GATEWAY
TO THE
FUTURE

KAP
MEDICAL

MODEL K-9 OEM

LATERAL TURNING SYSTEM WITH TRUE LOW AIR LOSS RELIEF

OPERATING INSTRUCTIONS

www.kapmedical.com

MODEL K-9 OEM

LATERAL TURNING SYSTEM WITH TRUE LOW AIR LOSS RELIEF

OPERATING INSTRUCTIONS MANUAL FOR ALL K-9 OEM MODELS

GATEWAY TO THE FUTURE

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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.

Warning:

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

MANUFACTURER'S LIABILITY

KAP MEDICAL will be liable for any effects on safety, reliability and performance of the K-9 OEM LATERAL TURNING SYSTEM WITH TRUE LOW AIR LOSS RELIEF, whenever 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.

EXPLATION OF SYMBOLS USED ON THIS DEVICE

SYMBOL	EXPLANATION
1 THRU 9 ON LED DISPLAY	The 7 segment LED will display the following: Displays "—" in standby mode. Current patient comfort level settings (1 through 9 levels) are displayed. Also displays "d" during dwell cycle of the turning mode. Displays "F" during Max Flow mode, flashes "L" and "P" when hose is disconnected during normal operations.
SOFT - FIRM	Soft: lowest pressure setting (6 ± 4 mmHg), Firm: Highest pressure (32±4 mmHg)
TURN TIME	Used to set turning cycle times.
MAX FLOW	Used to inflate the mattress rapidly.
POWER SWITCH	Used to turn on the control unit.
Stand By	Control unit Off, with orange led lit indicating the unit still has power internally
TURN ANGLE	Used to set turning angles.

TURN	Used to set left turn or right turn, or both turns or No turn.
POWER FAIL	Light flashes along with the buzzer noise in the event of power outage.
CPR LABEL / Disconnect Connectors	CPR label on the unit: Before administering CPR to the patient disconnect mattress hose from the control unit.
LOCK	Press and hold lock key until it beeps and the light is on, locks out all function keys including power.
	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.

K-9 OEMSYSTEM (Figure - 1 Page 13) :

The K-9 OEM Lateral Turning System with True Low Air Loss relief is a true lateral turning with true low air loss system used to provide pulmonary therapy and pressure reduction. It consists of a control unit (A) which is used to inflate a mattress replacement system (B) or an overlay system. The control unit is designed to

provide continuos turning relief with static or alternating pressure at required patient comfort levels. The ABS/PVC blend enclosure houses a high output 45 CFM (1275 LPM) air blower, a turning valve, a bright 7 segment LED (LD) and a microcontroller which controls all of the above components, and provides desired patient comfort pressure levels.

The mattress replacement system (B) is comprised of a quick coupling hose assembly (V), a durable cordura base (C) with a "2" safety convoluted foam base, 8" (inflated) patent pending angled air cushions (T) with holes 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 10 straps (F) in several areas so it can be easily fastened to any size hospital bed.

K-9 OEM (LATERAL TURNING SYSTEM WITH TRUE LOW AIR LOSS) FEATURES

CONTROL UNIT (A) (Figure -2 Page 14) :

- High flow (1275 LPM) air output and quiet operating control unit, Max flow mode (MF) inflates mattress in 30 ~ 60 seconds depending on the size of the mattress. Has 15 minute Max Flow timer.
- State of the art microcontroller technology unit for accurate patient comfort pressure values and turn angles and times.
- Display panel (G) has bright 7 segment LED displaying current desired patient comfort

pressure level (1 thru 9) and dwell (d) mode during turning cycle.

- Easy to operate patient comfort control (K) Soft and Firm keys, to set comfort levels.
- 6~31 mmHg pressure levels of patient comfort control with 1 to 9 levels displayed by the LED.
- No turn mode (Static Low Air Loss Therapy).
- Turn mode key (Y) to select left or right or both turns.
- Turn Time key to select turning cycle times.
- Turn Angle key to select turn angles.
- Integrated handle/hanger (P) for easy carrying and hanging of the control unit from the foot board of the bed.
- 14' long detachable 16 AWG hospital grade power cord (Q).
- Durable, multiple 3/4" and 3/8" flow ports single connector for quick connection and disconnection (CPR deflation).
- Control unit has a short circuit / over voltage protection with dual fused IEC connector (S).

