Model 200/250
Operation Manual

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Figure 1. Heating Unit
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WARNINGS

1. Monitor the patient's temperature and vital signs regularly. Reduce the air temperature or discontinue therapy when normothermia is reached, or if vital sign instability occurs.

2. The patient must be dry or a net cooling effect may occur initially.

3. The patient's wounds should be covered during treatment.

4. The possibility of airborne contamination should be considered if patients with infected wounds are treated with the Bair Hugger®.

5. Do not place the Heating Unit near monitoring equipment or other electronic devices as electromagnetic interference could result.

6. The Bair Hugger® Patient Warming System is to be used only on the order of a licensed physician.

7. If the red Over Temperature Alarm lights up, and the audible alarm sounds, turn off the Heating Unit and discontinue use. Refer servicing to an authorized service technician.

8. Do not use the "high" temperature setting when treating patients with the following conditions:
   A. Significant peripheral vascular disease (occlusive or diabotic).
   B. Low cardiac output.
   C. Totally immobilized patients.

INTRODUCTION

The Bair Hugger® Patient Warming System was developed by an anesthesiologist to treat the common problem of postoperative hypothermia and the significant discomfort that occurs in patients that are cold after surgery. The Bair Hugger® can also be used to treat shivering and tremors.

A special Heating Unit draws room air through a filter, warms the air to the desired temperature and circulates the warm air through a hose to the Warming Cover over the patient. The Warming Cover evenly distributes the warm air around the patient's body creating a safe and warm environment.
9. **Explosion Hazard.** Do not use in the presence of flammable anesthetics.

10. **Electrical Shock Hazard.** Do not disassemble. Refer servicing to an Augustine Medical, Inc. Authorized Service Center or call (800) 733-7775 for more information.

**HYPOTHERMIA-WHAT IS IT?**

Postoperative hypothermia (Temp<36°C or <96.7°F) occurs in 60-80% of all postoperative patients. This extremely common problem affects more than 10 million surgical patients every year.

Several factors contribute to postoperative hypothermia including the patient's exposure to cold operating room temperatures, heat loss due to evaporation of fluids used to scrub the patient, evaporation of moisture from exposed bowels, and the breathing of dry anesthetic gases.

Negative effects of hypothermia include a decrease in cardiovascular stability and an increase in oxygen consumption of up to 400% during unaided rewarming as well as severe shivering and significant patient discomfort.

The Bair Hugger® Patient Warming System is designed to combine the safety and convenience of warm air to rewarm cold and uncomfortable patients suffering from postoperative hypothermia.

**BAIR HUGGER®**

**Patient Warming System**

**Heating Unit**

The Bair Hugger® System consists of a Heating Unit and a disposable Warming Cover. The Heating Unit uses a reliable, high-efficiency motor, a sealed 600 watt heating element and a micro-processor based temperature controller to create a continuous flow of warm air to the Warming Cover. (See Figure 1).

**Warming Cover**

The Warming Cover consists of a layer of plastic and a layer of tissue paper laminate bonded together into long tubular channels. The self-supporting Warming Cover is designed to arch over and "hug" the patient so that no straps, tapes or other fasteners are required to hold it in place (See Figure 2.)

![Figure 2. Warming Cover](image)
CONTROL PANEL

Control Switch
The four position control switch controls the temperature of the air exiting the Bair Hugger® Heating Unit. (See Figure 3). The switch can be set at heat off, low, medium, and high temperature settings. See instructions below for more details.

Over Temperature Alarm
The Over Temperature Alarm light glows red if the over temperature thermostat has tripped. The heating element and blower will automatically turn off when this condition occurs.

CAUTION: If the Over Temperature Alarm lights, turn the power switch off and discontinue use of Heating Unit. Refer servicing of equipment to an Authorized Service Center.

Power switch
The Power switch turns the main power on or off to the heaters and motor/blower assembly. The light above the Power switch will glow green when power is on.

SETUP AND OPERATION

The Bair Hugger® Patient Warming System is easy to setup and use. In order to prepare the unit for use, follow the instructions below.

Instructions

1. Plug the Bair Hugger® Heat Source into a properly grounded receptacle.

2. Remove the wrapping from a disposable Bair Hugger® Warming Cover. Unfold the cover and place over the patient with the paper side down and the air inlet port facing toward the patient’s feet.

3. Open the lid of the Heating Unit and remove the hose from the storage compartment. Keep the lid closed while the Bair Hugger® is in use.

