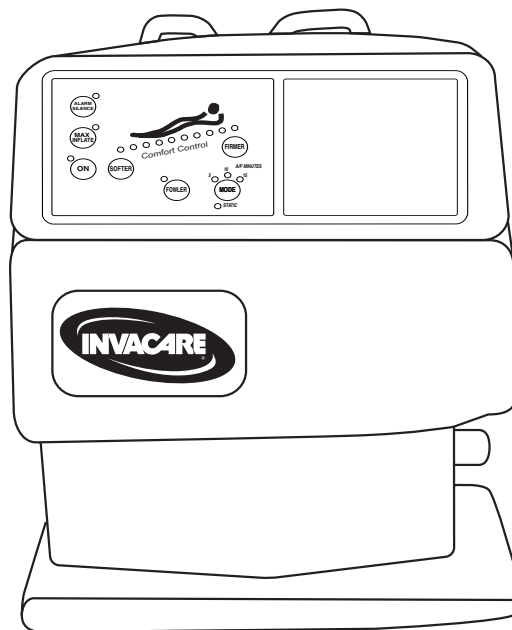


MNS 500AP

Low Air Loss System with Alternating Pressure



DEALER: This manual **MUST** be given to the user of the product.

USER: **BEFORE** using this product, read this manual and save for future reference.

For more information regarding
Invacare products, parts, and services,
please visit www.invacare.com



Yes, you can.

⚠ WARNING

DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT A HEALTHCARE PROFESSIONAL, DEALER OR TECHNICAL PERSONNEL IF APPLICABLE BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.

PROCEDURES OTHER THAN THOSE DESCRIBED IN THIS MANUAL MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the table below for definitions of the signal words.

SIGNAL WORD	MEANING
DANGER	Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

Check all parts for shipping damage and test before using. In case of damage, DO NOT use. Contact Invacare Customer Service Department for further instruction.

⚠ WARNING

Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.

NOTE: Updated versions of this manual are available on www.invacare.com.

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REGISTER YOUR PRODUCT

The benefits of registering:

- 1. Safeguard your investment.
- 2. Ensure long term maintenance and servicing of your purchase.
- 3. Receive updates with product information, maintenance tips, and industry news.
- 4. Invacare can contact you or your provider, if servicing is needed on your product.
- 5. It will enable Invacare to improve product designs based on your input and needs.

Register ONLINE at www.invacare.com

- or -

Complete and mail the form on the next page

Any registration information you submit will be used by Invacare Corporation only, and protected as required by applicable laws and regulations.



PRODUCT REGISTRATION FORM

Register **ONLINE** at www.invacare.com - or -
Complete and mail this form

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____

Email _____ Phone No. _____

Fold
here

Invacare Model No. _____ Serial No. _____

Purchased From _____ Date of Purchase: _____

1. Method of purchase: (check all that apply)

Medicare Insurance Medicaid Other _____

2. This product was purchased for use by: (check one)

Self Parent Spouse Other

3. Product was purchased for use at:

Home Facility Other

4. I purchased an Invacare product because:

Price Features (list features) _____

5. Who referred you to Invacare products? (check all that apply)

Doctor Therapist Friend Relative Dealer/Provider Other _____

Advertisement (circle one): TV, Radio, Magazine, Newspaper No Referral _____

6. What additional features, if any, would you like to see on this product?

Fold
here

7. Would you like information sent to you about Invacare products that may be available for a particular medical condition? Yes No

If yes, please list any condition(s) here and we will send you information by email and/or mail about any available Invacare products that may help treat, care for or manage such condition(s):

8. Would you like to receive updated information via email or regular mail about the Invacare home medical products sold by Invacare's dealers? Yes No

9. What would you like to see on the Invacare website?

10. Would you like to be part of future online surveys for Invacare products? Yes No

11. User's Year of birth: _____

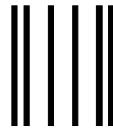
If at any time you wish not to receive future mailings from us, please contact us at Invacare Corporation, CRM Department, 39400 Taylor Parkway, Elyria, OH 44035, or fax to 877-619-7996 and we will remove you from our mailing list.

To find more information about our products, visit www.invacare.com.

