

*Nasco*  
**Life/form**®



# **GERi™ /KERi™ THE NURSING SKILL MANIKINS**

The ideal manikin for all OBRA required training!

**GERi™** – LF04040U, LF04001U, LF04030U, LF04003U

**KERi™** – LF04021U, LF04020U, LF04022U, LF04023U

## **INSTRUCTION MANUAL**



**Life/form**® Products by Nasco

**3** Nasco  
Full  
Years  
Performance  
Warranty



## Advanced GERi™

Congratulations for choosing a **GERi™/KERi™** nursing skills manikin. This realistic, fully functional, lightweight nursing manikin comes with a superior range of motion and allows you to simulate over 35 nursing and medical procedures. The quality and simple design makes this manikin easy to use and care for while teaching your students basic patient care techniques, so please familiarize yourself with this manual before using the manikin for student training. **Three-year warranty.**

In the **Basic GERi™/KERi™** manikins the internal fluid reservoirs have been eliminated for greater economy. Ostomy care, oral and nasal lavage, gavage, and suctioning procedures cannot be performed but can be simulated. Urinary catheterization and enema administration cannot be simulated.

**Basic GERi™ LF04040U**

**Basic KERi™ LF04021U**

**LIST OF COMPONENTS**

Male genitalia  
Female genitalia  
Wig  
Dentures  
Hearing Aid  
12 cc syringe  
REN cleaner  
Lubricant spray  
Serial number — located under the skin at the back of the neck

**Advanced GERi™ LF04030U**

**Advanced KERi™ LF04022U**

**LIST OF COMPONENTS**

Male genitalia  
Female genitalia  
Wig  
Dentures  
Hearing Aid  
12 cc syringe  
REN cleaner  
Lubricant spray  
**Fluid drainage basin**  
**Catheter bag with fitting and pressure sleeve**  
**Right IV Training Arm**  
**Left Blood Pressure Training Arm**  
Serial number — located under the skin at the back of the neck

**VISUAL INSPECTION FEATURES**

Cancerous Mole Comparison  
Decubitus Sacral Ulcer — Stage 1  
Dilated Pupil Comparison  
Skin Wrinkles and Folds  
Elderly Appearance (**GERi™** only)

**Complete GERi™ LF04001U**

**Complete KERi™ LF04020U**

**LIST OF COMPONENTS**

Male genitalia  
Female genitalia  
Wig  
Dentures  
Hearing Aid  
12 cc syringe  
REN cleaner  
Lubricant spray  
**Fluid drainage basin**  
**Catheter bag with fitting and pressure sleeve**  
Serial number — located under the skin at the back of the neck

**Auscultation GERi™ LF04003U**

**Auscultation KERi™ LF04024U**

**LIST OF COMPONENTS**

Male genitalia  
Female genitalia  
Wig  
Dentures  
Hearing Aid  
12 cc syringe  
REN cleaner  
Lubricant spray  
**Fluid drainage basin**  
**Catheter bag with fitting and pressure sleeve**  
**Smart Scope™ with single and dual headpieces**  
**Remote Control with LCD display**  
**Two “AA” and two “AAA” batteries**  
Serial number — located under the skin at the back of the neck

**PATIENT CARE SIMULATION**

Bandaging Finger and Toe — Flexible and Individually Molded  
Bandaging and Wound Dressing  
Bed Baths  
Blood Pressure Arm Attachment (**Optional on Basic, Complete, and Auscultation**)  
Clothing Changes  
Denture Removal — Upper and Lower

Enema Administration — Female  
Eye Irrigation

Gastrostomy Care, Lavage, Gavage  
**(Only on Complete, Advanced,  
and Auscultation)**

Hair Care — Washing, Combing  
Hearing Aid Removal and Insertion  
Techniques

Injection Sites — 4 Intramuscular  
Intramuscular Injection Sites — Arms,  
Thigh, and Buttock

IV Arm Attachment **(Optional  
on Basic, Complete, and  
Auscultation)**

Oral Hygiene

Ostomy Care — Ileostomy and  
Colostomy, Lavage and  
Suctioning

Pap Smears and Douching

Patient Positioning — Superior Range  
of Motion

Patient Transfer Techniques

Prostate Exam — Stage B — Male

Tracheostomy Care — Lavage and  
Suctioning

Urinary Catheterization — Female  
and Male (Uncircumcised)

## **SUPERIOR RANGE OF MOTION**

**GERI™/KERI™** manikins offer the most complete and realistic range of motion with no pinch points. This allows for correct patient positioning. The manikin's articulation includes:

**Trunk** — rotation, hyperextension

**Shoulder** — abduction, adduction,  
rotation, hyperextension

**Elbow** — extension, flexion, pronation,  
supination

**Wrist** — flexion, hyperextension, radial  
flexion, ulnar flexion

**Fingers** — abduction, adduction,  
flexion (soft, lifelike material)

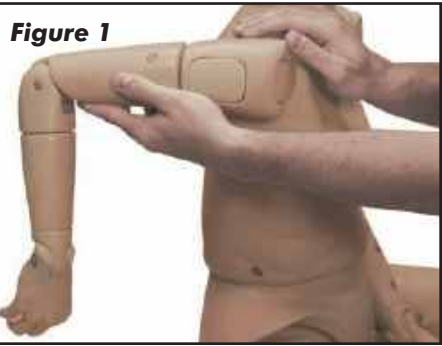
**Neck** — rotation, hyperextension,  
lateral flexion

**Hip** — abduction, adduction, rotation,  
hyperextension

**Knee** — extension, flexion

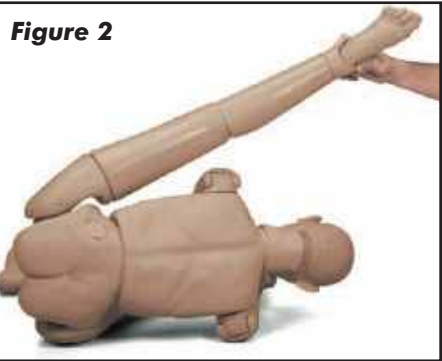
**Ankle** — eversion, inversion, dorsiflexion,  
plantarflexion

**Toes** — abduction, adduction, flexion  
(soft, lifelike material)



### **ARMS**

Arms can be removed by bending the elbows backward approximately  $90^\circ$  to align the keyholes at the shoulders, pull outward away from shoulder of the manikin. Reverse this procedure to reassemble. **(See figure 1.)**



### **LEGS**

The legs detach from the body at the hips by bending the legs backward approximately  $150^\circ$  so that the feet are near the shoulders and the keyholes are aligned. The legs can now be pulled outward away from the body. Reverse these procedures to reassemble. **(See figure 2.)**

### **HEAD**

The head may be removed by rotating it  $180^\circ$  backwards to align with the keyholes, and pull up. Reverse this procedure to reassemble.

