Adult Airway and CPR Trainer
S315, S315.100, and S315.300

The Airway Trainer is an interactive educational system developed to assist a certified instructor. It is not a substitute for a comprehensive understanding of the subject matter and not intended for clinical decision making.
End User License Agreement

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Care and Cautions
Overall Warnings

Remember that damage caused by misuse is not covered by your warranty. It is critical to understand and comply with the following guidelines:

GENERAL

• The simulator is constructed of material that approximates skin texture. Therefore, in handling the model, use the same gentle techniques as you would in working with a patient.
• Ball point pens, ink and markers permanently stain the skin.
• Do not wrap this or any other Gaumard product in newsprint.
• Indelible marks made with ballpoint pens, ink or marker cannot be removed.
• Do not use alcohol, acetone, Betadine® or any other antiseptic which contains iodine in this or any Gaumard® simulator. These products could damage or stain the skin of the simulator.
• Do not add liquids to the hemothorax sites. Doing so will damage the simulator and void the warranty.
• Replacement parts are available from Gaumard Scientific or your Distributor.

OPERATING CONDITIONS

Operating the simulator outside these ranges may affect performance:

• Operating temperature: 50°-95° F (10°-35° C).
• Humidity: 5%-95% (non-condensing).

STORAGE CONDITIONS

• Storage temperature: 32°-113° F (0°-45° C).
• Humidity: 40%-60% (non-condensing).
• Do not stack or store heavy materials on top of the carton.

PROCEDURES

• Do not attempt to intubate without lubricating the airway adjunct with mineral lubricant (provided). Failure to do so will make intubation very difficult and is likely to result in damage.
• Mouth to mouth resuscitation without a barrier device is not recommended, as it will contaminate the airway.

• Do not perform surgical exercises on the ventilation insert.

CLEANING

• The simulator should be cleaned with a cloth dampened with diluted liquid dishwashing soap. If medical adhesives remain on the skin, clean with alcohol wipes.
• Apply talcum powder to the face to reduce the silicone tackiness.
• Do not use GooGone® or similar products, as the citric acid in the formula will cause pitting of the various materials comprising your simulator.
• The simulator is “splash-proof” but not water-proof. Do not submerge or allow fluid to enter the interior of the simulator.
Getting Started
Overview

The simulator S315 is an adult airway and CPR trainer equipped with the following features:

AIRWAY
- Oral and nasal intubation
- Use an ET tube or LMA
- Realistic airway with tongue, vocal cords, trachea
- Right mainstem intubation automatically presents unilateral chest rise
- Laryngospasm (S315.100)
- Surgical airway procedures such as tracheostomy and needle or surgical cricothyrotomy (S315.100)

APPEARANCE
- Silicone face/head skin for realistic jaw thrust, head tilt / chin lift

BREATHING
- Chest rise with bag valve mask ventilation
- Gastric distention with esophageal intubation

CIRCULATION
- CPR hand positioning landmarks and realistic chest compression recoil and depth
- Manually palpable carotid pulses with pressure applied using the squeeze bulb provided.

SIMULATOR
- Adult male upper body and head
- Anatomically correct landmarks for proper hand placement
- Realistic chest cavity
- Lungs, and ribs
- Heart and Lung Sounds (S315.300)

OTHER
- OMNI® Handheld Controller - Real-time CPR monitoring and coaching

• One year limited warranty

Terminology

It is wise to spend a moment familiarizing yourself with some of the terminology that will be used to discuss simulation with the S315.

FACILITATOR
The person conducting the simulation; an instructor or lab staff member.

PROVIDER
A person participating in the simulation as a healthcare provider.

Terminology

It is wise to spend a moment familiarizing yourself with some of the terminology that will be used to discuss simulation with the S315.

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A person participating in the simulation as a healthcare provider.
Equipment Set Up
Control panel

MANUAL CAROTID PULSES
Twist in the squeeze bulb with the white luer lock until it is secure.

Carotid pulses can be created by utilizing the squeeze bulb.

LARYNGOSPASM (S315.100)
The HAL S315.100 laryngospasm feature is driven by pressurized air created by the squeeze bulb. There are no electronics and no electric power is required to operate the system.

