

## Your Warranty

If a product purchased from Pneumex does not operate properly, Pneumex will repair or replace it at no charge, for up to one year from the date shipped. In the course of repair or replacement, Pneumex may send you written recommendations on how to prevent a problem from occurring again. Pneumex reserves the right to withdraw this warranty if recommendations are not followed. The customer is responsible for freight charges both to and from Pneumex in all cases.

This warranty does not apply to compressors which are covered by the compressor manufacturers.

This warranty is exclusive and is in lieu of all other warranties whether written, oral or implied, including the warranty of fitness for any particular purpose. Pneumex liability is in all cases limited to the replacement price of its product. Pneumex shall not be liable for any other damages, whether indirect, consequential, or incidental arising from the sale or use of its products.

Pneumex sales personnel may modify this warranty, but only by signing a specific written description of any modifications.

Pneumex  
2605 Boyer Ave  
Sandpoint, ID 83864  
pneumex@pneumex.com  
www.pneumex.com  
800-447-5792



Pneumex Equipment



treat. restore. thrive.

PneuThera Treatment Protocols

## PneuLift™

### Assembly Manual



Patent 5181904

### Key Benefits

- Eliminate fear of falling
- Safety for patient and clinician
- Freedom for therapists
- Lifts 150 lbs
- Use over treadmill



Distributed by Pneumex, Inc.

Pneumex, PneuGait Foot Strap, PneuMAP, PneuBack Chair, PneuWeight and PneuVest are trademarks of Pneumex, Inc.

Copyright 2003 Pneumex

All rights reserved

Visit our web site at

[www.Pneumex.com](http://www.Pneumex.com)

Pneumex, Inc.  
2605 North Boyer Ave.  
Sandpoint, ID 83864  
Phone 208-265-4105  
Fax 208-265-9651  
E-mail [pneumex@pneumex.com](mailto:pneumex@pneumex.com)

Rev 014

Revised Feb 26, 2014

Genuine Pneumex Equipment

**If you find a hole in any point of the air line, you must replace the line. Tape will not hold during operation of the high pressure system.**

Test the system for proper operation and Unweighting. If problems occur, refer to the troubleshooting guide in this manual.

If problems persist, call Pneumex, Inc. at **800-447-5792.**

## Attaching Air

**Before using the air compressor, read the instructions supplied by the manufacturer.**

Push one end of air hose into air fitting on air compressor, route hose to your PneuLift (use a route that is out of the way of foot traffic) you can cut hose to desired length and push hose into air fitting on your PneuLift. Use "T" fitting supplied with unit to route air from your unit to other pneumatic equipment such as a Pneu-Back Chair.

**Turn the Select Mode switch on the control panel to Off to retract the Unweighting bar's**

1. Holes are in base strap if you choose to bolt to floor for greater stability.
2. Turn on the air compressor and open valve. Refer to the compressor manual for operating instructions.
3. Check for air leaks (hissing) and tighten fittings if necessary. If the fittings are tight and the leak continues, remove the control panel on the upright and check each connection to determine the source of the leak. (Any loosening caused by shipping is noticeable during initial operation.)

## Contents

Preface .....	5
Liability Notice .....	5
PneuLift .....	6
Indications .....	7
Contraindications .....	7
Using the Unweighting System .....	8
Control Panel .....	9
Unweighting .....	10
Exercise Mode .....	10
Balance Mode .....	11
PneuVest .....	12
Maintenance .....	14
Air Compressor .....	15
Replacing the Control Panel .....	16
Replacing Air Hose .....	17
Replacing Cylinder .....	18
Replacing Unweighting Bar and Cable .....	19
Troubleshooting .....	20
Safety Requirements .....	21