### **JOINTS**

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



**Figure 3**

## EYES

The eyes may be removed by creasing the skin at the outside of each eye and rolling the eye up. (See figure 3.)

## GENERAL INSTRUCTION FOR CARE

**GERi™/KERi™** comes completely assembled and is simple to take apart if needed. Most cleaning can be done with a soft cloth and warm water. Avoid washing the painted areas on the manikin. Stubborn stains can be treated by using REN cleaner and a soft rag. Stains caused by makeup, ink, and newsprint are indelible and cannot be removed. Avoid contact with these substances. Do not apply cosmetics or betadine solution to the manikin.

## ORAL HYGIENE

Toothbrushing should be performed **without** water or any cleaning agents to avoid leaking into the head of the manikin, and to simplify cleanup. Denture removal is accomplished by grasping the dentures, pulling forward and then down (for the upper plate), or forward and then up (for the lower plate).

## EYE IRRIGATION

Both eyes may be irrigated using **water only**. To drain, tilt the head sideways and empty into a basin or onto an absorbent cloth. Cotton swabs should be used carefully and only on the outer ear.

## EAR CARE

Both ears may be irrigated using **water only**. To drain, tilt the head sideways and empty into a basin or onto an absorbent cloth. Cotton swabs should be used carefully and only on the outer

## BED BATHS AND HAIR WASHING

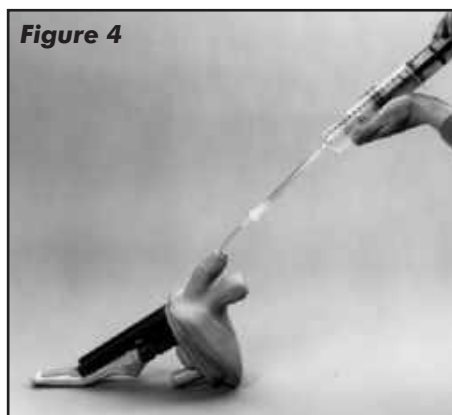
To simplify cleanup, dry bed baths and shampoos are recommended to eliminate the chance of water entering the inside of the manikin. However, a soft cloth and water can be used for bathing exercises, and a mild shampoo and cool water can be used for hair washing. Avoid scrubbing any painted areas of the manikin. To dry the wig, blot with a soft towel and air dry. Do not brush the hair when wet and never use a hair dryer or blow dryer on the wig.

## MALE CATHETERIZATION

### (Not Available on Basic)

**Note:** To avoid the possibility of leakage, make sure you use the 16 French Foley catheter supplied with the simulator.

The male genital insert represents an uncircumcised adult male. To prepare for catheterization exercises, fill the 140 cc syringe (supplied) with water. Lubricate the end of the administration tube and insert through the urethra at least 7"-8". Be sure the catheter bag and fitting are attached to the urethra behind the genital insert. The Velcro® on the catheter bag should be secured to the Velcro® on the genital track. Depress the plunger of the syringe to fill the catheter bag. The catheter bag has a capacity of approximately 375 cc.



**Figure 4**

Place the track on the track mount located at the underside of the abdomen. Gently slide the genital insert back to the body. Lift and push the bottom of the genital insert into the genital opening in the body. Push the top of the genital insert down and in to secure the system.

The natural restrictions of the male urinary tract have been designed into the male genital insert, so proper manipulation of the penis is required to achieve catheterization. Thoroughly lubricate the 16 French Foley catheter (supplied with your simulator) prior to insertion. Insert the catheter about 2" into the urethra until the restriction of the mucosal fold is encountered. Withdraw the catheter slightly, stretch the penis slightly, and then advance the catheter past the first restriction. **(See figure 4.)**

Advance the catheter approximately 2 additional inches until you feel the restriction of the bulbous urethra. Elevate the penis to about 60° and advance the catheter past the second restriction.

The final restriction represents the sphincter muscle where the urethra joins the bladder. Gently advance the catheter past this point until you feel a "pop" as you enter the bladder. Water will now flow through the catheter into an external drainage basin.

**Note:** Special care should be taken when using a Foley catheter. Cuff inflation should only be attempted when it is in the proper position inside the bladder. Just as in a real patient, the cuff must be completely deflated before the catheter is removed. Improper use of a Foley catheter can result in damage to the simulator. Leaving a catheter in the simulator may result in damage to the simulator.

After completion of the exercise, remove the male genital insert by reversing the assembly instructions (page 3). Disconnect the catheter bag and fitting from the insert piece. Drain the bag thoroughly. Rinse bag and the outside of the penis to remove any residual lubricant.

## **PROSTATE EXAMINATION (Not Available on Basic)**

The male genitalia also includes the capability for digital rectal prostate palpation. The prostate gland represents stage B progression of prostatic cancer. A discrete hard nodule is palpable in the upper right quadrant, simulating a beginning stage of carcinoma. The student must fully lubricate his or her finger prior to insertion into the rectum. The rectum should be rinsed with warm water after completion of the exercise. The male rectum does not have the capacity for enema administration.

## **FEMALE CATHETERIZATION (Not Available on Basic)**

**Note:** To avoid the possibility of leakage, make sure you use the 16 French Foley catheter supplied with the simulator.

To prepare for female catheterization, fill the 140 cc syringe (supplied) with water. Lubricate the end of the administration tube and insert through the urethra at least 7"-8". Be sure the catheter bag and fitting are attached to the urethra behind the genital insert. The Velcro® on the catheter bag should be secured to the Velcro® on the genital track. Depress the plunger of the syringe to fill the catheter bag. The catheter bag has a capacity of approximately 375 cc.

Place the track on the track mount located at the underside of the abdomen. Gently slide the genital insert back to the body. Lift and push the bottom of the genital insert into the genital opening in the body. Push the top of the genital insert down and in to secure the system.

Thoroughly lubricate the 16 French Foley catheter (supplied with your simulator) prior to insertion.

**Note:** Special care should be taken when using a Foley catheter. Cuff inflation should only be attempted when it is in the proper position inside the bladder. Just as in a real patient, the cuff must be completely deflated before the catheter is removed. Improper use of a Foley catheter can result in damage to the simulator. Leaving a catheter in the simulator may result in damage to the simulator.

## ENEMA ADMINISTRATION

Enema administration can be practiced on the female genital insert only. To prepare the manikin for enema exercises, be sure the enema reservoir is securely attached to the inside of the rectum.

