

Dedicated to Delivery  
*Nasco* **Life/form**®

**Adult Sternal Intraosseous  
Infusion Simulator  
LF04200U  
Instruction Manual**



ISO 9001 and  
ISO 13485  
*Nasco* Plastics  
ISO 9001 and ISO 13485  
Products are manufactured using a quality management system  
certified as being in conformity with ISO 9001 and ISO 13485.

**Life/form**® Products by Nasco

**Life/form**®  
**5**  
Year  
Warranty



Figure 1



Figure 2

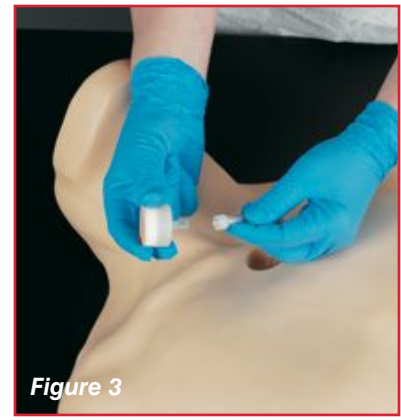


Figure 3



Figure 4



Figure 5

### About the Simulator

The **Life/form**® Adult Sternal Intraosseous Infusion Simulator is a dramatic, first-of-its-kind training aid designed to prepare all levels of health care professionals for use of the sternal intraosseous approach. Created with the consultation of the experts who developed this technique, the simulator's incredible realism and accurate landmarks will allow students to learn this life-saving procedure with skill, confidence, and accuracy. This procedure is a quick and simple alternative to conventional IV infusion. It saves time and lives in demanding emergency environments. The simulator uses a replaceable bone that can be rotated and punctured several times, extending the life of the simulator. The sternum may be filled with simulated blood to better visualize true flashback. Three-year warranty.

### List of Components

- 10 replaceable simulated bones that should allow approximately 10-12 punctures each
- Syringe
- Tubing
- Blood powder with .15 cc spoon
- Clamp
- Hard carrying case

### General Instructions for Use

#### A. Setting Up the Simulator

1. Feed the smooth end of the tubing through the hole in the chest and out the bottom of the simulator. **(See figures 1 & 2.)**
2. Connect the luer fitting to the bone insert. **(See figure 3.)**
3. Pull the tubing through the body until the insert is seated in the chest cavity. **(See figure 4.)**
4. Slide the clamp onto the other end of the tubing, up against the body. Leave only enough room for the clamp to turn as the insert and tubing are rotated. This will keep the insert in position when the introducer is removed during training. **(See figure 5.)**

#### B. Bone Insert

1. The replaceable bone insert is designed to duplicate the "feel" of inserting the bone portal into the marrow space of the manubrium. The insert fits into the sternal cavity and may be used as is, or set up for blood flashback and/or IV fluid administration. Refer to the literature provided with the needle device or other training device that you may be using before beginning any training

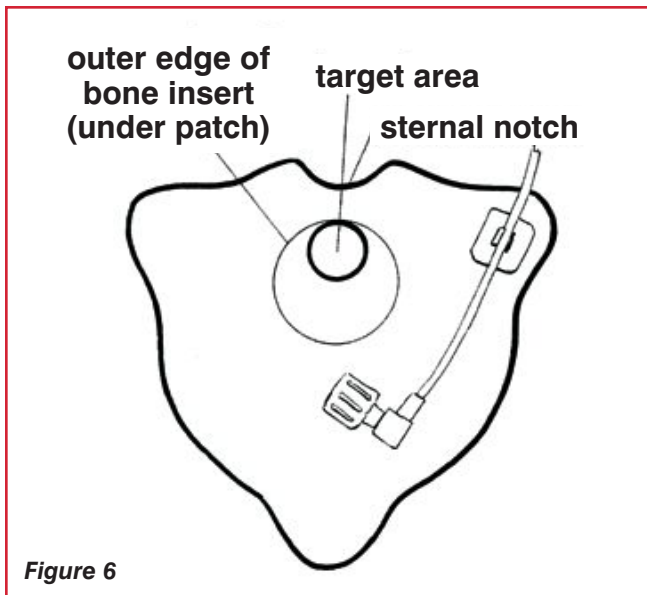


Figure 6

2. Always make sure that the entire target area of the patch is positioned over the replaceable bone insert — NOT the torso. (See figure 6.) Failure to do so will result in permanent unwarranted damage to the simulator.

3. Nasco recommends that only 10 procedures be performed on each insert, with an absolute maximum of 12. Try to space the sites equally around the insert.

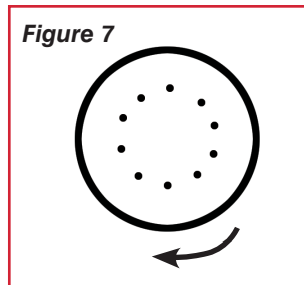


Figure 7

Too many puncture sites, or sites that are too close together, may cause breakage of the insert. Always select a new site by rotating the insert in a clockwise direction. (See figure 7.) When rotating the insert, you must rotate the tubing at the bottom of the simulator in the same direction, at the same time, to ensure that the tubing does not kink or disconnect, and that the insert rotates correctly. The insert may be rotated or removed manually or with the forceps tool provided.

