Simulaids
Training for Life

Assembly & Operation Instructions

ADULT ALS TRAINER

This manikin is intended to be used as an instructional aide in the teaching and demonstrating of Advanced Life Support, Adult Airway Management & Basic Life Support — Item 080, 080FB ALS Trainer, Item 086, 086FB Adult Airway Management Trainer, Item 085, 085FB BLS Trainer.

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Assembly & Operation Instructions

ADULT ALS TRAINER

The ALS Trainer Torso No. 080 is designed to be used by Advanced Life Support students and practitioners for the purpose of learning, reviewing and demonstrating skill sets associated with ALS. The features of this product allow for: airway maintenance with Endotracheal (ET) tubes, Oropharyngeal Airways (OPA), Nasopharyngeal Airways (NPA), Combitubes, and other adjuncts; IV catheterizations in the lower arm; ECG pattern recognition using the Interactive ECG rhythm generator; and CPR. Defibrillation with full joule level discharge performed with patient care devices may also be practiced.

The Full Body (FB) version of this trainer, No. 080FB, includes the pelvis and legs and allows for the practice of patient movement.

The Adult Airway Management Trainer, No. 086, and BLS Trainer, No. 085, do not include the IV arm.

Contents:

No. 080 and 080FB

Intubation Head
Lubricant
CPR Head
Face Shields, Pack of 50
Right IV Arm and Hand
IV Arm Kit
ECG Interactive Rhythm Generator with adapters
Gray ECG cable with four limb leads
Pulse bulb assembly
Instructions
Carry bag

No. 086 and 086FB Adult Airway Management Trainer

Intubation Head
Pulse bulb assembly
Lubricant
Carry bag

No. 085 and 085FB BLS Trainer

CPR Head
Pulse bulb assembly
Face Shields, Pack of 50
Carry bag

NOTE: Lower extremities are included with full body manikins (FB)

Assembly Instructions

To assemble the No. 080 ALS manikin, attach the right IV arm. Take the wing nut and the washer off from the threaded stud at the shoulder of the arm and insert the stud through the right shoulder of the torso. Reach up inside the torso and put the washer on the stud and then screw the wing nut down tightly against the torso.

If you purchased the FB manikin the lower legs must be attached to the knee joints. Place both legs in their relative positions so that you do not interchange the feet. Then put the clevis pin through the eye of the lower leg, push the pin through the eye in the upper leg and secure it with a washer and the spring clip. It is advisable to place the manikin in a prone position and connect the lower legs to the back of the manikin's upper legs.

Putting Leg On

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CPR Head

The purpose of the CPR head is to replace the Intubation head when rescue breathing is to be performed. The simple plastic bag replacement items supplied for the CPR head prevent cross-contamination. Disposal of the airway bag after use is all the clean up necessary. Do not use the Intubation head to perform rescue breathing. If the Intubation head is used for this purpose there will be significant cleaning and disinfecting required. The lungs will also have to be replaced.

Remove Intubation head by unsnapping neck skin and gently pulling the head tubes out to disconnect the head.

Connect tubes on CPR head and slide head down over torso neck; align snaps and secure

IV Arm

There are two latex tubing ends extending from the antecubital fosse of the right arm. Insert the connector from a full reservoir bag into one of these tubes. Suspend the reservoir bag of blood above the arm. Caution when you release the tube clamp the blood will flow through the vein system and out the other tube. By installing a second, empty reservoir bag with tubing to the exit tube of the manikin you will have a closed blood system. Run enough blood through the vein tubing so that all the air bubbles are removed.

To obtain a flash in the catheter chamber and acquire the most pressure at the point of catheterization of the vein, clamp closed the lower of the two reservoir bags. Also, raise the full bag of blood at least 24" above the arm. This elevation provides pressure for the flash. Once you have the catheter inserted in the vein, you must then open the bottom bag clamp to allow the titration of fluid into the system. You should also clamp the upper bag so that your IV fluid will flow to the bottom bag. Maintenance of the IV arm includes thoroughly flushing the vein tubing at the end of each day of use. Keeping the vein tubing clear prohibits the buildup of clogs.

To replace the arm and hand skin it is necessary to cut both the arm and hand skins off the arm by using scissors. Do not use a sharp blade like a box cutter or scalpel because you may damage the underlying parts. You must remove the lower arm from the upper arm by disassembling the pin in the antecubital junction.

