

Abbott  
**PAIN MANAGEMENT PROVIDER™**

For use with List    13960-27  
                                 13960-36  
                                 13960-54

**System  
Operating  
Manual**

**M  
21**



ABBOTT LABORATORIES, NORTH CHICAGO, IL 60064, USA

430-85614-A03 (Rev. 5/95)



# Change History

<b>Part Number</b>	<b>Description of Change</b>	<b>F C</b>
430-85614-001 (Rev. 1/93)	New Release	
430-85614-A01 (Rev. 5/93)	Update cover, add change history page, and update contents	C
	Update Mains adapter information	2 8
	Update dipswitch information	2
	Update accessories section	9
	Update power source/AC mains specifications	10
	Update Delivery Rate Accuracy statement	10
	Add power supply symbols	10
	Replace warranty statement	12
430-85614-B01 (Rev. 6/93)	Update cover and change history	Cx
	Update IEC 601-1 symbol	10
430-85614-002 (Rev. 2/94)	Second Release	All
430-85614-003 (Rev. 11/94)	Third Release	All
430-85614-A03 (Rev. 5/95)	Update cover, change history, and TOC	Cc
	Update cleaning cautions, remove Cidex from Cleaning Solutions table, and revise bleach:water preparation from 1:4 to 1:10	6-2
	Update cleaning cautions and add patient supervision caution	8-2
	Revise storage temperature range from -25°C to -20°C	10
	Add CE Mark and representative's address, remove Cidex, and add copyright text	Ba

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12.1 Limited Warranty . . . . .

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# 1

## Introduction



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## 1.1 Overview of the Abbott Pain Management Provider

The Abbott Pain Management Provider is a single-chamber pump that delivers analgesia to patients in the hospital, outpatient treatment centers, and at home. The pump is used for pain management protocols, i.e., epidural, Patient Controlled Analgesia (PCA), and can also be used for other therapies that require infusion delivery schedules of continuous rates, 25 mL per hour, continuous with bolus, or bolus only.

The pump can be programmed in three units of measurement (mL), milligrams (mg), or micrograms ( $\mu\text{g}$ ).

Additional features of this pump are program locking, a remote bolus cord, carrying case, pole-mounted lockbox, connection and options for its power source: AC Mains, snap-in battery pack, or disposable 9-volt batteries. Safety features include built-in alarms for air or occlusions in the line, battery depletion, low power, and device malfunction.

## 1.2 Indications for Use

The pump is suitable for intravenous (central line or peripheral access), arterial, subcutaneous, and epidural infusion. The pump should be under the supervision of a healthcare professional who should be instructed in using and troubleshooting the pump. The instruction should emphasize preventing related IV complications, including appropriate precautions to prevent accidental air.

The epidural route can be used to provide anesthesia or analgesia. Approved anesthetic drugs (i.e., Chloroprocaine Hydrochloride, Lidocaine Hydrochloride) and analgesic drugs (e.g., Morphine Injection, Preservative-Free) can be administered epidurally using the recommended device sets without Y-injection sites.

## 1.3 Contraindications for Use

The pump should not be used by patients who do not have the mental and physical capability or emotional stability to receive infusion therapy with this device. Physicians or certified healthcare professionals should always oversee therapy.

Drugs not compatible with silicone rubber or PVC plastic tubing should not be used with the pump.

The drug reservoir should be a non-vented, collapsible container. If the drug reservoir is a vented fluid container, it should be connected to an IV pole.

## 1.4 Operating Controls

This section details the Abbott Pain Management Provider operating controls and their functions. To become familiar with the pump front panel, refer to *Figure 1-1, Abbott Pain Management Provider Front Panel* and the explanatory callouts. Following are illustrations and callouts that detail additional pump components.

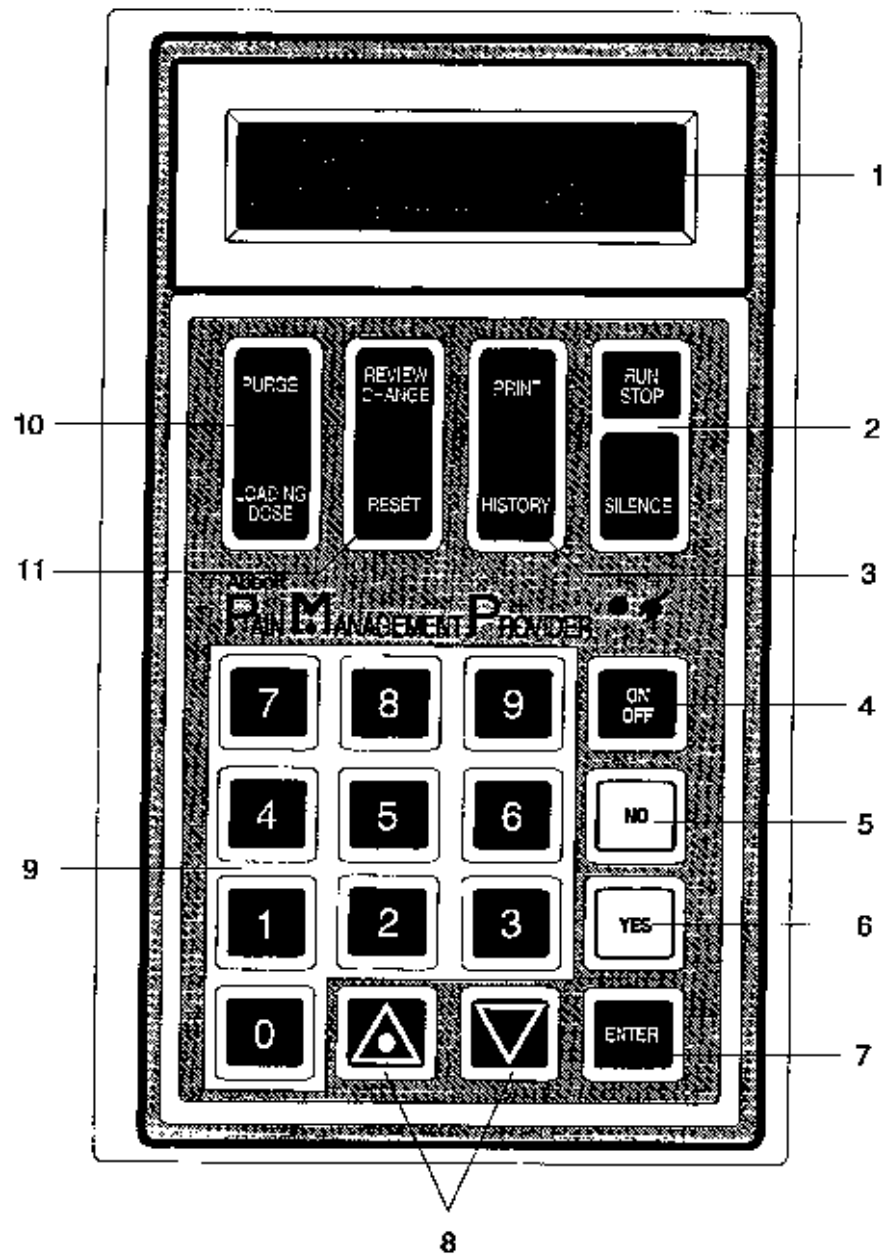


Figure 1-1 Abbott Pain Management Provider Front Panel

Display

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**1** Displays messages and user prompts.

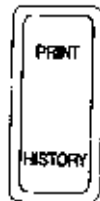
---



**2** Starts and stops an infusion.

Silences an alarm.

---



**3** Prints programmed parameters, amounts delivered in run mode or stop mode. Press PRINT again to stop printing.

Views the current program, amounts delivered, and Log. Press HISTORY again to advance to next display.

---



**4** Turns pump on and off.

---



**5** Responds NO to display prompts.

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**6** Responds YES to display prompts.

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**7** Accepts user selection and advances to next display.

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**8** Sets decimal points when entering numbers. Scrolls up and down.

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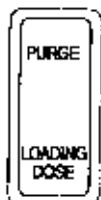
Returns to previous display.

Number Keypad

---

**9** Allows user to:

- Key in programming values.
  - Select display options.
  - Select day, year, hours, minutes when setting master
- 



**10** Purges the tubing.

Delivers a loading dose.

---

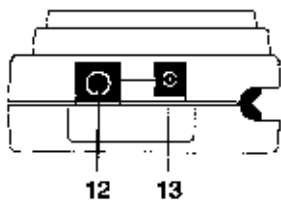


**11** Allows user to:

- Display a program.
- Change a program.
- Enter a new program.

Allows user to:

- Clear shift amounts.
  - Clear a program's run time parameters.
  - Clear an individual program parameter.
- 



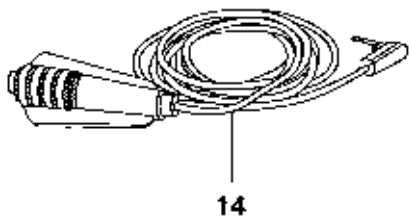
**12** Printer Port, RS-232C

An 8-pin connector on the pump connects cable to a compatible printer.

**13** AC Mains Port

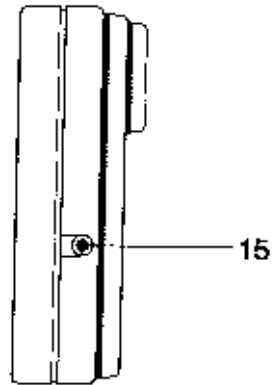
An AC Mains port connects AC Mains power supply to pump.

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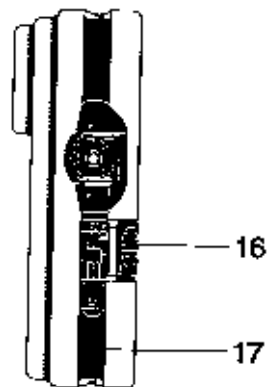
**14** Remote Bolus Cord

The remote bolus cord allows user to control programmed bolus dosing.



**15** Bolus Port

The bolus port or remote bolus controller.

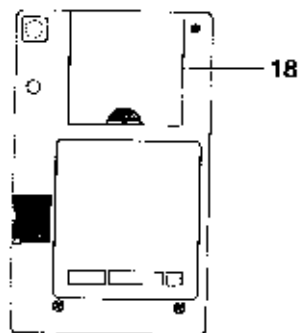


**16** Pump Latch

Open the pump latch to insert the cartridge.

**17** Cartridge Channel

Insert the cartridge into the cartridge channel.

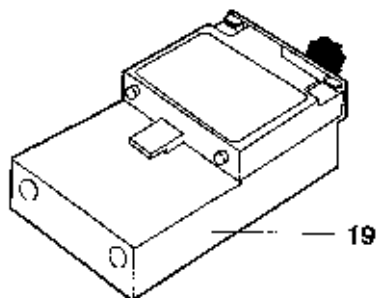


**18** Battery Compartment

Remove battery cover to load two, 9-volt Duracell batteries.

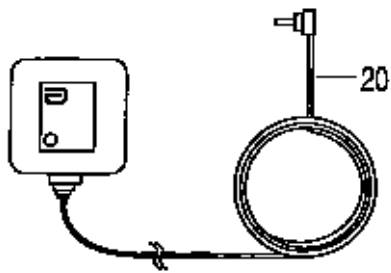
**CAUTION: Pump may vary with use of batteries.**

**Note:** When batteries are required, always recharge batteries. If pump is used for long periods, always use both batteries.



**19** Snap-In Battery Pack (Optional)

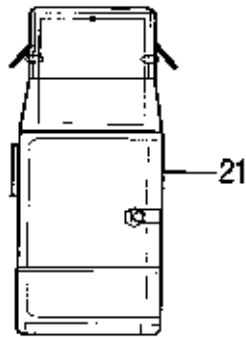
Connect snap-in battery pack to pump for alternate power.



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**20** AC Mains Power Supply

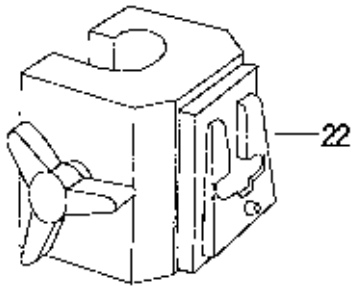
Connect AC Mains power to pump port and AC M outlet.



---

**21** Lockbox (Optional)

The lockbox secures the and drug container.



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**22** Pole Clamp

The pole clamp secures lockbox to a pole.

# 2

## **Setting Up the Abbo Pain Management Provider**



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## 2.1 Using AC Mains Power



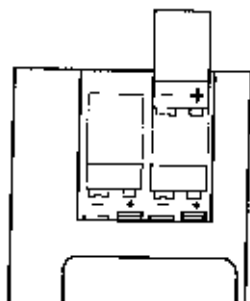
An AC Mains power supply with a 1.8 meter cord is supplied with the pump. In the event of a power outage or if the AC Mains power supply is disconnected from the wall, an alarm sounds. Use only Abbott AC Mains power supply, List Number 13036, which is designed for use with the pump. Do not use the AC Mains power supply with other accessories.

To use the power supply, connect the plug to the connector on the bottom of the pump. Connect the power supply plug to a 220-240 VAC outlet. (Input power should be 210-265 VAC). The power supply cannot be locked.

**Note:** If quality of AC Mains source is in doubt, always use a surge protector.

**WARNING: USE OF POWER ADAPTERS OTHER THAN LIST NUMBER 13036, COULD DAMAGE THE INTERNAL ELECTRONIC COMPONENTS OF THE DEVICE WHICH MAY CAUSE MALFUNCTION OF THE DEVICE INCLUDING OVERHEATING OF MEDICATION.**

## 2.2 Using Disposable Batteries



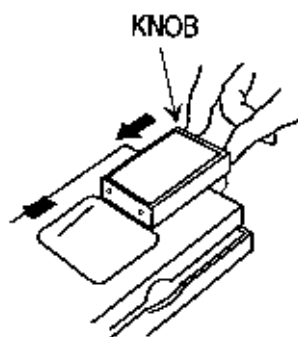
Use two 9-volt Duracell alkaline batteries in the pump. Insert the batteries into the battery compartment on the back of the pump. See Section 6.3, *Changing the Disposable Batteries*, for details.

**CAUTION:** Before starting an infusion, always verify that the batteries are in the pump.

**Note:** When battery change is required, always replace 1 battery at a time.

**Note:** If pump is stored for long periods, always remove batteries.

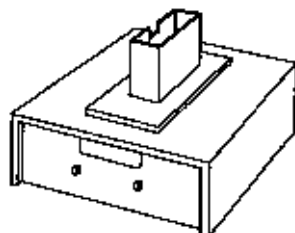
## 2.3 Using the Rechargeable Snap-In Battery Pack



An optional, rechargeable, snap-in battery pack, List Number 13037, can be used with the pump. To attach the snap-in battery pack to the pump, proceed as follows:

1. Remove the battery compartment cover. Store the cover in a safe place so it can be retrieved.
2. Slide the pack into the battery compartment.
3. While pressing the battery pack down, rotate its knob clockwise into position.
4. To remove the battery pack, rotate its knob counter-clockwise and slide the pack out.

## 2.4 Using the Battery Recharger



The optional battery recharger can only recharge the snap-in pack. Do not use the battery recharger with other battery packs. A battery pack will fully recharge in four to six hours. Unused packs should be charged on a monthly basis to ensure adequate charge for patient use.

To recharge the snap-in battery pack, plug the battery recharger into an appropriate AC Mains outlet. Insert battery pack into the cup. Do not force the battery pack into the charger cup. The pack will fit into the charger cup one way only. When the battery pack is inserted, the yellow light illuminates on the battery charger. When the battery pack is fully charged, the green light illuminates on the battery charger.

During charging, the battery pack is warm. If the battery pack becomes hot to the touch, remove it immediately and unplug the battery charger. Contact the local Abbott Laboratories representative.

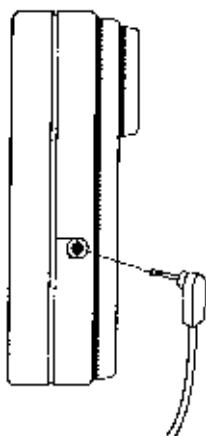
**Note:** The battery charger is designed for use with the Abbott Management Provider only.

## 2.5 Connecting the Remote Bolus Cord

The pump can be operated in bolus mode using the remote bolus cord.

To connect the remote bolus cord, proceed as follows:

1. With front panel facing user, turn pump to left side.
2. Insert pin connector into bolus cord port.



## 2.6 Required Infusion Materials

STERILE

2

This pump can be operated only with LifeCare Provider. The Provider Pump Set is a STERILE, SINGLE USE, disposable.

Refer to Section 9.1.1, *Abbott LifeCare Provider Pump Sets and Catheters*, for a listing and description of available sets.

Contact the Abbott Laboratories representative for appropriate. The minimum elements required for use with this pump are a nonvented, collapsible fluid container, the LifeCare Provider Pump Set, and a patient access device. Accessories such as filter extension sets may be added to the line as required by the physician.

For epidural administration, the following is recommended:

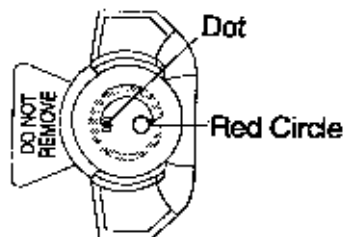
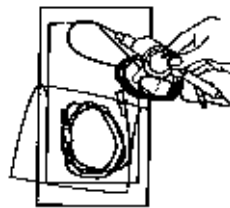
- Nylon or Teflon<sup>®</sup> catheter
- Pump sets without Y-injection sites
- Epidural stickers.

## 2.7 Setting Up the Cartridge Set and Container (Manually Purging, then Purging Through the Pump)

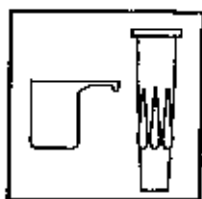
To attach and purge the cartridge set and flexible fluid container, proceed as follows:

1. Open package and separate cartridge set and anti-siphon extension set. Leave extension set in packaging.

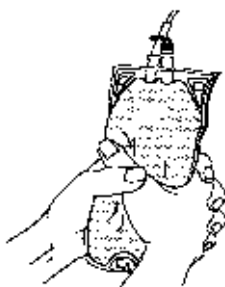
**Note:** Use aseptic technique with all fluid path connections. Remove protective coverings as assembly progresses.



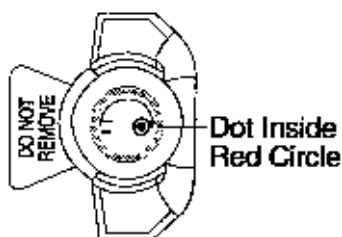
2. Confirm that the cartridge is in the open position and purging (dot is opposite red circle).



3. Remove protective cover from piercing pin port in fluid container.
4. Remove protective cover from the piercing pin on the cartridge.



5. Invert flexible fluid container so port is toward the ceiling, the piercing pin.
6. Confirm slide clamp is open.
7. Roll or squeeze end of fluid container to eliminate all air from distal end of the cartridge set.



8. Turn control knob on cartridge to the closed position (dot inside red circle).

**Note:** The control knob must be in the closed position before cartridge is loaded in the pump. Confirm the dot is inside circle.

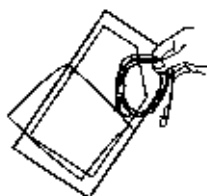
9. Continue purging as detailed in *Section 2.8, Attaching the Anti-Siphon Valve Extension Set*.

**WARNING: ARRANGE TUBING, CORDS, AND CABLES TO MINIMIZE THE RISK OF PATIENT STRANGULATION OR ENTANGLEMENT.**

## 2.8 Attaching the Anti-Siphon Valve Extension Set

To attach the anti-siphon valve extension set, proceed as follows:

1. Remove anti-siphon valve extension set from packaging.

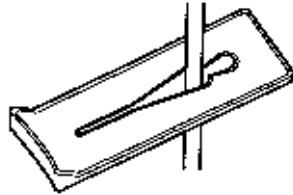


2. Remove protective cover over male connector on the cartridge.





3. Remove protective cover on anti-siphon valve extension. Connect two sets.

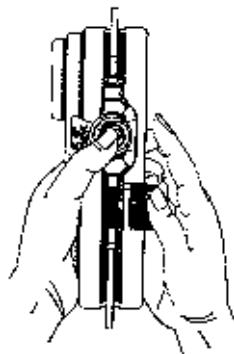
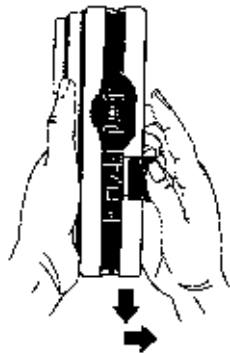


4. Open slide clamp on anti-siphon valve extension set and complete set in the pump (see Section 2.9, Loading) and purge (see Section 2.10, Purging the Complete S

## 2.9 Loading the Cartridge

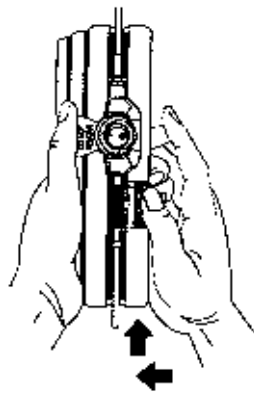
To load the cartridge, proceed as follows:

1. Open pump latch. Slide latch down, then out.



2. Align cartridge to cartridge channel.
3. Position cartridge control knob on metal locating post on cartridge channel.
4. Push cartridge into cartridge channel until firmly seated.

**Note:** The control knob must be in the closed position when the cartridge is loaded in the pump. Confirm the dot is in the circle.



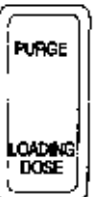






5. Close pump latch. Push latch in, then up. Confirm that cartridge is firmly locked into place.

## 2.10 Purging the Complete Set

Purge the complete set (container, cartridge set, and anti-siphon valve extension set) before an infusion or between changes in medication bags.

To purge, stop the pump. Begin at the RUN/STOP display screen.

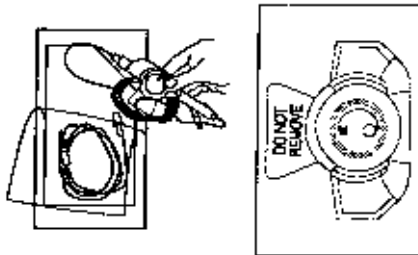
WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press 	<b>WARNING: PUMP MUST BE DISCONNECTED FROM PATIENT PRIOR TO PURGING.</b>
PURGE NOW? YES OR NO	Press 	
DISCONNECT FROM PATIENT NOW		Message displays.
TO PURGE, PRESS AND HOLD 'PURGE'	Press  and hold.	Observe fluid at distal end. Purging longer than two minutes results in a continuous alarm.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>PURGING 0.0 MG</p>		<p>Message flashes, in purging continues. amount is limited to delivered in two min Display records volu</p>
<p>PURGE COMPLETE? YES OR NO</p>	<p>Press </p>	<p>RUN/STOP display appears.</p>
	<p>Press </p>	<p>Once pump is in ru volume purged is st History Event Log.</p>
<p>PRESS RUN/STOP TO INFUSE</p>	<p>Press  </p>	<p>Purge begins again.</p> <p>Infusion begins.</p> <p>See Section 7.1, Trou Guide, if PURGE OV displays.</p>



## 2.11 Setting Up the Infusion Materials - Alternate Procedure (Purging Through the Pump)

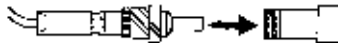
To connect the complete set, proceed as follows:



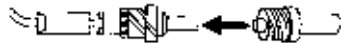
1. Open the package and separate cartridge set and anti-siphon valve extension set. Confirm that cartridge is open (dot is red circle).

