OPERATING INSTRUCTIONS

5 zone Alternating Pressure & True Low Air Loss System

MODEL K-4oem

5 ZONE
ALTERNATING PRESSURE &
TRUE LOW AIR LOSS SYSTEM

OPERATING INSTRUCTIONS
MANUAL
FOR
ALL K-4oem MODELS

KAP MEDICAL™

An FDA Registered Company, Products are FDA listed.

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TABLE OF CONTENTS

DANGER:

♦EXPLOSION HAZARD♦
DO NOT USE IN THE PRESENCE OF FLAMMABLE ANESTHETICS

Caution:

- Do not use in the presence of smoking materials or open flame. Air flowing through air mattress will support combustion**.**
- Risk of electrical shock, do not remove control unit cover**.**
- Refer servicing to qualified service personnel.
- Equipment should only be connected to a properly grounded three pronged wall outlet, using 10~14 foot (305~427 cm) hospital grade power cord provided with the product.

Warning:

- Never drop or insert any object into any opening of the control unit.

MANUFACTURER'S LIABILITY

KAP MEDICAL'S original warranty on K-4oem ALTERNATING PRESSURE SYSTEM will remain in effect during the warranty period, provided any changes, readjustments, or repairs have been carried out by a factory authorized service center or a technician of KAP MEDICAL, or whenever the control unit and mattress system has been used according to the following operating instructions.

KAP MEDICAL'S liability under the warranty is the repair or replacement provided and, in no event, shall KAP MEDICAL'S liability exceed the purchase price paid by the customer for the product. Under no circumstances shall KAP MEDICAL be liable for any loss, direct, indirect, incidental, or special damages arising out of or in connection with the use of this product.

EXPLANATION OF SYMBOLS USED ON THIS DEVICE

SYMBOL	EXPLANATION
 POWER	Turns unit On / Off.
 SOFT  FIRM	Up or Down key adjusts patient comfort pressures levels.
 MODE	Selects appropriate patient therapy mode.
 Max Flow	Inflates mattress rapidly (15 minute timer).
 Upright	Boosts 15~25 % more air pressures in the mattress during fowler position to avoid patient bottoming out.
 LOCK	Locks out all control unit functions to prevent patient settings tampering.
○Power Fail ○Low Pressure	In the event of power failure or if the hose is disconnected an audio/visual alarm will sound.
 ALARM SILENCE	Mutes audio alarm.

	**Indicates the point of attachment of the equipment**

	to earth (Grounding Point).
	**Attention: Instructs end user / care giver / operator to refer to the manual.**
	**Indicates that the degree of protection against electrical shock is TYPE BF.**
	**Not for use in presence of flammable anesthetics.**
	**Risk of electrical shock, do not remove back cover.**

K-4OEM SYSTEM (Figure-1 on page 16):

The K-4oem System is a 5-zone ALTERNATING PRESSURE & TRUE LOW AIR LOSS control unit with a mattress. The unit is used to inflate a mattress overlay or a mattress replacement system. The control unit is designed to provide continuous ALTERNATING PRESSURE & TRUE LOW AIR LOSS pressure at required patient comfort levels. The ABS/PVC blended enclosure houses a high capacity output air blower, a quick disconnect coupling connector, 14 foot detachable hospital grade power cord, display panel, and a CPR label.

An overlay system is comprised of a durable zippered Cordura base and top sheet which houses a urethane coated nylon durable 5" inflated air pad in the form of 10 ~ 20 fixed air cushions with hose assembly.

The mattress replacement system (B) is comprised of a durable Cordura base (C) with a safety 2" convoluted foam or air base, 5" or 8" (inflated) detachable air cushions (T), and covered with a vapor permeable, water proof, low friction and low shear nylon quilted top sheet (E) with zipper or straps to fasten the top sheet to the mattress base. The complete mattress system has 6~10 straps (F) in several areas so it can be easily fastened to any size hospital bed.

