

# Med-Aire 8" Alternating Pressure Mattress Replacement System With Low Air Loss

## USER MANUAL



Item # 14027

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This manual should be used for the initial set up of the system and for future reference.

# DOCUMENT SYMBOLS

## OPERATING INSTRUCTIONS

Indicates correct operating or maintenance procedure in order to prevent damage to or destruction of the equipment.



### Note

Indicates tips or information users should be aware of.



### Caution

Indicates a potentially hazardous situation which, if not avoided, could result in property damage or minor injury or both.



### Warning

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### Danger

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

# IMPORTANT PRECAUTIONS

The The Med Aire 8", 14027 System is a Class 2 medical device and that must be installed and operated in the manner for which it was intended. The user is responsible for reading and understanding the product user manual. Drive DeVilbiss Healthcare is not responsible for any injuries resulting from failure to comply with the instructions and precautions in this manual.



### Danger

Do not use in the presence of flammable anesthetics. Do not use in the presence of smoking materials or open flames. Air flowing through the mattress will support combustion.



### Danger

To reduce the risk of electrocution, adhere to the following instructions. Failure to do so could result in personal injury or equipment damage.

- Immediately after using the The Med Aire 8", 14027 System, unplug this product from its power source.
- Do not place or store product where it can fall or be pulled into a tub or sink.
- Do not place in or drop into water or other liquids.
- Do not open the control unit without referring to Drive DeVilbiss technical service department first.

# IMPORTANT PRECAUTIONS

## **Warning**

Do not strap the mattress to the bed frame at the head and foot ends. Secure mattress straps to the bed deck at the head and foot ends and to the bed frame at the center of the bed.

## **Warning**

To reduce the risk of burns, electrocution, fire, or injury, adhere to the following instructions. Failure to do so could result in personal injury or equipment damage.

- This product should only be used for its intended purpose as described in this manual.
- Only use attachments and /or accessories that are recommended by the manufacturer.
- Do not use this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped, damaged, or immersed in water. Return to your provider for a warranty claim.
- Keep the cord away from heated surfaces, i.e. space heaters.
- Never block the air openings of the product or place it on a soft surface, such as a bed or couch, where the air openings may be blocked. Keep the air openings free of debris such as lint and hair.
- Never drop or insert any object into any opening or hose.
- Do not use outdoors or operate where aerosol (spray) products are used.
- Connect this product to a properly grounded outlet only.
- Do not spill food or liquids onto the control unit. If a spillage does occur, turn off the unit, disconnect it from its power supply and allow at least 24 hours for drying.

## **Warning**

Drive DeVilbiss Healthcare support surfaces are designed as mattress replacement systems. The risk of entrapment may occur when mattresses are placed on bed frames that do not properly fit and leave gaps between the mattress and head panel, foot panel and bed or side rails. This system is NOT to be used when such gaps are present.

User/Facility staff are responsible for ensuring that all mattresses properly fit the bed frames. Drive DeVilbiss is not responsible for the improper placement of its systems on ill-fitting bed frames. Health care professionals assigned to each patient should make the final determination whether side or assist rails are warranted after assessing patient risks based on the individual's needs and condition.

An optimal bed system assessment should be conducted on each patient by a qualified clinician or medical provider to ensure maximum safety. The assessment should be conducted in compliance with the state and federal guidelines related to the uses of restraints and bed system entrapment guidance including but not limited to the below:

- 1) US FDA Entrapment Guidelines. "A Guide to Bed Safety," <https://www.fda.gov/medical-devices/hospital-beds/guide-bed-safety-bed-rails-hospitals-nursing-homes-and-home-health-care-facts>
- 2) US FDA Hospital Bed System Dimensional and Assessment Guidance to Reduce Bed Entrapment, <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/hospital-bed-system-dimensional-and-assessment-guidance-reduce-entrapment>

# INTRODUCTION

Pressure injuries are defined as *localized injuries of the skin and/or underlying tissue over a bony prominence as a result of pressure or pressure in combination with shear.*<sup>1</sup> Support surfaces or specialized mattress systems are used as part of an overall, multi-disciplinary, multi-dimensional care plan intended to prevent and treat pressure injuries.

