Warning
There are risks associated with using anything other than the recommended sets with this device. Sets designated for use with this device are identified in Chapter 3, “Using Administration Sets.” Baxter’s warranty on this device will be null and void and Baxter will assume no responsibility for incidents which may occur if the product is not used in accordance with product labeling.

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Baxter, the Baxter wordmark, 6060 Multi-Therapy Pump, the 6060 logo, AutoClamp, and Auto-Ramp are trademarks of Baxter International Inc. in the U.S. These and other trademark applications pending. Other product names and trademarks appearing in this manual are the property of their respective owners.

Patent Information
This device is protected under one or more of the following U.S. Patents: 5,620,312; 5,628,619; 5,637,093; 5,683,367; 5,766,155; 5,791,880; 5,795,327; 5,807,336; Des. 375,848; Des. 380,260 and foreign equivalents. Other U.S. and Foreign patents pending.
# Change Record

Original Issue: August 2000

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<td>Index-1 — Index-6</td>
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<td>Back cover (inside blank)</td>
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</tr>
</tbody>
</table>
Meaning of the CE Mark Symbol


The electromagnetic compatibility (EMC) requirements are part of the essential requirements of the Medical Device Directive.

Device: 6060™ Multi-Therapy Pump
Catalogue Number: 2M9832
Manufacturer: Manufactured by an affiliate of: Baxter Healthcare Corporation Deerfield, IL 60015 USA
Made in Singapore
Authorized Representative: Baxter S.A.
B-7860 Lessines, Belgium
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Chapter 1

Introduction

Overview

This manual provides operating instructions for the 6060™ Multi-Therapy Pump. The following information is provided in this chapter:

- “Features,” 1-2
- “Safety Summary,” 1-4

The 6060™ Multi-Therapy Pump (referred to in this manual as “the pump”) provides accurate, safe, and reliable volumetric delivery and may be used for subcutaneous, arterial, intravenous, and epidural delivery routes.

The pump is intended for infusion therapy. Pump users should be under the supervision of a clinician and should be instructed in using and troubleshooting the pump.

! WARNING ! This manual is intended for clinicians only. Do not permit patients to have access to this manual. Do not disclose the pump’s security codes to patients.
Features

- Versatile
  The pump can be programmed for five primary delivery profiles:
  - Continuous
  - Auto–Ramp® Profile
  - Intermittent
  - 25 Periods
  - Patient-Controlled Analgesia (PCA)

- Convenient
  Small size and weight increase patient mobility and make pump suitable for many ambulatory clinical applications.

- Selectable Delivery Rate Units
  Delivery rate can be programmed in milliliters (ml), milligrams (mg), or micrograms (µg).

- Selectable Air-in-line Detection Sensitivity
  Air-in-line detector can be set for 0.1 ml, 0.5 ml, 2.0 ml, or disabled.

- Protection From Inadvertent Infusion Interruption
  Two separate key presses are required to turn off the pump while it is running.

- Protection Against Accidental Free Flow
  The AutoClamp™ device on the administration set automatically clamps the tubing to ensure that there is no accidental free flow when the pump door is opened and the cassette is removed from the pumping chamber.
- Memory
  Infusion status is saved if the pump is turned off before an infusion is completed. When the pump is restarted, the infusion may be resumed.

  Programmed infusion parameters for each of the five modes are saved until they are changed by the operator. Reprogramming the parameters before each use is not necessary.

- Protection From Unauthorized Use
  Selectable lockout levels and passcode protection help guard against unauthorized use of the pump.

- Portable
  Several options are available for powering the pump, including standard 9-volt alkaline batteries.

- Simple YES/NO Programming
  To program, you simply agree or disagree with the pump’s prompts by pressing the YES or NO keys.

  Pressing YES accepts the displayed option or parameter; pressing NO rejects the displayed option and causes the pump to clear a value or to offer an alternative selection.

  The pump requires that a parameter be selected and confirmed at each programming step before progressing to the next step. When infusion parameter entry is complete and within range, the pump displays READY.
Safety Summary

General

Prior to operating this pump, carefully read this manual to fully understand the pump’s functionality and to ensure safe and proper operation.

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

BEFORE USING THE PUMP WITH THE OPTIONAL RECHARGEABLE EXTERNAL BATTERY PACK, CHARGE THE BATTERY PACK FOR AT LEAST 24 HOURS.

Note: U.S. only: lay users should always have access to a trained professional when using this pump. In addition, lay users should read and follow the appropriate instructions in the Patient User Guides available through their clinician.

When disposing of this pump or the administration sets designed for use with the pump, follow local regulations and guidelines.

In accordance with the International Standard, IEC 60601-1 (1988-12) Medical Electrical Equipment — Part 1: General Requirements for Safety, the 6060™ Multi–Therapy Pump is classified as:

- Class II, internally powered
- IPX0
- Not suitable for use with flammable anesthetic mixtures with air, oxygen or nitrous oxide
- Continuous operation
Definitions

**Warning** messages indicate a possible hazard which, if not avoided, could result in severe personal injury or death.

**Caution** messages indicate a problem or unsafe practice which, if not avoided, could result in minor or moderate personal injury, product or property damage.

**Note** messages provide supplemental information to the accompanying text.

Table 1-1 provides definitions of symbols used on the pump’s labeling.

<table>
<thead>
<tr>
<th>Table 1-1</th>
<th>Labeling symbol definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPX0</td>
<td>Ordinary equipment – enclosed equipment without protection against water ingress.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="square" /> Class II Battery Eliminator/Charger: Double-insulated.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="lightning bolt" /> Fuse.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="exclamation mark" /> Attention, consult accompanying documents.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="list" /> Labeling abbreviations:</td>
</tr>
<tr>
<td>PCA/COMM. PORT</td>
<td>Patient-Controlled Analgesia/Communications Port</td>
</tr>
<tr>
<td>EXT POWER</td>
<td>External Power</td>
</tr>
</tbody>
</table>
Serial Number Format

Month of manufacture for pumps made in 2000 is encoded as follows:

- July 2000: 57
- August 2000: 58
- September 2000: 59
- October 2000: 60
- November 2000: 61
- December 2000: 62

General Warnings

**! WARNING!** To ensure safe and proper operation, read the manual and any instructions accompanying disposables or accessories before operating this device.

**! WARNING!** The administration sets should be disposed of in an appropriate manner, considering the nature of the residual fluid that may be contained within, in accordance with institution disposal practices.

**! WARNING!** This pump should be used only with Baxter accessories specified in Table 8-3 on page 8-4. There are risks associated with using anything other than the recommended accessories with this pump.

**! WARNING!** DO NOT CONNECT THE ADMINISTRATION SET TO THE PATIENT WHEN PRIMING.

**! WARNING!** Do not use a pump that appears to be damaged or tampered with, or is not functioning properly. If the pump has been dropped or appears to be damaged, it should be taken out of service and inspected by qualified service personnel only.

**! WARNING!** Never open the pump’s housing. Refer all servicing to an authorized technician.

**! WARNING!** Stop infusion if signs or symptoms of infiltration occur.
Do not operate the pump with the optional Battery Eliminator/Charger while the patient is immersed in water. Doing so can present an electrical shock hazard that may cause severe injury or death.

Avoid excessive moisture near the battery door.

Epidural administration of drugs other than those indicated for epidural use could result in serious injury to the patient.

- 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 either short term or long term analgesic epidural drug delivery.

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

- Clearly distinguish pumps used for epidural drug delivery from pumps used for other routes of administration.
General Cautions

**Caution** In the U.S., use of device is restricted by Federal Law (USA) to sale or use by, on the order of, or under the supervision of a physician or other licensed healthcare professional.

**Caution** Use only accessory equipment complying with the device’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:

- use of the accessory in the patient vicinity
- evidence the safety certification of the accessory has been performed in accordance with the appropriate UL2601-1 or IEC 60601-1 and/or IEC 601-1-1 harmonized national standard.

**Caution** As with all medical electronic equipment, care must be exercised to avoid exposing this device to powerful sources of electromagnetic interference. Using the pump near operating equipment which radiate high energy radio frequencies (such as electrosurgical/cauterising equipment, two-way radios, or cellular telephones) may cause false alarm conditions. If this happens, reposition the pump away from the source of interference.

**Caution** When infusing through a central line catheter, Baxter recommends using sets with a luer lock adapter.
**Note:** U.S. Law requires 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 purchases, receipt in trade, return after sale, loss, destruction, or retirement
- 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. Contact the Baxter Andover service facility at 1-800-343-0366 for additional information.
Chapter 2

Pump Description

Overview

This chapter describes the pump’s controls and indicators. The following information is included:

- “Front Panel,” 2-1
- “Rear Panel,” 2-4
- “Cassette Chamber,” 2-6
- “Administration Set Components,” 2-8

Front Panel

Table 2-1 describes and Figure 2-1 shows items on the front of the pump.

Table 2-1  Front Panel Keys and Indicators

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Display</td>
<td>Two lines of 16 dot matrix characters. Displays prompts and infusion status.</td>
</tr>
</tbody>
</table>
| 2    | Red and green status indicator LEDs       | • Flashing green indicator signifies that the pump is operating at the programmed specifications.  
<p>|      |                                           | • Flashing red indicator signifies an alarm.                                  |
|      |                                           | • Steady red indicator signifies a malfunction.                              |
| 3    | RUN / HOLD key                            | Starts, pauses or restarts an infusion. Temporarily silences an audible alarm. |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| 4    | YES / TITRATE key         | • During programming, used to answer the pump’s prompts and accept the data being displayed.  
|      |                            | • During a Continuous or PCA infusion, used to access and program Titration functions.                                                   |
| 5    | • / INFUSION DATA key     | • During programming, used to enter decimal point.                                                                                           
|      |                            | • While pump is running, used to display volume and time remaining. At YES to PROGRAM, READY or *HOLD*, used to review or change infusion parameters.|
| 6    | PRIME / BOLUS key         | • At READY or confirmation screens, primes the administration set.  
|      |                            | • During PCA infusions, provides administration of bolus doses.                                                                                 |
| 7    | Numeric keypad            | Used to enter numeric parameters and access codes.                                                                                           |
| 8    | NO / REVIEW key           | • During programming, used to answer the pump’s prompts and reject the data being displayed.                                                  
|      |                            | • At confirmation or *HOLD* screens, used to review the programmed infusion parameters.                                                       
|      |                            | • During a PCA profile infusion, used to view the PCA data.                                                                                  |
| 9    | ON/OFF PUMP key           | Turns pump on or off.                                                                                                                        |
| 10   | Ambient light detector    | Monitors the external light level and adjusts the display illumination accordingly.                                                            |
Figure 2-1  Front View of Pump
Rear Panel

Table 2-2 describes and Figure 2-2 shows items on the rear of the pump.

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rear attachment rail</td>
<td>Attaches the lock box to the pump.</td>
</tr>
<tr>
<td>2</td>
<td>Battery compartment door</td>
<td>Allows access to self-contained 9-volt alkaline batteries. Information about the pump is etched onto the cover.</td>
</tr>
<tr>
<td>3</td>
<td>Battery compartment</td>
<td>Holds two 9-volt alkaline batteries used for powering pump during portable use.</td>
</tr>
<tr>
<td>4</td>
<td><strong>EXT POWER</strong> connector</td>
<td>Allows connection of rechargeable external battery pack or battery eliminator/charger.</td>
</tr>
</tbody>
</table>
| 5    | **PCA/COMM** connector | • Allows connection of PCA cord.  
• Provides a serial communications port that permits the exchange of information between the pump and a computer via a cable or modem. |
| 6    | Cassette release/load buttons | Simultaneously pressing the two oval buttons (one on each side of pump) opens the door on the top of the pump to allow administration set loading/unloading. |
| 7    | Rear label | Identifies manufacturer information, model number, and serial number. |
| 8    | Threaded adapter | Threaded insert that allows the optional lock box to be attached to the pump. |
| Not shown | PCA pushbutton and cord | When connected to the **PCA/COMM** connector, administers a bolus dose when pressed if the pump is programmed for a PCA profile. |
Figure 2-2  Rear/Side View of Pump
Cassette Chamber

Table 2-3 describes and Figure 2-3 shows items visible in the cassette chamber when the pump door is open.

**Table 2-3  Cassette Chamber Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front attachment rail</td>
<td>Attaches the lock box to the pump.</td>
</tr>
<tr>
<td>2</td>
<td>Cassette release/load buttons</td>
<td>Simultaneously pressing the two oval buttons (one on each side of pump) opens the door on the top of the pump to allow administration set loading/unloading.</td>
</tr>
<tr>
<td>3</td>
<td>Upstream pressure sensor</td>
<td>Monitors the pressure inside the tubing between the bag and the pump.</td>
</tr>
<tr>
<td>4</td>
<td>Cassette chamber</td>
<td>Houses the administration set cassette.</td>
</tr>
<tr>
<td>5</td>
<td>Pumping mechanism</td>
<td>Rotary peristaltic movement mechanism.</td>
</tr>
<tr>
<td>6</td>
<td>Door spring</td>
<td>Positively retains cassette when the door is closed.</td>
</tr>
<tr>
<td>7</td>
<td>Open door sensor</td>
<td>Detects if the pump door is opened.</td>
</tr>
<tr>
<td>8</td>
<td>Air-in-line detector</td>
<td>Capacitive sensor detects air in the administration set.</td>
</tr>
<tr>
<td>9</td>
<td>Downstream pressure sensor</td>
<td>Monitors the pressure inside the tubing between the pump and the patient.</td>
</tr>
</tbody>
</table>
Figure 2-3  Top View of Pump with Door Open
Administration Set Components

Use only administration sets specifically labeled for use with the 6060™ Multi-Therapy pump. Administration sets components are described in Table 2-4 and shown in Figure 2-4.

Table 2-4 6060™ Pump Administration Set Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bag spike</td>
<td>Spike used to insert the administration set into a standard solution container.</td>
</tr>
<tr>
<td>2</td>
<td>Fluid bag</td>
<td>Solution container.</td>
</tr>
<tr>
<td></td>
<td>(see Note)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>AutoClamp™ device</td>
<td>Prevents accidental free flow when door is opened and when cassette is removed from pump.</td>
</tr>
<tr>
<td>4</td>
<td>Cassette</td>
<td>Ensures proper placement of the tubing against the pumping mechanism.</td>
</tr>
<tr>
<td>5</td>
<td>Filter (see Note)</td>
<td>In-line air-eliminating filter: 1.2 or 0.22 micron.</td>
</tr>
<tr>
<td>6</td>
<td>Clamp</td>
<td>Slide clamp.</td>
</tr>
<tr>
<td>7</td>
<td>Luer lock adapter</td>
<td>Permits luer attachment to patient’s access device.</td>
</tr>
</tbody>
</table>

**NOTE:** Not all administration sets have fluid bags or filters. See “Using Administration Sets,” 3-2 for a complete list of administration sets available for use with the pump.

Figure 2-4 Typical Administration Set Components
Chapter 3

Basic Operation

Overview

You should be familiar with the topics described in this chapter before attempting to use the pump. This chapter provides instructions on the following:

- “Unpacking the Pump,” 3-1
- “Using Administration Sets,” 3-2
- “General Notes on Programming and Delivery,” 3-8
- “Entering and Changing Infusion Parameters,” 3-8
- “Delivery Profile Overview,” 3-10
- “Programming an Infusion,” 3-13
- “Reviewing Profile Parameters,” 3-17
- “Powering the Pump Off,” 3-17

Unpacking the Pump

Remove the pump and accessories from the shipping carton. Save the packing materials for future use.
Using Administration Sets

Use only Baxter administration sets specifically labeled for use with the 6060™ Multi-Therapy Pump.

The following is a list of administration sets available for use with the pump.

- 2L9000
- 2L9003
- 2L9004
- 2M9856
- 2M9857
- 2M9858
- 2M9859
- 2M9860
- 2M9861

Before you deliver an infusion, you must prime the administration set. You can gravity-prime the administration set, or you can use the pump to prime. The administration set’s cassette fits into the pump’s cassette chamber only one way.

See “Gravity Priming” on page 3-2 or “Using the Pump to Prime” on page 3-4.

Gravity Priming

If gravity priming, prime the administration set according to its instructions, then proceed to “Loading the Administration Set” on page 3-3.
Loading the Administration Set

**Note:** Use aseptic technique when priming and loading the administration set.

1. Open the pump door by pressing both oval buttons on the sides of the pump.

![Image of pump door open]

2. Place the tubing’s cassette into the cassette chamber, matching the shape of the cassette with the shape of the chamber – the cassette fits only one way.

![Image of cassette being placed]

**Note:** To avoid nuisance alarms, do not press down on the cassette when loading it into the cassette chamber. The cassette will be positioned correctly when you close the pump door.

![Image of cassette being closed]

3. Close the door by pressing on both corners of the door until it clicks into place.

![Image of closed pump door]
Using Administration Sets

Using the Pump to Prime

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

Note: Use aseptic technique when priming and loading the administration set.

To prime the administration set using the pump:

1. Load the administration set as described in “Loading the Administration Set” on page 3-3.

2. Turn the pump on. Program the desired infusion (see the profile programming sections in Chapter 4) and advance the pump to the Final Confirmation screen. See “Ready Screens / Final Confirmation Screens” on page 3-16.

If the pump is in Lockout Mode, see “Programmable Mode / Lockout Mode,” 5-16 for instructions on starting an infusion in Lockout Mode.

3. At the Final Confirmation screen, press PRIME/BOLUS.

The pump displays one of the following:

Prime Set?

or:

Prime Set?
enter code

4. Press YES or enter the following code if the pump is in lockout:

9 1 1
The pump displays:

<table>
<thead>
<tr>
<th>READY To PRIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press &amp; Hold PRIME</td>
</tr>
</tbody>
</table>

5. Press and hold PRIME/BOLUS. Solution begins to fill the administration set. While priming, the pump displays:

<table>
<thead>
<tr>
<th>PRIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume: 0.1 ml</td>
</tr>
</tbody>
</table>

6. When the set is filled, release PRIME/BOLUS.

Note: After 6 ml has been pumped, the pump displays MORE PRIME?. If more priming is needed, press YES, then press and hold PRIME/BOLUS until the set is filled.

7. Press NO or RUN/HOLD to return to the Final Confirmation screen. The display alternates between:

<table>
<thead>
<tr>
<th>Rate/hr (ml) AMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX XXX.XX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Profile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press RUN</td>
</tr>
</tbody>
</table>

8. Press RUN/HOLD again to begin the infusion.

Using the 100 ml Lock Box

The 100 ml lock box (product code: 2L9361) is a reusable container made of translucent plastic so that the solution within the bag can be easily inspected. The lock box stays securely on the pump and can be locked to prevent its removal from the pump.
Figure 3-1  100 ml Lock Box (2L9361)

Note:  The 2L9361 Lock Box is for use only with administration set 2L9000, which includes a 100 ml attached bag.

To use the 100 ml lock box with the pump:

1. Prime and load the administration set into the pump.

2. Hold the lock box so its front is facing you. Slide open its inner door.

3. Place the administration set bag inside the lock box, matching the shape of the bag with the lock box.

4. Place the section of tubing between the bag and the cassette into the tubing exit.

5. Close the inner door of the lock box.

6. Align the front and back attachment rails on the pump with the rail guides on the lock box and slide the lock box onto the pump. Use both hands on the pump to exert even pressure for ease in placement.

7. Use the key supplied with the lock box to lock it onto the pump if desired. The lock box does not have to be locked to stay in place.
Using the 250 ml Lock Box

The 250 ml lock box (product code 2L9354) is a reusable container made of translucent plastic so that the solution within the bag can be easily inspected. The 250 ml lock box stays securely on the pump when locked to prevent its removal from the pump.

![250 ml Lock Box (2L9354)](image)

**Figure 3-2  250 ml Lock Box (2L9354)**

**Note:** The 250 ml lock box can be used only with an administration set with a 250 ml or smaller bag (2L9001 or 2L9000, respectively).

To use the 250 ml lock box:

1. Open the lock box.

2. Insert the administration set’s cassette into the pump’s cassette chamber.

3. Place the pump into the bottom section of the lock box’s divided compartment.

4. Place the administration set bag into the top section of the lock box, matching the shape of the bag with that of the lock box.

5. Close the lock box and lock it onto the pump with the key included.
General Notes on Programming and Delivery

- All profiles may be programmed in ml, mg or μg.
- When programming in mg or μg, a concentration (per ml) must be entered.
- All profiles except PCA may be programmed by rate or time. PCA may be programmed by number of doses per hour or by total amount of medication allowed.
- The green indicator flashes and a flashing arrow (→) appears on the display to indicate that the pump is running.
- Except after a PCA infusion, the pump switches to the programmed Keep Open (KO) when the infusion completes. For information on changing the KO rate, see “Setting Infusion Data Parameters,” 5-20. After an Intermittent profile, the KO Rate will be the KO Rate programmed for delivery between Intermittent doses.
- When the pump displays a question, you must answer by pressing either the YES or NO key in order to advance to the next screen.

Entering and Changing Infusion Parameters

Before you begin using the pump, you must know how to enter values for an infusion's parameters, and how to accept or change an infusion's previously programmed parameters.
Entering Infusion Parameters

Use the numeric keys to enter values for an infusion’s parameters when prompted by the pump. You may enter values when a parameter’s value is zero, or enter a new value directly over a previously programmed value.