A new skin, No. 075, can be replaced with the addition of a small amount of baby powder (talc) inside the skin and the arm under form. This will create a slick surface that allows the skin to slide easily over the arm under form. This is a good time to consider replacing the vein tubing, even though it may not be leaking at this time.

Replace the vein tubing No. 074 by gently pulling the installed tubing so that each of the sections hangs loose within its own position.

The vein kit contains a length of thread and a length of new latex tubing which is used to replace the entire length of the IV tubing in the arm. Directions in the IV kit for this procedure show how the new tubing inserts behind the old as it is pulled out of the arm.

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Complete the procedure by putting the skin on the arm under form. Guide the vein tubing into the channels of the arm under form as you put the skin on the arm or the hand. You may not have to heat the arm skin but the arm skin can be more pliable if you apply low heat from a hair dryer. NOTE: Do not use too much heat. Move the dryer so you don't create hot spots on the plastic. Position the skin so that the hole for the tubing is lined up with the tubing. The skin slot at the elbow will line up with the mounting eye in the elbow. Stand the arm up on its finger tips and push the skin down over the upper arm. The hand skin may be made pliable by dipping it in hot water.

CAUTION: Don't burn your hand! Immerse the hand skin only far enough in the water to soften the skin. Do not get water inside the skin. It may take two people to accomplish the actual installation; one holding the arm and one installing the skin. Again, use talc or baby powder to help it slide over the arm under form.

Injection Site

The intramuscular injection site is located on the right deltoid area. If you have lower extremities, you will also find one located on the optional right leg thigh. Foam inside the site allows for injection of fluids (water recommended). Before storing the manikin, remove the injection site, pull the foam out, squeeze it dry and let it air dry completely before putting it back in the plastic.

Intubation Head

There are no specific set up requirements for the head. An 8.0 mm ET tube is the largest that may be used. Any airway device that you place in the manikin should have a coating of water based lubricant. A tube of lubricant is included with your manikin.

You may also find it helpful to lubricate the tongue and back of the throat by lubricating your finger and applying to the various oropharyngeal parts that you can reach. NOTE: You will void your warranty if you use any petroleum based lubricant.

The bronchial bifurcation allows for right stem intubation and the two-lung system will demonstrate the lack of inflation of the left lung under this circumstance. The stomach will also inflate if you intubate the esophagus.

The lungs and stomach detached from their tubes

CPR Head

Do Not Carry The CPR Head By Holding The Tubing! Warranty does not cover the breakage.

To install the CPR Head, (note photos on page 3) first unsnap the four (4) neck snaps of the intubation head from the torso. Gently tug the head out of the torso. Disconnect the corrugated tubing from the quick release connections by pushing down on the tab release mechanism. The esophageal tubing can then be pushed back into the torso. Now connect the color coded left and right lung tubing onto the connectors of the CPR head. Slide the assembly back into the torso and snap the CPR head onto the torso. You should also reach up inside the torso and arrange the corrugated tubing so that it is not crimped.

Insert Face Shield Bag

Spread Open End of Face Shield

The CPR Head requires the insertion of the Face Shield bags (package of 50 included with the product) inside the mouth. It is recommended that you hold the open bag end tightly in one hand while running the other hand down the bag multiple times. This will crease the sides of the bag and allow the bag to install easily into the head. Tilt the head back using the chin lift method to position the interior clapper toward the back of the head. The bottom of the bag is then placed in the mouth and inserted all the way. The upper circumference of the bag is spread around the mouth and over the nose. When air is blown into the bag, the lungs will inflate. Tilt the head back to remove and discard the lung bag.

Full Body (FB)

The pelvis is attached to the torso by means of a steel rod placed in the plastic tube guide that spans from the right to the left side of the pelvis. It is held in place with a clevis pin and washer that is located under the chest overlay. You may remove the lower legs to transport the manikin or for torso use only. Remove the rod and separate the parts.

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Pulse Bulb Assembly

The pulse bulb assembly attaches to the tapered connector on the side of the manikin's neck (Fig 3). Twist it gently to seat the tubing in the tapered connector on the neck. Once attached, gently squeezing the bulb will allow the student to feel the carotid bilateral pulses.

Align the connectors and push and twist them together.

ECG Cable Installation

To install the gray ECG 4-lead cable on the manikin, lift up the lower right corner of the chest skin overlay and find the black connector that matches the one on the cable (Fig 1). Carefully plug the connector together. Place the color-coded limb lead buttons on the side of the ECG rhythm generator (Fig 2).