**Note:** Use aseptic technique with all fluid path connections. Remove protective coverings as assembly progresses.

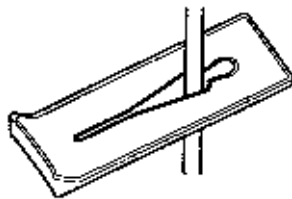
2. Remove protective cover over distal male connector of set.



3. Remove protective cover on anti-siphon valve extension set. Connect the two sets.



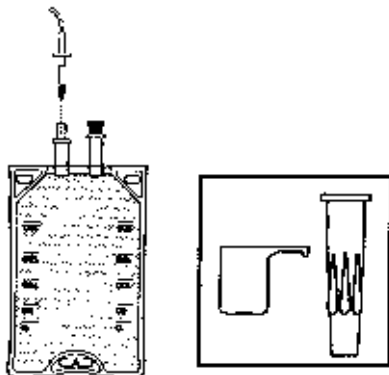
4. Confirm slide clamps on cartridge set and anti siphon valve extension set are open.

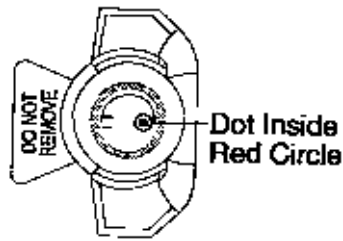


5. Remove protective covers from piercing pin port on fluid container and from piercing pin on cartridge set.

6. Invert fluid container so port is toward ceiling. Insert pierc

When inserting piercing pin, confirm all air is removed or expelled toward tubing. Air will then be purged as tubing is purged (Section 2.10, *Purging the Complete Set*).





7. Turn the control knob on the cartridge to the close is inside the red circle).

The complete set can now be loaded into the pump *Loading the Cartridge*) and purged (see *Section 2.1: Complete Set*).

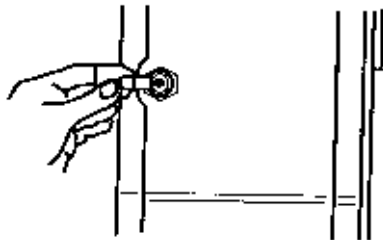
## 2.12 Using the Lockbox and Pole Clamp

The lockbox secures the pump with the cartridge and f in place. A key locks the lockbox door. A pole clamp a lockbox to a vertical, round, or square pole 1.3 cm to 3 diameter. Confirm lockbox is secure on pole when door

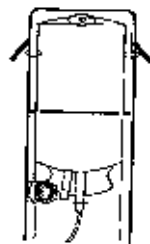
The lockbox provides access to the remote bolus plug, 1 plug, and the printer plug. The lockbox cannot secure the rechargeable battery pack is attached.

To secure the pump in the lockbox, proceed as follows:

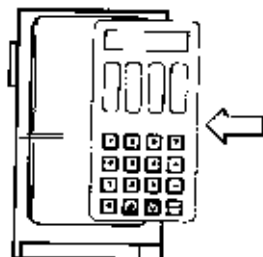
1. Open lockbox door with key.

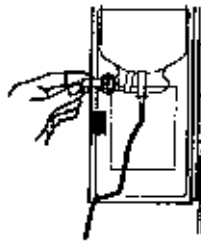


2. Place fluid bag or syringe in back of lockbox. Confirm pin and tubing between bag/syringe and pump are n (Pump signals occlusion only if kink is between pump)



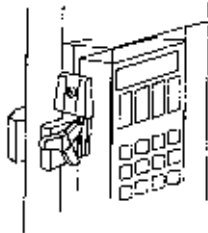
3. Slide the pump with installed cartridge from right to l of lockbox. Confirm tubing and cords emerge from lo appropriate openings.





---

4. Close lockbox door and lock with key.



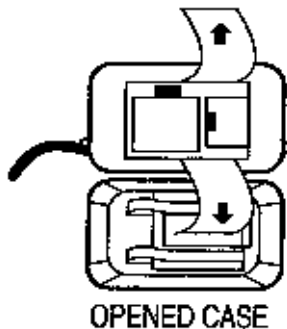
---

5. Secure lockbox to pole with pole clamp.

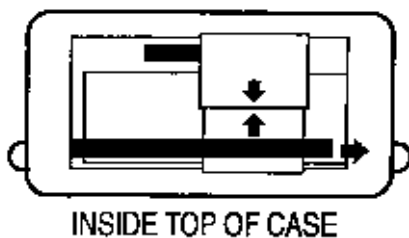
## 2.13 Using the Carrying Case

Pump and fluid bag should be placed in carrying case as shown in the following illustrations. Confirm tubing is not kinked between fluid bag and pump. (Pump signals occlusion only if kink is between pump and patient.)

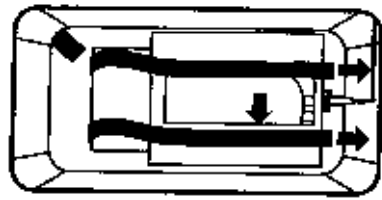
To use the carrying case, proceed as follows:



- 
1. Unzip top of case and release all Velcro<sup>®</sup> straps.
  2. Place the pump with installed cartridge in lid so back faces and display is visible in clear window.



- 
3. Secure the wide straps across the width of the pump.
  4. Secure the long black strap across the length of the pump.



INSIDE BOTTOM OF CASE



TOP VIEW OF CASE

---

#### FLUID CONTAINER:

5. Release black retaining straps.
  6. Open pocket flap Velcro in bottom of case.
  7. Insert fluid container with spike connection on open pocket.
  8. Secure pocket flap Velcro.
  9. Secure black retaining straps over pocket flap and tubing guides.
- 
10. The patient side of the tubing and the remote bolus (if connected) should emerge through the carrying case zipper gap.
  11. Zip the case closed.

**Note:** Carrying case strap can be adjusted to carry case on shoulder or around the waist.

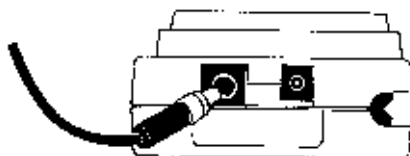
## 2.14 Connecting the Printer

Optional custom printer interface cables are available to connect the pump to a Seiko® DPU 411 printer or a Kodak Diconix® 180si printer. The RS-232C connector port is on the back of the pump, to the left of the AC Mains port.

**Note:** Printers are available from local sources. Printers must be operated on battery power only.

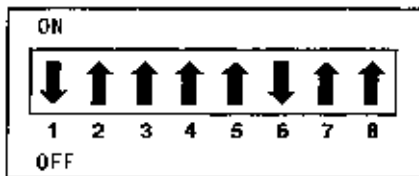
To connect the printer to the pump, proceed as follows:

- 
1. Connect printer interface cable.



- 
2. Connect printer interface cable.

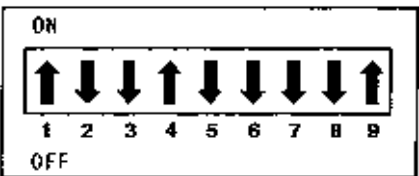
**CAUTION:** Do not plug AC Mains power supply into the pump.



Switch 1



Switch 2



Switch A



Switch B

Set the dipswitches on the bottom of the Seiko printer to match these illustrations.

The switch locations determine the data transmission rate (baud rate) of the printer.

Switch 1 is used for data formatting. Switch 2 is used for serial input. Consult the printer manual for more detailed information.

Set the dipswitches on the Kodak Diconix 150 Plus or 180si printer to match these illustrations.

Switch A is used for data formatting. Switch B is used for serial input. Consult the printer manual for more detailed information.

**Note:** Switch C is not used; it provides other communication options.

Set the Kodak 180si printer to meet the following parameters.

Current Printer Setting	C
(1) Emulation	=SP Command Set . . . . . Eps
(2) Page Length	=11 inches
(3) Perforation Skip	=Off . . . . .
(4) Character Set	=USA
(5) Character Default	=Roman8 . . . . . <b>Note: this will change</b>
(6) Carriage Return	=CR . . . . .
(7) Line Feed	=LF+CR . . . . .
(8) Graphic Print Dir	=Unidirectional
(9) LF/Graphic/Pitch Mode	=Normal
(10) Protocol	=RDY/BUSY
(11) Parity	=None
(12) Data Length	=8 bits
(13) Baud Rates (Stop Bits)	=9600 (1) . . . . .

# 3

## **Programming the At Pain Management Provider**

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## 3.1 Programming the Pump

Programming the Abbott Pain Management Provider a variety of low-rate infusion needs. Modes of delivery, units (mg,  $\mu$ g or mL), delivery rates, bolus operation, bolus delivery limits over a four-hour period, and loading doses programmed.

This section provides a series of examples that illustrate programming options.

## 3.2 Programming Options

Two delivery options are available: epidural and PCA. Both allow selection of continuous delivery, bolus or PCA delivery. Each option also allows selection of the following measure:

- Milliliters only
- Milligrams per milliliter
- Micrograms per milliliter

Epidural administration of anesthetics should be limited to continuous mode only.

Epidural administration of analgesics may be delivered in continuous, bolus, or continuous with bolus.

### 3.2.1 Using the Bolus Operation

There are two methods of programming PCA or bolus delivery:

1. Continuous delivery with bolus or PCA.
2. Bolus-only or PCA-only delivery.

Both methods allow programming the bolus amount and time between boluses. An additional four-hour limit can

### 3.2.2 Air-In-Line Alarm Sensitivity

Air-in-line alarm sensitivity can be set to high sensitivity, low sensitivity, or can be shut off (epidural mode only). The default is high sensitivity. The sensor detects a continuous air bubble of 100 microliters of air or greater. The sensor does not detect air bubbles smaller than 50 microliters. To change the air-in-line sensitivity to low sensitivity, press ENTER, then press 7. When infusion begins. See *Section 11.9, Lesson 9: Changing the Level of the Air-In-Line Alarm* for detailed directions. Low sensitivity detects a continuous air bubble of 300 microliters or greater. The alarm does not detect air bubbles smaller than 200 microliters.

**Note:** Sensitivity values are approximate only.



To shut off the air-in-line alarm, for epidural mode only, press ENTER, then press 7. Follow prompts. Press YES when message appears: TURN OFF ALARM.

**CAUTION:** If air-in-line alarm is off, use of sets with air-eliminating filter is recommended.

### 3.2.3 Locking the Keypad

Locking the keypad prevents change to the infusion program. The keypad is locked from the STOP mode. While operating, hyphens appear on the top line next to the rotating icon to indicate the keypad is locked. See *Section 11.8, Lesson 8: Locking and Unlocking the Keypad* for detailed directions on locking the keypad.

### 3.2.4 Using 4 HOUR LIMIT

In continuous with bolus or continuous with PCA, bolus only modes, the 4 HOUR LIMIT option allows only a specified amount of drug delivery over a four-hour period. The 4 HOUR LIMIT can be selected only if a bolus or PCA is selected in the program.

If a four-hour limit is in effect before medication is delivered, the pump checks the amount of drug infused in the immediate previous four-hour period. If a four-hour limit has been exceeded, a continuous delivery stops. A bolus dose in progress completes then stops.

The display flashes 4 HOUR LIMIT when the set amount is reached. As the oldest dose ages out of the four-hour dose record, the pump accepts bolus requests or resumes continuous infusion. The 4 HOUR LIMIT display disappears when the infusion can continue. The four-hour limit range is from 0.4 mL to 1000 mL or its  $\mu\text{g}$  equivalent. A four-hour limit will not prevent loading dose delivery.

**Note:** Loading doses are not included in the four-hour limit. A loading dose in progress is not stopped until individual bolus volume has been delivered. Although the user can program a four-hour limit of 0.4 mL, the pump can only deliver a maximum of 500 mL (i.e., 4 times multiplied by the 125 mL/H bolus rate).

### 3.2.5 Immediate or Delayed Loading Dose Delivery

Loading doses can be delivered by two methods: immediate or delayed. During programming, the loading dose selected can be delivered immediately. After programming is complete and the pump is started, the loading dose can be the initial delivery of the program.

**Note:** Patient bolus or PCA dose is delayed one lockout interval following a loading dose.

### 3.2.6 Power on Display Screens

UNIT SELF-TEST  
IN PROGRESS

The pump performs an electronic self-test of selected components.

**Note:** During the self-test, the pump automatically continues pump and all its safety systems are operating. User re-connection is required.

PCA MODE  
CONTINUOUS ONLY

Current program mode display if not cleared.

TIME IS 09:20  
THURS, JULY 11, 92

Current time and date display after the self-test.

CLEAR HIST + Rx?  
YES OR NO

Screen requests that user select YES to clear and enter or NO to keep current program and history.

CLEARING HISTORY  
AND Rx

Message displays as pump clears program and history.

HISTORY AND Rx  
CLEARED

Message displays current program has cleared.

EPIDURAL MODE  
YES OR NO

The first programming screen displays EPIDURAL MODE to advance to the PCA MODE display screen.

PCA MODE  
YES OR NO

The PCA MODE display screen appears if NO is selected on the EPIDURAL MODE display screen.

### 3.3 Routine Programming Display Screens

EPIDURAL MODE  
YES OR NO

#### AT START OF PROGRAMMING:

Begin programming by selecting either EPIDURAL MODE or PCA MODE. Press YES on the EPIDURAL display screen to select epidural programming. Press NO on the EPIDURAL display screen to advance to PCA display screen.

PCA MODE  
YES OR NO

When the PCA MODE display screen appears, press YES to select PCA. Press NO to return to the EPIDURAL display screen.

1 CONT      3 BOTH  
2 BOLUS ONLY

#### Epidural Programming:

1 CONT      Continuous programming delivers infusion quasi-continuously. A continuous program must have a loading dose.

1 CONT      3 BOTH  
2 PCA ONLY

#### PCA Mode Programming:

2 BOLUS ONLY or PCA ONLY      BOLUS ONLY (in EPIDURAL MODE) or PCA ONLY (in PCA MODE) programming allows the pump to only deliver a bolus after a programmed lock interval passes. A BOLUS ONLY or PCA ONLY program can include a loading dose and a four-hour limit.

3 BOTH      Continuous with bolus delivery or continuous PCA delivery. Programming can include a loading dose and a four-hour limit.

AMOUNT TOO SMALL

#### DURING PROGRAMMING:

AMOUNT TOO SMALL appears on the display screen whenever a programmed value is smaller than is acceptable. The pump automatically adjusts the value to the smallest allowable value.

AMOUNT TOO LARGE

AMOUNT TOO LARGE appears on the display screen whenever a programmed value is larger than is acceptable. The pump automatically adjusts the value to the largest allowable value.

'ENTER' IF DONE

"ENTER" IF DONE appears on the display screen as a reminder to press ENTER after selecting a program value.

ROUNDING

ROUNDING appears on the display screen during program when a value is not equivalent to the minimum concentration in a mg or µg program. Pump delivery is in multiples of 0.1 regardless of concentration. For example, a program with a concentration of 15 mg/mL delivers multiples of 1.5 mg. Entering 10.0 mg/H as the rate causes ROUNDING to pump displays 9.0 mg/H, the nearest value to 10.0 mg/H down.

HIGH SENSITIVITY  
AIR ALARM ON

#### AT END OF PROGRAMMING:

The pump can be programmed for either high sensitivity or low sensitivity for the air-in-line alarm. The pump can be programmed for air alarm off (epidural mode only). The default setting is high sensitivity. To change the setting to low sensitivity, see *Lesson 9: Changing the Sensitivity Level of the Air-In-Line Alarm*. Change the sensitivity in stop mode before starting the program.

LOW SENSITIVITY  
AIR ALARM ON

**Note:** To reduce the risk of infusing air, use an air-eliminator when air-in-line alarm is off.

AIR ALARM OFF

SAVING PROGRAM

Program is saved.

PRESS RUN/STOP  
TO INFUSE

Programming is complete. To begin infusion, press RUN/STOP.

### 3.3.1

## Routine Operational Display Screens

DEL. LOAD DOSE?  
YES OR NO

To program loading dose for immediate delivery (press YES) or delayed delivery when programming is complete (press NO).

DEL. LOAD DOSE  
0.0MG

When delivering the loading dose, the amount infusing depends on the units chosen.

0.0UG

0.0ML

TOTAL	0.0ML	*
RATE	0.0ML/H	

The rotating icon (\*) in the upper right corner of the display appears in run mode. Screens for continuous or continuous bolus (or PCA) delivery are illustrated.

TOTAL	0.0MG	*
RATE	0.0MG/H	

TOTAL	0.0UG	*
RATE	0.0UG/H	

TOTAL	0.0UG	*
-------	-------	---

The rotating icon (\*) in the upper right corner of the display appears in run mode. Screens for bolus or PCA only delivery are illustrated.

TOTAL	0.0MG	*
-------	-------	---

TOTAL	0.0ML	*
-------	-------	---

### 3.3.2 Operational Warning Display Screens

ALMOST EMPTY
--------------

ALMOST EMPTY flashes on the display screen and is accompanied by constant beeping to indicate programmed delivery is almost complete. At rates greater than 1 mL/H, the almost empty warning begins with approximately 30 minutes remaining; at rates less than 1 mL/H, the warning begins with approximately 1 mL remaining. The almost empty audible alarm can be silenced for 10 minutes by pressing SILENCE.

EMPTY
-------

EMPTY flashes on the display screen and is accompanied by constant beeping when the pump has completed delivery. To silence the empty audible alarm for two minutes, press SILENCE.

4 HOUR LIMIT
--------------

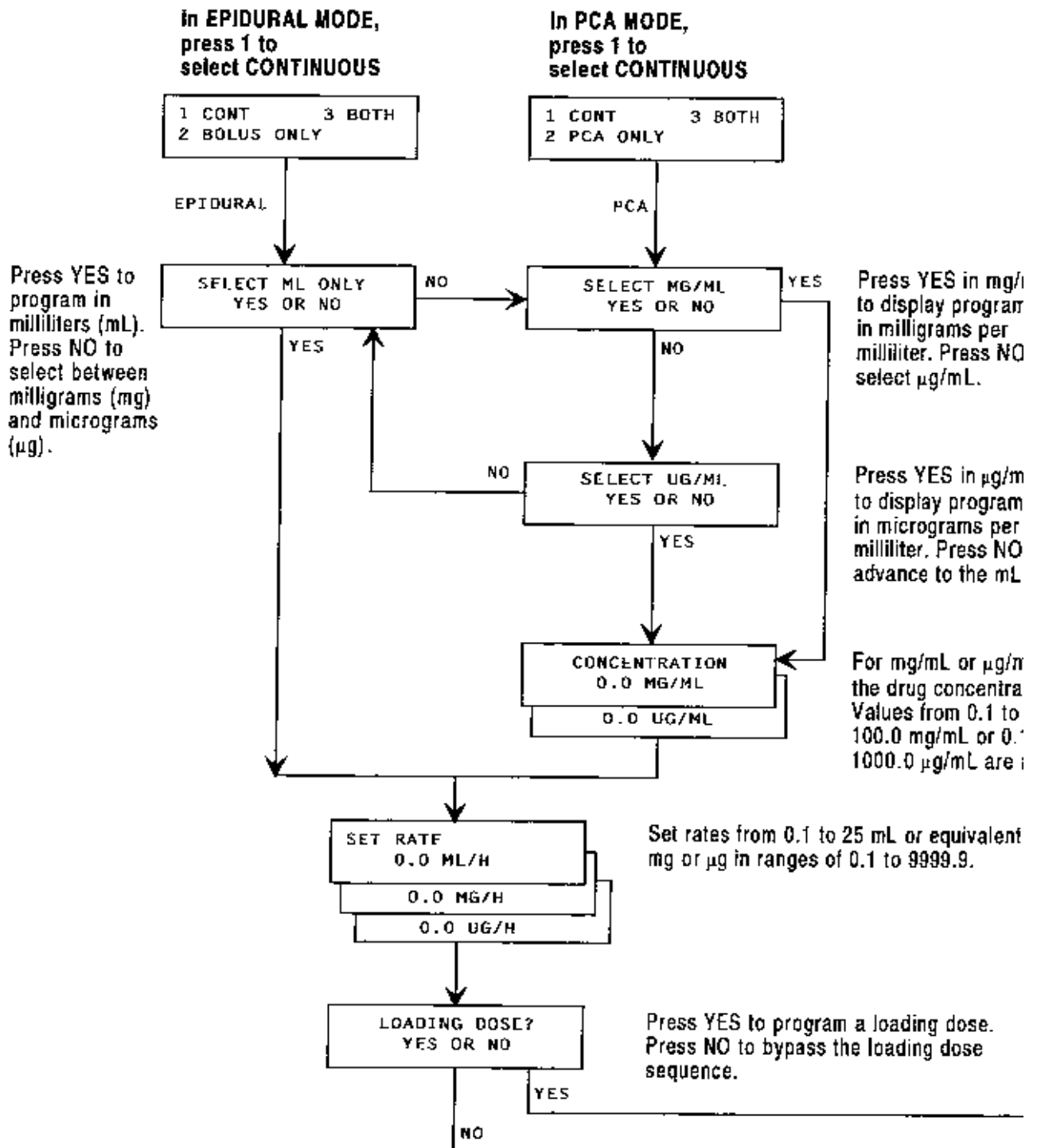
4 HOUR LIMIT flashes on the display screen when the four-hour limit has been exceeded.

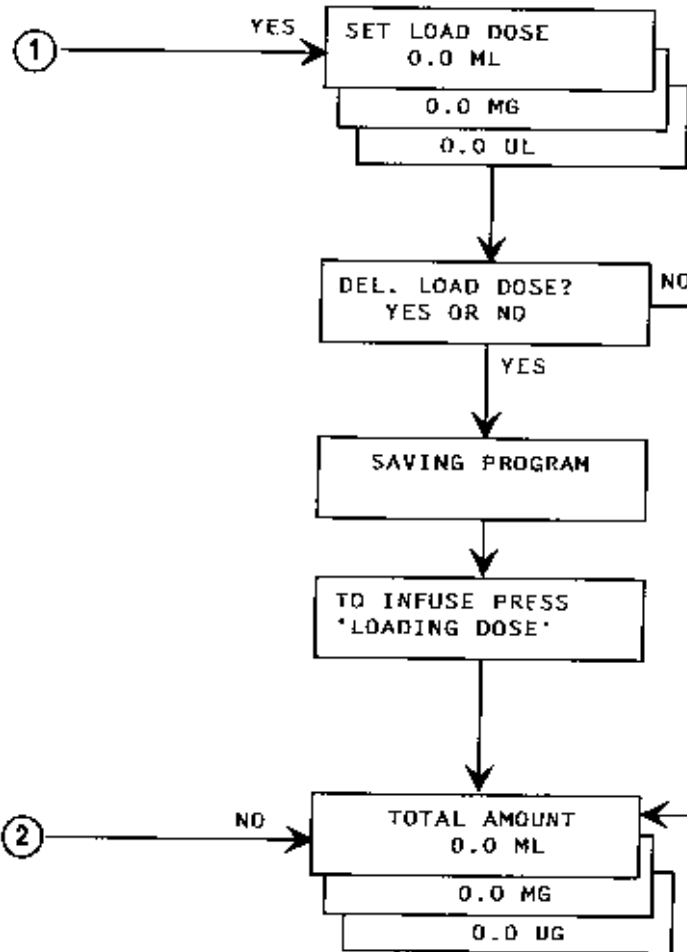
LOW BATTERIES
---------------

LOW BATTERIES flashes on the display screen and is accompanied by constant beeping when battery voltage drops. Change the battery pack as soon as possible or connect pump to AC Mains power. To change batteries, see Section 7.1, Troubleshooting G

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### 3.4 Continuous Programming Flowchart





Loading dose range is 0.1 mL  
25.0 mL, whether programme  
or its mg or µg equivalent.

