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LIFEPAK 20 DEFIBRILLATOR OPERATING INSTRUCTIONS

Figure 2-1 Front View with Door

Figure 2-2 Front View without Door

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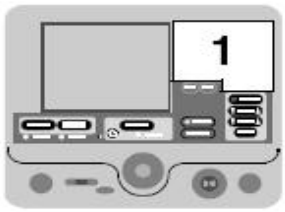
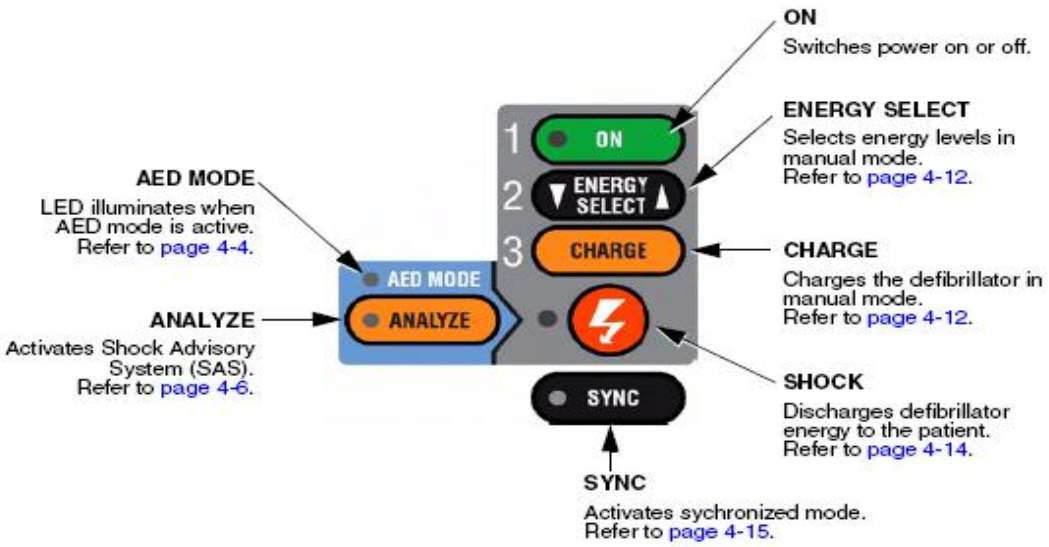
Area 1





ON
Switches power on or off.

ENERGY SELECT
Selects energy levels in manual mode.
Refer to page 4-12.

CHARGE
Charges the defibrillator in manual mode.
Refer to page 4-12.

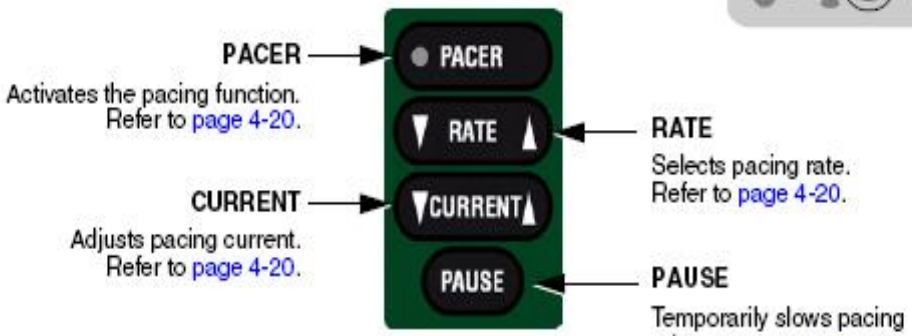
SHOCK
Discharges defibrillator energy to the patient.
Refer to page 4-14.

AED MODE
LED illuminates when AED mode is active.
Refer to page 4-4.

ANALYZE
Activates Shock Advisory System (SAS).
Refer to page 4-6.

SYNC
Activates sychronized mode.
Refer to page 4-15.

Area 2



PACER
Activates the pacing function.
Refer to page 4-20.

RATE
Selects pacing rate.
Refer to page 4-20.

CURRENT
Adjusts pacing current.
Refer to page 4-20.

PAUSE
Temporarily slows pacing rate.
Refer to page 4-20.

