

INSTRUCTION MANUAL

Lucy Maternal and Neonatal Birthing Simulators

LF00040 Advanced Lucy

LF00041 Complete Lucy

LF00042 Basic Lucy



About the Simulator

Life/form® by NASCO HEALTHCARE has developed Lucy Maternal and Neonatal Birthing Simulators. The quality and simple design make this simulator easy to use and care for while teaching a variety of patient care techniques. All three versions – Basic, Complete, and Advanced Lucy – are included in this manual. Please familiarize yourself with the manual before using the simulator for training. Five-year warranty is included. The actual product may vary slightly from photo. NASCO HEALTHCARE reserves the right to change product color, materials, or function as needed. Printed paper, plastic, and ink can cause indelible marks on the simulator and its components. This product contains dry natural rubber.

General Product Description for Basic, Complete, and Advanced Lucy

- Lightweight, full body female is 66" (167 cm) long and weighs 35 lbs. (16 kg)
- Simple to transport in pre-hospital scenario training
- Superior range of motion with fully articulated joints
- Bony landmarks including ischial spines
- Change appearance quickly with multiple hair and eye color combinations
- 5-year warranty

Functions and Features for Basic, Complete, and Advanced Lucy

- Airway management - intubation and ventilation with chest rise
- Amniotic sac
- Articulating arms and legs
- Articulating baby - 18" (45 cm) long, weighs 2.2 lbs. (1 kg)
- Birthing positions - hands & knees, lateral, supine
- Breech deliveries - complete, incomplete, footling, and frank
- Carotid Pulse (manual)
- Cervical dilation - 6 stages
- Cesarean section delivery
- CPR
- Episiotomy repair
- Deliveries - vaginal, cesarean, forceps-assisted, and vacuum-assisted
- External version

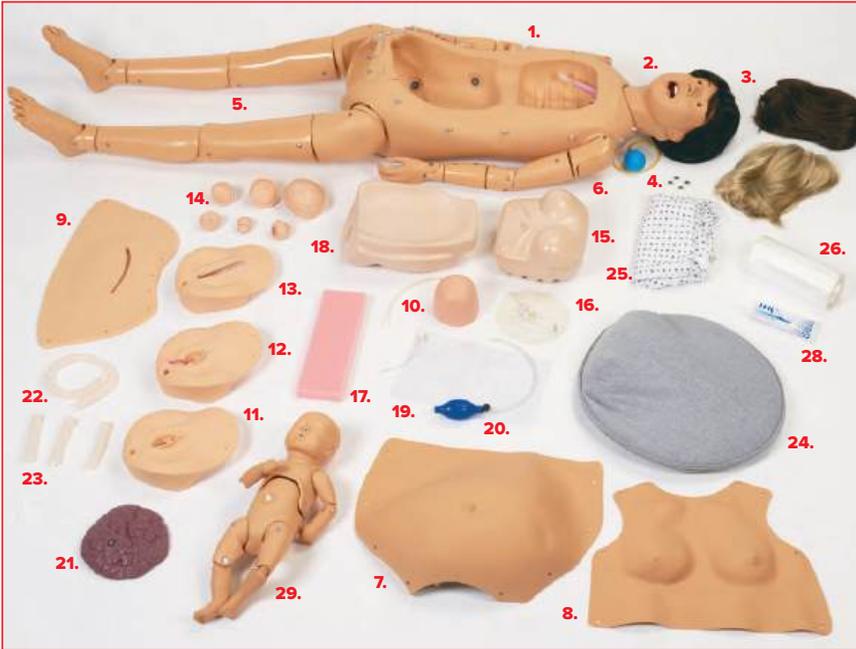
About the Simulator

- Fetal palpation – abdominal and Leopold’s maneuvers
- Fetal suction
- Fundal massage
- Intramuscular injection sites (maternal only) – right deltoid, left deltoid, right thigh
- Manual birthing maneuver – instructor/student controlled fetal descent
- Membrane rupture
- Oral and nasal care – lavage, gavage, suctioning
- Patient positioning and transfer techniques
- Placenta previa
- Postpartum care
- Postpartum hemorrhage
- Scalp electrode placement
- Shoulder dystocia maneuvers – McRobert’s, Suprapubic Pressure, Rubin’s I and II, Wood’s Screw, Reverse Wood’s Screw, Posterior Arm, Gaskin
- Umbilical cord prolapse
- Umbilical cord clamping and cutting

Superior Range of Motion for the Basic, Complete, and Advanced Lucy

- Shoulder – abduction, adduction, rotation, hyperextension
- Elbow – extension, flexion, pronation, supination
- Wrist – flexion, hyperextension, radial flexion, ulnar flexion
- Fingers – abduction, adduction, flexion (soft, life-like material)
- Neck – rotation, hyperextension, lateral flexion
- Hip – abduction, adduction, rotation, hyperextension
- Knee – extension, flexion
- Ankle – eversion, inversion, dorsiflexion, plantarflexion
- Toes – abduction, adduction, flexion (soft, like-like material)

List of Components



Basic Lucy LF00042U

1. Torso
2. Head
3. Wigs, 3 (black, blond, brown)
4. Eyes, 3 sets (brown, blue, green)
5. Articulating legs, right and left
6. Articulating arms, right and left
7. Abdominal skin - normal
8. Chest skin
9. Abdominal skin - cesarean
10. Fundus
11. Perineal skin - prenatal
12. Perineal skin - episiotomy
13. Perineal skin - birthing skin
14. Cervixes - set of 6 stages
15. Foam CPR chest
16. Lung bag
17. Perineal skin foam stabilizer pad
18. Pelvic block
19. Positioning bag
20. Inflation tubing with squeeze bulb
21. Placenta
22. Umbilical cord - long
23. Umbilical cord - short (3) with clamp
24. Abdominal pad
25. Hospital gown
26. Simulated amniotic sacs - roll of 50
27. Closed red cap (not pictured)
28. Lubricating jelly
29. Articulating fetus
30. Five-year warranty card (not pictured)
31. Instruction manual (not pictured)

Note: Additional supplies and parts are located at the end of this manual and/or in each individual section. This product contains dry natural rubber.

Features

Airway - intubation and ventilation with chest rise
Articulating fetus
Bed baths
Birthing scenarios
Cervical dilation with 6 cervix stages
Cesarean section
Clothing changes
Cord prolapse
CPR
Episiotomy
External version
Fetal suction
Finger and toe manipulation
Fundal massage
Hair washing and combing
Intramuscular injection sites – right and left deltoid, right thigh
Lightweight full body simulator
Leopold maneuvers
Membrane rupture
Oral and nasal hygiene – lavage, gavage, and suctioning
Patient positioning
Patient transfer techniques
Range of motion
Realistic placenta
Roberts maneuver training
Scalp electrode placement
Simulated amniotic sac
Simulated epidural removal
Shoulder dystocia
Umbilical cord can be clamped and cut

List of Components



Complete Lucy LF00041U

1. Torso
2. Head
3. Wigs, 3 (black, blond, brown)
4. Eyes, 3 sets (brown, blue, green)
5. Articulating legs, right and left
6. Articulating arms, right and left
7. Abdominal skin - normal
8. Chest skin
9. Abdominal skin - cesarean
10. Fundus
11. Perineal skin - prenatal
12. Perineal skin - episiotomy
13. Perineal skin - birthing skin
14. Cervixes - set of 6 stages
15. Foam CPR chest
16. Lung bag
17. Perineal skin foam stabilizer pad
18. Pelvic block
19. Positioning bag
20. Inflation tubing with squeeze bulb
21. Placenta
22. Umbilical cord - long
23. Umbilical cord - short (3) with clamp
24. Abdominal pad
25. Hospital gown
26. Simulated amniotic sacs - roll of 50
27. Closed red cap (not pictured)
28. Lubricating jelly
29. Articulating fetus
30. Life/form® Newborn Nursing
 - 30a. 30b. 30c. 30d. 30e. 30f. 30g. 30h. 30i. 30j. 30k. 30l. 30m. 30n. 30o. 30p. 30q.
31. Life/form® Complete Set of Clots and Hemorrhages
 - a. Small blood clot
 - b. Medium blood clot
 - c. Large blood clot
 - d. Perineal hemorrhage
 - e. Hemorrhage blood pool
32. Clotting blood product, 2 containers
33. Large soft carry bag (not pictured)
34. Five-year warranty card (not pictured)
35. Instruction manual (not pictured)

- Skills and ALS Simulator
 - a. Replaceable airway (2)
 - b. Bilateral lung
 - c. Collapsed lung
 - d. Umbilicus
 - e. Birth defects, (2) omphalocele, neural tube defect
 - f. Hand skins (2)
 - g. Foot skins (2)
 - h. Vein system for hand (2)
 - i. Vein system for foot (2)
 - j. 500 ml fluid supply bags (2)
 - k. 3 cc syringe
 - l. 25-gauge infusion butterfly needle
 - m. 25 ml syringe
 - n. Artificial blood powder
 - o. ½ oz. lubricant
 - p. Baby powder

Note: Additional supplies and parts are located at the end of this manual and/or in each individual section. This product contains dry natural rubber.

