

# Quick Reference Guide

Cardiac Science Powerheart® G3 Elite  
Automated External Defibrillator



70-02054-02 A

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Information in this document is subject to change without notice. Names and data used in the examples are fictitious unless otherwise noted.

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### **Patents**

U.S. and foreign patents pending.

See [www.cardiacscience.com/patents](http://www.cardiacscience.com/patents) for a complete list.



### **Cardiac Science Corporation**

500 Burdick Parkway  
Deerfield, WI 53531 USA  
(800) 426-0337  
(262) 953-3500  
[techsupport@cardiacscience.com](mailto:techsupport@cardiacscience.com)  
[www.cardiacscience.com](http://www.cardiacscience.com)

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# Contents

## Product Information and Safety 1

Contact information .....	1-2
Product models .....	1-3
Product references .....	1-3
Warranty information .....	1-3
Safety terms and definitions.....	1-4

## Getting Started 2

Unpacking and inspecting .....	2-1
AED parts .....	2-2
AED modes.....	2-3
Environmental operating and standby conditions .....	2-3
Intellisense® battery.....	2-4
Defibrillation pads.....	2-8

## How to Perform a Rescue 3

Warnings and cautions .....	3-2
Step 1: Assess the patient.....	3-4
Step 2: Prepare the patient.....	3-4
Step 3: Place pads .....	3-5
Step 4: Analyse the heart rhythm .....	3-6
Step 5: Deliver a shock.....	3-7
Step 6: Administer CPR .....	3-7
Step 7: Prepare the AED for the next rescue.....	3-10



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# 1 Product Information and Safety

## Contents

◆ Contact information	1-2
◆ Product models	1-3
◆ Product references	1-3
◆ Warranty information	1-3
◆ Safety terms and definitions	1-4

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## Before Operating the Powerheart® G3 AED:

- ◆ Become familiar with the various safety alerts listed in the *Safety* chapter of the *Operator and Service Manual*.
- ◆ Safety alerts identify potential hazards using symbols and words to explain what could potentially harm you, the patient or the Powerheart® G3 AED.

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## Contact information

### **Inside the United States:**

To order additional Powerheart® G3 AEDs or accessories, contact Cardiac Science Customer Care:

- ◆ Toll Free (USA): 1.800.426.0337 (option 2)
- ◆ Telephone: +1.262.953.3500 (option 2)
- ◆ Fax: +1.262.953.3499
- ◆ Email: [care@cardiacscience.com](mailto:care@cardiacscience.com)

Cardiac Science provides 24-hour telephone technical support. You can also contact Technical Support through fax or email. There is no charge to the customer for a technical support call.

Please have the serial and model numbers available when contacting Technical Support. (The serial and model numbers are located on the underside of the AED.)

- ◆ Toll Free (USA): 1.800.426.0337 (option 1)
- ◆ Telephone: +1.262.953.3500 (option 1)
- ◆ Fax: +1.262.798.5236
- ◆ Email: [techsupport@cardiacscience.com](mailto:techsupport@cardiacscience.com)
- ◆ Web site: <http://www.cardiacscience.com>

### **Outside the United States:**

Contact your local Cardiac Science representative to order devices or accessories and to receive technical support for your AED products.

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## Product models

This guide is for Powerheart® G3 Elite Semi-Automatic model 9790E and Powerheart® G3 Elite Automatic 9790A AED models. They share a basic set of features and differences are noted throughout the manual.

## Product references

For purposes of retaining simple, clear instructions in this manual, note the product references used. Features, specifications, operating instructions and maintenance common to product models will be referred to as:

“Powerheart® G3 AED”, “AED” or “device” refers to both Powerheart® G3 Elite Semi-Automatic model 9790E and Powerheart® G3 Elite Automatic model 9790A AEDs unless otherwise noted.

## Warranty information

The Limited Warranty provided by Cardiac Science serves as the sole and exclusive warranty for the Powerheart® G3 AED and its accessories. To obtain a limited warranty statement, contact your local Cardiac Science representative or go to [www.cardiacscience.com](http://www.cardiacscience.com).

