USER MANUAL

The Vest® Airway Clearance System, Model 205

From Hill-Rom

Product No. P205

140643 REV 2

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Virex® is a registered trademark of S. C. Johnson & Son, Inc.

Wex-Cide™ is a trademark of Wexford Labs, Inc.

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To order additional copies of this manual (140643), refer to the back cover for contact information. For countries not listed on the back cover, contact your distributor.

NOTE:
The back cover is a comprehensive list of Technical Support contact information for Hill-Rom. The product discussed in this manual may not be available in all of the countries listed.

Revision	Pages Affected	Date
Original Issue		July 2006
2	All	September 2007

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Document Symbols

This manual contains different typefaces and symbols to make the content easier to read and understand:

- Standard text—used for regular data.
- **Boldface text**—emphasizes a word or phrase.
- **NOTE:**—sets apart special data or important instruction clarification.
- WARNING or CAUTION

  - A WARNING identifies situations or actions that may have an effect on patient or user safety. To ignore a warning could cause patient or user injury.
  - A CAUTION identifies special procedures or precautions that persons must obey to help prevent equipment damage.
- CAUGHT HAZARD WARNING

- CHEMICAL HAZARD WARNING

- ELECTRICAL SHOCK HAZARD WARNING

Precautions

- Federal USA law restricts this device to sale by or on the order of a physician.
- Unplug this system immediately after you use it.
- Do not use the system near flammable chemicals or products, including flammable anaesthetics. To do so could cause personal injury or equipment damage.
- Use close supervision when this system is used by or near children or patients with physical limitations.
- Use this system only for its intended use. Use only those attachments that are specified by the manufacturer.
- Patients that may have difficulty clearing secretions from the upper airway (such as those with DMD or other advanced neuromuscular or neurological disorders) may require specialized therapy regiments involving manually or mechanically assisted coughing or other techniques in conjunction with The Vest® Airway Clearance System, Model 205 therapy. Please consult your physician to determine if additional therapy is appropriate.
- To help prevent cross-contamination, replace the single-patient use, disposable vest between patients.
- Only authorized persons should service the unit.
- If service is necessary, call Hill-Rom Technical Support. For contact information, refer to the back cover. For countries not listed on the back cover, contact your distributor.
- Do **not** operate the Air Pulse Generator without the disposable vest and Air Hoses attached. Equipment damage could occur.
- If it is difficult to connect the Air Hoses to the Air Pulse Generator or disposable vest, do **not** use lubricant. Equipment damage could occur.
- If it is difficult to connect the Remote Control to the Air Pulse Generator, do **not** use lubricant. Equipment damage could occur.
- Do not use harsh cleansers, solvents, or detergents.
- Frequent exposure to Matar®[1] germicidal detergent may discolor the Air Pulse Generator.

1. Matar® is a registered trademark of Huntington Laboratories, Inc.

- When you use Dispatch®[1] disinfectant or CSI disinfectant spray, make sure you wipe the unit dry. Failure to do so could result in the build-up of residue or equipment damage.

KEEP THESE INSTRUCTIONS

1. Dispatch® is a registered trademark of Caltech Industries, Inc.

Intended Use

The Vest® Airway Clearance System, Model 205 was developed to provide effective Airway Clearance Therapy. The system consists of a disposable vest attached to an Air Pulse Generator that rapidly inflates and deflates the disposable vest. This causes the chest wall to be gently compressed and released, which creates airflow within the lungs. This process moves mucus toward the large airways where it can be cleared by coughing or suctioning. This type of Airway Clearance Therapy is referred to as High Frequency Chest Wall Oscillation (HFCWO).

Introduction

This manual includes instructions for setup, use, and maintenance of The Vest® Airway Clearance System, Model 205. It is to be used as a reference guide. Please review all sections carefully before you use the system.

The Vest® Airway Clearance System, Model 205 is intended for use as prescribed by a physician.

Contraindications

⚠ WARNING:

If patient conditions exist that cause the use of The Vest® Airway Clearance System, Model 205 to present a risk to the patient, **do not use the unit except as directed by a physician**. Death or serious injury could occur.

The Vest® Airway Clearance System, Model 205 is **contraindicated** if these conditions are present:

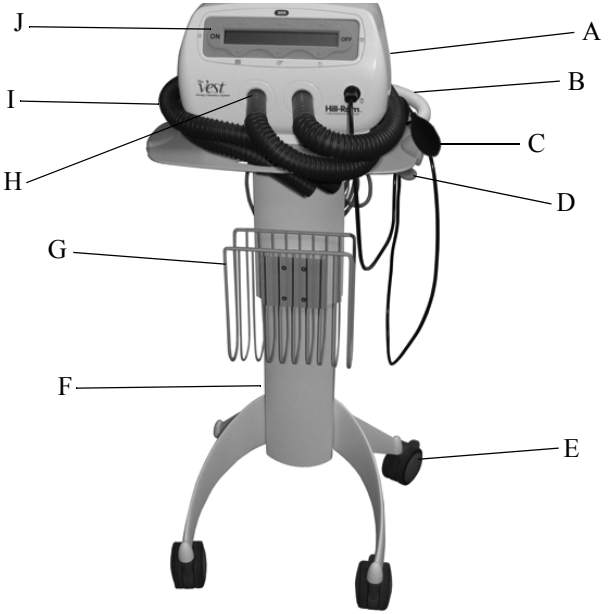
- Head and/or neck injury that has not yet been stabilized
- Active hemorrhage with hemodynamic instability

Relative Contraindications

If the patient has one or more of the conditions below, carefully consider and assess the patient's case before you decide to use The Vest® Airway Clearance System, Model 205.

- Intracranial pressure (ICP) >20 mm Hg, or patients in whom increased intracranial pressure is to be avoided
- Uncontrolled hypertension
- Hemodynamic instability
- Pulmonary edema associated with congestive heart failure
- Bronchopleural fistula
- Subcutaneous emphysema
- Large pleural effusions or empyema
- Recent esophageal surgery
- Active or recent gross hemoptysis
- Pulmonary embolism
- Uncontrolled airway at risk for aspiration such as tube feeding or recent meal
- Distended abdomen
- Bronchospasm
- Suspected pulmonary tuberculosis
- Recently placed transvenous pacemaker or subcutaneous pacemaker
- Recent epidural spinal infusion or spinal anesthesia
- Recent spinal surgery or acute spinal injury
- Rib fractures, with or without flail chest
- Surgical wound, healing tissue, recent skin grafts, or flaps on thorax
- Burns, open wounds, and skin infections on the thorax
- Lung contusion
- Osteomyelitis of the ribs
- Osteoporosis
- Coagulopathy
- Complaint of chest wall pain

Features



A	Air Pulse Generator	F	Stand
B	Push Bar	G	Storage Basket
C	Remote Control	H	Air Hose Connector Ports
D	Height Adjustment Release Lever	I	Air Hoses
E	Four Locking Casters	J	Control Panel

Air Pulse Generator

When correctly connected, the Air Pulse Generator controls the disposable vest and supplies pulsations to the chest wall.

Push Bar

Permits the unit to be moved around a room or from room to room.

Remote Control

Can be used instead of the **ON/OFF** button to pause or resume the Air Pulse Generator.

Height Adjustment Release Lever

Used to raise or lower the Air Pulse Generator to a comfortable working height.

Locking Casters

Keeps the stand and Air Pulse Generator from unintentionally moving.

Stand

Holds the Air Pulse Generator.

Storage Basket

Can be used to store disposable vests.

Air Hose Connector Ports

Air Hoses connect to the Air Hose Connector Ports on the front of the Air Pulse Generator.