For immediate delivery, press  
Press NO to delay delivery un  
programming is complete and  
infusion is started.

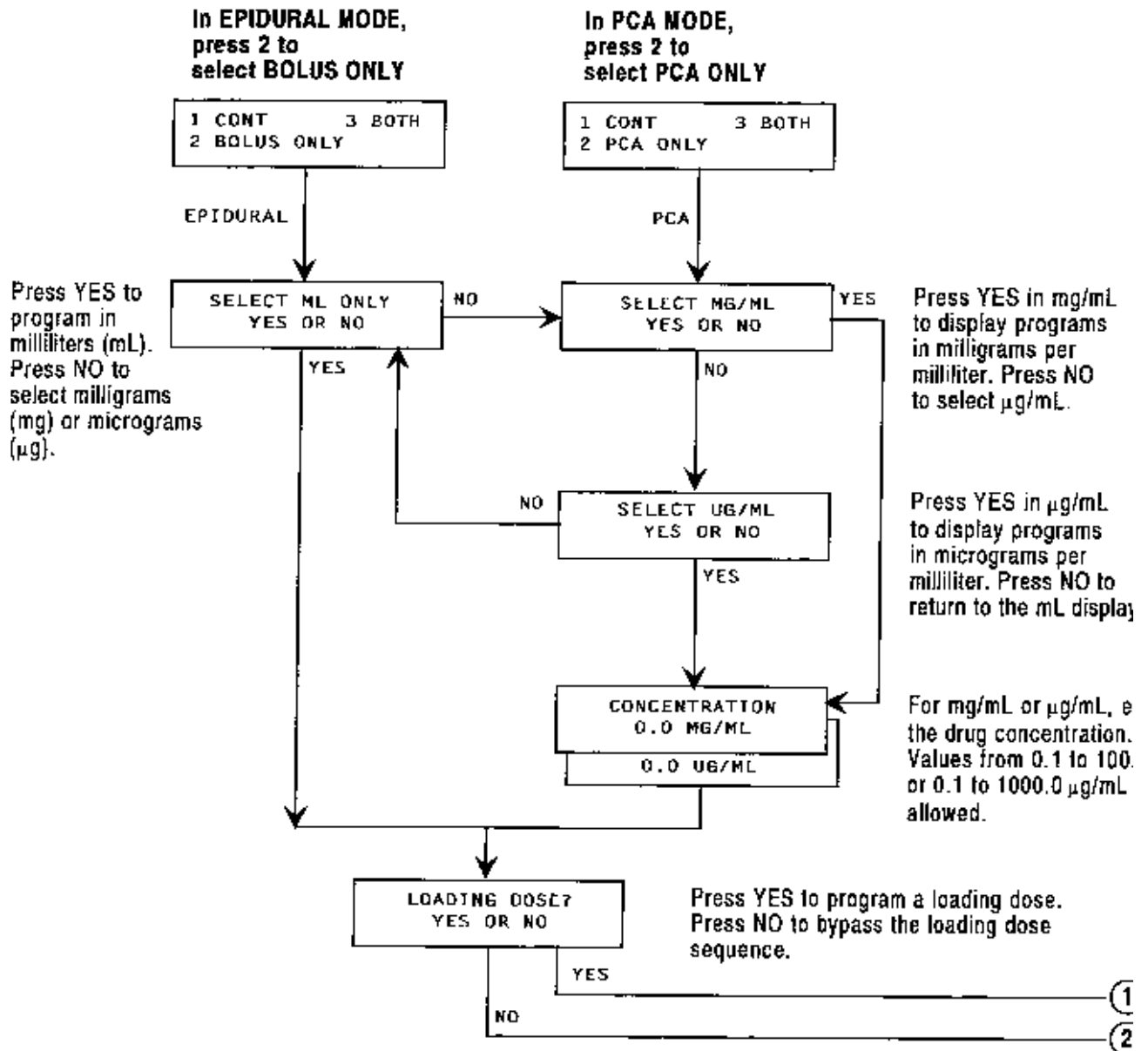
Program is saved.

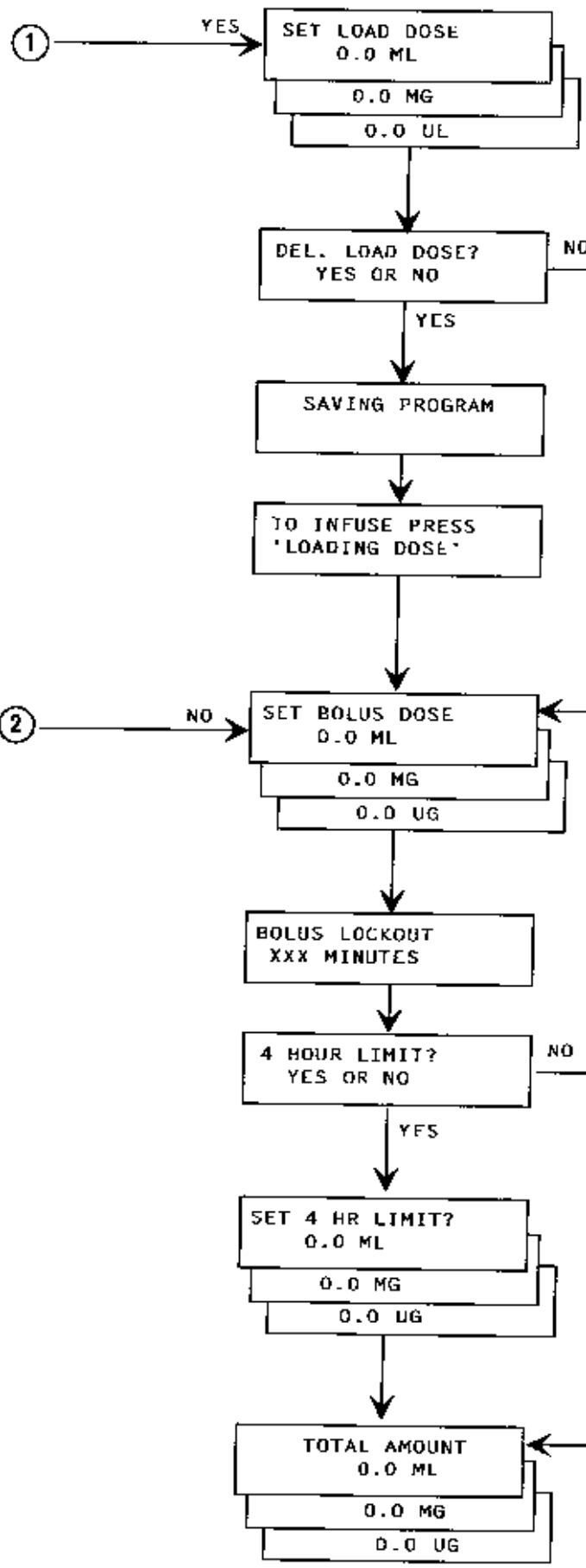
If YES is selected for an imme  
delivery, press LOADING DO:  
delivery.

Total amount to be delivered h  
an allowed range between 0.1  
1000.0 mL or its mg or µg equi  
between 0.1 to 9999.9.



### 3.5 Bolus or PCA Only Programming Flowchart





Loading dose range is 0.1 mL  
25.0 mL or its mg or µg equiva

For immediate delivery, press  
Press NO to delay delivery unt  
programming is complete and  
infusion is started.

Program is saved.

If YES is selected for an immer  
delivery, press LOADING DOS  
delivery.

The Bolus (or PCA) dose has an  
allowed range from 0.1 mL to 2  
When programming in mg or µg  
range is 0.1 to 9999.9 dependin  
the concentration.

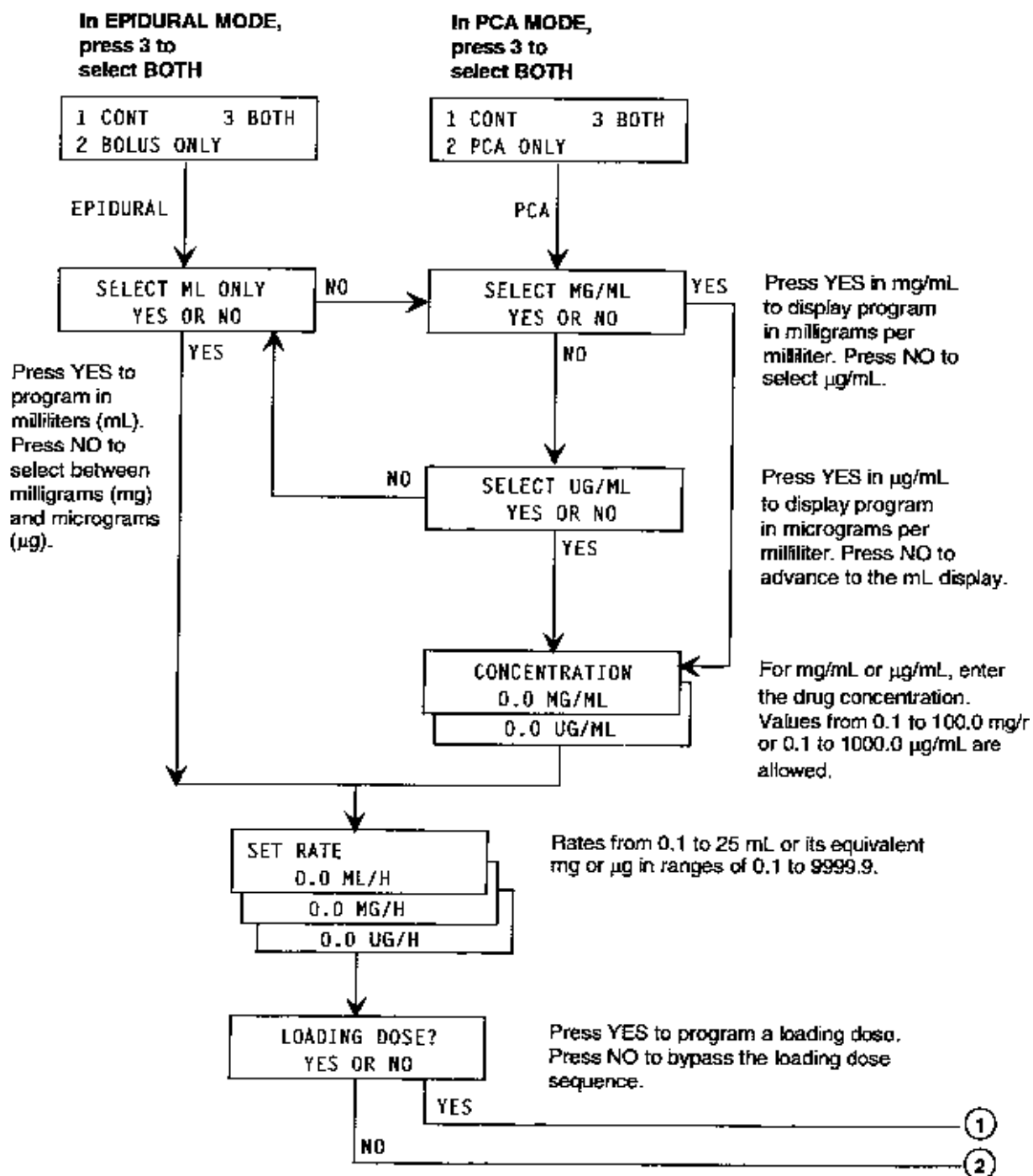
The BOLUS (or PCA) LOCKOUT  
period is from 5 to 999 minutes.

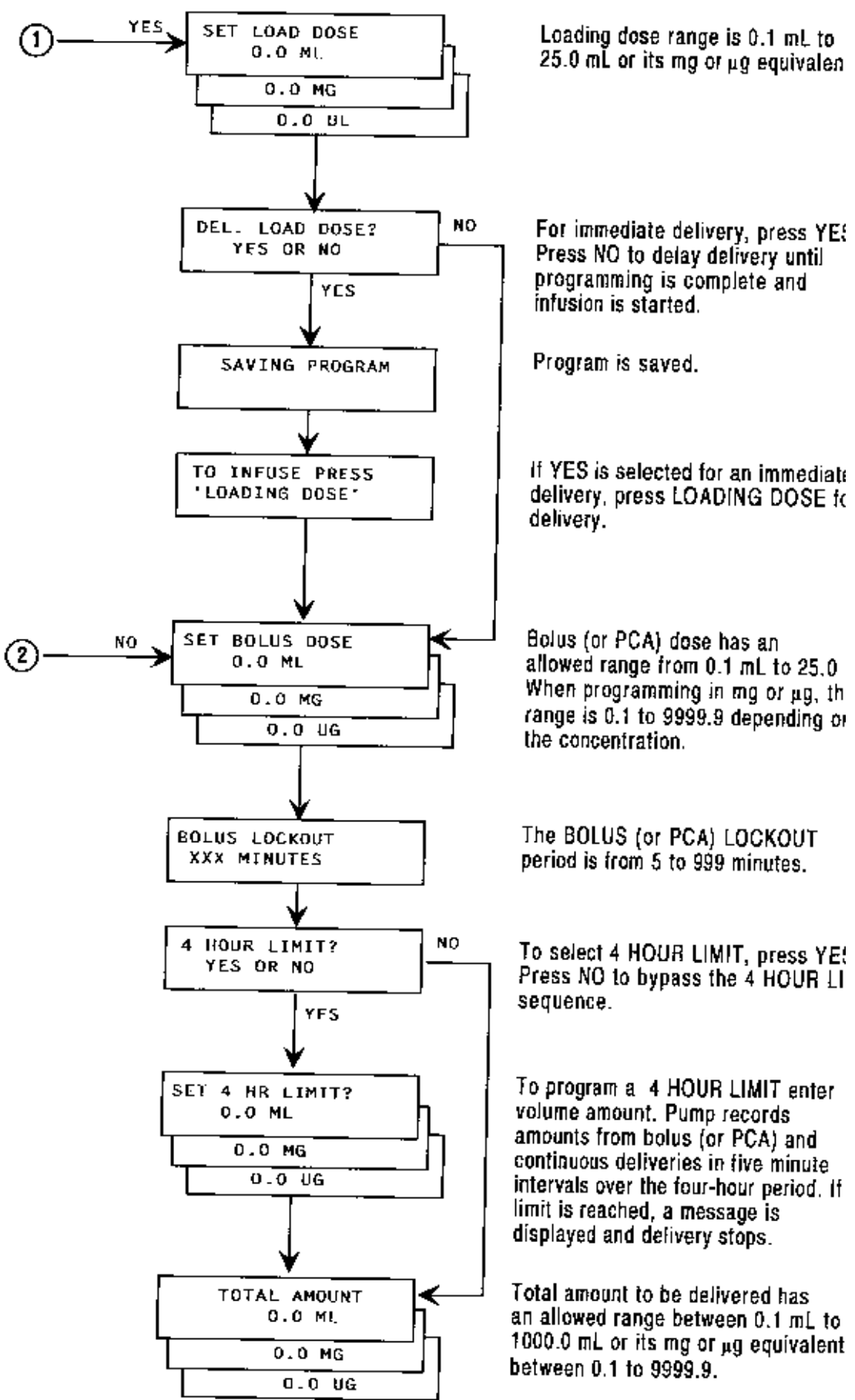
To select 4 HOUR LIMIT, press  
Press NO to bypass the 4 HOUR  
sequence.

To program a 4 HOUR LIMIT, or  
volume amount. Pump records  
amounts from bolus (or PCA) and  
continuous deliveries in five minu  
intervals over the four-hour perio  
limit is reached, a message is  
displayed and delivery stops.

Total amount to be delivered has  
an allowed range between 0.1 ml  
1000.0 mL or its mg or µg equiva  
between 0.1 to 9999.9.

### 3.6 Continuous and Bolus (or Continuous and PCA) Programming Flowchart





Loading dose range is 0.1 mL to 25.0 mL or its mg or µg equivalent

For immediate delivery, press YES! Press NO to delay delivery until programming is complete and infusion is started.

Program is saved.

If YES is selected for an immediate delivery, press LOADING DOSE for delivery.

Bolus (or PCA) dose has an allowed range from 0.1 mL to 25.0. When programming in mg or µg, the range is 0.1 to 9999.9 depending on the concentration.

The BOLUS (or PCA) LOCKOUT period is from 5 to 999 minutes.

To select 4 HOUR LIMIT, press YES! Press NO to bypass the 4 HOUR LI sequence.











To program a 4 HOUR LIMIT enter volume amount. Pump records amounts from bolus (or PCA) and continuous deliveries in five minute intervals over the four-hour period. If limit is reached, a message is displayed and delivery stops.







Total amount to be delivered has an allowed range between 0.1 mL to 1000.0 mL or its mg or µg equivalent between 0.1 to 9999.9.

## 3.7 Changing the Master Clock

The master clock operates up to one year with the power off if batteries are removed. The clock, however, will need adjusting for time zones or for daylight saving time changes.

To change the time, proceed as follows: Begin at the RUN/S1 display screen.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press 	
	Press 	
24-HOUR CLOCK? YES OR NO	Press  for 24-hour clock.	
	Press  for 12-hour clock.	
12-HOUR CLOCK? YES OR NO	Press  for 12-hour clock.	
	Press  for 24-hour clock.	The 24-hour display screen reappears.
SET MONTH (arws) JUL 16, 91 10:02	Press  or  until month is displayed.	Current stored date and time displays. Scroll until month displays.
	Press 	
SET DAY (nums) JUL 27, 91 10:02	Key in date. Press 	

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<pre>SET YEAR (nums) JUL 27, 92 10:02</pre>	<p>Key in year.</p> <p>Press </p>	
<pre>SET HOURS (nums) JUL 27, 92 03:02</pre>	<p>Key in hours.</p> <p>Press </p>	
<pre>SET MINS (nums) JUL 27, 92 03:47</pre>	<p>Key in minutes.</p> <p>Press </p>	
<pre>SET DAY OF WEEK (arws) MON</pre>	<p>Press  or </p> <p>until day of week is displayed.</p> <p>Press </p>	
<pre>TIME IS 16:47 MON, JUL 27, 92</pre>		<p>The changed time briefly displays.</p>
<pre>PRESS RUN/STOP TO INFUSE</pre>		<p>The RUN/STOP screen appears.</p>

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# 4

## **Operating the Pain Management Provid**

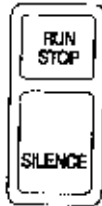


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## 4.1 Starting an Infusion

WHAT YOU SEE	WHAT YOU DO	COMMENTS
	<p>To start an infusion, proceed as follows:</p> <ol style="list-style-type: none"><li>1. Confirm all connections are secure.</li><li>2. Confirm air is removed from container and tubing.</li><li>3. Before starting pump, always confirm that all tubing is open. If line is clamped above the pump, fluid cannot flow and the pump will not sense a proximal occlusion.</li></ol>	
<div style="border: 1px solid black; padding: 5px; text-align: center;">PRESS RUN/STOP TO INFUSE</div>	Press 	Infusion begins.
<div style="border: 1px solid black; padding: 5px; text-align: center;">TOTAL      0.3ML * RATE      5.0ML/H</div>		An icon (*) rotates around the pump icon. The total increment of the infusion continues to increase.

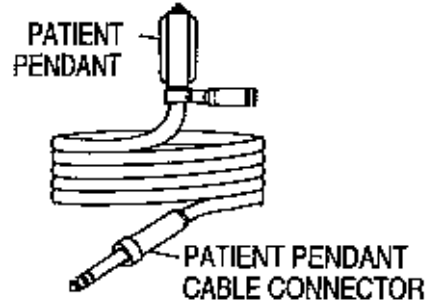
## 4.2 Stopping an Infusion

	<p>The infusion can be stopped at any time. Restarting the pump continues the program from the point it was stopped.</p>	
<div style="border: 1px solid black; padding: 5px; text-align: center;">TOTAL      5.0ML * RATE      5.0ML/H</div>	Press 	Infusion stops.
<div style="border: 1px solid black; padding: 5px; text-align: center;">PRESS RUN/STOP TO INFUSE</div>		Pump is in stop mode.

## 4.3 Delivering a Bolus

Bolus delivery requires the remote bolus cord.

To deliver a bolus, the pump must be in the run mode and programmed for bolus delivery or PCA dose delivery.





WHAT YOU SEE	WHAT YOU DO	COMMENTS				
<table border="1"><tr><td>TOTAL</td><td>5.0ML *</td></tr><tr><td>RATE</td><td>5.0ML/H</td></tr></table>	TOTAL	5.0ML *	RATE	5.0ML/H		
TOTAL	5.0ML *					
RATE	5.0ML/H					
 <p>PATIENT PENDANT</p> <p>PATIENT PENDANT CABLE CONNECTOR</p>	<p>Press remote bolus control.</p>					
<table border="1"><tr><td>TOTAL</td><td>5.0ML *</td></tr><tr><td>'BOLUS' DELIVERY</td><td></td></tr></table>	TOTAL	5.0ML *	'BOLUS' DELIVERY			<p>"BOLUS" (or PCA) flashes the lower line of the display screen. The top line shows total amount infused. When remote bolus control is pressed, pump beeps 1 time.</p>
TOTAL	5.0ML *					
'BOLUS' DELIVERY						









## 4.4 Changing or Reviewing a Program

To make a change or to review a current program, use REVIEW/CHANGE key. As the program advances, opt on the display screen. Press the key indicated.

**Note:** No changes are saved until SAVING PROGRAM appears.

Begin at the RUN/STOP display screen.





WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press 	Options are disp
1 REVIEW 2 CHANGE	Press 	The program can Follow display sc  To select REVIEW then press HISTC repeatedly to adv screen through th
1 CHANGE PROGRAM 2 NEW PROGRAM	Press 	Current program be changed.
EPIDURAL MODE CONTINUOUS ONLY		The current progr briefly displayed.
SELECT ML ONLY YES OR NO	Press 	Milliliter selection

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           SET RATE 5.0 ML/H         </div>	Press 	A new rate, 6.0 mL/h, selected.
	Press 	
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           LOADING DOSE? YES OR NO         </div>	Press 	Allows a loading dose to be entered.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           SET LOAD DOSE 0.0 ML         </div>	Press 	Loading dose of 6.0 ml selected.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           SET LOAD DOSE 6.0 ML         </div>	Press 	
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           DEL. LOAD DOSE? YES OR NO         </div>	Press 	Delays loading dose until programming is complete.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           TOTAL AMOUNT 100.0 ML         </div>	Press 	Total amount is displayed. If change is desired, press REVIEW/CHANGE to select a new amount.  To change the total amount, press the REVIEW/CHANGE button.
	Press 	
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           SAVING PROGRAM         </div>		Programmed changes are saved.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">           PRESS RUN/STOP TO INFUSE         </div>		RUN/STOP display screen appears. Infusion begins.