Cut Along Line



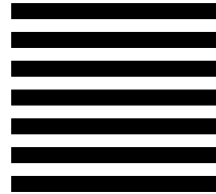
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BUSINESS REPLY MAIL
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POSTAGE WILL BE PAID BY ADDRESSEE

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ELYRIA OH 44035-9836



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Invacare Product Registration Form

Please Seal with
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Cut Along Line

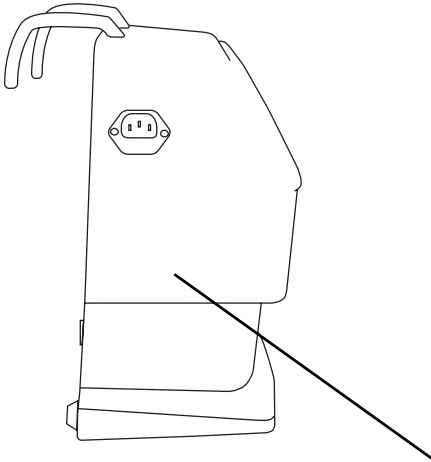


TYPICAL PRODUCT PARAMETERS

	MNS 500AP
AIR TUBES WASHABLE: WATERPROOF: NUMBER OF CELLS: PRESSURE SECTIONS: TUBE SEAM BONDING:	Yes Yes Sixteen Mattress Bladders One Lower Mattress One RF Welded
PATIENT MATTRESS INTERFACE VAPOR PERMEABLE:	Yes
AIR FILTERS:	Yes
WEIGHT OF PRODUCT CONTROL UNIT: MATTRESS MODEL: S B	13 lbs (6 kgs) 23 lbs (10.5 kgs) 28 lbs (13 kgs)
WEIGHT CAPACITY MAXIMUM PATIENT WEIGHT - MODEL: S B	350 lbs (160 kgs) 600 lbs (272 kgs)
AIR BLOWER - ESTIMATED SERVICE LIFE:	20,000 Hours
DIMENSIONS (Width x Length x Height) MATTRESS MODEL : S B CONTROL UNIT:	35" x 80" x 8" (89cm x 203cm x 20cm) 42" x 80" x 8" (107cm x 203cm x 20cm) 9.5" x 13" x 6" (24cm x 33cm x 15cm)
ELECTRICAL OPERATING POWER: U.S.: E.U.: FUSES:	88-132 V, 47-63 Hz, 2 A Normal, 6 A Max. 176-264 V, 47-63 Hz, 2 A Normal, 6 A Max. 6 A/125 V (UL listed fuses)
LISTING AGENCY:	Entela, CSA IEC 60601
MATTRESS SANITIZATION FLUID ENTRAPMENT: DETERGENT RESIST:	No (Seamless) Yes
ENVIRONMENTAL CONDITIONS OPERATING CONDITIONS: Ambient Temperature: Relative Humidity: STORAGE AND SHIPPING CONDITIONS*: Ambient Temperature: Relative Humidity:	18°C to 34°C 65°F to 94°F 10% to 95% -18°C to +43°C 0°F to 110°F 10% to 95%

**NOTE: Product may be shipped on all conventional transport. Pack system in its original boxes to assure best protection. DO NOT drop or expose to impact greater than 25 G's. Doing so can damage internal components and void warranty.*

LABEL LOCATION



⚠ DANGER

Explosion risk if used with flammable anesthetics.

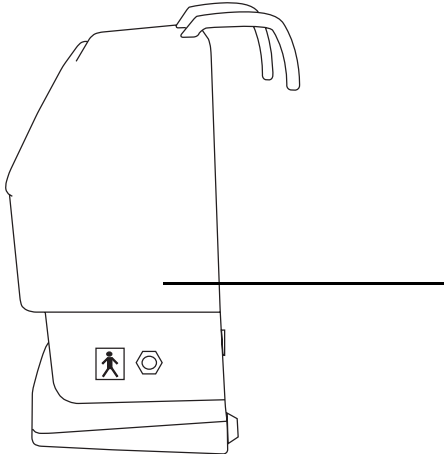
Possible fire hazard when used with oxygen administering equipment Other than nasal mask or 1/2 bed tent type. Oxygen tent should not extend below mattress support level.

Electrical shock hazard. **DO NOT** remove cover. Refer to qualified service personnel.

⚠ WARNING

Grounding reliability can only be achieved when the equipment is connected to a universal receptacle.

1141497 Rev A - 05/04/06



⚠ WARNING

Disconnect air hose(s) before administering CPR.

1141498 Rev A - 05/04/06

SECTION I—GENERAL GUIDELINES

⚠ WARNING

SECTION I - GENERAL GUIDELINES contains important information for the safe operation and use of this product. **DO NOT** use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as **Owner's Manuals, Service Manuals or Instruction Sheets** supplied with this product or optional equipment. If you are unable to understand the **Warnings, Cautions or Instructions**, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment - otherwise, injury or damage may occur.

Classification

The MNS 500AP Low Air Loss System is Class II Medical Devices and type BF (not defibrillation proof) applied parts.

NOTE: ALWAYS consult the patient's physician before using the MNS 500AP Low Air Loss System.

