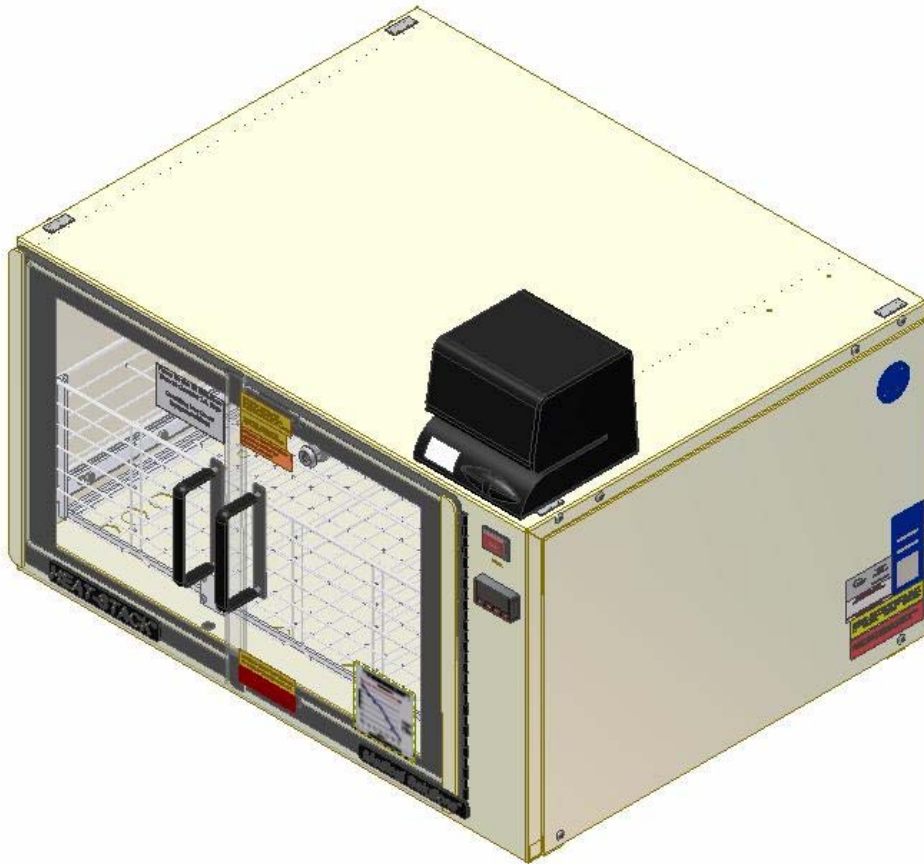


HEAT-STACK[®] FLUID WARMER

OPERATORS MANUAL Model MSI-2512



Medical Solutions, Inc
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Chantilly, Virginia 20151
(800) 435-7600
Fax (703) 834-0039

**HEAT-STACK®
FLUID WARMER
MSI-2512**

Read and understand the Operators Manual before using the HEAT-STACK® FLUID WARMER.

Intended Use

The HEAT-STACK® is designed to store, warm and maintain the temperature of I.V. and irrigation fluid bags prior to their use.

It is suggested that each facility should contact the fluid manufacturer to obtain the manufacturer's specifications for time and temperature for the fluids being warmed.

Unit Description

The HEAT-STACK® may be stacked, mounted on a tabletop or attached to a roll around base. The height of the roll around base can be adjusted. Each HEAT-STACK® has independent controls and temperature displays and a shelf that pulls out for easy loading and unloading.

The Documentor™ is designed to assist in the compliance with JCAHO® standard MM 2.20 and the fluid manufacturer's specifications covering time.

JCAHO is a registered trademark of the Joint Commission on Accreditation of Healthcare Organizations

Important Labels or Directions

Model/Serial Number Label

Caution: Electric shock hazard, do not remove protective panel. Refer servicing to qualified personnel.

Caution: Verify temperature of warmed items before use

Danger: Risk of explosion if used in the presence of flammable anesthetics.

Unit is not intended for blood or blood products.

Caution: To prevent tipping, have only one shelf pulled out at a time

Caution: Lock door before moving cabinet.

