

CADD ▲ Prizm VIP

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This manual pertains only to the Deltec CADD-Prizm™ VIP (Variable Infusion Profile) Model 6100 ambulatory infusion pump and the following delivery modes:

PCA	PCA 6210 (all revision letters)
Continuous	CONTIN 6220 (all revision letters)
TPN	TPN 6230 (all revision letters)
Intermittent	INTERMT 6240 (all revision letters)

The issue date of this Operator's Manual is included for the clinician's information. In the event one year has elapsed between the issue date and product use, the clinician should contact SIMS Deltec, Inc. to see if a later revision of this manual is available.

WARNING:

It is intended that this Operator's Manual be used by clinicians *only*. Do not permit patients to have access to this manual. Do not disclose to the patient the pump's security codes or any other information that would allow the patient complete access to all programming and operating functions.

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Covered by one or more of the following: U.S. Patent Nos. 4,559,038; 4,565,542; 4,650,469; 5,181,910; 5,338,157; 5,364,242; 5,485,408; 5,531,697; 5,531,698; 5,538,399; 5,540,561; 5,564,915; 5,567,136; 5,567,119; other patents pending.

Technical Assistance

If you have comments or questions concerning the operation of the CADD-Prizm system, please call this number: 1-800-426-2448. When calling, please specify your pump's software module. This information is located on the lower label on the back of the pump.

Our staff is available to help clinicians twenty-four hours a day with the programming and operation of the CADD-Prizm infusion system.

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Table of Contents

Section 1: General Description and Basic Operations	1
Introduction	2
Indications for Use	2
Warnings and Precautions	4
Unpacking the Pump and Preparing It for Use	6
Pump Diagram	7
Installing a Battery	11
The Main Screen	13
Getting Help Using the (?) Key	14
Lock Levels	15
AutoLock	15
Security Codes	15
Customizing the Security Codes	15
Lock Level Table	16
Changing the Lock Level	17
Stopping the Pump	18
Starting the Pump	18
 Section 2: Pump Setup and Programming	 19
PCA Delivery Mode	
PCA Programming Screens	20
PCA Programming Example	24
PCA: Programming with Upper Limits, Adjusting Doses in	
Lock Level 1	29
PCA: Starting a Clinician Bolus	30
PCA: Starting a Demand Dose	31
PCA: Stopping a Demand Dose or Clinician Bolus	32
Continuous Delivery Mode	
Continuous Programming Screens	33
Continuous Programming Example	35
CONTIN: Programming with Upper Limits, Adjusting Rate in	
Lock Level 1	37
TPN Delivery Mode	
TPN Programming Screens	38
TPN Programming Example	41
TPN: Starting Daily Infusion	44

Intermittent Delivery Mode	
Intermittent Programming Screens	45
Intermittent Programming Example	48
INTERMT: Stopping the Pump During the Cycle	51
Section 3: Medication Reservoir or Administration Set	53
Removing a Used Reservoir or Administration Set	54
Attaching a New Reservoir or Administration Set	55
Priming the Tubing and Connecting to the Patient	58
Setting the Lock Level for the Patient	60
Starting the Pump	61
Resetting the Reservoir Volume	62
Section 4: Options	63
Overview: Accessing Options	64
Immediate Taper-Down: TPN	65
Prime	66
Time Remaining: Intermittent	67
Extended History, Viewing: PCA	68
Change the Delivery Mode	70
AutoLock	71
Time	72
Date	73
Air Detector On/Off	74
Event Log, Viewing	75
Section 5: Biomed Toolbox	77
Overview: Accessing the Biomed Toolbox	78
Micrograms On/Off (PCA Only)	79
Concentration Customization (PCA Only)	79
Extended History On/Off (PCA Only)	81
PM (Preventive Maintenance) Reminder	81
Custom Lock Level Code	82
Date Format	82
Power Source Status Display	83
Air Detector Requirement	83

(continued)

Section 6: Accessories	85
Printing Reports	86
Power Pack or AC Adapter	90
Remote Dose Cord	91
Security Shell	92
Polemount Bracket	94
Air Detector Installation and Removal	95
 Section 7: Reference & Troubleshooting	 97
Troubleshooting	98
Alarms and Messages, Alphabetical List	100
Specifications (Nominal)	110
Cleaning the Pump and Accessories	115
Exposure to Radiation or Magnetic Resonance Imaging (MRI)	116
PCA Delivery Mode: Continuous Rate Scroll Ranges	117
PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Milligrams	117
PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Micrograms	118
Military Time Conversion Chart	119
Downloading Reports to a PC	120
Index	122
Limited Warranty	126

Section 1: General Description and Basic Operations

Introduction	2
Indications for Use	2
Warnings and Precautions	4
Unpacking the Pump and Preparing It for Use	6
Pump Diagram	7
Installing a Battery	11
The Main Screen	13
Getting Help Using the (H) Key	14
Lock Levels	15
AutoLock	15
Security Codes	15
Customizing the Security Codes	15
Lock Level Table	16
Changing the Lock Level	17
Stopping the Pump	18
Starting the Pump	18

Section 1: General Description

Introduction

The Deltec CADD-Prizm™ ambulatory drug delivery pump provides measured drug therapy to patients in hospital or outpatient settings.

The *PCA (Patient-Controlled Analgesia)* delivery mode is used for therapies that require a continuous rate of infusion, patient-controlled demand doses, or both, such as patient-controlled analgesia.

The *Continuous* delivery mode allows the infusion of drug at a constant, programmed rate.

The *TPN (Total Parenteral Nutrition)* delivery mode allows the infusion of nutritional solutions or other fluids, with optional tapering at the beginning and end of infusion.

The *Intermittent* delivery mode allows the infusion of a specific volume of drug at a regular, programmed interval.

Indications for Use

The CADD-Prizm pump is indicated for intravenous, intra-arterial, subcutaneous, intraperitoneal, epidural space, or subarachnoid space infusion.

Therapy should always be overseen by a physician or a certified, licensed healthcare professional. The patient should be instructed in using and troubleshooting the pump.

Epidural/Subarachnoid Administration

The selected drug must be used in accordance with the indications included in the package insert accompanying the drug. Administration of any drug by this pump is limited by any warnings, precautions, or contraindications in the drug labeling.

Analgesics Administration of analgesics to the epidural space is limited to use with indwelling catheters specifically indicated for either short- or long-term drug delivery.

Administration of analgesics to the subarachnoid space is limited to use with indwelling catheters specifically indicated for short-term drug delivery.

(continued)

Anesthetics Administration of anesthetics to the epidural space is limited to use with indwelling catheters specifically indicated for short-term drug delivery.

WARNING

Administration of drugs to the epidural space or subarachnoid space other than those indicated for administration to the epidural space or subarachnoid space could result in death or serious injury to the patient.

To prevent the infusion of drugs that are not indicated for epidural space or subarachnoid space infusion, DO NOT use administration sets that incorporate injection sites. The inadvertent use of injection sites for infusion of such drugs may cause death or serious injury to the patient.

If the reservoir or cassette is used for epidural space or subarachnoid space drug delivery, it is strongly recommended that it be clearly differentiated from reservoirs, cassettes, or administration sets used for other routes of infusion, for example, by color coding, or other means of identification.

Warnings and Precautions

General

This device is not intended to be used for delivery of blood or cellular blood products.

Do not use a pump that appears to have been damaged or tampered with, or is not functioning properly.

Operating and Storage Conditions

Do not operate the pump at temperatures below +2°C (36°F) or above 40°C (104°F).

Do not store the pump at temperatures below -20°C (-4°F) or above 60°C (140°F).

Do not expose the pump to humidity levels below 10% or above 90% relative humidity.

Do not store the pump for prolonged periods with a battery; the battery could leak and damage the pump.

The pump is water resistant. However, total immersion is not recommended because moisture buildup within the case may damage the parts. Do not use the pump in the shower, sauna, or steam bath.

This device may interfere with ECG equipment. Monitor ECG equipment carefully when using this device.

Avoid using the pump in close proximity to sources of strong static electricity or strong electromagnetic fields. (See Equipment Exposure to Radiation or MRI in Section 7.)

Do not use the pump in the presence of flammable anesthetics or explosive gases.

Do not insert foreign objects into the pump connectors as this may damage the pump. Use only Deltec accessories.

Maintenance

The pump is not sterile. It is not designed to be sterilized. Sterilization could damage the pump's electronics and other pump parts.

The pump should be routinely cleaned and kept free of dirt, liquids, and foreign objects.

The pump requires a 9 volt battery for proper operation. It is recommended that fresh 9 volt batteries be available in case replacement is necessary.

Medication Reservoirs and Fluid Path

The medication reservoir or administration set is sterile when packaged and should be handled appropriately.

A medication reservoir should be filled and used only once and then discarded. An administration set should be used only once with each new fluid container and then discarded.

Use only solutions which are stable under delivery conditions experienced during use with the pump. Observe warnings packaged with the medication reservoir or administration set.

Purge the fluid path of all air bubbles before use.

The pump does not have an upstream occlusion detection mechanism. Periodic visual inspection is therefore recommended.

This device may be capable of being set at a reservoir volume higher than the capacity of the medication reservoir. The Reservoir Volume value should be programmed to reflect the actual volume of the medication being used.

Back pressure or fluid resistance, which depends upon drug viscosity and catheter size, may result in system delivery inaccuracies.

Only the CADD® Extension Set with Anti-Siphon Valve must be used with this pump; other extension sets will result in system delivery inaccuracies.

Avoid dropping the pump or hitting the pump against a hard surface, as this could cause the cassette to become detached, the battery cover to become detached or loose, or the liquid crystal display (LCD) to become damaged. If the cassette becomes detached, an uncontrolled flow of medication from the reservoir or a reflux of blood may result, which could result in death or serious injury to the patient. If the battery door becomes detached or loose, the battery will not be properly secured; this may result in loss of power, nondelivery of drug, and, depending on the type of drug being administered, death or serious injury. Damage to the LCD could result in improper display of data.

If the pump is dropped or hit, inspect the pump to ensure that the cassette did not become detached and the battery cover did not become dislodged. Inspection should include closing the clamp on the tubing, detaching the pump and inspecting the hinges, and checking the battery door to ensure they are not broken. The pump should also be powered up and the display should be inspected for any stripes. (See Watching Power Up in Section 2.) If there appears to be damage, the patient should be instructed to immediately contact his or her health care provider, the pump should be taken out of service, and Deltec's Customer Service department should be contacted for return authorization. If there appears to be no damage, reattach the cassette following the instructions in the Operator's Manual.

To prevent the uncontrolled flow of medication, use a CADD Extension Set with Anti-Siphon Valve, a CADD Administration Set with integrated anti-siphon valve, or a CADD Administration Set with an attached Add On Anti-Siphon Valve.

The use of a Deltec Pump Pouch is recommended. If the pump is dropped or inadvertently hit against a hard surface, the Pump Pouch is designed to minimize the need for servicing.

Section 1: General Description

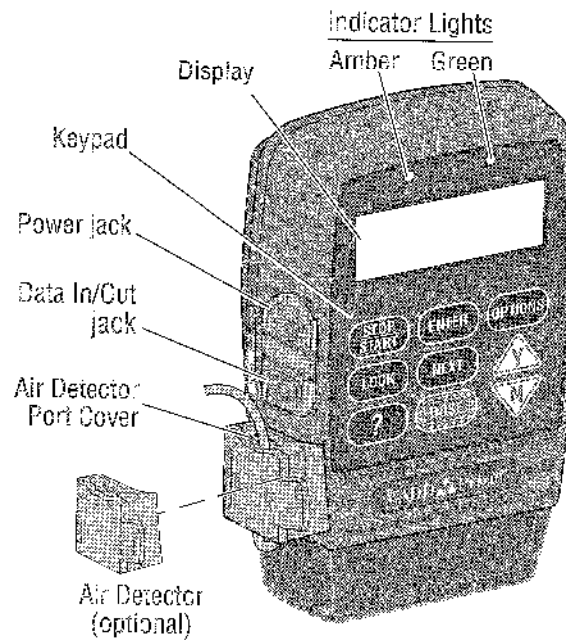
Unpacking the Pump and Preparing it for Use

The following accessories are packaged with the CADD-Prizm pump:

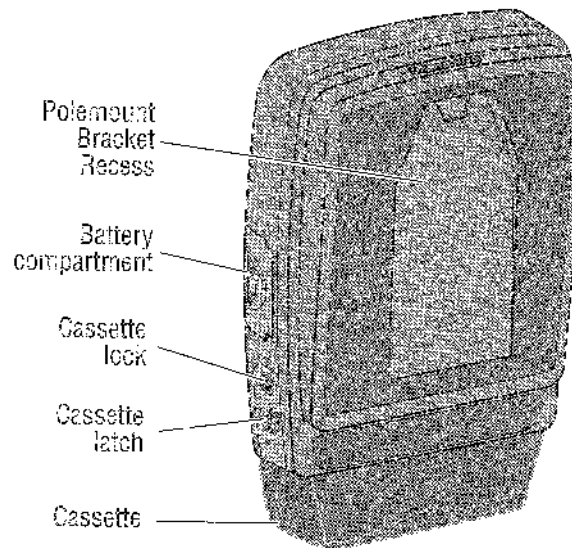
- 1 pump key
- 1 battery (9 volt)
- Operator's Manual and warranty information
- 1 50/100-ml Pump Pouch
- 1 carrying case
- Optional Air Detector, if ordered
- Device Tracking Information
- Patient Information

After unpacking the pump, install a battery (as described later in this section) and set the time and date (as described in Section 4).

Pump Diagram



Front View



Rear View

Section 1: General Description

Indicator Lights

Green: The green light blinks approximately every 3 seconds when the pump is running and delivering fluid as programmed.

Amber: The amber light flashes when the pump is stopped or an alarm condition exists. It stays on continuously when the pump is inoperable. The display briefly describes the condition.

If both lights blink, delivery is still occurring but a condition exists of which you should be aware (for example, a low battery). Look at the display for a brief description of the condition.

Display with backlighting

The liquid crystal display (LCD) shows programming information and messages. Backlighting helps keep the display visible in low light.

After a period of no key presses, backlighting turns off and the display blanks to save battery power (except during an alarm or when an external power source is in use). Press any key to turn the display back on. **NOTE:** If you press **STOP START**, the display will reappear with a message asking if you wish to start or stop the pump; press **▲** or **▼**. Do not use **DOSE** to turn the display back on; this may deliver an inadvertent dose.

Keypad

The keys on the keypad are described

below. A key beeps when pressed if it is operable in the current lock level.

STOP START starts and stops pump delivery.

LOCK is used to view or change the pump's current lock level. Lock levels are used to limit patient access to certain programming and operating functions. (See Lock Levels, this section.) This key is also used to access the Clinician Bolus in the PCA delivery mode.

? is the "Help" key. It is used to display help for a screen or an alarm message. (See Getting Help, this section.)

ENTER is used to enter, or save, a new value in the pump's memory when programming new doses or new pump settings. It is also used to select an item from the Options Menu (Section 4) or Biomed Toolbox Menu (Section 5).

NEXT is used to move from one programming screen to the next without changing the setting or value displayed. It is also used to return from the Biomed Toolbox Menu to the Options Menu, or from the Options Menu to the main screen. (See Sections 4 and 5.)

DOSE is used only in the PCA delivery mode. It allows the patient to deliver a programmed amount of medication upon request.

OPTIONS is used to access the Options Menu, which contains such features as time, date, and the Event Log. (See Section 4, Options.)

▲ allows you to answer “yes” to a question on the pump’s display, “scroll up” or increase a value (for example, a dose amount), or scroll through items on a menu.

▼ allows you to answer “no” to a question on the pump’s display, “scroll down” or decrease a value, scroll through items on a menu, or cancel printing.

Power jack

You may plug a CADD External Power Source (EPS) System Power Pack or an AC Adapter into the Power jack as an alternate source of power.

Data In/Out jack

The Data In/Out jack is used for attaching the following accessories:

- Interface Cable for printing reports
- Remote Dose Cord for remote operation of the dose key
- Modem cable for communications

For more information on printing or the Remote Dose Cord, see the appropriate sections in this manual. For more information on communications, see the instructions for use provided with the CADD-Prizm Telecommunications System.

Air Detector Port Cover

This encloses the Air Detector port when the Air Detector is not attached.

Air Detector accessory (optional)

The Air Detector attaches to the pump in the area shown in the diagram. If air is detected in the part of the tubing that passes through the Air Detector, an alarm sounds and delivery stops. (See Section 7 for Air Detector specifications.) The pump may be customized to require an Air Detector. (See Section 5, Biomed Toolbox.) If an Air Detector is attached but not required, it may be turned off.

WARNING: When the Air Detector is not installed, or is installed but turned off, the pump will not detect air in the fluid path. It is recommended that you periodically inspect the fluid path and remove any air to prevent air embolism. Air embolism could result in serious injury to the patient.

Cassette

The cassette is the portion of the reservoir or administration set that attaches to the bottom of the pump. The following sterile, single use products are compatible with the CADD-Prizm pump:

- MEDICATION CASSETTE™ reservoir (50 or 100 mL), used with the CADD® Extension Set with Anti-Siphon Valve
- CADD® Administration Set with integral or add-on anti-siphon valve, for rates up to 125 mL/hr
- CADD-Prizm™ High Volume Administration Set, for rates up to 350 mL/hr

Section 1: General Description

Polemount Bracket recess

The optional Polemount Bracket slides into the recess on the back of the pump, allowing you to attach the pump to an IV pole.

Battery compartment

The 9 volt battery fits into this compartment. The 9 volt battery serves as the primary source of power, or as a backup when an EPS System power pack or AC Adapter is in use.

Cassette latch

This attaches the cassette (the part of the reservoir or administration set that attaches to the pump) to the pump. The pump detects whether the cassette is latched properly. Delivery will stop and an alarm will occur if the cassette becomes unlatched.

Cassette lock

This allows you to secure the cassette to the pump using the key provided. The cassette must be latched before it can be locked. In the PCA delivery mode, the cassette *must* be locked onto the pump or the pump will not run.

Downstream Occlusion Sensor (Not Shown)

The pump contains a downstream occlusion sensor. When a downstream occlusion (between pump and patient) is detected, an alarm will sound, delivery will stop, and the display will show "High Pressure."

Reservoir Volume Alarm (Not Shown)

Reservoir Volume is a feature that indicates when the fluid in the reservoir is low or depleted. Each time you change the reservoir, you may reset the Reservoir Volume to the originally programmed volume. Then, as medication is delivered, the Reservoir Volume automatically decreases.

MEDICATION CASSETTE Reservoir or CADD Administration Set: When the pump calculates that 5 ml remain in the reservoir and a "Reservoir Volume Low" message appears. This alarm recurs at every subsequent decrease of 1 ml until the Reservoir Volume reaches 0 ml, at which point the pump stops.

CADD-Prizm High Volume Administration Set: When the pump calculates that 25 ml remain in the reservoir, beeps sound and "Reservoir Volume Low" appears. This alarm recurs at every subsequent decrease of 5 ml until the Reservoir Volume reaches 0 ml, at which point the pump stops.

Installing a Battery

Use a fresh, 9 volt alkaline or lithium battery such as the DURACELL® Alkaline MN 1604, the EVEREADY® ENERGIZER Alkaline #522 or the ULTRALIFE® Lithium U9VL battery. The pump retains all programmed values while the battery is removed. If the pump is running, you may connect an external power source to keep the pump running for 3 minutes while you change the battery.

Battery life may be significantly reduced by extreme operating temperatures, frequent screen display and backlighting, frequent printing, and high delivery rates. Make sure fresh batteries are available at all times for replacement.

NOTE: When the pump is powered up in Lock Level 0 with an Air Detector attached, the pump will automatically turn on the Air Detector (the Air Detector setting in Options will change to "Turned On.")

CAUTION:

- Do not use rechargeable NiCad batteries. Do not use carbon zinc ("heavy duty") batteries. They do not provide sufficient power for the pump to operate properly.
 - Do not store the pump for prolonged periods with the battery installed. Battery leakage could damage the pump.
-

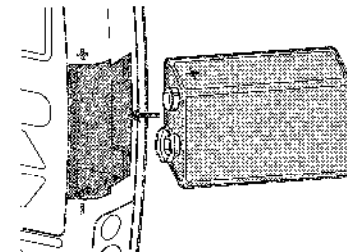
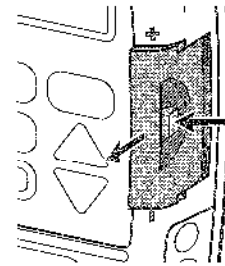
WARNING:

- Because there is no pump alarm to alert users that a battery has become dislodged due to a damaged battery compartment cover becoming separated from the pump or improper battery installation, it is important to carefully follow battery installation procedures.
 - If the pump is dropped or hit against a hard surface, the battery door may become broken or damaged. DO NOT USE the pump if it has been damaged in this way because the battery will not be properly secured; this may result in loss of power, nondelivery of drug, and, depending on the type of drug being administered, death or serious injury.
-

Section 1: General Description

To install a battery

1. Make sure the pump is stopped. Press the button on the battery door and slide the battery door forward. Remove the used battery.
2. Match the + and - markings on the new battery with the markings on the pump. Insert the battery. The pump will beep if the battery is inserted correctly.
3. Replace the battery door.

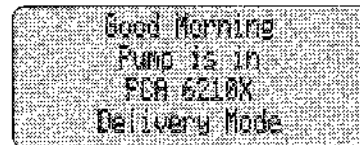
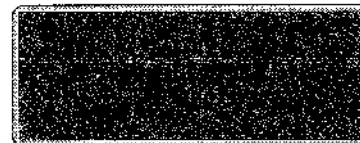


Power up screens

As the pump powers up, watch for the following screens.

- Look for the delivery modes contained in the pump. Make sure the desired delivery modes are displayed.
- When the display turns completely on, look for any stripes, which would indicate a faulty display.
- Make sure the pump is in the desired delivery mode. If not, change the delivery mode before programming (Section 4, Options).

PCN	6210X
CONTIN	6220X
TPN	6230X
INTERMT	6240X



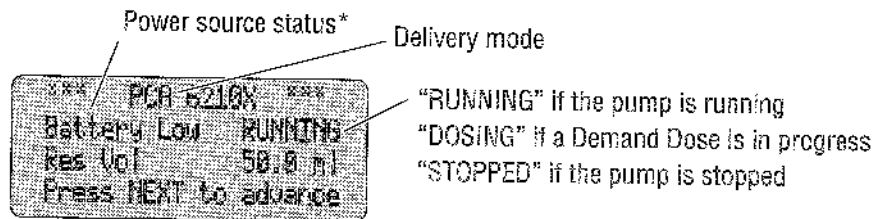
As the pump reviews the program, you may need to confirm certain settings. (See Section 7 for information on alarms and messages.) To move quickly through the power-up screens, press **(NEXT)** repeatedly. To skip the automatic review entirely, press **▼**.

When power up is complete, "Power Up Successful" will appear and six beeps will sound. Then the main screen will appear (next page).

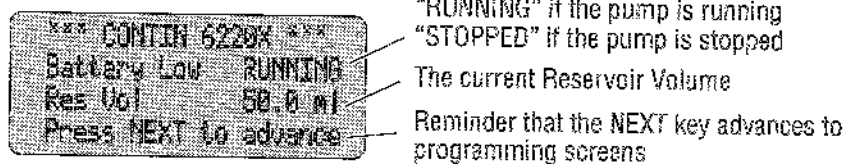
The Main Screen

The main screen is the starting point for programming or viewing the pump's settings. If no keys are pressed, the display will eventually revert to the main screen. The main screen within each delivery mode displays information about the delivery status, as shown below.