K-4oem 5 Zone ALTERNATING PRESSURE & TRUE LOW AIR LOSS SYSTEM FEATURES

CONTROL UNIT (A) {Figure - 2 Page 17}:

- High capacity air output, 45 CFM (1275 LPM), and quiet operating control unit. Max flow mode (W) inflates mattress in 30~60 seconds depending on the size of the mattress. Has 15 minute Max Flow timer.
- State of the art micro-controller technology unit for accurate patient comfort pressure values and A/P time.
- Front panel (G) has power switch (PS), and desired comfort pressure level.
- Comfort control keys (K) to set comfort levels.
- 1 to 9 levels of patient comfort level control.
- Therapy (Static) mode LED (M).
- A/P (alternating Pressure) mode (LED) (N).
- Integrated handle/hanger (P) for easy carrying and hanging of the control unit from the footboard of the bed.
- Lock Switch (LO) to lock out all control functions.
- 10~14' (305~427 cm) long detachable 16~18 AWG hospital grade power cord (Q).
- Durable and attractive dual 3/4" and one 1/4" flow couplings (R) for quick connection and disconnection (CPR deflation).
- Control unit has short circuit / over voltage protection with single/dual fuse (FP) not shown in the picture.
- Power Fail (PF) LED flashes to indicate power outage.
- Low Pressure (LP) LED flashes to indicate low pressure.
- Molded ABS enclosure.

SUPPORT SURFACE (MATTRESS / OVERLAY) (B) {Figure - 1 Page 16}:

- Self contained mattress replacement system / mattress overlay system (B) with easily detachable components for cleaning.
- Detachable urethane coated, 70 Denier nylon taffeta, flame retardant / water repellent, mildew resistant, low friction and low shear, 5” or 8” high (inflated) detachable lateral tubular air cushions (T) (16 to 20), overlay pad has 10~20 fixed or removable air cushions.
- Detachable zippered or strapped highly breathable urethane coated, 70 Denier nylon, flame retardant / water repellent, highly vapor permeable, anti-microbial, low friction and low shear quilted reusable top sheet (E).
- 2” convoluted safety foam (only on Mattress replacement system) enclosed in the base (C) to support the patient in the event of loss of air pressure in the mattress.
- The mattress has hose assembly (V) with two easy to use quick connect and disconnect connectors (R).

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

	U.S. / INTL.
Input Voltage AC:	90 / 240 V
Input Frequency:	60 / 50 Hz
Inrush Current:	2A
Maximum Power Consumption:	150 ± 20 W
Circuit Protection:	Single/Dual fused, 250V, 5A fast blow fuse(s).
Mode Of Operation:	Continuous

PERFORMANCE SPECIFICATIONS

Weight Capacity:

Standard Mattress: 360 Lb. (160 Kg.) maximum.
Bariatric Mattress: 1000 Lb. (455 Kg.) maximum.

	U.S. / INTL.
Pressure Zones:	5
Max Flow:	1275 LPM (45 CFM)
Max Flow Timer:	15 minutes
Min Pressure:	4~12 mmHg
Max Pressure:	28~38 mmHg
Support Surface Inflation Time:	20 to 60 seconds.

Patient Comfort Control Pressures

Soft Pressure:	6 ± 4 mmHg
Firm Pressure:	32 ± 6 mmHg
Cycle Times:	5, 10,15, 20 Min

Patient Contact:

Control unit and the mattress have **Latex** free components.

MECHANICAL SPECIFICATIONS

Control Unit (A)

Dimensions, LxWxH:	12” x 5 3/4” x 10 .5” (29.54cm x 14 x 27cm)
Weight:	9 lbs. (4 Kg.)
Power Cord:	14’ Long Hospital Grade
Connection:	½”(2 ea) & ¼” flow quick couplings
Packaging:	1piece/box

Air Filter: Charcoal Air Filter with Fire Retardant.

⚠ **PLEASE CLEAN FILTER EVERY 5 MONTHS OR WHENEVER DIRTY. Remove 2 filter screws and separate filter foam. Wash filter foam using soap and water, dry and replace filter back on the unit and fasten screws.**

Support Surface (B)

Air cushions are R.F. welded, liquid proof and washable.
Base is liquid proof and washable.
Top Sheet is low friction, low shear force producing, breathable, liquid proof and highly vapor permeable.

Description	Inflated Dim. LxWxH	Weight
Overlay:	80”x36”x5”	8 lbs.

	(203x89x13cm)	3.6 Kg.
Mattress:	80”x36”x10”	23 lbs.
	(203x89x25.5cm)	10.5 Kg.

