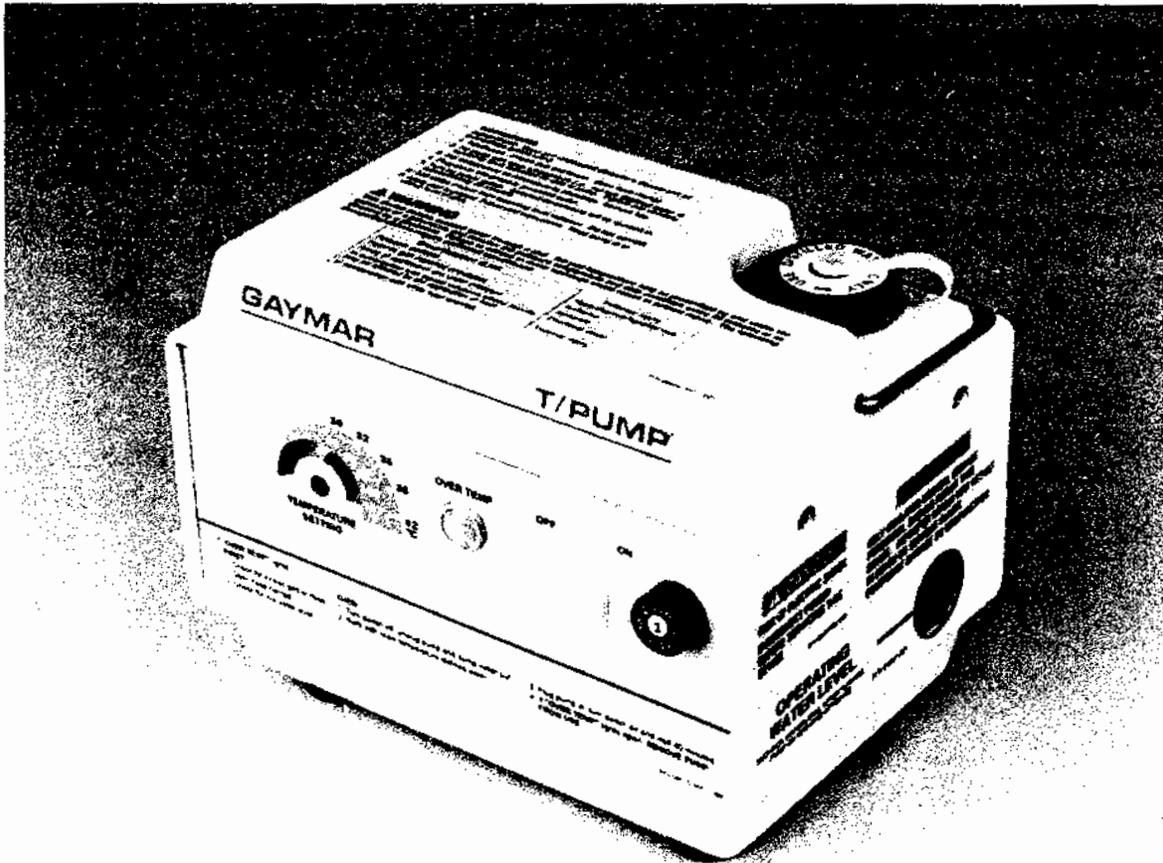


GAYMAR®

# T/PUMP®

TP500 / TP500C

Heat Therapy System



LISTED 304L



STANDARD (NORME)  
C22.2 NO. 125 RISK  
CLASS (CATEGORIE  
DE RISQUES) NO. 2G

## OPERATOR'S MANUAL

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**BEFORE YOU BEGIN . . .**

**Read and understand this TIPUMP OPERATOR'S MANUAL and all PRECAUTIONS (see page 1) prior to using the TIPump.**

**RECEIVING INSPECTION**

Check the shipping carton for damage immediately upon receipt. If package damage is discovered, the device should be unpacked with the carrier's agent present. Any claims for shortage or damage must be filed with the delivering carrier by the purchaser. Do not return pumps damaged in shipment to GAYMAR without contacting our Technical Service Department for advice (see phone numbers below). If damaged goods are returned to GAYMAR without notifying the carrier, GAYMAR will assume the repairs will be made at the customer's expense.