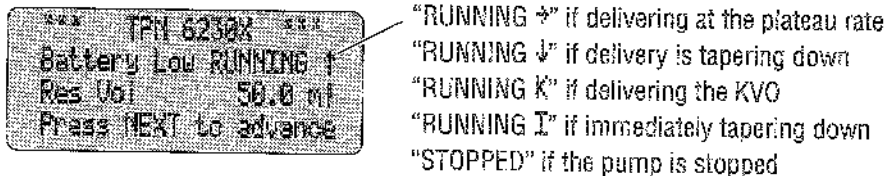
PCA Delivery Mode



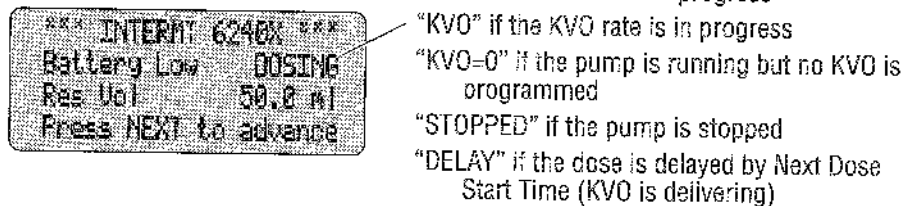
Continuous Delivery Mode



TPN Delivery Mode



Intermittent Delivery Mode

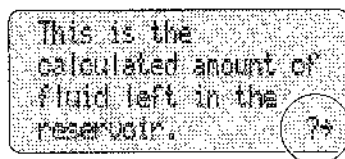


* The Power Source Status will only display when the 9 volt battery is low, unless the pump has been customized to *always* show the type of power source in use. (See Biomed Toolbox, Section 5.)

Section 1: General Description

Getting Help Using the (?) Key

For more information about a screen or message on the pump's display, press the (?) key to view help screens. Help screens describe what you see on the display. They may also explain why a screen or message appeared and what to do next.



This symbol in the lower right corner means there are additional help screens. Press the (?) key again to see the next help screen.

- To page through all the help screens, press (?) repeatedly. The original screen will reappear when no further help is available.
- To exit help, press any key (other than the (?) key). This will bring you back to the original screen.
- If a help screen tells you to press a certain key, first exit help, then press that key.

Help screens are lock level dependent. If the pump's current lock level prevents access to a certain function, the function will not be described in the help screens.

Lock Levels

Lock levels are used to limit patient access to certain programming and operating functions. The table on the next page lists the functions that are accessible in Lock Level 0 (LL0), Lock Level 1 (LL1), and Lock Level 2 (LL2). When a function is accessible, the key associated with the function beeps when pressed. If a function is not accessible, the pump ignores the key press and a beep does not sound. Section 2, Pump Setup and Programming, describes how to change the lock level.

AutoLock

AutoLock is one of the Options. This feature automatically changes the lock level from LL0 to LL1 or LL2 when the pump is started (instead of requiring you to manually change the lock level before giving the pump to the patient). See Section 4 for more information on using AutoLock.

Security Codes

The following security codes are preset by the manufacturer for the clinician's use:

- The Lock Level Code, 361 (the first two digits of the pump's model number), allows you to change the pump's lock level.
- The Access Code, 071 (Lock Level Code + 10), allows you to change the delivery mode and access Communications.
- The Clinician Bolus Code, 997, allows you to deliver a Clinician-Activated bolus.
- The Biomed Toolbox Code, 161 (Lock Level Code + 100), allows access to the Biomed Toolbox settings.

WARNING: You should not permit patients to have access to any of these codes as this may allow patients complete access to all programming and operating functions.

Customizing the Security Codes

If it becomes necessary to change the Lock Level Code, Access Code, and Biomed Toolbox Code to ensure that a patient will be unable to access these features, you may customize the Lock Level Code in the Biomed Toolbox. (See Section 5.) Customizing the Lock Level Code will not affect the Clinician Bolus Code.

Section 1: General Description

Lock Level Table

This table shows the features that can be accessed in each lock level. LL0 permits complete access to all programming and operating features. LL1 permits limited programming and access, and LL2 permits only minimal access.

Pump Operations and Programming	Stopwatch		
	LL0	LL1	LL2
Stop/Start the pump	Yes	Yes	Yes
View Help screens	Yes	Yes	Yes
Print	Yes	Yes	Yes
Reset Reservoir Volume	Yes	Yes	Yes
Reset Infusion Profile (TPN)	Yes	Yes	Yes
Change the lock level	Yes, w/code	Yes, w/code	Yes, w/code
Change the program	Yes	Within LL0 Limits*	No
Change Next Dose Start Time (INTERMT)	Yes	No	No
Clear Given amount	Yes	Yes	No
Clear Dose Counters (PCA)	Yes	Yes	No
Options			
Immediate Taper-Down (TPN)	Yes, programmable	Yes, programmable	Yes, not programmable
Prime	Yes	Yes	No
Time Remaining, view (INTERMT)	Yes	Yes	Yes
Extended History, view (PCA)	Yes	Yes	Yes
Change Delivery Modes	Yes, w/code	No	No
AutoLock	Yes	View only	View only
Time	Yes	View only	View only
Date	Yes	View only	View only
Air Detector On/Off	Yes	View only	View Only
Event Log, view	Yes	Yes	Yes
Biomed Toolbox	Yes, w/code	No	No

* In PCA and CONTIN delivery modes

Changing the Lock Level

Before programming the pump, make sure the lock level is LL0. LL0 allows the clinician to access all programming and operating functions. After programming, set the lock level to LL1 or LL2 for the patient.

To change the lock level:

1. Make sure the pump is stopped.
Press **LOCK**. The current lock level will appear. (If the pump is already in the desired lock level, press **NEXT** to exit.)

Lock Level
LL2

2. Press **▲** or **▼** until the desired lock level appears.

Lock Level
LL1

3. Press **LOCK** again, "000" will appear.

NOTE: If <Custom> appears on the screen, the Lock Level Code has been customized. Enter the custom Lock Level Code in the next step.

Lock Level Code
000

4. Press **▲** or **▼** until the Lock Level Code "061" (or the custom code) appears.

Lock Level Code
061

WARNING: Do not let the patient learn the Lock Level Code as this would allow the patient complete access to all programming screens.

5. Press **LOCK** to set the new lock level. Watch the display to verify that the correct lock level is being entered. If you do not see this message, the lock level has not changed. Repeat the above steps.

Lock Level
LL0
<Changing...>


NOTE: To check the lock level, press **LOCK**. The current lock level will appear. To return to the screen you were on, press **NEXT**.


Section 1: General Description

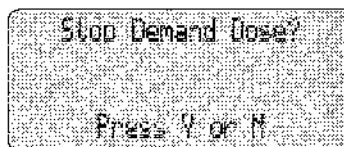
Stopping the Pump


When the pump is stopped, no delivery occurs. "STOPPED" appears on the main screen and the amber indicator light blinks.

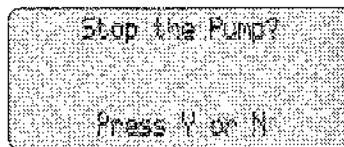
To stop the pump

1. Press .

If a Demand Dose or Clinician Bolus is in progress, "Stop Demand Dose?" or "Stop Clinician Bolus?" will appear. Press  to stop the dose.




2. When "Stop the Pump?" appears, press .

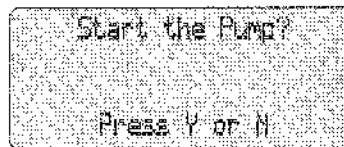



Starting the Pump

When you start the pump, programmed values will be automatically reviewed. Then fluid delivery will begin as programmed and the green indicator light will blink. If the pump will not start, a message will appear on the display. Refer to the Messages and Alarms Table in Section 7.

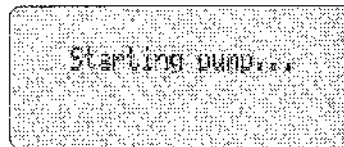
To start the pump

1. Press . "Start the Pump?" will appear.

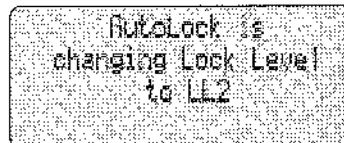


2. Press . "Starting Pump" will appear.

The pump will review the program, lock level, AutoLock setting, Air Detector status, time, and date.



If AutoLock is in use, "AutoLock is changing lock level to (LL1 or LL2)" will appear.



Section 2: Pump Setup and Programming

PCA Delivery Mode

PCA Programming Screens	20
PCA Programming Example	24
PCA: Programming with Upper Limits, Adjusting Doses in Lock Level 1	29
PCA: Starting a Clinician Bolus	30
PCA: Starting a Demand Dose	31
PCA: Stopping a Demand Dose or Clinician Bolus	32

Continuous Delivery Mode

Continuous Programming Screens	33
Continuous Programming Example	35
CONTIN: Programming with Upper Limits, Adjusting Rate in Lock Level 1	37

TPN Delivery Mode

TPN Programming Screens	38
TPN Programming Example	41
TPN: Starting Daily Infusion	44

Intermittent Delivery Mode

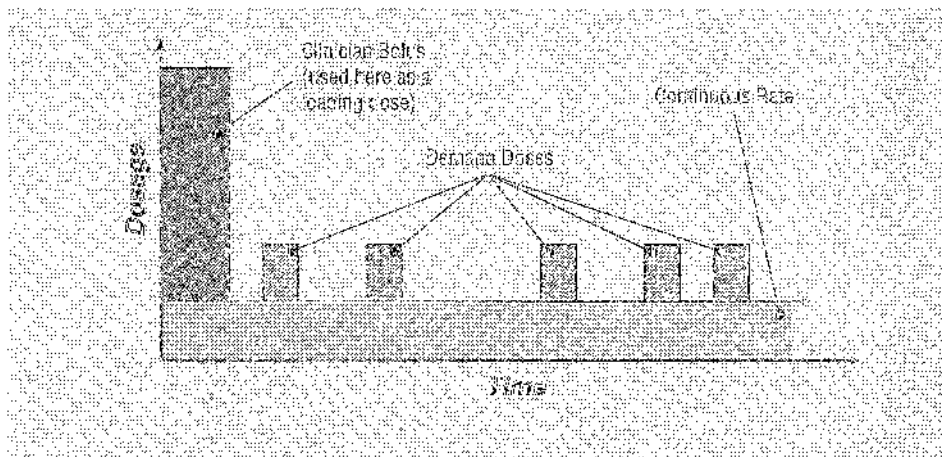
Intermittent Programming Screens	45
Intermittent Programming Example	48
INTERMT: Stopping the Pump During the Cycle	51

PCA Programming Screens

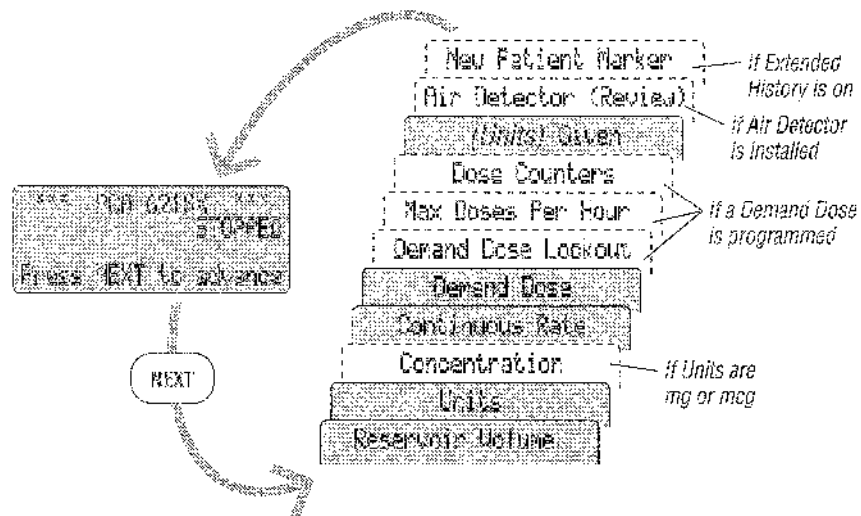
The PCA delivery mode provides the following methods of delivery:

- Continuous Rate
- Demand Dose, activated by the patient
- Clinician Bolus, a loading dose activated by the clinician.

You may program a Continuous Rate, a Demand Dose, or both. The Clinician Bolus is described later in this section.



The following figure shows the programming screens in the PCA delivery mode:



Reservoir Volume

Enter the volume of fluid contained in a filled reservoir. The Reservoir Volume value decreases as the pump delivers fluid or you use the priming feature. When you change the reservoir and reset the Reservoir Volume, the value resets to the value entered on this screen. If you do not wish to use the Reservoir Volume feature, scroll down to "Not In Use" (located before 1 and after 9999 in the range of values).

Units

Enter the programming units. Possible settings are milliliters and milligrams. Micrograms will also be one of the choices if the Micrograms setting in the Biomed Toolbox is "On." When you change the Units, the pump requires you to enter or verify the Continuous Rate and Demand Dose. If the units are mg or mcg, you must also enter the Concentration. Changing the Units clears the amount Given and the Extended History.

Concentration

If Units are mg or mcg, enter the concentration of drug in mg/ml or mcg/ml. When you enter a new Concentration, the pump requires you to enter a new Continuous Rate and Demand Dose.

Continuous Rate

Enter the continuous rate of medication delivery (in mg/hr, ml/hr, or mcg/hr, depending on the Units). The maximum rate is 30 ml/hr or the mg or mcg equivalent. If the prescription does not call for a Continuous Rate, enter zero.

NOTE: If you intend to run the pump in Lock Level 1 so the Continuous Rate can be varied, you should enter the maximum allowable rate while programming in Lock Level 0. After programming, you may then change to Lock Level 1 and decrease the rate to its starting value. See Programming with Upper Limits, Adjusting Doses in LL1 at the end of Section 2.

Demand Dose

Enter the amount of drug to be delivered when the patient presses the **DOSE** key (or the Remote Dose Cord button if attached). If the prescription does not call for a Demand Dose, enter zero.

NOTE: If you intend to run the pump in Lock Level 1 so the Demand Dose can be varied, you should enter the maximum allowable dose while programming in Lock Level 0. After programming, you may then change to Lock Level 1 and decrease the dose to its starting value. See Programming with Upper Limits, Adjusting Doses in LL1 at the end of Section 2.

Demand Dose Lockout

If you programmed a Demand Dose, enter the minimum amount of time that must elapse between the time one Demand Dose starts and the time the next Demand Dose starts. This lockout period is unaffected by removal of the battery or stopping of the pump.

Max Doses Per Hour

If you programmed a Demand Dose, enter the maximum number of Demand Doses allowed in any one-hour period. The possible values may be limited by the Demand Dose Lockout time you entered. If the Demand Dose Lockout is one hour or greater, this screen will not appear. The actual lockout time will be determined by either the Demand Dose Lockout or the Max Doses Per Hour, whichever is more restrictive. The Max Doses Per Hour limit is unaffected by removal of the battery or stopping of the pump.

NOTE: The number shown on this screen may be outside of the range; this can happen when the Demand Dose Lockout time is changed but the Max Doses Per Hour number is not adjusted. If you scroll through the numbers, only numbers within the range will appear.

Dose Counters

This screen appears if you programmed a Demand Dose. It shows the number of Demand Doses given and attempted since the date and time indicated, which is the last time they were cleared. (If the counters reach 999, they automatically return to zero and continue counting.)

Even if these counters show zeroes, you should clear this screen during programming to update the time and date markers.

- **Given** shows the number of Demand Doses actually delivered to the patient, including doses stopped in progress.
- **Attempt** shows the total number of Demand Doses attempted by the patient while the pump was running, including doses that were delivered, locked out, and stopped in progress.

(Units) Given

This screen shows the total amount of drug delivered since the time and date indicated, which is the last time this value was cleared. The amount shown is rounded to the nearest 0.01 mg, ml, or mcg. (If this value reaches 99999.99, it automatically returns to 0 and continues counting. For concentrations of 0.5, 0.4, 0.3, 0.2 and 0.1 mg/ml, the value changes at 49999.99, 39999.99, 29999.99, 19999.99, and 9999.99 mg respectively.) The Given amount does not include drug delivered with the priming feature. Even if this screen shows zero, you should clear this screen during programming to update the time and date markers.

Air Detector Status

This screen appears only if an Air Detector is attached to the pump. It indicates whether the Air Detector is required, turned on, or turned off.

New Patient Marker

This screen appears only if the Extended History is "On" in the Biomed Toolbox. When you add a New Patient Marker, an event is added to the Event Log to indicate the pump was programmed for a new patient, and any previous information contained in the Extended History is cleared.

Options Specific to the PCA Delivery Mode

The Extended History option is available in the PCA delivery mode, which allows you to view dosing information either during a specified time period or hour by hour (see Section 4, Options).

PCA Programming Example

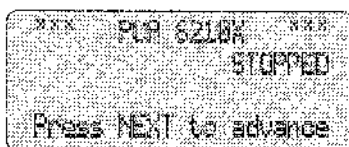
Medication is provided in a 100 ml reservoir at a concentration of 1.0 mg/ml. The patient should receive medication continuously at 5.0 mg/hr. Patient-activated doses of 2.5 mg are allowed, with a 1.5 minute lockout time between doses, and a maximum of 2 doses per hour.

Before programming:

- Stop the pump and change the Lock Level to LLO as described in Section 1.
- Select the PCA delivery mode as described in Changing Delivery Modes in Section 4. If the pump is already in the PCA delivery mode, you may select it again to clear all programming screens to their default settings.

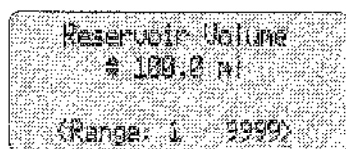
For a full description of each programming screen, see the preceding pages.

1. Begin at the main screen



- Make sure the pump is in LLO.
- Make sure PCA and STOPPED appear on the main screen.
- Press **NEXT** to begin.

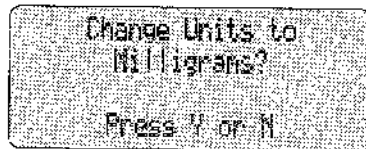
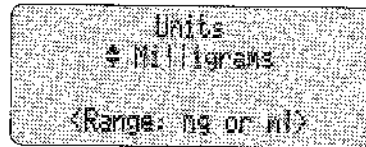
2. Enter the Reservoir Volume



- Press **▲** or **▼** to select the volume of a filled reservoir. (If you do not wish to use the Reservoir Volume feature, scroll down to "Not In Use" located before 1.)
- Press **ENTER**.

3. Enter the Units

To accept the current programming Units, press **NEXT**.



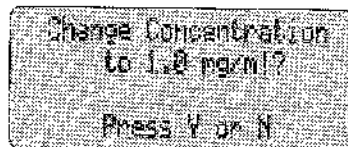
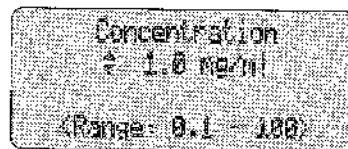
Or, to change the units:

- Press **▲** or **▼** to select the desired programming units.
- Press **ENTER**.
- Press **▲** to confirm the change.

NOTE: If the prescription calls for milliliters, enter Milliliters and skip to step 5.

4. Enter the Concentration of the drug

This screen will not appear if the units are milliliters; go to step 5.



- Press **▲** or **▼** to select the desired concentration. (If you cannot select the desired concentration, it may have been turned off in the Biomed Toolbox)




- Press **ENTER**.
- Press **▲** to confirm the change.



NOTE: If you change the Concentration, you *must* enter the Continuous Rate and Demand Dose.

Section 2: Pump Setup and Programming

5. Enter the hourly Continuous Rate




Continuous Rate
* 5.00 mg/hr
<Range: 0 - 30.00>



- Press  or  to select the desired rate.
- Press .

NOTE: If “Change Rate to...?” appears, you must confirm the rate because the Units or Concentration was changed, or the rate is greater than or equal to 100 mg/hr or mcg/hr. Press  to confirm, or press  and re-enter the rate.

6. Enter the Demand Dose amount

Demand Dose
* 2.50 mg
<Range: 0 - 9.90>




- Press  or  to select the desired amount.
- Press .

NOTE: If “Change Demand Dose to...?” appears, you must confirm the dose because the Units or Concentration was changed, or the dose is greater than or equal to 100 mg or mcg. Press  to confirm, or press  and re-enter the dose.

7. Enter the Demand Dose Lockout time

If Demand Dose is zero, this screen will not appear; go to step 10.

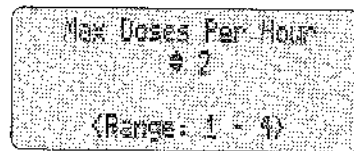
Demand Dose Lockout
* 15 min
<Range: 5 min-24 hr>

- Press  or  to select the desired lockout time between doses.
- Press .

CAUTION: When you enter a new value, any lockout time in effect will be cleared. A Demand Dose could be requested immediately upon starting the pump.

8. Enter the Max Doses Per Hour

If Demand Dose is zero or the Lockout is one hour or greater, this screen will not appear; go to step 10.



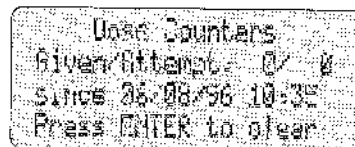
NOTE: The number shown on this screen may be outside of the range; this can happen when the Demand Dose Lockout time is changed but the Max Doses Per Hour number is not adjusted. If you scroll through the numbers, only numbers within the range will appear.

- * Press or to select the maximum number of doses per hour.
- * Press **ENTER**.

CAUTION: When you enter a new value, any lockout time in effect will be cleared. A Demand Dose could be requested immediately upon starting the pump.

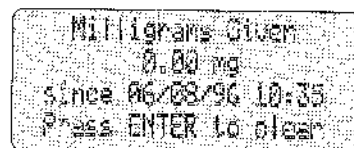
9. Clear the Dose Counters

If Demand Dose is zero, this screen will not appear; go to step 10.



- * Press **ENTER** if you wish to clear the counters; even if the counters are zero, this updates the time and date markers.

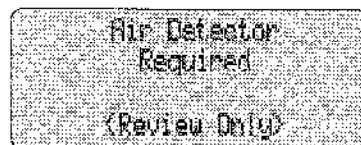
10. Clear the units Given



- * Press **ENTER** if you wish to clear the amount given; even if the amount is zero, this updates the time and date markers.

11. Verify the Air Detector status

This screen will appear only if an Air Detector is installed.

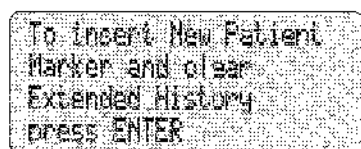


- Make sure the setting is correct. **NOTE:** If the Air Detector is not required, this screen will show whether it is turned on or off.
- Press **(NEXT)** to continue. If you need to correct the Air Detector setting, see Section 4, Options.

12. Enter a New Patient Marker (optional)

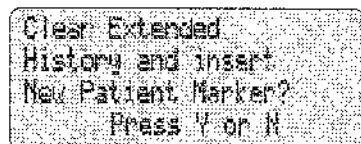
This screen will appear only if the Extended History is on.

If you do not wish to add a New Patient Marker, press **(NEXT)**.



If you wish to add a New Patient Marker to the Event Log,

- Press **(ENTER)**.



- Press **▲**. This will clear the Extended History from the last patient and add a marker to the Event Log. The main screen will reappear.

13. Review the program

Press **(NEXT)** repeatedly to review the programming screens. If you need to reprogram a setting, press **(NEXT)** until the appropriate screen appears and change the setting as described in this section.

14. Prepare the Pump for the Patient

Follow the instructions for attaching a reservoir or administration set, priming, changing the lock level, and attaching the pump to the patient (Section 3).