## 4.5 Clearing a Program

To clear a program, use REVIEW/CHANGE. Select NE in the REVIEW/CHANGE function.

Begin at the RUN/STOP display screen.

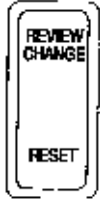



WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press 	Select the feature options.
1 REVIEW 2 CHANGE	Press 	Program can be c
1 CHANGE PROGRAM 2 NEW PROGRAM	Press 	New program is s Current program
CLEAR HISTORY? YES OR NO	Press 	History is cleared, amounts are clear history.
HISTORY AND Rx CLEARED		Display screen int program history is
EPIDURAL MODE YES OR NO		Screen indicating programming sequ displays.

## 4.6 Resetting or Repeating a Program

To reset a program, use RESET. Two options are available:

1. Reset the shift amounts (continue program and history, revert the accumulated shift amounts to zero. See *Section Resetting Shift Amount Only*).
2. Repeat the program from the beginning with or without cumulative history.

Begin at the RUN/STOP display screen.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press 	Select the feature and options.
1 RESET SHIFT 2 RESET PROGRAM	Press 	Program is reset. To reset shift, press 1. Program and cumulative history are retained.
CLEAR HISTORY? YES OR NO	Press  or Press 	History is cleared and program is reset. Program is repeated, but history information is not cleared.
PROGRAM RESET CLEARING HISTORY		If YES was selected, screen displays that history is cleared.
PROGRAM RESET		Screen displays that the history function is complete.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
--------------	-------------	----------

PRESS RUN/STOP  
TO INFUSE

RUN/STOP display appears. Infusion

## 4.7 Resetting Shift Amount Only

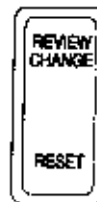
To reset shift amount, use RESET. RESET clears the shift amount delivered and all loading dose amounts, bolus (or PCA) bolus (or PCA) demand counts.

Resetting the shift amount does not affect the grand total infused, the History Event Log, or any program values. The shift amount is included as an event in the History Log.

Begin at the RUN/STOP display screen.

PRESS RUN/STOP  
TO INFUSE

Press



Select the feature options.

1 RESET SHIFT  
2 RESET PROGRAM

Press



Shift amount is reset. Programs and history unchanged.

SHIFT RESET

Message displays indicating shift has been reset.




PRESS RUN/STOP  
TO INFUSE

The RUN/STOP display appears. Infusion






## 4.8 Displaying Time and Date

To display time and date, begin at the RUN/STOP display screen.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press  and release.	Time and date display:
	Press  and hold.	
TIME IS 10:56 FRI, JUL 26, 92		Continue to hold the 1 retain display.
PRESS RUN/STOP TO INFUSE	Release 	The RUN/STOP display appears.

## 4.9 Displaying Software Version

To display software version, proceed as follows:

PRESS RUN/STOP TO INFUSE	Press  and release.	Software version display:
	Press  and hold.	
VERSION - X.XXX ERR - X		Continue to hold the 5   retain display.
PRESS RUN/STOP TO INFUSE	Release 	The RUN/STOP display appears.

# 5

## Using the History Event Log

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## 5.1 Displaying the History Even Log

Press the HISTORY key to review program information screen. Press any other key to abort review and return RUN/STOP display screen.

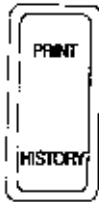
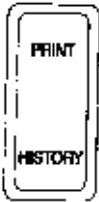

Press HISTORY and screen displays:

- Current program and values.
- Recap of infusions (amounts since they were last
- Event log (review of all programs, alarms, and ch

When the event log is complete, message displays: EN LOG.

The History Event Log is limited to 256 events. When t reached and not cleared, events continue to be register the oldest registered event is replaced by the newest ev

Begin at the RUN/STOP display screen.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<div style="border: 1px solid black; padding: 5px; text-align: center;">           PRESS RUN/STOP TO INFUSE         </div>	Press 	
<div style="border: 1px solid black; padding: 5px; text-align: center;">           TIME IS 11:21 FRI, JUL 26, 92         </div>	Press 	Continue to pres to advance the E Log. Log will au advance to next screen after 30 s elapsed.
<div style="border: 1px solid black; padding: 5px; text-align: center;">           EPIDURAL MODE CONTINUOUS ONLY         </div>	Press 	Displays current

WHAT YOU SEE	WHAT YOU DO	COMMENTS
--------------	-------------	----------

DELIVERY RATE  
5.0 ML/H

Press



Displays delivery rat

TOTAL AMOUNT  
100.0 ML

Press



Displays programme amount.

HIGH SENSITIVITY  
AIR ALARM ON

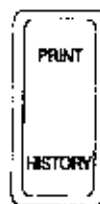
Press



Displays air-in-line a setting.

KEYPAD LOCKED

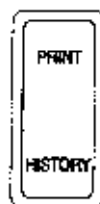
Press



Indicates that the key had been locked.

SHIFT CLEARED  
10:36 JUL 25

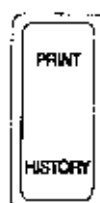
Press



Displays last time the was cleared.

\*BOLUS DEL. 6  
\*BOLUS DEM. 10

Press



Displays number of b (or PCA doses) deliver demanded since shift amount was last clear

WHAT YOU SEE	WHAT YOU DO	COMMENTS
--------------	-------------	----------

*BOLUS	12.0ML
*LOADING	2.0ML

Press



Displays total amount delivered since last cleared (or PCA) bolus (or PCA) dose deliveries amount was last

*SHIFT	20.0ML
--------	--------

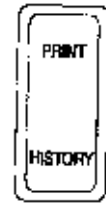
Press



Displays shift amount delivered since last cleared.

PROGRAM CLEARED	
10:47	JUL 25

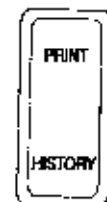
Press



Displays when program was last cleared or next cleared.

BOLUS DEL.	20
BOLUS DEM.	30

Press



Displays number of demands (or PCA) demands since the program was last cleared.

BOLUS	30.0ML
LOADING	10.0ML

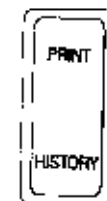
Press



Displays total amount delivered since last cleared (or PCA) amount delivered since program was last cleared.

GRAND TOTAL	120.0ML
TO GO	80.0ML

Press

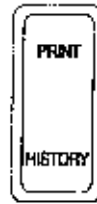


Displays grand total amount delivered since the program was last cleared and amount of current volume remaining.

**WHAT YOU SEE****WHAT YOU DO****COMMENTS**

HISTORY CLEARED  
10:47 JUL 26

Press



Displays start of His  
Event Log.

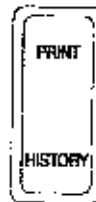
EVENT LOG:  
10:03 STOP INF

Displays registered c

10:03 CK CART  
10:06 START ALR

10:02 TOTAL  
5.0 ML

Press



08:55 HIST CLR  
END OF EVENT LOG


PRESS RUN/STOP  
TO INFUSE

RUN/STOP display sc  
appears.

## 5.2 Printing the History Event L

To obtain a printout of the History Event Log, connect compatible printer, and proceed as follows:

1. Attach printer cable for compatible printer to 8-p port on the base of the pump.
2. Connect cable to printer (e.g., Seiko DPU 411 the Kodak Diconix 150 Plus printer).
3. Confirm paper is loaded in printer.
4. Turn printer on.
5. Press PRINT.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>PRESS RUN/STOP TO INFUSE</b></p> </div>	<p>Press </p>	<p>Printer can be either run or stopped History Event L printing.</p>
<div style="border: 1px solid black; padding: 5px;"> <pre>***** *           ABBOTT           * * PAIN MANAGEMENT PUMP * * PATIENT RECORD * ***** PATIENT NAME: ----- PATIENT ID: ----- DRUG ADMINISTERED: ----- 09:23 JUL 27 91:</pre> </div>		<p>Beginning of print displays:</p> <p>Pump name</p> <p>Space to fill in patient</p> <p>Space to fill in patient identification.</p> <p>Space to fill in drug</p> <p>Current date and time</p>



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# 6

## **Maintaining the Pair Management Provid**

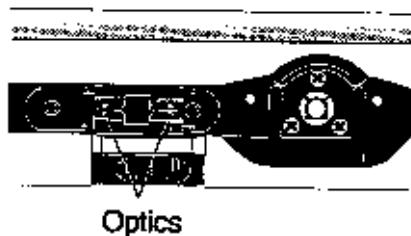
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## 6.1 General Care and Cleaning

**Note:** Always disconnect the pump and the AC Mains power from AC Mains power prior to cleaning.

Keep the pump case exterior, cartridge channel, and the power supply clean and free of contamination.

Clean the surfaces of the pump and the AC Mains power a soft, lint free cloth moistened with water or mild dishwashing detergent. Never use solvents such as acetone on the pump surfaces. Dry the pump and the AC Mains power supply cleaning.



Clean the cartridge channel on a regular weekly basis, at exposure to fluid. Use a moistened cotton swab to clean optics. These optics enable the pump to detect air or occlusion. The optics are located in the cartridge channel in the area below the section of an installed cartridge. To clean this area, remove

## 6.2 Disinfection

**CAUTION:** To avoid mechanical or electronic damage, immerse pump in any fluids or cleaning solutions.

**CAUTION:** Some cleaning and sanitizing compounds can degrade components made from some plastic material. Do not use compounds containing combinations of isopropyl alcohol and dimethyl benzyl ammonium chloride.

**CAUTION:** Do not sterilize by heat, steam, ETO, or radiation. Apply disinfectants to the outside surface of the pump. Do not use abrasive cleaners or materials on the pump. Do not use abrasive cleaners or cleaning solutions not recommended by Abbott Laboratories may result in product damage.

**CAUTION:** To avoid pump damage, cleaning solutions are used only as directed in the Cleaning Solutions Table. The disinfecting properties of cleaning solutions vary; consult manufacturer for specific information.

**CAUTION:** Never use sharp objects such as pens, pencils, fingernails, paper clips, needles, etc., to clean the pump.

Establish a routine schedule for cleaning the Abbott Pain Management Provider and AC Mains power supply. Clean the pump and the AC Mains power supply at least weekly, and after exposure to fluid.

To clean the pump and the AC Mains power supply, proceed as follows:

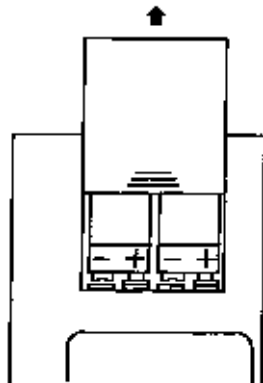
1. Turn off pump and disconnect AC Mains power cord.

2. Clean the exposed surfaces of the pump and AC Mains power supply with a soft, lint-free cloth dampened with one of the cleaning solutions listed in Table 6-1, *Cleaning Solutions*. The pump and the AC Mains power supply are not affected by appropriate cleaning solutions.

Cleaning Solution	Manufacturer	Preparation
Super Edlsonite <sup>®</sup>	S.M. Edison Chemical Co.	Per manufacturer's recommendation
Vesphene <sup>®</sup> II se	Calgon Vestal Laboratories	Per manufacturer's recommendation
Manu-Klenz <sup>®</sup>	Calgon Vestal Laboratories	Per manufacturer's recommendation
Formula C <sup>™</sup>	Diversey Corp.	Per manufacturer's recommendation
Household bleach	Various	Per hospital procedures; do not exceed one part bleach in ten parts water

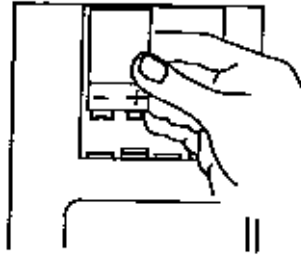
## 6.3 Changing the Disposable Batteries

The pump uses two 9-volt Duracell alkaline batteries. To change batteries, proceed as follows:

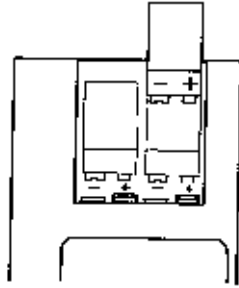


1. Locate battery compartment on back of pump.
2. Slide cover up toward top of pump until it is released.
3. Remove cover and set aside.

**Note:** The program memory is retained for approximately 30 days if the batteries are removed.



- 
4. If batteries are in pump, remove them.

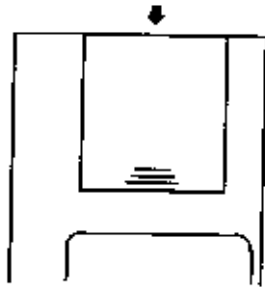


- 
5. Insert the new batteries so that the - and + symbols diagram in the compartment.

**Note:** When battery change is required, always repl: batteries.

6. Place bottom of the battery into position and snap it points into the contact pads in the battery compart:

If the power is on, the display reads UNIT SELF TES PROGRESS for several seconds. The RUN/STOP di: appears.



- 
7. Replace the battery cover.

## 6.4 Service and Repair

The Abbott Pain Management Provider has no user-servi components. The pump should not be opened and no a: should be performed on the pump. Opening the pump a: adjustments voids the warranty.

**CAUTION:** If the pump does not perform as stated in manual, stop using it immediately.

Patients should be instructed to call their healthcare pro: immediately should the pump appear to malfunction.

The healthcare professional should contact their local Ab: Laboratories sales office for service.

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# 7

## **Troubleshooting the Pain Management Provider**



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## 7.1 Troubleshooting Guide

**Note:** Certain alarms may be silenced during troubles

CONDITION	CAUSE	REMEDY
<div style="border: 1px solid black; padding: 5px; text-align: center;">AIR IN LINE</div> <p><i>Constant Beeping/ Message Flashes</i></p>	Air is detected in tubing.	Press RUN/STOP.  Disconnect patient administration set.  Purge pump to clear line.  <b>Note:</b> Alarm can occur after air is purged due to the risk of infusion air-eliminating filter air-in-line alarm. See Section 11.9, <i>Lessons Learned: Changing the Set of the Air-In-Line</i> .
<div style="border: 1px solid black; padding: 5px; text-align: center;">ALMOST EMPTY</div> <p><i>Constant Beeping/ Message Flashes</i></p>	Delivery completes in less than 30 minutes for rates above 1 mL/H.  For rates below 1 mL/H, less than 1 mL remains to be delivered.	Press RUN/STOP or press SILENCE alarm for 10-minute delay.
<div style="border: 1px solid black; padding: 5px; text-align: center;">AMOUNT TOO LARGE</div>	Program value input that pump cannot accurately deliver.	Pump indicates maximum value allowed.  Enter correct value.
<div style="border: 1px solid black; padding: 5px; text-align: center;">AMOUNT TOO SMALL</div>	Program value input that pump cannot accurately deliver.	Pump indicates minimum value allowed.  Enter correct value.

CONDITION	CAUSE	REMEDY
<p style="text-align: center;"><b>CHANGE BATTERIES</b></p>	<p>System cannot meet delivery cycle or has detected battery voltage below minimum.</p>	<p>Replace battery pack, AC Mains power, or change disposable batteries.</p>
<p><i>Continuous Alarm</i></p>		<p>To change disposable:</p>
<p style="text-align: center;"><b>CHANGE BATTERIES</b></p>		<ul style="list-style-type: none"> <li>- Press RUN/STOP to pump.</li> <li>- Remove battery compartment cover.</li> <li>- Replace two 9-volt LR6 alkaline batteries.</li> <li>- Replace compartment cover.</li> <li>- Press RUN/STOP. Pump resumes at point of stop.</li> </ul>
<p><i>Constant Beeping/ Message Flashes</i></p>		
<p style="text-align: center;"><b>CHECK CARTRIDGE</b></p>	<p>Improperly installed cartridge.</p>	<p>Check cartridge for proper installation:</p>
<p><i>Constant Beeping/ Message Flashes</i></p>		<ul style="list-style-type: none"> <li>- Press RUN/STOP to pump.</li> <li>- Open pump latch.</li> <li>- Remove cartridge and cartridge cover.</li> <li>- Align dot in red circle on cartridge.</li> <li>- Reinsert cartridge in pump.</li> <li>- Press RUN/STOP.</li> </ul>
<p style="text-align: center;"><b>CHECK PRINTER</b></p>	<p>Pump detects distal line occlusion.</p>	<p>Check connections. Refer to printer manual.</p>
<p><i>Constant Beeping/ Message Flashes</i></p>		<p>Press SILENCE to clear for two minutes.</p>
<p style="text-align: center;"><b>EMPTY</b></p>	<p>Pump has completed delivery.</p>	<p>Press RUN/STOP to stop pump.</p>
<p><i>Constant Beeping/ Message Flashes</i></p>		

CONDITION	CAUSE	REMEDY
-----------	-------	--------

13:01 INTERNAL MALFUNCTION	XX
----------------------------	----

*Continuous Alarm*

The system detects a mechanical or computer problem (numeric code appears).

If alarm continues  
Connect/disconnect power.

- Remove batteries
- Remove battery cover.
  - Remove battery
  - Replace components

Contact an Abbot Laboratories representative

LOW BATTERIES
---------------

*Constant Beeping/  
Message Flashes*

Battery voltage is dropping.

Change battery pack as soon as possible  
connect pump to power.

- To change internal battery
- Press RUN/STOP
- Remove battery cover.
- Replace two 9-volt alkaline batteries
- Replace components
- Press RUN/STOP
- Pump resumes at previous rate

OCCLUSION
-----------

*Continuous Alarm/  
Message Flashes*

Pump detects distal line occlusion. Press RUN/STOP

- Check for source of occlusion
- Closed slide clamp
  - Kinked tubing
  - Clamped patient
  - Clogged IV filter
  - Other obstruction

Correct problem

Press RUN/STOP to resume therapy.

**Note:** Pump start may be delayed as much as a minute.

CONDITION	CAUSE	REMEDY
<p><b>ON BATTERIES</b></p> <p><i>Beeps Every Minute/ Message Flashes</i></p>	<p>Pump has lost AC Mains power; now operates on battery power.</p>	<p>Check for secure AC M connection.</p> <p>Restore AC Mains power</p> <p>Press SILENCE to clear</p>
<p><b>PURGE OVERUSE</b></p> <p><i>Continuous Alarm</i></p>	<p>The PURGE key has been depressed for more than two minutes in stop mode.</p>	<p>Press ENTER.</p> <p>Press UP ARROW two times</p>
<p><b>4 HOUR LIMIT</b></p> <p><i>No Audible Alarm/ Message Flashes</i></p>	<p>The 4 HOUR LIMIT has been exceeded.</p>	<p>No action required.</p>
<p><b>START TO INFUSE</b></p> <p><i>Constant Beeping/ Message Alternates with RUN/ STOP</i></p>	<p>Pump is programmed and has not been placed in run mode.</p>	<p>Press RUN/STOP to start pump.</p>
<p><b>SYSTEM ALARM XX</b></p> <p><i>Constant Beeping/ Message Flashes</i></p>	<p>The system detects a problem with the motor circuit or the cartridge.</p>	<p>Press RUN/STOP to stop pump. Check cartridge for problem. Remove pump service if alarm continues.</p>

# 8

## Precautions

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## 8.1 Precautions and Hazards: General Cautions

If the pump does not perform as stated in this manual, r service immediately.

Turn the control knob on the cartridge clockwise until th inside the red circle. The cartridge may not seat properly not inside the red circle prior to loading.

Nonhazardous, low level electrical potentials are common when fluids are administered using infusion devices. Th potentials are well within accepted safety standards, but artifacts on voltage sensing equipment such as ECG, EM machines. These artifacts vary at a rate that is associate infusion rate. If the monitoring machine is not operating has loose or defective connections to its sensing electrode artifacts may be accentuated so as to simulate actual phy signals. To determine if the abnormality in the monitorin equipment is caused by the infusion device instead of son source in the environment, set the infusion device so that temporarily not delivering fluid. Disappearance of the abn indicates that it was probably caused by electronic noise l by the infusion device. Proper setup and maintenance of monitoring equipment should eliminate the artifact. Refe appropriate monitoring system documentation for setup a maintenance instructions.

Use only Abbott LifeCare<sup>®</sup> Provider Pump Sets with anti-si

Do not use medications which are unstable under infusion conditions.

Do not use medications which are incompatible with silicone or PVC plastic.

To avoid mechanical or electronic damage, do not immerse any fluids or cleaning solutions.

Some cleaning and sanitizing compounds may slowly degr components made from some plastic materials. Do not use compounds containing combinations of isopropyl alcohol a dimethyl benzyl ammonium chloride.

Do not sterilize by heat, steam, ETO, or radiation. Apply disinfectants to the outside surface of the pump only. Do n abrasive cleaners or materials on the pump. Using abrasive or cleaning solutions not recommended by Abbott Laborate result in product damage.

To avoid pump damage, cleaning solutions should be used directed in the Cleaning Solutions Table. The disinfecting p of cleaning solutions vary; consult the manufacturer for sp information.



Never use sharp objects such as pens, pencils, fingernails, paper clips, or needles to clean pump.

When programming the pump, do not use sharp objects on the keypad, such as fingernails, pens, pencils, or other probes.

Use aseptic technique with all fluid path connections. Remove protective coverings as assembly progresses.

Use connections with luer lock fittings.

Do not use vented fluid containers (i.e., glass and rigid plastic) unless containers are suspended from an IV pole.

Before starting infusion, always verify batteries are in the pump.

Before starting pump, always confirm all tubing clamps are open. If a line is clamped above the pump, fluid cannot be pumped. The pump cannot sense a proximal occlusion and will not alarm. Even if fluid is not pumped, the Total Amount display will increment as fluid is being pumped.

Pump performance may vary with use of batteries other than 9-Duracell alkaline.

When battery change is required, always replace both batteries. Always remove batteries if pump is to be stored for an extended period of time.

If the pump is stored for long periods, always remove both batteries.

Use only Abbott AC Mains power supply, List Number 13036, which is designed for use with the pump. Do not use with other accessories.

Connect the pump to grounded AC Mains outlet only. If quality AC Mains is in doubt, use battery power.

If more than one positive pressure infusion pump is connected to a common manifold or venous access device, the increased pressure may lower expected flow rates and reduce volume of fluid or drug delivered.

Manual references to specific values are approximate only, unless indicated otherwise.

Sensitivity values are approximate only.

Possible-explosion hazard exists if used in the presence of flammable anesthetics.

This device is to be sold or used only by or on the order of a physician or other licensed practitioner.

Arrange tubing, cords, and cables to minimize the risk of patient strangulation or entanglement.

## 8.1.1 Healthcare Professional and Patient Operating Cautions

Patients should contact their healthcare professional immediately should the pump appear to malfunction.

For those patients who are likely to be adversely affected by unintended operations and failures, including interrupted medication or fluid delivery from the device, close supervision and provision for immediate corrective action should be provided.