SUPPORT SURFACE (MATTRESS) (B) {Figure - 1 Page 13} :

- Self contained mattress replacement 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, 8" high lateral tubular air cushions (T) (16~20) with holes for low air loss. And also has 2 safety side bolsters for patient safety.

- 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 (for mattress replacement system only) enclosed in the base (C) to support the patient in the event of loss of air pressure in the mattress.
- The mattress has a single connector hose assembly (V) with easy to use quick connect and disconnect connectors (R).

TECHNICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

(Auto Switch Universal Power Input)

Input Voltage AC:	88 ~ 132 / 176 ~ 264V
Input Frequency:	47 ~ 63 Hz
Current:	2A
Power Consumption:	220 W
Circuit Protection:	Dual Fused
(Fast Acting Fuse):	250V, 5A
Mode Of Operation:	Continuous

PERFORMANCE SPECIFICATIONS

Max Flow:	40 CFM
Max Flow Pressure:	35 ± 4 mmHg
Max Flow Timer:	15 minutes
Support Surface Inflation Time:	20 ~ 60 Seconds

Patient Comfort Control Pressures

Min Pressure:	6 ± 4 mmHg
Max Pressure:	35 ± 6 mmHg

Turn Time:	Fixed 10, 20, 30, & 60 Mins. Or Custom Times
Turn Angle:	Fixed ¼, ½, ¾, Full Turn

MECHANICAL SPECIFICATIONS

Control Unit (A)

Dimensions, LxWxH:	12" x 5 3/4" x 10.5" (29.54cm x 14 x 27cm)
Weight:	14 lbs. (6 Kgs)
Power Cord:	14' Long detachable 16 AWG Hospital Grade
Connection:	3/4" & 3/8" Single Coupling quick Connector
Packaging:	1 Piece per Box

Support Surface (B)

Description	Inflated Dimensions LxWxH	Weight
Various Sizes and custom sizes available, 36", 39", 42", 48", 54", 60" wide mattress.		
Mattress:	80"x36"x10" (203x89x25.5cm)	24 lbs. 11 Kgs.

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)

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

SAFETY INSTRUCTIONS

- To avoid damaging your K-9 OEM 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 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). Send the control unit for servicing by a factory authorized service technician.

- 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 any objects placed on the power cord, 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 technical personnel. ♦

SYSTEM SET-UP

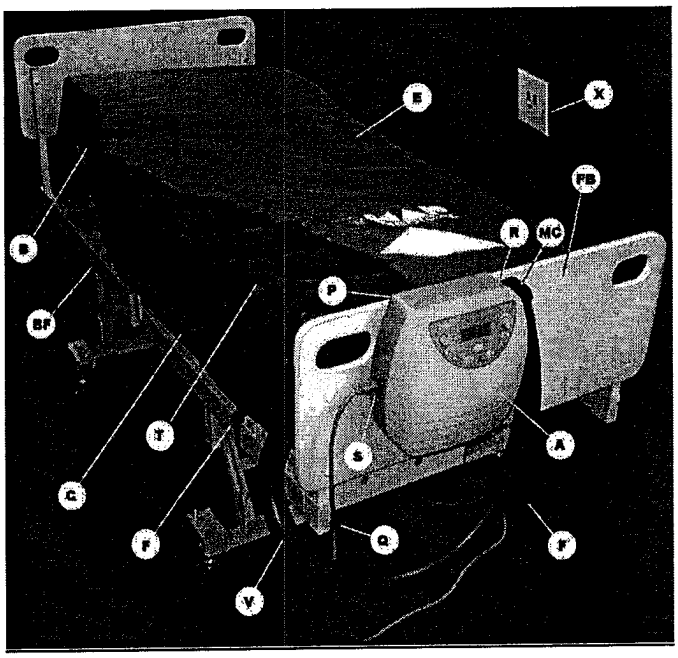

Figure - 1

PLEASE NOTE:

The K-9 OEM Lateral Turning System should always be used on beds that are equipped with standard hospital side rails.

