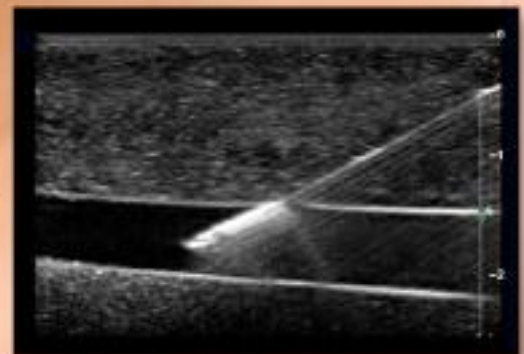


Ultrasound Training Models

Use and Care Instructions



Sagittal image from CVA model





Giving you the confidence only experience can offer™

Congratulations on your purchase of Blue Phantom's™ ultrasound simulation model(s) for hands-on training. Every product we manufacture at Blue Phantom is specifically designed to be the most realistic and resilient ultrasound simulation phantoms available anywhere. Our high standards for quality manufacturing and design guarantee that you receive only the absolute best.

About Blue Phantom

Blue Phantom™ brings you the most realistic and durable ultrasound hands-on training models available anywhere. At Blue Phantom we know that learning to use ultrasound requires practice. You gain confidence and skill through experience. That is why we offer you the best ultrasound simulation training available.

Blue Phantom Warranty

Blue Phantom takes pride in its quality design and manufacturing standards. Our products are warranted to you by Blue Phantom for 1 year from the date of purchase against defects in workmanship and materials. During the warranty period, a defective part or product will be replaced either with a new or reconditioned part or product, depending on the availability at the time.

This warranty covers normal consumer usage and does not cover damage incurred through use not consistent with the product design. Failure that results from alteration, accident, misuse, vandalism, or neglect is not covered under this warranty. This warranty does not extend to any products that have been used in violation of written instructions.

WARNING

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR ACCESS PORT) OF MODELS CONTAINING AUTOMATED PUMPING SYSTEMS. REFER SERVICING TO QUALIFIED PERSONNEL. DO NOT EXPOSE ANY ELECTRONIC COMPONENTS TO RAIN OR MOISTURE. DO NOT SUBMERGE TO CLEAN. UNPLUG UNIT FROM WALL OUTLET BEFORE CLEANING.

IMPORTANT SAFEGUARDS

1. Read Instructions – All safety and operating instructions should be read before the unit is operated.
2. Upon receiving unit, inspect to make sure that all electronic access ports are sealed shut. If any are open or accessible, please report this immediately to Blue Phantom
Telephone: (425) 828-7886
Email: customersupport@bluephantom.com
Web: www.bluephantom.com
3. Retain Instructions – The safety and operating instructions should be retained for future reference.
4. Heed Warnings – All warnings in the operating instructions should be adhered to.
5. Follow instructions – All operating and maintenance instructions should be followed.
6. Unplug unit when not in use
7. Never push objects of any kind into the unit as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind into the unit.
8. Cleaning – unplug unit from the wall outlet before cleaning.
9. Water and Moisture – Do not use this unit near water – for example near a bathtub, wash bowl, sink, in a wet environment, or the like.
10. Accessories – Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall causing serious injury to a child of adult, and serious injury to the unit.
11. CAUTION: Please use extreme care when using needles and sharp objects as to not accidentally injure yourself during training.
12. Servicing – Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified personnel.
13. Power Sources – units with electronics should only be operated from the type of power source indicated on the marking label. If you are not sure of the type of power supply you are using, consult your local power company.
14. Grounding or Polarization – This unit may be equipped with either a polarized 2 wire AC (Alternating Current) line plug (a plug having one blade wider than the other) or 3-wire grounding type plug, a plug having a third (grounding) pin.
15. The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety features of the polarized plug.
16. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety features of the polarized plug.
17. Power cord protection – Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon them or against them, paying particular attention to cords of plugs, convenience receptacles, and the point where they exit from the unit.