Specifications ----- 22

Description and Use----- 23

Components ----- 23

PneuLift Parts----- 24

Unpacking ----- 25

Installation----- 25

    Ceiling Height ----- 25

Remove Black Hose ----- 26

Assembly -----27

    Tools Required -----27

Final Assembly----- 29

Attaching Air ----- 30

Warranty----- 32

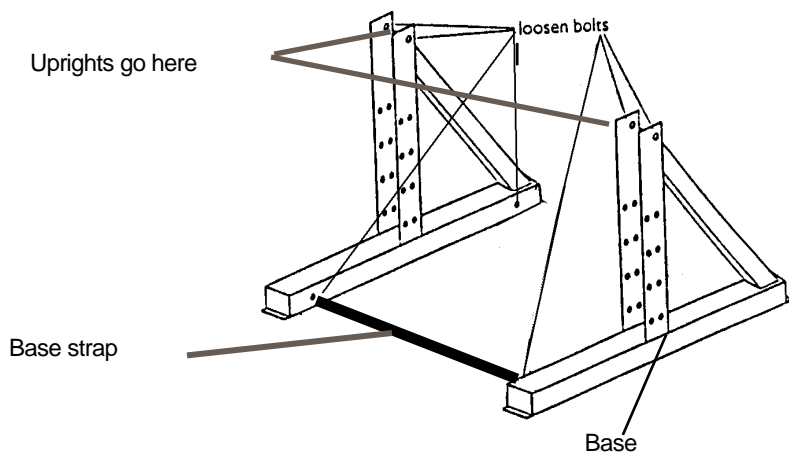
## Final Assembly

1. Pull the Unweighting bar and cable out through the top of upright.
2. Remove the 3/8 in. x 3/4 in. button head bolt form the top of upright.
3. Position the header assembly across the chairs.
4. Remove the 3/8 in x 3/4 in. button head bolts and washers.
5. Pass the Unweighting bar and cable through the hole in the header beam, through the cable keeper, over the rollers, and back down through the center hole.
6. Tighten all bolts securely.
7. Set control to Balance mode.
8. Raise the upright and header assembly to a vertical position.
9. Insert the 4 (3/8 x 1/2) button head bolts in the base and tighten securely.

For proper stability, make sure the stabilization bolt is securely installed in the header beam.

Make sure the control is set to Balance mode.

4. Place upright in base, with the control panel facing out, aligning the pivot bolt with correct height adjustment hole.
5. Lay the uprights on the chairs.
6. Tighten the pivot bolts.
7. Repeat steps 2-6 for each base and upright.
8. Loosen the two 3/8 in. x 3/4 in. button head bolts on each base.
9. Fit base straps on floor between bases. Replace bolts and tighten.
- 10. Base Strap may go on now or after Final assembly.**



## Preface

This manual contains the operating instructions and service requirements for the PneuLift Unweighting system. The manual is designed for use by clinical staff use and it is expected that the clinicians will instruct their patients and clients in the proper use of the system and its accessories. Please read the manual carefully, noting the Safety Requirements before using the PneuLift Unweighting system.

## Liability Notice

Failure to follow the conditions set forth below shall absolve Pneumex, Inc. from any responsibility for the safety, reliability, and performance of this equipment.

Each operator must read the operator manual in full before using- the product for the first time.

Each independent user must be instructed in the proper use of the system and its accessories.

The electrical wiring within the system's settings, and the electrical installation of the compressor must comply with the applicable local or provincial requirements. The equipment must be used in accordance with the instructions for use. It is suggested operators of PneuLift receive approved training and certification from Pneumex, Inc. or their designee before operating the equipment.

Please call Pneumex at 800-447-5792 to find out more about our training and certification programs.

## PneuLift™

The PneuLift™ Unweighting system uses pneumatic power provided by a small compressor and the PneuVest™ to support the patient. The PneuLift's™ 0 to 150 lb. Unweighting range allows the patient to perform low-impact kinetic exercises in an upright, functional position. Activities such as walking, running, stair climbing, jumping and balance may all be performed safely while unweighted. If a patient loses their balance or starts to fall the PneuLift™ systems Balance Mode will support the patient's entire body weight.

The center of the Unweighting system is the PneuVest™. This Unweighting harness fits the patient like a snug vest with a strap positioned on the buttocks. The vest allows the patient to exercise in an upright, controlled and safe position. It effectively grips the body to support all or part of the patients weight.