Example:

<table>
<thead>
<tr>
<th>To enter...</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery time of 1 hour 30 minutes (01:30)</td>
<td>At the TIME: prompt, press 1 : 3 0</td>
</tr>
<tr>
<td>Flow rate of 200 ml/hr</td>
<td>At the RATE: prompt, press 2 0 0</td>
</tr>
</tbody>
</table>

Accepting or Changing Previously Programmed Parameters

The pump retains the parameters of the most recent delivery of each programmed profile in its memory until the parameters for that delivery profile are changed or the pump’s memory is cleared.

To accept a parameter as shown, press YES. The pump retains the displayed value for that parameter.
Note: The pump will not deliver an infusion that has a zero value for any of its parameters, except delay delivery time and Titration rate and volume. If you try to start an infusion with a zero-value parameter, the pump displays RE–PROGRAM. See “Alert Messages,” 6-6 for a complete list of the pump’s alert messages.

To change the value of a displayed parameter, you may press NO to clear the parameter to zero, or use the numeric keys to enter a new value directly over the displayed value.

You may change the programmed values of an infusion using the programming screens, or whenever the pump is displaying the Ready Screen before the start of an infusion.

You can titrate the flow rate and/or the volume during delivery of a Continuous or PCA infusion, or before or after a Continuous infusion.

See “Programming Continuous Profile,” 4-1 and “Programming PCA Infusions,” 4-36 for more information on titrating in these profiles.

Delivery Profile Overview

The pump offers five primary delivery profiles, to cover a variety of infusion requirements. The profiles are Continuous, Auto–Ramp®, Intermittent, 25 Periods, and PCA. The parameters for any of these profiles are fully programmable, offering unlimited customization of infusion deliveries.

The five profiles differ primarily in their delivery of infusion rates over time. Descriptions of the five profiles follow.
Continuous

The Continuous Delivery Profile allows the delivery of a single rate and a single volume.
EXAMPLE: Hydration

Auto–Ramp® Profile

The Auto–Ramp® Profile allows delivery of an infusion that automatically ramps up, reaches a predetermined level delivery rate, then automatically ramps down. You program the infusion’s total delivery time, maximum (level) rate, total volume, and up and down ramp times. EXAMPLE: TPN

Intermittent

The Intermittent Delivery Profile permits the delivery of a number of doses at set intervals over a period of time up to 72 hours, with a preset KO rate between doses. You program the infusion’s total delivery time (up to 72 hours), number of doses, dose volume, dose time or dose rate, and KO rate.
EXAMPLE: Antibiotics
25 Periods

The 25 Periods Delivery Profile permits you to program and infuse up to twenty-five separate rates and volumes, or times and volumes, to be delivered sequentially for use in various custom regimens.

**EXAMPLE:** Dobutamine or IVIG

PCA

The PCA Delivery Profile can provide the following delivery routes:

- Intravenous
- Subcutaneous
- Epidural

Each delivery route allows the following to be programmed:

- basal
- basal and bolus
- boluses alone

**EXAMPLE:** Pain Management
Programming an Infusion

1. Turn pump on by pressing the ON/OFF PUMP key. The following screens are displayed:

   ! WARNING !
   If an error code is displayed and/or a malfunction occurs during self-test, turn the pump off and back on again. If the error code or malfunction recurs, do not use the pump. Have it checked by Baxter's authorized service center.

During the self-test, the pump checks internal functions and software components for proper operation.

After the self-test, you may see one or more of the following screens that alert you to current settings on the pump.

   UP OCCLUSION
   DISABLED

Indicates that the upstream occlusion sensor has been disabled. Does not require a response.

To change the upstream occlusion alarm setting, see Chapter 5, Advanced Functions.

   Air-in-line
   Disabled

Indicates that the Air-in-line alarm has been disabled. Does not require a response.

To change the Air-in-line alarm setting, see Chapter 5, Advanced Functions.
Check Internal 9-Volt Batteries

Indicates that one of the 9-volt batteries is dead or installed incorrectly, and the pump is running on only one battery.

**Note:** The message will not automatically clear. Turn the pump off and replace/install both 9-volt batteries properly before using the pump.

If the pump is not in lockout mode and the previously programmed infusion was not interrupted, the pump displays:

**YES to Program**

**RUN to Repeat**

For information on lockout mode, see Chapter 5, Advanced Functions.

2. Press **YES** if you want to program a new infusion

   OR

Press **RUN** if you want to repeat the delivery of the previously programmed infusion. See “Shortcut Delivery in Programmable Mode,” 5-2.

**PRESSURE: HI**

The current downstream occlusion pressure setting is displayed. This screen does not require a response.

For information on changing the downstream occlusion pressure setting, see Chapter 5, Advanced Functions.

**<PROFILE>**
3. A profile name is displayed. Press **YES** to accept, or press **NO** repeatedly until the desired profile is displayed, then press **YES**.

**Delay Delivery**

When programming an infusion, you can delay the start of the infusion for a specified period of time. This option is available in all modes except PCA.

- Delay time may be set from one minute to 99:59 hours.

- A programmed Delay Delivery affects only the initial infusion. The delay time will not remain in the pump’s memory for future infusions.

- Fluid will be infused at the KO rate during the Delay Delivery phase. The KO rate is programmable from 0.1 to 10 ml/hr. To set the KO rate, see “Setting Infusion Data Parameters,” 5-20.

- When programming a Delay Delivery in the Intermittent profile, the KO rate delivered during the delay will be the same as the KO rate programmed for delivery between Intermittent doses.

- When the pump is in Lockout Mode, the option to enter a Delay Delivery is available before the start of an infusion.
Ready Screens / Final Confirmation Screens

When you have entered and/or reviewed all infusion parameters, the pump displays:

```
READY
(PROFILE)
```

This indicates that the programmed parameters have been saved and will be retained until the profile is reprogrammed or the pump’s memory is cleared. (See “Clearing the Memory,” 5-9).

The screen is also displayed in Lockout Mode, if you press **RUN** at the **RUN to Repeat** prompt.

1. If you want to change a parameter and the pump is not in Lockout mode, press **NO** when the **READY** screen is displayed. The pump then displays:

```
(PROFILE)
CHECK or CHANGE
```

followed by the **DELAY DELIVERY?** screen.

2. Press **YES** to accept, or **NO** to change the values you just programmed if desired.

3. If you press **RUN** from the **READY** screen, the following screens are displayed alternately:

```
Rate/hr (ml)       AMT
125                100.0
```

```
(PROFILE)
Press Run
```

4. Press **RUN** to begin infusing, or **NO/REVIEW** to review each programmed parameter (See“Reviewing Profile Parameters,” 3-17.)
Reviewing Profile Parameters

To review the current programmed parameter values:

1. If the pump is already running, press **RUN/HOLD** to temporarily stop the infusion.

2. Press **NO/REVIEW**. The pump displays:

   | REVIEW PROFILE PARAMETERS?

3. Press **YES**.

   The pump displays the current option and limit settings, then the programmed infusion parameters.

**Note:** The pump displays change automatically, but you may advance through them more quickly by pressing **YES** as each value is displayed.

   When all parameters have been displayed, the pump displays the Final Confirmation or ***HOLD*** screen.

4. Press **RUN/HOLD** to start or continue the infusion.

Powering the Pump Off

- To power off when an infusion is complete, press **ON/OFF PUMP**.

- To power off before an infusion is complete, press **HOLD**, then press **ON/OFF PUMP**.

Information for the incomplete program is stored in memory. The next time the pump is turned on, it will prompt you to resume the previous infusion.
Chapter 4

Programming Infusions

Overview

This chapter provides instructions for programming infusions in each of the pump’s five infusion profiles. The following information is included:

- “Programming Continuous Profile,” 4-1
- “Programming Auto–Ramp® Profile,” 4-10
- “Programming Intermittent Profile,” 4-18
- “Programming 25 Periods Profile,” 4-28
- “Programming PCA Infusions,” 4-36

Programming Continuous Profile

The Continuous profile has the following programming options:

- Program a single rate and the total volume. The pump calculates the time for the infusion.
- Program the total time for the infusion and total volume. The pump calculates the rate.
- Titrate the rate and/or the volume while the infusion is in progress or before the infusion begins. See “Titration in Continuous Profile,” 4-6.
- Delay the delivery for a specified period of time.
Programming Continuous Profile

1. Power the pump on by pressing ON/OFF PUMP.
The pump executes its self-test, then displays:

   YES to Program
   RUN to Repeat

2. Press YES. The pump displays the current downstream occlusion pressure setting, then displays:

   CONTINUOUS?

3. Press YES to select Continuous profile.

   DELAY DELIVERY?

4. Do one of the following:

   • If you want to delay the start of the infusion, press YES, enter the delay time in hours:minutes, then press YES again.

   • If you want to start the infusion immediately after programming the pump, press NO. The pump displays:

   PROGRAM in ml’s?

5. Select the programming units as follows:

5.1 To program in ml, press YES and go to step 6. If not, press NO. The pump displays:

   PROGRAM in mg’s?
5.2 To program in milligrams, press **YES** and go to step 5.4 to enter concentration.
If not, press **NO**. The pump displays:

```
PROGRAM in μg's?
```

5.3 To program in micrograms, press **YES** and go to step 5.4 to enter concentration. If not, press **NO** and return to step 5.1.

**Note:** You must select a programming unit.

5.4 If programming in mg or μg, enter desired concentration in units per ml of fluid, then press **YES**.

6. The pump now prompts you to decide whether you want to program the infusion by rate or by time by displaying:

```
PROGRAM in Rate?
```

6.1 To program total infusion time, press **NO** and skip to step 7.

6.2 To program rate, press **YES**.
The pump displays:

```
CONTINUOUS
Rate: XXXml/hr
```

6.3 Press **YES** to accept the displayed rate, or enter a new rate and press **YES** to accept.

6.4 Go to step 8 to program the volume to be infused.
7. The pump displays:

```
PROGRAM Total Infusion Time?
```

7.1 Press **YES**. The pump displays:

```
CONTINUOUS
Total Time: XX:XX
```

7.2 Press **YES** to accept the displayed time period for the infusion, or enter a new time period and press **YES** to accept. The pump displays:

```
CONTINUOUS
Volume: XXX.X ml
```

8. To program volume to be infused:
Press **YES** to accept the displayed volume, or enter a new volume and then press **YES**.

The pump display alternates between the calculated fluid bag volume and the programmed rate and the time.

The display alternates the calculated fluid bag volume and concentration (if applicable) with the calculated total time for the infusion and the maximum rate.

**Example:**

```
Bag Volume:
100.0ml/ 100ug
```

```
Total Time: 01:00
Rate: 122ml/hr
```
**Note:** If the calculated rate exceeds the pump’s maximum rate of 400 ml/hr, the pump displays an alert message and forces you to re-enter values that result in a rate less than 400 ml/hr.

9. Press **YES** to confirm the displayed parameters and continue to step 10,

    **OR**

Press **NO** to check or change the parameters. The pump briefly displays:

```
CONTINUOUS
CHECK or CHANGE
```

then displays:

```
DELAY DELIVERY?
```

so you can press **YES** or **NO** as appropriate to advance through the programmed values and change parameters if desired.

10. When you are satisfied with all the values, press **YES**. The pump displays:

```
READY
CONTINUOUS
```

**Note:** At the READY screen you can also Check or Change infusion parameters (see step 9).

**Note:** You have the option of placing the pump in Lockout Mode at this time. See “Programmable Mode / Lockout Mode,” 5-16 for information and instructions.
11. To deliver the programmed infusion at a later time, press the **ON/OFF PUMP** key to turn the pump off. When you want to begin the programmed infusion, follow the directions under “Shortcut Delivery of a Programmed Infusion,” 5-2.

To begin the infusion immediately, press **YES**. The pump displays the Final Confirmation screen:

```
CONTINUOUS
Press Run
```

alternating with:

```
RATE/hr (ug) AMT
XXX XXX
```

12. Review the settings shown in the Final Confirmation screen and do one of the following:

- Press **NO/REVIEW** to review parameters again.

- Press **RUN** to begin the infusion. The green indicator light blinks and a flashing arrow is displayed on the screen to show that the pump is delivering fluid.

**Titration in Continuous Profile**

Titration mode allows you to change the delivery rate and/or the volume of a continuous infusion during delivery or before the start of an infusion.

There are three ways to titrate a continuous infusion:

- Change rate without stopping the infusion.

- Change rate and/or volume when the infusion is put on hold.

- Change rate and/or volume from the Final Confirmation screen before the infusion begins.
Programming Infusions

Changing Rate Without Stopping the Infusion

1. Press **YES /TITRATE** while the infusion is running. The pump displays:

   ![TITRATION?](image)

2. Press **YES**. The pump displays:

   ![ENTER NEW Rate: 0.0 ml/hr](image)

3. Enter the new rate. Press **YES** to accept the new value and continue the infusion at the new rate.

   **Note:** You can change the rate without pausing the infusion. To change volume, you must put the infusion on hold.

Changing Rate and/or Volume When Infusion is on Hold

1. Press **RUN/HOLD** to pause the infusion. The pump displays:

   ![*** HOLD ***](image)

2. Press **YES /TITRATE**. The pump displays:

   ![TITRATION?](image)

3. Press **YES**. The pump displays:

   ![ENTER NEW Rate: 0.0 ml/hr](image)
4. Enter the new rate and press **YES** to accept. The pump displays:

```
ENTER NEW
Volume: 0.0 ml
```

5. Enter a new volume if desired and press **YES** to accept.

The pump displays the new infusion rate and the cumulative volume infused, alternating with **HOLD**.

6. Press **RUN** to resume the infusion.

**Changing Rate and/or Volume Before Infusion Begins**

1. Press **YES/TITRATE** from the Final Confirmation screen. The pump displays:

```
TITRATION?
```

2. Press **YES**. The pump displays:

```
ENTER NEW
Rate: 0.0 ml/hr
```

3. Enter a value and press **YES**. The pump displays:

```
ENTER NEW
Volume: 0.0 ml
```

4. Enter a value and press **YES**. The pump displays **CONTINUOUS/PRESS Run** alternates in the Rate and Programmed amount.

5. Press **RUN** to start the infusion.
Repeating a Continuous Infusion

To repeat a previously programmed continuous infusion:

1. Turn the pump on by pressing **ON/OFF PUMP**. The pump executes its self-test, then displays:

<table>
<thead>
<tr>
<th>YES to Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUN to Repeat</td>
</tr>
</tbody>
</table>

2. To repeat the last program delivered, press **RUN**. The display alternates between the last programmed parameters and:

<table>
<thead>
<tr>
<th>CONTINUOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS RUN</td>
</tr>
</tbody>
</table>

3. Confirm that the programmed settings are suitable, then press **RUN** to start the infusion.
Programming Auto–Ramp® Profile

The Auto–Ramp® Profile allows delivery of an infusion that automatically ramps (tapers) up, reaches a level delivery rate, and then automatically ramps (tapers) down. You enter the infusion’s total volume, up- and down-ramp times, and the total delivery time or maximum level rate.

Note: Before beginning, verify that the pump is set up to permit Auto–Ramp® Profile programming. See “Making the Pump Profile-Specific,” 5-10 for instructions on enabling infusion profiles.

To program an Auto–Ramp® Profile infusion:

1. Power the pump on by pressing ON/OFF PUMP.

   The pump executes its self-test, then displays:

   YES to Program

   RUN to Repeat

2. To enter a new program, press YES. The pump displays its currently selected occlusion pressure setting, then displays CONTINUOUS?.

3. Press NO until the pump displays:

   AUTO–RAMP?

4. Press YES to select Auto–Ramp® Profile.

   The pump displays:

   DELAY DELIVERY?
5. Do one of the following:

- If you want to delay the start of the infusion, press **YES**, enter the delay time in hours:minutes, then press **YES** again.

- If you want to start the infusion immediately after programming the pump, press **NO**. The pump displays:

```
PROGRAM in ml's?
```

6. Select the programming units as follows:

6.1 If you want to program in mls, press **YES** and continue to step 7. If not, press **NO** and proceed to step 6.2.

6.2 If you want to program in milligrams, press **YES** and go to step 6.4. If not, press **NO** and proceed to step 6.3.

6.3 If you want to program in micrograms, press **YES** and go to step 6.4. If not, press **NO** and return to step 6.1.

6.4 If programming in mg or μg, enter desired concentration in units per ml of fluid.

6.5 Press **YES** to accept concentration and go to step 7. Press **NO** to enter a different concentration.

7. You can program by total time or by maximum rate. The maximum rate is reached at the end of the up-ramp time period and is sustained through the level period. The pump displays:

```
PROGRAM Total Infusion Time?
```

- If you want to program by time, press **YES** and go to step 10.
• If you want to program by rate, press NO. The pump displays:

```
PROGRAM
Maximum Rate?
```

8. Press YES. The pump displays the last maximum rate stored in memory.

```
Maximum Rate: XXX mI/hr
```

9. Press YES to accept the rate, or enter a new rate, then press YES to confirm. Skip to step 11.

10. The pump displays the previous Auto–Ramp® Profile total time stored in memory. Do one of the following:

```
AUTO–RAMP
Total Time: XXX:XX
```

• To accept the displayed value, press YES.

• Enter a new value for total time, then press YES to accept. Go to step 11.

11. The pump displays the previous Auto–Ramp® Profile volume stored in memory.

```
AUTO–RAMP
Volume: XXX:XX ml
```

Press YES to accept the displayed value, or enter a new value and press YES to accept.

12. The pump displays the previous up-ramp time period stored in memory.

```
Up–Ramp
Total Time: XX:XX
```
Press YES to accept the displayed value, or enter a new value and press YES to accept.

13. The pump displays the previous down-ramp time period stored in memory.

```
Down-Ramp
TotalTime: X:XX
```

Press YES to accept the displayed value, or enter a new value and press YES to accept.

The pump alternates the calculated fluid bag volume and concentration (if applicable) with the calculated total time for the Auto-Ramp® Profile and the maximum rate.

**Example:**

```
Bag Volume:
100.0ml/100ug
```

```
TotalTime: 01:00
Rate: 122ml/hr
```

**Note:** If the calculated rate for any part of the infusion exceeds the pump’s maximum rate of 400 ml/hr, the pump displays an alert message and forces you to re-enter values that result in a rate less than 400 ml/hr.

14. Do one of the following:

- Press YES to confirm that the displayed parameters are acceptable and continue to step 15, the Ready screen.
• Press NO to check or change the parameters. The pump briefly displays:

```
AUTO-RAMP:
CHECK OR CHANGE?
```

then returns to the DELAY DELIVERY? screen shown in step 4. Proceed through all the programming screens by pressing YES or NO to confirm or change parameter values.

15. When you are satisfied with the values, press YES. The pump stores the programmed settings in memory and displays:

```
READY
AUTO-RAMP
```

16. Do one of the following:

• To begin the infusion now, press YES to proceed to the Final Confirmation screen (step 17).

• To deliver the infusion later, turn the pump off by pressing the ON/OFF PUMP key. When you want to begin the infusion, follow the directions under “Shortcut Delivery of a Programmed Infusion,” 5-2.

• To reprogram a parameter, press NO. The pump displays the DELAY DELIVERY? screen again so you can advance through all the programming screens by pressing YES and NO and change the values if desired.

17. The Final Confirmation screen is displayed:

```
AUTO-RAMP
Press Run
```

alternating with the level rate infusion rate and volume:
18. When you have reconfirmed the programmed parameters, press **RUN/HOLD** to begin the infusion. The pump display alternates between the following:

```
RATE/hr (ml) AMT
XXX        XXX
```

As the infusion progresses, the rate gradually increases throughout the up-ramp time period. When the up-ramp time period is complete, rate levels off at the maximum programmed rate and the following is displayed for 10 seconds:

```
LEVEL RATE
XXX        X
```

alternating with:

```
RATE/hr (ml) AMT
XXX        X
```

During the down-ramp period, the display changes to:

```
DOWN-RAMP
XX        X
```

When the infusion is complete, the pump beeps and displays the following until you turn it off:

```
AUTO-RAMP
COMPLETE XXX m1
```
Repeating an Auto–Ramp® Profile Infusion

To repeat a previously programmed Auto–Ramp® Profile infusion:

1. Power the pump on by pressing ON/OFF PUMP.

   The pump executes its self-test, then displays:

   YES to Program
   RUN to Repeat

2. To repeat the last program delivered, press RUN.

   The display alternates between the last programmed parameters and:

   AUTORAMP
   PRESS RUN

3. Confirm that the programmed settings are suitable, then press RUN to start the infusion.

Early Down-Ramping During Auto–Ramp® Profile Delivery

When an Auto–Ramp® Profile infusion is running at the level rate, you can begin the down-ramp portion earlier than originally programmed if necessary. This function allows you to enter a new down-ramp time, if desired, or begin the down-ramp phase immediately.

1. When the pump is in level rate, press RUN/HOLD to interrupt the infusion. The pump displays:

   Early
   Down-Ramp?
2. Press **YES** to program early down-ramp, or **NO** to exit and continue with the infusion as originally programmed.

**Note:** The LOW BAG warning may occur when you program an early down-ramp.

After you press **YES**, the pump displays:

```
Down-Ramp
TotalTime: HH:MM
```

3. Press **YES** to accept the down-ramp start time shown, or enter a new time and press **YES** to accept.

The pump displays the Level Infusion Rate and cumulative volume infused, alternating with ***HOLD***.