To utilize the Laryngospasm feature. Twist in the squeeze bulb with the black luer lock until it is secure and apply pressure to simulate the airway complication.

The 3 way valve on the squeeze bulb must be closed to pressurize the laryngospasm and then opened to release the pressure and return the patient to normal condition.

OMNI® (Optional)

POWER SUPPLY
Connect the power supply to the power input located on the simulator control panel, and then connect the power supply to the wall outlet.

OMNI® SETUP
Omni® controls the simulator with the touch of button.

1. Connect the communication cable to the communication port located on the control panel.
2. Connect the other end of the communication cable to Omni®.

A startup screen is shown while Omni® is detecting the simulator features. After the startup screen, Omni® will proceed to the main screen automatically.

3. To assemble the legs you must first remove the hexagonal bolt at the knee. Once the hexagonal bolt is removed, slide the lower leg into place, and you may use either the quick release pin or re-insert the hexagonal bolt set and tighten. Similar to the arm, the hexagonal bolt set is recommended for a more secure connection.

**WARNING**

Do not connect the simulator or Omni® to a computer, LAN network or unauthorized diagnostic equipment using the communication cable (Ethernet cable). Doing so will cause serious damage to the equipment.

**USING THE CARRYING BAGS**

The full body option comes with two carrying bags to comfortably carry the manikin. To fit the manikin into the two carrying bags, the legs and the lower halves of the arms will have to be removed from the manikin. The manikin’s body (torso + upper arms) will be carried in one of the carrying bags and the limbs will be carried in the other.

**DISASSEMBLY**

1. Lie the manikin down onto a flat surface. Ensure that the body is unbent.

**Arms and Legs (Optional)**

**INITIAL SETUP**

The S315, .100 and .300 models have optional arms and legs. When this option is selected at the time of purchase, the manikin will be delivered with arms and thighs attached. The lower legs will need to be attached as follows:

1. Gather the lower legs and their respective hexagonal bolts and keys.
2. The arms come assembled with the hexagonal bolt set. Ensure that it is tightened to your liking.
2. To remove the lower arms, pull the quick connector pin or undo and remove the hexagonal bolt. If you are using the hexagonal bolt, please reattach the hexagonal bolt when the arm is removed. This will keep the hexagonal bolt in an easy to find location and it will keep the arm from losing its shape.

3. To remove the legs, please use the disassembly instructions for the lower legs first. For the upper legs, first remove the intramuscular injection patch on the thigh. Inside the thigh, pull the quicklock pin locking the leg into place and then pull the leg off.

4. After the leg has been removed from the pelvis, please collect the two remaining washers from the inside of the leg. It is recommended that the washers be placed back onto the hip joint shaft, allowing the pin to be slid back on and locking the assembly together for safe-keeping.

5. To assemble the lower leg, slide the lower leg into place and you may use either the leg’s quick release pin or re-insert the hexagonal bolt set and tighten. Similar to the arm, the hexagonal bolt set is recommended for a more secure connection.

REASSEMBLY

1. Lie the manikin down onto a flat surface. Ensure that there is adequate space for the arms and legs.

2. To assemble the upper legs, remove the intramuscular pad and slide the leg onto it’s respective hip joint shaft.

3. Reach into the the thigh and slide on the two washers onto the hip joint shaft in the order as seen below. The smaller wavy washer goes first, followed by the larger flat washer.

4. Set the leg and the washers as close as possible to the body and slide the securing pin all the way through the slot closest to the leg to provide the tightest lock.

3. To assemble the lower legs first. For the upper legs, first remove the intramuscular injection patch on the thigh.
6. To assemble the arms you may use the quicklock pin for a quick connection, but the hexagonal bolt is recommended for a more secure connection.
Working with the Simulator
**Airway**

**NASAL AND ORAL INTUBATION**

HAL allows for realistic jaw thrust, head tilt and chin lift.

The airway has anatomical landmarks and can be intubated orally or nasally.

**AIRWAY COMPLICATIONS (S315.100)**

Use the control panel to enable airway complications to make intubation more difficult. The S315.100 can display Laryngospasm.

