

POWER TO SAVE A LIFE

HEARTSTART[®]
TRAINING



HEARTSTART TRAINER
INSTRUCTIONS FOR USE

PHILIPS

M5085A
Edition 2

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HEARTSTART TRAINER M5085A

INSTRUCTIONS FOR USE

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Philips Medical Systems

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About This Edition

The information in this guide applies to the HeartStart Trainer M5085A. This information is subject to change. Please contact Philips Medical Systems at www.medical.philips.com/cms or your local distributor for information on revisions.

Edition History

Edition 2
Publication date: June 2003
Publication #: M5085-91900
Assembly #: 012116-0002
Printed in the U.S.A.

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The HeartStart Trainer is manufactured by Philips Medical Systems, Seattle, Washington, USA.

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HeartStart Trainer M5085A

Intended Use

The HeartStart Trainer M5085A is designed to prepare emergency responders to use the HeartStart HS1 Defibrillators. The HS1 Defibrillators include the HeartStart OnSite Defibrillator M5066A, the HeartStart Defibrillator M5067A, and HeartStart Home Defibrillator M5068A. **The HeartStart Trainer cannot be used to deliver defibrillation treatment.**

The HeartStart Trainer provides a variety of simulations, or training scenarios, to help responders acquire and demonstrate the basic skills necessary to use the HeartStart HS1 Defibrillator in an emergency.

NOTE: Before using any HeartStart HS1 Defibrillator, the responder should have completed an appropriate responder training program, which may include the use of the HeartStart Trainer. Having completed such a course, the responder should be able to demonstrate a proficiency in assessing the indications of sudden cardiac arrest -- a patient who is unresponsive when shaken and not breathing normally -- cardiopulmonary resuscitation (CPR), and knowledge of applicable medical protocols and procedures.

Features

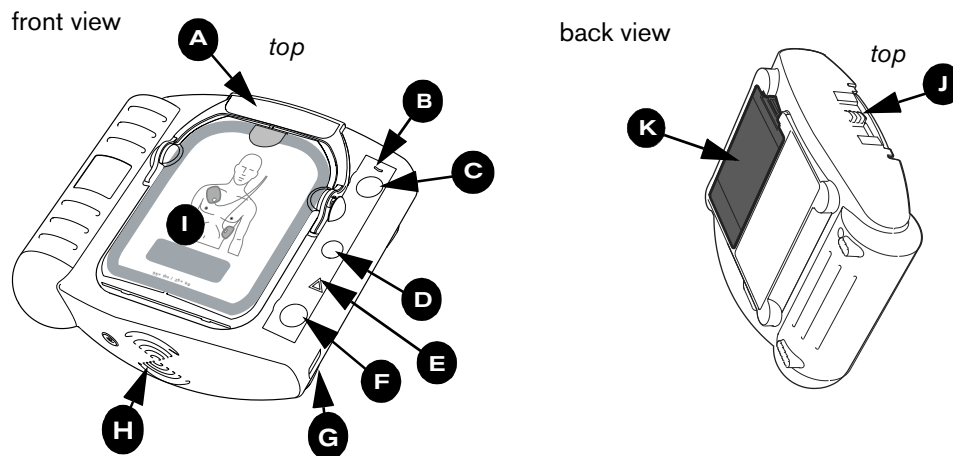
- The HeartStart Trainer provides simulated shock delivery. It has no high-voltage capabilities, ensuring safety during training.
- The HeartStart Trainer is designed for use with training manikins in conjunction with Internal Manikin Adapter M5088A or External Manikin Adapter M5089A and with Adult Training Pads Cartridge M5073A or Infant/Child Training Pads Cartridge M5074A only.*
- The HeartStart Trainer is pre-configured with 8 training scenarios that simulate realistic sudden cardiac arrest episodes. See pages 10 through 12 for scenario descriptions. These scenarios are compatible with training programs developed by nationally recognized responder programs.

* Do not use the Trainer with any other defibrillation pads cartridges.

- The HeartStart Trainer is powered by four standard AA alkaline batteries.
- Check with your local medical director or Emergency Medical Services provider for additional training requirements, protocols, and materials.