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## Safety terms and definitions

The symbols shown below identify potential hazard categories.  
The definition of each category is as follows:



### **DANGER**

This alert identifies hazards that will cause serious personal injury or death.



### **WARNING**

This alert identifies hazards that may cause serious personal injury or death.



### **Caution**

This alert identifies hazards that may cause minor personal injury, product damage or property damage.

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# 2 Getting Started

## Contents

◆ Unpacking and inspecting	2-1
◆ AED parts	2-2
◆ AED modes	2-3
◆ Environmental operating and standby conditions	2-3
◆ Intellisense® battery	2-4
◆ Defibrillation pads	2-8
Pad installation	2-9
Directions for use	2-10

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This section presents information on unpacking and setting up the AED.

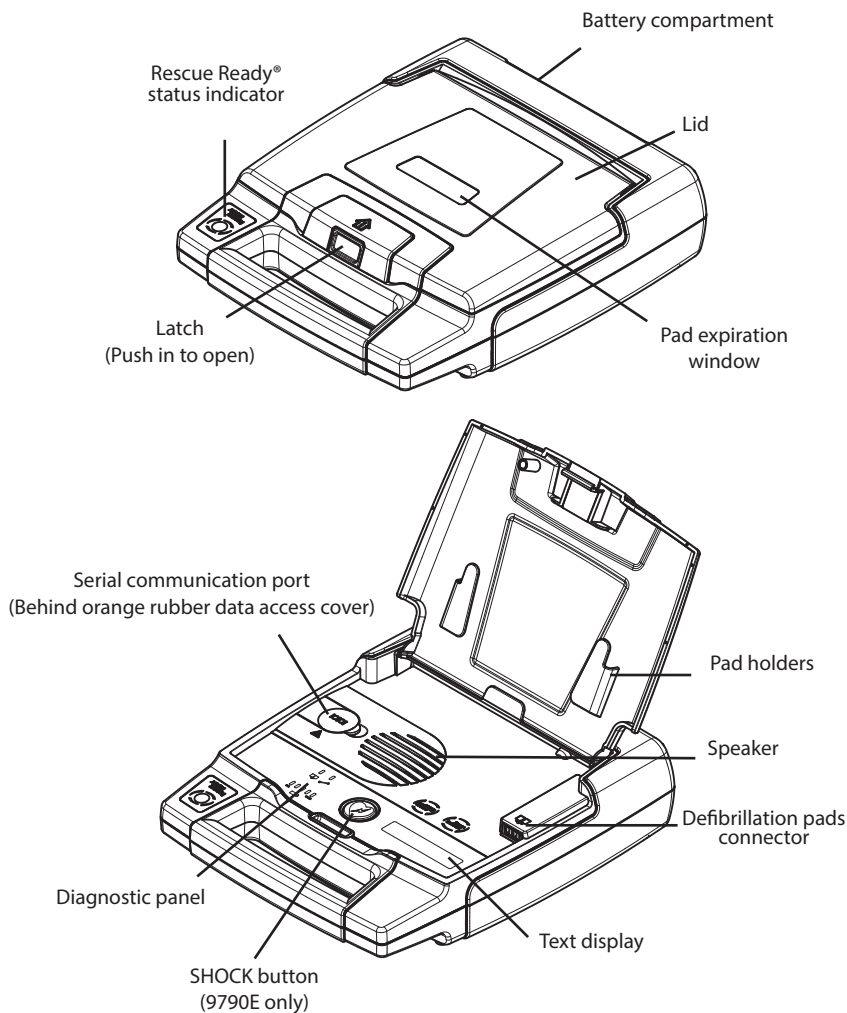
## Unpacking and inspecting

Every attempt is made to ensure your order is accurate and complete. However, to be sure that your order is correct, verify the contents of the box against your packing slip.

If you have any questions about your order, contact Customer Care (see *Contact information* on page 1-2).

## AED parts

The following drawings show the AED parts and their locations.



## AED modes

### Operating mode

Defined as having the battery installed and the lid open. This is the mode the AED would be in during an actual rescue situation.