Please raise all 4 side rails on the bed and lock them in position after the patient is on the mattress.

CONTROL UNIT SET-UP

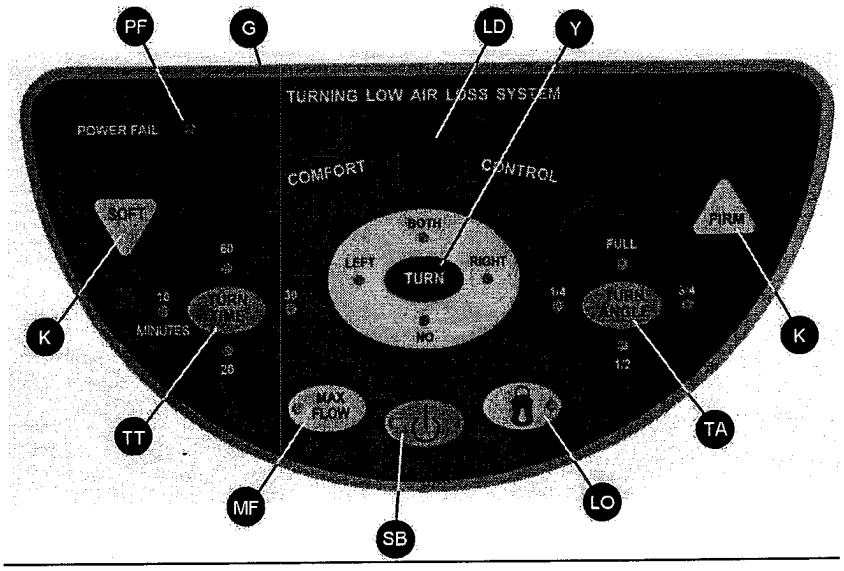

Figure - 2

Refer To The Diagram On Page 12

1. Before using the K-9 OEM LATERAL TURNING WITH TRUE LOW AIR LOSS Mattress Replacement System, remove any non K-9 OEM mattress replacement system from the bed frame (BF).

2. Unroll the K-9 OEM mattress (B) and place it on the bed frame (BF). Note: Make sure hose end of the mattress is towards the foot of the bed.

3. There are 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. Loop each strap around the bed frame and fasten it securely to the bed frame using the buckle.

4. Pull the hanger (P) on the back of the control unit (A) and suspend the control unit from the foot board (FB) of the bed frame (BF). If the bed frame you are using does not have a foot board, place the control unit (A) on its feet 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 or (air filter) 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.

5. Press On/Std. By switch (SB) to "Stand By" (Off) position. Uncoil the power cord (Q) and plug the cord into the appropriate AC

power source (X) which is properly grounded. The unit will go through the system initialization routine and once it is complete the display will read stand by and the orange stand by led lights up. Note: Care should be taken such that the power cord (Q) of the control unit is not pinched or any objects placed on the power cord, and also ensure it is not located where it can be stepped on or tripped over.

6. Connect the matting hose connector (MC) on the mattress hose assembly (V) into the connectors (R) located on the bottom right side of the control unit (A) respectively and lock them in place. Note: Press mating connectors in place until the connectors are flat. Also care should taken such that the mattress hose is freely suspended with out being pinched or kinked.

OPERATING INSTRUCTIONS

Refer To The Diagram On Page 13

1. Make sure the mattress hose assembly (V) is connected securely to the control unit (A).

INITIAL POWER UP

2. During initial power up (when power cord (Q) is plugged into the power source), the control unit (A) will quickly go through a system initialization routine. Once the routine is complete the unit will go into Standby mode.

3. If the unit is in stand by mode (SB) the amber LED on the Power switch will light up. And the 7 segment LED (LD) will display a bar. Press the power switch (SB) and then press MAX FLOW mode (MF) the blower will come on full blast.