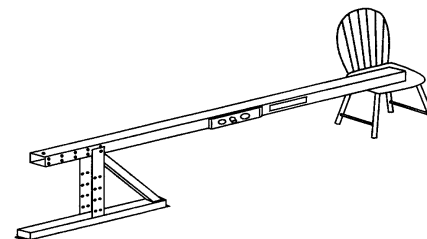
## Assembly

### Consider Use

The type of exercise equipment used under the system affects the required height. For example, if you are using a treadmill whose walking surface is 6 inches (15.2 cm) from the floor, you should add 6 inches (15.2 cm) to the frame height.

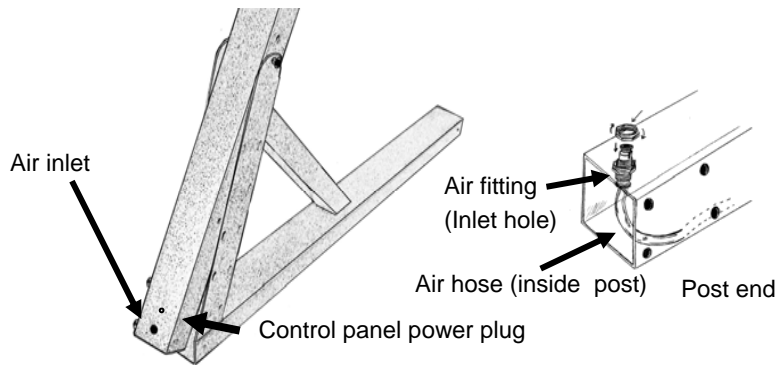
### Tools Required

- 7/32 x 6 in. hex key (provided).
  - Air line "T" plus 40' hose (provided).
  - 2 chairs (or similar stable objects approximately 18 in.)
1. Place the bases facing the same direction, with the open face closest to the wall, about 41 in. (1 m) apart.
  2. Loosen the two 3/8 in. x 3/4 in. button head bolts on each base top.
  3. Place chairs about 65 in. away from the bases.



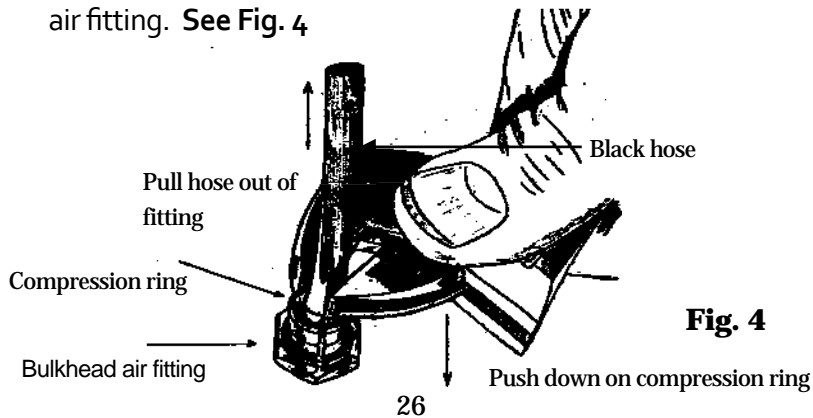
## Remove Black Hose Before Use

1. Remove the plastic wrap from base of upright and pull air fitting out the bottom (should have short black hose attached).
2. Remove one nut from the air fitting, then insert black hose and fitting through air inlet hole in upright top hole. **See Fig. 3**  
Note: Black hose not shown in Fig. 3



**Fig. 3**

3. Slip nut (removed in step 2) over black hose and while pulling firmly on black hose tighten nut on air fitting.
4. Black hose can now be removed by compressing lock ring on air fitting. **See Fig. 4**



**Fig. 4**

## Indications for use

- Acute and Chronic Backs
- Back Pain
- Ruptured Disc Herniated / Bulged
- Chronic Headache / Upper Thoracic Tightness
- Post Surgical
- Osteoporosis
- Knee, Hip, & Ankle Injury
- Orthopedic Patients
- Cardiovascular
- Overweight Patients
- Respiratory Ailments
- Neurological Patients
- Assist in lifting wheelchair Patients

## Contraindications

- Tumors on the spine
- Respiratory conditions which are exacerbated by pressure on the rib cage.