To activate the laryngospasm feature, apply pressure with the squeeze bulb plugged into the laryngospasm port to simulate the complication. After the care provider intervenes, cease use of the squeeze bulb and open the 3 way valve to release the pressure to alleviate the complication.

**SURGICAL AIRWAY (S315.100)**

HAL includes two replaceable surgical airway inserts. The inserts allow users to perform tracheostomy or cricothyrotomy procedures with real medical equipment. The surgical inserts feature anatomical landmarks. Also, a simulated cricothyroid membrane, and trachea skin cover are provided.

A separate ventilation insert is pre-installed, which is designed to maintain a tight air seal during ventilation and intubation exercises. Interchange the airway inserts as needed.

**WARNING**

Do not perform surgical exercises on the ventilation insert.

---

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recommended Device Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intubation (Blade size)</td>
<td>Miller 4 or MAC 3.5</td>
</tr>
<tr>
<td>LMA</td>
<td>Size 4</td>
</tr>
<tr>
<td>Nasal Intubation</td>
<td>8 mm outer diameter max</td>
</tr>
<tr>
<td>Oral Intubation</td>
<td>ETT 7 or 7.5</td>
</tr>
</tbody>
</table>

**WARNING**

Manually lubricate the ET tube, and nasal opening prior to performing an intubation exercise.

Do not spray mineral oil directly into the mouth or the airway.

Do not introduce liquids into the airway, as internal damage may result.

**WARNING**

1. Simulated cricothyroid membrane
2. Trachea skin cover
3. Surgical trachea assembly
4. Surgical cricoid insert
5. Ventilation insert

The assembly of surgical cricoid and trachea inserts allows for the use of tactical cricothyrotomy and tracheostomy kits.
Perform lateral or medial incisions on the replaceable trachea skin covers.

INSTALLING SURGICAL CRICOID INSERT, CRICOTHYROID MEMBRANE, AND SKIN

To install the surgical cricoid insert and the cricothyroid membrane:

1. Remove the ventilation airway insert by pulling on the ribbons located on either side.
2. Adjust the ribbons to accommodate the surgical neck insert.
3. Place the surgical cricoid insert inside the cavity with the opening towards the head and gently press it down into position.
4. Remove the paper cover from the simulated cricothyroid membrane.
5. Place the simulated cricothyroid membrane onto the insert and secure it by stretching the precut holes around the pins as shown below.
6. Place the trachea skin cover over the assembly inserting the holes around the 4 pairs of pins.

The surgical assembly is ready to perform cricothyrotomy procedures.

INSTALLING THE SURGICAL TRACHEA ASSEMBLY

Surgical trachea assembly includes:

Surgical trachea base  Surgical trachea insert
1. Place the surgical trachea insert inside the trachea base

2. Remove the trachea skin cover from the simulator

3. Remove the surgical cricoid insert and place the surgical trachea insert instead as shown in the picture below.

4. Place the simulated cricothyroid membrane onto the insert and secure it by stretching the precut holes around the pins

5. Reattach the skin cover over the assembly and secure it by stretching the precut holes around the pins.

Trachea skin cover, cricothyroid membrane, and surgical trachea insert are consumable items.

Breathing

VENTILATION
Practice BVM techniques using an adult sized mask having a thick seal.

Ventilate via endotracheal tube with manual ventilation.

Bilateral lung expansion is perceived with realistic chest rise.

RIGHT MAINSTEM INTUBATION
If the endotracheal tube is inserted too deep, the left lung is automatically disabled, realistically demonstrating right mainstem intubation. Correct the tube position to re-enable the left lung rise during bagging.

GASTRIC DISTENSION
HAL can exhibit gastric distension if intubated through the esophagus. To relieve the gastric distension, press down on the stomach gently.

Circulation

COMPRESSION
CPR hand positioning landmarks and realistic chest compression recoil and depth allow students to experience the correct force needed to perform proper CPR.
S315.300 COMPRESSIONS SETUP

To set up the S315.300 for compression exercises, please do the following.