4. For best results, use the bone insert with the needle device adhesive target patch or training patches from the training system you are using, although training can be done without the patch if necessary. To extend the use of the target patch, apply a small amount of baby powder.

5. When removing the needle device, the bone insert should remain in place if you have clamped the tubing close enough to the base of the simulator.

6. When the infusion tube has been correctly placed into the bone, it will not pull out until it is extracted with the removal tool.
7. Correct insertion of the bone portal may be verified by visual blood flashback if desired (see needle device training manual or training manual from the training system you are using).

**Important Note:** The needle device **MUST** be held at a 90° angle to the sternum. Failure to do so will prevent the point of the infusion tube from penetrating the bone. Determine the correct angle **BEFORE** exerting any pressure on the trainer, and be sure to maintain that angle throughout the entire procedure. Some distortion of the simulated soft tissue during insertion is normal and should be ignored.

### C. Blood Flashback

1. Prepare the artificial blood by stirring a few granules of blood powder into a small amount of water. CAUTION: The powder is extremely concentrated – a little goes a long way, and will stain skin and clothing. Gloves are recommended. Have paper towels on hand to clean up any spills. Training can also be done using plain water if desired.
2. Disconnect the insert from the tubing. (See figure 3.)
3. Draw 5-10 ml of blood into the 20 ml syringe.
4. Connect the syringe to the insert fitting and gently pull back on the plunger to remove air from the insert. Stop when resistance is felt. (See figure 8.)
5. Holding the plunger back, turn the assembly so that the syringe is upright, with the insert upside-down beneath it. (See figure 9.)

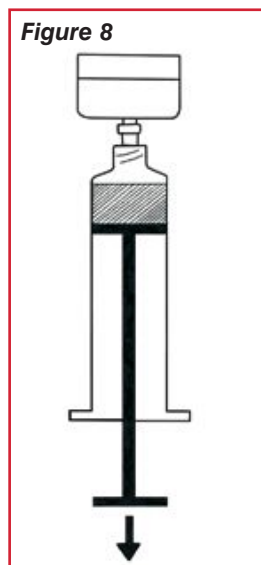


Figure 8

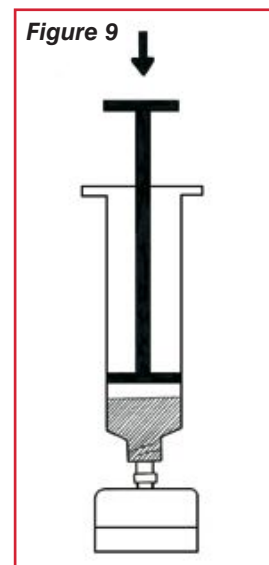


Figure 9

6. Push gently on the plunger, allowing blood to flow into the insert. Never exert strong pressure on the syringe. The procedure may be repeated for maximum fill.
7. Remove the syringe and wipe away any drips. Connect the insert fitting firmly to the luer end of the tubing. **(See figure 4.)** Pull the tubing through until the insert is in place, then clamp the tubing close to the body, leaving only enough space for the tubing to rotate. **(See figure 5.)**
8. Whenever possible, fill the insert before performing any training procedures. To fill an insert that has already been punctured, hold it upright, with the syringe beneath it. **(See figure 3.)** Carefully inject a small amount of blood into the insert. Be prepared for leakage.

#### D. IV Fluids

1. Infusion of IV fluids (plain water is recommended) may be practiced with “blood” flashback or without.
2. When using “blood” and IV fluids at the same time, it may be necessary to refill the insert with “blood” after each procedure, as it will be diluted and drained along with the IV fluid.
3. The clamp on the tubing must be opened prior to infusion.
4. Be sure to use a suitable catch basin to collect all drainage.

#### E. Care of the Simulator

1. All reusable components should be cleaned and dried before storage.
2. The skin may be washed with mild soap and water, and may be removed for cleaning if necessary.
3. Do not allow the skin to contact any printed material, markers, or ink from a ball-point pen, as these will cause permanent stains.
4. Do not allow the simulated blood to dry on the trainer — it may stain.
5. Do not clean the trainer with solvents or corrosive material, as they will cause permanent damage.
6. Use care when working with the blood concentrate — it will stain clothing.
7. Stubborn soil may be removed with Nasco Cleaner.

#### DISCLAIMERS

The **Life/form**® Adult Sternal Intraosseous Trainer is only intended for use in teaching or other controlled environments in which the skills learned with the trainer are taught or evaluated. This trainer should only be used under the supervision of a properly qualified instructor or other health care professional proficient in the skills taught with the trainer. When using sternal intraosseous injection devices for training, carefully read the training manual for any restrictions on use of their training program. The FAST1® Training System is FDA approved and field-proven for medical professionals who have completed the FAST1® training program.