4. Press **RUN/HOLD** to resume the paused infusion, beginning immediately with the down-ramp phase.

If an alarm occurs during the level rate portion of the profile:

1. Press **RUN/HOLD** to silence the alarm.
   The pump displays:

```
EARLY DOWNRAMP?
```

2. To begin the down-ramp portion of the profile immediately, press **YES**.

   To continue the level rate portion of the profile, press **NO**. The pump displays:

```
*** HOLD ***
```

3. Clear the alarm condition, then press **RUN** to restart the pump.
Programming Intermittent Profile

The Intermittent profile delivers multiple doses of medication at regular intervals from a single fluid bag. You enter the total length of time over which to infuse the contents of the fluid bag. You may choose a delivery time up to 72 hours. Determine the number of doses, volume, time or rate for each dose and the KO rate to be delivered between each dose.

Think about your infusion profile when determining the total delivery time. If only one dose is in the fluid bag, total time may be anywhere between 1 minute and 72 hours. With more than one dose, the total time may be between 3 hours and 72 hours. There must be at least 2 hours between the end of one dose and the beginning of the next dose, and there cannot be more than one dose every three hours.

You have the option of delaying the delivery for a specified time.

**Note:** Before beginning, verify that the pump is set up to permit intermittent programming. See “Making the Pump Profile-Specific,” 5-10 for instructions on enabling infusion profiles.

To program an Intermittent infusion:

1. Power the pump on by pressing **ON/OFF PUMP**.

   The pump executes its self-test, then displays:

   ```
   YES to Program
   RUN to Repeat
   ```

2. Press **YES**. The pump displays its currently selected occlusion pressure setting, then displays:

   ```
   CONTINUOUS?
   ```
3. Press **NO** until the following is displayed:

   ![INTERMITTENT?](image)

4. Press **YES** to select Intermittent profile. The pump displays:

   ![DELAY DELIVERY?](image)

5. Do one of the following:

   - If you want to delay the start of the infusion, press **YES**, enter the delay time in hours:minutes, then press **YES** again.

   - If you want to start the infusion immediately after programming the pump, press **NO**. The pump displays:

     ![Total:24hrs?](image)

**Note:** When programming an Intermittent profile, total delivery time must be between 3 hours and 72 hours, with at least 2 hours between individual doses.

6. If you want a total delivery period of 24 hours, press **YES** and go to step 10.

7. If you want a different total delivery time, press **NO**. The pump displays:

   ![OTHER TOTAL Delivery Time?](image)

8. Press **YES**. The pump displays:

   ![OTHER TOTAL Time: HH:MM](image)
9. If the time displayed is correct, press **YES**. If not, enter desired total delivery time and press **YES** to accept.

The pump displays:

```
INTERMITTENT
# Doses:  XX
```

10. Do one of the following:

10.1 If the number of doses shown is correct for the total delivery time entered, press **YES**.

10.2 Enter the correct number of doses and press **YES**.

**Note:** If the number of doses you enter results in a dose frequency of less than three hours between doses, the pump displays *DOSE FREQUENCY UNDER 3 HRS.* Enter a lower number of doses.

11. Select the programming units as follows:

11.1 To program in ml, press **YES** and go to step 12. If not, press **NO**. The pump displays:

```
PROGRAM in mg’s?
```

11.2 To program in milligrams, press **YES** and go to step 11.4 to enter concentration. If not, press **NO**. The pump displays:

```
PROGRAM in μg’s?
```

11.3 To program in micrograms, press **YES** and go to step 11.4 to enter concentration. If not, press **NO** and return to step 11.1.

11.4 If programming in mg or μg, enter desired concentration in units per ml of fluid, then press **YES**.
You must select a programming unit.

You can program the doses by time or by rate.

12. To program by time:

When the pump displays:

```
PROGRAM
Doses in Time?
```

12.1 Press YES. The pump displays:

```
INTERMITTENT
DoseTime: 0:00
```

12.2 Press YES to accept the time, or enter a new time and press YES to confirm. Go to step 14.

13. To program by rate:

When the pump displays:

```
PROGRAM
Doses in Time?
```

13.1 Press NO. The pump displays:

```
PROGRAM
Doses in Rate?
```

13.2 Press YES. The pump displays:

```
Dose
Rate: XXX ml/hr
```

13.3 Press YES to accept the rate, or enter a new rate and press YES to confirm.
14. The pump displays the previous dose volume stored in memory.

![Dose Volume: XX.X ml/hr]

Press **YES** to accept the displayed value, or enter a new value and press **YES** to accept. The pump displays:

![INTERMITTENT KO Rate: XX.X ml/hr]

**Note:** KO rate must be between 0.0 and 10.0 ml, and must be less than the dose rate. If the entered KO rate is higher than the dose rate, the pump will not accept the entered parameter and will display **KO RATE EXCEEDS DOSE RATE.**

**Note:** Intermittent KO rate does not apply to other profiles. When programmed in this sequence, the KO rate applies to the Intermittent profile only.

**Note:** If the KO rate is 0.0 ml/hr, at the end of each dose the pump displays **DOSE X COMPLETE** and beeps 4 times. The pump displays the current (KO) rate of 0.0 and the cumulative volume given, alternating every 15 seconds with **KO DOSE X.**

15. Press **YES** to accept the displayed KO value, or enter a new KO rate and press **YES** to accept.

The pump displays:

![Bag Volume: XXX.X ml]

alternating with:

![Dose Time: HH:MM Rate: XX.X ml/hr]
16. Do one of the following:

- Press **YES** to confirm that the displayed parameters are acceptable and go to step 18, the Ready screen.

- Press **NO** to check or change the parameters. The pump briefly displays:

```
INTERMITTENT:
CHECK OR CHANGE
```

then returns to the **DELAY DELIVERY?** screen shown in step 4.

17. Advance through all the programming screens by pressing **YES** and **NO** and confirm or change parameter values.

18. When you are satisfied with the values, press **YES**. The pump stores the programmed settings in memory and displays:

```
READY
INTERMITTENT
```

19. Do one of the following:

- To begin the infusion now, press **YES** to proceed to Final Confirmation. See step 20.

- To deliver the infusion later, turn the pump off by pressing the **ON/OFF PUMP** key. When you want to begin the infusion, follow the directions under “Shortcut Delivery of a Programmed Infusion,” 5-2.

- To reprogram a parameter, press **NO**. The pump displays the **DELAY DELIVERY?** screen again so you can advance through all the programming screens by pressing **YES** and **NO** and change the values if desired.
20. The Final Confirmation screen displays the infusion rate and amount, alternating with INTERMITTENT Press Run. This gives you the opportunity to reconfirm the infusion parameters.

21. When you have reconfirmed the programmed parameters, press RUN/HOLD to begin the infusion.

Note: Intermittent infusions always begin with a dose period and end with a KO period unless Delay Delivery is used.

Interrupting an Intermittent Infusion

If the pump is turned off during an Intermittent infusion, the pump’s clock keeps track of the dosing schedule.

If turned off between scheduled doses, the pump displays the appropriate Resume? prompt when it is turned back on.

If turned off during a scheduled dose, the clock keeps track of the time remaining in the interrupted dose. The Resume? prompt displayed when the pump is turned back on varies as shown in Table 4-1.
Table 4-1 Resuming an Intermittent Infusion

<table>
<thead>
<tr>
<th>If pump is turned back on....</th>
<th>Prompt</th>
<th>Response</th>
</tr>
</thead>
</table>
| Before the scheduled end of the interrupted dose | RESUME DOSE X | **YES**: Interrupted dose continues where it left off.  
**NO**:  
YES to Program RUN to Repeat |
| After more than 31 minutes have elapsed beyond the original scheduled end of the dose | RESUME KODOSE X? | Dose is cancelled. |
| More than 30 minutes before the start of the next scheduled dose | RESUME KODOSE X? | **YES**: KO Dose begins. Infusion remains on original schedule.  
**NO**:  
YES to Program RUN to Repeat |
| Within 30 minutes before or after the next scheduled dose | BEGIN DOSE X? | **YES**: Dose begins immediately. Following KO period will be shortened or lengthened as required to keep the remaining infusion on its original schedule.  
**NO**:  
YES to Program RUN to Repeat |
| After more than 30 minutes after the next dose would have completed | BEGIN DOSE X? | **YES**: Dose begins immediately. All remaining doses will be rescheduled and administered according to the original programmed dose time. |
Audible Alerts When KO Rate is 0.0 ml/hr

If the KO rate is 0.0, a dose is finished and the pump is turned off, the pump sounds 4 alert beeps every 10 minutes, beginning 30 minutes before the scheduled start time of the next dose and ending 30 minutes after the scheduled start time of the next dose. During this time the next scheduled dose will be given if the pump is turned on. If two consecutive doses are missed, the alert beeps stop.

Changing the Fluid Bag to Continue the Program Cycle

As a safety measure, the pump delivers the program based on the total infusion time entered. This time represents one complete program cycle, or the total delivery time required to infuse the fluid bag contents. When the therapy is to run more than one cycle, you may change the fluid bag either when the infusion is complete or during the final KO phase.

Changing the Fluid Bag When a Cycle is Complete (Repeating the Cycle)

This method allows the Intermittent infusion to finish completely before changing the fluid bag and beginning a new program cycle. When the infusion is complete, turn the pump off, exchange the fluid bag, turn the pump back on, and follow the standard instructions for repeating delivery of a preprogrammed Intermittent delivery profile.

To change the fluid bag and repeat an Intermittent program cycle after a cycle has completed:

1. Turn the pump off when it displays:

   [INTERMITTENT COMPLETE: XXXX ml]
2. Change the fluid bag, then turn the pump back on.

3. In Programmable or Lockout Mode, see “Shortcut Delivery of a Programmed Infusion,” 5-2.

**Changing the Fluid Bag During the Final KO Phase**

This method allows you to change the fluid bag during the final KO phase of an Intermittent program cycle and automatically start a new program cycle when the final KO phase is complete.

1. During the final KO phase, press RUN/HOLD to interrupt the infusion. The pump displays:

   *** HOLD ***

2. Turn the pump off and change the fluid bag.

3. Turn the pump back on.

4. After the pump completes the self-test, it displays:

   Resume KO dose X?

5. Press YES to resume the dose. The pump displays:

   Repeat
   HH:MM Program?

6. Press YES to repeat delivery of the program cycle after the final KO phase is complete.

   The pump displays rate and volume, alternating with:

   KO dose X
   PRESS RUN
7. Press **RUN/HOLD** to resume the final KO phase of the previous infusion. When the KO phase is complete, the pump begins the new program cycle automatically.

### Programming 25 Periods Profile

This profile permits programming and infusion of up to 25 different delivery periods, each with its own rate and volume, or time and volume. The periods are then delivered one after the other.

You can program a 25 Periods profile by rate or by time.

To program a 25 Periods profile:

1. Power the pump on by pressing **ON/OFF PUMP**.
   
The pump executes its self-test, then displays:

   **YES to Program**  
   **RUN to Repeat**

2. Press **YES**. The pump displays the current downstream occlusion pressure setting, then displays:

   **CONTINUOUS?**

3. Press **NO** until **25 Periods?** is displayed.

4. Press **YES** to select 25 Periods profile. The pump displays:

   **DELAY DELIVERY?**
5. Do one of the following:

- To delay the start of the infusion, press **YES**, enter the delay time in hours:minutes, then press **YES** again, or

- To start the infusion immediately, press **NO**. The pump displays:

  ![PROGRAM in ml?]

6. Select the programming units as follows:

6.1 To program in ml, press **YES** and go to step 7. If not, press **NO**.

6.2 To program in milligrams, press **YES** and determine concentration as shown in step 6.4. If not, press **NO**.

6.3 To program in micrograms, press **YES** and go to step 6.4 to enter concentration. If not, press **NO** and return to step 6.1.

6.4 If programming in mg or µg, enter desired concentration in units per ml of fluid.

6.5 Press **YES** to accept concentration and go to step 7. Press **NO** to repeat the previous step or to enter a different concentration and repeat the previous step.

7. The pump displays:

  ![PROGRAM]

  Periods in Rate?

- To program by rate, press **YES** and go to “Programming 25 Periods Profile by Rate,” 4-30.

- To program by time, press **NO** and go to “Programming 25 Periods Profile by Time,” 4-32.
Programming 25 Periods Profile by Rate

Note: You must complete steps 1 through 7 of “Programming 25 Periods Profile,” 4-28, before performing this procedure.

The pump displays the last rate programmed for the first period stored in memory.

1. Press YES to accept the rate, or enter a new rate, then press YES to confirm. The pump displays:

   PERIOD 01
   Rate:  \( \times \times \text{ml/hr} \)

2. Press YES to accept the displayed volume, or enter a new volume for Period 1, then press YES to accept. The pump displays:

   PERIOD 01
   VOLUME:  \( \times \times \times \times \text{ml} \)

3. Repeat steps 1 and 2 to program the rate and volume for the remaining number of delivery periods desired.

4. After you have programmed parameters for all desired periods, end period programming by programming the next period with a rate of zero, then press YES.

Example:

To deliver 16 periods, program delivery parameters for all 16 periods, then program a zero value for the 17th period as shown below:

   PERIOD 17
   RATE:  0.0 ml/hr
5. Press **YES** to confirm. The display alternates between:

![Bag Volume: XXX.X ml]

and:

![Rate: XXX ml/hr]

6. Confirm the infusion parameters, then press **YES** to continue to step 8, or **NO** to check or change the parameters.

7. If you press **NO**, the pump briefly displays:

![25 PERIODS CHECK or CHANGE]

then returns to **DELAY DELIVERY?**. Proceed through all the programming screens to confirm or change parameter values by pressing **YES** or **NO**.

8. When you are satisfied with the values, press **YES**. The pump displays:

![READY XX PERIODS]

9. Do one of the following:

   - To begin the infusion now, press **YES** to proceed to Final Confirmation. See step 10.

   - To deliver the infusion later, turn the pump off by pressing the **ON/OFF PUMP** key. When you want to begin the infusion, follow the directions under “Shortcut Delivery of a Programmed Infusion,” 5-2.
• To reprogram a parameter, press **NO**. The pump displays the **DELAY DELIVERY?** screen again so you can advance through all the programming screens by pressing **YES** and **NO** and change the values if desired.

10. The Final Confirmation screen displays the infusion rate and amount, alternating with **25 PERIODS** Press **Run**. This lets you reconfirm the infusion parameters if desired. See “Reviewing Profile Parameters,” 3-17.

11. When you have reconfirmed the programmed parameters, press **RUN/HOLD** to begin the infusion, or press **NO/REVIEW** to review parameters.

**Programming 25 Periods Profile by Time**

**Note:** You must complete steps 1 through 7 of “Programming 25 Periods Profile,” 4-28, before performing this procedure.

To program a 25 Periods profile by time:

The pump displays:

```
PROGRAM
Periods in Time?
```

1. Press **YES**. The pump displays the last time programmed for the first period stored in memory.

```
PERIOD 01
Total Time: HH:MM
```

2. Press **YES** to accept the time, or enter a new time in hours:minutes format, then press **YES** to confirm. The pump displays:

```
PERIOD 01
VOLUME: XXXXX ml
```
3. Press **YES** to accept the displayed volume, or enter a new volume for Period 1, then press **YES** to accept.

The pump displays the prompt for programming the second period’s time duration:

```plaintext
PERIOD 02
Total Time: HH:MM
```

4. Press **YES** to accept the displayed time for Period 2, or enter a new value and press **YES** to accept.

5. Repeat steps 2 and 3 to program the time and volume for the remaining number of delivery periods desired.

6. After you have programmed parameters for all desired periods, end period programming by programming the next period for a time of zero.

**Example:**

To deliver 16 periods, program delivery parameters for all 16 periods, then program a zero value for the 17th period as shown below.

```plaintext
PERIOD 17
Total Time: 00:00
```

7. Press **YES** to confirm. The display alternates between:

```plaintext
Bag Volume: 
XXXX.X ml
```

and:

```plaintext
Total Time: 
HH:MM
```
8. Confirm the infusion parameters. Press **YES** to continue to step 11, the Ready screen, or **NO** to check or change the parameters.

9. If you press **NO**, the pump briefly displays:

```
25 PERIODS CHECK
   or CHANGE
```

then returns to **DELAY DELIVERY?**. You may then confirm or change parameter values by pressing **YES** or **NO**.

10. When you are satisfied with the values, press **YES**. The pump displays:

```
READY
   XX PERIODS
```

11. The programmed parameters are stored in the pump’s memory. Do one of the following:

   - To begin the infusion now, press **YES** to proceed to the Final Confirmation screen (step 12).

   - To deliver the infusion later, turn the pump off by pressing the **ON/OFF PUMP** key. When you want to begin the infusion, follow the directions under “Shortcut Delivery of a Programmed Infusion,” 5-2.

   - To reprogram a parameter, press **NO**. The pump displays the **DELAY DELIVERY?** screen again so you can see all the programming screens by pressing **YES** and **NO** and change the values if desired.
12. The Final Confirmation screen is displayed:

```
25 PERIODS
Press Run
```

alternating with the infusion rate and volume:

```
RATE/hr (mL) AMT
XXX XXX
```

13. When you have reconfirmed the programmed parameters, press RUN/HOLD to begin the infusion. The pump displays:

```
RATE/hr (mL) AMT
XXX.X -> X.X
```

**Repeating a 25 Periods Program**

To repeat a 25 Periods infusion:

1. Power the pump on by pressing ON/OFF PUMP.

   The pump executes its self-test, then displays:

   ```
   YES to Program
   RUN to Repeat
   ```

2. To repeat the last program delivered, press RUN. The display alternates between the last programmed parameters, and:

   ```
   25 PERIODS
   Press RUN
   ```

   Confirm that the programmed settings are suitable, then press RUN again to start the infusion.
Programming PCA Infusions

The PCA profile allows you a choice of three different PCA infusion patterns:

- Basal (constant) infusion rate only.
- Basal rate with demand bolus doses (patient activated bolus).
- Bolus doses on demand only.

You may also administer a loading dose at the beginning of an infusion, or a clinician-activated bolus dose at any time during an infusion.

The following programming procedure describes how to program all programming options. If your institution has used PCA Configuration Mode to disable some of the settings, not all screens will be displayed. See “Using Configuration Mode to Customize Available PCA Profile Options,” 4-63 for information on PCA Configuration options.

The pump provides three delivery route options: intravenous, subcutaneous and epidural.

Begin Programming PCA Profile

To program a PCA profile:

1. **Power the pump on.** Press **ON/OFF PUMP**. The pump executes its self-test, then displays:

   ![YES to Program]

2. Press **YES**. The pump displays the current downstream occlusion pressure setting, then displays:
3. Select PCA profile. Press NO until PCA? is displayed.

4. Press YES to select PCA profile. The pump displays:

   **Delivery Route**
   Intravenous?

5. Select delivery route. You can select from intravenous, subcutaneous, or epidural delivery routes. If you want an intravenous delivery, press YES. If not, press NO to display the other options.

6. When the desired delivery route is displayed, press YES to accept.

7. Select programming units as follows:

   7.1 To program in milligrams, press YES and go to step 7.4. If not, press NO.

   7.2 To program in milliliters, press YES and go to step 8. If not, press NO.

   7.3 To program in micrograms, press YES. If not, press NO and return to step 7.1

   7.4 If programming in mg or μg, press YES to accept the default concentration, or press NO and enter a different concentration in units per ml of fluid.

8. Set basal rate. Press YES to accept the displayed rate or enter a new rate and press YES to accept.

   **Basal**
   Rate: 0.0mg/hr
Note: If you selected mg or µg, basal rate will display in terms of the selected unit.

Note: The basal rate can range from 0.0 up to 50 ml/hr, depending on the selected delivery route. If the rate is programmed in mg/hr or µg/hr, the delivery range is determined by 50 ml equivalent and the concentration. See Table 4-3 for complete information on dose limits for delivery routes.

Note: Fluid bag volume is always displayed in ml; so even if you are programming in mg or µg, enter fluid bag volume in ml.


```
Bag
Volume: 0.0ml
```

Press YES to accept the displayed volume or enter a new volume and then press YES to accept.

Choose Method of Limiting Amount of Medication

10. When programming a bolus dose, you may limit the medication available to the patient either by number of doses per hour or by total medication allowed.

Press YES when the appropriate choice is displayed:

```
Limit Med. by
# Doses/Hour?
```

or:

```
Limit Med. by
Tot Med Allowed?
```
Programming Infusions

**Note:** Select Limit Med. by # Doses/Hour to enter the number of bolus doses that may be delivered within a one-hour time frame.

**Examples:** “6” = q10 min.; “2” = q30 min.
Select Limit Med. by Tot Med. Allowed to restrict the total amount of medication that may be infused within a certain time period, or to program bolus intervals greater than one hour.

**Examples:** q2 hours, q4 hours, or total medication of 40 mg in 4 hours.

**Note:** If you want to program a basal rate only (no bolus doses), press YES to Limit Med. by # Doses/Hour, and NO to DEMAND BOLUS DOSE?

- If you chose to limit medication by number of doses per hour, go to “Programming a PCA Profile with Medication Limited by Number of Doses per Hour,” 4-39.

- If you chose to limit medication by the total amount of medication allowed, go to “Programming Demand Boluses - Limiting Medication by Total Medication Allowed,” 4-41.

**Programming a PCA Profile with Medication Limited by Number of Doses per Hour**

**Note:** You must complete steps 1 through 10 of “Programming PCA Infusions,” 4-36, before performing this procedure. Perform this procedure only if you selected LIMIT MED by # Doses/Hr. in step 10.
1. Choose and program demand bolus dose if desired.