Packaging: 1 Piece per Box

ENVIRONMENTAL SPECIFICATIONS

Operating Conditions:

Ambient Temperature:	40° ~ 104° F 10° ~ 40° C
Relative Humidity:	30% ~ 75% Non-Condensing
Atmospheric Pressure:	700 hPa to 1060 hPa

Storage And Shipping Conditions:

Ambient Temperature:	-40° ~ 158° F -40° ~ 70° C
Relative Humidity:	10% ~ 100%
Atmospheric Pressure:	500 hPa to 1060 hPa

Protection Against Harmful Ingress Of Liquids:

Ordinary Protection (IPXO)

Mattress Sanitation:

Complete support surface is made out of superior quality materials and is modular in construction, all components such as manifold, hose assembly, air cushions, top sheet, and foam base are interchangeable and can be easily cleaned or detached for laundry.

SAFETY AGENCY APPROVALS

ETL Listed:

To standard for safety of Medical Electrical Equipment

Conforms To: UL STD 2601-1 with respect to Electrical Shock, Fire and Mechanical Hazards

Certified To: CAN/CSA STD C22.2 No. 601.1

CE Mark: CE

FDA REGISTRATION

FDA registered company as a manufacturer and as a contract manufacturer.

KAP MEDICAL'S quality system meets the requirements of FDA 21 CFR, PART 820-Good Manufacturing practices for medical devices and ISO 9001. Products are FDA listed.

SAFETY INSTRUCTIONS

- To avoid damaging your K-4oem control unit (A), before operating be sure the AC power (X)

available at your location matches the power requirements printed on the boiler plate label (Y) on the back of the control unit.

- To avoid electric shock, always plug in the power cord of the control unit into a properly grounded power source (X).

- Do not insert items into any openings of the control unit (A). Doing so may cause fire or electrical shock by shorting internal components.

- Do not spill liquids or food on or into the control unit (A). In the event of any spillage, immediately turn off the control unit and disconnect it form the power source (X). Return the control unit for servicing to a factory authorized service center.

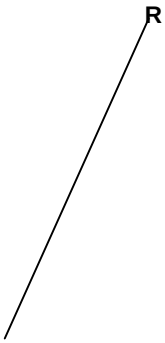
- Care should be taken such that the inlet air vent of the control unit (A) is not blocked, and kept away from any heat sources or radiators during the operation of the unit.

- Care should be taken such that the power cord (Q) of the control unit is not pinched, or has any objects placed on it, and also ensure it is not located where it can be stepped on or tripped over.

- Do not attempt to service the control unit except as explained in this operating instructions manual, contact factory for servicing instructions. Always follow operating and service instructions closely.

♦ **WARNING:** Before opening the control unit (A) enclosure, make sure the control unit is turned off and unplugged from its power source (X). The control unit enclosure should only be opened by a factory authorized qualified technical service personnel. ♦

SYSTEM SET-UP



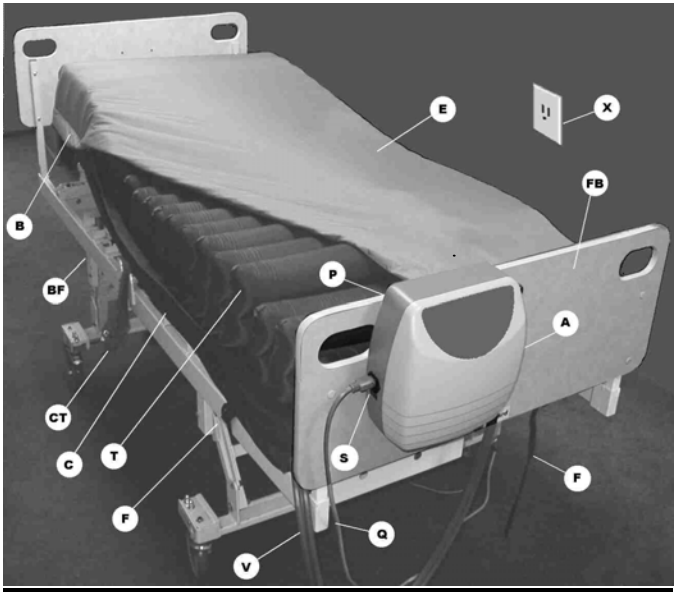


Figure –1

PLEASE NOTE: K-4OEM ALTERNATING LOW AIR LOSS System must be installed on bed frames that are equipped with side rails. Please raise side rails on the bed and lock them in position after the patient is on the mattress. NEVER LEAVE PATIENT UNATTENDED ON MATTRESS SYSTEM WITH BED SIDE RAILS IN THE DOWN POSITION.

