High Negativity Float Valve: Preserves the water seal in the presence of high negativity. Water floats the valve up into the closed position when excessive negativity occurs, valve opens up in decrease negativity.

Collection Chamber: Marking surfaces are for making notations. Use pen or pencil.

Self Sealing Diaphragms: Self sealing diaphragms are provided on the face of the unit to adjust the fluids levels (sterile water or saline) in the Suction Control and Water Seal Chambers.

Floor Stand: Helps prevent tipover. Swings out for stability in use. The floor stand contains an automatic locking mechanism that locks the floor stand in the open position. To close, press locking tab to retract floor stand.

Patient Tubing: Not made with natural rubber latex.

Tubing Support: Embedded metal coil at the tubing base provides added strength against kinks and blockage.

Sampling Port – NO NEEDLE REQUIRED: Use only a standard luer lock syringe to withdraw samples from the autotransfusion connector.

Autotransfusion Connectors: Locking connectors taut and bleed are provided in the patient tube for easy addition of an autotransfusion bag or for quick connection of patient tube to a new chest drainage system.

Manual High Negativity Relief Valve: Provided to vent excessive negativity. Depress the button to relieve negativity. Filtered air will enter the unit and the water in the water seal will drop. Release the button when the desired level of negativity, as indicated by the water level in the Water Seal Pressure Scale, has been attained. CAUTION: If suction is not operative or if operating on gravity drainage, depressing the High Negativity Relief Valve can reduce negative pressure within the Collection Chamber to zero (atmosphere), with the resulting possibility of a pneumothorax.

Patient Tube Clamp: Clamp on patient tube should be placed away from patient, avoiding accidental closure.

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**SET UP INSTRUCTIONS:**

If suction is prescribed, follow steps 1 through 5. If suction is not required, follow steps 1 and 3.

1. Fill the water seal chamber to the “Fill Line” on the Water Seal Pressure Scale to establish the one-way seal for patient protections. This is the 2 cm water level which will require approximately 70 mL. (Figure 1)

A funnel is provided to facilitate filling. Attach the funnel to the connector on the suction tube.

2. Connect to Suction Source. Connect the suction tube to the suction source (Figure 2).

3. Connect the patient tube to the thoracic catheters (Figure 2).

4. Fill the Suction Control Chamber with sterile water or saline. Remove the atmospheric vent cover (muffler) and fill through atmospheric vent to the 20 cm level or as prescribed. Replace the atmospheric vent cover after filling.

5. If suction is required, connect the suction tube to the suction source. Increase suction until gentle bubbling occurs in the Suction Control Chamber (Figure 2). The height to the water in the Suction Control Chamber determines the approximate amount of suction imposed regardless of the degree of bubbling.

CAUTION: Keep Pleur-evac below patient’s chest level at all times.

AVOID: Dependent loops in patient tubing.

DO NOT: Clamp patient tubing during transport. (patient has protection of water seal).

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**NURSING CONSIDERATIONS AND TROUBLESHOOTING**

**MEASUREMENT OF DRAINAGE**

When reading collection chamber calibrations, please note note the first column after fluids spill over into the next lift line may be attributed to surface tension "build up". The actual volume of the pressured elevated chamber shall therefore be used in calculations.

**LEVEL OF WATER IN WATER SEAL CHAMBER**

The water seal level should be set to 2 cm. Water may need to be added due to evaporation. Add as needed through short suction tube. Water may need to be withdrawn if chamber is overfilled. To withdraw water, a sterile 21 gauge needle or higher gauge needle angled downward through the Self Sealing Diaphragm on the face of the chamber, may be used.

**PRESSURE SCALE**

It determines negative pressure in patient’s chest cavity. This scale is utilized to control suction, and pressure in the chest cavity is real directly by the fluid level in the calibrated water seal pressure scale.

With suction, add the reading from the wet suction pressure scale to the reading of the water seal pressure scale. (example: 30 cm suction +15 cm water seal =45 cm patient negativity.)

**SUCTION CONTROL PRESSURE SCALE**

When suction is applied and bubbling occurs, the appropriate level of suction is determined by the original fluid level. To avoid spillover of water from the Suction Control Chamber into the Water Seal Chamber, gentle and controlled bubbling in the Suction Control Chamber is recommended. Check the unit periodically to ensure that adequate negative suction is being maintained or if gentle bubbling is present in the Suction Control Chamber.

