

# LIFEPAK® 200 automatic advisory defibrillator

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## OPERATING INSTRUCTIONS



**PHYSIO  
CONTROL**

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## CAUTIONS

- Federal law restricts this device to sale by or on the order of a physician.
- The LIFEPAK® 200 automatic advisory defibrillator is to be used by authorized personnel only.
- The operator should be thoroughly familiar with information covered in this manual before using the instrument.
- The LIFEPAK 200 automatic advisory defibrillator should not be used in the presence of flammable agents or anesthetics.
- Close the display module to dump an unwanted charge.
- Stand clear of patient when defibrillating. Contact with patient may present a shock hazard during defibrillation.
- Place FAST-PATCH™ disposable defibrillation electrodes only in the anterior-anterior position pictured on the electrode. Do not use an anterior-posterior placement.
- The LIFEPAK 200 automatic advisory defibrillator is contraindicated for use on cardiac pacemaker patients and on pediatric patients (body weight below 80 lbs/36kg.).

## INTRODUCTION

The LIFEPAK 200 automatic advisory defibrillator is a defibrillator incorporating a Shock Advisory System.

This device is designed to be used by specially trained emergency responders to treat victims of cardiac arrest.

The LIFEPAK 200 defibrillator can be described as an Automatic Advisory Defibrillator since the device advises the operator whether or not defibrillation is required. The actual delivery of the shock requires an action by the operator.

Patient rhythm (ECG) analysis is accomplished by means of a microcomputer based system. The patient's electrical signal is received through attached FAST-PATCH disposable defibrillation electrodes and the patient cable. On command, the microcomputer analyzes the signal to determine if defibrillation is necessary and a "SHOCK ADVISED" or "NO SHOCK ADVISED" message is displayed to the operator.

To assure maximum safety, several conditions must be satisfied before the Shock Advisory System will display a "SHOCK ADVISED" message.

1. The FAST-PATCH disposable defibrillation electrodes must be properly connected to the patient and to the patient cable.
2. The patient must be nearly motionless. Sharp movements resulting from handling the patient, performing CPR, tugging on the patient cable, etc., will inhibit an analysis. The device will issue a "MOTION DETECTED" advisory to the operator under such conditions.

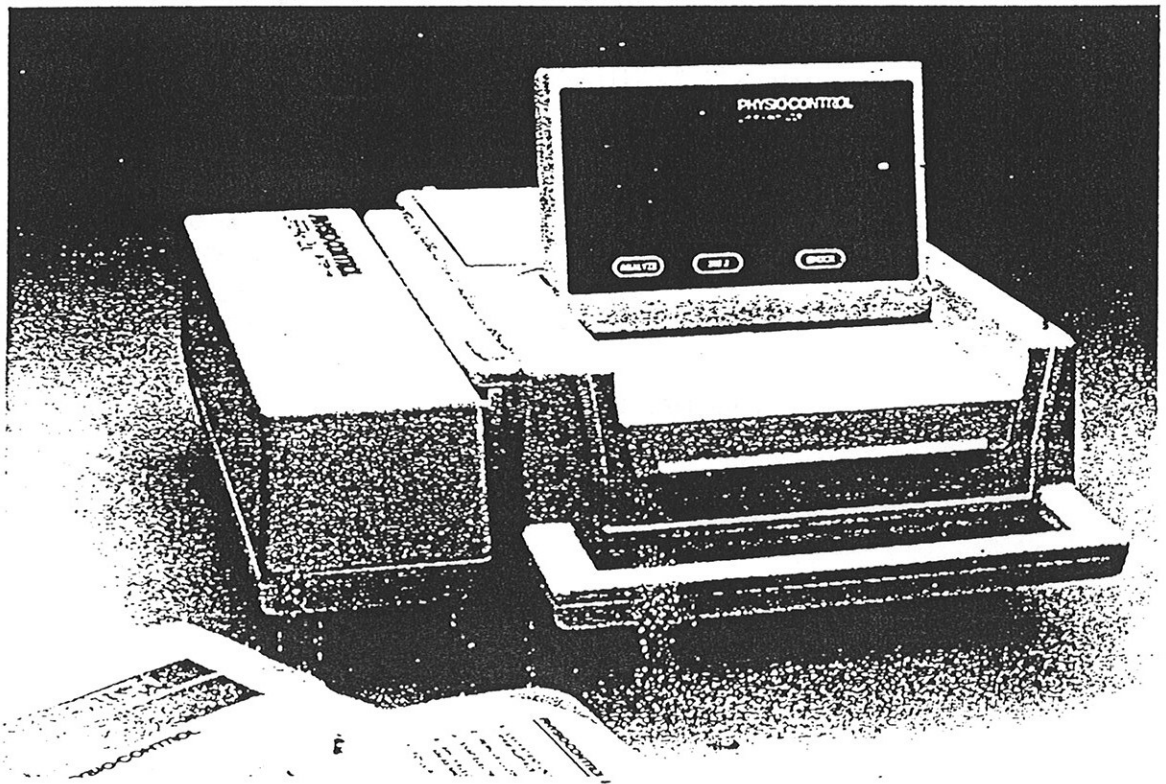
3. A rhythm for which a defibrillation shock is appropriate (shockable arrhythmia) must be positively detected.

If a defibrillation shock is required, the LIFEPAK 200 defibrillator will automatically charge to a 200 joules energy level. 360 joules may be selected during charging. After reaching full charge, the operator will be given the "SHOCK NOW!" message and will be advised, "DO NOT TOUCH PATIENT." The operator must depress the "SHOCK" control for the defibrillator to discharge. Following the delivery of a shock or a "NO SHOCK ADVISED" message, the device will automatically return to a standby state and allow the operator to repeat the operating sequence.

