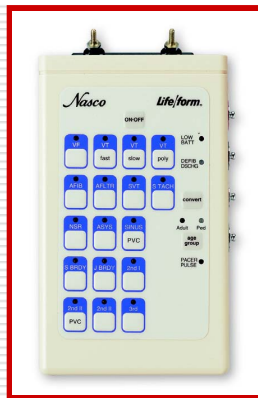


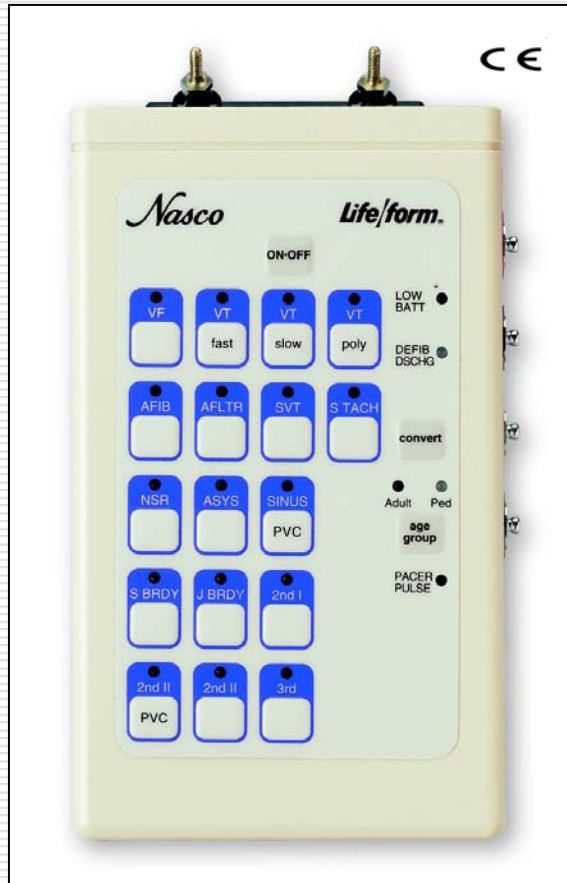
***Life/form*® Interactive ECG Simulator – LF03670U**

Instructions for use with and without manikins



Introduction

Easy to use training tool that allows practice of defibrillation and pacing procedures with or without a defib manikin.



- ❑ **ON/OFF** – Press to power on and off.
- ❑ **LOW BAT** – Red indicator illuminates when battery needs replacement.
- ❑ **DEFIB DISCHG** – Green indicator illuminates for two seconds when defib discharge is sensed. **If defibrillating Nasco manikin, set defib to 2J or more. If defibrillating directly into ECG Simulator, set defib to 50J or more.**
- ❑ **convert** – Simulate cardioversion by activating convert feature. Simulator responds to defib discharge.
- ❑ **Adult Ped** – Yellow indicators tell which rhythm set is being simulated – adult or pediatric.
- ❑ **age group** – Press to select adult or pediatric rhythm set.
- ❑ **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

Allows conversion automatically from one running rhythm to another waiting rhythm when a defib discharge is sensed. *Remember* to set joules appropriately based on recommendations listed on previous page (slide 2).

To perform convert operation:

- ❑ Press **convert** key. Indicator of running rhythm pulses brighter.
- ❑ Press key of rhythm to be simulated immediately after defib discharge. Indicator of this waiting rhythm blinks on and off.
- ❑ 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 axes 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.

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 NSR, then remains in SVT. SVT rate: 216
 - ❑ **S TACH** Sinus Tachycardia. Rate: 120
 - ❑ **NSR** Normal Sinus Rhythm. Rate: 72
 - ❑ **ASYS** Asystole
 - ❑ **SINUS PVC** Sinus Rhythm with PVCs. Sinus rate: 72
-

age group, continued

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 II AV Block (4:3). PVCs. Wide QRS. Atrial rate: 60
- ❑ **2nd II** 2nd deg. type II AV Block (4:3). Wide QRS. Atrial rate: 60
- ❑ **3rd** 3rd deg. AV Block. Wide QRS. Ventricular rate: 37