Additional Features

Includes all of the same features as the Basic Lucy in addition to:

Newborn Nursing Skills and ALS Simulator

- Full-term newborn, measuring 19" from heel to crown, approximately 7½ lbs., with a 14½" head circumference
- Airway, breathing, & ventilation -
 - Auscultation of lung sounds during ventilation
 - Bilateral lung expansion or collapsed lung
 - ET Tube Insertion, size 3.5 with a #1 Miller blade
 - Practice chest tube insertion and care of chest tube site
 - Sellick Maneuver
 - BVM
- Birth anomalies
 - Neural tube defect
 - Omphalocele
- CPR
 - Anatomical landmarks
 - Realistic chest compressions
- Gastrointestinal (GI)
 - Accepts OG/NG tube, 8 FR
- Umbilicus
 - Patent umbilicus with arteries and vein sites for cannulation or infusion
 - Umbilical reservoir will hold 5 ml
- Venous Access
 - Access in the right hand and foot
 - Achieve realistic flashback with pressurized system
- Heel stick

Complete Set of Life/form® Clots and Hemorrhages

- Durable, reusable moulage for multiple birthing scenarios
- Complete set with various sizes and shapes
- Use alone or add simulated blood or other moulage makeup to enhance the simulation

True Clot, Clotting Blood Product

- Highly realistic simulated clotting blood for use in hemorrhage control training
- Accurately matches the color, opacity, and flow characteristics of human blood

Soft Carry Bag System (Large)

- Light, durable soft carry bag
- Multiple pockets/compartments
- Wheeled on one side with a telescoping handle on the other side

List of Components



Advanced Lucy LF00040U

1. Torso
2. Head
3. Wigs, 3 (black, blond, brown)
4. Eyes, 3 sets (brown, blue, green)
5. Articulating legs, right and left
6. Articulating arms, right and left
7. Abdominal skin - normal
8. Chest skin
9. Abdominal skin - cesarean
10. Fundus
11. Perineal skin - prenatal
12. Perineal skin - episiotomy
13. Perineal skin - birthing skin
14. Cervixes - set of 6 stages
15. Foam CPR chest
16. Lung bag
17. Perineal skin foam stabilizer pad
18. Pelvic block
19. Positioning bag
20. Inflation tubing with squeeze bulb
21. Placenta
22. Umbilical cord - long
23. Umbilical cord - short (3) with clamp
24. Abdominal pad
25. Hospital gown
26. Simulated amniotic sacs - roll of 50
27. Closed red cap (not pictured)
28. Lubricating jelly
29. Articulating baby
30. Complete Set of Life/form® Clots and Hemorrhages
31. Clotting blood product, 2 containers
32. Life/form® Newborn Nursing Skills and ALS Simulator
33. IV arm, right
 - a. 3 cc syringe
 - b. 22-ga. needle
 - c. butterfly set
 - d. latex connector (not pictured)
34. Blood pressure arm, left
 - a. Electronic control unit
 - b. Modified child size cuff and sphygmomanometer
 - c. "AA" batteries (6)
35. Life/form® Micro-Preemie Simulator, Light
 - a. Diaper
 - b. Hat (color and pattern may vary)
 - c. Umbilicus
 - d. Birth defects (2) omphalocele, neural tube defect
 - e. Bilateral chest block
 - f. Unilateral chest block
 - g. Replaceable airway (2)
 - h. 3 cc syringe
 - i. 25-gauge butterfly needle
 - j. ½ oz. lubricant
 - k. Blood powder with spoon
 - l. Large soft carry bag (not pictured)
 - k. Small soft carry bag (not pictured)
 - l. Five-year warranty card (not pictured)
 - m. Instruction manual (not pictured)

Note: Additional supplies and parts are located at the end of this manual and/or in each individual section. This product contains dry natural rubber.

Additional Features

Includes all of the same features of the Basic and Complete Lucy Models as well as:

Blood Pressure Arm, Left

- Auscultatory blood pressure training
- Five Korotkoff sounds
- Variable systolic and diastolic levels, pulse rate, volume, and auscultatory gap
- Palpable radial pulse
- No special stethoscope necessary – use your own equipment
- Hinged at the shoulder for easy access and cuff application practice

IV Arm, Right

- Shoulder intramuscular injection site
- Realistic flashback confirms proper needle placement
- Replaceable skin and veins that roll when palpated
- Arm rotates at the bicep for pronation and supination range of motion and venous access
- Accessible veins at the antecubital fossa, along the forearm, and at the back of the hand

Micro-Premie Simulator

- Simulates a 25-week neonate
- Birth defects, 2
- Bilateral and unilateral chest rise
- Cannulating umbilicus
- Chest tube placement
- CPR
- GI
- Intubation
- IV access sites
- Removable ostomy site
- Replaceable airway

Soft Carry Bag System (Large and Small)

- Light, durable soft carry bag
- Multiple pockets/compartments
- Wheeled on one side with a telescoping or standard handle on the other side

Set Up

All Models are packaged with some light assembly required. This is to ensure that damage does not occur during shipping. Refer to the following sections for assembly instructions.

Arms

This procedure may be easier with the torso on either side or in a sitting position. To attach the arms:

1. Bend the elbows backward approximately 90° to align the keyholes at the shoulders. **(See figure 1.)**
2. Push the arm toward the shoulder of the manikin with the keyhole aligned.
3. With the keyholes aligned, bring the arm to a normal position. **(See figure 2.)**
4. Reverse this procedure to disassemble.



Figure 1



Figure 3



Figure 2

Legs

1. Bend the legs backwards approximately 150° so the feet are near the shoulders. **(See figure 3.)**
2. With the keyholes aligned, push the hip into the hip socket.
3. Bring the leg to a normal position. **(See figure 4.)**



Figure 4

Set Up

Head

To remove the head for cleaning or disinfecting:

1. Remove the chest skin and foam CPR chest.
2. Disconnect the lung bag by pulling the trachea tubing with elbow connector from the port in the back of the foam CPR chest. *(See figure 5.)*
3. Unscrew the threaded cap, remove the two washers, and pull the head from the body. *(See figure 6.)* Be sure to save all the parts. Use caution to not disconnect pulse tubing and squeeze bulb for Manual Carotid Pulse feature.

To reattach the head:

1. Pass the trachea tubing with elbow through the largest neck hole.
2. Pass the bolt through the smaller hole all the way into the chest. *(See figure 7.)*
3. Place the rubber washer onto the bolt. *(See figure 8.)*
4. Place the steel washer onto the bolt. *(See figure 9.)*
5. Screw the threaded cap onto the end of the bolt, finger tight. *(See figure 10.)*
6. Ensure the pulse tubing for the manual carotid pulse feature is accessible on the outside of the torso.



Figure 5



Figure 8



Figure 6 & 7



Figure 9



Figure 10

Set Up

Foam CPR Chest and Lung Bag

The foam CPR chest and lung bag connect to the trachea tubing with the elbow connector extending into the torso from the attached head. To connect the airway and install the foam CPR chest:

1. Slide the lung bag in the pocket of the foam CPR chest. **(See figure 11.)**
2. Position the lung bag inside the chest so the port on the lung bag aligns with the hole inside the chest. **(See figure 12.)**
3. The port fits through the foam CPR chest to the back. **(See figure 13.)**
4. Insert the trachea tube with the elbow connector into the hole at the top of the foam CPR chest. **(See figure 14.)**
5. Connect the trachea tube with the elbow connector to the lung bag port through the back of the foam CPR chest. **(See figure 15.)**

Joints

All joints may be assembled with a flat-head screwdriver. Hold the opposite end of the connector pin to prevent unproductive rotation.



Figure 11



Figure 13



Figure 12



Figure 14



Figure 15

Set Up

Eyes

There are 3 sets of eyes - brown, green, and blue. To change eyes:

1. Pry the eye out from the upper lid using a paper clip or similar object, such as the small blood mixing spoon provided with Micro-Preemie in Advanced Lucy. NEVER use a sharp or pointed tool. **(See figure 16.)**
2. Pull the eye free from the socket. **(See figure 17.)**
3. Add a small amount of the provided $\frac{1}{2}$ oz. lubricant, included with Complete or Advanced Lucy or lubricating jelly included with Basic Lucy, to the pad of your finger. **(See figure 18.)**
4. Using the lubricated finger, apply the lubricant to the eye socket. **(See figure 19.)**
5. Push the new eye under the lower lid. **(See figure 20.)**
6. Fit the eye into the socket. **(See figure 21.)**

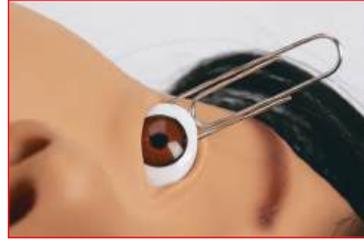


Figure 16



Figure 18



Figure 20



Figure 17



Figure 21



Figure 19

General Instructions for Use

A. Bag Value Mask

All versions can be used for ventilation and bag valve mask practice.