### Standby mode

Defined as when the battery is installed, but the lid is closed. In this mode the AED is not being used in a rescue. The device will conduct its routine self-tests to ensure proper operation.

### Storage mode

Defined as when the battery is removed, such as during shipping or transport. With the battery removed, the AED is unable to perform self-tests or rescues.

## Environmental operating and standby conditions

See the *Technical Data* chapter in the *Operator and Service Manual*.



### **Caution: Temperature Extremes.**

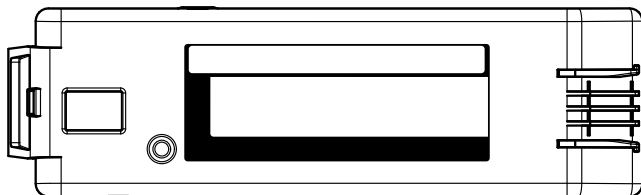
Exposing the AED to extreme environmental conditions outside of its operating parameters may compromise the ability of the AED to function properly. The Rescue Ready® daily self-test verifies the impact of extreme environmental conditions on the AED. If the daily self-test determines environmental conditions outside of the AED's operating parameters, the Rescue Ready indicator could change to red (not Rescue Ready) and the AED may issue a "SERVICE REQUIRED" alert to prompt the user to move the AED to environmental conditions within the acceptable operating parameters at once.

### Shipping and transport conditions

For up to 1 week. See the *Technical Data* chapter in the *Operator and Service Manual*.

## Intellisense® battery

Intellisense batteries contain an integrated memory chip that automatically stores important usage information, enabling the battery to maintain a complete history of its operating life. The actual battery history can be reviewed using the RescueLink software.



This history includes:

- ◆ Battery identification
- ◆ Battery type
- ◆ Original date of installation in an AED
- ◆ Number of charges completed
- ◆ Time in operation (hours:minutes)
- ◆ Days of standby operation
- ◆ Battery capacity remaining



### **WARNING! Battery is Not Rechargeable.**

Do not attempt to recharge the battery. Any attempt to recharge the battery may result in an explosion or fire hazard.



### **Caution: Lithium Sulphur Dioxide Battery.**

Pressurised contents: never recharge, short circuit, puncture, deform or expose to temperatures above 149°F (65°C). Remove the battery when discharged.



### **Caution: Battery Disposal.**

Recycle or dispose of the lithium battery in accordance with all federal, country, state, and local laws. To avoid fire and explosion hazard, do not burn or incinerate the battery.



**Caution: Use only Cardiac Science Approved Equipment.**

Using batteries, pads, cables or optional equipment other than those approved by Cardiac Science may cause the AED to function improperly during a rescue.

**Battery operating life**

The battery operating life depends on the type of battery, actual usage and environmental factors.

A new battery provides:

- ◆ A minimum of 14 hours (18 hours typical) of device operating time at 68°F (20°C) to 86°F (30°C) ambient temperature with no shocks delivered or
- ◆ A minimum of 9 hours of device operating time at 32°F (0°C) ambient temperature with no shocks delivered or
- ◆ A minimum of 9 hours of device operating time at 122°F (50°C) ambient temperature with no shocks delivered or
- ◆ Up to 290 shocks (typical)

**Table 2-1: Normal battery life**

Model	Estimated Shelf Life (from date of manufacture)	Typical Shocks
9146 Lithium	5 Years	up to 290

**Note:** The battery operating life depends on the type of battery, device settings, actual usage and environmental factors. The battery was tested with a G3 AED device with Standard prompt set and CPR set to 60 seconds.

## Battery shelf life

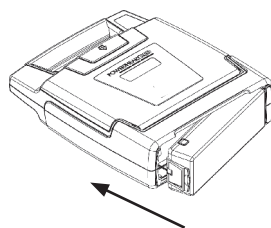
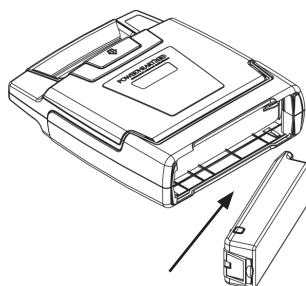
The battery has an estimated shelf life of five years from the date of manufacture. Shelf life is defined as the length of time a battery can be stored at room temperature prior to installation into AED and still meet the specifications under battery operating life.