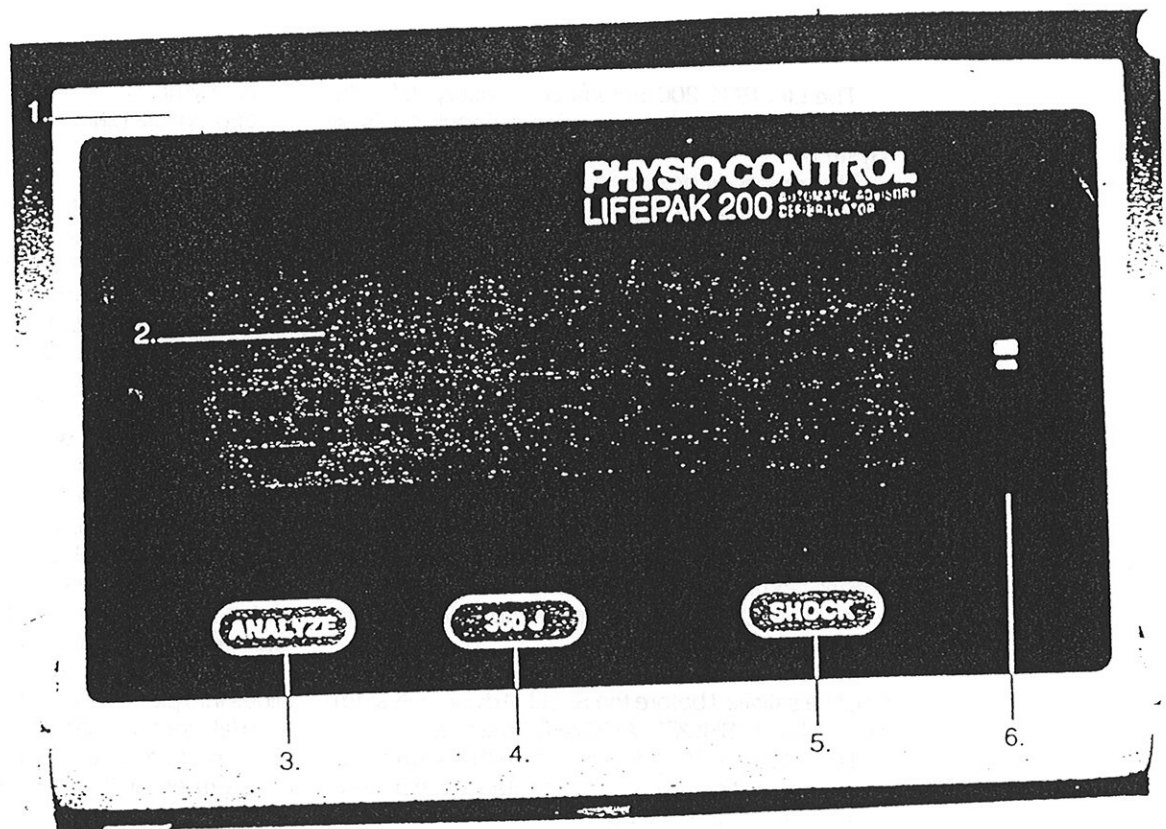
During operation, several different warning messages can be displayed to the operator indicating motion detected, disconnected electrodes, battery status, absence of a cassette tape, end of tape, and internal problems requiring service.

Power is provided by means of Battery Pak which slides into place alongside the defibrillator. This Battery Pak contains sealed lead-acid batteries that are easily recharged by connecting a charging cable/transformer to a 120 VAC or a 12 VDC power source.

The LIFEPAK 200 automatic advisory defibrillator uses FAST-PATCH disposable defibrillation electrodes for patient electrical signal input and defibrillation. These self-adhesive electrodes are packaged in sets of two and are for single application only.