The The Med Aire 8", 14027 System is a high quality powered air support surface that is specifically designed for the prevention and treatment of pressure injuries while optimizing patient comfort.

## Indications for Use



### Note

Effective pressure redistribution therapy, wound management and device selection should be based on the patient's specific clinical condition and complete assessment of needs, recognizing that pressure prevention devices are only one component of a comprehensive pressure injury management program. Support surfaces are not substitutes for turning, repositioning or functional weight shifts.

The Med Aire 8", 14027 system is intended for:

1) Pressure redistribution for individuals with but not limited to the following conditions:

- At risk or present pressure injuries
- Neurological conditions
- Amputations
- Grafts
- Burns
- Dermatological conditions
- Flaps
- Rehabilitation needs
- Pain management as prescribed by a physician.

2) Shear & Friction Reduction

Friction is defined as the resistance of motion in a parallel direction relative to the common boundary of two surfaces. For patients this can occur when the skin rubs against another surface.

Shear strain occurs when tissue is deformed or damaged due to shear stress or force exerted parallel to the plane of interest. The Med Aire 8", 14027 cover is constructed of a smooth, stretch, polyurethane material with low shear and low friction properties to help protect skin integrity.

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<sup>1</sup>European Pressure Injury Advisory Panel and United States National Pressure Injury Advisory Panel. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guidelines. National Pressure Ulcer Advisory Panel; 2009.

## INTRODUCTION

### 3) Spinal Cord Injury

The Med Aire 8", 14027 System can be used for patient's with spinal cord injury once the acute injury has been stabilized and these patients have been assessed and cleared by the appropriate clinician.

### **Contraindications**

Patient conditions for which the application of pressure relieving therapy on an alternation system is contraindicated are as follows:

- 1) Cervical or skeletal traction
- 2) Unstable spinal cord injuries

## UNPACKING YOUR MED AIRE 8", 14027

- 1) Carefully remove all components from packaging.
- 2) Confirm that you have received the control unit intended.
- 3) Check all components for damages. Contact your medical provider if any components are damaged. DO NOT use damaged components.

# PRODUCT FEATURES

The Med Aire 8", 14027 Mattress Replacement System is comprised of two components:

- 1) Therapy air cell mattress replacement with 8" high air cells and zippered base
- 2) Therapy control unit, 14027P: Analog system

## Control Unit 14027P (Figure 1)

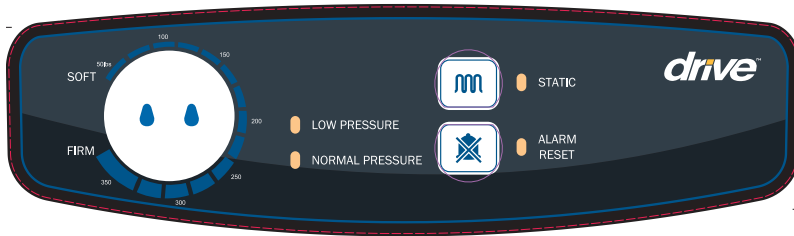


Figure 1

- This analog control unit includes an easy to use pressure dial that is adjustable to the patient's weight and comfort.
- Static button is available to discontinue alternation therapy for patient transfers, caregiving, comfort, or preference.
- Low pressure and normal pressure indicators allow the user to be aware of any air pressure changes with a corresponding mute button to silence.

## Mattress



### Warning

When using a therapy mattress system, always ensure that the patient is positioned properly within the confines of the bed. The patient's head should be positioned in the center of the top section of the therapy mattress. Do not let any extremities protrude over the side or between the bed rails when the therapy mattress is being used.