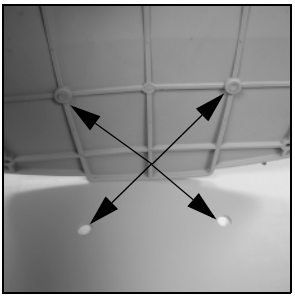
Air Hoses

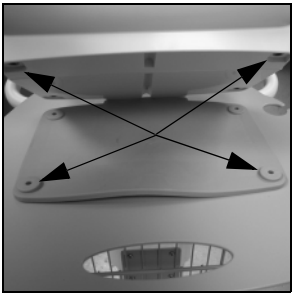
Connect the disposable vest to the Air Pulse Generator.

Control Panel

Shows the modes, system settings, and system messages.

Assembly

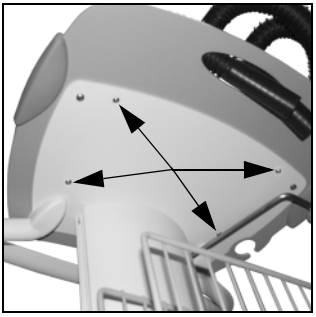




1. Align the two posts on the rubber mat with the holes in the top of the stand.
2. Align the holes on the bottom of the Air Pulse Generator with the posts on the rubber mat.

NOTE:
The screen on the Air Pulse Generator faces the side of the stand that the basket is on.

3. Install the four screws to attach the Air Pulse Generator to the stand.
4. Tighten, but not overtighten, the four screws with the supplied wrench.



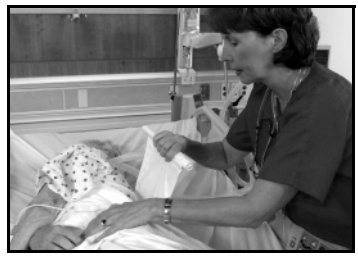
Instructions for Use

Put on the Disposable, Single-Patient Use (SPU) Vests

NOTE:
For comfort, a single layer of cotton clothing should be worn under the disposable vest. The disposable vest should be adjusted so that it is comfortable.

Wrap SPU Vest

1. Turn the patient towards you.
2. With the Wrap SPU Vest deflated, begin to lay it flat on the bed so it is perpendicular with the patient's torso.
3. Roll the patient away from you and on the open portion of the Wrap SPU Vest.
4. Put the Wrap SPU Vest in position just beneath the patient's underarms, and continue to pull the Wrap SPU Vest around the patient's torso.
5. Roll the patient to a supine position.
6. Pull both ends of the Wrap SPU Vest around the patient's chest, and use the Velcro®[1] fasteners to temporarily attach both ends to each other.



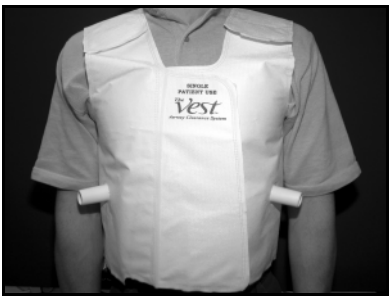
Have the patient inhale deeply, and then attach the ends of the Wrap SPU Vest so it fits close to the body, but is not uncomfortable.

1. Velcro® is a registered trademark of Velcro Industries, BV (a Dutch corporation).

Full SPU Vest

NOTE:
For comfort, a single layer of cotton clothing should be worn under the Full SPU Vest. The Full SPU Vest should be adjusted so that it is comfortable.

1. Separate the front flaps of the Full SPU Vest at the Velcro® fasteners.
2. Turn the Full SPU Vest so the front flaps will meet in front of the patient. Then put the patient's arms through the arm openings in the Full SPU Vest.
3. With the Full SPU Vest deflated, use the Velcro®[1] fasteners to attach the front flaps of the Full SPU Vest to each other.
4. Make sure there is approximately 3" to 4" (8 cm to 10 cm) between the bottom edge of the front of the Full SPU Vest and the patient.



Adjust the Velcro® fasteners at the shoulder straps so the bottom edge of the Full SPU Vest is level with the top of the patient's hip bone.

Connect the Air Hoses

1. Slide one end of each Air Hose into each Air Hose Connector Port on the front of the Air Pulse Generator. Use a slight twist motion as you push the Air Hose to help keep it in position.

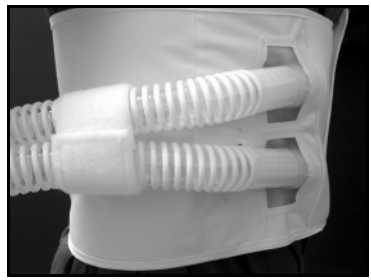
1. Velcro® is a registered trademark of Velcro Industries, BV (a Dutch corporation).

2. Connect the Air Hoses to the disposable vest:

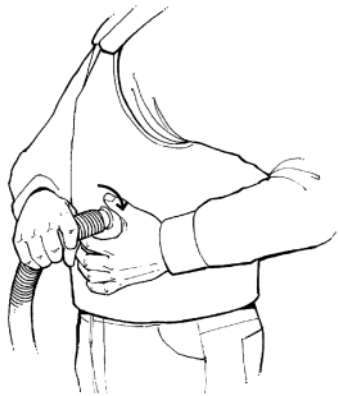
For a **Wrap SPU Vest**, do as follows:

a. Slide the other end of each Air Hose into the disposable vest Air Hose slits.

b. Use the Velcro®[1] loops on the side of the disposable vest to hold the Air Hoses in position.



For a **Full SPU Vest**, slide the other end of each Air Hose over the disposable vest Air Hose ports. To help keep the Air Hoses in position, slightly twist the Air Hoses as you push them over the Full SPU Vest Air Hose ports.



1. Velcro® is a registered trademark of Velcro Industries, BV (a Dutch company).

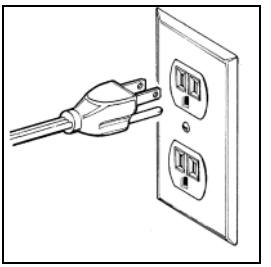
Set Up the Air Pulse Generator

1. Install the Remote Control into the Air Pulse Generator.

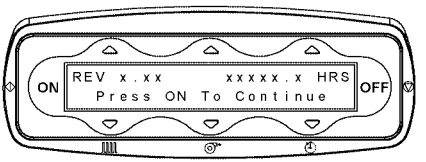
NOTE:
Use of the Remote Control is optional.

2. Plug the Power Cord into the power inlet on the back of the Air Pulse Generator.

3. Plug the Power Cord into a grounded, three-pronged outlet.



Use The Vest® Airway Clearance System, Model 205

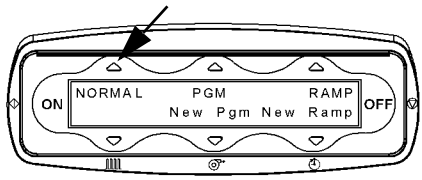


Make sure the unit is set up correctly (see "Set Up the Air Pulse Generator" on page 12). Once power is connected, the unit will show a blank screen for up to 15 seconds. Then it will show the software revision level and the total therapy hours for the unit. This screen will show for 10 seconds or until you press the **ON** button.

NOTE:
To show the total therapy hours, press the **OFF** button when the display shows the main screen.

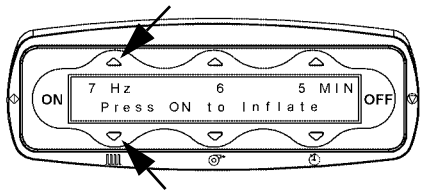
Use the Normal Mode

1. Press the **Up** arrow above **NORMAL** for the standard mode. The screen will show the previously programmed Frequency, Pressure, and treatment Time settings (or the default settings, depending on how it was programmed).



