
Product Code: 2L3107

Note: Before operating this pump, the user should carefully read this manual to fully understand how the pump functions and to ensure its safe and proper operation.
### Change Record

**Original Issue: November 1999**

#### Page Revision Levels

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Notice

There are risks associated with using anything other than the recommended sets with this device. Sets designated for use with this device are listed in "Accessories and Recommended Sets, 8-1". Baxter's warranty on this device will be null and void, and Baxter will assume no responsibility for incidents that may occur if the product is not used in accordance with product labeling.

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Additional copies of this manual or other related manuals can be ordered by contacting the Andover Service Center at 1-800-343-0366, extension 1. Refer to part number 07-19-X3-725*.

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* Where X represents the current revision level of the manual.
Trademark Information

Ipump and the Baxter wordmark are trademarks of Baxter International, Inc. Other product names appearing in this manual are the trademarks of their respective owners.

Year 2000 Compliance

This product has been designed for Year 2000 compliance. Roll over between all significant time demarcations (for example, days, months, years, centuries), special dates, and leap years, will be performed correctly. Neither the performance nor the functionality is affected by dates prior to, during and after the year 2000 up to the year 2098.

Warranty

Baxter warrants that the equipment shall be free from defects in materials and workmanship when delivered to the original purchaser. Baxter's sole obligation shall be to repair or replace the product (excluding batteries), at Baxter's option and expense, for a period of one year following the date of initial delivery.
This warranty extends only to the original purchaser, is not assignable or transferable, and shall not apply to auxiliary equipment or disposable accessories. There are risks associated with using anything other than the recommended Baxter sets designated for use with the Ipump™ Pain Management System. Baxter's warranty to repair or replace the product will be null and void if this product is used contrary to the directions for use contained in the labeling. Baxter will assume no responsibility for incidents that may occur if the product is not used in accordance with product labeling.

THERE ARE NO OTHER WARRANTIES INCLUDING ANY IMPLIED WARRANTY AND ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION OF THE PRODUCT AND THOSE EXPRESSLY SET FORTH IN ITS LABELING. In no event shall Baxter be responsible for incidental, consequential, or exemplary damages. Modification, alteration, recalibration, or abuse, and service by other than a Baxter authorized representative may void the warranty.
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Key Features

Programmable limits for Patient Controlled Analgesia (PCA) doses

Year 2000-compliant software

Detailed history display and printout capability

Preventive maintenance alert

Multilingual interface

Ability to transfer configuration data via a serial port to another pump

Air sensor

Upstream and downstream occlusion detectors
Chapter 1. Product Overview

An optional AC adapter can be used when the pump is mounted. Allows the pump to be unlocked and easily removed for placement in a comfortable carrying case. Connected to an AC power source for stationary use. A specially designed optional pole-mounting clamp can connect to a standard 1.5 pole and quickly as possible. This advanced pain management product will enable patients to become ambulatory as quickly as possible. Because the pump can be used as a port-accessaneous, or intravenous administration of parenteral fluids.
**Programming Options**

The pump can be programmed to provide:

- PCA, basal and PCA (BASAL+PCA), or continuous infusions
- Infusion rates in mL, mg, and µg
- Physician-prescribed values for the desired therapy
- Clinician- or institution-selected operating limits

When the pump is programmed for PCA, the patient has the option of self-administering analgesic medications on an as-needed basis. The BASAL+PCA programming option combines this patient-controlled method with a minimum continuous dose.
Record Management

The pump tracks the programming, time, and history of each infusion. If no power is available, all of this data will be retained in the memory of the pump’s microprocessor.

The pump is equipped with a real-time clock that provides the correct date and time for record management. Both the date and time are displayed on the screen and included on any hard copy printout generated by using the optional printer.
Security

For patient security, the pump may be configured to require the:

- Insertion of a key in the cover lock (KEY ONLY)
- Entry of a security code before programming or changing the prescription (CODE ONLY)
- Both key insertion and code entry (KEY+CODE) – the factory default configuration

Note: If the pump is configured to require only the entry of a security code, the cover that holds the IV bag is optional.

Note: Use of security features, such as KEY+CODE, should be governed by individual care site policies and regulations regarding the use of controlled substances.
Organization of This Manual

This manual is designed for the health care professionals or home-based patients required to use the pump on a daily basis. The following sections are organized to provide you with the following information:

- "Ipump™ Pain Management System Description, 2-1" – covers what is included in the shipping package and the components of the pump.
- "Setting Up the Pump, 3-1" – describes how to install the pump battery, load and prepare the tubing set, mount the pump on a pole, set up connections, and remove the cover.
- "Configurable Options, 4-1" – lists the factory-set options and how to reset these values.
- "Using the Pump, 5-1" – contains step-by-step instructions for setting up prescriptions, starting and stopping infusions, and accessing and reviewing a patient’s prescription history.
- "Alerts and Alarms, 6-1" – provides an alphanumeric list of the alert and alarm messages that may occur and how to resolve them.
- "Preventive Maintenance, 7-1" – contains references on conducting functional checks and storage procedures and authorized service center contacts.
“Accessories and Recommended Sets, 8-1” – contains a list of accessories, including bags and sets, that can be used with the pump. In addition, “Technical Specifications, 9-1” and a glossary are included to assist you in using this manual.
Anesthesia Business

The Anesthesia Business is part of the I.V. Systems/Medical Products Division of Baxter Healthcare, a worldwide healthcare leader. We are committed to providing products, services, information, and systems that offer cost-effective solutions to meet the needs of anesthesia and critical care professionals and their patients.
Operational Warnings, Cautions, and Notes

General Information

Although the pump has been designed and manufactured to exacting specifications, it is not intended to replace trained personnel in the supervision of pain management infusions.

This product is classified by Underwriters Laboratories Inc. with respect to electric shock, fire, and mechanical hazards only in accordance with UL 2601-1, Second edition, and CAN/CSA C22.2 No. 601.1. In accordance with these documents, this equipment is classified as:

- Class 1, internally powered
- Type CF
- Drip-proof (IPX1)
- Not suitable for use with flammable anesthetic mixtures with air, oxygen, or nitrous oxide
- Continuous operation
Month of manufacture: August = 80
Year of manufacture 1999 = 9
Example: 908XXXAA

To determine the year and month of manufacture, refer to the first three digits of the device serial number.

SERIAL NUMBER DESCRIPTION

Guidelines

When disposing of this device or the service is designed for use with device, adhere to local regulations and the requirements in the COLLECTED ELECTRICAL AND MEDICAL ELECTRICAL EQUIPMENT, Part 2-24: Particular Requirements for the Safety of Infusion Pumps and Controllers. This manual has been developed with consideration of functions and to ensure its safe and proper operation. Before operating this pump, the user should carefully read this manual to understand fully how the pump works.

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# Label Definitions

<table>
<thead>
<tr>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPX1</td>
<td>Drip-proof equipment: enclosed equipment protected against dripping fluids.</td>
</tr>
<tr>
<td><img src="image" alt="Connection port" /></td>
<td>Connection port for the AC to DC converter/adapter.</td>
</tr>
<tr>
<td><img src="image" alt="UL and CSA logos" /></td>
<td>This product is classified by Underwriters Laboratories Inc. with respect to electric shock, fire, and mechanical hazards only in accordance with UL 2601-1, Second edition, and CAN/CSA C22.2 No. 601.1.</td>
</tr>
<tr>
<td><img src="image" alt="Heart" /></td>
<td>Type CF in accordance with UL2601-1.</td>
</tr>
</tbody>
</table>
Warnings

Always read and follow the instructions that accompany the source container and administration sets. Carefully follow the instructions for loading, removing, and reloading the set.

The safety information labels included in this manual are defined as follows:

- **WARNING!**
- **DANGER**
- **CAUTION**

Note that these labels are provided to supplement the accompanying text.

- **DANGER:** Immediate hazard that, if not avoided, will result in severe personal injury or death.
- **CAUTION:** Indicate a possible hazard that, if not avoided, could result in severe personal injury or death.
- **WARNING:** Indicate a problem or unsafe practice that, if not avoided, could result in minor or moderate personal injury or product or property damage.

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- **WARNING:** Indicate a problem or unsafe practice that, if not avoided, could result in minor or moderate personal injury or product or property damage.
**WARNING!** Baxter will assume no responsibility for incidents that may occur if the product is not used in accordance with product labeling.

**WARNING!** Do not use in the presence of flammable anesthetics.

**WARNING!** To reduce the risk of stored fluid being infused after an occlusion occurs, relieve the pressure by disconnecting the system above the occlusion before freeing the occlusion.

**WARNING!** The tubing set MUST NOT be connected to the patient while priming.

**WARNING!** Do not use any pump that has readily apparent defects or damage, including missing or misaligned components, missing display segments, or missing audio.

**WARNING!** Clamp tubing distal to the pump before opening the tubing door or troubleshooting any pump connected to a patient.

**WARNING!** If the tubing is pinched by the closed tubing door, resistance to flow may increase and fluid delivery to the patient may be compromised. If this occurs, open the bag cover, reseat the tubing and check the tubing door for proper closure, close the bag cover, then restart the pump.

**WARNING!** If the pump detects an upstream occlusion, the clinician must identify the source and relieve the occlusion without turning off the pump. If the occlusion is not relieved and the pump is turned off, the pump may not detect the existing occlusion when the pump is turned back on.
Avoid getting any liquids on the tubing set, inside the tubing door, or in the tubing channel. Air sensor functioning could be compromised or permanent damage may result.

**WARNING**

Before use:

- Avoid exposing the pump to extreme temperatures. The pump is designed to operate in temperatures from 50°F to 104°F. If used in temperatures below 50°F or above 104°F, the pump may not function properly.

However, if the pump is exposed to extreme temperatures, the sensor may detect and measure accumulated amounts of air or non-combustible gases.

The air sensor will detect and measure accumulated amounts of air or non-combustible gases. You must change the administration set after 2000 ml of infusion or every seven days, depending on the event that occurs.

Failure to latch the tubing door properly may result in a no flow condition.

**WARNING**

Use with this pump are listed in "Accessories and Recommended Sets, Section 8.1" with this pump. Accessories not listed in this section are not recommended for use with this pump. Using accessories other than those labeled for this pump could result in injury to the patient.

**WARNING**

Parenteral administration of drugs other than those indicated for epidural use could result in serious
Cautions

**CAUTION**

Use of this pump is restricted to sale or use by, on the order of, or under the supervision of a qualified physician.

**CAUTION**

There are no internal user serviceable parts or adjustments.

**CAUTION**

When using the optional AC adapter, use earth-grounded AC outlets only. When grounding reliability is in doubt, the equipment should be powered by its battery.

**CAUTION**

Hospital protocol for the management of critical drugs must be followed with this device.

**CAUTION**

Variations in epidural catheter sizes can cause occlusion alarms. If an occlusion alarm occurs with no visible occlusion, change to a larger diameter and/or shorter catheter. If occlusion alarms continue, contact your nearest authorized service center. Contact the Andover Service Center at 1-800-343-0366, extension 1.

**CAUTION**

Only use sets manufactured by Baxter as specified in “Accessories and Recommended Sets, 8-1”.

**CAUTION**

Do not use sharp objects to press keys.

**CAUTION**

Do not use zinc-air, ni-cad, or any other rechargeable batteries with the Ipump™ Pain Management System.

**CAUTION**

All luer-lock connections must be properly tightened. Over tightening of a connection may crack the luer and cause leakage.
The Ipump™ Pain Management System is not waterproof and should not be immersed. Avoid getting liquids inside the pump. Air sensor functioning could be compromised or permanent damage may result. Do not use alcohol for cleaning.

Do not clean, disinfect, or sterilize any part of the device by autoclaving or with ethylene oxide gas. Doing so may damage the device and void the warranty. Only external parts of the device should be disinfected.

Follow the cleaning schedule and methods defined in “Preventive Maintenance, 7-1” to ensure the proper maintenance of the pump.

This pump has configurable options. Operating modes and input parameter selections may vary as a function of the selected configuration.

Epidural administration of anesthetics is limited to short-term infusion (not to exceed 96 hours) with indwelling catheters specifically indicated for short-term anesthetic epidural drug delivery.

Epidural administration of analgesics is limited to use with indwelling catheters specifically indicated for analgesic epidural delivery.

To prevent the infusion of drugs not indicated for epidural use, do not use IV administration sets incorporating injection sites during epidural delivery.

It is strongly recommended that the pumps programmed for epidural drug delivery be clearly differentiated from those programmed for other routes of administration.
CAUTION
As with all medical electronic equipment, exercise care to avoid exposing this pump to powerful sources of electromagnetic interference. This device design has been tested to current U.S. and European standards and guidelines for medical devices. The pump was not found to be affected adversely by these susceptibility tests and will perform safely. The pump's emissions also were found to be acceptable. Using the pump near operating equipment that radiate high-energy radio frequencies (such as electrosurgical/cauterizing equipment, two-way radios, or cellular telephones) may cause false alarm conditions. If this happens, reposition the pump away from the source of interference or turn off the pump.