Installation

The MNS 500AP systems **MUST** be installed on standard medical bed frames only, such as hospital, nursing home and homecare beds.

A few bed frames have controls on the footboard that may be obstructed by the power unit. It will be necessary to relocate the power unit.

Before placing a patient on the bed, ensure that the air hoses and power cord are clear of the moving bed components.

Operate all motorized functions through their full range of motion to be certain that there is no pulling, interference or pinching.

Low Air Loss Therapy

Since its introduction in the early 1970s, Low Air Loss Therapy has become an increasingly important and effective treatment modality for pressure ulcers. Low air loss therapy has been shown to reduce the incidence of skin lesions induced by maceration, shear and the loss of capillary blood circulation. It also minimizes the formation of bacterial growth sites in sedentary or bed-bound patients.

Low air loss therapy maintains peripheral circulation by distributing the patient's weight over several low pressure mattress sections. The even distribution of pressure on the skin prevents capillary closure (capillary closure typically occurs at skin interface pressure greater than 32 mm Hg), and tissue viability is maintained around bony prominences, such as the trochanter and coccyx. In addition, controlled air loss from the mattress surface removes perspiration and other bacteria supporting fluids.

Entrapment May Occur

WARNING

Proper patient assessment and monitoring, and proper maintenance and use of equipment is required to reduce the risk of entrapment. Variations in bed rail dimensions, and mattress thickness, size or density could increase the risk of entrapment. Visit the FDA website at <http://www.fda.gov> to learn about the risks of entrapment. Review “A Guide to Bed Safety”, published by the Hospital Bed Safety Workgroup, located at www.invacare.com. Use the link located under each bed rail product entry to access this bed safety guide.

Refer to the owners manuals for beds and rails for additional product and safety information.

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Assist rails with dimensions different from the original equipment supplied or specified by the bed manufacturer may not be interchangeable and may result in entrapment or other injury.

Mattress **MUST** fit bed frame and assist rails snugly to reduce the risk of entrapment.

Fire Hazard

DANGER

Smoking

Users **MUST NOT SMOKE** while using this device. MNS 500AP system uses room air for circulation through the mattress. A cigarette can burn a hole in the bed surface and cause damage to the mattress. Also, patient clothing, bed sheets, etc. may be combustible and cause a fire. Failure to observe this warning can result in severe fire, property damage and cause physical injury or **DEATH**.

Smoking by visitors in the room will contaminate the system. Therefore, visitor smoking is **NOT** permitted.

Anesthesia Equipment

There is an explosion risk if used with flammable anesthetics.

⚠ DANGER**Oxygen**

There is a possible fire hazard when used with oxygen administering equipment other than nasal mask or half bed tent type. The oxygen tent should NOT extend below mattress support level.

Electrical

Before performing any maintenance to the power unit, disconnect the power cord from the wall outlet.

Refer servicing to qualified personnel only. Grounding reliability depends upon a properly grounded wall outlet.

Servicing

Other than the air filter, the MNS 500AP contains no user-serviceable parts. DO NOT attempt to open the power unit—refer all repair questions to the Dealer. To deliver consistent performance, the MNS 500AP MUST be maintained, inspected and tested according to the schedule on page 24.

If your system requires service, contact Customer Service for a return shipment authorization number.

Package systems in the original shipping box. Clean system components before shipment. **Unsanitary units will be returned without servicing.**

SECTION 2—FEATURES

MNS 500AP Low Air Loss System

Front Panel

NOTE: For this procedure, refer to FIGURE 2.1.

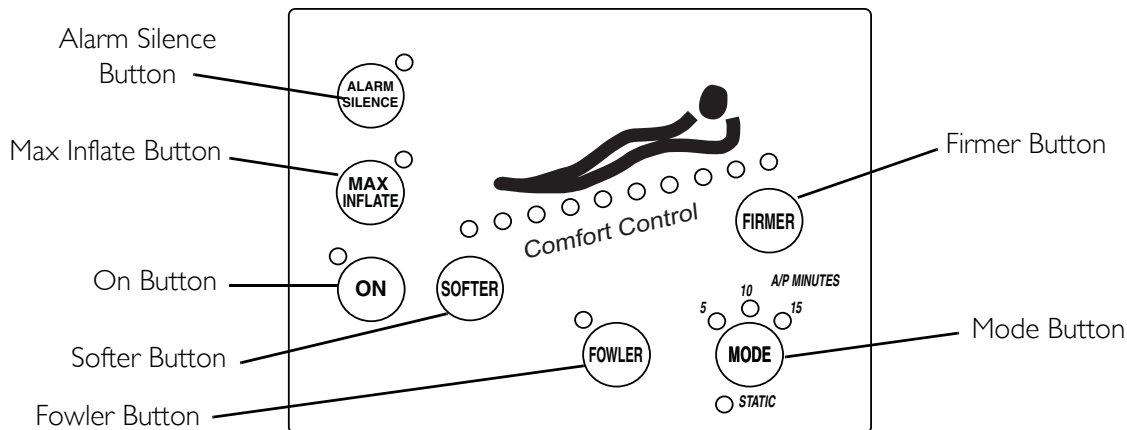


FIGURE 2.1 MNS 500AP Low Air Loss System - Front Panel

On Button

1. Press and hold the On button in order to check that all the lights on the front panel are working.
2. To turn the power unit on, press and release the On button.