CONTROL UNIT SET-UP

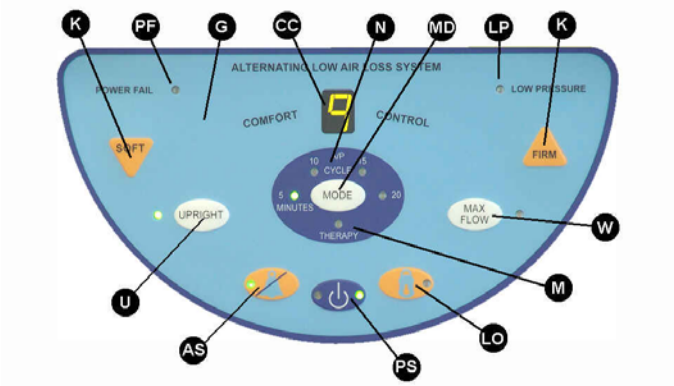


Figure-2

Refer To The Figure-1 On Page 15

1. Before using the K-4oem ALTERNATING TRUE LOW AIR LOSS MATTRESS REPLACEMENT SYSTEM OR AN OVERLAY SYSTEM please remove any non K-4oem mattress replacement system or overlay system from the bed.

2. **K-4oem Overlay system**: When using a K-4oem Overlay mattress care should be taken such that the overlay is placed directly on an existing 3" to 5" foam mattress.

3. Unroll the K-4oem overlay mattress and place it on the existing foam mattress. Note: Make sure that the hose end of the overlay is towards the foot of the bed.

4. There are two elastic straps, one at the head and the other at the foot section. Two long straps on one side and two short straps with buckles on the other side of the overlay. Insert

head and foot elastic straps around the foam mattress. Loop each long side strap around the foam mattress and fasten it securely to the foam mattress using the buckle.

5. **K-4oem Mattress Replacement system**: When using the K-4oem Mattress replacement system care should be taken such that the mattress is placed directly on the bed frame.

6. Unroll the K-4oem Replacement Mattress and place it on the bed frame (BF). Note: Make sure that the hose end of the mattress is towards the foot of the bed.

7. There are six/ten nylon black straps with buckles (F), one/two straps at the head of the mattress, one/two on the foot of the mattress, and two/three on the each side of the mattress. Loop each strap around the bed frame and fasten it securely to the bed frame using the buckle.

8. Open the hooks (P) on the back of the control unit (A) and suspend the control unit from the footboard (FB) of the bed (BF). If the bed you are using does not have a footboard, place the control unit (A) on its base (not on its back where the filter is located) on a flat surface underneath the bed near the foot of the bed frame (BF). **Note:** Care should be taken such that the air inlet vent on the control unit is not covered, and the control unit is not placed on the floor in such a manner that it is a hazard for flow of traffic.

9. Uncoil the power cord (Q) and plug the cord into the appropriate AC power source (X), which is properly grounded. Plug the other end of the power cord into the control unit and press it in place. **Note:** Care should be taken such that the power cord of the control unit is not pinched, or has any objects placed on it, and also ensure it is not located where it can be stepped on or tripped over.

10. Connect the mating coupling body (R) on the mattress or over lay pad hose assembly (V) into the insert on the control unit connector and lock it in place. Also make sure the CPR tag (CT) {if present) insert connector is securely connected into the mattress manifold body connector on the side of the mattress. **Note:** Make sure the connectors have a good connection by gently tugging on the three hoses. Also, care should be taken such that the mattress or overlay pad hose is freely suspended without being pinched or kinked.

OPERATING INSTRUCTIONS

Refer To The Figure 1 & 2 On Page 16 & 17

1. Make sure the CPR Tag (CT) {if present} insert connector is securely connected into the mattress manifold body connector on the side of the mattress.