   **DEMAND BOLUS DOSE?**

   Press **YES** or **NO**. If you press **NO**, skip to “Set PCA Profile Titration Limits,” 4-42.

   If you press **YES**, the pump displays:

   **Bolus Dose:** 0.0 mg

2. Press **YES** to accept the displayed bolus dose or enter a new bolus dose amount, and press **YES** to accept the value.

   The pump displays:

   **Bolus Hr:Min**
   **Interval:** 00:00

3. Press **YES** to accept the displayed bolus dose or enter a new bolus dose amount, and press **YES** to accept the value.

4. Press **YES** to accept the displayed bolus interval (time between bolus doses), or enter a new interval and press **YES** to accept.

   **Bolus Doses/hr:** XX

**Note:** The pump will not allow the patient to receive more than the allowed number of bolus doses per hour, based on your entered bolus dose interval. You must enter the number of bolus doses allowed per hour, or enter a smaller number.

5. Enter the desired number of bolus doses allowed per hour and press **YES** to accept the value.

6. Go to “Set PCA Profile Titration Limits,” 4-42.
Programming Demand Boluses -
Limiting Medication by Total Medication Allowed

Note: You must complete steps 1 through 10 of “Programming PCA Infusions,” 4-36, before performing these steps. Perform this procedure only if you selected LIMIT MED by Tot. Med. Allowed. in step 10.

1. When the pump displays:

   Demand Bolus
   Dose?

   Press YES to allow the patient to receive bolus doses on demand, or press NO and go to step 4 if you do not want the patient to receive bolus doses on demand.

   If you press YES, the pump displays:

   Bolus
   Dose: 0.0 mg

2. Press YES to accept the displayed bolus dose, or enter a new bolus dose amount and press YES to accept. The pump displays:

   Bolus
   Interval: HH:MM

3. Press YES to accept the displayed bolus interval, or enter a new bolus interval and press YES to accept. The pump displays:

   Medication Time
   Limit: 0 Hours

4. Press YES to accept the displayed time limit, or enter a new time limit for the medication and press YES to accept.
5. The pump displays:

```
Medication Vol
Limit: 0.0 mg
```

6. Press **YES** to accept the displayed medication volume limit, or enter a new volume limit and press **YES** to accept.

7. Proceed to “Set PCA ProfileTitration Limits,” 4-42.

**Note:** The Medication Volume limit should account for all hours of basal rate plus the bolus doses allowed during the specified time limit. The pump calculates the medication volume limit by including the sum of the basal volume plus the delivered bolus volumes, but does NOT include the volume of any Clinician-Activated boluses or loading dose.

**Note:** If you entered a basal rate of zero and answered **NO** to DEMAND BOLUS DOSE?, the pump displays:

```
ALERT Program
Basal &/or Bolus
```

Press **YES** or **NO** to return to step 1 of this procedure. You MUST either program a continuous basal rate or allow bolus doses to be administered.

**Set PCA Profile Titration Limits**

1. To allow titration during a PCA infusion, press **YES** at the prompt and continue on to set parameters.

```
SET TITRATION LIMITS?
```

2. If you do not wish to allow titration, press **NO** and go to “Program Optional Loading Dose,” 4-44.
3. If you want to allow titration during a PCA infusion, press **YES**. The pump displays:

```
MAXIMUM Basal
Rate: XX mg/hr
```

4. Enter the maximum basal rate you wish to allow for titration. The value shown will be the minimum basal rate set in the pump. Press **YES** if the displayed value is acceptable. If the value is not correct, enter the desired value and press **YES** to accept.

**Note:** If you selected Demand Boluses, go to step 5 and enter maximum bolus dose allowed. If you chose not to allow Demand Boluses, go to step 10 and program a loading dose if desired.

**Note:** The displayed values are the minimum set. You have to enter the maximum allowable values.

```
MAXIMUM Bolus
Dose: XX mg
```

5. Press **YES** to accept the displayed maximum bolus dose allowed for titration, or enter a new value and press **YES** to accept. The pump displays:

```
MINIMUM Bolus
Interval: HH:MM
```

6. Press **YES** to accept the displayed minimum bolus interval allowed for titration, or enter a new value and press **YES** to accept.

```
MINIMUM Bolus
Interval: HH:MM
```

7. If you are programming in bolus doses per hour, the following screen is displayed:
8. Press **YES** to accept the displayed maximum number of bolus doses per hour allowed for titration, or enter a new value and press **YES** to accept.

**Program Optional Loading Dose**

**Note:** A loading dose can be given as the pump begins infusing. If you press **NO** to not administering the loading dose, it cannot be given later.

The pump displays:

```
PROGRAM
Loading Dose?
```

9. If you do not want to program a loading dose, press **NO**. To program a loading dose, press **YES**. The pump displays:

```
Loading
Dose: XXX mg
```

10. Press **YES** to accept the displayed loading dose, or enter a new value and press **YES** to accept.

**Check Programmed Parameters**

To allow you to check or change the values you programmed, the pump displays:

```
CHECK or CHANGE
PCA VALUES?
```

alternating with:
11. To check or change values, press **YES**. The pump returns to the DELIVERY ROUTE screen. Advance through the programmed parameters and check or change as desired.

To continue without changing parameters, press **NO** and continue.

**Note:** You may also review parameter values at the Final Confirmation screen. See “Reviewing PCA Profile Parameters,” 4-51.

### Select Appropriate PCA Security Level

12. See Table 4-2 for available settings. Press **YES** or **NO** to select the appropriate security level.

- **SECURITY LEVEL 1**
  - ALLOW CHANGES?

- **SECURITY LEVEL 2**
  - ALLOW TITRATION?

- **SECURITY LEVEL 3**
  - LOCKOUT CHANGES?

When you have selected the desired security level, the pump indicates that all values have been stored in the pump’s memory until they are changed by displaying the following:

- **READY**
  - PCA LEVEL X
Table 4-2 Security Level Parameters

<table>
<thead>
<tr>
<th>Level 1: Allow Changes</th>
<th>Level 2: Allow Titration</th>
<th>Level 3: Lockout Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The clinician or patient may start, stop and resume the infusion.</td>
<td>The clinician or patient may titrate the PCA values of the basal rate, bolus dose, bolus intervals, and bolus doses/hr. These values may be titrated up to the preprogrammed titration limiting values only.</td>
<td>The patient may administer only the base programmed values. The YES/TITRATE key is not available even if titration parameters have been programmed. The clinician may titrate PCA values of the basal rate, bolus dose, bolus intervals and bolus doses/hr via codes.</td>
</tr>
<tr>
<td>The clinician may administer a clinician bolus via codes.</td>
<td>The clinician may administer a clinician bolus and change titration parameters via codes.</td>
<td></td>
</tr>
</tbody>
</table>

Completing PCA Programming

13. To begin the PCA infusion now, press **YES** and proceed to the Final Confirmation screen.

To turn the pump off for later delivery of the PCA infusion, press **ON/OFF PUMP**.

The pump displays the Final Confirmation screen:

<table>
<thead>
<tr>
<th>RATE/hr (mL)</th>
<th>AMT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>.</strong>.<strong>.</strong></td>
<td><strong>.</strong>.<strong>.</strong></td>
</tr>
</tbody>
</table>

alternating with:
14. PCA programming is complete. Press **RUN/HOLD** to begin the infusion, or press **NO/REVIEW** to review parameters.

**Titrating a PCA Infusion**

**Note:** The infusion will not be interrupted while titrating. When the new values have been accepted, the pump will automatically switch to the new values for the present infusion.

**Note:** You may exit Titration Mode at any time without changing or saving any new values by pressing **RUN/HOLD**. In Titration Mode, if one minute elapses during which no keys are pressed, the pump automatically exits Titration Mode without changing or saving any new profile parameters, even if new values were added prior to the elapsed minute.

1. To titrate during a PCA infusion in Security Level 1 or Level 2 with titration ranges established, press **YES/TITRATE**. The pump displays:

   ![TITRATION?](image)

   Press **YES/TITRATE** again. The pump displays:

   ![Basal Rate:](image)

2. Press **YES** to accept the displayed basal rate, or enter a new basal rate, and press **YES** to accept.

   If a Demand Bolus Dose IS NOT programmed in the current PCA profile infusion, the following is displayed after you accept a basal rate:
CHECK or CHANGE
Parameters?

If a Demand Bolus Dose IS programmed in the
current PCA profile infusion, the pump will give you
the option of titrating bolus dose, bolus interval
and/or bolus doses/hr in the following three screens:

Bolus
Dose: X mg

3. Press YES to accept the displayed bolus dose value,
or enter a new value and press YES to accept. The
pump displays:

Bolus (Hr/Min)
Interval: HH:MM

4. Press YES to accept the displayed bolus interval
value, or enter a new value and press YES to accept.

If the pump is programmed in Limit Number of
Bolus Doses, the pump displays:

Bolus
Doses/hr: XX

5. Press YES to accept the displayed number of bolus
doses/hr, or enter a new value and press YES to
accept. The pump displays:

CHECK or CHANGE
Parameters?

6. Press YES to check or change the values again, or
press NO to exit Titration Mode.

New values are saved in the pump’s memory for the
PCA profile being delivered.
Giving a Demand /Remote Bolus

If the PCA profile was programmed for demand bolus doses, the patient may activate a demand bolus dose by pressing the PRIME/BOLUS key or, if connected, the button on the PCA cord.

Patient control over demand boluses is limited by one of the following settings:

- limits for the number of doses that may be given in an hour, or
- a required time interval between demand bolus doses.

1. To give a demand bolus during the PCA infusion, press the PRIME/BOLUS key or the button on the remote PCA cord. The pump beeps four times and displays:

   BOLUS DOSE REQUESTED

2. When the bolus dose is finished, the pump resumes the current basal rate and displays the current screen.

   The pump’s data log shows the number of demand bolus doses given as well as the number of doses requested by the patient.
Note: If the patient requests a bolus but the mandatory interval between bolus doses has not elapsed or the number of doses allowed per hour have already been given, the requested bolus dose will not be given. The pump records the request in the PCA data log, displays BOLUS DOSE REQUESTED and beeps four times just as if a dose is being given.

Giving a Clinician-Activated Dose

You can deliver a clinician-activated bolus dose at any time during a PCA infusion, and at any level of security. The function is accessible via a numeric code.

After a clinician-activated dose is delivered, the cumulative volume infused reflects all volume infused, including the clinician-activated dose volume.

1. During a PCA infusion, press RUN/HOLD to pause the infusion.

   The pump displays the current basal rate and cumulative volume infused, alternating with:

   *** HOLD ***

2. To access the Clinician Dose function, enter the code: 5 1 1 5

   The pump displays:

   CLINICIAN
   Dose: 0.0 mg

3. Enter the desired clinician bolus dose and press YES to accept the entered dosage.
Note: If you enter or accept a dosage of 0.0, the Clinician Dose function is canceled. If you make an error, press NO to change your entry.

When you press YES to accept an entered dosage parameter, the pump displays the Clinician Dose confirmation screen:

```
CLINICIAN
Dose: XX mg
```

alternating with:

```
*** HOLD ***
```

4. Press RUN/HOLD to begin the Clinician Dose.

Note: As the clinician dose is being administered, the displayed dosage decreases. When the bolus dose volume reaches zero, the pump continues the infusion at the current basal rate.

Reviewing PCA Profile Parameters

You have several options for reviewing PCA profile information:

- Review profile parameters, review PCA (bolus) data, clear volume infused display and review volume remaining while an infusion is on hold.
- Review PCA (bolus) information during an infusion.
- Review PCA (bolus) information after an infusion has completed.
The way in which you access the information, and the screen displayed when you are finished, depends on the state of the infusion when you access the information. Perform the access procedure appropriate to your situation, then review the data as described in “Reviewing PCA Data,” 4-55.

**Accessing PCA Review Functions While on Hold**

1. While pump is displaying:

   
   ```
   *** HOLD ***
   ```

   press **NO/REVIEW**. The pump displays:

   ```
   REVIEW PROFILE
   PARAMETERS?
   ```

2. To review profile parameters, press **YES**. The pump displays all programmed parameters one by one.

   **Note:** Press **YES** to advance the pump through the programmed parameters more quickly if desired.

3. Press **NO** to proceed directly to the following screen without reviewing the programmed parameters:

   ```
   REVIEW
   PCA DATA?
   ```

4. If you wish to review the PCA bolus dose data, press **YES**. The pump displays the number of bolus doses given, followed by the number of bolus doses requested. The pump then displays:

   ```
   CLEAR
   PCA DATA?
   ```
5. To save the PCA data, press **NO**.
   To clear the data, press **YES**. The pump displays:

   ![ENTER CODE]

6. To clear the PCA data, enter the code:
   
   ![9 1 1]

7. The PCA data is cleared and the pump displays:

   ![CLEAR VOLUME INFUSED DISPLAY?]

8. To save the volume infused data, press **NO**.
   To clear the data, enter the code:

   ![9 1 1]

9. The volume infused data is cleared and the pump returns to the **HOLD** screen. Press **RUN** to restart the infusion.

**Accessing PCA Review Functions While Running**

1. While pump is running, press **NO/REVIEW**. The pump displays:

   ![FOR PCA DATA ENTER CODE]

2. To review PCA data, enter the code:

   ![9 1 1]
Accessing PCA Review Functions After Completion

1. To review PCA data from the following screen:

   LOCKOUT 0
   RUN to Repeat

2. Enter the code:

   9 1 1

   The pump displays:

   REVIEW
   PCA DATA?

3. To review the PCA bolus dose data, press YES. The pump displays the number of bolus doses given. Press YES to advance through the two PCA data items. The pump then displays:

   CLEAR PCA DATA?

4. To save the PCA data, press NO. To clear the data, press YES. The pump displays:

   ENTER CODE

5. To clear the PCA data, enter the code:

   9 1 1

   The PCA data is cleared and the pump displays:

   CLEAR VOLUME INFUSED DISPLAY?
6. To save the volume infused data, press **NO**. To clear the data, enter the code:

   9 1 1

   The volume infused data is cleared and the pump displays:

   ![Lockout On, Run to Repeat]

7. Press **RUN** to repeat the infusion.

**Reviewing PCA Data**

1. After reviewing each displayed data item, press **YES** to advance to the next screen.

   **BOLUS DOSES GIVEN**: shows cumulative number of demand bolus doses received. It does not include clinician or loading doses.

   **BOLUS DOSES REQUESTED**: shows the number of times the bolus button or key was pressed.

   The pump displays:

   ![Display Doses Hour by Hour?]

   Decide whether you want to review data in an hour-by-hour summary or by each event.

2. To view data in an hour-by-hour summary format, press **YES**. Press **NO** to display the Each Event prompt.

3. Hour-by-hour review shows you the number of bolus doses requested and given for the most immediate hour. Press **YES** to see data for the previous hour, and so on until all data has been reviewed.
4. Each event shows you the average time elapsed between bolus attempts, then displays for each attempt the time of the request, whether the dose was given, and the amount given (if any). Press **YES** to step through the screens until all data has been reviewed.

```
AVERAGE TIME OF REQUESTS: HH:MM
```

When all data has been reviewed in either format, the pump displays:

```
CLEAR PCA DATA?
```

5. Press **NO** to let PCA data accumulate. Press **YES** to clear the PCA data. The pump displays:

```
ENTER CODE
```

6. Enter the code:

```
9 1 1
```

The PCA data is cleared and the pump displays:

```
CLEAR VOLUME DISPLAYED?
```

7. Press **NO** to let the PCA volume continue to accumulate. Press **YES** to clear the volume. The pump displays:

```
ENTER CODE
```

8. Enter the code:

```
9 1 1
```
9. The data is cleared. If the pump is on hold, it displays the volume remaining in the infusion, then returns to the ***HOLD*** screen. Press RUN/HOLD to continue the infusion.

10. If the infusion is running, the pump displays:

```
PCA Level X  0n
 X.X         X.X
```

11. If the infusion has completed, the pump displays:

```
LOCKOUT  On
RUN to Repeat
```

**Changing Basal Rate and/or Bolus Parameters Without Losing PCA Data**

In PCA Security Levels 2 and 3, programming changes to basal rate or bolus parameters during an infusion normally reset the PCA data. To change these parameters without losing accrued PCA data and volumes, use the following procedure:

1. While the infusion is running, enter the code: 6116

2. The pump displays:

```
Change Profile Parameters?
```

3. Press YES. The pump displays:

```
Basal Rate X.X mg/hr
```
4. The current basal rate setting is displayed. Accept the value shown by pressing **YES**, or enter a new value and press **YES** to accept.

If bolus doses have been programmed into the current PCA delivery, the pump gives you the option of changing the bolus dose and bolus interval, then proceed to step 8.

If bolus doses have not been programmed, the pump will proceed directly to step 8. The pump displays:

<table>
<thead>
<tr>
<th>Bolus</th>
<th>Dose</th>
<th>X.X mg</th>
</tr>
</thead>
</table>

5. Press **YES** to accept the current value, or enter a new bolus dose and press **YES** to accept. The pump displays:

<table>
<thead>
<tr>
<th>Bolus</th>
<th>Interval</th>
<th>XX:XX</th>
</tr>
</thead>
</table>

6. Press **YES** to accept the current bolus interval, or enter a new bolus interval and press **YES** to accept. If the pump is programmed in number of bolus doses per hour, the pump displays:

<table>
<thead>
<tr>
<th>Bolus Doses/hr</th>
<th>X</th>
</tr>
</thead>
</table>

7. Press **YES** to accept the current number of bolus doses in an hour, or enter a new value and press **YES** to accept.

8. The pump displays:

<table>
<thead>
<tr>
<th>CHECK or CHANGE Parameters?</th>
</tr>
</thead>
</table>

Press **YES** to go through the list of parameters again, or press **NO** to return to the Running screen.
Changing Preprogrammed Titration Limits or Medication Volume Limits During an Infusion

The pump allows changes to preprogrammed titration limits or medication volume limits during an infusion. You may also change basal rate and/or bolus parameters using this method.

The procedure you use to change titration limits depends on whether the pump was programmed for limiting the number of doses per hour, or for limiting by the total amount of medication. See “Choose Method of Limiting Amount of Medication,” 4-38 for more information on these methods.

Changing Titration Limits When Medication is Limited by Volume

1. Press RUN/HOLD.

2. To access titration limits or medication volume limits while the infusion is on HOLD, enter the code:
   6 1 1 6

3. The pump displays:

   Medication Vol
   Limit: XX.X

4. Press YES to accept the current value, or enter a new medication volume limit and press YES to accept.

   If titration limits are programmed, the pump displays:

   Set Titration limits?

5. Press YES to change the titration limits. The pump displays:
Programming PCA Infusions

Maximum Basal Rate: \(X.X\ \text{ml/hr}\)

6. Enter a new maximum basal rate value, then press **YES** to accept. The pump displays:

Maximum Bolus Dose: \(X.X\ \text{mg}\)

7. Enter a new maximum bolus dose value, then press **YES** to accept. The pump displays:

Minimum Bolus Interval: 00:00

8. Enter a new minimum bolus dose value, then press **YES** to accept. The pump displays:

Maximum Bolus Doses/hr: \(X\)

9. Enter a new maximum number of bolus doses per hour, then press **YES** to accept.

Changing Titration Limits When Medication is Limited by Number of Doses per Hour

1. Press **RUN/HOLD**.

2. To access titration limits or medication volume limits while the infusion is on HOLD, enter the code:

\[
\begin{array}{c}
6 \\
1 \\
1 \\
6
\end{array}
\]

If titration limits are programmed, the pump displays:

Set Titration limits?
3. Press **YES** to change the titration limits. The pump displays:

```
Maximum Basal
Rate:   X.X ml/hr
```

4. Enter a new maximum basal rate value, then press **YES** to accept. The pump displays:

```
Maximum Bolus
Dose:   X.Xmg
```

5. Enter a new maximum bolus dose value, then press **YES** to accept. The pump displays:

```
Minimum Bolus
Interval: 00:00
```

6. Enter a new minimum bolus dose value, then press **YES** to accept. The pump displays:

```
Maximum Bolus
Doses/hr: X
```

7. Enter a new maximum number of bolus doses per hour, then press **YES** to accept.

**Changing Medication Volume Limits During a PCA Infusion**

1. Enter the code: 

```
6 1 1 6
```

The pump displays:

```
CHECK or CHANGE
Parameters?
```
Programming PCA Infusions

2. Press **YES**. The pump displays:

<table>
<thead>
<tr>
<th>Basal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate:</td>
</tr>
<tr>
<td>mg/hr</td>
</tr>
</tbody>
</table>

3. Enter a new basal rate, then press **YES** to accept. The pump displays:

<table>
<thead>
<tr>
<th>Bolus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose</td>
</tr>
<tr>
<td>mg</td>
</tr>
</tbody>
</table>

4. Enter a new bolus dose amount, then press **YES** to accept. The pump displays:

<table>
<thead>
<tr>
<th>Bolus</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Hr:Min)</td>
</tr>
<tr>
<td>Interval:</td>
</tr>
<tr>
<td>00:00</td>
</tr>
</tbody>
</table>

5. Enter a new bolus interval, then press **YES** to accept.

   If medication is limited by number of doses per hour, the pump displays:

<table>
<thead>
<tr>
<th>Bolus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doses/hr</td>
</tr>
<tr>
<td>X</td>
</tr>
</tbody>
</table>

6. Enter a new value for the number of bolus doses allowed per hour, then press **YES** to accept.

   The pump displays:

   | CHECK or CHANGE Parameters? |

7. Press **NO**. The PCA infusion resumes.
Using Configuration Mode to Customize Available PCA Profile Options

Overview

PCA Configuration Mode lets you not only customize the PCA options presented to the user but also limit the amount of medication that a patient may receive in a PCA profile infusion.