WARNING: Do not store your Trainer with your defibrillator, or where it could be confused with a defibrillator during an emergency.*

Overview



The HeartStart Trainer M5085A is designed to look like the HeartStart HS1 Defibrillator. However, some of the defibrillator's physical features are either inactive in the Trainer or behave differently from their counterparts in the defibrillator, as noted below.

- A TRAINING PADS CARTRIDGE HANDLE.** Pull up on the handle to turn on the Trainer. Remove the cartridge's hard cover, peel off the resealable film cover, then lift out pads.
- B ON LIGHT.** The Trainer's green ON light is on solid when the Trainer is on, and off otherwise. *(In the HS1 Defibrillator, the green Ready light*

* A Warning is a condition, hazard, or unsafe practice that could result in serious personal injury or death.

blinks when the defibrillator is in standby mode, is on solid when the defibrillator is in use, and is off when the defibrillator needs attention.)

- C** ON/OFF BUTTON. You can also turn on the Trainer by pressing this green button. To turn off the Trainer, press the green button again and hold it down for one (1) second.
- D** INFORMATION-BUTTON. This blue “i-button” flashes when it has information you can access by pressing it. In the Trainer, the i-button flashes when scenario selection is available and at the beginning of a patient care pause when CPR coaching is available.
- E** CAUTION LIGHT. This triangular light flashes during rhythm analysis and is on solid when a shock is advised, as a reminder that no one should be touching the patient.
- F** SHOCK BUTTON. This orange button flashes when the Trainer advises you to deliver a shock; press the Shock button to deliver the simulated shock.
- G** INFRARED (IR) COMMUNICATIONS PORT. This feature is not active in the Trainer. *(In the HS1 Defibrillator, this feature is used to transfer data directly between the defibrillator and a computer running HeartStart Event Review data management software.)*
- H** SPEAKER. When the device is being used, its voice instructions come from this speaker.
- I** TRAINING PADS CARTRIDGE. This reusable cartridge contains self-adhesive training pads with attached cable. An Adult Training Pads Cartridge (M5073A) comes with the Trainer. Infant/Child Training Pads Cartridges (M5074A) are available separately.
- J** TRAINING PADS CARTRIDGE LATCH. Slide the latch to the side to release the pads cartridge for removal.
- K** BATTERY COMPARTMENT DOOR. Lift off the door to install or replace batteries. The Trainer is powered by four disposable AA alkaline cells inserted in the recess on the back of the unit.

HeartStart Trainer Kit Contents

The HeartStart Trainer M5085A comes with the following:

- Trainer
- Adult training pads cartridge
- Carry case (does not include scissors)
- Instructions for Use
- External Manikin Adapter strip (1)
- Quick Reference

Optional Accessories

- M5085-91900 HeartStart Trainer *Instructions for Use*
- M5087A Replacement Carry Case (Philips)
- M5073A Adult Training Pads Cartridge
- M5074A Infant/Child Training Pads Cartridge
- M5093A Replacement Adult Training Pads*
- M5094A Replacement Infant/Child Training Pads*
- M5088A Internal Manikin Adapter (1/pouch)
- M5089A External Manikin Adapters (10/box)

Installing or Replacing the Batteries

The HeartStart Trainer is powered by four AA alkaline batteries (not included). To install or replace the batteries, follow the steps below:

1. Press the latch on the battery compartment door on the back of the Trainer. Lift off the door and set it aside.
2. Remove the old batteries and recycle appropriately.
3. Insert four new AA alkaline batteries into the recess, oriented according to the diagram provided on the inside of the recess.
4. Replace the battery compartment door and press down to ensure the latch holds it in place.

* Includes pads and resealable film cover.