Warning: Do not use HEAT-STACK® on a tabletop without support

Warning: Risk of fire. Replace Fuse as Marked: 250v 2.5 amps time delay

Warning: Risk of fire. Replace Fuse as Marked: 250v 2 amps time delay

Use receptacle only when connecting other Heat-Stack® units. Total units 4, 8.8 amps

Note: Grounding Reliability can only be achieved when this equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade"

Specifications

Classification	Class 1
Size	12" H x 22-3/4" W x 16-1/4" D
Weight	Approximately 29 pounds Loaded
Construction	Steel, Powder Coat Finish
Fluid Capacity	20 - 1000 ml Fluid Bags

Temperature Control Specifications

Temperature Setting Range	Ambient to 40°C
Factory Preset Temperature	40°C

Ambient Operating Conditions

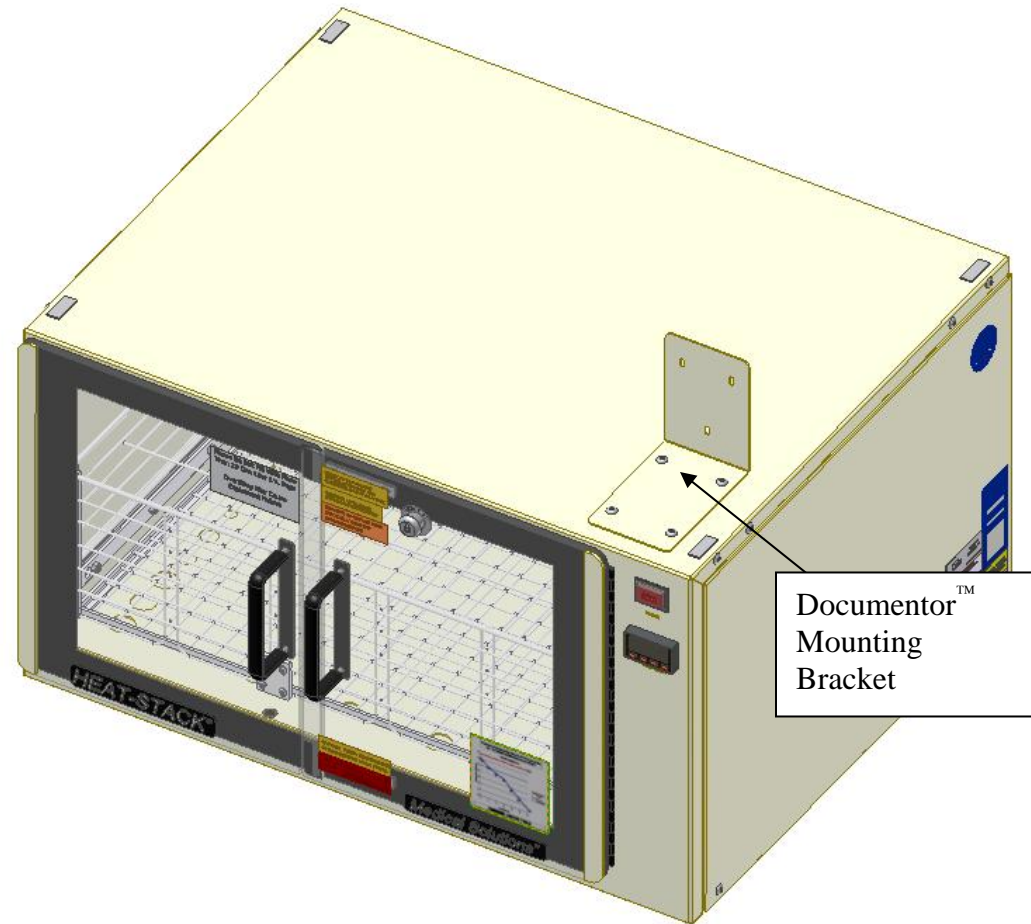
Storage Temperature	-40 to+80°C (-40 to 176°F)
Humidity Conditions	0 to 90% up to 40°C non-condensing
Operating Temperature	-10 to +55°C (14 to 131°F)
Atmospheric Pressure During Transporting	minimum of 16.288 in. Hg