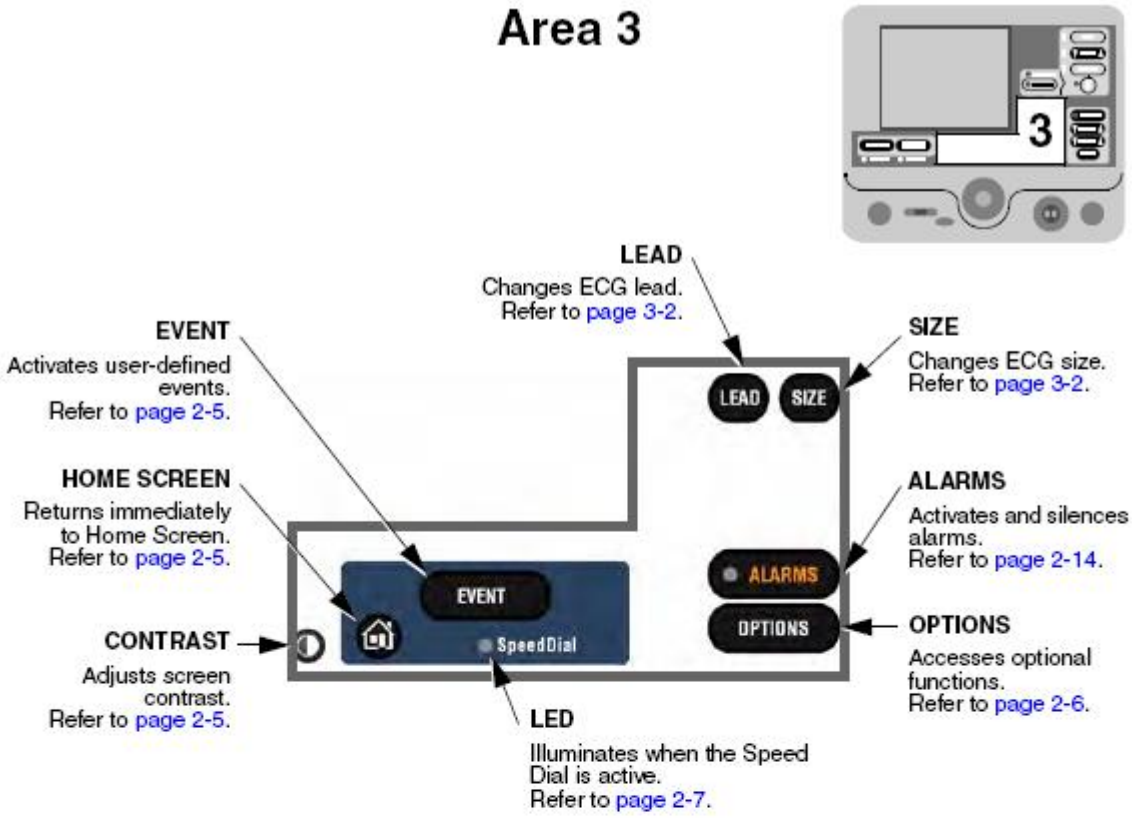


Figure 2-5 Area 3

Area 3

The following paragraphs provide additional information about the controls shown in Area 3, page 2-5.

Contrast (Passive Display Only)

Press the CONTRAST button and rotate the Speed Dial to adjust the screen contrast/brightness. When the defibrillator is turned on, the contrast setting defaults to the previously adjusted setting.

Home Screen

The home screen is the background screen that displays during ECG monitoring. Pressing HOME SCREEN returns you to the home screen from any menu screen or overlay, except during AED analysis or during manual defibrillation charging and shocking.

Event

After pressing EVENT, the screen displays the following overlay.

Use the Speed Dial to scroll through and select menu choices.

Generic is automatically selected when EVENT is pressed and no other selection is made. The selected event and time stamp appear in the message/status area on the screen. Events are printed in the CODE SUMMARY™ Event Log. Refer to page 8-8 for information about configuring events.

Options

After pressing OPTIONS, the screen displays the overlay shown in Figure 2-6. Use the Speed Dial to scroll through and select menu choices.