- 20 individual air cells offer pressure redistribution and low air loss.
- CPR valve available for rapid deflation (deflation time varies depending on patient weight and profile).



### Note

Please be sure to read this manual in its entirety before attempting to set up and operate this system.

# PRODUCT FUNCTION

## Control Unit 14027P

Power switch is located on the side of the control unit. Use the power switch to turn the system off and on.



### Analog Pressure Dial

- Adjust the dial to correspond to the patients' appropriate weight setting or comfort level.



### Static Pressure Button

- Press the static pressure button to discontinue alternating therapy.



### Mute Button

- Silences the audible portion of the low pressure information signal.

## Mattress

The Med Aire 8", 14027 Mattress Replacement comes with a hose connection at the foot end of the mattress and 20 individual air cells. The cell material, polyurethane and nylon blend, provides a specialty surface that helps conform to the specific shape of the patient, minimizing soft tissue distortion, helping reduce bone penetration into muscle fascia, and helping promote improved blow flow compared to traditional surfaces.



### CPR deflation valve

- Pull the red CPR strap to release the air immediately from the mattress for rapid deflation. Deflation time varies depending on patient weight and profile.



### Quick Connector

- Used to connect the therapy mattress to the control units.



### Warning

For important precautions, see pages three and four



### Caution

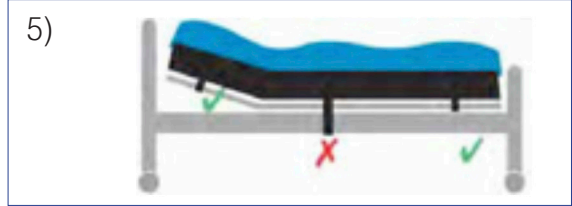
Do not place the control unit on the floor. Position the power cord to prevent tripping hazards

- 1) Remove all existing covers, sheets and mattress from the bed.
- 2) Unpack the Med Aire 8", 14027 System and inspect all components for damage. Do NOT use the system if any component is damaged.
- 3) Confirm there are no sharp objects in the immediate area which may risk damage to the Mattress Replacement.
- 4) Position the The Med Aire 8", 14027 Mattress Replacement on top of bed, printed top cover facing upwards and air hoses towards the foot end of the bed.



# PRODUCT FUNCTION

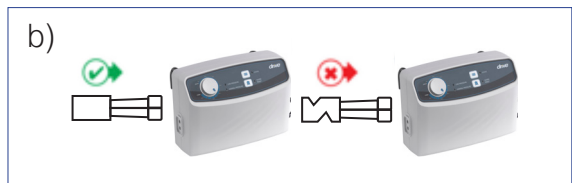
- 5) Secure the therapy mattress to the movable parts of the bed frame or bed deck. Ensure buckles are securely fastened and straps are pulled tightly. **DO NOT SECURE TO THE SIDE RAILS - STRAPS WILL TEAR OFF.**



- a) Position the control unit by hanging hooks over foot board of the bed.



- b) Attach the air hoses to the therapy mattress securely using the quick connector. When properly installed, the quick connector will audibly click into place. Ensure air hoses do not kink between mattress, bed frame and control unit.



- c) Plug the power cord into an electrical outlet with grounded AC power.



## Note

Before inserting the plug into the outlet, make sure the voltage is compatible and the product is well grounded.

- d) Switch the power switch on the side of the control unit on. The mattress replacement system may take up to 40 minutes for full inflation. For rapid inflation an external pump may be used such as Drive's electric quick fill pump, item #: 14427QF.

# OPERATION



## Note

Always read the operating instructions in this manual before use.

## General

This product is designed to provide pressure redistribution while maximizing comfort to patients. Please be sure to operate this equipment as instructed to optimize its value.



## Note

Please follow instructions below for detailed operating procedure.