CAUTION
Use only accessory equipment complying with the pump's safety requirements; failure to do so may lead to reduced safety levels of the resulting system. Consideration relating to accessory choice shall also include the use of the accessory in the patient vicinity, and evidence that the safety certification of the accessory has been performed in accordance with the appropriate UL2601-1 or IEC 601-1 and/or IEC 601-1-1 harmonized national standard.

CAUTION
Use this product for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer. If interconnection with other infusion systems and/or parallel infusion is desired, make sure a recommended anti-reflux y-set (2L3506) is used to prevent back flow.

CAUTION
Any equipment connected to the pump through the PRINTER/COMM port must conform to the electrical safety requirements of IEC 601-1.

CAUTION
When attaching the pump to an IV pole or other mounting locations, ensure that it has been clamped securely.
1.25"

To avoid personal injury, ensure that the LV pole is stable and secure. Ensure that the pole can support the

lubricate.

If the LV pole is attached to an LV pole, ensure that the device is mounted where the main body is easily accessible.
Notes

Note: Grounding reliability can be achieved only when this equipment is connected to an earth-grounded receptacle marked “Hospital Grade.” When grounding reliability is in doubt, the equipment should be battery powered.

Note: The pump may be configured to the specific needs of the operator or institution. See the Configuration Manual for further information.

Note: U.S. Law requires the tracking of this device. Parties acquiring this device must:

- Promptly report the receipt of this device to the manufacturer
- Report the sale of this device to any home patient
- Maintain patient and physician information for short-term home patient placements
- Report the device’s purchase, receipt in trade, return after sale, loss, destruction or retirement

Note: If this is an initial purchase from the manufacturer, you may return a signed copy of the packing list to the manufacturer in order to comply with these requirements. For additional information, contact the Andover Service Center at 1-800-343-0366, extension 1.
Chapter 2. *Ipump™ Pain Management System Description*

This section will acquaint you with the various components of the pump, including the:

- Ipump™ Pain Management System Package Contents
- Pump Components
- Pump Key Pad
- Action Keys
- Pump Symbols
- LCD Symbols
If you need to connect the pump to an electrical power source, you will also need a Baxter AC adapter.

- Configuration Manual
- Operator's Manual(s)
- Pump Carrying Case
- Patient Control Cable with PCA Button
- Key(s)
- 250E Cover
- iPump™ Pain Management System

When the pump arrives, check to make sure that you have all the required parts, which should include the:

**iPump™ Pain Management System Package Contents**
Pump Components

- PCA port
- Printer port
- AC power port
- Battery compartment to hold the battery
- Tubing cover that holds the tubing in place and prevents it from kinking
- Container (cover) that holds the fluid bag in place and can be locked
- Key pad for programming

The pump is a linear peristaltic pump that consists of:

- Pump Components
Pump Key Pad

- Liquid Crystal Display (LCD)
- Left, Scroll, and Right Arrow Keys
- Retaining Clip
- Start, Stop
- Enter, On/Off
- Clear/Silence, History

Figure 2-2 Pump Key Pad
<table>
<thead>
<tr>
<th>Description</th>
<th>Action Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>The left (←) and right (→) arrow keys move the cursor (↑) on the LCD to the left and right.</td>
<td></td>
</tr>
<tr>
<td>Turn on/off the pump. For more detailed information, see “Turn on the pump,” Press this key twice to power off the pump. Press this key once to power on the pump if the pump is turned on.</td>
<td>ON/OFF</td>
</tr>
</tbody>
</table>

Table 2-1 Action Keys
<table>
<thead>
<tr>
<th>Action Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Scroll Arrow" /></td>
<td>The scroll (↑) key displays the next available option or scrolls through the digits 0-9 at the cursor's (↑) current position on the LCD. Press and hold the key to increase the scrolling speed.</td>
</tr>
<tr>
<td><img src="image" alt="Enter Key" /></td>
<td>The ENTER key sets the value displayed on the LCD.</td>
</tr>
<tr>
<td><img src="image" alt="Start Key" /></td>
<td>The START key begins the operation of the pump and can also be configured to act as a PCA button. If all of the required programming values have been entered, the START key initiates the infusion. Following the resolution of certain alerts or alarms, pressing the START key resumes the infusion if the condition no longer exists.</td>
</tr>
<tr>
<td>Description</td>
<td>Action Key</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>The HISTORY Key displays the infusion history on the LCD.</td>
<td></td>
</tr>
<tr>
<td>The STOP Key must be pressed twice in 1 second to stop the operation of the pump. After you press the STOP Key, you can press the ON/OFF Key to turn the pump on.</td>
<td></td>
</tr>
<tr>
<td>The CLEAR/SILENCE Key either clears the data shown on the LCD or silences an alert or alarm.</td>
<td>![Image]</td>
</tr>
</tbody>
</table>

Table 2-1: Action Keys — continued
## Pump Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Light Emitting Diode" /></td>
<td>The ALERT Light Emitting Diode (LED) flashes red if it is activated by an alert or an alarm.</td>
</tr>
<tr>
<td><img src="image" alt="Green LED" /></td>
<td>This green INFUSING LED flashes intermittently when the pump is operating normally.</td>
</tr>
<tr>
<td><img src="image" alt="Printer/Communication Port" /></td>
<td>The printer/communication port is an RS232-compatible port (connection) for a printer adapter.</td>
</tr>
<tr>
<td>Symbol</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>AC ![AC symbol]</td>
<td>This AC adapter port must be used to plug the pump into a Baxter AC adapter approved for use with the pump.</td>
</tr>
<tr>
<td>![PCA symbol]</td>
<td>The PCA port must be used to connect the PCA cord, which is attached to the PCA button.</td>
</tr>
</tbody>
</table>
### LCD Symbols

**Table 2-3  LCD Symbols**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Battery Icon" /></td>
<td>When the 9-volt battery appears on the screen, it is the primary power source.</td>
</tr>
<tr>
<td><img src="image2" alt="Plug Icon" /></td>
<td>If an electrical plug is displayed, the pump is connected to an AC adapter.</td>
</tr>
</tbody>
</table>
Chapter 3. Setting Up the Pump

The steps required to set up and use the pump include:

■ Installing and changing the battery
■ Connecting the AC adapter
■ Installing the PCA button
■ Connecting the PCA button
■ Removing or changing the cover
■ Preparing, loading, and changing the fluid bag and tubing set
■ Attaching or removing the pump from a pole (optional)

The following sections contain step-by-step procedures for completing these tasks. To obtain information, refer to “Accessories and Recommended Sets, 8-1”.
Installing and Changing the Battery

When you use the pump, you should install a 9-volt alkaline battery to:

- enable patients to carry the portable pump, and
- ensure that the pump continues to operate during a power outage.

This section covers how to install the battery and how to replace it when necessary.

Note: If all power sources have been disconnected or are not functioning, the pump will emit a chirping sound and the red LED will flash for a short period of time to notify the user that no power source is available. To silence the chirp, press the Clear/Silence key.
4. Insert the battery with the poles down into compartment, close the battery door, and slide it back to the original position.

3. Check the (+) and (-) labels inside the battery compartment to determine the correct placement of the battery. Battery.

2. Then, hit the latch door. The arrow.

1. Open the battery compartment by sliding the battery latch door on the top of the pump in the direction of the arrow.

Do not use zinc-air, ni-cad, or any other rechargeable batteries with the Pump™ Pain Management System.

---

**CAUTION**

Install the 9-Volt Alkaline Battery.
(2) Lift up the latch door.

(1) Slide the battery door to the right.

**Insert the Battery**

As you insert the battery, make sure that the poles are facing downward.

Then, close the battery door securely by sliding the cover back over the battery.

Figure 3-1   Inserting the Battery
Change the Battery

The 9-volt alkaline battery should be changed regularly. If battery voltage drops below the required level:

- A LOW BATTERY alert will appear on the pump’s screen,
- The red Alert and green INFUSING LEDs will flash, and
- An audible alert will sound.

After you replace the battery, dispose of the old one according to the manufacturer’s recommendations and applicable environmental regulations.

To change a battery, you must complete one of the following procedures in addition to the same tasks described in “Install the 9-volt Alkaline Battery, 3-3”:

- If the pump is powered by the AC adapter, remove and replace the battery at any time without interrupting operation. During the battery change, the pump will issue the PCA message and the BATTERY MISSING alert, but will not interrupt service.
- If the pump is battery-operated and the infusion has not been started, press ENTER to acknowledge the alert, turn off the pump and replace the battery. Then, turn on the pump and re-enter the
prescription as described in “Using the Pump, 5-1”.

- If the pump is battery-operated and the infusion has been started, turn off the pump as described in “Using the Pump, 5-1” and replace the battery.

In this case, the pump will turn off, but it will retain the prescription and therapy history. When the battery is replaced and the pump is turned on, the pump will display PUMP READY PRESS START or PUMP READY START OR CLEAR. Restart the pump as indicated in “Using the Pump, 5-1”.
Change the Battery

The 9-volt alkaline battery should be changed regularly. If battery voltage drops below the required level:

- A **LOW BATTERY** alert will appear on the pump’s screen,
- The red Alert and green **INFUSING** LEDs will flash, and
- An audible alert will sound.

After you replace the battery, dispose of the old one according to the manufacturer’s recommendations and applicable environmental regulations.

To change a battery, you must complete one of the following procedures in addition to the same tasks described in “Install the 9-volt Alkaline Battery, 3-3”.

- If the pump is powered by the AC adapter, remove and replace the battery at any time without interrupting operation. During the battery change, the pump will issue the **AC** message and the **BATTERY MISSING** alert, but will not interrupt service.
- If the pump is battery-operated and the infusion has not been started, press ENTER to acknowledge the alert, turn off the pump and replace the battery. Then, turn on the pump and re-enter the
Attach the Adapter

To allow patient ambulation, the AC adapter must be used to plug the pump into an AC electrical power source. The 9-volt alkaline battery should be inserted in the battery compartment as a backup power source in the event of AC power interruption.

1. Find the red dot on the adapter connector and on the connector port on the pump (see Figure 3-2).

2. Rotate the adapter cord so that the red dot on the base of the connector is aligned with the red dot on the pump.

3. Insert the connector of the adapter into the port on the bottom panel of the pump labeled with the AC symbol.

4. Make sure that the 9-volt alkaline battery is inserted in the battery compartment as a backup power source.

5. Plug in the AC adapter into an AC electrical power source.
Figure 3-2  AC Adapter Connection

Red Connecting Dots on the AC Adapter

and Connector Port
BASALT+PCA mode.

The PCA cord is not required if the pump is programmed to operate with a 0.0 mL PCA dose in the
non-zero PCA dose.

The PCA cord is required if the pump is programmed to operate in the PCA or BASALT+PCA mode with a
continuous mode.

The PCA cord is not required if the pump is programmed to operate in Continuous mode.

Connected when the infusion is started.

Programming for the PCA or BASALT+PCA mode will generate the alarm message "PCA button not
if the pump is configured for use only with the PCA button," failure to connect the PCA cord after.

Either the PCA button, or the START Key.

Only the PCA button, or

PCA Cord, 3-10. The pump can be configured to start a PCA infusion by using:

Installing the PCA Button
1. Plug the PCA cord into the PCA outline on the pump and gently bend the cord into a "hump" shape.

2. Gently pull the cord through the clip until the "hump" straightens out.

Connecting the PCA Cord
Figure 3-4: Connect PCA cord and plug.

3. Make sure the PCA cord and plug are installed as shown in Figure 3-4.
1. To remove or change the cover, unlock the cover if necessary, and open it (see Figure 3-5).
2. Place the pump face down (see Figure 3-5).
3. Detach the current cover from the pump by removing the three screws on the hinge assembly (see Figure 3-5).
4. Attach the new cover by aligning the hinge assembly and replacing the three screws.

Removing or Changing the Cover
Place the pump face down.

Unlock and open the cover.
You reconnect the cover.

Make sure that you line up the hinges when

hinges.

Remove the three screws that connect the
Load Viaflex®, IntraVia® container, or similar fluid bags

Change the Fluid Bag

More specific information about the types of required bags is provided in “Accessories and Recommended Sets, 8-1”.
Preparing, Loading, and Changing the Tubing Set and Fluid Bag

During the preparation of the fluid bag and tubing set, you must use aseptic techniques, follow hospital guidelines for changing bag sets, and follow the directions for the fluid bag provided by the manufacturer. The pump may be used with several types of fluid bags, including:

- Baxter 100 mL or 250 mL bags, or
- Viaflex®, IntraVia® container, or similar fluid bags up to 500 mL

**WARNING!** This pump should be used only with the Baxter accessories specified for it. There are risks associated with using anything other than the recommended accessories with this pump. Accessories designated for use with this pump are listed in “Accessories and Recommended Sets, 8-1”.

The following directions are provided to assist you in using the different types of bags in the pump. These directions cover how to:

- Unlock the Cover
- Load the Tubing Set
- Load Baxter 100 mL or 250 mL Bags
If the pump is configured for CODE ONLY, no cover is necessary.