2. Confirm the settings on the screen. If the settings match the prescribed treatment, continue to step 3. Otherwise, adjust the settings to match the prescription.

   a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed treatment shows on the screen. The Frequency or Hertz (Hz) may be set between 5 and 20 cycles per second.



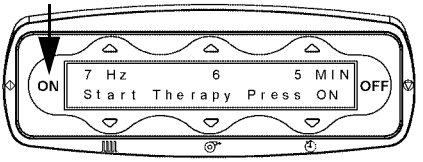
   b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed treatment Pressure shows on the screen. The Pressure may be set between 1 and 10.

   c. To adjust the treatment Time, press the right **Up** or **Down** arrow buttons until the prescribed treatment Time shows on the screen. The treatment Time may be set between 1 and 60 minutes.

NOTE:
It is not necessary to stop the treatment to adjust the settings.

NOTE:
If the backlight turns itself **OFF**, press any button to turn it back **ON**.

3. Press the **ON** button. The disposable vest will inflate.

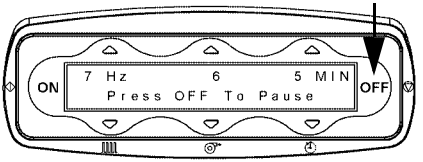


NOTE:
If the unit is left in this mode for 10 minutes, it will turn off.

4. Press the **ON** button again to begin the treatment. The set treatment Time shows as it counts down to zero.

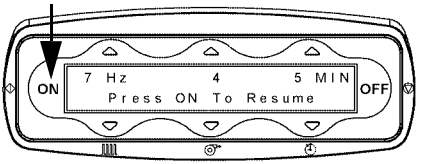
5. If it is necessary to pause the treatment during a session, do as follows:

   a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.



NOTE:
When the unit is paused, the disposable vest will deflate.

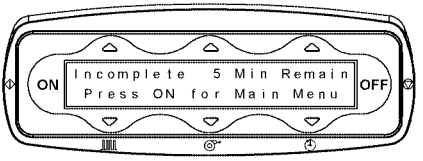
   b. To resume treatment, press the **ON** button or the Remote Control again.



6. If it is necessary to end the treatment session before it is complete, press the **OFF** button.

NOTE:
Pressing the **OFF** button does not turn off the screen.

7. When the **OFF** button is pressed, the disposable vest deflates and the "Incomplete X Min Remain" message shows on the screen.



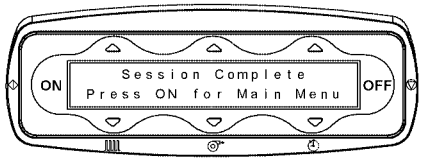
You must press **ON** to continue to the main screen.

8. When the treatment session is complete:

   a. The "Session Complete" message shows.

   b. The pulsations stop.

   c. The disposable vest deflates.



   d. Immediately unplug the system from its power source.

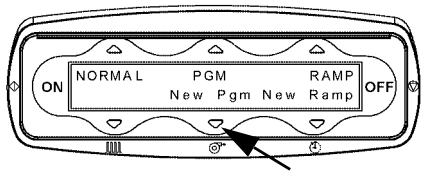
   e. Remove the Air Hoses from the Air Hose ports on the disposable vest.

   f. Remove the disposable vest from the patient.

Setting and Using a New Program Mode

New Program Mode allows the caregiver to program up to eight (8) points with various settings within a single therapy session.

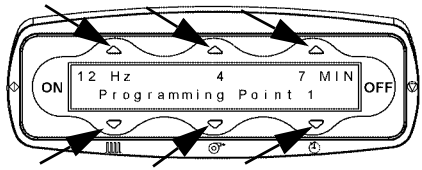
1. Press the **Down** arrow below **New Pgm** to create a new program. The screen will show the Frequency, Pressure, and treatment Time settings for the first Programming Point.



NOTE:
All the settings can be adjusted.

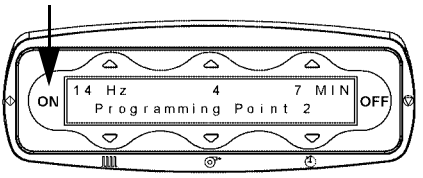
NOTE:
You can program up to 8 different Programming Points, each with its own combination of Frequency, Pressure and treatment Time.

2. For Programming Point 1, if the settings match the prescribed treatment, continue to step 3. Otherwise, adjust the settings to match the prescription



by pressing the **Up** and **Down** arrows associated with Frequency, Pressure and treatment Time.

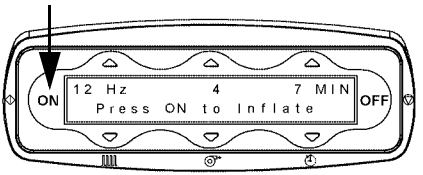
3. Once you have Programming Point 1, proceed to Programming Point 2 by pressing the **ON** button (to move to a previous Programming Point, press the **OFF** button). Adjust the settings to match the prescription and repeat for all 8 Programming Points.



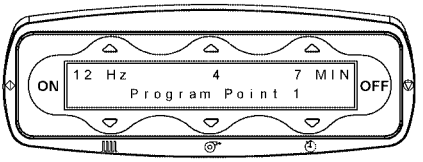
4. If the prescription does not call for all 8 Programming Points, **after** Programming Point 2, set the Time to 0 MIN for the following segments, press the **ON** button to advance through the remaining Programming Points.

NOTE:
Once you change the Programming Point Time to 0 MIN and press the **ON** button, it will take you to the start of the program to begin therapy.

5. Press the **ON** button. The disposable vest will inflate.
6. Press the **ON** button again to begin the treatment program. The set treatment Time shows as it counts down to zero for each Programming Point.



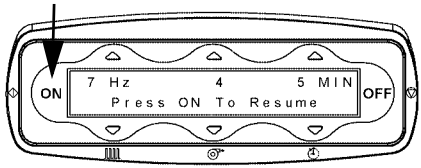
7. Therapy will automatically end after it has gone through each Programming Point.
8. If it is necessary to pause the treatment during a session, do as follows:



   a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.

NOTE:
When the unit is paused, the disposable vest will deflate.

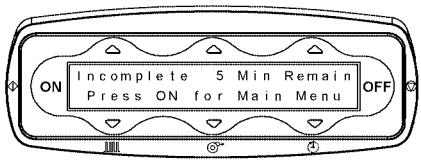
b. To resume treatment, press the **ON** button or the Remote Control again.



9. If it is necessary to end the treatment session before it is complete, press the **OFF** button.

NOTE:
Pressing the **OFF** button does not turn off the screen.

10. When the **OFF** button is pressed, the disposable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press **ON** to continue to the main screen.

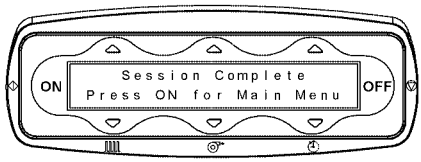


11. When the treatment session is complete:

    a. The "Session Complete" message shows.

    b. The pulsations stop.

    c. The disposable vest deflates.



    d. Immediately unplug the system from its power source.

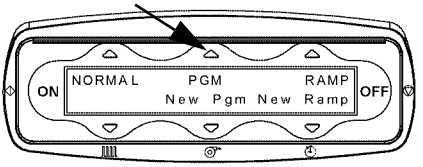
    e. Remove the Air Hoses from the Air Hose ports on the disposable vest.

    f. Remove the disposable vest from the patient.