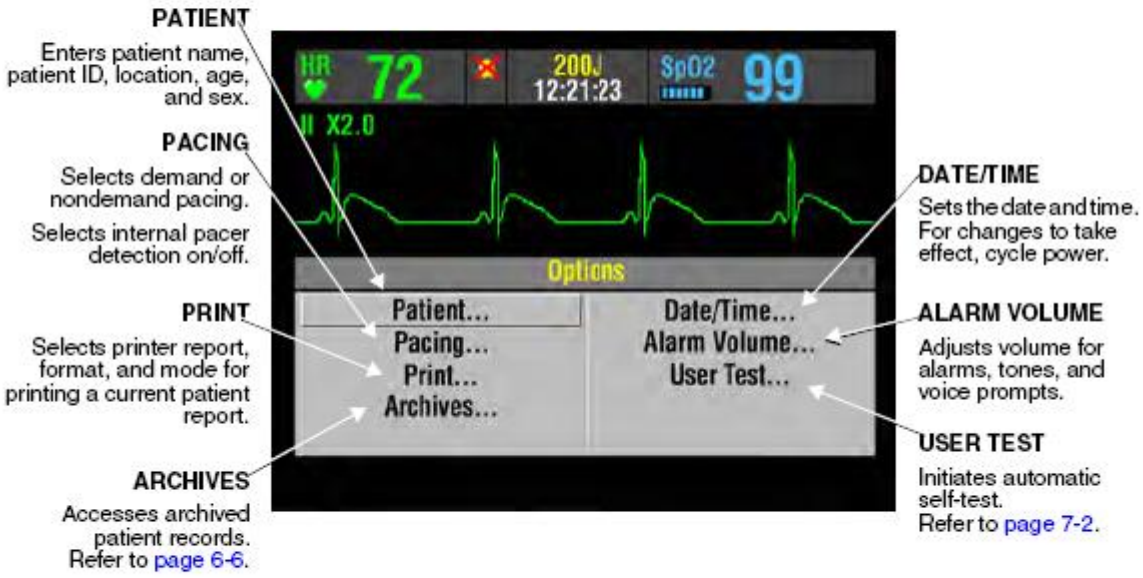


Figure 2-6 Options

Alarms

Refer to page 2-14 for information about setting alarms.

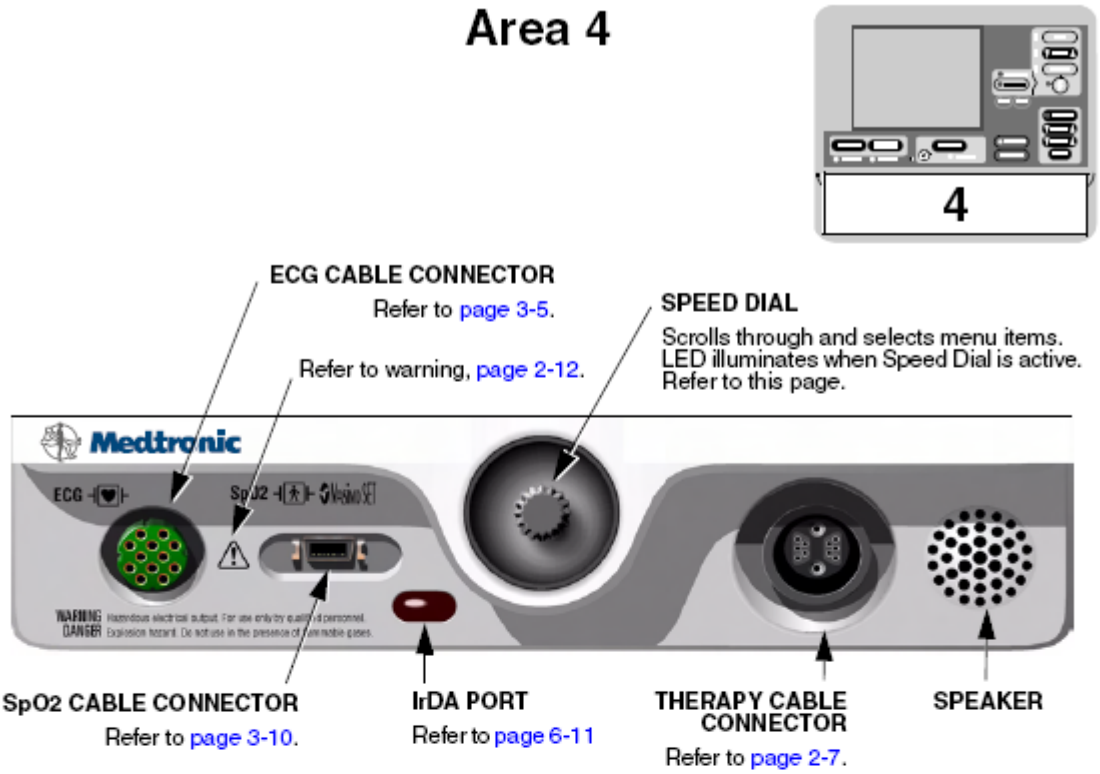


Figure 2-7 Area 4

Area 4

The following paragraphs provide additional information about the Speed Dial and the therapy cable connector shown in Area 4.