1. Ensure the lung bag is connected to the airway as described above.
2. Procure a standard size adult bag valve mask.
3. Ensure the proper seal is made on the face of the manikin and depress air. (See figure 22.)
4. Visualize a chest rise and fall with ventilation.



Figure 22

B. Intubatable Airway

All versions have an airway that will allow intubation. NASCO HEALTHCARE recommends the use of a 7.5-8 mm endotracheal tube for oral intubation and 7.5 mm or smaller for nasal intubation.

1. Determine the method of intubation.
2. Select the appropriate sized intubation appliance.
3. Generously lubricate the airway and appliance.
4. Intubate the manikin. (See figure 23.)
5. Visualize chest rise.
6. Ensure the cuff is properly deflated before removing the appliance.



Figure 23

C. Manual Carotid Pulse

All versions have a manual carotid pulse feature.

1. Squeeze the squeeze bulb extending from the neck
2. Palpate the manual carotid pulse. (See figure 24.)



Figure 24

General Instructions for Use

D. Intramuscular Injections

Intramuscular injections may be performed in inserts at the left hip, right thigh, at both deltoids of the articulating arms, and left deltoid of the injectable training arm (included with Advanced Lucy). Inject AIR ONLY as the inserts cannot be drained in the articulating arms and thigh. (See figures 25, 26.)

To remove the inserts on the standard arms and thigh:

1. Compress the inserts from the sides and pull out.
2. Reverse procedure to replace.

Avoid using alcohol or similar substances to prep the injection site. Use distilled water to simulate this procedure.



Figure 25



Figure 26



Figure 27

E. Cervical Dilatation and Effacement

A set of 6 cervical stages is included with all versions. To install and change cervixes:

1. Place the pelvic block in the torso. (See figure 27.)
2. Select the desired cervix module, 1-6, and plug it into the receptacle in the pelvic block. (See figure 28.)



Figure 28

General Instructions for Use

3. Position the genital foam stabilizer pad in a U-shape between the block and the skin; this will prevent excessive movement of the skin during the examination. **(See figure 29).** Tip: Remove the stabilizer pad when using module #6.
4. Attach the prenatal perineal skin. **(See figure 30.)**
5. For greater realism, the examination may be conducted with the abdominal pad and normal abdominal skin installed; however, if you will be using multiple cervix modules, it may be more convenient to leave the torso open.
6. If you wish to incorporate Leopold maneuvers into the scenario, you can access the interior of the simulator by detaching the upper portion of the perineal skin and installing the modules from below.

F. Leopold Maneuvers

1. With the pelvic block removed, attach the positioning bag to the upper port on the inside of the torso. **(See figure 31.)**
2. Place the pelvic block into the torso and lay the positioning bag lengthwise over the block. **(See figure 32.)**
3. Attach the inflation tubing with squeeze bulb to the upper side port on the outside of the torso. **(See figure 33.)**
4. The cervix modules, stabilizer pad, and prenatal perineal skin may also be installed at this time if desired (See E, cervical dilation).



Figure 29



Figure 30



Figure 31



Figure 32



Figure 33

Birthing Procedures

5. Position the articulating fetus as desired. (See figure 34.)
6. Lay the abdominal pad over the fetus, with the narrow end passing beneath the pubic bone and the edges tucked in around the sides. (See figure 35.)
7. Attach the normal abdominal skin to the torso. (See figure 36.)
8. Close the valve on the air pump and inflate the bag as needed to adjust the fetal position within the abdomen. (Do not overinflate!) The bag can be deflated slightly to enable the articulating fetus to drop beneath the pubic bone.



Figure 34



Figure 35



Figure 36

G. Birthing Procedures

Note: All fetal and maternal parts must be thoroughly lubricated using the included water-based lubricant or soapy water for any birth simulation and must remain wet for the entire training session. Failure to do so will negatively impact your scenario and may result in damage to your simulator.

Vaginal Delivery

1. Remove the pelvic block and perineal skin foam stabilizer pad from perineal birthing skin.
2. Attach the placenta to the metal plate on the abdominal wall of the torso. (See figure 37.)

Caution: The placenta contains a small but powerful magnet. Keep that may be adversely affected.

3. Attach the long umbilical cord to the placenta. (See figure 38.)
4. Connect a short umbilical cord (for clamping and cutting) to the long one.

Note: NASCO HEALTHCARE does NOT recommend cutting the long cord.



Figure 37



Figure 38

Birthing Procedures

5. Connect the remaining end of the short umbilical cord to the fetus. **(See figure 39.)** Additional short cords may be joined together if a longer cord length is desired.
6. Position the articulating fetus in the abdomen. **(See figure 40.)** The abdominal skin may be installed, or left off, so the instructor has better access to manipulate the fetus.
7. The fetus may be placed in an included clear plastic bag to simulate the amniotic sac.

Shoulder Dystocia

1. Before positioning the fetus, lay the positioning bag crosswise in the lower torso and connect the tubing to the lower side port. **(See figure 41.)**
2. Attach the inflation tubing with squeeze bulb to the lower port on the outside of the torso.
3. Inflate the bag slightly, raising the fetus to the desired position. **(See figure 42.)**
4. After the appropriate actions have been practiced, open the valve on the squeeze bulb to fully deflate positioning bag and complete the birth process.



Figure 39



Figure 40



Figure 41



Figure 42

Birth Procedures



Figure 43

Cesarean Section

Do not use the abdominal pad in this scenario.

1. Remove the perineal skin foam stabilizer pad and place the pelvic block in the abdomen. **(See figure 43.)**
2. Position the articulating fetus on the pelvic block as desired.
3. Connect the umbilical cord sections and placenta to the fetus if desired. **Note:** The placenta cannot be attached to the abdomen with the pelvic block in place; simply lay it elsewhere within the abdomen.
4. The normal abdominal skin may be left off or used with the lower section folded back.
5. Either perineal skin may be used – prenatal or birthing. **Note:** The prenatal skin will accept a non-functioning 16 Fr Foley catheter for placement practice only.
6. Leave the upper section of the selected perineal skin unbuttoned to accommodate the cesarean skin.
7. Install the cesarean abdominal skin on the torso. **(See figure 44.)**
8. The pre-formed incision is specially reinforced and may be closed as desired. **Note:** Repeated suturing and/or stapling will eventually damage the skin.



Figure 44

Umbilicus and Placenta

Once the articulating fetus has been delivered, the short section of the umbilical cord may be clamped and cut, and the placenta delivered with gentle traction. Check all connections first to be sure they are still secure.

(See figure 45.)



Figure 45

Postpartum

H. Postpartum

Episiotomy

1. Replace the perineal birthing skin with the episiotomy skin. (See figure 46.)
2. Place the pelvic block into the torso.
3. Install the perineal skin foam stabilizer pad.

The skin will withstand several suture opportunities. The sutures may be left in place for nursing practice. To extend the life of the skin, use a small needle, and avoid pulling the sutures too tight. Simulated blood may be added for greater realism.

Note: The pre-formed laceration is reinforced for long life; additional cuts made on the skin are done at the customer's risk.



Figure 46



Figure 47

Fundal Assessment and Massage

1. Attach the fundus tubing to the upper side port and attach the inflation tubing with squeeze bulb to the outer port. (See figure 47.)
2. Place the pelvic block into the torso.
3. Position the fundus on the pelvic block.
4. Lay the abdominal pad over the abdomen with the tapered end toward the chest. (See figure 48.) (This is opposite from the Leopold set-up.) Tuck the rest of the pad loosely into the pelvis around the block.
5. Attach the normal abdominal skin onto the torso and the inflation tubing to the port on the outside (See figure 49.)



Figure 48



Figure 49

6. Adding 3-5 pumps of air will increase the firmness. Opening the air valve completely will give the fundus a soft or “boggy” feel. Closing the valve will result in a firmer uterus. (Avoid overinflating the fundus, this will damage the simulator and void your warranty.)

Newborn Nursing Skills and ALS Simulator

I. Clots and Hemorrhages

Use with multiple scenarios to add realism without the mess of moulage. Durable material will allow for multiple uses with proper care as described below.

