drive

MEDICAL DESIGN & MANUFACTURING

Operation Manual

FOR

14029 & 14030

IMPORTANT SAFEGUARDS

When using electrical products, especially when children are present, basic safety precautions should always be followed, including the following:

READ ALL INTRUCTIONS BEFORE USING

DANGER

To reduce the risk of electrocution:

▶ Always unplug this product immediately after use.
▶ Do not use while bathing.
▶ 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 reach for a product that has fallen into water. Unplug immediately.

WARNING

To reduce the risk of burns, electrocution, fire, or injury to persons:

▶ A product should never be left unattended when plugged in.
▶ Close supervision is necessary when this product is used by, on, or near children or invalids.
▶ Use this product only for its intended use as described in this manual.
  Do not use attachments not recommended by the manufacturer.
▶ Never operate this product if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the product to a service center for examination and repair.
▶ Keep the cord away from heated surfaces.
▶ 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 lint, hair, and the like.
▶ Never drop or insert any object into any opening or hose.
▶ Do not use outdoors or operate where aerosol (spray) products are being used or where oxygen is being administered.
▶ Connect this product to a properly grounded outlet only. See Grounding Instructions.

GROUNDING

Before any connection is made, make certain that this product shall be connected to a protective earth conductor via the three-wire power cord; the three-blade plug shall be inserted only into a socket outlet that provides a protective earth contact. Please refer to page 8 for more information.

SAVE THESE INSTRUCTIONS

STATEMENTS & SYMBOLS

Note, caution, warning & danger statements

NOTE

Indicates some tips or some information users should be aware of.

CAUTION

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

WARNING/DANGER

Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury.

Others

Symbols on the printed label on the outside package box are as below:

Grounding Terminal	Attention! Read instructions first!

TABLE OF CONTENTS

INTRODUCTION

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

General

The Med Aire series is a high quality and affordable air mattress system suitable for medium and high-risk pressure ulcer treatment. It has been specifically designed for prevention of bedsores and offers an affordable solution to 24-hour pressure area care.

The Med Aire series has been tested and certified for the following standards:
UL 60601
CE
FDA

Intended Use

The 14029 & 14030 series is intended to reduce the incidence of pressure ulcers while optimizing patient comfort. It also provides the following:

▶ Individual home care setting and long-term care
▶ Pain management as prescribed by a physician.

Contraindication

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

▶ Cervical or skeletal traction
▶ Unstable spinal cord injuries

PACKAGE CONTENT

Check inside the package. If any of the following items should be missing or damaged, please contact your local dealer or service center for replacement immediately.

Pump Unit

Make sure the type of pump, 14029 & 14030, is identical to which you purchased.

Mattress

The mattress comes with a base sheet.
A foam base is not a must.

Cover Sheet

*Optional
The cover sheet makes cleaning an easy task.

Manual

Always read this manual before using this product.

PRODUCT FUNCTIONS

Pump Unit

The functions of the pump unit for the 14029 series are described below. Please refer to the figures of each type.

► **Power Switch:**
  The switch is at the right side of the unit.
  Turn ON/OFF the power, the unit will start/stop operation.

► **Pressure-selector Knob:**

Turn the knob from the soft to firm position to select a pressure value.

▶ **Pressure-selector Touch Panel:**
There are seven pressure levels on the touch panel, providing options of pressure value.

▶ **Normal Pressure LED:**
Indicates the pressure has reached a set level.

▶ **Low Pressure LED:**
Indicates the pressure is below a set level.
The alarm will turn on at the same time.

▶ **Cycle Time-selector Touch Panel:**
Selects a desired alternating cycle time from the touch panel.
The cycle time value can be 10, 15, 20 or 25 minutes.
There are two LEDs for each time value.

▶ **Alarm Reset:**
The alarm will turn on when the Low Pressure LED is on.
To mute the alarm, simply press the reset button. The Alarm LED will flash.
Re-press the reset button to reactivate the audible alarm.

▶ **Static/Alternating control:**
Sets the air mattress in static mode or alternating mode.

▶ **Auto firm:**
Sets the air mattress to auto-inflation mode.

Mattress System

The 14029 series comes with cell type mattresses of different materials, provided optionally with the pump unit.

The mattress options for the 14029 series are Nylon/PVC, Nylon/PU or PU.

The mattress option for the 14030 is 10" Nylon/PU only.

