
OPERATING INSTRUCTIONS

ECONOMY ALTERNATING PRESSURE



**MATTRESS REPLACEMENT
SYSTEM**

A P M

OVERLAY PAD SYSTEM



K-O ECO-ZONE™

Alternating Pressure System

MODEL K-0

ECO-ZONE™

ECONOMY ALTERNATING PRESSURE SYSTEM

OPERATING INSTRUCTIONS MANUAL FOR ALL K-0 MODELS



GATEWAY
TO THE
FUTURE



An FDA Registered Company, Products are FDA listed.

1395 Pico Street
Corona, CA 92881
951 340 4360
FAX 340 4361

Email: kapmedical@kapmedical.com
www.kapmedical.com

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Danger, Caution And Warning	3
Manufacturer's Liability	4
Explanation Of Symbols Used	5
Control Unit Features	9
Support Surface Features	10
Technical Specifications	11
Safety Instructions	15
System Set-Up & System Diagram	17
Control Unit Set-Up	18
Operating Instructions	20
CPR Function	24
Patient Transportation	25
Cleaning Procedure	26
Care And Storage	29
Troubleshooting Guide	29
Preventive Maintenance	31
Accessories & Warranty Information	36

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:


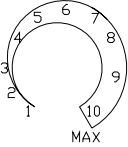
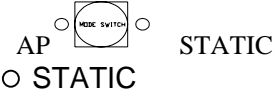
- Never drop or insert any object into any opening of the control unit.

MANUFACTURER'S LIABILITY






KAP MEDICAL'S original warranty on K-0 ECONOMY 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 of the product. Under no circumstances shall KAP MEDICAL be liable for any loss, direct, indirect, incidental, or special damage 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 or Off. When power switch amber LED is “OFF” the unit is “ON”.
Power Switch Amber LED “ON”	When power switch amber LED is “ON” the control unit is off, indicating that the unit still has power internally.
 SOFT/FIRM/MAX SOFT 1 / FIRM 10	Comfort level knob with 1 to 10 (soft / firm) settings to adjust patient comfort pressure levels. In MAX position it inflates mattress rapidly.
MAX	Soft 1: lowest pressure setting (6 ± 4 mmHg), Firm 10: Highest pressure setting (32 ± 8 mmHg). Turn knob to max flow for rapid inflation of mattress. Max: For max pump flow (80 ± 20 mmHg). (30 minute timer).
 AP MDC SWITCH STATIC ○ STATIC	Selects appropriate patient therapy mode. Press switch and turn on Static LED. In static mode constant pressure in both zones of the mattress is maintained.

<p>DYNAMIC (A/P) ○ Alternating Pressure</p>	<p>Press switch and turn on A/P LED. In A/P mode every 5 minutes the pressures in every other air cushion changes from high to low in the entire mattress providing Alternating Pressure Therapy. Cycle time: 10 minutes.</p>
<p>○ Power Fail</p>	<p>In the event of power failure an audiovisual alarm will sound. Light flashes along with the buzzer noise.</p>
<p>CPR LABEL & Quick Disconnect Connectors</p>	<p>CPR label on the unit: Disconnect hose from the control unit to deflate the mattress.</p>
<p>Transportation Label</p>	<p>Transportation instruction Label: Before transporting the patient, press mode switch to “STATIC” position allow 2 minutes for the mattress to stabilize, then pinch both hoses and disconnect the hose connectors from the unit and connect into each other or seal them with plugs provided and lock them in place.</p>

	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-0SYSTEM (Figure -1 Page 17):

The K-0 (ECO-ZONE) System is an alternating pressure system used to provide pressure reduction. It consists of a control unit (A), which is used to inflate an overlay or a mattress replacement system (B). The control unit is designed to provide continuous static or alternating pressure at required patient comfort levels. The ABS/PVC blend enclosure houses a medium output air pump (8~10 LPM), an alternating pressure valve, and a micro-controller, which controls all of the above components, and provides desired patient comfort pressure levels.