Product damage may occur if proper care is not exercised during unpacking, installation, or use. If the pump is inadvertently mishandled, check connections and programmed data to determine if damage has occurred.

Avoid sources of high-intensity electromagnetic radiation including transmitters, microwave ovens, X-ray machines, CAT scans, and MRI.

Avoid sources of electrostatic discharge.

Do not use purge function to prime the pump while it is connected to the patient.

Remove all air from cartridge, tubing, and injection site before connecting to the patient.

To reduce the risk of infusing air, use an air eliminating filter if the air-in-line alarm is off.

While bathing, operate the pump on battery power. The pump should be left in its case and outside of the tub or shower. The pump is not designed for direct exposure to water or other liquids.

The patient should be instructed about what to do if air is detected in the system.

## 8.2 Precautions and Hazards: Epidural Administration

The epidural route is recommended to provide anesthesia and administer analgesia for periods up to 96 hours.

For epidural use, the administration of drugs is restricted to anesthetic and analgesic drugs approved for continuous epidural administration: chlorprocaine hydrochloride, lidocaine hydrochloride and Morphine Sulfate Injection (Preservative Free).

For epidural administration, the following is recommended:

- Nylon or Teflon catheter
- Pump sets without Y-sites
- Epidural stickers indicating ongoing epidural administration

Epidural administration of drugs should be limited to medical professionals familiar with associated techniques and patient management problems. Proper epidural placement of the cath is essential since catheter migration could result in intravascular or intrathecal administration. Facilities practicing epidural administration must be equipped with resuscitative equipment including oxygen, naloxone, and other resuscitative drugs. Adequate monitoring equipment (i.e., Oximetry), is recommended for continuous monitoring of the patient during epidural administration. Patients must be observed for side effects frequently in a fully equipped and staffed environment for at least 24 hours following completion of drug administration by the epidural route.

**WARNING: DELAYED RESPIRATORY DEPRESSION FOLLOWING CONTINUOUS EPIDURAL ADMINISTRATION OF PRESERVATIVE-FREE MORPHINE SULFATE HAS BEEN REPORTED.**

The epidural space has 58 openings through which fluid can escape. Pressure buildup during administration is transient. However, if a large volume of fluid is administered over a short time period, pressure takes longer to return to normal. If overdosage occurs during administration, observe the patient closely for compression of the spinal cord (disorientation, headache, transient neuralgia, drug overdose).

Epidural administration of anesthetics is limited to the continuous mode only.

Epidural administration of analgesics may be delivered by continuous, bolus, or continuous/bolus.

# 9 Sets and Accessories

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## 9.1 Administration Sets and Accessories

The following Abbott LifeCare Provider pump administration accessories are available for use with the Abbott Pain Management Provider pump. Use only Abbott LifeCare Provider pump administration sets with the Abbott Pain Management Provider pump.

**STERILE**



The administration sets are supplied STERILE and are for SINGLE USE ONLY.

**Note:** Recommended set change interval is 72 hours or less.

### 9.1.1 Abbott LifeCare Provider Pump Sets and Catheters

- List L231 203 cm, Two-piece, non-vented Administration Set with and Extension Set with Integral Anti-siphon Valve and Integral Anti-siphon Valve -SL Priming Volume 3.6 mL.  
Alternate: List 13580
- List L232 203 cm, Non-vented Administration Set with Cartridge, Valve and Yellow Striped Tubing -SL Priming Volume 3.6 mL.  
Alternate: List 13626
- List L236 203 cm, Two-piece, non-vented Administration Set with and Integral Anti-siphon Valve Extension Set with Integral Anti-siphon Valve -SL Priming Volume 3.7 mL.  
Alternate: List 13560
- List 1193 Nylon Catheter for Epidural Administration
- List 6947 Teflon Catheter for Epidural Administration

### 9.1.2 Accessories

- List 13701 Remote Bolus Cord
- List 13955 Abbott Pain Management Provider Lockbox

The lockbox secures the pump and fluid reservoir. A key is used to open the lockbox door. The lockbox can hold up to a 500 mL reservoir and a 30 mL syringe.

Access is provided for remote bolus cord, AC mains power cord, and printer plug.

The lockbox cannot be used with the rechargeable battery.

**Note:** This lockbox was specifically designed for the Abbott Pain Management Provider and will not hold the Provider<sup>®</sup> 550.

List 13230 Pole Clamp Package

List 13006 Lockbox Key

List 13959 Abbott Pain Management Provider Carrying Case

The Abbott Pain Management Provider allows for waist-belt or shoulder style carrying capabilities.

The maximum reservoir that the carrying case holds is 250 mL.

List 13036-(xx) Abbott Pain Management Provider AC Mains Power Supply

**Note:** User to specify (xx): 04 = USA; 24 = Universal Table Top (200 to 250 VAC); 27 = Australia; 36 = Europe; 54 = UK.

An AC Mains power supply with a 1.8 meter cord is supplied.

List 13035 Snap-In Battery Pack System

A rechargeable snap-in battery pack and battery recharger is included. The rechargeable battery pack operates the pump for five days at 6.0 mL/H.

**Note:** An IEC 601-1 approved AC Mains cord is to be supplied to meet local requirements.

List 13887 Snap-In Battery Pack

List 13037 Snap-In Battery Pack Charger

**Note:** An IEC 601-1 approved AC Mains cord is to be supplied to meet local requirements.

List 40517-11 Printer, Seiko DPU-411

**Note:** The printer has a rechargeable battery. The printer specification includes a 110 VAC power supply. Other power supplies are available locally.

**Note:** Printer to be purchased locally. Not distributed by Abbott Laboratories. Use only printers that are for use with devices that comply to IEC 601.

List 13007 Printer Cable for Seiko DPU-411 Printer

List 13008 Printer Cable for Kodak Diconix 150 Plus Printer

# 10

## Specifications



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## 10.1 Product Specifications

### DELIVERY RATES:

**Maximum:** 25 mL/H

**Minimum:** 0.1 mL/H

### PROGRAMMABLE VOLUME:

**Minimum:** 0.1 mL or 0.1 mg or 0.1  $\mu$ g

**Maximum:** 1000 mL or equivalent in mg or  $\mu$ g  
(range: 0.1 to 9999.9)

### PROGRAMMABLE BOLUS:

**Minimum:** 0.1 mL or 0.1 mg or 0.1  $\mu$ g

**Maximum:** 25.0 mL equivalent mg or  $\mu$ g  
(range: 0.1 to 9999.9)

### PROGRAMMABLE BOLUS LOCKOUT TIME:

**Minimum:** 5 minutes

**Maximum:** 999 minutes

### PROGRAMMABLE LOADING DOSE:

**Minimum:** 0.1 mL or 0.1 mg or 0.1  $\mu$ g

**Maximum:** 25.0 mL or equivalent mg or  $\mu$ g

**PUMP MECHANISM:** One micro-computer controlled  
eccentric-rotor peristaltic motor

**PURGE (PRIME) FLOW RATE:** 125 mL/H

**DIMENSIONS:** 6.75" (H) x 4.0" (W) x 2.3" (D)  
17.1cm (H) x 10cm (W) x 5.8cm (D)

**WEIGHT:** Approximately two pounds  
Approximately 1.0 kg

**POWER SOURCES:**

**AC Mains:** Use only Abbott List Number 13036 plug-in AC Mains power supply with 1.8 meter cord and molded plug.

**Input:** 220-240 VAC, 50 Hz,  
0.05A (13036-54 = UK;  
13036-36 = Europe)

200-250 VAC, 50 Hz,  
.03A (13036-24 =  
Universal Table Top)

240 VAC, 50 Hz, 0.05A  
(13036-27 = Australia)

**Output:** 12 VDC, 400 mA, 0.4A

**Disposable Batteries:** Two 9-volt Duracell Alkaline batteries

**Rechargeable Battery Pack:** Attachable separate battery pack. Full recharge requires up to six hours.

**POWER CAPACITIES:**

**Two 9-Volt Duracell Alkaline**

**Battery Capacity:** Delivery at 6.0 mL/hour for approximately four days

**Battery Pack Capacity:** Minimum delivery at 6.0 mL/hour for days

**DISPLAY:** Liquid crystal display with backlight

**OPERATING CONTROLS:** 24 membrane-type switches and one electromechanical switch

**MEMORY PROTECTION:** At least one year

**ALARMS (Audible and Visual):** AIR IN LINE  
CALLBACK ALERT  
CHANGE BATTERIES  
CHECK CARTRIDGE:  
LATCH OPEN/CARTRIDGE  
NOT IN PUMP CORRECTLY  
EMPTY CONTAINER  
END OF INFUSION  
INTERNAL MALFUNCTION  
LIMIT EXCEEDED  
LOW BATTERY  
OCCLUSION  
ON BATTERIES  
PURGE OVERUSE  
SYSTEM ERROR

**ENVIRONMENTAL CONDITIONS:**

Operating Temperature: 10°C to 40°C

Operating Humidity: 10% to 90% Relative Humidity

**TRANSPORTATION AND STORAGE:**

Temperature: -20°C to 60°C

Humidity: 10% to 90% Relative Humidity

**AIR-IN-LINE ALARM:** The air-in-line alarm is always a PCA mode.

The air-in-line alarm has two set levels as follows:

**High:** Always senses air bubbles 100  $\mu$  greater. It cannot detect air bubbles less than 50 microliters.

**Low:** Always senses air bubbles 300  $\mu$  greater. It cannot detect air bubbles less than 200 microliters.

**Note:** Refer to *Section 3.2.2, Air-In-Line Sensitivity* for instructions on setting air-in-line alarm sensitivity level.

The air-in-line alarm may be disabled in epidural mode.

## 10.2 Occlusion Information

### 10.2.1 Stored Occlusion Volume

DELIVERY RATE	PRESSURE LIMIT	STORED VOLUME	TIM
1.0 mL/H	310 kPa	0.3 mL	2
10.0 mL/H	310 kPa	0.3 mL	
25.0 mL/H	310 kPa	0.3 mL	

### 10.2.2 Avoiding Bolus Infusion After Occlusion

To avoid a bolus infusion after occlusion, proceed as follows:

1. Press STOP.
2. Close or clamp off tubing at distal end of set.
3. Remove cartridge from pump.
4. Turn control knob on cartridge to the open position (dot opposite the red circle).
5. Wait 10 seconds.
6. Turn control knob on cartridge to the closed position (dot inside the red circle).
7. Insert cartridge into pump.
8. Open distal clamp.
9. Review program.
10. Start pump.

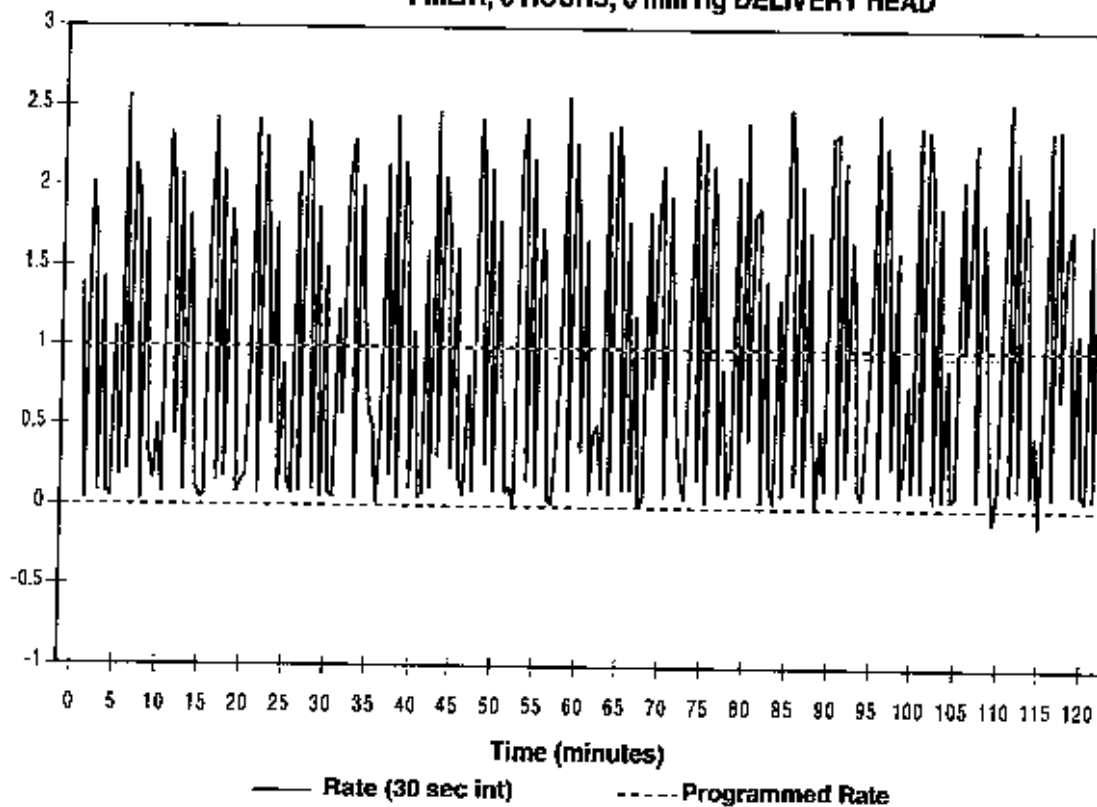
## 10.3 Delivery Rate Accuracy

The following trumpet curves represent the typical flow rate deviations, both positive and negative, from the set flow rate at test conditions defined by IEC Standards for infusion pumps. From these curves, the medical professional may determine if the device can be expected to perform in a manner suitable for the drug to be infused.

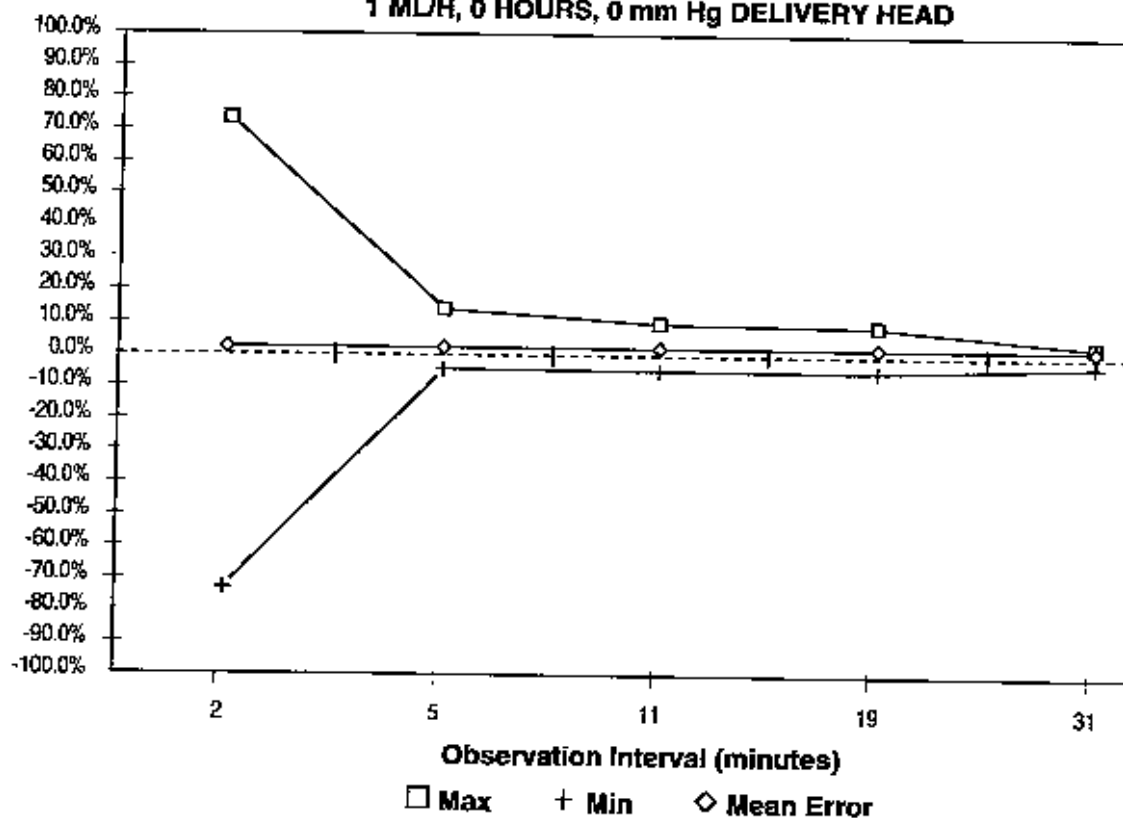
The typical accuracy for this device is  $\pm 5\%$  of the set rate for all conditions, after a period of normalization. It is recommended that the medical professional refer to the following curves when making decisions regarding drug and fluid administration.

The maximum over-infusion which may occur under single factor condition is 25%.

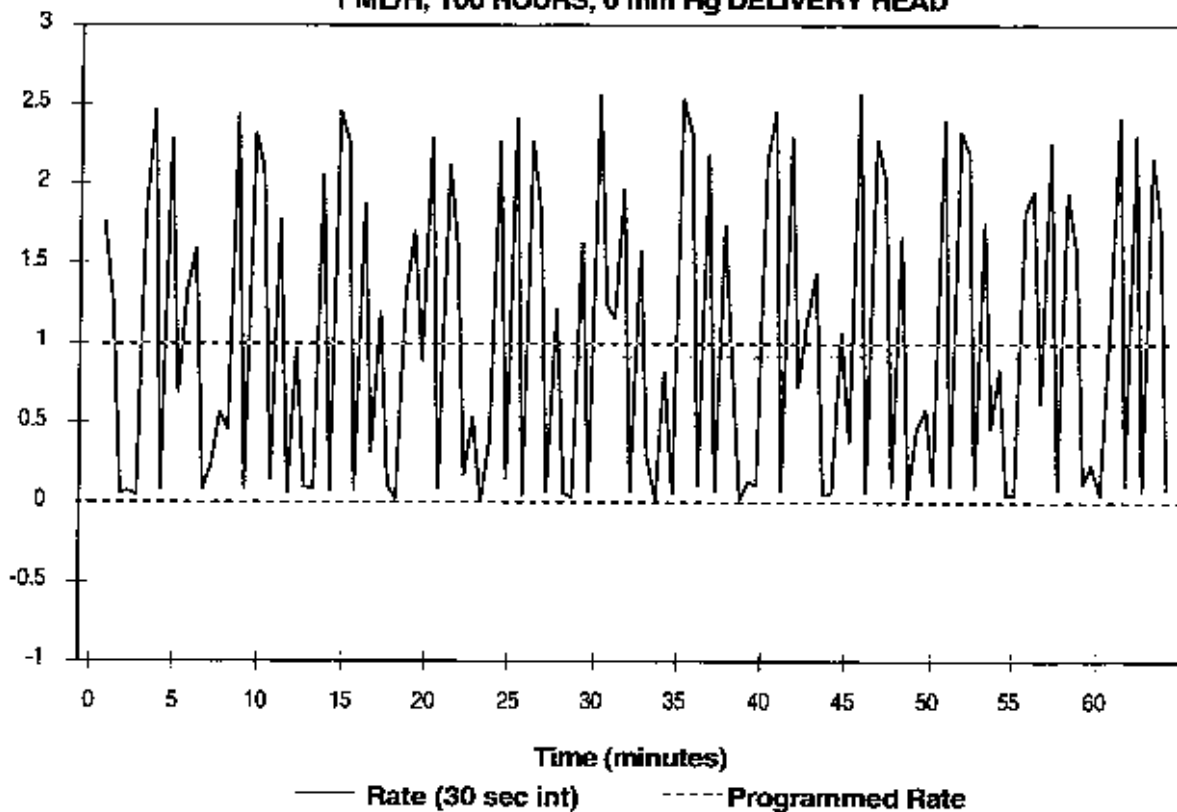
**FLOW RATE**  
**1 mL/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**



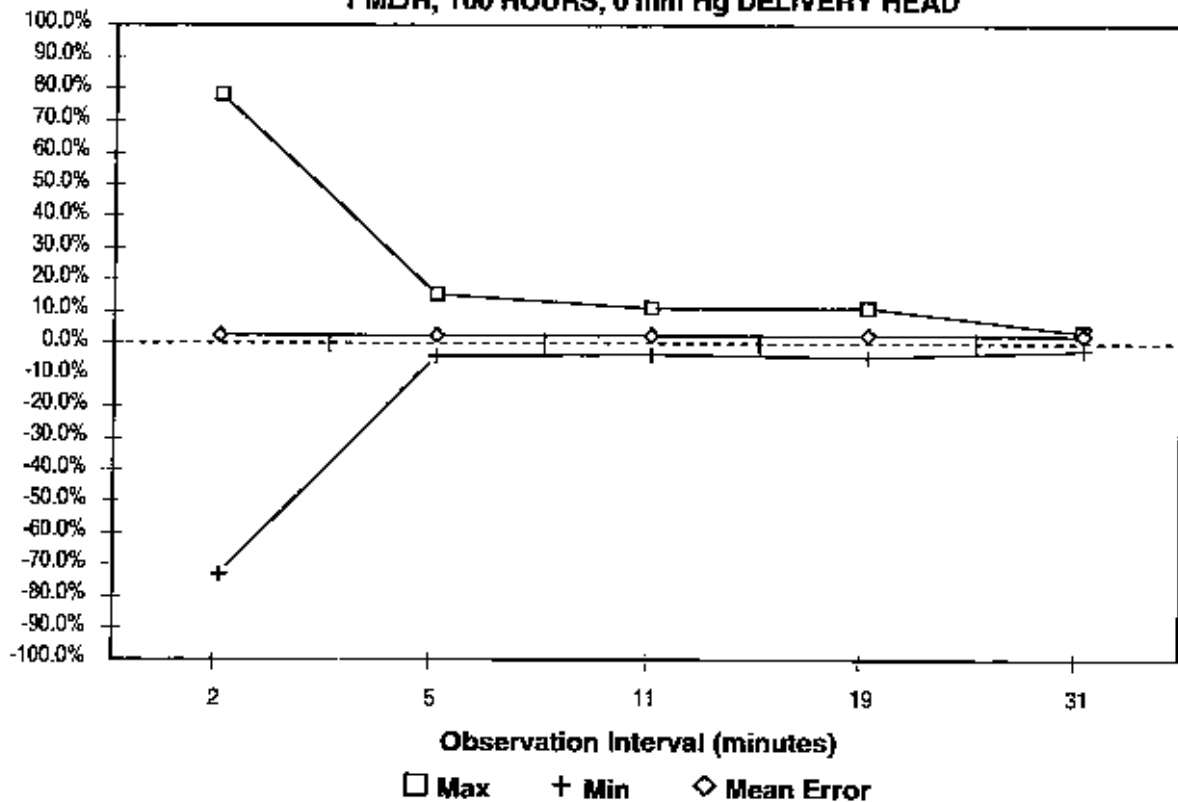
**PERCENT ERROR**  
**1 ML/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**