Speed Dial

The Speed Dial is active when the indicator LED is illuminated. When active, you can rotate the Speed Dial to highlight and select certain areas of the screen and displayed menu items. Pressing the Speed Dial activates the highlighted menu item. Default menu items are highlighted with a gray background; after a menu item is selected, the background is black.

Therapy Cable Connector

WARNING!

Possible equipment damage and inability to deliver therapy.

To protect the therapy cable connector from damage or contamination, keep the therapy cable connected to the defibrillator at all times.

Connecting the Therapy Cable

To connect a therapy cable to the therapy cable connector:

1 Orient the therapy cable so that the arrow is on top with the cable angled to the right (refer to Figure 2-8).

2 Insert the therapy cable into the therapy cable connector on the defibrillator.

3 Rotate the locking ring on the therapy cable clockwise until you feel the connector “click.” Pull gently on the locking ring to check that the cable is locked in place.

Disconnecting the Therapy Cable

To disconnect a therapy cable from the defibrillator:

1 Rotate the locking ring on the therapy cable in the direction of the arrow (counterclockwise) until it stops (refer to Figure 2-9).

2 Gently pull out the cable.

Note: LIFEPAK 20 defibrillator/monitors with hardwired standard paddles do not have this feature.

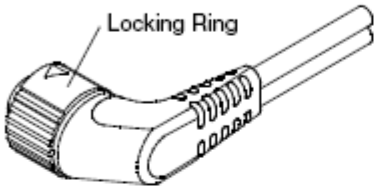


Figure 2-8 Therapy Cable Orientation

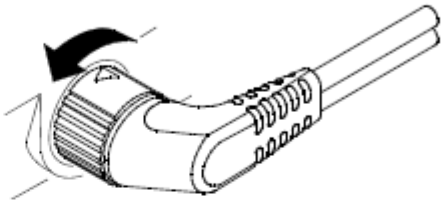


Figure 2-9 Disconnecting the Therapy Cable

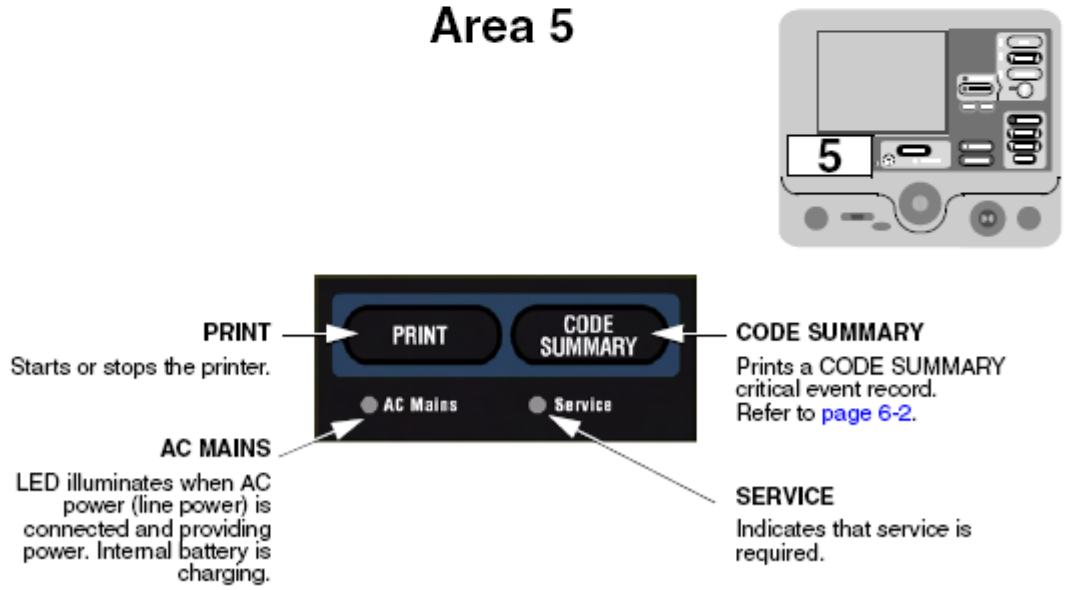
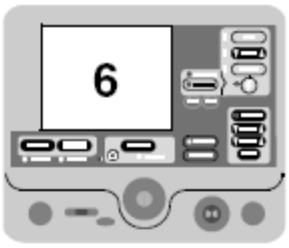