1. Remove the chest skin with the sound ID tags.
2. Remove the foam insert.
3. Place the standard chest skin on the manikin’s chest.
4. Set the manikin down on its back.

PALPABLE PULSES

Use the control panel to enable palpable carotid pulses. Refer to the “Equipment Setup” Section.
Heart and Lung Sounds (S315.300)

Overview

Heart and Lung Sounds teaching system is a tool used for auscultation training. The system is composed of a Virtual Stethoscope™ and sound ID tags located beneath the skin in a total of 13 locations, 9 on the front and 4 on the back.

Incorporated in the Virtual Stethoscope™ is:

- Power switch
- Sound menu switch

You may remove the front and back skins of the torso to locate and note the positions of the tags.

Each ID tag pertains to a different area and will signal the Virtual Stethoscope™ to produce a different sound when in use.

The skin of the simulator has 13 ID Tags located under the skin where each of the heart and lung sounds are normally heard.

The simulator is shipped with removable blue dots attached to the skin to show the location of the sound ID tags.
Contents

• 1 Adult upper body simulator
• Overlay torso with ID Tag network located beneath the skin
• VS100 Virtual Stethoscope™ Kit
• Set of External Speakers with AC Plug

Setup

1. If you have the standard chest skin on the manikin, please remove it from the front of the manikin.
2. If it is not already inserted, please insert the foam piece into the torso’s cavity.
3. With the foam piece placed, put the skin with the sound ID tags on the front of the manikin. Then place the smaller sound ID tagged skin piece on the back of the manikin if it isn’t there already.
4. Set the manikin flat on it’s back.
5. The Virtual Stethoscope™ comes with two batteries installed.
6. Locate the small stereo jack on the bell and attach the speakers provided.

7. Plug the speakers into a conventional wall outlet and turn the speakers on.

The speakers provide external feedback of the auscultation sounds. If the speakers are disconnected, only the student will hear the heart and lung sounds through the ear pieces on the Virtual Stethoscope™.

8. Follow the Virtual Stethoscope™ User Guide to use the system.
Using OMNI®

OMNI® is a CPR training tool incorporated in the OMNI® controller. It was designed to help teach CPR by monitoring cadence and depth of cardiac compressions and airway ventilations in real time.

WARNING

Do not perform mouth to mouth ventilation since the simulator can be difficult to clean afterwards.

MAIN SCREEN

The OMNI® main screen is divided into three sections which are, listed from left to right, the Feedback Graphics, Current Settings, and Navigation Menus. Pressing each button will display the menu item in detail.

CODE BLUE NAVIGATION MENUS

Edit the simulator settings using the navigation menus. Select a menu item by pressing the soft key buttons located on the right side of the controller. Each menu has additional submenus or toggle selection. Use the submenus to decrease, increase, accept, or cancel values. Use the toggle selection to switch between available options in the menu.

The Code Blue menus are:

- CPR operational mode: TEST or COACH mode
- C:V Ratio: customize the compression to ventilation ratio to match correct guidelines
- Compression/Ventilation Rate: adjust the number of compressions and ventilations per minute
- Calib: calibrate the pressure sensor in the simulator
- Help: universal help menu

MODE MENU

Toggle between COACH and TEST modes. The COACH mode generates audible tones to coach CPR ratio. A high-pitched beep signals the care provider to perform a compression and a low pitched-beep signals a ventilation. Toggle to the TEST mode to perform CPR without the audible cues.

FEEDBACK GRAPHICS

Monitor and evaluate depth and cadence of compressions and ventilations in real time.

CURRENT SETTINGS

The current settings are listed on the middle of the screen. The settings will reflect the information saved during a previous session.
C:V RATIO MENU (COMPRESSION TO VENTILATION RATIO)

Adjust the compression to ventilation ratio using the + and - buttons. Press OK to save the changes and return to previous screen. The default value for the C:V Ratio is 30 compressions to 2 ventilations.

COMPRESSION / VENTILATION RATE MENU

The default value for the compression rate is 100 compressions per minute. Adjust rate using the ‘+’ and ‘-’ buttons. Press OK to save the changes and return to previous screen. The Compression rate range is 50 - 150 CPM. The Ventilation rate limits are 2 - 60 VPM.