**This can sometimes be compensated for by taking more weight through the legs or by using a thoracic vest**

## Using the Unweighting System

1. Turn on the air compressor. Refer to the compressor manual for operating instructions.
2. Gently pull out the unweighting regulator knob and turn counter-clockwise until it comes to a stop.
3. Position the mode selector switch in the OFF position.
4. **WARNING:** Ensure that all personnel and equipment are clear of the unit as sudden system pressurization can cause the cable assembly to retract rapidly.
5. Fit the vest correctly to the subject and connect the vest securely to the Unweighting bar.
6. Turn the Select Mode knob to Exercise.
7. Pull out the Unweighting knob and gradually turn it clockwise until the gauge shows the desired lift. Have the person move up and down a little and confirm that the gauge is at the desired setting.
8. For activity up to 30 inches (76.2 cm) vertical motion, leave the Select Mode knob in Exercise. For activity less than 6 inches (15.2 cm) vertical motion, set the Select Mode knob Balance.
9. To re-weight, turn the Select Mode knob to Exercise, then turn the Unweighting knob completely to the left. Do not force the knob (to re-weight quickly, turn the Select Mode knob to Off).
10. When the Unweighting gauge reaches zero psi, turn the Select Mode knob to Off.
11. Disconnect the person from the system and remove the vest.

## Unpacking

### Tools Required-Sharp knife

Cut all tape and remove corrugated and plastic wrapping. Do not remove the plastic surrounding the air cylinder inside the upright.

Remove the operator/service manual, air hose, and vest and store them temporarily in a safe place.

The Unweighting bar and the air hose are tucked inside the uprights for safety during shipping.

## Installation

### Electrical Requirements

The compressor (if ordered) requires an appropriate AC line for charging. Refer to the manual supplied by the compressor manufacturer for electrical requirements.

### Ceiling Height

Before assembling, determine how high to make the system. The series of holes in the bases provides 4 height options, progressively changing by 3 inches (7.6 cm). The total height on a system can be set to any of the following.:

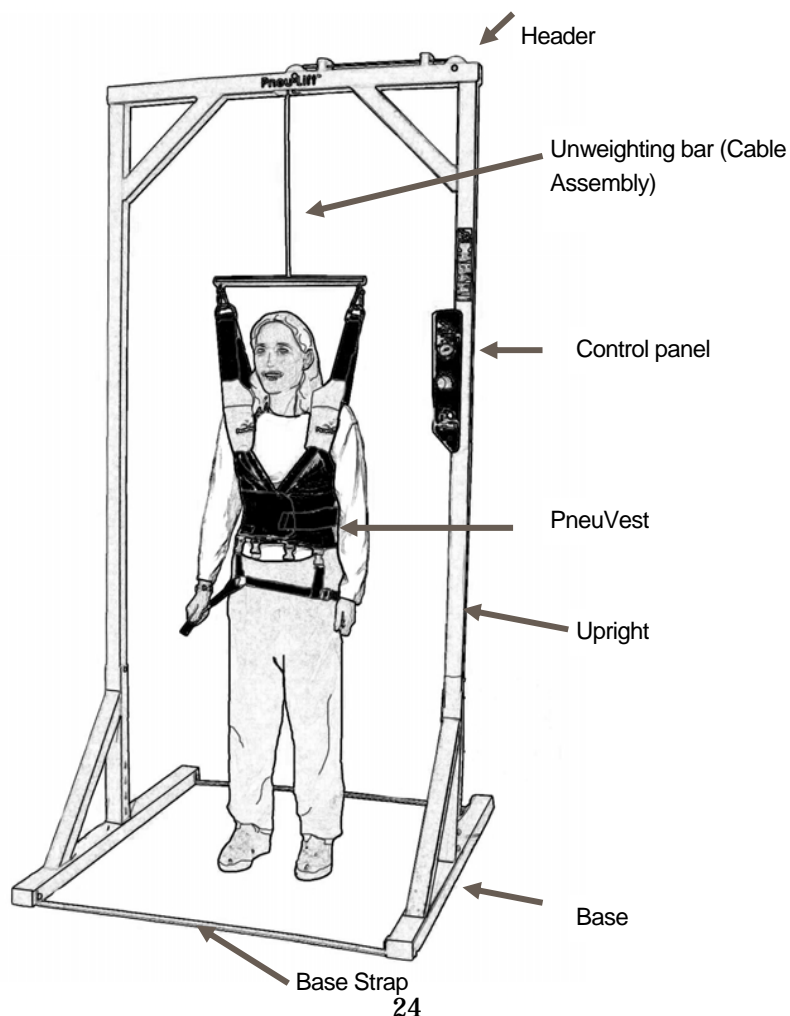
7 ft 10 in (2.41m)	8 ft 1 in (2.49 m).
8 ft 4 in (2.57 m).	8 ft 7 in (2.64 m)