PCA: Programming with Upper Limits, Adjusting Doses in Lock Level 1

If a prescription allows for the Continuous Rate or Demand Dose to be adjusted during the course of therapy, you may wish to operate the pump in LL1. Then, when necessary, you can adjust the Continuous Rate or the Demand Dose values up to the maximum value that was programmed in LL0.

Programming the pump to use this feature

The following example shows how to set an upper Demand Dose limit of 5.00 mg with a starting value of 2.50 mg. The same procedure is used to set an upper limit and starting value on the Continuous Rate screen.

1. During initial programming in LL0, enter the upper limit values for the Continuous Rate and/or Demand Dose. (These will be the maximum values when the pump is in LL1.)

Demand Dose
= 5.00 mg
(Range: 0 - 9.99)

2. After you are finished programming, change the lock level to LL1.
3. Decrease the Continuous Rate or Demand Dose to its starting value, then press **ENTER**. "Range: Limited" indicates you cannot increase the value beyond the maximum programmed in LL0.

Demand Dose
= 2.50 mg
(Range: Limited)

Adjusting the rate or dose while the pump is in use

If it becomes necessary to increase the Continuous Rate or Demand Dose during the course of therapy, stop the pump but *remain in LL1*.

1. Press **NEXT** until the Continuous Rate or Demand Dose screen appears.
2. Press **▲** or **▼** to select the desired value, then press **ENTER**. "Range: Limited" indicates you cannot increase the value beyond the maximum.
3. Restart the pump if appropriate.

Demand Dose
= 3.00 mg
(Range: Limited)

PCA: Starting a Clinician Bolus

A Clinician Bolus may be delivered in any lock level while the pump is running. It allows you to deliver a specified amount of drug, as a loading dose for example. Lockout settings have no affect on Clinician Bolus frequency. However, a Clinician Bolus cannot be started while a Demand Dose is in progress. The amount delivered decreases the Reservoir Volume and increases the Given amount, but does not add to the Dose Counters. A Clinician Bolus may be stopped in progress.

WARNING: Exercise extreme care when using this function. Since there are no limits on the frequency of delivering a bolus, and since the amount of the bolus can be set as high as 20 ml (or the mg or mcg equivalent), you should not permit the patient to become familiar with the procedure for giving a Clinician Bolus.

To start a Clinician Bolus

1. Make sure the pump is running (in any lock level). Start the pump if necessary.
2. Press **LOCK**.
3. Press **▼** until the Clinician Bolus Code "997" appears on the display.
4. Press **LOCK** again.

Clinician Bolus Code
997

WARNING: To prevent the patient from accessing the Clinician Bolus function, do not let the patient know this code.

5. Press **▲** or **▼** to select the desired amount.
6. Press **ENTER** or **DOSE**.

Clinician Bolus
+ 10.00 mg

Range <0 - 20.00>

NOTE: If you enter a value of 100, a screen will appear asking you to confirm the value. Press **▲** to confirm, or **▼** to re-enter the value

7. The screen will show the amount decreasing as the bolus is delivered.

Clinician Bolus
10.00 mg

<Delivering...>

PCA: Starting a Demand Dose

If a Demand Dose has been programmed, the patient may start a Demand Dose while the pump is running. The amount delivered is added to the amount provided by the Continuous Rate. Each time the patient requests a Demand Dose, the pump will automatically add it to the Dose Counters screen. If no Demand Dose has been programmed, the pump will display the message "Dose not delivered, No Dose programmed."

If the patient attempts to deliver a Demand Dose during the lockout time, "Dose Not Delivered, Dose Locked Out" will appear on the display and the pump will not deliver the dose. The lockout time is determined by the Demand Dose Lockout time or the Max Doses Per Hour, *whichever limits dose frequency more*. The attempt will be added to the "Attempts" counter on the Dose Counters screen.

NOTES:

- A Demand Dose cannot be started while another Demand Dose or a Clinician Bolus is in progress.
- Even if the display has automatically blanked, pressing the **DOSE** key will turn the display back on and deliver a Demand Dose (if available).

To start a Demand Dose

1. Make sure the pump is running (in any lock level). Start the pump if necessary.
2. Press **DOSE** (or the button on the Remote Dose Cord, if attached). Two beeps will sound and the pump will begin delivering the Demand Dose.

As the Demand Dose is delivered, the main screen will show "DOSING" in place of "RUNNING."


Demand Dose
Started
NEXT to continue

*** PCH 6210X ***
Low Battery DOSING
Res Vol 47.0 ml
Press NEXT to advance

PCA: Stopping a Demand Dose or Clinician Bolus


A Demand Dose or Clinician Bolus can be stopped in progress. The pump may be in any lock level. A Demand Dose that has been stopped will remain recorded on the Dose Counter screen under "Given/Attempt."

To stop a dose while the pump is running



1. Press .
One beep will sound and the message "Stop Demand Dose?" or "Stop Clinician Bolus?" will appear.

Stop Demand Dose?

Press Y or N

2. Press  to stop the dose and to cancel the remainder of the dose.
"Demand Dose Stopped" or "Clinician Bolus Stopped" will appear.

Demand Dose
Stopped

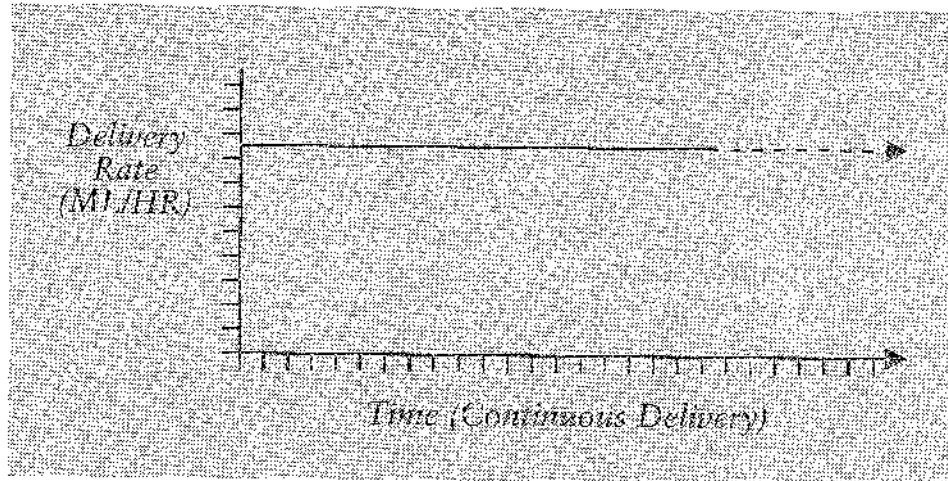
3. When "Stop the Pump?" appears,
 - press  to remain running, or
 - press  to stop the pump.

Stop the Pump?

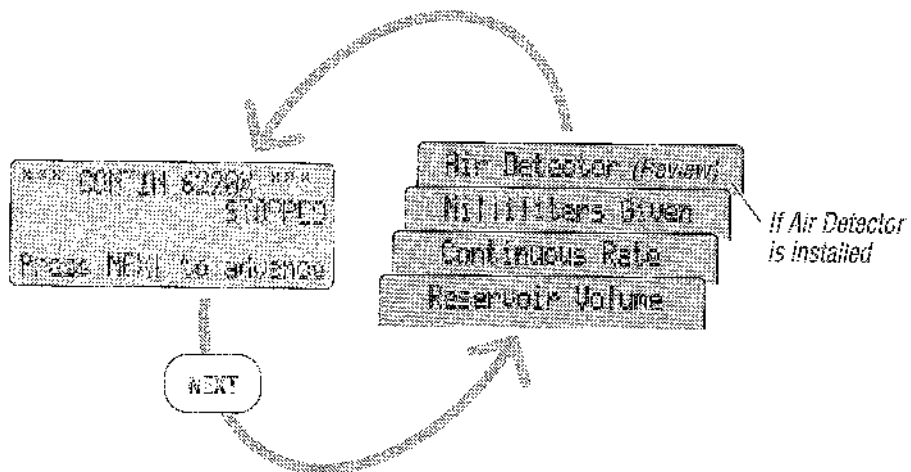
Press Y or N

Continuous Programming Screens

The Continuous delivery mode provides a continuous rate of delivery in milliliters per hour.



The following figure shows the programming screens in the Continuous delivery mode:



Section 2: Pump Setup and Programming

Reservoir Volume

Enter the volume of fluid contained in a filled reservoir. The Reservoir Volume value decreases as the pump delivers fluid or you use the priming feature. When you change the reservoir and reset the Reservoir Volume, the value resets to the value entered on this screen. If you do not wish to use the Reservoir Volume feature, select "Not In Use" (located before 1 and after 9999 in the range of values).

Continuous Rate

Enter the continuous rate of medication delivery in ml/hr. The maximum rate is 350 ml/hr.

Rates above 125 ml/hr require a CADD-Prizm High Volume Administration Set. Rates above 250 ml/hr also require an AC Adapter or a Power Pack.

NOTE: If you intend to run the pump in Lock Level 1 so the Continuous Rate can be varied, you should enter the maximum allowable rate. After programming, you may then decrease the rate to its starting value. See Programming with Upper Limits, Adjusting Doses in LL1 at the end of Section 2.

Milliliters Given

This screen shows the total amount of drug delivered since the time and date indicated, which is the last time this value was cleared. The amount shown is rounded to the nearest 0.1 ml. (If this value reaches 99999.9, it automatically returns to 0 and continues counting.)

The Given amount does not include drug delivered with the priming feature. Even if this screen shows zero, you should clear this screen during programming to update the time and date markers.

Air Detector Status

This screen appears only if an Air Detector is attached to the pump. It indicates whether the Air Detector is required, turned on, or turned off.

Continuous Programming Example

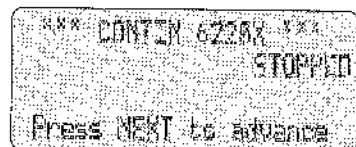
Medication is provided in a 100 ml reservoir. The patient should receive medication continuously at 0.5 ml/hr.

Before programming:

- Stop the pump and change the Lock Level to LL0 as described in Section 1.
- Select the Continuous (CONTIN) delivery mode as described in Changing Delivery Modes in Section 4. If the pump is already in the CONTIN delivery mode, you may select it again to clear all programming screens to their default settings.

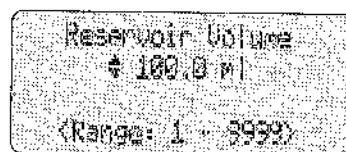
For a full description of each programming screen, see the precoding pages.

1. Begin at the main screen



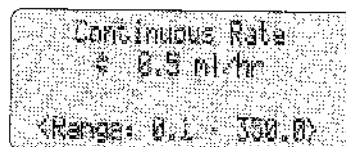
- Make sure the pump is in LL0.
- Make sure CONTIN and STOPPED appear on the main screen.
- Press **NEXT** to begin.

2. Enter the Reservoir Volume



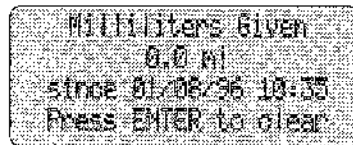
- Press **▲** or **▼** to select the volume of a filled reservoir. (If you do not wish to use the Reservoir Volume feature, scroll down to "Not In Use" located before 1.)
- Press **ENTER**.

3. Enter the hourly Continuous Rate



- Press **▲** or **▼** to select the desired rate.
- Press **ENTER**.

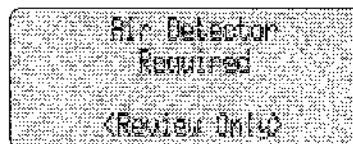
4. Clear the Milliliters Given



- Press **ENTER** if you wish to clear the milliliters given; even if the amount is zero, this updates the time and date markers.

5. Verify the Air Detector status

This screen will appear only if an Air Detector is installed.



- Make sure the setting is correct. **NOTE:** If the Air Detector is not required, this screen will show whether it is turned on or off.
- Press **NEXT** to continue. If you need to correct the Air Detector setting, see Section 4, Options.

6. Review the program

Press **NEXT** repeatedly to review the programming screens. If you need to reprogram a setting, press **NEXT** until the appropriate screen appears and change the setting as described in this section.

7. Prepare the Pump for the Patient

Follow the instructions for attaching a reservoir or administration set, priming, changing the lock level, and attaching the pump to the patient (Section 3).

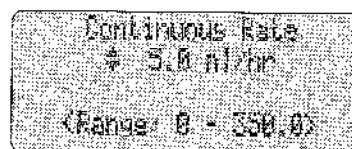
CONTIN: Programming with Upper Limits, Adjusting Rate in Lock Level 1

If a prescription allows for the Continuous Rate to be adjusted during the course of therapy, you may wish to operate the pump in LL1. Then, when necessary, you can adjust the Continuous Rate up to the maximum value that was programmed in LL0.

Programming the pump to use this feature

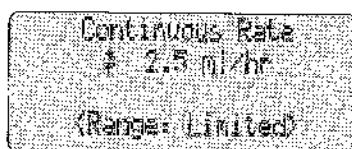
The following example shows how to set an upper Continuous Rate limit of 5.0 ml/hr with a starting value of 2.5 ml/hr.

1. During initial programming in LL0, enter the upper limit value for the Continuous Rate. (This will be the maximum value when the pump is in LL1.)



Continuous Rate
5.0 ml/hr
(Range: 0 - 350.0)

2. After you are finished programming, change the lock level to LL1.
3. Decrease the Continuous Rate to its starting value. "Range: Limited" indicates you cannot increase the value beyond the maximum programmed in LL0.

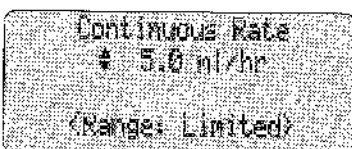


Continuous Rate
2.5 ml/hr
(Range: Limited)

Adjusting the rate while the pump is in use

If it becomes necessary to increase the Continuous Rate during the course of therapy, stop the pump but *remain in LL1*.

1. Press **(NEXT)** until the Continuous Rate screen appears.
2. Press **▲** or **▼** to select the desired value, then press **(ENTER)**. "Range: Limited" indicates you cannot increase the value beyond the maximum.
3. Restart the pump if appropriate.

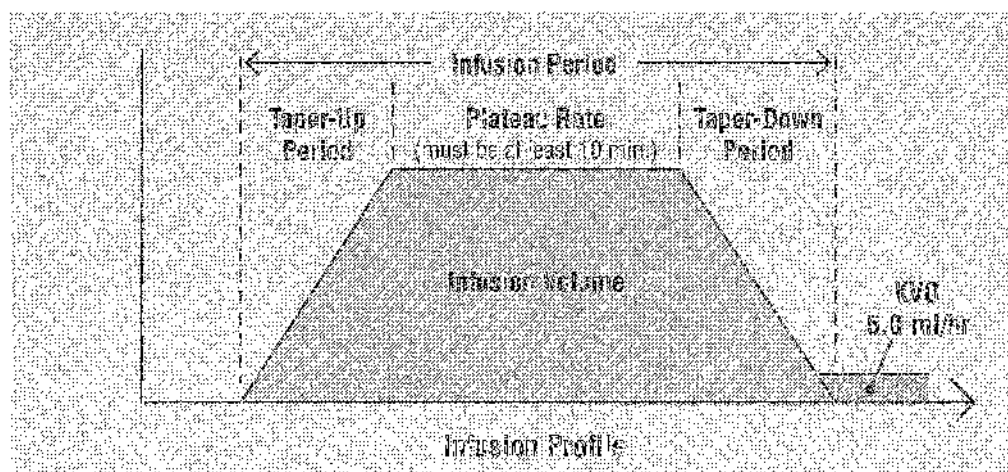


Continuous Rate
5.0 ml/hr
(Range: Limited)

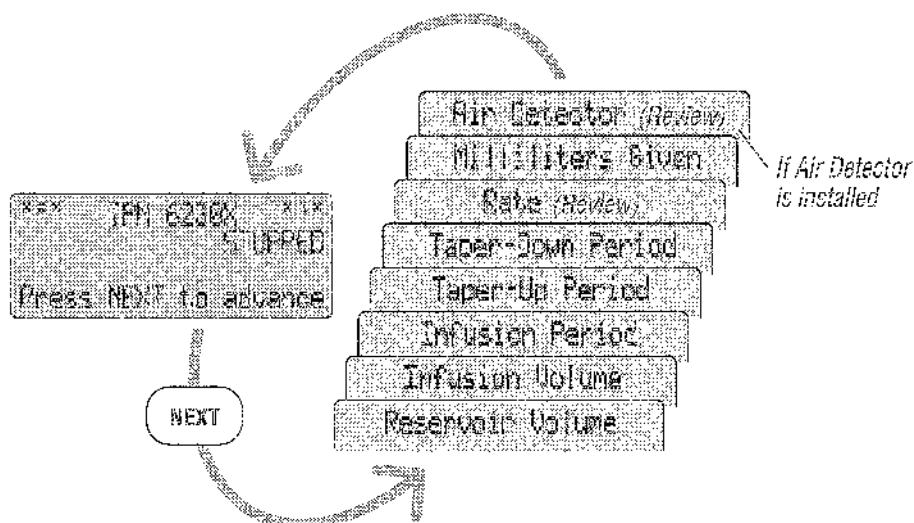
Section 2: Pump Setup and Programming

TPN Programming Screens

The TPN delivery mode allows the high volume delivery of solutions, with optional tapering. Delivery can be gradually increased or “tapered up” at the beginning of the infusion profile, or it can be gradually decreased, or “tapered down” at the end of the infusion profile. An automatic Keep Vein Open (KVO) rate is delivered at the end of the infusion profile.



The following figure shows the programming screens in the TPN delivery mode:



Reservoir Volume

Enter the volume of fluid contained in a filled reservoir. The Reservoir Volume value decreases as the pump delivers fluid or you use the priming feature. When you change the reservoir and reset the Reservoir Volume, the value resets to the value entered on this screen and the infusion profile is reset. The Reservoir Volume cannot be set to less than the programmed Infusion Volume. If you do not wish to use the Reservoir Volume feature, select "Not In Use" (located before 10.0 and after 9990 in the range of values).

Infusion Volume

Enter the total volume of fluid to be delivered. The maximum is 9990 ml. The pump calculates the Plateau Rate based on the Infusion Volume, the existing Infusion Period, and the existing Taper values. If you enter a volume that would cause the Plateau Rate to be greater than the maximum rate of 350 ml/hr or less than the minimum of 10 ml/hr, the pump will automatically lengthen or shorten the Infusion Period and may change the Taper values to accommodate the new volume. A message will appear to show that the pump is adjusting the value. You will then need to confirm the new Infusion Period or enter a different Infusion Period. Entering a new Infusion Volume resets the infusion profile so delivery will start at the beginning of the infusion period.

Infusion Period

Enter the duration for delivery of the Infusion Volume, up to 99 hours 50 minutes. The pump will automatically calculate the rate necessary to deliver the Infusion Volume you entered. You will not be able to select an Infusion Period that would cause the rate of delivery to be greater than 350 ml/hr or less than 10 ml/hr. In addition, the Infusion Period cannot be shorter than the taper periods plus 10 minutes. Entering a new Infusion Period resets the infusion profile so delivery will start at the beginning of the infusion period.

Taper-Up Period

Enter the length of time for the Taper-Up Period, up to 99 hours 40 minutes. The Taper-Up Period becomes part of the overall Infusion Period you entered. If you enter a Taper-Up Period that would cause the Plateau Rate to be greater than the maximum rate or less than the minimum rate, the pump will automatically lengthen or shorten the Infusion Period to accommodate the new Taper-Up Period. A message will appear to show that the pump is adjusting the value. You will then

Taper-Down Period

Rate Display

Mills's Given

Air Detector Status

Options Specific to the TPA Delivery Mode

40

TPN Programming Example

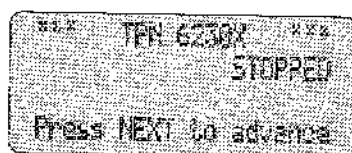
A total of 1 liter of TPN solution must be delivered to the patient over 10 hours. Delivery should taper up over 1 hour 30 minutes at the beginning of delivery and down over 1 hour 30 minutes at the end of delivery.

Before programming:

- Stop the pump and change the Lock Level to LL0 as described in Section 1.
- Select the TPN delivery mode as described in Changing Delivery Modes in Section 4. If the pump is already in the TPN delivery mode, you may select it again to clear all programming screens to their default settings.

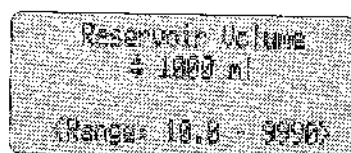
For a full description of each programming screen, see the preceding pages.

1. Begin at the main screen



- Make sure the pump is in LL0.
- Make sure TPN and STOPPED appear on the main screen.
- Press **(NEXT)** to begin.

2. Enter the Reservoir Volume






- Press **▲** or **▼** to select the volume of a filled reservoir. (If you do not wish to use the Reservoir Volume feature, scroll down to "Not In Use" located before 10.0.)
- Press **(ENTER)**.

3. Enter the Infusion Volume

When this screen is first displayed, the third line may show the volume left from the last infusion period. As soon as you begin scrolling to a new Infusion Volume, it will disappear.




Infusion Volume
1000.0 ml total
<Range: 10 - 9990>

- Press  or  to select the desired volume.
- Press .

4. Enter the Infusion Period




When this screen is first displayed, the third line may show the amount of time left from the last infusion period. As soon as you begin scrolling to a new Infusion Period, it will disappear.

Infusion Period
10 hrs 00 min
<Range: 3:00-99:50>

- Press  or  to select the desired Infusion Period.
- Press .




5. Enter the Taper-Up Period

Taper-Up Period
1 hrs 30 min
<Range: 0:00- 9:50>

- Press  or  to select the desired Taper-Up Period.
- Press .

6. Enter the Taper-Down Period

Taper-Down Period
1 hrs 30 min
<Range: 00:00- 3:20>

- Press  or  to select the desired Taper-Down Period.
- Press .

7. View the Calculated Rate

Plateau Rate
117.6 ml/hr
KVO Rate 5.8 ml/hr
(Review Only)

- Both the Plateau Rate and the KVO Rate will be displayed. Press **(NEXT)** to continue.

8. Clear the Milliliters Given

Milliliters Given
8.9 ml
since 01/09/98 10:35
Press ENTER to clear

- Press **(ENTER)** if you wish to clear the amount given; even if the amount is zero, this updates the time and date markers.

9. Verify the Air Detector status

This screen will appear only if an Air Detector is installed.

Air Detector
Required
(Review Only)

- Make sure the setting is correct. NOTE: If the Air Detector is not required, this screen will show whether it is turned on or off.
- Press **(NEXT)** to continue. If you need to correct the Air Detector setting, see Section 4, Options.

10. Review the program

Press **(NEXT)** repeatedly to review the programming screens. If you need to reprogram a setting, press **(NEXT)** until the appropriate screen appears and change the setting as described in this section.