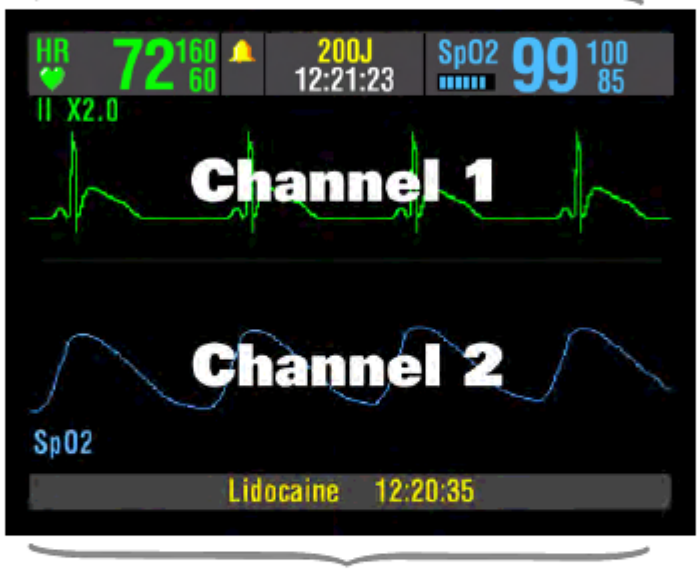
Figure 2-10 Area 5

Area 6



MONITORING AREA

Displays heart rate, time, SpO2, indicators for VF/VT alarm and selected energy. Refer to page 2-10.



WAVEFORM CHANNEL AREA

Displays up to two waveform channels. Refer to page 2-10.

STATUS MESSAGE AREA

Displays status and alarm messages.

Figure 2-11 Area 6

Area 6

The following paragraphs provide additional information about Area 6.

Monitoring Area—Heart Rate

The LIFEPAK 20 defibrillator/monitor displays a heart rate between 20 and 300 beats per minute (bpm). A heart rate symbol flashes with each beat. If the heart rate is below 20 bpm or pacing is enabled, the screen displays dashes (– – –). Heart rates above 300 bpm do not yield valid systole tones and the displayed heart rate will not be valid. The heart rate indicator is a tool to be used in addition to patient assessment. Care should be taken to assess the patient at all times and not to rely solely on the heart rate displayed.

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هاتف: ٥٦٥٨٨٦٦ ٠٦، فاكس: ٥٦٥٨٨٣٣ ٠٦

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WARNING!

Failure to detect a change in ECG rhythm.

Heart rate meters may continue to count the internal pacing pulses during occurrences of cardiac arrest or some arrhythmias. Do not rely entirely on heart rate meter alarms. Keep pacemaker patients under close surveillance.

QRS detection is essential for using the digital heart rate display, systole tone, synchronized cardioversion, and noninvasive demand pacing. The QRS detector in the LIFEPAK 20 defibrillator/ monitor selectively detects QRS complexes. It discriminates against most noise, muscle artifact, T-waves, and other spurious signals.

The QRS detect algorithm automatically adjusts itself to the amplitude of the QRS complexes. Changing the gain of the ECG has no effect on QRS detection. For optimum QRS detection performance, use the lead with the greatest QRS amplitude.

Monitoring Area—Pulse Rate. If the ECG is not active, the SpO2 monitor can display pulse rate. The pulse rate source is indicated by PR (SPO2).

Monitoring Area—SpO2 (pulse oximeter). The oxygen saturation level is shown as a percentage from 50 to 100. Saturation below 50% is shown as <50%. A fluctuating bar graph represents the pulse signal strength.