INITIAL POWER UP

1. During initial power up (when power cord (Q) is plugged into the power source), the control unit (A) will be in “STAND BY” with the amber LED on.

2. If the unit is in stand by mode with amber LED is on,  press the power key and the green LED will turn on. Press MAX FLOW (W) the pump will turn on at maximum flow.

2. If the power comes on after a power outage, the control unit will go through its system initialization routine for few seconds and then resume the desired function.

MAX FLOW (W)

1. Press 

MAX FLOW (W) key, the green LED will turn on. This mode is used to rapidly inflate the mattress. During this mode a series of beeps will sound every 3 minutes as a reminder that MAX FLOW mode has been activated. MAX FLOW mode will deactivate after 15 minutes. The LED will turn off and the unit will default to previous memory setting. During this mode the entire mattress will be pressurized to 35 ±6 mmHg.

2. The mattress (B) will inflate to its normal size in 30 ≈ 60 seconds. (Inflation time depends on the size of the mattress).

THERAPY (STATIC) (M)

1. To set STATIC mode (M) press 

(MD) key to “STATIC” position, green LED (M) lights up.

2. In STATIC mode all the air cushions in the mattress will be maintained at a constant pressure.

DYNAMIC (A/P) ALTERNATING PRESSURE (N)

1. To set DYNAMIC (ALTERNATING) {N} mode, press the mode 

(MD) key and choose the appropriate A/P time. The green LED (N) lights up. The A/P cycle times are 5, 10, 15, 20 minutes (custom cycle time can be programmed at the factory).

2. In the A/P (DYNAMIC) mode the odd numbered air cushions in the mattress will be maintain at a constant desired patient comfort pressure, and the even numbered air cushions will deflate from desired patient comfort pressure to below 10~60% of set pressure in the first half of the DYNAMIC cycle and visa versa for the second half of the cycle, and continue back and forth.

PATIENT COMFORT CONTROL LEVEL (K)

1. The K-4oem system is designed for patients weighting between 50 ≈ 1000 lbs. (22 Kg. ≈ 455 Kg.). Pressing the comfort control

SOFT key (K) towards the SOFT (1) position reduces the pressure setting, pressing 

FIRM key (K) towards the FIRM (9) position increases the pressure. The patient comfort pressure ranges from SOFT (1) 6 ± 4 mmHg to FIRM 32 ± 6 mmHg. Depending on the desired patient comfort level the micro-controller / sensors will set appropriate air pressure in the mattress, and maintain the desired pressure in the mattress.

2. Once the mattress is inflated to its normal size with the patient lying on it, set the COMFORT CONTROL KEY to the desired patient comfort level. Wait 5 minutes for the mattress pressure to stabilize, verify the appropriate pressure required to support the patient by performing a simple "four finger check".


Make sure that the patient is lying flat on his or her back in the middle of the mattress. Place four fingers between the air cushions directly underneath the sacral region of the

patient's body. There should be a minimum of 3 to 4 finger width clearance between the bottom of the patient and the safety foam base, (on an overlay there is no safety foam base). Repeat this procedure until the desired patient comfort pressure is achieved.

UPRIGHT (U)

When 

upright (fowler) mode is chosen, the pressures in the entire mattress will be increased to max comfort setting (Optional: approximately 15 ~ 25 % higher than the set comfort pressure level or max 9 level). This enables the patient to be supported without bottoming out.

LOCK OUT (LO)

Control unit functions (including power) can be completely locked out from being tampered with, by simply pressing and holding the  lock key until the light comes on (approximately 3 seconds).

ALARM SILEANCE (AS)

An audio-visual alarm is sounded in the event of power failure or when the hose is disconnected from the unit.

Audio alarm can be muted by pressing

alarm silence key.

FAILURE MODES

P0WER FAIL (PF)

In the event of power outage the microprocessor will activate an audiovisual signal to alert the caregiver by flashing the amber “POWER FAIL” LED and turning on the buzzer. Once the power is restored to the control unit the audiovisual signal will cease and unit resumes operating its set mode.

LOW PRESSURE (LP)

In the event of hose disconnection the microprocessor will activate an audiovisual signal to alert the caregiver by flashing the amber “LOW PRESSURE” LED and turning on the buzzer. Once the low pressure problem is fixed the audiovisual signal will cease and the unit resumes operating its set mode.