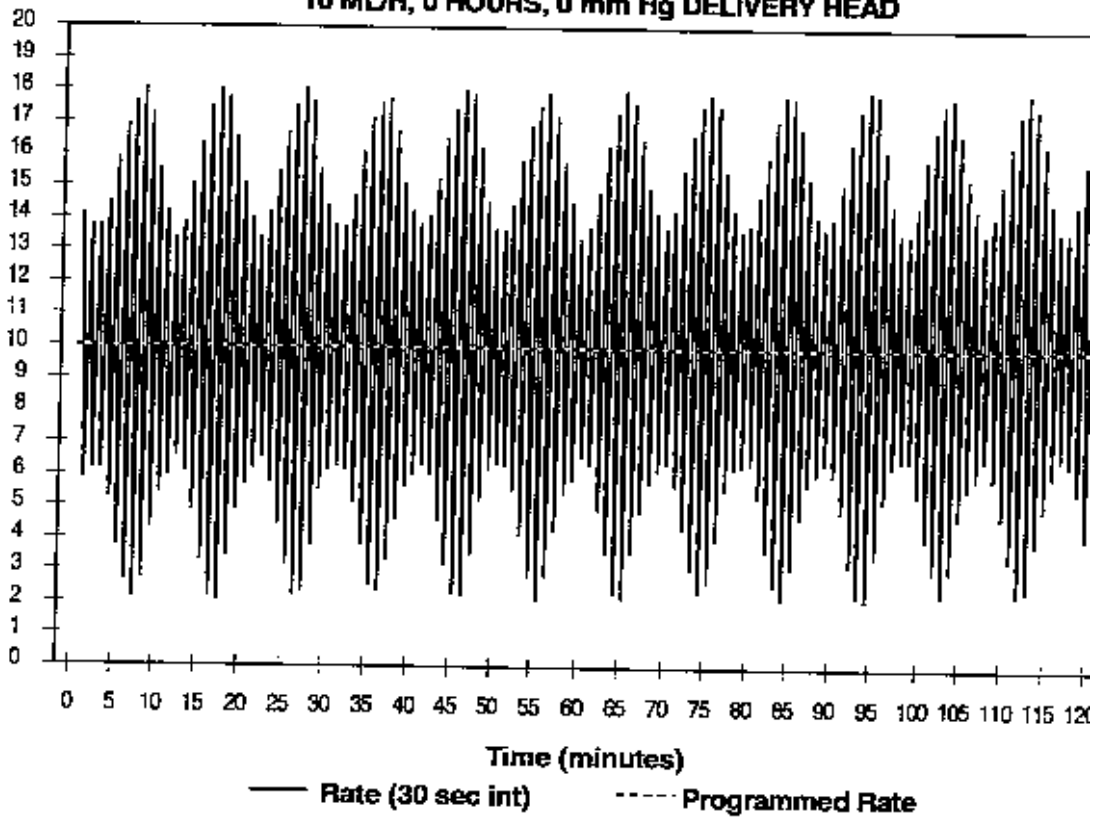
**FLOW RATE**  
**1 ML/H, 100 HOURS, 0 mm Hg DELIVERY HEAD**



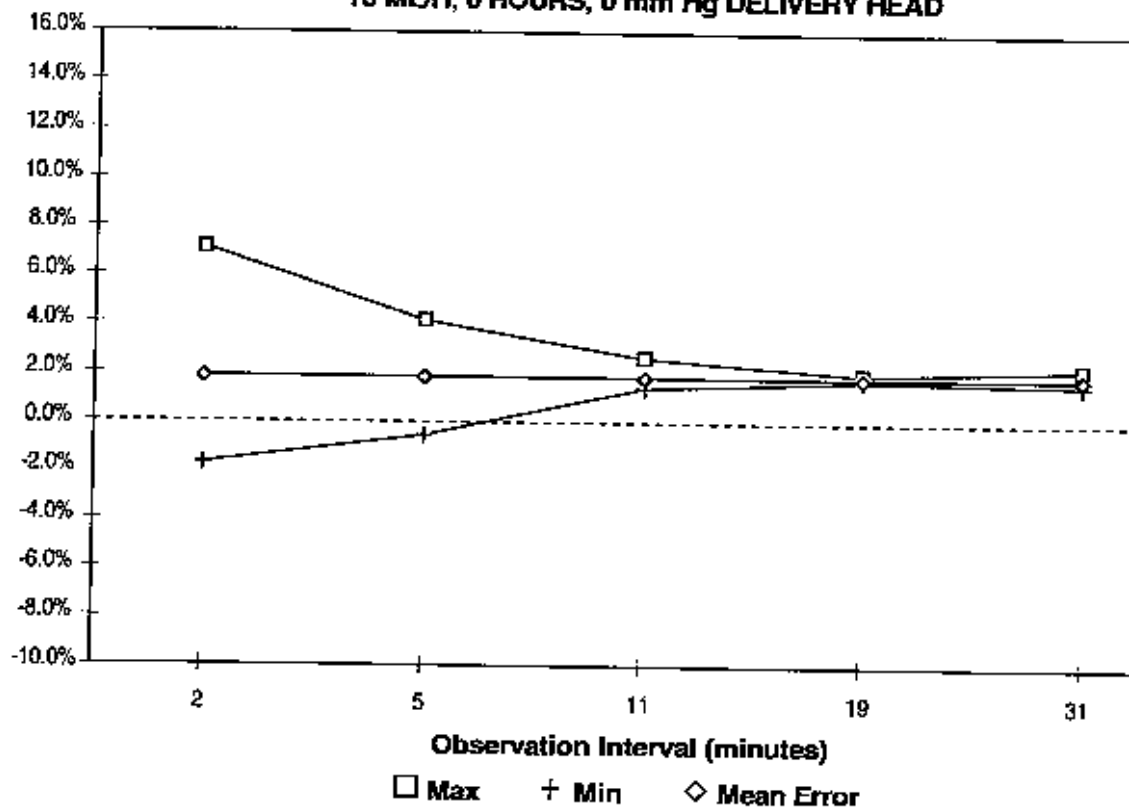
**PERCENT ERROR**  
**1 ML/H, 100 HOURS, 0 mm Hg DELIVERY HEAD**



**FLOW RATE**  
**10 ML/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**

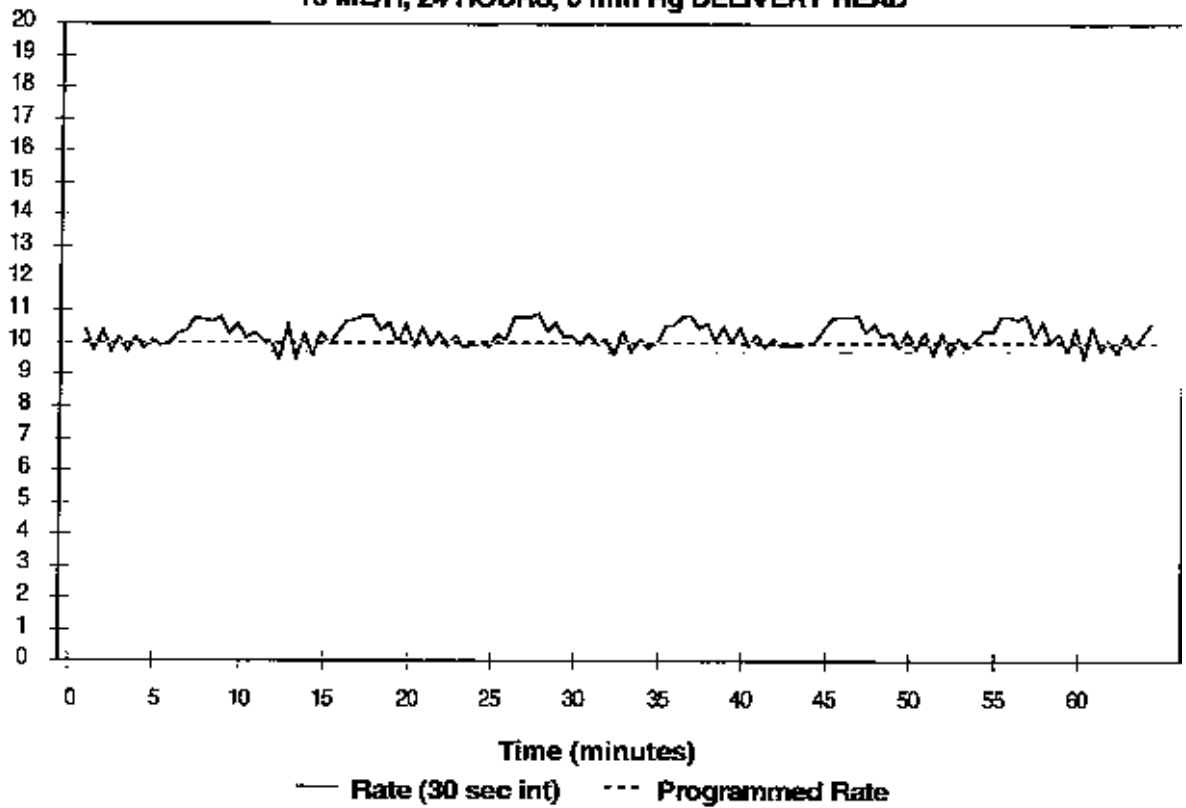


**PERCENT ERROR**  
**10 ML/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**

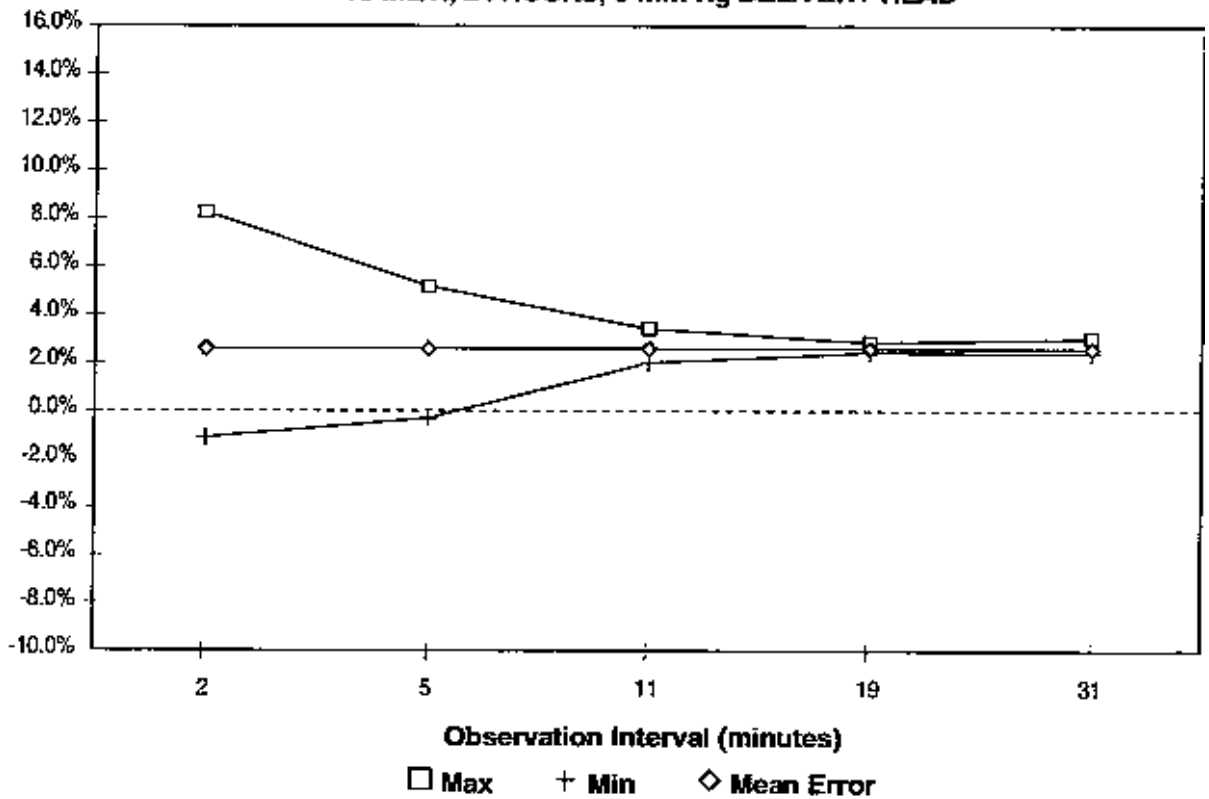




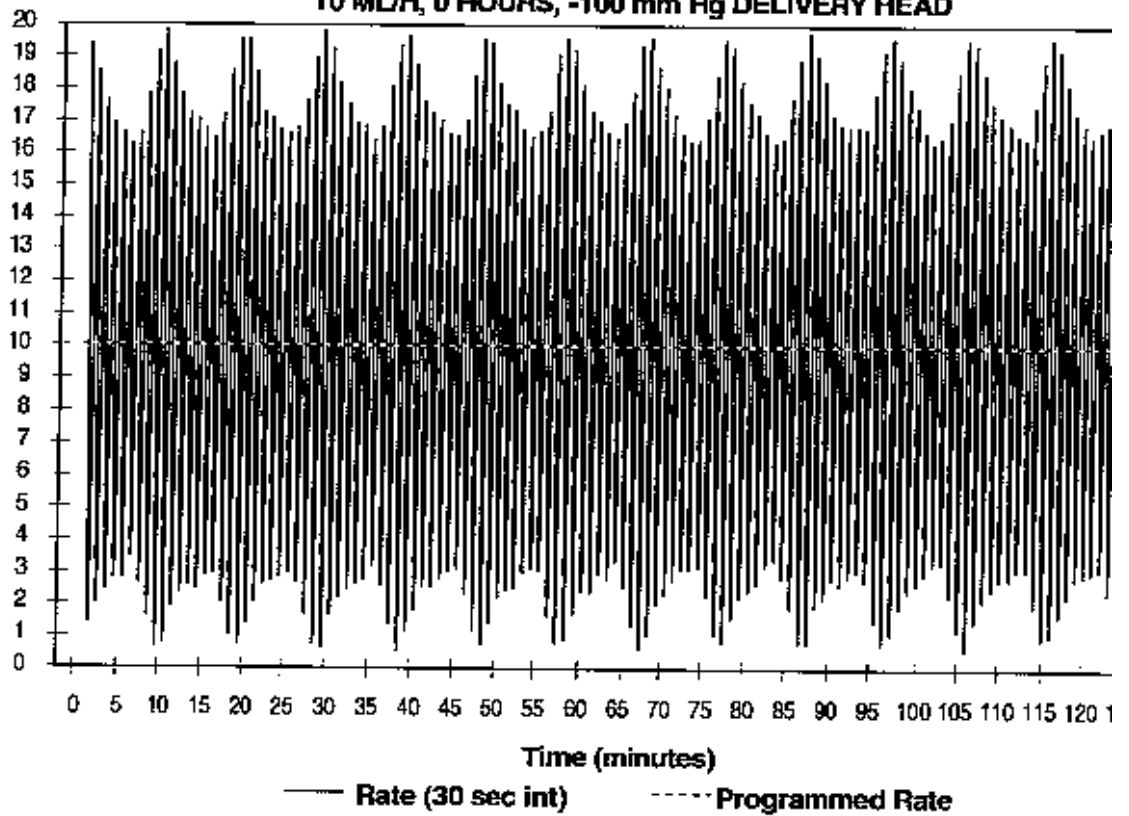
**FLOW RATE**  
**10 ML/H, 24 HOURS, 0 mm Hg DELIVERY HEAD**



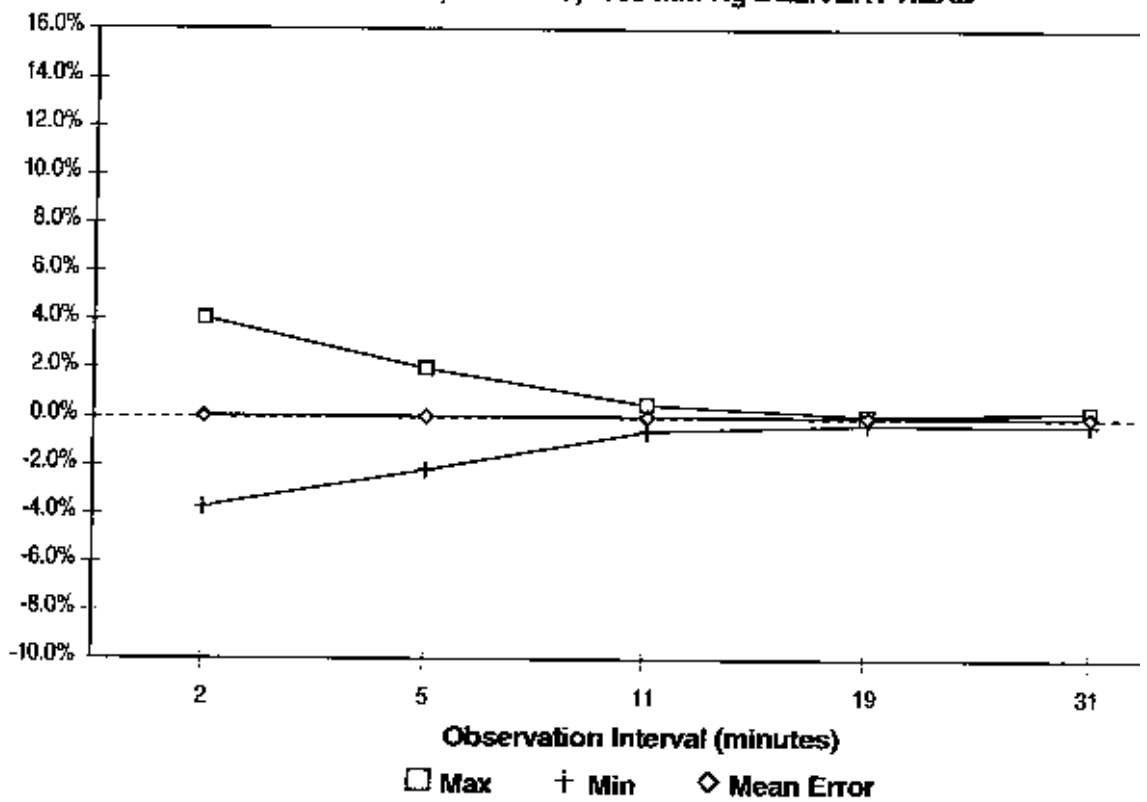
**PERCENT ERROR**  
**10 ML/H, 24 HOURS, 0 mm Hg DELIVERY HEAD**



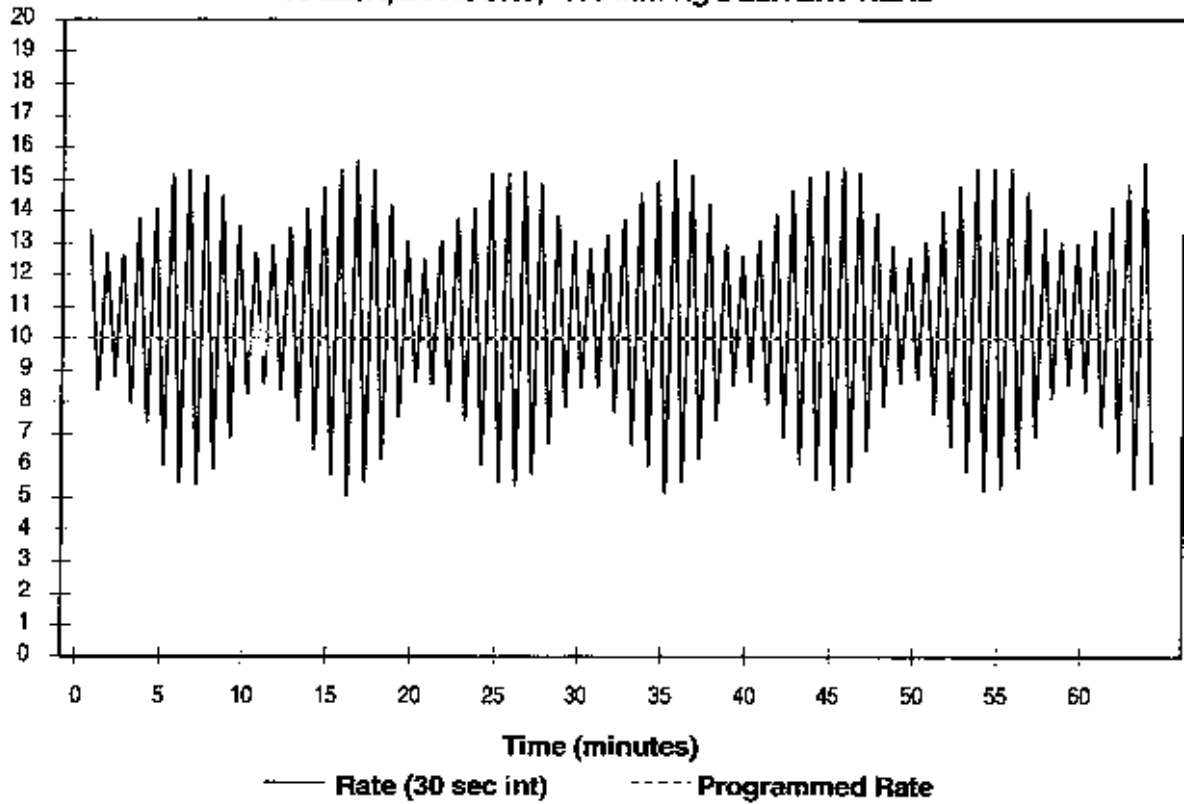
**FLOW RATE**  
**10 ML/H, 0 HOURS, -100 mm Hg DELIVERY HEAD**



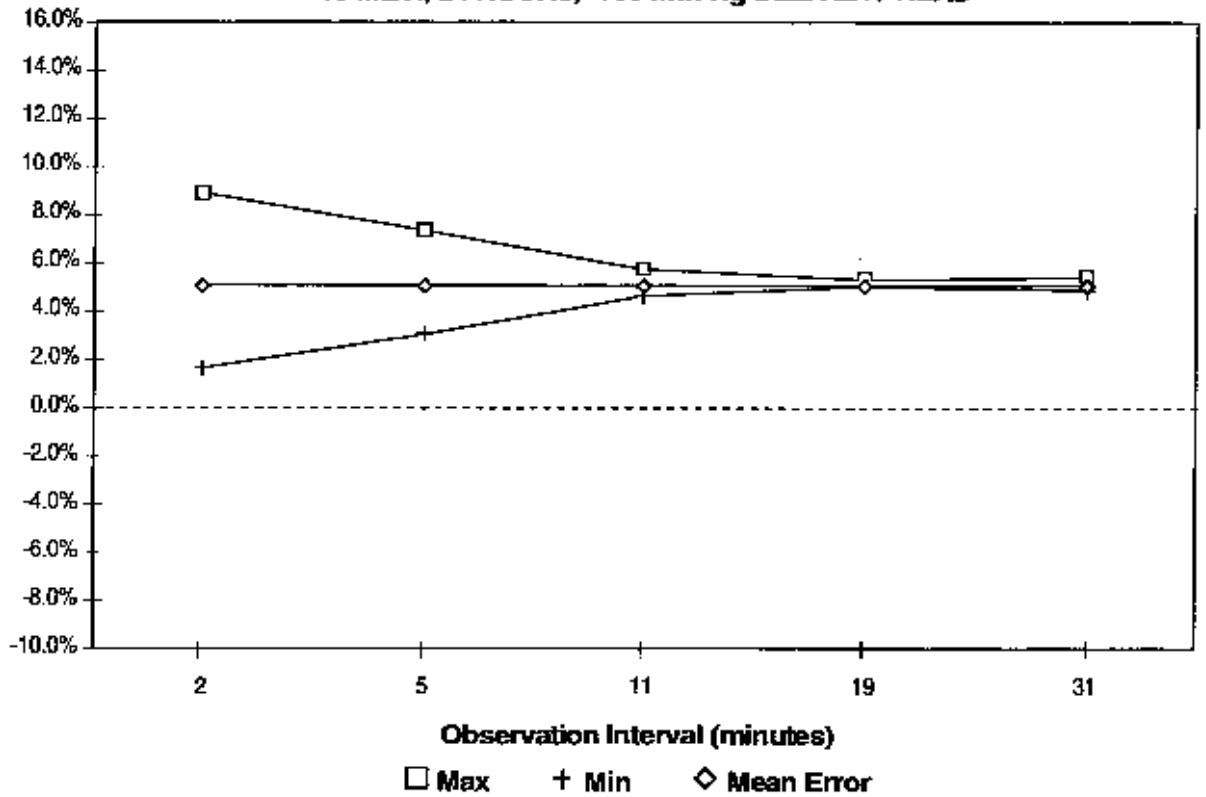
**PERCENT ERROR**  
**10 ML/H, 0 HOURS, -100 mm Hg DELIVERY HEAD**

