

Healthcare

CAE Blue Phantom User Guide

BPJA-500 Ultrasound IV Arm Insert, medium skin tone
BPJA-500-C Ultrasound IV Arm Insert, dark skin tone



CAE

Disclaimer

This product is a simulation device designed for training and demonstration purposes only.

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Cautions and Warnings

Read this user guide, including all cautions and warnings, before you use your CAE Blue Phantom™ ultrasound training model. Use this product only as described in this guide. If you use the product incorrectly, it may be unsafe and will void your warranty. Keep this information for future reference.

General Precautions

- Do only the procedures supported by the product described in this guide.
- Use only needles to access fluids.
- Do not use or store other sharp objects such as scissors, scalpels, or box-cutters with the product.
- Do not pull on the product skin. This can cause the skin to tear.
- Do not mark directly on the insert as this will permanently damage it.
- Do not put any objects or tools into the insert except for the equipment, accessories, or medical supplies intended for use with the product.
- Do not use chemical solvents on the product.
- Clean the insert with water and a light soap solution only. Do not immerse it or use large amounts of liquid to wash it.

Latex-Free

- All CAE Blue Phantom training models, products, and accessories are manufactured only of materials that do not contain latex.

Needles and Catheters

- Use only new, sharp, unbent 18–21 gauge needles or 7F catheters. Smaller needles (higher than 22 gauge) can bend during use and damage the model.
- The self-healing feature of CAE Blue Phantom simulated tissue applies only to needle sticks from 18–21 gauge needles. Healing is not guaranteed if needles larger than 18 gauge, scalpels, or other sharp implements are used to cut into or pierce the model.
- Replace needles after ten uses. Dull needles can damage the model.
- Use extreme caution when using needles during training to avoid injury.

Fluids System

- Use only CAE Blue Phantom fluids. Other fluids can affect the imaging quality and promote fungal or bacterial growth, and may void your warranty. Use fluids only as directed.
- Do not substitute any other fluid unless indicated by this guide.
- Do not modify the fluid reservoirs or any assembly components.
- Protect your eyes, skin, and clothing against accidental fluid exposure. Refer to the Material Safety Data Sheet (MSDS) for guidance.
 - May irritate eyes or skin; flush well with water.
 - May contain pigments that stain clothing; wash immediately with cold soapy water.
- Fluid is not intended for human consumption. If accidental ingestion occurs, drink a glass of water and consult a physician.

Service and Repair

- The CAE Blue Phantom training models are not user-serviceable. Only a trained technician may open or disassemble the product.
- Unauthorized use or handling of the model may void the warranty.
- If you have a problem with your product, contact CAE Customer Support.

Introduction

This user guide describes the features, use, and care of the following products:

- CAE Blue Phantom Ultrasound IV Arm Insert, medium skin tone (BPJA-500)
- CAE Blue Phantom Ultrasound IV Arm Insert, dark skin tone (BPJA-500-C)

These products are intended as accessory platforms for ultrasound-guided peripheral IV access on our CAE Juno and CAE Ares patient simulators.



Ultrasound Arm Insert

Anatomy

CAE Blue Phantom training models are constructed using our patented Simulex™ ultrasound tissue which has imaging characteristics that mimic human tissue. The models contain skeletal components so the user will encounter the same imaging landmarks as in a human patient.

The arm insert contains looped venous vessels that connect to two tubes. One tube is labeled “Drain” and the other tube is labeled “Fill.” The tubes have a female Luer lock connector that is designed to work with syringes that have a male Luer lock connector.

Products are delivered with minimal fluid. Users must infuse additional fluid to prepare the insert for use. More information can be found in the *Fluid Setup* section of this guide.