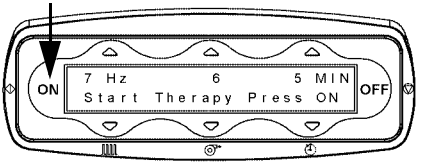
Using the Program Mode

Allows the caregiver the capability to use a previously created New Program Mode, see “Setting and Using a New Program Mode” on page 15.

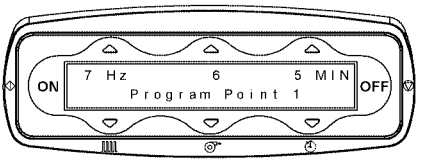
1. Press the **Up** arrow above **PGM** to run the previously created program, or selected default program.



2. Press the **ON** button. The disposable vest will inflate.
3. Press the **ON** button again to begin the treatment program. The set treatment Time shows as it counts down to zero for each Programming Point.



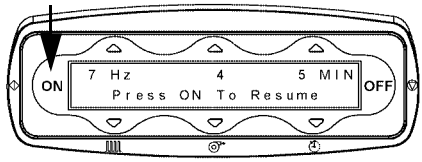
4. The therapy will automatically end after it has gone through each of the Programming Points.



5. If it is necessary to pause the treatment during a session, do as follows:
    a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.

NOTE:
When the unit is paused, the disposable vest will deflate.

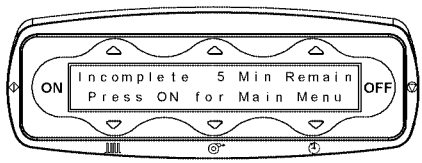
b. To resume treatment, press the **ON** button or the Remote Control again.



6. If it is necessary to end the treatment session before it is complete, press the **OFF** button.

NOTE:
Pressing the **OFF** button does not turn off the screen.

7. When the **OFF** button is pressed, the disposable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press **ON** to continue to the main screen.

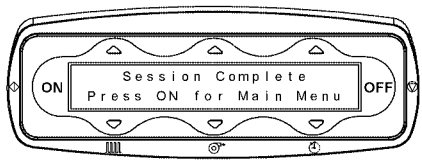


8. When the treatment session is complete:

   a. The "Session Complete" message shows.

   b. The pulsations stop.

   c. The disposable vest deflates.



   d. Immediately unplug the system from its power source.

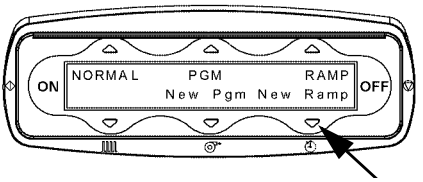
   e. Remove the Air Hoses from the Air Hose ports on the disposable vest.

   f. Remove the disposable vest from the patient.

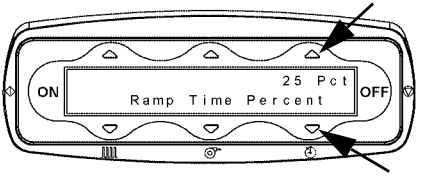
Setting and Using a New Ramp Mode 

Allows the caregiver capability to create a new Ramp Program to ease the patient from a lower setting to a higher setting within the percent of the total therapy session.

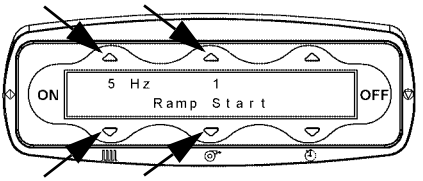
1. Press the **Down** arrow below **New Ramp** to adjust the program settings.



2. Look at the settings on the screen. Ramp Time Percent is the portion of the treatment Time required to increase from the initial settings (**Ramp Start**) to the final settings (**Ramp End**). To adjust the percent to the prescribed therapy, press the right **Up** or **Down** arrows.



3. Press the **ON** button to advance to the next screen.
4. Review the settings for Frequency and Pressure for the initial setting, Ramp Start.
    a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed treatment shows on the screen. The Frequency (or Hertz (Hz)) may be set between 5 and 20 cycles per second.
    b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed treatment Pressure shows on the screen. Pressure may be set between 1 and 10.

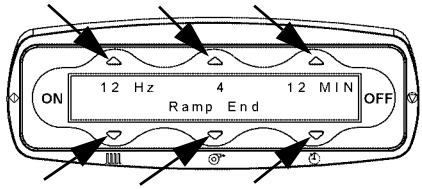


5. Press the **ON** button to advance to the next screen.
6. Review the settings on the screen. Frequency and Pressure for the final setting, **Ramp End**, are shown as treatment Time.
    a. To adjust the Frequency setting, press the left **Up** or **Down** arrow buttons until the prescribed setting shows on the screen.

Frequency or Hertz (Hz) may be set between the Ramp Start setting and 20 cycles per second.

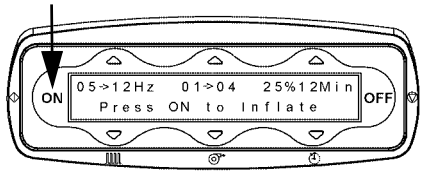
b. To adjust the Pressure setting, press the middle **Up** or **Down** arrow buttons until the prescribed setting shows on the screen. Pressure may be set between the Ramp Start setting and 10.

c. To adjust the treatment Time, press the right **Up** or **Down** arrow buttons until the prescribed treatment Time shows on the screen. The treatment Time may be set between 1 and 60 minutes.

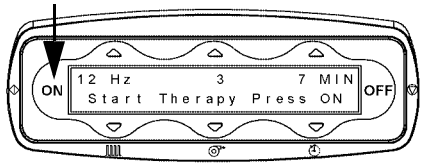


7. Press the **ON** button to advance to the next screen. This screen shows the summary of the ramp program you have just created.

8. Press the **ON** button. The disposable vest will inflate.



9. Press the **ON** button again to begin the therapy. The screen will show the word Ramping during the ramp portion of the program. The total treatment Time shows as it counts down to zero.



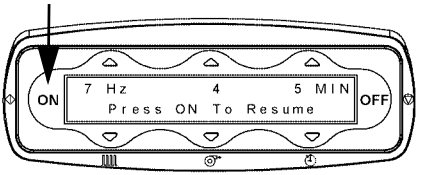
NOTE:
Therapy settings **cannot** be changed during Ramping stage.

10. If it is necessary to pause the treatment during a session, do as follows:

    a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.

NOTE:
When the unit is paused, the disposable vest will deflate.

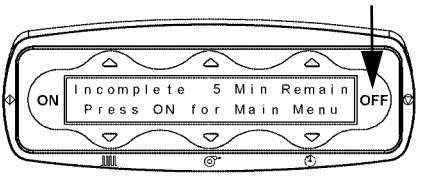
b. To resume treatment, press the **ON** button or the Remote Control again.



11. If it is necessary to end the treatment session before it is complete, press the **OFF** button.

NOTE:
Pressing the **OFF** button does not turn off the screen.

12. When the **OFF** button is pressed, the disposable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press **ON** to continue to the main screen.

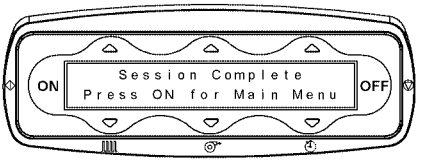


13. When the treatment session is complete:

    a. The "Session Complete" message shows.

    b. The pulsations stop.

    c. The disposable vest deflates.



    d. Immediately unplug the system from its power source.