#### Supplies/Replacement Parts for the Adult Sternal Intraosseous Infusion Simulator

**LF04201U** **Life/form**® Total FAST1® Adult Sternal Intraosseous Infusion Training System

**SB41602U** FAST1® Training System

**LF04202U** Sternal Bone Replacements, Pkg. of 20

**LF01188U** Replacement Blood Kit: 5 packets blood powder and .15 cc spoon

**LF01111U** Simulated Blood Mixture Pint & 4-oz. Tube Lubricant with Instruction Manual

**LF09919U** Nasco Cleaner

**Note:** Additional user manuals are available online. Manuals and detailed descriptions can be viewed at [eNasco.com](http://eNasco.com).



## Other Available *Life/form*® Simulators

- |                 |  |                 |   |
|-----------------|--|-----------------|---|
| <b>LF00698U</b> | Adult Injectable Arm, Light                                | <b>LF03687U</b> | Airway Simulation Board                                       |
| <b>LF00929U</b> | Surgical Bandaging   | <b>LF03693U</b> | <b>Basic Buddy</b> ® CPR Manikin                              |
| <b>LF00958U</b> | Pediatric Injectable Arm                                   | <b>LF03699U</b> | “Airway Larry” Airway Management Trainer                      |
| <b>LF00961U</b> | Intramuscular Injection                                    | <b>LF03709U</b> | Complete Infant <b>CRiSis</b> ™ Manikin                       |
| <b>LF00995U</b> | Arterial Puncture Arm                                      | <b>LF03720U</b> | <b>Baby Buddy</b> ™ CPR Manikin                               |
| <b>LF00999U</b> | Pediatric Injectable Head                                  | <b>LF03750U</b> | Bariatric CPR Manikin   |
| <b>LF01005U</b> | First Aid Arm  | <b>LF03769U</b> | Pericardiocentesis Simulator with Chest Tube & Pneumothorax   |
| <b>LF01008U</b> | Intradermal Injection Arm                                  | <b>LF03770U</b> | Chest Tube  |
| <b>LF01012U</b> | Heart Catheterization (TPN)                                | <b>LF03953U</b> | Complete <b>CRiSis</b> ™ Manikin                              |
| <b>LF01028U</b> | Suture Practice Arm  | <b>LF03955U</b> | Deluxe <b>CRiSis</b> ™ Manikin                                |
| <b>LF01034U</b> | Suture Practice Leg  | <b>LF03956U</b> | Deluxe “Plus” <b>CRiSis</b> ™ Manikin                         |
| <b>LF01042U</b> | Suture Kit   | <b>LF03965U</b> | Adult <b>CRiSis</b> ™ Auscultation Manikin                    |
| <b>LF01063U</b> | Stump Bandaging, Upper                                     | <b>LF03966U</b> | Adult <b>CRiSis</b> ™ Auscultation Manikin with ECG Simulator |
| <b>LF01064U</b> | Stump Bandaging, Lower                                     | <b>LF06001U</b> | CPR Prompt® Adult/Child Manikin                               |
| <b>LF01082U</b> | Cricothyrotomy   | <b>LF06012U</b> | CPR Prompt® Infant Manikin                                    |
| <b>LF01083U</b> | Tracheostomy Care  | <b>LF06200U</b> | CPR Prompt® Keychain Rescue Aid                               |
| <b>LF01087U</b> | Central Venous Cannulation                                 | <b>LF06204U</b> | CPR Prompt® Rescue and Practice Aid                           |
| <b>LF01095U</b> | Blood Pressure Arm   |                 |   |
| <b>LF01108U</b> | Infant Intraosseous Infusion                               |                 |   |
| <b>LF01121U</b> | Advanced IV Arm  |                 |   |
| <b>LF01131U</b> | Venipuncture and Injection Arm                             |                 |   |
| <b>LF01139U</b> | Advanced IV Hand   |                 |   |
| <b>LF01142U</b> | Auscultation Trainer                                       |                 |   |
| <b>LF01162U</b> | Venatech IV Trainer  |                 |   |
| <b>LF01174U</b> | NG Tube & Trach Skills                                     |                 |   |
| <b>LF01184U</b> | Venatech IM & Sub Q  |                 |   |
| <b>LF03000U</b> | <b>CPARLENE</b> ® Series                                   |                 |   |
| <b>LF03601U</b> | Adult Airway Management Trainer with Stand                 |                 |   |
| <b>LF03602U</b> | Adult Airway Management Manikin                            |                 |   |
| <b>LF03609U</b> | Child Airway Management Trainer with Stand                 |                 |   |
| <b>LF03616U</b> | Complete Child <b>CRiSis</b> ™ Manikin                     |                 |   |
| <b>LF03617U</b> | Deluxe Child <b>CRiSis</b> ™ Manikin with Arrhythmia Tutor |                 |   |
| <b>LF03620U</b> | PALS Update Kit  |                 |   |
| <b>LF03623U</b> | Infant Airway Management Trainer with Stand                |                 |   |
| <b>LF03632U</b> | Child Intraosseous Infusion/Femoral Access Leg             |                 |   |
| <b>LF03633U</b> | Child Airway Management Trainer Torso                      |                 |   |



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