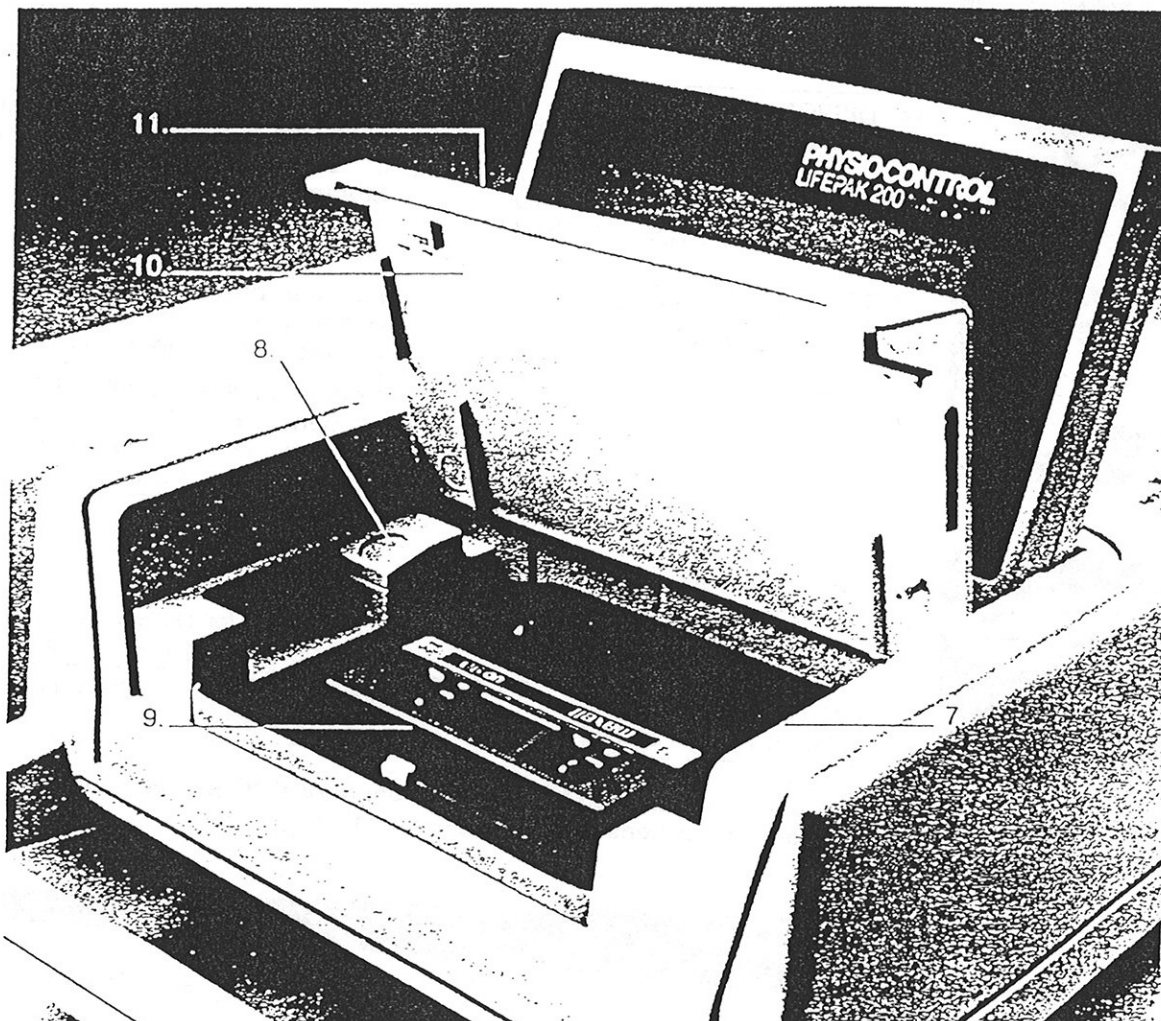
## CONTROLS AND INDICATORS



### Defibrillator

1. DISPLAY MODULE	Opening module activates device. Functions as on/off switch.
2. MESSAGE SCREEN	Liquid crystal display used to show messages during operating sequence.
3. ANALYZE CONTROL	Pushbutton control used to request patient rhythm (ECG) analysis. Control can be activated only when the "PUSH TO ANALYZE ECG" message is displayed.
4. 360 J CONTROL	Pushbutton control used to select 360 joules. Control may be activated only when the "PUSH FOR 360J" message is displayed.
5. SHOCK CONTROL	Pushbutton control used to transfer energy to the patient (defibrillate). Control may be activated only when the "SHOCK NOW!" message is displayed.
6. ECG SIGNAL DISPLAY (optional)	Green LED display indicating electrical activity transmitted from the patient through electrodes and cable. This display, which only functions during the "PUSH TO ANALYZE ECG" standby mode, is not to be used for arrhythmia diagnosis.





7. CASSETTE RECORDER

Two channel, magnetic tape recorder for use with standard C-60 audio cassette tapes. Recorder is automatically started when the display module is opened. Records both local area audio and patient's ECG. Recorded tapes can be played back using a LIFEPAK 5\* ECG/Voice Recorder and any standard ECG monitor.

8. TAPE LOAD BUTTON

Locking mechanism to ensure proper cassette position. To insert or remove cassette, slide lock button to the rear of the device and hold, then remove or install cassette. Release lock button to secure cassette in place.

9. CASSETTE TAPE

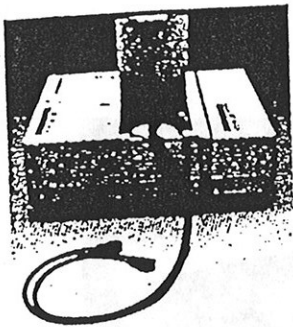
Standard, low noise, C-60 magnetic audio, cassette tape.

10. TAPE RECORDER COVER

Cover to protect cassette recorder and reduce operator shock hazard during device use. Recorder cover must be closed before defibrillator will discharge. An open cover will cause an audible alarm and warning message to be displayed.

11. MICROPHONE

Condenser microphone for local area audio.



12. 13.

## 12. PATIENT CABLE STORAGE AREA

Storage for patient cable. Cable is permanently connected to floor of compartment. To open compartment, press thumb on lid, pull latch outward and lift.

## 13. PATIENT CABLE AND CONNECTOR

Provides connection between FAST-PATCH disposable defibrillation electrodes and defibrillator.

## 14. DISPOSABLE DEFIBRILLATION ELECTRODES

FAST-PATCH disposable defibrillation electrodes used for patient electrical signal input and defibrillation. Electrodes are for single application only.

## 15. DISPOSABLE DEFIBRILLATION ELECTRODE STORAGE SHELF

Storage area beneath device that can store two sets of FAST-PATCH disposable defibrillation electrodes.

## 16. BATTERY PAK ELECTRICAL CONTACT PINS (NOT SHOWN)

Pins that provide electrical contact between the Battery Pak and the defibrillator. Exposed pins do not present a shock hazard.

## 17. AUDIBLE TONES

Coded tones that prompt user through operating sequence and alert user of warning messages. Also provide means to follow displayed messages from recorded cassette tape.



14.

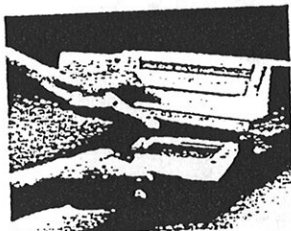
## BATTERY PAK

### 1. CHARGING JACK

Connection for Battery Pak charging. Connect male end of charging cable to this jack.