CALIBRATION MENU

Press CALIB. to access additional menu selections.

CALIBRATING CHEST COMPRESSIONS

The simulator is pre-calibrated to current CPR guidelines at time of manufacture. If the CPR guidelines change, calibrate the sensors inside the simulator using this option.

Calibrating chest compressions:

1. Select CAL.
2. Press START to begin the calibration procedure.
3. OMNI® will ask you to perform several correct chest compressions. The facilitator should follow the text cue on the screen to perform just one compression at a time until finished. When OMNI® is ready to proceed it will display COMPRESS.
4. Perform a correct compression.
5. Follow the text cue on the screen to perform the remaining four compressions. When the calibration is complete OMNI® will display DONE.
6. Press SAVE.
CALIBRATING AIRWAY VENTILATIONS

Set the standard against which ventilation will be evaluated during training.

Calibrating airway ventilations:

1. Select V CAL.
2. Press START to begin the calibration procedure.
3. OMNI® will ask you to perform a number of correct airway ventilations. The facilitator should follow the text cue on the screen to perform just one ventilation at a time, until finished.
4. When OMNI® is ready to calibrate it will display VENTILATE.
5. Perform a ventilation.
6. Follow the text cue on the screen to perform the remaining four ventilations. When the calibration is complete OMNI® will display DONE.
7. Press SAVE.

RESETTING OMNI®’S PRESSURE SENSOR

It is recommended that the OMNI’s pressure sensor is reset at altitudes greater than 1000 ft. to avoid inaccurate compressions and ventilations readings. Perform the sensor reset procedure only as part of the initial calibration process.

1. Select RESET within the compression or ventilation calibration menu.

After resetting the sensor, OMNI® will display DONE.

HELP

The help window provides access to global settings such as backlight time and OMNI®/Simulator serial number.

BACK

Return to previous screen.

BACKLIGHT

The default value for OMNI’s backlight timer is 10 minutes. After 10 minutes the backlight will turn off.

To increase the backlight duration, adjust the backlight timer with the plus or minus sign. Press OK to accept the changes.
SERIAL NUMBER

View OMNI® and Simulator serial number. Press OK to return to the HELP menu.

---

**eCPR™**

eCPR is an application that enables monitoring and logging of compressions and ventilations, performed in real time by the user, on a PC.

This software aims to provide additional testing and teaching tools for CPR using an interface to display a waveform graph of the compressions and ventilations.

For Instructions on how to use eCPR, please refer to OMNI® User Guide.
# Appendix

## Troubleshooting

### GENERAL TROUBLESHOOTING GUIDE

Use the following table to find causes and solutions to a number of possible problems.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omni is not turning on</td>
<td>Power supply not connected to simulator</td>
<td>Connect the power supply cable to the simulator and the other end to a power source</td>
</tr>
<tr>
<td></td>
<td>Communication cable not connected to Omni or the simulator</td>
<td>Connect the communication cable to the simulator and to Omni.</td>
</tr>
<tr>
<td>I lost communication with the simulator</td>
<td>Corrupted connection</td>
<td>Reboot Omni by unplugging the communication cable and reconnecting after a few seconds</td>
</tr>
<tr>
<td>Communication never gets established or is lost</td>
<td>Data cable is not connected</td>
<td>Ensure the Ethernet cable is plugged into Omni and the simulator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Verify the power cable is connected to the simulator</td>
</tr>
<tr>
<td>Omni is not detecting any compression or ventilations</td>
<td>System is not calibrated</td>
<td>Calibrate compressions and ventilations using Omni</td>
</tr>
<tr>
<td>Omni detects compressions but no ventilations</td>
<td>Module in the simulator is disconnected</td>
<td>Contact technical support to troubleshoot problem</td>
</tr>
<tr>
<td>Omni takes too long to boot up</td>
<td>A system restore is required</td>
<td>1. Unplug the communication cable from Omni.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Press and hold down the two outer keys, located on the right side of the controller, while reconnecting the communication cable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Once a “Please Wait” message appears on the screen, release the two outer keys.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait for the main screen to load and continue with simulations.</td>
</tr>
</tbody>
</table>
Warranty

EXCLUSIVE ONE-YEAR LIMITED WARRANTY

Gaumard warrants that if the accompanying Gaumard product proves to be defective in material or workmanship within one year from the date on which the product is shipped from Gaumard to the customer, Gaumard will, at Gaumard’s option, repair or replace the Gaumard product.

