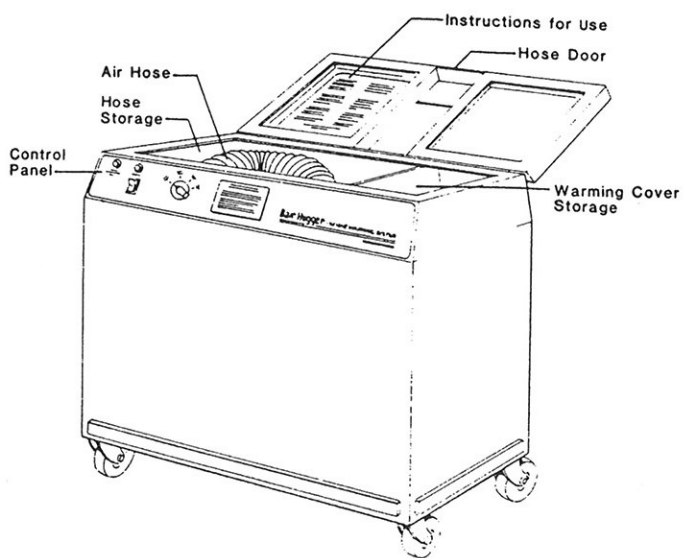




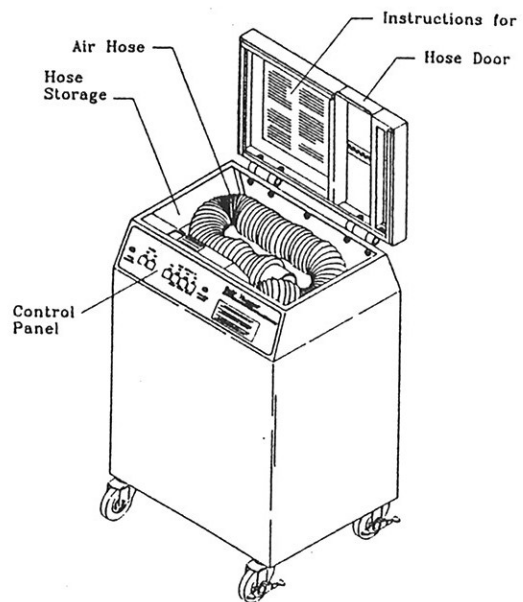
Model 200/250
Operation Manual

Bair Hugger[®] PATIENT WARMING SYSTEM

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Model 200



Model 250

Figure 1. Heating Unit

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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.

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 diabolic).
 - B. Low cardiac output.
 - C. Totally immobilized patients.

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.)

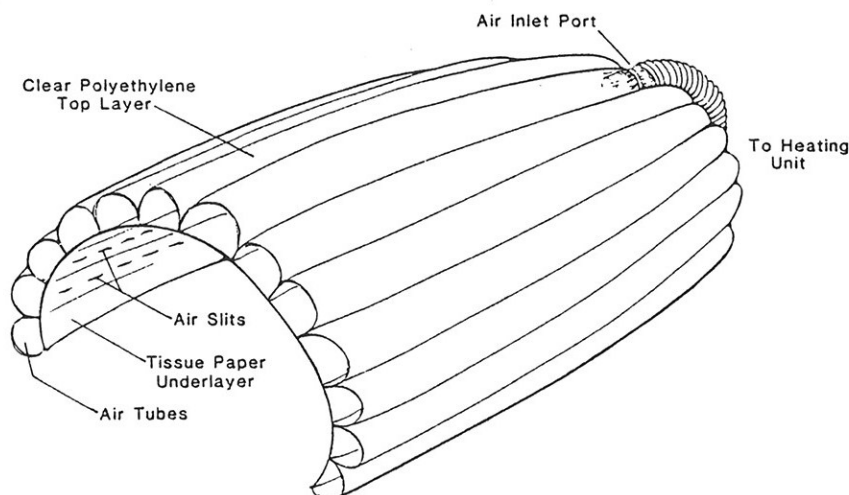


Figure 2. Warming Cover

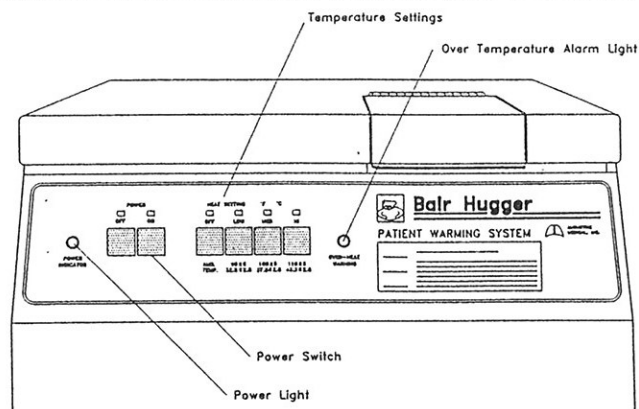


Figure 3. Control Panel Features

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.)