4. If the power comes ON after a power outage, the control unit will resume the desired set functions.

MAX FLOW (MF)

5. This mode is used to rapidly inflate the mattress. During this mode the display will read "F" and a series of beeps will sound every 3 minutes as a reminder that MAX FLOW mode has been activated. MAX FLOW mode will be activated for 15 minutes. After 15 minutes the unit will resume the previously set mode and display the current settings. During the MAX FLOW mode the mattress will not exceed more than 35 ± 5 mmHg pressure. Note: The audible beep can be muted if desired by activating alarm silence mode.

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

7. To set MAX FLOW mode (MF) gently press the switch until the green LED lights up. The 7 segment LED will display "F" and unit will run at max flow.

TURN MODE(Y)

NO TURN (STATIC)

8. To set NO Turn (STATIC) mode gently press TURN switch (Y) until green LED turns. The comfort control level bar graph will display the desired patient comfort pressure level.

9. In the NO Turn (STATIC) mode all the air cushions in the mattress will be maintain at a constant desired patient comfort pressure.

LEFT TURN

10. To set LEFT TURN gently press the TURN switch (Y) the green LED lights up. In this mode the patient will be turned LEFT position only. If 10 minute turn time is chosen, the patient will be turned LEFT and remain in LEFT position for 10 minutes and then turned to Dwell (Flat) position for 5 minutes and turned back to LEFT position and keeps repeating.

RIGHT TURN

11. To set RIGHT TURN gently press the TURN switch (Y) the green LED lights up. In this mode the patient will be turned in RIGHT position only. If 10 minute turn time is chosen, the patient will be turned RIGHT and remain in RIGHT position for 10 minutes and then turned to Dwell (Flat) position for 5 minutes and turned back to RIGHT position and keeps repeating.

BOTH TURN

12. To set BOTH TURN gently press the TURN switch (Y) the green LED lights up. The patient will turned in both LEFT and RIGHT positions. If 10 minute turn time is chosen, the patient will be turned LEFT and remain in LEFT position for 10 minutes and then turned to Dwell (Flat) position for 5 minutes and then turned to RIGHT and remain in RIGHT position for 10 minutes, and turned to Dwell (Flat) for 5 minutes and then back to LEFT position and keeps repeating.

DWELL

13. During Dwell period the patient will be in Flat position for 5 minutes for all Turn Times selected. The 7 segment LED will display "d" during this period. If Soft or Firm switches are pressed the display show the current comfort level number.

TURN TIME (TT)

14. To set Turn Time gently press Turn Time (TT switch to the desired Turn Time, the green LED lights up at the desired Turn Time.

TURN ANGLE (TA)

15. To set Turn Time gently press Turn Time (TT) switch to the desired Turn Angle, the green LED lights up at the desired Turn Angle.

16. Once all the values are accepted the LED will display the current comfort pressure level number.

17. In TURN mode first the side bolsters will inflate fully. Once the bolsters are fully inflated the turning air bladders will deflate or inflate depending on the turn mode. The bolsters will be inflated at all times even during NO turn mode. If the end user needs to get in and out of the mattress the bolsters can be manually deflated by disconnecting the quick deflate connector. PLEASE NOTE: THE BOSTER DEFLATE QUICK CONNECTOR SHOULD BE CONNECTED AT ALL TIMES WHEN THE PATIENT IS ON THE MATTRESS.

Low Air Loss (L AL)

18. K-9 OEM is a continuous True Low Air Loss system. The unit will be continuously supplying air to the mattress. The special angled air cushions (patent pending) will be continuously defusing air through the LAL holes in the air cushions at all times.

Lock Out (LO)

19. During "Lock Out" mode all the control unit functions and keys including the power key will be locked out to avoid tampering of the patient settings.

20. To activate lock out (LO) press and hold "Lock Out" key until the blue LED lights up.

21. To deactivate "Lock Out" press and hold "Lock Out" key until the blue LED turn off.

PATIENT COMFORT CONTROL LEVEL (K)

22. The K-9 OEM standard mattress is designed for patients weighting between 50 ≈ 350 lbs. (22 Kgs. ≈ 160 Kgs.). By adjusting the comfort control SOFT/FIRM Switches (K) towards SOFT position reduces the pressure setting, and by adjusting towards the FIRM position increases the pressure. The patient comfort pressure ranges from SOFT 6 ± 4 mmHg to FIRM 32 ± 6 mmHg, The mattress inflation and deflection pressure is monitored by the microprocessor and processor depending on the desired patient comfort level increases or decrease the speed of the air pump to provide the appropriate air low into the mattress to maintain the desired pressure in the mattress.