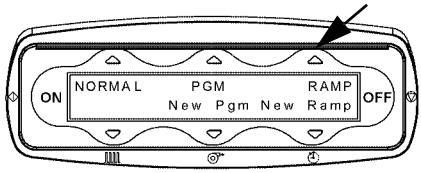
    e. Remove the Air Hoses from the Air Hose ports on the disposable vest.

    f. Remove the disposable vest from the patient.

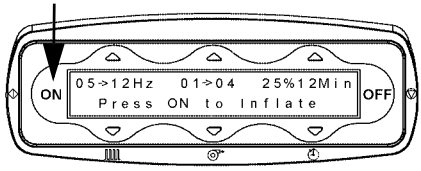
Using the Ramp Mode 

Allows the caregiver to run a previously created Ramp Program, see “Setting and Using a New Ramp Mode” on page 19.

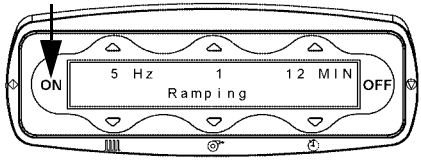
1. Press the **Up** arrow above **RAMP** to run the previously created ramp program.



2. The programmed points will be shown. Press the **ON** button to advance to the next screen.
3. Press the **ON** button. The disposable vest will inflate.



4. Press the **ON** button again to begin the program. The screen will show the word Ramping during the ramp portion of the program. The total treatment Time shows as it counts down to zero.

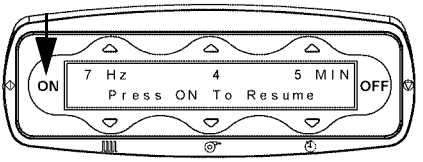


NOTE:
Therapy settings **cannot** be changed during Ramping stage.

5. If it is necessary to pause the treatment during a session, do as follows:
    a. Press the **OFF** button or Remote Control once. The unit will stop the pulsations, but the settings will continue to show on the screen.

NOTE:
When the unit is paused, the disposable vest will deflate.

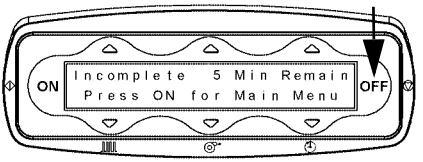
b. To resume treatment, press the **ON** button or the Remote Control again.



6. If it is necessary to end the treatment session before it is complete, press the **OFF** button.

NOTE:
Pressing the **OFF** button does not turn off the screen.

7. When the **OFF** button is pressed, the disposable vest deflates and the "Incomplete X Min Remain" message shows on the screen. You must press the **ON** button to continue to the main screen.

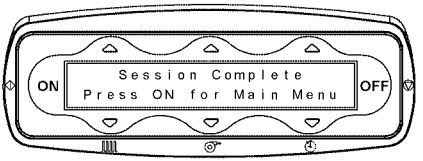


8. When the treatment session is complete:

   a. The "Session Complete" message shows.

   b. The pulsations stop.

   c. The disposable vest deflates.



   d. Immediately unplug the system from its power source.

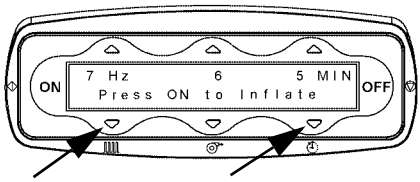
   e. Remove the Air Hoses from the Air Hose ports on the disposable vest.

   f. Remove the disposable vest from the patient.

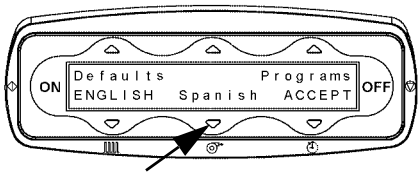
Change the Language

1. Press the **Up** arrow button above NORMAL. The Normal mode screen shows.

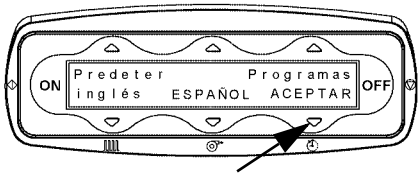
2. Press the two **outside Down** arrow buttons for a minimum of 3 seconds (or until the screen changes).



3. Press the **Down** arrow button below **Spanish** (it will turn Spanish to SPANISH).



4. To accept the change, press the **Down** arrow button below **ACEPTAR** (ACCEPT in English).

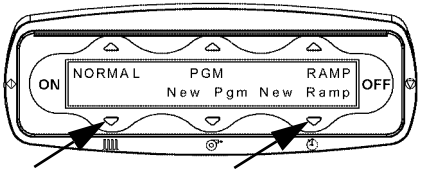


5. Once you have accepted the change, the system will automatically re-boot and go back to the main screen in Spanish.
6. Once the main screen is visible, unplug the unit and plug it back in. The unit will automatically reconfigure in Spanish.
7. To switch back to English, repeat the steps and choose **ingles** instead of **Spanish**.

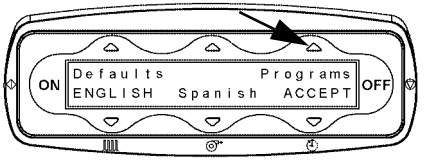
Disable the Program Modes (Program and Ramp)

1. Press the left **Up** arrow button above **NORMAL**. The Normal mode screen shows.

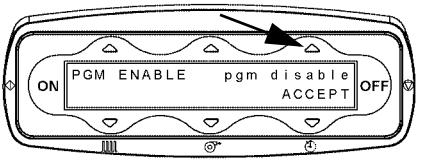
2. Press the **two outside Down** arrow buttons for a minimum of **3 seconds**, or until the screen changes.



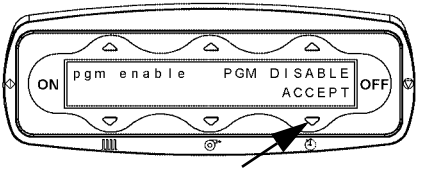
3. Press the right **Up** arrow button above **Programs**.



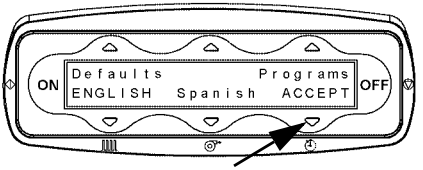
4. Press the right **Up** arrow button above **pgm disable** (It will turn to **PGM DISABLE**).



5. To accept the change, press the right **Down** arrow below **ACCEPT**.



6. To accept all changes and exit out of the menu, press the right Down arrow button below the word **ACCEPT**.

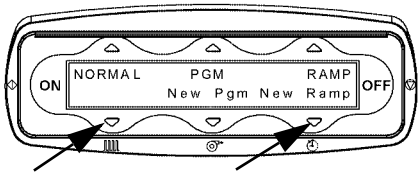


7. Once you have accepted the change, the system will automatically re-boot and go to the main screen of NORMAL Mode. You will no longer be able to see the Program or Ramp mode programs.
8. To switch back to Program Mode, repeat the steps starting at step 2.

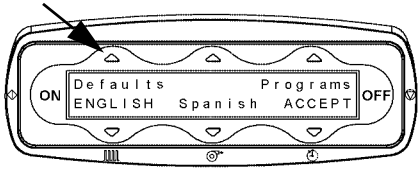
NOTE:
Press the **Up** arrow button above **pgm enable** at step 4 to enable the Program Mode It will turn **pgm enable** to **PGM ENABLE**).