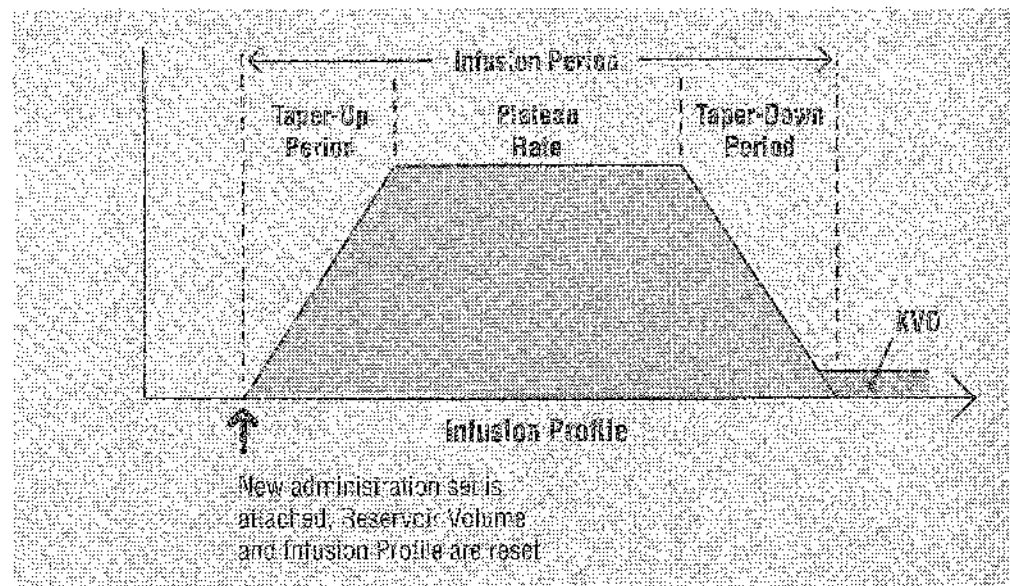
11. Prepare the Pump for the Patient

Follow the instructions for attaching a reservoir or administration set, priming, changing the lock level, and attaching the pump to the patient (Section 3).

TPN: Starting Daily Infusion

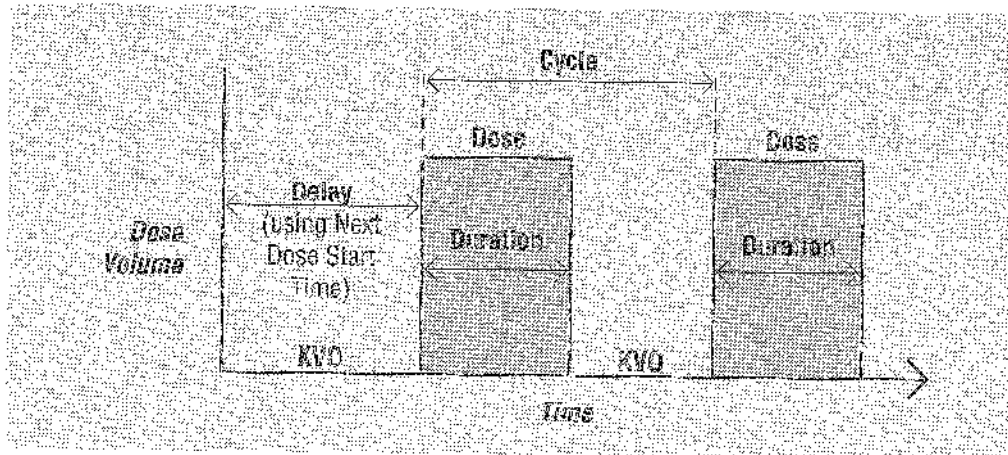
When a new administration set is attached to the pump at the beginning of infusion, the Reservoir Volume should be reset. This will also reset the infusion profile. To do this, follow the instructions in Section 3 for attaching an administration set and answering yes to "Reset Reservoir Volume to —?" Then when you start the pump, delivery will begin at the start of the infusion period (illustrated below).

NOTE: Whenever the Reservoir Volume is reset, the infusion profile is also reset so the infusion will start at the beginning.

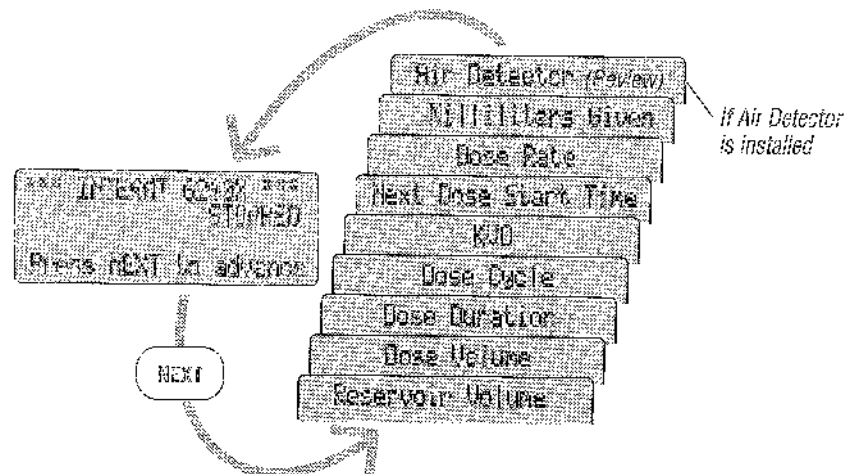


Intermittent Programming Screens

The Intermittent delivery mode delivers a specified dose volume over a specified duration. You may repeat the dose in a cycle of up to 96 hours. The KVO feature allows you to deliver a minimal amount of drug between doses to maintain catheter patency. You may also delay the start of delivery using The Next Dose Start Time feature.



The following figure shows the programming screens in the Intermittent delivery mode:



Section 2: Pump Setup and Programming

Reservoir Volume

Enter the volume of fluid contained in a filled reservoir. The Reservoir Volume value decreases as the pump delivers fluid or you use the priming feature. When you change the reservoir and reset the Reservoir Volume, the value resets to the value entered on this screen. If you do not wish to use the Reservoir Volume feature, select "Not In Use" (located before 1 and after 9999 in the range of values).

Dose Volume

Enter the volume of the dose in milliliters. The maximum volume is 1000 ml. Entering a Dose Volume will automatically reset the cycle and set the Next Dose Start Time to "Immediate." If you enter a Dose Volume that would cause the rate to be greater than the maximum rate of 350 ml/hr, the pump will automatically lengthen the Dose Duration to accommodate the new volume. You will then need to confirm the new Dose Duration or enter a different duration. The cycle may also be affected if the Dose Duration is lengthened; in this case, you would also need to confirm the new Dose Cycle or enter a different Dose Cycle.

Dose Duration

Enter the duration for delivery of the dose, up to 24 hours. You will not be able to select a duration that would cause the rate of delivery of the programmed Dose Volume to exceed 350 ml/hr. Entering a Dose Duration will automatically reset the Dose Cycle and set the Next Dose Start Time to "Immediate." Rates above 125 ml/hr require a CADD-Prizm High Volume Administration Set. Rates above 250 ml/hr also require an AC Adapter or a Power Pack.

Dose Cycle

The cycle is the time from the start of one dose to the start of the next dose. The programmable values for cycle are based on the Dose Duration. There must be at least 5 minutes between the end of one dose and the start of the next; therefore, the minimum programmable cycle is the Dose Duration plus 5 minutes. The maximum cycle is 96 hours. Entering a cycle automatically sets the Next Dose Start Time to "Immediate."

KVO Rate

The KVO or "Keep Vein Open" rate is optional. It allows the delivery of a minimal amount of drug up to 10 ml/hr to help maintain catheter

patency. If a Next Dose Start Time is programmed, the KVO rate is active during the initial delay. The KVO rate is also active between doses.

Next Dose Start Time

The Next Dose Start Time is optional. It allows you to delay the start of delivery up to four days by allowing you to select the date and time at which the first dose should begin. The pump must be running at the selected date and time in order for delivery to begin. If a delayed start is not desired, program the Next Dose Start Time to "Immediate" so that delivery will begin as soon as you start the pump.

A Next Dose Start Time can be programmed in Lock Level 0 at any time to delay the start of the next dose, but if a dose is in progress, this will cancel the remainder of the dose. NOTE: During dosing, this screen will show "In Progress." If a dose is stopped in progress, this screen will show "Interrupted."

Dose Rate

This screen is for review only. It shows the rate at which the dose will be delivered based on the programmed Dose Volume and Dose Duration.

Milliliters Given

This screen shows the total amount of drug delivered since the time and date indicated, which is the last time this value was cleared. The amount shown is rounded to the nearest 0.1 ml (If this value reaches 99999, it automatically returns to 0 and continues counting.) The Given amount does not include drug delivered with the priming feature. Even if this screen shows zero, you should clear this screen during programming to update the time and date markers.

Air Detector Status

This screen appears only if an Air Detector is attached to the pump. It indicates whether the Air Detector is required, turned on, or turned off.

Options Specific to the Intermittent Delivery Mode

While a dose is being delivered, you can use the Time Remaining option to view the amount of time remaining in both the dose and the current cycle (see Section 4, Options).

Intermittent Programming Example

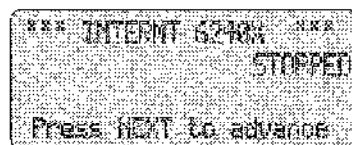
Medication is provided in a 100 ml reservoir. The patient should receive 50.0 ml dose over 1 hour. The dose should be given every 6 hours, with a 0.2 ml/hr KVO rate between doses. The first dose should begin at 8:00 PM tonight.

Before programming:

- Stop the pump and change the Lock Level to LL0 as described in Section 1.
- Select the Intermittent (INTERMT) delivery mode as described in Changing Delivery Modes in Section 4. If the pump is already in the INTERMT delivery mode, you may select it again to clear all programming screens to their default settings.

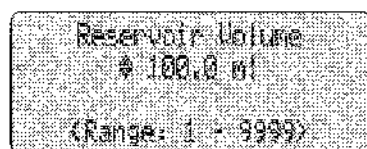
For a full description of each programming screen, see the preceding pages.

1. Begin at the main screen



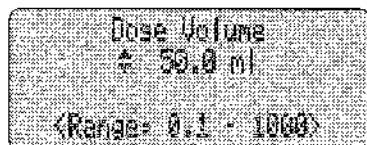
- Make sure the pump is in LL0.
- Make sure INTERMT and STOPPED appear on the main screen.
- Press **NEXT** to begin.

2. Enter the Reservoir Volume



- Press **▲** or **▼** to select the volume of a filled reservoir. (If you do not wish to use the Reservoir Volume feature, scroll down to "Not In Use" located before 1.)
- Press **ENTER**.

3. Enter the Dose Volume



- Press **▲** or **▼** to select the desired volume.
- Press **ENTER**.

4. Enter the Dose Duration

Dose Duration
* 1 hrs 00 min
<Range: 00-09-24:00>

- Press ▲ or ▼ to select the desired duration.
- Press **ENTER**.

5. Enter the Dose Cycle

Dose Cycle
* 6 hrs 00 min
<Range: 01-05-96-00>

- Press ▲ or ▼ to select the desired cycle.
- Press **ENTER**.

6. Enter the KVO Rate

KVO Rate
* 5.2 ml/hr
<Range: 0.0 - 16>

- Press ▲ or ▼ to select the desired KVO rate.
- Press **ENTER**.

7. Enter the Next Dose Start Time

Next Dose Start Time
* 20:00 2/21/96
<Range: See Help>

- Press ▲ or ▼ to select the desired dose start time and date (or "Immediate").
- Press **ENTER**.

Start next dose in
3 hrs 27 min on
2/21/96 at 20:00?
Press Y or N

- Verify the start time shown on the screen and press ▲ if correct. If you need to re-enter the start time and date, press ▼.

8. Verify the Dose Rate

Dose Rate
50.0 ml/hr
<Review Only>

- The pump automatically calculates the rate of dose delivery based on the volume and duration you entered. This screen is for review only; press **NEXT** to continue. (If the rate is 125 ml/hr or greater, a CADD-Prizm High Volume Administration Set must be used.)

9. Clear the Milliliters Given

Milliliters Given
0.0 ml
since 01/03/96 10:35
Press ENTER to clear

- Press **ENTER** if you wish to clear the amount given; even if the amount is zero, this updates the time and date markers.

10. Verify the Air Detector status

This screen will appear only if an Air Detector is installed.

Air Detector
Required
<Review Only>

- Make sure the setting is correct. NOTE: If the Air Detector is not required, this screen will show whether it is turned on or off.
- Press **NEXT** to continue. If you need to correct the Air Detector setting, see Section 4, Options.

11. Review the program

Press **NEXT** repeatedly to review the programming screens. If you need to reprogram a setting, press **NEXT** until the appropriate screen appears and change the setting as described in this section.

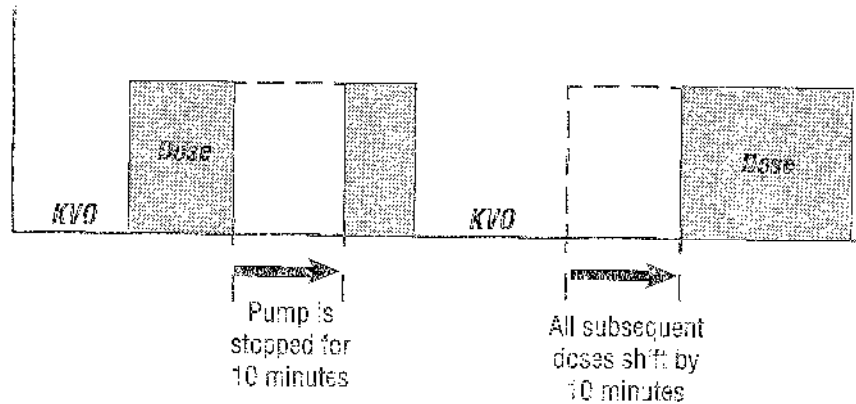
12. Prepare the Pump for the Patient

Follow the instructions for attaching a reservoir or administration set, priming, changing the lock level, and attaching the pump to the patient (Section 3).

INTERMIT: Stopping the Pump During the Cycle

Stopping the pump *during the KVO* will not affect the start time of subsequent doses.

Stopping the pump *while a dose is in progress* will shift all subsequent doses by the amount of time the pump is stopped (illustrated below).



If you wish to make up for the lost time in the cycle, *it is recommended that you wait until the current dose is completed.* (To determine the amount of time remaining in the current dose, use the Time Remaining Option described in Section 4.) Then stop the pump, change to Lock Level 0, and reprogram the Next Dose Start Time.

Resuming the Dose

To resume delivery of a dose that has been stopped in progress, simply restart the pump.

Resetting the Cycle

If you wish to reset the cycle, stop the pump during KVO, change to LL0, and reprogram the Next Dose Start Time.

If a dose has been stopped in progress and you wish to cancel the current dose and reset the cycle, make sure the pump is in Lock Level 0. The Next Dose Start Time screen should show "Interrupted." Reprogram the Next Dose Start Time. This will cancel the remainder of the dose, and the next cycle will start at the time you selected.

Section 2: Pump Setup and Programming



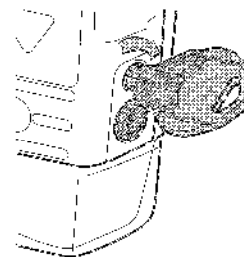
Section 3: Medication Reservoir or Administration Set

Removing a Used Reservoir or Administration Set	54
Attaching a New Reservoir or Administration Set	55
Priming the Tubing and Connecting to the Patient	58
Setting the Lock Level for the Patient	60
Starting the Pump	61
Resetting the Reservoir Volume	62

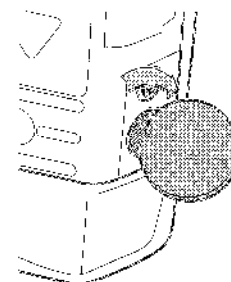
Removing a Used Reservoir or Administration Set

WARNING: Always close the fluid path tubing with the clamp before removing the reservoir or administration set from the pump to prevent unregulated gravity infusion, which could result in death or serious injury to the patient.

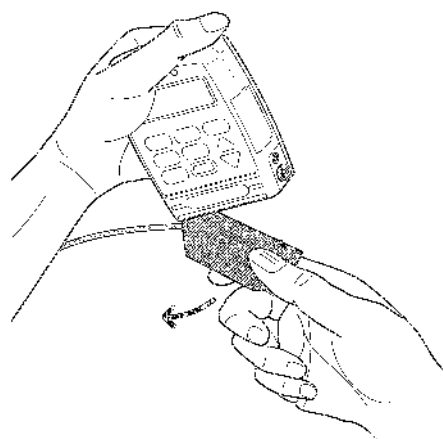
1. Close the tubing clamp.
2. If the cassette is locked, insert the key and turn the lock clockwise one-quarter turn until it stops.



3. Use a coin or the side of the key to unlatch the cassette (the part of the reservoir or administration set that attaches to the pump). Insert the coin or the side of the key into the slot and turn clockwise until the latching button pops out.



4. Remove the cassette hooks from the pump hinge pins.



Attaching a New Reservoir or Administration Set

Obtain a new, filled reservoir, or an administration set attached to a non-vented, flexible IV bag. Refer to the instructions for use supplied with the reservoir or administration set for information on filling the reservoir, attaching a CADD Extension Set with Anti-Siphon Valve or an Add On Anti-Siphon Valve, and preparing the product for use.

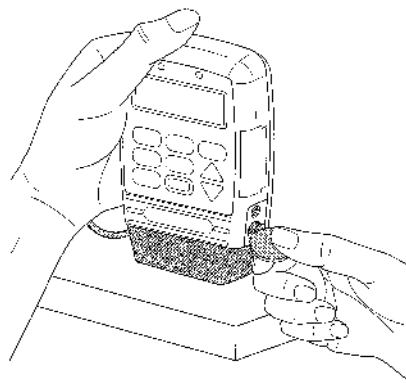
Before you attach a new reservoir or administration set, make sure a battery is installed in the pump. If a battery is installed, the pump will automatically display screens which allow you to verify the type of cassette, reset the Reservoir Volume, prime the fluid path (depending on the lock level), change the lock level (if AutoLock is not in use and the lock level is LLO), and/or start the pump.

NOTE: You can access this sequence of screens even when you are not attaching a cassette. With the pump stopped and the main screen displayed, press **ENTER** to display the sequence beginning with verifying the type of cassette.

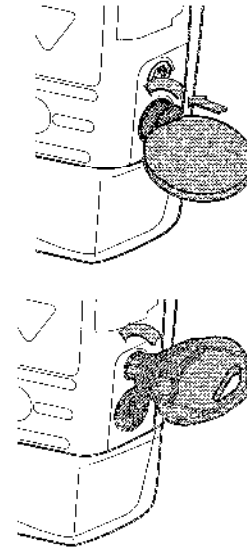
CAUTION: If you are using a **MEDICATION CASSETTE** reservoir in which the medication is frozen, thaw at room temperature only. *Do not heat in a microwave oven* as this may damage the reservoir and cause leakage.

To attach the cassette to the pump

1. Clamp the tubing. Insert the cassette hooks into the hinge pins on the pump.
2. Place the pump upright on a firm, flat surface. Press down so the cassette fits tightly against the pump.

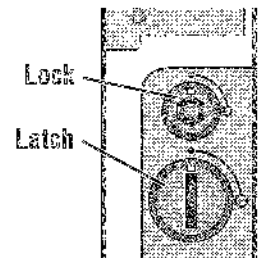


3. Insert a coin or the side of the key into the latch button, push in, and turn counterclockwise until the mark on the latch lines up with the solid dot and you feel the button click into place. A message will appear on the display so you can verify the type of reservoir or administration set you have attached (Admin Set, High Volume Admin Set, or Reservoir).
4. If appropriate, insert the pump key into the lock and turn counterclockwise until the white mark lines up with the solid dot. The message "Cassette Locked" will appear on the display. Press **NEXT**.

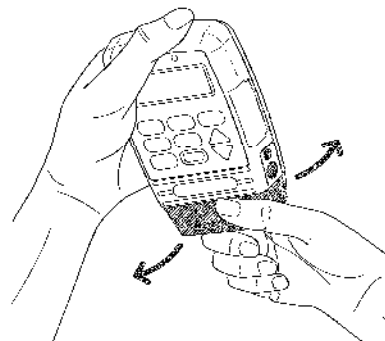


NOTE: In the PCA delivery mode, The cassette must be locked in order to start the pump.



WARNING: It is essential that you attach the cassette properly. When you attach the cassette properly, the marks on the latching button and the lock (if applicable) line up with the solid dots on the side of the pump. If you do not attach the cassette properly, unregulated gravity infusion of medication from the reservoir or a reflux of blood may result, which could result in death or serious injury to the patient. To protect against unregulated gravity infusion that can result from an improperly attached reservoir, a CADD Extension Set with Anti-Siphon Valve or a CADD Administration Set with either an integral or an Add On Anti-Siphon Valve must be used.



5. Gently twist and pull on the cassette to make sure it is firmly attached.




6. If "Reset Reservoir Volume to..." appears,

- Press  to reset Reservoir Volume to the value shown, or
- Press  to retain the current value.

Reset Reservoir
Volume to 100.0 ml?
Press Y or N

NOTE: If this screen does not appear, Reservoir Volume may already be reset.

If this message appears, the pump is in the TPN delivery mode and Reservoir Volume is not in use. Press  to reset the infusion profile.

Reset Infusion
Profile?
Press Y or N

7. If you have reset the Reservoir Volume and the pump is in the TPN delivery mode, "Infusion Profile has been reset" will also appear.

Infusion Profile
has been reset

Go to the next page.

Priming the Tubing and Connecting to the Patient

If the lock level is LL0 or LL1 when you attach a cassette, "Prime Tubing?" will appear in the sequence of screens. Prime the tubing *before* connecting it to the patient's infusion set or indwelling catheter.

Prime Tubing?

Press Y or N

If the lock level is LL2, you cannot use the priming feature; skip to step 5 in the procedure below.

NOTE: If you are not changing the cassette but wish to prime the fluid path, you may use the Prime Option described in Section 4.

WARNING: Do not prime the fluid path with the tubing connected to a patient as this will result in overdelivery of medication, which could cause injury to the patient.

1. When "Prime Tubing?" appears, press



Prime Tubing?

Press Y or N

2. Make sure the tubing is disconnected from the patient and the tubing clamp is open.

Disconnect tubing
from patient
Open clamps
Hold Y to prime

3. Press and hold the key until the tubing is fully primed or until priming stops.

Priming...
0.1 ml

Hold Y to prime

NOTE: Fluid delivered during priming is subtracted from the Reservoir Volume, but is not added to the Given screen since this fluid is not delivered to the patient.

4. If the tubing is not yet fully primed, press and repeat step 3.

Continue Priming?

Press Y or N

When the tubing is fully primed, press to exit priming.

5. If an Air Detector is in use, open the Air Detector door and thread the tubing through the groove.

WARNING: When the Air Detector is not installed, or is installed but turned off, the pump will not detect air in the fluid path. It is recommended that you periodically inspect the fluid path and remove any air to prevent air embolism. Air embolism could cause serious injury to the patient.

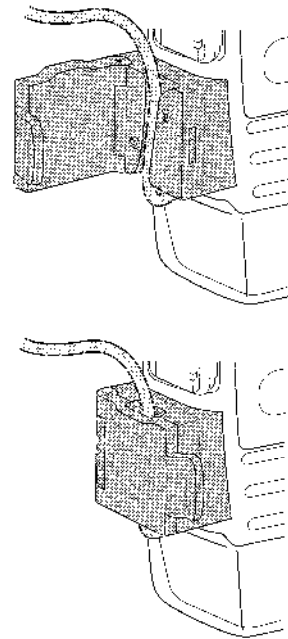
6. Close the door, making sure the tubing does not get pinched or kinked.
7. Connect to the patient's infusion set or indwelling catheter.

WARNING: Ensure that the entire fluid path is free of all air bubbles before connecting to the patient to prevent air embolism. Air embolism could cause serious injury to the patient.

NOTE: If the fluid path contains an air eliminating filter, it is acceptable for air bubbles to be present on the vent side of the filter.

8. If AutoLock is in use, or if the pump is in LL1 or LL2, "Start the Pump?" will appear; go to Starting the Pump.

If AutoLock is *not* in use and the lock level is LL0, the pump will prompt you to manually change the lock level; the screen at right will appear. Go to the next page.



AutoLock not in use.
Change Lock Level
from LL0?
Press Y or N

Setting the Lock Level for the Patient

If AutoLock is not in use and the lock level is LL0 when you attach a cassette, the message "AutoLock not in use / Change Lock Level from LL0?" will appear to allow you to set the lock level to LL1 or LL2. The lock level must be reset to LL1 or LL2 to prevent the patient from having complete access to all programming and operating functions. For detailed information on lock levels, see Section 1.