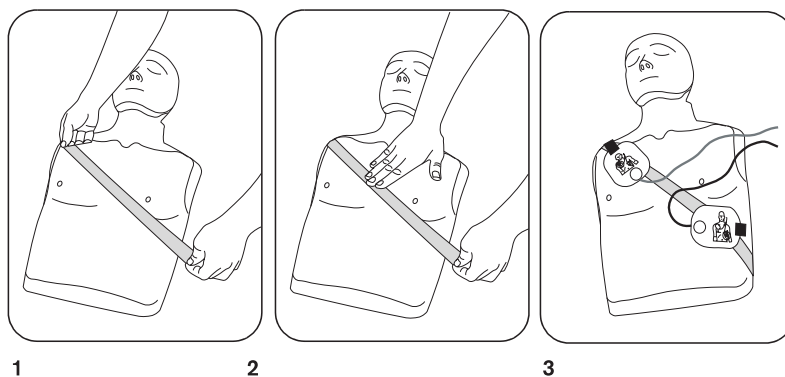
NOTE: Do not mix battery brands. Do not mix old and new batteries. Replace all batteries at the same time. If the Trainer is not to be used for some time, remove batteries to prevent possible leakage and corrosion.

Using the Manikin Adapters

The training pads should be used on a CPR training manikin equipped with a disposable External Manikin Adapter M5089A (A) or an Internal Manikin Adapter M5088A (B), to simulate the patient. The adapters must be purchased separately.

Installing the External Manikin Adapter

Illustrated instructions for applying the External Manikin Adapter to a training manikin, as shown below, are provided with the adapter. Packaged with the Trainer, the External Manikin Adapter can be applied to any training manikin. The adapter has a limited service life and replacements can be ordered separately.



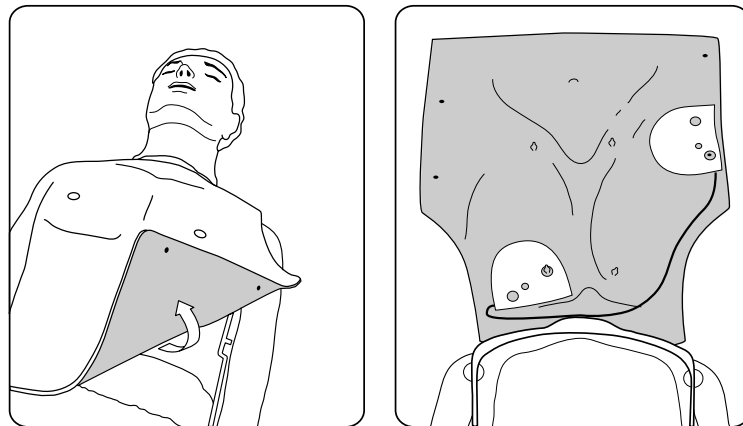
A. External Manikin Adapter M5089A on Adult Manikin

Installing the Internal Manikin Adapter

The Internal Manikin Adapter M5088A works with the Laerdal Little Anne CPR Manikin and the Laerdal Resusci Anne CPR Manikin. To install the optional Internal Manikin Adapter M5088A, follow the steps below:

1. Remove the skin from the manikin.
2. Peel off the liner from the adhesive backing of the Internal Manikin Adapter.
3. Place the Internal Manikin Adapter sections in the appropriate locations on the underside of the manikin's skin. See the Instructions for Use provided with the Internal Manikin Adapter for detailed placement illustrations.
4. Replace the manikin skin.
5. Using the Trainer in a practice trial, check that the Internal Manikin Adapter is located appropriately to teach proper pad placement.

NOTE: The Internal Manikin Adapter provides a fairly broad active area in which the Trainer can sense the pads applied to the manikin. For more precise pad placement training, reduce the active area by trimming the Internal Manikin Adapter sections with scissors, then place and test it for accurate detection of pad placement per local protocols.



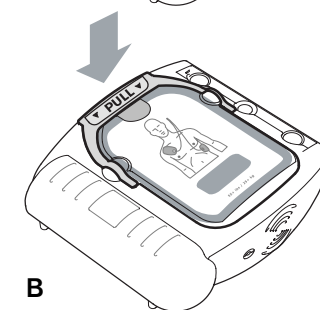
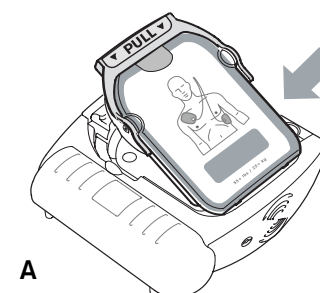
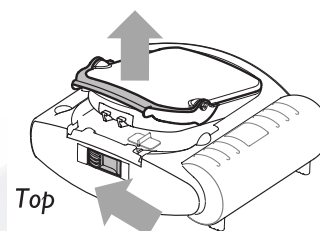
B. Installing the Internal Manikin Adapter M5088A with the Laerdal Resusci Anne

NOTE: Trainer will also operate with a modified Laerdal AED Anne. Contact Laerdal Medical for more information.