1. Unlock the cover.

3. If the cover is locked, insert the key, and rotate it one-quarter turn counter-clockwise. Then, open the cover.

2. Turn the pump over so that the programming keys are face down.

1. If the pump is attached to a pole, remove it as described in "Removal from the Pole," 3-29."

**CAUTION**

Only use sets manufactured by Baxter as specified in "Accessories and Recommended Sets," 8-1."
Unlock the cover door.

Open the cover door.

Unlocking and Opening the Cover Door

Figure 3-7
Figure 3-8 Tubing Set

1. To load the tubing set:

2. Release the tubing door latch by moving it away.

3. Open the tubing door by pulling it down.

4. Ensure that the set's longer tubing segment exits through the hinge.

5. Load the tubing set into the groove in the tubing.

Follow the curved groove, exiting behind the side of the pump. The shorter segment must fit into the bulkhead. See Figure 3-9.

Load the Pump for attachment to the base.
Figure 3-9

Longer End of Tubing Set

Shorter End of Tubing Set
Failure to latch the tubing door properly may result in a no flow condition.

To avoid pinching the tubing, do not let the tubing fall out of the groove when you are closing the tubing door.

Release the latch so that it returns to its original position.

Close and latch the tubing door as follows: Move the latch away from the hinge, close the tubing door, and

Note: The pump automatically closes off the tubing whenever the device is stopped to reduce the risk of a free flow condition. Whenever the device is removed from the pump, the anti-siphon valve on the set reduces the risk of a free flow condition when used in accordance with the set's instructions.
Load Baxter 100 mL or 250 mL Bags

**CAUTION**  All luer-lock connections must be properly tightened. Over tightening of a connection may crack the luer and cause leakage.

1. Open the package and carefully remove the bag.

**Note:** Do not confuse the nonvented cap (which is supplied in its own package) with the cap attached to the outlet tubing. The cap attached to the outlet tubing is not airtight and will not prevent fluid leakage.

2. Fill a sterile syringe with the solution to be placed in the bag.

3. Remove and discard the cap from the outlet tubing of the bag.

4. Connect the syringe to the female luer-lock fitting on the bag’s outlet tubing. (Do not use a needle.)

5. Inject the solution into the bag. If necessary, refill the syringe and repeat the process. (The bag will hold approximately 100 mL or 250 mL, depending on the bag selected.)

6. Remove all air from the bag by aspirating with the syringe, and then remove the syringe.
End of Steps

WARNING!

You must change the administration set after 2,000 mL of infusion or every seven days, depending on the type of infusion.

Note: To prevent upstream occlusions, open any optional clamp on the bag before starting the infusion.

9. Connect the distal end (longer segment) of the pump tubing set to the patient's access site, making certain that the Luer-lock connection is properly tightened.

WARNING!

The tubing set must NOT be connected to the patient while priming.

WARNING!

Prime the pump, 5-23.

8. Remove the air from the remainder of the tubing set by following the priming procedure described in the pump manual.

If the bag is being stored for later use, connect the nonvented cap to the bag after the bag is filled. If the bag is being used immediately, do not use the nonvented cap. Connect the Luer-lock fittings to the tubing set.
Load Viaflex®, IntraVia®, or Similar Fluid Bags

1. Open the package and carefully remove the bag.

2. Add any additional drug to the bag using an appropriate syringe and needle for the injection port of the bag.

3. Remove all air from the bag by aspirating with the syringe, and then remove the syringe.

4. Insert the tubing set spike into the outlet port of the bag.

5. Remove the air from the remainder of the tubing set by following the priming procedure described in "Prime the Pump, 5-23."

6. Connect the distal end (longer segment) of the pump tubing to patient's access site, making certain that the luer-lock connection is properly tightened.

Follow any directions provided by the manufacturer of the fluid bag being used.

CAUTION

WARNING!
End of Steps

10. If a cover is attached to the pump, lock it. If the cover cannot be closed and locked, check the tubing cover functioning could be compromised or permanent damage may result.

Avoid getting any liquids on the tubing set, inside the tubing door, or in the tubing channel. Air sensor failure to latch the tubing door properly may result in a no flow condition.

Failure to latch the tubing door properly may result in a latch on the pump.

If the tubing is pinched by the closed tubing door, resistance to flow may increase and glid delivery to the patient may be compromised. If this occurs, open the pump, release the tubing, and check the tubing.

If the pump is started,

9. Close the cover, taking care not to pinch the pump tubing. If the tubing is pinched, an alarm will sound after.

8. Verify that the tubing door is properly closed and latched.

7. Groove in the tubing door (Load the Tubing Set, 3-19). After connecting the bag to the pump tubing, place the bag inside the cover and place the tubing in the groove.

Note: To prevent upstream occlusions, open any optional clamp on the bag before starting the infusion.
Change the Fluid Bag

1. Follow the "Load Baxter 100 mL or 250 mL Bags, 3-22," to prepare and install the bag and tubing set.

2. Complete the tasks described in the "Changing the Tubing Set and Fluid Bag, 3-15".

3. Enter the correct fluid volume, and prime the set, if required, as indicated in "Preparing, Loading, and Selecting PRIME at the SELECT ACTION prompt.

4. When the pump displays the PUMP READY prompt, press START to restart the infusion.

End of Steps
Attach the pump to a pole

1. Align the pole-mounting clamp below the slide bracket on the back of the pump.
2. Slide the clamp toward the top of the pump until it stops.
3. To keep the clamp attached to the pump, insert the two enclosed screws through the clamp and into the holes in the bracket.

Figure 3-10

(Optional) Attaching or Removing the Pump From a Pole
4. Mount the clamp to a stable pole or vertical rail that is 0.5" to 1.25" in diameter and tighten it. If the clamp is detached from the pump, make certain the arrow on the clamp is pointing up.

5. Lock the clamp by inserting the key, pushing it in, and rotating it clockwise to the locked position.

**Note:** The pump must be in the clamp before locking the clamp. Failure to do so makes it possible for the pump to be removed without using a key.

Although the clamp may be tightened when it is locked, it cannot be loosened enough to remove it.

![Figure 3-11 Locking the Clamp](image)
Remove the Pump From the Pole

1. Unlock the clamp by inserting the pole-mounting clamp key into the lock on the housing, pushing the clamp free.

2. If the clamp has not been screwed onto the pole, remove the pump from the pole. If the clamp has been screwed onto the pump, slide the pump up and out of the clamp to loosen the clamp. By turning the knob counter-clockwise to remove the pump from the pole, loosen the clamp.

Figure 3-12 Unlocking the Clamp

Unlock
detection (see "Configurable Options - Controls, 4-6").

Controls - For restarting the pump after the bolus and selecting the alert silencing time, low-volume alert time, PCA button status, preventive maintenance alert, upstream occlusion detection, and air occlusion detection (see "Configurable Options - Controls, 4-6").

Limits - For the infusion mode, units, dose limit, pump maximum dose, pump maximum continuous rate, and max bolus dose (see "Configurable Options - Limits, 4-4").

Preferences - For a particular language, date format, clock type, decimal mark, security method, security code, and identification label (see "Configurable Options - Preferences, 4-7").

In the Configuration Manual, the pump's configurable features are categorized as:

- Factory-set defaults can be modified by authorized personnel to meet customer-specific needs as described in the section "Factory-set Defaults Can Be Modified by Authorized Personnel".

This section lists the configurable features and the initial factory settings available for this device.

Chapter 4. Configurable Options
<table>
<thead>
<tr>
<th>Preferences</th>
<th>Available Settings</th>
<th>Factory Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>ENGLISH, SPANISH, FRENCH, JAPANESE, GERMAN, DANISH/SWEDISH, ITALIAN, NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>Date Format</td>
<td>MM/DD/YY, DD/MM/YY, YY-MM-DD</td>
<td>MM/DD/YY</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>123</td>
<td>100 – 999</td>
<td>999</td>
</tr>
<tr>
<td>Key+Code</td>
<td>Key Only</td>
<td>Code Only Code Only Code Only</td>
</tr>
<tr>
<td>POINT (decimal point)</td>
<td>POINT (decimal point)</td>
<td>POINT (decimal point)</td>
</tr>
</tbody>
</table>

**Note:** AM or PM will be displayed when the pump is configured for a 12-hour clock.

- **Time Setting**
  - 24 Hour
  - 12 Hour

**Factory Settings**

**Available Settings**

**Preferences**

**Table 4-1** Configurable Options - Preferences — continued
Table 4-1  Configurable Options - Preferences — continued

<table>
<thead>
<tr>
<th>Preferences</th>
<th>Available Settings</th>
<th>Factory Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification Label</td>
<td>Up to 16 characters (A-Z, 0-9, blank, dash and characters and accents for specific languages such as Japanese characters, German Ä, Ö, Ü, the Danish Ä, Å, Ö, and the Spanish N)</td>
<td>None</td>
</tr>
</tbody>
</table>

The Identification Label is a user-defined message that is displayed following the Power On Self Test.

Table 4-2  Configurable Options - Limits

<table>
<thead>
<tr>
<th>Limits</th>
<th>Available Settings</th>
<th>Factory Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infusion Modes</td>
<td>PCA</td>
<td>All modes enabled</td>
</tr>
<tr>
<td></td>
<td>BASAL+PCA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>9.9 ml/hr</td>
<td>0.2 to 49.9 ml/hr</td>
<td>Maximum Bolus Dose</td>
</tr>
<tr>
<td>----------</td>
<td>------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>19.9 ml/hr</td>
<td>0.2 to 90.0 ml/hr</td>
<td>Maximum Continuous Rate</td>
</tr>
<tr>
<td>9.9 ml/hr</td>
<td>0.2 to 19.9 ml/hr</td>
<td>Maximum Basal Rate</td>
</tr>
<tr>
<td>9.9 ml/hr</td>
<td>0.2 to 9.9 ml/hr</td>
<td>Maximum PCA Dose</td>
</tr>
<tr>
<td>1 HOUR</td>
<td>PCA DOSES/HOUR 4 HOUR 1 HOUR</td>
<td>Dose Limit Type</td>
</tr>
<tr>
<td>All Infusion units types enabled</td>
<td></td>
<td>Infusion Limits</td>
</tr>
<tr>
<td>Factory Settings</td>
<td>Available Settings</td>
<td>Limits</td>
</tr>
</tbody>
</table>

Table 4-2: Configurable Options - Limits — continued
<table>
<thead>
<tr>
<th>Controls</th>
<th>Available Settings</th>
<th>Factory Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restart After Bolus</td>
<td>AUTO RESTART MANUAL RESTART</td>
<td>AUTO RESTART</td>
</tr>
<tr>
<td>This setting determines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>whether the pump will begin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>infusion automatically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>after completing initial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bolus delivery, or whether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the operator must press</td>
<td></td>
<td></td>
</tr>
<tr>
<td>START to begin infusion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alert Silencing Time</td>
<td>2, 15, 30 or 60 MIN</td>
<td>2 MIN</td>
</tr>
<tr>
<td>Low Volume Alert Time</td>
<td>30, 60, 90 or 120 MIN</td>
<td>120 MIN</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>----------------------</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td><strong>UPstream Occlusion Detection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventive Maintenance Alert</td>
<td>() (no alert)</td>
<td>12 MONTHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> In PCA and BAsAL+PCA modes, the ROW of PCA button on the START key is an alternative for requesting PCA doses. The OPTIONAL setting allows the use of an alternative for requesting PCA doses. The REQUIRED setting requires use of an alternative for requesting PCA doses.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>REQUIRED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory Settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4-3** Configurable Options - Controls — continued
<table>
<thead>
<tr>
<th>Controls</th>
<th>Available Settings</th>
<th>Factory Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Detection</td>
<td>OFF&lt;br&gt;LOW = 500 μL within 800 μL of fluid&lt;br&gt;HIGH = 100 μL within 160 μL of fluid</td>
<td>OFF&lt;br&gt;The air sensor will measure the accumulated amount of air detected over an amount of fluid delivered. The amounts of delivered fluid depend on the programmed air bubble size. The air alarm is triggered for a single air bubble greater than the set threshold or an accumulation of air greater than the threshold. <strong>WARNING!</strong>&lt;br&gt;The air sensor will detect and measure accumulated amount of air over an amount of fluid delivered. However, the pump may not detect all instances of micro or &quot;champagne&quot; air bubbles.</td>
</tr>
</tbody>
</table>
Do not use any pump that has readily apparent defects or damage, including missing or mishandled components, missing display pixels, or missing audio.

WARNING: Do not use any pump that has readily apparent defects or damage, including missing or mishandled components, missing display pixels, or missing audio.

Chapter 5. Using the Pump
Preliminary Information

Select Settings and Enter Values

1. Press the left (⇐) and right (⇒) keys to position the cursor (↑) under the required digit or selection.

<table>
<thead>
<tr>
<th>Cursor Position</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>far-left value</td>
<td>press the ⇐ key to move (wrap) the ↑ to the far right.</td>
</tr>
<tr>
<td>far-right value</td>
<td>press the ⇒ key to move (wrap) the ↑ to the far left.</td>
</tr>
</tbody>
</table>
For a PCA dose, pressing the START key will initiate a PCA dose, but will not turn on the back light.

When the pump is powered through the AC adapter, the display and back light will remain on constantly.