NOTE: You may change the lock level at any time by stopping the pump and pressing **LOCK**. Then begin with step 2 below.

To change the lock level

1. With this message displayed, press **▲**.
(If you do not wish to change the lock level at this time, press **▼** and go to the next page.)

AutoLock not in use.
Change Lock Level
from LL0?
Press Y or N

2. The current lock level will appear.

Lock Level
LL0

3. Press **▲** or **▼** until the desired lock level (LL1 or LL2) appears.

Lock Level
LL1

4. Press **LOCK** again. "000" will appear.

NOTE: If <Custom> appears, the Lock Level Code has been customized. Use the custom Lock Level Code in the next step.

Lock Level Code
000

5. Press **▲** or **▼** until the Lock Level Code "061" (or custom code) appears.


Lock Level Code
061

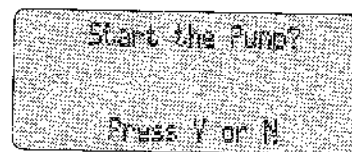
WARNING: Do not let the patient learn the Lock Level Code as this would allow the patient complete access to all programming screens.

6. Press **LOCK** to set the new lock level. Watch the display to verify that the correct lock level is being entered.

Lock Level
LL1
<Changing...>

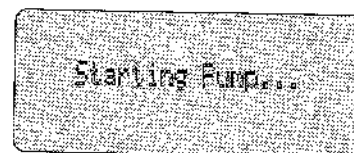
Starting the Pump

1. This is the last screen to appear when you attach a cassette. If the fluid path is free of air and the set is attached to the patient, press  to start the pump.



2. "Starting Pump" will appear.

The pump will review the program, lock level, AutoLock setting, time, and date. If AutoLock is in use, "AutoLock is changing lock level to (LL1 or LL2)" will appear.



After the automatic review, the green indicator light will blink and fluid delivery will begin as programmed.



Resetting the Reservoir Volume

Normally, when you lock a cassette onto the pump as described in this section, a series of messages lead you through resetting the Reservoir Volume, priming the tubing, (except in L1.2), and starting the pump.

You can, however, reset the Reservoir Volume without changing the cassette using the Reservoir Volume programming screen. The pump may be in any lock level.

NOTE: In the TPN delivery mode, resetting the Reservoir Volume also resets the infusion profile so delivery will start at the beginning of the infusion period when you start the pump.

Resetting Reservoir Volume without changing the cassette

1. Stop the pump.
2. Press **NEXT** to display the Reservoir Volume screen.
3. Press **ENTER**.
4. If this message appears, press **▲** to reset the Reservoir Volume. (If this message does not appear, the Reservoir Volume may already be reset.)

If this message appears, the pump is in the TPN delivery mode and Reservoir Volume is not in use. Press **▲** to reset the Infusion Profile.

5. If you have reset the Reservoir Volume and the pump is in the TPN delivery mode, you will also see "Infusion Profile is being reset."

Reservoir Volume
29.2 ml
(Range: Limited)

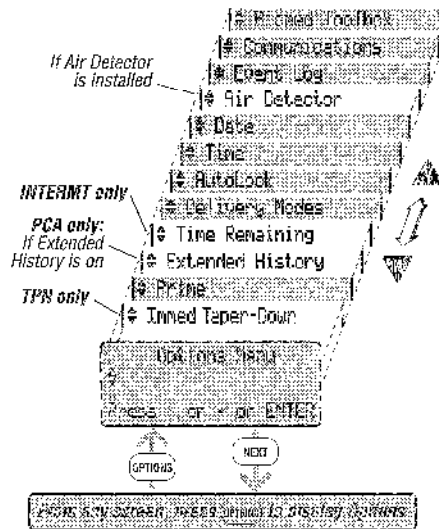
Reset Reservoir
Volume to 100.0 ml?
Press Y or N

Reset Infusion
Profile?
Press Y or N

Section 4: Options

Overview: Accessing Options	64
Immediate Taper-Down: TPN	65
Prime	66
Time Remaining: Intermittent	67
Extended History, Viewing: PCA	68
Change the Delivery Mode	70
AutoLock	71
Time	72
Date	73
Air Detector On/Off	74
Event Log, Viewing	75

Overview: Accessing Options

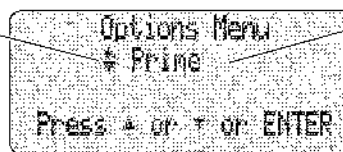


The Options menu allows access to other pump features and settings. The availability of an Option may depend on the pump's delivery mode, lock level, Biomed Toolbox settings, the presence of an Air Detector, and whether the pump is running or stopped. (For more information about the Communications option, refer to the product literature supplied with the CADD-Prizm Telecommunications System.)

To access Options

1. Start at any screen and press **OPTIONS**.
2. Use **▲**, **▼** or **OPTIONS** to page through the Options. To select an Option, make sure it is displayed on the Options Menu and press **ENTER**.

The **▲** symbol means you may use the **▲** or **▼** key to see more Options.



Options appear here. In this example, the "Prime" option is shown. To select the option shown, press **ENTER**. To see other options, press **▲**, **▼** or **OPTIONS**.

3. To exit the Options Menu, press **NEXT** until you return to the main screen.

Immediate Taper-Down: TPN

This option is available in the TPN delivery mode only. It allows you to stop infusion early by immediately tapering down. If the pump is in LL0 or LL1, the Taper-Down Period can be changed from its originally programmed value, even if it is 0. You can select a Taper-Down Period that is equal to or less than the time remaining in the infusion profile. If the pump is in LL2, you can use the Immediate Taper-Down Option, but you cannot change the Taper-Down Period.

To access the Immediate Taper-Down option

- the pump must be running
- the pump must be delivering at the plateau rate
- there must be at least 10 minutes left in the Infusion Period.

IMPORTANT: Once you answer yes to the message in step 3 below, you will not be able to restart delivery of the plateau rate without resetting the Infusion Period.

1. Keep the pump running. Press **OPTIONS**.
2. If necessary, press **▲** or **▼** until "Immediate Taper-Down" appears. Press **ENTER**.

Options Menu
#Immediate Taper-Down
Press ▲ or ▼ or ENTER

3. If the pump is in LL0 or LL1, press **ENTER** to accept the current Taper-Down Period displayed.

Immediate Taper-Down
1 hrs 00 min
(Range 00-00-01:30)

Or,

Press **▲** or **▼** to select the desired Taper-Down period, then press **ENTER**.
Press **▲** to confirm the period.

Immediate
Taper Down Period
20 min?
Press Y or N

If the pump is in LL2, this message will appear. Press Y to begin tapering down.

Begin Immediate Taper
Down? Taper equals
1 hrs 00 min
Press Y or N

Prime

The Prime Option is used in all delivery modes to pump fluid through the fluid path to remove air bubbles prior to connecting to the patient. The pump must be stopped and in LL0 or LL1 to prime.

Fluid delivered with the priming feature is subtracted from the Reservoir Volume value, but is not added to the amount Given (since this fluid is not delivered to the patient). Priming is not allowed when the Reservoir Volume value is 0.0 ml.

Follow the steps below if you are not attaching a cassette but wish to use the priming feature. If a cassette is not attached, the Reservoir Volume value will not be affected by the amount primed.

WARNING: Do not prime the fluid path with the tubing connected to a patient as this will result in overdosing of medication or air embolism.

1. Make sure the pump is stopped and in LL0 or LL1.

2. Press **(OPTIONS)**.

If necessary, press **▲** or **▼** until "Prime" appears. Then press **(ENTER)**.

Options Menu
Prime
Press ▲ or ▼ or ENTER

3. Make sure the tubing is disconnected from the patient and the clamp is open.

Disconnect tubing from patient
Open clamps
Hold Y to prime

4. Press and hold the **▲** key to prime. If a cassette is attached, the volume primed will appear on the screen. When finished, release the **▲** key.

Priming...
0.1 ml
Hold Y to prime

5. If the tubing is not yet fully primed, press **▲** and repeat step 4.

Continue Priming?
Press Y or N

When the tubing is fully primed, press **▼** to exit priming.

Time Remaining: Intermittent

This option is available in the Intermittent delivery mode only. It allows you to view the time remaining in the current dose if one is being delivered and the time remaining in the cycle. The pump may be running or stopped and in any lock level.

1. Press **(OPTIONS)**.

If necessary, press **▲** or **▼** until "Time Remaining" appears. Then press **(ENTER)**.

```
Options Menu
+ Time Remaining
Press - or + or ENTER
```

2. "Dose" shows the number of hours and minutes remaining in the dose that is currently being delivered.

"Cycle" shows the number of hours and minutes remaining in the current cycle (the time that must elapse until the next dose starts).

```
Time Remaining
Dose 8 hrs 30 min
Cycle 5 hrs 30 min
```

NOTE: If dashes appear in place of times, the start of the dose has been delayed by the Next Dose Start Time, and fluid is being delivered at the KVO rate (if programmed).

```
Time Remaining in
Dose: -- hrs -- min
Cycle: -- hrs -- min
NEXT to continue
```

Extended History, Viewing: PCA

The Extended History is available in the PCA delivery mode only. It allows you to view dose information for the past 48 hours, including doses given and attempted, and the amount delivered. The pump may be running or stopped and in any lock level. You may select from two types of views:

- **Patient Review** gives a summary of the pump's current settings, the number of doses given and attempted, and the amount delivered, starting at a date and time you specify.
- **Doses Hour by Hour** allows you to page back through summaries for each one hour period, showing the number of doses given and attempted.

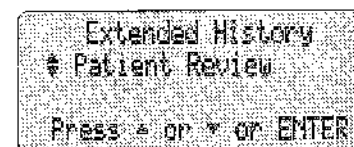
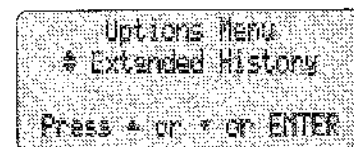
Both views show dose information for the past 48 hours, unless a New Patient Marker has been added, or the Units, Time, or Date have been changed. Dose information previous to any of these events will not appear.

NOTE: If the Extended History option does not appear, it has been turned off in the Biomed Toolbox.

To view the Extended History



These steps describe how to view the Extended History. You can also print the Extended History. (See Section 3.)

1. Press **OPTIONS**. (Any screen may be displayed.)
2. Press **▲** or **▼** until "Extended History" appears, then press **ENTER**.
3. Press **▲** or **▼** to select "Patient Review" or "Doses Hour by Hour," then press **ENTER**.





Follow the instructions for the appropriate screen on the next page.

Patient Review

1. Press  or  to select the start time and date, then press **ENTER**.

NOTE: All start times begin on the hour.

Review Start Time
* 10:00 06/07/96
Press < or > or ENTER

2. The first screen, "Pump Settings 1" will appear. Press  to page forward through the Patient Review screens. Press  to page backward.



Patient Review
* Pump Settings 1
Res Vol 60.0 ml

3. When finished, press **(NEXT)** to return to the Extended History screen.

NOTE: An asterisk (*) next to a value indicates that it applies only to the selected time period; it may not match the corresponding value in the programming screen. For example, "*Given" only reflects doses given during the selected time period, and may not match the "Given" value on the Dose Counters screen.

Doses Hour by Hour

1. After you select Doses Hour by Hour, the number of doses given and attempted during the *current hour* will appear.

- Press  to page back through hours.
- Press  to page forward.

2. When finished, press **(NEXT)** to return to the Extended History screen.

Doses Hour by Hour
*10:00-10:59 06/08/96
*Given 1
*Attempted 2

Change the Delivery Mode

The CADD-Prizm pump contains four delivery modes: PCA, CONTIN, TPN, INTERMT. (The pump also contains a Communications mode; for more information, refer to the product literature accompanying the CADD-Prizm Telecommunications System.) To change the mode, you must know the Access Code (Lock Level Code plus 10). When you change the mode, the program will revert to the default settings, and the Event Log will clear. Therefore, you may wish to print the Event Log before changing the mode. Other Options settings will not be affected.

To change the delivery mode

The pump must be stopped and in LL0.

1. Press **OPTIONS**.
Press **▲** or **▼** until "Delivery Modes" appears, then press **ENTER**.

Options
Delivery Modes
Press ▲ or ▼ or ENTER

2. Press **▲** or **▼** until the Access Code "071" appears (Lock Code +10). Then press **ENTER**.

Access Code
071

NOTE: If the Lock Level Code has been customized, use the *new* Lock Level Code+10.

3. Press **▲** or **▼** to select the desired delivery mode. Then press **ENTER**.

Select
CONTIN 6220X
Press ▲ or ▼ or ENTER

4. Press **▲** to confirm the change.
The pump will go through the power up sequence in the new delivery mode. If messages appear, refer to the table in Section 7 or press **?** for help.

Change Delivery Mode
to CONTIN 6220X?
Press Y or N

5. After the power up sequence, this message will appear followed by the first programming screen in the new delivery mode.

Pump is ready to
program
NEXT to continue

AutoLock

The AutoLock Option is available in all delivery modes. It automatically changes the lock level from LL0 to LL1 or LL2 when the pump is started, instead of requiring you to manually change the lock level before giving the pump to the patient. AutoLock may be set to LL1, LL2, or Not In Use.

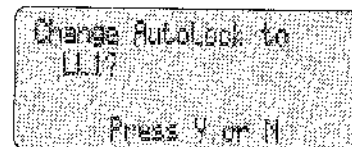
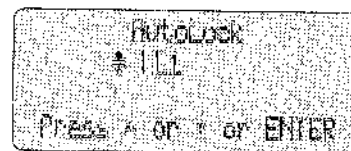
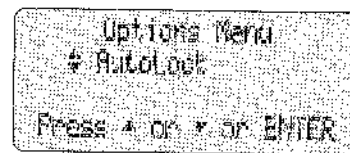
AutoLock takes effect when you start the pump in LL0 only. It *will not* change the lock level if you set the lock level to LL1 or LL2 manually before starting the pump; the AutoLock will not override your setting.

IMPORTANT: Changing the AutoLock setting is not the same as changing the lock level. The AutoLock setting specifies the lock level that will be set when the pump is started in LL0. To manually change the pump's lock level, see Section 1, Changing the Lock Level.

To view or change the AutoLock setting

To view the setting, the pump may be in any lock level. To change the setting, the pump must be stopped and in LL0.

1. Press **OPTIONS**.
Press **▲** or **▼** until "AutoLock" appears, then press **ENTER**.
2. The *current* AutoLock setting will appear.
 - To leave the setting unchanged and return to the Options menu, press **NEXT**.
 - To change the setting, press **▲** or **▼** to select the desired lock level. (To turn off AutoLock, set it to "Not In Use.") Then press **ENTER**.
3. Press **▲** to confirm the change.



Time

The Time Option shows the time of day in 24-hour (military) time according to the pump's internal clock. The clock is powered by a separate, internal battery which retains the time even when the 9 volt battery is removed. The time is used to record the time of events in the Event Log.

CAUTION: (PCA delivery mode) If Demand Doses are currently locked out, changing the time will cancel the lockout period. This will allow a Demand Dose to be requested as soon as the pump is restarted.

NOTE: Changing the time will clear the Extended History in the PCA delivery mode.

To change the Time of Day

To view the setting, the pump may be in any lock level. To change the setting, the pump must be stopped and in LLO.

1. Press **OPTIONS**.
Press **▲** or **▼** until "Time" appears with the time setting.

Options Menu
* Time 14:45
Press * or > or ENTER

2. To change the setting, press **ENTER**.
A message will appear notifying you of other settings that will be affected by changing the time. This message will clear in a few seconds.

Changing time will
clear Extended
History and reset
dose lockout time

3. Press **▲** or **▼** to select the desired time in 24-hour military time, then press **ENTER**.

Time of Day
* 15:45
Press * or > or ENTER

4. Press **▲** to confirm the change.

Change Time to
15:45?
Press Y or N

Date

The Date Option should reflect the current date. This feature is used to record the date of events in the Event Log.

CAUTION: (PCA delivery mode) If Demand Doses are currently locked out, changing the date will cancel the lockout period. This will allow a Demand Dose to be requested as soon as you restart the pump.

NOTE: Changing the date will clear the Extended History in the PCA delivery mode.

To change the Date

To view the setting, the pump may be in any lock level. To change the setting, the pump must be stopped and in LLO.

1. Press **OPTIONS**.
Press **▲** or **▼** until "Date" appears with the date setting.

Options Menu
* Date 02/28/96
Press * or * or ENTER

2. To change the setting, press **ENTER**.
A message may appear to notify you of other settings that will be affected by changing the date. This message will clear in a few seconds.

Changing date will
clear Extended
History and reset
dose lockout time

3. Press **▲** or **▼** to select the date, then press **ENTER**.

Date
* 05/23/96
Press * or * or ENTER

4. Press **▲** to confirm the change.

Change Date to
05/23/96?
Press Y or N

Air Detector On/Off

The Air Detector Option controls whether the Air Detector is turned on or off. This option appears in the menu only if an Air Detector is installed on the pump and is not required. (A setting in the Biomed Toolbox controls whether an Air Detector is required. If the Air Detector is required, you are not allowed to turn it off and this option will not appear in the menu.)

The Air Detector Option can be set to "Turned On" or "Turned Off." If the Air Detector is turned on, an alarm will sound when air is detected in the fluid path. (See Section 7 for Air Detector specifications.) When the Air Detector is first attached to the pump, the Air Detector screen defaults to "Turned On." This screen also changes to "Turned On" each time the pump powers up in Lock Level 3.

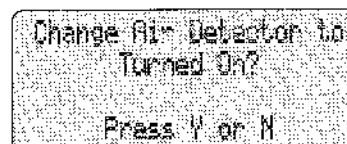
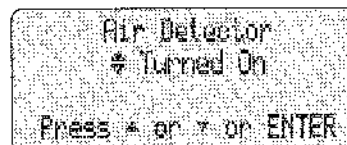
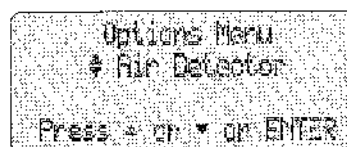
For certain therapies, it may be desirable to turn off the Air Detector (for example, for epidural infusion or subcutaneous infusion).

WARNING: When the Air Detector is installed but turned off, the pump will not detect air in the fluid path. It is recommended that you periodically inspect the fluid path and remove any air to prevent air embolism.

To change the Air Detector setting

To view the setting, the pump may be in any lock level. To change the setting, the pump must be stopped and in LL0.

1. Press **OPTIONS**.
Press **▲** or **▼** until "Air Detector" appears, then press .
2. The current setting will appear.
To change the setting, press **▲** or **▼** to select the desired setting, then press **ENTER**.
3. Press **▲** to confirm the change.



Event Log, Viewing

The Event Log records the following types of events: dose delivery, alarms, errors, power source changes, cassette changes, changes to pump programming or settings. The pump records the date and time of each event, and lists events in order starting from the most recent through the last 500 events or the last delivery mode change.

The pump may be running or stopped and in any lock level to view the Event Log.

To view the Event Log

1. Press **OPTIONS**.
2. Press **▲** or **▼** until "Event Log" appears, then press **ENTER**.
3. To view the events:
 - Press **▲** to page forward through events.
 - Press **▼** to page backward through events.
4. When finished, press **NEXT** to return to the Options Menu.

Options Menu
 * Event Log
 Press ▲ or ▼ or ENTER

Event Log Entry
 * 06/01/98 at 10:35
 9 volt battery
 removed

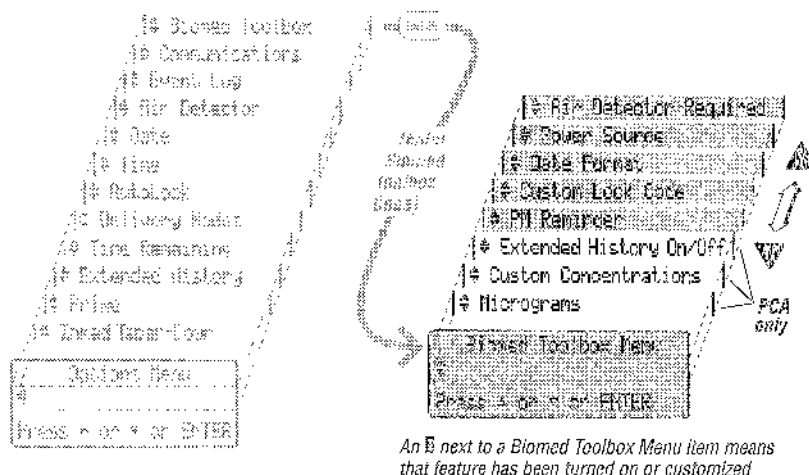
Section 4: Options



Section 5: Biomed Toolbox

Overview: Accessing the Biomed Toolbox	78
Micrograms On/Off (PCA Only)	79
Concentration Customization (PCA Only)	79
Extended History On/Off (PCA Only)	81
PM (Preventive Maintenance) Reminder	81
Custom Lock Level Code	82
Date Format	82
Power Source Status Display	83
Air Detector Requirement	83

Overview: Accessing the Biomed Toolbox



The Biomed Toolbox contains pump configurations that are less frequently changed. The Biomed Toolbox is accessible only when the pump is stopped and in Lock Level 0.

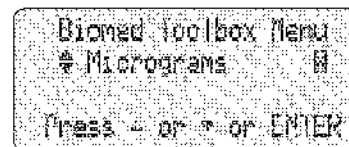
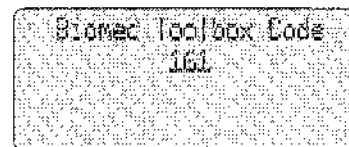
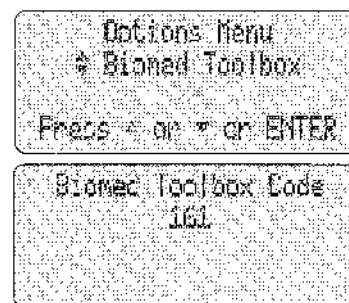
To Access the Biomed Toolbox Menu

1. Press **OPTIONS**. Press **▲** or **▼** until "Biomed Toolbox" appears, then press **ENTER**.
2. Press **▲** or **▼** until the Biomed Toolbox Code "161" appears (Lock Level Code + 100). Then press **ENTER**.

NOTE: If the Lock Level Code has been customized, use the *new* Lock Level Code + 100.

3. Press **▲** or **▼** to select the setting you wish to view or change, then **ENTER**. Follow the instructions in this section for the appropriate screen.



NOTE: To leave a Biomed Toolbox setting unchanged, press **NEXT**.

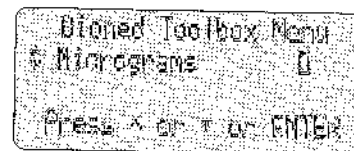






Micrograms On/Off (PCA Only)

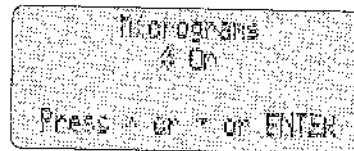
This screen allows you to turn on or turn off micrograms. If micrograms are off, only milliliters and milligrams will be available for programming in the Units screen.

NOTE: If the Units programming screen is set to micrograms, you cannot turn them off. You will first need to change the Units screen to milligrams or milliliters, then return to this screen to turn off micrograms.

1. At the Biomed Toolbox Menu, press  or  until "Micrograms" appears. If an X appears in the box (X), Micrograms are currently on.



