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Nasco Life/form®

Electronic Monitoring, Memory, and Printer Unit Instruction Manual

ISO 9001 and ISO 13485

Nasco Plastics
ISO 9001 and ISO 13485
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Life/form® Products by Nasco

Life/form®
5 Year Warranty

LF03401U

Electronic Monitoring, Memory, and Printer Unit

Simple and accurate feedback! Select one of the four modes (compression rate, compression depth, ventilation duration, ventilation volume) by pushing the indicator switch. Red light indicates improper hand placement, yellow light signals proper compression depth of 2.0-2.5 inches adult/1.75-2.25 inches child. Green light signals proper ventilation volume at 0.80 liters adult/0.50 liters child. The performance of each skill is displayed separately, while averages are stored in the memory. Designed to automatically switch between the compression and ventilation modes, depending on which one is being applied.

Can be used for practicing adult or child CPR. To practice CPR on a child, use the red compression springs in the manikin torso and select CHILD on the back of the printer unit. For testing, simply push test start button and begin CPR sequence. Compression and ventilation waveforms are plotted in a time sequence. When stop button is pushed, averages of the four skills are shown on the digital display while the printer tabulates the result on paper.

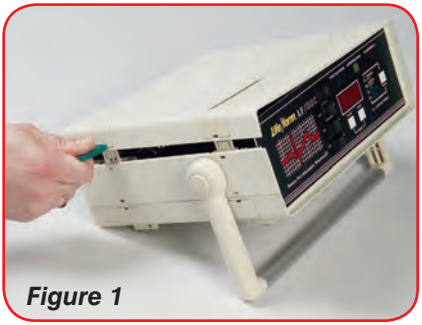

Figure 1

Use this unit as a replacement for an existing model or with any of the ***Life/form***® models at the end of this manual.

Electronic Monitoring, Memory, and Printer Unit Setup

Remove the cover using the key provided and inserting it in the four open slots on the sides of the unit (two on each side). ***(See figure 1.)*** Press inward while gently applying upward pressure (do not turn key) until you hear a soft click. If the supplied key is not available, a small screwdriver can be used.

Battery Installation

Six “D” cell alkaline batteries are included. You may find it easier to remove or install batteries if the center two batteries are removed first and installed last.

The unit will function for several hours under normal use. The “Low Battery” light indicates the end of the batteries’ useful life. A low battery condition can also be indicated by skips or unwanted feed lines in the printout.

Operation

1. Locate the electronic interface jack inside the manikin torso and thread through a hole on either the left or right side of the torso. Insert jack into light controller.
2. Set light controller to adult or child mode using switch.

Paper Installation

1. Remove the cover. (See battery installation on page 2.)
2. Remove platen from bracket by gently pulling up on one end. ***(See figure 2.)***

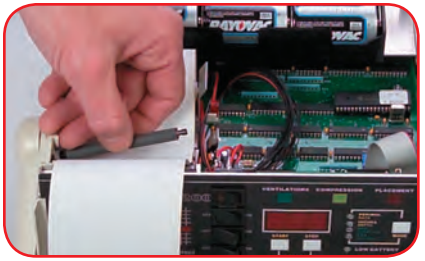

Figure 2

3. Remove the plastic paper holder rod from the paper holder bracket by applying a slight outward pressure to the bracket until the rod can be removed. Care should be taken not to bend too far or the bracket may become deformed and not hold paper securely.

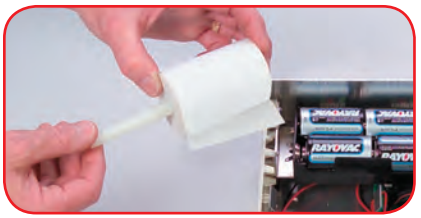

Figure 3

Figure 4

4. Insert plastic rod through the center of a new paper roll. ***(See figure 3.)*** Reinstall into bracket so that the paper feeds off the bottom of the roll pointing towards the front of the printer. ***(See figure 4.)***

Figure 5

Figure 6

5. While keeping paper taut, position the paper within the guides of the printer and reinstall the platen so that the gears of the platen engage with the gears of the printer. ***(See figure 5.)*** Gently insert platen in bracket until it snaps into place. ***(See figure 6.)***
6. While continuing to keep paper taut, press the Paper Feed switch on the front panel until 7" to 8" have fed through the printer to make sure paper is properly aligned and feeding straight. Repeat step 5 if necessary.