## Operation using the 14027P (Analog Control Unit)

- Step 1** Turn on the power. The indicator light on the power switch will come on. The control unit starts to pump air into the mattress. The Low Pressure indicator (yellow or red) will come on as inflation undergoes. The audible alarm is activated, accompanying with the Low Pressure indicator, to alert that pressure is low. Press the Alarm Reset button to mute the audible alarm, and its indicator will flash. NOTE! For first inflation, we recommend that you press both the Alarm Reset and Static buttons to enter a quick and silent operation..
- Step 2** When the pressure reaches the preset level by factory default within approximately 30~45 minutes, the Normal Pressure indicator will come on, and the Low Pressure indicator (and the audible/visible alarm) will turn off. NOTE! If the Low Pressure indicator (and the audible/visible alarm) won't go off, please refer to page 15 for troubleshooting.
- Step 3** Turn the pressure-adjust knob to set a comfortable pressure level from soft to firm. NOTE! For suitable pressure, please refer to page 9 for the hand check procedure.
- Step 4** The control unit is preset in alternating mode and its cycle time is set at 10 min/60Hz. Press the Static button to set it in static mode, and the Static indicator will come on. The static mode will begin within 5 minutes. Press the Static button again to switch back to alternating mode. NOTE! In static mode, the mattress provides a firm surface that makes it easier for the patient to transfer or reposition. The static mode prevents the patient from bottoming out when in a sitting position.
- Step 5** During normal operation, should the air pressure in the system fall below the selected value, a low pressure condition will signal the low pressure indicator. Accompanying the low pressure indicator, the audible alarm will beep and its indicator will come on to bring attention to a low pressure condition. The control unit will stop when the user-defined pressure level is reached. Press the Alarm Reset button to mute the alarm; its indicator will flash. Press the Alarm Reset button again to have the audible alarm and its indicator on.



## Note

For suitable pressure, please refer to page 12 for the hand check procedure.

## CPR function

When there is an emergency requirement to perform CPR on the patient, pull the CPR strap at the right-hand side of the mattress to release the air quickly from the mattress.

## Pressure range selection (+/-)

Users can adjust the pressure level of the air mattress, using the analog pressure dial, to a desired firmness based on personal comfort or weight setting.

## Low pressure indicator

When the air pressure in the system falls below the selected pressure range, a low pressure condition will signal the low pressure indicator. Check if the connections are secure and correctly installed according to the relevant instructions.



## Note

If the pressure is consistently low, open the zipper and confirm that all the hoses are properly connected. Then check for any noticeable leakage in any of the tubes. If necessary, contact your local dealer to replace any damaged tubes or hoses.

# PATIENT POSITIONING AND COMFORT

## General Repositioning

Patients should be turned or repositioned based on their individually planned treatment schedule or per facility policy. Support surfaces are not substitutes for turning/repositioning or functional weight shifts.

## Hand Check Procedure:

A suitable way to verify that the patient is not bottoming out is to perform a hand check as described below:

- 1) Ensure that the patient is lying supine (on his/her back) in the middle of the mattress.
- 2) Place a hand with four (4) fingers stacked vertically beneath the air cell directly underneath the sacral region.
- 3) Ensure that the 4 fingers can slide with minimal resistance between the patients' sacral region and the lower portion of the mattress.
- 4) Adjust the comfort setting as needs.
- 5) Wait for the mattress to adjust to the selected range.
- 6) Reevaluate with the hand check and adjust to patients' comfort level.

## Recommended Linen:

Drive DeVilbiss Healthcare bed support surfaces are designed to be used with appropriate linens. Deep pocketed fitted or flat sheets are recommended. Multiple layering of linens or underpads beneath the patient should be avoided, when possible, for the prevention and treatment of pressure injuries.

## Incontinence

Moisture against the skin surface is an extrinsic risk factor for acquiring a pressure injury as it weakens the skin tissue leading to maceration. To protect skin integrity, incontinence barrier pads may be used to absorb excess moisture.

