLADDERS** you must cover any open **INLET** (larger) ports with a plug.

Turn the power switch **ON**. The heater will heat to maintain  $37^{\circ}\text{C}$ . The pump will start recirculating the water periodically and the display will indicate the temperature.

## **OPERATION**

Wait for the water to heat up to  $37^{\circ}\text{C}$ . A thermometer hole is provided on the right side of the **RACK** to verify the water temperature.

Lay the plasma bags to be thawed on the **BLADDERS**.

Place the black rubber bar lengthwise over the center of the plasma bags in each section.

Close the **LID** by lifting straight up until it hits a stop and then rotating it down (forward). Lock it into place by pushing the **LOCK BAR** to the right.

Push **START** to begin thawing for the programmed time. The **Rocking Motor** will turn on, the tempered water will be pumped through the bladder and the thawing time will be displayed. Use **PLUS** or **MINUS** to increase or decrease the thawing time. When the time has expired, the buzzer will call the operator back.

**STOP ends the thawing and rocking and drains the bladders. Wait 10 seconds before opening the LOCK BAR and opening the LID.**

**If more thawing time is needed, hold PLUS while pushing START and the unit will thaw for another 3 minutes.**

## **LEAKY PLASMA BAG**

**The alarm will sound and the thawing will stop when a leak is detected. Open the LID to see which bag leaked. The leak will be confined to only one of the three sections. Remove the leaky plasma bag and wipe off the bladder as well as you can.**

**Remove the BLADDER by unbuttoning the grommets and lifting the bag up to drain out as much of its internal water as possible. Remove the INLET and OUTLET FITTINGS by holding the fittings and twisting them as you pull up.**

**If you want to continue thawing the rest of the plasma bags, place PLUGS on the INLET PORT, close the LID and press START.**

**You can rinse the contaminated exterior of the bladder with water and wipe it with a disinfectant (bleach).**

## **MODES**

**STANDBY MODE.** The unit maintains 37°C, but does not rock. Holding ENTER will turn on the rocking motor.

**Enter DRAINING MODE by pushing MINUS while in STANDBY MODE . MINUS then controls the pump.**

**THAWING MODE.** The unit recirculates tempered water through the bladders, rocks the BATH and RACK, times the thawing and monitors for leaks. Pushing START initiates thawing. Pushing STOP stops thawing.

**PROGRAM MODE** allows you to:

- 1. Set the preset thawing time.**
- 2. Select whether to continue thawing when timed out.**
- 3. Calibrate the temperature.**

**Enter PROGRAM MODE by holding ENTER while turning the unit ON. Follow the displayed instructions to program.**

## **TROUBLESHOOTING**

**English:** Unit should be opened by qualified technicians only.

**French:** Ne puet etre ouvert que un techicien autorize.

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<b>Unit is "dead"</b>	<b>Verify that you are plugged into a live, grounded 120VAC outlet.</b>  <b>Have qualified technician check if fuse is blown or connectors are loose. The 120 VAC model unit uses 2 x 10A 3AG fuses. The 240 VAC model uses 2 x 5A 3AG fuses.</b>
<b>Unit is not responding, but the display is backlit.</b>	<b>Turn the unit off for 10 seconds and then turn it back on.</b>
<b>Display says "low water" but there is water.</b>	<b>The unit is not sensing that water is present.</b> <b>a. Make sure you are using tap water or adding salt to deionized water to make it conductive.</b> <b>b. The level sensor (screw 3/4" above the stainless tube temperature sensor) inside the bath is dirty.</b> <b>Scrape it and then clean with alcohol.</b>
<b>Unit does not heat but "heating" is displayed</b>	<b>Check the Safety thermostat (#C-TH) and the heaters (#14-77) for continuity.</b>  <b>Check for loose connections in the umbilical connector.</b>
<b>Temperature calibration changed unexpectedly.</b>	<b>Replace temperature sensor (#CT4-TS).</b>
<b>Pump does not circulate. No hum.</b>	<b>No power to pump or pump winding open. Check the umbilical connector. Check the pump (#14-PM). DO NOT DISASSEMBLE.</b>
<b>Pump does not circulate. Makes humming noise.</b>	<b>Blow air through pump outlet tubing to clear small obstruction. Check pump (#14-PM). DO NOT DISASSEMBLE. Any evidence of leaking on motor side means pump must be replaced.</b>
<b>Waterbath not rocking.</b>	<b>Check if cam is loose on motor. Check the rocking motor (#C-RM).</b>

