

Healthcare

CAE Blue Phantom User Guide

BPL400 Femoral Vascular Access Ultrasound Training Model

BPL400-DVT Femoral Vascular Access Ultrasound Training Model with
Deep Vein Thrombosis

BPL550 Foreign Body Identification Ultrasound Training Model, leg

BPL600 Soft Tissue Biopsy Ultrasound Training Model, leg



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

- Make sure the training model is set up on a stable, sturdy work surface such as a bed, stretcher, or table that will not collapse and cause injury to users.
- Heavier training models should be placed on a patient bed or stretcher rated to support such weight.
- Place the model on smooth surfaces only. Rough or uneven surfaces can leave impressions on the skin and damage the model.
- Do only the procedures supported by each product as 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 training model.
- Do not pull on the training model skin. This can cause the skin to tear.
- Do not mark directly on the training model as this will permanently damage it.
- Do not insert any objects or tools into the model except for the equipment, accessories, or medical supplies intended for use with this model.
- Do not use chemical solvents on the models.
- Clean the training model with water and a light soap solution only. Do not immerse the model 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 training models:

- CAE Blue Phantom Femoral Vascular Access Ultrasound Training Model (BPL400)
- CAE Blue Phantom Femoral Vascular Access Ultrasound Training Model with Deep Vein Thrombosis (BPL400-DVT)
- CAE Blue Phantom Foreign Body Identification Ultrasound Training Model, leg (BPL-550)
- CAE Blue Phantom Soft Tissue Biopsy Ultrasound Training Model, leg (BPL600)

These models are intended as platforms for the practice of ultrasound examination and various ultrasound-guided procedures. Each is presented as a leg base with the use-specific insert. The inserts are interchangeable.



Ultrasound Training Model

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 internal anatomy or features of each leg model are as follows:

- Femoral Vascular Access Ultrasound Training Model (BPL400) and Femoral Vascular Access Ultrasound Training Model with Deep Vein Thrombosis (BPL400-DVT)
 - Saphenous vessel
 - Femoral vessel
 - Accessory vessels

These models are delivered prefilled with CAE Blue Phantom ultrasound fluid. More information can be found in the *Using the Training Model* section of this guide.

- Foreign Body Identification Ultrasound Training Model, leg (BPL-550)
 - Metal projectile BBs
 - Metal shrapnel fragments
 - Wooden splinters
 - Metal needles
 - Large glass fragments
 - Glass shards
- Soft Tissue Biopsy Ultrasound Training Model, leg (BPL600)
 - 20 hyperechoic, hypoechoic, and echolucent masses (4 mm to 11mm)

Equipment Overview

The following items are included with your shipment:

- Ultrasound training model
- Red ultrasound refill fluid (BPL400 and BPL400-DVT only)

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

- Ultrasound system with appropriate transducer
- Ultrasound gel
- Vascular access equipment as per local protocol (BPL400 and BPL400-DVT only)
- Biopsy equipment as per local protocol (BPL600 only)

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:

- BPLI405 Femoral vascular access replacement insert
- BPLI405-DVT Femoral vascular access replacement insert with DVT
- BPLI410 Soft tissue biopsy replacement insert
- BPLI410 Foreign body identification replacement insert
- BRS180-RED Red ultrasound refill fluid (for BPL400 and BPL400-DVT only)

Using the Training Model

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

Setup

Follow the guidelines below to unpack and set up your CAE Blue Phantom training model.

1. Open the shipping carton:
 - Use extreme caution with sharp tools, such as a box cutter, to avoid damage to the training model.
2. Unpack the equipment:
 - Remove the training model from its shipping container. For heavier models, use proper lifting techniques to prevent bodily injury.
 - Review the equipment, accessories, and supplies to make sure all necessary pieces are present. See the *Equipment Overview* section of this guide for a list of items included with this model.
3. Set up for training:
 - Put the model on a stable patient bed, stretcher, or table.
 - Prepare your ultrasound system and equipment.
 - Gather any procedural equipment and supplies.