RECOMMENDED PRESSURE SETTINGS

a. For rapid inflation of the mattress press (W) “MAX FLOW” key until green LED turns on.

b. For extra firm support during Patient ingress / egress, or Patient wound care, or Patient turning, or Patient cleaning it is recommended to set the mattress pressure to MAX by pressing (W) “MAX FLOW” key.

c. During patient Fowler positioning, or in case of a patient who's weight to height ratio is above average, it is recommended to set the comfort control to 10% more than the set pressure level.

CPR FUNCTION

Refer To The Diagram On Page 13

1. To deflate the mattress / overlay pad or for a CPR procedure, press the quick release buttons on both the coupling bodies (R), and simultaneously pull the hose (V) from the control unit flange connector.

2. If OPTIONAL red CPR tag is present on the mattress / pad, disconnect the red CPR tab (CT) connectors located on the side of the mattress.

3. In case of CPR emergency, for quick deflation of the mattress unzip the top sheet from the foot to the head by pulling the zipper located by the patient right foot, near the exit location of the hose assembly, or on some mattresses by unfastening the top sheet straps from the side of the mattress. Disconnect a few air cushions, which are directly below the patient's chest from the mattress by pressing the quick release button on the connector with one hand and pulling the air cushion connector with the other.

CLEANING PROCEDURE

WARNING

CONTROL UNIT:

- ♦ Before attempting to clean the USA or the International control unit, turn off unit and disconnect the control unit power cord from the power source. ♦

- ♦ **DO NOT HEAT, STEAM AUTOCLAVE, OR IMMERSE THE CONTROL UNIT IN LIQUIDS** ♦

1. Wear eye goggles and rubber gloves before starting the cleaning procedure.

2. The following germicidal detergents / disinfectants are recommended by the EPA as hospital disinfectants.

    a. Johnson Wax, Virex 128, EPA Registration Number 47371-130-4822.

    b. Quaternary Detergent-Disinfectant by Airkem Professional Products, Division of Ecolab, Inc., Ecolab Center, St. Paul, Minnesota. EPA registration number: EPA # 42964-5.

    c. Hi-Tor Germicidal Detergent by Huntington Laboratories, Inc. Huntington, Indiana. EPA registration number: EPA # 303-91.

Note: A fresh spray bottle of disinfectant / detergent solution should be prepared every day to clean the control unit.

3. By following the preparation instructions provided with the germicidal detergent /disinfectant solution, prepare the required amount of disinfectant solution or mild detergent solution.

4. Pour required amount of the germicidal solution into a spray bottle.

5. Using a brush or a cloth wipe off dust. If necessary, spray the exterior of the top and the bottom enclosures, power cord and the cord plug with the prepared disinfectant / detergent solution. Using a damp cloth wipe down the sprayed surface cleanly. **Note: Do not spray excess amount of solution on the control unit.**

3. Once the control unit is clean, wipe the unit, the power cord, cord receptacle, and the cord plug dry with a clean dry cloth.

6. Place the control unit to dry in a cool, dry area for an hour before operating the unit again. If the control unit is not used immediately place the control unit in a plastic bag and store it in a storage area.
7. After the cleaning operations are completed remove and dispose the rubber gloves appropriately. Wash your hands thoroughly with antibacterial soap.

MATTRESS

9 Wear eye goggles and rubber gloves before starting the cleaning procedure.

10. Follow steps 2 through 4 above to prepare disinfectant solution.

11. Using damp cloth wipe down the air cushions and the mattress base. Once the air cushions and the base is clean, wipe them down with a clean dry cloth.

12. Air cushions should be washed periodically; top sheet will require more frequent washing. Set wash cycle to heavy load with warm water. Once the water is full add manufacturer- suggested quantity of laundry detergent and/ or standard hospital disinfectants. If the air cushions or the top sheet becomes soiled with human waste, or blood, clean immediately by wiping down. Use hospital recommended laundry detergent and/ or disinfectant per manufacturer's instructions. **Note: Use non-chlorine bleach detergent.**

13. Once the washing cycle is complete, make sure excess water from inside the air cushions is completely removed. Set the dryer to lowest heat settings, and operate the dryer until the air cushions or the top sheets are completely dry.