4. Insert the end of the hose into the cardboard connector on the Warming Cover until it fits tightly. Twisting the hose as you insert it will insertion easier. (See Figure 4.)
6. Turn the power switch on and allow one to two minutes for the Heating Unit to reach the desired temperature before putting the cover on the patient.

7. When treating hemodynamically unstable patients, start their warming therapy in the lower temperature ranges (Low or Medium setting). The temperature setting may then be increased as tolerated by the patient.

8. For cooling a patient, set the Control Switch to the Heat Off setting. This will circulate ambient temperature room air through the Warming Cover causing the patient to cool.

9. **Important:** Monitor the patient’s temperature and vital signs regularly. Reduce the air temperature or discontinue therapy when normothermia is reached, or if vital sign instability occurs. For best results, place the patient’s sheet or blanket over the inflated Warming Cover to minimize heat loss from the system.

**GENERAL MAINTENANCE**

The Bair Hugger® Patient Warming System requires no maintenance except for wiping the cabinet and storage compartment clean with a damp cloth and regularly changing the air filter mounted inside the back panel of the unit.

**Cleaning the cabinet**

To clean the Bair Hugger® cabinet, use a soft cloth lightly dampened with water
and a mild detergent. Dry with another soft cloth. Do not attempt to clean the cabinet while the Bair Hugger® is in use or plugged into the wall socket.

CAUTION:

1. Do not use a wet saturated cloth to clean the unit. Moisture may seep into the electrical contacts damaging the components.

2. Do not use alcohol or other solvents to clean the cabinet. Solvents may damage the labels and other plastic parts.

Changing the Filter
Under normal use, the air filter inside the back panel of the Heating Unit should be changed every 6 months.

To change the filter, remove the back panel of the Heating Unit by removing the 4 zinc screws. Lift out the old filter and insert a new filter into the filter frame. Close back panel and secure with 4 zinc screws. (See Figure 5).

ELECTRICAL MAINTENANCE

Electrical Shock Hazard: Do not disassemble this unit. Refer servicing to an Augustine Medical, Inc. Authorized Service Center or contact:

Service Department
Augustine Medical, Inc
10393 West 70th Street
Eden Prairie, MN 55344
(612) 941-8866
(800)733-7775

Consumeable Supplies

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>220</td>
<td>Temperature Test Kit</td>
</tr>
<tr>
<td>300</td>
<td>Adult Warming Cover</td>
</tr>
<tr>
<td>310</td>
<td>Pediatric Warming Cover</td>
</tr>
<tr>
<td>100910</td>
<td>.062 Amp Fuse</td>
</tr>
<tr>
<td>101201</td>
<td>5' Hose Assembly</td>
</tr>
<tr>
<td>101501</td>
<td>2µ Filter</td>
</tr>
<tr>
<td>102301</td>
<td>Operation Manual</td>
</tr>
<tr>
<td>102310</td>
<td>Service Manual</td>
</tr>
</tbody>
</table>

Figure 5. Air Filter
SPECIFICATIONS
Bair Hugger® Patient Warming System

CHARACTERISTICS

Dimensions
26" High x 12" Deep x 22" Wide (MD 200)
26" High x 12" Deep x 16" Wide (MD 250)

Weight
70 pounds (MD 200)
65 pounds (MD 250)

Cabinet Construction
18 Ga steel with painted enamel finish.

CONTROL SYSTEM

Temperature Setting
The temperature settings on the control switch indicate the average temperature of the air surrounding the patient using a Bair Hugger® Warming Cover. Actual air temperature at the hose outlet is approximately 10° higher than the average temperature.

Average Temperature of Air Surrounding Patient

<table>
<thead>
<tr>
<th>Setting</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Off</td>
<td>Ambient Temp</td>
</tr>
<tr>
<td>Low</td>
<td>90°±5°F (33.0°C)</td>
</tr>
<tr>
<td>Medium</td>
<td>100°±5°F (37.6°C)</td>
</tr>
<tr>
<td>High</td>
<td>110°±5°F (43.1°C)</td>
</tr>
</tbody>
</table>

ELECTRICAL SYSTEM

Characteristics (Std)
125V, 60Hz, 7Amps

Power Cord
Grey, 15 foot, 14 GA cord with hospital grade plug.

Current Leakage
Meets hospital standards for leakage current.

Fuses
15 Amp and .062 Amp Slo Blow

Thermostat B-200

SAFETY SYSTEM

Thermocouple
Heater will shut off if thermocouple is physically damaged.

High Temperature Thermostat
Thermal cutoff shuts off the warming unit at a preset high temperature of 135°±5 at the end of the hose.