Equipment Overview

The following items are included with your shipment:

- Ultrasound IV arm insert
- Red ultrasound refill fluid
- Blue ultrasound refill fluid

Introduction

The following additional items are required for training but not included in your purchase:

- CAE Ares or CAE Juno simulator with IV arm
- Ultrasound system with appropriate transducer
- Ultrasound gel
- Peripheral IV access equipment per local protocol

CAE Blue Phantom training models are compatible with any diagnostic ultrasound system. General frequency ranges for diagnostic ultrasound imaging are 2-20MHz.

Optional accessories or consumables for your model are available to purchase on the CAE website:

- BRS180-RED Red ultrasound refill fluid
- BRS181-BLUE Blue ultrasound refill fluid

Using the Arm Insert

This section has information and instructions about the setup and use of the arm insert and any specific training procedures.

Setup

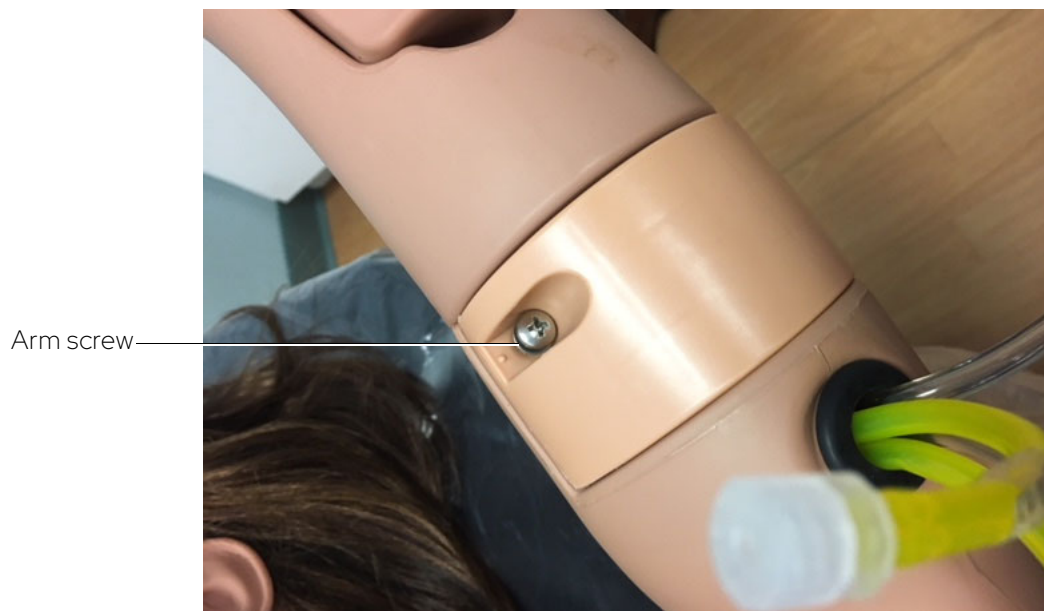
Follow the guidelines below to unpack and set up your CAE Blue Phantom Ultrasound Arm Insert.

1. Open the shipping carton:
 - Use extreme caution with sharp tools or box cutters to avoid damage to the product.
2. Unpack the equipment:
 - Remove the insert and any accessories from the box.
 - Review the equipment and supplies. See the *Equipment* section of this guide for a list of items included with this model.

Installing the Arm Insert

To replace the original IV arm insert with the ultrasound arm insert, follow these steps:

1. Remove the screw in the upper-left arm to release the IV tubing. Keep the screw in a safe place. You will need it to re-attach the arm later.



Arm Screw in Upper Arm

Using the Training Model

2. Remove the arm slightly and gently guide the IV tubes labeled ANTECUBITAL through the opening to remove them. Leave the tubes labeled DORSAL in place. Leave the arm in place but unattached.



Remove IV Tubes

3. Remove the IV arm insert by gently pulling it out of the arm.



Remove IV Insert

4. To install the new insert, gently push the tubes of the ultrasound arm insert up through the arm and then out through the hole in the upper arm.