An overlay system is comprised of a durable zippered Cordura base and top sheet which houses an 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 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-0 ECONOMY ALTERNATING PRESSURE SYSTEM FEATURES

CONTROL UNIT (A) {Figure -2 Page 12}:

- Medium flow (8~10 LPM) air output and quiet operating control unit, Max flow mode (W) inflates mattress in 15 to 45 minutes depending on the size of the mattress. Has 30 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 (L), and desired comfort pressure level.
- Comfort control knob (K) to set comfort levels.
- 1 to 10 levels of patient comfort level control.
- Static (non-alternating) 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.
- 10~14' (305~427 cm) long detachable 16~18 AWG hospital grade power cord (Q).
- Durable and attractive dual ¼" flow couplings (R) for quick connection and disconnection (CPR deflation).
- Control unit has short circuit / over voltage protection with single fuse (S).
- Power Fail LED flashes to indicate power outage.
- Lock Switch (Optional) in the back to lock out all control functions.

**SUPPORT SURFACE (MATTRESS / OVERLAY)
(B) {Figure - 1 Page 17}:**

- 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 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 a Bi-lumen tubing (V) with easy to use two quick connect and disconnect connectors (R).

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

	<u>U.S.</u>	<u>INTL.</u>
Input Voltage AC:	120V	220 / 240V
Input Frequency:	60 Hz	50 Hz
Current:	1A	0.5 A
Maximum Power Consumption:	5 ± 3 W	
Circuit Protection:	Dual fused, 250V, 1A fast blow fuses.	
Mode Of Operation:	Continuous	Continuous

PERFORMANCE SPECIFICATIONS

Weight Capacity:

Standard Mattress: 350 Lb. (160 Kg.) maximum.

	<u>U.S. / INTL.</u>
Zone:	2
Max Flow:	8~10 LPM
Max Flow Pressure:	80 ±20 mmHg
Max Flow Timer:	30 minutes
Support Surface Inflation Time:	20~45 minutes.

Patient Comfort Control Pressures

Soft Pressure:	6 ± 4 mmHg
Firm Pressure:	32 ± 6 mmHg
Cycle Time:	10 Min

Patient Contact:

Control unit and mattress have **Latex-Free** components.

MECHANICAL SPECIFICATIONS

Control Unit (A)

Dimensions, LxWxH: 10" x 5" x 5"
(25cm x 13 x 13cm)
Weight: 5 lbs. (2 .2Kgs)
Power Cord: 10'14' (305~427 cm) Long
detachable 16~18 AWG
Hospital Grade.
Connection: 1/4" flow plastic quick couplings
Packaging: 1~3 Piece per Box.

Air Filter: None.

Support Surface (B)

Air cushions are R.F. (Radio Frequency) 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.

<u>Description</u>	<u>Inflated Dim. LxWxH</u>	<u>Weight</u>
Overlay:	80"x36"x5" (203x89x13cm)	8 lbs. 3.6 Kg.
Mattress:	80"x36"x10" (203x89x25.5cm)	23 lb. 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 (IPX0)

Mattress Sanitation:

Complete support surface is made 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:



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-0 control unit (A), before operating be sure the AC power (X) available at your location matches the power requirements printed on the product identification label 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 from the power source (X). Return the control unit for servicing to a factory authorized service center.
- Care should be taken such that 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 service technician. ◆