Training

This section provides information about using your model for training and practice.

Ultrasound Scanning

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

To scan with your training model and conduct a simulated ultrasound-guided procedure:

1. Place the model in the appropriate position for scanning.
2. Place ultrasound gel on the transducer or on the training model in an adequate quantity so that the transducer slides effortlessly on the model. 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

Three of the leg models also support specific ultrasound-guided needle procedures. For each model listed below, use your normal protocol and equipment, and follow your institution's policies and guidelines.

Note: The Foreign Body Identification model does not support any ultrasound-guided needle or extraction procedures.

▲ CAUTION

Do not use antiseptics, such as iodine, on the model. This will cause permanent damage.

Femoral Vascular Access Ultrasound Training Model (BPL400) Femoral Vascular Access Ultrasound Training Model with Deep Vein Thrombosis (BPL400-DVT)

These models are intended as a platform for the practice of ultrasound-guided femoral venous access and identification of DVT (BPL400-DVT only).

During use of this training model, users may withdraw fluid to confirm needle placement after the vessel has been accessed. Any fluid withdrawn must be refilled because it is important to maintain the fluid level within the vessels. During periods of non-use, fluid may also evaporate from inside the model. Refill with one of the these methods

Method A - Syringe Fill (also to remove air):

1. Fill a syringe half-full.
2. Remove the femoral insert.
3. Locate the dimples on the end of the insert. These are the locations to inject fluid.
4. Inject 10 ml of fluid.
5. Remove 5 ml of fluid along with any air.
6. Repeat steps 4 and 5 until any air is removed and the vessels are filled.

Method B - Re-injection:

- During use, the user immediately injects any withdrawn fluid back into the model at the access 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.

Soft Tissue Biopsy Ultrasound Training Model, leg (BPL600)

This model is intended as a platform for the practice of ultrasound-guided soft tissue biopsies.

When a tissue sample is taken from the leg insert, it leaves an air-filled space the same size as the sample. Once a tissue sample is removed, it cannot be re-inserted. Therefore, this product has a finite lifespan.

Care and Maintenance

With proper care, your training model will remain in optimal condition and ready for use.

Storage and Transport

Follow these guidelines to properly store or transport your model:

- Storage temperature degree range: 45 to 85 °F (7 to 29 °C)
- Do not store in contact with other models or hard objects as the pressure can damage the Simulex tissue. Do not stack multiple training models on top of each other.
- Ensure any tubes are not pinched or compressed under the model. This will damage the tubes and void the warranty.
- When models with inserts are stored standing up for long periods of time, gravity may cause the insert to deform slightly. Remove the insert and let it sit for a few days to regain its shape.
- Store the model with some fluid in any vessels and fluid spaces. If these become dry, it will damage the model and cause poor ultrasound imaging.
- If fluid was infused into the model during training, remove excess fluid after each training session. If you store the model with too much fluid inside, it can cause damage.
- Transport the model securely so it does not fall.
- Do not carry by the tubes or use them as handles as this will damage the model.

Cleaning

To maintain the product skin for the lifespan of the product, clean the exterior of the model 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 model's 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 model has dried completely, lightly coat the external surface of the model with baby powder and dust off any excess.

Replacing the Tissue Insert

To replace the insert, you will need:

- Replacement insert

Follow these steps:

1. Position your training model in the upright position.
2. Gently lift up and pull the insert out completely.
3. Place the new insert into the base.
4. Adjust the insert as needed so it aligns with the surface of the model.

Troubleshooting

Applies to BPL400 and BPL400-DVT only

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. To alleviate overfill, withdraw the excess fluid with the syringe. Access the fluid space through one of the dimples at the end of the femoral insert.

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, use the syringe fill steps found in the *Using the Training Model* section of this guide.

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.



Healthcare

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

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For customer support, please contact CAE.

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