1. Wash with warm soapy water and completely air dry
2. Store clean dry clots and hemorrhages in the supplied re-sealable bag.
3. Clot material may stain manikin or other surfaces if left in contact for elongated periods of time.
4. Remove clot or hemorrhage from contact with manikin following each use.
5. Wipe residue from manikins or other surfaces with a clean damp cloth.

Weights and Measurements of Clots and Hemorrhages

Large Blood Clot approximately 193 ml; 5" L x 5" W x 1.38" H

Medium Blood Clot approximately 107 ml; 3.5" L x 4.25" W x 1.09" H

Small Blood Clot approximately 66 ml; 3.29" L x 4.25" W x .86" H

Hemorrhage Blood Pool approximately 340 ml; 12.75" W x 10.5" W x .25" H

Perineal Hemorrhage approximately 145 ml; 14.25" L x 4" W x .25" H

J. Newborn Nursing Skills and ALS Simulator included with Complete and Advanced Maternal Simulator

Caution: PRODUCT CONTAINS DRY NATURAL RUBBER!

Installing the Airway

1. Remove the lung plate from the baby's chest. (See figure 50.)
2. Thoroughly lubricate all outside surfaces of the airway and around the baby's mouth. (See figure 51.)
3. Gently insert your lubricated finger into the airway, over the tongue and epiglottis.
4. Push the tube end of the airway into the baby's mouth. Slide the airway down into the head, making sure to free the baby's lips as it slides into place. (See figure 52.)
5. Work your fingers around the inside of the mouth to be sure the airway is correctly seated.
6. Check that the tubing section of the airway is projecting into the chest cavity. (See figure 53.)
7. Lubricate the tubing section of the airway and replace the lung plate, ensuring the tube from the airway inserts into the hole on the top. (See figure 54.)



Figure 50



Figure 51



Figure 52



Figure 53

Newborn Nursing Skills and ALS Simulator

Lungs

Two different lung plates have been provided: a normal plate simulating bilateral expansion of the lungs, and a second plate simulating a collapsed left lung. The two plates may be identified by the molded diagram on the back side. To install either lung plate:

1. Check that the airway is already in place (See “Installing the Airway” if simulator is without).
2. Apply a little lubricant to the short tube section of the airway that projects into the chest cavity.
3. Insert the tubing section of the airway into the hole at the top of the lung plate. (See figure 54.)
4. Work the lung plate into position in the chest cavity.



Figure 54



Figure 55

IV Hand and Foot

Both the right hand and foot are equipped with functional IV access and infusion practice.

1. Dip the non-fitting end of the vein tubing in lubricant. (See figure 55.)
2. Feed the tubing through the lateral hole just above the hand.
3. Form a loop over the vein channel. The loop should be approximately in the middle of the vein tubing section.
4. From the medial side of the vein channel, feed the tubing through the remaining hole. (See figure 56.)
5. Adjust the tubing so that it lies securely in the vein channel.
6. Attach the Luer fitting to the open end. (See figure 57.)



Figure 56



Figure 57

Newborn Nursing Skills and ALS Simulator



Figure 58



Figure 59



Figure 60



Figure 61

7. Generously powder the inside of the hand skin. (See **figure 58.**)
8. Carefully pull the skin over the hand, taking care not to dislodge the vein tubing. (See **figure 59.**)
9. Follow the same procedure for the foot. (See **figure 60.**)
10. Connect the hand tubing to the foot tubing as shown. (See **figure 61.**)
11. Connect the free ends of the hand and foot tubing to the fluid supply bags as shown. (See **figure 62.**)



Figure 62

Patent Umbilicus

The umbilical stump functions like a stopper, plugging into the small reservoir within the abdomen. The reservoir has a maximum capacity of 5 ml.

Newborn Nursing Skills and ALS Simulator

GI

The left nostril will accept an 8 FR NG tube that will pass into a small tube embedded in the chest cavity of the baby.

General Instructions for Use for the Newborn Nursing Skills and ALS Simulator

Performing IV Injection and Withdrawals

1. Make sure all clamps are closed.
2. Add 1 pint of distilled water to the pint bottle with blood powder; shake it to mix.
3. Hang one bag (A) and fill with 100-500 cc of prepared blood mixture. Hang no higher than 18" above the surface of the arm (fluid supply stand shown sold separately, LF01022U).
4. Close the cap tightly and lay the other bag (B) on the table.
5. Make sure all connections are secure. Open both clamps and let the blood run through until all the air has been displaced from the tubing. *(See figure 63.)*
6. For blood sampling, close the clamp on Bag B, leaving the Bag A clamp open. *(See figure 64.)*
7. For injections, close the Bag A clamp and open the Bag B clamp. *(See figure 65.)*
8. The position of the bags may be switched when Bag B is full.
9. Always drain the blood and run clear water through the system after each use. Allow to air dry.



Figure 63



Figure 64



Figure 65

Newborn Nursing Skills and ALS Simulator

Performing IV Infusions

1. Procure a 3rd IV bag (sold separately, LF01130U).
2. Begin with a fully pressurized system.
3. Insert the IV needle or butterfly into a vein. Flashback will indicate a proper insertion.
4. Attach the needle or butterfly to the tubing from the infusion solution or fluid supply bag C.
5. Open the clamp on fluid supply Bag B.
6. Open the clamp from the infusion solution. Proof of proper procedure will be evidenced by the flow of fluid from the infusion solution or fluid supply bag C.

Note: Simulate cleansing IV, injection, and withdrawal sites using distilled water. Multiple or prolonged exposure to harsh antiseptics such as alcohol or iodine could damage or stain the simulator. Performing infusions can dilute your simulated blood solution; ensure bag B is mostly empty before infusing.

Intubation

1. NASCO HEALTHCARE recommends a standard 3.5 mm ET tube and a #1 Miller blade.
2. Always thoroughly lubricate all equipment before use with the supplied lubricant.
3. The airway may be removed for cleaning if necessary.
4. Adhesive tape will not adhere to the material of the face. Use an alternative method to secure the ET tube.
5. The baby may also be ventilated with a bag valve mask.

Newborn Nursing Skills and ALS Simulator

Chest Tube

A chest tube may be inserted into the site in the left mid-axial line. This is a nonfunctioning site that may be used for practice in chest tube care.

Umbilicus

The umbilicus may be catheterized through the vein or the two arteries.

1. To take blood samples, pull out the umbilicus, fill the reservoir with approximately 2-4 cc of blood mixture, and replace umbilicus. (See figures 66 and 67.)
2. To infuse fluids, leave the reservoir empty. Maximum capacity is approximately 5 cc.
3. When finished training, remove the umbilicus and empty the reservoir with the syringe. Wipe out remaining fluid with a paper towel. Leave open to air dry.

NG Tube

1. The patent left nostril may be used for practice in NG tube insertion and care, including suction.
2. An embedded tube in the simulator simulates a small stomach reservoir. The reservoir can hold approximately 2-4 cc of fluid; administration of larger amounts of fluids is not recommended.
3. Any fluids added to the simulator will need to be suctioned out.
4. Following practice with fluids, remove the airway and dry any remaining fluid from the chest and head cavity. With paper toweling in the head cavity, tip the simulator up, raising the feet over the head to drain any remaining liquid left behind from suctioning.
5. Allow simulator and airway to air dry completely after each use.

Omphalocele and Myelomeningocele

1. The omphalocele may be attached to the baby's abdomen by fitting it over the umbilicus. (See figure 68.)
2. The myelomeningocele may be attached to the baby's back by inserting the peg into the molded hole. (See figure 69.)



Figure 66



Figure 67



Figure 68



Figure 69

Newborn Nursing Skills and ALS Simulator

Care and Maintenance for the Newborn Nursing Skills and ALS Simulator

The newborn simulator and its components are completely washable and may be immersed in water.

1. Remove all components (hand and foot skins, umbilicus, birth defects, lung plate, and airway).
2. Wash the simulator and components gently in warm soapy water. Rinse and dry thoroughly.
3. Position the simulator so that any water that may have entered through the nose can drain out.
4. Allow all components to air dry fully after each use.
5. Store the simulator and the components in a clear plastic bag, when fully dry, to discourage dust or other materials from settling on the clean simulator.
6. Certain surfaces can become damaged from prolonged exposure to the simulator and its components.
7. Printed paper, plastic, ballpoint pen, and many other types of ink can cause an indelible stain to the simulator.
8. Stubborn dirt or grime may be removed by using NASCO HEALTHCARE Cleaner (sold separately, LF09919U). Simply apply NASCO HEALTHCARE Cleaner to the soiled surface and wipe clean with a cloth.
9. A dusting of baby powder will give a more life-like quality to the skin.
10. Actual product may vary slightly from photo. NASCO HEALTHCARE reserves the right to change product color, materials, supplies, or function as needed.