SYSTEM SET-UP

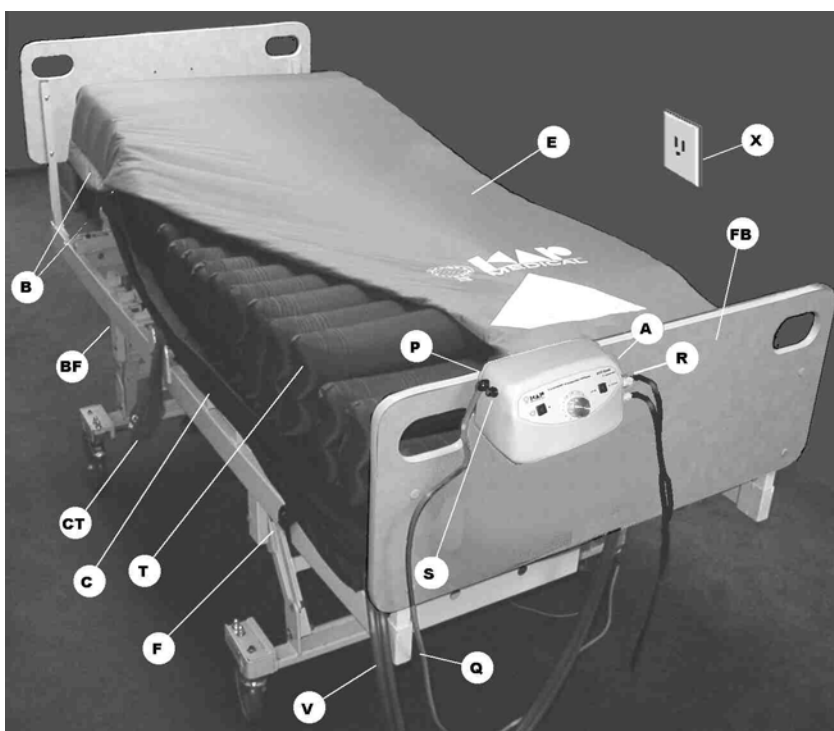


Figure - 1

PLEASE NOTE: K-0 ALTERNATING PRESSURE 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

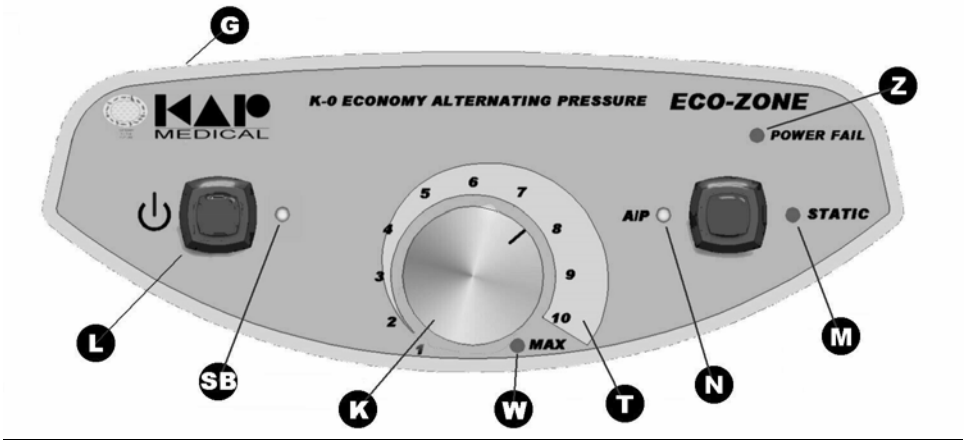


Figure - 2

Refer To The Figure-1 On Page 17

1. Before using the K-0 ECONOMY ALTERNATING PRESSURE SYSTEM remove any non K-0mattress system from the bed frame (BF).
2. Unroll the K-0 mattress (B) 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.
3. There are six ~ ten nylon black straps with buckles (F), two strap at the head of the mattress, two on the foot of the mattress, and three on the each side of the mattress shown. Loop each strap around the bed frame and fasten it securely to the bed frame using the buckle.

4. Pull the hooks (P) on the back of the control unit (A) and suspend the control unit from the footboard (FB) of the bed frame (BF). If the bed frame you are using does not have a footboard, place the control unit (A) on its bottom surface on a flat surface underneath the bed near the foot of the bed frame (BF). **Note:** Care should be taken such that the control unit is not placed on the floor in such a manner that it is a hazard for flow of traffic.
5. Press power switch (L) to “ OFF” (SB) position (The switch will be out and the amber LED will be on). Uncoil the power cord (Q) and plug the cord into the appropriate AC power source (X), which is properly grounded. **Note:** Care should be taken such that the power cord of the control unit is not pinched, or any objects placed on it, and also ensure it is not located where it can be stepped on or tripped over.
6. Connect the mating coupling inserts on the mattress bi-lumen hose assembly (V) into the coupling bodies (R) located on the top right side of the control unit (A) respectively and lock them in place. **Note:** Press mating connectors in place until an audible click is heard from both the connectors. Make sure the connectors have a good connection by gently tugging on both the hoses. Also, care should be taken such that the mattress hose is freely suspended without being pinched or kinked.

OPERATING INSTRUCTIONS

Refer To The Figure 1 & 2 On Page 17 & 18

1. Make sure the mattress hose assembly (V) is connected securely to the control unit (A). Also make sure the CPR Tag (CT) connector is securely connected into the mattress manifold on the side of the mattress.