ECG Defibrillation

Training Cables

If you utilize hands-free pads for defibrillation, you must have the Chest Post Adapters, included with your ECG rhythm generator.

Chest Posts

Z08

For use with mankins, use this setup.

You will also need a training cable These training cables are designed with unique ends for use with the following defibrillators: Zoll, Medtronic Physio Control, and Philips HeartStream (new style - non-barrel style plug).

Z10 Medtronic

Z02 Zoll

Z13 Phillips

Training cables are not recommended for use with non-rechargeable battery AED units. This includes FirstSave, HeartStream, and Medtronic Physio Control with non-rechargeable lithium batteries. Nonrechargeable batteries are expensive to replace and the reason they are not recommended for use.

If you have a different variety, we can convert a set of your old patient pads to a training cable. Please order Item No. 104 when you make arrangements with your Simulaids distributor to return the pad set for conversion.

To Attach the Training Cable to the Manikin:

Steps:

1. Screw the chest post adapters into the manikin's chest defib sites.
2. Attach the defib training cable you purchased to the defib lead of your monitor/defib unit.
3. Attach the defib training cable terminal ends to the chest post adapters.
4. You may discharge up to 360 joules through this system.
5. Connect monitor's limb lead cable to simulator's lead snaps. See Figure 1.
6. Press ON OFF key to power-on simulator. Observe that NSR indicator is illuminated.
8. Power-on monitor/defibrillator. Observe that NSR at 72 bpm is displayed.

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The ECG System

Press ECG cable connectors onto simulator snaps. Left to right: RL, RA, LA, LL. ECG signal is obtained with either 3- or 4-lead ECG cable.

Connect defibrillation cable to simulator. (The connector on your simulator may be different from the one shown here.)

WARNING: SHOCK HAZARD! Be sure defibrillation cable is securely attached to simulator.

053

If you use paddles for defibrillation, screw the Manual Defib Adapters into the manikin's defib sites in place of the Chest Posts. Apply the paddles directly onto the Manual Defib discs. Full joule discharge can be used with this method, too.

To attach the training cables to the ECG Simulator:

You may use the ECG Generator without using a manikin by putting the chest post adapters in the top margin adapters of the ECG Generator labeled Sternum and Apex. Attach the training cable as previously described.

WARNING: Do not use the manual defib adapters in the ECG Generator Apex or Sternum positions. Shock Hazard!

ECG Rhythm Generator Operating Instructions

Within this section are the following topics:

- **Getting Started**
- **Controls and Indicators**
- **Rhythms for Defibrillator Training**
- **Rhythms for External Pacer Training**
- **Defibrillator Exercise**
- **External Pacer Exercise**
- **Battery Saver Feature**
- **Service**

Controls and Indicators

The ECG Rhythm Generator is an easy to use training tool that allows you to practice defibrillation procedures, external pacing procedures, and arrhythmia recognition. Connect your defibrillator and external pacer directly to the ECG Rhythm Generator for safe, interactive training. For arrhythmia recognition, select from 17 rhythms, including fibrillations, tachycardias, and bradycardias.

LOW BATT - Red indicator illuminates when battery needs to be replaced.

DEFIB DISCHG - Green indicator illuminates for two seconds when defib discharge is sensed.

CONVERT - Simulate cardioversion by activating convert feature. The rhythm generator responds to defib discharge.

PACER PULSE - Green indicator flashes when external pacer pulse is sensed. (Captured beat is simulated, too.) Sensing occurs when external pacer current set to 60mA - 70mA or more.

Convert

The convert feature allows you to convert automatically from one rhythm (running rhythm) to another rhythm (waiting rhythm) when a discharge is delivered from a defibrillator set to 50J or more.

To perform convert operation:

Steps:
1. Press convert key. Indicator of running rhythm pulses brighter.
2. Press key of rhythm to be simulated immediately after defib discharge. Indicator of this (waiting) rhythm blinks on and off.
3. Discharge defibrillator. The waiting rhythm becomes the running rhythm.

To cancel convert operation before it's completed, either press convert key again or press key of running rhythm. If convert operation is started, but a discharge is not sensed within two minutes, the convert operation cancels automatically.

Age Group

Allows you to simulate either adult or pediatric rhythms. P wave amplitudes, PR intervals, QRS durations, QRS aces and ventricular rates are representative of the age group selected.

Adult and Ped indicators tell you which rhythm set is selected. To switch from one set of rhythms to the other, press age group key, then key of rhythm you wish to simulate. If age group key is pressed, but rhythm key is not pressed, the age group changes within two seconds. At power-on, adult age group is selected automatically.