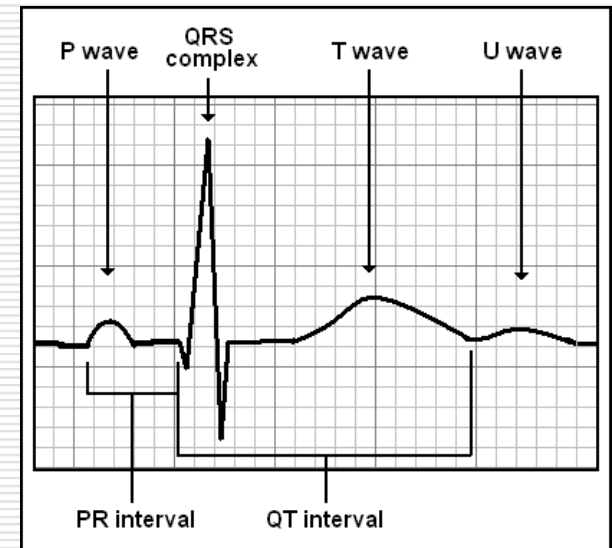
Pediatric Defibrillator Training

- ❑ **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. Small R waves. Ventricular rate: 135-160
 - ❑ **AFLTR** Atrial Flutter (2:1). Ventricular rate: 150
 - ❑ **SVT** Supraventricular Tachycardia. Inverted P follows QRS. Rate: 240
 - ❑ **S TACH** Sinus Tachycardia. Rate: 165
 - ❑ **NSR** Normal Sinus Rhythm. Rate: 90
 - ❑ **ASYS** Asystole
 - ❑ **SINUS PVC** Sinus Rhythm with PVCs. Sinus rate: 90
-

age group, continued

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 II AV Block (5:4) with PVCs. Atrial rate: 60
- ❑ **2nd II** 2nd deg. type II AV Block (5:4). Atrial rate: 60
- ❑ **3rd** 3rd deg. AV Block. Ventricular rate: 60



Training Cables

Training cables with adapters are designed to be used in place of the hands free pads used for patient care. 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. Non-rechargeable batteries are expensive to replace and the reason they are not recommended for use.

These training cables are designed with unique ends for use with the following defibrillators: Zoll, Medtronic Physio Control (LifePak 12), and Philips HeartStart and HeartStream (new style – non-barrel style plug).



LF03961U - Zoll



LF03962U – Medtronic

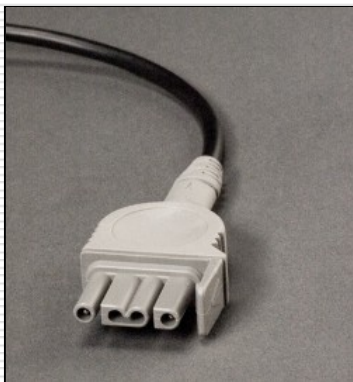


SB46514U – Philips

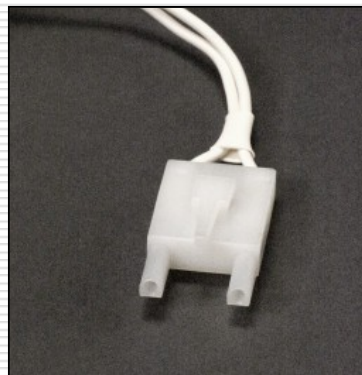
Note: The Philips cables (SB46514U) do not include adapters. These adapters (LF03658U) are included with the Life/form® Interactive ECG Simulator. These cables are for use with HeartStart and HeartStream. If using Philips H/P a pad adapter is available through Philips that adapts the old barrel style (Philips part number 05-10200 – [link to info below](#)).

Defibrillation Unit - Manufacturers' Connectors

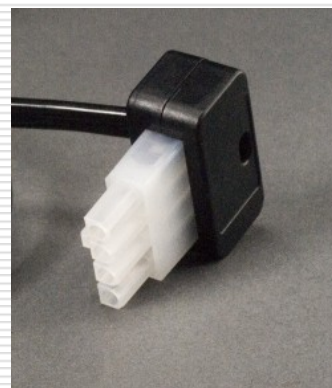
Choose the correct cable for your application from the units below.



Medtronic Physio Control



Zoll



Welch Allyn



Philips HeartStream



Philips HeartStart



Philips HP – Barrel
Needs Adapter

Philips Adapter Example



**Available
from Philips***

Philips Adapters

Medtronic™ Pads Adapter
05-10000

Zoll™ Pads Adapter
05-10100

Defib Pads Adapter (Use
with M3507A, M3508B, or
M1750A/B hands-free
electrode cable)
05-10200

Adapters

The adapter posts are connected to the Interactive ECG Simulator or directly into the defibrillation sites on the manikin's chest with banana clips (included with Interactive ECG Simulator).