Installing or Replacing the Training Pads Cartridge

To install the training pads cartridge, follow these steps:

1. If a cartridge is currently installed in the Trainer, locate the latch at the top edge of the Trainer, and slide it to the side. The pads cartridge will be released. Remove the cartridge.
2. Remove the new training pads cartridge from its resealable package.
3. Insert the M5073A or M5074A Training Pads cartridge into the compartment on the front of the HS1 Trainer (**A**). Press the cartridge down firmly until it clicks into place. Be sure the green handle is pressed all the way down (**B**). The Trainer will tell you what kind of training pads -- Adult or Infant/Child -- have been inserted, then it allows you to select a training scenario. If you do nothing, the Trainer will go into training standby mode to be ready for use.



Selecting a Training Scenario

After battery installation

The default training scenario is number 1. Each time batteries are installed in the Trainer, the training scenario resets to the default. To use this scenario, install the training pads cartridge, then simply pull the cartridge handle or press the On/Off button. The Trainer will not announce the scenario number.

Selecting an alternative scenario

To select an alternative scenario, press the flashing blue i-button to scroll through each of the eight scenarios in sequence. The Trainer will announce each scenario by number as you press the button. When you reach the scenario number you want, press and hold the On/Off button until the Trainer turns off, or wait for 10 seconds and it will automatically go into training standby mode. The Trainer will run the same selected scenario every time until the batteries are replaced or until a new scenario is selected.

In training standby mode

If the i-button is pressed while the Trainer is in training standby mode, the device will announce that it is training. If the i-button is pressed a second time, the Trainer will identify the current training scenario number. A third press of the flashing i-button will allow you to select another scenario.

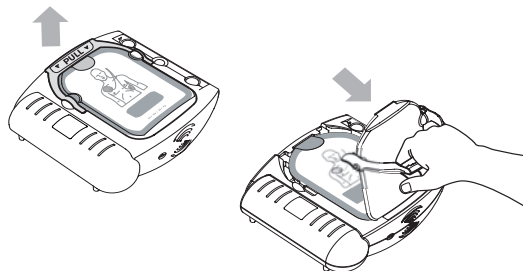
NOTE: If battery power is depleted, the Trainer will say REPLACE BATTERY when the Trainer is turned on, at the completion of a training scenario, and when the Trainer is turned off. The Trainer will continue to operate for a short time. Replace the batteries as soon as possible to ensure correct Trainer behavior.

Running a Training Scenario

To run the selected training scenario, treat the Trainer exactly as you would the HS1 Defibrillator.

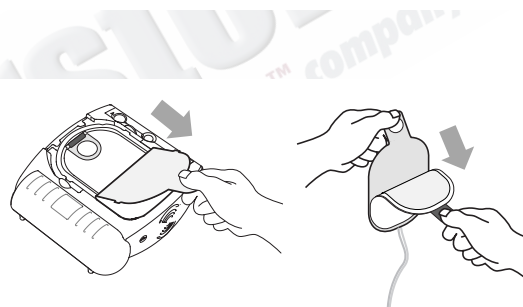
1. Pull the handle or press the green On/Off button to turn on the Trainer.

2. Remove the clear protective lid from the training pads cartridge and set it aside. Follow the HeartStart Trainer's voice instructions.



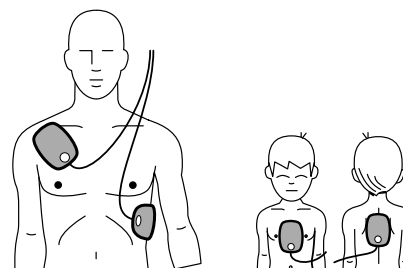
3. If using a clothed manikin, remove the clothing as instructed.