**Turn on the Back Light**

1. Press the Scroll/Select key to select a different value or scroll through available options. To increase the speed
2. Press the scroll key (↓) to select a different value or scroll through available options. To decrease the speed
3. Release the ENT key and press ↓ key again to reset the scroll rate to the previously set lower rate.
4. Press the Clear/Silence key to reset numerical values to zero.

If the pump is operated by using a battery, both the display and back light are turned off during infusions.

To turn the back light on and off, press the START key while the display is on.
Retain Programming Data

The pump automatically saves the prescription settings and tracking information in memory. This information will not be lost if the pump is turned off. If a pump is restarted, the previous prescription can be accessed as described in “Reviewing the Therapy History, 5-44”.

Display the Power Status

The power status of the pump is shown in the upper right hand corner of the display by:

- A battery symbol to show that the pump is operating on battery power, or
- A plug to indicate that the pump is powered through the Baxter AC adapter.

See “Pump Symbols, 2-10” for graphic examples.
Select the Mode and Units
Use the Previous Prescription
Enter the Security Code
Unlock and Lock the Cover
Accept or Modify Date and Time Settings
Wait for the Software to Load
Select the Language
Turn off the Pump
Turn on the Pump

Procedures

Procedures include specific instructions and examples. The following procedures are generic and apply to PCA, BASAL+PCA, and CONTINUOUS infusions. The following procedures are specific to the pump and depend on whether you are setting up an infusion for the first time or restarting a pump. All of these procedures include specific instructions.

Basic Pump Procedures
- Set the Concentration

- Prime the Pump

- Set the Fluid Volume in the Reservoir

Before the pump is put in service, it should be configured as necessary to reset any of the default values described in “Configurable Options, 4-1”.
<table>
<thead>
<tr>
<th>End of Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Wait for the self-diagnostic tests to complete.</td>
</tr>
<tr>
<td>1. Press the ON/OFF key to turn on the pump.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performing Power ON SELF TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message Displayed</td>
</tr>
</tbody>
</table>

When the pump is turned on, it begins a series of self-diagnostic tests. During these tests, the LEDs flash.

Center, 7-1". Sound a brief alarm tone, or fails the self-test, contact the service center listed in "Authorized Service".
**Turn off the Pump**

Turn off the pump to reset or modify a prescription during programming or administration of a bolus or infusion. If the pump is turned off, prescription data will be saved in memory. When the pump is turned back on, the previous prescription can be resumed or other options may be selected. See “Restart the Infusion, 5-40”.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If an infusion is in progress, press STOP twice within 1 second. This will stop the infusion but will not turn off the pump.</td>
<td>KEY+CODE and KEY ONLY: PUMP READY PRESS START CODE ONLY: PUMP READY START OR CLEAR</td>
</tr>
<tr>
<td>Action</td>
<td>End of Steps</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Press the ON/OFF key twice within 1 second.</td>
<td>Message displayed</td>
</tr>
</tbody>
</table>
Select the Language

If the pump is not configured for a particular language, the pump will default to a **NONE** option, which will allow the user to cycle through and select the appropriate language as English, Spanish, French, Japanese, German, Danish/Swedish, or Italian. To avoid having to scroll through these languages, properly set a language as indicated in the Configuration Manual.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wait for the correct language to appear on the screen.</td>
<td>Example:</td>
</tr>
<tr>
<td>Press ENTER to accept the language</td>
<td>PRESS ENTER FOR</td>
</tr>
<tr>
<td>OR</td>
<td>↑ ENGLISH</td>
</tr>
<tr>
<td>Wait for the list to scroll through again if you missed the required entry.</td>
<td></td>
</tr>
<tr>
<td>End of Steps</td>
<td></td>
</tr>
</tbody>
</table>
End of Steps

1. Wait for the pump to load the software and complete the self-test.

2. If an identification label is defined for the pump, it is briefly displayed.

**Error Code:** IZ

**Example:**

If an identification label is defined for the pump, it is briefly displayed.

**Result:** The software version is displayed.

**Action:**

Wait for the pump to load the software and complete the self-test.

Precaution has been programmed.

Sequence of this message will vary, depending on how the pump is configured and whether a previous sequence of this message is displayed. The pump completes the self-test, the software is loaded, and the software version is displayed. The pump should only be operated after completing the self-test.
Accept or Modify Date and Time Settings

The date may appear as MM/DD/YY, DD/MM/YY, or YY-MM-DD, depending on the configured date format. AM or PM is:

- displayed if the pump is configured for a 12-hour clock or
- omitted if the pump is set up for a 24-hour clock (military time)

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wait for the software to load. When the date and time appear: Press ENTER to accept the values, and go to the next required procedure. OR Press Clear to modify the values; then go to Step 2.</td>
<td>Example: 06/30/99 08:55PM ENTER OR CLEAR</td>
</tr>
<tr>
<td>SET DAY ↓</td>
<td>CLEAR/SILENCE KEY to reset the previous values.</td>
</tr>
<tr>
<td>06/28 08:35PM</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
</tbody>
</table>

| SET MONTH ↓ | OR |
| 06/28 09:35PM |

| SET MONTH ↓ | OR |
| 06/29 09:35PM |

| SET MONTH ↓ | OR |
| 06/30 09:35PM |

| Example: 06/30 09:35PM |

| Example: 06/29 09:35PM |

| Example: 06/28 09:35PM |

4. If you make a mistake, press the: 

| ↓ KEY again until the correct value appears. |

| ↓ KEY again until the correct value appears. |

3. Press the ↓ KEY to select the correct digit. 

| ↓ KEY again until the correct value appears. |

| ↓ KEY again until the correct value appears. |

2. Press the ↓ KEY to position the ↓ under the number that you want to change. 

| ↓ KEY again until the correct value appears. |

| ↓ KEY again until the correct value appears. |

<p>| ↓ KEY again until the correct value appears. |</p>
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Repeat the preceding steps until you have set the month, day, year,</td>
<td>UNLOCK THE COVER</td>
</tr>
<tr>
<td>hour, and minute. When the values are correct, press ENTER.</td>
<td></td>
</tr>
<tr>
<td>End of Steps</td>
<td></td>
</tr>
</tbody>
</table>

**Unlock and Lock the Cover**

If the pump is configured for the KEY+CODE or KEY ONLY security method, the pump prompts you to UNLOCK THE COVER. When you unlock and then open the cover, the message LOCK THE COVER is displayed on the screen and the pump produces a beeping sound.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Place the key inside the lock, twist it one-quarter turn counter</td>
<td>UNLOCK THE COVER</td>
</tr>
<tr>
<td>clockwise, and open the back cover of the pump.</td>
<td></td>
</tr>
</tbody>
</table>
If the pump is configured for the KEY+CODE or CODE ONLY, you will be prompted to enter the security code before you can program the prescription.

**Enter the Security Code**

<table>
<thead>
<tr>
<th>Message Displayed</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE COVER LOCKED</td>
<td></td>
</tr>
<tr>
<td>Cover prompt while sounding a repeating alert tone. When the cover is unlocked, the pump displays the lock.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>End of steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Lock the cover by turning the key clockwise one-quarter turn.</td>
</tr>
</tbody>
</table>
**Note:** The pump has a factory-default security code of “123”. See the Configuration Manual for directions on how to customize this code.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Press the ↑ key to enter the first number of the security code for the pump.</td>
<td>000 ENTER CODE ↑</td>
</tr>
<tr>
<td>2. Press the → key to position the ↑ under the second number.</td>
<td>100 ENTER CODE ↑</td>
</tr>
<tr>
<td>3. Press the ↑ key to display the second number. If you make a mistake, use the ↑, ← or → keys to enter the correct value.</td>
<td>120 ENTER CODE ↑</td>
</tr>
<tr>
<td>4. Repeat the preceding steps until all of the numbers are entered correctly. Then, press ENTER.</td>
<td>123 ENTER CODE ↑</td>
</tr>
</tbody>
</table>

End of Steps
<table>
<thead>
<tr>
<th>Use Previous RX?</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Use the Previous Prescription Message Displayed</td>
</tr>
</tbody>
</table>

If a NO response is selected, the pump will display zeroes for the initial parameter values for the mode, unit, and options.

For example, if a different mode is selected, the prescription will be re-calculated with updated default values.

If a YES response is entered, the pump will display the previous prescription settings.

At the USE PREVIOUS RX? prompt, press ENTER to select YES.
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. If necessary, press HISTORY to review the previous therapy history as described in the &quot;Reviewing the Therapy History, 5-44&quot;. The pump will return to the USE PREVIOUS Rx? prompt following the history review.</td>
<td></td>
</tr>
<tr>
<td>End of Steps</td>
<td></td>
</tr>
</tbody>
</table>
Set the Concentration

The units displayed on the pump’s LCD are determined by the selected programming unit and mode. If the previous prescription settings are being used, that concentration setting is displayed instead of zeroes. If mL units are selected, you do not have to enter the concentration entry.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use the ← or → keys and ↑ key to set the correct concentration.</td>
<td>00.0 mg/mL SET ↑ CONC.</td>
</tr>
<tr>
<td>2. If you make a mistake, press the:</td>
<td>000 μg/mL SET ↑ CONC.</td>
</tr>
<tr>
<td>↑ key again until the correct value appears.</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>← or → key to reposition the ↑.</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Clear/Silence key to reset the previous value to 0.</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>
Set the Fluid Volume in the Reservoir

Before continuing with prescription entry, you must set the fluid volume in the reservoir:

<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Press the ⇔ or ⇒ key to position the ↑.</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>0000 mL SET ↑FLUID VOLUME</td>
</tr>
<tr>
<td>2. Press the ↑ key as necessary to set the volume.</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>3. Press the Clear/Silence key to reset the values to zero or the previous setting.</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>4. Press the ENTER key to set the value.</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

End of Steps
<table>
<thead>
<tr>
<th>Example:</th>
<th>3. Press ENTER when the desired value is displayed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONC. ↓ 100 mg/ml SET</td>
<td>End of steps</td>
</tr>
<tr>
<td>CONC. ↓ 10.0 mg/ml SET</td>
<td></td>
</tr>
<tr>
<td>Message Displayed</td>
<td>Action</td>
</tr>
</tbody>
</table>
The tubing set MUST NOT be connected to the patient while priming.

**WARNING:** The total priming volume, if in progress, the pump displays the amount being delivered. After priming is completed, the pump shows will not be allowed to prime the pump more than 10 times without entering a security code. While priming the pump must be disconnected from the patient before you prime the pump. As a security measure, you should:

Prime the Pump
<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Press the START key to prime the pump, or press the HISTORY key to display the current priming total.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>START TO PRIME ENTER TO PROCEED</td>
</tr>
<tr>
<td>2. Wait for the pump to prime. The priming continues until 0.5 mL is delivered or STOP is pressed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Example: PRIMING 00.2 mL</td>
</tr>
<tr>
<td>3. Observe the PRIMING TOTAL message.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Example: PRIMING TOTAL 01.5 mL</td>
</tr>
<tr>
<td>Step</td>
<td>Action</td>
<td>Note</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Repeat priming as many times</td>
<td>Note: After 10 priming steps (that is, when 5 is fully primed), as necessary until the tubing set is fully primed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Pump returns to the START TO PRIME prompt. Wait a few seconds until the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Press ENTER to continue.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Press ENTER to continue.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>End of steps.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Programming the Prescription

These procedures cover how to program PCA, BASAL+PCA, and CONTINUOUS prescriptions. After you select PCA, BASAL+PCA, or CONTINUOUS, follow the checks provided in the procedures to determine the screen messages applicable to each mode, and then complete all applicable tasks. The tasks covered in this section include:

- Program PCA Dose
- Set the PCA Delay Period
- Program the Basal Rate
- Set the Dose Limit
- Program the Bolus Dose
- Program Continuous Rate
- Program a Supplemental Bolus
being used, those values will be displayed instead of zeros.

determined by the selected programming units (ml, mg, or kg). If the previous prescrip-

All of the units presented in this section are provided only as examples. The actual units displayed are
# Program the PCA Dose

The PCA dose is the programmed volume of the drug to be injected when requested by the patient.

<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use the ← and → keys and ↑ to program the PCA dose.</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>0.0 mL SET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>↑ PCA DOSE</td>
</tr>
<tr>
<td>2. If necessary, press the Clear/Silence key to reset the displayed value to zero.</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Press ENTER when the desired value is displayed.</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End of Steps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Program the Basal Rate

<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use the $\leftarrow$ and $\Rightarrow$ keys and $\uparrow$ to program the basal rate.</td>
<td></td>
<td>✓</td>
<td></td>
<td>000.00 mg/hr SET $\uparrow$ BASAL RATE</td>
</tr>
<tr>
<td>2. If necessary, press the Clear/Silence key to reset the displayed value to zero.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Press ENTER when the desired value is displayed.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Steps
<table>
<thead>
<tr>
<th>Action</th>
<th>Basal + PCA</th>
<th>PCA</th>
<th>Continuous</th>
<th>SET DELAY ↓ 000 MINUTES</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press ENTER when the desired value is displayed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear/Silence key to reset the displayed value to zero.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If necessary, press the SET DELAY key. Use the ← and → keys and ↓.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To set the PCA delay period.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interpreted:

Set the PCA delay period.