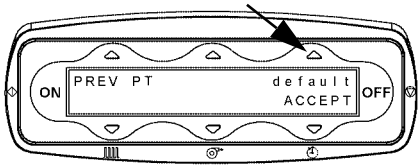
Set Facility Custom Default Settings

1. Press the left **Up** arrow button above **NORMAL**.The Normal mode screen shows.
2. Press the **two outside Down** arrows for a minimum of **3 seconds**, or until the screen changes.

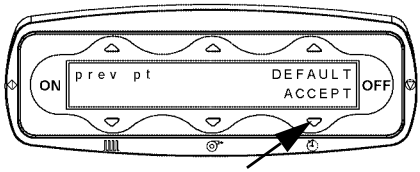


3. Press the left **Up** arrow button above **Defaults**.
4. Press the right **Up** arrow button above **default** (default will change to **DEFAULT**).

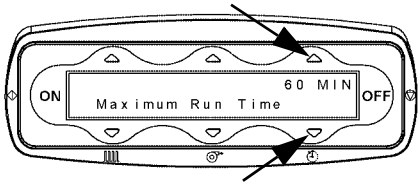




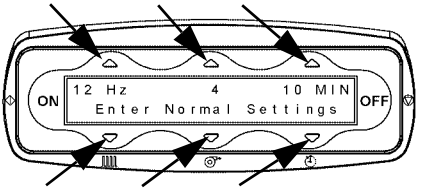
5. To accept the change, press the right **Down** arrow button below **ACCEPT**.



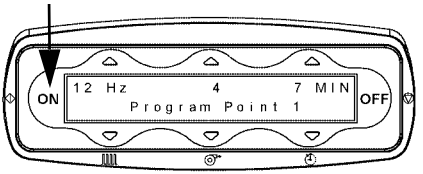
6. To adjust the Maximum **Run Time** use the **Up** and **Down** arrow buttons above and below **MIN** and press the **ON** button.



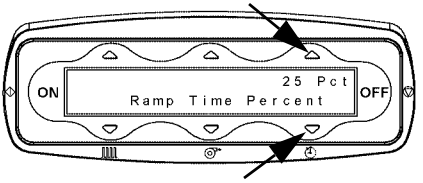
7. To set default Frequency, Pressure and Time settings, for Normal Mode, adjust each by using the respective the **Up** and **Down** arrow buttons and press the **ON** button.



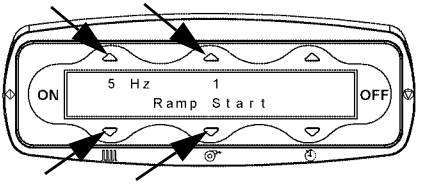
8. To adjust the default settings for **Program Mode,** set each **Programming Point** sequentially. Press the **ON** button to advance to the next Programming Point.
9. Adjust Frequency, Pressure and Time for each **Program Point** (1 thru 8) or change the time to zero, after Programming Point 3, to make the previous point the last point.
10. Press the **ON** button to advance to the next default setting.



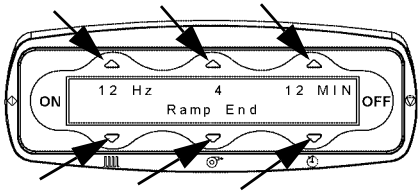
11. Adjust the **Ramp Time Percent** for the **Default Ramp** mode using the right **Up** and **Down** arrow buttons, and press the **ON** button.



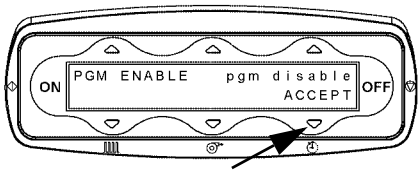
12. Adjust the **Ramp Start, Frequency, and Pressure** settings for default **Ramp Mode** by using the left and middle **Up** and **Down** arrow buttons, and press the **ON** button.



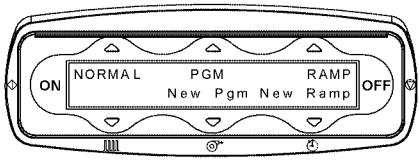
13. Adjust the **Ramp End** settings for default **Ramp Mode**, Frequency, Pressure and Time using the **Up** and **Down** arrow buttons, and press the **ON** button.



14. To accept all of the changes, press the right **Down** arrow below **ACCEPT**.



15. Once you have accepted the change, it will automatically re-boot the system and go back to the main screen.



16. To switch back to previous patient default mode, repeat the steps and select **prev pt** instead of **default**.

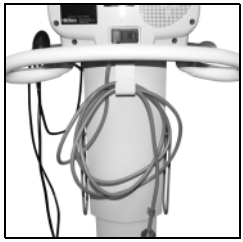
Move the Air Pulse Generator

1. Unplug the Air Pulse Generator from its power source.
2. Stow the Power Cord on the holder on the back of the stand.

⚠ CAUTION:

Failure to lower the Air Pulse Generator to the lowest position could cause it to tip over during transport.

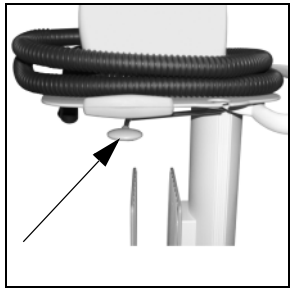
3. Lower the Air Pulse Generator to the lowest position.
4. Lift the brake release on all four casters.
5. Move the Air Pulse Generator to the applicable location.
6. Press down on the brake release to set the brakes on all four casters.
7. Adjust the height of the Air Pulse Generator to the desired position.
8. Plug the Air Pulse Generator into an applicable power source.

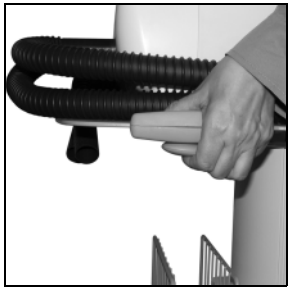


Brake released

Brake set

Raise or Lower the Air Pulse Generator





1. Hold the Height Adjustment Release Lever on the side of the stand.
2. Pull the Height Adjustment Release Lever upwards toward to the shelf.
3. Push down, or pull up on the shelf, to adjust the height.
4. When the desired height is reached, release the Height Adjustment Release Lever.

Cleaning

⚠ WARNING:

Follow the product manufacturer's instructions. Failure to do so could cause personal injury or equipment damage.

SHOCK HAZARD:

Unplug the unit from its power source before you clean it. Failure to do so could cause personal injury or equipment damage.

SHOCK HAZARD:

Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

⚠ CAUTION:

Do not use harsh cleansers, solvents, or detergents. Equipment damage could occur.

The Vest® Airway Clearance System, Model 205 has been tested for compatibility with these detergents:

⚠ CAUTION:

Frequent exposure to Matar® germicidal detergent may discolor the Air Pulse Generator.

- Matar®[1] germicidal detergent
- Wex-Cide™[2] all-purpose germicidal detergent
- Viraguard®[3] all-purpose anti-viral surface disinfectant
- 3M™[4] HB Quat disinfectant cleaner
- Virex®[5] II 256 disinfectant

1. Matar® is a registered trademark of Huntington Laboratories, Inc.
2. Wex-Cide™ is a trademark of Wexford Labs, Inc.
3. Viraguard® is a registered trademark of Veridien Corp.
4. 3M® is a registered trademark of Minnesota Mining and Manufacturing Company.
5. Virex® is a registered trademark of S. C. Johnson & Son, Inc.

⚠ CAUTION:

When you use Dispatch® disinfectant, CSI disinfectant spray, or Citrus II® hospital germicidal deodorizing cleaner make sure you wipe the unit dry. Failure to do so could cause build-up of residue or equipment damage.