**Note:** Storing the battery outside its specific range 32-122°F (0-50°C) will decrease battery life.

## Battery installation

To install the battery:

1. With the label on the battery facing the AED battery compartment, insert the battery as shown in the drawing.
2. Push the latched end of the battery firmly into the AED, as shown in the drawing, until the battery snaps into place. The exposed side of the battery should be flush with the outside of the AED case.
3. Wait a few seconds and then open the lid for 5 seconds to initiate a self-test.



If the battery is installed properly:

- The Smartgauge™ battery indicator LEDs illuminate.
- The Rescue Ready® status indicator turns green.



If service is required, the Service indicator illuminates instead. Contact Cardiac Science Technical Support (see *Contact information* on page 1-2) or outside the U.S., your local Cardiac Science representative.

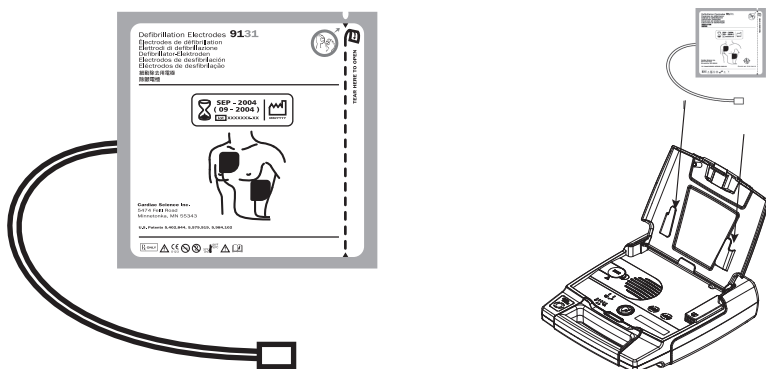
## Defibrillation pads

The defibrillation pads come in a ready-to-use, sealed package containing one pair of self-adhesive pads with an attached cable and connector. The pads are disposable and should be discarded after each rescue.

The pads have a limited shelf life and should not be used beyond the expiration date. Keep a fresh, unopened pair of 9131 pads plugged into the AED at all times. Refer to the pad package label for operation temperatures.

An audible and visual alert will indicate after the self-test if the pads are missing, unplugged or damaged.

**Note: Store pads at room temperature.**



### Caution: Use only Cardiac Science Approved Equipment.

Using batteries, pads, cables or optional equipment other than those approved by Cardiac Science may cause the AED to function improperly during a rescue.



### Caution: Possible Improper AED Performance.

Using pads that are damaged or expired may result in improper AED performance.

## Pad installation

To install the pads:

1. Open the lid of the AED.
2. Place the pad package into the lid so that the expiration label is visible through the clear window on the lid. The expiration date of the pads will then be readable without opening the lid of the AED.
3. Match the colour of the connectors (red to red), then plug the pad connector into the AED case as shown in the photograph.



Once the pad connector is plugged into AED, the Pads indicator should extinguish.

4. Tuck the excess cable length in the bottom holder. With the pad package completely secured to the AED lid, close the lid.
5. Make sure the expiration date is visible through the clear window of the lid and check to make sure that the STATUS INDICATOR is GREEN. If the pads are not installed properly, the STATUS INDICATOR will be RED. If the status indicator is still red with pads properly installed, contact Cardiac Science Technical Support (see *Contact information* on page 1-2) or outside the U.S., your local Cardiac Science representative.

## Directions for use



### **WARNING! Do not reuse pads.**

Used pads may not adhere properly to the patient. Improper pad adhesion may result in skin burns. Improper pad adhesion may result in improper AED performance. Used pads may cause patient-to-patient contamination.



### **WARNING! Reduced therapy delivery.**

Failure to remove blue liner completely could impact therapy delivery.



### **Caution. Short-term use only. Not for pacing.**

DO NOT open defibrillation pads package until ready to use. Short term use only.

Pads are not intended for use in pacing.



### **Caution. Equipment Damage.**

Do not pull on the lead wire to separate the pads from the blue liner.

