Ultrasound IV-PICC Arm
(compatible with CAE Juno and CAE Ares)

User Guide
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CAUTIONS AND WARNINGS

Please read and understand these cautions and warnings before you begin using the product.

IMPORTANT: DO NOT USE THE PRODUCT IN ANY MANNER OTHER THAN SPECIFIED, AS SAFETY FEATURES DESIGNED FOR PROTECTION MAY BE IMPAIRED. ALL WARNINGS IN THIS USER GUIDE SHOULD BE ADHERED TO.

Equipment Safety and Recommendations

- Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall causing serious injury to users and serious damage to the unit.

- Using needles and catheters:
  - It is important that the appropriate size needles and catheters are used. For best performance with your model, it is recommended to use a new 18-21 gauge needle and similarly sized 7 French catheter kits (for PICC line training) when accessing vessels in the model. While Blue Phantom tissue simulation will tolerate larger bore needles, their use may cause needle tracks to take longer to heal 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 needles approximately every ten cannulations.

SAFETY NOTICE

Use extreme caution when using needles and sharp objects so as not to injure yourself or others during training.

- Using fluids:
  - 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 the reach of children.

WARNING

Only use Blue Phantom’s simulated blood refill solution. Using fluid other than that supplied by or purchased through Blue Phantom will void your warranty.
INTRODUCTION

CAE Blue Phantom™ brings you the most realistic and durable ultrasound hands-on training models available. At Blue Phantom, we know that learning to use ultrasound equipment requires practice. Confidence and skills are developed through practice and experience. That is why we offer the best ultrasound simulation training available.

The Blue Phantom Ultrasound IV-PICC Arm is intended as a replacement arm with an ultrasound insert located in the antecubital IV space for PICC and IV/Arterial training, with the standard IV cannulation module located in the hand space. This arm is compatible with CAE Juno and CAE Ares patient simulators. The Ultrasound IV-PICC Arm is designed to be extremely realistic and its self-sealing design provides superb durability.

For more information about CAE Blue Phantom products and accessories, please visit www.bluephantom.com

SETUP

Follow the guidelines below for unpacking and setting up the Blue Phantom Ultrasound IV-PICC Arm.

Unpacking

When opening your shipment:

- Exercise extreme caution when using sharp objects, such as a box cutter. A damaged container can lead to improper storage of the ultrasound insert, potentially damaging causing damage.
- Verify the content of each item in the container against the shipping paperwork to ensure you received the correct product and parts.
- Keep original shipping materials, including boxes and foam. Warranty and repair items must be returned and shipped in their original packaging.

Remove the training model from its shipping container and ensure that the following items are included with your shipment:

- 1 Ultrasound IV-PICC Arm
- 1 bottle red fluid
- 1 bottle blue fluid

If you have any questions regarding your shipment, please contact Blue Phantom Customer Support by calling (425) 881-8830 or via email customersupport@bluephantom.com
Setup Preparation

The following additional items are required for training but not included with shipment:

- 20 gauge needle for optimal performance (18-21 gauge range recommended)
- Ultrasound gel
- Ultrasound system with vascular access transducer
- PICC Catheter kit (7 French catheter size recommended for PICC and Arterial)

Setup Procedure

Follow these setup instructions carefully to change out the standard IV arm to the Blue Phantom Ultrasound IV-PICC Arm for training.

Step 1: Remove the Current IV Arm from Juno/Ares Manikin

To remove the current IV arm from the Juno/Ares manikin:

1. Remove the IM/IO pad.
   
   ![IM/IO Pad Removed](image)

   - IM/IO Pad
   - Mounting screw

2. Use the screwdriver to unscrew the mounting screw in the shoulder mount.
3. Remove the joint sphere and screw assembly.
4. Remove arm.
Step 2: Attach the Ultrasound IV-PICC Arm to Juno/Ares Manikin

To attach the Ultrasound IV-PICC Arm to the CAE Juno or CAE Ares manikin:

1. Remove the IM/IO pads from the Ultrasound IV-PICC Arm and set them aside.
2. Insert the screw into the flat side of the joint sphere.

3. Insert the joint sphere and screw assembly into the mounting hole in the Ultrasound IV-PICC Arm.

4. Attach the mounting screw into the hole in the shoulder mount.
5. Use the screwdriver to tighten the mounting screw until it is snug and the arm moves freely.

6. Reinsert the IM/IO pad into the arm.

Step 3: Fill the Training Model Fluids

The simulated blood contained within the model's blood vessels is a specially formulated fluid offering optimal performance of the model. Other types of fluid will cause problems with your model, including change in the imaging qualities of the blood vessels, reduction in the ability to thread catheters, as well as fungal and bacterial growth within the vessels that will damage the model.

There are a number of acceptable ways to refill the simulated vessels. Choose one of the methods listed below that works best for your training environment.

- **Injecting fluid after each cannulation**: By far the simplest method to maintain a good fluid level in the vessels is to 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.