23. Once the mattress is inflated to its normal size with the patient lying on it, set the COMFORT CONTROL LEVEL to the desired patient comfort position. Custom patient comfort level can be achieved by adjusting the comfort control level switches to softer or firmer settings. Wait few 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 of your hand directly underneath the sacral region of the patients body, there should be a minimum of 3

to 4 finger width clearance between the bottom of the patient and the safety foam base. Repeat this procedure until the desired patient comfort pressure is achieved.

Note: The K-9 OEM mattress system has a tri-hose assembly with 3 quick disconnect connectors. 2 hoses for turning (Left & Right) and patient comfort pressure low air loss therapy and the third hose is for the bolsters.

RECOMMENDED PRESSURE SETTINGS

24. For rapid inflation of the mattress press "MAX FLOW" key "Max Flow" green LED turns on.

25. 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 to Firm (9) or in Max Flow mode.

26. During patient Upright (fowler) positioning (Optional Automatic Upright is available) or in case of Patients who's weight to height ratio is below the normal average, it is recommended to set the comfort control level to 10% more than their actual weight settings.

AUTO UPRIGHT (OPTIONAL):

1. This mode is selected during the patient is in fowler position (when the bed frame is articulated to fowler

position). In upright mode the unit will maintain 31 ±4 mmHg in the Torso section of the mattress in order to float the patient without the patient being bottomed.

2. Once the bed is raised the unit will turn off the TURN mode bring the end user to flat position and then perform the upright function.

3. Optional Auto Upright mode is available. When the head section of the bed frame is articulated the unit will automatically go into fowler mode without the caregiver's or the patient's assistance.

FAILURE MODES

LOW PRESSUE ALARM

1. In the event of the control unit sensing an abnormal condition, such as low pressure (mattress hose disconnection) the microprocessor will activate an audio visual signal to alert the care giver by flashing "L" and "P" on the display and turning on the buzzer. Once the failure mode is corrected the audio visual signal will cease and unit starts operating its set mode.

POWER FAIL (PF)

2. In the event of the control unit sensing an abnormal condition, such as power outage the microprocessor will activate an audio visual

signal to alert the care giver by flashing the orange "POWER FAIL" LED and turning on the buzzer. The display goes blank during this failure mode. Once the failure mode is corrected the audio visual signal will cease and unit starts operating its set mode.

CPR FUNCTION

Refer To The Diagram On Page 12 & 13

NOTE : The mattress should be deflated before performing CPR on the patient.

1. To deflate the mattress or for CPR function, disconnect the mattress hose assembly (V) from the control unit magnetic connector (R) by pulling the mattress connector (MC) straight out from the control unit connectors (R).

2. In Case of CPR emergency, for quick deflation of the mattress use a pair of scissors or knife to cut the hoses on the mattress. Also unzip the top sheet from the foot to the head by pulling the zipper located at the patient right foot corner near the exit location of the hose assembly. Disconnect few air cushions which are directly below the patient chest from the mattress by pressing the quick release button on the connector in one hand and pulling the air cushion connector in the other hand.

CLEANING PROCEDURE

WARNING

CONTROL UNIT

- Before attempting to clean the U.S., or the International control unit, turn off the 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. Ware eye goggles and rubber gloves before staring the cleaning procedure.

2. The following germicidal detergent / disinfectant is recommended by the EPA as hospital disinfectants.
   a. Hi-Tor Germicidal Detergent
      By Huntington Laboratories, Inc.
      Indiana
      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.

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

7. Place the control unit to dry 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.

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

MATTRESS

9. Ware eye goggles and rubber gloves before staring 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 dry with a clean dry cloth.