14. Leave the mattress to dry in a cool, dry area for an hour before using. If the mattress is not used immediately, roll the mattress and

insert it into a plastic bag and store it in a storage area.

15. After the cleaning operations are completed remove and dispose the rubber gloves appropriately. Wash your hands thoroughly with antibacterial soap.

CARE AND STORAGE

1. When control unit is not in use, turn off the unit, disconnect the power cord from the power source and wrap the cord around the control unit. Wrap the control unit and the power cord in a plastic bag and cable tie it so that dust cannot enter the bag.

2. Store the control unit in a storage area designated to medical electronic product storage.

TROUBLESHOOTING GUIDE

THE FOLLOWING INFORMATION IS FOR FACTORY AUTHORIZED SERVICE FACILITIES AND FACTORY QUALIFIED SERVICE PERSONNELL ONLY.

KAP MEDICAL can provide technical support to factory qualified technical personnel. Contact KAP MEDICAL service department for more information.

PROBLEM	CAUSE	SOLUTION

A. Mattress Not Inflating properly	1. Mattress hose disconnected 2. Air hose kinked or split 3. Major leak in the air cushions or overlay pad 4. Kinked or split manifold 5. Control unit not working 6. Blower malfunction	1. Connect hose connectors and lock them in place 2. Unkink hose or replace split hose 3. Replace leaking air cushions or overlay pad 4. Unkink manifold or replace split manifold 5. Send control unit back to factory for repair 6. Send control unit back to factory for repair
B. No Power	1. Control Unit OFF	1. Check power source and

	2. Power cord disconnected 3. No power in the power source 4. Power outage 5. Blown fuse	turn unit on. 2. Connect cord to the power source 3. Check power source has power and turn it “ON” 4. Wait till the power source has power 5. Send unit back to factory for repair

PREVENTIVE MAINTENANCE

It is important to periodically test the K-4OEM unit to verify the proper functionality. If the unit air pressure reading is out of specification, it can result in poor or reduced patient support.

⚠ **PLEASE CLEAN FILTER EVERY 5 MONTHS OR WHENEVER DIRTY. Remove 2 filter screws and separate filter foam. Wash filter foam using soap and water, dry and replace filter back on the unit and fasten screws.**

NOTE: All preventive maintenance service, performance and electrical tests, or repairs should be performed only by factory authorized and qualified technical personnel.

Preventive Maintenance Schedule

The following tests should be performed every 6 to 9 months and all test data should be recorded, a device history record on each control unit should be maintained.

1. Electrical Tests
   The following or similar Hi-pot Tester and Electrical Safety Analyzer should be used to perform electrical tests.

   a. ROD-L Hi-pot Tester (120 / 240 Models)
   b. Bio-Tek Analyzer, (220 / 240V AC Models)

   To perform the leakage current test on the control unit please follow the manufacturers or factory authorized test instructions for setting-up and performing the electrical tests.

   Caution: Risk of electrical shock, proper precautionary measures should be taken while performing electrical tests.

   A. Hi-pot Test
      If no alarm sounds, or no red “fail” light appears, the test is complete in

about 60 seconds. The control unit passes Hi-pot test.

B. Leakage Current Test

Connect ground cable to the control unit main ground test point found on the back of the unit. Switch function switch to leakage current position and test the following power configurations.

Polarity Switch	**Ground Switch**
1. Normal Polarity	Normal Ground
2. Reverse Polarity	Normal Ground
3. Reverse Polarity	Open Ground
4. Normal Polarity	Open Ground

120 V Models
PASS $\leq$ 100 μA
FAIL $>$ 100 μA

220 / 240 Models
PASS $\leq$ 500 μA
FAIL $>$ 500 μA

C. Ground Impedance Test

Connect ground cable to the control unit main ground test point found on the back of the unit. Switch the polarity switch to “OFF” and function switch to ground wire resistance position.

120V and 220 / 240V Models

PASS ≤ .1 Ω

FAIL > .1 Ω

2. Performance Tests

The following Flow and Pressure gauges should be used to perform functional tests.

a. Flow gauge, 0 ~ 50 CFM
b. Pressure gauge, 0 ~ 100 mmHg
c. Quick disconnect hose assembly

To perform the functional tests on the control unit please follow the factory authorized test instructions for setting-up and performing the functional tests.