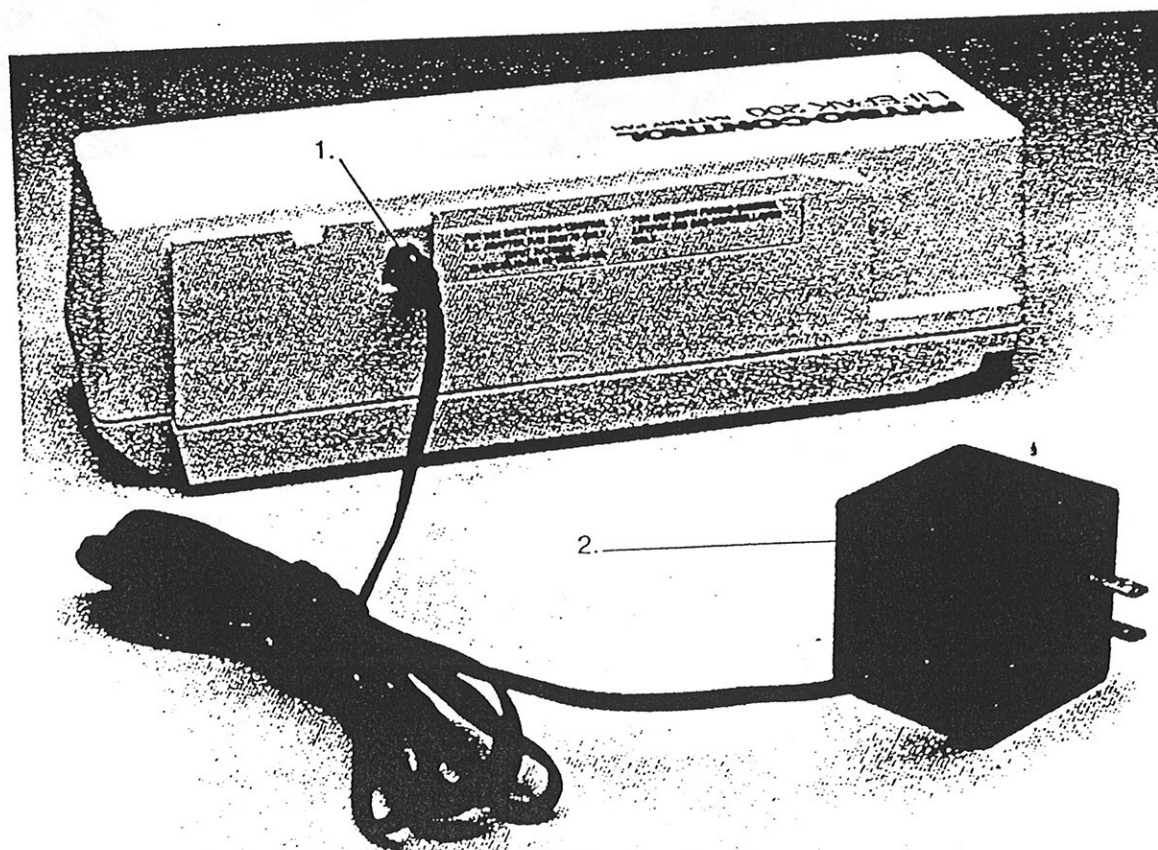
### 2. AC CHARGING CABLE/TRANSFORMER

Used to charge Battery Pak from standard 120 VAC current source.



15.

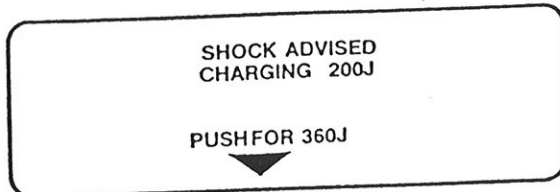
**Note:** Battery Pak can also be charged from a 12 VDC power source. Refer to the service manual for specifications on a DC charging cable.



not present.

If this protocol does not result in a "SHOCK ADVISED" message and the patient remains pulseless, the patient should be rapidly transported with ongoing CPR to a location where ALS is available.

E. If a shockable arrhythmia is detected, the message screen will display:



(Four Short Tones)

ANALYZE

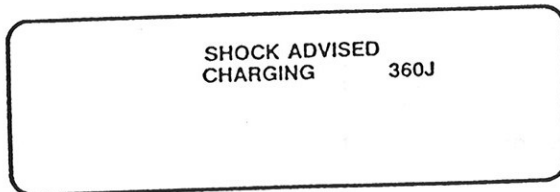
360 J

SHOCK

This message indicates that the LIFEPAK 200 Shock Advisory System has detected a shockable arrhythmia and has automatically started charging to the displayed energy level, 200 joules. It will take approximately 7 seconds to reach 200 joules.

If 360 joules (maximum energy) is desired, press

360 J



(One Tone)

ANALYZE

360 J

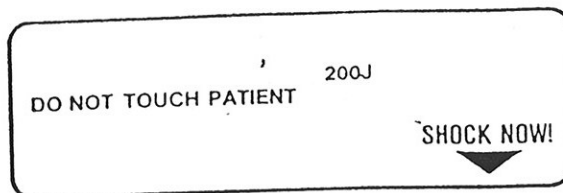
SHOCK

This selection must be made during the 7 seconds it takes for the defibrillator to charge to the lower energy level.

"360 J" will be displayed on the message screen confirming the selection. It will take a total of about 12 seconds to reach this energy level.

**Caution:** CPR should not be performed on the patient while the defibrillator is charging. This represents a possible shock hazard!

F. When the defibrillator is fully charged, the message screen will display:



(Five Short Tones Followed by a Steady Tone)

ANALYZE

360 J

SHOCK

When this message is displayed, stand clear of the patient and press

SHOCK

Energy will be immediately transferred to the patient and the message screen will revert to the "PUSH TO ANALYZE" waiting mode.

**Warning:** Make sure that all personnel are completely clear of the patient prior to pressing the "SHOCK" control. Inadvertent contact presents a potential shock hazard.

**Note:** If the "SHOCK" control is not pressed within 60 seconds, the defibrillator will discharge the energy internally. The message screen will then revert to the "PUSH TO ANALYZE ECG" standby mode.

G. The entire operating sequence can then be repeated, depending on local protocol.

## WARNING MESSAGES

### CONNECT ELECTRODES

(One Tone Followed by Pulsating Short Tones)

ANALYZE

360 J

SHOCK

### CONNECT ELECTRODES

Proper patient to device connection is constantly monitored by the LIFEPAK 200 automatic advisory defibrillator. If the electrodes should become detached or the patient cable becomes disconnected from the electrode, the "CONNECT ELECTRODES" warning message will be displayed and the operation of the device will be interrupted. If proper connection is not achieved after 30 seconds initially, the message will flash and an audible warning alarm will sound. If the electrodes should become disconnected during the operating sequence, the flashing warning message and an audible alarm will occur immediately.

**NOTE: Poor electrode adhesion may result if patient has excessive chest hair. Such patients should be shaved around the areas for electrode placement.**

DETECTOR ON

MOTION DETECTED

(Pulsating Short Tones)

ANALYZE

360 J

SHOCK

### MOTION DETECTED

A flashing "MOTION DETECTED" warning message will be displayed with an audible warning alarm if excessive electrical "noise" is present during the rhythm (ECG) analysis period.

This electrical noise can be caused by two sources:

1. Excessive patient movement or electrode disturbance.
2. High levels of radio frequency interference (RFI). If this message is displayed, ensure that the patient is motionless and stop external sources of motion. (If the patient is being transported in a vehicle, stop the vehicle and shut off the engine prior to pushing the "ANALYZE" control.) If patient motion is ruled out, check for sources of RFI such as high output portable radios, close proximity to antennas, etc.