Figure 7

7. Feed paper through paper guide in the top cover and replace cover by aligning the slots and tabs on the unit and pushing down on the cover to snap into place. ***(See figure 7.)***

Supplies/Replacement Parts

LF03451U Thermal Paper

PRACTICE MODES SESSIONS

Figure 8

Select one of the four modes you wish to practice by pushing the mode button until the red light corresponding to the proper mode illuminates. The unit will advance the light one position each time the mode key is pushed. ***(See figure 8.)*** The unit will automatically switch between compression and ventilation modes, depending on which one is being applied.

Compression Rate

In the compression rate mode, the unit will display the average rate in compressions per minute of the last five compressions. The unit will continue to update this average until you change modes or push the stop button. Upon pushing the stop button, the unit will calculate and display the average compression rate of all compressions from the start of the present cycle. Any compressions made after the stop button is pushed will start a new cycle.

Compression Depth

In the compression depth mode, the unit will display the average depth in inches of the last compression. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average depth of all compressions from the start of the present cycle. Any compressions made after the stop button is pushed will start a new cycle.

Note: Failure to allow the torso to fully recoil after each compression will negatively affect the student's average.

Ventilation Duration

In the ventilation duration mode, the unit will display the duration in seconds of the last ventilation. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average duration of all ventilations from the start of the present cycle. Any ventilations made after the stop button is pushed will start a new cycle.

Ventilation Volume

In the ventilation volume mode, the unit will display the volume in liters of the last ventilation. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average volume of all ventilations from the start of the present cycle. Any ventilations made after the stop button is pushed will start a new cycle.

Auto Mode

This unit is designed to automatically switch between compression and ventilation modes, depending on which one is being applied.

Defibrillation "Defib" Mode

This unit is designed with a defib simulator. After the defib button is pressed, a light indicating so will illuminate. The light will remain on for 30 seconds. While this light is on, no further defibrillations can be performed. A "lightning bolt" icon will also appear on the printout at this point.

Note: Some manikins cannot be shocked with a defibrillator. The 30-second pause is to simulate the time it would take to administer defibrillation to the patient.

Auto Power Down

To increase battery life, the unit will automatically shut off the display and go to a standby mode if no activity is sensed for approximately 30 seconds. The display will turn on when any compression or ventilation activity is sensed. You can also reactivate the display by pressing the mode or start button.

TEST MODES

To begin a test, press the start button. Pressing the start button will clear all registers.

Compression Rate

In the compression rate mode, the unit will display the average rate in compressions per minute of the last five compressions. The unit will continue to update this average until you change modes or push the stop button. Upon pushing the stop button, the unit will calculate and display the average compression rate of all compressions from the start of the present cycle.

Example: For the first compression cycle of 30 compressions, an average rate of 60 compressions per minute (CPM) was obtained. Then two ventilations were applied to the manikin. Then a second compression cycle of 30 was applied, at an average rate of 100 CPM, and then the stop button was pushed. The unit would calculate and display the overall average of 80 CPM.

Compression Depth

In the compression depth mode, the unit will display the average depth in inches of the last compression. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average depth of all compressions from the start of the present cycle.

Ventilation Duration

In the ventilation duration mode, the unit will display the duration in seconds of the last ventilation. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average duration of all ventilations from the start of the present cycle.

Adult	Child
2.00 - 2.50"	1.75 - 2.25"
Over 2.50"	Over 2.25"
0.00 - 2.00"	0.00 - 1.75"

Place = Compression depth of 1.0" with improper hand placement

Ventilation Volume

In the ventilation volume mode, the unit will display the volume in liters of the last ventilation. The unit will continue this display mode until the mode is changed or the stop button is pushed. Upon pushing the stop button, the unit will calculate and display the average volume of all ventilations from the start of the present cycle.

Adult
Over 0.80 liters (800 ccs)
Over 2.00 liters (2000 ccs)
Under 0.80 liters (80 ccs)

Child
Over 0.50 liters (800 ccs)
Over 2.00 liters (2000 ccs)
Under 0.50 liters (80 ccs)

Printer On

If a printout of the compression and ventilation waveforms and defibrillation is desired, switch the printer switch to the “on” position and press the start button. The printer will print the following (this is an adult test). ***(See figure 23.)***