PCA Configuration Mode allows the options that are displayed in the PCA profile to be customized to meet the specific needs of your organization.

Reviewing the Current PCA Configuration in Programmable Mode

To review the current PCA configuration settings:

1. Turn the pump on.

   After the self-test, the pump displays:

   YES to Program
   RUN to Repeat

2. Enter the code:

   2 6 6 3

   The pump displays:

   Review PCA
   Configuration?

3. Press YES to review the current configuration. The pump displays the current PCA option and limit settings.
Note: The display advances through the settings automatically, but you may move through them more quickly by pressing YES or RUN/HOLD as each value is displayed.

When all parameters have been displayed, the pump displays:

**YES to Program**
**RUN to Repeat**

**Changing PCA Configuration Settings**

To change the PCA Configuration settings:

1. Turn the pump on. After the self-test, the pump displays:

   **YES to Program**
   **RUN to Repeat**

2. Enter the code:  
   2 6 6 3

   The pump displays:

   **Review PCA Configuration?**

3. Press NO to change current configuration values. The pump displays:

   **Set PCA Features and Limits?**

4. Press YES. The pump displays:

   **Use Factory Defaults?**

5. Do one of the following:
• Press **YES**, to reset the settings to the factory default values. This exits the Configuration Mode, and returns to the following screen:

```
YES to Program
RUN to Repeat
```

• To program your own settings, press **NO** and proceed to step 6.

6. **Set delivery type**

There are two delivery types available during a PCA infusion:

• **Basal** allows constant delivery at the basal flow rate, with PCA boluses.

• **Bolus** allows only bolus doses with no basal rate delivery, or bolus doses along with a basal rate.

You may select one or both types to be available during programming. You must select at least one type.

If only one delivery type is selected, screens for the other delivery type will not be displayed during normal programming.

```
Delivery Types:
  allow Basal?
```

```
Delivery Types:
  allow Bolus?
```

7. **To select available delivery types, press **YES** or **NO** to allow one or both delivery types. The pump then displays:**

```
allow
Loading Dose?
```
8. If you want to allow a loading dose to be programmable during PCA programming, press YES. If not, choose NO, and the loading dose screen will not appear during normal programming.

9. Select delivery routes and parameters

   The following three delivery routes are available for PCA infusions:

   - Subcutaneous (Sub-Q)
   - Epidural
   - Intravenous (IV)

   You may select one, two or all three of these routes to be available for programming. You must select at least one. For each delivery route you make available, you must then also program each of the delivery limits and parameters summarized in Table 4-3.

   **Note:** The factory defaults displayed for the configurable PCA items shown in Table 4-3 are the highest allowed values.

   **Table 4-3 Summary of Configurable PCA Limits**

<table>
<thead>
<tr>
<th>Item</th>
<th>Intravenous</th>
<th>Epidural</th>
<th>Sub-Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basal rate limit</td>
<td>50.0 ml</td>
<td>25.0 ml</td>
<td>5.0 ml</td>
</tr>
<tr>
<td>Bolus dose limit</td>
<td>50.0 ml</td>
<td>25.0 ml</td>
<td>5.0 ml</td>
</tr>
<tr>
<td>Maximum loading dose limit</td>
<td>50.0 ml</td>
<td>25.0 ml</td>
<td>5.0 ml</td>
</tr>
<tr>
<td>Bolus flow rate</td>
<td>90 ml/hr</td>
<td>90 ml/hr</td>
<td>90 ml/hr</td>
</tr>
<tr>
<td></td>
<td>125 ml/hr</td>
<td>125 ml/hr</td>
<td>125 ml/hr</td>
</tr>
<tr>
<td></td>
<td>Custom bolus rate</td>
<td>Custom bolus rate</td>
<td>Custom bolus rate</td>
</tr>
<tr>
<td>Delivery Units</td>
<td>ml, mg, µg</td>
<td>ml, mg, µg</td>
<td>ml, mg, µg</td>
</tr>
</tbody>
</table>
9.1 Select Available Delivery Routes and Set Route Parameters. When the desired delivery route(s) is displayed, do one of the following:

- Press **YES** to select.

- Press **NO** if you do not want the displayed delivery route to be available for programming.

9.2 Set basal flow rate limit according to the limits shown in Table 4-3.

9.3 Set bolus dose limit according to the limits shown in Table 4-3.

9.4 Set the maximum loading dose according to the limits shown in Table 4-3.

9.5 Set the bolus flow rate. You can select 125 ml/hr (the factory default setting), 90 ml/hr, or a custom bolus flow rate.

9.6 As the preset rates are displayed, press **YES** to enable, or **NO** to disable each one. If custom rate is desired, press **YES** at the **Custom Rate?** prompt. Enter the desired bolus rate, then press **YES** to accept.

9.7 Select delivery units. PCA profile can be programmed using three different units of delivery: ml, mg, or μg.

You may select one, two or all three units to be available during normal programming. The default is to allow all three delivery units.

You must select at least one unit by pressing **YES**.

As each delivery unit is displayed, press **YES** to enable it or press **NO** to disable it as appropriate.
10. Set medication limit options

Two options are available to limit further the amount of medication that may be received by a patient:

<table>
<thead>
<tr>
<th>Limit Med. by</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Doses/ Hour?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Limit Med. by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tot Med Allowed?</td>
</tr>
</tbody>
</table>

You may select one or both to be available during programming. You must select at least one. If only one is selected, that limitation is chosen automatically during normal programming.

11. When the desired medication limit(s) is displayed, do one of the following:

- Press **YES** to select.
- Press **NO** if you do not want the displayed limitation to apply.

12. Set patient review methods

Two options are available to review patients’ doses:

<table>
<thead>
<tr>
<th>DISPLAY DOSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOUR BY HOUR?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISPLAY DOSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BY EACH EVENT?</td>
</tr>
</tbody>
</table>

You may select one or both to be available during programming. You must select at least one.

If only one is selected, that display method is chosen automatically during normal programming.

13. When the desired patient review method(s) are displayed, do one of the following:
• Press YES to select.

• Press NO if you do not want the displayed method to be available to patients.

14. Select security level

There are three security levels available. In order of increasing restrictions, they are:

■ Level 1 ALLOW CHANGES
■ Level 2 ALLOW TITRATION
■ Level 3 LOCKOUT CHANGES

You can make one, two or all three levels available under normal programming. You must select at least one level.

If only one level is selected, that security level is chosen automatically during normal programming and will display with the READY PCA screen.

15. When the desired security level(s) is displayed, do one of the following:

• Press YES to select.

• Press NO if you do not want the displayed security level to be available.

You have completed the PCA configuration process. The pump displays:

YES to Program
RUN to Repeat

Proceed to “Programming PCA Infusions,” 4-36.
Reviewing the Current PCA Configuration in Lockout Mode

The Configuration Mode is not accessible for review or configuring when the pump is in Lockout Mode with Continuous, Auto–Ramp® Profile, Intermittent and/or 25 Periods profiles locked out. When the PCA Profile is locked out, you may not configure, but you may review the current PCA configuration settings as follows:

1. Turn the pump on. After the self-test, the pump displays:

   LOCKOUT  On
   RUN to Repeat

2. Enter the code:

   2 6 6 3

   The pump displays:

   Review PCA Configuration?

3. Press YES to review the current configuration. The pump displays the current option and limit settings.

   The pump displays each screen automatically, but you may display them more quickly by pressing YES or RUN/HOLD as each value is displayed.

   When all settings have been displayed, the pump returns to the LOCKOUT, RUN to Repeat screen.
Chapter 5

Delivery Options and Advanced Functions

Overview

This chapter contains information on the following:

- “Shortcut Delivery of a Programmed Infusion,” 5-2
- “Resuming Delivery of an Interrupted Infusion,” 5-4
- “Clearing the Volume Infused Display,” 5-8
- “Clearing the Memory,” 5-9
- “Changing Concentration Without Affecting Programmed Rate,” 5-9
- “Making the Pump Profile-Specific,” 5-10
- “Setting Volume Accrual,” 5-13
- “Setting Date and Time,” 5-14
- “Entering the Patient’s Identification Number,” 5-15
- “Programmable Mode / Lockout Mode,” 5-16
- “Setting Infusion Data Parameters,” 5-20
Shortcut Delivery of a Programmed Infusion

If the desired delivery profile has been programmed and is currently stored in the pump’s memory, you can shortcut directly to the preprogrammed infusion.

Note: To deliver an infusion, its parameters must have been programmed and stored in the pump’s memory. If the desired infusion is NOT currently in the pump's memory, you must program it before delivery is possible. Refer to the appropriate section(s) in Chapter 3 for complete information on programming infusion profile parameters.

Shortcut Delivery in Programmable Mode

To start a previously programmed infusion when the pump is in Programmable Mode:

1. Press ON/OFF to turn on the pump. The pump displays:

   YES to Program
   RUN to Repeat

2. Press RUN/HOLD. The infusion rate and volume are displayed, alternating with the name of the profile last delivered or programmed.

3. Press RUN/HOLD again to start infusing the profile displayed, or press NO until your desired profile is displayed, then press RUN/HOLD to begin delivery.
Shortcut Delivery in Lockout Mode

**Note:** In Lockout Mode, only the available profiles will be offered for delivery. If your desired delivery profile is not listed, you must return to Programmable Mode and add it to the lockout program. See “Programmable Mode / Lockout Mode,” 5-16 for complete information.

To start a previously programmed infusion when the pump is in Lockout Mode:

1. Press **ON/OFF PUMP** to turn the pump on. The pump displays:

   ![](YES to Program Run to Repeat)

2. Press **RUN/HOLD**. The pump displays **READY <profile>**, where profile is the name of the last profile programmed or delivered.

3. Do one of the following:

   - Press **RUN/HOLD** to deliver the displayed profile as previously programmed.

   - Press **NO** repeatedly until the desired profile is displayed, then press **RUN/HOLD** to deliver the chosen profile as previously programmed.

**Note:** If the pump is locked out in PCA, the previously programmed PCA infusion cannot be started.

   The infusion rate and volume are displayed, alternating with the name of the profile. This gives you an opportunity to reconfirm the infusion parameters.

4. Press **RUN/HOLD**. The pump displays:

   ![](DELAY DELIVERY?)
5. To delay the start of the infusion, press YES and enter the desired delay time in hours:minutes. Press YES again to accept the delay time.

Note: If the pump is locked out in PCA, the option to delay delivery is not available.

6. If you want to begin infusion immediately, press NO at the prompt.

Resuming Delivery of an Interrupted Infusion

If the pump is powered off during an infusion, when the pump is turned on again you may resume that infusion where it was interrupted, re-start that infusion from the beginning, or select or program a completely different infusion.

Resuming an Interrupted Infusion

When the pump is turned back on after being interrupted during an infusion, it will display RESUME?, alternating with the name of the profile that was interrupted.

1. To resume an infusion where it left off, press YES at the RESUME? prompt.

   The pump will then display the rate and cumulative volume infused values at the time the infusion was interrupted, alternating with the phase of delivery at the time of interruption (UP-RAMP, PERIOD 4, etc.).

2. Press RUN/HOLD to resume the infusion at the exact point where it was stopped.
Resetting an Interrupted Infusion to the Beginning

**Note:** This feature is helpful when you change the fluid bag.

**Programmable Mode**

When the pump is turned on after being interrupted during an infusion, it will display RESUME?, alternating with the name of the profile that was interrupted.

1. Press **NO** at the RESUME? prompt. The pump displays

   YES to Program
   RUN to Repeat

2. Press **RUN/HOLD**.

   The infusion rate and volume are displayed, alternating with the name of the profile; this provides you with an opportunity to reconfirm the infusion parameters.

3. Press **RUN/HOLD** to start the infusion.

**Lockout Mode**

When the pump is turned on after being interrupted during an infusion, it will display RESUME?, alternating with the name of the profile that was interrupted.

1. Press **NO** at the RESUME? prompt. The pump displays

   LOCKOUT 0m
   RUN to Repeat

2. Press **RUN/HOLD**. The pump displays:

   READY
   (profile)
3. Press **RUN/HOLD**.

The infusion rate and volume are displayed, alternating with the name of the profile, providing you with an opportunity to reconfirm the infusion parameters.

4. Press **RUN/HOLD**. The pump displays:

   ![DELAY DELIVERY?](image)

5. If you want to delay the start of the infusion, press **YES**. If not, press **NO** and the infusion will begin immediately.

   **Note:** Delay delivery is not available in PCA profile.

6. If you want to delay delivery, enter the delay time in hours:minutes and press **YES** when the desired delay time is displayed. The pump will count down the delay time, then automatically begin the infusion.

## Selecting or Programming a Different Infusion

### Programmable Mode

When the pump is turned on after being interrupted during an infusion, it will display **RESUME?**, alternating with the name of the profile that was interrupted.

1. Press **NO** at the **RESUME?** prompt. The pump displays:

   ![YES to Program, RUN to Repeat](image)

2. Press **YES** to program a different infusion, or **RUN** to select a preprogrammed infusion.
3. Follow instructions in Chapter 3 to program a new infusion (Programmable Mode only), or see “Shortcut Delivery of a Programmed Infusion,” 5-2 to deliver an infusion currently in the pump’s memory.

**Lockout Mode**

When the pump is turned on after being interrupted during an infusion, it will display RESUME?, alternating with the name of the profile that was interrupted.

1. Press NO at the RESUME? prompt. The pump displays:

   LOCKOUT
   0=π
   RUN to Repeat

2. Press RUN to select a preprogrammed, locked out infusion. See “Shortcut Delivery of a Programmed Infusion,” 5-2 for more information.

   In order to program a different infusion, you must exit Lockout Mode and place the pump into Programmable Mode.

3. Press NO at the LOCKOUT/RUN to Repeat prompt, then press YES at the PROGRAMMABLE? prompt.

4. Enter the code for Programmable Mode:

   9 1 1

5. Follow instructions in Chapter 3 to program a new infusion.
Clearing the Volume Infused Display

You may reset the Volume Infused Display to zero while in Programmable Mode. This enables you to monitor volume infused from any point in time during an infusion.

1. Press **RUN/HOLD** to pause the infusion. The pump displays:

   *** HOLD ***

2. Press **NO/REVIEW**. The pump displays:

   REVIEW PROFILE
   PARAMETERS?

3. Press **NO** to skip the review. The pump displays:

   CLEAR VOLUME
   INFUSED DISPLAY?

4. Press **YES** to clear the volume displayed to zero. The pump displays:

   *** HOLD ***

5. Press **RUN/HOLD** to resume the paused infusion.
Clearing the Memory

All programmed values stay in the pump’s memory until they are changed (reprogrammed) or cleared using the following method. Clearing the memory erases all programmed delivery values and profile parameters. Only the infusion data parameters (audio volume, KO rate, pressure setting, display language, air detection setting and up occlusion) are not cleared.

1. At the YES to PROGRAM prompt, enter the code:

   6 0 6 0

   The pump displays:

   MEMORY CLEARED

   then displays:

   YES to Program
   RUN to Repeat

2. To confirm that the memory has been cleared, press RUN/HOLD (the shortcut to begin a preprogrammed infusion).

   The pump should display RE-PROGRAM! because there are no programmed profiles available for delivery.

Changing Concentration Without Affecting Programmed Rate

When programming the pump in mg or µg, you must enter a concentration so the pump can calculate the equivalent in ml. If the concentration is changed, the pump automatically recalculates the infusion rate based on the new concentration value.
For example, if the programmed concentration is 10 mg/ml and the infusion rate is 10 mg/hr, and you change the concentration to 20 mg/ml, the pump will perform the necessary calculations and increase the rate of infusion to 20 mg/hr.

In some instances you may want to change the concentration while keeping the infusion rate at its originally programmed value.

Note: In order to change the concentration, the pump must be in Programmable Mode and at the YES TO PROGRAM screen. You cannot change the concentration after an infusion has started running.

To change the concentration setting without automatically recalculating the infusion rate:

1. At the YES TO PROGRAM screen, enter the code:  
   2664  
The pump displays:
   
   Set Global Features?

2. Press YES. The pump displays:
   
   Maintain Rate w/ Conc. Change?

3. Press YES.

Making the Pump Profile-Specific

The Profile-Specific function lets you restrict the profiles available for programming and delivery, even in Programmable Mode. Selecting NO for any profile makes that profile unavailable until the code is reentered and the profile allowed. The choices are listed in Table 5-1.
**Table 5-1  Profile Menus**

<table>
<thead>
<tr>
<th>Display</th>
<th>Enter by doing...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allow PCA?</strong></td>
<td>- Press <strong>YES</strong> to allow (enable) PCA profile and move to next profile choice.</td>
</tr>
<tr>
<td></td>
<td>- Press <strong>NO</strong> to reject PCA and move to next profile choice.</td>
</tr>
<tr>
<td><strong>Allow 25 PERIODS?</strong></td>
<td>- Press <strong>YES</strong> to allow (enable) 25 Periods profile and move to next profile choice.</td>
</tr>
<tr>
<td></td>
<td>- Press <strong>NO</strong> to reject 25 Periods and move to next profile choice.</td>
</tr>
<tr>
<td><strong>Allow INTERMITTENT?</strong></td>
<td>- Press <strong>YES</strong> to allow (enable) Intermittent profile and move to next profile choice.</td>
</tr>
<tr>
<td></td>
<td>- Press <strong>NO</strong> to reject Intermittent and move to next profile choice.</td>
</tr>
<tr>
<td><strong>Allow AUTO-RAMP?</strong></td>
<td>- Press <strong>YES</strong> to allow (enable) Auto–Ramp® Profile and move to next profile choice.</td>
</tr>
<tr>
<td></td>
<td>- Press <strong>NO</strong> to reject Auto–Ramp® Profile and move to next profile choice.</td>
</tr>
<tr>
<td><strong>Allow CONTINUOUS?</strong></td>
<td>- Press <strong>YES</strong> to allow (enable) Continuous profile and move to next profile choice.</td>
</tr>
<tr>
<td></td>
<td>- Press <strong>NO</strong> to reject Continuous and move to next profile choice.</td>
</tr>
<tr>
<td><strong>ENABLE VOLUME ACCRUAL?</strong></td>
<td>- Press <strong>YES</strong> to enable Volume Accrual for any profile selected. Pump display now advances to configuration entry for selected profile.</td>
</tr>
<tr>
<td>(PCA and Intermittent profiles only)</td>
<td>- Press <strong>NO</strong> to reject Volume Accrual and move to next profile choice. Pump display now advances to configuration entry for selected profile.</td>
</tr>
</tbody>
</table>
To select specific profiles:

1. Turn the pump on.

2. When the pump displays:

   YES to Program
   RUN to Repeat

   enter the code:

   4 6 4 6

   The pump displays:

   SELECT ALLOWED
   PROFILES?

3. Press YES.

4. Press YES or NO in response to the pump’s prompts to allow each of the five profiles. If you press NO, that profile will be unavailable for programming or delivery.

5. When you finish selecting profiles, the pump displays:

   ENABLE VOLUME
   ACCRUAL?

   Note: See “Setting Volume Accrual,” 5-13 for information on the Volume Accrual feature.

6. Press YES or NO. The pump displays:

   YES to Program
   RUN to Repeat

7. Continue with programming or turn the pump off. Your settings remain in effect until they are reset.
Setting Volume Accrual

Volume Accrual allows total volume infused to accrue over repeated infusions in the Intermittent and PCA profiles. When enabled, it lets you monitor total volume/medication infused over the duration of a therapy. The Volume Accrual function is accessible from the profile-specific programming screen.

If Volume Accrual is not enabled, the volume infused is reset to zero with each infusion. To select Volume Accrual:

1. Turn the pump on.

2. When the pump displays:

   YES to Program
   RUN to Repeat

   enter the code:

   4 6 4 6

   The pump displays:

   SELECT ALLOWED
   PROFILES?

3. Press NO. The pump displays:

   ENABLE VOLUME
   ACCRUAL?

4. Press YES to enable volume accrual or NO to disable the feature. The pump displays:

   YES to Program
   RUN to Repeat

5. Continue with programming or turn the pump off. Your settings remain in effect until they are reset.
Setting Date and Time

You can view and set the time and date used by the pump’s internal clock. The clock uses 24-hour format. The date format is month/day/year (MMDDYY).

To set the time and date:

1. Power the pump on by pressing the **ON/OFF PUMP** key.

2. If necessary, set pump to Programmable mode as described in “Programmable Mode / Lockout Mode,” 5-16.

3. When the pump displays:

   YES to Program
   RUN to Repeat

   enter the code:
   8 4 6 3

4. Set date as follows:

   06/05/00
   ENTER DATE

   **4.1** To keep currently displayed date and proceed to setting time, press **YES**. Go to step 5.

   **4.2** To change date, enter date as follows: **MMDDYY**.
   Enter leading zeros for numbers less than 10.

   **4.3** Press **YES** to accept date entered. Go to step 5.

5. Set time as follows:

   15:31:04
   ENTER TIME
5.1 To keep currently displayed time, press **YES**.