Note: Store pads at room temperature.

Note: **Pads are intended for adult use.**



1. Ensure skin site is clean and dry.
2. Tear open the foil package and remove pads.
3. Separate one pad from the blue liner by peeling from the tabbed corner.

Note: **DO NOT pull on the lead wires.**



4. Place pad on skin in either location shown.
5. Separate the second pad from blue liner by peeling from the tabbed corner.

Note: **DO NOT pull on the lead wires.**

6. Place the second pad on the opposite location as shown.

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# 3

## How to Perform a Rescue

### Contents

◆ Warnings and Cautions	3-2
◆ Step 1: Assess the patient	3-4
◆ Step 2: Prepare the patient	3-4
◆ Step 3: Place pads	3-5
◆ Step 4: Analyse the heart rhythm	3-6
◆ Step 5: Deliver a shock	3-7
◆ Step 6: Administer CPR	3-7
◆ Step 7: Prepare the AED for the next rescue	3-10

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Read the *Operator and Service Manual* before using this device. Follow the instructions provided in this chapter in the order given.

This section presents information about how to use the AED to perform a rescue.

These are the general steps in performing a rescue:

1. Assess the patient.
2. Prepare the patient.
3. Place the defibrillation pads.
4. Analyse the patient's ECG.
5. Deliver a defibrillation shock.
6. Administer CPR.

## Warnings and cautions

The following cautions must be observed to prevent problems during the rescue.



### **DANGER! Fire and Explosion Hazard**

To avoid possible fire or explosion hazard, do not operate the AED:

- In the presence of flammable gases
- In the presence of concentrated oxygen
- In a hyperbaric chamber



### **WARNING! Shock Hazard and Possible Equipment Damage**

Defibrillation shock current flowing through unwanted pathways is potentially a serious electrical shock hazard. To avoid this hazard during defibrillation abide by all of the following:

- Do not touch the patient, unless performance of CPR is indicated.
- Do not touch metal objects in contact with the patient.
- Keep defibrillation pads clear of other pads or metal parts in contact with patient.
- Disconnect all non-defibrillator proof equipment from the patient before defibrillation.
- Do not use in standing water or rain. Move patient to a dry area.



### **WARNING! Electric Shock and Fire Hazard**

Do not connect any telephones or unauthorised connectors to the socket on this equipment.



### **WARNING! Do not reuse pads.**

Used pads may not adhere properly to the patient. Improper pad adhesion may result in skin burns. Improper pad adhesion may result in improper AED performance. Used pads may cause patient-to-patient contamination.



### **Caution: Use only Cardiac Science Approved Equipment**

Using batteries, pads, cables or optional equipment other than those approved by Cardiac Science may cause the AED to function improperly during a rescue.



**Caution: Possible Improper AED Performance**

Using pads that are damaged or expired may result in improper AED performance.



**Caution: Serial Communication Cable**

The AED will not function during a rescue when the serial communication cable is connected to its serial port. When the serial communication cable is connected to the AED during a rescue, the prompt "Remove cable to continue rescue" will be heard until you remove the serial communication cable from the AED.



**Caution: Possible Radio Frequency (RF) Susceptibility**

The AED uses RF energy only for its internal function. Therefore its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.

The AED is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.



**Caution: Possible Interference with Implanted Pacemaker**

Therapy should not be delayed for patients with implanted pacemakers and a defibrillation attempt should be made if the patient is unconscious and not breathing. The AED has pacemaker detection and rejection, however with some pacemakers the AED may not advise a defibrillation shock.

When placing pads:

- Do not place the pads directly over an implanted device.
- Place the pad at least an inch from any implanted device.



**Caution: Moving the Patient During a Rescue**

During a rescue attempt, excessive jostling or moving of the patient may cause AEDs to improperly analyse the patient's cardiac rhythm. Stop all motion or vibration before attempting a rescue.

## Step 1: Assess the patient

Determine that the patient is over 8 years of age or weighs more than 55 lb (25 kg) and is both:

- ◆ Unresponsive
- ◆ Not breathing

DO NOT delay therapy to determine the patient's exact age or weight. See the directions for use accompanying paediatric pads to replace adult pads with paediatric pads. If you do not have paediatric pads, use adult pads to apply therapy.