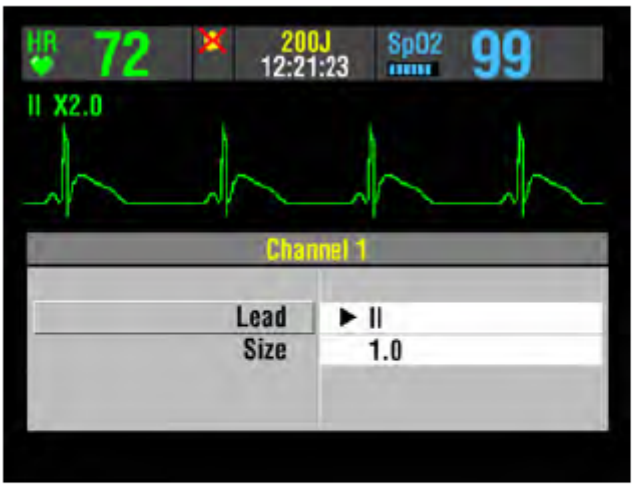
Waveform Channel Area

Channel 1. This is the top channel. It displays the primary ECG waveform and is always visible when ECG is displayed.

Channel 2. This is the bottom channel. It can display an additional waveform or a continuation of the Channel 1 ECG.

Selecting Waveform Channels

The monitor power must be turned on.



1 At the home screen, rotate the Speed Dial to highlight Channel 1 or 2.
2 Press the Speed Dial. An overlay appears with the monitoring choices for the selected channel.
3 Rotate and press the Speed Dial to select monitoring choices for that channel.

Changing Printer Paper

CAUTION!

Possible printer malfunction.

Using other manufacturers' printer paper may cause the printer to function improperly and/or damage

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Loading 50 mm Paper (MIN 804700)

The printer is equipped with an out-of-paper sensor to protect the printhead. The sensor automatically turns off the printer if paper runs out or if the printer door is open.

To load the paper:

1 Press the black button to open the printer door.

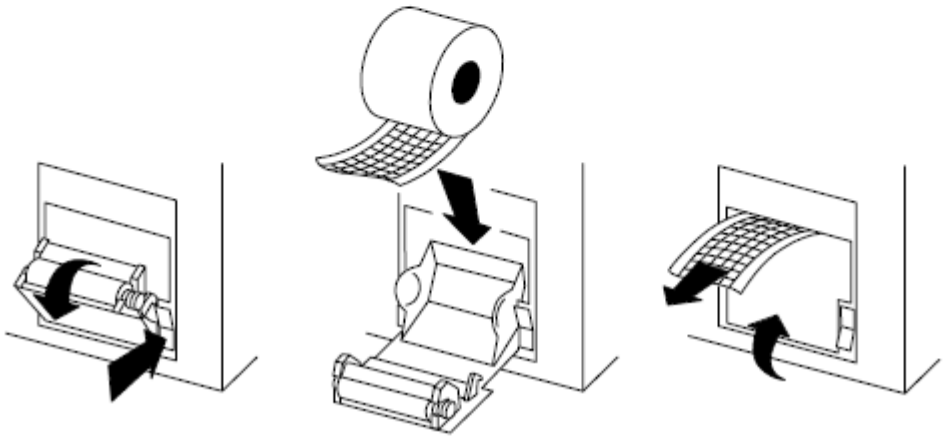
2 Remove the empty paper roll.

3 Insert the new paper roll, grid facing upward.

4 Pull out a short length of paper.

5 Push the printer door in to close.

Figure 2-12 illustrates the steps for loading 50 mm paper.



Back View

The following paragraphs provide additional information about the back view (refer to Figure 2-13).