2. To change the setting, press . Press  or  to select the desired setting, then press .





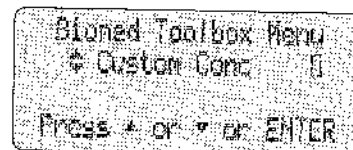
Concentration Customization (PCA Only)

This screen allows you to select the concentrations that will be available for programming in the Concentration screen (mg/ml or mcg/ml). You may turn on or turn off all concentrations, then selectively turn on or turn off individual concentrations. For example, if only three concentrations will be used, you can turn off all concentrations, then turn on those three concentrations. At least one concentration must be on.

Since you cannot turn off the currently programmed concentration, you may want to change the Units programming screen to milliliters before customizing concentrations.

NOTE: Even if Micrograms have been turned off (see Micrograms On/Off above), you can customize Microgram concentrations.

1. At the Biomed Toolbox Menu, press  or  until "Custom Conc" appears. If an X appears in the box, concentrations for either mg or mcg are currently customized.



2. To view or customize concentrations, press **ENTER**.

3. Press **▲** or **▼** to select the units (milligrams or micrograms) per ml you wish to customize, then press **ENTER**.

If an X appears in the box, concentrations for these units have been customized.

Select Units
 * Milligrams D
 Press * or * or ENTER

4. Press **▲** or **▼** to select one of the following, then press **ENTER**.

- * Turn On All (this will turn on all concentrations).
- * Turn Off All (this will turn off all concentrations except the currently programmed concentration).
- * Modify Individual (this allows you to selectively turn on or turn off concentrations).

Select
 * Modify Individual
 Press * or * or ENTER

5. Turn individual concentrations on or off as appropriate:



- * Press **▲** or **▼** to select the concentration.
- * Press **ENTER** to turn the concentration on or off.
- * Repeat as necessary. When finished, press **NEXT** to return to the Biomed Toolbox screen.


Select Concentration
 * 2.0 ng/ml Off
 ENTER to turn on





NOTE: If you try to exit with all concentrations turned off, a message will appear reminding you that at least one concentration must be turned on.

Extended History On/Off (PCA Only)

This screen allows you to turn the Extended History feature on or off. When turned off, Extended History will not appear in Options and the New Patient Marker screen will not appear during programming.

1. At the Biomed Toolbox Menu, press  or  until "Extended History" appears. If an X appears in the box, the Extended History is currently on.



Biomed Toolbox Menu
 * Extended History 
 Press * or * or ENTER


2. To change the setting, press . Press  or  to select the desired setting, then press .


Extended History
 * On
 Press * or * or ENTER

PM (Preventive Maintenance) Reminder





If your institution or other health care facility establishes a maintenance program for the pump, you can use the PM Reminder to display a "Prev. Maint. Reminder" message upon power-up at a specified interval (1 to 24 months). Once the message begins appearing, it will appear during every power up until it is reset. Use this screen to specify the interval at which the message should appear, or use it to reset the reminder.

1. At the Biomed Toolbox Menu, press  or  until "PM Reminder" appears. If an X appears in the box, a PM Reminder is set.

Biomed Toolbox Menu
 * PM Reminder 
 Press * or * or ENTER

2. Press . The PM Reminder screen will appear.

PM Reminder
 * 2 months
 PM Due Date 07/06/96



- Press  to reset the reminder, or
- Press  or  to select the new interval. (To turn the reminder off, select Not In Use.) Then press .


Next PM Reminder
 09/06/96
 <Entering...>


3. The date corresponding to your selection (current date + number of months selected) will appear on the screen.

Custom Lock Level Code




This screen allows you to select a new Lock Level Code. Changing this code also changes the Biomed Toolbox Code to the new Lock Level Code plus 100. It *does not* affect the Clinician Bonus Code.

1. At the Biomed Toolbox Menu, press  or  until "Custom Lock" appears. If an X appears in the box, a Custom Lock Level Code is currently set.


Biomed Toolbox Menu
→ Custom Lock 
Press * or * or ENTER

2. To view or change the Custom Lock Level Code, press . The current code will appear.

Custom Lock Code
→ 051
(Range: 1 - 899)




3. To change the Custom Lock Level Code, press  or  to select the desired code (001 to 899). Then press .

Change Lock Code to
999?
Press Y or N




4. Press  to confirm the change.

Date Format


This screen allows you to select the date format. The date can be set to display in US Standard format (*month/day/year*) or in European Standard format (*day/month/year*).

1. At the Biomed Toolbox Menu, press  or  until "Date Format" appears. Press .

Biomed Toolbox Menu
→ Date Format
Press * or * or ENTER

2. The current format will appear. To change the format, press  or . Then press .



Date Format
→ European Standard
Press * or * or ENTER

3. Press  to confirm the change.





Change Date Format to
European Standard?
Press Y or N

Power Source Status Display

This feature is used to select the power source display on the main screen. You may choose "Always" so the main screen will always indicate the type of power source being used, or "Only Low Battery" to display a message only when the 9 volt battery is low.

1. At the Biomed Toolbox Menu, press  or  until "Power Source" appears. If an X appears in the box, Power Source display is currently set to Always.



Biomed Toolbox Menu
+ Power Source 0
Press < or > or ENTER

2. To change the setting, press . Press  or  to select the desired setting, then press .





Power Source Display
+ Always
Press < or > or ENTER

Air Detector Requirement


The Air Detector screen can be set to "Required" or "Not Required." If this screen is set to "Required," an Air Detector must be installed and active in order to start the pump; however, the pump may be programmed without an Air Detector.

1. At the Biomed Toolbox Menu, press  or  until "Air Detector Req" appears. If an X appears in the box, the Air Detector is currently required.

Biomed Toolbox Menu
+ Air Detector Req 0
Press < or > or ENTER

2. To change the setting, press . Press  or  to select the desired setting, then press .

Air Detector
+ Required
Press < or > or ENTER

3. Press  to confirm the change.

Change Air Detector to
Required?
Press Y or N

Section 5: Blamed Toolbox



Section 6: Accessories

Printing Reports	86
Power Pack or AC Adapter	90
Remote Dose Cord	91
Security Shell	92
Polemount Bracket	94
Air Detector Installation and Removal	95

Printing Reports

The reports shown below may be printed using an Interface Cable and the following recommended printer:

Seiko Instruments Thermal Printer
Model DPU-411-21BU

The use of other printers may result in illegible or incomplete reports. For complete instructions on powering the printer, loading paper, etc., refer to the *Operation Manual* supplied with the printer. Report data may also be transferred to a computer file. Refer to Downloading Reports to a PC in Section 7 for detailed instructions.

Rx Settings Report		Event Log Report		Extended History Report	
001 Patient ID:	001 Patient ID:	001 Patient ID:	001 Patient ID:	001 Patient ID:	001 Patient ID:
002 Patient's Name:	002 Patient's Name:	002 Patient's Name:	002 Patient's Name:	002 Patient's Name:	002 Patient's Name:
003 CADD-Prizm (TM) Model 5100 SH 1	003 CADD-Prizm (TM) Model 5100 SH 1	003 CADD-Prizm (TM) Model 5100 SH 1	003 CADD-Prizm (TM) Model 5100 SH 1	003 CADD-Prizm (TM) Model 5100 SH 1	003 CADD-Prizm (TM) Model 5100 SH 1
004 Date Printed: 02/27/95	004 Date Printed: 02/27/95	004 Date Printed: 02/27/95	004 Date Printed: 02/27/95	004 Date Printed: 02/27/95	004 Date Printed: 02/27/95
005 Delivery Mode: PEF 62131	005 Delivery Mode: PEF 62131	005 Delivery Mode: PEF 62131	005 Delivery Mode: PEF 62131	005 Delivery Mode: PEF 62131	005 Delivery Mode: PEF 62131
006 Mode:	006 Mode:	006 Mode:	006 Mode:	006 Mode:	006 Mode:
007 Reservoir Volume	007 Reservoir Volume	007 Reservoir Volume	007 Reservoir Volume	007 Reservoir Volume	007 Reservoir Volume
008 Units	008 Units	008 Units	008 Units	008 Units	008 Units
009 Concentration	009 Concentration	009 Concentration	009 Concentration	009 Concentration	009 Concentration
010 Continuous Rate	010 Continuous Rate	010 Continuous Rate	010 Continuous Rate	010 Continuous Rate	010 Continuous Rate
011 Demand Dose	011 Demand Dose	011 Demand Dose	011 Demand Dose	011 Demand Dose	011 Demand Dose
012 Demand Dose Lockout	012 Demand Dose Lockout	012 Demand Dose Lockout	012 Demand Dose Lockout	012 Demand Dose Lockout	012 Demand Dose Lockout
013 Max Dose Per Hour	013 Max Dose Per Hour	013 Max Dose Per Hour	013 Max Dose Per Hour	013 Max Dose Per Hour	013 Max Dose Per Hour
014 Demand Dose Even	014 Demand Dose Even	014 Demand Dose Even	014 Demand Dose Even	014 Demand Dose Even	014 Demand Dose Even
015 Demand Dose Stopped	015 Demand Dose Stopped	015 Demand Dose Stopped	015 Demand Dose Stopped	015 Demand Dose Stopped	015 Demand Dose Stopped
016 Full Dose Even	016 Full Dose Even	016 Full Dose Even	016 Full Dose Even	016 Full Dose Even	016 Full Dose Even
017 Lock Level	017 Lock Level	017 Lock Level	017 Lock Level	017 Lock Level	017 Lock Level
018 Full Detector	018 Full Detector	018 Full Detector	018 Full Detector	018 Full Detector	018 Full Detector
019 Full Lock	019 Full Lock	019 Full Lock	019 Full Lock	019 Full Lock	019 Full Lock
020 Verified by:	020 Verified by:	020 Verified by:	020 Verified by:	020 Verified by:	020 Verified by:
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099	099	099	099	099	099
100	100	100	100	100	100

The Rx Settings Report lists the pump's current program.

The Event Log Report is a printout of the Rx Settings and the Event Log through the last 500 events or the last delivery mode change. See Section 4 for a description of the Event Log.

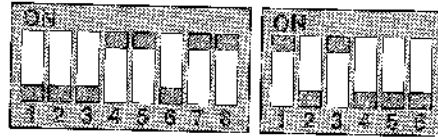
The Extended History Report (PCA delivery mode only) lists current pump settings, amount of medication delivered, and hourly dose summaries for the time period you specify (for the past 48 hours or to the last New Patient Marker or change in Units, Time, or Date; beyond any of these events, the report will show zeroes). The Extended History must be "On" in the Biomed Toolbox for this report to be available.

NOTE: A Comm Log report is available in the Communications mode; refer to the product literature supplied with the CADD-Prizm Telecommunications System.

Setting up the printer

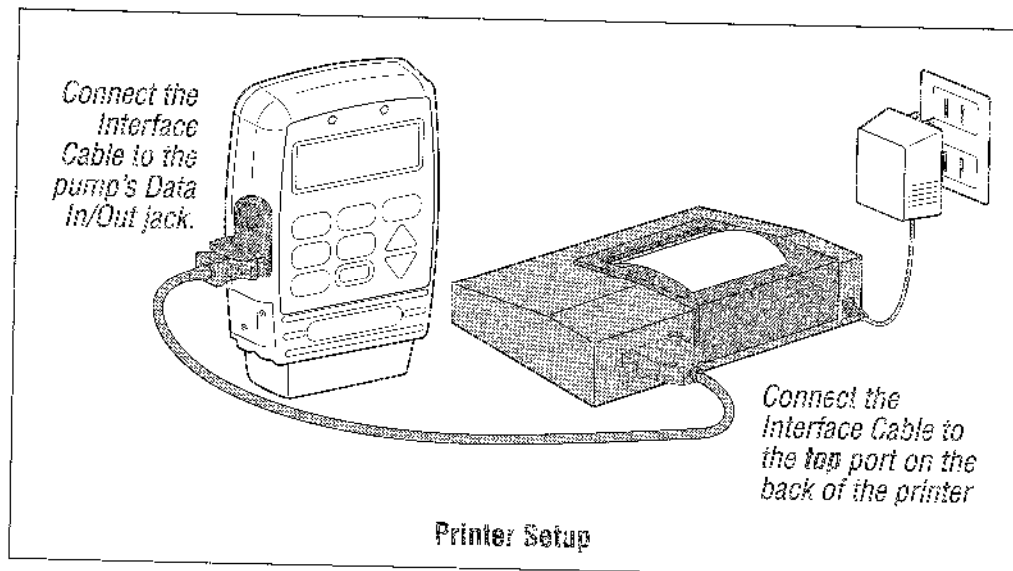
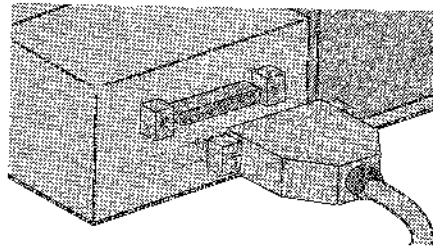
1. Make sure the printer is off. The pump may be stopped or running, and in any lock level.


2. Make sure the switches on the bottom of the printer are set to the positions shown at right.





3. Turn the printer on.


4. Connect the Interface Cable to the *top* port on the back of the printer and tighten the screws. Connect the other end of the Interface Cable to the Data In/Out jack on the pump. Align the red dot on the cable connector with the red dot on the pump, then push the connector straight into the pump. DO NOT twist or turn the connector. (See "Printer Setup," below.)








5. When you plug the cable into the pump, the "Cable Attached for" screen will appear on the display. If necessary, press  until "Printing" appears.


NOTE: This screen will not appear if the printer is not ready (out of paper, not on-line, not powered). Refer to the printer's *Operation Manual* for information on correcting the condition.



Cable Attached for
* Printing
Press  or  or ENTER

6. Press .

7. Press  or  to select the desired report. Then press .

Print Selection
* Extended History
Press  or  or ENTER

8. If you selected the Extended History Report, select the start time and date of the report, then press .

Ext. History Report
* 18-00 05/31/96
Press  or  or ENTER

9. Printing will begin. (If the pump is running at a high delivery rate, printing may be slower than usual.)


Ext. History Report
18-00 05/31/96
<Printing...>

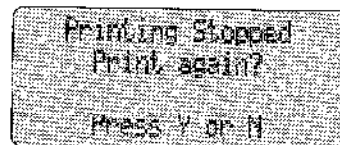
10. Examine the printout for the following:
 - Report title
 - Vertical lines along right edge
 - Consecutive line numbers
 - "END OF REPORT" line



If this information does not appear on the printout, or if you see unexpected "?" or "!" characters, you may have received incomplete data. Review the setup procedures and reprint the report.

11. Remove the cable. Grasp the collar on the connector and pull back using a straight, steady motion. DO NOT twist or turn the connector.

To cancel printing

1. While the report is printing, press  to cancel printing. This screen will appear.



2. Press  to exit printing. (Or, press  to start printing over.)

NOTE: If the pump has already transferred information to the printer's memory, the report may continue to print even after you have cancelled printing and removed the cable. You may stop the printer and clear printer memory by turning the printer off.

Power Pack or AC Adapter

You can attach an alternate source of power to the pump, such as the CADD External Power Source (EPS) System Power Pack (reorder number 21-3801) or AC Adapter. The pump must also contain a functional 9 volt battery as a backup. Otherwise, the pump will not start.

Before using the power pack, refer to the *CADD External Power Source (EPS) System Instructions for Use* supplied with the power pack for instructions on equipment setup, system operation, specifications, and warnings.

CAUTIONS:

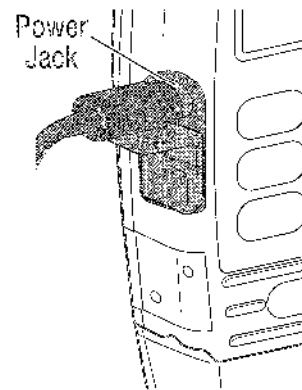
- Do not use the battery adapter supplied with the EPS system. Although the battery adapter is used with other CADD pumps, the CADD-Prizm pump's battery compartment is not designed to hold the battery adapter. A 9 volt battery must be installed instead.
- Do not allow the power pack to hang from a pump mounted on an IV pole. This may result in damage to the power pack.

To attach the Power Pack or AC Adapter

1. Open the cover for the Power jack.
2. Line up the red mark on the power pack or AC adapter connector with the red mark on the pump. Push the connector in until it clicks.

NOTE: The connector may or may not be supplied with the grip shown in this illustration.

3. If using an AC adapter, plug the other end into a 3-pronged wall outlet.



To detach the Power Pack or AC Adapter

CAUTION: To avoid damaging the connector or cable, do not use excessive force or instruments such as pliers to remove the connector from the pump.

1. Grasp the collar on the connector
2. Pull the connector back using a straight, steady motion. DO NOT twist or turn the connector.

Remote Dose Cord

In the PCA delivery mode, a Remote Dose Cord may be attached to the pump so the patient can start a Demand Dose by pressing either the Remote Dose Cord button or the DOSE key. For easy access, the Remote Dose Cord may be fastened to the patient's clothing or bed sheet with the attached clip.

NOTE: The Remote Dose Cord is used only for starting Demand Doses. It is not associated with pump Communications.

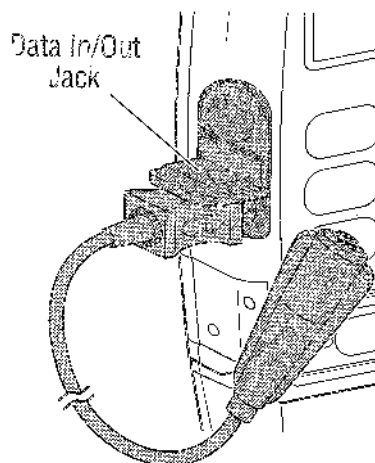
CAUTIONS:

- Do not place the Remote Dose Cord where the button might accidentally be pushed. Accidentally pushing the button may deliver an inadvertent Demand Dose.
- Do not use the Remote Dose Cord to pick up or carry the pump. Using the cord in this manner could damage the pump or cord.
- To avoid damaging the connector or cord, do not use excessive force or instruments, such as pliers, to remove the Remote Dose Cord from the pump.

To attach the Remote Dose Cord:

1. Open the cover for the Data In/Out jack.
2. Line up the red mark on the Remote Dose Cord connector with the red mark on the pump. Push the connector in until it clicks.

NOTE: The cord may or may not be supplied with the grip shown in this illustration.



To detach the Remote Dose Cord:

1. Grasp the collar on the connector.
2. Pull the connector back using a straight, steady motion. DO NOT twist or turn the connector.

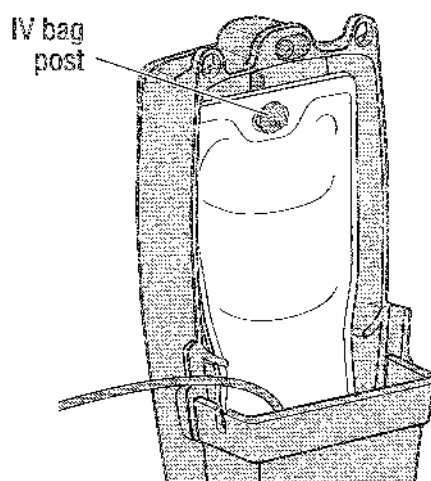
Security Shell

The Security Shell helps prevent access to the medication. The Security Shell encloses the IV bag or sterile vial with injector (syringe) and locks the pump in such a way that the medication reservoir is inaccessible, but the pump keypad, battery compartment, and jacks are accessible. The recess on the back of the Security Shell allows you to mount it to an IV pole using the Polemount Bracket. The Security Shell is designed for use with the following components:

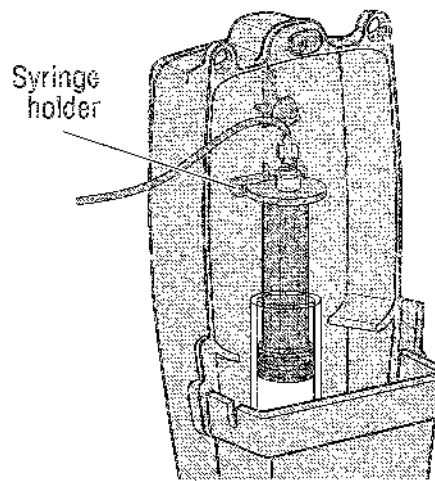
- CADD-Prizm pump with a CADD Administration Set
- 250 ml Abbott, Baxter, or McGaw IV bag, or
30 ml Abbott or IMS sterile vial and injector (syringe)

Follow the instructions in Section 2 for attaching the administration set to the pump before installing the components into the Security Shell.

WARNING: If the Security Shell is dropped, immediately stop the pump and remove it from the Security Shell. Make sure there is no damage to any of the components, and that the IV bag or syringe is installed properly. Damage to the IV bag or syringe could result in upstream occlusion, nondelivery of drug, and/or air embolism, which could cause death or serious injury.



IV bag: Hang from the post

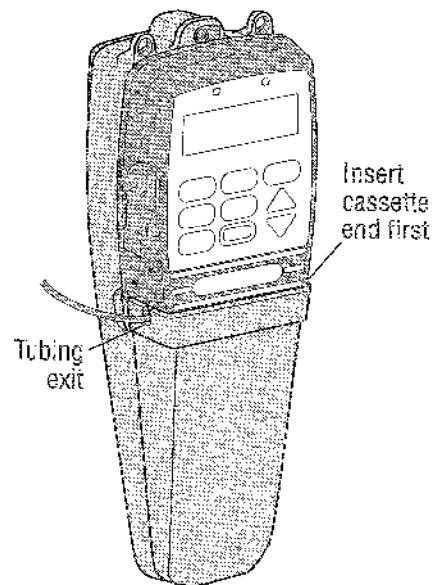


Syringe: Slide end of plunger into the syringe holder.

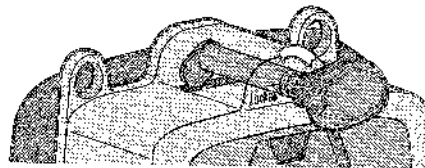
Installing the fluid bag or syringe and pump

1. If you are using an IV bag, hang the bag from the post inside the Security Shell (previous page, left side); or,
If you are using a syringe, slide the end of the plunger into the syringe holder inside the Security Shell (previous page, right side).
2. Fit the pump onto the Security Shell, cassette end first. Make sure the tubing leading from the IV bag or syringe to the pump fits completely inside the Security Shell.

CAUTION: Do not pinch the tubing between the pump and Security Shell; this may result in an alarm and/or nondelivery of fluid.



3. Hold the pump firmly against the Security Shell. Insert the key into the lock on the back of the Security Shell and turn it counterclockwise until the black mark lines up with "Locked." Make sure the pump is firmly locked into place.



Removing the pump and the fluid bag or syringe

1. Insert the key into the lock. Turn the key clockwise until the pump unlocks from the Security Shell.
2. Remove the pump and the fluid bag or syringe.

Polemount Bracket

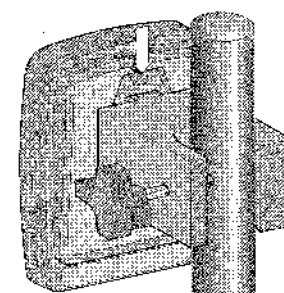
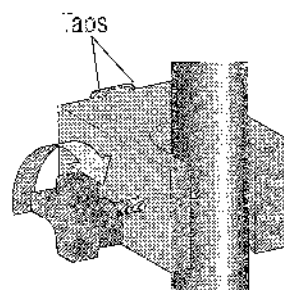
The Polemount Bracket allows you to mount a CADD-Prizm pump to an IV pole. It is designed to attach directly to the back of a CADD-Prizm pump or Security Shell.

CAUTION: If you use the EPS System power pack with a pump mounted on an IV pole, do not allow the power pack to hang from the pump's connector. This could result in damage to the power pack or pump connector.