CALL EMERGENCY MEDICAL SERVICES!

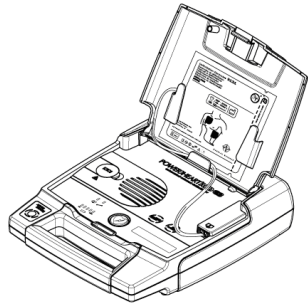
**Note:** When the patient is a child under 8 years of age or weighs less than 55 lb (25 kg), the AED should be used with the Model 9730 Paediatric Attenuated Defibrillation Pads. If you do not have paediatric pads, use adult pads to apply therapy.

## Step 2: Prepare the patient

1. Place the AED next to the patient so the lid is on top.

**Note:** Lay the AED flat (horizontal) as shown.

2. Open the AED lid.
3. Wait until the LEDs illuminate.



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### When the AED prompts...

### Do this ...

"Stay calm. Follow these voice instructions. Make sure 999 is called now."

Call emergency services.

"Begin by exposing the patient's bare chest and torso. Remove or cut clothing if needed."

Remove clothing from the patient's chest. Ensure that the patient's skin is clean and dry. Dry the patient's chest and shave excessive hair if necessary.

## Step 3: Place pads

### When the AED prompts...

### Do this ...

"When patient's chest and torso are exposed, remove square foil package from lid of AED. Tear open foil package across dotted line and remove pads."

Keeping the pads connected to the AED, tear open the package.  
Remove the pads from the package.  
Leave the package attached to the pad wires.

"Next, separate one of the white pads completely from blue plastic liner. Begin peeling from the tabbed corner."

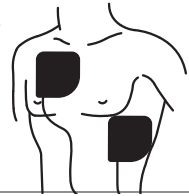


With a firm, steady pull, peel one pad away from the blue plastic liner. It does not matter which pad to use.

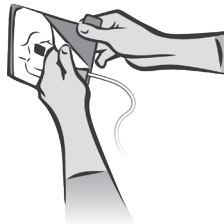
**Note:** Do not pull on the lead wires.

"Firmly place the pad without the liner on the patient, exactly as illustrated. This pad can be placed on either of the two locations shown."

Place the pad without the liner on bare skin in either location shown at right.



"Next, peel the blue plastic liner off of the second white pad. Firmly place the second pad on the place the second pad on the opposite location, exactly as illustrated."



Pull the blue liner from the second pad.

**Note:** Do not pull on the lead wires.

Place pad on bare skin in opposite location as shown.

**Note:** Cardiac Science's standard defibrillation pads are non-polarised and can be placed in either position as shown on the pad package.

## Step 4: Analyse the heart rhythm

When the AED prompts...	Do this ...
<p>"Do Not Touch Patient. Analysing Heart Rhythm. Please Wait."</p> <p>The AED begins analysing the cardiac rhythm of the patient.</p>	<p>Do not touch the patient. Wait for the next prompt.</p>

During the analysis phase, you may hear one or more of these prompts:

If the AED prompts...	This is the problem...	Do this ...
<p>"Make sure pad connector is plugged into AED. Press pads firmly to patient's bare skin."</p>	<p>The pads are disconnected from the AED.</p>	<p>Ensure that the connector is properly plugged into the AED.</p>
<p>"Make sure pad connector is plugged into AED. Press pads firmly to patient's bare skin."</p>	<p>The pads are not properly placed or are loose.</p>	<p>Ensure that pads are firmly placed on clean, dry skin.</p>
<p>"Analysis interrupted. Stop patient motion." The AED restarts the analysis.</p>	<p>The patient is excessively jostled or there is a strong electromagnetic emitting device nearby (within 5 metres).</p>	<p>Remove other electronic device or stop the excessive motion.</p>