The "MOTION DETECTED" warning message will interrupt rhythm analysis for a maximum of twenty (20) seconds before the message screen will revert to the "PUSH TO ANALYZE" standby mode.

CLOSE TAPE LID

(Pulsating Short Tones)

ANALYZE

360 J

SHOCK

### CLOSE TAPE LID

If the cassette recorder cover is ajar when the defibrillator has completed charging, the "CLOSE TAPE LID" warning message will be displayed flashing accompanied by an audible warning alarm. The device will not be able to transfer energy until the lid is securely closed. This is necessary to prevent a possible operator shock.

TAPE

ANALYZE

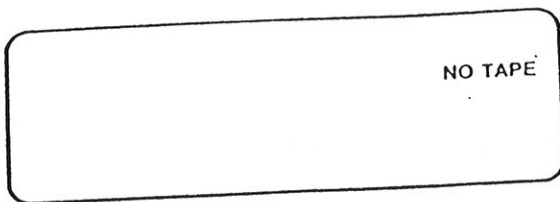
360 J

SHOCK

### TAPE

Status of the cassette tape is monitored by the LIFEPAK 200 automatic advisory defibrillator. The "TAPE" warning message will be displayed if the tape is jammed or all the tape has been recorded. This warning message WILL NOT affect device operation.





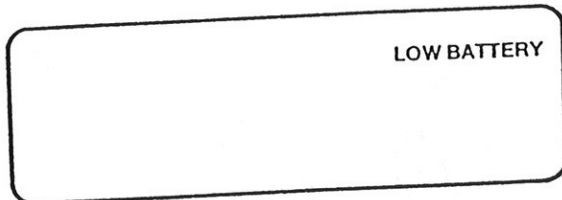
ANALYZE

360 J

SHOCK

### NO TAPE

If a cassette tape is not in place in the recorder, a "NO TAPE" warning message will be displayed. This warning message WILL NOT affect device operation.



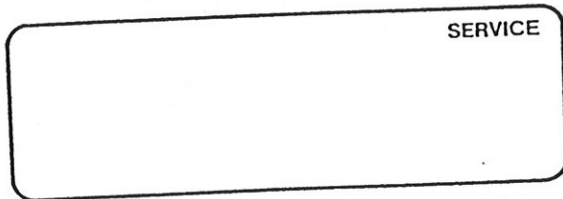
ANALYZE

360 J

SHOCK

### LOW BATTERY

Battery Pak capacity is continuously monitored by the LIFEPAK 200 automatic advisory defibrillator. If a diminished capacity is identified, the "LOW BATTERY" warning message will be displayed. The device may still be operated with this warning present, but with a significant reduction in the number of shocks that can be delivered. Recharge the Battery Pak as soon as possible for a full twenty (20) hours if this message is displayed.



ANALYZE

360 J

SHOCK

### SERVICE

The LIFEPAK 200 automatic advisory defibrillator goes through a self-test procedure each time the device is activated and after each defibrillator shock. If an internal failure is identified, the "SERVICE" warning message will be displayed with an audible coded tone and the device will be inoperative. Contact your service representative to request service if this message is displayed.

SERVICE  
LOW BATTERY

(Slow Pulsed Tone)

ANALYZE

360 J

SHOCK

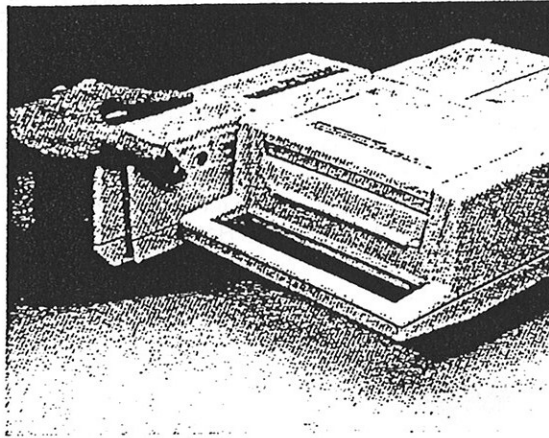
### SERVICE LOW BATTERY

When the Battery Pak's capacity is depleted to a point where the device will not operate, the "SERVICE" and "LOW BATTERY" warning messages will be displayed flashing with an audible warning alarm. "SERVICE" indicates that the LIFEPAK 200 defibrillator will not operate and "LOW BATTERY" indicates the cause, a depleted Battery Pak. Immediately recharge the Battery Pak for a full 20 hours if this message is displayed. If a second charged Battery Pak is available, it can be used to continue operation of the device.

### Connecting the BATTERY PAK

The following steps should be taken when connecting the LIFEPAK 200 defibrillator Battery Pak.

- Align the slide connector on the side of the Battery Pak and the LIFEPAK 200 defibrillator.
- Slide the Battery Pak fully rearward until the lock release snaps into place.



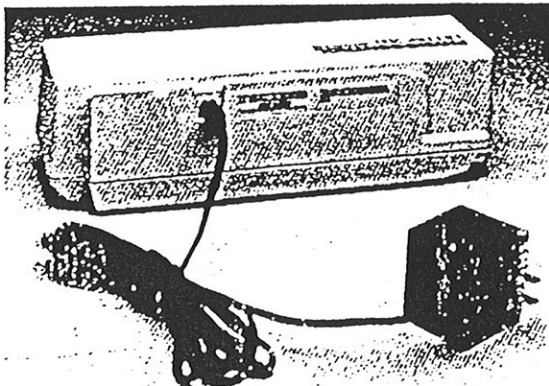
### To remove the Battery Pak from the LIFEPAK 200 defibrillator

- Press the lock release button and pull the Battery Pak forward until completely free of the defibrillator.
- Do not attempt to lift the Battery Pak free of the defibrillator until the slide connectors are completely separated.

When the Battery Pak is separated from the defibrillator, the electrical contact pins are exposed. These exposed pins DO NOT represent a safety hazard. No dangerous voltages are present at these contacts.

### Charging the Battery Pak using line AC power

- Connect the LIFEPAK 200 defibrillator AC charging cable/transformer to the Battery Pak by plugging the male end of the cable into the charging jack on the side of the Battery Pak.
- Plug the AC charging cable/transformer into a standard wall outlet.