Position the manikin on its left side in the Simm's Position. Lubricate the applicator liberally and gently insert through the anus. Administer water only into the rectum. To simplify cleanup, you may choose to leave the applicator in place while positioning the manikin over a drainage basin. The rectum will drain via gravity as soon as the manikin leaves the left Simm's position. Be sure to have a basin under the manikin.

Rinse the anus and internal rectal reservoir to remove any residual lubricant.

## DOUCHING, PAP SMEARS, AND VAGINAL INSPECTION

The female genitalia also allows for douching, but extreme care should be taken to lubricate the applicator thoroughly. Only water should be used as a douching agent. Pap Smear procedures and visual inspection of the vagina and cervix may be demonstrated on **GERI™/KERI™** but, again, extreme care should be taken to thoroughly lubricate any instrument of insertion. Use the smallest possible speculum and avoid exerting too much pressure on the vaginal walls. Overexertion will damage the simulator just as it would cause tissue damage in an actual patient. The speculum must be thoroughly lubricated prior to insertion. The vagina should be rinsed with warm water after completion of the exercise to remove any residual lubricant.

## GASTROSTOMY CARE: LAVAGE AND GAVAGE

A flanged hole simulating an abdominal incision for the insertion of a feeding tube is included on the upper torso for performing lavage and gavage. Inside the upper torso is a reservoir (bag) with a maximum capacity of 500 cc which is attached to the gastrostomy opening with a two-part coupler. The bag is removed by pushing in on the clear L-shaped button and pulling it straight away. To attach, simply push the coupler body (with bag attached) onto the coupler insert (part with a black O-ring) that is protruding from inside the torso. You will hear a slight snap when the connection is complete. With extensive use, these two coupler parts may no longer snap, so the clear L-shaped button will have to be manually pulled all the way out after connecting the two parts. Test the connection by pulling on the coupler body to ensure that it is locked.

This gastrostomy feature is designed for use with a 16 French feeding tube. It is recommended that the tip of the feeding tube be lubricated before inserting. Make sure the reservoir is straight and flat before attempting to simulate actual feeding with a liquid.

## OSTOMY CARE

Colostomy and ileostomy care can be practiced on **GERI™/KERI™**, including stoma dilation, irrigation, cleaning, and ostomy bag changing procedures. Irrigation tubes should be well lubricated prior to insertion, and the stomas should be rinsed with warm water after completion of the exercise to remove any residual lubricant. The fluid capacity of the stoma reservoirs is 20 cc. Removal of the internal stoma reservoirs can be achieved by removing the genitalia, and reaching through the genital cavity. The reservoir bags are attached directly to the underside of the stomas. To remove, pull the reservoir fittings down and disconnect from the stomas. Then pull the reservoir bags from the Velcro® attachments.



**Figure 5**

Rinse with water to clean. Reverse the procedure to reattach the internal stoma reservoirs. **(See figure 5.)**

### **TRACHEOSTOMY CARE**

The tracheostomy canal is not removable from the body, so any water administered to this site must be suctioned out after completion of the exercise. Suctioning, dressing changes, tracheostomy tube placement, and cuff inflation may be practiced on the manikin. The tracheostomy canal is not connected to the oronasal system, and access is provided only through the stoma site.

### **ORAL AND NASAL LAVAGE, GAVAGE, AND SUCTIONING (Not Available on Basic)**

Access to the stomach is provided through the mouth and both nostrils. The insertion of any type of tube or instrument requires generous lubrication prior to insertion. Only water should be used in tube feeding exercises. The internal stomach reservoir has a capacity of 375 cc. The stomach may be emptied by suctioning the contents (water).

The stomach can be removed by rotating the head 180° backward to align the key holes in the neck, and then pulling up. The stomach reservoir will come through the neck opening only if less than 250 cc of water is contained in the stomach.



**Figure 6**

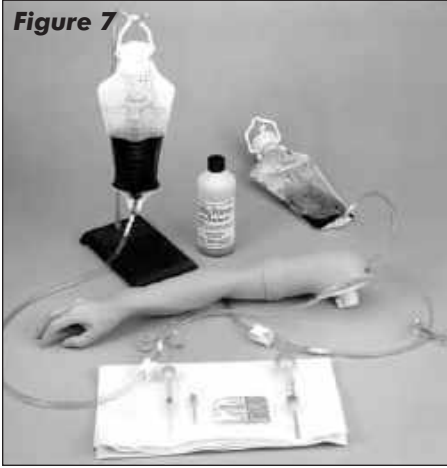
When administering water to the internal stomach reservoirs, and when the stomach reservoir contains water, the head and upper torso should be at least slightly elevated to prevent backflow into the head of the manikin. **(See figure 6.)**

### **INTRAMUSCULAR INJECTIONS**

Intramuscular injections may be performed in inserts at the left hip, right thigh, and at both shoulders. Inject air only, as these inserts cannot be drained. To remove the injection inserts compress them sideways and pull out.

## INJECTABLE TRAINING ARM

**Figure 7**



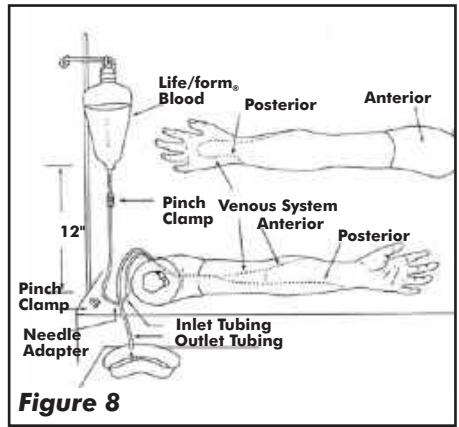
### ABOUT THE IV ARM...

A removable right arm has been included for IV training. The arm rotates at the elbow for easy accessibility to the antecubital fossa, along the forearm, and at the back of the hand. A bony landmark at the shoulder identifies soft tissue for intramuscular injections. **(See figure 7.)**

Although this arm will provide years of trouble-free usage, the skin and veins can be readily replaced when needed. The outer skin is easily peeled off revealing the "core" and veins, literally providing a brand new arm. The life of the replaceable skin and veins will be prolonged by utilizing smaller needle sizes (such as 20 to 25 gauge). However, if instruction with larger needle sizes is required, this can be done; the skin and veins will merely need to be replaced sooner. The Skin and Vein Kits are available through Nasco.

### INTERNAL STRUCTURE

Internally, the vascular structure (rubber tubing) 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 **(See figure 8.)** is constructed of special plastic tubing with the lumen being the



**Figure 8**

approximate size of a human vein. This vascular structure has an inlet tubing and an outlet tubing at the shoulder. It is via these tubes that synthetic blood is injected and removed, allowing practice in the techniques of blood drawing and starting intravenous infusions.