High Temperature Alarm
Visual-red neon light on front panel and an audible alarm.

COVER SPECIFICATIONS

Dimensions
Adult 36" x 54" long
Pediatric 36" x 36" long

Weight 8 oz

Material
Polyethylene and tissue paper laminate

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SPECIFICATIONS
Bair Hugger® Patient Warming System
Model 250J

CHARACTERISTICS

Dimensions
66cm High x 30.5cm Deep x 40.64cm Wide

Weight
29.48kg

Cabinet Construction
18 Ga steel with painted enamel finish.

CONTROL SYSTEM

Temperature Setting
The temperature settings on the control switch indicate the average temperature of the air surrounding the patient using a Bair Hugger® Warming Cover. Actual air temperature at the hose outlet is approximately 5.55°C higher than the average temperature.

<p>| Average Temperature of Air Surrounding Patient |</p>
<table>
<thead>
<tr>
<th>Setting</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Off</td>
<td>Ambient Temp</td>
</tr>
<tr>
<td>Low</td>
<td>32.2± 2.78°C</td>
</tr>
<tr>
<td>Medium</td>
<td>37.77± 2.78°C</td>
</tr>
<tr>
<td>High</td>
<td>43.33± 2.78°C</td>
</tr>
</tbody>
</table>

ELECTRICAL SYSTEM

Characteristics (Std)

100V, 50Hz, 10Amps

Power Cord
Grey, 4.57m, 14 GA cord with hospital grade plug.

Current Leakage
Meets hospital standards for leakage current.

Fuses
15 Amp and .062 Amp Slo Blow

Thermostat B-200

SAFETY SYSTEM

Thermocouple
Heater will shut off if thermocouple is physically damaged.

High Temperature Thermostat
Thermal cutoff shuts off the warming unit at a preset high temperature of 57.22±2.78°C at the end of the hose.

High Temperature Alarm
Visual-red neon light on front panel and an audible alarm.

HEATING SYSTEM

Motor
1/20 HP, Single Phase, 1500 rpm Motor

Heater
600W Sealed tube heating element

COVER SPECIFICATIONS

Dimensions
Adult 91.44cm x 137.16cm long
Pediatric 91.44cm x 91.44cm long

Weight 226.8g

Material
Polyethylene and tissue paper laminate
SPECIFICATIONS
Bair Hugger® Patient Warming System
Model 200J

CHARACTERISTICS

Dimensions
66cm High x 30.5cm Deep x 55.88cm Wide

Weight
31.75kg

Cabinet Construction
18 Ga steel with painted enamel finish.

CONTROL SYSTEM

Temperature Setting
The temperature settings on the control switch indicate the average temperature of the air surrounding the patient using a Bair Hugger® Warming Cover. Actual air temperature at the hose outlet is approximately 5.55°C higher than the average temperature.

<table>
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<tbody>
<tr>
<td>Heat Off</td>
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High Temperature Thermostat
Thermal cutoff shuts off the warming unit at a preset high temperature of 57.22°C ± 2.78°C at the end of the hose.

High Temperature Alarm
Visual-red neon light on front panel and an audible alarm.

HEATING SYSTEM

Motor
1/20 HP, Single Phase, 1500 rpm Motor

Heater
600W Sealed tube heating element

ELECTRICAL SYSTEM

Characteristics (Std)
100V, 50Hz, 10Amps

Power Cord
Grey, 4.57m, 14 GA cord with hospital grade plug.

Current Leakage
Meets hospital standards for leakage current.

Fuses
15 Amp and .062 Amp Slo Blow

Thermostat B-200

COVER SPECIFICATIONS

Dimensions
Adult 91.44cm x 137.16cm long
Pediatric 91.44cm x 91.44cm long

Weight
226.8g

Material
Polyethylene and tissue paper laminate

1988 Bair Hugger is a trademark Augustine Medical, Inc.
SPECIFICATIONS
Bair Hugger® Patient Warming System
Model 200E

CHARACTERISTICS

Dimensions
66cm High x 30.5cm Deep x 55.88cm Wide

Weight
31.75kg

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HEATING SYSTEM

Motor
1/20 HP, Single Phase, 1500 rpm Motor

Heater
600W Sealed tube heating element

ELECTRICAL SYSTEM

Characteristics (Std)
250V, 50Hz, 3.5Amps

Power Cord
Grey, 4.57m, 14 GA cord with hospital grade plug.

Current Leakage
Meets hospital standards for leakage current.

Fuses
15 Amp and .062 Amp Slo Blow

Thermostat B-200

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