4. Pull the tab at the top of the training pads cartridge to peel off the resealable film cover. Inside are two adhesive pads on a plastic liner. Lift the pads out of the cartridge and unwind the wires from the well. Peel one pad off the liner.



NOTE: Avoid touching the pad's adhesive gel, because this may interfere with the sensing circuitry of the Trainer. (Touching the gel does not affect operation of the HeartStart Defibrillator.)

5. Place the pad on the manikin. Press the pad down firmly. Then peel and place the other pad.



*PRECAUTION: Do not place the training pads on a person.**





NOTE: Be sure that each pad is completely removed from the liner before being placed on the manikin.

6. Continue to follow Trainer instructions for remainder of scenario.
7. When the scenario has been completed, or to stop a scenario in process, press and hold the On/Off button until the Trainer turns off.
8. To repeat the same scenario, repack the pads as described below, then begin again by pulling the green handle or pressing the green On/Off button. To select a different scenario, press the i-button.





Standard Scenarios





There are eight training scenarios available when using the training pads cartridges, as described in the following table.

The legend below identifies the symbols used in the scenario descriptions here and on the rear label of the Trainer.

SYMBOL	MEANING
	Shockable rhythm detected by defibrillator.
	Non-shockable rhythm detected by defibrillator.
	Pause provided by defibrillator.
	Pads problem detected by defibrillator.

* A Precaution is a condition, hazard, or unsafe practice that could result in minor personal injury.

NUMBER	SCENARIO OVERVIEW	SCENARIO DETAILS
<p style="text-align: center;">1</p> 	<p>Shockable rhythm, one shock needed for conversion*</p>	<ul style="list-style-type: none"> • Trainer detects a shockable rhythm, instructs user to deliver a shock[†] • Trainer detects a non-shockable rhythm[‡]
<p style="text-align: center;">2</p> 	<p>Shockable rhythm, multiple shocks needed for conversion*</p>	<ul style="list-style-type: none"> • Trainer detects a shockable rhythm, instructs user to deliver a shock[†] • Trainer still detects a shockable rhythm, instructs user to deliver another shock (repeated until an entire shock series -- three shocks** -- is delivered) • Trainer provides pause for CPR • Trainer detects a shockable rhythm, instructs user to deliver a shock[†] • Trainer detects a non-shockable rhythm
<p style="text-align: center;">3</p> 	<p>Troubleshooting pads, one shock needed for conversion*</p>	<ul style="list-style-type: none"> • Trainer detects poor pad contact, repeats pads placement instructions • After one pad is removed and reapplied, Trainer detects a shockable rhythm, instructs user to deliver a shock[†] • Trainer detects a non-shockable rhythm
<p style="text-align: center;">4</p> 	<p>Shockable rhythm, conversion, return to shockable rhythm, conversion*</p>	<ul style="list-style-type: none"> • Trainer detects a shockable rhythm, instructs user to deliver a shock[†] • Trainer detects a non-shockable rhythm • Trainer detects refrillation (return to a shockable rhythm), instructs user to deliver a shock[†] • Trainer detects a non-shockable rhythm

NUMBER	SCENARIO OVERVIEW	SCENARIO DETAILS
<p>5</p> 	Non-shockable rhythm	<ul style="list-style-type: none"> Trainer detects a non-shockable rhythm throughout
<p>6</p> 	Shockable rhythm, two shocks needed for conversion*	<ul style="list-style-type: none"> Trainer detects a shockable rhythm, instructs user to deliver a shock† Trainer still detects a shockable rhythm, instructs user to deliver another shock† Trainer detects a non-shockable rhythm
<p>7</p> 	Shockable rhythm, two shocks needed for conversion, return to shockable rhythm, conversion*	<ul style="list-style-type: none"> Trainer detects a shockable rhythm, instructs user to deliver a shock† Trainer still detects a shockable rhythm, instructs user to deliver another shock† Trainer detects a non-shockable rhythm Trainer detects refrillation (return to a shockable rhythm), instructs user to deliver a shock† Trainer detects a non-shockable rhythm
<p>8</p> 	Troubleshooting pads, two shocks needed for conversion*	<ul style="list-style-type: none"> Trainer detects poor pad contact, repeats pads placement instructions After one pad is removed and reapplied, Trainer detects a shockable rhythm, instructs user to deliver a shock† Trainer still detects a shockable rhythm, instructs user to deliver another shock† Trainer detects a non-shockable rhythm

* Conversion from ventricular fibrillation – the usual cause of sudden cardiac arrest – to a non-shockable rhythm.