Firmer/Softer Buttons

1. Select comfort setting by pressing Firmer or Softer button.

NOTE: There are ten levels of comfort setting indicated by the ten lights on the display. Softer settings generally result in reduced pressure areas on the body. However, a too-soft setting causes the patient's body to depress in the center and possibly bottom out on the foam cushion underneath the mattress. Try to achieve a level body position with the lowest comfort setting.

Max Inflate Button

NOTE: The Max Inflate mode will be active for 30 minutes. The controller will automatically return the mattress pressure to the previous setting level.

1. Press the Max Inflate button to:
 - transfer the patient to a chair;
 - move the patient to a new position; or
 - examine a patient.

Fowler Button

1. Press the Fowler button to place the patient in an upright or sitting position.

NOTE: The Fowler mode will be active for 30 minutes. The controller will automatically return the mattress pressure to the previous comfort setting level.

Mode Button

1. Press the Mode button to select one of the following:
 - Static Mode - when the mattress is in this mode, the patient's weight is evenly distributed over the mattress.
 - Alternating Pressure Mode - There are three time intervals for the Alternating Pressure Mode:
 - i. 5 Minute Mode - The mattress will alternate pressure in different cells over a five minute span.
 - ii. 10 Minute Mode - The mattress will alternate pressure in different cells over a ten minute time span.
 - iii. 15 Minute Mode - The mattress will alternate pressure in different cells over a fifteen minute time span.

Alarm Silence Button

1. Press the Alarm Silence button to acknowledge and silence the alarm when there is low air pressure detected or when power to the pump has failed.

NOTE: The alarm light will remain on until the fault has been corrected.

Right Side Panel

NOTE: For this procedure, refer to FIGURE 2.2 on page 14.

Air Hose Connection

The MNS 500AP has a single connection for two air hoses.

1. To perform CPR, release the air hose connection to rapidly deflate the mattress.

CPR

NOTE: The hose connection at the control unit is marked CPR.

1. Disconnect the hose from the control unit.
2. Place a cardiac board under the patient and initiate CPR.
3. To reinflate the cushions, reattach the hose to the control unit.

NOTE: It is advisable to place the patient on a hard surface like the floor or a table for effective chest compressions rather than on the bed because the bed frame may have a suspension system that will absorb compression efforts.

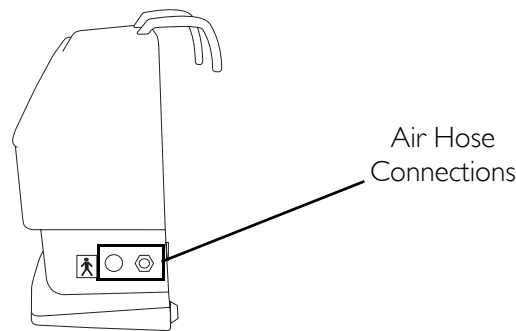


FIGURE 2.2 MNS 500AP Low Air Loss System - Right Side Panel

Left Side Panel

NOTE: For this procedure, refer to FIGURE 2.3.

Power Outlet

1. Plug one end of the power cord into the power outlet.

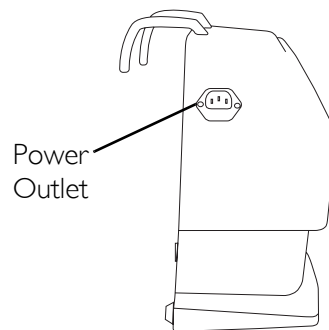


FIGURE 2.3 MNS 500AP Low Air Loss System - Left Side Panel

Rear Panel

NOTE: For this procedure, refer to FIGURE 2.4.

Bed Hooks

NOTE: The standard power unit installs on the upper edge of the footboard.

Bed hooks are used to hang the unit on the footboard of the bed.

Air Filter

Access to the air filter is on the rear panel.