The Battery Pak can also be charged using vehicular (12 VDC) power. To accomplish this, connect a DC charging cable (see Service Manual for specifications) to the vehicle's 12 VDC power supply.

In either case, a depleted Battery Pak will be recharged to a useable capacity (15 discharges) in three (3) hours and fully recharged within twenty (20) hours. The Battery Pak should be allowed to fully recharge whenever the situation permits.

### For optimal battery life, follow these guidelines

- Keep the Battery Pak on charge, if possible. Sealed lead-acid batteries function best if continuously charged.
- Connect your Battery Pak to the charger after every use. Do not wait until the "LOW BATTERY" message is displayed before charging.
- Charge your Battery Pak as soon as possible if the "LOW BATTERY" warning message is displayed. Provide a full twenty (20) hours of charge.
- If the Battery Pak cannot be left on charge, it can be stored up to three (3) months at normal room temperature. Higher temperatures can cause a more rapid loss of battery capacity. Charge completely (20 hours) prior to storage. A second Battery Pak can be purchased if frequent use restricts charging time.

### Low Battery Detection

Battery Pak capacity is continuously monitored by the LIFEPAK 200 automatic advisory defibrillator. If a significantly diminished capacity is identified, the "LOW BATTERY" message will be displayed but the unit will continue to operate. If the Battery Pak's capacity is depleted to a level where the device will not operate, the "SERVICE" and "LOW BATTERY" messages will be displayed flashing with an audible warning alarm.

### Operating Time:

A fully charged Battery Pak will provide a minimum of three (3) hours of continuous operation or thirty (30) maximum energy (360 J) patient defibrillations.

## CASSETTE RECORDER

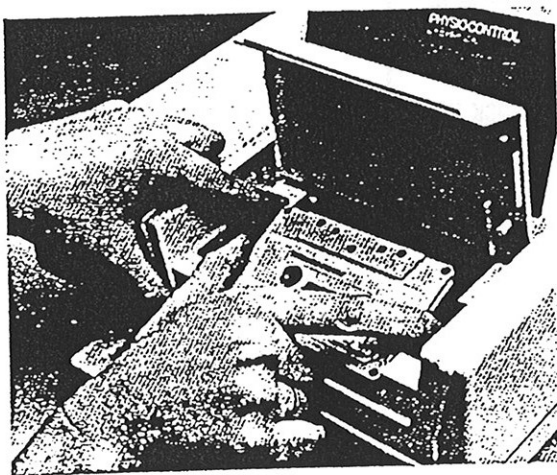
### Installing/removing the cassette tape

The following steps are taken to install or remove the cassette tape in the LIFEPAK 200 automatic advisory defibrillator

- Lift open display module.
  - Lift open the cassette recorder cover.
  - Slide cassette tape load button toward the rear of the device with one hand and hold. Use other hand to grasp the cassette near the recording heads and lift upward and out. Refer to photograph below.
  - To install a new cassette, slide cassette tape load button rearward and hold. Place cassette into recorder with the other hand by placing back of cassette in first and lowering (exposed) tape side of cassette into place. Assure that the cassette is properly seated in relation to the spindles and the recording head.
- Use only high quality C-60 ferrous oxide, low noise, audio recording tape, regular type. Chromium oxide (CrO<sub>2</sub>) recording tape is not compatible with this instrument and should not be used.

Tapes can be recorded on both sides.

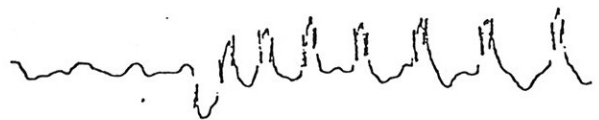
Once a tape has been recorded, remove the tabs from the back of the cassette to prevent recording over important information.



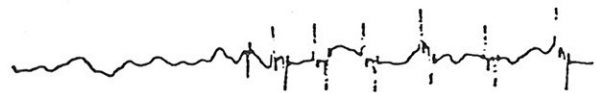
**Note:** Since the tape recorder has no erase capability, it is necessary to only use unrecorded tapes for documentation. This also assures optimum recording quality.

Cassette tapes recorded on the LIFEPAK 200 defibrillator can be played back using the LIFEPAK 5 ECG/Voice Recorder and any standard ECG monitor.

**Note:** Once the LIFEPAK 200 is charged, it maintains the selected energy with frequent small additions of energy. This occurs until the device is discharged or disarmed. During playback of the taped incident, the reviewer may witness short noise spikes superimposed on the recorded ECG signal. This occurs only in the short time period after the device has been charged and before it has been discharged. It does not interfere with rhythm analysis or other device performance. The ECG samples below are typical of those seen during this refresh period.



recharge during coarse VF



recharge during fine VF

## TESTING THE LIFEPAK 200

The LIFEPAK 200 automatic advisory defibrillator goes through a self-test procedure each time the device is activated and after each defibrillation shock. This self-test verifies the integrity of key Shock Advisory System components, but does not eliminate the need for regular testing by the operator.

The following test allows the operator to check for the completeness of the messages on the message screen, as well as the capability of the device to charge to a selected energy level and to deliver this energy through the patient cable.

- Assure that the patient cable is connected to the LIFEPAK 200 Patient Simulator before testing the defibrillator. Consult the patient simulator operating instructions for further details.
- Open the display module and immediately press and hold all three (3) front panel controls. This must be accomplished in less than three (3) seconds after opening the display. This is made difficult in order to avoid accidental activation of the test mode during normal operation. This selection will be confirmed by one short and long audible tone.
- All messages will be displayed for a period of seven (7) seconds. Confirm that all messages are displayed as pictured below.

CONNECT ELECTRODES CLOSE TAPE LID SERVICE  
TEST MODE NO SHOCK ADVISED LOW BATTERY  
DETECTOR ON CHARGING 200J 360J NO TAPE  
DO NOT TOUCH PATIENT MOTION DETECTED  
PUSH TO CHARGE CHECK PULSE  
ANALYZE ECG PUSH FOR 360J SHOCK NOW!

ANALYZE

360 J

SHOCK

- The message screen will then display:

TEST MODE

PUSH TO CHARGE

ANALYZE

360 J

SHOCK

This indicates that the device is in a defibrillator test mode. In this mode the presence of a shockable arrhythmia is not needed to charge the defibrillator.