Should you desire, repairs can be made in your facility by your own qualified personnel. Contact the GAYMAR Customer Service Department to request a *TIPUMP SERVICE MANUAL*. Call GAYMAR for spare parts required.

SAFETY  
PRECAUTIONS

**▲ DANGER**

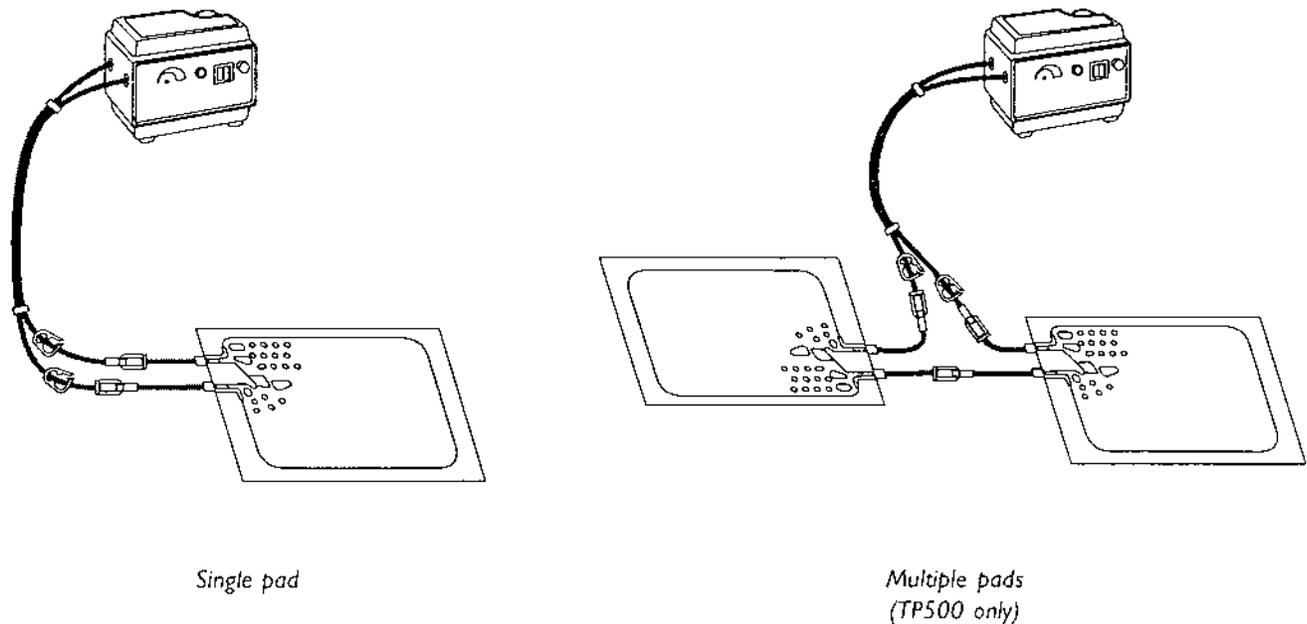
- **Risk of explosion.** Do not use in the presence of flammable anesthetics.
- **Risk of electric shock.** Disconnect power before servicing the T/Pump.

**▲ WARNING**

- This device pumps warmed water through a pad. Set pad temperature only as prescribed by and under the guidance of a physician. Monitor the patient's temperature and skin condition every 20 minutes or as directed by a physician. **Failure to adhere to these warnings could result in patient injury.** The following Groups/Conditions require additional surveillance:

Group/Condition at risk	Potential injury
Pediatric patients	Hyperthermia/hypothermia
Patients with impaired circulation	Ischemia
Areas of application are under pressure	Ischemia
In combination with topical solutions whose toxicity may be affected by the application of heat	Chemical injury
In combination with other heat sources	Thermal injury

- Only qualified medical service personnel should repair the T/Pump. **Improper repair may result in death or serious injury, equipment damage, or malfunction.**
- Always perform the *FUNCTIONAL CHECK AND SAFETY INSPECTION* as specified in the *SERVICE MANUAL* after making repairs and before returning the T/Pump to patient use. **Improper repair may result in death or serious injury, equipment damage, or malfunction.**



Single pad

Multiple pads  
(TP500 only)

Figure 1—T/Pump Heat Therapy System

## INTRODUCTION

Heat therapy is effective in the dilation of blood vessels, thereby increasing the blood flow to the heated area. Heat therapy has a variety of uses, the most common being treatment of aches and pains in joints and muscles.