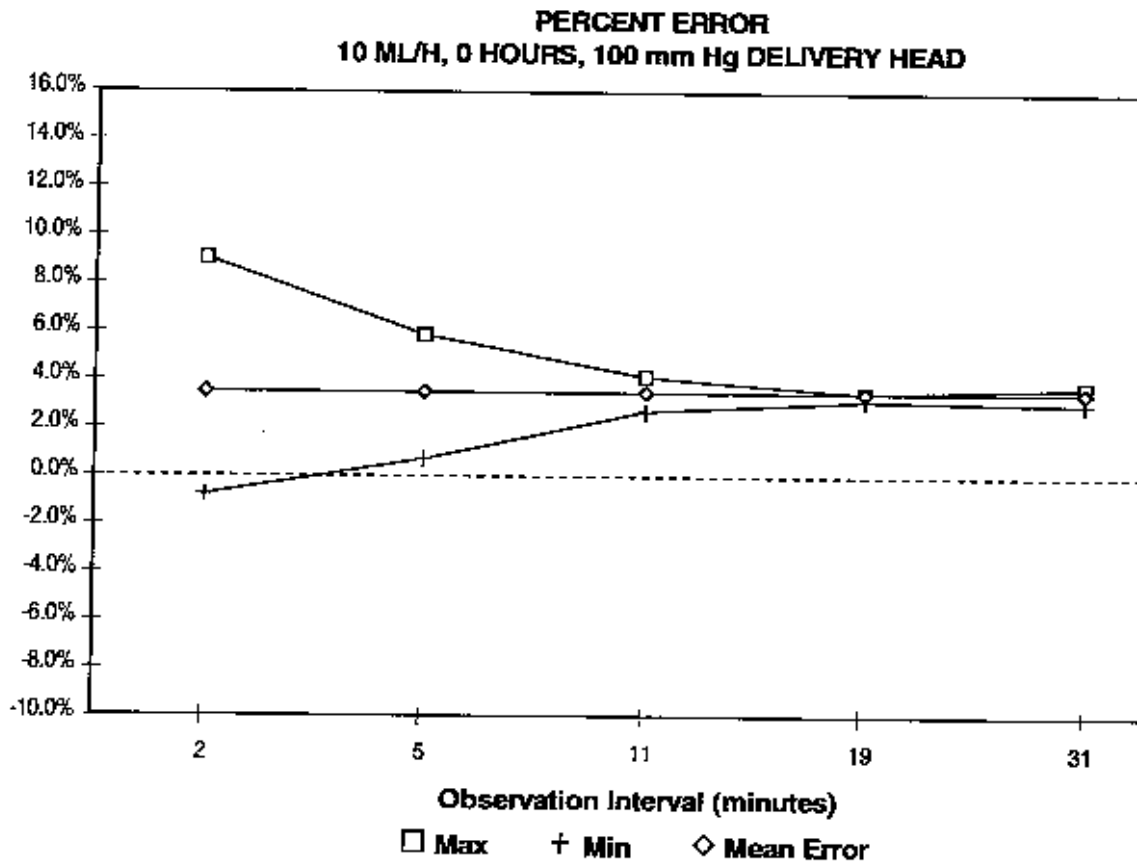
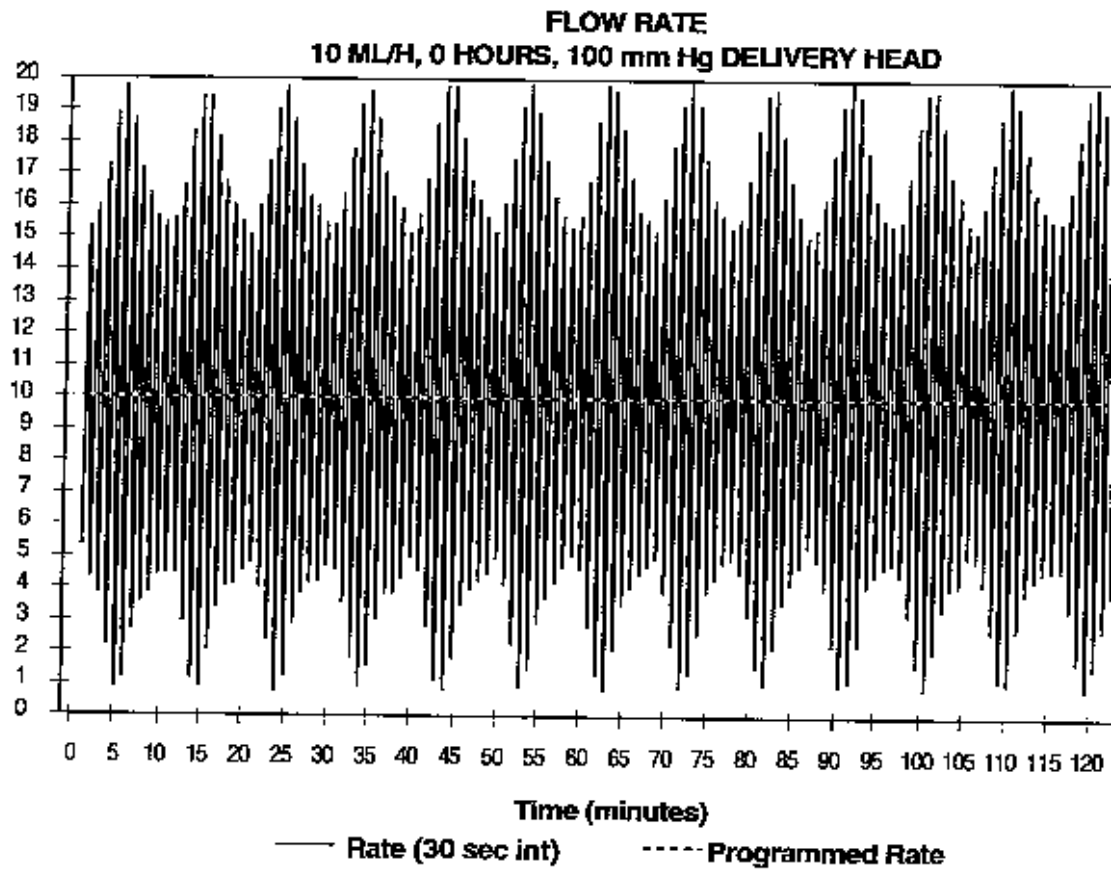


**FLOW RATE**  
**10 ML/H, 24 HOURS, -100 mm Hg DELIVERY HEAD**

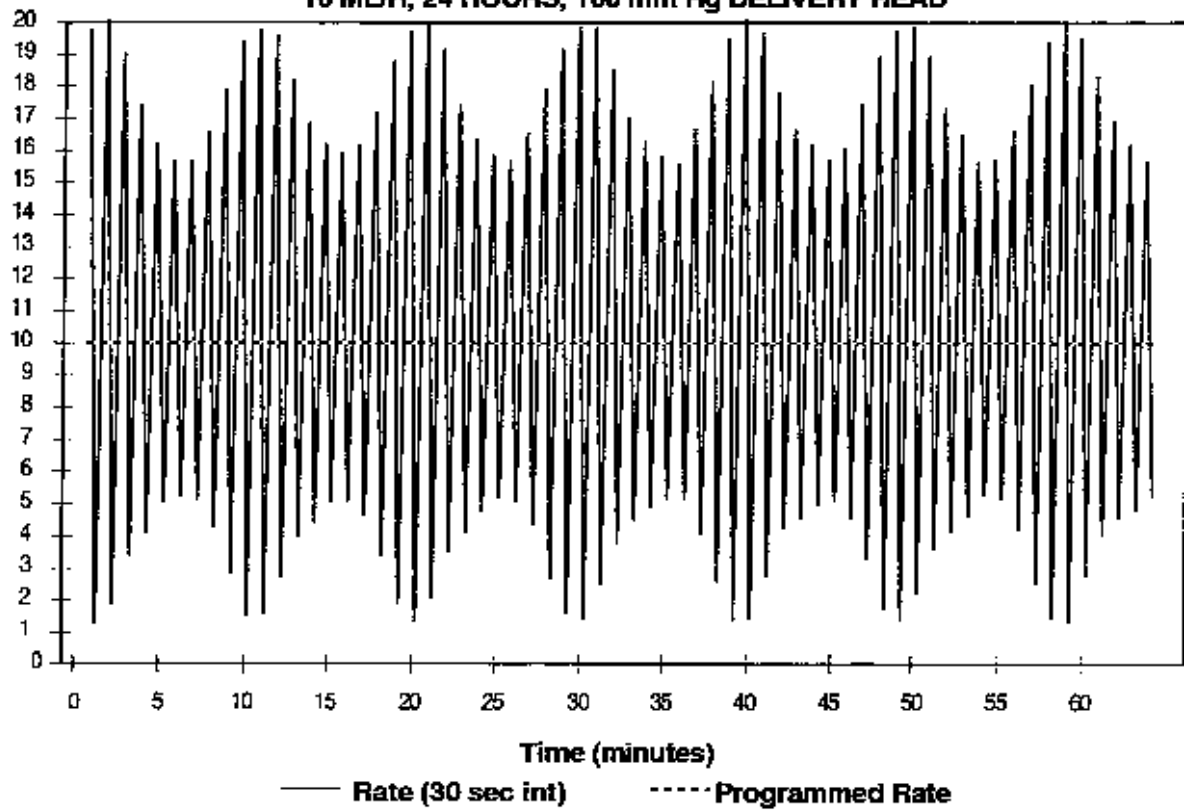


**PERCENT ERROR**  
**10 ML/H, 24 HOURS, -100 mm Hg DELIVERY HEAD**

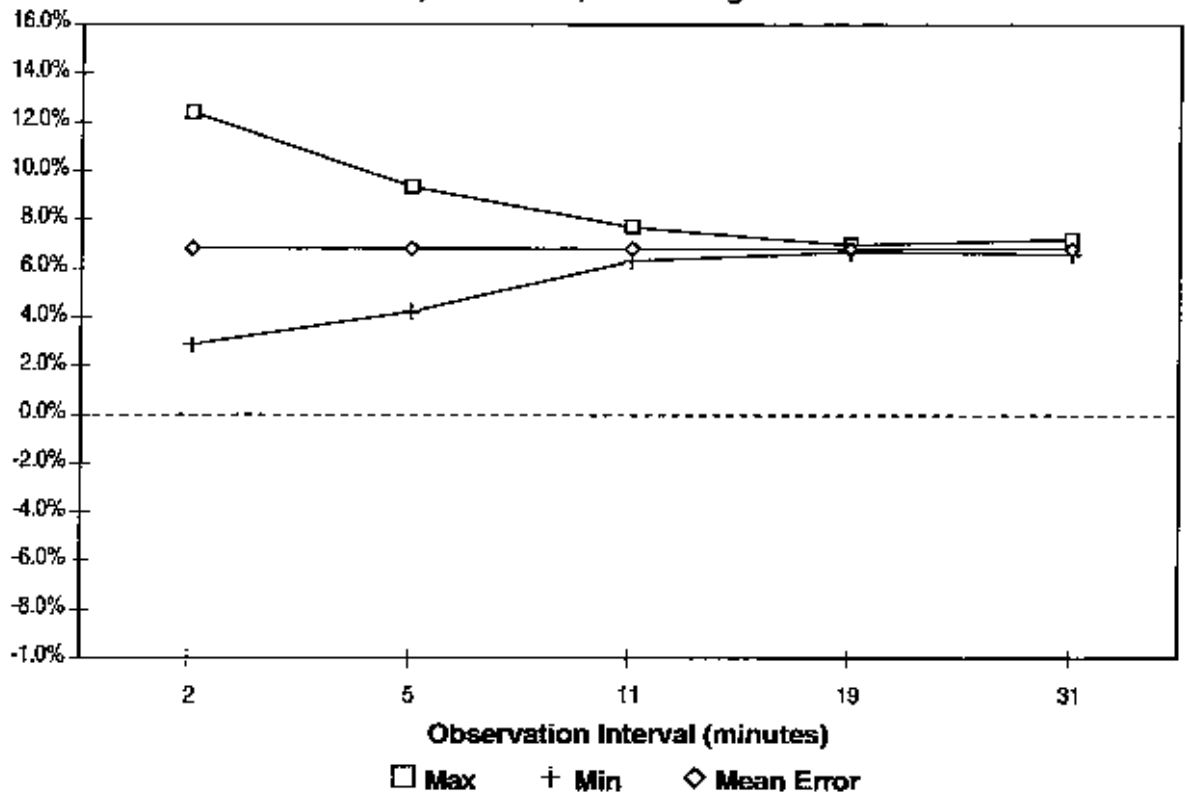




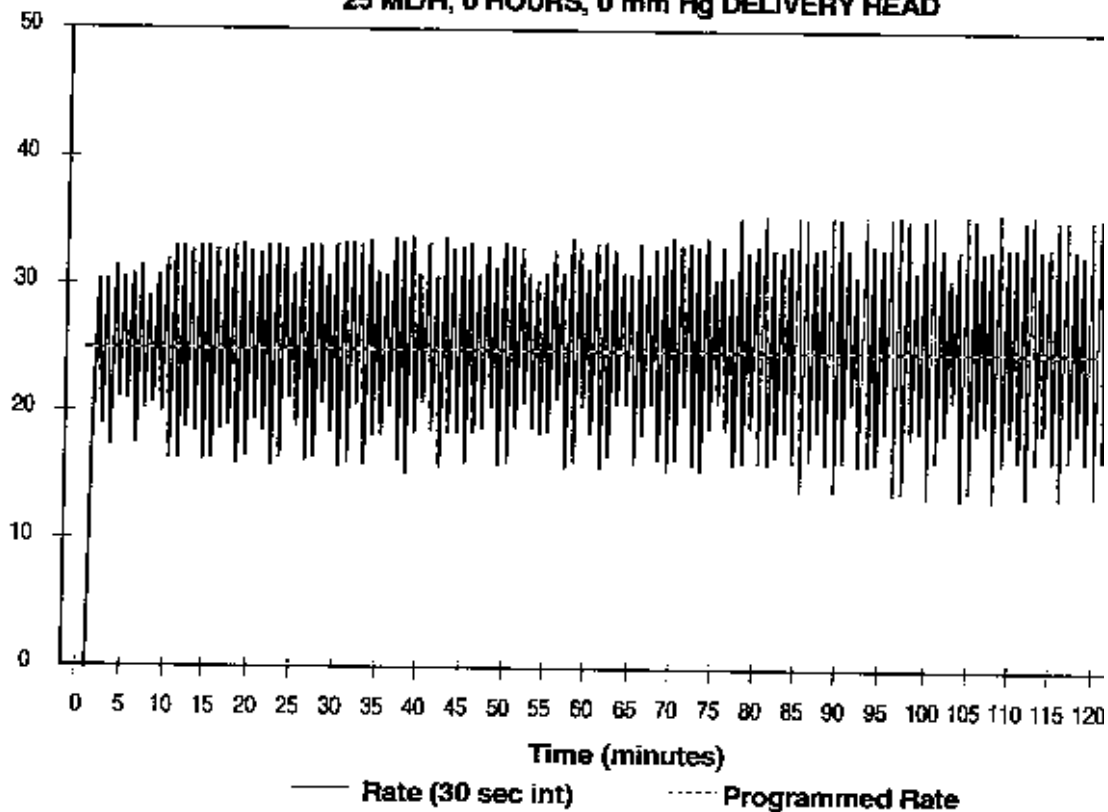
**FLOW RATE**  
**10 ML/H, 24 HOURS, 100 mm Hg DELIVERY HEAD**



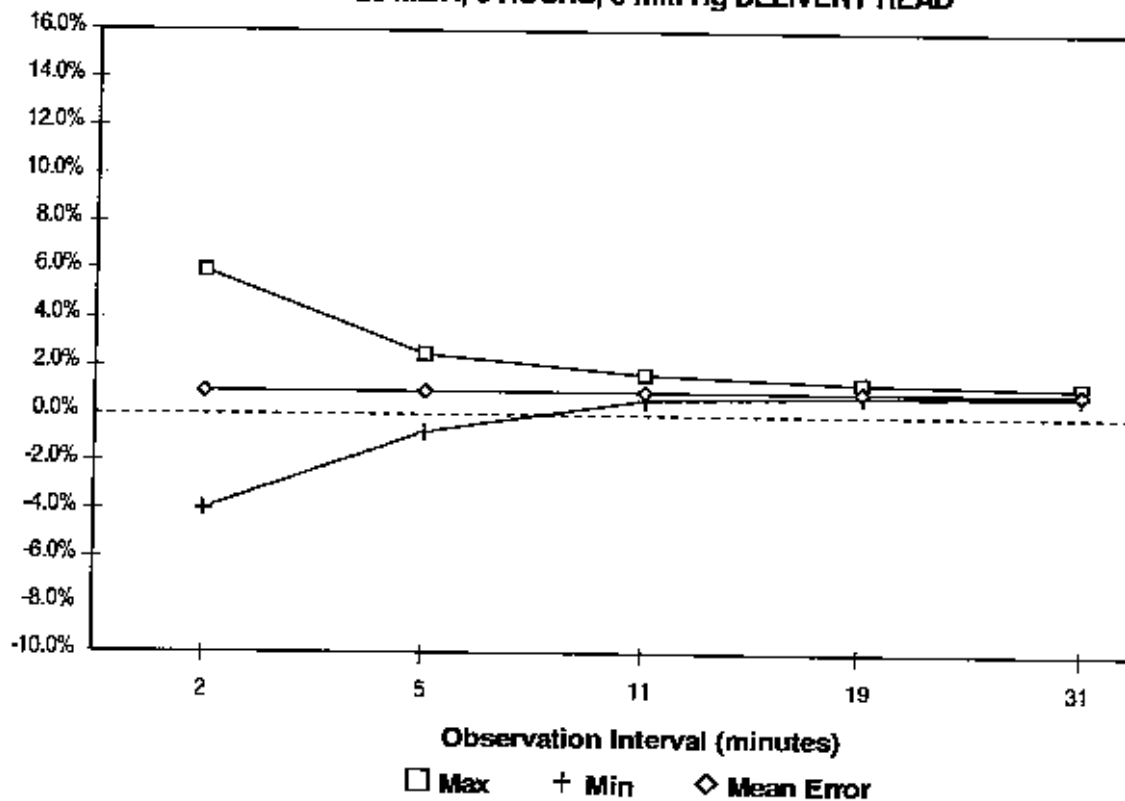
**PERCENT ERROR**  
**10 ML/H, 24 HOURS, 100 mm Hg DELIVERY HEAD**



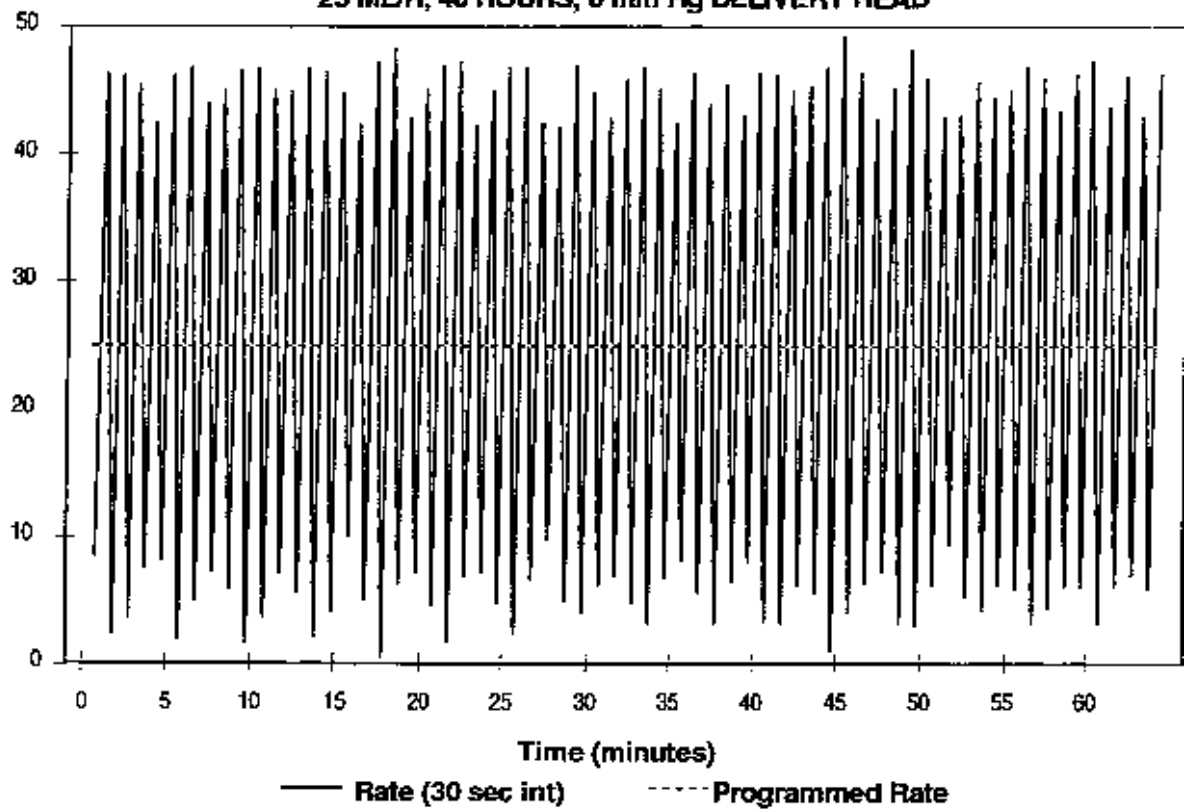
**FLOW RATE**  
**25 ML/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**



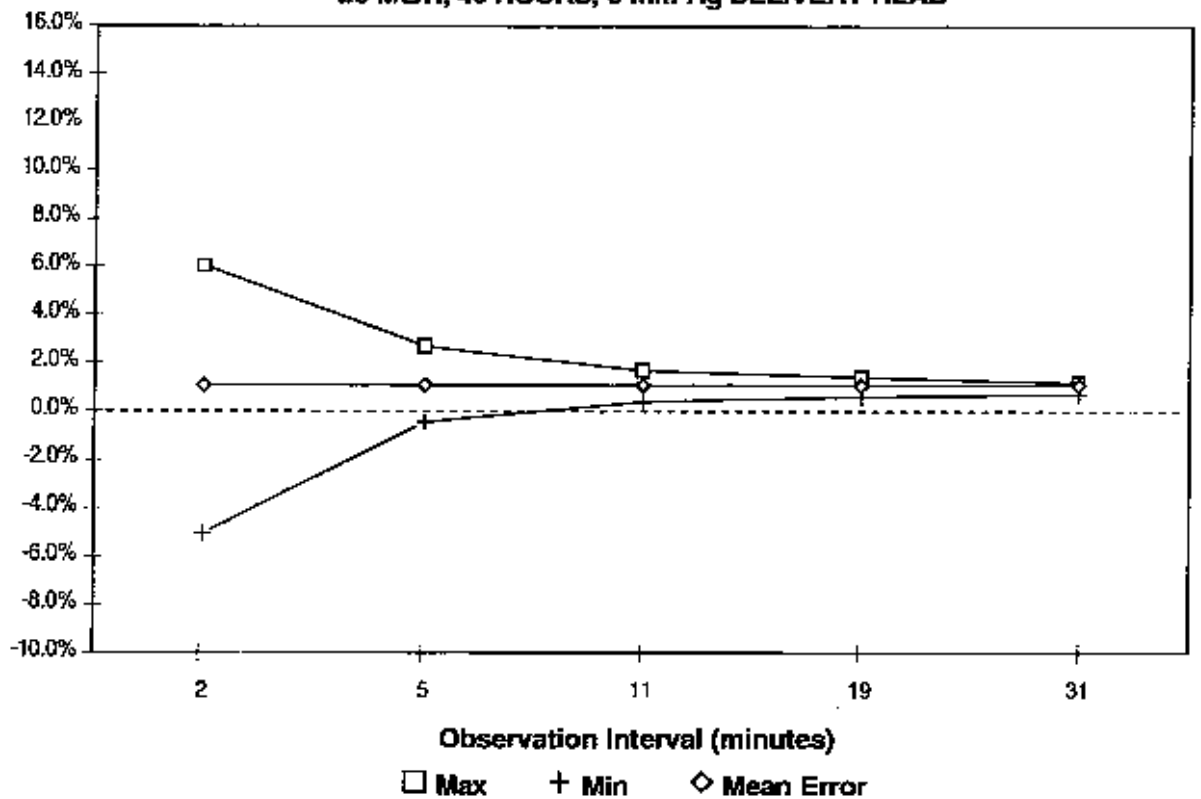
**PERCENT ERROR**  
**25 ML/H, 0 HOURS, 0 mm Hg DELIVERY HEAD**



**FLOW RATE**  
**25 ML/H, 40 HOURS, 0 mm Hg DELIVERY HEAD**

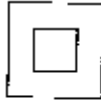


**PERCENT ERROR**  
**25 ML/H, 40 HOURS, 0 mm Hg DELIVERY HEAD**



## 10.4 IEC Symbols

### Pump



Class II

Mains supply equipment using double reinforced insulation



Type CF

Equipment providing a degree of protection higher than Type BF equipment against electrical shock particularly allowable leakage currents and having an F-Type application

**IPX4**  
Splash Proof

Protected against splashing water.