5. Put the ultrasound insert into the arm space.



Ultrasound Insert in Position

6. Reconnect the arm and secure with the screw.

Fluid Setup

The arm insert is shipped with minimal fluid in the vessels or fluid. During periods of non-use, fluid may also evaporate from inside the insert.

Before first use, you must add fluid and remove any air. Use one of these methods:

Method A: Syringe Fill (also to remove air)

1. Remove the cap of the fill tube.
2. Fill a syringe half-full with ultrasound refill fluid and connect it to the tube.
3. Hold the tube up and tap it to move any air bubbles upwards.
4. Aspirate the air before before filling for optimal imaging.
5. Inject 10 ml of fluid.
6. Remove 5 ml of fluid along with any air.

7. Repeat steps 3 through 6 until all the air is removed and the vessels are filled.
8. Replace the cap.

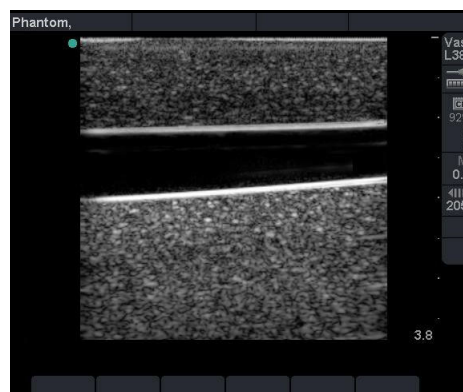
Method B: Quick-Fill port for high volume use

1. Connect an IV bag containing CAE Blue Phantom fluid to the fill tube.
2. Hang the IV bag no more than 12 inches (30 cm) above the training model to avoid overfilling.

NOTE: A clear sign of overfill is the appearance of small dimples of simulated blood on the surface of the model at the sites of previous cannulations. To correct overfill, see the *Troubleshooting* section.

3. As users withdraw fluid, it is refilled continuously from the IV bag.

An optimally-filled vessel can be identified using ultrasound by the presence of a black echo-free lumen.



Normal Fluid Level - Good Imaging

A low fluid environment is identified by the inability to see the vessel during normal ultrasound imaging. This is due to the presence of air, which reflects all sound energy.



Low Fluid Level - Poor Imaging

Training

Our training models are the essential practical component to complement your ultrasound training curriculum and provide a realistic simulation experience to practice the psychomotor skills needed for any ultrasound-guided procedures.

Ultrasound Scanning

CAE Blue Phantom products do not teach ultrasound procedures or techniques. Refer to your institution or training program for more information.

To conduct an ultrasound examination with your arm insert:

1. Place the arm with the insert in the appropriate position for scanning.
2. Place ultrasound gel on the transducer or on the insert in an adequate quantity so that the transducer slides effortlessly. Add more gel as needed.
3. Adjust the ultrasound system controls per your training protocol and the manufacturer's instructions. Optimize the image with the ultrasound controls as needed.

Ultrasound-guided Procedures

Your CAE Blue Phantom training model is a realistic platform for complete peripheral venous access procedural training. For IV or arterial line placement, use your normal protocol and equipment, and follow your institution's policies and guidelines.

⚠ CAUTION

Do not use antiseptics, such as iodine, on your arm insert or simulator. This can cause permanent damage.

During use, users may withdraw fluid to confirm needle placement. Any fluid withdrawn must be refilled because it is important to maintain the fluid level within the vessels.

Refill the fluid using one of the filling methods described in the *Fluid Setup* section of this guide. A third way is for users to refill fluid by simply re-injecting it:

- During use, the user immediately injects any withdrawn fluid back into the model at the injection site.
- Take care not to inject any air into the model when using this method.

NOTE: This method cannot be used with full catheter placements.

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Care and Maintenance

With proper care, your arm insert will remain in optimal condition and ready for use.