The GAYMAR T/Pump<sup>3</sup> Heat Therapy System provides a means of applying heat therapy by supplying temperature-controlled water through a connector hose to a Gaymar T/Pad<sup>®</sup>. The hose is terminated in easy-to-use Clik-Tite<sup>®</sup> or Colder-style connectors.

The T/Pad provides the interface for delivering the heat therapy. The unique button design allows water to flow and provides trouble-free operation when the pad is folded. This reduces the number of pads your facility must keep in inventory. The pads are applied to the part of the body requiring heat therapy, and the circulating water maintains the pad at the set point temperature. The temperature set point is key-operated to prevent tampering.

The T/Pads can be interconnected (on model TP500 only) to provide therapy to more than one body site at a time.

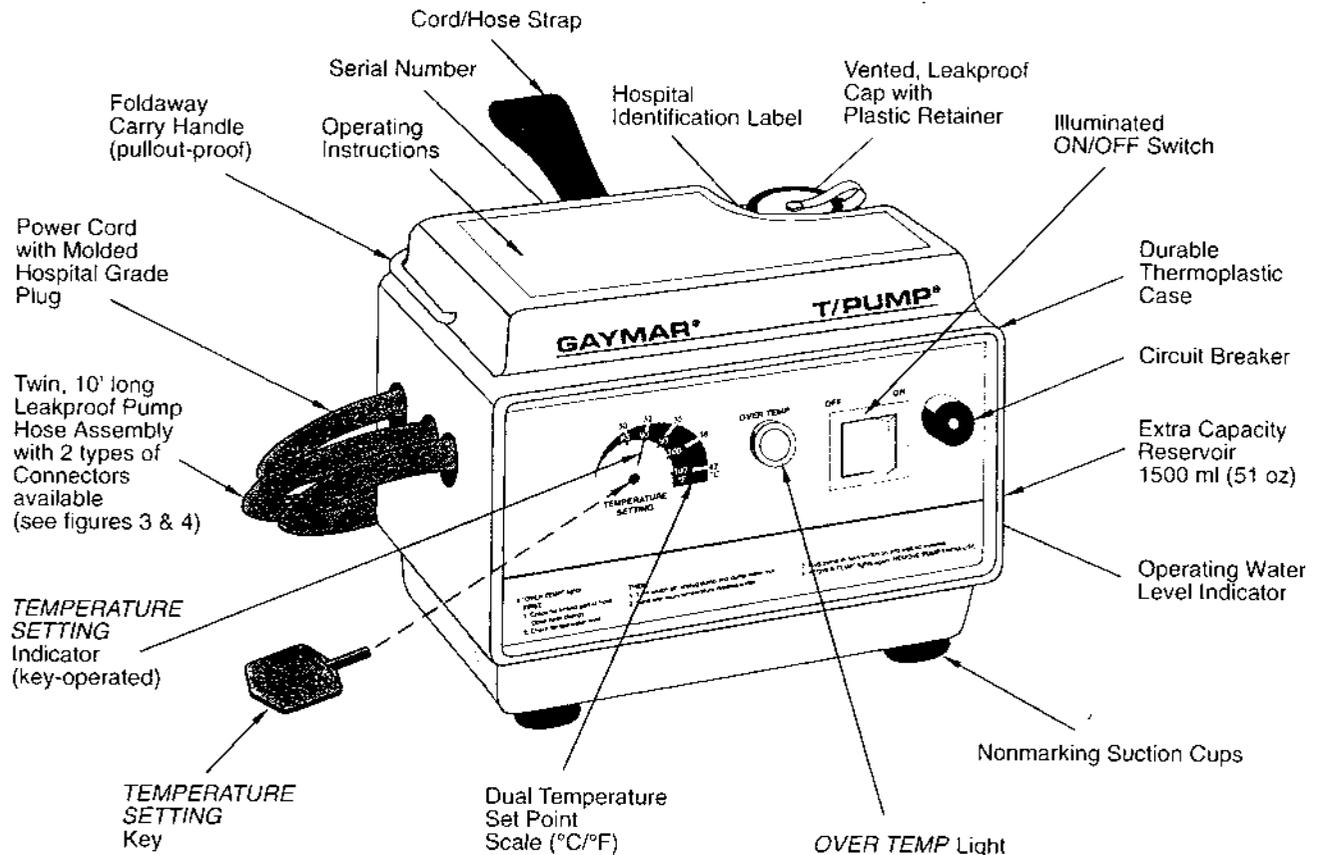


Figure 2—T/Pump Features/Specifications

FEATURES

Attached Hose	10 ft (305 cm) dual hose. Connectors allow pads to be connected to the pump (see figs. 3 and 4, p. 5).
Tip-over Switch	Turns heater off if pump is tipped. NOTE: This does not activate the <i>OVER TEMP</i> light.
Hospital ID Label	A label is provided on the back of the T/Pump for your convenience. Use a felt tip or ball point pen to add any required hospital identification.
<i>OVER TEMP</i> Light	Indicates the pump and heater have been turned off. This light is activated by the two <i>OVER TEMP</i> safety thermostats. Refer to the <i>TROUBLESHOOTING</i> section.
Circuit Breaker	When the circuit breaker trips, the small button in the center will extend 1/4", exposing a white band. Refer to the <i>TROUBLESHOOTING</i> section.