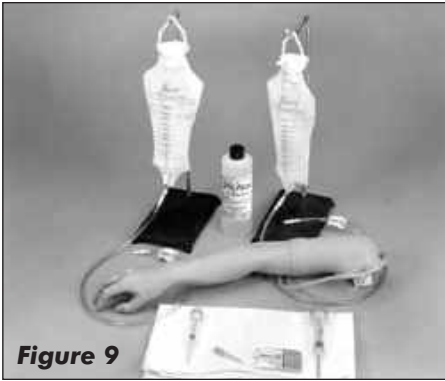
### GENERAL INSTRUCTIONS FOR USE

#### A. Preparing the Synthetic Blood

1. Fill the pint bottle containing synthetic blood concentrate with distilled water.
2. Pour the synthetic blood into one of the bags.
3. Be sure the clamp on the IV tubing is closed, and hang the bag no more than 18" above the level of the arm.
4. Attach the end of the IV tubing to one of the shoulder tubings.
5. With the other shoulder tubing in a basin or sink, gradually "flush" the vascular system with synthetic blood by slowly opening the clamp. Allow some "blood" to pass through the system until the air bubbles have been eliminated.
6. Once the system is filled, use one of the pinch clamps to close off the blood outlet tubing. The venous system is now full of "blood" and pressurized. Be sure to leave the clamp on the IV tubing open.

- After filling the venous system according to instructions, the arm is now ready for you to practice drawing blood. Blood can be drawn anywhere along the pathway of the vein. Distilled water, rather than alcohol, should be used to prepare the sites. Synthetic blood will actually be aspirated once the vein is properly punctured.
- Small diameter needles (20 to 25 gauge) should be used.

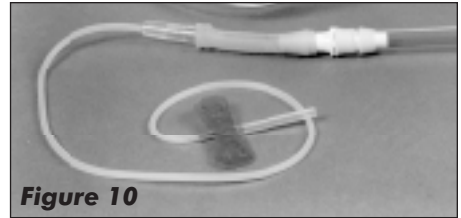
- Place the other shoulder tubing end in a basin or jar, and “flush” the vascular system by opening the clamp. Allow infusion (water) to pass through the system until air bubbles are eliminated. Shut off the flow with a pinch clamp. The venous system is now full and pressurized.
- Insert an IV needle or butterfly in the vein. “Flashback” will indicate proper insertion.
- Close the clamp on IV bag A tube and remove pinch clamp from shoulder tubing.
- Attach latex needle adapter to IV needle and IV tubing. **(See figure 10.)**



**Figure 9**

## B. Preparing the Arm for Intravenous Infusions

- Close the clamp at the end of IV bag A tube, then fill with water (distilled water is recommended), and hang not more than 18" above the arm. **(See figure 9.)**
- Appropriate intravenous infusion needles (or butterflies) should be used; distilled water is recommended as an infusion.
- IVs can be started anywhere along the pathway of the simulated vein. Cleanse the sites with distilled water only.
- Attach the adapter end of the IV tubing into one of the shoulder tubing ends.



**Figure 10**

Proof of proper procedure will then be evidenced by the flow of infusion fluid from IV bag B. Control flow rate with clamp on IV set B. This fluid can be used over. If more realistic experience is desired with “blood flashback” instead of water when inserting butterfly into lumen of vein, use next procedure C.



**Figure 11**

### C. Recommended Procedure for Simultaneous IV Infusions and Drawing Blood

Using two IV bag kits, hook up and install with IV bag A and IV bag B. (See **figure 11.**) Remove air vent from bag B.

1. Begin with synthetic blood in IV bag.
2. Open clamps on both A and B to pressurize system. "Flush" system by allowing "blood" to flow into container B until bubbles in tubing disappear, then regulate blood flow from bag A (using clamp). System is now full of "blood" and pressurized. "Blood" can now be drawn anywhere along the pathway of the vein.
3. Intravenous infusion — insert butterfly into lumen of vein. Proof of correct insertion is evidenced by flashback of "blood." Insert end of IV tubing into butterfly. Adjust flow to desirable rate with clamp. With this arrangement the IV bag B, when full, may be easily switched with A.

**Note:** Always regulate flow of "blood" from the raised bag, and open the other clamp.

### D. Intramuscular Injections

The procedure for administering intramuscular injections can be practiced in the area of the deltoid. Prep the site with distilled water only. These injections can be done utilizing the appropriate needle and syringe. 1/2 cc of distilled water may be injected, however, we recommend utilizing air as injectant since the distilled water cannot be drained, but must evaporate from the arm. Synthetic blood must NEVER be used for injections.

### TROUBLESHOOTING

If "blood" cannot be aspirated during the blood drawing procedure:

1. The clamp is not opened.

2. There are kinks in the tubing of IV sets.
3. Tubing has been pinched shut by constant pressure of pinch clamps. Lumen remains pinched occasionally even if pinch clamps are loosened. Slide clamp to new position and with fingers manipulate tubing at pinched site to restore lumen. In heavy use, slide clamp to new position on tubing from time to time to prevent the "permanent pinch" caused by constant clamp pressure. Replace IV kit.
4. If these measures do not unclog the venous system, try using a large 50 cc syringe to force fluid through the tubing.
5. If none of these measures work, peel back the skin (soap up arm and skin generously with Ivory® liquid detergent) of the arm to the knuckles (do not remove from fingers), and examine all tubing for possible kinks. Soap up arm and skin generously with Ivory® liquid detergent, and return skin over arm.

### CARE OF SIMULATOR

After each class use, disconnect "blood" and flush the venous system. Return synthetic blood to the storage bottle. Remove pinch clamps and IV sets from arm. Use tap water to flush the venous system and wash the outside of the arm with Ivory® liquid detergent and water. Excess water may be removed from the arm by raising the hand, lowering the shoulder, and draining it into a sink or basin. Always remove the pinch clamps from shoulder tubing and drain excess water from veins before storing.

### CAUTIONS

1. This synthetic blood is specially formulated to be compatible with the self-sealing veins and plastics used in manufacturing the 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. Use smaller needles (20 to 25 gauge).
4. DO NOT allow “blood” to dry on the simulator—it may stain the skin.
5. Use only 500 cc of infusion fluid, as a larger amount will also increase the pressure of the venous system, resulting in leaks.
6. DO NOT clean the simulator with solvents or corrosive material as they will damage it.
7. DO NOT use for subcutaneous injection. Nasco’s Intradermal Injection Simulator (LF01008U) is specially designed for intradermal injection training and practice.
8. Nasco Vein Tubing Sealant Kit (LF01099U) will extend the life of the tubing.