If the defibrillator uses snap-on patches, adapters will be needed to eliminate the use of expensive pads. The Interactive ECG Simulator includes adapters for: Marquette, Laerdal/Space Labs/HeartStart/First Medic, and Medtronic Physio Control (LifePak 10).



Using ECG Simulator without Manikin

- ❑ Connect monitor's ECG limb lead cable to simulator's ECG snaps. (See Figure 1.)
- ❑ Press ECG cable connectors onto simulator snaps (match colors). Left to right: green (RL), white (RA), black (LA), red (LL).
- ❑ ECG signal is obtained with either 3- or 4-lead ECG cable.
- ❑ Attach appropriate adapters to the banana clip provided with the ECG Simulator (screw together).
- ❑ Insert banana clip and attached adapter into the adapter receptacles located at the top of the ECG Simulator (labeled "APEX" and "STERNUM")
- ❑ Connect defib cable to adapters. (See Figure 2.) APEX to left, STERNUM to right.
- ❑ Press **ON-OFF** key to power-on simulator. Observe that **NSR** and **ADULT** indicators are illuminated. Power-on monitor/defibrillator. Observe that NSR at 72 bpm is displayed.



Figure 1



Figure 2

Note: Defib machines with paddles and no hands-free conversion cannot shock directly into ECG Simulator! Must use manikin!!!

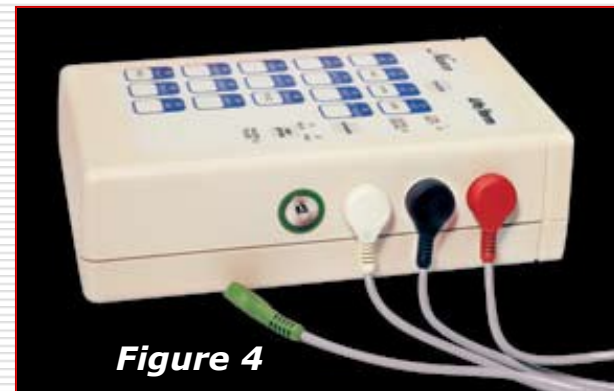
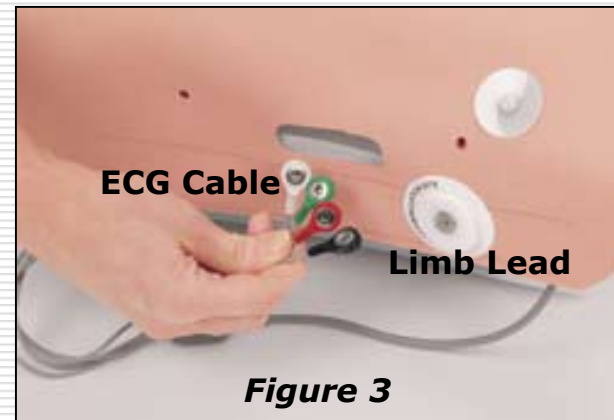
WARNING: SHOCK HAZARD!!!

Be sure defibrillation cable is securely attached to simulator.

See Figure 7

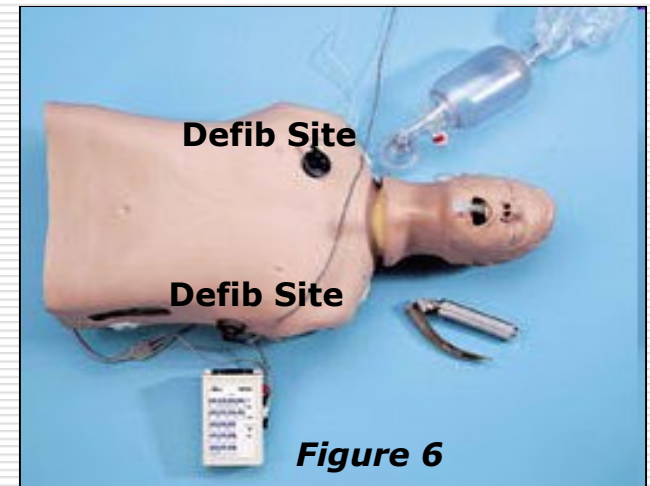
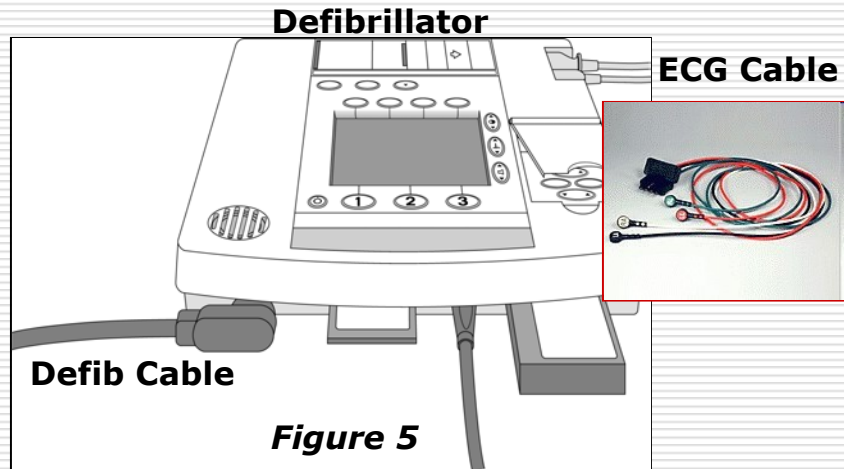
Using ECG Simulator with Manikin