<i>OVER TEMP</i> Safety Thermostats	Either of two limit thermostats will shut off pump and heater if the high temperature limit is exceeded. The <i>OVER TEMP</i> light will glow. Refer to the <i>TROUBLESHOOTING</i> section.

## SPECIFICATIONS

Size (approx.)	8- <sup>1</sup> / <sub>8</sub> " x 5- <sup>5</sup> / <sub>8</sub> " x 6- <sup>1</sup> / <sub>4</sub> " (20.6 cm x 14.3 cm x 15.9 cm)
Weight (empty)	5 lb 2 oz (2.3 kg)
Reservoir capacity	51 oz (1500 ml) maximum
Flow rate	9 gph (34 lph) minimum with pad attached
Ambient operating temperatures	60°F to 90°F (15.6°C to 32.2°C)
Storage temperatures (empty)	-30°F to 160°F (-34.4°C to 71.1°C)
Temperature set point range	85°F to 107°F (29.4°C to 41.7°C)
Average operating temperature accuracy	±2°F at 107°F setting
Power cord	18 AWG, 3 conductor, 9 ft (274 cm), Type SJT with molded, hospital grade plug
Circuit breaker	3 amperes
Current leakage	100 microamperes maximum
Ground resistance	0.5 ohm maximum
Electrical requirements	
Voltage (VAC)	120
Frequency (Hz)	60
Current (amps)	1.8
Power req'd (watts)	200
Safety approvals	Tested to UL 544 and CSA C22.2, No. 125

T/Pumps are supplied with one of two types of hose connectors:

TP500 T/Pumps have **Clik-Tite®** connectors;

TP500C T/Pumps have **Colder-style** connectors.

### CLIK-TITE® CONNECTORS

(on TP500):

To attach Clik-Tite connectors from hose to pad:

1. Insert male fittings into female fittings with a twisting motion (figs. 3A and 3B).
2. When fittings are fully inserted, snap locking ring into place (figs. 3C and 3D).
3. To disconnect, simply reverse the procedure.

**NOTE:** Refer to figure 1 (p. 2) and item 9 (p. 6) when connecting multiple pads.

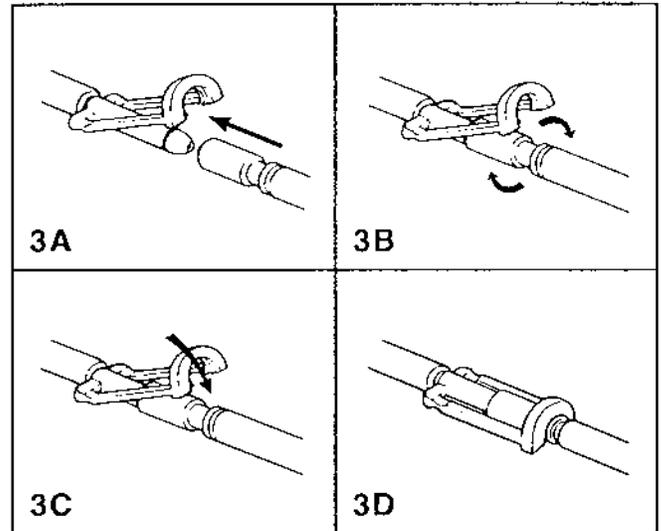


Figure 3—Clik-Tite® Connectors

### COLDER-STYLE CONNECTORS

(on TP500C):