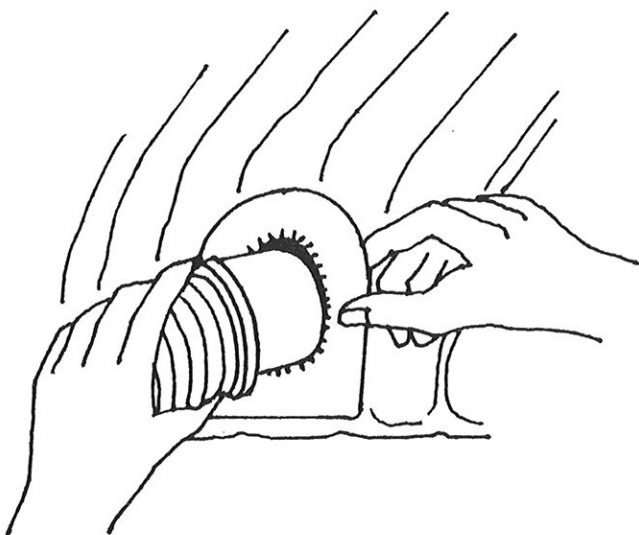


Figure 4. Attaching Air Hose to Cover

5. Turn the Control Switch to the desired temperature (Heat Off, Low, Medium or High). The average temperature of the air surrounding the patient corresponding to each setting is shown below.

Average Temperature of Air
Surrounding Patient

<u>Setting</u>	<u>Temperature</u>
Heat Off	Ambient Temp
Low	90°±5°F (33.0°C)
Medium	100°±5°F (37.6°C)
High	110°±5°F (43.1°C)

Note: The actual temperature of the air around the patient is determined by the ambient room temperature and the use of an insulating blanket.

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.

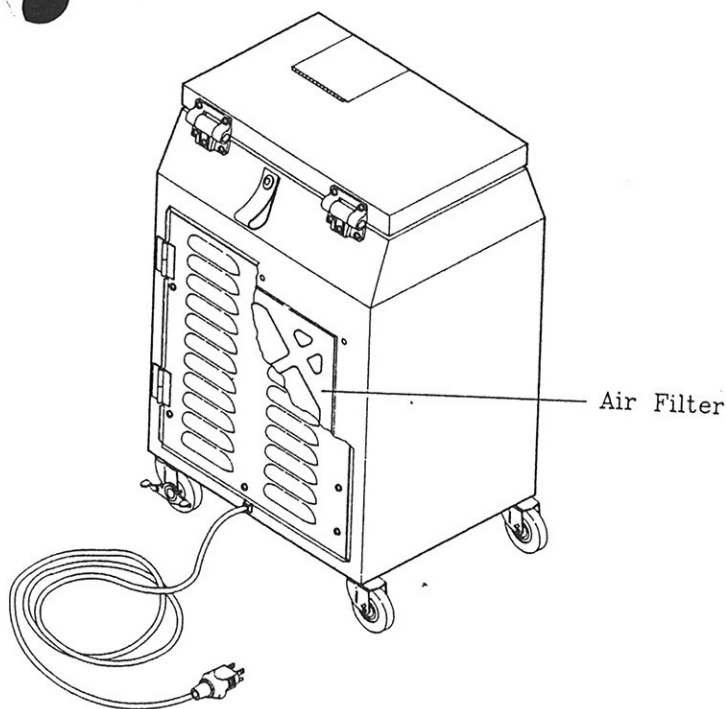


Figure 5. Air Filter

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

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

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

Setting	Temperature
Heat Off	Ambient Temp
Low	90°±5°F (33.0°C)
Medium	100°±5°F (37.6°C)
High	110°±5°F (43.1°C)

HEATING SYSTEM

Motor

1/20 HP, Single Phase, 1750 rpm Motor

Heater

600W Sealed tube heating element

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

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.

Average Temperature of Air Surrounding Patient

<u>Setting</u>	<u>Temperature</u>
Heat Off	Ambient Temp
Low	32.2°± 2.78°C
Medium	37.77°± 2.78°C
High	43.33°± 2.78°C

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

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.

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.

**Average Temperature of Air
Surrounding Patient**

<u>Setting</u>	<u>Temperature</u>
Heat Off	Ambient Temp
Low	32.2°± 2.78°C
Medium	37.77°± 2.78°C
High	43.33°± 2.78°C

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

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.

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 200E

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.

Average Temperature of Air Surrounding Patient

<u>Setting</u>	<u>Temperature</u>
Heat Off	Ambient Temp
Low	32.2°± 2.78°C
Medium	37.77°± 2.78°C
High	43.33°± 2.78°C

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

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.

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 250E

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.

Average Temperature of Air Surrounding Patient

Setting	Temperature
Heat Off	Ambient Temp
Low	32.2°± 2.78°C
Medium	37.77°± 2.78°C
High	43.33°± 2.78°C

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.

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Fuses

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Thermostat B-200

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COVER SPECIFICATIONS

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Adult 91.44cm x 137.16cm long

Pediatric 91.44cm x 91.44cm long

Weight 226.8g

Material

Polyethylene and tissue paper laminate