- Dispatch®[1] disinfectant
- CSI disinfectant spray
- Citrus II®[2] hospital germicidal deodorizing cleaner

General Cleaning

⚠ WARNING:

To help prevent cross-contamination, replace the single-patient use disposable vest between patients. Failure to do so could cause patient injury or equipment damage.

NOTE:
The disposable vests are single-patient use, latex-free, inflatable products for use on individual patients over multiple treatment sessions.

Clean The Vest® Airway Clearance System between patients, or when visibly soiled if used on the same patient. Replace the disposable vest between patients or when it is damaged. Do **not** attempt to disinfect or sterilize the disposable vest for reuse with more than one patient. We recommend that you clean the Air Pulse Generator and Remote Control with a soft cotton cleaning pad that is slightly moist with detergent and warm water.

Do not use excessive liquid or harsh cleansers. Do **not** immerse The Vest® Airway Clearance System in water or let liquids enter the Air Pulse Generator.

After you clean the system, wipe it dry.

Steam Cleaning

Do not use any steam cleaning device on the unit. Excessive moisture can damage mechanisms in this unit.

1. Dispatch® is a registered trademark of Caltech Industries, Inc.
2. Cistrus II® is a registered trademark of Beaumont Products, Inc.

Cleaning Hard to Clean Spots

Air Pulse Generator—to remove difficult spots or stains, we recommend that you use standard household cleansers and a soft bristle brush. To loosen heavy, dried-on soil, you may first need to saturate the spot.

Do **not** put any component of The Vest® Airway Clearance System in water.

Disinfecting

When there is visible soil and between patient use, we recommend that you disinfect the unit with an intermediate level, tuberculocidal disinfectant.

Use the disinfectant as specified in the disinfectant manufacturer's instructions. Do **not** attempt to disinfect or sterilize the disposable vest for reuse with more than one patient.

Maintenance

⚠ WARNING:

Only authorized persons should service The Vest® Airway Clearance System, Model 205. Service by unauthorized persons could cause personal injury or equipment damage.

Minimal routine maintenance and periodic cleaning are necessary for The Vest® Airway Clearance System, Model 205.

Facilities should do these tests and examinations annually:

- Unplug the Air Pulse Generator from its power source.
- Examine the overall condition of the unit for damage or missing parts.
- Examine the Power Cord and connector for cuts, scrapes, or other damage.
- Do electrical safety tests in accordance with facility protocols.
- Clean and disinfect the unit (see “Cleaning” on page 32).
- Connect the Air Pulse Generator to a disposable vest and to an appropriate power source. Make sure the unit is operational, and that all functions operate correctly.

Disposable Vests and Replacement Parts

Single-Patient Use, Disposable Wrap SPU Vest

Part Number	Description
P300630005	Small package of 5 (23" to 33" (58 cm to 84 cm))
P300631005	Medium package of 5 (>33" to 43" (84 cm to 109 cm))
P300632005	Large package of 5 (>43" to 53" (109 cm to 135 cm))
P300633005	Extra Large package of 5 (>53" to 67" (135 cm to 170 cm))
P300600005	Starter Pack (1 Small, 2 Medium, 1 Large, 1 Extra Large)

Single-Patient Use, Disposable Full SPU Vest

Part Number	Description
P300200000	Child Medium (23" to 27" (58 cm to 69 cm))
P300205000	Child Large (>27" to 31" (69 cm to 79 cm))
P300210000	Adult Small (>31" to 36" (79 cm to 91 cm))
P300215000	Adult Medium (>36" to 45" (91 cm to 114 cm))
P300220000	Adult Large (>45" to 52" (114 cm to 132 cm))

Stand and Air Pulse Generator

Part Number	Description
143512	Caster
142232	Remote Control Assembly
200495000	Air Hose (1 hose)
142200	Rubber Mount Pad
142319	Power Cord
140660	Screw Kit (mounting)
205500	Stand Assembly

Part Number	Description
143513	Basket Assembly

Size the Disposable Vest

To size the disposable vest, do as follows:

1. Have the patient take a deep breath and hold it.
2. Using a tape measure, loosely measure around the patient at the largest part of their chest. Women should be measured at the bust line.
3. Select the disposable vest size based on the measurements provided.
4. Disposable vests are designed for patients with a minimum thoracic length (distance from the top of the shoulder to the waist) of 10" (25 cm).

Service Calls

If service is necessary on The Vest® Airway Clearance System, Model 205, call Hill-Rom Technical Support at 800-445-3720. If outside the US, refer to the back cover for contact information.

When you contact Hill-Rom, be prepared to give the serial number from the product identification label. The product identification label is on the rear panel of the Air Pulse Generator.

Troubleshooting

⚠ WARNING:

Only authorized persons should service The Vest® Airway Clearance System, Model 205. Service by unauthorized persons could cause personal injury or equipment damage.

If service is necessary on The Vest® Airway Clearance System, Model 205, call Hill-Rom Technical Support. For contact information, refer to the back cover.

Air Pulse Generator Does Not Power On

1. Make sure the Power Cord is fully plugged into the electrical inlet on the rear panel of the Air Pulse Generator. If necessary, unplug

the Power Cord from the Air Pulse Generator, and then plug it in again.

2. Make sure the Power Cord is fully plugged into a known-good outlet.
3. If the problem is not corrected, call Hill-Rom Technical Support. For contact information, refer to the back cover.

No Air Pulses into the Disposable Vest

1. If the Remote Control is in use, make sure it is firmly connected to the Air Hose Connector Port on the front panel of the Air Pulse Generator.
2. Make sure the Air Hoses are connected to the disposable vest and Air Pulse Generator.
3. Make sure the **ON** button has been pressed.
4. If the problem is not corrected, call Hill-Rom Technical Support. For contact information, refer to the back cover.

Screen Shows "Please Call for Service" Message

The system has experienced an unexpected event. Do as follows:

1. Unplug the Power Cord from the Air Pulse Generator, and then plug it in again.
2. If the problem is not corrected, call Hill-Rom Technical Support. For contact information, refer to the back cover.

An Air Hose Comes out of the Air Pulse Generator or Disposable Vest during Operation

1. Fully disconnect the Air Hoses from the Air Pulse Generator and the disposable vest.
2. Clean the inside and outside of these (see "Cleaning" on page 32):
   - Ends of the Air Hose
   - Connection Ports on the disposable vest
   - Air Hose Connector Ports outlets on the Air Pulse Generator
3. Connect the Air Hoses to the Air Pulse Generator and disposable vest (see "Set Up the Air Pulse Generator" on page 12).

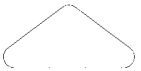
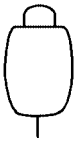
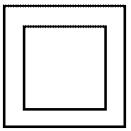
4. If the problem is not corrected, call Hill-Rom Technical Support. For contact information, refer to the back cover.

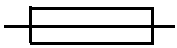
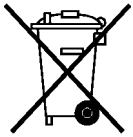
Screen Shows “RESTARTING”

1. The system has experienced an unexpected event and is restarting.
2. If the problem is not corrected, call Hill-Rom Technical Support. For contact information, refer to the back cover.