For installation, the ceiling height should be at least 1 inch (2.5 cm) higher than the final system height. At minimum height (uprights fully inserted into the base), the system accommodates users up to 6 feet 4 inches (1.93m) tall.



## PneuLift™ Parts

- Two base supports: package includes instructions, installation hardware, air hose, and vest.
- Two upright posts with air hose, and Unweighting bar.
- One header beam assembly
- One vest



## Control Panel

The control panel is located on the upright. It has an Unweighting pressure gauge and two controls.

Un-

Gauge/Control	Function
Unweighting pressure gauge	Indicates the number of pounds/kilograms the system is Un-
Unweighting regulator knob	Gradually increases (+) or decreases (-) the amount of Un-
Mode selector switch	Provides choices of Exercise, Balance, or Off (OFF-EX-BAL)

### Exercise Mode

Exercise mode lets the user perform long vertical movements, such as jumping or stair climbing, with consistent Unweighting over the full range of movement. All Unweighting adjustments are done in Exercise mode.

### Balance Mode

Balance mode lets the user perform exercises involving less vertical movement, such as walking, running, or balance activities, without fear of falling. The system supports the entire body weight during loss of balance, allowing a fall of no more than three to six inches. Balance mode frees the assistant to use both hands while assisting the user.

### OFF

OFF mode releases the air from the system quickly. This mode can be used to re-weight a person quickly if desired.

# Unweighting

## Exercise Mode

Turn the Pneu-Weight™ Mode selector switch to exercise mode and using the regulator dial in the desired amount of weight to be unweighted. Note: the usual protocol to determine the amount of weight to be removed is “pain-free” or “pain tolerable”. This will usually be around 30% to 50% of body weight.

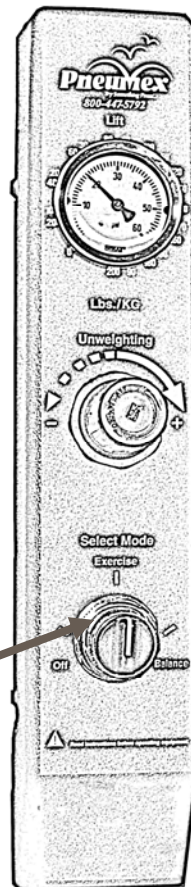
The exceptions are:

**Post surgical**-in many cases will be percentage weight bearing dictated by M.D.

**Neurological or spinal cord injury (SCI)**- to stabilized or normalized upright state. Quite often this will entail removal of close to 100% of body weight to assist in lift and then adding weight back to patient as desired.

**Sciatica** - quite often require 70% + of body weight off in early stages.

**Exercise Mode**



# Description and Use

The PneuLift Unweighting system supports a person's body weight during exercise. The pneumatic system lifts, or “unweights,” the user, reducing the amount of strain weight places on the body. As the user becomes stronger and can tolerate additional stress on the body, the weight can be adjusted to make the body do more work. The system can be used with most types of exercise equipment, including, but not limited to: treadmills, steppers, bicycles, mini-trampolines, and balance boards.