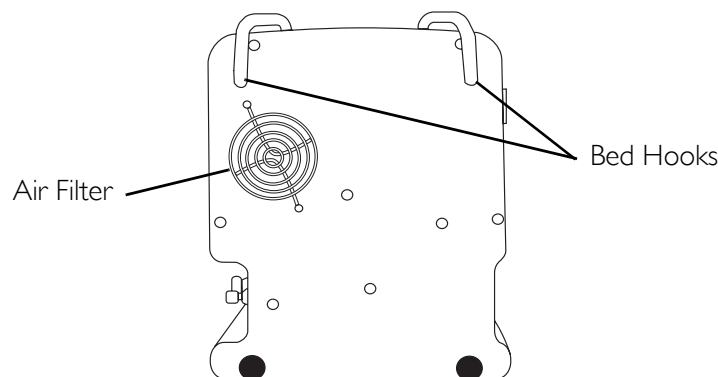


FIGURE 2.4 MNS 500AP Low Air Loss System

SECTION 3—OPERATION

Preparing the Bed

NOTE: The bed MUST be a standard hospital bed or medical grade home care bed.

1. Remove the original bed mattress and place it in storage.

Installing the Mattress

1. If necessary, lower the side rails to facilitate installation of the mattress.
2. Roll out the mattress onto the bed frame with the hose connection at the foot end.
3. Secure the six tie-down straps to the ends and sides of the bed frame at the convenient locations by performing the following:
 - A. Make certain that the side rails can move freely.
 - B. Thread the strap ends through the buckles provided and take up the excess slack.
 - C. To release strap tension, lift the tab on the buckle.

Installing the Power Unit

NOTE: For this procedure, refer to FIGURE 3.1.

NOTE: The standard power unit installs on the upper edge of the footboard.

1. Swing out the bed hooks and place the power unit on the footboard.

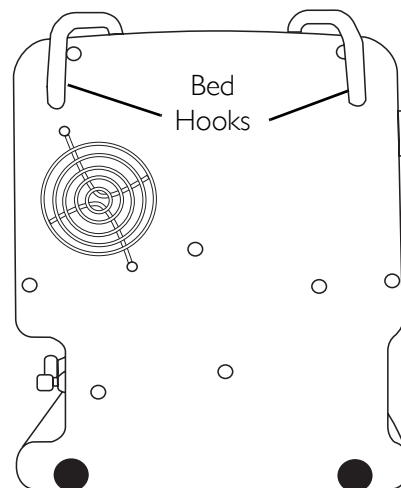


FIGURE 3.1 Installing the Power Unit

Connecting the Air Hose

CAUTION

The mattresses and matching pumps on MNS 500AP systems are designed to be used as a system. **DO NOT** replace mattresses or pumps with other models or other brands. Otherwise, damage to the system may occur. Contact your supplier to get the correct replacement if needed.

NOTE: For this procedure, refer to FIGURE 3.2.

1. Locate the end of the tube on the mattress towards the foot of the bed.
2. Insert the female connector of the tube into the male connector on the side of the pump.
3. Insert the male connector of the tube into the female connector on the side of the pump until you hear or feel a click.

NOTE: It is important to route the tubing connecting the pump to the mattress so that it cannot be stepped on, kinked, squeezed or otherwise damaged.

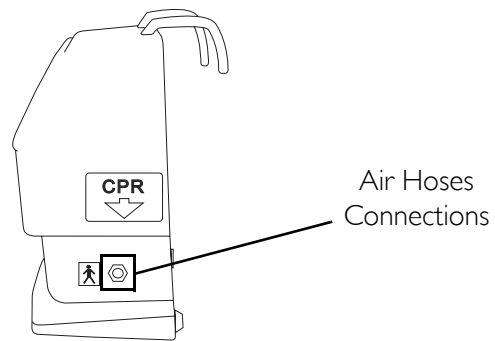


FIGURE 3.2 Connecting the Air Hose

Connecting the Power Cord

⚠ WARNING

DO NOT alter plug to fit a non-conforming outlet. Instead, have an electrician install a properly grounded outlet. Failure to use the correct plug and outlet can result in a potential safety hazard.

NOTE: For this procedure, refer to FIGURE 3.3 on page 17.

1. Plug the rectangular end of the supplied power cord into the power outlet on the side of the pump.

NOTE: Use the hospital grade power supply cord that came with the pump.

2. Route the power cord on the floor under the center of the bed.
3. Plug the round end of the plug into a properly grounded outlet on the wall.
4. Carefully route the plug cord so that it cannot be pulled out of the outlet, damaged from nearby furniture, cleaning devices or people.

NOTE: If the plug is damaged, call your supplier for a replacement hospital grade cord.