Start of infusion. During the delay period, another PCA dose may not be started. Even if a PCA dose is delivered, the delay measured from the start of delivery of each PCA dose is measured from the previous PCA dose.
<table>
<thead>
<tr>
<th>Message Displayed</th>
<th>Continuous</th>
<th>Basal+PCA</th>
<th>PCA</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 SET MAX PCA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>↓ 4 HR LIMIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.00 mg SET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>↓ 1 HR LIMIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.00 mg SET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To set the dose limit, use the 'and' keys and:

1. Set the dose limit in the new time period.

The pump will display a 1-hour, 4-hour, or maximum dose limit depending on the configuration of the dose limit.
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTINUOUS</td>
<td></td>
</tr>
<tr>
<td>BASAL+PCA</td>
<td>✓</td>
</tr>
<tr>
<td>PCA</td>
<td>✓</td>
</tr>
</tbody>
</table>

2. If necessary, press the Clear/Silence key to reset the displayed value to zero.

3. Press ENTER when the desired value is displayed.

End of Steps

Example:

- 010.00 mg SET ↑ 1 HR LIMIT
- 010.00 mg SET ↑ 4 HR LIMIT
- 01 SET MAX PCA ↑ 4 DOSES/HR

| BOLUS SET | | | | Value is displayed. Press ENTER when the desired displayed value is zero.
| CLEAR/SILENCE key to reset the 2. If necessary, press the
| | | | Note: If no bolus is desired, enter zero.
| BOLUS SET | | | | To program the bolus dose.
| | | | Use the and Keys and ↓
| Message Displayed CONTINUOUS PCA BASAL+PCA Action | Display the programmed dose if instead of zeroes.

The programmed bolus dose is either delivered automatically at the start of therapy, or initiated by the

**Program the Bolus Dose**
<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Connect the pump tubing set to the patient’s access device.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>START BEGINS RX ENTER REVIEWS RX</td>
</tr>
<tr>
<td>5. Press START to begin the bolus.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6. Wait until the bolus starts. Result: The INFUSING LED will flash green.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Example: BOLUS INFUSING 1000.0 mg</td>
</tr>
<tr>
<td>Note: If a bolus has been programmed, the bolus dose will be delivered first.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Wait until the bolus delivery is completed, or press STOP twice in 1 second to stop the infusion.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Example: BOLUS DONE 1000.0 mg</td>
</tr>
</tbody>
</table>

End of Steps
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Program the Continuous Rate</td>
<td>Use the ( \Rightarrow ) and Keys and ( \downarrow ) to program the continuous rate.</td>
</tr>
<tr>
<td>2</td>
<td>If necessary, press the Clear/Silence key to reset the displayed value to zero.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Press ENTER when the desired value is displayed.</td>
<td>End of steps</td>
</tr>
</tbody>
</table>
# Program a Supplemental Bolus

If a bolus is interrupted, it cannot be restarted automatically. To administer additional bolus volumes, you must reprogram the bolus.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At the SET BOLUS prompt, use the← and → keys and ↑ key to set the desired bolus dose. Press Clear/Silence to make the displayed value zero. Press ENTER when the desired value is displayed.</td>
<td>00.0 mL SET ↑ BOLUS</td>
</tr>
<tr>
<td>2. Press ENTER to review or change the prescription. See “Review the Prescription, 5-45” or “Change the Prescription, 5-42”. OR Press START to begin infusing the supplemental bolus.</td>
<td>START BEGINS Rx ENTER REVIEWS Rx</td>
</tr>
<tr>
<td>Message Displayed</td>
<td>Action</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
</tr>
<tr>
<td>3. If you press START, the pump resumes the infusion, and the pump displays BOLUS INFUSING. The bolus delivery will continue until the bolus dose is delivered or STOP is pressed twice in 1 second.</td>
<td></td>
</tr>
<tr>
<td>4. When the bolus delivery is completed, the pump displays a BOLUS DONE message.</td>
<td></td>
</tr>
<tr>
<td>5. PRESS START to resume the infusion.</td>
<td></td>
</tr>
<tr>
<td>Note: If the pump configuration specifies automatic start after bolus, infusion will resume automatically in approximately 10 seconds.</td>
<td></td>
</tr>
</tbody>
</table>

**End of Steps**

BASAL+PCA

PCA
**Start, Stop, Restart the Infusion**

**Start the Infusion**

<table>
<thead>
<tr>
<th>Action</th>
<th>PCA</th>
<th>BASAL+PCA</th>
<th>CONTINUOUS</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Press START to begin the infusion.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>PCA</td>
</tr>
<tr>
<td>Note: If the pump is configured for an automatic start after bolus, the infusion will begin immediately after the delivery of the bolus if one has been programmed.</td>
<td></td>
<td></td>
<td></td>
<td>BASAL+PCA</td>
</tr>
<tr>
<td>End of Steps</td>
<td></td>
<td></td>
<td></td>
<td>CONTINUOUS 00.0 mg/hr</td>
</tr>
<tr>
<td>Message Displayed</td>
<td>Action</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop the Infusion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pump System Operator's Manual

#### 5-39

<table>
<thead>
<tr>
<th>START OR CLEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump Ready</td>
</tr>
<tr>
<td>CODE ONLY:</td>
</tr>
<tr>
<td>Press START</td>
</tr>
<tr>
<td>Pump Ready ONLY</td>
</tr>
<tr>
<td>KEY+CODE OF KEY</td>
</tr>
</tbody>
</table>

#### End of Steps

1. Press STOP twice to interrupt the infusion or bolus.
# Restart the Infusion

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If the pump is configured as KEY+CODE or KEY ONLY, unlock and lock</td>
<td>PUMP READY PRESS START</td>
</tr>
<tr>
<td>the fluid bag cover.</td>
<td>PUMP READY START OR CLEAR</td>
</tr>
<tr>
<td>If the pump is configured as CODE ONLY, press Clear/Silence.</td>
<td>888 ENTER CODE ↑ OR START</td>
</tr>
<tr>
<td>If the pump is configured as KEY+CODE or CODE ONLY, input the correct</td>
<td></td>
</tr>
<tr>
<td>security code at the ENTER CODE OR START prompt, and press ENTER.</td>
<td></td>
</tr>
</tbody>
</table>
2. When the pump displays the SELECT ACTION prompt, use the ↑ key to select:

Prime to prime the tubing set after changing the fluid reservoir. Then press ENTER and go to "Prime the Pump. 5-23."

OR

Program a Supplemental Bolus. 5-36."

OR

SET BOLUS to program a supplemental bolus dose, then press ENTER. See "Changing the Prescription During Infusion. 5-42."

OR

START INFUSION to restart the infusion. End of Steps
Changing the Prescription During Infusion

The prescription and units cannot be changed unless the pump has been reprogrammed. If it is necessary to retain a patient's history information, you can review and record the history data on the patient's chart or print a hard copy before turning off the pump. See "Reviewing the Therapy History, 5-44".

To change the prescription during an infusion, you must complete the following procedures to:

- "Stop the Infusion, 5-39"
- "Program a Supplemental Bolus, 5-36"

Change the Prescription

<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At the SELECT ACTION prompt, use the ↑ key to display the CHANGE Rx prompt, then press ENTER.</td>
<td>SELECT ACTION CHANGE Rx</td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2.</td>
<td>Use the and keys and ↓ to program the new prescription. See Programming the Prescrtiprtion, 5-26.</td>
</tr>
<tr>
<td>3.</td>
<td>Press START to begin the infusion.</td>
</tr>
<tr>
<td><strong>END of STEPS</strong></td>
<td><strong>ENTER RECEIPTS RX</strong></td>
</tr>
<tr>
<td><strong>START BEGINS RX</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Reviewing the Therapy History**

The pump retains a record of the previous prescription and therapy history in memory until it is modified or the pump is reconfigured. The type of information provided in this section includes how to:

- “Review the Prescription, 5-45”
- “Access a Patient’s History, 5-47”
- “History Not Available Message, 5-58”

All of the totals displayed reflect current information at the time that they are displayed. The date and time formats are determined by the configuration of the pump, and the units displayed are the programmed units in mL, mg, or µg.
<table>
<thead>
<tr>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. At the SET BOLUS prompt, use the ← and → keys and ↓ to program</strong></td>
</tr>
<tr>
<td><strong>2. Press ENTER when the desired values are displayed.</strong></td>
</tr>
<tr>
<td><strong>START BOLUS</strong></td>
</tr>
<tr>
<td><strong>BOLUS</strong></td>
</tr>
<tr>
<td><strong>SET</strong></td>
</tr>
<tr>
<td><strong>ML</strong></td>
</tr>
<tr>
<td><strong>0.0</strong></td>
</tr>
<tr>
<td><strong>Message Displayed</strong></td>
</tr>
</tbody>
</table>

As part of programming a bolus, you can review the patient's prescription details as described in "Access a Patient's Prescription".
<table>
<thead>
<tr>
<th>Action</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Press HISTORY during an infusion or whenever one of the messages shown in the next column is displayed.</td>
</tr>
<tr>
<td>2.</td>
<td>If a patient's history is available, the date and time of the start of infusion appears on the screen. Go to step 4.</td>
</tr>
<tr>
<td>3.</td>
<td>If a patient's history is not available, see &quot;History Not Available&quot;.</td>
</tr>
</tbody>
</table>
|        | YES...
|        | USE PREVIOUS RECORD... |
|        | ENTER CODE OR...
|        | REVIEW HISTORY OR...
<p>|        | START OR CLEAR... |
|        | Pump Ready... |
|        | Press START... |
|        | Pump Ready... |
|        | Message Displayed |</p>
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Example:</td>
</tr>
<tr>
<td></td>
<td>THERAPY STARTED</td>
</tr>
<tr>
<td></td>
<td>03/10/99 08:11AM</td>
</tr>
</tbody>
</table>

- **4.** The pump records the total, dates, number, and amount of each patient’s prescription. The type and sequence of the messages are directly dependent on the programmed prescription. When the THERAPY STARTED message appears:
  - **4.1** Press the ⇒ key to scroll through the history review screens.
  - **4.2** Press the ⇐ key to go back to the previous history screen or the start of the previous group of screens.
  - **4.3** Press the HISTORY key again to exit the history review at any time.
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. As you scroll, the following messages are displayed:</td>
<td></td>
</tr>
</tbody>
</table>
| 5.1 TOTAL GIVEN, including any PCA, BASAL+PCA, CONTINUOUS, and bolus infusions. | XXXX.X mL TOTAL GIVEN  
Example:  
53.3 mg TOTAL GIVEN |
| 5.2 For PCA infusions, the recorded number of total injections (TOTAL INJ) administered and total dose attempts (TOTAL ATT). | XXXX TOTAL INJ  
XXXX TOTAL ATT  
Example:  
0008 TOTAL INJ  
0010 TOTAL ATT |
<p>| Partial PCA doses are included in the TOTAL INJ count. A partial dose can occur when a dose is interrupted by an occlusion, or when the dose is interrupted because the 1-hour limit or 4-hour limit has been reached. |</p>
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
</table>
| 5.3 For bolus infusions, the total of the initial and supplemental bolus infusions. | XXXXX.X mL
BOLUS INFUSED
Example:
0012.0 mL
BOLUS INFUSED |
| 5.4 The **FLUID VOLUME REMAINING.** | XXXXX.X mL FLUID VOLUME REMAINING
Example:
0039.3 mL FLUID VOLUME REMAINING |
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. The <strong>SHIFT HISTORY</strong> group messages provide specific pump infusion information for a particular shift. A new shift is started whenever the operator clears the shift totals. After reviewing the information, you can delete the data and initiate a new shift. At the <strong>SHIFT HISTORY</strong> message:</td>
<td><strong>SHIFT HISTORY</strong></td>
</tr>
<tr>
<td>6.1 Press the ⇒ key to scroll through the history review screens.</td>
<td></td>
</tr>
<tr>
<td>6.2 Press the ⇐ key to go back to the previous history screen or group of screens.</td>
<td></td>
</tr>
<tr>
<td>6.3 Press the <strong>HISTORY</strong> key again to exit the history review at any time.</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td>7. As you scroll, the following messages are displayed:</td>
<td>SHIFT STARTED MM/DD/YY HH:MMAM</td>
</tr>
<tr>
<td>7.1 The date and time of the start of the shift. [A new shift is started whenever the operator clears the shift totals.]</td>
<td>Example: SHIFT STARTED 03/17/99 12:00AM</td>
</tr>
<tr>
<td>7.2 For PCA doses only, the total injections (TOTAL INJ) administered and total attempts (TOTAL ATT) recorded per shift.</td>
<td>XXXX TOTAL INJ XXXX TOTAL ATT</td>
</tr>
<tr>
<td>Example: 0004 TOTAL INJ 0004 TOTAL ATT</td>
<td></td>
</tr>
<tr>
<td>7.3 The SHIFT TOTAL for any PCA, BASAL+PCA, CONTINUOUS, or bolus infusions.</td>
<td>XXXX.X mL SHIFT TOTAL</td>
</tr>
<tr>
<td>Example: 0031.5 mL SHIFT TOTAL</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td>8. After you view the SHIFT TOTAL screen, you may (as an option) choose to:</td>
<td>SHIFT TOTALS CLEARED</td>
</tr>
<tr>
<td>8.1 Press Clear/Silence to clear the totals and begin a new shift.</td>
<td></td>
</tr>
<tr>
<td>8.2 Wait for the INITIAL SETTINGS of the prescription to appear on the screen.</td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> Pressing Clear/Silence will reset the total infused and the “injections versus attempts” to zero and set the time and date of the new shift as the time/date that the pump was cleared.</td>
<td></td>
</tr>
<tr>
<td>9. Press the ⇒ key to view the following prescription details:</td>
<td>PRESCRIPTION DETAILS</td>
</tr>
<tr>
<td>9.1 Concentration</td>
<td>Example: 05.0 mg/mL CONCENTRATION</td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>9.2 Dose</td>
<td>Example:</td>
</tr>
<tr>
<td></td>
<td>6.0 mg PCa DOSE</td>
</tr>
<tr>
<td>9.3 Delay</td>
<td>Example:</td>
</tr>
<tr>
<td></td>
<td>003 MINUTES DELAY</td>
</tr>
<tr>
<td>9.4 Rate settings</td>
<td>Example:</td>
</tr>
<tr>
<td></td>
<td>004.00 mg/hr BASAL RATE</td>
</tr>
</tbody>
</table>