## Components

The PneuLift components include a frame with pneumatic controls and Unweighting bar, an air compressor, and an exercise vest. Each unit comes with:

- Installation hardware
- Operator/service manual
- PneuVest

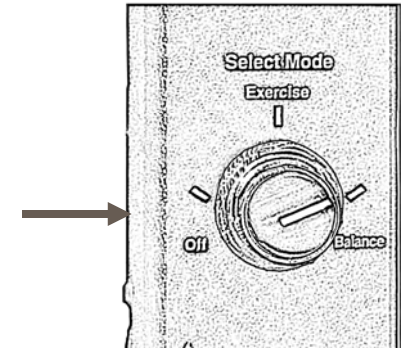
# Specifications

Capacity	0-150 lb
Operating Modes:	
Exercise	0-30 in vertical motion pneumatic stop
Balance	limited down motion
Floor space (w x d)	42 in x 50 in
Height O.D.	7 ft 10 in to 8 ft 7 in
Air hose OD./I.D.	0.25/0.17
Compressor air fitting	1/4 MPT
Compressor power requirements	Refer to compressor manual supplied by compressor manufacturer.
Weight	90 lb
Shipping Weight	92 lb

## Balance Mode

The majority of treadmill activities will be done in the balance mode. The exercise mode is used for adjusting the amount of Unweighting when performing activities that require more vertical oscillation than balance mode allows, e.g. retraining sit to stand or step up/step down activity. You may want to show the patient they cannot fall in the system.

**Balance Mode**



To decrease the distance the system will allow a patient to come down:

More weight can be removed before switching to balance.

Patient can stand on their tiptoes or a stool before switching to balance

## PneuVest

A correctly fitted PneuVest vest is the key to successful Unweighting. When choosing a vest, select one that corresponds to the user's waist size, not to the chest size. The vests are color-coded. (*See the PneuVest instruction booklet*)

### Attaching the Vest to the Unweighting Bar

1. Each shoulder strap on the vest has a D-ring that attaches to the Unweighting bar. Adjust the upright posture of the person being unweighted by moving the D-ring back or forth on the straps. For example, to flex the person, slide the D-ring backward. To extend the person, slide the D-ring forward.
2. Attach D-rings to the safety snaps on the Unweighting bar.
3. Use the control panel to unweight.

### Attaching to bar for Wheelchair Users

You may need to use extension chains to connect wheelchair users to the Unweighting bar.

1. Place the wheelchair under the bar (for treadmills, you may need to use a ramp to place the person under the bar.)
2. Pull the bar down and connect the chain extension to the unweighting bar.
3. Attach the D-rings securely to the clips on the extension.
4. Unweight the person from the chair and remove the chair. Adjust the extension as needed.

## Safety Requirements

- Read this manual in full before using the PneuLift.
- Do not start the PneuLift until you are sure the vest is properly secured.
- Do not operate this equipment in the presence of flammable or highly flammable anesthetics or other flammable anesthetics.
- To avoid potential safety problems, use parts and accessories that meet specifications given in this manual.
- The compressor must be on an appropriate electrical circuit. Read the manual supplied by the compressor manufacturer before using the compressor.
- Before each use, inspect the air tubing for damage, pinched areas, and leaks. Inspect the power receptacle for damage. Do not use if the integrity of these items is questionable.
- Check all rollers for any wear or grooves
- **Check each cable for any rough spots or signs of fraying. With increased use of the PneuLift, we are recommending a weekly inspection of cables, particularly in the area over the rollers, for signs of fraying.**

Failure to follow these guidelines can produce a serious or possibly fatal hazard or other injury.