- Confirm that the "LOW BATTERY" or "SERVICE" messages are not displayed.
- Press the ANALYZE control to start a normal charge cycle (200 joules). 360 joules may be selected during charging.
- Press the SHOCK control to discharge the defibrillator. Confirm that the "ACCEPTABLE DISCHARGE" light flashes on the LIFEPAK 200 Patient Simulator.
- The test mode will be terminated after the shock is delivered.



## TROUBLESHOOTING

Problem	Possible Cause
1. No message displayed after opening message screen	1A. Battery Pak connection faulty
2. Defibrillator will not discharge	2A. Tape recorder cover ajar
3. Controls will not activate	3A. Defective switch 3B. Controls may only be activated in sequence
4. "CONNECT ELECTRODES"	4A. Electrodes detached from patient 4B. Patient cable detached from electrode 4C. Message screen opened before electrodes are applied to the patient
5. "NO TAPE"	5A. No cassette tape in recorder
6. "TAPE"	6A. Tape transport jammed or end of tape condition
7. "CLOSE TAPE LID"	7A. Tape recorder cover ajar
8. "MOTION DETECTED"	8A. Patient motion preventing arrhythmia analysis 8B. Excessive radio frequency interference is preventing arrhythmia analysis
9. "SERVICE"	9A. Internal problem detected during self-test
10. "LOW BATTERY"	10A. Battery Pak discharged below minimum operation level
11. "SERVICE LOW BATTERY"	11A. Battery Pak discharged to a point where the device WILL NOT operate

## SPECIFICATIONS

### Defibrillator

INPUT	ECG via FAST-PATCH disposable defibrillation electrodes and patient cable. Standard electrode placement (anterior-anterior) provides Lead II ECG.
ELECTRICAL SHIELDING	Input protected against high voltage defibrillator pulses and radio frequency interference.
WAVEFORM	Edmark monophasic pulse, 3.5 ms duration at half-power points, 12 ms full duration
OUTPUT ENERGY (DELIVERED)	200 or 360 joules ( $\pm 10\%$ with 50 ohm load)
CONTROLS	Power on (opening display module) ECG analysis initiation (ANALYZE), 360 joule selection (360J), discharge (SHOCK)
CHARGE TIME	With fully charged Battery Pak, will charge to 200 joules in less than 7 seconds and to 360 joules in less than 12 seconds.
PATIENT CABLE LENGTH	(1.52m) 5 ft
SHOCK ADVISORY SYSTEM	Evaluates electrode connection, patient motion, and patients ECG to determine if defibrillation is required. ECG analyses requires 6.6 to 11.1 seconds. For a more detailed description, refer to Shock Advisory System brochure.
DISPLAY TYPE	Liquid crystal
DISPLAY MESSAGES	
OPERATION	Messages prompt user through operating sequence, and advise operator whether or not defibrillation is warranted.
WARNINGS	<p>"SERVICE" - internal problem affecting operation</p> <p>"LOW BATTERY" - low voltage level of Battery Pak</p> <p>"CONNECT ELECTRODES" - poor connection between patient and device</p> <p>"MOTION DETECTED" - excessive patient motion or electrode disturbance</p> <p>"NO TAPE" - cassette tape absent from tape transport</p> <p>"TAPE" - tape transport jammed or end of tape condition</p>
AUDIBLE TONES	Coded tones prompt user through operating sequence, and alert user of warning messages.
INTEGRAL ECG/VOICE RECORDER	<p>Tape type: C-60 standard audio cassette</p> <p>Transport speed: 4.76 cm/s (<math>1\frac{7}{8}</math> IPS) <math>\pm 5\%</math></p> <p>Recording time: 30 minutes per side</p> <p>Playback device: LIFEPAK<sup>®</sup> 5 ECG/ Voice Recorder and standard ECG monitor</p> <p>ECG channel: Bandwidth 2-20 Hz (-3 db)</p> <p>Gain upon playback: 1 V/mV <math>\pm 5\%</math></p> <p>Audio channel: Bandwidth 300-3000 Hz (-3dB)</p>
SIZE	12.7 cm H x 23.4 cm W x 33.8 cm D (5 in x 9.2 in x 13.3 in)
WEIGHT	4.68 kg (10.3 lb)

## BATTERY PAK

BATTERY PAK			
TYPE	High quality rechargeable sealed lead acid batteries. 16 VDC, 2.5 ampere hours		
CAPACITY (MINIMUMS)	Operation Time	or	Number of 360J Discharges
Fully Charged	3 hours		30
After storage for 90 days if fully charged initially	1 hour		10
CHARGE TIMES (WITH INTEGRAL CHARGER)			
To full charge	20 hours		
To 50% capacity	3 hours		
OPERATING VOLTAGE	Using AC charging cable/ transformer - 120 VAC nominal (range: 106-127) Using DC charging cable (optional) - 12 VDC nominal (range: 11 to 15)		
AC CHARGING CABLE/TRANSFORMER	Converts 120 VAC, 60 Hz to 10 VAC, 60 Hz		
MAXIMUM POWER CONSUMPTION	20 watts		
SIZE	8.9 cm H x 9.4 cm W x 28.7 cm D (3.5 in x 3.7 in x 11.3 in)		
WEIGHT	2.04 kg (4.5 lbs)		

## Environmental

TEMPERATURE	Operating: 0°C to 55°C Storage: -30°C to +65°C
HUMIDITY	0 to 90% R.H. noncondensing
ALTITUDE	4,572 meters (15,000 ft) or 439mm Hg (per MIL-STD-202F)
SHOCK	MIL-STD-810C, Method 516.2, Procedure 1, Figure 516.2-2 (30' 11ms, ½ sine)
VIBRATION	MIL-STD-810C, Procedure X, Table 514.2 - VII, Figure 514.2-7, Curve AW (1.5g, 5-200 Hz).
CASE	Molded high impact plastic

## FAST-PATCH disposable defibrillation electrodes

SHAPE	Elliptical
SIZE	Active surface area: 82 cm² Total Dimensions: 16.33 cm L x 11.25 cm W (6.43 in x 4.43 in)
ENVIRONMENTAL	
Temperature	-10°C to 55°C
Humidity	0 - 95% noncondensing

All specifications at 25°C unless otherwise stated.

