

# C Y T O - T H E R M   I I I   T

PLASMA THAWING  
ROCKING WATER BATH  
with TURBO ACTION

Model **CT-3T**

Owners Manual



## W A R R A N T Y

*Each PHOTO-THERM product is produced 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 help. If necessary send unit to:*

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

Please mail in your warrantee card.

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

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## SPECIFICATIONS

Temperature range 35 °C to 60 °C. Accuracy 0.1 °C. Power: The 120 VAC model uses 120 VAC, the 240 VAC model uses 240 VAC, 770W, 60Hz (must be grounded).

## **DESCRIPTION**

The Photo-Therm CYTO-THERM III T is a recirculating water temperature bath that uses a rocking action to generate bursts of flow to massage the plasma. This massaging action speeds up the thawing time.

The CYTO-THERM III T comes with one CORRAL that will thaw 1 to 6 plasma units at a time. A second CORRAL will let you thaw up to 12 units at a time. The operator never comes in contact with the water in the bath when handling the plasma. The CORRAL keeps the entry ports of flat-frozen units out of the water so an overwrap bag is not required. Folded frozen plasma units require an overwrap bag to protect the entry ports. Both type of freeze methods can be thawed together.

A timer keeps track of the thawing time. A large digital display indicates the temperature. CYTO-THERM III T comes with a draining syphon and an evaporation cover.

## **SETTING-UP**

Screw the ARMS to the side of the CONTROL SECTION. The notched side of the ARMS faces 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.

Unscrew the wing nuts from both sides of the top of the BATH. Place the CORRAL on the exposed screws. Replace the wing nuts. Make sure the power switch is OFF. Plug the power cord into a properly grounded electrical outlet.

Fill the BATH with 5 1/2 inches of tap water (1/4" below the top of the CORRAL). If your tap water contains a lot of lime, use distilled or de-ionized water, add a pinch of salt to make the water conductive so that the level sensors will work.

Turn the power switch ON. The pump will start recirculating the water and the display will indicate the temperature.

Set the TEMPERATURE dial to 37 °C. The "+" on the display indicates that the heater is on.

## **OPERATION**

Wait for the water to heat up to 37°C.

Flat-frozen plasma units can be thawed without an overwrap bag. Hold a bag of flat-frozen plasma (bare or overwrapped) with the tubes up and the label on the plasma unit away from the center of the CORRAL. Slip the CLAMP (plastic piece with a stainless spring attached) over the top of the bag and line up the 3 grooves in the CLAMP with the tubes of the plasma bag.

Push the bottom of the plasma bag into the water, between the stainless rods of the CORRAL. Pull the stainless spring of the CLAMP over the screw head in the CORRAL.

Folded frozen plasma must be overwrapped. Load it the same way. The CLAMP will hold the plasma unit by the overwrap bag.

Overwrap bags 6" wide by 12" long are available from Rutan Supply 39 Siding Pl. Mahwah, NJ 07430 Tel. 800 872-1474.

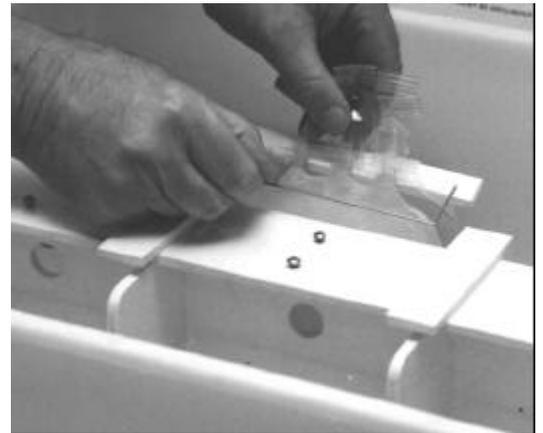
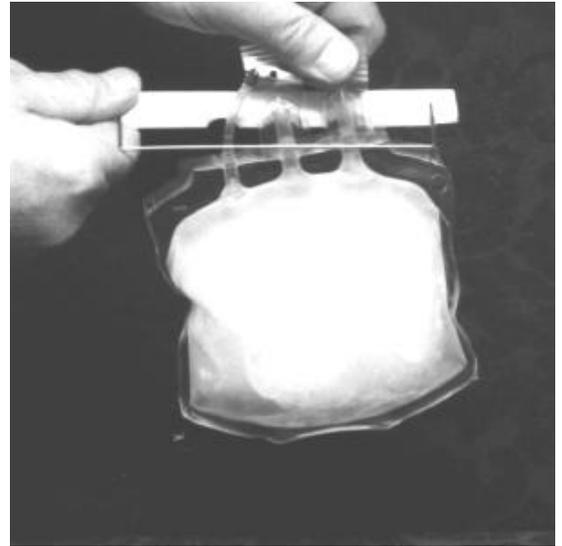
Take a timing pin and insert it into a hole in the timing disc near the 15 minute mark. **DO NOT ROTATE THE TIMING DISC.**

Turn the **ROCKER** switch on.

When the timer buzzer sounds, Turn off the **ROCKER** switch. Pull out the plasma unit from the overwrap bag and examine the plasma unit to make sure the entry ports are dry.

If the plasma unit is wet then the overwrap bag leaked. The plasma unit must be discarded or the water can contaminate the entrance ports of the plasma unit.

Turn the **ROCKER** switch off and cover the bath with the evaporation cover when plasma is not being thawed. Turn the main switch off if the **CYTO-THERM III T** will not be used for a few hours. The **BATH** requires a 1/2 hour to raise the temperature from room temperature to 37°C, ready for thawing plasma.