INSTALLATION

Step 1 ▶ Place the mattress flatly on the bed frame.
The inflation tube should be towards the foot end.
See figure below.

Step 2 ▶ Cover with a cotton sheet to avoid direct skin contact and reduce friction.

Step 3 ▶ Hang the pump unit on the foot end of the bed frame and make sure it is stable.

Step 4 ▶ Connect the inflation tubes from the mattress to the pump's inflating nozzles. Make sure they are properly attached.

⚠ **NOTE:**
Make sure the air hoses are not kinked or tucked under the mattress.
Also check to ensure the CPR valve is properly attached.

Step 5 ▶ Plug the power cord into an electrical outlet with grounded AC power. This product should be grounded. The power cord has a grounding wire with a grounding pin. This three-wire plug must be plugged properly into an outlet and grounded as shown in the figures in the Grounding Instructions section.

⚠ **NOTE:**
Before inserting the plug into the outlet, make sure the voltage is compatible.
Also make sure this product is well grounded.

Step 6 ▶ Turn on the power by pressing the power switch at the right side of the unit. Proceed to the Operation section.

GROUNDING INSTRUCTIONS

This product is for use on a nominal 120 V circuit and should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord that contains a grounding wire with a grounding plug.
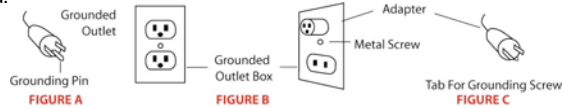
DANGER – Improper use of the grounding plug can result in a risk of electric shock.

If repair or replacement of the cord or plug is necessary, do not connect the grounding to either flat blade terminal. The wire with insulation having an outer surface that is green with or without yellow stripe is the grounding wire.

Check with a qualified electrician or serviceman if the grounding instructions are not completely understood, or if in doubt as to whether the product is properly grounded.

This product has a grounding plug that looks like the plug illustrated in figure A below. A temporary adapter, which looks like the adapter illustrated in figure B and C, may be used to connect this plug to a 2-pole receptacle as shown in figure B if a properly grounded outlet is not available. The temporary adapter should be used only with a properly grounded outlet. It can be installed by a qualified electrician. The green colored rigid ear, lug, tab or the like extending from the adapter must be connected to a permanent ground such as properly grounded outlet box cover. Whenever the adapter is used, it must be held in place by the screw.

If it is necessary to use an extension cord, use only a 3-wire extension cord that has a three-blade grounding plug and a 3-slot receptacle that will accept the plug on the product. Replace or repair if damaged.

Grounded Outlet — Grounding Pin — **FIGURE A**
Grounded Outlet Box — **FIGURE B**
Adapter — Metal Screw — Tab For Grounding Screw — **FIGURE C**

OPERATION

⚠ **NOTE:** **Always read the operating instructions before use.**

General

This product is designed to provide maximum comfort to home care patients. Make sure that you operate this product in a proper way to optimizing its value. Here we provide some general information you should be aware of.

For products: DO NOT use another pump with different specifications from the Med Aire series. It is dangerous to use a pump with pressure capacity greater than 120 mmHg. This may result in cell-puncture.

DO NOT change any component by yourself. If there is need for replacement or repair, always contact your local dealer or service center.

For patients: When the Normal Pressure LED (green) comes on to indicate the pressure is adjusted to a desired firmness; the patient can then lie on the mattress.
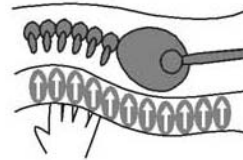
Please cover the mattress with a cotton sheet to avoid direct skin contact and for the patient's comfort.

A firm surface will make it easier for the patient to transfer or reposition. Make use of the static mode function. It can support the patient by keeping the mattress from bottoming out when the patient is in a sitting position

Hand check: Check to see if a suitable pressure is selected by sliding one hand between the air mattress and the foam base (or bed frame if there is no foam base) to feel the patient's buttock.

Users should be able to feel the space in between, and the acceptable range is approximately 25 to 40 mm (1" to 1-1/2"). This hand check procedure is issued by AHCPR.

Please follow instructions below for detailed operating procedure of each type.

14029/14030

Step 1 ▶ Turn on the power. A beep sound will begin the operation.

Step 2 ▶ These two types will enter static mode initially when the power is turned on.

First it will inflate the mattress to 30mm Hg and then enter alternating mode.