## REFITTING AFTER USE

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To refit the LIFEPAK 200 automatic advisory defibrillator after a patient use, the following steps should be taken

- Discard used FAST-PATCH disposable defibrillation electrodes.
- Insert a new package of electrodes into the storage area beneath the device.
- Roll the patient cable into its storage area.
- Place new (unrecorded) tape into place. Make sure that full reel of tape is on the right side of cassette.
- Remove recorded cassette tape. Break out tabs from rear of cassette and forward to Medical Control authorities.
- Place new (unrecorded) cassette tape in place.
- Connect Battery Pak to power source.

## CLEANING

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The LIFEPAK 200 defibrillator case, cable, and message screen face should be cleaned with mild soap and water using a damp sponge or towel. **Do not immerse any portion of the device in water.** Do not use alcohol or other solvents.

Clean recording head once a month to maintain high quality recordings. Use liquid cleaning solutions only. Avoid the use of aerosol cleaning products. They may wash away necessary lubricants from the mechanical parts of the tape transport. Also avoid abrasive cleaning tapes as they will shorten head life.

## OPTIONAL ACCESSORIES AND REPLACEMENT ITEMS

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- FAST-PATCH disposable defibrillation electrodes
- LIFEPAK 200 Battery Pak
- AC Charging Cable/Transformer
- LIFEPAK 5 ECG/Voice Recorder, Monitor, Charger
- C-60 Cassette Tape
- LIFEPAK 200 Patient Simulator
- Audio Visual Inservice Presentation

## SERVICE POLICY

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Should your LIFEPAK 200 defibrillator require service, contact your area Physio-Control representative or your area service manager. When calling to request service, please identify model and serial number and describe problem. If the instrument must be shipped to the service center or factory, special packaging is necessary to prevent shipping damage. All accessories should accompany the instrument and transportation costs must be prepaid.

## WARRANTY POLICY (USA ONLY)

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The LIFEPAK 200 defibrillator is warranted against all defects in parts and workmanship for a period of one year from the date of delivery. Physio-Control will repair or replace any products which prove to be defective during the warranty period provided the proper use and maintenance procedures are followed as prescribed in the Operating and Service Manuals.

All defective products or components must be returned to Physio-Control or its authorized service center with a detailed explanation of the failure. Transportation charges must be prepaid.

Service performed by other than Physio-Control or its authorized agents may, at the discretion of Physio-Control, be cause to void the warranty.

No other party is authorized to make any other warranty or to assume any liability for Physio-Control products. No other warranty, either implied or in writing, will be recognized.



## DESCRIPTION OF AUDIBLE TONES

The following table describes the audible tones which occur throughout the operating sequence. Because these tones can be heard on the documentation tape, they serve as an aid in reconstructing the sequence of events.

One short tone	Display module opened or "PUSH TO ANALYZE ECG-CHECK PULSE" displayed
Two short tones	ANALYZE control activated
Three short tones	"NO SHOCK ADVISED" displayed
Four short tones	"SHOCK ADVISED-CHARGING 200J" displayed
One tone	360J control activated
Five short tones followed by a steady tone	"SHOCK NOW-DO NOT TOUCH PATIENT" displayed
Pulsating short tones	"MOTION DETECTED" displayed or "CLOSE TAPE LID" displayed
One tone followed by pulsating short tones	"CONNECT ELECTRODES" displayed



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## INDICATIONS AND PRECAUTIONS FOR DEFIBRILLATOR USE

This Physio-Control monitor/defibrillator is a therapeutic medical device intended for use under the direction or guidance of a physician. Direct current defibrillation is a recognized means of terminating certain potentially fatal cardiac arrhythmias.

A direct current defibrillator applies a brief high-energy pulse of electricity to the heart. This energy may be delivered either through external paddles or electrodes on the chest, or through internal paddles applied directly to the heart.

Defibrillation is only one aspect of the medical care required to resuscitate a patient in fibrillation. Depending on the situation, other supportive measures may include:

- establishment and maintenance of a patent airway
- ventilation, including administration of oxygen
- maintenance of blood circulation
- pharmacologic measures

Among other factors, it is recognized that the likelihood of successful resuscitation of a patient depends on the length of time between the onset of ventricular fibrillation and defibrillation. Rapid defibrillation and prompt follow-up care are essential. The physiological state of the patient may affect the likelihood of defibrillation or skeletal muscle contractility. Thus, failure to convert the arrhythmia or to resuscitate a patient is not a reliable indicator of defibrillator performance. Similarly, the patient's muscular response to the defibrillator shock is not a reliable indicator of the energy delivered.

### Precautions

Because of the high energy delivered by the defibrillator, certain precautions should be taken:

1. Ensure that all defibrillator operators are thoroughly familiar with the Operating Instruction Manual, indicators, controls, and their functions.
2. Ensure that the defibrillator is kept in proper operating condition at all times through routine maintenance and repair by qualified personnel. See the Service Manual for details.
3. If battery powered, ensure that the batteries are kept charged and ready for use. Also, ensure that battery maintenance procedures are followed. See Operating Instructions for details.
4. Apply defibrillation electrodes before turning on the defibrillator.
5. Ensure that self-adhesive defibrillation electrodes remain firmly attached to the skin.
6. Disconnect from the patient any equipment which may be damaged by the defibrillator shock. This may include external transvenous pacing devices.
7. If the patient has an implanted pacemaker, check pacemaker function following defibrillation.
8. Ensure that all personnel are clear of the patient before delivering a shock.
9. During defibrillation, the operator should not make any contact with the patient.
10. Do not discharge the defibrillator to "open air". To remove unwanted charge, turn the defibrillator to the OFF setting.
11. Do not discharge the defibrillator with the disposable defibrillation electrodes shorted together. Use a defibrillator test load.
12. Treat a defibrillator with respect. Do not touch the gelled area of defibrillation electrodes when the defibrillator is on.
13. Discard self-adhesive defibrillation electrodes after use.
14. Periodically test the defibrillator. This will help to ensure that the defibrillator will be ready to use in an emergency. It will also help maintain operator familiarity. The frequency and extent of routine testing should be determined by institutional policy and practice.



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