5.2 To change time, enter 24-hour time as 6-character string as follows: **HHMMSS**.

5.3 Press **YES** to accept the time entered.

6. If desired, verify date and time setting by repeating steps 3 through 5.

**Entering the Patient’s Identification Number**

The pump maintains a history log of all programming and operational events. Some organizations prefer to have the patient’s Social Security number entered into the pump so that the operational history may be related directly to that specific patient and his or her therapy regime. You may enter a Social Security number or other numerical ID up to 13 digits long.

To enter the patient’s ID number:

1. At the **YES to PROGRAM** screen, enter the code:

   ![Code](#)

   The pump displays:

   ![Patient ID?](#)

2. Press **YES**. The pump prompts **ID:***.

3. Enter the patient’s numerical ID. It may be up to 13 digits long.

   ![Digits](#)

4. Press **YES** to accept the entered value. The pump displays the **YES to PROGRAM** screen.
Programmable Mode / Lockout Mode

When the pump is in Programmable Mode, all programming functions are accessible and can be changed.

In Lockout Mode, access is limited so that delivery profiles can be preprogrammed by the clinician, but cannot be changed by unauthorized users.

For example, you could limit the user’s access to Continuous and Auto–Ramp® Profiles only, and prevent the preprogrammed parameters from being changed. When a profile is locked out, its parameters stay in the pump’s memory without the need to reprogram or relock the pump between uses.

Accessing and Programming Lockout Mode

You must enter a code to access the Lockout Mode from Programmable Mode. The pump will prompt you with each profile name – as each is displayed, press YES to lock it out and make it available for delivery, or NO to make the profile unavailable for delivery under Lockout Mode.

1. At the YES to PROGRAM screen, press NO.
   The pump displays:

   LOCKOUT?

2. Press YES to accept.
3. At the ENTER CODE prompt, enter the code:

```
9 1 1
```

The pump displays:

```
Allow
CONTINUOUS?
```

4. Press YES if you want the preprogrammed Continuous profile to be available for delivery. If you do not want it to be available, press NO.

The pump displays:

```
Allow
AUTO-RAMP?
```

5. Press YES if you want the preprogrammed Auto–Ramp® Profile to be available for delivery. If you do not want it to be available, press NO.

The pump displays:

```
Allow
INTERMITTENT?
```

6. Press YES if you want the preprogrammed Intermittent profile to be available for delivery. If you do not want it to be available, press NO.

The pump displays:

```
Allow
25 PERIODS?
```

7. Press YES if you want the preprogrammed 25 Periods profile to be available for delivery. If you do not want it to be available, press NO.

The pump is now in Lockout Mode. The pump displays:

```
LOCKOUT
RUN to Repeat
```
Delivering a Programmed Infusion in Lockout Mode

When the pump is in Lockout Mode, you may deliver only preprogrammed profiles that have been locked out for inclusion in Lockout Mode. To deliver a different profile, or to change any delivery parameters, you must return to Programmable Mode.

When the pump is in Lockout Mode, it displays one of the following screens after completing its self-test:

```
LOCKOUT
```

OR

```
LOCKOUT  0
RUN to Repeat
```

1. Press RUN/HOLD or YES. The pump briefly displays the current pressure setting, followed by:

```
READY  0
(profile)
```

where (profile) is the first available profile locked out for delivery.

2. If the desired profile is displayed, press RUN/HOLD or YES. If not, press NO repeatedly until the desired profile is displayed, then press RUN/HOLD.

The pump displays the Final Confirmation screen:

```
(PROFILE)  0
Press Run
```

alternating with:

```
Rate/hr (ml)  AMT
XXX  XXX.X
```
3. Press **RUN/HOLD** to continue. The pump displays:

```
DELAY DELIVERY?
```

4. To delay the start of the infusion, press **YES**. If not, press **NO** and the infusion will begin immediately.

5. If **DELAY DELIVERY** was selected, enter the delay time in HH:MM and press **YES** to accept the value. The pump will count down the delay time, then automatically begin the infusion.

### Switching From Lockout Mode to Programmable Mode

To switch from Lockout Mode to Programmable Mode:

1. When the pump displays:

```
LOCKOUT
RUN to Repeat
```

press **NO**.

2. When the pump displays:

```
PROGRAMMABLE?
```

press **YES**.

3. When the pump displays:

```
ENTER CODE
```

Enter the code:

```
9 1 1
```

The pump displays:
You now have access to all Programmable Mode functions that are not profile-specific.

Setting Infusion Data Parameters

The pump allows you to set parameters for several pump functions known collectively as infusion data. Accessible via the INFUSION DATA key on the keypad, these functions are:

- Audible Volume
- Pressure
- KO Rate
- Display Language
- Air Detection
- Upstream Occlusion

Any of these parameters may be changed while the pump is in Programmable or Lockout Mode. A numerical code is required to change Air Detection or Up Occlusion settings while in Programmable Mode, and in Lockout Mode the code must be entered to set any Infusion Data parameters except Audio Volume.

The pump also allows you to check the volume and time remaining in an infusion without interrupting delivery, and to review the total volume and total delivery time before an infusion begins.
Infusion Data Parameters in Programmable Mode

In Programmable Mode, access the Infusion Data parameters by pressing INFUSION DATA from the *HOLD* screen, the YES to PROGRAM screen or any READY (Profile) screen.

**Note:** See Table 9-1 for a list of the parameter limits.

1. From a *HOLD*, READY (Profile) or YES to PROGRAM screen, press the INFUSION DATA key. The pump displays:

   ```
   SET AUDIO VOLUME?
   ```

2. Press YES to review or change Audio Volume setting or NO to continue to Pressure. The pump displays:

   ```
   SET AUDIO VOLUME
   (1 TO 9)
   ```

3. Enter a number from 1 to 9 (9 is loudest). The pump sounds a tone at the chosen volume. When you hear the desired volume level, press YES to accept. The pump displays:

   ```
   SET PRESSURE?
   ```

4. Press YES to review or change the pressure setting, or press NO to continue to KO rate.

**Note:** Options for downstream occlusion detection pressure are HI (20 psi ±5 psi) or LO (8 psi ±5 psi).

5. Press YES to accept the current pressure setting, or press NO to switch to the other option, then YES to accept.

The pump displays the KO rate screen:
6. Press **YES** to review or change the KO rate setting, or press **NO** to continue to Display Language.

The pump displays the KO rate screen:

```
KO RATE: XX m1/hr
```

**Note:** KO rate can be set for 0.1 to 10 m1/hr.

7. Press **YES** to accept the rate shown, or enter a new rate and press **YES** to accept.

8. The pump displays:

```
SET LANGUAGE?
```

9. Press **YES** to review or change language setting or **NO** to continue to Air Detection.

**Note:** Language setting options are English or English/Spanish.

10. Press **YES** to accept the displayed language setting, or press **NO** to display the other language option and press **YES** to accept.

11. The pump displays:

```
SET AIR DETECTOR ENTER CODE
```

12. Enter the code: `911`

   to review or change Air Detection setting or press **NO** to continue to Up Occlusion.
13. Press YES to accept the displayed Air Detection setting, or press NO to display other options, then YES to accept.

**Note:** Available air detection settings are 0.1 ml, 0.5 ml, 2 ml, or disabled.

The pump displays:

```
SET UP OCCLUSION
ENTER CODE
```

14. Enter the code: 911

   to review or change setting or press NO to exit Infusion Data Settings.

15. Press YES to accept the displayed Up Occlusion setting, or press NO to display other options, then YES to accept.

**Note:** Options for upstream occlusion detection are Enabled or Disabled.

When you have reviewed or changed the parameter for the Up Occlusion setting, the pump returns to the screen from which you accessed Infusion Data.

**Infusion Data Parameters in Lockout Mode**

In Lockout Mode, you can access the Infusion Data parameters from a *HOLD* screen, the LOCKOUT/RUN to REPEAT screen or the READY (Profile) screen.
Setting Infusion Data Parameters

Note: In Lockout Mode, the code 911 is required to change any Infusion Data parameters except Audio Volume. Audio Volume may be changed without the code.

1. At SET AUDIO VOLUME?, press YES to review or change Audio Volume setting or NO to continue to other settings.

   SET AUDIO VOLUME
   <1 TO 9>

2. Enter a number (9 is loudest) and the pump sounds a tone at the chosen volume. When you hear the desired volume level, press YES to accept. The screen displays:

   SET OTHER DATA
   ENTER CODE

3. When in Lockout Mode, enter the code:

   9 1 1

   to change any Infusion Data parameters except Audio Volume.

   When you enter the code, the pump displays the Infusion Data parameters, prompting you at each step to accept the value shown or enter new values.

Note: For a screen-by-screen presentation of the displays and options after the code has been entered, refer to “Infusion Data Parameters in Programmable Mode,” 5-21. Begin with step 4.

When you have reviewed or changed the parameter for the final setting, Up Occlusion, the pump returns to the screen from which you accessed Infusion Data.

If you press NO at the SET OTHER DATA, ENTER CODE prompt, the pump sequentially displays the current Infusion Data parameters, then returns to the *HOLD*, LOCKOUT/RUN to REPEAT or READY (Profile) screen.
Note: To step through the current Infusion Data parameter screens more quickly, press YES as each is displayed. You may also return to the *HOLD*, LOCK-OUT/ RUN to REPEAT or READY (Profile) screen at any time by pressing RUN/HOLD.

Displaying Volume and Time Remaining

You may display the volume and time remaining in the infusion from any Final Confirmation screen, or during an infusion without interrupting delivery.

To display volume and time remaining, from a Final Confirmation screen or while the infusion is running, press INFUSION DATA.

The pump displays:

VOLUME REMAINING: X ml (mg, µg)

followed immediately by:

TIME left: XX:XX

Note: In Intermittent, 25 Periods, or Auto–Ramp® profiles, the pump first displays the time left in the current phase, then time left for the total infusion. Time left is not displayed during a PCA infusion.
Chapter 6

Troubleshooting

This chapter provides information on how to troubleshoot the pump if an alarm or alert message occurs. The following information is provided:

- “Alarms,” 6-1
- “Alert Messages,” 6-6

Alarms

An alarm notifies you that the alarm condition shown on the display has occurred and that corrective action must be taken to continue the infusion. Table 6-1 lists alarms, possible causes, and corrective action to take if the alarm occurs.

If a problem cannot be resolved using the methods in Table 6-1, have the pump serviced by an authorized Baxter service provider as soon as possible.

When an alarm occurs, the infusion stops, the pump beeps regularly, and the red indicator flashes, with the following exceptions:

When a Low Bag alarm occurs:

- The pump beeps four times every 10 minutes, starting 30 minutes before the programmed volume completion.
- The infusion does not stop.
When a Low Battery alarm occurs:

- The pump sounds a two-second tone every 10 minutes, starting approximately 60 minutes before the battery is too depleted to run the pump.
- The red indicator light flashes.
- The infusion does not stop.

If an alarm occurs, do the following:

1. Read the displayed alarm message.

2. Press RUN/HOLD to silence the audible alarm for two minutes. *HOLD* is displayed along with the alarm message.

3. Look up the cause of the displayed alarm message in Table 6-1.

4. Correct the alarm condition by following the directions in Table 6-1.

5. Press RUN/HOLD to restart the infusion.

**WARNING!** Never open the pump’s housing. Refer all servicing to an authorized technician.
<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR-IN-LINE</td>
<td>Air in tubing.</td>
<td>1. Silence by pressing <strong>HOLD</strong>, then press <strong>RUN</strong> or expel air according to protocol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Remove the cassette, invert the cassette so that the patient end is up and tap cassette to expel air.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Allow air to be dispelled through the air eliminating filter, or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Disconnect from patient access device to purge air through the tubing.</td>
</tr>
<tr>
<td></td>
<td>Air-in-line sensor malfunction.</td>
<td>Turn the pump off, then on. If alarm persists, discontinue use and have pump serviced.</td>
</tr>
<tr>
<td>CASSETTE NOT INSTALLED</td>
<td>Cassette not loaded in pump.</td>
<td>Install a cassette.</td>
</tr>
<tr>
<td></td>
<td>Cassette sensor malfunction.</td>
<td>Turn the pump off, then on. If the alarm persists, discontinue use and have pump serviced.</td>
</tr>
<tr>
<td>CHECK INTERNAL 9V BATTERIES</td>
<td>Only one battery is installed, or one of the batteries is not making full contact with the terminal guides.</td>
<td>Ensure that two good batteries at full capacity are installed and that both are properly seated. If the alarm persists, pump operating time will be significantly shortened.</td>
</tr>
<tr>
<td></td>
<td>A fuse is blown.</td>
<td>If alarm persists, discontinue use and have pump serviced.</td>
</tr>
<tr>
<td>COMPLETE XXXX ML (MG OR µG)</td>
<td>Infusion is complete.</td>
<td>Turn pump off.</td>
</tr>
<tr>
<td>DOOR OPEN</td>
<td>Pump door not completely closed.</td>
<td>Close pump door fully.</td>
</tr>
<tr>
<td>Message</td>
<td>Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>DOWN OCCLUSION</td>
<td>Lower clamp is closed.</td>
<td>Open clamp.</td>
</tr>
<tr>
<td></td>
<td>Kink in lower tubing.</td>
<td>Remove occlusion between the pump and the patient.</td>
</tr>
<tr>
<td></td>
<td>Blockage in lower tubing filter.</td>
<td>Consider changing pressure sensor setting from LO to HI. Replace the set.</td>
</tr>
<tr>
<td></td>
<td>Pressure build-up in cassette.</td>
<td>Open door, remove and replace cassette.</td>
</tr>
<tr>
<td></td>
<td>Block in patient access device.</td>
<td>Check the access device according to protocol.</td>
</tr>
<tr>
<td>EMPTY BAG/UP OCCLUSION</td>
<td>Fluid bag is empty.</td>
<td>Replace with a full bag.</td>
</tr>
<tr>
<td></td>
<td>Kink in upper tubing or fluid bag.</td>
<td>Remove occlusion between the fluid bag and the pump. Straighten the fluid bag.</td>
</tr>
<tr>
<td></td>
<td>Pressure build-up.</td>
<td>Open door, remove and replace administration set.</td>
</tr>
<tr>
<td></td>
<td>Blockage in upper tubing.</td>
<td>Replace the administration set.</td>
</tr>
<tr>
<td>EMPTY BATTERY</td>
<td>Batteries are depleted.</td>
<td>Replace the 9-volt batteries or connect pump to rechargeable external battery pack, or connect to a battery eliminator/charger.</td>
</tr>
<tr>
<td><em>HOLD</em></td>
<td>Pump has been on hold for more than two minutes.</td>
<td>Press <strong>ON/OFF</strong> to turn the pump off, or press <strong>RUN/HOLD</strong> to start the infusion.</td>
</tr>
<tr>
<td>LOW BAG</td>
<td>The programmed volume remaining to be infused will be complete within 30 minutes.</td>
<td>Prepare to disconnect the infusion and prepare the next fluid bag.</td>
</tr>
<tr>
<td>Message</td>
<td>Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>LOW BATTERY</strong></td>
<td>There are about 60 minutes of battery power remaining.</td>
<td>Replace the 9-volt batteries or rechargeable external battery pack, or connect to a battery eliminator/charger.</td>
</tr>
<tr>
<td><strong>MALFUNCTION</strong></td>
<td>The pump has detected a system malfunction.</td>
<td>Turn the pump off, then on again. Restart the infusion. If alarm persists, discontinue use and have the pump serviced.</td>
</tr>
<tr>
<td><strong>NICAD DEPLETED</strong></td>
<td>Internal NiCad/NiMH battery depleted.</td>
<td>Connect pump to battery eliminator/charger and plug the battery eliminator/charger into an active wall outlet for 24 hours to recharge internal NiCad/NiMH battery.</td>
</tr>
<tr>
<td><strong>PLUG IN 24 HOURS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RELEASE/REMOVE PCA CORD</strong></td>
<td>Remote PCA button is being continuously pressed.</td>
<td>Release the pressure on the remote PCA button.</td>
</tr>
<tr>
<td></td>
<td>Remote PCA Cord malfunction.</td>
<td>Remove or replace the Remote PCA Cord.</td>
</tr>
<tr>
<td><strong>RE-PROGRAM!</strong></td>
<td>A required numerical value has been programmed with either a zero value or a calculated value that exceeds the pump’s delivery limits.</td>
<td>Reprogram the profile using valid parameters. The only parameters that can be set to zero are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• delay delivery time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PCA basal rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• KO rate in the Intermittent profile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• clinician activated dose.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If the cause of the alarm cannot be corrected, refer the pump to an authorized technician.</td>
</tr>
<tr>
<td><strong>STUCK KEY</strong></td>
<td>One or more keys are stuck in place, shorted, or malfunctioning.</td>
<td>Turn pump off, then on. If the alarm persists, refer the pump to an authorized technician.</td>
</tr>
</tbody>
</table>
Alert Messages

An alert message notifies you of an event that requires your attention. Alert messages that may occur during programming are shown in Table 6-2, along with the cause and action you must take to clear the alert message and successfully program the infusion.

Table 6-2 Alert Messages

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALERT Maximum Programmed Rate</td>
<td>In the PCA profile, some parameters can be titrated. During the programming sequence, the minimum or maximum levels of these parameters are identified so that during the titration process these levels cannot be exceeded. Occurs when user tries to increase the basal rate beyond the programmed maximum limit.</td>
<td>The pump returns to the titration basal rate screen with the maximum value displayed. The user may accept this value, or enter any number less than this value.</td>
</tr>
<tr>
<td>ALERT Maximum Programmed Dose</td>
<td>Occurs when the user attempts to increase the bolus dosage beyond the programmed maximum limit.</td>
<td>The pump returns to the titration bolus dose screen with the maximum value displayed. The user may accept this value, or enter any number less than this value.</td>
</tr>
<tr>
<td>ALERT Minimum Bolus Interval</td>
<td>Occurs when the user attempts to shorten the bolus interval below the programmed minimum limit.</td>
<td>The pump will return to the titration bolus interval screen with the minimum value displayed. The user may accept this value, or enter any number greater than this value.</td>
</tr>
</tbody>
</table>
Table 6-2  Alert Messages — continued

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALERT Maximum Bolus Doses/hr</td>
<td>Occurs when the user attempts to increase the number of doses/hr beyond the programmed maximum limit.</td>
<td>The pump returns to the titration bolus doses/hr screen with the maximum value displayed. The user may accept this value, or enter any number less than this value.</td>
</tr>
<tr>
<td>ALERT Program Basal and/or Bolus</td>
<td>When the PCA profile is programmed, you must program either a continuous basal rate or allow bolus doses to be administered. If you entered a zero basal rate and pressed NO at the DEMAND BOLUS DOSE? prompt, the pump displays this alert.</td>
<td>Program either a continuous basal rate, or allow bolus doses to be administered when programming PCA profile.</td>
</tr>
<tr>
<td>COMPUTED RATE EXCEEDS 400 ml/hr</td>
<td>Occurs when a profile has been programmed according to Time and the resulting computed rate exceeds the pump’s maximum rate of 400 ml/hr.</td>
<td>Re-enter the time value or use rate to program the profile.</td>
</tr>
<tr>
<td>DOSE FREQUENCY UNDER 3 Hours</td>
<td>When programming the Intermittent profile, occurs when the number of doses requested for the entered infusion time results in a dose frequency of less than 3 hours.</td>
<td>Decrease the dose time or increase the total infusion time. There must be at least 2 hours between the end of one dose and the beginning of the next dose.</td>
</tr>
<tr>
<td>DOSE TIME EXCEEDS 9:59</td>
<td>When programming the Intermittent profile, occurs if you entered values that exceeds the pump’s dose time limit of 9:59.</td>
<td>Re-enter the rate or use time to program the dose.</td>
</tr>
<tr>
<td>Message</td>
<td>Cause</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>DOSE TIME EXCEEDS TOTAL</strong></td>
<td>When programming the Intermittent profile, occurs if a dose time is entered that is greater than the total infusion time.</td>
<td>Enter a dose time that is within range.</td>
</tr>
<tr>
<td><strong>KO RATE EXCEEDS DOSE RATE</strong></td>
<td>When programming the Intermittent profile, occurs if a KO rate is entered that is greater than the dose rate.</td>
<td>Enter a KO rate that is within range.</td>
</tr>
<tr>
<td><strong>KO Time Computes Under 2 hours</strong></td>
<td>In the Intermittent profile, there must be at least 2 hours between the end of one dose and the beginning of the next dose.</td>
<td>Press <strong>YES</strong> or <strong>NO</strong> to see the DELAY DELIVERY? prompt. You must either increase the total infusion time, or decrease the number of doses to allow at least 2 hours between doses.</td>
</tr>
<tr>
<td><strong>MINIMUM DOSE (or RATE) IS XX</strong></td>
<td>Occurs if the rounded dose (or rate) is below the minimum 0.01 ml equivalent. The minimum dose rate is 0.01 times the concentration when mg or µg are used.</td>
<td>Press <strong>YES</strong> or <strong>NO</strong>, then enter the desired value.</td>
</tr>
<tr>
<td><strong>MINIMUM LEVEL RATE IS 10 ml/hr</strong></td>
<td>Occurs during Auto–Ramp® Profile programming when you have entered an infusion time and volume that would require a level rate of less than 10 ml/hr.</td>
<td>Decrease ramp times, increase total infusion time, or use level rate as the programming value and let the pump calculate the length of time required for the level rate phase.</td>
</tr>
</tbody>
</table>
Table 6-2  Alert Messages — continued