# Troubleshooting

Problem	Possible	Solution
System will not unweight	System Leak	Check for leaks. Replace as necessary
	Compressor not set to correct psi	Set compressor to 70 psi
	Kinked hose	Check hoses for kinks
System unweights only partway	Subject weights more than 200 lb. (91 kg)	Increase the compressor setting to 120 psi. The maximum lift is 350 lb (159 kg)
Installed new control panel, but system still leaks in Balance mode	Fittings are leaking	Reseat or replace the fittings
	Pneumatic cylinder faulty	Replace the pneumatic cylinder
In Exercise mode, Unweighting bar will not retract	Air compressor disconnected or leaking	Check connections and air hose
Installed new control panel, but system does not work	Wrong psi	Check compressor setting
	Hoses not connected or connected incorrectly	Check hoses inside control panel. Be sure they are connected securely to the proper fitting.

Before Unweighting anyone, be sure the waist belt is snug and that the safety snaps (carabineers) are closed completely.

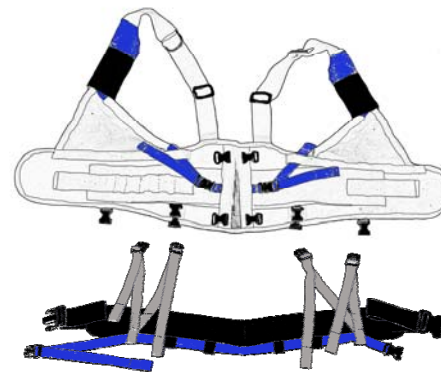
After Unweighting, ask the subject if the vest feels uncomfortable. Be sure that the vest is not wedged into the underarms and that it does not restrict breathing. Be sure that the leg straps are not tight enough to restrict circulation in the legs. Readjust the vest as necessary.

## Correcting Vest Problems

If the vest rides up under the arms, re-weight and pull the vest down. Have the person tighten the abdominal muscles, then re-tighten the waist straps and leg straps. The JO straps can help to keep the vest in place. See PneuVest manual for instructions.

If the chest strap is too tight during exercise, loosen.

If the leg cuffs ride up, re-weight if necessary and replace the cuff centering the front leg strap on the thigh. Some people like the cuff higher up on the thigh, but for most patients the cuff is more comfortable just above the knee. Pull the strap around cuff snugly. If the leg straps are too tight, or seem to pinch try changing the position higher or lower on the thigh.



PneuVest Vectors with IT Strap

## Maintenance

### Cleaning

Use a soft cloth rinsed in warm water to clean the exterior surfaces.

When needed, machine-wash the vest on gentle cycle using regular detergent and cold water. Hang to dry.

### Disinfections

Use procedures established for your facility. The vest can be washed with a mixture of water and disinfectant such as Lysol or equivalent. Do not use bleach on the vest—the color will fade.

### Schedule Service

No scheduled service is required. See *Preventive Maintenance* below. For service, call Pneumex:

USA & Canada: 800-447-5792

International: 208-265-4105

### Preventive Maintenance

Routinely check the air hose, air fittings, and compressor for leaks. Check the Unweighting bar and cable for loose wires or fraying.

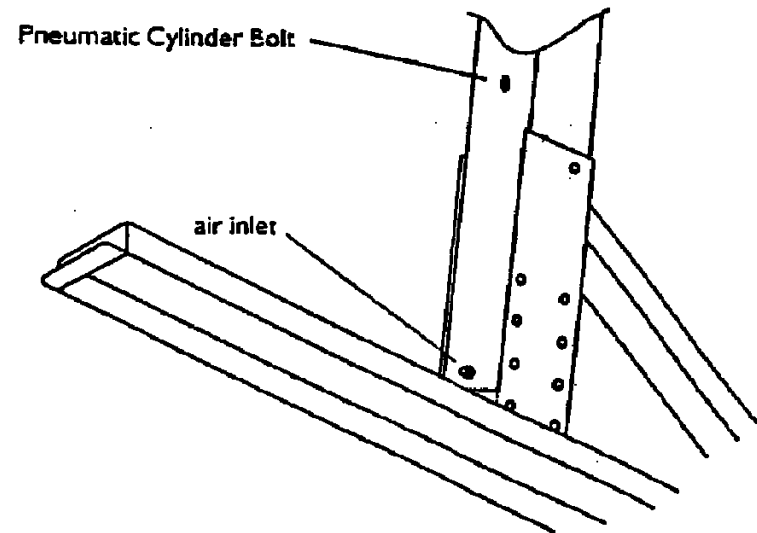
## Replacing the Unweighting Bar and Cable

Replace the Unweighting bar or cable if it appears frayed or worn.