12. Air cushions should washed periodically, top sheet will require more frequent washing. Set wash cycle to Heavy load and 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 and 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 to medical electronic product storage.

TROUBLESHOOTING GUIDE

THE FOLLOWING INFORMATION IS FOR FACTORY AUTHORIZED SERVICE FACILITIES AND FACTORY QULAFIED SERVICE PERSONNELL 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	1. Mattress hose disconnected	1. Connect hose connectors and lock them in place
	2. Air hose kinked or split	2. Unkink hose or replace split hose
	3. Major leak in the air cushions or overlay pad	3. Replace leaking air cushions or overlay pad
	4. kinked or split manifold	4. Unkink manifold or replace split manifold
	5. Control unit not working	5. Send control unit back to factory for repair
	6. Solenoid Valve malfunction	6. Send control unit back to factory for repair
B. No Power	1. Control Unit OFF	1. Check power source and turn on

	2. Power cord disconnected	unit 2. Connect power cord to the power source
	3. No power in the power source	3. Check power source has power and turn it "ON"
	4. Power outage	4. Wait till the power source has power
	5. Blown fuse	5. Replace blow fuse with an equivalent fuse

PREVENTIVE MAINTENANCE

It is important to periodically test the K-9 OEM DYNAMIC LOW AIR LOSS 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 manufacturer's or factory authorized test instructions for setting-up and performing the electrical tests.

   <u>Caution: Risk of electric shock, proper precautionary measures should be taken while performing electrical tests</u>.

   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 μA

220 / 240 Models
PASS ≤ 500 μA
FAIL > 500 μA

C. Ground Impedance Test

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 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 $\geq$ 30 CFM

B. 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 position, record reading. Set mode knob to Max Flow position and record data.

Note: Since 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.

120 and 220 /240 V AC Models

Soft Position
PASS - 4 ~ 12 mmHg

Firm Position
PASS - 26 ~ 36 mmHg

Max Flow Position
PASS - 28 ~ 38 mmHg

C. Turning Pressure Test

Connect the dual hose connector to the control unit and the pressure gauge. Turn on the unit and set the turn mode times to left=5, right=5, and dwell=5 and turn angles to 45 degrees. Record turn air pressure values for all settings.

120 and 220 / 240 V AC Models

Left Full Turn

Left : PASS - 0 ~ 5 mmHg
Right: PASS - 32 ~ 6 mmHg

Right Full Turn

Right: PASS - 0 ~ 5 mmHg
Left: PASS - 32 ~ 6 mmHg

C. Comfort Pressure Test

Connect the dual hose connector to the control unit and the pressure gauge. Turn on the unit and set the

comfort control to Soft / Firm position, and the Turn Key to NO Turn position and record pressure value in both zones.

120 and 220 / 240 V AC Models

Soft Position
Zone-1: PASS - 4 ~ 10 mmHg
Zone-2: PASS - 4 ~ 10 mmHg

Firm Position
Zone-1: PASS - 26 ~ 36 mmHg
Zone-2: PASS - 26 ~36 mmHg

ACCESSORIES

K-9 OEMMS : K-9 OEM Control Unit and Mattress System
K-9 OEMMS39, K-9 OEMMS48, K-9 OEMMS54, K-9 OEMMS60: K-9 OEM Control Unit and Bariatric Mattress
K-9 OEM : K-9 OEM Control Unit
K-9 OEMM : K-9 OEM Mattress Replacement System
K-9 OEMM39, K-9 OEMM48, K-9 OEMM54, K-9 OEMM60, K-9 OEMM60: K-9 OEM Bariatric Mattress Replacement System
K-136Toem, K-139Toem, K-148Toem, K-154Toem, K-160Toem: Standard and different size bariatric quilted Breathable Top Sheet.
K-150: Auto Fowler Sensor Transmitter Module.
♦ Note: To place an order or if you have any questions regarding the K-9 OEM control unit and its warranties, please call the KAP MEDICAL customer service at 909 340 4360, email: sales@kapmedical.com. ♦

WARRANTY

KAP MEDICAL warrants the K-9 OEM 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 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.

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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