- ❑ Locate manikin's ECG cable (see *Figure 3*) and connect to the Interactive ECG Simulator's color-coded snaps. (see *Figure 4*). This is the only cable needed for connecting the ECG Simulator to the manikin.
- ❑ Connect defibrillator/monitor's ECG cable (*Figure 5*) to the manikin's ECG limb lead snap sites (see *Figure 3*). If defib/monitor ECG cable has right leg lead, but manikin does not have right leg ECG snap, connect right leg lead to the ECG Simulator's green color coded ECG snap.
- ❑ Connect defib cable (see *Figure 5*) to the manikin's defibrillation sites (see *Figure 6*). Pads or paddles that come with defibrillation unit may also be used. (If you have a separate pacer cable, attach it to defibrillation sites for pacing).
- ❑ Turn on your Life/form® Interactive ECG Simulator and select rhythm. The rhythm you have selected should appear on your monitor screen.



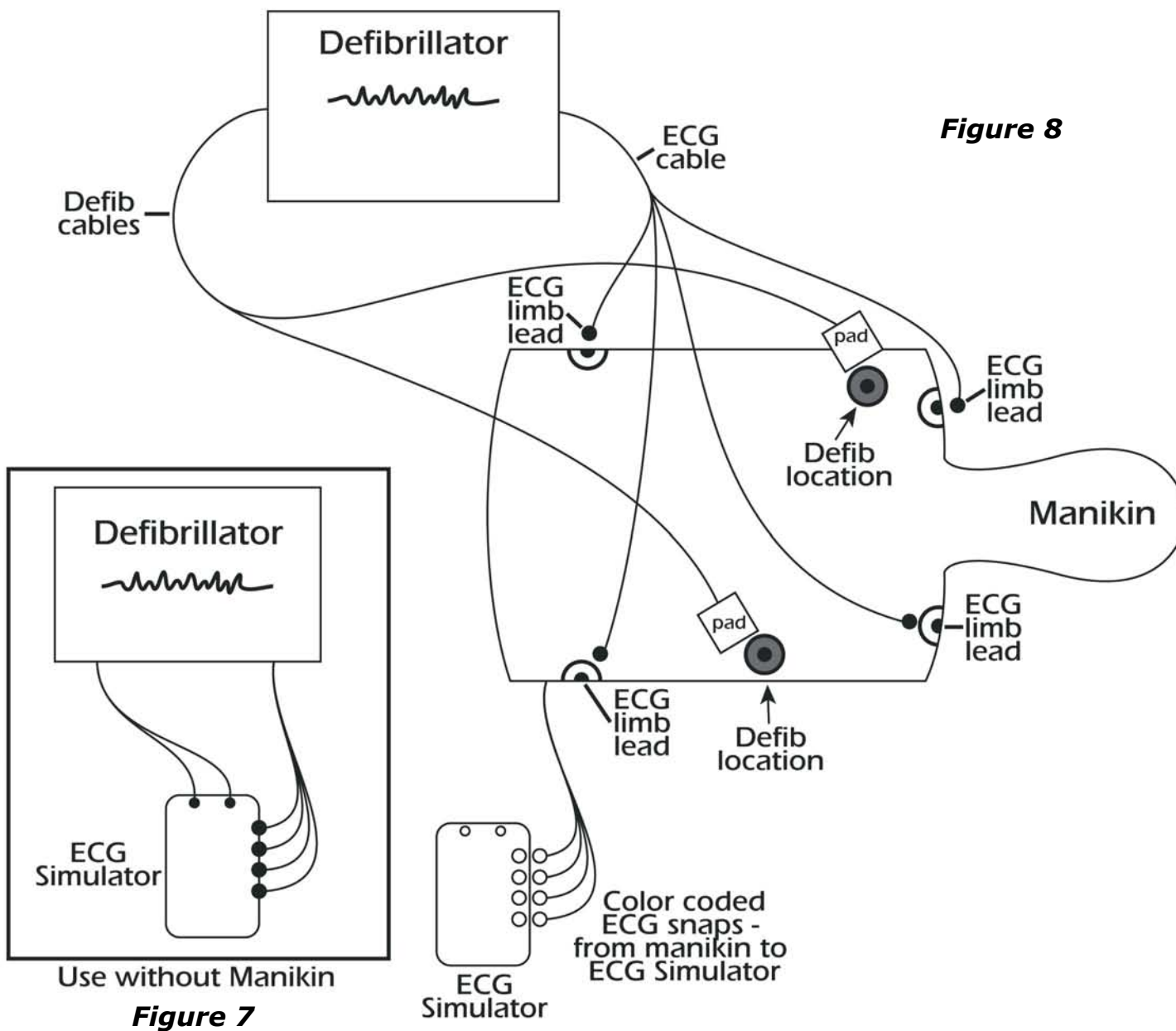
See Figure 8

Using ECG Simulator with Manikin



**Ready for
simulation!**





Defibrillation Exercise

Convert VF to NSR using manual defibrillator

- ❑ Connect ECG Simulator to defib unit or defib manikin.
 - ❑ Press **VF** key on the Interactive ECG Simulator. Indicator glows steadily. Confirm VF is displayed on monitor.
 - ❑ Press **convert** key. VF indicator pulses brighter.
 - ❑ Press **NSR** key. NSR indicator blinks on and off. VF indicator glows steadily again.
 - ❑ On defibrillator unit, select 360J using **Energy Select** switch.
 - ❑ Press **Charge** button. Listen for charge ready tone.
 - ❑ Press both **Discharge** buttons simultaneously.
 - ❑ After discharge, observe that: (1) NSR is displayed on monitor, (2) NSR indicator glows steadily on ECG Simulator, and VF indicator I off.
-

Pacing Exercise

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

- ❑ On the ECG Simulator, press **Adult** key, then press **3rd** key. Confirm 3rd degree AV block is displayed on monitor.
- ❑ On Pacer, select **Pacer On**. Verify sense markers are displayed with each R wave. (If not, press **ECG Size** button until R wave markers are observed.)