# CLEANING & MAINTENANCE



## Warning

Specialty active and reactive support surfaces are designed to redistribute pressure and reduce shearing/friction forces against the patients' skin. Patient migration is possible due to the nature of these products. Always ensure the patient is positioned properly within the confines of the bed and specialty system.



## Note

It is important to follow these procedures before using the system or between patient use.

## Control Unit (14027P)



## Caution

DO NOT immerse or soak the control unit in any water or fluids.

DO NOT spray any cleaning solution directly on the surface of the control unit.

DO NOT use a Phenolic based cleaning solution as this may cause damage to the case.

- 1) UNPLUG the control unit from its power source prior to cleaning.
- 2) Check for external damage and move the control unit to the cleaning area.
- 3) Place the control unit on a work surface and wipe the outside of the case with a clean cloth to remove any dust or particles. Make sure all areas are clean (top and bottom, both sides).
- 4) Spray cloth with cleaning solution and clean faceplate and control unit casing. DO NOT allow excess cleaning solution on faceplate or control panel. (If solution gets inside, damage will occur.)
  - a. quaternary ammonium solution may be used.
- 5) After the control unit is thoroughly cleaned and dried, proceed to plug in the control unit and test for normal functioning.
- 6) Unplug the control unit and store with proper identification tag until needed for use.
- 7) Avoid long exposure to sunlight.

## Mattress

- 8) Remove any soiled or used bedding.
- 9) Examine the mattress for visible soilage of bodily fluids.
- 10) If no disinfection is required, brush off or wipe down all surfaces of the cover sheet with soap and water before wetting with any liquid disinfectant.
- 11) If disinfection is required, follow the procedure below:
  - a. Use rubber gloves and eye protection.
  - b. Unzip the top cover from the mattress.
  - c. Prepare detergent/disinfectant solution (registered by the EPA recommended) according to

# CLEANING & MAINTENANCE

the preparation recommended for correct use-dilution.

- d. 1:9 Bleach and water dilution may be used.
- e. With the mattress fully deflated, wipe down all surfaces around and in between the air cells, including the cells.
- f. Covers may be immersed and soaked in disinfectant for the required incubation period. After pre-soaking, the cover may be rinsed through a regular cycle in a washer with no soap then laundered with mild detergent (wash temperature 93°F/34°C, rinse temperature 78°F/26°C or on the coldest setting).
- g. Allow all covers and parts to aerate until they are fully dry.

12) Repeat the process with the tubing set: spray/wipe, incubate, and air dry.

13) Dry the mattress on a flat surface area after cleaning, away from exposure to the sun.

14) Avoid long exposure to sunlight.

## HANDLING AND STORAGE

- Lay the mattress out flat and upside down.
- Roll from the foot end towards the head end; the foot-end strap can then be stretched around the rolled mattress to prevent unrolling.
- Do not fold, crease or stack the mattress.

## MAINTENANCE

### General

- Check the power cord and plug to see if there are abrasions or excessive wear.
- Check the mattress cover for signs of wear or damage. Ensure the mattress cover and tubes are connected correctly.
- Plug in the control unit and check the airflow from the hose connection port. The airflow should alternate between ports every half-cycle time.
- Check the air hoses to see if there are any kinks or breaks. For replacement, please contact your local agent or dealer.
- Make sure the mattress tube is well connected.
- Check the control unit and make sure both power indicators are off when the switch is turned off.

### Low pressure

Examine if there is any air leakage between the control unit and the mattress connections or from the air mattress tubes:

- 1) Check connectors between the air mattress and control unit. If there is any disconnection, please reconnect it.

## CLEANING & MAINTENANCE

- 2) Check the CPR Valves. Ensure their outlets are sealed.
- 3) Check the air-connecting tubes. Ensure each single cell is properly functioning.
- 4) Set the control unit to static. Keep the tubes fully inflated and inspect for air leakage.
- 5) Check if there is any air leakage from cells. Ensure no leakage occurs. If any leakage occurs, please contact your local agent or dealer.