1. To attach Colder-style connectors to a pad, push the male coupling onto the female coupling. When you hear an audible "click", the connectors are joined (fig. 4A).
2. To open or close the hose pinch clamps:
  - Open the clamp by pushing the serrated end (fig. 4B).
  - Close the clamp by pressing the clamp together (fig. 4C).
3. To disconnect Colder-style connectors, press down on the thumb tab of the female coupling. The couplings will partially disconnect. Pull the male coupling out fully to disconnect (fig. 4D).

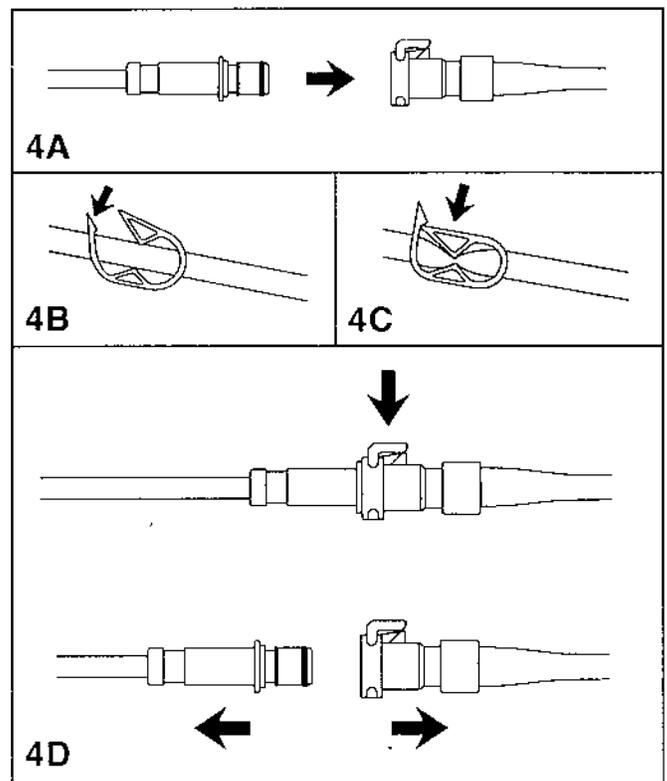


Figure 4—Colder-style Connectors

## START-UP PROCEDURE

1. Before filling the pump, always attach a pad to the connector hose or close the clamps on the connector hose ends (see figs. 3 and 4, p. 5). Then, unkink pad and hose. Open hose clamps.
2. Open the fill cap on top of the pump. Fill the pump with room temperature (i.e., not hot) **distilled water** to the operating level indicated on the side of the pump. **NOTE: Using tap water will decrease the life of the pump.**
3. Insert temperature setting key. Set temperature as prescribed by the physician. Remove key to prevent tampering.
4. Plug T/Pump into a properly grounded outlet.
5. Turn on the power switch. The selected water temperature will be reached in approximately 20 minutes.
6. If the water level drops below the operating level, add water. **Do not overfill. Overfilling can result in reduced pump motor life.**
7. Apply T/Pad to the patient. Follow T/Pad instructions.
8. For specified performance, keep the pump at or above the level of the pad.
9. If the pump is placed below the pad(s), water will drain into the pump when it is shut off. If the pump has been overfilled or if multiple pads are connected, excess water can leak out onto the floor or cause reduced motor life.

## SHUTDOWN PROCEDURE

1. Turn off pump before disconnecting pad. Close all hose clamps. To prevent water spillage, always disconnect pad from pump with connectors raised above the level of the pad and pump.
2. Connect the pump and T/Pad Klik-Tite connectors together, where applicable.

**Storage (Short term)**

Disconnect pad. Connect ends of the connector hoses together, where applicable. Open hose clamps. Leave water in the reservoir. To prevent hose kinks, coil the hose rather than folding it. Fasten the hose and cord with strap.