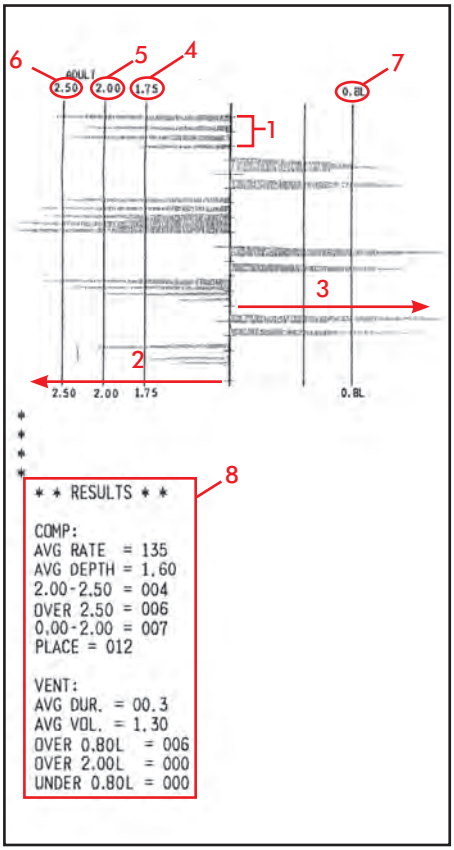

Figure 23

Reading the Printout

Ventilation/Compression Limits
The ventilation limits are labeled 0.5 L and 0.8 L.

The compression limits are labeled 2.00" and 2.50" for adult and 1.75" and 2.25" for child, depending on your selected setting.

Waveform Printout

All compression and ventilation waveforms are plotted. On completion of a test, press the stop button. The final results will be calculated and printed out as shown. ***(See figure 23.)*** It shows:

1. Vertical time scale: ⅛" = 1 second.
2. Axis for compression waveforms start at the center and goes left.
3. Axis for ventilation waveforms start at the center and goes right.
4. 1.75" limit line for compressions is the low level limit for compressions when in the child setting.
5. 2.00" limit line for compressions.
6. 2.50" limit line for compressions.
7. 500 cc line for child ventilations (0.50 liters).

   800 cc line for adult ventilations (0.80 liters).
8. Printout of final test results shows every event during the test and consists of compression and ventilation averages, compressions with correct placement, and amount of compressions and ventilations within the three specified ranges of depth and volume.

Troubleshooting

The compressions are noisy.

1. Try repositioning or inverting the springs. Check for bent springs.

The compression strokes are short.

1. Examine cavity to see if exhaust hose or electrical wire is out of place.

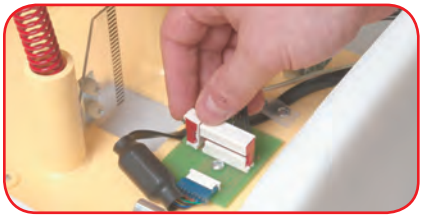

Figure 24

Figure 25

The red placement light is continuously on, indicating improper hand placement.

1. Turn power off.
2. The chest plate sensor has become disconnected from the red connector in the chest cavity. ***(See figure 24.)***
3. Check inside chest cavity to see if electronic bar reader assembly is in proper vertical alignment. ***(See figure 25.)***
4. Turn power on and test.

The compression depth indicator reports only low compressions.

1. Turn power off.
2. Check alignment of lower slide and upper groove reader inside chest cavity.
3. Turn power on and test.

The ventilation volume indicator reports low or no levels.

1. Turn power off.
2. Check to see if the lung bag is properly installed. Lung bag may be blocking the ventilation reader.
3. Check to see that ventilation reader slides easily.
4. Ensure the chest skin is not too tight.
5. Turn power on.

Low battery light remains on.

1. Turn power off.
2. Replace batteries.
3. Turn power on.

Printout is of poor quality or not printing complete lines.

1. Turn power off.
2. Check battery installation and change batteries if necessary.
3. Turn power on.

Other Compatible Life/form® Simulators and Products:

LF03204U *Life/form®* Blood Pressure Simulator
LF03214U *Life/form®* Injectable Training Arm
LF03596U *Life/form®* Full Body "Airway Larry" with Light Controller
LF03603U *Life/form®* Adult Airway Management Trainer Head
LF03672U *Life/form®* Full Body "Airway Larry" with Electronic Connections
LF03684U *Life/form®* Advanced "Airway Larry" Trainer Head
LF03713U *Life/form®* **CPARLENE®** Full Manikin with Electronic Connections – Light Skin
LF03714U *Life/form®* **CPARLENE®** Torso with Light Controller – Light Skin
LF03715U *Life/form®* **CPARLENE®** Torso with Electronic Connections – Light Skin
LF03813U *Life/form®* **CPARLENE®** Full Manikin with Electronic Connections – Dark Skin
LF03814U *Life/form®* **CPARLENE®** Torso with Light Controller – Dark Skin
LF03815U *Life/form®* **CPARLENE®** Torso with Electronic Connections – Dark Skin
LF03840U *Life/form®* Articulating Legs with Intraosseous Infusion
LF03933U *Life/form®* **CPARLENE®** Full Manikin with Light Controller – Dark Skin

Actual product may vary slightly from photo. Nasco reserves the right to change product color, materials, supplies, or function as needed.

LF03715U

LF03204U

LF03840U

LF03214U

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