Rhythms for Adult Defibrillation Training

VF	Ventricular Fibrillation
VT Fast	Ventricular Tachycardia. Wide QRS. Rate: 185
VT Slow	Ventricular Tachycardia. Wide QRS. Rate 140
VT Poly	Ventricular Tachycardia. Fluctuating QRS axis
AFIB	Atrial Fibrillation. Ventricular rate: 120-160
AFLTR	Atrial Flutter (2:1). Ventricular rate: 150
SVT SVT	alternates with NSRE, then remains in SVT. SVT rate: 216
S TACH	Sinus Tachycardia. Rate: 120
NSR	Normal Sinus Rhythm. Rate: 72
SINUS PVC	Sinus Rhythm with PVCs. Sinus rate: 72

Adult External Pacer Training

S BRDY	Sinus Bradycardia. Rate: 40
J BRDY	Junctional Bradycardia. Rate:42
2nd I	2nd deg. Type I AV Block (4:3). Atrial rate: 60
2nd II PVC	2nd deg. Type I AV Block (4:3). Atrial rate: 60; Wide QRS PVCs
2nd II	2nd deg. Type I AV Block (4:3). Atrial rate: 60; Wide QRS
3rd	3rd deg. AV Block. Wide QRS. Ventricular rate: 37

Pediatric Defibrillator Training

VF	Ventricular Fibrillation
VT Fast	Ventricular Tachycardia. Wide QRS. Visible P wave. Rate: 180
VT Slow	Ventricular Tachycardia. Wide QRS. Rate 148
VT Poly	Ventricular Tachycardia. Fluctuating QRS axis. Short runs.
AFIB	Atrial Fibrillation. Ventricular rate: 135-160
AFLTR	Atrial Flutter (2:1). Ventricular rate: 150
SVT	SVT. Inverted P follows QRS. SVT rate: 240
S TACH	Sinus Tachycardia. Rate: 165
NSR	Normal Sinus Rhythm. Rate: 90
SINUS PVC	Sinus Rhythm with PVCs. Sinus rate: 90

Pediatric External Pacer Training

S BRDY	Sinus Bradycardia. Rate: 50
J BRDY	Junctional Bradycardia. Rate: 60
2nd I	2nd deg. Type I AV Block (5:4). Atrial rate: 60
2nd II PVC	2nd deg. Type I AV Block (5:4). Atrial rate: 60; Wide QRS PVCs
2nd II	2nd deg. Type I AV Block (5:4). Atrial rate: 60; Wide QRS

Defibrillator Exercise

Connect simulator to defibrillator. For help, *see **Getting Started**, page 4.*

Exercise: Convert VF to NSR using manual defibrillator.

At Simulator:

Steps:
1. Press VF key. VF indicator glows steadily. Confirm VF is displayed on monitor.
2. Press convert key. VF indicator pulses brighter.
3. Press NSR key. NSR indicator blinks on and off. VF indicator glows steadily again.

At Defibrillator:

4. Select 360J using Energy Select switch (1).
5. Press Charge button (2). Listen for charge ready tone.
6. Press both Discharge buttons (3) simultaneously.
7. After discharge observe that:

   On monitor, NSR is displayed.

   At simulator, NSR indicator glows steadily, and VF indicator is off.

Deliver defibrillation discharge to convert automatically.

VF ***NSR***

External Pacer Exercise

To simulate paced beats, pacer Rate must be greater than rate of selected rhythm, and pacer Current must be greater than simulator capture level.

Exercise: Pace 3rd degree AV block at rate of 70 ppm.

At Simulator:

Steps: 1. Press 3rd key. Confirm 3rd degree AV block is displayed on monitor.

At Pacer:

2. Select Pacer On. Verify sense markers are displayed with each R wave. (If not, press ECG Size button until R wave markers are observed.)
3. Select rate of 70 ppm using Rate control.
4. Press Start/Stop button to start pacing.
5. Increase pacer current, using Output control, until you observe paced beats on monitor. Pacer current setting should read 60mA - 70mA.

Initiate pacing to simulate paced beats.

Adult 3rd degree AV Block. **Paced beats at 70 ppm.**

Battery Saver Feature

The simulator powers-off automatically about 30 minutes after a key was last pressed, or after defib or pacer energy was last detected. This is normal operation.

To allow simulator to remain powered-on after 30 minutes, follow these instructions:

Steps: 1. Power-off simulator.