10. The HOURLY HISTORY group of screens is displayed only if PCA doses were allowed at some time during the therapy. For each 24-hour period, three screens per hour are generated. At the HOURLY HISTORY message, press the ➞ key to scroll through the following screens:
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
</table>
| 10.1   | The hour of the dosage.  
        | Example:  
        | 11:30 - 12:00AM |
| 10.2   | The number of PCA doses administered and the number requested during the hourly period.  
        | Example:  
        | 0004 INJECTIONS  
        | 0004 ATTEMPTS |
| 10.3   | The cumulative total infused at the end of the hourly period, including any bolus, PCA and BASAL+PCA infusions.  
        | Example:  
        | 0031.5 mL GIVEN  
        | AS OF 12:00AM |
| 11.    | The EVENT HISTORY group displays a chronological list of events that occurred during the therapy. This group begins with the message EVENT HISTORY and ends with the message END OF HISTORY.  
        | EVENT HISTORY |
| 12.    | Press the ⇒ key to display the following types of events:  
<p>| |
| |</p>
<table>
<thead>
<tr>
<th>Action</th>
<th>Message Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1 Date and time cover was unlocked.</td>
<td>Example: COVER UNLOCKED 03/17/99 12:15PM</td>
</tr>
<tr>
<td>12.2 Date and time infusion was started.</td>
<td>Example: START INFUSION 03/17/99 01:20PM</td>
</tr>
<tr>
<td>12.3 Date and time infusion was stopped.</td>
<td>Example: STOP INFUSION 03/18/99 02:20PM</td>
</tr>
<tr>
<td>12.4 Date and time bolus was started.</td>
<td>Example: START BOLUS 03/17/99 12:20AM</td>
</tr>
<tr>
<td>12.5 Total bolus infused.</td>
<td>Example: 008.0 mg BOLUS DONE</td>
</tr>
<tr>
<td>Action</td>
<td>Message Displayed</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------</td>
</tr>
<tr>
<td>12.6</td>
<td>Date and time 1-hour limit, 4-hour limit or max doses per hour limit was reached.</td>
</tr>
<tr>
<td>12.7</td>
<td>Date and time and type of alarm.</td>
</tr>
<tr>
<td>12.8</td>
<td>Change to prescription value.</td>
</tr>
<tr>
<td>12.9</td>
<td>Date and time when the infusion ended.</td>
</tr>
<tr>
<td>12.10</td>
<td>End of the patient’s history review.</td>
</tr>
</tbody>
</table>

End of Steps
History Not Available Message

When the HISTORY key is pressed and the pump displays HISTORY NOT AVAILABLE, the history may have been erased if:

- A new prescription that was not started, was entered for a PCA, BASAL+PCA, or CONTINUOUS mode infusion

OR

- The configuration of the pump was modified

Optional History Printout

The therapy history data can be printed using an optional printer and printer adapter. Some information, such as changes made to prescription values, can only be viewed in a printout. Contact your local Baxter Service Center for details.
Chapter 6. Alerts and Alarms

Audible signals for alerts and alarms can be silenced by pressing the Clear/Silence key. These audible signals will return after the time period defined by the Alert Silencing Time setting (see “Configurable Options, 4-1”).

An alarm, unlike an alert, requires immediate attention because it stops the motor on the pump. Both alerts and alarms are signalled by a:

- Flashing red light on the Alert indicator
- Audible tone consisting of:
  - an alert signal (a single or repeating tone of one long beep followed by three short beeps)
  - an alarm signal (a repeating tone of one long beep followed by three short beeps)
- Specific message in the LCD screen that describes the cause of the alert or alarm.

Note: If the pump is battery operated, the alert or alarm message will not be displayed until you press a key.
Alerts

Each alert message that could be displayed in the pump’s LED is described in this section with step-by-step procedures for resolving the alert. These alert messages are organized numerically and then alphabetically.
<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HOUR LIMIT REACHED</td>
<td><strong>Situation:</strong> The total basal and PCA dose delivered over the past 60 minutes has reached the programmed <strong>1-hour limit</strong>. As a result, the pump will stop the infusion until the total basal and PCA dose volume falls below the 1-hour limit.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Press Clear/Silence to cancel the alert.</td>
</tr>
<tr>
<td></td>
<td>2. If the patient requires an additional drug dosage after the infusion has been interrupted by the 1-hour limit, then:</td>
</tr>
<tr>
<td></td>
<td>■ administer a bolus dose (see “Program the Bolus Dose, 5-33”) or</td>
</tr>
<tr>
<td></td>
<td>■ reprogram an increased 1-hour limit.</td>
</tr>
<tr>
<td></td>
<td>3. If the 1-hour limit is reprogrammed, the pump starts a new 1-hour accounting period.</td>
</tr>
<tr>
<td>Alert Message</td>
<td>Situation/Action</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4 HOUR LIMIT REACHED</td>
<td><strong>Situation:</strong> The total basal and PCA dose volume has reached the programmed maximum 4-hour limit. As a result, the pump will stop the infusion until the total basal and PCA dose volume falls below the 4-hour limit. <strong>Action:</strong> 1. Press Clear/Silence to cancel the alert. 2. If the patient requires an additional drug dosage after the infusion has been interrupted by the 4-hour limit, then: ▪ administer a bolus dose (see “Program the Bolus Dose, 5-33”) or ▪ reprogram an increased 4-hour limit. After the 4-hour limit is reprogrammed, the pump starts a new 4-hour accounting period.</td>
</tr>
</tbody>
</table>
Table 6-1  Alert Messages and Responses — continued

<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
</table>
| BATTERY IS MISSING   | **Situation:**  
The pump is powered by the AC adapter and no battery is inserted.  
If another action is occurring at the same time, the pump displays the message *BATTERY MISSING* on the second line of the screen.    |
| Or                    | **Action:**  
1. Follow the directions for replacing the battery under “Installing and Changing the Battery, 3-2”.

<p>| BATTERY MISSING      |                                                                                                                                               |</p>
<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BATTERY VOLTAGE IS LOW</strong></td>
<td><strong>Situation:</strong> The pump has just completed the power on self-test and the battery power is low. Three short tones are sounded.</td>
</tr>
</tbody>
</table>
|                               | **Action:** 1. Press Clear/Silence during the alert to silence the audio for 2 minutes, regardless of the Alert Silencing Time configuration setting.  
2. Replace the battery as soon as possible as specified in “Installing and Changing the Battery, 3-2”. |
<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOLUS DONE</td>
<td><strong>Situation:</strong> A bolus has completed, the pump is configured for manual start after bolus, and neither the START or the ENTER key has been pressed for 1 minute.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong> Press ENTER or START to start the infusion.</td>
</tr>
<tr>
<td>CODE INCORRECT</td>
<td><strong>Situation:</strong> An invalid security code has been entered.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong> 1. Enter the correct code.</td>
</tr>
<tr>
<td>Alert Message</td>
<td>Situation/Action</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FLUID VOLUME IS LOW</td>
<td><strong>Situation:</strong> The remaining fluid volume will be delivered within two hours at the current rate of infusion, or the volume remaining is less than 5 mL.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Prepare to replace the fluid bag if necessary.</td>
</tr>
<tr>
<td>Alert Message</td>
<td>Situation/Action</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>LOW BATTERY</strong></td>
<td><strong>Situation:</strong> The battery power is low. A repeating alert tone is sounded. Remaining battery life is approximately 24 hours or less when running the pump at 1 mL/hr. The message is displayed in Run mode on the second line of the screen.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Press Clear/Silence during the alert to silence the audio for 60 minutes, regardless of the Alert Silencing Time configuration setting.</td>
</tr>
<tr>
<td></td>
<td>2. Replace the battery as soon as possible as specified in “Installing and Changing the Battery, 3-2”.</td>
</tr>
</tbody>
</table>
### Table 6-1  Alert Messages and Responses — continued

<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA BUTTON NOT CONNECTED</td>
<td><strong>Situation:</strong> A PCA button is required to continue the pump’s operation.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Connect the PCA button to the pump.</td>
</tr>
<tr>
<td></td>
<td>2. If the pump is configured to use START, you will not receive this message.</td>
</tr>
<tr>
<td>Situation</td>
<td>Alert Message</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
</tr>
</tbody>
</table>
| Pump left in programming mode | Programming mode elapsed | Press the ENTER key to cancel the alert and restart the programming mode.

Note: The pump retains all prescription data entered prior to the timeout.
### Maintenance, 7-1

**Note:** After its initial occurrence, the **Preventive Maintenance Due** message will appear each time the pump is turned on—until the Preventive Maintenance is reset.

### Action

1. Perform the Preventive Maintenance procedures as described in "Preventive Maintenance Due".

### Situation

The configured Preventive Maintenance period has elapsed.

### Alarm Message Action

Table 6-1: Alarm Messages and Responses — continued
<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
</table>
| RELEASE THE <key name> KEY | **Situation:**  
A key on the key pad has been pressed continuously for 3 minutes, or the key is stuck.  

**Action:**  
1. Release the stuck key.  
2. If this alert occurs and the key is not being pressed intentionally, there may be a mechanical or electronic fault in the key. Contact your local Baxter authorized service personnel concerning the replacement of the key. |
<table>
<thead>
<tr>
<th>Alert Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELEASE PCA BUTTON</td>
<td><strong>Situation:</strong> The PCA button has been pressed continuously for 3 minutes. <strong>Action:</strong> 1. Release the PCA button. 2. Advise the patient to press the PCA button briefly when making a PCA dose request. 3. If this alert occurs and the PCA button is not being pressed intentionally, there may be a mechanical or electronic fault in the PCA button. Contact your local Baxter authorized service personnel concerning the replacement of the PCA button.</td>
</tr>
</tbody>
</table>
Each alarm message listed could be displayed in the pump's LCD screen is described in this section in alphabetical order with step-by-step procedures for their resolution.
In stating and Changing the Battery, 3-2:

1. Replace the battery as described in Action.

**Action:**

Alert Message: The pump does not sound a tone for this alert. The pump is running on AC

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace Battery</td>
<td></td>
</tr>
</tbody>
</table>

**Alert Messages and Responses — continued**
<table>
<thead>
<tr>
<th>Situation</th>
<th>Alarm Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pump has detected air in the lumen set. The infusion is stopped.</td>
<td>Alarm Message</td>
</tr>
</tbody>
</table>

**Table 6-2** Alarm Messages and Responses — continued

**Warning**

The air sensor will detect or "champagne" air bubbles. However, the pump may not detect all instances of micro amounts of air delivered. Amounts of air over an amount may be observed. The pump will display the START TO PRIME, ENTER prompt. **Proceed with Priming.**

**Warning**

3. **OR**

Press ENTER to continue if air does not need to be purged.

**Load/Prime, and Changing the Lumen Set and Fluid Bag, 3-15 and Priming the Luminous, check, and possibly aspirate the lumen set. See Priming.**

2. Disconnect the check, and possibly aspirate the lumen set while priming.

**The lumen set MUST NOT be connected to the patient while priming.**
<table>
<thead>
<tr>
<th>Situation</th>
<th>Alarm Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC FAILURE</td>
<td><img src="image.png" alt="Image" /></td>
</tr>
<tr>
<td>Of</td>
<td><img src="image.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Action:**
- If another action is occurring at the same time, the pump displays the AC FAILURE message in the second line of the screen.
- If the AC adapter is not functioning properly, in RUN mode, AC FAILURE is displayed in the second line of the screen.

**Action:**
1. Check the AC adapter connector to make sure it is inserted properly.
2. If the alarm condition persists, replace the AC adapter.

