

Healthcare

CAE Blue Phantom User Guide

BPLUNG-19 Covid-19 Lung Ultrasound Training Model



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.

This model has electrical components. The *Electrical Safety* section of this user guide has cautions and warnings that are important for your safety.

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.
- Do not use needles. This model is not designed for punctures or other needle access. Using needles can cause injury and will void the warranty.
- 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.
- 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.

Electrical Safety

- When you unpack your training model, inspect the product and make sure all electronic access ports are sealed shut. If any ports are open or accessible, report this immediately to CAE Blue Phantom Customer Support.
- To reduce the risk of electric shock, do not remove the access panel or port cover of models containing electronic components or an automated pumping system. Refer all service questions to CAE Blue Phantom Customer Support.
- Do not remove tags or labels with product and safety information from any equipment. Keep them with the equipment for reference.

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- Connect this product only to a properly-grounded electrical outlet.
 - Use only the included power cords. Do not substitute any other cords.
 - The included power cord has either a polarized 2-wire AC (alternating current) plug (which has one blade wider than the other), or a 3-wire grounding plug, (which has a third pin for grounding).
 - The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you cannot insert the plug fully into the outlet, flip the plug.
If the plug still does not fit, contact your electrician to replace the outlet. Do not attempt to defeat the safety features of the polarized plug.
 - The 3-wire grounding plug will fit into a 3-hole grounding outlet. This is a safety feature.
If you cannot insert the plug into the outlet, contact your electrician to replace the outlet. Do not attempt to defeat the grounding and safety features of the plug.
 - Arrange power cords so they do not cause someone to trip over them. Do not walk on them or put items on or against them.
 - Unplug all equipment when not in use.
 - Unplug all equipment before cleaning.
 - Do not insert objects of any kind into electrical equipment as they may touch dangerous voltage points or cause a short-circuit that could result in fire or electric shock.
 - Do not use the training model outdoors or near any source of water or moisture.
 - Do not allow large amounts of fluid to flow on or into electronic parts.
 - Do not spill liquid into the equipment.
 - Do not apply gel or liquid substances to the product unless instructed by the use or cleaning procedures in this guide.
 - Do not plug in the electronic pumping system in any area with a potentially explosive atmosphere. Sparks created by the electrical connection could create an explosion or fire and cause serious injury or death.
 - Do not drop, disassemble, open, crush, bend, deform, puncture, shred, microwave, incinerate, paint, or insert foreign objects into the equipment.
 - Do not use models with the automated pump system in rain, or near sinks or other wet areas. Do not spill any food or liquid on the electrical components. An automated pump system damaged by liquids is not serviceable.
 - Do not leave the electronic controller unattended when it is plugged in. A malfunction can cause a fire, or electrical shock or burn injuries.
 - If electronic components get wet, unplug all cables and let the equipment dry completely before turning it on. Do not dry electronics with a heat source, like an oven or hair dryer.
 - It is important to use the model and automated pump system only within a temperature range of 0° to 35°C (32° to 95°F). Avoid any big changes in temperature or humidity, as this can cause condensation to form on or in the automated pump system.

Service and Repair

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

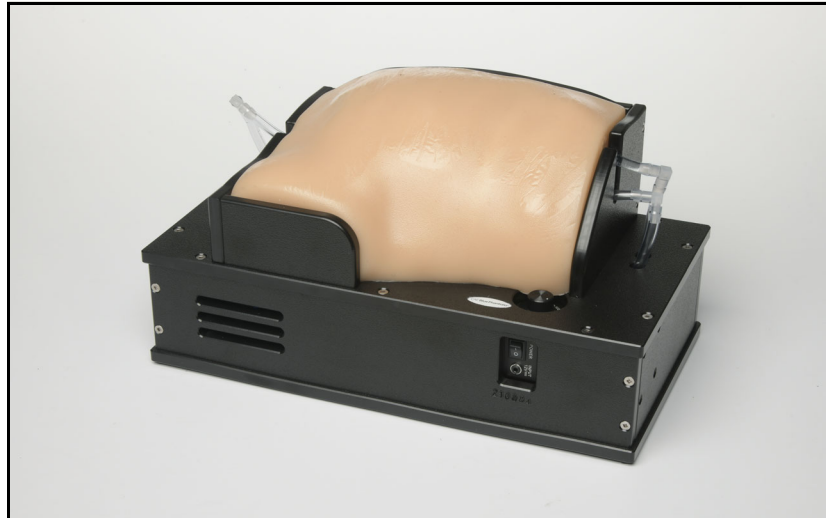
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Introduction

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

- CAE Blue Phantom COVID-19 Lung Model (BPLUNG-19)

This model is intended as a platform for the practice of ultrasound techniques used to diagnose the different stages of COVID-19 illness.



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. Some models have an access panel at the back. Lung sliding is powered by an automated pump.

⚠ SAFETY NOTICE

Do not try to open the access panel. The access panel should never be opened or removed by anyone except a CAE Blue Phantom technician.

Introduction

The model has the following anatomy:

- Chest wall
- Ribs 1-5
- Rib shadow
- A lines
- B lines
- Lung
- Diaphragm
- Thickened and irregular pleural lining and consolidation

Between rib 3 and rib 6 are different stages of COVID-19's effects on the human lung. The stages become more advanced as the user moves towards the inferior ribs (see table below).

| Between Rib #s | Landmarks and Conditions | Stage |
|----------------|--|--|
| 3 - 4 | Ribs, Rib Shadows, Regular Thin Pleural Lining, A Lines Present | Relatively Healthy Lung |
| 4 - 5 | Ribs, Rib Shadows, Presence of B Lines, Obscured A Lines, Thickened and Irregular Pleural Lining | COVID-19 Symptoms beginning to show presence in lung |
| 5 - 6 | Thickened Pleural Lining, Prominent B Lines, Sub-Pleural Consolidation | Ventilator will likely be required in near future |

Equipment Overview

The following items are included with your shipment:

- Ultrasound training model

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

- Ultrasound system with appropriate transducer
- Ultrasound gel

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

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.

⚠ WARNING

Do not use needles or other sharps on this training model. Damage to the model or personal injury can occur, and it will void your warranty.

To scan with your training model:

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.

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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 or cords are not pinched or compressed under the model. This will damage the cords/tubes and void the warranty.
- 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.

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.

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For customer support, please contact CAE.

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

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