This limited warranty covers all defects in material and workmanship in the Gaumard product, except:

Damage resulting from accident, misuse, abuse, neglect, or unintended use of the Gaumard product;

Damage resulting from failure to properly maintain the Gaumard product in accordance with Gaumard product instructions, including failure to properly clean the Gaumard product; and

Damage resulting from a repair or attempted repair of the Gaumard product by anyone other than Gaumard or a Gaumard representative.

This one-year limited warranty is the sole and exclusive warranty provided by Gaumard for the accompanying Gaumard product, and Gaumard hereby explicitly disclaims the implied warranties of merchantability, satisfactory quality, and fitness for a particular purpose. Except for the limited obligations specifically set forth in this one-year limited warranty, Gaumard will not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory regardless of whether Gaumard has been advised of the possibilities of such damages. Some jurisdictions do not allow disclaimers of implied warranties or the exclusion or limitation of consequential damages, so the above disclaimers and exclusions may not apply and the first purchaser may have other legal rights.

This limited warranty applies only to the first purchaser of the product and is not transferable. Any subsequent purchasers or users of the product acquire the product “as is” and this limited warranty does not apply.

This limited warranty applies only to the products manufactured and produced by Gaumard. This limited warranty does not apply to any products provided along with the Gaumard product that are manufactured by third parties. For example, third-party products such as computers (desktop, laptop, tablet, or handheld) and monitors (standard or touch-screen) are not covered by this limited warranty. Gaumard does not provide any warranty, express or implied, with respect to any third-party products. Defects in third-party products are covered exclusively by the warranty, if any, provided by the third-party.

Any waiver or amendment of this warranty must be in writing and signed by an officer of Gaumard.

In the event of a perceived defect in material or workmanship of the Gaumard product, the first purchaser must:

Contact Gaumard and request authorization to return the Gaumard product. Do NOT return the Gaumard product to Gaumard without prior authorization.

Upon receiving authorization from Gaumard, send the Gaumard product along with copies of (1) the original bill of sale or receipt and (2) this limited warranty document to Gaumard at 14700 SW 136 Street, Miami, FL, 33196-5691 USA.

If the necessary repairs to the Gaumard product are covered by this limited warranty, then the first purchaser will pay only the incidental expenses associated with the repair, including any shipping, handling, and related costs for sending the product to Gaumard and for sending the product back to the first purchaser. However, if the repairs are not covered by this limited warranty, then the first purchaser will be liable for all repair costs in addition to costs of shipping and handling.

Extended Warranty In addition to the standard one year of coverage, the following support plans are available: Two-Year Extension (covers second and third years)

Call for pricing (USA only)
Contact Us

E-mail Technical Support: support@gaumard.com
Before contacting Tech Support you must:
1. Have the simulator’s Serial Number
2. Be next to the simulator if troubleshooting is needed.

E-mail Sales and Customer Service: sales@gaumard.com

Phone: Toll-free in the USA: (800) 882-6655
Worldwide: 01 (305) 971-3790

Fax: (305) 667-6085

Post: Gaumard Scientific
14700 SW 136 Street
Miami, FL 33196-5691
USA

Office hours: Monday-Friday, 8:30am - 4:30pm EST (GMT-5, -4 Summer Time)

General Information

Gaumard®, ZOE®, Michelle®, Mike®, PEDI®, Susie Simon®, Susie®, Simon® Code Blue®, SIMA Models®, SIMA GYN/AID®, Virtual Instruments®, Codemaker®, Code Blue®, NOELLE®, Simulation Made Easy™, HAL®, eCPR™, Zack™, RITA™, Chloe™, Seatbelt Susie™, Krash Kids™, Premie™, UNI™, Omni®, SmartSkin™ are Trademarks of

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