† Scenario will not progress unless a simulated shock is delivered.

‡ When the Trainer detects a non-shockable rhythm, it instructs the user to care for the patient and provide CPR if needed.

** The shock series used in the Trainer is always three shocks.

Not all scenarios are appropriate for all user training. Training scenario number 1 is the default scenario and is most commonly used when teaching how to use the defibrillator to treat a victim of sudden cardiac arrest.

If the training scenarios are used as part of a formal training course, the instructor may wish to:

- select only the scenarios appropriate for the training level goals,
- create case histories and patient details for the selected scenarios,
- highlight certain features of the defibrillator's performance,
- assure that users conform to local protocols,
- check pad placement, and
- evaluate user knowledge on topics such as CPR and assessing the patient.

Trainer Performance during Use

The Philips HeartStart Trainer is designed for use in an automated external defibrillator training class taught by a qualified instructor.

When a training scenario is running, the Trainer mimics the behavior of the HS1 Defibrillator during actual emergency use. It provides voice instructions, guides the user through one or more simulated shocks, provides pauses for CPR, offers CPR coaching, etc. If there is no user interaction (no buttons are pressed, or the cartridge handle is not pulled) for ten minutes, the Trainer turns off.

The Trainer is configured with the SMART NSA Pause. This means that the Trainer will conduct simulated background monitoring during the pause following a No Shock Advised decision. If a potentially shockable rhythm is detected during the pause, the Trainer will terminate the SMART NSA pause and resume simulated rhythm analysis unless CPR voice coaching is in progress. In that case, the pause will continue for the full time.

Certain features of the actual HeartStart HS1 Defibrillator are *not* reproduced by the HeartStart Trainer.

- The Trainer cannot be used with the (clinical) SMART Pads cartridges. If a SMART Pads cartridge is installed, the Trainer will repeatedly request the user to install a new cartridge.
- The Trainer does not perform the battery insertion and periodic self-tests.
- The Trainer's setup is configured to meet standard American Heart Association protocols and cannot be reconfigured.

Repacking the Training Cartridge

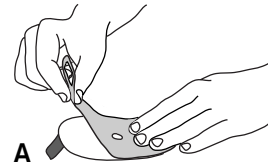
After you have finished using the training pads cartridge, press and hold the green On/Off button to turn off the Trainer. If battery power is low after training, the Trainer will tell you to replace the batteries.

Prepare the training pads cartridge for its next use as follows:

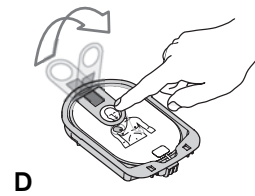
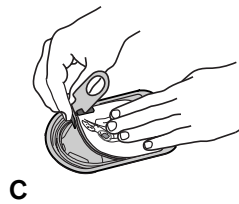
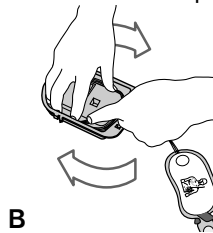
1. Turn off the Trainer.

NOTE: The following steps can be performed as illustrated or with the training pads cartridge in the Trainer.

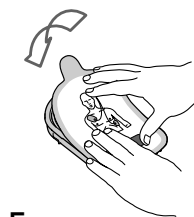
2. Reapply the pads to each side of the solid yellow liner, making sure that the red tabs are positioned at same end of the liner as the yellow tab (A) and that neither pad extends beyond the edge of the liner.