Supplies/Replacement Parts for the Newborn Nursing Skills and ALS Simulator

LF01401U	Replacement Bilateral Chest Rise Plate
LF01402U	Replacement Unilateral Chest Rise Plate
LF01403U	Replacement Airway
LF01404U	Replacement IV Hand Skin and Vein
LF01405U	Replacement IV Foot Skin and Vein
LF01406U	Replacement Umbilicus
LF01407U	Birth Defects, set of 2
LF01130U	Fluid Supply Bag
LF00845U	Blood, Quart
LF00846U	Blood, Gallon
LF01022U	Fluid Supply Stand
LF00985U	Lubricant, Six 2-oz. Bottles
LF09919U	NASCO HEALTHCARE Cleaner

TruClot

K. TrueClot®

Clotting solution instantly creates realistic looking simulated blood clots for moulage or surgical training when used with TrueClot® Blood Simulant. Clots are non-hazardous, can be disposed of in regular trash and clean up with soap and water.

Instructions

Mix TrueClot® Blood Simulant with TrueClot® Clotting Solution in a ratio of 5 parts blood simulant to 1 part clotting solution in a bowl or other suitable container. Mix with a stirring wand or gloved hand until large simulated clots form. The solutions may also be poured into a bottle or other sealed container and gently inverted until large simulated clots form. Apply the simulated clots to manikins or live actors for realistic trauma moulage.

For less robust simulated blood clots, mix TrueClot® Blood Simulant with TrueClot® Clotting Solution in a ratio of 10 parts blood simulant to 1 part clotting solution. To create stringy clots or simulated avulsed tissue, mix a larger volume of 5:1 blood simulant to clotting solution. Mix as directed to create simulated blood clots. With gloved hands pick up simulated blood clots and squeeze excess liquid from the clots. This will create thin and stringy blood clots that can be used to simulate avulsed tissue.

TrueClot® Blood Simulant, simulated hemostatic gauze and simulated blood clots are safe and non-hazardous and can be disposed of in regular trash. If skin becomes stained, wash thoroughly with soap and water. For small stains on fabric or clothing, thoroughly rinse with water and launder as normal. For larger stains or stains that have dried, thoroughly rinse and gently scrub with laundry soap and water to remove as much stain as possible. Soak the garment in mixture of water and laundry soap for 1-3 hours then launder as normal.

Warning: Do not ingest simulated clots or clotting solution or blood simulant. If ingestion occurs, rinse mouth thoroughly with water. Avoid contact with eyes. If contact with eyes does occur, rinse eyes liberally with water. Seek medical attention if irritation does not subside after rinsing.

Replacement Supplies for TrueClot®

SB51046U TrueClot® Blood Simulant, Half-Gallon

SB51010U TrueClot® Clotting Solution

Injectable Training Arm

L. Injectable Training Arm for the Advanced Maternal Simulator

Caution: PRODUCT CONTAINS DRY NATURAL RUBBER!

The outer skin is easily peeled off, revealing the “core” and veins. The skin and veins can be readily replaced when needed. Using smaller gauge needles will prolong the life of the original skin and veins. Replacement parts are available and listed at the end of this manual. The internal vascular structure begins at the shoulder and continues under the arm, crosses the antecubital fossa forearm, makes a loop in the back of the hand, and then returns to the underarm.

This venous system is constructed of special, natural dry rubber, with the lumen being the approximate size of an adult human vein. **(See figure 70.)** This vascular structure has inlet and outlet tubing at the shoulder. It is via these tubes that synthetic blood is infiltrated, thus allowing practice in techniques of blood drawing and starting intravenous infusions.

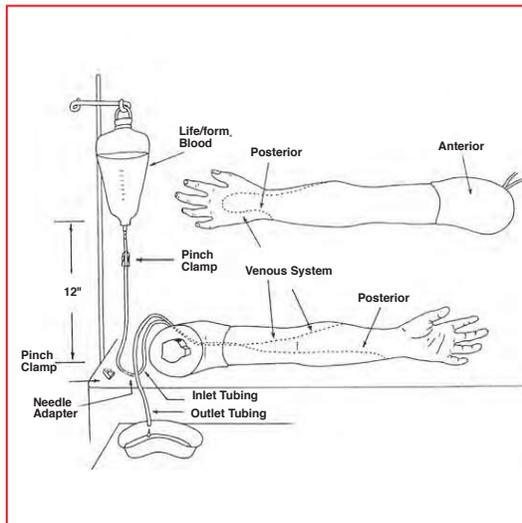


Figure 70

Injectable Training Arm

Setup for the Injectable Training Arm

Remove the articulated right arm and attach the injectable training arm to the torso. (See figures 71 and 72.)

Filling the Venous System and Preparing the Arm for Blood Draws

1. Prepare the synthetic blood by filling the pint bottle containing the synthetic blood concentrate with distilled water.
2. Be sure the clamp on the IV tubing is closed, and pour the synthetic blood into one of the provided fluid supply bags. (See figure 73.) This will be IV Bag A. Fill to 500 cc maximum. (See figure 74.)
3. Hang IV Bag A no more than 18" (45.72 cm) above the level of the arm.

Note: Fluid Supply stand shown sold separately, LF01122U

4. Attach the tubing on IV Bag A to one of the shoulder tubes. Since this is a single tube loop system it does not matter which tube you use. This will now be the inlet tube. (See figure 75.)



Figure 71



Figure 72



Figure 73



Figure 75



Figure 74

Injectable Training Arm

5. Use the second shoulder tube for draining; this will be the outlet tube. With the outlet shoulder tube in a basin or sink, or attached to the second IV bag (IV Bag B), make sure the clamp on the drain tube is open. (See figure 76.) If using IV Bag B, ensure the clamp on IV Bag B is also open. "Flush" the vascular system with synthetic blood by slowly opening the clamp on IV Bag A (See figure 77.) Allow the system to flush with synthetic blood until the air bubbles are no longer seen passing through the outlet shoulder tubing into the basin, sink, or IV Bag B. (See figure 78.)
6. Turn the arm over to force any remaining air bubbles out of the system. (See figure 79.)
7. Close the clamp on the outlet shoulder tube and, if using IV Bag B, close off the blood outlet. The system is now filled and pressurized. Be sure to leave the clamp on IV Bag A open. The arm is ready to practice drawing blood. Synthetic blood can be drawn anywhere along the pathway of the vein.



Figure 76



Figure 77

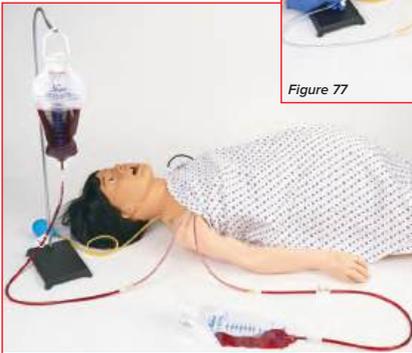


Figure 78



Figure 79

Injectable Training Arm

Preparing the Arm for Intravenous Infusions

1. Start with an “empty” unpressurized arm. Close the clamp at the end of IV Bag A and then fill with distilled water, 500 cc maximum. Hang IV Bag A not more than 18” (45.72 cm) above the arm.
2. Ensure one of the tubes leading from the shoulder of the Injectable Training Arm is fitted with a clamp. Attach fitting end of IV Bag A to the shoulder tubing with the clamp. Attach the fitting end of IV Bag B to the remaining shoulder tube.
3. With IV Bag B laying on the surface and IV Bag A hanging, open the clamps on both bags and the arm tube. Allow fluid to flow through the Injectable Training Arm until air bubbles are no longer seen flowing into IV Bag B. Close the clamp on IV Bag B. The system is now pressurized.
4. Insert IV needle (butterfly) in vein. “Flashback” will indicate proper insertion.
5. Close the clamp on IV Bag A and the clamp on the arm tube. Disconnect IV Bag A from the shoulder tubing. You may now use IV Bag A as the infusion supply.
6. Cleanse the IV site with distilled water and insert IV needle or butterfly.
7. Connect IV Bag A with the latex connector to the IV needle or butterfly tubing.
8. To start the IV flow, open the clamps on both IV Bags A and B. Proof of proper procedure will be evidenced by the flow of fluid from IV Bag A. Control flow rate with the clamp on IV Bag A. A third IV Bag (not supplied, sold separately, LF01130U) can be used for the infusion of fluid. This will enable bags A and B to remain attached to the arm. If a more realistic experience is desired, with “blood flashback” instead of water when inserting the butterfly into the lumen of the vein, use the following procedure.