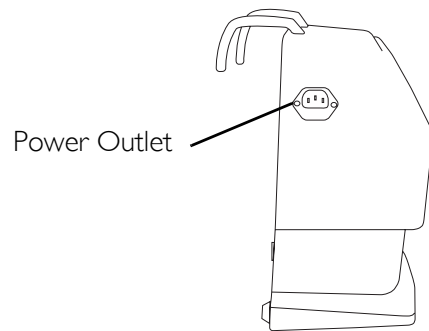


FIGURE 3.3 Connecting the Power Cord

Using the System

NOTE: For this procedure, refer to FIGURE 2.1 on page 12.

1. Turn on the power to the system by pressing the On button on the control panel.

NOTE: While the button is pressed and held, all the lights will activate.

NOTE: Once the button is released, normal operation of the pump will begin. The GREEN light illuminates when the unit is on.

NOTE: Allow up to 3 minutes for the mattress on the MNS 500AP system to fully inflate.

2. Once the mattress is fully inflated, place the patient on the mattress. Refer to Patient Placement on page 17.

Patient Placement

1. Place the patient on the bed.
2. Ensure that the patient's feet are towards the end of the mattress with the connector tube.
3. Center the patient on the bed from side-to-side and head-to-foot.

NOTE: Special positioning may be required with contracted patients to provide comfortable positions.

4. Adjust the comfort range to the desired firmness to avoid bottoming out.
5. If the patient feels that the bed is too soft/hard, press Softer or Firmer button to adjust the comfort settings.

NOTE: Ensure that the patient does not bottom out.

6. Press the Mode button to select the desired operation mode.
7. After placing the patient, make certain no objects will fall under the patient, such as feeding tubes, IV's etc.
8. Use a regular pillow to help support and stabilize the patient's head.

Checking the Mattress Setting

⚠ WARNING

The head of the bed should be maintained at the lowest degree of elevation consistent with medical conditions; otherwise injury may occur.

The lowest skin pressure is maintained with 0° to 20° head raise angle. Angles above 30° place more body weight over the seat area, reducing pressure relief.

Instruct the caregiver to avoid head angles over 30° for extended periods, unless medically necessary (U.S. Department of Health and Human Services publication No. 92-0048).

1. Before elevating the head of the bed, elevate the knee section first.

NOTE: Head elevation without knee elevation may cause the patient to slide toward the foot of the bed.

2. Elevate the head of the bed to 30°- 45°.
3. Using your hand, check under the patient's buttocks and between two air tubes to check if the patient has bottomed out.
4. If the patient has bottomed out, increase the comfort adjust one level (LED light) at a time, until the patient no longer bottoms out.

Patient Transfer From/To a Gurney

⚠ WARNING

ALWAYS engage the wheel locks of the bed before transferring the patient from the bed to the gurney.

1. Engage the wheel locks of the bed. Refer to the owner's manual provided with the bed.
2. Engage the wheel locks of the gurney. Refer to the owner's manual provided with the gurney.
3. Press the Max Inflate button to achieve maximum mattress pressure.
4. Raise or lower the bed to match the gurney height. Refer to the owner's manual provided with the bed.
5. When the mattress has reached maximum firmness, perform one of the following:
 - Bed to Gurney Transfer - Slide the patient onto the gurney.
 - Gurney to Bed Transfer - Slide the patient onto the bed.

Patient Transfer From/To a Wheelchair

⚠ WARNING

ALWAYS engage the wheel locks of the bed before transferring the patient from the bed to the wheelchair.

1. Engage the wheel locks of the bed. Refer to the owner's manual provided with the bed.
2. Engage the wheel locks of the wheelchair, if applicable. Refer to the owner's manual provided the wheelchair.
3. Press the Max Inflate button to achieve maximum mattress pressure.
4. Raise or lower the bed to match the wheelchair height. Refer to the owner's manual provided with the bed.
5. When the mattress has reached maximum firmness, perform one of the following:
 - Bed to Wheelchair Transfer - Slide the patient onto the wheelchair.
 - Wheelchair to Bed Transfer - Slide the patient onto the bed.

Installing the Side Rails

⚠ WARNING

Mattress MUST fit bed frame and assist rails snugly to reduce the risk of entrapment.

NOTE: Refer to the instructions provided with the side rails for the installation procedure.

SECTION 4—MAINTENANCE AND TROUBLESHOOTING

Setting Up the MNS Systems

The MNS 500AP systems are made patient-ready at the dealership before delivery to the installation site. The mattress is pre-assembled and the power unit has been tested and serviced.

Routine Maintenance

Filter maintenance should be scheduled. Change the air filter element according to the prescribed schedule. Refer to [Cleaning/Replacing the Air Filter](#) on page 22.

Recommended Cleaning Materials

CAUTION

DO NOT use chlorine based cleaners; otherwise, product damage may occur.