**Table 6-2: Alarm Messages and Responses**
<table>
<thead>
<tr>
<th>Alarm Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATTERY IS DEPLETED</td>
<td><strong>Situation:</strong> The pump is running on battery power and the battery power remaining is too low to continue.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Replace the dead battery as soon as possible as described in “Installing and Changing the Battery, 3-2”.</td>
</tr>
<tr>
<td></td>
<td>2. If necessary, connect the pump to the AC adapter (see “Connecting the AC Adapter, 3-7”).</td>
</tr>
<tr>
<td>Alarm Message</td>
<td>Situation/Action</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CODE INCORRECT</td>
<td><strong>Situation:</strong> Three invalid security codes have been entered.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong> 1. If the pump is configured as KEY+CODE, unlock the cover, lock it</td>
</tr>
<tr>
<td></td>
<td>again, and enter the security code.</td>
</tr>
<tr>
<td></td>
<td>2. If it is configured as CODE ONLY, turn off the pump and turn it on again.</td>
</tr>
</tbody>
</table>

<p>| COVER IS UNLOCKED  | <strong>Situation:</strong> The cover is unlocked while the pump is active and the pump is configured for KEY+CODE or KEY ONLY. |
|                    | <strong>Action:</strong> 1. Lock the cover, and press the START key to resume the infusion. |</p>
<table>
<thead>
<tr>
<th>Situation:</th>
<th>Action:</th>
</tr>
</thead>
</table>
| The pump has detected an occlusion or blockage between the pumping mechanism and the patient that is preventing fluid flow. The infusion stops. | 1. Check the tubing set for closed clamps and kinks.  
2. If no closed clamps or kinks are found, disconnect the patient from the pump before opening the tubing door to check for tubing obstructions.  
3. Check the injection site.  
4. When the pump detects that the occlusion has been cleared, it will resume operation automatically or press the START key to resume the infusion after the occlusion has been cleared. |

Table 6-2  Alarm Messages and Responses — continued
<table>
<thead>
<tr>
<th>Alarm Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMPTY</td>
<td><strong>Situation:</strong> The fluid bag is empty.</td>
</tr>
</tbody>
</table>
|               | **Action:** 1. Replace the fluid bag with a filled fluid bag. 2. Reprogram the fluid volume and prime as described in “Set the Fluid Volume in the Reservoir, 5-22” and “Prime the Pump, 5-23”.
| Situation: The PCA button is being pressed continuously for 6 minutes. |
| Action: |
| 1. Release the PCA button. |
| 2. Advise the patient to press the PCA button briefly when making a PCA dose request. |

If this alarm occurs and the PCA button is not being pressed intentionally, the PCA button may have a mechanical or electronic fault. Contact your local Baxter authorized service personnel concerning the replacement of the button.

<table>
<thead>
<tr>
<th>Alarm Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELEASE PCA BUTTON</td>
<td>The PCA button is being pressed continuously for 6 minutes.</td>
</tr>
</tbody>
</table>

Table 6-2 Alarm Messages and Responses — continued
<table>
<thead>
<tr>
<th>Alarm Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTWARE VERSION</td>
<td><strong>Situation:</strong> The software version does not match the pump configuration.</td>
</tr>
<tr>
<td>ERROR-RECONFIG</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Turn off the pump, and then turn it on again.</td>
</tr>
<tr>
<td></td>
<td>2. Reconfigure the pump as described in the Configuration Manual.</td>
</tr>
</tbody>
</table>
### Table 6-2  Alarm Messages and Responses — continued

<table>
<thead>
<tr>
<th>Alarm Message</th>
<th>Situation/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM ERROR XX</td>
<td><strong>Situation:</strong> A system error has been detected by the microprocessor and the pump is inoperable. The two-character code (XX) refers to a specific malfunction.</td>
</tr>
<tr>
<td>SERVICE PUMP</td>
<td>Refer to the Service Manual for further information about this error code.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Record the alarm code.</td>
</tr>
<tr>
<td></td>
<td>2. Turn off the pump, and then restart the pump.</td>
</tr>
<tr>
<td></td>
<td>3. If the same code or a new code is displayed after the restart, return the pump for service.</td>
</tr>
<tr>
<td></td>
<td>4. If no system error code is displayed, continue to use the pump.</td>
</tr>
<tr>
<td>Alarm Message</td>
<td>Situation/Action</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UPSTREAM OCCLUSION</td>
<td><strong>Situation:</strong> The pump has detected an occlusion or blockage between the fluid bag and the pumping mechanism that is preventing fluid flow. The infusion stops.</td>
</tr>
<tr>
<td></td>
<td><strong>Action:</strong> !WARNING!</td>
</tr>
<tr>
<td></td>
<td>If the pump detects an upstream occlusion, the clinician must identify the source and relieve the occlusion without turning off the pump. If the occlusion is not relieved and the pump is turned off, the pump may not detect the existing occlusion when the pump is turned back on.</td>
</tr>
<tr>
<td></td>
<td>1. Open the cover and check the tubing and bag for closed clamps and kinks.</td>
</tr>
<tr>
<td></td>
<td>2. If no closed clamps or kinks are found, disconnect the patient from the pump before opening the tubing door to check for tubing obstructions.</td>
</tr>
<tr>
<td></td>
<td>3. After clearing the occlusion, press START to resume the infusion.</td>
</tr>
</tbody>
</table>
Chapter 7. Preventive Maintenance

Baxter recommends performing preventive maintenance every six months and cleaning after every use. If the device cannot be cleaned using the methods described previously or components are missing or damaged, discontinue use and notify the appropriate authorized service personnel.

Authorized Service Center
To contact Baxter for authorized service or repair, call the Andover Service Center at 1-800-343-0366, extension 1.
Cleaning the Pump

The pump must be cleaned by using one of the recommended cleaners listed in the following table.

Note: Some of the listed cleaners may not be available at your location. Use any of the available listed cleaners.

Table 7-1  Recommended Cleaners

<table>
<thead>
<tr>
<th>Recommended Cleaner</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soapy water</td>
<td>n/a</td>
</tr>
<tr>
<td>A solution of 10% bleach and water</td>
<td>n/a</td>
</tr>
<tr>
<td>LpH®</td>
<td>Vestal Labs</td>
</tr>
<tr>
<td>Septisol</td>
<td>Vestal Labs</td>
</tr>
<tr>
<td>Cidex 7®</td>
<td>Surgikos</td>
</tr>
<tr>
<td>Super Edisonite</td>
<td>Edison Chemical</td>
</tr>
</tbody>
</table>
Table 7-1  Recommended Cleaners — continued

<table>
<thead>
<tr>
<th>Recommended Cleaner</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOR® or Hi-Tor® Plus</td>
<td>Huntington Labs</td>
</tr>
<tr>
<td>Bafix®</td>
<td>Hysan Corporation</td>
</tr>
</tbody>
</table>

As you clean the pump, be careful that you:

- Do not spray the cleaner directly into the pumping mechanism or the area where the AC adapter enters the device.
- Do not use hard instruments for cleaning. Follow manufacturer’s dilution instructions for concentrated cleaners.
Always clean/disinfect the device after each use as follows:

<table>
<thead>
<tr>
<th>Type of use</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the device has been in an Isolation Area</td>
<td>select those agents from the list that both clean and disinfect.</td>
</tr>
<tr>
<td>If the device has been used</td>
<td>clean/disinfect the pump with an agent from the recommended list of</td>
</tr>
<tr>
<td></td>
<td>cleaners before use on another patient.</td>
</tr>
<tr>
<td>If spills occur or the unit is dirty</td>
<td>clean the pump as quickly as possible.</td>
</tr>
</tbody>
</table>

**Caution**

The Ipump™ Pain Management System is not waterproof and should not be immersed. Avoid getting liquids inside the pump. Air sensor functioning could be compromised or permanent damage may result. Do not use alcohol for cleaning.

**Caution**

Do not clean, disinfect, or sterilize any part of the device by autoclaving or with ethylene oxide gas. Doing so may damage the device and void the warranty. Only external parts of the device should be disinfected.
Fluid Spillage

The product design safeguards against fluid spillage into the pump module. However, if fluid enters the tubing channel, contact your local Baxter Service Center.

This should be done immediately to minimize any potential difficulties with the solutions pooling and drying on the mechanism.

Caution

The Ipump™ Pain Management System is not waterproof and should not be immersed. Avoid getting liquids inside the pump. Air sensor functioning could be compromised or permanent damage may result. Do not use alcohol for cleaning.
**Preventive Maintenance Checklist**

The following Preventive Maintenance Checklist contains a schedule of basic maintenance tasks that should be performed on the device.

**Cleaning and Inspection**

<table>
<thead>
<tr>
<th>Check</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housings</td>
<td>Clean housing and front panel as recommended in the cleaning instructions in this section. Check for cracks or large dents.</td>
</tr>
<tr>
<td>Labels</td>
<td>Clean as recommended in the cleaning instructions. Check for scratches, cuts, or obliterated words.</td>
</tr>
<tr>
<td>AC adapter</td>
<td>Verify that the optional AC adapter is undamaged over the entire length of the cord and the molded plugs.</td>
</tr>
</tbody>
</table>

*Note:* Cleaning must be performed by using one of the recommended cleaners listed in Table 7-1, "Recommended Cleaners, 7-2".
## Cleaning and Inspection

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>Clean as recommended in &quot;Cleaning the Pump, 7-2&quot;. Ensure that the cover is intact, fits properly when closed and locked, and has no obvious cracks or fractures.</td>
</tr>
<tr>
<td>Pole clamp</td>
<td>Operates freely throughout range of motion. Check that the pump stays on IV pole.</td>
</tr>
</tbody>
</table>

## Functional Testing

Perform as required, but recommended every 6 months.

<table>
<thead>
<tr>
<th>Check</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire device</td>
<td>Schedule functional test by qualified biomedical personnel or authorized service personnel as specified in the Service Manual.</td>
</tr>
</tbody>
</table>
Transporting and Storing the Pump

When unpacked, store the pump in a clean and dry environment without the battery to safeguard against prolonged exposure to dust and moisture. This storage area should meet the following environmental guidelines:

- Ambient temperature: 50°F to 104°F
- Relative humidity: 30% to 75% (non-condensing)

If conditions fall outside these limits, Baxter recommends that the device be repackaged in the original shipping materials. When storing the pump for long periods of time, such as longer than seven days, remove the 9-volt battery from the pump.
Repair and Troubleshooting

The pump must be serviced only by authorized personnel who have completed the manufacturer's technical training program. Service documentation, including circuit diagrams, is available to approved service organizations upon request. Alternatively, the pump should be returned to Baxter for service.

While under Baxter's warranty, Service Agreement (optional), or lease agreement, the pump must not be opened by unauthorized personnel. Use an authorized Baxter service provider for service and repair. For service and repair information for this product, contact your local Baxter Service Center.

Shipping costs for all units returned to Baxter shall be paid for by the customer. The unit must be packed in its original container or in another Baxter-approved container that will provide adequate protection during shipment. To ensure prompt return, a Baxter authorized service representative must be notified before shipping any unit for repair. When calling for service, please be prepared to provide the code number and serial number of the unit. A brief written description of the problem should be attached to the pump when it is returned for service.