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## MAINTENANCE

**CLEAN** the bath as required. Add algicide to the water to prevent slime growth. (Cole Palmer (800) 323-4340 part #G-08796-00). Do not use bleach.

Lift off the RACK and disconnect the pump tubing. Connect extension tubing to the pump tubing. Turn the unit on and push MINUS to operate the pump. Empty as much of the bath as possible into a sink. An empty bath is much lighter and safer to handle.

**TURN THE POWER SWITCH OFF.** Lift the bath up slightly and then toward you until the PIVOT clears the ARMS and rest the bath on the counter. Disconnect the umbilical cord.

Clean the bath section. **DO NOT IMMERSE THE WHOLE BATH. DO NOT USE BLEACH AS A CLEANER. BLEACH MAY DAMAGE THE PUMP. WIPE THE PUMP SCREEN FROM THE OUTSIDE ONLY. DO NOT REMOVE THE SCREWS.**

Connect the umbilical cord, place the PIVOT of the BATH into the notches of the ARMS and refill with tap water (if you are using de-ionized water, remember to add a pinch of salt).

**ONCE A MONTH** add a capful of glycerin to the water to lubricate the pump.

## PARTS LIST

14-PM	Pump, Magnetic	\$147.-	DP-SW	Switch, 2-pole	\$ 16.50
14-77	Heater (2 needed)	45.-	C-TH	Safety Thermostat	33.-
CT4-PC	Printed Circuit Board	330.-	CT4-DISP	Display	70.-
CT4-BTH	Bath Section	600.-	CT4-UMB	Wiring Harness	100.-
C-RM	Rocking Motor	75.-	CT4-PM	Program Module	100.-
CT4-TS	Temperature Sensor	66.-	CT4-SCN	Sensor Connector	150.-
CT4-RK	Rack for Dry Thaw	900.-			
CT4-BL	Bladder (3 needed)	33.-			

Always specify model and serial number when ordering. Prices subject to change.

## SOURCES for SUPPLIES

**ALGICIDE.** Cole Palmer (800 323-4340), part #G-08796-00

## **SAFETY FEATURES**

### **WATER LEVEL SENSOR**

The unit will display **LOW WATER** and beep if there is not enough water to cover the level sensor inside the bath, a screw located 3/4" above the temperature sensor. The heat will also turn off. The water must be conductive in order for the level sensor to work. Use tap water or add as few salt crystals if you are using de-ionized or distilled water.

### **OVER TEMPERATURE**

The unit will display **TOO HOT** and emit double-beeps if the temperature reaches 38 °C. It will turn the heaters off and stop thawing by draining the water from the bladders into the bath.

### **SAFETY THERMOSTAT**

An independent safety thermostat will turn heaters off if the temperature goes above 45 °C.

### **FUSING**

The fuse is located on the Printed Circuit Board inside the **CONTROL PANEL**. Use standard 10A (5A for 240Volt) AG3 fuses. Correct the cause of the blown fuse.

### **ISOLATION**

The circuitry is isolated from the power lines by a transformer and from the heaters by an opto-coupled solid state relay.

## **CALIBRATION**

Adjust the 10-turn potentiometer so that the voltage between TP1 and Ground (Earth) is .395 V. Actual temperature calibration is then set in Programming Mode (see **PROGRAMMING MODE**).

The trimmer near the **BODY** connector adjusts the display contrast.

March 2001