INITIAL POWER UP

2. 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.
3. If the unit is in stand by mode (SB), press the power switch and set the knob (K) to MAX FLOW mode (W) the pump will turn on at maximum flow.
4. 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)

5. 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 be active for 30 minutes, after 30 minutes the air pump will slow down, and if no action is taken the microprocessor will default to the “STATIC or A/P” mode and the patient comfort level to the firm 10 setting. During the MAX FLOW mode the mattress will not exceed more than 80 ± 40 mmHg pressure.

6. The mattress (B) will inflate to its normal size in 15 ~ 45 minutes. (Inflation time depends on the size of the mattress). **Note:** Mattress can be rapidly inflated within 2 minutes using an external Rapid Inflator / Deflator Blower Model # K-39.
7. To set MAX FLOW mode (W) gently turn the knob to the "MAX FLOW" position until the green LED (W) lights up.

STATIC (M)

8. To set STATIC mode (M) press switch to "STATIC" position, green LED (M) lights up.
9. In STATIC mode all the air cushions in the mattress will be maintain at a constant desired patient comfort pressure.

DYNAMIC (A/P) Alternating Pressure

10. To set DYNAMIC (ALTERNATING) mode press switch to the "DYNAMIC" position, the green LED (N) lights up. The fixed A/P cycle time is 10 minutes (custom cycle time can be programmed at the factory).
11. 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 30% 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 (T)

12. The K-0 mattress is designed for patients weighting between 50 \approx 350 lbs. (22 Kg. \approx 160 Kg.). Turning the comfort control knob (K) towards the SOFT (1) position reduces the pressure setting, turning the knob towards the FIRM (10) 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 will increase or decrease the speed of the air pump to provide the appropriate air flow into the mattress to maintain the desired pressure in the mattress.
13. Once the mattress is inflated to its normal size with the patient lying on it, set the COMFORT CONTROL LEVEL knob to the desired patient comfort position. 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.

RECOMMENDED PRESSURE SETTINGS

14. For rapid inflation of the mattress set mode knob to "Max Flow" position by gently turning the knob until "Max Flow" green LED turns on.
15. For extra firm support during Patient ingress / egress, or Patient wound care, or Patient turning, or Patient cleaning it is recommended to set the comfort control knob to the "MAX" flow position.
16. During patient Fowler positioning, or in case of a patient who's weight to height ratio is above the normal average, it is recommended to set the comfort control knob to 10% more than their actual settings.

MECHANICAL LOCKOUT (OPTIONAL)

17. A Lock Switch is present in the back of the control unit. The control unit settings can be protected from being tampered with, by pressing the lock switch "IN". To deactivate the lock function gently press the lock switch "OUT".

FAILURE MODES

POWER FAIL (Z)

18. 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.

CPR FUNCTION

Refer To Figure 1 & 2 On Page 17 & 18

1. To deflate the mattress / overlay pad or for CPR function, 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 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’s right foot, near the exit location of the hose assembly (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.

PATIENT TRANSPORTATION (PT)

1. To transport a patient without removing the patient of the bed, turn knob to “STATIC” mode wait few minutes for the mattress to stabilize. Turn off the control unit, disconnect the power cord from the power source and roll it up on the control unit securely.
2. To maintain full air pressure in the mattress or overlay, kink both hoses on the mattress such that the air inside the mattress does not escape. While kinking the hoses disconnect the hoses from the control unit by pressing the quick release button on both the coupling bodies (R) and simultaneously pulling the hoses (V) from the control unit (A).
3. The mattress hoses still kinked connect the coupling inserts on the hose into the coupling bodies and lock them in place.

CLEANING PROCEDURE

WARNING

CONTROL UNIT

- ◆ Before attempting to clean the control unit, turn off the unit and disconnect the control unit power cord from the power source. ◆
 - ◆ **DO NOT HEAT, STEAM AUTOCLAVE, OR IMMERSER THE CONTROL UNIT IN LIQUIDS**
 - ◆
1. Wear eye goggles and rubber gloves before starting the cleaning procedure.

2. The following germicidal detergent / disinfectant is 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 front and back of control unit, 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.

6. Once the control unit is clean, wipe the unit, the power cord and the cord plug dry with a clean dry cloth.
7. Place the control unit in a cool and 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 designated for medical electronic products.
8. 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. Roll the mattress and place it in a plastic bag and tie wrap the bag.
3. Store the control unit and the mattress in a storage area designated for medical electronic product storage.

TROUBLESHOOTING GUIDE

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

KAP MEDICAL will make available (on request) service manual, circuit diagrams, component lists, calibration instructions, quality control acceptance test procedures, or other information which will assist the factory qualified technical personnel to repair those items deemed repairable by the manufacturer.