**Storage (Long term)**

Connect pad. Open hose clamps. Add 1/4 ounce AirKem A-33, GAYMAR MTA33 germicidal, or equivalent to water already in reservoir. Run for two (2) minutes. Drain pump. Close hose clamps. Disconnect pad. To prevent hose kinks, coil the hose rather than folding it. Fasten the hose and cord with strap and store pump.

**Draining**

Disconnect the T/Pump from AC power. Disconnect the pad or hoses from one another, keeping hoses at or above the level of the T/Pump. Remove the fill cap and invert the T/Pump over a sink. When all fluid has drained from the hoses and reservoir, replace the fill cap and connect the hoses together, where applicable.

**Cleaning**

Clean outer surfaces of the T/Pump with:

- a damp cloth and soapy water,
- Fantastik spray cleaner, or
- a mild abrasive such as Soft Scrub cleanser without bleach.

To clean the fluid system, prepare a germicidal solution according to the manufacturer's instructions. Use AirKem A-33 or equivalent, available from Ecolabs, Inc., 370 Wabasha, St. Paul, MN 35102 (phone: 1 800 247-5362), or from GAYMAR, product catalog MTA33. Drain the pump. Fill the reservoir to the operating level indicated on the side of the pump. Set the temperature indicator to its lowest setting (fully counterclockwise), start the T/Pump, and circulate the solution for one hour. Drain the solution and refill the pump with distilled water. Using distilled water will not promote algae growth or mineral buildup.

Change the distilled water monthly or more often depending upon use.

**Pads / Accessories**

For best results use only GAYMAR T/Pads® or Mul•T•Pads®. The unique button design allows water to flow and provides trouble free operation when the pad is folded. This reduces the number of different sizes of pads your facility must keep in inventory. The T/Pads can be interconnected (on model TP500 only) to provide therapy to more than one body site at a time (see fig. 1, p. 2). For a brochure listing the various pads, contact the GAYMAR Customer Service Department (see next page for telephone numbers).

An optional bed bracket (model TP20A) is available to mount the T/Pump on the footboard of a bed.

PROBLEM	POSSIBLE CAUSE	REMEDY
"OVER TEMP" light is on.	1. Pad or hose is kinked. Hose clamps are closed.	Turn switch off, unplug pump, and dump water out. Unkink pad or hose. Open hose clamps. Refill with room temperature distilled water to proper level. Plug T/Pump in, turn switch on, and wait 40 minutes.
	2. Water level is low, or reservoir is empty.	
	3. T/Pump is filled with water that is too hot (it must be below 75°F).	
T/Pump will not heat.	1. T/Pump is tipped.	Place T/Pump on level surface.
	2. "OVER TEMP" light is on.	Refer to "OVER TEMP" section above.
T/Pump will not pump.	1. Water level is low, or reservoir is empty.	Refill with room temperature distilled water to proper level.
	2. "OVER TEMP" light is on.	Refer to "OVER TEMP" section above.
T/Pump will not turn on.	1. The "ON" switch may not be fully engaged.	The light on the switch should be lit. Verify that the switch is fully engaged in the "ON" position.
	2. The electrical cord is not plugged into a grounded electrical receptacle.	Insert the plug fully into the receptacle.
	3. The circuit breaker has tripped.	If the circuit breaker has tripped, turn the power switch to "OFF". Wait two (2) minutes. Press the circuit breaker button in. Turn T/Pump on. If the circuit breaker trips again, remove T/Pump from use.
Water leaks from connector:		
Clik-Tite connector	1. Damaged O ring.	If defective, replace Clik-Tite connector.
	2. Locking ring on Clik-Tite connector is not snapped into place (see fig. 3).	Snap Clik-Tite locking ring shut.
Colder-style connector	3. The couplings are not securely connected.	Push the male and female ends together until you hear a "click." If it still leaks, replace connector.

## PREVENTIVE MAINTENANCE / SERVICE

### ⚠ DANGER

Risk of electric shock. Disconnect power before servicing.

### ⚠ WARNING

Only qualified medical service personnel should repair the T/Pump. Improper repair may result in death or serious injury, equipment damage, or malfunction.