# Step 5: Deliver a shock

When the AED prompts...	Do this ...
"Preparing shock. Move away from the patient."	Ensure that no one is touching the patient.
For the Powerheart® AED G3 Semi-Automatic: When the AED is ready to deliver a defibrillation shock, the Shock button flashes. "Press red flashing button to deliver shock."	Ensure that no one is touching the patient. Press the Shock button. If you do not press the Shock button within 30 seconds of hearing the prompt, the AED disarms the charge and prompts you to start CPR.
For the Powerheart® AED G3 Automatic: "Shock will be delivered in three, two, one." The AED delivers a shock.	Ensure that no one is touching the patient.
After the AED delivers the defibrillation shock: "Shock delivered."	Wait
"It is now safe to touch the patient."	Wait

When the AED is charged, it continues to analyse the patient's heart rhythm. If the rhythm changes and a shock is no longer needed, the AED prompts, "Rhythm changed. Shock cancelled," and then prompts you to start CPR.

# Step 6: Administer CPR



After the AED delivers a shock or detects a non-shockable rhythm, it enters CPR mode.  
**Note:** Your AED may have either Traditional (compressions and breaths) CPR (Table 3-1 on page 3-8) or compressions-only CPR (Table 3-2 on page 3-9) enabled.



**WARNING! Equipment not functioning.**

If the AED stops functioning during a rescue, continue to perform CPR as needed until EMS personnel arrive.

**Table 3-1: Traditional CPR (compressions and breaths)**

When the AED prompts...	Do this ...
"When instructed give patient 30 rapid compressions. Then give two breaths."	Give the patient chest compressions: Place the heel of one hand on the chest between the nipples.  Place the heel of the other hand on top of the first hand.  Lean over the patient, keeping your elbows straight.  Press the patient's chest down rapidly one-third the depth of the chest, then release.
"Start CPR."	Perform chest compressions as directed by the AED.
"Stop compressions."	Stop the chest compressions.
"Continue with compressions."	Give the patient chest compressions, as directed above.  Follow the countdown timer on the text display for the number of compressions and breaths.

**Table 3-2: Compressions-only CPR**

When the AED prompts...	Do this ...
"Place heel of one hand on centre of chest between nipples. Place heel of other hand directly on top of first hand. Lean over patient with elbows straight. Press the patient's chest down rapidly one-third depth of chest, then release."	Give the patient chest compressions: Place the heel on one hand on the chest between the nipples. Place the heel of the other hand on top of the first hand. Lean over the patient, keeping your elbows straight. Press the patient's chest down rapidly one third the depth of the chest, then release.
"Start CPR."	Perform chest compressions as directed by the AED.

This cycle continues until the CPR time expires. At the end of CPR, the AED prompts, "Stop CPR". The AED returns to the ECG Analysis Mode (see *Step 4: Analyse the heart rhythm* on page 3-6).

If the patient is conscious and breathing normally, leave the pads on the patient's chest connected to the AED. Make the patient as comfortable as possible and wait for Emergency Medical Services (EMS) personnel to arrive.

## Step 7: Prepare the AED for the next rescue

**After transferring the patient to EMS personnel, close the lid of AED. Prepare the AED for the next rescue:**

1. Open the AED lid.
2. (Optional) Retrieve the rescue data stored in the internal memory of the AED. Use RescueLink® software installed on a PC (see the *Data Management* chapter in the *G3 Elite Operator and Service Manual*).
3. Connect a new pair of pads to the AED (see *Pad installation* on page 2-9).
4. Close the lid.
5. Verify that the status indicator on the AED handle is green.









**Cardiac Science Corporation** • 500 Burdick Parkway, Deerfield, WI 53531 USA • 262.953.3500  
• US toll-free 800.426.0337 • Fax: 262-953-3499 • [care@cardiacscience.com](mailto:care@cardiacscience.com)

**Orders and Customer Care** (US and International) • US toll-free 800.426.0337 • Fax: 262.953.3499  
• [care@cardiacscience.com](mailto:care@cardiacscience.com)

**Technical Support** • US toll-free 800.426.0337 • (US) Fax: 262.798.5236 • [techsupport@cardiacscience.com](mailto:techsupport@cardiacscience.com)  
• (International) [international@cardiacscience.com](mailto:international@cardiacscience.com)

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