# TROUBLESHOOTING

Problems		Reasons	Maintenance
Mattress fails to inflate or does not inflate completely.	Control unit issue	1. Control unit does not work.	1. After powered on, check if visible LED light turns on. If not, please check the below issues: 1.1 Check if power cord is plugged into appropriate voltage AC outlet. 1.2 Contact your provider for possible warranty claim.
		2. Air pressure from control unit is too low.	1. Contact your provider for possible warranty claim.
	Mattress issue	1. Quick connector on mattress does not connect well with control unit. 2. Air tube connected to T/L connector and air valve is loose, CPR connector is not capped. 3. One way valve is broken. 4. Air cell is leaking.	1. Make sure quick connector on mattress is connected well with control unit. 2. Make sure T/L connector and air valve is connected well, CPR connector is capped well. 3. Change air cell. 4. Contact your provider for possible warranty claim.
Mattress has pillow function, but air cells fail to inflate.	1. One way valve is assembled reversely.	1. Assemble the one way valve in correct direction.	
Control unit is working but synchronous motor does not work; thus mattress does not alternate, and alternate failure alarm is activated.	1. Synchronous motor is out of order. 2. Wires inside synchronous motor not connect well. 3. Lower PCB is out of order.	1. Contact your provider for possible warranty claim.	
Control unit and motor keep working, but cycle time is incorrect. The alternate failure alarm is activated.	1. Micro switch on the exchanger is out of order. 2. Lower PCB is out of order.	1. Contact your provider for possible warranty claim.	
When powered on, compressor stop after working some time; but the exchanger keep rotary.	1. Pressure detector is out of order.	1. Contact your provider for possible warranty claim.	
Mattress pressure is low but alarm is not activated.	1. Pressure detector is out of order.	1. Contact your provider for possible warranty claim.	
Push button on panel is not operated well, and LED indicator does not light up.	1. Push button is not operated well. 2. LED is out of order.	1. Contact your provider for possible warranty claim.	
Mattress pressure is too high or too low.	1. Pressure sensor is out of order.	1. Contact your provider for possible warranty claim.	
Power failure alarm can't be activated after power failure.	1. Battery is out of order.	1. Contact your provider for possible warranty claim.	



# SPECIFICATIONS

Control Unit	Mattress
Item #: 14027P	Item #: 14027M
Power Supply: 120/60Hz	Size: 36" W x 80" L x 8" H
Air Output: 8 liter/min	Top Cover: Nylon/PU quilted with zipper
Pressure Range: 40-90 mmHg	Air Cells: Nylon/PVC
Cycle Time: 10 minutes/60Hz	Base: Durable Nylon/PVC meshed
Case Material: Flame retardant ABS	Quantity & Height of Air Cells: 20 EA x 8" air cells
Information Signal: Low pressure	CPR valve for emergency procedures
Alternate/Static Mode	Pillow function and low air loss
Size: 11.0" L x 3.9" W x 8.1" H	Quick connectors
Weight: 5.7 lbs.	Maximum Weight Capacity: 350 lbs.
Fuse: T1A 250V	



## Note

The above specifications are also applicable to those areas operating with the same power supply range.

The Med Aire 8" Mattress Replacement system has been tested and certified for the following standards:

- CE
- UL
- c-UL

# WARRANTY

## **14027: 12 months for control unit and mattress**

Your Drive brand product is warranted to be free of defects in materials and workmanship for 12 months of the original consumer purchaser.

This device was built to exacting standards and carefully inspected prior to shipment. This 12 month Limited Warranty is an expression of our confidence in the materials and workmanship of our products and our assurance to the consumer of years of dependable service.

This warranty does not cover device failure due to owner misuse or negligence, or normal wear and tear. The warranty does not extend to non-durable components, such as rubber accessories, casters, and grips, which are subject to normal wear and need periodic replacement.

If you have a question about your Drive device or this warranty, please contact an authorized Drive dealer.





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