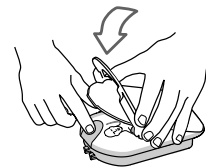
3. Press the pads firmly together on the yellow liner.
4. Untwist the wires, then wind the wires around the training cartridge recess, pressing them into the track (B). Then place the pads over the wound wires in the cartridge. The chest pad should be on top, and the tab ends of the pads at the curved end of the cartridge (C). Fold the tab down over the top pad (D).



5. Press the resealable film cover over the cartridge, with the tab end at the top (E). Be sure to fold the tab back down under the cover (F).

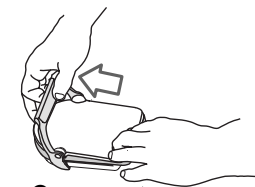


E



F

6. Fit the hooks on the bottom of the clear hard protective lid into the holes at the bottom edge of the cartridge, and press the lid and handle down (G). Be sure the cartridge handle snaps into place. The training cartridge is now ready for its next use.



G

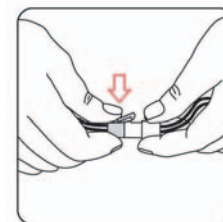
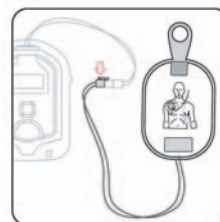
7. Reinstall the cartridge if necessary and press down the protective lid. The Trainer will announce the cartridge type and turn on for scenario selection. Press and hold the On/Off button or do nothing and the Trainer will automatically go to the training standby mode.

Maximizing Training Pads Cartridge Service Life

The M5073A and M5074A Training Pads are designed for up to 100 uses. To help ensure continued performance, avoid placing the resealable film cover or adhesive side of the pads in heat, direct sunlight, or against surfaces that might transfer fiber, dirt, or lint. Periodically check the metal contacts on the back of the cartridge and clean them with a soft, non-abrasive cloth if necessary. Do not use alcohol to clean these contacts. Do not clean the contacts in the Trainer's cartridge recess; they are self-cleaning.

When the original training pads have reached the end of their service life, you can order M5093A

Replacement Adult Training Pads or M5094A Replacement Infant/Child Training Pads for the cartridge. These include a set of pads and a resealable film cover. Change the pads as shown in the figure.



Troubleshooting the Trainer

The following table is provided to help you troubleshoot potential problems.

BEHAVIOR	POSSIBLE CAUSE	RECOMMENDED ACTION
Trainer says ANALYZING before pads are applied to manikin.	<ul style="list-style-type: none"> User touched the adhesive gel on the pads and activated the sensing circuitry of the Trainer. Liner is not properly separating pads. Wires are twisted. 	<ul style="list-style-type: none"> Avoid touching the adhesive gel on the pads. Be sure the pads are pressed firmly to the liner and only touching each other through the liner hole. Untwist the wires.
Trainer does <i>not</i> say ANALYZING when pads are applied to the manikin adapter.	<ul style="list-style-type: none"> Pads placement is incorrect. Pads are old. Foil under adhesive gel is severely cracked. Replaceable pads are not properly connected to cartridge cable. Manikin adapter is broken. User touched the adhesive gel on the pad, so Trainer circuitry did not sense that the pad had been removed from the liner. Pads wires are twisted. 	<ul style="list-style-type: none"> Check for proper pad placement. Remove and reapply pads if indicated. Replace training pads. Check latch to be sure the replaceable pads are correctly attached to the cartridge cable. Replace manikin adapter. Avoid touching the adhesive gel on the pads. Untwist the pads wires.
Trainer says ANALYZING while yellow liner is still attached to pad.	Trainer cannot sense yellow liner.	Remove yellow liner. <i>NOTE: This cannot happen when using the HS1 Defibrillator. The defibrillator will not analyze heart rhythm when the yellow liner is attached to the pads. It senses that the pads are not attached to a patient and advises the user to remove the yellow liner.</i>
The training pads cartridge is difficult to install in or release from the Trainer.	The resealable film cover may be improperly aligned on the cartridge.	Make sure the resealable film cover is lined up properly when repacking the cartridge.
Trainer's voice instructions high-pitched and too rapid.	One of the batteries is installed backwards.	Be sure to install batteries according to the diagram in the Trainer's battery compartment.

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