## SUPPLIES/REPLACEMENT PARTS FOR INJECTABLE TRAINING ARM

- LF00845U** *Life/form*. Venous Blood, 1 quart
- LF00846U** *Life/form*. Venous Blood, 1 gallon
- LF01099U** Vein Tubing Sealant Kit
- LF03215U** Skin and Vein Replacement Kit
- W09199U** REN Cleaner

## BLOOD PRESSURE SIMULATOR

The Nasco *Life/form*. Blood Pressure Simulator is designed for years of maintenance free operation as a training tool for not only the nurse, doctor, or pre-hospital healthcare provider, but also for anyone involved in the training of health care professionals.

The Nasco *Life/form*. Blood Pressure Simulator 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. For additional uses, purchase the Blood Pressure Speaker System (SB20146U) for group demonstrations or review.

## LIST OF COMPONENTS

1. Case
2. Arm with speaker wire
3. Electronic control unit
4. 6 “AA” batteries
5. Sphygmomanometer

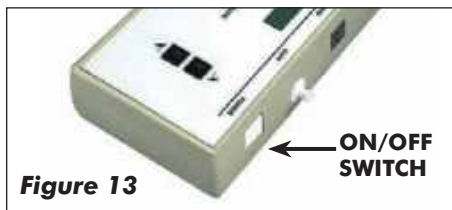
## GENERAL INSTRUCTIONS FOR USE

Take the Blood Pressure Electronic Control Unit from the box and turn it over, placing it face down onto a padded work surface. Locate the “Open” compartment on the back of the panel where the batteries are to be installed. (**See figure 12.**) Place your thumb or index finger on the “Open” compartment and push up.

This will open the battery compartment. The compartment is marked as to the “+” and “-” positions of the batteries. The battery bracket is now accessible to the user.

**Figure 12**





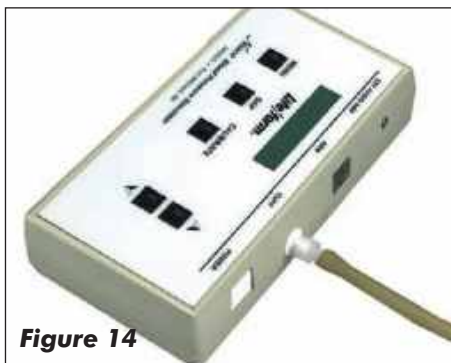
**Figure 13**

Install 6 "AA" batteries as indicated by the orientation diagram embossed in the bottom of the bracket. It is recommended that alkaline batteries be used for increased battery life. After the batteries have been properly installed, reassemble the Blood Pressure Simulator by simply reversing the disassembly procedures. Place the unit face up on the work surface and turn it on by pressing the on/off switch on the top right of the unit. (**See figure 13.**) Observe the display and verify that a readable display is present, indicating proper battery installation.

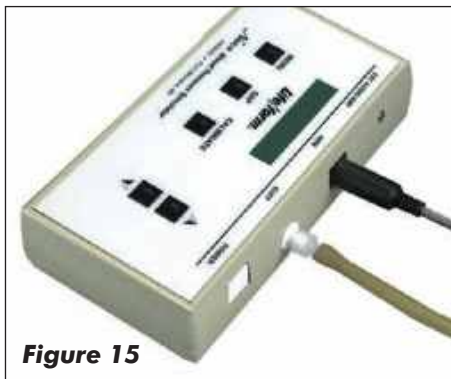
**Note:** The control box has a battery saving feature which will turn the unit off after about 8-10 minutes if no keys are used within that period of time.

The next step is to connect the simulated arm and speaker assembly along with the sphygmomanometer cuff and gauge assembly included with the unit. First, locate the end of the pressure line attached to the sphygmomanometer that has the female luer fitting attached to it. Attach this to the male luer fitting at the top of the unit marked CUFF. (**See figure 14.**) After the pressure line fitting has been properly installed, locate the plug that is at the end of the wire which extends from the simulated arm assembly. Insert the plug from the arm into the jack at the top of the unit marked ARM. (**See figure 15.**)

At this point the Blood Pressure Simulator is ready for use. The unit has been factory calibrated for use with the accessories included in the kit. No further calibration adjustments should be necessary at this time. If the unit is to be used with a sphygmomanometer other than that supplied with the unit, or if recalibration is necessary at a later date, then see the section titled "Calibration Procedures."



**Figure 14**



**Figure 15**

## FAMILIARIZING YOURSELF WITH THE NASCO *Life/form* BLOOD PRESSURE SIMULATOR CONTROL PANEL

Under the display window are three buttons: Menu, Gap, and Calibrate. (**See figure 16.**) The systolic pressure is set by pressing the Menu key once. The pressure is adjusted up or down using the up or down arrow keys. (**See figure 17.**) The diastolic pressure is set by pressing the Menu key a second time. Adjust the setting up and down with the arrow up or down keys. (**See figure 18.**) The heart rate is set by pressing the Menu key a third time, and adjusting the rate with the arrow up and down keys. The pulse rate can be set from 0 beats per minute to 300 beats per minute. (**See figure 19.**) 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.

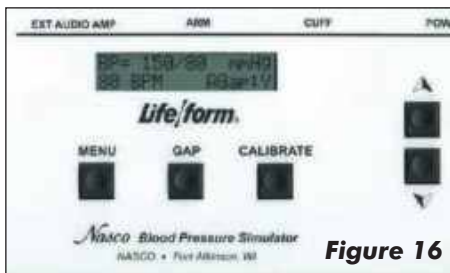


Figure 16



Figure 19

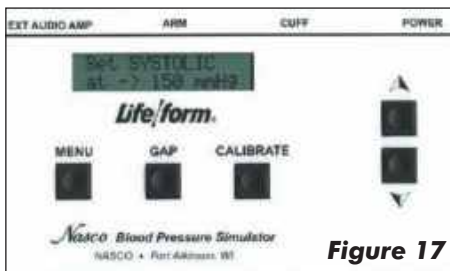


Figure 17

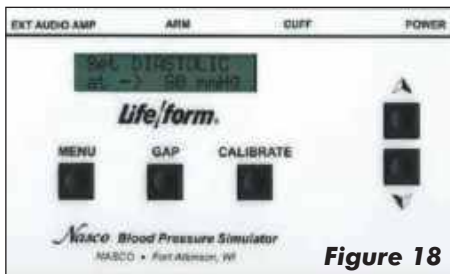


Figure 18

## PALPABLE PULSE FEATURE

The Nasco *Life/form*. Blood Pressure Simulator also incorporates a palpable pulse at the radial location. (See figure 20.) Palpations can be felt upon start-up of the unit or after blood pressure settings have been made. Press the Menu key repeatedly until “Set PALPATION” menu appears. “Pulse ON” is defaulted and enables the palpation feature. Palpations continue during inflation until the cuff pressure reaches the systolic set point, and resumes when the cuff pressure reaches the systolic set point during the deflation of the cuff.