A. Flow Test

Connect the dual hose connector to the control unit and the flow gauge. Turn on the unit and set the comfort control knob to max weight position, record flow reading.

PASS ≥ 35 CFM

B. Pressure Test

Connect the dual hose connector to the control unit and the pressure gauges. Turn on the unit and set the comfort control to Soft (1) and record reading, set to Firm (9) position and record reading. Set comfort control

to Max Flow position and record reading.

ALL Models

Minimum Comfort Position
PASS = 4~12 mmHg
Maximum Comfort Position
PASS = 26 ~36 mmHg

Max Flow Position
PASS = 28~38 mmHg

C. Alternating Pressure Test

Connect the dual hose connector to the control unit and the pressure gauges. Turn on the unit and set the comfort control knob to Soft / Firm weight position, and the mode knob to Dynamic position and record alternating air pressure value in both zones.

120 and 220 / 240 V AC Models

Soft Position

Zone-1: PASS = 4~12 mmHg
Zone-2: PASS = 0~8 mmHg

Firm Position

Zone-1: PASS = 26~36 mmHg
Zone-2: PASS = 0~20 mmHg

ACCESSORIES

K-4oemMS: K-4oem Mattress System
K-4oemOPS: K-4oem Overlay Pad System
K-4oemOCS: K-4oem Overlay Cell System
K-4oem: K-4oem Control Unit
K-4oemM: K-4oem Mattress
K-4oemOP: K-4oem Overlay Pad
K-4oemOC: K-4oem Overlay Cell
K-140 (SAC): Foot Support Air Cushion
K-136oem, K-139oem, K-142oem, K-148oem, K-154oem, K-160oem, K-176oem: Standard and different size Bariatric quilted Breathable Top Sheet.

- **Note:** To place an order or if you have any questions regarding the K-4oem ALTERNATING PRESSURE & TRUE LOW AIR LOSS Mattress Replacement System or Overlay System and its warranties, please call KAP MEDICAL customer service at 951 340 4360, Email: sales@kapmedical.com. ♦

WARRANTY

KAP MEDICAL warrants the K-4OEM control unit and the mattress for a period of ONE (1) year from the original date of purchase.
KAP MEDICAL standard warranty is extended to the original buyer purchasing the equipment directly from KAP MEDICAL or through its authorized dealers. All warranty periods, where applicable, commence on the date of purchase from KAP MEDICAL or its authorized dealers.

KAP MEDICAL'S sole obligation and liability under this warranty is limited to (at KAP MEDICAL'S option) the repair or replacement by KAP MEDICAL'S authorized personnel of any parts or assemblies, which upon test and examination by KAP MEDICAL, prove to be defective. This equipment may be returned prepaid to KAP MEDICAL after notification has been given and approval obtained for the return. Please call your KAP MEDICAL sales representative or customer service at (951) 340 4360 to arrange for warranty services.

KAP MEDICAL'S liability under the warranty is the repair or replacement provided and, in no event, shall KAP MEDICAL'S liability exceed the purchase price paid by the customer of the product. Under no circumstances shall KAP MEDICAL be liable for any loss, direct, indirect, incidental, or special damages arising out of or in connection with the use of this product.

The control unit warranty does not cover normal maintenance such as cleaning, periodic electrical tests, performance tests, and updating of equipment or parts thereof. This warranty shall be void and not apply if the control unit, including any of it's parts, is modified without KAP MEDICAL'S written authorization, is attempted to be repaired by personnel not authorized by KAP MEDICAL, is not maintained in accordance with the prescribed preventive maintenance schedule, is used with accessories or parts not authorized by KAP MEDICAL, or is damaged due to misuse, mishandling, abuse, negligence, accident, fire, or inadequate packaging by owner for shipment of the

control unit for service, upgrade, repair, retrofit, or product return. All reasonable freight charges for valid factory approved warranty returns will be reimbursed. KAP MEDICAL makes no guarantee of clinical results.

♦ THE WARRANTY STATED ABOVE (INCLUDING ITS LIMITATIONS) IS THE ONLY WARRANTY MADE BY KAP MEDICAL AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. KAP MEDICAL SHALL NOT BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND.

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