Thoracentesis Model Use and Care Instructions

Model # BPTT1000-1

Included in this package

- Torso Training Model
- Hard or soft carrying case (optional)
- Simulated Pleural Effusion Refill Solution (reorder # BPTT1001)
- Use and Care Instructions



This model is intended as a platform for ultrasound guided Thoracentesis as well as for the non-ultrasound placement of large and small bore chest tubes. It is designed to be extremely realistic and its self sealing design provides you with superb durability. In order to get the most out of your training platform, it is important that you properly care for your model.

Care Instructions

Anatomy of Your Training Model

1. Remove your training model from its shipping container and make sure that you have received all of the items listed in the “Included in this package” above. If you did not receive one or more of the listed items, please contact Blue Phantom Customer Support immediately by calling (425) 881-8830 or emailing customersupport@bluephantom.com
2. Familiarize yourself with the anatomy of your training model.

Using Ultrasound with Your Training Model

1. Remove the model from the shipping container and remove all plastic packaging.
2. Set the model upright so that the chest is facing you and the insert release brackets are pointing toward the ceiling.
3. Notice both insert release brackets on the medial and lateral neck surface. These allow you to lock and release all inserts.
4. Extend the lateral insert release bracket next to the shoulder to free the ultrasound tissue insert and remove the plastic packaging.
5. Please note the storage location of the lateral foam insert located within the chest cavity, this is for the non-ultrasound placement of chest tubes.
6. After unpacking the model and insert, place the ultrasound tissue insert back into the cavity by positioning the inferior base of the insert (narrower portion with quick fill port) onto the lower cavity ledge. Allow the superior portion of the insert to rest on the opposing ledge; making adjustments as needed so the inserts sits flush with the lateral chest wall.
7. Lock the ultrasound insert into place by pushing the lateral bracket back into the model.
8. Check to see if the insert is secure by gently pulling on the edges. If the insert shifts, place the model in the right lateral decubitus position and try relocking the insert again.
9. Place or keep the model in the right lateral decubitus position for scanning.
10. Place ultrasound gel on the model or on the ultrasound transducer in adequate quantities so that the probe slides effortlessly across the surface of the model. Add more gel as necessary
11. Adjust the ultrasound system controls per the manufacturer’s instructions, increasing and decreasing the depth and gain controls until the desired image is obtained.

Using Needles and Catheters

1. In order to experience the best performance from your training platform, it is important that you use the appropriate sized needles and catheters on your model. We recommend that you utilize a new 18 - 21 gauge needle and similarly sized catheter kits when accessing fluid in the model. While the tissue simulation materials will tolerate larger bore needles, their use may cause needle tracks to take longer to absorb or even become permanent. Do not use any needle larger than 18 gauge or permanent damage to your model may occur. Smaller bore needles (>22 gauge) used aggressively can bend during use and damage your model as the needle tip is dragged through the material rather than coursing smoothly through the tissue. Dull needle tips create the same dragging effect and may also cause permanent damage to the tissue. Therefore it is important to replace practice needles about every ten cannulations.

CAUTION: Please use extreme care when using needles and sharp objects as to not accidentally injure yourself during training.

Accessing & Refilling the Simulated Pleural Cavity

1. The simulated pleural effusion contained within the model's chest is a specially formulated fluid offering optimal performance of the model. It is very important that you only utilize Blue Phantom's simulated pleural effusion refill solution. Using other fluid will cause problems including; change in the imaging qualities of the fluid, reduction in the ability to thread catheters, fungal and bacterial growth within the vessels.

USING FLUID OTHER THAN THAT SUPPLIED BY OR PURCHASED THROUGH BLUE PHANTOM WILL VOID YOUR WARRANTY.