Baxter will not be responsible for unauthorized returns or for units damaged in shipment due to improper packaging.
Chapter 8.  Accessories and Recommended Sets

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bags</td>
<td>100 mL bag</td>
<td>2L3256</td>
</tr>
<tr>
<td></td>
<td>250 mL bag</td>
<td>2L3257</td>
</tr>
<tr>
<td>Empty IntraVia® Container with PVC Ports</td>
<td>50mL</td>
<td>2B8019</td>
</tr>
<tr>
<td></td>
<td>150mL</td>
<td>2B8011</td>
</tr>
<tr>
<td></td>
<td>250mL</td>
<td>2B8012</td>
</tr>
<tr>
<td></td>
<td>500mL</td>
<td>2B8013</td>
</tr>
<tr>
<td>Administration Sets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Sets’ maximum pressure is 2326 mmHg.</td>
<td>7.9” Anti-Reflux Y-Set</td>
<td>2L3506</td>
</tr>
<tr>
<td></td>
<td>72” Anti-Siphon Pump Set</td>
<td>2L3510</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Product Number</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Administration Sets, continued</td>
<td>101&quot; Anti-Siphon Pump Set</td>
<td>2L3511</td>
</tr>
<tr>
<td>Note: Sets’ maximum pressure is</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2326 mmHg.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>101&quot; Epidural Pump Set</td>
<td>2L3512</td>
</tr>
<tr>
<td></td>
<td>108&quot; Air Eliminating Spike Set</td>
<td>2L3513</td>
</tr>
<tr>
<td></td>
<td>108&quot; Air Eliminating Anti-Siphon Set</td>
<td>2L3520</td>
</tr>
<tr>
<td></td>
<td>117&quot; Epidural Spike Set for 500 mL Bag</td>
<td>2L3522</td>
</tr>
<tr>
<td></td>
<td>Cover</td>
<td></td>
</tr>
<tr>
<td></td>
<td>122&quot; Air Eliminating Spike Set for 500</td>
<td>2L3523</td>
</tr>
<tr>
<td></td>
<td>mL Bag Cover</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printer Accessories</td>
<td>Printer Adapter</td>
<td>2L3400</td>
</tr>
<tr>
<td></td>
<td>Printer Adapter Cable</td>
<td>2L3402</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Options</td>
<td>Patient Controlled Analgesia Button</td>
<td>6465388</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Product Number</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Miscellaneous Options, continued</td>
<td>Locking Pole Mount Clamp</td>
<td>2L3211</td>
</tr>
<tr>
<td></td>
<td>Non-locking Pole Mount Clamp</td>
<td>2L3212</td>
</tr>
<tr>
<td></td>
<td>Pump Carrying Case (250 mL)</td>
<td>2L3219</td>
</tr>
<tr>
<td></td>
<td>AC Adapter (100–120V)</td>
<td>2L3210</td>
</tr>
<tr>
<td></td>
<td>Configuration Transfer Cable</td>
<td>2L3112</td>
</tr>
<tr>
<td>Covers</td>
<td>100 mL Cover</td>
<td>2L3218</td>
</tr>
<tr>
<td></td>
<td>250 mL Cover</td>
<td>2L3220</td>
</tr>
<tr>
<td></td>
<td>250E mL Cover</td>
<td>2L3217</td>
</tr>
<tr>
<td></td>
<td>500 mL Cover</td>
<td>2L3221</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Condition</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Maximum Infusion Under Single Fault</td>
<td>0.5 ml</td>
<td>Range of Programmable Flow Rates</td>
</tr>
<tr>
<td></td>
<td>0.1 to 90.0 ml/hr in 0.1-ml/hr increments</td>
<td>Approximate 5.9 feet long</td>
</tr>
<tr>
<td></td>
<td>AC Adapter Cord (120 V)</td>
<td>AC Power Requirements (When used with optional AC adapter)</td>
</tr>
<tr>
<td></td>
<td>Less than 300 μA earth leakage (tested per UL 2601-1)</td>
<td>Leakage Current</td>
</tr>
<tr>
<td></td>
<td>Approximately 140 hours</td>
<td>DC Power Requirements (When used with 9V alkaline battery)</td>
</tr>
<tr>
<td></td>
<td>Typical Operating Time When Operating at Intermediate Rate of 1 ml/hr is</td>
<td>100 to 120 VAC 50/60 Hz or 220 to 240 VAC 50/60 Hz, 700mA</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Operational Features | PCA Dose Volume Selections: 0.0 to 9.9 mL  
Bolus Volume Selections: 0.0 to 9.9 mL  
Reservoir Volume Selections: 1 to 1999 mL  
One-hour Limit Selections: 0.1 to 60.0 mL/hr  
Delay Time Selections: 1 to 240 minutes  
History/Prescription Recall |
| Security Features   | Locking cover  
3-digit programmable security code  
Latched tubing door |
| Indicators          | Alphanumeric description via LCD display  
Red Alert light  
Green Infusing light  
Audible tones |
<p>| Battery             | 9-volt alkaline |</p>
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Mechanism</td>
<td>DC Motor, microprocessor-controlled, precision linear peristaltic pumping mechanism</td>
</tr>
<tr>
<td>Printer Port</td>
<td>1200 Baud, 8 data bits, no parity and 1 stop bit</td>
</tr>
<tr>
<td>Housing</td>
<td>Shock- and vibration-resistant ABS</td>
</tr>
<tr>
<td>Size</td>
<td>4.9&quot; x 3.4&quot; x 1.8&quot; without cover</td>
</tr>
<tr>
<td>Weight</td>
<td>17.5 ounces (with 250E mL bag cover and without a battery)</td>
</tr>
</tbody>
</table>
| Environmental Operating Limits  | Temperature: 50°F to 104°F  
Humidity: 30% to 75% relative humidity, non-condensing  
Barometric Pressure: 700 to 1060 hPa |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| Environmental Storage and Transport Limits (packaged) | Temperature: -4°F to 140°F  
Humidity: 20% to 95% relative humidity (non-condensing, unpackaged)  
Barometric Pressure: 500 to 1060 hPa |
| Options and Accessories                        | 100 and 250 mL Bags  
Empty 50 mL, 150 mL, 250 mL, 500 mL IntraVia® Containers with PVC Ports  
7.9" Anti-Reflux Y-Set  
72" Anti-Siphon Pump Set  
101" Anti-Siphon Pump Set  
101" Epidural Pump Set  
108" Air Eliminating Spike Set  
108" Air Eliminating Anti-Siphon Set  
117" Epidural Spike Set for 500 mL Bag Cover  
122" Air Eliminating Spike Set for 500 mL Bag Cover  
Printer Adapter  
Printer Adapter Cable  
Patient Controlled Analgesia Button |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options and Accessories, continued</td>
<td>Locking Pole Mount Clamp</td>
</tr>
<tr>
<td></td>
<td>Non-locking Pole Mount Clamp</td>
</tr>
<tr>
<td></td>
<td>AC Adapter (100-120V)</td>
</tr>
<tr>
<td></td>
<td>Pump Carrying Case</td>
</tr>
<tr>
<td></td>
<td>Configuration Transfer Cable</td>
</tr>
<tr>
<td></td>
<td>100, 250, 250E, and 500 mL Covers</td>
</tr>
</tbody>
</table>
Operating Limits: 9.4. The accuracy figures as stated are based upon operation at a room temperature of 72°F (22°C).
Information on procedures.

To ensure the pump performance is maintained, annual inspections should be performed by authorized personnel in accordance with the manufacturer's instructions for use of the systems or accessories.

Before proceeding:

Consult the manufacturer's instructions for use of the systems or accessories. Consult the manufacturer of the pump. Consult the manufacturer's instructions for use of the systems or accessories. Consult the manufacturer of the pump.
**Startup Graph Description**

The Startup Graph was developed in accordance with IEC60601-2-24. The Startup data shown in the graph illustrates the startup performance of the Ipump™ Pain Management System during the first 24 hours of operation with a sampling period of 15 minutes.

A Startup Graph of flow versus time (Figure 9-1) illustrates initial stability with time. Even with proper components and set up, the flow of any manufacturer's pump may be erratic during the initial startup period. Therefore, we have included the startup, or stabilization data. It should be noted that as the time interval over which accuracy is measured is lengthened, all pumps show considerable improvement in flow accuracy.

![Flow vs Time Graph](image)

**Figure 9-1** Startup Graph Example
How Trumpet Graphs are Interpreted

The Trumpet Curve graph (Figure 9-2) provides a graphical view of the maximum deviation in flow rate from the programmed delivery rate for specific segments of delivery time. The horizontal axis does not represent elapsed delivery time, but rather acts as a graphical reference for selecting specific observation time intervals. The widest area of the trumpet curve (greatest deviation) reflects the smallest sampling intervals or observation windows. As the sizes of the sampling intervals increase (in minutes), the deviations in flow from the programmed delivery rate are reduced as the deviations are spread out over the longer periods of time. This results in the narrowing of the trumpet curve giving a more realistic representation of the device's average flow rate accuracy over longer intervals of time.

For example, if you were to look at the maximum and minimum percentage error points corresponding to the 60-minute interval point on the Observation Interval axis, you would be looking at the average flow variance for any 60-minute period throughout the infusion.
How Trumpet Graphs are Created
The Trumpet Curve graphs were developed in accordance with data collection and manipulation methods defined in IEC60601-2-24.

The Trumpet Curve graphs were created in the following manner:

- Fluid from the device is collected at the set flow rates over 25 hours.
- Every 15 minutes, the cumulative weight of the fluid is recorded.
- The data from the collection period are divided into observation or time windows and the flow rate accuracy is determined for each window.
- The maximum and minimum deviations from the set flow rate for various window sizes (15, 60, 150, 330, 570, and 930 minutes) are plotted on a graph.
- These plotted points are connected to form the trumpet-shaped lines.
How Trumpet Graphs Can be Used

Trumpet Curve graphs can be important sources of information for the medical professional who must decide whether a certain infusion pump can be used with a particular medication. For example, when delivering a medication with a short half-life, very small deviations in flow over the course of an infusion would be desirable to ensure that the deviations in plasma level also remained small. The device’s ability to deliver very closely to the programmed rate would ensure that the medication’s efficacy was being maintained. In this example, the medical professional would be wise to select a device whose trumpet curve indicated a small or narrow range of deviations in flow rate.

![Trumpet Graph Example](image)

Figure 9-2  Trumpet Graph Example
Startup and Trumpet Graphs at 0.1 mL/hr

![Graph showing flow rate over time](image)

Typical profile of a single pump

Minute 1000 - 1930

Q (Flow Rate) = 0.1 mL/hr

A (Accuracy) = 0.74%
Startup and Trumpet Graphs at 0.3 mL/hr

Startup Graph 3.0 mL/hr (First 12 Hours)

Typical profile of a single pump

Minute 1000 - 1930  Q (Flow rate) = 3.0 mL/hr  A (Accuracy) = 0.5%

Avg. of 3 pumps
### List of Materials

<table>
<thead>
<tr>
<th>Type</th>
<th>Tradename/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Cycolac</td>
</tr>
<tr>
<td>PC</td>
<td>Lexan</td>
</tr>
<tr>
<td>ACETAL/PTFE</td>
<td>Thermocomp</td>
</tr>
<tr>
<td>Polyester</td>
<td>Mylar</td>
</tr>
<tr>
<td>Nylon</td>
<td>Zytel</td>
</tr>
<tr>
<td>Type</td>
<td>Tradename/Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Buna-N</td>
<td>Synthetic rubber</td>
</tr>
<tr>
<td>Brass</td>
<td>Nickel plated</td>
</tr>
<tr>
<td>Zinc</td>
<td>Die cast</td>
</tr>
<tr>
<td>Aluminum</td>
<td>n/a</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Glossary.

AC

Alternating Current

alarm

An event, marked by a flashing Alert LED, repeating alert tone, and specific display message that signals a condition requiring a response by the operator and stops any motor movement (see also: system alarm).

alarm log

A record of pump system alarms by date and time, maintained in non-volatile memory even though the power is turned off.
alert

An event, marked by a flashing Alert LED, repeating alert tone, and specific message (unless otherwise indicated), that provides important status information or signals a condition requiring a response by the operator.

attempt

The patient action (either the depression of the PCA button or START button) intended to initiate a PCA dose.

basal rate

The programmed continuous infusion rate when the pump is operating in BASAL+PCA mode.
bolus

The programmed quantity of drug either delivered automatically at the start of therapy, or initiated by the clinician during the course of therapy.

concentration

The programmed amount of drug in milligrams or micrograms per milliliter of fluid.

configuration group

A collection of functionally related configuration settings contained in the configuration record.

configuration record

A data block, maintained in nonvolatile memory, that consists of settings that enable, disable, control, or limit specific pump features and functions. The configuration record can be modified by the operator in a special mode accessible by a security code.
continuous rate

The programmed continuous infusion rate when the pump is operating in CONT mode.

critical data

Data that are critical to the operation of the pump, including prescription, configuration, and historical data.

delay

The programmed time interval that must elapse between the start of therapy and the initial PCA dose or between the start (of delivery) of one PCA dose and the start of the next PCA dose.

Doses per Hour Limit

The programmed maximum number of PCA doses that may be delivered in a one-hour period.
event log

A record of significant operator actions that occur during a single therapy, and related data; each action entry is date- and time-stamped, and the event log is maintained in non-volatile memory.

fluid volume

Programmed initial amount of fluid in the reservoir.

Four Hour Limit

The programmed maximum volume of a drug that may be delivered in a four-hour period.

Ipump™ Device or System

Ipump™ Pain Management System

initial bolus

The bolus dose delivered automatically at the start of therapy.
INJ/ATT shift total

The total number of injections and attempts since the start of therapy or since the operator last cleared the total for the current shift.

LCD

Liquid Crystal Display

LED

Light Emitting Diode

mg

Milligram
mL

Milliliter

One Hour Limit

The programmed maximum volume of drug that may be delivered in a one-hour period.

operator, user

A professional healthcare person (clinician or biomedical engineer).

PCA

Patient Controlled Analgesia

PCA dose

The programmed volume of drug to be injected when requested by the patient.
Prescription Rx

The complete set of program data including infusion mode, units, and, where applicable, concentration, PCA dose size, delay, dose limit, infusion rate and bolus size.

run time

The mode of operation of the pump other than System Configuration. Run time includes the programming mode, history review and printout, and run mode (infusion).

shift total

The calculated volume of fluid given since the start of therapy or since the operator last cleared the shift total.

system alarm

An event, marked by a flashing Alert LED, system alarm tone, and error message, generated by the pump in response to an unrecoverable system failure.
The calculated amount of fluid left in the reservoir:

Volume remaining: [value]
The calculated volume of fluid given since the start of therapy.

And for the entire therapy:

A collection of data maintained in nonvolatile memory that relates to the most recent or current therapy history.

A course of treatment using a programmed prescription and initiated by a START key press, during which a patient may receive one or more bolus doses, one or more PCA doses, and/or a continuous infusion.

Microgram
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