If you wish to use an external source of power with the CADD-Prizm pump while it is mounted on an IV pole, it is recommended that you use the AC Adapter. If you are using a Security Shell, you may first mount the Security Shell to the Polemount Bracket following these instructions, then install the pump and IV bag or sterile vial with injector (syringe) into the Security Shell.

To attach the Polemount Bracket

1. Place the bracket around the IV pole at the desired height. Clamp the bracket firmly to the pole by turning the knob clockwise.
2. Match the tabs on the Polemount Bracket with the notches on the back of the pump or Security Shell.
3. Slide the pump or Security Shell downward until you hear it click into place.



To remove the Pump or Security Shell from the Polemount Bracket

1. Push in and hold the black button on the side of the Polemount Bracket.
2. Lift the pump or Security Shell up and off of the bracket.

Air Detector Installation and Removal

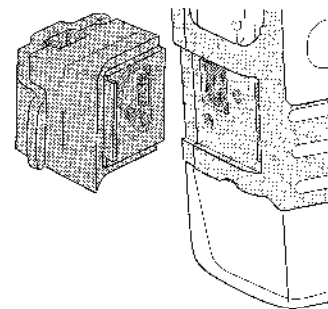
The Air Detector is designed to detect air in the fluid path. When the tubing is routed through an Air Detector that is attached and turned on, an air bubble exceeding the specified size will cause an alarm to sound and the pump to stop (see Specifications). When you install an Air Detector, the pump will automatically begin using it. To require the use of the Air Detector, change the Air Detector setting in the Biomed Toolbox.

CAUTIONS:

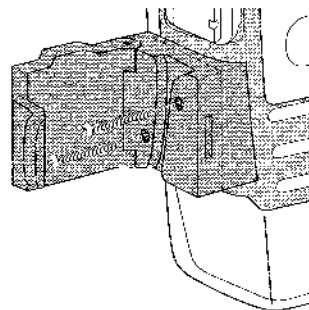
- The Air Detector should be installed and removed only by technicians familiar with handling sensitive electronic components. Take proper electrostatic discharge (ESD) precautions when installing or removing the Air Detector to avoid damage to the Air Detector.
- Do not expose the open Air Detector port area of the pump or the connector opening on the Air Detector to foreign material, moisture, or cleaning fluids.

Installing the Air Detector

1. Stop the pump. Remove the 9 volt battery and disconnect any external power sources.
2. Use the wrench provided to remove the two screws from the Air Detector Port Cover on the side of the pump. Remove the cover and screws and store them for future use.
3. Align the Air Detector connector with the pump's Air Detector port. Carefully fit the Air Detector into the pump's port.



4. While holding the Air Detector firmly by its sides, open the Air Detector door. Use the two $\frac{3}{4}$ " screws and wrench provided to secure the Air Detector to the pump's port. *Do not overtighten the screws.*
5. Install a 9 volt battery into the pump. During power up, the pump will perform self-tests. Observe any messages that appear on the display.



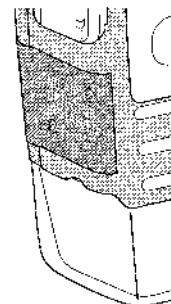
Removing the Air Detector

Before removing the Air Detector, make sure the Biomed Toolbox Air Detector setting is "Not Required." If the setting is "Required," the pump will not run without an Air Detector attached.

After removing the Air Detector, you must install an Air Detector Port Cover or the pump will not operate.

WARNING: When the Air Detector is not installed, the pump will not detect air in the fluid path. It is recommended that you periodically inspect the fluid path during delivery and remove any air to prevent air embolism. Air embolism could result in serious injury to the patient.

1. Stop the pump. Remove the 9 volt battery and disconnect any external power sources.
2. Open the Air Detector door. Use the wrench provided to remove the two screws from the Air Detector.
3. Carefully pull the Air Detector straight away from the side of the pump.
4. Attach the Air Detector Port Cover to the pump using the two screws provided with the Air Detector Port Cover.



Section 7: Reference & Troubleshooting

Troubleshooting	98
Alarms and Messages, Alphabetical List	100
Specifications (Nominal)	110
Cleaning the Pump and Accessories	115
Exposure to Radiation or Magnetic Resonance Imaging (MRI)	116
PCA Delivery Mode: Continuous Rate Scroll Ranges	117
PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Milliliters	117
PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Milligrams	118
PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Micrograms	119
Military Time Conversion Chart	120
Downloading Reports to a PC	121
Index	123
Limited Warranty	127

Troubleshooting

A continuous two-tone alarm is sounding; the amber light is lit or flashing.

Delivery has stopped. Read the message on the display and refer to the list of messages beginning on the next page. Press (?) to see if further information is available. If the display is blank or contains random characters, the 9 volt battery may be depleted; install a fresh battery. (No help is available during an error or if the battery is depleted.)

The pump is sounding 2 beeps every two seconds; the amber light is flashing.

Look at the message on the display and refer to the list of messages beginning on the next page. Or press (?) for further information.

Three beeps sound every 5 minutes.

This is a reminder that the pump is stopped.

After installing a battery, no screen appears and no beep sounds

The battery may have been installed backwards. Review the procedure for installing a battery. Be sure to match the polarity (+ and -) markings on the side of the pump with the markings on the battery. If there is still no power, the battery may be completely depleted.

Lock Level Code does not work, or you forget the custom code

If the Lock Level Code does not work, it may have been customized (<Custom> will appear on the Lock Level Code screen). If necessary, contact Deltac's Customer Service Department for instructions on reverting to the standard Lock Level Code. If you are trying to use the custom code, it is possible that the Lock Level Code has been reset. If <Custom> does not appear on the Lock Level Code screen, try the standard code.

Printing Problems

Make sure:

- the Interface Cable is connected properly to the Data In/Out jack
- printer switches are set properly (Section 6)
- the printer is plugged in and on-line
- paper is loaded with the correct side facing out, and paper is not jammed

Refer also to the printer manual supplied with the printer.



An Air In Line alarm keeps occurring even though the Air Detector was turned off

Any time you power up the pump in Lock Level 0, the Air Detector will automatically turn on. In other words, the pump will automatically change the Air Detector Option setting from "Turned Off" to "Turned On." (This does not occur in Lock Level 1 or 2.) If you do not want to use the Air Detector, you will need to change the Air Detector Option setting back to "Turned off" after the pump powers up. If the Lock Level is LL1 or LL2 when the pump powers up, the Air Detector Option setting will remain "Turned Off."

Unable to view Extended History (PCA)

Extended History is turned off in the Biomed Toolbox. If appropriate, turn Extended History on (Section 5).

Unable to select Micrograms (PCA)

Micrograms are turned off in the Biomed Toolbox. If appropriate, turn on Micrograms (Section 5).

Unable to add a New Patient Marker during programming (PCA)

Extended History is turned off in the Biomed Toolbox. If appropriate, turn Extended History on (Section 5).

Unable to select a specific concentration (PCA)

The concentration may be turned off in the Biomed Toolbox. If appropriate, turn the concentration on (Section 5). Or, the concentration may not be programmable (see scroll range tables, this section).

Alarms and Messages, Alphabetical List

Message	Corrective Action
9 volt Battery Depleted / Install good battery	Install a fresh 9 volt battery. The pump will not start with a depleted 9 volt battery. A good battery must always be installed even when an external source of power is connected. NOTE: This message may appear when you install a fresh battery while an external source of power is connected. Remove and reinstall the battery to cancel this message, then restart the pump if necessary.
9 volt Battery Good	No action is necessary; the 9 volt battery installed has sufficient power to run the pump or to serve as a backup for an external power source.
9 volt Battery Low	The 9 volt battery is low but the pump is operable. Change the 9 volt battery soon. NOTE: This message may appear when you install a fresh battery while an external source of power is connected. Remove and reinstall the battery to cancel this message.
9 volt Battery Removed / Install good battery	The 9 volt battery has been removed with an external power source attached. Install a fresh 9 volt battery. Install a battery within 3 minutes to keep the pump running; after 3 minutes, the pump will stop.
9 volt Battery Removed / Pump will not run	The 9 volt battery was removed with an external power source attached. The pump is stopped. Press (NEXT) to silence the alarm, then install a fresh battery.
AC Adapter Disconnected	The AC Adapter has been disconnected and the pump is being powered by the 9 volt battery. If desired, reconnect the AC Adapter.
AC Adapter Good	No action is necessary; the AC Adapter is connected and is providing sufficient power to run the pump.
AC Adapter Unpowered / Check power source	The AC Adapter is not receiving power from the wall outlet. The 9 volt battery is supplying power. Make sure the AC Adapter is properly plugged into the wall outlet and the wall outlet is supplying power. If the alarm persists, the AC Adapter may be faulty and may need to be replaced.


Message	Corrective Action
Admin set latched	The CADD Administration Set is properly latched onto the pump.
Air Detector is being turned on	The Air Detector is being turned on automatically because the pump is powering up in Lock Level 0. Use Options if you wish to turn off the Air Detector.
Air Detector Port Cover Removed / Install Cover	The cover for the Air Detector port on the side of the pump must be properly attached for the pump to operate. Remove all power. Make sure the cover is installed properly, then resume operation.
Air Detector Fault / Pump will not run	The Air Detector is faulty. Press (MUT) to silence the alarm. Close the tubing clamp, remove the pump from use, and replace the Air Detector.
Air Detector (Required, Turned On, or Turned Off)	The pump is reviewing the status of the Air Detector; verify that the status displayed is correct.
Air Detector Removed?	The Air Detector has been removed. If this is acceptable, press . If the Air Detector <i>should</i> be installed or has not actually been removed, press . Then have an Air Detector installed properly. If an Air Detector is attached and the alarm persists, have the Air Detector serviced.
Air Detector Required / Pump will not run	This message indicates that an Air Detector is required to start the pump (i.e. the Air Detector setting in the Biomed Toolbox is "Required"). If necessary, press (MUT) to silence the alarm, then have an Air Detector installed.
Air in line detected / Pump will not run	<p>The Air Detector has detected air in the fluid path; the fluid path may contain air bubbles, or the tubing may not be threaded through the Air Detector. Press (MUT) to silence the alarm, then:</p> <ul style="list-style-type: none"> • Make sure the tubing is threaded properly. • If the fluid path contains air bubbles, close the clamps and disconnect the fluid path from the patient. Then follow the instructions for removing air using the Prime Option in Section 4.

Section 7: Reference & Troubleshooting

Message	Corrective Action
All Concentrations cannot be turned off	PCA: At least one concentration must be enabled when customizing concentrations. Press (NEXT) , then enable a concentration.
AutoLock is changing Lock Level to (LL1 or LL2)	No action is necessary; the AutoLock feature is automatically changing the pump's lock level to the level shown.
Cable Removed	The cable was detached from the Data In/Out jack.
Cassette Damaged / Free flow may occur / Clamp Tubing / Change Cassette	The pump detects the cassette is damaged. Close the tubing clamp and inspect the cassette for damage. Replace it if necessary.
Cassette Locked	The cassette is properly locked onto the pump. Press (NEXT) to continue.
Cassette Not Attached / Pump will not run	The pump will not start without a cassette attached. Make sure a cassette is attached properly. Then start the pump.
Cassette Unlocked	PCA: The PCA delivery mode requires the cassette to be locked onto the pump before it can be started. If an alarm is sounding, press (NEXT) to silence the alarm. Lock the cassette, then start the pump.
Cassette Unlatched / Close clamp to prevent free flow	This message appears as a reminder to close the tubing clamp when the cassette is unlatched from the pump.
Change (setting) to (X)?	The message is asking for confirmation of the value you entered. If it is correct, press ▲ . If it is incorrect, press ▼ and choose the correct value. If this message appears when you try to use NEXT to go to the next screen, you may have changed a setting that requires you to verify the setting shown on this screen or to program a new setting.

Message	Corrective Action
Changing Modes clears program and Event Log	When you select a delivery mode, even if you select the current mode, the Event Log clears and the program is set to the default settings. Press Y if you wish to continue, or press N to return to the Change Mode screen.
Changing the date (or time) may affect the next dose start time. Review before delivery.	INTERMT: When the date or time is changed, the next dose start time is adjusted. Review the next dose start time before starting delivery.
Changing time will clear Extended History and reset dose lockout time	PCA: When the time is changed, the Extended History is cleared. The Lockout time is also reset so a Demand Dose can be requested immediately.
Check for empty tubing or reservoir	The tubing beneath the pump may not contain fluid, or the reservoir may be empty. Check whether the reservoir is empty; or clamp the tubing, remove the cassette, and check for air in the tubing. If the alarm persists after trying to correct the problem, remove the pump from use and contact Customer Service.
Clinician Bolus not available during Demand Dose	PCA: A Clinician Bolus may not be started while a Demand Dose is being delivered. Wait until the Demand Dose finishes, then start the Clinician Bolus if appropriate.
Clock Battery needs service soon	The clock battery must be replaced soon. When feasible, remove the pump from use and return it for replacement of the clock battery.
Clock Battery is low / Service immediately	The clock battery is low and must be serviced. Close the tubing clamp and remove the pump from use. Contact Customer Service for replacement of the clock battery.
Communications Failed	The pump is on the receiving end of Communications, and Communications has failed. Press NEXT to silence the alarm. Wait for the person initiating communications to call you back. Make sure your modem phone is hung up.

Message	Corrective Action
Completing Self Tests / <Please Wait>	The pump requires time to perform self tests during power-up. Wait until the self tests are completed and the main screen appears.
Current Concentration cannot be turned off	PCA: The currently programmed Concentration cannot be disabled. Exit the Biomed Toolbox and change to a different Concentration. Then return to the Biomed Toolbox and turn off this concentration.
<Custom>	On a programming screen, this indicates that available settings have been customized. On a screen in which a code is entered, this message indicates the pump's Lock Level Code has been customized.
Delivery Too Slow / External power source must be con- nected	The 9 volt battery does not provide sufficient power to support the programmed delivery rate. Connect an external source of power. Or, if appropriate, acknowledge the message and allow delivery to proceed at the lower rate by pressing NEXT .
Demand Dose Started	PCA: This message indicates a Demand Dose has been started.
Dose Duration is being lengthened	INTERMT: You have entered a new volume that would cause the delivery rate to exceed the maximum rate of 350 ml/hr. The pump has automatically lengthened the Dose Duration to accommodate the volume you entered, but you will need to either confirm that this new duration is acceptable or enter a new duration.
Dose Cycle is being lengthened	INTERMT: The Dose Duration you entered exceeds the Dose Cycle that is currently programmed. The pump has automatically lengthened the Dose Cycle, but you will need to either confirm that the new cycle is acceptable or enter a new cycle.
Dose Not Delivered / Dose not available when pump is stopped	PCA: The pump must be running in order to start a Demand Dose. First start the pump, then request a Demand Dose.

Message	Corrective Action
Dose Not Delivered / Dose Locked Out	PCA: The Lockout Time or Max Doses per Hour is preventing the Demand Dose from being delivered. Wait until the lockout time elapses before requesting a Demand Dose.
Dose Not Delivered / No Dose programmed	PCA: The Demand Dose amount is set to 0. Therefore, a Demand Dose cannot be delivered.
Dose scheduled to start in — minutes / Start the pump	INTERMT: The pump is stopped, but a dose is scheduled to be delivered in the number of minutes indicated. In order for the dose to be delivered, you must start the pump.
Dose scheduled to start is now overdue / Start the pump	INTERMT: The pump is stopped, but a dose is overdue for its scheduled delivery. In order for the dose to be delivered, you must start the pump.
Error Detected / E (code)	A pump fault has occurred. Close the tubing clamp and remove the pump from use. Contact Customer Service to return the pump for service.
External Power Needed for High Rate	An external power source must be attached to achieve the rate that has been programmed.
External Power Source Faulty / Change Power Source	The power pack or the AC Adapter is faulty. Ensure the cords and cables are properly attached. If this does not correct the problem, replace the power source.
Finished / Please remove cable	Printing has finished. Remove the cable from the Data In/Out jack to continue.
High Pressure	The pump has detected high pressure, which may be resulting from a downstream blockage, kink in the fluid path, or a closed tubing clamp. Remove the obstruction to resume operation. Or, press  to stop the pump and silence the alarm for 2 minutes, then remove the obstruction and restart the pump.
High Volume Admin set not supported in this version of PCA / Remove admin set	The CADD-Prizm High Volume Administration Set cannot be used with the PCA delivery mode. You must remove the set to continue.

Section 7: Reference & Troubleshooting

Message	Corrective Action
High Volume Admin set Required	A CADD-Prizm High Volume Administration Set is required to deliver the programmed rate. Replace the current disposable with a CADD-Prizm High Volume Administration Set.
Infusion Period is being lengthened	TPN: The new setting you entered would cause the Plateau Rate to exceed the maximum of 350 ml/hr. The Infusion Period has been lengthened to accommodate the new setting. Press NEXT, then confirm the new Period or program a different Period.
Infusion Period is being shortened	TPN: The new setting you entered would cause the Plateau Rate to be less than the minimum of 10 ml/hr. The Infusion Period has been shortened to accommodate the new setting. Press NEXT, then confirm the new Period or program a different Period.
Insufficient External Power	The AC Adapter is not receiving power or the power pack is completely depleted. Ensure the cords and cables are properly attached. Or, begin recharging the power pack.
Key Stuck / Release key or remove power to stop pump	A key may be pressed down. Release all keys. If the alarm persists, close the tubing clamp and remove the pump from use. Contact Customer Service to return the pump for service.
Lock cassette before starting	PCA: The cassette has been properly latched. Lock the cassette or the pump will not run.
Micrograms On / Cannot turn off current programming units	PCA: Micrograms cannot be turned off because they are the current programming units. First, change the Units, then turn off Micrograms.
Motor is temporarily disabled / Remove power and restart pump	The pumping mechanism temporarily stopped. Remove the external power source (if applicable). Then remove and reinsert the 9 volt battery and reconnect the external power source if desired. Restart the pump.
Motor service due	The pump's motor requires service. Remove the pump from use at the next cassette change and contact Customer Service to return the pump for service.

Message	Corrective Action
No Air Detector attached	This message appears at power up to inform you that no Air Detector is attached to the pump. "Air Eliminating Filter Recommended" will also appear if the pump is in the TPN delivery mode.
No changes allowed	The current lock level does not allow changes to the setting displayed on the screen.
No Dose Volume Programmed / Pump will not run	INTERMT: The pump will not start if a dose has not been programmed. Follow the instructions in Section 2 for programming the pump.
No Rate or Dose Programmed / Pump will not run	PCA: The pump will not start if no rate or doses have been programmed. Follow the instructions in Section 2 for programming the pump.
Possible hardware problem / Service pump	There may be a hardware problem with the Air Detector. Have the Air Detector replaced.
Power Pack Depleted / Change Power Source	The power pack is depleted and unable to support pump operation. The 9 volt battery is supplying power. Recharge the power pack with the AC Adapter.
Power Pack Disconnected	The power pack is disconnected from the pump. Reconnect the power pack, attach an AC Adapter, or allow the pump to run on the 9 volt battery power.
Power Pack Good	The power pack is providing sufficient power to run the pump.
Power Up Successful	Power-up has been successfully completed. Wait for the main screen to appear.
Press ENTER to save	This message appears within 10 seconds of changing a setting to remind you to press ENTER to save the setting.
Prev. Maint. Reminder (date)	Your institution may have established a maintenance program for the pump and preventive maintenance is due. Refer to your institution's policy.

Section 7: Reference & Troubleshooting

Message	Corrective Action
Print Failure / Check printer & cable	Printing has stopped. The paper may be out or jammed, the printer may have lost power, or the printer may be off-line. Press (M) to silence the alarm and refer to the printer manual to correct the problem. Then remove and reattach the cable and repeat printing.
Printing Stopped / Print Again?	During printing, ▼ was pressed, signalling printing to stop. To start over, press ▲. To exit printing, press ▼.
Pump is ready to program	The delivery mode has been successfully changed. The pump is ready to be programmed.
Range: Limited	This message appears on rate, dose, or Reservoir Volume screens when the pump is in LL1. It indicates that the range of programmable values is limited by the value programmed in LL0 (i.e. you cannot increase the value beyond what was programmed in LL0).
Reservoir latched	The MEDICATION CASSETTE reservoir has been latched onto the pump.
Reservoir Volume is zero	The Reservoir Volume has reached 0.0 ml. Press (M) to stop the alarm. Then install a new reservoir if appropriate.
Reservoir Volume Low	The Reservoir Volume value is low, indicating that the level of fluid in the reservoir is low. Prepare to install a new reservoir.
Reset Reservoir Volume to (X) ml?	If you wish to reset the Reservoir Volume to the originally programmed value, press ▲. To leave the Reservoir Volume value unchanged, press ▼.
Review Only	This indicates the setting displayed cannot be changed while the pump is running. This message also appears on the Air Detector review screen.
Self Tests Complete / <Please Wait>	The power-up self tests have been completed successfully. Wait for the main screen to appear.

To continue, unlatch and remove the Admin set or reservoir / Then reattach

The cassette was not completely removed from the pump before it was reattached and, therefore, the pump's sensors are not able to detect the cassette type. Remove the cassette and reattach it, then verify the cassette type in the pump's display. If this alarm persists, remove the pump from use and contact Customer Service to return the pump for service.

Wrong Cassette

The pump detects the cassette is damaged, attached improperly, or incompatible with the pump. Close the tubing clamp. Make sure the cassette is attached properly. Then open the clamp and restart the pump. If the alarm persists, you may need to replace the cassette.

Specifications (Nominal)

General Pump Specifications

Resolution	MEDICATION CASSETTE reservoir or CADD Administration Set, 0.050 ml/pump stroke nominal CADD-Prizm High Volume Administration Set, 0.100 ml/pump stroke nominal
Size	4.4 cm × 10.4 cm × 14.1 cm (1.7 in. × 4.1 in. × 5.6 in.) excluding cassette or other accessories
Weight	568 g (20 oz.) including 9 volt battery and empty 100 ml MEDICATION CASSETTE reservoir, excluding other accessories
Pump Alarms	Low battery power; depleted battery power; external power source low, faulty, depleted; pump stopped; pump fault; low reservoir volume; high delivery pressure; air in line; Air Detector faulty or detached (only with the use of the optional Air Detector); Air Detector Port Cover detached; delivery too slow; key stuck; cassette detached or unlocked; print failure.
Bolus Volume at Occlusion	
Alarm Pressure	0.050 ml resolution sets/reservoirs: <0.25 ml 0.100 ml resolution sets: <2.0 ml
Power Sources	9 volt alkaline or lithium battery such as DURACELL® Alkaline MN 1604 or ULTRALIFE® Lithium U9VL; Power Pack reorder number 21-3801; AC Adapter. The expected life of a 9 volt battery is 12 hours at 100 ml/hour, or approximately 5 days at 10 ml/day (nominal). This estimate is based on laboratory tests conducted at room temperature using a fresh battery. Actual battery life will vary depending on the brand of battery, battery shelf life, temperature conditions, delivery rate, and frequency of screen display, back-lighting and printing. It is recommended that a fresh 9 volt battery be kept available for replacement if necessary. An internal battery powers the clock. When it is depleted, it cannot reliably maintain the clock time. This battery must be replaced by the manufacturer. The internal battery has an expected life of 5 years.