A pulseless condition can be simulated by switching your unit to the “pulseless” mode. Press the Menu key repeatedly until “Set PALPATION” menu appears. By pressing the down arrow at this point, palpations can be disabled causing the

simulator to be pulseless. When in the “pulseless” mode, all settings are automatically reset to 0 and all blood pressure sounds are disabled.

The pulseless setting will also turn off the sounds in the arm. The pulse will always be on unless the pulseless feature is activated or if the systolic or heart rate levels are set to zero. To do this, press the Menu key four times. The down arrow key will set the pulse to pulseless. Press the arrow up key to turn the pulse back on. (See figure 21.) Located to the right of the Menu key is the auscultatory Gap key. (See figure 22.) This key is included to simulate the auscultatory gap that is sometimes present between phase 1 and phase 2 sounds in which no audible sound is noted during this portion of auscultation. This control function is included so that the trainee can become familiar with this phenomenon.

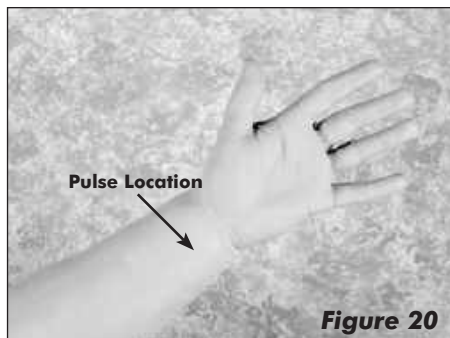
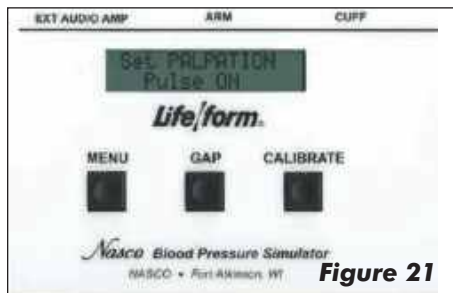


Figure 20

Pressing the Gap key simply turns the gap function off or on. When the key is pressed, a message will briefly appear that the auscultatory gap is enabled or disabled. Also the main display will show (at the bottom right of the display) either AGap:Y (for on) or AGap:N (for off).



**Figure 21**



**Figure 22**

The arrow up and down keys also control the volume of the sounds that are present in the arm. From the main menu, press the up arrow key to increase the volume, press the down arrow key to decrease the volume. The volume levels can be adjusted from level 1 (the lowest volume) to level 7 (the highest volume).

## USING THE BLOOD PRESSURE SIMULATOR

First, verify that the pressure line tubing from the sphygmomanometer and the audio line coming from the simulated arm assembly are properly connected to the blood pressure simulator unit, as previously described in the set up procedures. Apply the sphygmomanometer cuff and gauge to the simulated arm assembly in the usual manner. Apply the stethoscope to the simulated arm also in the usual manner. Set the systolic and diastolic controls to the desired levels. Select the auscultatory gap if desired. Finally, adjust the pulse rate control to the desired setting.

To proceed with the simulated blood pressure measurement, first close the valve on the sphygmomanometer bulb tightly and begin pumping air into the

cuff until the gauge reads higher than the preset systolic level chosen. Once this point is reached, loosen the valve on the bulb slightly to allow the gauge pressure reading to decrease slowly. While monitoring the arm assembly with the stethoscope, note the point on the sphygmomanometer gauge when the first Korotkoff sound is heard. This will be the systolic blood pressure. Allow the pressure in the cuff to continue to decrease until the point at which the last pulse is heard, noting the reading on the gauge. This is the diastolic blood pressure.

Compare the results of reading the systolic and diastolic blood pressures on the gauge with the respective settings on the simulator. If the readings were accurate they should compare favorably with the preset values. If the auscultatory gap had been selected, then an absence of an audible pulse would have been noticed during what would have been the phase 2 Korotkoff sound. It is this lack of an audible pulse that is considered an auscultatory gap. Note that in reality the auscultatory gap can be present in either the phase 1 or phase 2 Korotkoff sounds. If it is desired to demonstrate the sounds heard while measuring a subject's blood pressure to the trainee or group of trainees, an auxiliary blood pressure speaker amplifier system is available (SB20146U). If the auxiliary speaker is used, the speaker is plugged into the EXT AUDIO AMP jack located next to the ARM output jack at the top of the unit. Adjust the volume control to increase the output of the auxiliary speaker amplifier, and proceed with the blood pressure measurement sequence as it would normally be performed except that the stethoscope need not be used. Instead, listen to the sounds as they emanate from the speaker amplifier, noting the differences in the Korotkoff phases being presented.

The Nasco *Life/form*. Blood Pressure Simulator is programmed to demonstrate the five Korotkoff phases, including an auscultatory gap, which can be heard during auscultation of a subject, while measuring the subject's blood pressure. Each is distinctly different and present for only a portion of the measurement sequence.

## LOW BATTERY INDICATOR

When the battery supply diminishes to a level near the point that the unit will no longer function properly, the "low batt" segment of the systolic pressure display will activate when the pressure in the sphygmomanometer cuff reaches above 20 mmHg. At this point, the batteries should be replaced as soon as possible in order to insure proper operation of the unit. Refer to the section titled "Installing the Batteries."

## CALIBRATION PROCEDURES

To calibrate the simulator, set the unit up as described in the section titled "Using The Blood Pressure Simulator." Apply the cuff to the simulated arm. Set the control box systolic pressure to 150 mmHg and set the diastolic pressure to 70 mmHg. Proceed with a simulated blood pressure measurement. Note the discrepancy in the readings between the gauge and the control box. Set the systolic "offset." **Example:** If the blood pressure reading was taken and the sounds started at 148 mmHg, then the offset is +2. If the sounds started at 152 mmHg, the offset is -2. For this example, assume that the sounds started at 148 mmHg. Press and hold the Calibration key until the systolic correction window appears. **(See figure 23.)** Using the arrow up key set the correction to +2. Set the diastolic offset. **Example:** If the blood pressure reading was taken and the sounds stopped at 72 mmHg, the offset is -2; or if the sounds stopped at 68 mmHg, the offset is +2.