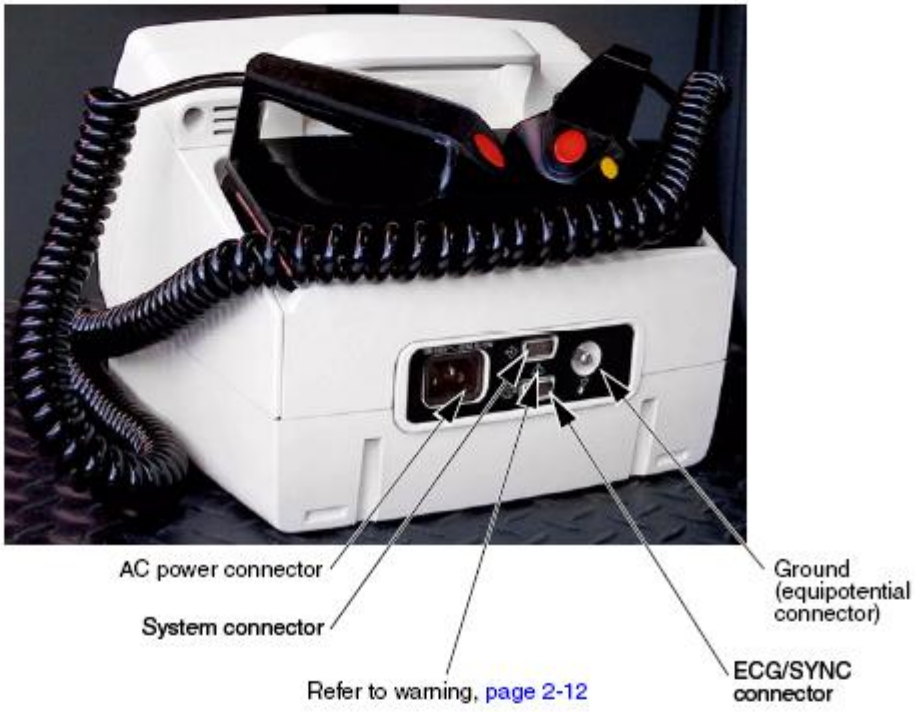


Figure 2-13 Back View

WARNING!

Shock hazard.

If you are monitoring a patient and using the system connector, all equipment connected to the system connector must be battery powered or electrically isolated from AC power according to EN 60601-1. If in doubt, disconnect the patient from the monitor before using the system connector. For more information, contact Medtronic Technical Support.

System Connector

The system connector allows access to another LIFEPAK 20 defibrillator/monitor, so that setup information can be transferred between devices.

ECG/SYNC Connector

The ECG/SYNC connector provides remote synchronization and real-time ECG output to a third party monitor.

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Defibrillation Procedure in Manual Mode

1 Press ON. when the defibrillator is powered on, the defibrillator is in AED Mode.
To enter manual mode: Open the door

2 Identify the electrode or paddle sites on the patient. Use either the anterior-lateral or anterior-posterior position as described on page 4-3.

3 Prepare the patient's skin for electrode application:

- If possible, place the patient on a firm surface away from standing water or conductive material.
- Remove clothing from the patient's upper torso.
- Remove excessive hair from the electrode sites; if shaving is necessary, avoid cutting the skin.
- Clean the skin and dry it briskly with a towel or gauze.
- Do not apply alcohol, tincture of benzoin, or antiperspirant to the skin.

4 Connect the therapy electrodes to the therapy cable, and confirm cable connection to the device.

5 Apply therapy electrodes to the patient in anterior-lateral or anterior-posterior position. If using standard paddles, apply conductive gel to the paddles and place paddles on the patient's chest.

6 Press ENERGY SELECT or rotate the energy select dial on standard paddles.

7 Press CHARGE. While the defibrillator is charging, a charging bar appears and a ramping tone sounds, indicating the charging energy level. When the defibrillator is fully charged, an overlay appears

8 Make certain all personnel, including the operator, stand clear of the patient, bed, and any equipment connected to the patient.

9 Confirm ECG rhythms and available energy.

10 Press the SHOCK button(s) to discharge energy to the patient or press the Speed Dial to remove the charge. If the SHOCK button(s) are not pressed within 60 seconds, stored energy is internally removed.
Note: If you change the energy selection after charging has started, the energy is removed.Press CHARGE to restart charging.

11 Observe the patient and the ECG rhythm. If an additional shock is necessary, repeat the procedure beginning at Step 6.

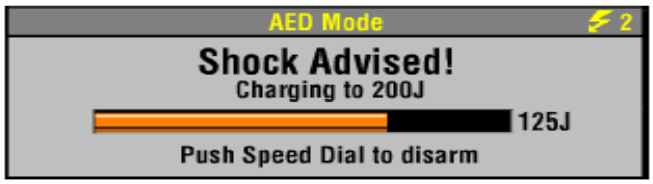
Note: If the *ABNORMAL ENERGY DELIVERY* message appears and the shock is not effective, increase energy, if necessary, and repeat shock.