Product Symbols

Symbol	Definition
	Type B equipment with an F-type applied part, according to EN 60601-1.
	Dangerous voltage within the device may constitute a risk of electrical shock.
 **ON**	**ON** button—starts the Air Pulse Generator (starts therapy, inflates the disposable vest, moves to the next screen during programming, starts the unit after being paused)
OFF 	**OFF** button—stops the Air Pulse Generator (stops therapy, deflates the disposable vest, pauses therapy, moves to previous screen during programming)
	**Frequency** setting
	**Pressure** setting
	**Time** setting

Symbol	Definition
	**Up** arrow button—increases the **Frequency**, **Pressure**, or **Time** setting
	**Down** arrow button—decreases the **Frequency**, **Pressure**, or **Time** setting
	**Remote Control Port**
	Attention: Consult accompanying documents.
	Class II equipment (double insulated), according to EN 60601-1
IPX 0	Not protected against water ingress
 a	Medical Equipment with respect to electric shock, fire, mechanical, and other specified hazards only in accordance with UL/EN/IEC 60601-1 and CAN/CSA C22.2 No. 601.1

Symbol	Definition
CE 0123	Conforms to the European Medical Device Directive 93/42/EEC
	Identifies a replaceable fuse link in an electronic circuit.
	Manufacturer or distributor complies with the Waste Electric and Electronic Equipment Directive 2002/96/EC

a. The UL logo is a registered trademark of Underwriters Laboratories Inc.

Specifications

Feature	Dimension
Air Pulse Generator weight	17 lb (8 kg)
Air Pulse Generator height	9.5" (24.1 cm)
Air Pulse Generator width	13" (33 cm)
Air Pulse Generator depth	9.5" (24.1 cm)
Stand weight	65 lb (29 kg)
Stand height—lowest position	29" (73.6 cm)
Stand height—highest position	39" (99.1 cm)
Disposable vest material—**Wrap SPU** Vest and **Full SPU** Vest	Polyurethane-coated nylon
Electrical requirements	100 V AC to 230 V AC, 50/60 Hz, 3.4 Amps @ 100 V AC, 2.0 Amps @ 230 V AC
Fuse requirement	2 each 4A, 5 x 20 mm (Littlefuse part number F4AL250V)

Environmental Conditions for Transport and Storage

Condition	Range
Temperature	-40°F to 158°F (-40°C to 70°C)
Relative humidity	95% non-condensing
Pressure	500 hPa to 1060 hPa

Environmental Conditions for Use

Condition	Range
Temperature	50°F to 93°F (10°C to 34°C) ambient temperature
Relative humidity range	30% to 75% non-condensing
Atmospheric Pressure	700 hPa to 1060 hPa

Classification and Standards

Technical and Quality Assurance	UL/EN/IEC 60601-1 CAN/CSA C22.2 No. 601.1 ISO 13485
Equipment Classification	Class II
Degree of Protection Against Electric Shock	BF with type F applied part
Classification According to Directive 93/42/EEC	IIa
Degree of Protection Against Ingress of Water	IPX 0
Degree of Protection Against the Presence of Flammable Anaesthetic Mixtures	Not for use with flammable anaesthetics.

The Vest® Airway Clearance System, Model 205 is a continuous operation device classified with Underwriters Laboratories Inc.®[1] (UL) in the United States and licensed with Health Canada.

1. Underwriters Laboratories Inc.® is a registered trademark of Underwriters Laboratories Inc.

Guidance and Manufacturer's Declaration— Electromagnetic Immunity

The Vest® Airway Clearance System, Model 205 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 205 should make sure it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment— Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines 1± kV for input/output lines	± 2 kV for power supply lines 1± kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0,5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (>95% dip in U_T) for 0,5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If it is necessary for the user to have continued operation of the Model 205 during power mains interruptions, it is recommended that the Model 205 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE: U_T is the AC mains voltage prior to application of the test level.

Guidance and Manufacturer's Declaration— Electromagnetic Immunity

The Vest® Airway Clearance System, Model 205 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 205 should make sure it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment—Guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the Model 205, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	$d = \left[\frac{3.5}{3}\right]\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	80 MHz to $d = \left[\frac{3.5}{3}\right]\sqrt{P}$ 800 MHz $d = \left[\frac{7}{3}\right]\sqrt{P}$ 800 MHz to 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as found by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b]. Interference may occur in the vicinity of equipment marked with this symbol: 

The Vest® Airway Clearance System, Model 205 is intended for use in the electromagnetic environment specified below. The customer or user of the Model 205 should make sure it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment—Guidance**
NOTE: At 80 MHz and 800 MHz, the higher frequency range applies. **NOTE:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast can not be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, the electromagnetic site used should be considered. If the measured field strength in the location in which the Model 205 is used is more than the applicable RF compliance level above, the Model 205 should be monitored to make sure it operates correctly. If it operates incorrectly, additional measures may be necessary, such as a change in the Model 205's position or location.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Model 205

The Vest® Airway Clearance System, Model 205 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the Model 205 can help prevent electromagnetic interference if they maintain the minimum distance between portable and mobile RF communications equipment (transmitters) and the Model 205. The recommended distances, in accordance, are shown below:

Rated Maximum Output Power of the Transmitter	**Separation Distance According to the Frequency of the Transmitter**		
	150 kHz to 80 MHz $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$	**80 MHz to 800 MHz** $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$	**800 MHz to 2,5 GHz** $d = \left[\frac{7}{E_1}\right]\sqrt{P}$
0,01 W	0,12 m	0,12 m	0,23 m
0,1 W	0,37 m	0,37 m	0,74 m
1 W	1,2 m	1,2 m	2,3 m
10 W	3,7 m	3,7 m	7,4 m
100 W	12 m	12 m	23 m

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated with the use of the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE: At 80 MHz to 800 MHz, the separation distance for the higher frequency range applies.

NOTE: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Frequently Asked Questions

- Is The Vest® Airway Clearance System as effective as chest physiotherapy (CPT)?
  - Research has shown that the system is nearly three times as effective as the use of chest physiotherapy to move airway secretions.
- Does The Vest® Airway Clearance System effectively treat all areas of the lungs?
  - Yes. Since the system oscillates the chest wall to create airflow, it applies percussion to all lung areas to effectively treat all lobes of the lung at once.
- How long should each Airway Clearance Therapy treatment session last?
  - Common prescriptions specify a treatment session Time to be between 10 and 30 minutes. Prescribed treatment session times may be different. Refer to the physician's orders or facility protocol.
- How often should treatment sessions be given?
  - The Frequency of treatment sessions depends on the patient's underlying disease, age, and state of health. The patient's physician will prescribe a schedule for the individual patient.
- Is chest physiotherapy still necessary?
  - In a number of studies, The Vest® Airway Clearance System has been shown to supply more effective Airway Clearance Therapy than conventional chest physiotherapy. Typically, it is not necessary to do chest physiotherapy along with therapy treatment sessions with The Vest® Airway Clearance System. Refer to the physician's order.
- Is postural drainage still necessary?
  - The Vest® Airway Clearance System moves mucus by generating airflow within the lungs. It works in any position, so generally it should not be necessary to do postural drainage. Refer to the physician's order.

- What will happen if a patient's treatment session is skipped?
  - One missed treatment session of the system may or may not immediately impact the patient's health. However, the key to help maintain the patient's health is consistent, effective therapy. Try to follow the patient's care plan as closely as possible. Consult the prescribing physician if a treatment session is missed.
- Is there a best time to do a therapy with The Vest® Airway Clearance System?
  - Establish a schedule that is satisfactory for the patient and lets you do the therapy consistently. Usually, it is best to do therapy before meals.
- Do all patients receive the same benefits from The Vest® Airway Clearance System?
  - Almost all patients will experience an increase in the amount of mucus that is moved. The overall benefit depends on many factors, which include the underlying disease, patient's age, and his or her present state of health.
- Does The Vest® Airway Clearance System make patients feel better?
  - Patients often report that they are able to breathe better and have more energy after he or she receives therapy.

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