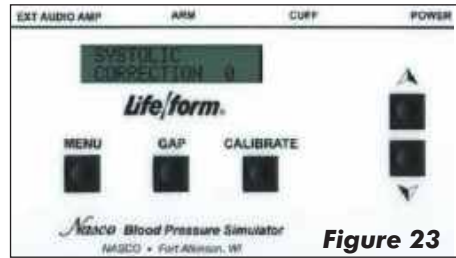


Figure 23

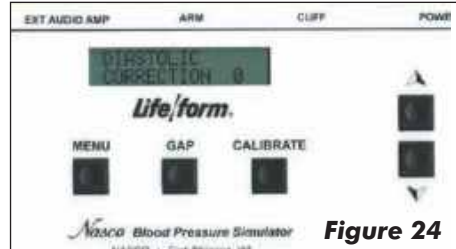


Figure 24

For this example, assume that the sounds stopped at 72 mmHg. From the systolic window, press the Menu key to change the diastolic window. **(See figure 24.)** With the arrow down key, set the correction to -2. Press the Menu key again and the message "CALIBRATION COMPLETE" will appear. The main menu window will be displayed.



Figure 25

## PREPARING YOUR EQUIPMENT FOR USE WITH THE NASCO *Life/form*. BLOOD PRESSURE SIMULATOR

To adapt your sphygmomanometer for use with the simulator, it is first necessary to obtain the luer fitting and the T-fitting included with the simulator, which is also available through your Nasco catalog sales office. Using a wire cutting pliers or similar instrument, carefully cut the pressure line of the sphygmomanometer about 2" from the gauge. **(See figure 25.)**



**Figure 26**



**Figure 27**



**Figure 28**

Take the T-fitting and insert it between the two ends of tubing that were previously cut. **(See figure 26.)** Assemble the portion of pressure line tubing over the remaining barbed end on the T-fitting. **(See figure 27.)**

Lastly, take the loose end of the tubing and push the female luer fitting into it. **(See figure 28.)** Attach the female luer fitting to the fitting marked CUFF at the top of the unit. Once all of the necessary connections have been properly made, go to the section titled “Calibration Procedures” and calibrate the unit. When the calibration procedures have been completed, the simulator is ready for use.

### **SUPPLIES/REPLACEMENT PARTS FOR BLOOD PRESSURE SIMULATOR**

**LF01096U** Electronic Control Unit with Sphygmomanometer

**SB20146U** Blood Pressure Speaker System

## **THE AUSCULTATION SIMULATOR**

The Auscultation Manikin duplicates heart and lung conditions selected by the instructor by wireless remote control. The student should palpate to identify the correct auscultation sites and will hear different heart and lung sounds as the SmartScope™ is moved from site to site.

The simulator has six heart sites, seven lung sound sites on the anterior surface with 10 locations on the posterior surface and midaxillary sites. The remote control can select from 12 different heart conditions, as well as 16 lung conditions. The instructor can select any condition easily so the student can compare sounds and make a diagnosis.

The remote control does not have to be pointed directly at the manikin or stethoscope to operate. One remote control will operate multiple sets of SmartScopes™ and manikins simultaneously. Great for group instruction. The range of the remote control is up to 100 feet.

## **GENERAL INSTRUCTIONS FOR USE**

To begin using the Auscultation Trainer, press the red power button. This turns on the remote control and sends a signal to activate the stethoscope as well. After the unit is activated, the display will be in the “status” mode, displaying the current menu settings for the heart and lung conditions.

To select a new condition, press either the heart or lung button. This will put the display into the menu mode. The user can select a condition by either using the number buttons, or by viewing the conditions in sequence using the scroll button. After the condition is selected press the enter button to activate.

**THE REMOTE CONTROL CAN BE PROGRAMMED TO THESE HEART CONDITIONS:**

- 01 Normal
- 02 Aortic regurgitation
- 03 Pulmonary stenosis
- 04 Mitral stenosis
- 05 Holosystolic
- 06 Mid-systolic
- 07 S3 Gallop
- 08 S4 Gallop
- 09 Systolic click
- 10 Atrial septal defect
- 11 PDA
- 12 VSD

**THE REMOTE CONTROL CAN BE PROGRAMMED TO THESE LUNG CONDITIONS:**

- 01 Normal lung
- 02 Normal Vesicular
- 03 Wheezes
- 04 Mono wheeze
- 05 Fine crackle
- 06 Coarse crackle
- 07 Ronchi crackle
- 08 Stridor
- 09 Cavernous
- 10 Bronchovesicular
- 11 Bronchial
- 12 Pulmonary edema
- 13 Infant
- 14 Friction rub
- 15 Egophony
- 16 Pectoriloquy

**CONSULT THE ENCLOSED LAMINATED CARD FOR LUNG AND HEART SOUND SITE LOCATIONS**

To listen to the selected sounds, place the earpieces in ears angled in a forward position. Place the diaphragm of the SmartScope™ over one of the appropriate sites on the manikin (see diagram on back).

As an alternative, an amplified speaker (SB20146U) can be used allowing an entire classroom to hear at the same time. To connect the speaker, plug the speaker cord into the speaker jack on the top of the SmartScope™ box. When a speaker is connected to the SmartScope™, the ear pieces will not work. Place the diaphragm of the SmartScope™ over the appropriate sites on the manikin.