Storage and Transport

Follow these guidelines to properly store or transport your product:

- Storage temperature degree range: 45 to 85 °F (7 to 29 °C)
- Do not store in contact with other CAE Blue Phantom training models, simulator parts, or hard objects as the pressure can damage the Simulex tissue. Do not stack simulators with arm inserts on top of each other.
- Ensure any tubes are not pinched or compressed under the simulator. This will damage the tubes and void the warranty.
- Store the product with some fluid in the vessels. If these become dry, it will damage the arm insert and cause poor ultrasound imaging.
- If fluid was infused during training, remove excess fluid after each training session. If you store the product with too much fluid inside, it can cause damage.

Cleaning

To maintain the product skin for the lifespan of the product, clean the exterior of the insert after each use. Follow these steps:

1. Mix one cup of tap water with ¼ teaspoon of mild liquid soap (such as dish soap).
2. Gently clean the exterior with the soap mixture and a soft, non-abrasive sponge or cloth.
3. Rinse lightly with clean water.
4. Dab or pat with a clean, soft, lint-free cloth to dry the product after cleaning. Do not wipe or rub the skin, which can damage it.
5. After the insert has dried completely, lightly coat the external surface with baby powder and dust off any excess.

Troubleshooting

This section provides information to identify and fix problems that may occur with the product.

Fluid Overfill

You can overfill fluid spaces and vessels if you inject too much fluid. Overfill does not usually result in permanent damage, but you should correct it as soon as possible.

Withdraw excess fluid to alleviate overfill, or, with the Quick Fill method, make sure the IV bag is not hanging any higher than 12 inches (30 cm) above the training model.

Removing Air

Fluid can evaporate from the model during shipment or during extended periods of non-use. Air may also enter through accidental injection during fluid filling or training use. This may cause the Simulex tissue to stick together in some areas, preventing fluid from circulating. Remove any air from the model for optimal performance.

To remove air:

1. Fill a syringe with fluid and connect it to the tube.
2. Infuse fluid, and tilt the model up at least 6-10" so any air rises to the top.
3. Let the model sit for at least one hour to allow any air to rise.
4. Use the syringe to slowly pull the fluid out of the model.
5. Watch for air bubbles and let them rise to the top (back) of the syringe.
6. Slowly push fluid back in without pushing the air in.
7. Repeat steps 4-6 three to four times.
8. Empty the syringe into a container and use it to remove any additional fluid, then disconnect it.

NOTE: When all the fluid is removed, the syringe will be under vacuum. Do not put excessive force on the syringe or the tissue may rupture.

9. If there is still air, fill any fluid spaces or vessels with fluid and let the model sit overnight, then repeat the procedure.

Help and Technical Assistance

For assistance, contact CAE Customer Support. Contact information for all regions is available on the back cover of this guide and on the CAE Healthcare website.



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For more information about CAE products, contact your regional sales manager or the CAE distributor in your country, or visit caehealthcare.com.

Tel +1941-377-5562 or 866-233-6384

For customer support, please contact CAE.

Customer Support Headquarters - United States

Monday - Friday from 7:00 a.m. to 6:00 p.m. ET

Phone 1-866-462-7920

Email: srqcustomerservice@cae.com

Customer Support - Canada

Monday - Friday from 8:00 a.m. to 5:00 p.m. ET

Phone 1-877-223-6273

Email: can.service@cae.com

Customer Support - Europe, Middle East, and Africa

Monday - Friday from 8:00 a.m. to 5:00 p.m. CET

Phone +49 (0) 6131 4950354

Email: international.service@cae.com

Customer Support - United Kingdom and Ireland

Monday - Friday from 9:00 a.m. to 5:00 p.m. GMT

Phone +44 (0) 800-917-1851

Email: uk.service@cae.com

Customer Support - Latin America

Monday - Friday from 9:00 a.m. to 5:00 p.m. BRT/BRST

Phone +55 11 5069-1510

Email: la.service@cae.com

Customer Support - Asia Pacific

Monday - Friday from 8:00 a.m. to 5:00 p.m. CET

Phone +49 (0) 6131 4950354

Email: ap.service@cae.com