**Note:** Splash proof label requires use of lockbox or card.

**R.H.**

Relative humidity

### Power Supply



On AC Mains power



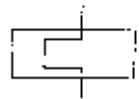
Input AC



Output DC



Safety Isolation Transformer (IEC 601-1).



Fuse symbol.



Indoor use only.

**T40/B**

40°C Ambient (max.) Class B transformer.



Output connector's polarity.



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# 11

## Lessons

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# 11.1 Lesson 1: Pump Mode and Program Type Selection



**Example:**

Select EPIDURAL MODE and continuous program.

**To Get Ready:**

Refer to *Section 2* to set up the Abbott Pain Management

WHAT YOU SEE	WHAT YOU DO	COMMENTS
(Blank Display)	Press 	Pump powers c
UNIT SELF TEST IN PROGRESS		Pump performs self-test of sele components.
EPIDURAL MODE CONTINUOUS ONLY		Pump displays program mode.
TIME IS 14:02 THU, JUL 25, 92		Current time ar display.
CLEAR HIST + Rx? YES OR NO	Press 	Clears most rec
CLEARING HISTORY AND Rx		
HISTORY AND Rx CLEARED		Message display program is clear

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	EPIDURAL MODE is selected.
1 CONT      3 BOTH 2 BOLUS ONLY	Press 	Continuous delivery selected.











## 11.2 Lesson 2: Continuous Epidural Delivery in Milliliters (mL)

**Example:**

M.D. orders 5 mL of drug delivered epidurally every hour. A dose or bolus is prescribed. A 100 mL bag is hung from the pump.

**To Get Ready:**

Refer to *Section 2* to set up the Abbott Pain Management System.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	EPIDURAL MODE is selected.
1 CONT      3 BOTH 2 BOLUS ONLY	Press 	Continuous delivery mode is selected.
SELECT ML ONLY YES OR NO	Press 	Milliliters is selected.
SET RATE 0.0 ML/H	Press  Press 	Rate of 5.0 mL/h is selected. ENTER saves the rate and continues program.
LOADING DOSE? YES OR NO	Press 	No loading dose is selected.
TOTAL AMOUNT 0.0 ML	Press    Press 	100.0 mL is selected as total amount in medication bag (100 mL).

WHAT YOU SEE	WHAT YOU DO	COMMENTS
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HIGH SENSITIVITY  
AIR ALARM ON

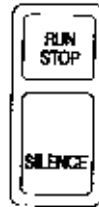
High sensitivity air-  
alarm is on.

SAVING PROGRAM

Program is saved. B  
infusion when ready

PRESS RUN/STOP  
TO INFUSE

Press



Infusion begins.

## 11.3 Lesson 3: Continuous Epidural Delivery in Micrograms ( $\mu\text{g}$ ) with a Bolus and Four-Hour Limit






### Example:

M.D. orders 10  $\mu\text{g}/\text{H}$  of drug for a continuous epidural bolus doses of 5  $\mu\text{g}$  every 30 minutes as needed. M.D. patient receive no more than 60  $\mu\text{g}$  over any four-hour

The pharmacy provides a solution with 5  $\mu\text{g}/\text{mL}$  concentration. Medication supply is in a 100 mL bag.







### To Get Ready:

1. Refer to Section 2 to set up the Abbott Pain Management Provider.
2. Clear any previously stored program. See Section 4 Program.
3. Connect remote bolus cord.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	EPIDURAL MODE
1 CONT      3 BOTH 2 BOLUS ONLY	Press 	Continuous delivery bolus is selected
SELECT ML ONLY YES OR NO	Press 	Display advanced screen.
SELECT MG/ML YES OR NO	Press 	Display advanced screen.
SELECT UG/ML YES OR NO	Press 	Micrograms per mL ( $\mu\text{g}/\text{mL}$ ) is selected



WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>CONCENTRATION 0.0 UG/ML</p>	<p>Press <input type="button" value="5"/></p> <p>Press <input type="button" value="ENTER"/></p>	<p>Rate of 5.0 µg/mL is</p>
<p>SET RATE 0.0 UG/H</p>	<p>Press <input type="button" value="1"/> <input type="button" value="0"/></p> <p>Press <input type="button" value="ENTER"/></p>	<p>Delivery rate of 10.0 selected.</p>
<p>LOADING DOSE? YES OR NO</p>	<p>Press <input type="button" value="NO"/></p>	<p>No loading dose is pr</p>
<p>SET BOLUS DOSE 0.0 UG</p>	<p>Press <input type="button" value="5"/></p> <p>Press <input type="button" value="ENTER"/></p>	<p>Bolus dose of 5.0 µg selected.</p>
<p>BOLUS LOCKOUT 0 MINUTES</p>	<p>Press <input type="button" value="3"/> <input type="button" value="0"/></p> <p>Press <input type="button" value="ENTER"/></p>	<p>30 minutes between doses is selected.</p>
<p>4 HOUR LIMIT? YES OR NO</p>	<p>Press <input type="button" value="YES"/></p>	<p>4 HOUR LIMIT is sele</p>
<p>SET 4 HOUR LIMIT 0.0 UG</p>	<p>Press <input type="button" value="6"/> <input type="button" value="0"/></p> <p>Press <input type="button" value="ENTER"/></p>	<p>60.0 µg is selected.</p>

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>TOTAL AMOUNT 0.0 UG</p>	<p>Press   </p> <p>Press </p>	<p>500.0 µg is set 100 mL with 5 concentration.</p>
<p>HIGH SENSITIVITY AIR ALARM ON</p>		<p>High sensitivity alarm is on.</p>
<p>SAVING PROGRAM</p>		<p>Program is saved infusion when :</p>
<p>PRESS RUN/STOP TO INFUSE</p>	<p>Press  </p>	<p>Infusion begins</p>







# 11.4 Lesson 4: Bolus Epidural Delivery in Milliliters (mL) with a Four-Hour Limit














**Example:**

M.D. orders 2 mL of drug every 30 minutes as needed. M.D. requests the patient receive no more than 12 mL in any four-hour period. The pharmacy provides a 24-hour supply (100 mL bolus).

**To Get Ready:**

1. Refer to *Section 2* to set up the Abbott Pain Management Provider.
2. Clear any previously stored program. See *Section 4.5, C a Program*.
3. Connect the remote bolus cord.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	EPIDURAL MODE is :
1 CONT      3 BOTH 2 BOLUS ONLY	Press 	Bolus delivery is select
SELECT ML ONLY YES OR NO	Press 	Milliliters is selected.
LOADING DOSE? YES OR NO	Press 	No loading dose is pre
SET BOLUS DOSE 0.0 ML	Press   Press 	Bolus dose of 2.0 mL is selected.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>BOLUS LOCKOUT 0 MINUTES</p>	<p>Press  </p> <p>Press </p>	<p>30 minutes before doses is selected</p>
<p>4 HOUR LIMIT? YES OR NO</p>	<p>Press </p>	<p>4HOUR LIMIT</p>
<p>SET 4 HOUR LIMIT 0.0 ML</p>	<p>Press  </p> <p>Press </p>	<p>12.0 mL, the amount patient in four hours,</p>
<p>TOTAL AMOUNT 0.0 ML</p>	<p>Press   </p> <p>Press </p>	<p>100.0 mL, the amount in the medication selected.</p>
<p>HIGH SENSITIVITY AIR ALARM ON</p>		<p>The high sensitivity air-in-line alarm</p>
<p>SAVING PROGRAM</p>		<p>Programming is saved. Begin infusion</p>
<p>PRESS RUN/STOP TO INFUSE</p>	<p>Press  </p>	<p>Infusion begins.</p>

## 11.5 Lesson 5: Continuous PCA Delivery in Milliliters (mL) with a PCA Dose







**Example:**














M.D. orders PCA doses of 5 mL every 30 minutes as needed.

The pharmacy provides a 100 mL medication container.

**To Get Ready:**

1. Refer to *Section 2* to set up the Abbott Pain Management Provider.
2. Clear any previously stored program. See *Section 4.5, CI Program*.
3. Connect remote bolus cord.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	Display advances to I MODE screen.
PCA MODE YES OR NO	Press 	PCA MODE is selected
1 CONT      3 BOTH 2 PCA ONLY	Press 	Continuous delivery a PCA mode are selected
SELECT MG/ML YES OR NO	Press 	Display advances to $\mu$ screen.
SELECT UG/ML YES OR NO	Press 	Display advances to m screen.
SELECT ML ONLY YES OR NO	Press 	Milliliters (mL) is selected

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>SET RATE 0.0 ML/H</p>	<p>Press </p> <p>Press </p>	<p>Delivery rate per hour is selected.</p>
<p>LOADING DOSE? YES OR NO</p>	<p>Press </p>	<p>No loading dose selected.</p>
<p>SET PCA DOSE 0.0 ML</p>	<p>Press </p> <p>Press </p>	<p>5.0 mL, the amount of PCA dose, is selected.</p>
<p>PCA LOCKOUT 0 MINUTES</p>	<p>Press  </p> <p>Press </p>	<p>30 minutes between doses is selected.</p>
<p>4 HOUR LIMIT? YES OR NO</p>	<p>Press </p>	<p>4 HOUR LIMIT selected.</p>
<p>TOTAL AMOUNT 0.0 ML</p>	<p>Press   </p> <p>Press </p>	<p>100.0 mL, the total amount of medication being selected.</p>

WHAT YOU SEE	WHAT YOU DO	COMMENTS
--------------	-------------	----------

HIGH SENSITIVITY  
AIR ALARM ON

The high sensitivity  
air-in-line alarm is o

SAVING PROGRAM

Programming is save  
Begin infusion when

PRESS RUN/STOP  
TO INFUSE

Press



Infusion begins.

## 11.6 Lesson 6: Continuous PCA Delivery in Milligrams (mg) with a Load Dose Delivered Immediately







### Example:

M.D. orders 10 mg/H of drug, with loading dose of 5 mg delivered immediately.









Pharmacy provides a 100 mL medication bag, with a cc 5 mg/mL.

### To Get Ready:





1. Refer to *Section 2* to set up the Abbott Pain Manag Provider.
2. Clear any previously stored program. See *Section 4 Program*.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
EPIDURAL MODE YES OR NO	Press 	Display advance MODE screen.
PCA MODE YES OR NO	Press 	PCA MODE is st
1 CONT      3 BOTH 2 PCA ONLY	Press 	Continuous deli selected.
SELECT MG/ML YES OR NO	Press 	Mg/mL is select measure.
CONCENTRATION 0.0 MG/ML	Press   Press 	5.0 mg/mL, the concentration, is





WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>SET RATE 0.0 MG/H</p>	<p>Press  </p> <p>Press </p>	<p>Rate of 10.0 mg/H is selected.</p>
<p>LOADING DOSE? YES OR NO</p>	<p>Press </p>	<p>Loading dose is selected.</p>
<p>SET LOAD DOSE 0.0 MG</p>	<p>Press </p> <p>Press </p>	<p>Loading dose of 5.0 mg is selected.</p>
<p>DEL. LOAD DOSE? YES OR NO</p>	<p>Press </p>	<p>Immediate loading dose delivery is selected.</p>
<p>SAVING PROGRAM</p>		<p>Program is saved.</p>
<p>TO INFUSE, PRESS 'LOADING DOSE'</p>	<p>Press </p>	<p>Loading dose is infused.</p>
<p>0.0 MG</p>		<p>Loading dose amount incremented while infusing.</p>
<p>DEL. LOAD DOSE 0.0 MG</p>		<p>Display screen shows dose delivered.</p>

WHAT YOU SEE	WHAT YOU DO	COMMENTS
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<p>TOTAL AMOUNT 0.0 MG</p>	<p>Press   </p> <p>Press </p>	<p>500.0 mg, the of medication selected.</p>
--------------------------------	---	--

<p>HIGH SENSITIVITY AIR ALARM ON</p>		<p>High sensitivit alarm is on.</p>
--	--	---

<p>SAVING PROGRAM</p>		<p>Program is sav infusion when</p>
-----------------------	--	---

<p>PRESS RUN/STOP TO INFUSE</p>	<p>Press  </p>	<p>Infusion begins</p>
-------------------------------------	---	------------------------

# 11.7 Lesson 7: PCA ONLY Delivery in Milligrams (mg) with a Delayed Loading Dose







**Example:**

M.D. orders 2 mg of drug every 30 minutes as needed. M.D. orders an 8 mg loading dose.




The pharmacy provides a 5 mg/mL concentration. The medication container is 100 mL.

**To Get Ready:**

1. Refer to *Section 2* to set up the Abbott Pain Management Provider.
2. Clear any previously stored program. See *Section 4.5, Clear Program*.
3. Connect remote bolus cord.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<div style="border: 1px solid black; padding: 5px; text-align: center;">           EPIDURAL MODE YES OR NO         </div>	Press 	Display advances to I MODE screen.
<div style="border: 1px solid black; padding: 5px; text-align: center;">           PCA MODE YES OR NO         </div>	Press 	PCA MODE is selected.
<div style="border: 1px solid black; padding: 5px;">           1 CONT      3 BOTH 2 PCA ONLY         </div>	Press 	PCA only is selected.
<div style="border: 1px solid black; padding: 5px; text-align: center;">           SELECT MG/ML YES OR NO         </div>	Press 	Mg is selected as unit measure.
<div style="border: 1px solid black; padding: 5px; text-align: center;">           CONCENTRATION 0.0 MG/ML         </div>	Press   Press 	5.0 mg/mL, the drug concentration, is selected.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
LOADING DOSE? YES OR NO	Press <input type="button" value="YES"/>	Loading dose i
SET LOAD DOSE 0.0 MG	Press <input type="button" value="8"/>  Press <input type="button" value="ENTER"/>	Loading dose o selected.
DEL. LOAD DOSE? YES OR NO	Press <input type="button" value="NO"/>	Loading dose d delayed until pi is complete.
SET PCA DOSE 0.0 MG	Press <input type="button" value="2"/>  Press <input type="button" value="ENTER"/>	PCA dose of 2.0 selected.
PCA LOCKOUT 0 MINUTES	Press <input type="button" value="3"/> <input type="button" value="0"/>  Press <input type="button" value="ENTER"/>	30 minutes, the time between dc selected.
4 HOUR LIMIT? YES OR NO	Press <input type="button" value="NO"/>	4HOUR LIMIT is
TOTAL AMOUNT 0.0 MG	Press <input type="button" value="5"/> <input type="button" value="0"/> <input type="button" value="0"/>  Press <input type="button" value="ENTER"/>	500.0 mg, the to of medication av selected.


WHAT YOU SEE	WHAT YOU DO	COMMENTS
HIGH SENSITIVITY AIR ALARM ON		High sensitivity air-i alarm is on.
SAVING PROGRAM		Programming is save
PRESS RUN/STOP TO INFUSE	Press 	Infusion begins.
DEL. LOAD DOSE? YES OR NO	Press 	Loading dose is deliv
TO INFUSE, PRESS 'LOADING DOSE'	Press 	Infusion begins.  <b>Note:</b> Patient Bolus, delayed one lockout i following a loading d
DEL. LOAD DOSE 0.0 MG		Amount infused is di  Run display screen a) and infusion begins.

# 11.8 Lesson 8: Locking and Unlocking the Keypad



## To Get Ready:

1. Refer to *Section 2* to set up the Abbott Pain Manager Provider.
2. Complete programming.

To lock the keypad, proceed as follows:

WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press  three times	Press DOWN A keystroke per :
PRESS RUN/STOP KEYPAD LOCKED		When locking i the pump beep KEYPAD LOCK
TOTAL 1.0 ML     --* RATE 0.0 ML/H		Two hyphens a display screen. two hyphens re rotating icon (— the pump is loc  Only these cont when the keypa  RUN/STOP HISTORY SILENCE ON/OFF BOLUS PRINT

To unlock the keypad, proceed as follows:

WHAT YOU SEE	WHAT YOU DO	COMMENTS
<p>PRESS RUN/STOP TO INFUSE</p>	<p>Press </p>	<p>Press UP ARROW on keystroke per second</p>
	<p>Press  two times</p>	
<p>PRESS RUN/STOP KEYPAD UNLOCKED</p>		<p>When unlock is comp the pump beeps three Pump returns to stop In run mode, the two hyphens disappear fr display screen.</p>






## 11.9 Lesson 9: Changing the Sensitivity Level of the Air-In-Line Alarm

### Example:

The default sensitivity setting of the air-in-line alarm is Disconnecting the power, turning the pump off, or entering program resets the air-in-line alarm sensitivity to high. After changing the air-in-line alarm sensitivity to low after programming, the pump displays a low sensitivity alarm before beginning the infusion.

### To Get Ready:

1. Refer to *Section 2* to set up the Abbott Pain Management Provider.
2. Complete programming.
3. Install primed tubing with cartridge.

WHAT YOU SEE	WHAT YOU DO	COMMENTS
PRESS RUN/STOP TO INFUSE	Press   Press 	Pump must be to change alarm the air-in-line a sensitivity displ
LESS SENSITIVE ALARM? YES OR NO	Press 	Low sensitivity alarm is selected
LOW SENSITIVITY AIR ALARM ON		Pump displays a alarm sensitivity
LESS SENSITIVE ALARM? YES OR NO	Press 	Air-in-line alarm
TURN OFF AIR ALARM? YES OR NO	Press 	Alarm is silenced mode only).



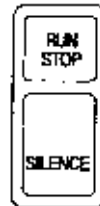
WHAT YOU SEE	WHAT YOU DO	COMMENTS
--------------	-------------	----------

AIR ALARM OFF

Pump displays air-in alarm sensitivity cha

PRESS RUN/STOP TO INFUSE

Press



Infusion begins.

**Note:** To return air-in alarm sensitivity to h pump must be in sto Press ENTER. Press Follow YES/NO prom

If alarm is silenced, air-in-line alarm sens defaults to high after power has been disc

**Note:** To reduce the infusing air, use an air-eliminating filter 1 air-in-line alarm is si

# 12

## **Limited Warranty**

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## 12.1 Limited Warranty

Subject to the terms and conditions herein, Abbott Laboratories, herein referred to as Abbott, warrants that the product conforms to Abbott's standard specifications and be free from defects in material and workmanship under normal use and service for a period of one year after purchase. Abbott makes no other warranties, express or implied, as to merchantability, fitness for a particular purpose, or any other matter.

Purchaser's exclusive remedy shall be, at Abbott's option, repair or replacement of the product. In no event shall Abbott be liable for consequential or incidental damages arising out of any cause whatsoever (whether such cause be contract, negligence, strict liability, other tort or otherwise), including the price of such product, and in no event shall Abbott be liable for incidental, consequential, or special damages or losses of business, revenues, or profits. Warranty product return must be properly packaged and sent freight prepaid.

The foregoing warranty shall be void in the event the product has been misused, damaged, altered, or used other than in accordance with product manuals so as, in Abbott's judgment, to affect the stability or reliability, or in the event the serial number has been altered, effaced, or removed.

The foregoing warranty shall also be void in the event a person, including the Purchaser, performs or attempts to perform repair or other service on the product without having been authorized by an authorized representative of Abbott and using Abbott documentation and approved spare parts. For purposes of the preceding sentence, "major repair or other service" means repair or service other than the replacement of accessory items such as batteries, flow detectors, detachable AC power cords, or pendants.

In providing any parts for repair or service of the product, Abbott shall have no responsibility or liability for the actions of the person performing such repair or service, regardless of whether such person has been trained to perform such repair or service, unless such person has been understood and acknowledged that any person other than an authorized representative performing repair or service is not an authorized representative of Abbott.

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### WARNING

**POSSIBLE EXPLOSION HAZARD EXISTS IF USED IN THE PRESENCE OF FLAMMABLE ANESTHETICS.**

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IEC 601-1 Symbols:

Class II:



Type CF:



Splash Proof:

**IPX4**

**Note:** Splash proof label requires use of lockbox or carrying case.

Attention, Consult Accompanying Documents:



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