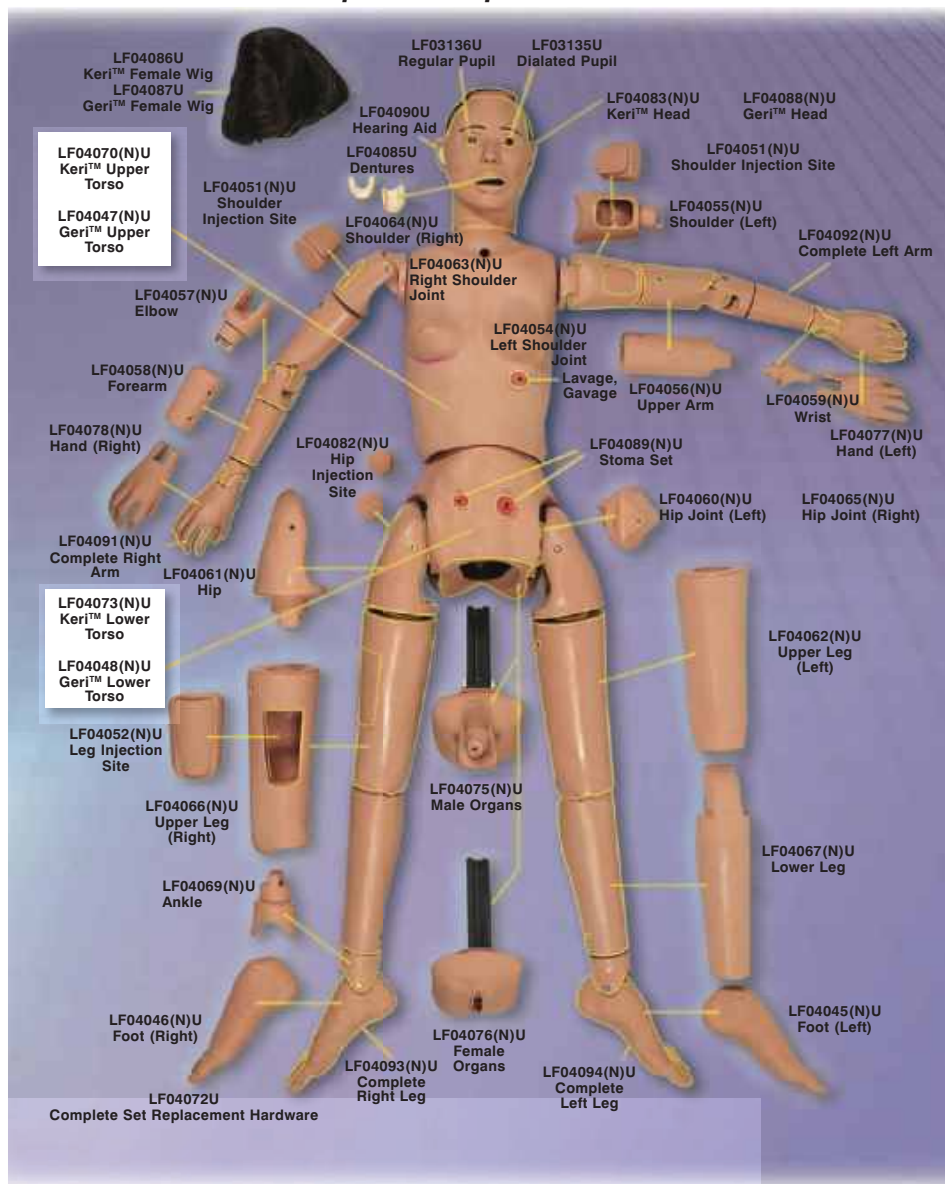
**Note:** The remote has a battery saver that shuts the unit down after eight minutes if the remote is left on the same setting. To prevent it from shutting down, select a different heart or lung sound within the eight minute period of time.

**AVAILABLE SUPPLIES**

- LF01144U** Additional SmartScope™
- LF01148U** Replacement Remote Control
- SB20146U** Amplified Speaker

# GERI™/KERI™ THE NURSING SKILLS MANIKIN

## Component Replacement Parts



## Other Available *Life/form*® Simulators

- LF00698U** Adult Injectable Arm (White)  
**LF00856U** Female Catheterization  
**LF00885U** Male Catheterization  
**LF00901U** Prostate Examination  
**LF00906U** Ostomy Care  
**LF00929U** Surgical Bandaging  
**LF00957U** Enema Administration  
**LF00958U** Pediatric Injectable Arm  
**LF00961U** Intramuscular Injection  
**LF00984U** Breast Examination  
**LF00995U** Arterial Puncture Arm  
**LF00997U** Adult Injectable Arm (Black)  
**LF00999U** Pediatric Injectable Head  
**LF01008U** Intradermal Injection Arm  
**LF01012U** Heart Catheterization (TPN)  
**LF01019U** Ear Examination  
**LF01027U** Peritoneal Dialysis  
**LF01028U** Suture Practice Arm  
**LF01034U** Suture Practice Leg  
**LF01036U** Spinal Injection  
**LF01037U** Hemodialysis Arm  
**LF01038U** Episiotomy Suturing  
**LF01042U** Suture Kit  
**LF01062U** Pelvic, Normal & Abnormal  
**LF01063U** Stump Bandaging, Upper  
**LF01064U** Stump Bandaging, Lower  
**LF01069U** Cervical Effacement  
**LF01070U** Birthing Station  
**LF01082U** Cricothyrotomy  
**LF01083U** Tracheostomy Care  
**LF01084U** Sigmoidoscopic Examination  
**LF01087U** Central Venous Cannulation  
**LF01095U** Blood Pressure Arm  
**LF01108U** Infant Intraosseous Infusion Simulator  
**LF01121U** Advanced IV Arm  
**LF01131U** Venipuncture and Injection Arm  
**LF01139U** Advanced IV Hand  
**LF01142U** Auscultation Trainer  
**LF01143U** Testicular Exam  
**LF01152U** Male & Female Catheter  
**LF01155U** CPR Dog  
**LF01162U** Venatech IV Trainer  
**LF01174U** NG Tube & Track Skills  
**LF01184U** Venatech IM & Sub Q  
**LF01193U** Special Needs Baby  
**LF03000U** **CPARLENE**® Series  
**LF03601U** Adult Airway Management Trainer with Stand  
**LF03602U** Adult Airway Management on Manikin  
**LF03609U** Child Airway Management Trainer with Stand  
**LF03616U** Child **CRiSis**™ Manikin  
**LF03617U** Deluxe Child **CRiSis**™ Manikin with Arrhythmia Tutor  
**LF03620U** PALS Update Kit  
**LF03623U** Infant Airway Management Trainer with stand  
**LF03632U** Child Intraosseous Infusion/ Femoral Access Leg on a Stand  
**LF03633U** Child Airway Management Trainer with Torso  
**LF03693U** **Basic Buddy** CPR Manikin  
**LF03699U** "Airway Larry" Airway Management Trainer  
**LF03709U** Infant **CRiSis**™ Manikin  
**LF03720U** **Baby Buddy** Infant CPR Manikin  
**LF03750U** Fat Old Fred  
**LF03760U** Airway Management/Cricoid Pressure Trainer  
**LF03770U** Chest Tube  
**LF03953U** **CRiSis**™ Manikin, complete  
**LF03955U** Deluxe **CRiSis**™ Manikin  
**LF03965U** Deluxe "Plus" **CRiSis**™ Manikin  
**LF04200U** Adult Sternal Intraosseous Infusion  
**LF06001U** **CPR Prompt**™ Adult/Child Manikin  
**LF06012U** **CPR Prompt**™ Infant Manikin  
**LF06200U** **CPR Prompt**™ Keychain Rescue Aid  
**LF06204U** **CPR Prompt**™ Rescue and Practice Aid

*Nasco* Fort Atkinson

901 Janesville Avenue, P.O. Box 901  
Fort Atkinson, Wisconsin 53538-0901  
1-800-558-9595

[www.eNasco.com](http://www.eNasco.com) • E-mail: [lifeform@eNasco.com](mailto:lifeform@eNasco.com)

COPYRIGHT © NASCO 2007 PRINTED IN U.S.A. NP 081-07