- A. Users can remove fluid after the pleural effusion has been properly cannulated to confirm needle placement. Please note that any fluid withdrawn from the chest cavity will require refilling.
- B. It is important to maintain a good fluid level within the simulated chest cavity.
 1. Using ultrasound: An optimally filled chest cavity will be identified by the presence of a black echo-free lumen (Refer to image A). A low fluid environment is identified by the inability to visualize the effusion during normal imaging situations. This is due to the presence of air within the cavity which will reflect all of the sound energy (Image B)
 2. Non-imaging; the presence of air in the Quick Fill tube located on the inferior portion of the ultrasound tissue insert.

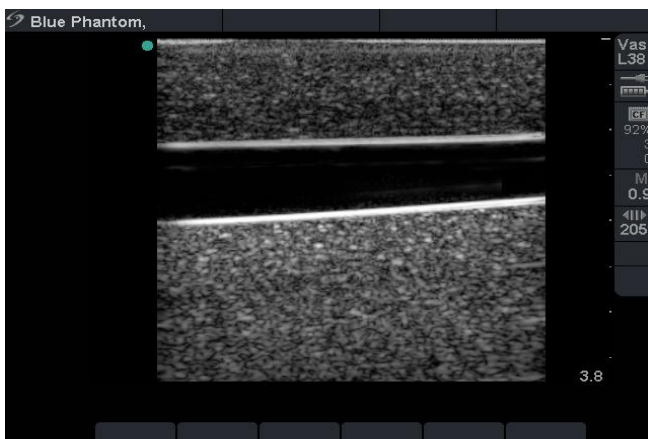


Image A



Image B

There are a number of acceptable ways to refill the simulated pleural effusion. Choose the method that works best for your training environment.

1. **Injecting fluid after each cannulation.** By far the simplest way to maintain a good fluid level in the chest cavity is to have users inject the accessed fluid back into the model after gaining access. This is limited to users that are not performing an entire catheter placement procedure.

2. **Using the Quick Fill Port and Syringe.** Fill a 10 ml syringe with 5 ml of Blue Phantom's Simulated Pleural effusion Refill solution. Place the ultrasound tissue insert on end so that the Quick Fill tube is pointing toward the ceiling; note whether air is present in the Quick Fill tube. If you cannot visually confirm the presence of fluid in this tube, the cavity requires refilling. Connect the filled syringe's luer lock female connector to the male connector on the Quick Fill Port. Slowly inject fluid into the tube making sure that you remove air after you inject 5 milliliters of fluid by slowly releasing the syringe. Continue this process until the cavity is full and all air is purged from the model. Care must be taken as to avoid overfilling or not purging air from the pleural space.
3. **Overfilling the Cavity.** It is possible for you to overfill the pleural cavity if you inject too much fluid into the insert during the refill process. If you use an IV bag, it is much less likely that this will occur unless the I.V. bag is placed at a height significantly higher than the training platform. It will be obvious when the cavity is overfilled when small dimples of simulated pleural effusion appear on the surface of the model at the site of previous cannulations. Simply removing excess fluid and air from the cavity will alleviate this issue. Overfilling will unlikely cause any permanent problems with your model but take care to avoid it.

CAUTION: Use refill solution as directed. Not intended for human consumption. If accidental consumption occurs, drink a glass of water and consult a physician. May irritate eyes; flush well with water. May contain pigments that may stain clothing; wash immediately with cold soapy water. Keep out of reach of children.

If you are uncomfortable refilling the pleural cavity for any reason, contact us and we can refill the phantom for you for a nominal fee.

Replacing the Ultrasound Insert

You can expect a long life from your model. After significant use, the ultrasound tissue insert will require replacement. You will know it is time for replacement when the surface of the model shows significant signs of wear. If you question whether the insert requires replacement, please feel free to contact us with questions.

What you will need to replace the tissue insert module;

- Model with worn ultrasound tissue insert
- Replacement ultrasound tissue insert

Removing the Tissue Insert

1. Using a clear workspace, place the model in an upright position so that the chest is facing you and the insert release brackets are pointing toward the ceiling.
2. Lift the lateral insert release bracket to release the ultrasound insert.
3. Gently lift the ultrasound insert out of the chest cavity and discard or return to Blue Phantom for disposition.