Electrical Requirements

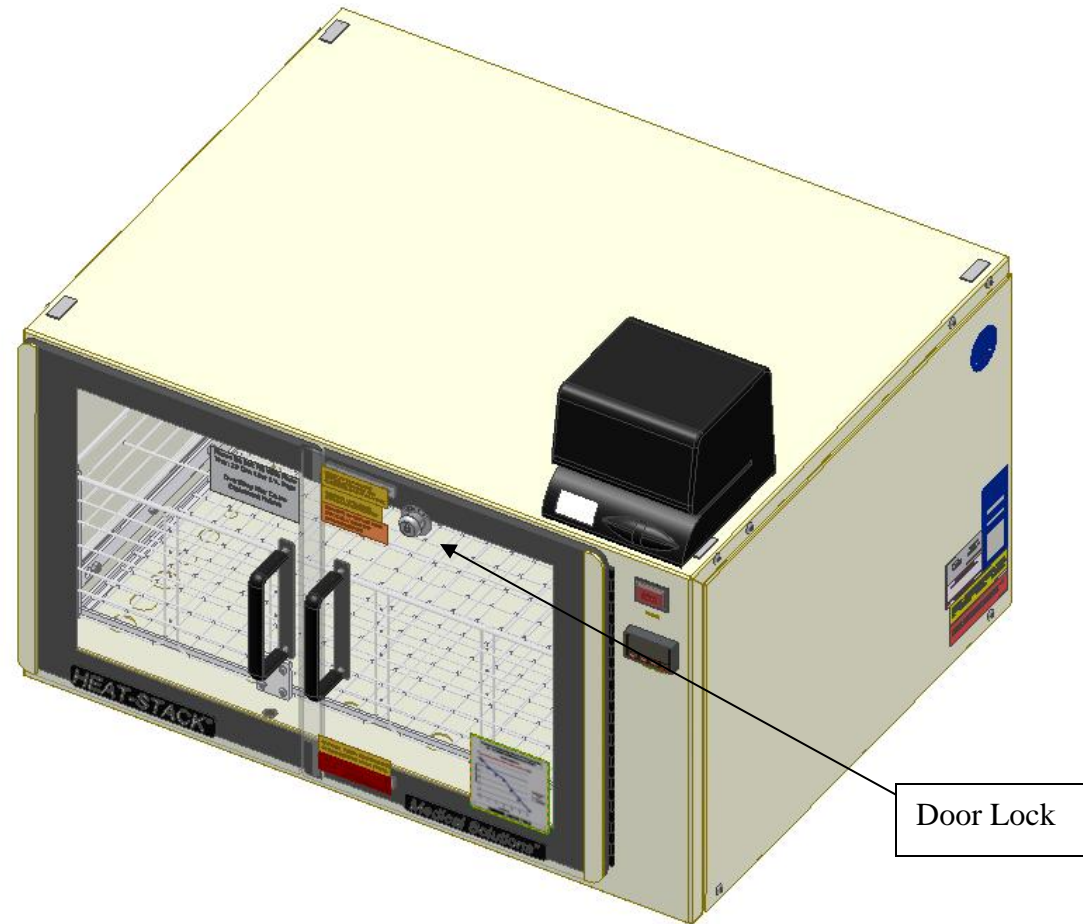
Power Requirements	110/120 VAC, 50-60 HZ
Fusing	1 each 2 amp 1 each 2.5 amp
Average Consumption	2.1 amps
Heater Wattage	250 watts

Set-up Instructions

1. Remove the HEAT-STACK® from the box; check the unit before operating to ensure that all of the packaging materials or manuals are removed from the cabinet.
2. Locate the Documentor™ and remove from the shipping box. Attach the Documentor™ to the cabinet following the instructions below.
 - a. Remove the 4 screws in the top of the HEAT-STACK®. Line up the holes in the Documentor™ Bracket with the top of the cabinet and secure using the 4 previously removed screws.



- b. Remove the 3 screws in the back of the Documentor™ and attach the Documentor™ to the mounting bracket using these 3 screws.
3. When moving the HEAT-STACK®, lock the Door in place to prevent the shelf from accidentally sliding out.
4. Once the HEAT-STACK® has been positioned the Door can be unlocked.
5. Plug the HEAT-STACK® into an approved receptacle. The fan will begin to operate until a delay timer has cycled off and reset.
6. Push the power button on. The button will light indicating that the unit is on. The temperature controller will go through a self-test. After the self-test the temperature controller will display the current temperature and the set point temperature.
7. When the power button is pushed off, the fan will continue to operate for a short period of time (2 to 5 minutes) to assure the heating element is cool before completely shutting down. The power button will remain lit during this time.
8. To remove or place items in the HEAT-STACK®, unlock the right hand door and then open the doors. Slide the shelf out to either remove or place items.



9. When finished, push the shelf back into the HEAT-STACK[®], close the doors. The HEAT-STACK[®] will continue to operate while the doors are open.

Documentor[™] Instructions

Prior to loading the cabinet with IV bags, use the Documentor[™] to label the IV bags with a future date that follows the manufacturer's recommendation for the length of time a bag is to be warmed.