PROBLEM	CAUSE	SOLUTION
A. Mattress Not Inflating / Not Alternating Properly	<ol style="list-style-type: none"> 1. Mattress hose disconnected 2. Air hose kinked or split 3. Major leak in the air cushions or overlay pad 	<ol style="list-style-type: none"> 1. Connect hose connectors and lock them in place 2. Un-kink hose or replace split hose 3. Replace leaking air cushions or overlay pad

	<ol style="list-style-type: none"> 4. Kinked or split manifold 5. Control unit not working 6. Timing motor malfunction 	<ol style="list-style-type: none"> 4. Un-kink 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	<ol style="list-style-type: none"> 1. Control Unit OFF 2. Power cord disconnected 3. No power in the power source 4. Power outage 5. Blown fuse 	<ol style="list-style-type: none"> 1. Check power source and turn on unit 2. Connect power cord to the power source 3. Check power source has power and turn it "ON" 4. Wait till the power source has power 5. Replace blown fuse

		with an equivalent fuse
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PREVENTIVE MAINTENANCE

It is important to periodically test the K-0 ECONOMY ALTERNATING PRESSURE SYSTEM to verify the proper functionality. If the control unit air pressure reading is out of specification, it can result in poor or reduced patient support.

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 Current Leakage Analyzer should be used to perform electrical tests.

- a. ROD-L Hi-pot Tester (120 / 240 Models)

- b. Bio-Tek Analyzer, (120V AC Models)
- c. 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 electric 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

Switch function switch to leakage current position and test the following power configurations.

Polarity Switch Ground Switch

- | | |
|---------------------|---------------|
| 1. Normal Polarity | Closed Ground |
| 2. Reverse Polarity | Closed Ground |
| 3. Reverse Polarity | Open Ground |
| 4. Normal Polarity | Open Ground |

120 V Models
 PASS ≤ 100 μA

FAIL > 100 μ A

220 / 240 Models

PASS \leq 500 μ A

FAIL > 500 μ A

C. Ground Impedance Test

Switch the polarity switch to “OFF” and function switch to ground wire resistance position.

120V and 220 / 240V Models

PASS \leq .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 LPM
- b. Pressure gauge, 0 ~ 100 mmHg
- c. Quick disconnect dual 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 \geq 5 LPM

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 knob to Soft (1) and record reading, set knob to Firm (10) position and record reading. Set comfort control knob to Max Flow position and record reading.

Note: If the test is performed with out the mattress connected to the control unit, the minimum pressure in one of the air out let ports will be zero when the therapy mode is set to A/P.

120 and 220 /240 V AC Models

Soft Position

PASS = 2~12 mmHg

Firm Position

PASS = 26~40 mmHg

Max Flow Position

PASS = 60~120 mmHg

C. Alternating Pressure Test

Connect the dual hose connector to the control unit and the pressure gauge. 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 = 2~12 mmHg

Zone-2: PASS = 0~6 mmHg

Firm Position

Zone-1: PASS = 26~40 mmHg

Zone-2: PASS = 0~12 mmHg

ACCESSORIES

K-0MS:	K-0 Mattress System
K-0OPS:	K-0 Overlay Pad System
K-0OCS:	K-0 oem Overlay Cell System
K-0:	K-0 Control Unit
K-0M:	K-0 Mattress
K-0OP:	K-0 oem Overlay Pad
K-0OC:	K-0 oem Overlay Cell
K-140 (SAC):	Foot Support Air Cushion
K-135, K-136:	Quilted Breathable Top Sheet.

◆ **Note:** To place an order or if you have any questions regarding the K-0 control unit and its warranties, please call KAP MEDICAL customer service at 951 340 4360, Email: sales@kapmedical.com. ◆

WARRANTY

KAP MEDICAL warrants the K-0 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 the Customer Service phone number below 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 for the product. Under

no circumstances shall KAP MEDICAL be liable for any loss, direct, indirect, incidental, or special damage 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 its 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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1395 Pico Street

**Corona, CA 92881
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FAX 340 4361**

**Customer Service: 1-866-KAP-MED 1 (866 527 6331)
Technical Support & Service: 1-951-340-4366**

**Email: sales@kapmedical.com
www.kapmedical.com**

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