<table>
<thead>
<tr>
<th>Message</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINIMUM VOLUME IS XX</td>
<td>When programming the PCA profile, the medication limit volume must be a minimum of the volume delivered due to a basal rate over the time period entered plus at least one bolus dose (if bolus doses are programmed).</td>
<td>Press YES or NO, then enter the desired value.</td>
</tr>
<tr>
<td>MORE PRIME? accompanied by a beep</td>
<td>The maximum amount of fluid that can be pumped when priming is 6 ml. Occurs when 6 ml of priming fluid has been delivered, or more than 1 minute has elapsed since the PRIME/BOLUS key was pressed.</td>
<td>Continue priming if needed, or start the infusion.</td>
</tr>
<tr>
<td>RAMP TIMES TOO LONG</td>
<td>In Auto–Ramp® Profile, occurs if the up- and down-ramp times are too long.</td>
<td>Press NO to return to the DELAY DELIVERY? prompt, then make changes where necessary.</td>
</tr>
<tr>
<td>RATE COMPUTES LESS THAN KO</td>
<td>When programming any profile except PCA, occurs when the programmed rate is less than the pump’s KO rate.</td>
<td>Re-enter the rate, or change the pump’s KO rate.</td>
</tr>
<tr>
<td>RATE COMPUTES UNDER 0.1 ml/hr</td>
<td>Occurs when time is used as a programming parameter and the resulting computed rate is below the pump’s minimum ability.</td>
<td>Re-enter the time value or program using rate instead of time.</td>
</tr>
<tr>
<td><strong>Message</strong></td>
<td><strong>Cause</strong></td>
<td><strong>Corrective Action</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RE-PROGRAM!</td>
<td>You tried to start an infusion with a parameter inappropriately set to a value of zero (for example, a Continuous delivery with volume set to 0 ml).</td>
<td>Press <strong>YES</strong>, then reprogram the profile with appropriate parameter values. The only parameters that may be set to zero are Delay Delivery time, PCA basal rate or bolus dose, clinician-activated dose, and KO rate in the Intermittent profile.</td>
</tr>
<tr>
<td>SELF-TEST...</td>
<td>Displayed while the pump performs its self-test when it is turned on.</td>
<td>If pump fails self-test or does not perform the self-test when first turned on, do not use the pump. Refer it to authorized service personnel.</td>
</tr>
<tr>
<td>TOTAL TIME EXCEEDS 999:59</td>
<td>This message will appear when rate is used as a programming parameter and the resulting computed time exceeds the pump’s maximum ability.</td>
<td>Re-enter the rate value or use time to program the profile.</td>
</tr>
<tr>
<td>TotalTime: HH:MM</td>
<td>After you have entered the profile parameters, the pump automatically calculates the total delivery time for the profile, including any delay delivery time.</td>
<td>None</td>
</tr>
<tr>
<td>TOTAL VOLUME EXCEEDS 9999 ml</td>
<td>This message will appear when the total volume-to-be-infused exceeds the pump’s maximum volume limit of 9999 ml.</td>
<td>Press <strong>YES</strong> or <strong>NO</strong> to return to the DELAY DELIVERY? prompt and make changes where necessary.</td>
</tr>
</tbody>
</table>
Chapter 7

Maintenance and Storage

Overview

This chapter contains the following information on maintaining the pump:

- “Powering the Pump,” 7-1
- “Cleaning,” 7-10
- “Preventive Maintenance,” 7-12
- “Storing the Pump,” 7-12

Powering the Pump

The pump can be powered by:

- Internal 9-volt batteries
  The pump contains two standard 9-volt alkaline (nonrechargeable) batteries. Recommended only for use when the Rechargeable External Battery Pack is unavailable or needs recharging. See “Using the Internal Batteries,” 7-2.

- Rechargeable External Battery Pack
  Recommended for use with large-volume infusions or extended hours. See “Using the Rechargeable External Battery Pack,” 7-5.
■ Battery Eliminator/Charger

An AC power adapter that can be used to power the pump directly or to charge the Rechargeable External Battery Pack. See “Using the Battery Eliminator/Charger,” 7-9.

Using the Internal Batteries

The internal batteries power the pump whenever it is on but not connected to the Rechargeable External Battery Pack or the Battery Eliminator/Charger.

Checking Internal and Backup Batteries

Perform this battery condition check to see how much capacity remains in the pump’s internal 9-volt batteries and the pump’s NiCad/NiMH backup battery.

Note: Before performing this check, you must disconnect the Rechargeable External Battery Pack or Battery Eliminator/Charger from the pump so the pump receives power from the internal 9-volt batteries.

To perform the battery condition check:

1. Disconnect the Battery Eliminator/Charger or Rechargeable External Battery Pack from the pump if necessary.

2. If the pump is not turned off, turn it off now.

3. Press the **ON/OFF PUMP** key.

Note: If the pump was recently powered by the Rechargeable External Battery Pack or the Battery Eliminator/Charger, allow the pump to run for approximately 3 minutes on internal batteries before performing the battery condition check.

4. While **SELF-TEST** is displayed, press and hold the **NO** key.
5. When PASSWORD is displayed, enter code:

   2 2 8 8

   and then press the YES key.

6. Battery voltages are displayed as shown below. (BATTERY is the 9-volt battery overall voltage, NI CAD is the NiCad/Nickel Metal Hydride battery voltage).

<table>
<thead>
<tr>
<th>BATTERY</th>
<th>8.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI CAD</td>
<td>3.9</td>
</tr>
</tbody>
</table>

   The approximate remaining capacity of the internal 9-volt batteries are indicated by the displayed BATTERY voltage and are as follows:

   Table 7-1  9-Volt Battery Capacity

<table>
<thead>
<tr>
<th>Displayed Voltage</th>
<th>Approximate Capacity Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0</td>
<td>100%</td>
</tr>
<tr>
<td>7.8</td>
<td>75%</td>
</tr>
<tr>
<td>7.5</td>
<td>50%</td>
</tr>
<tr>
<td>7.1</td>
<td>25%</td>
</tr>
</tbody>
</table>

   Note: Although the pump will function properly at the 8-volt threshold, this voltage indicates that battery reserve is almost depleted.

7. If the NiCad/NiMH battery voltage is less than 3.6 volts, recharge by connecting the pump to the Rechargeable External Battery Pack or Battery Eliminator/Charger for 16 to 24 hours.

   If voltage remains less than 3.6 volts after recharging from the Battery Eliminator/Charger for 24 hours, have the NiCad/NiMH battery replaced by the Baxter service center.
Changing the Batteries

**Note:** You can change batteries while the pump is running. Remove and replace each battery one at a time so at least one battery remains in position to power the pump while you change the other battery.

**Note:** For maximum battery life, use only Duracell® replacement batteries. Table 8-1 lists recommended types.

1. Remove the battery door by turning the screw counterclockwise with finger pressure.

2. Remove the batteries, noting their orientation.

**Note:** Dispose of used pump batteries in accordance with local regulations on battery disposal.

3. Place two new 9-volt batteries into the compartment, matching the battery terminals with the pump’s terminal guides as shown in Figure 7-1.

![Correct Battery Orientation](image)

**Figure 7-1 Correct Battery Orientation**

4. Replace the battery door by inserting the hinges into the compartment. Lower door onto the pump. Push and turn the compartment screw clockwise to secure the door in place.
Using the Rechargeable External Battery Pack

The Rechargeable External Battery Pack contains rechargeable power cells, and operates for about twice as long as the internal 9-volt batteries. When the Rechargeable External Battery Pack is used to power the pump, the internal 9-volt batteries are not used, saving their power for later use.

- Maintain Rechargeable External Battery Pack charge by keeping the Rechargeable External Battery Pack plugged into the Battery Eliminator/Charger when not in use.
- Always keep two 9-volt batteries installed in the pump.
- Store Rechargeable External Battery Pack in a cool place.
- Disconnect the Battery Eliminator/Charger from the Rechargeable External Battery Pack before unplugging the Battery Eliminator/Charger from the wall.
- Recharge immediately after use. If the Rechargeable External Battery Pack is repeatedly allowed to drain completely, its life will be shortened.
- The fast charge light on the Battery Eliminator/Charger indicates that it is in the high state charge mode. When the fast charge light goes off it **does not** indicate that the Rechargeable External Battery Pack is fully charged. Full charge time is 24 hours. Charging for 24 hours maximizes battery capacity and lifetime.

**Caution** Never expose a discharged battery to freezing temperatures.
To connect the Rechargeable External Battery Pack, insert its plug into the **EXT POWER** connector on the bottom of the pump (see Figure 7-2).

![Connecting the Rechargeable External Battery Pack](image)

**Figure 7-2  Connecting the Rechargeable External Battery Pack**

To disconnect the Rechargeable External Battery Pack from the pump, pull back on the textured metal collar closest to the pump to release the connector.

Do not pull the plastic covering or the wire, or the plug may be broken or damaged.

**Caution**

Recharge the Rechargeable External Battery Pack by plugging it into the Battery Eliminator/Charger (see Figure 7-3). The Rechargeable External Battery Pack will charge more quickly if it is disconnected from the pump or if the pump is turned off, but it will charge while the pump is operating. See “Using the Battery Eliminator/Charger,” 7-9.

To charge the Rechargeable External Battery Pack while the pump is running, connect it to the Battery Eliminator/Charger as shown in Figure 7-3.

**Caution**

Never connect the two connectors on the Rechargeable External Battery Pack to one another.

**Caution**

Do not pull the plastic covering or the wire, or the plug may be broken or damaged.
Rechargeable External Battery Pack Alarms

When the pump is powered by the Rechargeable External Battery Pack, the LOW BATTERY alarm will occur when the pack is within one hour of depletion. The pump will continue infusing.

If the Rechargeable External Battery Pack’s voltage falls below the minimum required to power the pump, the EMPTY BATTERY alarm will occur and the pump will stop infusing. To continue the infusion, do one of the following:

- Plug the Battery Eliminator/Charger into the Rechargeable External Battery Pack to recharge while continuing to infuse.

Note: The pump will not be powered by its internal 9-volt batteries until you disconnect the Rechargeable External Battery Pack.

- Disconnect the Rechargeable External Battery Pack from the pump so that the pump is powered by the internal 9-volt batteries.

Charging the Rechargeable External Battery Pack

The Rechargeable External Battery Pack’s batteries are recharging whenever it is connected to the Battery Eliminator/Charger, whether or not it is also being used to power the pump. Charge the Rechargeable External Battery Pack for 24 hours to ensure proper charge.
Checking the Rechargeable External Battery Pack

To check the Rechargeable External Battery Pack:

1. Connect Rechargeable External Battery Pack to pump.

2. If the pump is not turned off, turn it off now.

3. Press the **ON/OFF PUMP** key.

**Note:** If pump was recently powered from internal 9-volt batteries, allow it to run for approximately 3 minutes on Rechargeable External Battery Pack power before performing battery condition check.

4. When **SELF-TEST** is displayed, press and hold **NO**.

5. When **PASSWORD** is displayed, enter code:

   2 2 8 8

   then press **YES**. The pump displays a number corresponding to approximate capacity remaining. (See Table 7-2.)

   **BATTERY 13.2**

### Table 7-2 Rechargeable External Battery Pack Capacity

<table>
<thead>
<tr>
<th>Displayed Voltage</th>
<th>Approximate Capacity Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.2</td>
<td>100%</td>
</tr>
<tr>
<td>12.7</td>
<td>75%</td>
</tr>
<tr>
<td>12.2</td>
<td>50%</td>
</tr>
<tr>
<td>11.8</td>
<td>25%</td>
</tr>
</tbody>
</table>

6. Recharge the Rechargeable External Battery Pack if the voltage is 12.2 volts or less.
Using the Battery Eliminator/Charger

The Battery Eliminator/Charger is an adapter that plugs into an AC wall outlet. The Battery Eliminator/Charger can be used to power the pump directly, or to charge the Rechargeable External Battery Pack. The Battery Eliminator/Charger can recharge the Rechargeable External Battery Pack alone or while powering the pump, or may be connected directly to the pump.

Use the Battery Eliminator/Charger whenever possible or convenient, or if pump batteries are low.

- To connect the Battery Eliminator/Charger, insert its connector into the pump’s **EXT POWER** connector. (See Figure 7-3).

![Figure 7-3  Connecting the Battery Eliminator/Charger](image)

- To disconnect the Battery Eliminator/Charger from the pump, pull back on the textured metal collar closest to the pump to release the connector.

**Caution**

Do not pull the plastic covering or the wire, or the plug may be broken or damaged.
Cleaning

The exterior of the pump may be cleaned with a soft cloth, sparingly dampened with any of the cleaners listed below. **Do not spray cleaners directly into the pump’s connectors, cassette chamber, or battery compartment. Do not use hard instruments for cleaning.** Follow the manufacturer’s dilution instructions for concentrated cleaners. Always clean/disinfect the pump after each use. For a pump that has been in an Isolation Area, select those agents from the list below that both clean and disinfect.

Contact the Baxter Service Center for assistance immediately if fluid enters the cassette chamber. The chamber should be cleaned as soon as possible by authorized service personnel to minimize potential difficulties caused by fluid pooling and drying on the mechanism.

**Recommended Cleaners**

- Clean soapy water
- Metracide Plus 30®
- Cidex™
- Kleen-aseptic® b
- Allstar® Lemon Dis
- Dispatch®
- Cavicide®
- Up to 10% solution of household bleach (1 part household bleach to 9 parts water)
- pHisoHex™ (diluted), by Winthrop Laboratories
Caution
Do not clean, disinfect, or sterilize any part of the pump by autoclaving or with ethylene oxide gas. Doing so may damage the pump and void the warranty. Only external parts of the pump should be disinfected.

Caution
Do not use the following chemicals on the pump, as they will damage the front panel: acetone, acetaldehyde, ammonia, benzene, hydroxytoluene, methylene chloride, and ozone. Do not use cleaners containing n-alkyl dimethyl ethylbenzyl ammonium chloride unless they appear in the list of recommended cleaners above.

Caution
DO NOT steam autoclave or immerse the pump in liquid or it will be damaged. To avoid possible electrical shock, turn the pump off and disconnect it from the power line before cleaning.

Caution
Do not attempt to clean the pressure sensors. If the pressure sensors accidentally become wet, dry carefully with a lint-free cloth.

Caution
Do not use bleach or bleach solution on the pump’s bare metal surfaces. Discoloration may result.

Cleaning Procedure

1. Wipe the exterior of the pump and its accessories clean with a soft clean cloth dampened with clean soapy water or recommended sanitizing solution.

   Note: Follow the sanitizing solution manufacturer’s instructions for diluting concentrated solutions.

2. Rinse by wiping with a soft clean cloth dampened with water, then wipe dry.

3. After cleaning the air-in-line sensor, dry it thoroughly with a soft, clean lint-free cloth.
Preventive Maintenance

Table 7-3 contains a schedule of basic maintenance tasks that should be performed on the pump. If the pump cannot be cleaned using the methods described earlier or components are missing or damaged, discontinue use and notify the appropriate authorized service personnel. See “Service Information,” 10-2.

<table>
<thead>
<tr>
<th>Check</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform as required but recommended after every use.</td>
<td>Clean housing and front panel as recommended in the cleaning instructions in this section. Check for cracks or chips.</td>
</tr>
<tr>
<td>Housing</td>
<td>Clean as recommended in the cleaning instructions. Check for scratches, cuts or obliterated words.</td>
</tr>
<tr>
<td>Optional PCA cord</td>
<td>Verify that the cord is undamaged over its entire length and that the PCA button is intact and functional.</td>
</tr>
<tr>
<td>Rear housing</td>
<td>Verify that there are no loose or missing parts and that connectors and accessories are undamaged.</td>
</tr>
</tbody>
</table>

Storing the Pump

1. To prevent exposure to dust and moisture, store the pump in its shipping carton in a clean, dry environment with air quality equivalent to or better than normal warehouse air.

2. Store at -28.8°C to 60°C (-20°F to 140°F), 10% to 95% humidity (non-condensing), 50 kPa to 106 kPa.

3. Remove the internal 9-volt batteries before storing the pump for long periods.
# Chapter 8

## Technical Specifications

### Table 8-1  Technical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog code number</td>
<td>2M9832</td>
</tr>
<tr>
<td>Description</td>
<td>Volumetric infusion pump, rotary peristaltic</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Approximately 119 mm x 99 mm x 58 mm (4.7” H x 3.9” W x 2.3” D)</td>
</tr>
<tr>
<td>Weight</td>
<td>• Approximately 0.368 kg (13 oz.) without batteries</td>
</tr>
<tr>
<td></td>
<td>• Approximately 0.454 kg (16 oz.) with batteries</td>
</tr>
<tr>
<td></td>
<td>(Does not include accessories)</td>
</tr>
<tr>
<td>Administration sets</td>
<td>2L9000  2L9003  2L9004  2M9856</td>
</tr>
<tr>
<td></td>
<td>2M9857  2M9858  2M9859  2M9860</td>
</tr>
<tr>
<td></td>
<td>2M9861</td>
</tr>
<tr>
<td>Power requirements</td>
<td>12 to 18 VDC, 50 mA maximum</td>
</tr>
<tr>
<td>• Internal battery</td>
<td><strong>Note:</strong> For optimum performance, Baxter recommends you use only batteries</td>
</tr>
<tr>
<td></td>
<td>manufactured by Duracell Corporation.</td>
</tr>
<tr>
<td></td>
<td>Two 9-volt single use standard alkaline (DURACELL® 9V No. MN1604 or PROCCELL®</td>
</tr>
<tr>
<td></td>
<td>No. PC1604) or lithium batteries (ULTRALIFE® Power Cell 9V No. U9VL)</td>
</tr>
<tr>
<td>• Rechargeable External</td>
<td>Rechargeable external lead acid battery pack (equivalent to 12 volts) 1.3 Ah.</td>
</tr>
<tr>
<td>Battery Pack</td>
<td>Rechargeable with appropriate Battery Eliminator/Charger</td>
</tr>
<tr>
<td>• AC Power</td>
<td>AC powered using Battery Eliminator/Charger connected to <strong>EXT POWER</strong> connector on pump.</td>
</tr>
<tr>
<td>Item</td>
<td>Characteristic</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>• Battery life</td>
<td>• 25 hours at 125 ml/hr and low pressure (internal alkaline)</td>
</tr>
<tr>
<td></td>
<td>• 45 hours at 125 ml/hr and low pressure (internal lithium)</td>
</tr>
<tr>
<td></td>
<td>• 40 hours at 125 ml/hr and low pressure (Rechargeable External Battery Pack)</td>
</tr>
<tr>
<td>Backup audio power</td>
<td>Internal NiCad or Nickel-Metal Hydride battery</td>
</tr>
<tr>
<td>Audible alarm</td>
<td>45 to 85 dB</td>
</tr>
<tr>
<td>Keep Open (KO) rate</td>
<td>Selectable between 0.1 to 10.0 ml/hr in 0.1 ml increments; Intermittent profile KO rate selectable between 0.0 to 10.0 ml/hr in 0.1 ml increment</td>
</tr>
<tr>
<td>Range of programmable flow rates</td>
<td>0.1 to 99.9 ml/hr in increments of 0.1 ml/hr, and 100 to 400 ml/hr in increments of 1 ml/hr</td>
</tr>
<tr>
<td>Volume</td>
<td>• 0.1 to 999.9 ml in increments of 0.1 ml</td>
</tr>
<tr>
<td></td>
<td>• 1000 to 9,999 ml in 1 ml increments</td>
</tr>
<tr>
<td>Volume accuracy</td>
<td>±6% at 15° to 32.2°C (60° to 90°F), 0 to 55.1 kPa (0 to 8 psi) back pressure</td>
</tr>
<tr>
<td></td>
<td>±10% at 40° to 100° F, 9 to 18 psi back pressure</td>
</tr>
<tr>
<td>Priming rate</td>
<td>6 ml priming volume at 200 ml/hr</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Not to be used when pump is connected to the patient.</td>
</tr>
<tr>
<td>Air bubble setting (alarm thresholds)</td>
<td>When enabled or disabled, selectable at the following limits:</td>
</tr>
<tr>
<td></td>
<td>• 0.1 ml</td>
</tr>
<tr>
<td></td>
<td>• 0.5 ml</td>
</tr>
<tr>
<td></td>
<td>• 2 ml</td>
</tr>
</tbody>
</table>
Table 8-1  Technical Specifications — continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downstream occlusion detection time:</td>
<td></td>
</tr>
<tr>
<td>• Flow rates above 10 ml/hr:</td>
<td>Less than 4 minutes</td>
</tr>
<tr>
<td>• Flow rates between 1 and 10 ml/hr:</td>
<td>Less than 20 minutes</td>
</tr>
<tr>
<td>Upstream occlusion detection time:</td>
<td></td>
</tr>
<tr>
<td>• Flow rates above 10 ml/hr:</td>
<td>Less than 4 minutes</td>
</tr>
<tr>
<td>• Flow rates between 1 and 10 ml/hr:</td>
<td>Less than 20 minutes</td>
</tr>
</tbody>
</table>

Dose Limits

Table 8-2  Factory Rate/Dose Limits for Delivery Routes

<table>
<thead>
<tr>
<th>Route</th>
<th>Basal (ml/hr)</th>
<th>Bolus (ml)</th>
<th>Loading Dose (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intravenous</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Epidural</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Subcutaneous</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Accessories

Use only the accessories listed in Table 8-3 with the pump.