If 30mm Hg cannot be reached within 30 minutes, the unit will stay in static mode and keep inflating. If 30mm Hg still cannot be reached within another 15 minutes, the alarm will beep and its LED will come on.

Press the Alarm Reset button to mute the alarm. The alarm LED will start blinking. Press the Alarm Reset button again to have the audible alarm and alarm LED on.

Step 3 ▶ The alternating cycle time and pressure level are preset to the middle settings. Select from the touch panel to adjust the cycle time and pressure level.

Press the Static button to set it in static mode, and the Static LED will come on. The pump will enter static mode after it completes the last alternating cycle time. Press the Static button again to restart the alternating function.

⚠ **NOTE:**
Press the static mode button from the touch panel to provide a firm surface that makes it easier for the patient to transfer or reposition. The static mode can support the patient by keeping the mattress from bottoming out when the patient is in a sitting position.

Step 4 ▶ During normal operation, the unit will monitor pressure. If the pressure is lower than a set pressure, the pump will automatically inflate the mattress to the set level and then stop. The alarm will beep and its LED will come on to alert if there is a low pressure condition.

Press the Alarm Reset button to mute the alarm. The alarm LED will flash. Press the Alarm Reset button again to have the audible alarm and alarm LED on.

Step 5 ▶ Press the Auto Firm button to automatically inflate the mattress to the maximum level (above 70 mmHg) for about 30 minutes. The pressure will return to a previously set level after 30 minutes.

In case there is a bad connection of tubing or any air leakage from the mattress, this will result in a low pressure condition, and it will activate the alarm.

⚠ **NOTE:**
For suitable pressure, please refer to page 9 for the hand check procedure.

CPR function

When there is an emergency to perform CPR on the patient, pull the CPR valves immediately to release the air quickly from the mattress. The CPR valves are located at the front right-hand side of the mattress.

Pressure set up

Users can adjust the pressure value of the air mattress to a desired firmness by themselves or according to the suggestion from a health care professional.

⚠ **NOTE:**
It is recommended that the pressure-selector knob set to Firm or press Auto Firm on the touch panel every each time the mattress is first inflated. Users can then easily adjust the air mattress to a desired firmness according to the patient's weight.

Low pressure

When abnormal pressure occurs, the Low Pressure LED will come on. For some types of pumps, the alarm will be activated to alert of a low pressure condition. Check if the connections are secure and correctly installed according to the relevant instructions.

⚠ **NOTE:**
If the pressure is consistently low, check for any leakage (tubes or connecting hoses). If necessary, contact your local dealer to replace any damaged tubes or hoses.

CLEANING

In this section, we describe the procedures to clean and decontaminate the unit. It is important to follow these procedures before using the system on patients.

Pump Unit

▶ DO NOT immerse or soak the pump unit.
▶ Check for external damage and move the pump to the cleaning area.
▶ Place the pump on a work surface and spray or wipe the outside of the case with quaternary ammonium solution.
▶ DO NOT spray any cleaning solution directly on the surface of the pump.
▶ DO NOT use a Hypocarbonate or Phenolic based cleaning solution as this may cause damage to the case. Allow the solution to incubate for 10 minutes or accordingly as stated by the cleaning product used.
▶ Wipe case with a clean cloth. Make sure all areas are clean (top and bottom, both sides).
▶ Spray cloth with cleaning solution and clean faceplate. DO NOT allow excess cleaning solution on faceplate or control panel. (If solution gets inside, damage will occur.) Allow surface to thoroughly dry after cleaning.
▶ After the pump is thoroughly cleaned and dried, proceed to plug in the pump and test to see if it runs normally.
▶ Unplug the pump and store with proper identification tag.

Mattress System

▶ Brush off or wipe down all surfaces of the cover sheet with soap and water before wetting with any liquid disinfectant.
▶ Any obvious blood spots should be wet thoroughly with 1:9 Hypochiorite solution (1 part bleach to 9 parts water) and allow drying for at least 10 minutes. Then blot with a clean, damp cloth.
▶ Unzip the top cover from the mattress.
▶ Brush or wipe down all surfaces with soap and water before applying any liquid.
▶ Covers are immersed and soaked in disinfectant for the required incubation time.
▶ After pre-soaking, the cover is rinsed through a regular cycle in a washer with no soap then laundered with mild detergent (wash temperature 93F, rinse temperature 78F or on the coldest setting).
▶ Covers are aerated until they are fully dry. (Drying temperature range 90-120F or on the coldest setting.)
▶ The air cells are unsnapped from one side and are sprayed on all sides with a disinfectant. Let it sit for the required incubation time and wipe down with a clean cloth. (Make sure to disconnect all the air cells, one by one, and spray the disinfectant on all