NOTE: Expiration may cause a decrease in the fluid level. Monitor fluid level periodically by momentarily disconnecting suction and observing the fluid level in the calibrated suction control pressure scale. If needed, fluid may be added through the atmospheric vent or the self-sealing diaphragm to allow suction to be maintained. Be careful when suction is removed to resume suction after adding fluid.

In the presence of a large patient air leak, air flow through the Pleur-evac unit may be increased by increasing source suction. This will not increase suction imposed on the patient.

**ATMOSPHERIC VENT**

Use the Atmospheric Vent opening for filling the suction control chamber. This allows the valve to the atmosphere. Do not cover the vent with anything other than the atmospheric vent cover (muffler). The muffler allows the air to enter the Suction Control Chamber, reduces evaporation, and dampens the noise of the bubbling.

**SUCTION TUBE**

Used for connection to suction source. If suction is not prescribed, the suction tube should remain UNCAPED and free of OBSTRUCTIONS to allow in to and minimize possibility of tension pneumothorax.

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**SUCTION CONTROL CHAMBER**

When suction is applied and bubbling occurs, the appropriate level of suction is determined by the original fluid level. To avoid spillover of water from the Suction Control Chamber into the Water Seal Chamber, gentle and controlled bubbling in the Suction Control Chamber is recommended. Check the unit periodically to ensure that adequate negative suction is being maintained or if gentle bubbling is present in the Suction Control Chamber.

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In the presence of a large patient air leak, air flow through the Pleur-evac unit may be increased by increasing source suction. This will not increase suction imposed on the patient.

**AIR LEAK METER**

The Pleur-evac A-7000-08LF and A-8000-08LF have a pneumography feature with an air leak meter.

**SUCTION TUBE**

When suction is applied and bubbling occurs, the appropriate level of suction is determined by the original fluid level. To avoid spillover of water from the Suction Control Chamber into the Water Seal Chamber, gentle and controlled bubbling in the Suction Control Chamber is recommended. Check the unit periodically to ensure that adequate negative suction is being maintained or if gentle bubbling is present in the Suction Control Chamber.

NOTE: Expiration may cause a decrease in the fluid level. Monitor fluid level periodically by momentarily disconnecting suction and observing the fluid level in the calibrated suction control pressure scale. If needed, fluid may be added through the atmospheric vent or the self-sealing diaphragm to allow suction to be maintained. Be careful when suction is removed to resume suction after adding fluid.

In the presence of a large patient air leak, air flow through the Pleur-evac unit may be increased by increasing source suction. This will not increase suction imposed on the patient.

**CONTINUOUS OR INTERRUPTED BUBBLING?**

Note the pattern of the bubbling. Identity the source of the air leak. Look and check tight connections (i.e. tubing for leaks). If a leak exists, it may be at the insertion site, remove the chest tube dressing and inspect the site. Make sure the catheter jailed have not pulled out beyond the chest wall. If you cannot see or hear any obvious leaks at the site, look for any leaks in the tubing. Replace the dressing.

If the bubbling fluctuates with respiration (i.e. occurs on exhalation in a patient breathing spontaneously) this is the most likely source in the lung.

In a patient with a mechanical ventilator, there should be no bubbling or movement in the water seal/air leak meter. Look for bubbling in the system.

NOTE: No indicator of flow in the water seal/air leak meter chamber indicates a mechanical ventilator is in function.

To test the tubing for the source of an air leak, using a 16 gauge needle clamp, begin at the dressing and clamp the drainage tubing. Look at the water seal/air leak meter chamber. Keep removing the clamp away from the drainage tubing towards the chest drainage system, and clamp at 8-12 inch G-20, G-30 or G-40 interval. Each time you clamp, check the water seal/air leak meter chamber. When you place the clamp between the source of the air leak and the water seal/air leak meter chamber, the bubbling will stop. If bubbling stops when clamping at the dressing, the seal must be at the chest tube insertion site, and if clamping between chest tube and water seal/air leak meter, the leak must be in the chest tube insertion site.

**DISPOSAL:**

The Pleur-evac units should be handled and disposed of in accordance with all applicable regulations including, with limitation, those pertaining to human health and safety and the environment.