## **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 came loose. The 120 VAC model unit uses 2 x 10A 3AG fuses. The 240 VAC model uses 2 x 5A 3AG fuses.</b>
<b>Colon (:) is displayed. The safety is tripped.</b>  <b>The "+" will not display and the unit will not heat. The pump will operate.</b>	<b>The unit is not properly grounded. Have your outlet checked for grounding and proper polarity.</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) is dirty.</b> <b>--Scrape it and clean with alcohol.</b>
<b>Unit does not heat but "+" is displayed</b>	<b>Check the Solid State Relay (#DB-S1), Safety thermostat (#C-TH) and the heaters (#14-77) for continuity.</b>  <b>Check for loose connections in the umbilical connector.</b>
<b>Overheating. "+" on display.</b>	<b>If displayed temp is low, recalibrate. See manual. Replace Temp Sensor (DB-S).</b>  <b>If displayed temp is correct, clean the temperature setting potentiometer.</b>
<b>Overheating. "+" not displayed.</b>	<b>Check solid state relay (#DB-S1).</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) and switch (#C-SW).</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)

Turn the **POWER** switch off. Empty the bath by syphoning (provided) off as much water as possible. An empty bath is much lighter and safer to handle.

**TURN THE POWER SWITCH OFF.** Lift the bath slightly up and towards you to clear 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 **BATH** in the notches of the **ARMS** and refill with tap water or if you use de-ionized water add a pinch of salt.

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

## PARTS LIST

<b>14-PM</b>	<b>Pump magnetic</b>	<b>\$147.-</b>	<b>C-SW</b>	<b>Switch w neon</b>	<b>\$ 16.50</b>
<b>14-77</b>	<b>Heater (2 used)</b>	<b>45.-</b>	<b>C-TH</b>	<b>Safety thermostat</b>	<b>33.-</b>
<b>C-2PC</b>	<b>Printed circuit brd.</b>	<b>275.-</b>	<b>C-TM3</b>	<b>Timing motor</b>	<b>42.-</b>
<b>C-BM</b>	<b>Bath section</b>	<b>600.-</b>	<b>C-H2</b>	<b>Wiring harness</b>	<b>125.-</b>
<b>C-RM</b>	<b>Rocking motor</b>	<b>75.-</b>	<b>C-CLM</b>	<b>Clamp ( bag to cor.)</b>	<b>6.-</b>
<b>DB-S</b>	<b>Temperature sensor</b>	<b>66.-</b>	<b>C-COR</b>	<b>Corral ( 6 units)</b>	<b>150.-</b>
<b>DB-S1</b>	<b>Solid State Relay</b>	<b>54.-</b>	<b>C-CORJ</b>	<b>Jumbo Corral (2 u.)</b>	<b>170.-</b>
<b>C-TD3</b>	<b>Timing disc</b>	<b>42.-</b>	<b>C-LIFT</b>	<b>Adapt. for 400ml bags</b>	<b>10.-</b>

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

**BAGS** Overwrap 6" x 12". Rutan Supply 39 Siding Pl. Mahwah NJ 07430 Tel. 800 872-1474

## **SAFETY FEATURES**

### **GROUND FAULT SAFETY.**

The unit will display a colon (:) and prevent heating if the unit is not properly (presence and polarity) grounded.

The neon optocoupler in the checking circuit draws about 190 microamps to ground. This is not leakage current, but will show up on standard leakage tests. 190 microamps should be deducted from the leakage test results. See schematic below.

### **WATER LEVEL SENSOR**

The unit will not heat if there is not enough water to cover the level sensor, a screw located 3/4" above the temperature sensor. The water must be conductive. Use tap water or add as few salt crystals if you use de-ionized or distilled water.

### **SAFETY THERMOSTAT.**

An independent bimetallic safety thermostat will turn off the heaters if the temperature goes above 63 °C.

### **FUSING**

The fuse is located inside the CONTROL PANEL. Use as standard 10A AG3 fuse. 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**

The PC board should not require calibration in the field. For most adjustments only the "T Set" or "C Set" should be adjusted. "T Set" adjusts displayed temperature. "C Set" adjusts the setting of the temperature knob to the temperature at which the unit starts heating ( "+" displayed).

**FULL CALIBRATION** Not recommended in the field.

A 3 1/2 digit voltmeter is required. "C" is the red lead going to the potentiometer. "R" is the yellow lead going to the potentiometer.

Connect the meter common to "C", probe to "R". Adjust the ref trimmer to get 2.49V DC.

Connect meter probe to TP2 Adjust "T Span" to get 1.00 V DC.

Connect probe to "GND". Adjust "T Set" to get -2.73V DC.

Connect probe to "TP3". Rotate the control potentiometer to 56 °C. Adjust "C Set" to .560V DC. Rotate control to 37 °C. Adjust "C Span" to get .370V DC. Repeat these 2 steps until no further adjustments are required.

Full Calibration is complete.

## **CORRALS**

Each CORRAL holds up to 6 units of PLASMA. One CORRAL (#C-COR) is included with the unit. If you wish to process more than 6 units at a time, you will need another CORRAL (#C-COR).

The CORRAL will hold flat frozen 300 ml. plasma bags and keep the inlet ports out of water. Flat frozen 400 ml. bags are taller and require a mounting adaptor (#C-LIFT).

Jumbo plasma bags (800 ml.) are thawed horizontally and require an overwrap bag. The JUMBO CORRAL (#C-CORJ) will thaw up to 2 units at a time. The BATH holds only one JUMBO CORRAL.

## **Test conditions**

**The standard plasma units contained 250ml in a 300ml bag. The Jumbo's were 700ml in an 800ml bag. The units were frozen to -22oC. The bath temperature was 37oC. The folded frozen and jumbos were thawed in overwrap bags.**