Disinfectant chemicals should be registered, hospital-grade, and have effectiveness claims for destroying or inactivating harmful microorganisms. Use only in the manufacturer's recommended dilution. NEVER mix different chemicals together in the same container.

Phenolic disinfectants are supplied in highly concentrated form. They are tuberculocidal when used at the recommended dilution. They provide a high level of disinfection. They are also effective in decontaminating blood spills.

Quaternary cleaner disinfectants are supplied in highly concentrated form. They are usually capable of cleaning, deodorizing and disinfecting in a single operation. They are especially suitable for cleaning equipment at the patient site where low level disinfecting or odor control is indicated.

Laundry disinfectant presoaks can be either phenol or quaternary chemicals. These products are suitable for adding to water as a presoak.

For lighter soil, the cover can be cleaned by topical wipe down with a PH balanced soap and water solution normally used to wash the patient. Rinse with water.

Cleaning the MNS System

⚠ WARNING

Before cleaning or disassembling the MNS systems, check the underside of the mattress folds for sharp objects such as scissors, needles, etc. These objects should be removed and discarded before proceeding with further cleaning or disassembly; otherwise injury or damage to the product may occur.

Because of potential risk of infectious exposure, cleaning with the patient on the bed is not recommended.

All equipment should be inspected. Any item that is visibly soiled with the patient's blood or other body fluids should be properly cleaned or removed.

NOTE: Refer to Recommended Cleaning Materials on page 20.

1. Remove the bedding.
2. If necessary, inflate the mattress.
3. Ensure that the power unit is off.
4. Unplug the power cord from the wall outlet.
5. Ensure that the underside of the mattress is clear of all sharp objects.
6. Examine the surface of the power unit and mattress assembly components for visible blood or body fluids.
7. Perform one of the following:
 - If blood is present, decontaminate the product.
 - i. Remove all visible soil with disposable paper towels.
 - ii. Scrub the area with freshly prepared effective phenolic detergent disinfectant solution.
 - If blood is not present, remove any soil from the cover with paper towels.

NOTE: If grossly soiled, the cover should be removed, cleaned and decontaminated.

8. Using a clean sponge or paper towel, wipe down the cover surface with a dilute detergent solution of quaternary cleaner disinfectant or other germicidal detergent solution.
9. Remove the cover and launder it.
10. Perform the following steps to clean the power unit and hose fittings:
 - A. Wipe all controls and chassis and hose fittings with a quaternary disinfectant solution.
 - B. Using a nylon brush, gently clean all crevices as they can harbor microorganisms.
 - C. Air dry all treated surfaces.

Storing the MNS System

1. Ensure that the power unit is off and disconnect the power cord from the wall outlet.
2. Clean the MNS system. Refer to [Cleaning the MNS System](#) on page 21.
3. Disconnect the air hose connector(s) from the power unit and allow air to vent from the mattress.
4. Gently roll up the mattress with minimal handling and agitation.
5. Ensure the cover surface is inside the roll.
6. Move the entire system from the patients room to storage.

Cleaning/Replacing the Air Filter

NOTE: For this procedure, refer to FIGURE 4.1.

NOTE: Check the air filter every month for build-up of dust/dirt. If build-up is visible, replace and clean the dirty filter.

NOTE: The filter can be cleaned/replaced without moving the bed. Regular servicing will ensure that the blower operates at maximum power.

1. Ensure that the power unit is off.
2. Disconnect the power cord from the wall outlet.
3. Remove the control unit from the bed end.
4. Locate the air filter on the rear of the control unit behind the bed hooks.
5. Remove the two screws that secure the air filter cover.
6. Remove the air filter cover.
7. Gently remove the dirty air filter and set aside.

NOTE: The air filter is reusable. DO NOT discard the removed air filter from the control unit.

8. Insert a clean air filter and ensure the clean air filter covers the whole filter region.
9. Secure the air filter cover using the two screws.
10. Hand wash the dirty air filter in warm soapy water and allow to air dry.
11. When dry, store the air filter in a safe place until the next filter maintenance.