2. Press and hold down convert key, then press and release ON OFF key.

The simulator powers-on.

3. Observe NSR indicator. When indicator blinks on and off, release convert key. NSR indicator continues to blink for about one second.

The battery saver feature is now disabled. When you power-off the simulator, it will return to normal battery saver operation.

The simulator is powered by one 9 volt alkaline battery. To replace the battery, turn over simulator, then slide open battery compartment door.

Service

The ECG Interactive Rhythm Generator has a long history of solid performance. Most of the times there are problems it is associated with a low battery condition or the battery saver feature. Please check to see that these things are accounted for if you are having problems. With these two things taken care of and a remaining problem, please contact Simulaids customer service to obtain a return authorization for the product. There is an assessment fee outside of any warranty consideration for repairs. Call 800-431-4310 to obtain the RA number and the address to which you send the unit.

Cleaning Instructions

CAUTION: Disconnect all electrical equipment before cleaning.

The ECG rhythm generator must be kept dry. There is an electrical box inside the manikin's torso, but it does not contain any user serviceable parts, do not attempt repairs on it, and do not get it wet.

To remove dirt and grime from the manikin use a water soluble commercial cleaning agent.

To eliminate lubrication buildup in the Intubation head swab the throat using a dry to slightly damp 4x4 gauze and McGill forceps.

The IV arm will collect dried blood between the skin and the arm under form. This material should be cleaned out on a regular basis using warm, soapy water. Rinse the arm thoroughly and dry completely before putting the skin back on the arm.

Maintenance

In the process of changing the heads of the 080FB, there may be a need to replace the lungs, stomach, or tubing. This would only be necessary if you contaminate the tubing and lungs/stomach by using rescue breathing with the intubation head. Should that occur, the only way to clean and disinfect the system is to remove all the parts. This service requires that the pelvis be removed from the torso. Leave the head off the torso and disconnected from the tubing. Remove the chest overlay from the manikin torso. Unsnap the shoulder and torso side snaps on the overlay. Slide the skin off to one side. Detach the lungs and stomach from the tubing by twisting the lung/stomach bags' connector and gently pulling the connector from the tubing. Replace the lungs and stomach bags. You may disinfect the tubing because they will air dry completely. Dry them before putting them back in the manikin. Ensure that the tubing is installed in the correct locations: Red banded tubing on the right side; blue banded tubing on the left side and white banded tubing for the esophagus/stomach.

Should it be necessary to remove the electrical box from inside the torso, first disconnect the 6 pin white connector between the

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box and the overlay.

On top of the box is a knob. Unscrew the knob to remove the box from the back plate.

Replacement Parts and Accessories

075 IV ARM SKIN
074 Replacement IV Arm/Hand Veins
073 Intramuscular Injection Pads (3 pack)
072 Replacement Lungs and Stomach (3 pack)
070 Face Shields (50 pack)
081 IV Arm and Hand
082 Intubation Head
083 CPR Head
069 Optional Trauma Head
102 ECG Arrhythmia Simulator
Z02 Zoll Training Cables
Z10 Medtronic Physio Quick Combo Training Cables
Z13 Phillips Training Cables
Z08 Chest Posts for Training Cables

Warranty

Simulaids warrants this product to be free from any defect in materials and/or workmanship for a period of three years from the date of purchase, as evidenced by the date of invoice when the product was shipped to the end user. This warranty expressly does not cover abuse, accidental or purposeful damage, or any form of modification to the product. Simulaids reserves the right to either repair or replace affected parts or the entire unit, at their sole discretion, after investigating and reviewing the actual product and the damage. In most instances, a digital photo of the product in question showing the damage will help qualify a product for return to the factory. At no time will any product be accepted at the plant without proper return authorization issued by Simulaids.

Freight and Shipping charges are the sole responsibility of the end user. No product will be received with shipping charges due. Any product considered for warranty work must be identified by serial number and invoice number from the agency through whom the product was purchased. Without this information the product will not receive a return authorization number as required.

Do not allow print material to come in contact with the skin of your product. The ink will embed in the porous surface and be impossible to remove. Ink stains are not covered under warranty.

Return Policy

Should it be necessary to return an item for credit or for any other reason, contact our Customer Service Department to obtain an RGA Number. Please refer to your invoice number when phoning in your request for returning merchandise. Should you have any questions or wish further information on any product we manufacture call or write our Customer Service Department.

NOTES:

Manufacturers of Training Manikins, Casualty Simulation Kits & Medical Training Devices
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