“Future Date Label”

To create a future date label: (See the Documentor[™] Resetting Instructions for adjusting the clock date)

- i) Hold the Label sheet face up.
- ii) Line up the arrow on the Documentor[™] under the words “Remove Fluid By:” on the label
- iii) Push the label sheet towards the arrow until the Documentor[™] is activated.
- iv) Place a label on each IV bag for documentation and compliance purposes.

Operating Instructions

1. Load the labeled bags of solution into the pull out shelf through the front of the cabinet.
2. Turn the unit on by depressing the power switch. The switch will illuminate when energized. The controller will perform a self-test and then it will display the ambient temperature of the cabinet. The factory temperature setting is 40° C. To change the temperature setting, follow the instructions below.

The controller will display 2 temperatures in its display.

- a. The upper indicator (red) on the temperature controller indicates the present temperature of the cabinet.
 - b. The lower indicator (green) on the temperature controller indicates the cabinet temperature the user desires to achieve.
3. During the time that the controller is directing the unit to warm, a light will illuminate in the upper left corner of the display.
 4. To change the temperature setting, follow the instructions below.

TO CHANGE THE SET POINT

PRESS THE INDEX KEY (LEFT MOST KEY) TO VIEW SET POINT ONE (SP1).

PRESS THE UP OR DOWN ARROW KEYS TO CHANGE THE SET POINT.

PRESS THE ENTER KEY (RIGHT MOST KEY) TO ACCEPT THE NEW SET POINT.

PRESS THE INDEX KEY

NOTE: The HEAT-STACK® may be left on continually without harm to the unit. It is suggested that each facility contact the fluid manufacturer to obtain the manufacturer's specifications for time and temperature for the fluids being warmed.

The HEAT-STACK® is not intended for Blood or Blood Products.

Use only the power cord supplied with the HEAT-STACK®.

In the event that fluid should spill inside the cabinet – immediately unplug the unit to prevent an electrical shock hazard and refer to the Cleaning instructions.

Documentor™ Resetting Instructions

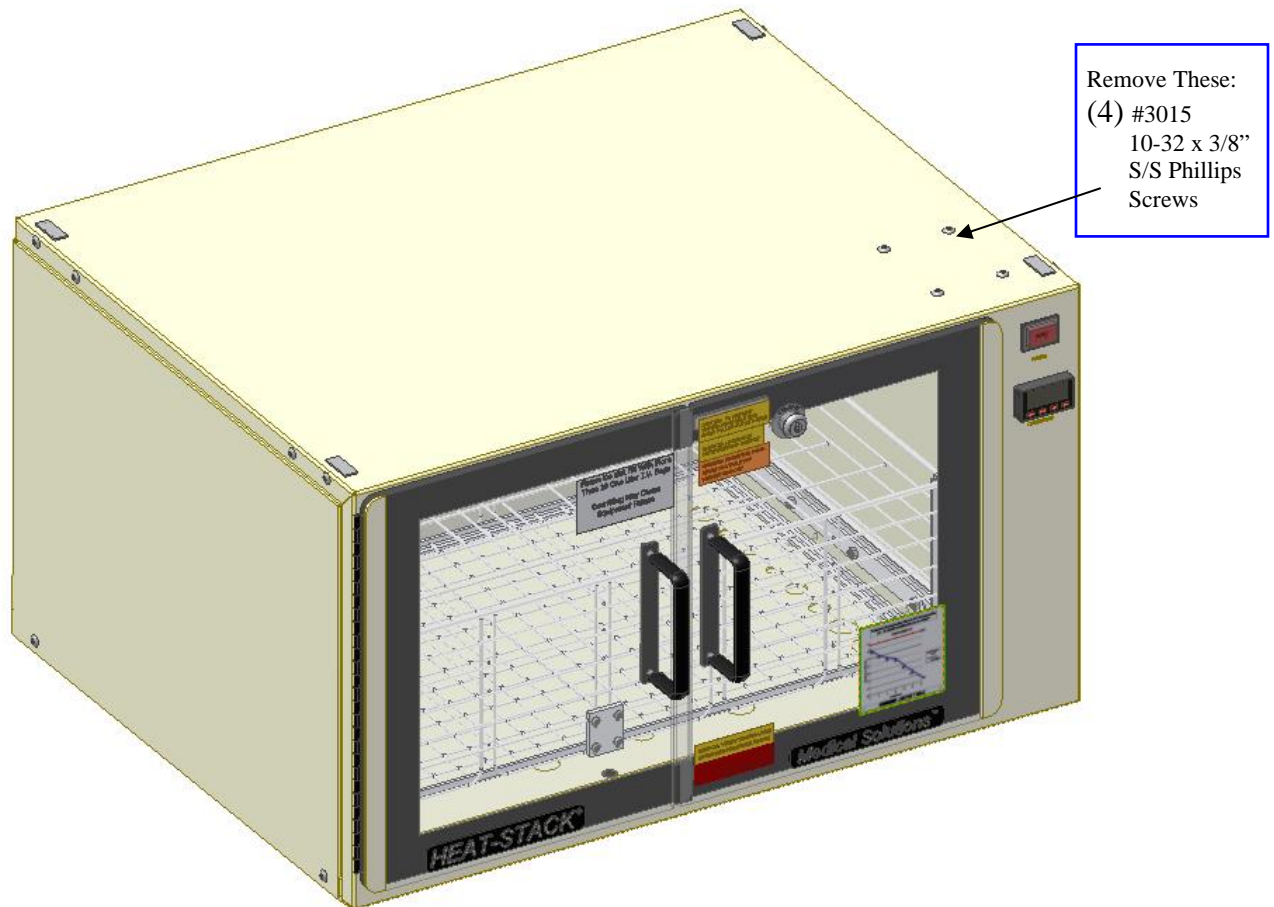
TO CHANGE THE DATE:

1. Plug Documentor™ into an electrical outlet.
2. Press and hold blue RESET button located on the bottom of the Documentor™.
3. While holding down the RESET button, press and hold the • right button on the front panel.
4. While holding the • right button, release the RESET button.
5. When Prog appears in the display, release the • right button, Prog finishes.
6. Tap the • right button again. The display will show 0000 and the 1st digit will flash.
7. Tap the ◀ left button until the number 8 appears then Tap the • right button twice so the third 0 is flashing.
8. Tap the ◀ left button until the number 8 appears in the third position then Tap the • Right button.
9. Tap the ◀ left button until the number 8 appears in the fourth position. The display should read 8088 then Tap the • right button.
10. When the display flashes all four digits, Tap the • right button
11. The display flashes P1 (date).
12. Tap the • right button, the small digits on the left, representing the year, will flash.
13. Tap the ◀ left button until the desired number appears then Tap the • right button. The digits representing the month should flash.
14. Tap the ◀ left button until the desired number appears then Tap the • right button. The digits representing the day should flash.
15. Tap the ◀ left button until the desired number appears then Tap the • right button.
16. When the desired date is set Tap the • right button until the display flashes P1 (date).
17. Tap the blue RESET to return to the standard display.

TO CHANGE THE TIME:

18. Follow steps 1-11.
19. Tap the ◀ left button, when the display flashes P2 cloc, Tap the • right button.
20. The hour format will flash (12 or 24). If necessary, tap the ◀ left button until 24 flashes. Tap the • right button
21. The hour digits will flash; Tap the ◀ left button until the desired setting is achieved. (the hour must be set in military time 3:05 pm = 15:05) Tap the • right button
22. The minutes digits will flash; Tap the ◀ left button until the desired setting is achieved. Tap the • right button twice.
23. The display will flash P2 Cloc, Press and release the blue RESET button.

3. For Heat-Stack with four screws located on the top front right corner of the bottom unit; the four screws will need to be removed prior to stacking.

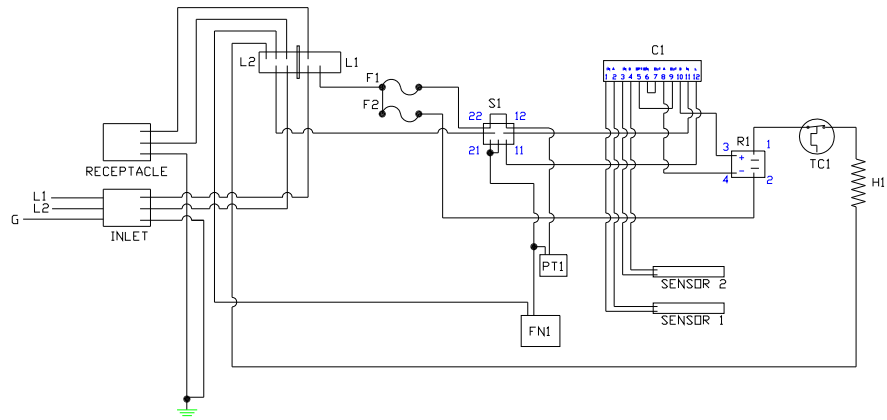


Note: When assembling the HEAT-STACK[®] units with a Stand, Do Not extend the overall height above 70". Limit two HEAT-STACK[®] units per stand.