- ❑ Select rate of 70 ppm using **Rate** control.
- ❑ Press **Start/Stop** button to start pacing.
- ❑ Increase pacer current, using **Output** control, until you observe paced beats on monitor. Pacer current setting should read 60 mA – 70mA.

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

If VF is selected rhythm, Simulator won't generate paced beats.

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:

- Power-off Simulator.
- Press and hold down **convert** key, then press and release **ON-OFF** key. The Simulator powers-on.
- Observe NSR indicator. When indicator blinks on and of, 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

Note: The Simulator is powered by a 9 volt alkaline battery. To replace the battery, turn Simulator over, then slide open battery compartment door.

Warranty & Service



Life/form® THREE YEAR LIMITED WARRANTY

Nasco warrants this Life/form® product to be free from any defect in materials and/or workmanship for a period of 36 months from the date of purchase.

This limited warranty covers the ability of this Life/form® product to function according to generally accepted training requirements in effect at the time of purchase. This Life/form® product will be repaired or replaced free of charge if it fails in normal use during the term of the limited warranty.

This limited warranty does not include cases, accessories, stains, cosmetic appearance, or normal replacement of disposable items. This limited warranty does not insure the physical appearance of your Life/form® product, and is void due to unauthorized design modifications, improper usage, accident, abuse, or failure to follow maintenance procedures as outlined in the owner's instruction manual. Freight and shipping charges to and from the U.S. factory are not covered and must be paid by owner.

If the simulator needs service, or if you have questions about its operation, please contact *Nasco* customer service (800-558-9595), or your authorized dealer.