Recommended Procedure for Simultaneous IV Infusions and Drawing Blood

1. Follow the procedure for setting up your IV Arm to draw blood, and using IV Bag B as the drain bag.
2. Once the arm is pressurized and full of blood, open the clamps on IV Bags A and B.
3. Obtain a third IV Bag (not supplied), IV Bag C, and ensure the clamp is closed and fill with distilled water. Hang IV Bag C according to your desired flow rate.
4. Cleanse the IV site with distilled water and insert IV needle or butterfly. A realistic blood flash back will be evidenced with proper insertion.
5. Connect IV Bag C to the IV needle or butterfly with the latex connector and open the clamp to IV Bag C.
6. IV Bag B, when full, may be easily switched with A.

Injectable Training Arm

Troubleshooting the Injectable Training Arm

1. Follow procedures and ensure clamps are open on appropriate fluid supply/IV bags and/or shoulder tubes.
2. Check your equipment prior to use. IV tubes will kink at the clamp site with repeated use. Routinely move clamps up or down the tube to reduce the probability of kinks. When a kink occurs, slide the clamp to a new position and, with fingers, massage tubing at pinched site to restore lumen. Replacement fluid bags are available. Removing clamps prior to storage is recommended.
3. Check to ensure hanging bags are hung to the appropriate height. Hanging the supply bags slightly higher for bags not producing enough pressure can create just enough gravitational force on the fluid to facilitate flow.
4. If a venous system clog is suspected, try using a large 50 cc syringe to force distilled water through the tubing.
5. Check the venous system tubing for kinks. First, lubricate the outside of the arm skin generously with Ivory® liquid dishwashing detergent. Peel the skin back to the knuckles, being careful NOT to remove the skin from the fingers. Examine all the tubing for possible kinks. Replace the skin and infiltrate the system again.

Care and Maintenance for the Injectable Training Arm

After each use of the Injectable Training Arm follow these procedures:

1. Disconnect IV bags, remove infusion needles, and flush the venous system using distilled water and 12 cc syringe.
2. Simulated blood can be returned to its bottle and reused.
3. Rinse IV bag containing simulated blood with distilled water, flushing through tubing into a sink or basin.
4. Remove pinch clamps from IV bags and Injectable Training Arm shoulder tubing.
5. Wash the outside of the Injectable Training Arm with mild liquid detergent, such as Ivory® dishwashing soap. Stubborn stains may be washed with NASCO HEALTHCARE cleaner. Dispense NASCO HEALTHCARE cleaner on clean, soft, dry cloth and gently wipe soiled area.
6. Remove excess water from the venous system by raising the hand, lowering the shoulder, and draining it into a sink or basin.
7. Allow the arm to dry completely after each use.

Injectable Training Arm

To prevent damage to the Injectable Training Arm, use the following recommendations:

1. Use distilled water rather than alcohol, Betadine®, or other skin preparing substances to simulate preparing the puncture site.
2. Small diameter needles, 20-gauge to 25-gauge, should be used to extend the life of the skin and veins.
3. Synthetic blood will stain the soft skin of the injectable training arm, clothes, soft surfaces, and some hard surfaces. Please use caution.
4. Ink and newsprint will cause an indelible stain to the injectable training arm. DO NOT place the injectable training arm on printed surfaces or plastic.
5. Follow care and maintenance instructions carefully.

Cautions for the Injectable Training Arm

1. This synthetic blood is specially formulated to be compatible with the self-sealing veins and plastics used in manufacturing the injectable training arm.
2. NEVER use synthetic blood for intramuscular injection.
3. DO NOT use dull or burred needles, as these will cause leaks in the system. Burred needles will cause permanent damage.
4. DO NOT allow synthetic blood to dry on the simulator – it may stain the skin.
5. Use only 500 cc of infusion fluid. Larger amounts will increase the pressure of the venous system, resulting in leaks.
6. DO NOT clean the simulator with solvents or corrosive materials as they will damage it.
7. DO NOT use for subcutaneous injection. NASCO HEALTHCARE's Intradermal Injection Simulator (LF01008U) is specifically designed for intradermal injection training and practice.

Supplies/Replacement Parts for Injectable Training Arm

LF04081	Skin and Vein Replacement Kit (Light)
LF00845	Life/form® Blood, 1 Quart
LF00846	Life/form® Blood, 1 Gallon
LF01099	Vein Tubing Sealant Kit
LF09919	NASCO HEALTHCARE Cleaner
LF01130	IV Fluid Supply Bag Set: 500 ml Supply Bag, Tubing, Clamp, and Connector
LF00996	Vyna-Bond, 2 tubes (1 oz. each)
LF01117	Butterfly Set (pkg. of 12)

Blood Pressure Simulator

M. Blood Pressure Simulator Arm Included with Advanced Maternal Simulator

Caution: PRODUCT CONTAINS DRY NATURAL RUBBER!

The Left Blood Pressure Simulator Arm has digitally recorded blood pressure sounds that can be varied by pulse rate and volume. The different Korotkoff phases can be identified and an optional auscultatory gap can be selected. A palpable radial pulse is present in the wrist.



Figure 80

General Instruction for Use for the Blood Pressure Simulator

Remove the articulated left arm and attach the blood pressure arm to the torso. (See figure 80.)



Figure 81

Installing the Batteries

1. Take the Blood Pressure Electronic Control Unit out of the box and turn it over, placing it face down onto a padded work surface.
2. Locate the "Open" compartment on the back of the panel where the batteries are to be installed.
3. Place your thumb or index finger on the "Open" compartment and push up. (See figure 81.)
4. This will open the battery compartment. The compartment is marked as to the positions of the batteries "+" or "-".
5. Install 6 "AA" batteries as indicated by the orientation diagram embossed in the bottom of the bracket. (See figure 82.)



Figure 82

Note: It is recommended that alkaline batteries be used for increased battery life.



Figure 83

6. After the batteries have been properly installed, reassemble the Electronic Control Unit by sliding the compartment closed.



Figure 84

Turning the Electronic Control Unit On

1. Place the unit face up on the padded work surface.
2. Press the power button on the top right of the unit. (See figure 83.)
3. Observe the display and verify that a readable display is present. (See figure 84)

Note: The control box has a battery saving feature that will turn the unit off after approximately 8-10 minutes if no keys are used within that period of time.

Blood Pressure Simulator

Connecting the Arm, Electronic Control Unit, and Sphygmomanometer

1. Locate the cable that extends from the blood pressure simulator arm and plug into the top of the electronic control unit using the jack labeled ARM. (See *figure 85.*)
2. Locate the end of the pressure line attached to the sphygmomanometer that is assembled with a male Luer fitting.
3. Attach this end of the pressure line to the female Luer fitting assembled at the top of the electronic control unit marked CUFF. (See *figure 86.*)

At this point, the blood pressure simulator is ready for use. The unit has been factory calibrated for use with accessories included. No further calibration adjustments are necessary at this time. If the unit is to be used with a sphygmomanometer other than the one supplied, or when recalibration is necessary, see the section titled Calibration Procedures.

Electronic Control Unit Function for the Blood Pressure Arm

Under the display window are three buttons: Menu, Gap, and Calibrate. (See *figure 87.*)

Setting Systolic and Diastolic Pressure

1. Press the menu key once.
2. The “Set SYSTOLIC” pressure menu will display in the electronic control unit window. (See *figure 88.*)
3. Use the up or down arrow keys, located to the right of the menu button, to adjust the systolic pressure.
4. Press the menu key a second time.
5. The “Set DIASTOLIC” pressure menu will display in the electronic control unit window. (See *figure 89.*)
6. Use the up or down arrow keys located to the right of the menu button to adjust the diastolic pressure. The systolic and diastolic pressures can be set anywhere from 0-300 mmHg.



Figure 85



Figure 86



Figure 87



Figure 88



Figure 89

Blood Pressure Simulator

Setting the Heart Rate

1. Press the menu key a third time.
2. The “Set HEARTRATE” menu will display in the electronic control unit window. (See *figure 90.*)
3. Use the up or down keys located to the right of the menu button to adjust the heart rate. The heart rate can be set from 0-300 beats per minute.



Figure 90

Setting the Palpable Pulse

The palpable pulse is found at the radial location. (See *figure 91.*) Palpations can be felt upon start-up of the unit or after blood pressure and heart rate settings have been made. The palpable pulse is delicate and should be palpated lightly. Pressing too hard will damage the pulse feature.



Figure 91

1. Press the menu key a fourth time.
2. The “Set PALPATION” menu will display in the electronic control unit window.
3. “Pulse ON” is defaulted. Use the down arrow key to the right of the menu key to set palpation to “pulseless.”



Figure 92

Note: The palpation can be set to either on or pulseless. When the pulseless setting is used, the diastolic and systolic pressures will automatically be set to 0.

4. Use the up arrow key to the right of the menu key to set palpation as “Pulse ON.” (See *figure 92.*)

Note: During an actual blood pressure reading, the palpable pulse will automatically turn off when the cuff is inflated and surpasses the systolic set point. It will turn on when the cuff is deflated 20 mmHg below the diastolic set point. This function allows students to clearly hear Korokoff sounds.