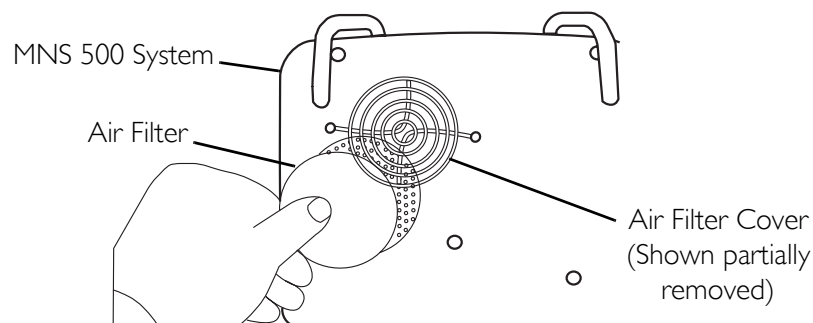


FIGURE 4.1 Cleaning/Replacing the Air Filter

Troubleshooting

SYMPTOM	SOLUTION
Control Unit does not turn on.	Check the power cord. Be sure it is plugged in to both the wall outlet and into the side of the pump housing. Check that outlet has power by plugging in a device that you know is working.
Softer and Firmer buttons are not changing the Comfort level settings.	If the controller is on Max Inflate or Fowler you will not be able to adjust the comfort level until you turn off Max Inflate or Fowler modes.
Max Inflate or Fowler modes turn off after some time.	The Max Inflate and Fowler modes are intended for temporary situations. These modes are only active for 30 minutes. Then the pump returns to the previous setting.
Controller is not going into Alternating Mode.	If the controller is on Max Inflate or Fowler, it will not go into the Alternating mode until you turn off Max Inflate or Fowler modes.
The mattress is deflating or has low pressure even though the pump is working.	Check the mattress connections on the side of the pump housings; check the connector tubes for kinks, crimps or damage; listen for air leaks around the mattress.
Patient's body is sagging in the middle or bottoming out.	Increase the comfort setting using the Firmer key. Push the Firmer key once and wait two minutes before making another change so that pressures can stabilize.
Patient is experiencing pain from the mattress.	Decrease the comfort control setting using the Softer button. Push Softer button once and wait two minutes before making another change so that pressures can stabilize. Wait until patient's body starts to sag in the middle, the press Firmer button once to bring the patient's body level.
Pump turns off although the power light is still on and the alarm is sounding. Pump gets hot.	Check the connector tube(s) and mattress manifold(s) for restricted air flow or blockage. Clean the air filter, if necessary. Clear blankets, bed sheets or paper away from the back of the pump. Be sure the air flow into the pump and mattress is clear.
Controls lock up or "freeze"; won't accept any inputs.	Turn pump off and unplug the pump. Wait a few seconds and plug the pump back in. Turn on the pump. Check the air filter on the back of the pump.

Inspection, Cleaning, Maintenance and Test Intervals

TIME INTERVAL	DESCRIPTION OF THE REQUIRED ACTIVITY
When Soiled	Launder the cover.
168 hours (One week of continuous operation)	Wipe down the cover, air hoses and power unit.
670 hours (Four weeks of continuous operation)	Clean the cover. Inspect the air hose connections and mattress assembly function Inspect the power unit and power cord. Replace/clean the air filter.
Between Users	Launder the cover. Perform general physical inspection of the mattress, air hoses, power unit and power cord. Perform electrical line leakage test. Perform electrical ground integrity test.
Annually or after 8000 hours of operation (whichever comes first)	Launder the cover. Perform general physical inspection of the mattress, air hoses, power unit and power cord. Perform electrical line leakage test. Perform electrical ground integrity test. Check for loose hardware or physical damage which might affect operation or safety.

APPENDIX

Inspection and Test Reports

SHEET 1 OF 2

System Serial #: _____

Date: ___/___/___

Hour Meter Reading: _____

Service Person: _____

Print Name

Service Performed:

 1000 Hours Repair Annual or 8000 Post Decontamination

PHYSICAL INSPECTION CHECKLIST

ITEM	OK	BAD	COMMENTS
Mattress			
Air Tubes			
CPR Label on Air Hose Connector			
Air Hoses			
Air Filter			
Power Unit			
Power Cord			
Mounting Hardware			
Marking Labels			
Other			

Inspection and Test Reports for Hospital Installations

SHEET 2 OF 2

ITEM	PARAMETER	REQUIREMENTS
Electrical Leakage: Normal reverse ground connected.	_____ microamps	No reading shall exceed 100 microamps
Ground resistance from plug to Power Unit Chasis	_____ milli-ohms	Resistance shall not exceed 100 milli-ohms

This unit has ____passed/____failed the above inspections. If failed, the following repairs and corrections are required:

I certify that this unit conforms to all the above test and inspection criteria and that scheduled maintenance has been performed as indicated.

I certify that this unit is suitable for service.

Signature

Print Name of Service Person

____/____/____
Date

NOTES

LIMITED WARRANTY

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser/user of our products.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

With regard to the original purchaser/user only, Invacare warrants the MNS 500AP Low Air Loss System for one year on the pump and six months on the mattress. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address at the bottom of this page. Provide dealer's name, address, the product model number, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THESE INSTRUCTIONS.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

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