



**Blue Phantom™**  
A division of Advanced Medical Technologies, LLC

# Select Series Ultrasound Phantoms

## Instructions and User Guide

1/13/2009

V 1.0a

## **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.

## 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) 881-8830  
Email: [customersupport@bluephantom.com](mailto:customersupport@bluephantom.com)  
Web: [www.bluephantom.com](http://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 or 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.

## **Select Series Use and Care Instructions**

**Model # BPB170, BPBV110, BPFB140, BPNB150, BPO100, BPP120, BPT190, BPT195**

### **Included in this package**

- Blue Phantom Block Training Model filled with simulated blood (Blood refill solution reorder #BPS30 red or blue)
- Hard carrying case
- Use and Care Instructions

### **Introduction to Your Training Model**

This model is intended as a platform for ultrasound hands-on technique training. The model 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](mailto:customersupport@bluephantom.com)
2. Familiarize yourself with the anatomy of your training model.

#### **Using Your Training Model**

1. Remove your Blue Phantom™ from its packaging and place on a clean, hard, flat surface. If you intend on guiding sharp objects into the phantom, never place the model in a location where you might accidentally puncture yourself.
2. 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.
3. 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**

In order to experience the best performance from your training platform, it is important that you use the appropriately sized needles and catheters on your model. We recommend that you utilize a new sharp 21 gauge needle and similarly sized catheter kits when accessing the vessels 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 use new 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 Vessels

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

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

2. Users can remove fluid after the veins have been properly cannulated to confirm needle placement. Please note that any fluid withdrawn from the vessel will require refilling.
3. It is important to maintain a good fluid level within the simulated blood vessels. Users can experience a reduction in the amount of fluid or small amounts of air in the simulated vessels through normal repeated use. While this is directly dependent upon the amount of fluid removed during simulation training, the phantom vessels can be easily refilled and air can be purged from the system without difficulty using the following method;
  - A. Determine if the fluid filled structures within your model require refilling. The presence of air within a structure or a noticeably low fluid volume indicates the fluid filled structures require refilling.
    1. Using ultrasound: An optimally filled vessel 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 vessel(s) during normal imaging situations (refer to Image B). This is due to the presence of air within the vessels which will reflect all of the sound energy.
    2. Non-imaging; the visible presence of air

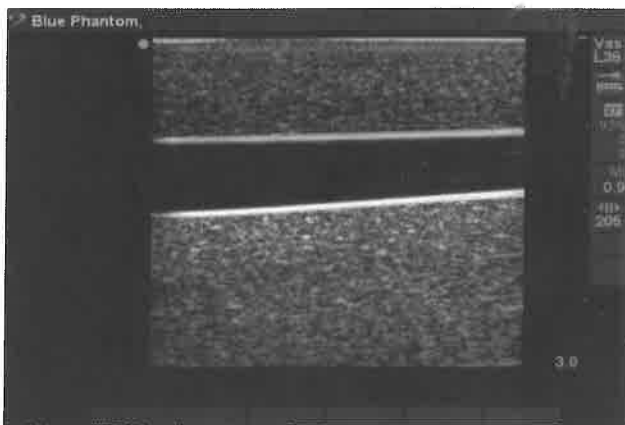


Image A



Image B

- B. Materials required for refilling a vessel;

- Ultrasound Phantom
- Simulation fluid from Blue Phantom
- A small bore needle (18-21 gauge)
- One 10 ml syringe

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

**CAUTION:** Take extra care when placing the needle in the phantom in order to prevent accidentally puncturing yourself during the refill process.

- A. To re-inject the fluid, SLOWLY infuse the simulation vessel in 5 ml increments, purging air after each successive 5 ml filling, until the vessel is full. Filling the vessel SLOWLY prevents air bubbles from being introduced into the vessel and minimizes overfilling. You will observe the size of the simulated vessel expand on ultrasound as fluid is introduced.
5. **Using the Dimple Access Ports.** Position the phantom with the vessel fill caps facing upward, these are identified as small dimples at the beginning of each blood vessel within the ultrasound tissue insert. This will allow the air within the vessel to migrate to the top of the vessel. With the ultrasound tissue insert in the upright position, use a book or another solid object to keep the phantom in an upright position.
    - A. Carefully insert the needle into the end of the targeted simulation vessel dimple.
    - B. SLOWLY infuse the simulation vessel in 5 ml increments, purging air after each successive 5 mls, until it is full. Filling the vessel SLOWLY prevents air bubbles from being introduced into the vessel. You will observe the size of the simulated vessel expand on ultrasound as fluid is introduced.
    - C. Withdraw any air that has accumulated at the top of the simulated vessel.
    - D. Overfilling: You will know the vessel(s) are too full when beads of simulation blood appear at the site of needle insertion points. Remove excess fluid from the vessel until the vessel has retained its original size. Be careful, overfilling the vessels can also cause previously cannulated sites to leak small amounts of fluid. If you notice this occurring, simply remove a small amount of fluid.

**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 vessel for any reason, contact us and we can refill the phantom for a nominal fee.**

### **Cleaning and Storing Your Model**

After each use your model 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 insert model by minimizing scuffing. The model can be stored at room temperature either in the storage container or in the open.

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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.