sides, including all the connecting tubes and hoses. Let it sit for least 10 minutes.)
▶ If there is a base after you remove all the air cells, the base has to be sprayed down with the disinfectant, inside and outside. Let it sit for the required incubation time and wipe down with a cloth.
▶ Repeat the process with the tubing set: spray, incubate, and then wipe clean.
▶ The carrying bag should be turned inside out and completely wiped down using the disinfectant solution.
▶ Allow it to thoroughly air dry. Once the inside is dry, turn it back; wipe down the outside of the bag with disinfectant.
▶ Dry the mattress on a SUNLESS area after cleaning.

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 together correctly.
▶ Plug in the pump 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 kinks or breaks. For replacement, please contact your local agent or dealer.
▶ Make sure the mattress tube is well connected.
▶ Check the pump unit and make sure both power and power indicator are off when the switch is turned off.

Low pressure

Examine if there is air leakage between the pump and the mattress connections or from the air mattress tubes：

▶ Check connectors between the air mattress and pump. If there is any disconnection, please reconnect it.
▶ Check the CPR Valves. Ensure their outlets are sealed.
▶ Check the air-connecting tubes. Ensure each single cell is not broken.
▶ Set the pressure-selector knob to Firm position. Keep the tubes fully inflated and inspect for air leakage.
▶ 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	Solutions
The pump doesn't work	1. Check if the plug is inserted firmly into the outlet. 2. Turn on the power switch again. ▶ If the power LED is ON and the pump still doesn't work, contact your local dealer immediately. ▶ If the power LED is OFF, there may be a faulty outlet. Try to connect the power cord to another outlet. If the power LED is still OFF, contact a qualified electrician for main power check.
Incomplete inflation (Low Pressure)	1. For a quick check, adjust the pressure to Firm position. 2. Check to see if the tubes connected to the pump are twisted or there is any leakage occurring. ▶ Always keep the tubes straight. ▶ Change tubes if there is any leakage. ▶ Ensure the CPR valves are closed. Ensure every single cell is not broken.
Slow air flow	A dirty filter may decrease the air flow. Wash the filter with mild detergent to keep it clean. ▶ Check the air filter at the back of the pump unit at least once a month.

SPECIFICATIONS

System

Item	Specifications
Power Supply	AC 120V/60Hz, 10W
Pressure Range	▶ 30 ~ 60 mmHg 14029 ▶ 10 ~ 70 mmHg 14030
Cycle Time	▶ 10 min/60Hz 14029/14030
Dimensions	26.0 $\times$ 13.0 $\times$ 8.0 cm 10.2 x 5.1 x 3.1 in
Weight	1.5 kg 3.3 lbs

Environment Requirements	▶ Temperature: Operation 50$°$F~95$°$F
	                Storage 59$°$F~122$°$F
	                Shipping 59$°$F~158$°$F
	▶ Humidity: Operation 20%~80% non-condensing

	Storage 10%~90% non-condensing
Safety Standards	UL, c-UL, CE

* Due to the continual development of the above products, specifications are subject to change without prior notice.

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

Pump Unit

Series	Function	Specifications
14029	ON/OFF switch Pressure-selector knob Normal Pressure LED Low Pressure LED	Dimension: 33.4 × 12.0 × 24.6 cm 13.1 x 4.7 x 9.7 in Power: 230V AC/50Hz, 120V AC/60Hz Pressure: 30~60 mmHg Cycle time: 12 min/50Hz, 10 min/60Hz
14030	ON/OFF switch Pressure-selector touch panel Cycle Time-selector touch panel Static function Alarm Reset Auto Firm	Dimension: 33.4 × 12.0 × 24.6 cm 13.1 x 4.7 x 9.7 in Power: 230V AC/50Hz, 120V AC/60Hz Pressure: 10~70 mmHg Cycle time: 10, 15, 20, 25 min. selectable

Classification of Adaptability

PUMP	MATTRESS	ADAPTABILITY	Stage
14029	4"×18 cells w/low air loss 5"×18 cells w/low air loss 8"×18 cells w/low air loss		
14030	10"×20 cells w/low air loss		III