Inserting the New Tissue Insert

1. Remove the old tissue insert module per the instructions above
2. Place the inferior portion of the new ultrasound insert (narrowest end) into the inferior ledge of the chest cavity.
3. Allow the superior end of the ultrasound insert to rest on the opposing edge and sit flush with the lateral chest wall. Lock the lateral insert release bracket into place by pushing it back into the model.
4. Check to see if the insert is secure by gently pulling on the edges. If the insert shifts, place the model in the right lateral decubitus position and try relocking the insert again.
5. If the insert does not shift position the release bracket is secure.
6. Make adjustments to the tissue insert module so that it is seated flush to the surface of the chest wall.

Non-Ultrasound Model Configuration

“Thoracostomy” Training

1. Remove the model from the shipping container and remove all plastic packaging.
2. Set the model upright so that the chest is facing you.
3. Notice the two insert release brackets on the medial and lateral neck surface. These will allow you to lock and release all inserts.
4. The anterior foam insert is located on the anterior portion of the chest cavity. However, the lateral foam insert is positioned within the chest cavity itself.
5. Lift up on the lateral insert release bracket next to the shoulder to free the ultrasound tissue insert. This insert can be stored either in a carrying case or another convenient location.
6. Observe the lateral foam insert located within the chest cavity, this is for the non-ultrasound placement of chest tubes.
7. After removing the protective packaging, place the lateral foam tissue insert into place by positioning the inferior base of the insert (narrower portion) onto the cavity ledge. Allow the superior portion to rest on the remainder of the ledge. Make adjustments to the foam insert so that the surface sits flush with the lateral chest cavity.
8. Lock the insert into place by pushing the lateral release bracket back into the model.
9. Test whether the insert is properly secured by gently nudging the edges. If the insert shifts position the bracket is not locked properly. Reposition the model in the right lateral decubitus position and try relocking the insert.

Replacing the Foam Tissue Inserts

The foam inserts will require replacement. Typically the lateral foam portal will tolerate one optimally placed chest tube and 8 to 10 in the surrounding areas. Likewise the anterior foam insert can endure up to 6 or 7 chest darts before it requires replacement. If you are unsure whether the inserts need to be replaced, please feel free to contact us with questions.

What you will need to replace the tissue insert module;

- Model with worn foam tissue inserts
- Replacement foam tissue inserts

Removing the Tissue Insert

1. Using a clear workspace, place the model upright so that the chest is facing toward you and the insert release brackets are pointed toward the ceiling.
2. Lift the lateral insert release bracket to release the later foam insert or the medial release bracket to release the anterior foam insert.
3. Gently lift the ultrasound inserts out of the chest cavity and discard.

Introducing the New Tissue Insert

1. Remove the old tissue insert module per the instructions above
2. Place the inferior portion of the new foam insert (narrowest end) into the inferior ledge of the chest cavity.
3. Allow the superior end of the ultrasound insert to sit flush with the lateral and anterior chest wall, and then lock the insert release bracket into place by pushing down.
4. Check to see if the insert is secure by gently pulling on the edges. If the insert shifts, place the model in the right lateral decubitus position and try relocking the insert again.
5. If the insert does not shift position the release bracket is secure.
6. Make adjustments to the tissue insert module so that it is seated flush to the surface of the chest wall.



Cleaning and Storing Your Model

After each use your model, foam body and ultrasound tissue insert, can be easily cleaned using mild soapy water. Use a soft cloth to dry after cleaning. It is preferred to dab the model dry rather than rubbing as this will help preserve the finish of the tissue inserts by minimizing scuffing. The model can be stored at room temperature either in the storage container or in the open.

Blue Phantom Warranty

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Help and Technical Assistance

Blue Phantom is committed to providing you with superb products and uncompromising customer support. Should you require assistance feel free to contact us directly at (425) 881-8830.