Trouble Shooting

1. If the unit fails to warm, check the following:
 - a. Check to see that the HEAT-STACK[®] is plugged in and the power switch is on.
 - b. Check the set point setting so that the controller is calling for the unit to warm.
2. If the unit overheats, contact Medical Solutions, Inc. for technical assistance at 800-435-7600.

Electrical Schematic



- L1-L2 = LINES
- H1 = HEATERS
- TC1 = THERMAL CUT OUT
- R1 = RELAYS
- C1 = CONTROLLERS
- PT1 = PURGE TIMERS
- S1 = SWITCHES
- FN1 = FANS
- F1-F2 = FUSE

Preventive Maintenance Plan

The HEAT-STACK[®] temperature controller should be verified every five (5) years. Medical Solutions, Inc. recommends the use of the following items to accurately measure the bag temperature for verification.

Fluke 51II Digital Thermometer

6” Long .093” Diameter Type T Needle Thermocouple

(with the Thermocouple calibrated to the Thermometer)

With the outer wrap still on a 1000ml fluid bag, pierce the bag through the needle injection port on the bag with an 18ga needle to make it easier to insert the Thermocouple. Insert the Thermocouple through the pierced needle injection port. Place the fluid bag into the center of heater tray. Add additional fluid bags to fill the heater tray. Feed the Thermocouple wire out of the cabinet to the Fluke Thermometer and position the probe in the center of the bag. Close the door. Turn the power on to the HEAT-STACK[®]. Adjust the temperature controller set point temperature to 40°C. Allow the unit to operate for a minimum of 24 hours before verifying the temperatures. After the allotted time, compare the temperature reading on the controller to the temperature reading on the Fluke Thermometer, the two temperatures should be within 2 degrees Celsius of each other. If the two temperature readings are within 2 degrees Celsius of each other, the temperature controller has been verified. If they are not, please contact Medical Solutions, Inc. at 800-435-7600.

If a Fluke Digital Thermometer is not available an alternative method to verify the controller is to use a glass laboratory thermometer. Fully load the unit with 1000ml fluid bags and turn the power on. Adjust the temperature controller set point temperature to 40°C. Allow the unit to operate for a minimum of 24 hours before verifying the temperatures. Remove the bag and place the end of the glass thermometer on top and in the middle of the bag. Fold the bag over the thermometer and hold for approximately two minutes or until the mercury stops moving. If the reading on the thermometer is between 38.3°C and 41.7°C the temperature controller has been verified. If they are not, please contact Medical Solutions, Inc. at 800-435-7600

Cleaning Instructions

1. Turn the unit off at the Master Power Switch and unplug the unit from the receptacle.
2. Wipe down the cabinet with a damp cloth using a general hospital cleaner (Isopropyl Alcohol) as needed, following the manufacturers instructions for the cleaner.
3. In the event that excessive fluids enter the cabinet, disconnect power to the unit and refer to qualified service personnel. Remove the service panel (the right and back panel of the unit) and remove any liquid and dry components. Perform normal hospital electrical safety checks and the unit is ready to be returned to operation.

LIMITED WARRANTY

For one year from the date of shipment to the Buyer (the “Warranty Period”), MSI warrants that the Equipment provided to the Buyer shall be free from defects in workmanship and material. In the event of a breach of this warranty during the Warranty Period, MSI shall, at its option, repair or replace the Equipment, and Buyer’s remedies are limited to such repair or replacement. MSI DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MSI BE LIABLE FOR DIRECT, INDIRECT, PUNITIVE, ECONOMIC, CONSEQUENTIAL OR OTHER DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS.

To enable MSI to administer the Warranty properly, Buyer shall (1) register the Warranty using the form provided below, and (2) promptly notify MSI of any claim hereunder. As a condition to the Warranty, Buyer shall use and maintain the Equipment according to the provisions of the Operator’s service manual.

IMPORTANT: THIS IS YOUR HEAT-STACK® WARRANTY REGISTRATION

Please register your warranty by filling out this page and send it to Medical Solutions, Inc. within 30 days of purchase.

- A. Hospital Name: _____
- B. Mailing Address: _____
- C. City: _____ State: _____ Zip Code: _____
- D. Contact Name: _____
- E. Date Purchased: _____
- F. Serial Number: _____
- G. Department Purchased For: _____

COPY THIS PAGE AND MAIL TO:

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