- **Using the luer lock fill port**: High volume users will benefit from connecting an IV bag containing Blue Phantom Simulated Blood Refill Solution to the luer lock fill port located on the superior position of the training platform. Users will have to use the tube clamp to lock the drain tube in place. Please note that this will only ensure the veins are optimally filled with fluid. The artery requires syringe filling directly in the vessel.

- **Using a syringe and luer lock fill port**.
To fill using a syringe and luer lock fill port:

a. Fill a syringe with the Blue Phantom Simulated Blood Refill Solution with approximately 5 ml.
b. Place the model in an upright position and note whether air is present in the fill tube.
   If you cannot visually confirm the presence of fluid in this tube, the vessels require refilling.
c. Connect the filled syringe's luer lock connector to the luer lock connector on the fill port.
d. Slowly inject fluid into the fill tube until fluid is visible in the drain tube.

**Overfilling the Vessels**

It is possible to overfill the vessels if too much fluid is injected into the vessels during the refill process. If an IV bag is used, it is much less likely that this will occur unless the IV bag is placed at an elevation significantly higher than the training platform. It will be obvious when the vessels are overfilled when small dimples of simulated blood appear on the surface of the model at the site of previous cannulations. Simply removing excess fluid and air from the vessels will alleviate this issue. Overfilling the vessels will unlikely cause any permanent problems with your model but take care to avoid overfilling.
Using the Ultrasound IV-PICC Arm

Follow these instructions carefully to use the CAE Blue Phantom Ultrasound IV-PICC Arm.

Using the Training Model

To use the training model:

1. Place ultrasound gel on the model or on the ultrasound transducer in adequate quantity so that the probe slides effortlessly across the surface of the model. Add more gel as necessary.

2. 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 the Ultrasound Anatomy

The ultrasound insert anatomy contains a medial arterial vessel filled with red refill fluid.

The ultrasound insert also contains looped venous vessels which are lateral to the arterial vessel.

The venous vessels are connected to two tubes. One tube is labeled “drain”, the other tube labeled “fill” (see Step 3: Filling the Training Model Fluids in Setup Procedure section of this user guide to fill the venous vessels).

Using the Simulated Fluids and the Ultrasound

One of the methods of differentiating between the simulated arteries and veins is the color of the fluid contained within the vessels. Red fluid is consistent with the blood in the arteries and blue fluid identifies the veins.

Users can remove fluid after the veins have been properly accessed to confirm needle placement. Please note that any fluid withdrawn from the vessel will require refilling (see Step 3: Filling the Training Model Fluids in Setup Procedure section of this user guide).
It is important to maintain a good fluid level within the simulated blood vessels.

- Using the ultrasound: An optimally filled vessel will be identified by the presence of a black, echo-free lumen.

![Ultrasound of Vessel - Optimal Fill](image1)

- A low fluid environment is identified by the inability to visualize the vessel(s) during normal imaging situations. This is due to the presence of air within the vessels, which will reflect all the sound energy.

![Ultrasound of Vessel - Low Fill](image2)

- Non-imaging: the presence of air in the Quick Fill tube.
CARE AND MAINTENANCE

Follow the Care and Maintenance guidelines to properly clean, store, and maintain your product.

Cleaning

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 tissue dry rather than rubbing it, as this will help preserve the finish of the tissue by minimizing scuffing.

Storage

The model can be stored at room temperature.

WARRANTY

CAE Blue Phantom™ takes pride in its quality design and manufacturing standards. Our products are warranted to you by Blue Phantom for one 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 availability.

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.

Blue Phantom offers a 30-day money back guarantee as well as 1-year warranty on all products. Please see details below.

a. Customer will be responsible for all shipping expenses (Blue Phantom will cover shipping charges for repair/replacement parts if the product is defective within 30 days of purchase).

b. The defective part of product will be replaced by Blue Phantom either with a new or reconditioned part or product depending on the availability at the time of replacement at no cost to the customer.

Warranty Exclusions

The foregoing warranties of Covered Products do not include:

Any defect or deficiency of the Product that results, in whole or part, from:

a. failure to operate, maintain or store the Product in accordance with applicable instructions and User Guide specifications,

b. the dismantling, repair, or alteration of the Product by unauthorized personnel,
c. abuse or improper storage of the Product,

d. failure to use the Product in accordance with its specification,

e. accidental damage,

f. failure to follow Blue Phantom's written instructions,

g. damage to or malfunction of Product due in whole or part to disinfecting or cleaning incorrectly with chemicals or cleaners not recommended by Blue Phantom,

h. intentional damage to the Product,

i. products that are subjected to negligence, accident, vandalism, or disasters such as flood, fire or war

Help and Technical Assistance

CAE Blue Phantom™ is committed to providing you with superb products and uncompromising customer support. Should you require assistance, please contact us directly by calling (425) 881-8830 or via email customersupport@bluephantom.com