System Operating

Temperature +2°C to 40°C (36°F to 104°F)

System Storage

Temperature -20°C to 60°C (-4°F to 140°F)

Power Pack Charging

Temperature +10°C to 35°C (50°F to 95°F)

System Delivery

Accuracy $\pm 6\%$ (nominal)

High Pressure Alarm 18 ± 9 psi

Air Detector Alarm Single bubble greater than 0.100 ml

PCA Delivery Mode Specifications

Reservoir Volume 1 to 9999 or Not In Use; programmable in 1 ml increments, displayed in 0.1 ml increments
Default: 1 ml

Units Milliliters (ml), milligrams (mg), micrograms (mcg)
Default: milligrams

Concentration Mg/ml: 0.1, 0.2, 0.3, 0.4, 0.5, 1, 2, 3, 4, 5, 10, 15, ... 95, 100
Mcg/ml: 1, 2, 3, 4, 5, 10, 15, ... 95, 100, 200, 300, 400, 500
Default: 1

Continuous Rate 0 – 30 ml/hr (or the mg or mcg equivalent)
Default: 0 mg/hr

Demand Dose 0 to 9.9 ml
Default: 0 mg/hr
Delivery rate (Continuous Rate + Demand Dose): 125 ml/hr nominal

Demand Dose Lockout 5 minutes to 24 hours in the following increments:
1 minute for values between 5 and 20 minutes
5 minutes between 20 minutes and 24 hours
Default: 5 minutes

Max Doses Per Hour 1 – 12 doses in 1 dose increments (will also be limited by the Demand Dose Lockout value)
Default: 1

Demand Doses Given 0 to 999

Demand Dose Attempts ... 0 to 999

Section 7: Reference & Troubleshooting

Given 0 to 99999.99 in 0.01 unit increments
Clinician Bolus 0.1 ml to 20.00 ml (or mg or mcg equivalent)
Delivery rate (Continuous Rate + Clinician Bolus):
125 ml/hr nominal

Continuous Delivery Mode Specifications

Reservoir Volume 1 to 9999 or Not In Use; programmable in 1 ml increments, displayed in 0.1 ml increments
Default: 1 ml
Continuous Rate 0.1 – 350 ml/hr in the following increments:
0.1 for values between 0.1 and 100
1 for values between 100 and 350
Default: 0 ml/hr
Use 9 volt battery for rates up to 250 ml/hr; use power pack or AC adapter for rates up to 350 ml/hr.
Given 0 to 99999.9 in 0.1 unit increments

TPN Delivery Mode Specifications

Reservoir Volume 10.0 to 9990 or Not In Use; programmable in 1 ml increments, displayed in 0.1 ml increments
Default: 10 ml
Infusion Volume 10 – 9990 ml in 10 ml increments:
Default: 10 ml
Infusion Period 0 hrs 10 min - 99 hrs 50 min in 10 minute increments:
Default: 1 hr 0 min
Taper-Up Period 0 hrs 0 min - 99 hrs 40 min in 10 minute increments:
Default: 0 hrs 0 min
Taper-Down Period 0 hrs 0 min - 99 hrs 40 min in 10 minute increments:
Default: 0 hrs 0 min
Plateau Rate Calculated by pump; 10 - 350 ml/hr
Use 9 volt battery for rates up to 250 ml/hr; use power pack or AC adapter for rates up to 350 ml/hr.
KVO Rate Calculated by pump; V_{10} of Plateau Rate up to 5 ml/hr
Given 0 to 99999 in 0.1 unit increments



Intermittent Delivery Mode Specifications

Reservoir Volume	1 to 9999 or Not In Use; programmable in 1 ml increments, displayed in 0.1 ml increments Default: 1 ml
Dose Volume	0.1 - 1000 ml in the following increments: 0.1 for values between 0.0 and 100 1 for values between 100 and 1000 Default: 0.0 ml
Dose Duration	1 min - 24 hrs in the following increments: 1 minute for values between 1 min and 10 min 5 minutes for values above 10 min Default: 30 min Duration is limited by Dose Volume so that rate does not exceed 350 ml/hr. Use 9 volt battery for rates up to 250 ml/hr; use power pack or AC adapter for rates up to 350 ml/hr.
Dose Cycle	10 min - 96 hrs in 5 minute increments; Default: 4 hrs
KVO Rate	0 - 10 ml/hr in 0.1 ml/hr increments Default: 0 ml/hr
Next Dose Start Time	10 min - 96 hrs X min (where X equals a 10-minute increment in the 96th hour) or Immediate; programmable in 10 minute increments Default: Immediate
Given	0 to 99999.9 in 0.1 unit increments
Time Remaining	Dose and Cycle display in 1 minute increments



Optiens Specifications

Immediate Taper-Down (TPN)	0 to time remaining in the infusion period, in 10 minute increments (defaults to the currently pro- grammed Taper-Down)
AutoLock	Not In Use, LL1, or LL2
Time	00:00 to 23:59
Air Detector	Turned On or Turned Off
Event Log	0 – 500 events
Extended History	Up to 48 hours in 1 hour increments

Biomed Toolbox Specifications

PM (Preventive Main- tenance) Reminder	1 to 24 months in 1 month increments, Not In Use
Custom Lock Level Code	1 – 899 (excluding preset code) in increments of 1
Date Format	US Standard (mm/dd/yy) or European Standard (dd/mm/yy)
Power Source Display	Always display or Only Low Battery
Air Detector Required	Required or Not Required



Cleaning the Pump and Accessories

CAUTION:

- Do not immerse the pump in cleaning fluid or water. Do not allow solution to soak into the pump, accumulate on the keypad, or enter the battery compartment.
- Do not allow solution to enter the Data In-Out jack or the Power jack. Make sure the jack covers are closed before cleaning.
- Do not expose the open Air Detector port area of the pump or the connector opening on the Air Detector to foreign material, moisture, or cleaning fluids. If an Air Detector is not installed on the pump, make sure the Air Detector port cover is securely attached before cleaning.
- Do not clean the pump with acetone, other plastic solvents, or abrasive cleaners

Use any of the following solutions to clean the pump and accessories:

- Soap solution
 - Benzalkonium Chloride concentrate (0.13%)
 - Glutaral Concentrate, USP (2%)
 - 10 percent solution of household bleach (one part household bleach to nine parts water)
 - Alcohol, USP (93%)
 - Isopropyl Alcohol, USP (99%)
1. Dampen a soft, lint-free cloth with cleaning solution. Apply the solution to exterior surface of the pump or accessory. *Do not allow the solution to soak into the pump or accessory.*
 2. Wipe the entire surface dry with another soft, lint-free cloth. Allow the pump to dry completely before use.

Exposure to Radiation or Magnetic Resonance Imaging (MRI)

CAUTIONS:

- (1) The CADD-Prizm pump **SHOULD NOT BE DIRECTLY IRRADIATED** by therapeutic levels of ionizing radiation because of the risk of permanent damage to the pump's electronic circuitry. The best procedure to follow is to remove the pump from the patient during therapeutic radiation sessions or diagnostic levels of radiographic and fluoroscopic radiation. If the pump must remain in the vicinity during a diagnostic or therapy session, it should be shielded, and its ability to function properly should be confirmed following treatment.
- (2) Magnetic fields produced by magnetic resonance imaging (MRI) equipment may adversely affect the operation of the pump. Remove the pump from the patient during MRI procedures and keep it a safe distance away from magnetic energy.

PCA Delivery Mode: Continuous Rate Scroll Ranges

Units	Start/Inc Value	Increment	Maximum	
Milliliters	0.10	0.10	30.00	
Milligrams & Micrograms	10% of concentration	Mg only: Values between 0.01 and 0.5: Mcg only: Values between 0.1 and 0.5: Values between 0.5 and 100: Values between 100 and 1000: Values greater than 1000:	0.01 0.1 0.1 1.0 10.0	Concentration × 30

PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Milliliters

Milliliters			
Demand Dose		Clinician Bolus	
Increment	Max	Increment	Max
0.05	9.9	0.05	20

PCA Delivery Mode: Demand Dose, Clinician Bolus Scroll Ranges, Milligrams

Concentration mg/ml	Milligrams			
	Demand Dose increment	max	Clinician Bolus increment	max
0.1	0.01	0.99	0.01	2
0.2	0.02	1.98	0.02	4
0.3	0.03	2.97	0.03	6
0.4	0.04	3.96	0.04	8
0.5	0.05	4.95	0.05	10
1	0.05	9.9	0.05	20
2	0.10	19.8	0.10	40
3	0.15	29.7	0.15	60
4	0.20	39.6	0.20	80
5	0.25	49.5	0.25	100
10	0.50	99.0	0.50	200
15	0.75	148.5	0.75	300
20	1.00	198.0	1.00	400
25	1.25	247.5	1.25	500
30	1.50	297.0	1.50	600
35	1.75	346.5	1.75	700
40	2.00	396.0	2.00	800
45	2.25	445.5	2.25	900
50	2.50	495.0	2.50	1000
55	2.75	544.5	2.75	1100
60	3.00	594.0	3.00	1200
65	3.25	643.5	3.25	1300
70	3.50	693.0	3.50	1400
75	3.75	742.5	3.75	1500
80	4.00	792.0	4.00	1600
85	4.25	841.5	4.25	1700
90	4.50	891.0	4.50	1800
95	4.75	940.5	4.75	1900
100	5.00	990.0	5.00	2000

PCA Delivery Mode: Demand Dose, Clinician Bolus

Scroll Ranges, Micrograms

Concentration mg/ml	Micrograms			
	Demand Dose mg/min sec		Clinician Bolus mg/min sec	
1	0.05	9.9	0.05	20
2	0.10	19.8	0.10	40
3	0.15	29.7	0.15	60
4	0.20	39.6	0.20	80
5	0.25	49.5	0.25	100
10	0.50	99.0	0.50	200
15	0.75	148.5	0.75	300
20	1.00	198.0	1.00	400
25	1.25	247.5	1.25	500
30	1.50	297.0	1.50	600
35	1.75	346.5	1.75	700
40	2.00	396.0	2.00	800
45	2.25	445.5	2.25	900
50	2.50	495.0	2.50	1000
55	2.75	544.5	2.75	1100
60	3.00	594.0	3.00	1200
65	3.25	643.5	3.25	1300
70	3.50	693.0	3.50	1400
75	3.75	742.5	3.75	1500
80	4.00	792.0	4.00	1600
85	4.25	841.5	4.25	1700
90	4.50	891.0	4.50	1800
95	4.75	940.5	4.75	1900
100	5.00	990.0	5.00	2000
200	10.00	1980.0	10.00	4000
300	15.00	2970.0	15.00	6000
400	20.00	3960.0	20.00	8000
500	25.00	4950.0	25.00	10000

Military Time Conversion Chart

12-Hour Time	Military Time
12:00 AM (midnight)	00:00
1:00 AM	01:00
2:00 AM	02:00
3:00 AM	03:00
4:00 AM	04:00
5:00 AM	05:00
6:00 AM	06:00
7:00 AM	07:00
8:00 AM	08:00
9:00 AM	09:00
10:00 AM	10:00
11:00 AM	11:00
12:00 PM (noon)	12:00
1:00 PM	13:00
2:00 PM	14:00
3:00 PM	15:00
4:00 PM	16:00
5:00 PM	17:00
6:00 PM	18:00
7:00 PM	19:00
8:00 PM	20:00
9:00 PM	21:00
10:00 PM	22:00
11:00 PM	23:00

Downloading Reports to a PC

With an Interface Cable and the appropriate adapters, you can connect the CADD-Prizm pump to a PC so a report can be viewed on the PC's screen, downloaded to a text file, or printed to the PC's printer. The following must be available:

- Interface Cable
- Serial port available on the PC
- PC communications software package installed on the PC (for example, Microsoft Terminal provided with Microsoft Windows version 3.1, or HyperTerminal provided with Windows 95). The communications software must be configured as follows:

Baud rate:	9600
Data length:	8
Stop bits:	1 or 2
Flow control:	Hardware
Communications port:	Com1 or Com2, depending on availability
Parity:	Odd
- Female-to-female 25-pin null modem adapter from a computer equipment retailer (such as part number VC4915C from Global Computer Supplies)
- If the PC has a 9-pin communications port, a DB-9 female to DB-25 male adapter (such as part number VC4338 from Global Computer Supplies)



Connecting the pump to a PC, displaying a report on the screen

1. Disconnect the pump from the patient.
2. Run the communications software on the PC.
3. Connect the Interface cable to the pump's Data In/Out Jack. Connect the adapter(s) to the appropriate communications port on the PC.
4. The print menu should appear on the pump's display. On the pump's keypad, press ▲ or ▼ to select the desired report, then press **ENTER**. The report should appear on the PC's screen.

NOTE: If the report is double spaced, try turning off the communications software's line wrap feature.

Downloading a report to a PC file

Follow the procedure above, but in step 2, use the communications software's *receive file* feature and enter the desired file name. Then connect the pump and print the report as described in steps 3 and 4. When the report finishes printing, turn off the receive text file feature.

Sending a report through the PC to your printer

Follow the procedure above, but in step 2, use the communications software's *printer echo* or *capture to printer* feature. Then connect the pump and print the report as described in steps 3 and 4.

NOTE: You may have to turn off the *printer echo* or *capture to printer* feature before the complete report will be printed.



Index

Bold page numbers indicate figure references.

Symbols

"?" key. See Help key

A

AC Adapter, 9, 10, 94, 100, 110
 attaching, 90
 Access Code, 15, 70
 administration set, 9, 101, 105, 106
 attaching, 55
 removing, 54
 Air Detector, 9, 83, 101, 107, 110, 114
 installing/removing, 95
 loading tubing into, 59
 status screen, 18, 23, 28, 34, 36, 40, 43, 47, 50
 turning on/off, 74
 Air Detector alarm, 99, 101
 Air Detector Port Cover, 9, 95, 96
 Air Detector Requirement, 74, 83, 101, 114
 alarms, 100, 110
 amber indicator light, 7, 8, 18
 AutoLock, 15, 16, 18, 61, 102, 114
 setting, 71

B

backlighting, 8
 battery, 9 volt, 4, 7, 10, 12, 13, 83, 90, 100, 110, 114
 installing, 11
 battery, clock, 72, 103
 battery life, 11, 110
 Biomed Toolbox, 21, 23, 68, 78
 Air Detector Requirement, 83, 101

Concentration Customization, 79
 Custom Lock Level Code, 82
 Date Format, 82
 Extended History on/off, 81
 micrograms on/off, 79
 Power Source Status Display, 83
 Preventive Maintenance Reminder, 81
 screen map, 78
 specifications, 114
 Biomed Toolbox Code, 15, 78, 82

C

cassette, 7
 attaching, 55
 removing, 54
 cassette latch, 10, 56
 cassette lock, 10, 56, 102
 Clinician Bolus, 103, 112
 starting, 30
 stopping, 32
 Clinician Bolus Code, 15, 30
 clock battery, 103
 Communications option, 64
 concentration, 21, 102, 104, 111
 programming, 25
 concentrations, customizing, 79-80
 Continuous delivery mode
 main screen, 13
 programming example, 35-36
 programming screens, 33-34
 specifications, 112
 Continuous Rate, 21, 29, 34, 37, 111, 112
 programming, 25, 26, 35
 Custom Lock Level Code, 15, 82, 98, 114
 cycle, 45, 51, 67

D

Data In/Out jack, 7, 9, 87, 91
 date, 16, 73
 date format, 82, 114
 DELAY message, 12

Section 7: Reference & Troubleshooting

delivery mode, 2, 12
 changing, 16, 70
Demand Dose, 21, 22, 23, 25, 26, 29, 72,
 91, 104, 105, 111
 programming, 26
 starting, 31
 stopping, 32
Demand Dose Lockout, 22, 31
 programming, 26
Dose Counters, 22, 27
 clearing, 27
Dose Cycle, 46, 49, 104, 113. *See also*
 cycle
Dose Duration, 46, 49, 104, 113
Dose key, 22, 31
Dose Rate, 47, 50
Dose Volume, 46, 48, 107, 113
Doses Hour by Hour, 68, 69
Downstream Occlusion Sensor, 10

E

Event Log, 16, 23, 28, 70, 75, 114
 Event Log Report, 86
Extended History, 23, 28, 67, 72, 73, 86,
 114
 Doses Hour by Hour, 68
 Extended History Report, 86
 Patient Review, 68, 69
 turning on/off, 81
 viewing, 67
extension set, 55, 56

G

Given screen, 23, 27, 34, 36, 40, 43, 47,
 50, 112, 113
 clearing, 27, 36, 43, 50
green indicator light, 7, 8, 18, 61

H

Help, help key, 8, 14, 15, 16

I

Immediate Taper-Down, 16, 65, 114
indicator lights, 7, 8, 18, 61
Infusion Period, 39, 42, 65, 106, 112
infusion profile, 38, 39, 44, 57, 65
Infusion Volume, 39, 42, 112
Interface Cable, 9, 86, 87
Intermittent delivery mode, 67
 main screen, 13
 programming example, 48–50
 programming screens, 45–47
 specifications, 113

K

keypad, keys, 7, 8
KVO rate, 38, 40, 43, 45, 46, 49, 67,
 112, 113

L

latch, cassette, 7, 10, 56
lock, cassette, 7, 10, 56
lock level, 8, 14, 15, 16, 18, 61
 changing, 17, 60
Lock Level Code, 15, 17, 60
 customizing, 15, 82
Lockout, Demand Dose, 22, 26, 31

M

Magnetic Resonance Imaging, 116
main screen, 13, 18, 83
Marker, New Patient, 23, 28
Max Doses Per Hour, 22, 111
 programming, 27
messages, list, 100
micrograms, 21, 79, 99, 106, 111
 turning on/off, 79
military time conversion table, 120

N

"N" (No) key, 9
 New Patient Marker, 23, 28
 Next Dose Start Time, 45, 47, 49, 51, 67,
 103, 113

O

occlusion sensor, downstream. *See*
 downstream occlusion sensor
 Options, 16, 23, 40, 47, 63-75
 Air Detector On/Off, 74
 Date, 73
 screen map, 64
 specifications, 114
 Time, 72

P

Patient Review, 68, 69
 PCA delivery mode
 main screen, 13
 programming example, 24-28
 programming screens, 20-23
 specifications, 111
 Plateau Rate, 40, 43, 106, 112
 PM Reminder, 114. *See* Preventive
 Maintenance Reminder
 Polemount Bracket, 10, 94
 Polemount Bracket recess, 7
 Power jack, 7, 9
 power pack, 10, 90, 94, 107, 111
 Power Source Status display, 13, 83, 114
 power-up, 12, 81, 107
 Preventive Maintenance Reminder
 setting/resetting, 81
 priming, 16, 21, 23, 34, 39, 46, 58, 66
 printing, 9, 16, 86-89, 87, 107, 108
 cancelling, 89
 programming
 screen map, 20, 33, 38, 45, 64, 78

R

radiation, exposure to, 4, 116
 rate. *See* Continuous Rate
 rate display, 40, 43
 Remote Dose Cord, 9, 22, 31, 91
 reports
 Event Log, 86
 Extended History, 86
 Rx Settings, 86
 reservoir, 4, 5, 9, 10, 21, 24, 34, 35, 39,
 41, 46, 48, 108, 109, 110
 attaching, 55
 removing, 54
 Reservoir Volume, 5, 10, 13, 16, 21, 24,
 34, 35, 39, 41, 46, 48, 58, 62, 108,
 110, 111, 112, 113
 resetting, 57, 62
 Rx Settings report, 86

S

security codes
 Access Code, 15
 Biomed Toolbox Code, 15, 78, 82
 Clinician Bolus Code, 15
 customizing, 15, 82
 Lock Level Code, 15, 17, 60, 82, 98
 Security Shell, 92-93, 94
 settings report. *See* Rx Settings report
 specifications, 110-114

T

Taper-Down Period, 40, 42, 65, 112
 Taper-Up Period, 39, 42, 112
 Telecommunications, 64
 time, 16, 72, 114
 Time Remaining (Intermittent), 16, 67,
 113
 TPN delivery mode, 65
 main screen, 13
 programming example, 41-43
 programming screens, 38-40

Section 7: Reference & Troubleshooting

specifications, 112
starting infusion, 44
Troubleshooting, 98

U

units, 21, 111. *See also* micrograms
programming, 25

Y

“Y” (Yes) key, 9



Limited Warranty

SIMS Deltec, Inc. (the "Manufacturer") warrants to the Original Purchaser that the infusion pump (the "Pump"), not including accessories, shall be free from defects in materials and workmanship under normal use, if used in accordance with this Operator's Manual, for a period of two years from the actual date of sale to the Original Purchaser. **THERE ARE NO OTHER WARRANTIES.**

This warranty does not cover normal wear and tear and maintenance items, and specifically excludes batteries, administration sets, extension sets or any other accessory items or equipment used with the Pump.

Subject to the conditions of and upon compliance with this Limited Warranty, the Manufacturer will repair or replace at its option without charge (except for a minimal charge for postage and handling) any Pump (not including accessories) which is defective if a claim is made during such two-year period.

The following conditions, procedures, and limitations apply to the Manufacturer's obligation under this warranty:

A. Parties Covered by this Warranty: This warranty extends only to the Original Purchaser of the Pump. This warranty does not extend to subsequent purchasers. The Original Purchaser may be a patient, medical personnel, a hospital, or institution which purchases the Pump for treatment of patients. The Original Purchaser should retain the invoice or sales receipt as proof as to the actual date of purchase.

B. Warranty Performance Procedure: Notice of the claimed defect must be made in writing or by telephone to the Manufacturer as follows: Customer Service Department, SIMS Deltec, Inc., 1265 Grey Fox Road, St. Paul, MN 55112, (800) 426-2448. Notice to the Manufacturer must include date of purchase, model and serial number, and a description of the claimed defect in sufficient detail to allow the Manufacturer to determine and facilitate any repairs which may be necessary. **AUTHORIZATION MUST BE OBTAINED PRIOR TO RETURNING THE PUMP.** If authorized, the Pump must be properly and carefully packaged and returned to the Manufacturer; postage prepaid. Any loss or damage during shipment is at the risk of the sender.

C. Conditions of Warranty: The warranty is void if the Pump has been 1) repaired by someone other than the Manufacturer or its authorized agent; 2) altered so that its stability or reliability is affected; 3) misused; or, 4) damaged by negligence or accident. Misuse includes, but is not limited to, use not in compliance with the Operator's Manual or use with nonapproved accessories. The Pump is a sealed unit, and the fact that the seal has been broken will be considered conclusive evidence that the Pump has been altered or misused. Removal or damage to the Pump's serial number will invalidate this warranty.

D. Limitations and Exclusions: Repair or replacement of the Pump or any component part thereof is the EXCLUSIVE remedy offered by the Manufacturer. The following exclusions and limitations shall apply:

1. No agent, representative, or employee of the Manufacturer has authority to bind the Manufacturer to any representation or warranty, expressed or implied.
2. **THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS OR USE OF THE PUMP FOR ANY PARTICULAR PURPOSE.**
3. The Pump can only be used under the supervision of medical personnel whose skill and judgment determine the suitability of the Pump for any particular medical treatment.
4. All recommendations, information, and descriptive literature supplied by the Manufacturer or its agents are believed to be accurate and reliable, but do not constitute warranties.

E. Computer Program License:

1. The Pump is intended to be used in conjunction with a particular Licensed Computer Program supplied by Manufacturer and use of any other program or unauthorized modification of a Licensed Computer Program shall void Manufacturer's warranty as set forth above.
2. The Original Purchaser and any users authorized by the Original Purchaser are hereby granted a nonexclusive, nontransferable license to use the Licensed Computer Program only in conjunction with the single Pump supplied by Manufacturer. The Licensed Computer Program is supplied only in machine-readable object code form and is based upon Manufacturer's proprietary confidential information. No rights are granted under this license or otherwise to decompile, produce humanly readable copies of, reverse engineer, modify or create any derivative works based upon the Licensed Computer Program.
3. All other terms and conditions of this Limited Warranty shall apply to the Licensed Computer Program.

The Manufacturer disclaims responsibility for the suitability of the Pump for any particular medical treatment or for any medical complications resulting from the use of the Pump. The Manufacturer shall not be responsible for any incidental damages or consequential damages to property, loss of profits, or loss of use caused by any defect or malfunction of the Pump.

This warranty gives the Original Purchaser specific legal rights, and the Original Purchaser may have other legal rights which may vary from state to state.

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