Blood Pressure Simulator

Auscultatory Gap

The auscultatory gap feature can either be enabled or disabled by pressing the GAP Key during set up.

1. Locate the GAP key to the right of the MENU key.
2. Press the GAP key to set the function on (Y = Yes) or off (N = No).
3. When the key is pressed, a message will briefly appear that the auscultatory gap is enabled or disabled. (See **figure 93**.)
4. The main display will show AGap:Y (or ON) or AGap:N (or OFF).



Figure 93



Figure 94

Setting the Volume

The arrow keys also control the volume of the sounds present in the arm.

1. From the main menu, press the up arrow key to increase the volume. (See **figure 94**.)
2. Press the down arrow key to decrease the volume. (See **figure 95**.) The volume levels can be adjusted from level 1 (the lowest volume) to level 7 (the highest volume).



Figure 95

Performing a Blood Pressure

1. Verify the pressure line tubing from the sphygmomanometer and the audio line from the arm are properly connected to the electronic control unit. (See above connection instructions.)
2. Apply the sphygmomanometer cuff and gauge to the arm according to facility procedures.
3. Place the stethoscope to the arm according to facility procedures.
4. Set the systolic and diastolic pressure to the desired levels.
5. Select the auscultatory gap.
6. Select the heart rate to the desired setting.

Note: The electronic control unit will default to the last levels previously set. It is important to go through all menus and program the electronic control unit with each training session as desired. A standard stethoscope will work with the blood pressure simulator; one is not provided.

Blood Pressure Simulator

Low Battery Indicator

When the batteries need to be replaced, a “low batt” message will display on the systolic pressure menu when the systolic pressure reaches above 20 mmHg. Refer to the section “Installing the Batteries” for more information.

Calibration Procedures

1. Follow the setup procedures.
2. Apply the cuff to the simulated arm.
3. Set the electronic control unit systolic pressure to 150 mmHg and set the diastolic pressure to 70 mmHg.
4. Proceed with performing the blood pressure and note the differences between the gauge and what was set on the electronic control unit.
5. Set the systolic correction by pressing and holding the CALIBRATE key to the right of the GAP key. (See figure 96.)
6. Using the arrow keys, set the correction. For example, if the blood pressure reading for systolic pressure was 148 mmHg, the systolic correction would be +2 and the up arrow key would be pressed until +2 would display in the window.
7. Press the MENU key from the Systolic Correction window to change to the Diastolic Correction window. (See figure 97.)
8. Using the arrow keys, set the correction. For example, if the blood pressure reading for diastolic pressure was 72 mmHg, the diastolic correction would be -2 and the down arrow would be pressed until -2 would display in the window.
9. Press the MENU key. The “CALIBRATION COMPLETE” message will appear and the main menu window will be displayed.



Figure 96

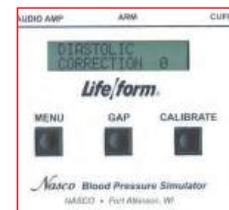


Figure 97

Blood Pressure Simulator



Figure 98



Figure 99



Figure 100

Preparing Your Sphygmomanometer for Use with Blood Pressure Simulator

Any standard sphygmomanometer can be adapted for use with the blood pressure simulator. Continue to use a child size cuff.

1. Disconnect the sphygmomanometer from the pressure line connected to the electronic control unit. The pressure line can be left connected to the electronic control unit.
2. Remove the T-fitting included with the assembled sphygmomanometer.
3. Obtain a new sphygmomanometer.
4. Using a scissors, carefully cut the tube of the sphygmomanometer about 2" from the gauge. *(See figure 98.)*
5. Take the T-fitting and insert the horizontal ends between the two ends of the cut tubing of the new sphygmomanometer. *(See figure 99.)*
6. Assemble the free end of the pressure line tubing, still connected to the electronic control unit, to the free end of the T-fitting. *(See figure 100.)*
7. Connect the newly modified sphygmomanometer to the child-size cuff.
8. Follow the calibration instructions to calibrate with the electronic control unit and blood pressure simulator.

Care and Maintenance for the Blood Pressure Arm

1. Disconnect the arm from the electronic control unit after each use.
2. Remove the blood pressure cuff from the arm after each use.
3. Remove the batteries from the electronic control unit after each use.
4. Wipe general dirt from the arm with a clean, damp cloth and mild dish detergent, avoiding electronic control unit cord extending from the arm. Stubborn dirt can be removed with NASCO HEALTHCARE Cleaner, LF09919U sold separately. Apply NASCO HEALTHCARE Cleaner to the soiled area and wipe clean with a soft, dry cloth.
5. Ink, printed paper and plastic can cause an indelible mark on the blood pressure arm and its components. Avoid contact with these materials.

Blood Pressure Simulator

Supplies/Replacement Parts for Blood Pressure Simulator

- LF01189U** Speaker System
- LF01096U** Electronic Control Unit with Sphygmomanometer
- LF01125U** Electronic Control Unit Only
- LF01073U** Child Size Cuff and Gauge with Pressure Line Tubing
- SB10828U** "AA" Batteries, 2 pack

Micro-Premie Simulator

N. Micro-Premie Simulator

The manikin represents a 25-week neonate. The soft, flexible body and a variety of built-in features make this a very lifelike and easy-touse training aid for many scenarios.

Setup

Installing the Replaceable Airway

1. Remove the installed lung block, if applicable, from the baby's chest. (See *figure 101.*)
2. Thoroughly lubricate all of the outside surfaces of the airway and around the baby's mouth.
3. Gently insert your lubricated finger into the airway over the tongue and epiglottis.
4. Push the tube end of the airway into the baby's lubricated mouth. (See *figure 102.*)
5. Work your fingers around the inside of the mouth, freeing the baby's lips. Be sure the airway is fully installed.



Figure 101



Figure 102



Figure 103

Lung Blocks

Two different lung blocks have been provided: a normal block simulating bilateral expansion of the lungs, and a second block simulating a collapsed right lung. The two blocks can be identified by the molded diagram on the back. To install either lung block:

1. Ensure the airway is installed (see "Installing the Replaceable Airway" for more information).
2. Apply a small amount of lubricant to the short tubing section of the airway that projects into the chest cavity.
3. Insert the lubricated tubing section into the hole at the top of the lung block. (See *figure 103.*)
4. Fit the lung block into the chest cavity.

Patent Umbilicus

The umbilical stump has one functional vessel and functions like a plug that fits into the small reservoir within the abdomen.

Ostomy

The nonfunctional stoma can be positioned externally, or pulled out and reinserted with the skin side up.

Micro-Preemie Simulator

General Instructions for Use for the Micro-Preemie Simulator

Airway and Ventilation

The baby will accept a functioning 2.5 mm I.D. endotracheal tube (not included) with #0 Miller Blade. The lubricated tube must be placed into the throat to produce a visible chest rise. Do not administer fluids through the mouth. BVM can also be used to produce a chest rise.

GI

The left nostril will accept a 5 Fr nasogastric feeding tube (not provided). Fluids passed through the NG tube will enter an embedded tube located under the chest block. Note: Fluid administration is not recommended. Any fluid administered must be suctioned out. The embedded tube is approximately 1-2 cc. Use water only, not formula. Always drain the system completely when training is complete.



Figure 104



Figure 105

Umbilicus

The reservoir can be used to either draw or receive fluids. Maximum capacity is approximately 5 cc. Do not overfill. Always use plain water, with or without the blood powder provided. (**Caution:** Blood mixture will stain skin and fabric!) (See figures 104 and 105.) Always flush and drain the system thoroughly and store with the plug hole open so the reservoir can dry.

IV Sites

The Micro-preemie has four molded-in sites typically used for peripheral IV access: right scalp, right foot, left arm, and left hand. All four will accept an infusion device, but none of the sites are functional.

Note: The soft material of this manikin is self-healing and will accept a small gauge needle anywhere on the body. Before insertion, make certain that the needle will not damage any underlying structures. Over time, repeated punctures, especially in the same area, will result in damage to the simulator. NASCO HEALTHCARE warranty does not cover damage caused by needle insertion.

Chest Tube

A permanent site in the baby's right side will accept a nonfunctioning 8-10 FR chest tube for placement and care practice.

Micro-Premie Simulator

Pressure Ulcers

The manikin shows several typical sites of skin breakdown: occiput and heels. (See figures 106 and 107.)



Figure 106



Figure 107

Birth Defects

Omphalocele – The umbilicus may be replaced with the omphalocele for specialized training. Ensure the abdominal reservoir is empty. The omphalocele is nonfunctional. (See figure 108.)



Figure 108

Myelomeningocele (Neural Tube Defect) – The optional structure may be plugged into the small opening in the back of the Micro-Premie. (See figure 109.) Other Various monitors and sensors may be connected to the Micro-Premie just as they would be to a real infant.