Table 8-3  Accessories

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2L9353</td>
<td>Lock Box for 100 ml pre-attached bag set</td>
</tr>
<tr>
<td>2L9354</td>
<td>Lock Box for 100 ml or 250 ml pre-attached bag set</td>
</tr>
<tr>
<td>2L9363</td>
<td>Generic Lock Box for up to 250 ml container - Top Hinge</td>
</tr>
<tr>
<td>2L9357</td>
<td>Locking Clamp</td>
</tr>
<tr>
<td>2L9358</td>
<td>Non-Locking Clamp</td>
</tr>
<tr>
<td>2L9359</td>
<td>Remote PCA Cord</td>
</tr>
<tr>
<td>2M9833</td>
<td>Pump Holder and Pole Clamp</td>
</tr>
<tr>
<td>2M9834</td>
<td>Backpack for up to 3,000 ml container capacity</td>
</tr>
<tr>
<td>2M9835</td>
<td>Battery Eliminator/Charger</td>
</tr>
<tr>
<td>2M9836</td>
<td>Fanny Pack strap extension</td>
</tr>
<tr>
<td>2M9837</td>
<td>Fanny Pack up to 500 ml container capacity</td>
</tr>
<tr>
<td>2M9838</td>
<td>Rechargeable External Battery Pack</td>
</tr>
<tr>
<td>2M8939</td>
<td>Slim Pack up to 100 ml container capacity</td>
</tr>
<tr>
<td>2M9847</td>
<td>Durable Carrying Case</td>
</tr>
</tbody>
</table>
Operating Environment

Table 8-4 lists the environmental requirements for operating the pump.

**Table 8-4  Operating Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>4.5°C to 37.7°C (40°F to 100°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% to 95%, non-condensing</td>
</tr>
<tr>
<td>Barometric pressure</td>
<td>70 kPa to 106 kPa</td>
</tr>
</tbody>
</table>

Storage Environment

Table 8-5 lists the environmental requirements for storing the pump.

**Table 8-5  Storage Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>-28.8°C to 60°C (-20°F to 140°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% to 95%, non-condensing</td>
</tr>
<tr>
<td>Barometric pressure</td>
<td>50 kPa to 106 kPa</td>
</tr>
</tbody>
</table>
Applicable Standards

The pump has been designed in accordance with but not restricted to the following standards:


Recommended Practices

- Connections of this pump to the same patient line with other infusion systems or accessories may alter the system performance. Consult the infusion system or accessory manufacturer’s instructions for use before proceeding.

- To ensure that pump performance is maintained, the pump should be inspected by authorized service personnel in accordance with the 6060™ Multi-Therapy Pump Service Manual.

In the U.S., inspections should be performed in accordance with the JCAHO (Joint Commission on Accreditation of Healthcare Organizations) procedures.
Chapter 9

Summary of Configurable Settings

This chapter contains the following summary information about the pump’s configurable settings and options:

- “Parameter Limits,” 9-1
- “Summary of Factory Default Settings,” 9-3
- “Summary of Numeric Codes,” 9-4

Table 9-1  Parameter Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Profiles</strong></td>
<td></td>
</tr>
<tr>
<td>Delay Delivery Time (HH:MM)</td>
<td>0:00 to 99:59 (except PCA)</td>
</tr>
<tr>
<td>KO Rate (delay, at complete)</td>
<td>0.1 to 10.0 ml/hr (except Intermittent and PCA)</td>
</tr>
<tr>
<td>Concentration</td>
<td>0.1 to 99.9 mg/ml, or 0.1 to 1000 μg/hr</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>0.0 to 400 ml/hr (0.0 to 39,960 mg/hr, 0.0 to 400,000 μg/hr)</td>
</tr>
<tr>
<td>Time (HH:MM)</td>
<td>00:01 to 99:59 (except Intermittent)</td>
</tr>
<tr>
<td>Volume</td>
<td>0.1 to 9,999 ml</td>
</tr>
<tr>
<td><strong>Auto–Ramp® Profile</strong></td>
<td></td>
</tr>
<tr>
<td>Up-Ramp Time (HH:MM)</td>
<td>00:01 to 09:59</td>
</tr>
<tr>
<td>Down-Ramp Time (HH:MM)</td>
<td>00:01 to 09:59</td>
</tr>
</tbody>
</table>
**Table 9-1  Parameter Limits — continued**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intermittent Profile</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Other Total Time (HH:MM)      | 00:01 to 72:00 for a single dose  
3:00 to 72:00 for multiple doses |  |
| Number of Doses               | 1 to 24                                                                                   |  |
| Dose Time (HH:MM)             | 00:01 to 09:59  
(up to 72:00 if number of doses is 1) |  |
| Intermittent KO Rate          | 0.0 to 10.0 ml/hr  
(0.0 to 999 mg/hr, 0.0 to 9,000 μg/hr) |  |
| **PCA Profile**               |                                             |  |
| **PCA Basal Rate and Bolus Dose Limits:** |                                             |  |
| Intravenous Route             | 0.0 to 50 ml/hr  
(0.0 to 4,995 mg/hr, 0.0 to 50,000 μg/hr) |  |
| Subcutaneous Route            | 0.0 to 5 ml/hr  
(0.0 to 499 mg/hr, 0.0 to 5,000 μg/hr) |  |
| Epidural Route                | 0.0 to 25 ml/hr  
(0.0 to 2,497 mg/hr, 0.0 to 25,000 μg/hr) |  |
| PCA Bag Volume                | 0.1 to 999 ml                                                                                  |  |
| Bolus Dose Interval (HH:MM)   | 00:01 to 01:00; or 00:01 to 12:00                                                               |  |
| Bolus Doses/hr                | 0 to 60                                                                                      |  |
| Medication Time Limit         | 1 to 12 hours                                                                                 |  |
| Medication Volume Limit       | Basal rate/hr plus 1 bolus dose = 999 ml                                                      |  |
### Table 9-2  Summary of Factory Default Settings

<table>
<thead>
<tr>
<th>Option</th>
<th>Available Settings</th>
<th>Factory Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio volume</td>
<td>1 to 9</td>
<td>9</td>
</tr>
<tr>
<td>KO rate</td>
<td>0.1 to 10.0 ml/hr</td>
<td>0.1 ml/hr</td>
</tr>
<tr>
<td>Downstream Occlusion Pressure</td>
<td>• HI (124 ± 34.5 kPa; 20 PSI ± 5 PSI) &lt;br&gt;• LO (55.1 ± 34.5 kPa; 8 PSI ± 5 PSI)</td>
<td>HI</td>
</tr>
<tr>
<td>Display language</td>
<td>English &lt;br&gt;English/Spanish</td>
<td>English</td>
</tr>
<tr>
<td>Air Detection</td>
<td>• 0.1 ml &lt;br&gt;• 0.5 ml &lt;br&gt;• 2.0 ml &lt;br&gt;• Disabled</td>
<td>2.0 ml</td>
</tr>
<tr>
<td>Upstream occlusion detection</td>
<td>Enabled/disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>Volume Accrual</td>
<td>Enabled/Disabled</td>
<td>Enabled</td>
</tr>
<tr>
<td>Time</td>
<td>HH:MM</td>
<td>Local Time</td>
</tr>
<tr>
<td>Code</td>
<td>Function</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>776</td>
<td>Entering patient’s ID number (see “Entering the Patient’s Identification Number,” 5-15).</td>
<td></td>
</tr>
<tr>
<td>911</td>
<td>Required whenever ENTER CODE is displayed.</td>
<td></td>
</tr>
<tr>
<td>2288</td>
<td>Checking remaining battery life (see “Checking Internal and Backup Batteries,” 7-2).</td>
<td></td>
</tr>
<tr>
<td>2663</td>
<td>PCA Configuration Mode (see “Using Configuration Mode to Customize Available PCA Profile Options,” 4-63).</td>
<td></td>
</tr>
<tr>
<td>2664</td>
<td>Global Configuration (see “Changing Concentration Without Affecting Programmed Rate,” 5-9).</td>
<td></td>
</tr>
<tr>
<td>4646</td>
<td>Profile Specific Pump/Volume Accrual (see “Making the Pump Profile-Specific,” 5-10).</td>
<td></td>
</tr>
<tr>
<td>5115</td>
<td>Clinician-Activated Dose (see “Giving a Clinician-Activated Dose,” 4-50).</td>
<td></td>
</tr>
<tr>
<td>6060</td>
<td>Clear pump memory (see “Clearing the Memory,” 5-9).</td>
<td></td>
</tr>
<tr>
<td>6116</td>
<td>Change profile parameters while in PCA Lockout security level 2 or 3 (see “Changing PCA Configuration Settings,” 4-64).</td>
<td></td>
</tr>
<tr>
<td>8463</td>
<td>Set the 24-hour clock (see “Setting Date and Time,” 5-14).</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 10

Warranty and Service Information

Warranty

Baxter warrants that the equipment shall be free from defects in material 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. The warranty period for the internal NiCad or NiMH battery is limited to a period of six months following the date of initial delivery.

The warranty extends only to the original purchaser and 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 designated administration sets with this device. 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 or if used with non-recommended sets. Baxter will assume no responsibility for incidents which 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.

Service Information

While under Baxter’s warranty, Service Agreement (optional), or lease agreement, the instrument must not be opened by unauthorized personnel.

For service and repair information for this product, call the authorized Baxter service center listed below.

Andover Service Center

In the U.S.: 1-800-343-0366
Outside the U.S.: 01-978-691-4100

Shipping costs for all pumps returned to Baxter shall be paid for by the customer. The pump 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 pump for repair. When calling for service, please be prepared to provide code number and serial number of the pump. 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 pumps damaged in shipment due to improper packing.
The Spanish translations for all of the pump’s display messages are provided below.

<table>
<thead>
<tr>
<th>Spanish</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRE-EN-LINEA</td>
<td>AIR-IN-LINE</td>
</tr>
<tr>
<td>AJUSTE DE INFUSION?</td>
<td>TITRATION?</td>
</tr>
<tr>
<td>ALERTA DOSIS DE BOLSA MAXIMA/HR</td>
<td>ALERT MAXIMUM BOLUS DOSES/HR</td>
</tr>
<tr>
<td>ALERTA DOSIS MAXIMO PROG</td>
<td>ALERT MAXIMUM PROGRAMMED DOSE</td>
</tr>
<tr>
<td>ALERTA INTERVALO DE BOLSA MINIMO</td>
<td>ALERT MINIMUM BOLUS INTERVAL</td>
</tr>
<tr>
<td>ALERTA RITMO MAXIMO PROG</td>
<td>ALERT MAXIMUM PROGRAMMED RATE</td>
</tr>
<tr>
<td>AUTO-RAMPCA</td>
<td>AUTO-RAMP</td>
</tr>
<tr>
<td>BATERIA BAJA</td>
<td>LOW BATTERY</td>
</tr>
<tr>
<td>BATERIA VACIA</td>
<td>EMPTY BATTERY</td>
</tr>
<tr>
<td>BOLSA BAJA</td>
<td>LOW BAG</td>
</tr>
<tr>
<td>CASSETTE NO INSTALADO</td>
<td>CASSETTE NOT INSTALLED</td>
</tr>
<tr>
<td>CEBAR MAS?</td>
<td>MORE PRIME?</td>
</tr>
<tr>
<td>Spanish</td>
<td>English</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>CEBAR SET?</td>
<td>PRIME SET?</td>
</tr>
<tr>
<td>CEBANDO VOLUMEN</td>
<td>PRIMING VOLUME</td>
</tr>
<tr>
<td>CERRADO O PULSE ANDAR</td>
<td>LOCKOUT OR PRESS RUN</td>
</tr>
<tr>
<td>COMPLETO XXXX</td>
<td>COMPLETE XXXX</td>
</tr>
<tr>
<td>CONTINUR</td>
<td>CONTINUOUS</td>
</tr>
<tr>
<td>DETECTOR DE AIRE XX ML</td>
<td>AIR DETECTION XX ML</td>
</tr>
<tr>
<td>DETECTOR DE AIRE DESACTIVADO</td>
<td>AIR DETECTION DISABLED</td>
</tr>
<tr>
<td>DETECTOR DE AIRE ENTRE CONDIGO</td>
<td>SET AIR DETECTOR ENTER CODE</td>
</tr>
<tr>
<td><em>DEТENIDO</em></td>
<td><em>HOLD</em></td>
</tr>
<tr>
<td>DEMORA</td>
<td>DELAY</td>
</tr>
<tr>
<td>DEMORA ENTREGA?</td>
<td>DELAY DELIVERY?</td>
</tr>
<tr>
<td>DOSIS COMPLETO</td>
<td>DOSE COMPLETE</td>
</tr>
<tr>
<td>DOSIS DE BOLSA</td>
<td>BOLUS DOSE</td>
</tr>
<tr>
<td>DOSIS DE BOLSA SOLICITADA</td>
<td>BOLUS DOSE REQUESTED</td>
</tr>
<tr>
<td>DOSIS XX</td>
<td>DOSE XX</td>
</tr>
<tr>
<td>EMPEZAR DOSIS XX?</td>
<td>BEGIN DOSE XX?</td>
</tr>
<tr>
<td>ENTRE CODIGO</td>
<td>ENTER CODE</td>
</tr>
<tr>
<td>ENTRECODIGO PCARA DATOS PCA</td>
<td>FOR PCA DATA ENTER CODE</td>
</tr>
<tr>
<td>FALLO XX</td>
<td>MALFUNCTION XX</td>
</tr>
<tr>
<td>FIJAR IDIOMA?</td>
<td>SET LANGUAGE?</td>
</tr>
<tr>
<td>Spanish</td>
<td>English</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>FIJAR PRESION?</td>
<td>SET PRESSURE?</td>
</tr>
<tr>
<td>FIJAR VOLUMEN DE AUDIO?</td>
<td>SET AUDIO VOLUME?</td>
</tr>
<tr>
<td>FIJAR RITMO KO?</td>
<td>SET KO RATE?</td>
</tr>
<tr>
<td>FIJAR OCCLUSION SUP</td>
<td>SET UP OCCLUSION</td>
</tr>
<tr>
<td>INGLÉS/ESPCANOL</td>
<td>ENG/SPANISH</td>
</tr>
<tr>
<td>INTERMITENTE</td>
<td>INTERMITTENT</td>
</tr>
<tr>
<td>INTERVALO DE BOLSA</td>
<td>BOLUS INTERVAL</td>
</tr>
<tr>
<td>KO DOSIS XX</td>
<td>KO DOSE XX</td>
</tr>
<tr>
<td>AUTO-RAMPCA LISTO</td>
<td>READY AUTO-RAMP</td>
</tr>
<tr>
<td>CONTINUO LISTO</td>
<td>READY CONTINUOUS</td>
</tr>
<tr>
<td>INTERMITENTE LISTO</td>
<td>READY INTERMITTENT</td>
</tr>
<tr>
<td>LISTO PARA CEBAR</td>
<td>READY TO PRIME</td>
</tr>
<tr>
<td>LISTO PCA NIVEL X</td>
<td>READY PCA LEVEL X</td>
</tr>
<tr>
<td>LISTO XX PERIODO(S)</td>
<td>READY XX PERIODS</td>
</tr>
<tr>
<td>NIVEL X DE SEGURIDAD</td>
<td>SECURITY LEVEL X</td>
</tr>
<tr>
<td>OCCLUSION INF</td>
<td>DOWN OCCLUSION</td>
</tr>
<tr>
<td>OCCLUSION SUP</td>
<td>UP OCCLUSION</td>
</tr>
<tr>
<td>PCA NIVEL X</td>
<td>PCA LEVEL X</td>
</tr>
<tr>
<td>PERIODO XX DE XX</td>
<td>PERIOD XX OF XX</td>
</tr>
<tr>
<td>PRESION: ALTA</td>
<td>PRESSURE: HI</td>
</tr>
<tr>
<td>PRESION: BAJA</td>
<td>PRESSURE: LO</td>
</tr>
<tr>
<td>PROBANDO</td>
<td>SELF-TEST...</td>
</tr>
<tr>
<td>Spanish</td>
<td>English</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>PUERTA ABIERTA</td>
<td>DOOR OPEN</td>
</tr>
<tr>
<td>RAMPCA BAJADA</td>
<td>DOWN RAMP</td>
</tr>
<tr>
<td>RAMPCA BAJADA ANTES DE TIEMPO?</td>
<td>EARLY DOWN-RAMP?</td>
</tr>
<tr>
<td>RAMPCA SUBIDA</td>
<td>UP-RAMP</td>
</tr>
<tr>
<td>RECALIBRAR!</td>
<td>RECALIBRATE!</td>
</tr>
<tr>
<td>REPCASAR PERFIL?</td>
<td>REVIEW PROFILE?</td>
</tr>
<tr>
<td>RITMO</td>
<td>RATE</td>
</tr>
<tr>
<td>RITMO BASICO</td>
<td>BASAL RATE</td>
</tr>
<tr>
<td>RITMO CONSTANTE</td>
<td>LEVEL RATE</td>
</tr>
<tr>
<td>RITMO MAXIMO ES:</td>
<td>MAXIMUM RATE IS:</td>
</tr>
<tr>
<td>RITMO REBASA LIMITES MICROSET</td>
<td>RATE EXCEEDS MICROSET LIMITS!</td>
</tr>
<tr>
<td>RITMO REDONDEADO A:</td>
<td>RATE ROUNDED TO:</td>
</tr>
<tr>
<td>SIGUIR?</td>
<td>RESUME?</td>
</tr>
<tr>
<td>SEGUIR DOSIS XX?</td>
<td>RESUME DOSE XX?</td>
</tr>
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Appendix B

Glossary

AutoClamp™ — A feature on the cassette that helps prevent free flow when the pump door is opened and when the cassette is removed from the pump’s cassette chamber.

Cassette — The cassette is the portion of the administration set that rests in the cassette chamber. The standard cassette supports flow rates of 0 to 400 ml/hr. The cassette contains the AutoClamp™ (see above).

Delivery Profile — One of five programmable infusion options available with the pump. These include Continuous, Auto–Ramp®, Intermittent, 25 Periods and PCA. They differ from each other primarily in their methods of delivering infusion rates over time.

Demand Bolus — In the PCA delivery profile, a Demand Bolus is a patient-controlled dose at a preset amount and rate, available at preset intervals. The dose may be requested via the PRIME/BOLUS button on the keypad or via the Remote PCA button.

Final Confirmation Screen — This screen immediately follows the Ready screen. It displays the fluid bag volume and rate, alternating with the name of the profile ready to be delivered. This screen is also displayed when you use Shortcut Delivery. It allows you to check the programmed parameters before proceeding with delivery.
Infusion Data Parameters — Pump-wide settings that control the way the pump’s displays and performance. The Infusion Data Parameters include: audio volume, pressure, KO rate, display language, air detection and up occlusion. See Table 9-2 for complete information.

KO Rate — The KO (Keep Open) rate is a reduced infusion rate administered during delay delivery phases and at the completion of infusions. The Intermittent delivery profile has a separate, profile-specific KO Rate that is delivered during KO periods of an Intermittent infusion.

Lockout Mode — Mode of pump operation in which only predetermined and preprogrammed delivery profiles are available for delivery. A user may not alter existing programs or create new programs in Lockout Mode. See “Programmable Mode,” B-3.

PCA Configuration — A pump mode, accessible through a password, that lets you set features and limits for the PCA profile. PCA Configuration lets you enable or disable options available in the PCA profile, and set limits on parameters such as basal rate, loading dose and bolus dose rate.

Profile Parameters — The collective name for the data elements programmed into a delivery profile. For a given program, the parameters may include infusion rate, infusion time, volume-to-be-infused, KO rate, number of doses, etc. The parameters required for each delivery profile are described in the profile’s programming section.
**Profile-Specific** — Advanced programming feature in which you may restrict the profiles available for delivery to specific profiles of your choosing. This feature is more restrictive than Lockout Mode alone, for any profiles excluded from your profile-specific program remain inaccessible even in Programmable Mode.

**Programmable Mode** — Mode of operation in which all delivery profile parameters and other programming options are accessible for review or change. You must be in Programmable Mode to change an existing program or to create a new program.

**Programmed Infusion** — An infusion profile for which all parameters have been set and saved in the pump’s memory. A programmed infusion remains ready for delivery until parameters for that specific profile are changed or memory is cleared.

**Ready Screen** — In Programmable Mode, this screen confirms that all profile parameters have been completely and correctly entered, and that the infusion profile is ready for delivery. In Lockout Mode, this screen indicates that the profile shown is available for delivery under the Lockout conditions.

**Titration Mode** — Titration Mode allows the delivery rate and/or the volume-to-be-infused to be changed during a Continuous profile infusion, and the basal rate, bolus dose, bolus interval and/or number of bolus doses per hour to be changed during a PCA infusion. See the profile programming sections for details.
**Volume-to-be-Infused** — An accumulation of all the volumes scheduled to be delivered during a programmed infusion. It may represent a single volume, as in a Continuous profile infusion, or the sum of many volumes, as in an Intermittent profile infusion that contains a volume for each dose plus a KO volume for each period between doses.
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This manual was printed on paper stock created with 20% de-inked post-consumer waste fiber and a total of 100% recycled fiber.