AED Procedure

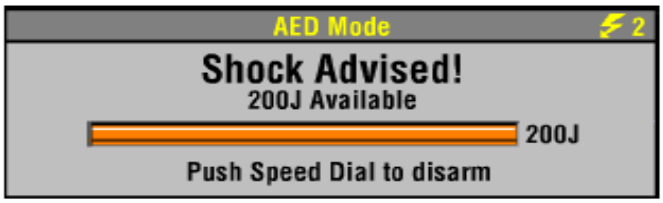
1. **Verify that the patient is in cardiac arrest (unconscious, no respiration, no pulse).**
2. **Press ON.**
3. **Prepare the patient for electrode placement. The CONNECT ELECTRODES message and voice prompt occur until the patient is connected to theAED.**
4. **Apply the electrodes to the patient's chest in the anterior-lateral position**
5. **Press ANALYZE to initiate analysis. Stop CPR.**
6. **Follow screen messages and voice prompts provided by the AED.**

You will see and hear *ANALYZING NOW, STAND CLEAR*. Do not touch or move the patient or therapy cable during analysis. ECG analysis requires approximately 6 to 9 seconds. The analyze LED illuminates during analysis.

Shock Advised



If the AED detects a shockable ECG rhythm, you will see and hear *SHOCK ADVISED*. The AED begins charging to the configured joule setting for shock #1. A rising tone indicates that the AED is charging.



When charging is complete, the AED displays the available energy.

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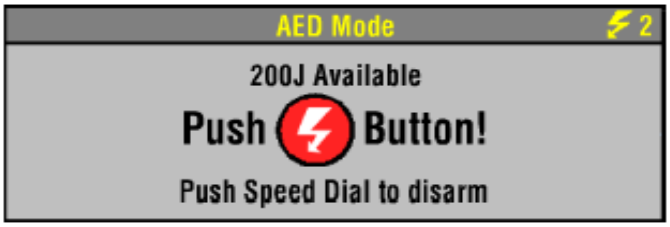


You will see and hear *STAND CLEAR, PUSH TO SHOCK* ( ) followed by a "shock ready" tone. The shock LED flashes. Clear everyone away from the patient, bed, or any equipment connected to the patient.

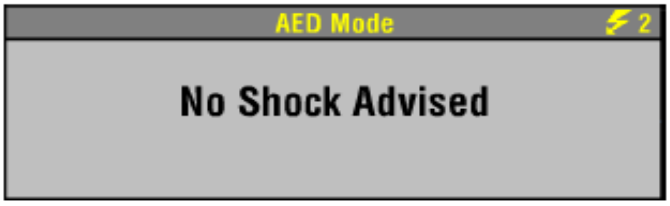
Press to discharge the AED.

If you do not press within 60 seconds, the AED disarms the shock button, and the *DISARMING* message appears.

If auto analyze is on, the AED automatically analyzes the patient's ECG rhythm after shock #1 is delivered. If auto analyze is off, the *PUSH ANALYZE* message and voice prompt occur. You must press ANALYZE to begin the analysis.

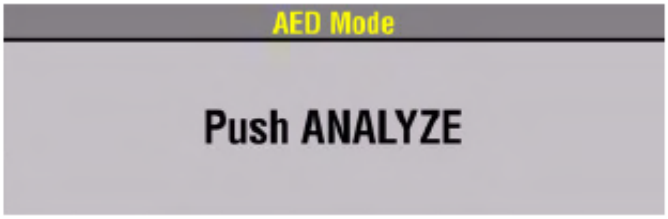
The second analysis and shock sequence is the same as described for shock #1. The energy level for Shock #2 depends on device configuration for energy protocol and the analysis decision. When a *NO SHOCK ADVISED* prompt follows a shock, the energy level will not increase for the next shock. For subsequent shocks, the highest energy level available is 360 J.

No Shock Advised



If the AED detects a nonshockable rhythm, you will see and hear *NO SHOCK ADVISED*. The AED will not charge, and a shock can not be delivered.

After *NO SHOCK ADVISED*, the AED enters CPR Time (if configured on).



When the CPR countdown time ends, you will see and hear *PUSH ANALYZE*. This message stays on the screen and the voice prompt will repeat every 20 seconds until you press the ANALYZE button.