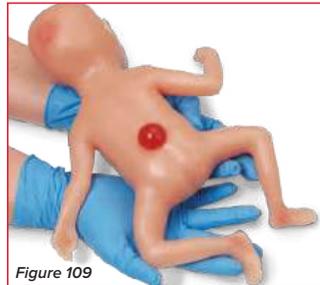


Figure 109

Micro-Preemie Simulator

Care of the Simulator

- NASCO HEALTHCARE Micro-Preemie material is soft but durable and will last a long time with proper care.
- While the arms and legs are very flexible, avoid forcing them into extreme positions.
- The manikin is completely immersible in water and may be washed with mild soap or detergent if soiled.
- Always allow all components to dry thoroughly after each use.
- Baby powder can be applied to the baby and its components for a less tacky skin surface.

Supplies/Replacement Parts for Micro-Preemie

LF01206(A)U	Consumables Kit: 5 diapers, blood pack, 3 cc spoon, and lubricant
LF01211U	Micro-Preemie Hat (colors vary)
LF01282U	Bilateral Chest Block (light)
LF01283U	Unilateral Chest Block (light)
LF01284U	Airway Micro-Preemie
LF01285U	Micro-Preemie Kit (umbilical cord, 2 defects)
LF01286U	Bilateral Chest Block (dark)
LF01287U	Unilateral Chest Block (dark)
LF01288U	Stoma (light), package of 5
LF01289U	Stoma (dark), package of 5
LF03461U	Small, Soft, Carry Bag
SB51833U	Bulb Syringe, 2 oz. Infant

Lucy Maternal and Neonatal Birthing Simulator

Care and Maintenance for Lucy Maternal and Neonatal Birthing Simulator

Cleaning the Airway Management Trainer Head

1. Disconnect the airway from the lung bag.
2. Remove the head from the torso reversing the instruction described to attach.
3. Remove the wig and eyes and set aside.
4. Take the head to an area with a sink and open counter space. Using the red cap supplied, slide it over the port that connects to the lung bag. (**See figure 110.**)
5. Stabilize the head on the counter face-up (towels work well for this) with plugged tube hanging over the sink.
6. Carefully pour warm soapy water (a mild dish soap works best) into the mouth until the water level reaches halfway up the tongue.
7. Tilt the head back and bring the neck up 3" off the countertop.
8. Continue filling until the water level covers the tongue. Take a small soft brush and gently scrub the inside of the mouth (a small toothbrush works well for this). Cotton swabs can be used to scrub inside the nostrils.
9. When done, pull the red cap from the port and drain the water into the sink.
10. Rinse the airway, following the same procedure used to clean, with warm tap water only. Repeat this process until all the soap has been flushed from the system.



Figure 110

Disinfecting the Airway

To disinfect, repeat the standard cleaning procedure with a bleach solution, as specified by the Centers for Disease Control.

1. Fill the system with the solution until it reaches the corners of the mouth. Remember to start filling with the head flat and finish with the neck slightly elevated to ensure that the solution completely fills all airway passages.
2. Once completely filled with the bleach solution, allow the head to sit for at least 10 minutes.
3. Drain as previously described and repeat the rinsing process to flush out all of the bleach solution. Set the head aside and allow it to air dry completely after each use

Lucy Maternal and Neonatal Birthing Simulator

General Care and Maintenance

1. Most cleaning can be done with a soft cloth, mild soap, and warm water. Avoid over-washing the painted areas on the manikin.
2. Stubborn stains can be treated by using NASCO HEALTHCARE Cleaner and a soft cloth.
3. Stains caused by make-up, ink, and newsprint are indelible and cannot be removed. Avoid contact with these substances and do not apply cosmetics or Betadine® solution to the manikin.
4. Follow cleaning, care, storage, and maintenance guidelines in each section of this manual.
5. It is recommended that batteries be removed from the Electronic Control Unit (equipped with the Blood Pressure Simulator).
6. Store the simulator and the components in a clear plastic bag, when fully dry, to discourage dust or other materials from settling on the clean simulator.

Cautions

- Do not place simulator in contact with any printed paper or plastic. The ink will transfer and cause an indelible stain. Similar inks, such as ballpoint pen, will also cause an indelible stain.
- Do not use NASCO HEALTHCARE Cleaner (LF09919U) around the nose or mouth of the simulator. The cleaner may be toxic if ingested.
- Properly lubricate the Airway Management head and intubation appliances.
- Use only NASCO HEALTHCARE Pump Spray Lubricant (LF03644U), water based lubricating jelly, or diluted mild dish soap with this simulator. Other lubricants, such as silicone oil, may cause damage to the airway or other components of the simulator.
- Ensure intubation appliances are used accordingly. Improper use of intubation appliances could damage the airway of the simulator. Damage to the airway will require the product to be returned to NASCO HEALTHCARE for repair.

Lucy Maternal and Neonatal Birthing Simulator

Supplies/Replacement Parts for Life/form® Lucy Maternal and Neonatal Birthing Simulator

LF00042U	Basic Lucy	LF04094(N)U	Leg, Articulating, Complete Left
LF00041U	Complete Lucy	LF04093(N)U	Leg, Articulating, Complete Right
LF00040U	Advanced Lucy	LF04052(N)U	Leg Injection Site
LF00050U	Articulating Baby	LF01116U	Lubricating Jelly
LF00051U	Replacement Cord Kit, Articulating Baby	LF00070U	Lung Bag
LF00060U	Abdominal Pad	101-171U	Meconium Methyl Cellulose
LF00059U	Abdominal Skin, Cesarean	LF00709U	Medium Blood Clot
LF00058U	Abdominal Skin, Normal	LF00066U	Pelvic Block
LF04092(N)U	Arm, Articulating, Complete Left	LF00712U	Perineal Hemorrhage
LF04091(N)U	Arm, Articulating, Complete Right	LF00065U	Perineal Skin Foam Stabilizer Pad
LF04079U	Blood Pressure Arm, Light	LF00064U	Perineal Skin, Birthing
LF00067(A)U	Cervix, Stage 1	LF00063U	Perineal Skin, Episiotomy
LF00067(B)U	Cervix, Stage 2	LF00062U	Perineal Skin, Prenatal
LF00067(C)U	Cervix, Stage 3	LF00073U	Placenta
LF00067(D)U	Cervix, Stage 4	LF00071U	Positioning Bag
LF00067(E)U	Cervix, Stage 5	LF03468U	Rolling Case, Large
LF00067(F)U	Cervix, Stage 6	LF03469U	Rolling Case, Small
LF00067U	Cervix, Stages 1-6, Set of 6	LF04051(N)U	Shoulder Injection Site, Replacement
LF00069U	Chest Skin	LF00077U	Simulated Amniotic Sacs, Roll of 50
LF00714U	Complete Set of Blood Clots & Hemorrhages	LF00710U	Small Blood Clot
LF00056U	Eyes, Blue, Set of 2	LF00078U	Torso, Lucy
LF00055U	Eyes, Brown, Set of 2	LF00076U	Umbilical Clamp
LF00057U	Eyes, Green, Set of 2	LF00074U	Umbilical Cord, Long
LF00068U	Foam CPR Chest	LF00075U	Umbilical Cord, Short, Set of 3
LF00061U	Fundus	LF00052U	Wig, Black
LF00079U	Head, Lucy	LF00054U	Wig, Blond
LF00713U	Hemorrhage Blood Pool	LF00053U	Wig, Brown
LF00072U	Inflation Tubing with Squeeze Bulb		
LF04080U	IV Arm, Light		
LF00711U	Large Blood Clot		

Other Products Made by NASCO HEALTHCARE

LF00690U	Episiotomy Suturing Trainers
LF00707U	7-8 Week Human Fetus Replica
LF00828U	13 Week Human Fetus Replica
LF00813U	20 Week Human Fetus Replica
LF00829U	5-Month Female Human Fetus Replica
LF00830U	5-Month Male Human Fetus Replica
LF00708U	7-Month Female Human Fetus Replica
LF00931U	Full-Term Male Human Fetus Replica
LF00908U	Infant Circumcision Training Kit, Light
LF01044U	Episiotomy and Perineal Laceration Training Kit
LF01068U	Cervical Dilatation and Effacement Trainers
LF01281U	Micro-Preemie Simulator, Dark
LF01420U	C.H.A.R.L.I.E. Neonatal Resuscitation Simulator with Interactive ECC
LF04041U	Pressure Injury Foot
LF04084U	Edema Foot with Deep Tissue Injury

LF01420U



LF00908U







NASCO HEALTHCARE
16 Simulaids Drive
Saugerties, NY 12477
1-833-NASCOHC (627-2642)
info@nascohealthcare.com
www.nascohealthcare.com