1. Remove the control panel.
2. Pull the cotter pin and the clevis pin from the top of the pneumatic cylinder. Cable will fall as soon as you pull the clevis pin.

*Use Caution not to drop any parts into post.*

3. Remove the cable by pulling it out from the top of the upright.
4. Install the new cable down from the top of the upright.
5. Reinstall the clevis pin and the cotter pin.
6. Replace the control panel.



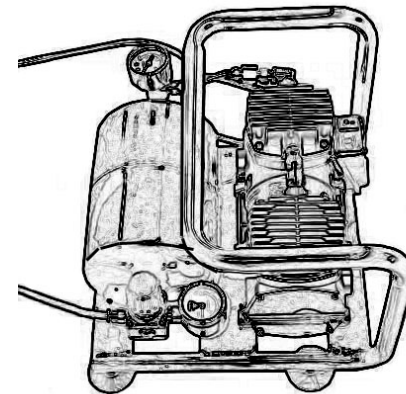
## Replacing Cylinder

If you have replaced the control panel and the system still leaks air while in *Balance* mode, you may need to replace the pneumatic cylinder. A leak from the cylinder will be very gradual, with no discernible noise.

1. Dismantle the entire system and lay the uprights flat on the floor.
2. Remove the control panel.
3. Disconnect the cable from the cylinder. Remove the cotter pin and the clevis pin from the pneumatic cylinder.
4. Use the  $7/32$  Allen wrench to remove the two bolts near the base that holds the cylinder axle into the upright.
5. Tilt the upright and pull the pneumatic cylinder out through the bottom.
6. Insert a new pneumatic cylinder, attaching it to the cable and reattaching the clevis cotter pins, axle and axle bolts.
7. Replace the control panel.
8. Reassemble the system following the installation instructions.

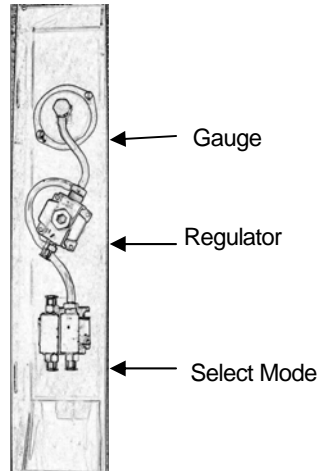
## Air Compressor

Drain the air compressor at least once a week. For compressor maintenance and service information, refer to the manual supplied by the compressor manufacturer.



## Replacing Control Panel

1. Turn off the compressor, make sure air is off to unit.
2. Remove the screws that attach the control panel to the upright using the  $5/32$ " short arm provided. Refer to the illustration for the remaining steps.
3. Locate the **Select Mode** switch on the back of the control panel. Fully depress the stainless collar on the top of the **Select Mode** switch fitting and remove the black hose that goes from the switch to the pneumatic cylinder.
4. Remove the two red hoses from the fittings on the bottom of the **Select Mode** switch.
5. Remove the clear air hose from the regulator inlet fitting.
6. Slide the clear hose into the regulator inlet fitting and push until it is secure. Slide the black hose from the pneumatic cylinder securely into the fitting on the top of the **Select Mode** switch. Slide the two red hoses securely into the fittings on the bottom of the **Select Mode** switch. The hoses are interchangeable.
7. Turn the compressor on to 100 psi and pressurize the system to check for leaks.
8. Replace the screws and tighten to secure the panel to the upright.



## Replacing Air Hose

1. Disconnect the hose from the air fitting on the bottom or top of the upright.
2. Remove the control panel.
3. Pull out the old hose from the bottom of the assembly and discard.
4. Feed the air hose down from the control panel to the bottom of the upright. Attach one end of the air hose to the regulator on the control panel and the other end to the air fitting on the bottom of the upright.
5. Replace the control panel.